CONTENTS

GENERAL GEOLOGY

20170689 Wang Zhiyuan(Key Laboratory for Virtual Geographic Environment, Ministry of Education, State Key Laboratory of Geographical Environment Evolution, Jiangsu Provincial Cultivation Base, School of Geography Science, Nanjing Normal University, Nanjing 210023, China); Liu Jian **Divergent Sensitivity of Earth System Model CESM 1.0 to Solar Radiation Versus Greenhouse Gases** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 758－767, 6 illus., 2 tables, 56 refs.)

Key words: radiation, greenhouse gases, sensitivity, Earth

In this study, the Community Earth System Model (CESM 1.0) is used to do historical climate modeling for the past 2 000 years. Three 2000－year simulations have been completed, namely the all forcing experiment, the solar radiation sensitivity experiment and the greenhouse gas sensitivity experiment. Based on the three experiments, the authors examined the sensitivity of CESM to solar radiation versus greenhouse gases preliminary.

20170690 Xu Yuchen (Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China); Wang Shijie **Petrology, Mineralogy and Shock Metamorphism of the Chelyabinsk Meteorite** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1581－1590, 8 illus., 3 tables, 21 refs., with English abstract)

Key words: meteorites, mineralogy, shock

20170691 Zhang Liuyi (Key Laboratory of Active Tectonics and Volcano, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Li Ni **The Research Status of Olivine Trace Elements In－Situ Analysis and Perspectives of Its Application** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1877－1890, 5 illus., 1 table, 107 refs.)

Key words: olivine, minor elements

With the development of high－precision electron microprobe and Laser－ICP－MS in－situ analyses, the measurement of low concentration trace elements in olivine is nicely accessible. The trace elements in olivine are used as a new geochemical indicator of mantle partition melting, mantle metasomatism and magma fractionation in recent years. A series of pioneering research papers is released continually to refer to Ni, Co, Al, Cr, Zn, Ti, Li, V, Sc, Mn, Ca and P in olivine. At present, the authors summarize the latest achievements in this area and try to introduce the latest research progress and developing tendency of the issues.

20170692 Zhao Zhe (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Zhou Ping **Spectra Simulation of Lunar Regolith Based on the Hapke Radiative Transfer Model** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 266－278, 7 illus., 7 tables, 45 refs.)

Key words: lunar soils, spectra

Due to so few of landing site on the moon, the ground truth data of lunar soil is scarce, which limits the further study of the lunar science. Thus to carry out spectral simulation of lunar regolith is almost the only feasible way to research the spectral mechanism of lunar regolith and improve the reliability of composition inversion of lunar regolith, which also is essential and beneficial supplement to the measured spectra of lunar regolith. The authors selected plagioclase, clinopyroxene, orthopyroxene, olivine, metallic iron, ilmenite, volcanic glass and agglutinate acquired from RELAB spectral library as mineral end－members, and simulated spectra of LSCC lu-

nar regolith based on Hapke radiative transfer model, using Newton interpolation and least square optimization method.

20170693 Zhu Yongchao (Key Laboratory of Lunar and Deep Space Exploration, National Astronomical Observatories, Chinese Academy of Sciences, Beijing 100012, China); Zheng Yongchun **Cold Spots and Warm Regions on the Lunar Surface: Analysis of Brightness Temperatures Data from Chang'e-2 Microwave Observation** (Acta Mineralogica Sinica, ISSN1000-4734, CN52-1045/P, 36(2), 2016, p. 231-240, 10 illus., 5 tables, 23 refs.)

Key words: Moon

Using CE-2 Microwave Radiometer Data, the authors produced 12 lunar surface TB maps of a diurnal cycle with each local time ranging ~2 hours. There are two types of remarkable features on the TB maps, one of which is "hot regions" during lunar daytime and the other is nighttime "cold spots". Compared with their surroundings, the "hot regions" are much warmer during lunar daytime and slightly colder during the lunar nighttime, while the "cold spots" are much colder during the lunar nighttime and slightly warmer during the daytime. The "hot regions" have a good agreement with the Maria with extremely high TiO_2 abundance and TB in the lunar Maria highly correlates with their TiO_2 abundance. Most of the "cold spots" correspond with the very young craters and TB of the "cold spots" has a significant negative correlation with the lunar surface nighttime temperatures and rock abundances.

OCEANOGRAPHY & MARINE GEOLOGY

20170694 Chen Sen (Key Laboratory of Marginal Sea Geology, South China Sea Institute of Oenology, CAS, Guangzhou 510301, China); Yan Pin **Inversion of the Physical Properties of the Seabed Using Chirp Sub-Bottom Data in Mud Volcanoes Field of the Southwest of Dongsha Islands** (Earth Science, ISSN1000-2383, CN42-1233/P, 41(3), 2016, p. 425-432, 7 illus., 1 table, 28 refs.)

Key words: marine geophysical exploration, Dongsha Islands

Mud volcanoes are imaged from Chirp sub-bottom profiles across the southwest of Dongsha Islands. In order to quantify the physical properties of the seabed, this paper studies the inversion of the Chirp sub-bottom data. The results of the inversion show that the physical properties vary greatly with the maximum velocity of 5 237 m/s and density of 2.673 g/cm^3. The Chirp data-based physical properties highly coincide with the laboratory measurements for sampled sediments, thus provides a remote acoustic method for estimating the physical properties of the seabed.

20170695 Deng Kai (School of Ocean and Earth Science, Tongji University, Shanghai 200092, China); Yang Shouye **Detrital Heavy Mineral Assemblages in the River Sediments from Taiwan and Its Implications for Sediment Provenance** (Acta Sedimentologica Sinica, ISSN1000-0550, CN62-1038/P, 34(3), 2016, p. 531-542, 5 illus., 3 tables, 49 refs.)

Key words: heavy minerals, provenance analysis, Taiwan Province

Heavy mineral types and contents of eight sediment samples from the Zhuoshui River (ZS1~ZS5) and the Lanyang River (LY1~LY3) in Taiwan are analyzed in whole size fraction. Twenty kinds of heavy minerals are identified. The weight percentage of heavy minerals varies from 0.039% to 0.116% in the Zhuoshui River, and from 0.004% to 0.040% in the Lanyang River. On the whole, the weight percentage declines from upstream

返回目录

to downstream. There is an irregular spatial distribution of heavy mineral assemblages along both rivers.

20170696 Huang Wei (Key Laboratory of Marine Hydrocarbon Resources and Environmental Geology, Ministry of Land and Resources, Qingdao Institute of Marine Geology, Qingdao 266071, China); Tao Chunhui **Osmium Isotopic Compositions and Osmium Distribution in the Mid－Ocean Ridge Hydrothermal System** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 441－451, 2 illus., 54 refs.)

Key words: mid－ocean ridges, thermal evolution, isotopes

The hydrothermal fluids occur along the mid－ocean ridges are capable of transporting a great amount Os from deep interior of the earth where it is relatively enriched to the ocean floor, this process plays a significant role in the global cycling of Os. The Os data from the sediment－free mid－ocean ridge systems indicated that there is a nearly complete Os isotope exchange between the interacting seawater and the oceanic crust during the hydrothermal circulation, the behavior of Os appears to be controlled by the relative proportions of seawater and crustal composition in the different tectonic areas.

20170697 Huang Wei (Key Laboratory of Marine Hydrocarbon Resources and Environmental Geology, Ministry of Land and Resources, Qingdao Institute of Marine Geology, Qingdao 266071, China); Tao Chunhui **Osmium Isotopic Compositions and Osmium Distribution in the Mid－Ocean Ridge Hydrothermai System** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 441－451, 3 illus., 56 refs.)

Key words: hydrothermal deposit, mid－ocean ridges, isotopes

The hydrothermal fluids occur along the mid－ocean ridges are capable of transporting a great amount Os from deep interior of the earth where it is relatively enriched to the ocean floor, this process plays a significant role in the global cycling of Os. The geochemical behavior of Os during the various stages of the hydrothermal circulation, its distribution and evolution features and source contributions are estimated basing on the chemical speciation, concentrations and isotopic compositions of Os in the sources for the hydrothermal systems and the hydrothermal deposits.

20170698 Lan Xianhong (Key Laboratory of Marine Hydrocarbon Resource and Environmental Geology, Ministry of Land and Resources, Qingdao 266071, China); Li Rihui **Distribution Characteristics of Rare Earth Elements in Surface Sediment and Their Provenance Discrimination in the Eastern Bohai and Northern Yellow Seas** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 463－474, 9 illus., 3 tables, 52 refs.)

Key words: rare earths, geochemistry, Bohai Sea, Yellow Sea

Rare earth elements (REE) were analyzed by ICP－MS analysis in 138 surface sediments samples collected from in the eastern Bohai and northern Yellow Sea, China. The results indicated that the REE UCC normalization distribution pattern in surface sediments in the eastern Bohai and northern Yellow Sea was similar to that in Chinese loess, and also those of coastal rivers including the Yalu River, the Yellow River and other rivers, indicating that the sediments in study area were mainly derived from the mainland substance.

20170699 Lan Yefang (Institute of Mining Engineering, Guizhou University of Engineering Science, Bijie 551700, China); Huang Sijing **Genesis of Negative Carbon and Oxygen Isotopic Composition of Carbonate Rocks in Lower Miocene Zhujiang Formation, Pearl River Mouth Basin** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 915－

928, 10 illus., 2 tables, 27 refs.)

Key words: carbonate rocks, Zhujiangkou Basin

Based on detailed petrographic observation, cathode luminescence (CL) analysis and carbon and oxygen isotopic analysis, the authors studied the carbon and oxygen isotopic compositions and diagenesis of carbonate rocks in Lower Miocene Zhujiang Formation, Pearl River Mouth Basin. The results show that: 1) $\delta^{13}C$(PDB) values of whole rock carbonate samples of Zhujiang Formation are mainly distributed between -2‰ ~ 2‰, 2) samples abundant equant and blocky calcite cements from Liuhua area are with significant more negative $\delta^{13}C$(PDB) as low as -7.2‰. 3) diagenetic sequence analysis reveals that equate and blocky calcite cements are precipitated in middle—deep environments.

20170700 Lin Tian (State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Guo Zhigang **Study on Hurial Fluxes and Burial Rates of Polycyclic Aromatic Hydrocarbons in Sediments from the East China Sea Area** (Geochimica, ISSN0379—1726, CN44—1398/P, 45(4), 2016, p. 419—424, 1 illus., 3 tables, 18 refs.)

Key words: sediments, polycyclic aromatic hydrocarbons, China Seas

Sediments often serve as a major sink for polycyclic aromatic hydrocarbons (PAHs). This study measured the concentrations and fluxes of PAHs in sediment cores in the East China Sea area (including the Bohai Sea, the Yellow Sea and the East China Sea). Differences in the PAH concentrations and sediment dry density were small among the collected marine sediment samples on a larger spatial scale. The results showed that the deposition rate was an important factor for burial flux.

20170701 Liu Siqing (Key Laboratory of Marginal Sea Geology, South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou 510301, China); Zhang Cuimei **Characteristics and Significances of the Geological Boundary SB21 in the Zhujiang Formation of the Liwan Sag, Pearl River Mouth Basin** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(3), 2016, p. 475—486, 10 illus., 25 refs.)

Key words: marine geology, Zhujiangkou Basin

Liwan Sag is an ultra deep water sag in the southernmost of the Pearl River Mouth Basin (PRMB), whose structural characteristics and sedimentary process is the important part of passive margin evolution. Using seismic stratigraphy, structures and sedimentation analysis were carried out on high—resolution 2D/3D seismic data in the Liwan Sag of the PRMB. A significant geological boundary with obvious characteristics in the Zhujiang Formation could be identified and traced—SB21. Above the sequence boundary, four types of deposition were identified: the denudation zone in the north, the sediment passing zone in the central—north, the superimposition zone of sediment waves over gulliesin the central—south, the sediment accumulation zone in the South. It's suggested that the various depositional pattern has a close relationship with the tectonic movement—Baiyun Movement—which happened in 23.8 Ma.

20170702 Lu Lu (College of Earth Science, University of Chinese Academy of Sciences, Beijing 100049, China); Yan Lilong **Oceanic Plateau and Its Significances on the Earth System: A Review** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1851—1876, 10 illus., 1 table, 335 refs.)

Key words: submarine plateau, Earth system

Based on a careful literature review, this paper firstly gives a comprehensive introduction on oceanic plateaux from the aspects of global distribution, basic characteristics (i.e., output size, formation time, rock composition, structure and geochemistry), genetic

mechanism, and main discriminants that can be used to help the identification of oceanic plateaux in the geological record. Then the authors will analyze and discuss the main geodynamic implications of oceanic plateaux and the potential influences on the earth surface system. The main geodynamic implications of oceanic plateau mainly involve five aspects, specifically including resisting subduction of oceanic plate, bringing about subduction retreat and flip, plateau accretion and continental growth, creating flat subduction of oceanic plate and continent marginal uplift, and causing the initiation of plate tectonic regime. The influences on the earth surface system largely include four aspects: bringing about global sea-level rise, causing global warming and the greenhouse effect, creating oceanic anoxia and black shale deposits, and inducing mass extinction and rapid alteration.

20170703 Zhou Le (State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai 200062, China); Chen Shenliang **Sediment Distribution and Its Controlling Mechanism in the Littoral Zone of Sigengsha, Hainan, China** (Acta Sedimentologica Sinica, ISSN1000-0550, CN62-1038/P, 34(3), 2016, p. 506-515, 8 illus., 2 tables, 37 refs.)

Key words: sediments, Hainan Province

Sigensha littoral zone is located in the west of Hainan Island, the second largest island of China, extending from the Changhua River delta on the north to the Beili Bay on the south. This zone shows diverse sediment sources, complicated hydrodynamics and variable morphology, where special coastal evolution process is closely connected with its sedimentary environment. The distribution of grain size parameters in the study area was then acquired by Kriging interpolation.

20170704 Zhu Kechao (Guangzhou Marine Geological Survey, Guangzhou 510075, China); Ren Jiangbo **Geochemical Characteristics and Chemical Classification of REY-Rich Pelagic Sediments from the Central Pacific Ocean** (Acta Geoscientica Sinica, ISSN1006-3021, CN11-3474/P, 37(3), 2016, p. 287-293, 5 illus., 1 table, 23 refs.)

Key words: sediments, Pacific Ocean

REE resource preserved in deep sea sediments is a kind of latent REE resource. Major element and rare earth element analysis of 1 275 pelagic sediment samples from 30 piston cores in the central Pacific was conducted in this study. The REY enrichment of pelagic sediments from the central Pacific is mainly caused by excessive apatite components with fish teeth bone debris shape mixed in the pelagic sediments, and the admixture of the calcareous biologic and siliceous components have the dilute effect on the content of REY of the pelagic sediments.

20170705 Zong Xian (Key Laboratory of Coast and Island Development, Ministry of Education, Key Laboratory of Coast and Island Development of Jiangsu Province, Nanjing University, Nanjing 210023, China); Shi Xuefa **Sedimentation Rate and Implications of Sediment Grain Size of Japan Sea during the Last Hundred Years** (Acta Sedimentologica Sinica, ISSN1000-0550, CN62-1038/P, 34(3), 2016, p. 516-522, 6 illus., 32 refs.)

Key words: sedimentation rates, sedimentary environment, Japan Sea

Both of the ^{210}Pb and sediment grain size in four deep-water multicore sediments which are located in the middle, north and west of Japan Sea are analyzed. The result shows that the sediments mainly consist of silt and clayey silt in the Yamato Ridge, northern part and western slope of Japan Sea over the last 100 years. There is a significant biological disturbance phenomenon of surface sediments in Yamato Ridge and the northern part of the Japan Sea, which does not exist in the western slope.

STRUCTURAL GEOLOGY

20170706 Bai Daoyuan (Hunan Institute of Geological Survey, Changsha 410116, China); Zhong Xiang **Activity History and Tectonic Attribute of Xupu—Jingzhou Fault in Xuefeng Orogenic Belt** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(3), 2016, p. 306—317, 7 illus., 64 refs.)

Key words: upthrust, strike—slip faults, orogenic belts, South China

The Xupu—Jingzhou fault with NNE—to NE—nearly EW—trending stirkes and SE—dipping direction is an important fault in Xuefeng orogenic belt with long—term activity. The evolutionary history and structural attribute of Xupu—Jingzhou fault through fault—related sedimentation, deformation and magmatism were studied. The results show that the fault experienced several tectonic movements, which are Nanhuan Period extension, Late Silurian Caledonian thrusting, Late Paleozoic extension, Late Middle Triassic Indosinian thrusting, left—lateral slipping thrusting during Late Triassic—Middle Jurassic, Late Middle Jurassic Early Yanshanian thrusting, Cretaceous extension and Paleogene dextral strike—slipping from early to late. The block in the west side of Xupu—Jingzhou fault is stronger or with inflexible coupling between different layers.

20170707 Cao Huijing (Key Lab. of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Cui Xiaofeng **Estimating the Magnitude of Tectonic Stress Based on the Friction Criteria of Fault and Analysing the Parameters' Influence** (Seismology and Geology, ISSN0253—4967, CN11—2192/P, 38(2), 2016, p. 386—396, 5 illus., 23 refs.)

Key words: faults, friction coefficient, stress

Based on Zoback's method for estimating the tectonic stress magnitude and the two assumptions, the authors consider the conditions that three principal stresses are vertical principal stresses respectively (corresponding to three kinds of tectonic stress types). The authors deduced the formulae for estimating the tectonic stress magnitude by using the stress form factor and frictional strength of the fault and discussed the correlative influence of friction coefficient, pore pressure parameter and stress form factor on the stress value.

20170708 Cao Zhengqi (School of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Zhai Wenjian **About 2.5 Ga Tectono—Metamorphic Events in Southern Margin of North China Craton and Its Significance** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(4), 2016, p. 570—585, 10 illus., 3 tables, 68 refs.)

Key words: structural geology, craton, North China

Linshan Group, located in the southern margin of the central orogenic belt of the North China Craton, is a Precambrian basement. It is important to study the collision era of the central orogenic belt and the distribution of the southern margin of the North China Craton. A study was carried out on the metabasite (plagioclase—amphibole schist) of the Linshan Group for the purpose of constraining the collisional time of the central orogenic belt and its distribution through the zircon U—Pb dating and rock geochemical methods. The results obtained show that most of zircon grains from plagioclase—amphibole schist are long columnar, euhedral to subhedral and show typical core—rim structure with irregular shape, weak zoning, taxitic zoning and sector zoning structure.

20170709 Chao Huixia (School of Earth Science and Resources, Chang'an University,

返回目录

Xi'an 710054, China); Han Xiaohui **New Exploration of Geotectonic Characteristics of Hainan Island** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 200－211, 9 illus., 1 table, 23 refs.)

Key words: tectonics, Hainan Province

Today there are such understandings as geosyncline－platform theory, diwa theory, island－arc theory and plate tectonics theory for Hainan Island tectonics. All views, including mobilism of plate tectonics, are established on the basis of fixism of vertical movement, which believe that strata and rocks, especially granite was formed in situ, and accordingly established the multi stage and multi cycle of tectonic cycles or a geosyncline, platform and platform activation (or diwa) stage of development and evolution history, which embodies the mutual transformation of the activity and stability of the progressive process.

20170710 Chen Bin (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Li Yong **The Provenance and Tectonic Setting of Late Triassic Xujiahe Formation in the Longmenshan Foreland Basin, Southwest China** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(5), 2016, p. 857－872, 7 illus., 6 tables, 51 refs.)

Key words: fold belts, foreland basins, geochemistry, Yangtze Plate

The recent WFSD project displays the lower strata of the Xujiahe Formation in the west of Beichuan－Yinxiu fault, providing new evidence for the early evolution process of the Longmenshan foreland basin.. Through the comparative analysis of potential provenance of the lower Xujiahe Formation, the authors suggest that the Norian Xujiahe Formation had the dual provenance character of foreland basin, with provenance mainly from the Songpan Ganzi fold belt and minor from the western Yangtze Craton.

20170711 Chen Longbo (Key Laboratory of Marine Reservoir Evolution and Hydrocarbon Accumulation Mechanism, Ministry of Education, China University of Geosciences, Beijing 100083, China); He Dengfa **The Geometry, Kinematics of Tongnanba Anticline and Its Structural Model** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 384－401, 11 illus., 1 table, 48 refs.)

Key words: decollement, tectonic zones, Sichuan Basin

To discuss the geometry and kinematics of Tongnanba structure is of great value to reveal the origin of the anticline and to future guild oil－gas prospecting. Based on high－quality 3D seismic profile covering most of the anticline, the authors depict its structural geometric and kinematic feature by employing fault－related－ fold theory and balanced restoration, and then present the structural model and discuss the origin of the anticline. The study shows that the general feature of Tongnanba structure is: 3 segments, 4 structural layers and 1 structural superposition.

20170712 Deng Yu (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Liu Chiyang **The Activity and Post－Reformation of Cenozoic Tan－Lu Fault in Laizhou Bay Area** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1197－1205, 7 illus., 78 refs.)

Key words: sedimentary evolution, Cenozoic, Tancheng－Lujiang Fault Zone

Based on the latest seismic data, drilling cores and other geological data, this paper reveals the fact that Tan－Lu Fault in Laizhou Bay area are composed by eastern and western branch faults, both of which contain two main faults and other sub fault with faults block between the faults. The gap between the two major faults of the branch fault zones varies from place to place, with average distance of 5

km. Differences also exist in the structures and spatial distribution features of the major faults, with the western branch showing the asymmetric "two fault basin with a bulge in between", the eastern branch showing "flower structure". After the integrated research of the palaeo—geologic tectonic recovery and the staging dynamic tectonic evolution analysis, the authors identified the activity features and affection of reformation in different units of the research area by two branch faults during Cenozoic, summarizes the Tan—Lu Fault's structure properties and evolution in Cenozoic.

20170713 Dong Peiyu (Institute of Seismology, China Earthquake Administration, Wuhan 430071, China); Hu Caibo **Numerical Simulation of Long—Term Deformation of Tibetan Plateau and Surrounding Area** (Seismology and Geology, ISSN0253—4967, CN11—2192/P, 38(2), 2016, p. 410—422, 7 illus., 4 tables, 30 refs.)

Key words: ground deformation, finite element methods, numerical simulation, Qinghai—Tibetan Plateau

The subduction of the Indian Plate underneath Eurasian Plate results not only in deformation and movement of the elastic upper crust, but also flow of the ductile lower crust in the high temperature and high pressure which drags the brittle upper crust to move at the same time. These two actions work together producing the present movement and deformation field in Tibetan Plateau. In this paper, the authors established a two—dimension plain elastic finite element model, with the equivalent—body force approach to simulate the drag force.

20170714 He Dengfa (China University of Geosciences, Beijing 100083, China) **Present State, Scientific Key Points, and Prospection of Study on Sedimentary Basin Geodynamics** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(2), 2016, p. 309—328, 2 illus., 1 table, 108 refs.)

Key words: plate tectonics, metallogenic dynamics

At present, it meets great challenges at integrated and comprehensive analysis on different —sequential, —scale, and —mechanisms, establishment and test on full 3D and 4D basin dynamic models, as well as the full combination between research communities and industrial groups. Based upon integration and analyses of big data, multi—subjects interaction, and progresses in surveying techniques and analyzing methods, sedimentary basin dynamics is to make critical breakthroughs on 4D integrated basin models on the basin structures and tectonics, formation and evolution, and its controlling effect on mineralization and hydrocarbon pool—formation, and give its contribution for advances in human society and economic development.

20170715 He Dengfa (China University of Geosciences, Beijing 100083, China); Guan Shuwei **Formation and Evolution of Later Paleozoic—Middle Triassic Passive Continental Margin Basin in the North Part of Upper Yangtze Craton** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(2), 2016, p. 329—353, 16 illus., 73 refs.)

Key words: structural evolution, craton, China

Late Paleozoic—Middle Triassic sedimentary basin in the north part of Upper Yangtze Carton is a passive continental margin basin that developed in the south side of Mian—Lue Ocean. This basin transited from carbonate ramp and platform to Mian—Lue Ocean at the background of stable subsidence from Devonian to Middle Permian, and was characterized by the formation of structural framework with alternative depressions and upheavals affected by Emei Tafrogeny at the end of Middle Permian. In Early—Middle Triassic, sedimentary formation transited gradually from open carbonate platform environment to semi—restricted platform phase, semi—enclosed bay

gypsum salt lake facies, terrestrial clastic rock with coal bearing formation for tectonic regime transferring from extensional to compressional.

20170716 Hu Yang (School of Earth Sciences and Technology, China University of Petroleum(East China), Qingdao 266580, China); Wu Zhiping **Cenozoic Characteristics and Transformation Mechanism of Fault System in Zhu－1 Depression, South China** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 494－509, 11 illus., 34 refs.)

Key words: fractures, Zhujiangkou Basin

Based on static characterization and dynamic analysis of the Cenozoic fault system characteristics in Zhu－1 depression, this paper analyzed spatio－temporal difference of fault system by using abundant 3D seismic data, and then discussed its transformation mechanism. The results showed that the difference and transformation of fault system were controlled by different regional dynamic backgrounds and lithospheric difference extension mechanisms. The characteristics of current fault system reflects the superimposed effect of multistage tectonism, and the identification of temporal and spatial differences of faults could be used as an important guideline for the oil and gas exploration in Zhu－1 depression.

20170717 Huang Guangming (Land Ocean Energy Services Co., Beijing 100094, China); Wang Yuejun **Numerical Simulation of Structural Styles and Evolution of the Daba Shan Foreland Thrust Belt** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(4), 2016, p. 653－668, 9 illus., 3 tables, 43 refs.)

Key words: upthrust, decollement, Daba Mountains

The Daba Shan region with its unique tectonic setting and rich petroleum resources is attracting people's interest to conduct much in－depth research. Based on the finite difference method and the elasticplastic constitutive model with two－dimensional plane strain, this study carried out a series of numerical simulations for the Daba Shan foreland and thrust belt. The results show that the foreland area has the relatively weak detachment in the Lower－Middle Triassic which includes gypsum and salt, which led to the main decollement surface transferring from the lower stratum in hinterland into the higher stratum in foreland.

20170718 Huang Hanyu (China University of Geosciences, Beijing 100083, China); He Dengfa **The Prototype and Its Evolution of the Southwestern Sichuan Basin in Tertiary** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 354－383, 19 illus., 62 refs.)

Key words: structural evolution, Tertiary, Sichuan Basin

In this paper, from the viewpoint of basin－mountain combination, the authors reconstructed the structure－paleogeographic pattern, analyzed the sedimentation－filling characteristics and restored sedimentary facies belt distribution characteristics in different periods on the basis of seismic, drilling, outcrops and various geological data. Obviously controlled by the tectonic load derived from the adjacent orogenic thrust and preexistent tectonic blocks in the basin basement, the sedimentary region limited to the southwestern, southern of Sichuan Basin and mainly composed of fluvial and lacustrine facies sedimentary environment with the process of continuous compressing, sediment filling, and trend to shrink and ultimately disappears in Late Tertiary.

20170719 Huang Peng (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Song Chuanzhong **Analysis on Deformation of Major Rock－Forming Minerals in Xiaotian－Mozitan Ductile Shear Zone, Dabie Orogen**

(Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 849－869, 14 illus., 1 table, 93 refs.)

Key words: ductile shear zones, Dabie Mountains

The Xiaotian－Mozitan ductile shear zone overprinted on the North Dabie gneiss, which is subhorizontally sinistral on kinematics. The ultralmylonite, mylonite, protomylonite, deformed gneiss (schist), surrounding rocks crop out in sequence from the center to the periphery generally. Different minerals have their own characteristics in the above measurements: mica in different samples shown the largest strain followed by quartz, feldspar, and amphibole; with the tectonite changed, the most obvious variation trend on strain was mica, quartz followed, amphibole and feldspar are inconspicuous.

20170720 Huang Peng (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Song Chuanzhong **Tectonic Property of the Beihuaiyang Tectonic Belt and its Implications for the Location of the Suture Zone between Yangtze Block and North China Block** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(6), 2016, p. 1112－1129, 9 illus., 3 tables, 87 refs.)

Key words: tectonic zones, tectonic deformation

Based on comprehensive analysis of pre－Mesozoic lithostratigraphical units in Beihuaiyang using structural geology, petrology, geochemistry and isotopic chronology, the following understanding has been acquired. The Beihuaiyang tectonic belt is a compound tectonic belt resulting from subduction and collision between Yangtze Block and North China Block. It serves as the fore－arc wedge sedimentary bodies that distributes along the southern margin of North China Block and is the eastward extending of Taohuapu fore－arc wedge sedimentary bodies. The Foziling Group connects westward with the Xinyang Group.

20170721 Jiang Laili (Geological Survey of Anhui Province, Hefei 230001, China); Hu Zhaoqi **Late Mesozoic Multi－Stage Structural Deformations Feature in the Adjacent Region among Anhui, Zhejiang, and Jiangxi Provinces** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 137－147, 8 illus., 43 refs.)

Key words: tectonic deformation, South China

Five periods of structural deformations in the Late Mesozoic era have been identified by systematic field investigation and structural analyses. The multi－stage deformations are associated with the latest collision of the North China and the South China plates and with the different directional subduction of the Pacific Plate towards the Euro－Asian Plate at different stages, and even with the eastward remote extrusion effect of the collision between Indian Plate and Euro－Asian Plate.

20170722 Li Jingchang (Petroleum Exploration and Production Research Institute, SINOPEC, Beijing 100083, China); Zhang Zhili **Unconformity Mechanisms between the Middle and Upper Ordovician in Tazhong Uplift** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 510－520, 5 illus., 20 refs.)

Key words: unconformities, Tarim Basin

It is the most important unconformity among the numerous unconformities may causing Karst reservoir in Tarim Basin that was developed between the Middle and Upper Ordovician. Based on the structural characteristics of the unconformity in Tazhong uplift, the origin mechanisms of the unconformity are analyzed. Studies show that crustal－scale folding controls the development of the unconformity between the Middle and Upper Ordovician during Qiaerbake deposition period, and the unconformity distribution is controlled by anticline zone.

返回目录

20170723 Lin Wei (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Ji Wenbin **Structural Analysis of the Tongcheng HP—UHP Metamorphic Belt in the Northeastern Dabieshan and Its Constraint on the Tan—Lu Fault Zone** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 950—964, 7 illus., 134 refs.)

Key words: ultrahigh pressure metamorphic rocks, tectonic deformation, Tancheng—Lujiang Fault Zone, Dabie Mountains

According to detailed work of petrology and structural geology, the Tongcheng HP—UHP (high—pressure and ultrahigh—pressure) metamorphic belt in the southern segment of the Tan—Lu Fault Zone can be divided into three litho—tectonic units: upper low—temperature HP unit, middle medium—temperature HP unit and lower UHP unit upper. Structural analysis indicates that the Tongcheng massif has experienced polyphase deformation (D_1—D_5). These results suggest that the Tongcheng area experienced a complex tectonic history, which is difficult to explain by the model that the Tan—Lu fault dislocated the southern Dabieshan UHP metamorphic rocks to the northeast, and also does not support that there is robust evidence of huge strike—slip movement in the Tongcheng area.

20170724 Liu Chao (Academy of Earth Science and Technology, China University of Petroleum, Qingdao 266580, China); Li Wei **Development Characteristics of the Cenozoic Fault System and Basin Evolution of Bonan Area in Bohai Sea** (Geological Journal of China Universities, ISSN1006—7493, CN32—1440/P, 22(2), 2016, p. 317—326, 9 illus., 35 refs.)

Key words: structural evolution, Tancheng—Lujiang Fault Zone, Bohai Sea

Abundant 3D seismic data were used, combined with the characteristics of seismic profile and time slices, the fault development and basin structure of Bonan area were researched. Furthermore, characteristics of the fault system and the structural evolution were delineated. The Cenozoic Tan—Lu fault in Bonan area was divided to eastern, middle and western branches. These branches interact with the EW—trending, NW—trending and NE—trending were associated with the strike—slip movement of the Tan—Lu fault, leading to the formation of the grid structural pattern in Bonan area due to changing stress field. Therefore, changes in the relative importance between extension and strike—slip occurred in Bonan area. The Cenozoic structural evolution can be classified into three evolutionary stages, i. e., left lateral slip with strong extension, right lateral slip with strong extension and weak slip and weak extension.

20170725 Liu Huan (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Lin Shoufa **The Structural Formation Mechanism of L Tectonite in Tongbai Mountain and Its Constraints on the Orogenic Evolution** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(6), 2016, p. 1098—1111, 10 illus., 2 tables, 70 refs.)

Key words: orogenic belts, Tongbai Mountains

Within the Tongbai complex contains a typical rock unit called L tectonites, which is tectonically located within the core of the Tongbai orogenic belt and bounded by two symmetrical ductile shear zones (sinistral zone in the north and dextral zone in the south). By the study of structural mechanism and deformation conditions of L tectonite, and along with previous research results of other main tectonic units in the Tongbai Mountain, it can be suggested that the formation process of L tectonite in Tongbai was mainly controlled by the two ductile shear zones in the north and south sides of the Tongbai complex.

20170726 Lu Renqi (Institute of Geology, China Earthquake Administration, Beijing 100029, China); Liu Bo **The Study of Fractures and the Characteristics of Hubei Structural Belts, Tarim Basin** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 460－469, 9 illus., 23 refs.)

Key words: faults, tectonic zones, Tarim Basin

The Yubei structural belts in Tarim Basin were occurring during the Mid－Late Caledonian movement. The major faults were thrusting and forming fault propagation folds. Most of these thrusts were not cut the unconformity layers between the Carboniferous and the Ordovician. The carbonate reservoirs of the Ordovician were developing the fault－related fractures and fold－accommodation fractures. These fractures were distributed at the kink bands and the fault propagation deformation areas. During the Late Hercynian movement, the Yubei thrusts were re－active and forming the trishear. The fault slipping was limited and the fractures only appeared in the trishear deformation areas.

20170727 Meng Yuanku (Qingdao Institute of Marine Geology, China Geological Survey, Qingdao 266071, China); Xu Zhiqin **The $^{40}Ar/^{39}Ar$ Geochronological Constraints on the Xaitongmoin Quxu Ductile Shear Zone in the Gangdese Batholith, Southern Tibet** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 795－806, 6 illus., 1 table, 32 refs.)

Key words: ductile shear zones, Gangdese

In this paper, the authors focus on the geochronology of the shear zone to provide new and accurate constraints on formation of the Xaitongmoin－Quxu shear zone. The analyzed grains should be over 99% for the purity. The two samples were irradiated for over 24 hours in the nuclear reactor at the Chinese Institute of Atomic Energy in Beijing and then cooled for about 3 months. Mica $^{40}A/^{39}Ar$ step heating analysis was conducted by mean of an MM 1200B mass spectrometer at the key laboratory of isotopic geology of CAGS. The measured isotopic ratios were adjusted or corrected for mass discrimination atmospheric argon, blanks and irradiation induced mass interference.

20170728 Qin Xiaoli (School of Earth Science and Resources, Chang'an University, Xi'an, 710054, China); Li Rongxi **Tectonic Fluid and Its Formation Conditions of Dabashan Intra－Continent Orogenic Belt** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 183－189, 9 illus., 37 refs.)

Key words: orogenic belts, Daba Mountains

Three periods of calcite veins (V1, V2 and V3) related to pre－tectonics, syn－tectonics and post－tectonics respectively were identified in the Dabashan foreland. The formation environment conditions and source of fluid represented by V3 veins and developed within fractures under stretching environment were studied based on field survey and measurement of the occurrence of V3 veins together with the statistic and geometric features and wall rock mechanical properties of V3 veins, as well as the analysis of paleostress and isotope geochemistry of V3 veins. It is indicated that V3 veins are trending mainly in NE－SW with steep dip almost upright.

20170729 Ren Jishun (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Li Chong **Cathaysia Old Land and Relevant Problems: Pre－Devonian Tectonics of Southern China** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(4), 2016, p. 607－614, 5 illus., 29 refs.)

Key words: tectonics, South China

Several decades of geological investigations and specific research in southern China have greatly deepened the understanding of the Pre－Devonian tectonics of Southern China as follows: 1) in southeast China, the metamorphic rocks, overlain unconformably by

the Devonian sediments, host graptolites, trilobites and Brachiopoda, suggesting the rocks are Neoproterozoic to Early Paleozoic in age, and the metamorphic rocks in the Wuyi－Yunkai area, such as the Chencai and Dikou complexes with metamorphic ages of 460～440 Ma, are proved to be the products of the Caledonian orogeny rather than of the pre－Sinian orogeny; 2) during the pre－Devonian, Southern China was divided into three tectonic units: the South China Sea platform (Indochina－South China Sea platform), the South China orogen and the Yangtze paraplatform; and 3) the latest isotopic dating indicates that the Shuangqiaoshan, Sibao and Lengjiaxi groups are the Neoproterozoic metamorphic rocks rather than the Mesoproterozoic ones: that is to say, they resulted not from the Greville orogeny (820 Ma).

20170730 Shan Shuaiqiang (Key Laboratory of Marine Reservoir Evolution and Hydrocarbon Accumulation Mechanism, Ministry of Education, China University of Geosciences, Beijing 100083, China); He Dengfa **Tectono－Stratigraphic Sequence and Basin Evolution of Baoding Sag in the Western Bohai Bay Basin** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 402－414, 8 illus., 14 refs.)

Key words: depressions, Bohai Bay

Baoding sag is located in the west of the Jizhong depression in the Bohai Bay Basin, separated with Taihang Mountains uplift by the Taihang Mountains piedmont fault. The tectono－stratigraphic sequences are eonstrained by the regional unconformities, and the tectonic evolution of the study area is discussed based on the balanced section technique. Two regional unconformities including the bottom of the Paleogene Kongdian Formation and the bottom of the Neogene Guantao Formation are revealed, according to which three structural layers are recognized basement structural layer, rift structural layer, and depression structural layer. The tectonic evolution of the Baoding sag experienced basement formation period, Paleogene rift period, Late Oligocene inversion period and Neogene－Quaternary depression period.

20170731 Shen Qihan (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Geng Yuansheng **Constituents and Evolution of the Metamorphic Basement of the North China Craton** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(4), 2016, p. 387－406, 10 illus., 115 refs.)

Key words: craton, North China

Precambrian metamorphic basement of North China Craton (NCC) is composed of five sets of different types of metamorphic rocks. In the formation process, the NCC experienced multiple tectonic activities, multiple magma emplacements, multiple metamorphism, different degrees of migmatization and anatexis. The rocks suffered multiple superpositions of different geological processes and, therefore, the NCC has a complicated evolution history.

20170732 Shen Tingting (Key Laboratory of Orogenic Belts and Crustal Evolution, MOE, Peking University, Beijing 100871, China); Zhang Lifei **Based on the Latest Seismic Data, Drilling Cores and Other Geological Data, This Paper Reveals the Fact that Tan－Lu Fault in Metamorphism of Subduction Zone Serpentinite** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1206－1218, 9 illus., 96 refs., with English abstract)

Key words: subduction zones, serpentinite, metamorphism

20170733 Sun Qiushi (Shenyang Geological Survey Center, Shenyang 100034, China); Fang Shi **The Application of Zircon Fission Track to the Study of the Uplifting Process in the Mohe Basin** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 807－813, 6 illus., 1 table, 18

refs.)

Key words: uplifts, fission－track dating, Heilongjiang River

By analyzing 32 zircon fission track samples from Mohe Basin, the authors have found that the maximum fission track age is (143.9 ±18.7) Ma, the minimum age is (58±12.1) Ma, and the peak ages are 92～98 Ma and 132～138 Ma. The authors hold the opinion that Mohe Basin experienced two strong uplift processes at 95 Ma and 135 Ma, based on considering the basin fault system and geotectonic background. The authors hold that Mohe Basin was in a SN－ trending compression environment from the Late Jurassic (135 Ma), and was in an extensional environment during Middle Cretaceous. Then the basin was in a SN－trending compression environment once again in the Late Cretaceous, leading to another strong uplift.

20170734 Sun Xiaomeng (Collage of Earth Sciences, Jilin University, Changchun 130061, China); Zhang Xuqing **Two Important Cretaceous Deformation Events of the Dunhua－Mishan Fault Zone** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1114－1128, 6 illus., 1 table, 188 refs.)

Key words: strike－slip faults, Ar－Ar dating, Cretaceous, Tancheng－Lujiang Fault Zone

This paper reports on the $^{40}Ar/^{39}Ar$ biotite age of the mylonites, the geometric and kinematic characteristics and formingage of large－scale strike－slip thrust faults in the Dunhua－Mishan Fault Zone, to reveal the tectonic attribute of two important deformation events in the fault zone. The $^{40}Ar/^{39}Ar$ weighted average age of biotite from the granitic mylonite in the Mishan City of Heilongjiang Province is (132.2 ±1.2) Ma, which yields the cooling age of the extension event and it is the product of Cretaceous Hauterivian－Albian intensive regional extension in the continental margin of Northeast Asia. A series of large－scale strike－slip thrust faults and fault－related folds in the Mishan City to Qingyuan County of Liaoning Province indicate that the age of dextral strike－slip thrust event is in the late－end stage of Late Cretaceous. This large－scale event has a wide influence scope, which leads to an intensive reformation in the whole fault zone and forms a ramp type fault system.

20170735 Tang Jiafu (No. 327 Geological Team, Bureau of Geology and Mineral Resources of Anhui Province, Hefei 230011, China); Dai Shengqian **Composition and Tectonic Evolution of Precambrian Basement in South China and Their Control in Diagenesis and Mineralization** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 109－128, 4 illus., 4 tables, 96 refs.)

Key words: orogenic belts, South China

Based on the comprehensive analysis of the regional geological data, combining with the new geo－age data, this paper divides the basement rock series into three classes and five layers. The paper summarizes the new tectonic framework in the Meso－Cenozoic, especially for south China caused by the Yanshan movement, explains widespread and direction of the distribution of volcanic－magmatic activity, age migration, lithologic zonality and regularity of intrusion. Obviously it is not associated with the "East Asian multi－direction convergence" and the westward subduction of the Pacific Plate.

20170736 Tang Jiafu (No. 327 Geological Team, Bureau of Geology and Mineral Resources of Anhui Province, Hefei 230011, China); Hou Mingjin **Re－Understanding of Some Important Basic Geological Issues about Dabieshan and Its Adjacent Regions, China: A Further Study on the Nonplate－Collision Orogenic Process of the Dabie Orogen Belt** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 1－21, 13 illus., 80

refs.)

Key words: structural geology, Dabie Mountains

Some important basic geological issues about Dabieshan and its adjacent regions have been expounded in detail in this paper. The characteristics and forming mechanism of the stretching and growth lineation in Dabieshan and its adjacent regions have been described in detail, and this paper suggests that it was formed in extensional detachment—slip shear process within the lithosphere and different layers of crust caused by "mantle differential circulation". The Dabie Orogen Belt has undergone multi—stage tectonic movements, including cracking into a basin, extensional detachment, compressive squeezing and thermal uplift to form mountains, which was not formed by plate—collision orogenesis.

20170737 Wang Chao (Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China); Wang Shifeng **Zircon U—Pb Age and Lu—Hf Ratios of the Indochina Constraint the Basement Block** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(2), 2016, p. 576—593, 5 illus., 2 tables, 33 refs.)

Key words: granite, U—Pb age, Laos

Nature of the Indochina blocks is not only important to Tethys study but also important to the Cenozoic deformation style of the Tibetan Plateau. There is little knowledge from the North Laos which locates inner of the Indochina. This study shows most of the granites in North Laos are related to the closure of the Tethys, a few related to Caledonian orogeny. TDMc ages of zircon Lu—Hf in North Laos cluster around 1.8～1.6 Ga, other ages cluster around 1.4～1.2 Ga. The zircon U—Pb and TDM C age peaks in North Laos are similar to the ages got in other areas of Indochina block, indicating the same basement in the Indochina block. The age peaks are also similar to that of the Changdu—Simao peaks, indicating the possibility of the same basement of the Indochina—Simao untied block if the Dien Bien Phu belt between the blocks is not ophiolite suites. The united block should be the same basement with the Yangtze Block in Rodinia era due to the same age peaks around 4.0～3.5 Ga, 2.0～1.8 Ga and 1.4～1.2 Ga.

20170738 Wang Shifeng (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Jiang Wan **Geomorphic Evidence for Recent Right—Lateral Shear of Karakorum Fault along Indus—Yalu Suture Zone of Tibet** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(4), 2016, p. 483—493, 7 illus., 1 table, 49 refs.)

Key words: strike—slip faults, fractures, Kalakunlun Mountains

The existence active slip along Karakorum fault (KKF) in the east of Pulan graben is debated. The results show that the evidence of recent deformation is characterized by offset streams, fault scarps, sag ponds, and shutter ridges; streams show a consistent right—lateral deflection; offsets vary from as little as tens of meters to as much as (11±1)km, and basement rocks also show the same sense of offset with (7±1)km; a region of transgression at Mayoumu Pass is interpreted to have absorbed 4 km of right—lateral displacement along the KKF, and about 7 km offset is transferred to Darong—Qiongguo Basin and possibly as far east as Lopugangri Range.

20170739 Wang Ting (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Niu Manlan **The Dabie Orogenic Belt (DOB) was Formed by Continent—Continent Collision between the North China Block (NCB) and Geochemistry and Petrogenesis of Early Cretaceous Adakitic Volcanic Rocks from Chuzhou Basin, Eastern Tan—Lu Fault Belt** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1013—1030, 12 illus., 3 tables, 92 refs.)

Key words: volcanic rocks, Lower Cretaceous, Tancheng—Lujiang Fault Zone

The features of LA—ICP—MS zircon U—Pb dating for three samples yields that they are similar to adakites from the LYRB belt, but different from adakites from the STLF, indicating relatively high oxygen fugacity and low temperatures for their magmas. These data suggest that the high—Mg adakitic rocks from Chuzhou were formed by melts produced by partial melting of the thickened Yangtze LCC in the garnet and rutile stability field, subsequently mixing with high oxygen fugacity and hydrous magmas resulting from partial melting of an enriched mantle, which had been modified by fluids/melts released from subducted of the Paleo—Pacific Plate.

20170740 Wang Yongsheng (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Yang Bingfei **A Discussion on Influence Factors of Quartz C—Axis Fabrics: An Example from Mylonite in the Tan—Lu Fault Zone** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 965—975, 5 illus., 1 table, 42 refs.)

Key words: quartz, fabric, Tancheng—Lujiang Fault Zone

Quartz is one of the most common minerals in the Earth's crust and therefore understanding its deformational behavior is important. Quartz c—axis fabrics measurement in deformed rocks is a common procedure introduced into classical structural analysis, such as obtaining shear sense, estimating deformation temperature, calculating the kinematic vorticity, and so on. However, influenced by mineral composition, earlier structure, fluid—rich condition, there are multi—styles of quartz c—axis fabric in one sample. If above—mentioned influence factors existed in one deformation event, what is the quartz c—axis fabrics pattern of the mylonites and should the quartz c—axis fabrics be used to obtaining shear sense? For answering the question, this paper choose a ultra—mylonite experienced multi—stage deformation and deformed in fluid—rich condition to take quartz c—axis fabrics analysis by SEM—Based EBSD system on 6 regions of one same thin—section.

20170741 Wu Zhenhan (Chinese Academy of Geological Sciences, Beijing 100037, China); Liu Zhiwei **Thrust and Uplift of the Lung'erni—Angdarco Paleo—Oil Reservoirs in the Qiangtang Basin** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(4), 2016, p. 615—627, 8 illus., 19 refs.)

Key words: nappe structure, uplifts, Qinghai—Tibetan Plateau

Regional thrust systems have been discovered along the Lung'erni—Angdarco belt of paleo—oil reservoirs in the southern Qiangtang Basin. Field observation indicates that many thrust sheets and nappes of Jurassic limestone and dolomite occur in the transition zone between the paleo—oil reservoir belt in the south of Central Qiangtang Uplift and the oil seepage zone in the north of Central Qiangtang Uplift. The explanation for the deep seismic reflection profile further suggests that the Triassic and Jurassic marine hydrocarbon source rocks in the northern Qiangtang Basin thrust southward over the central Qiangtang Uplift to form the Middle Jurassic oil—bearing dolomite and paleo—oil reservoirs in the Beileico and Luxungco Lakes, southern Qiangtang Basin.

20170742 Xu Liqing (Key Lab. of Submarine Geosciences and Prospecting Techniques, Ministry of Education, Qingdao 266100, China); Li Sanzhong **Impaction of the Tan—Lu Fault Zone on Uplift of the Luxi Rise: Constraints from Apatite Fission Track Thermochronology** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1153—1170, 12 illus., 2 tables, 113 refs.)

Key words: tectonic deformation, fission—track dating, Tancheng—Lujiang Fault Zone

On the basis of the previous studies, 25

Apatite Fission Track (AFT) samples were collected from the Yi Mt. profile, Culai Mt. profile and Meng Mt. profile, respectively. Combined the new AFT data with some published AFT data, this paper determines the onset time, spatial distribution and pattern of the Cenozoic uplift and exhumation, and discusses the impaction of TLFZ on the Cenozoic uplift and exhumation. The main conclusions are as follows: 1) the Luxi Rise underwent mainly two- stage rapid extension-related uplifts in Eocene- Early Oligocene and since Miocene; 2) episodic uplifting in the Eocene-Early Oligocene is controlled by NW-trending fault in the southwestern Luxi with eastward and northward tilting-related uplift and exhumation, and is controlled by NE-trending fault in the northeastern Luxi with westward and northward tilting-related uplift and exhumation; and 3) the AFT model shows episodic uplifting with a faster erosion rate, following small denudation during Paleogene and a steady uplifting with a slower erosion rate but larger denudation since the Miocene.

20170743 Xu Xianbing (School of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Tang Shuai **Two Kinds of Shear Senses and Tectonic Implication of the Jingdezhen Ductile Shear Zone, Northern Jiangxi Province** (Geological Journal of China Universities, ISSN1006-7493, CN32-1440/P, 22(2), 2016, p. 308-316, 5 illus., 1 table, 70 refs.)

Key words: ductile shear zones, South China

The Jingdezhen ductile shear zone is located at the core of the Neoproterozoic Jiangnan Orogen. Structural features and geochronology of the Jingdezhen ductile shear zone have a key implication for the Neoproterozoic to Early Paleozoic tectonic evolution of the South China Block. Combined with the previous work, the sinistral strike-slip with thrusting of the Jingdezhen ductile shear zone took place at late stage of the Neoproterozoic orogen in the South China Block (810~800 Ma), as a result of transformation from syn-orogeny compression to post-orogeny extension.

20170744 Yang Geng (Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Zhao Mengjun **Geometric Evidence for Several Synchronous Thrust Faulting Activities of the Thrust Belt in the Southern Margin of Junngar, North Tianshan Mountains** (Acta Geologica Sinica, ISSN0001-5717, CN11-1951/P, 90(4), 2016, p. 639-652, 6 illus., 73 refs.)

Key words: upthrust, Jiangsu Province

The Tianshan Mountains is characteristic of typical intra-continent activities and hosts one thrusting zone in the southern margin of Junggar Basin. The thrusting zone presents mainly as several rows of anticline and thrust fault which are parallel to trending of the maintains. Field investigation and mapping show that one thrust fault was developed within the core of the Manasi and Tugu anticlines and one thrust fault in the north wing of the anticline, both of which resulted in the formation of stream terrace deformation and fault escarpment.

20170745 Yang Keji (State Key Laboratory of Petroleum Resource and Prospecting, Department of Geology, China University of Petroleum, Beijing 102249, China); Qi Jiafu **The Inversion Structures within Liaozhong Depression and Its Responds to the Strike-Slip Activities of Tan-Lu Fault Zone** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(4), 2016, p. 1182-1196, 11 illus., 148 refs., with English abstract)

Key words: inversion tectonics, subduction, Tancheng-Lujiang Fault Zone

20170746 Yang Xingke (Key Laboratory of Western Mineral Resources and Geological Engineering of Ministry of Education, Chang'an University, Xi'an 710054, China); Han Ke **The Structural Deformation and Tectonic Evolution of Intra-Continental Orogeny in**

South Qinling Orogen: Structural Deformation Analysis of the Northern Part of Shiquan—Hanyin Belt in the Late Indosinian — Yanshanian Period (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 72—80, 5 illus., 2 tables, 19 refs.)

Key words: orogenic belts, Qinling Mountains

Intra—continental orogeny has recorded a complex geological process. The research area, Ann Kang Shiquan—Hanyin—Xunyang belt, belongs to South Qinling orogen, and lies on the convergence parts of South Qinling intra—continental compound orogen and the northern Yangtze Plate. And there develops the Early Paleozoic deformed metamorphic rock sheets of the Silurian system, which mainly is overthrust structure and multi—level ductile slip overthrust rock sheet. There widely produces new multi—stage foliations that can be classified into 3 stages since the Indosinian period; the foliation replacement shows distinctly, and S2 foliations replacing S1 foliations appears dominantly in the covering stratum area.

20170747 Yang Zhihua (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Chao Huixia **Element Evolution of the Planet Earth and the Relative Movement of the Earth in Terior: Rediscuss on the New Global Geodynamic Theory about the Development and Evolution of Tectonics in China** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 166—182, 9 illus., 1 table, 67 refs.)

Key words: tectonics, China

On the basis of mass—energy interchange in the Theory of Relativity, time—space bending, relative speed (twin effect), worm's hole principle, some strange principles and the uncertain principle of quantum mechanics, as well as multiple historical thought, this paper has expounded the fact in an all—round way about the essential feature and development of Qinling Mountains and the geotectonics of China. From the multiple historical thought and uncertain principle, the paper expounds the development stage, evolution as well as the randomness and probability for the production of events, composition and structures.

20170748 Yang Zhihua (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Chao Huixia **The Structural Characteristics of Qinling Intra—Continental Orogenic Belt and Its Choula Tectonic Orogenic Model** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 63—71, 3 illus., 31 refs.)

Key words: orogenic belts, Qinling Mountains

Qinling orogenic belt is a famous orogenic belt in central China, and it is also a typical intracontinental orogenic belt of continental tectonics. This type of orogenic belt did not undergo subduction of ocean crust to form such orogenic belt with main suture zone. It is not the collision orogenic belt that formed by the interaction between North China Plate and Yangtze Plate, and also not so—called composite orogenic belt. According to the composition, structural characteristics of different depth, cross—bridge structure, structural style in the transformation of basin and mountain, the structural characteristics of Shangxian—Danfeng tectonic zone and Mianxian—Lueyang tectonic zone as well as the distinct north—south direction structures in the central orogenic system (Qinling), the non—plate features of these characteristics are discussed. On the basis of above discussion, the thrust—Choula (or Choula) tectonic model for the formation of Qinling intra—continental orogenic belt is built.

20170749 Ye Xiaozhou (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Sun Zhiming **New Paleomagnetic Result of Early Triassic Rocks from the Longmenshan Belt and Its Tectonic Implications** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(6), 2016, p. 971—978, 7 illus., 2 tables, 30

返回目录

refs.)

Key words: tectonic zones, Sichuan Basin

This paper reports new Early Triassic paleomagnetic results from Jiange County (32.2° N, 105.3° E) in the Longmenshan belt. Based on the stepwise thermal demagnetization of limestone and argillaceous limestone specimens from 9 sampling sites, the authors revealed a characteristic remnant magnetism (ChRM). A comparison with the Early Triassic poles from the Sichuan Basin shows that insignificant post-Early Triassic motion may have occurred between the Longmenshan belt and the Sichuan Basin. It is thus considered that the Sichuan Basin has not experienced whole-scale vertical axis rotation since the Early Triassic.

20170750 Yu Dingjie (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Wang Yongsheng **Geochemical Features of Granites from Two Sides of the Southern Segment of the Tan-Lu Fault Zone: Evidence for Middle-Lower Crust Flow of the Dabie Orogenic Belt** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(4), 2016, p. 1001-1012, 6 illus., 2 tables, 92 refs.)

Key words: geochemistry, Tancheng-Lujiang Fault Zone, Dabie Mountains

the South China Block (SCB). Crust thinning occurred in the DOB during the post-orogenic period, and the possible mechanismis lithospheric delamination or middle-lower crust flow. To examine whether middle-lower crust flow happened or not in the DOB, the authors compared geochemical features of granites from two sides of the southern segment of the Tan-Lu Fault Zone, such as granites in the DOB and Hongzhen pluton, Yueshan pluton and Xuqiao pluton in the Lower Yangtze region east side of the DOB. If geochemical features of granites in the Hongzhen area are the same as those in the DOB, a conclusion should be drawn that the middle-lower crust of the DOB flow towards SE. Because the thicken middle-lower crust of the DOB traversed the Tan-Lu Fault Zone, post-orogenic large-scale sinistral movement along the Tan-Lu Fault Zone should happen before middle-lower crust flow in the DOB.

20170751 Zha Xianfeng (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Gu Pingyang **Geological Record of Tectono-Thermal Event at Early Paleozoic and Its Tectonic Setting in West Segment of the North Qaidam** (Earth Science, ISSN1000-2383, CN42-1233/P, 41(4), 2016, p. 586-604, 12 illus., 5 tables, 46 refs.)

Key words: structural geology, zircon, U-Pb dating, Qaidam Basin

A study was carried out on material composition, deformation and metamorphism of the banded migmatitic gneiss, biotite plagioclase gneiss, two-mica plagioclase quartz schist sampled from the DRG, and the gneissic quartz diorite that intruded the DRG. The zircons from DRG samples yield nearly unanimous two peak age of about 460 Ma and peak age of about 430 Ma by LA-ICP-MS zircon U-Pb isotopic analyses. Combined with the regional tectonic processes, the authors maintain that the age of about 460 Ma is the geological response to the tectono-magmatism caused by ultradeep continental subduction in the North Qaidam.

20170752 Zhai Mingjian (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Zhu Guang **Analysis on Neotectonic Activity of the Yilan-Yitong Fault** (Chinese Journal of Geology, ISSN0563-5020, CN11-1937/P, 51(2), 2016, p. 594-618, 9 illus., 2 tables, 66 refs.)

Key words: Tancheng-Lujiang Fault Zone, China

Neotectonic activity and history of the Yilan-Yitong fault, a main branch of the northern segment of the Tan-Lu Fault Zone

remain controversial. The detailed field investigation demonstrates that active faults are widely present in the Yilan－Yitong fault. The field observation and 4C dating, in combination with previous dating results and earthquake distribution, suggest that the most recent periods of activity on the western active fault show alternation of Holocene and Late Pleistocene whereas those on the eastern active fault are dominated by Early－Middle Pleistocene.

20170753 Zhang Kuihua (School of Geosciences, China University of Petroleum, Exploration and Development, Shengli Oilfield Company, Qingdao 266555, China); Xue Yan **Cenozoic Basin Structural Differences of Jiyang Depression and Its Formation Mechanism** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 561－575, 7 illus., 36 refs.)

Key words: tectonic zones, Jiyang Depression

In order to investigate the basin structure spatial－temporal differences of Jiyang depression and its dynamical mechanism, the present basin structure and its Cenozoic structural evolution process were analysed in detail by use of fault activity analysis, balance profile restoration and stretching rate statistics. The results show that the differences inner and between the sags were mainly controlled by the different development of pre－existing NW faults and the main fractures in different evolution stages. Otherwise, controlled by the subduction direction changes between Pacific－oceanic Plate, Indian Plate and Eurasian Plate, the movement of Tan－Lu Fault Zone changed from left－lateral strike slip to right－lateral strike slip.

20170754 Zhao Zhigang (Research Institute, CNOOC, Beijing 100028, China); Wang Peng **Regional Background and Tectonic Evolution of East China Sea Basin** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 546－554, 6 illus., 34 refs.)

Key words: structural evolution, East China Sea

The East China Sea Basin that located in the front of the West Pacific subduction zone, is formed upon the Huanan Craton basement. The main sediment filling are from Late Cretaceous to Cenozoic. The East China Sea Basin developed on the thinned continental margin crust, is a back－arc rift basin caused by rifting and stretching that induced by ocean subduction, which is the part of the "trench arc－basin" system in the West Pacific. The tectonic evolution was controlled by the uplift in the outer continental shelf that formed in the Late Cretaceous. The uplift is the complex of the continental margin uplift and accretionary wedge that disintegrated into Diaoyu Island fold belt and Ryukyu uplift after Miocene.

20170755 Zheng Xiaoli (School of Earth Sciences, Zhejiang University, Hangzhou 310027, China); He Guangyu **Structural Characteristics and Geometric Models of the Yasongdi Fault Belt, the Bachu Uplift** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 255－264, 10 illus., 22 refs.)

Key words: fracture zones, uplifts, Tarim Basin

In this study, based on the analysis of seismic sections the authors identified three－stage development of thrust and fold structures and built up the geometric models of the Yasongdi and adjacent belts in the Bachu Uplift, Tarim Basin. Firstly, the NWW－trending Bashituo Fault was formed after the Permian but prior to the Paleogene, which slipped along the Middle Cambrian gypsum－salt layer. Then, the Selibuya Fault with a NNW strike characterized by basement－involved structures was formed in the Late Miocene. Finally, the Yasongdi Faults in the shallow and deep domains were developed during the Pleistocene to Holocene with the same NW trends.

返回目录

20170756 Zhou Jianbo (College of Earth Sciences, Jilin University, Changchun 130061, China); Han Wei **The Exhumation of the Sulu Terrane and the Forming of the Tancheng—Lujiang Fault: Evidence from Detrital Zircon U—Pb Dating of the Mesozoic Sediments of the Laiyang Basin, Central China** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1171—1181, 8 illus., 1 table, 60 refs.)

Key words: block — fault movement, Tancheng—Lujiang Fault Zone

Laiyang Basin located in the northern margin of the Sulu UHP belt. The sediments of Laiyang Group in this basin are important unit for understanding the forming mechanism of the Tancheng—Lujiang Fault and the exhumation mechanism of the Sulu Orogen. In this paper, the authors present LAICP—MS U—Pb zircon dating for both Mesozoic Laiyang and Qingshan groups that will enable to establish the provenance of the Laiyang Basin and its relationship to exhumation of the Sulu Orogen: 1) Laiyang Basin consists of both Laiyang and Qingshan groups. The formation age for the Laiyang Group is about (125±0.6) Ma, whereas the Qingshan Group is (119±1) Ma; 2) the age populations are very different between the Laiyang and Heifei basins, thus the Tancheng—Lujiang Faul was formed earlier than two basins, probably between the Late Triassic to Early Jurassic; 3) Laiyang Group consists of much detrital material with NCB affinity, which is further evidence for overthrusting of the North China Craton to the South China Craton during continental subduction.

20170757 Zhu Guang (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Wang Wei **Late Mesozoic Evolution History of the Tan—Lu Fault Zone and Its Indication to Destruction Processes of the North China Craton** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 935—949, 8 illus., 1 table, 112 refs.)

Key words: Mesozoic, structural evolution, Tancheng—Lujiang Fault Zone

Late Mesozoic evolution history of the Tan—Lu Fault Zone is important record for destruction processes of the North China Craton. The Tan—Lu Fault Zone suffered local sinistral faulting at the end of Middle Jurassic. This event, i. e. the episode A of the Yanshan Movement, was accompanied with formation of series of NNE—striking, shortening structures in the North China Craton. This event suggests initiation of the Izanagi Plate subduction. The fault zone showed no activity during Late Jurassic while the North China Craton experienced local extension and magmatism as well as regional uplifting. Weak back—arc extension should be responsible for the Late Jurassic events. The fault zone was subjected to intense, sinistral movement at the beginning of Early Cretaceous while northern and eastern parts of the North China Craton presented a series of structures produced by nearly NS compression.

20170758 Zhuo Yanqun (State Key Laboratory of Earthquake Dynamics, Institute of Geology, China Earthquake Administration, Beijing 100029, China); S. A. Bornyakov **Influences of Obliquity Angle Difference on the Evolution of Fen—Wei Rift: A Study from Segmented Transtension Clay Model** (Seismology and Geology, ISSN0253—4967, CN11—2192/P, 38(2), 2016, p. 259—272, 10 illus., 1 table, 51 refs.)

Key words: rifting, Fenwei Graben

In this study, based on the previous field studies, the authors study the fracture process of a clay layer under the segmented dextral trans—tension of the basement. The spatio-temporal evolution of the deformation field of the clay layer is quantitatively analyzed via a digital image correlation method. The experiment reproduced the main architecture of the Fen—Wei rift.

GEOPHYSICS

20170759 Chen Bin (Institute of Geophysics, China Earthquake Administration, Beijing 100081, China); Ni Zhe **The Geomagnetic Field in China and Neighboring Regions for the 2010.0 Epoch** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1446－1456, 4 illus., 1 table, 92 refs.)

Key words: geomagnetic field, China

This paper builds on the "Chinese Geomagnetic Reference Field－spherical cap harmonic model" and "Chinese Geomagnetic Reference Field－surface spline model" in the 2010.0 epoch using analysis with the spherical cap harmonic method and surface spline method. The results show that the spatial distribution of geomagnetic component described by "Chinese Geomagnetic Reference Field on 2010.0 epoch－spherical cap harmonic model" are largely similar to those by the "Chinese Geomagnetic Reference Field on 2005.0epoch－spherical cap harmonic model" except slight differences in part of the region.

20170760 Feng Yongge (Institute of Theoretical and Applied Geophysics (ITAG), School of Earth and Space Sciences, Peking University, Beijing 100871, China); Yu Yong **Upper Mantle Anisotropy Analysis around the Western Altun Tagh Fault** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1629－1636, 4 illus., 1 table, 34 refs.)

Key words: upper mantle, anisotropy, Altun Fracture Zone

The authors conducted SKS wave splitting method to analyze teleseismic data from broadband temporary seismic stations deployed by Peking University near Yutian, Xinjiang Province in China at the boundary of the Tarim Basin and Tibetan Plateau. Considering all the shear wave splitting measurements around this area, the authors postulate that the E－W fast polarization direction may be caused by the eastward escaping mantle flow of the northern Tibet beneath the left－lateral slipping Altun Tagh fault, which is prevented from moving northward by the thick lithosphere of the Tarim Basin.

20170761 Jiang Quanke (State Key Laboratory of Geo－Hazard Prevention and Geo－Environment Protection, Chengdu University of Technology, Chengdu 610059, China); Lei Wan **An Application of Prospecting Concealed Fault with Multi－Resistivity Method** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 378－384, 6 illus., 1 table, 21 refs.)

Key words: subsurface structure, resistivity methods

Exploring the position and characteristic of concealed faults in complicated geological environment is one of the important safety tasks for tunnel excavation. High density resistivity method and composite profiling method are used to prospect the concealed fault situation in vertical sections of the Lalin tunnel. Comprehensive interpretation of apparent resistivity anomaly in complicated geological conditions reveals that the particular position and dip of hidden faults prospected in the working area are reflected by beading shaped resistivity anomaly and displacement of big－small pole distance, which is proved by drilling exploration. It considers that comprehensive electrical resistivity method is a major geophysical exploration method for the exploration of concealed faults in tunnels.

20170762 Li A'wei (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Zhao Weihua **A Study of Elastic Properties of Shales from Sangye 1**

返回目录

Well in Western Hunan Province (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(3), 2016, p. 333－339, 5 illus., 4 tables, 23 refs.)

Key words: elastic waves, shale, Hunan Province

With the development of exploration and production of the shale gas, the elastic properties of shale play an important role in the "sweet spot" discrimination. Seismic velocities and anisotropies with different confining pressures are important for geophysical exploration and reservoir assessment of the shale. Taking the core from Sangye 1 well of western Hunan as the study object, the authors measured the seismic velocity with different confining pressures. The result shows that the seismic velocities of siltstone, siliceous shale, silty shale and marlstone are 4.8～5.1 km/s, 5.1～5.3 km/s, 5.2～5.5 km/s and 5.9～6.4 km/s, respectively, with the confining pressures being 5～100 MPa.

20170763 Li Qian (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Yi Liang **Rock Magnetic Properties of the Lz908 Borehole Sediments from the Southern Bohai Sea, Eastern China** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1717－1728, 7 illus., 1 table, 90 refs.)

Key words: rock magnetism, Bohai Sea, Laizhou Bay

In this study, the authors have carried out detailed rock magnetic investigations on the sediments from the Lz908 borehole sedimentary sequence of the southern Bohai Sea and the modern fluvial/marine sediments from the adjacent areas. The Lz908 core was drilled to a depth of 101.3 m below the surface. The upper 54.3 m of the core contains dominantly marine and coastal silts, sandy silts and fine－grained sands, and the lower 47.0 m consists mainly of lacustrine and fluvial silts.

20170764 Li Xushan (Geological Survey of Gansu Province, Lanzhou 730000, China); Niu Hongbin **Characteristics of Regional Gravitational Field in Gansu Province** (Gansu Geology, ISSN1004－4116, CN 62－1191/P, 25(2), 2016, p. 1－8, 1 illus., 2 tables, 12 refs.)

Key words: gravity anomaly, geophysics, Gansu Province

In this paper, the authors introduced the overview of regional gravity survey, concluded the characteristics of rock density from different regional strata: the values is increasing along with the stratigraphic age from new to old. The results are significant to the geological researches in Gansu Province and adjacent areas, and the data of metallogenic prognosis of middle and large scales.

20170765 Li Yuanjie (Key Laboratory of Computational Geodynamics, Chinese Academy of Sciences, Beijing 100049, China); Wei Dongping **Paleomagnetic Constraints on Plate Tectonic Process at South Mid－Atlantic Ridge** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1705－1716, 7 illus., 2 tables, 61 refs.)

Key words: plate movement, paleomagnetism, magnetic anomaly, Atlantic Ocean

In this paper, a systematic study on skewness of marine magnetic anomalies on both sides of the mid－oceanic ridge(31°S—34.5°S)in South Atlantic was conducted. Results showed that the spreading direction of plates isn't perpendicular to the trend of the mid－oceanic ridge, and spreading directions for different profiles are inconsistent in three studied areas, and gradually increase (from (33.6°±5.3°) to (62.8°±13°), and to (94.3°±8°) from north to south. This indicates that mechanism of the oblique spreading is complicated.

20170766 Qiang Zhengyang (Institute of Geophysics, Chinese Earthquake Administration,

返回目录

Beijing 100081, China); Wu Qingju **Crustal Anisotropy beneath Central－South Mongolia and Its Dynamic Implications** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1616－1628, 7 illus., 1 table, 29 refs., with English abstract)

Key words: crust, anisotropy, geodynamics, Mongolia

20170767 Sun Jing (College of Geosciences, China University of Petroleum, Beijing 102249, China); Xie Qingbin **Characteristics of Sub－Continental Lithospheric Mantle underneath Yakutia Area of Siberia** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 517－526, 4 illus., 33 refs.)

Key words: craton, lithosphere, mantle, peridotites, Siberia

Siberian Craton is one of the stable craton in the world. Yakutia area, which locates in the northeast of Siberian Craton, has a large number of kimberlite outcrops and is also one of the important place of diamond deposit. In this paper, the petrology, mineralogy, geochemistry and chronology characters of xenoliths from the kimberlite erupted in different episodes of Yakutia area were summarized and compared. The sub－continental lithospheric mantle underneath Yakutia area is varied from 360 Ma to 160 Ma on ages and thickness. This difference may be associated with the Siberian collisional amalgamation event in 1.9 Ga, rather than the super mantle plume around 250 Ma in the southwest.

20170768 Teng Jiwen (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Dong Xingpeng **Geodynamic Response of Material Movement and Force Source Mechanism of Various Spheres in the Earth's Interior** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(3), 2016, p. 513－538, 3 illus., 143 refs.)

Key words: earth's interior, deep geology, dynamics

The material of internal earth experienced differentiation and adjustment under the dynamic processes and deep and shallow of earth exchange materials and energy strongly, which result in the formation of mountains, basins, minerals, earthquake and volcanic hazards. According to realization of those geodynamic hypotheses, five questions are discussed as follows: 1) the material of internal earth movement and geodynamic response; 2) understanding and analysis of many geodynamic hypotheses; 3) deep geodynamic process of material movement in the interior of the earth; 4) thinking of several important scientific questions in geodynamic research; and 5) exploration of the force source of material movement in the interior of the earth and geodynamic response.

20170769 Wang Qiong (Institute of Geophysics, CEA, Beijing 100081, China); Gao Yuan **Reliability Analysis of Crustal Anisotropy from Receiver Functions and Effect of Dipping Interface** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 14－25, 6 illus., 1 table, 25 refs.)

Key words: mantle, receiver functions, anisotropy

In this paper, the authors use P receiver function to determine crustal anisotropy, and then applying the signal－to－noise test and harmonic analysis to verify the reliability of the results. Using two stations from Gansu Province, the authors discuss the influence of anisotropy and dipping interface to the receiver function. It shows that the crust beneath BYT is anisotropic, while because of dipping Moho, the crustal anisotropy beneath WYT remains to be determined. In order to better understand the effect of dipping Moho to anisotropy, the authors use program to generate synthetic seismogram and compute the receiver function, and then make anisotropy analysis from receiver function obtained. Results show that dipping Moho will not influence the

返回目录

fast direction of anisotropy, but the delay time between fast and slow waves.

20170770 Xie Hui (Earthquake Administration of Ningxia, Yinchuan 750001, China); Ma Heqing **Rayleigh Wave Tomography of Ningxia and Its Adjacent Areas Based on Ambient Noise** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 26－37, 9 illus., 1 table, 20 refs.)

Key words: Rayleigh waves, tomography, imagery, Ningxia

In this study, data from 90 seismic stations in Ningxia and its adjacent regions were used to obtain high resolution Rayleigh wave tomography. By selecting the vertical components of continuous waveform data of these stations recorded from January 2012 to December 2013, the waveform cross－correlation and stack operations were carried on each pair of these stations, and obtained the empirical Green's functions of these pairs. Then, by using software CPS (computer programs in seismology), the authors got 4 005 group velocity frequency dispersion curves of Rayleigh surface waves. Using empirical Green's functions to which SNR are greater than 10, the authors screened out 3 182 dispersion curves of the station couples. With inversion, the authors eventually got the image of Rayleigh wave group velocity distribution of the study area, whose period is between 6～50 s and resolution is 0.5 degree. Different velocity distribution images with different periods indicate that the group velocity distribution of the Rayleigh wave in the study area has a good correlation with the geological structure.

20170771 Yun Long (Key Laboratory on Geological Disposal of High－Level Radioactive Waste, Beijing Research Institute of Uranium Geology, China National Nuclear Corporation, Beijing 100029, China); Yang Xiaoping **Late Quaternary Sinistral Strike－Slip Activities of Sanwei Shan Fault in the North of Tibetan Plateau** (Seismology and Geology, ISSN0253－4967, CN11－2192/P, 38(2), 2016, p. 434－446, 7 illus., 1 table, 36 refs.)

Key words: fractures, Late Quaternary, left－lateral faults, Qinghai－Tibetan Plateau

Sanwei Shan Fault is located in the north of Tibet, which is a branch of eastern segment of Altyn Tagn fault zone. This fault is distributed along the boundary of fault facet and the Quaternary, with the total length of almost 150 km. Comparing the distribution of alluvial－pluvial fans with their formation age in the surrounding regions, and meanwhile, taking the results of optical stimulated luminescence(OSL) dating, it's considered that the formation age of the older alluvial－pluvial fans, which are distributed in northern Qilian Shan, inside of Hexi Corridor and western Hexi Corridor, is between later period of Late Quaternary and earlier period of Holocene.

SEISMIC GEOLOGY

20170772 Chen Bo (Geoscience Center, Great Wall Drilling Company, Beijing 100101, China) **The Preliminary Research on the Cluster Feature of Time－Space Distribution of Chinese Coalmine Disasters and Earthquake Activities** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 156－169, 8 illus., 1 table, 28 refs.)

Key words: earthquakes, geologic hazards, China

Recently, Chinese Geographic Name Database was published, based on which the author has located as many as 5 825 coalmines. "Replayed" by natural order, it has been found that 48.7% of coalmine disasters did not occur randomly, but tended to occur continuously within certain scopes, presenting cluster feature, some accompanied with earthquakes (with magnitude >3), in which all the disaster types are involved. In further research, with micro earthquakes introduced,

返回目录

quite a few coalmine disasters are found to be accompanied with micro earthquakes, in which earthquakes tended to occur earlier than coalmine disasters.

20170773 Chen Shizhong (Key Laboratory of Earth and Planetary Physics, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Li Xiaofan **Structure—Preserving Numerical Simulation for Earth's Free Oscillations** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(5), 2016, p. 1685—1695, 7 illus., 3 tables, 34 refs.)

Key words: Earth free oscillation, elastic waves, numerical simulation

Free oscillations of the Earth are usually as standing waves of entire globe, which can be excited by many factors such as a great earthquake. The oscillation types of this physical phenomenon depend on Earth's structure and physical parameters. Therefore, intrinsic characters of the Earth can be revealed by studying Earth's free oscillations. Numerical simulation is an effective way to research seismic waves travelling in different earth models. In essence, the numerical simulation of Earth's free oscillations is a long—term tracing of variable coefficient wave equation.

20170774 Cheng Yuanzhi (State Key Laboratory of Earthquake Dynamics, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Tang Ji **Electrical Structure of Upper Crust in the Source Region of Jinggu Yunnan M_S6.6 Earthquake and the Seismogenic Environment** (Seismology and Geology, ISSN0253—4967, CN11—2192/P, 38(2), 2016, p. 352—369, 10 illus., 64 refs.)

Key words: strong earthquakes, focus, telluric electromagnetic sounding, seismogenic tectonics, Yunnan Province

The October 7, 2014 M_S6.6 earthquake in southwest of Jinggu in the southwestern Yunnan Province occurred as the result of shallow strike—slip faulting within the crust of the Eurasia Plate in the broad plate boundary region between the India and Eurasia plates. Based on the final inversion model of the target profile, it is found that: 1) electrical structure of the source region can be divided into four layers; 2) the focal depth of the Jinggu earthquake is about 10 km, which locates in the interface between high resistivity layer and high—conductivity layer; and 3) most of the focal depths of the aftershocks are in the range of 5 km and 10 km.

20170775 Dai Yong (Earthquake Administration of Inner Mongolia, Hohhot 010010, China); Gao Lixin **Anomaly of Outgoing Long—Wave Radiation before the 2015 Alxazuoqi *M*5.8 Earthquake** (Earthquake, ISSN1000—3274, CN11—1893/P, 36(2), 2016, p. 167—175, 7 illus., 36 refs.)

Key words: precursor, elastic waves, Inner Mongolia

Temporal and spatial distribution characteristics of outgoing long—wave radiation (OLR) eddy of the 2015 *M*5.8 Alxazuoqi earthquake epcentre region are analyzed in this paper, by using eddy, time—distance square method, wavelet transform, time—frequency analysis, and so on. Firstly, there exist significantly enhanced abnormal areas of OLR eddy field after removing background value before the *M*5.0 Alxazuoqi earthquake. Secondly, there exists phenomenon of significantly nonlinear increase in OLR eddy monthly frequency histograms of greater than 2 times mean square deviation at grid points (105.50°E, 39.50°N) and (107.50°E, 40.50°N) before the *M*5.8 earthquake. Thirdly, OLR eddy time—frequency analysis results at two grid points based on the adaptive optimal kernel method show that energy density enhance before the *M*5.8 earthquake. Fourthly, the epicenter of the *M*5.8 Alxazuoqi earthquake locates in the edge of the abnormal enhancement area.

20170776 Gao Shanghua (Key Laboratory of Earthquake Prediction, Institute of Earthquake Science, CEA, Beijing 100036, China); Xue Bing **A Method for Fast Evaluation of Seismic Data Acquisition Circuit Boards Based on Digital Audio Interface** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2017, p. 141－148, 7 illus., 13 refs.)

Key words: earthquakes, data acquisition

The authors prosented a method for fast evaluation of seismic data acquisition circuit boards based on digital audio interface in the field of broadband seismic observation technique. During the design process of normal data acquisition circuit, the authors add an S/PDIF digital audio interface to the analog/digital conversion circuit, to encode the analog/digital conversion results into data that meet audio transfer standard, and to transfer the encoded data to computer via external sound card, and then to perform data process such as digital decimation filtering, spectrum analysis, etc., so as to realize fast evaluation of data acquisition circuit board. The experimental results show that this method is clear in thinking, simple in implementation, and the test result is effective and reliable. It can solve problem in routine test evaluation, and has a strong practical and application prospect in the design and test evaluation of high resolution, high sampling rate data acquisition system.

20170777 Li Shengqiang (Key Laboratory of Active Tectonics and Volcano, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Zhang Ling **Active Faults and Their Formation Mechanism in the East Segment of Qiulitage Anticline Belt, Kuqa Depression** (Seismology and Geology, ISSN0253－4967, CN11－2192/P, 38(2), 2016, p. 223－239, 11 illus., 39 refs.)

Key words: active faults, Kuqa Depression

Based on geological and geomorphologic characteristics of the surface faults acquired by field investigations and subsurface structure from petroleum seismic profiles, this paper analyzes the distribution, activity and formation mechanism of the surface faults in the east segment of Qiulitage anticline belt which lies east of the Yanshuigou River and consists of two sub－anticlines.

20170778 Li Yongsheng (Key Laboratory of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Shen Wenhao **Source Parameters for the 2015 Nepal Earthquake Revealed by Insar Observations and Strong Ground Motion Simulation** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1359－1370, 6 illus., 3 tables, 50 refs.)

Key words: strong earthquakes, focal mechanism, Nepal

On April 25 2015, an M_w7.8 earthquake occurred in Nepal, which is the largest since the 1934 Bihar Earthquake. 2015 Nepal earthquake occurred in subduction thrust interface due to collision of Indian Plate and Eurasian Plate, which is the main seismogenic fault structure named Main Himalaya Thrust fault (MHT). In this paper, the authors constructed maps of what happened on and below Earth's surface during the M_w7.8 earthquake in Nepal.

20170779 Li Zhongdong (Geophysical Exploration Team, SBGEEMR, Chengdu 610072, China); Gao Zhujun **Characteristics and Distribution of Earthquake Relics at Luhuo and Their Scientific Value** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 213－216, 6 illus., 1 table, 10 photos, 7 refs.)

Key words: fracture zones, seismogeology, Sichuan Province

Luhuo lies in the Xianshuihe fracture zone which is a earthquake－frequent zone. The last Luhuo Earthquake with the magnitude of 7.9 took place on Feb. 6, 1973. This paper deals with earthquake relic such as faul-

ted basin, geosuture, pressure ridge and so on at Luhuo, and discussed their scientific value, making a summary of type, scale, characteristics and distribution of the earthquake relic.

20170780 Liu Yue (Key Laboratory of Earthquake Prediction, Institute of Earthquake Science, CEA, Beijing 100036, China); Lu Xiaojian **Analysis of Seismicity Changes prior to Strong Earthquakes in Sichuan—Yunnan Region by the Region—Time—Length Algorithm** (Earthquake, ISSN1000-3274, CN11-1893/P, 36(2), 2016, p. 94-104, 3 illus., 1 table, 31 refs.)

Key words: strong earthquakes, seismicity, Yunnan Province, Sichuan Province

The Region—Time—Length (RTL) algorithm was applied to analyze seismicity changes prior to the twenty-nine strong earthquakes in Sichuan—Yunnan region. Seismic quiescence was detected prior to five out of the six $M_S \geqslant 7.0$ earthquakes, and enhancement of seismic activity was found before only one earthquake. Twenty-three M_S 6.0～6.9 earthquakes were analyzed as well. Twelve of them had the precursor of seismic quiescence, and the other eleven had anomalies of enhancement of seismic activity. Seismic quiescence or enhancement of seismic activity started 0.5 to 2.5 years before most of the earthquakes, and lasted for 0.5～2 years. Seismic quiescence was detected prior to the four earthquake cases occurred in Puer area. Seismic quiescence was detected prior to thirteen out of the seventeen earthquakes occurred in the region of 22.7°～31.0°N and 99.6°～102.5°E. This study may provide references for a better understanding of the seismogenic process in the region.

20170781 Luo Li (Earthquake Administration of Jiangxi Province, Nanchang 330039, China); Lu Jian **Restudy on Hypocentral Location and Seismogenic Tectonic of the Jiujiang—Ruichang M_S5.7 Earthquake Sequence, Jiangxi Province** (Seismology and Geology, ISSN0253-4967, CN11-2192/P, 38(2), 2016, p. 342-351, 8 illus., 2 tables, 19 refs.)

Key words: seismic sequence, focus, seismogenic tectonics, Jiangxi Province

The authors collected seismic records of 228 $M_L \geqslant 1.0$ Jiujiang—Ruichang M_S 5.7 earthquake sequence from Dec. 26, 2005 to Jun. 30, 2006. By using double-difference method combined with waveform crosscorrelation, those earthquakes were relocated and finally the accurate source parameters of 224 earthquakes were obtained. Combined with the focal mechanism, the distribution direction and the tectonic setting, the authors infer that the rupture of the NW-trending fault caused the M_S 5.7 main shock, and then the rupture probably encountered an asperity and triggered the M_S4.8 strong aftershock.

20170782 Shao Yanxiu (Institute of Geology, China Earthquake Administration, Beijing 100049, China); Liu Jing **Research on Various Magnitudes of Paleoearthquakes: A Case Study of Non-Characteristic Earthquakes from the Salt Lake Site of Haiyuan Fault** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(5), 2016, p. 711-726, 10 illus., 2 tables, 62 refs.)

Key words: paleoearthquakes, Qinghai-Tibetan Plateau

In this study, the authors present results of a paleoseismic study at the Salt Lake site in a shortcut pull-apart basin within the section that broke in 1920. 3D excavation at the site exposed fine-grained and layered stratigraphy and ample evidence of multiple paleoseismic events. This study indicates that paleo-earthquakes exposed in trenches are not necessarily similar in size, and moderate magnitude events might produce surface ruptures, which can be preserved in stratigraphy and exposed in a paleoseismic trenching under some conditions, for instance, the sedimentation is fast enough and there exists no hiatus in deposition.

返回目录

20170783 Shao Ye (Earthquake Administration of Guangdong Province, Guangzhou 510070, China); Liu Tepei **Determination of the Seismogenic Structures of Two M_S 4.8 Earthquakes in 2012 and 2013 in Xinfengjiang and Xichang, Guangdong Province** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 132－140, 6 illus., 2 tables, 9 refs.)

Key words: fault planes, focal mechanism, seismogenic tectonics, Guangdong Province

Based on simulated annealing algorithm and Gauss－Newton methods, using precisely located small earthquakes between January 2009 and June 2015 which happened near the 2012 and 2013 M_S4.8 earthquake epicenters in Xinfengjiang and Xichang, the authors get detail parameters and geography of two intersecting faults. The length of NEE fault plane (F1) with right lateral strike slip is about 8.2 km. Its strike is 78.5° and dip is 87.7°. The length of NW fault plane (F2) with left lateral strike slip is about 5.9 km. Its strike is 137.3° and dip is 87.9°. The inversion results proved to be correct by the focal mechanisms of $M_L \geqslant 3$ earqaukes. At last, causative structures of the two M_S 4.8 earthquakes are determined by their focal mechanisms.

20170784 Su Daolei (Key laboratory of Marine Geology and Environment, Institute of Oceanology, Chinese Academy of Sciences, Qingdao 266071, China); Fan Jianke **3D P－Wave Velocity Structures of Crust and Their Relationship with Earthquakes in the Shandong Area** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1335－1349, 11 illus., 1 table, 98 refs.)

Key words: P－waves, earthquakes, Shandong Province

A high－resolution 3D P－wave velocity structure of the crust in Shandong area was imaged by inverting 13 781 arrival times from 1 369 local events recorded by Shandong seismic network from 1975 to January 2014. Tomographic results reveal that the P－wave velocity structure of the crust of Shandong area has significant heterougeneities. The blocks on both sides of the Tanlu fault zone show different velocity structures, implying that the Tanlu fault may be a boundary fault.

20170785 Sun Xiaolong (China University of Geosciences (Beijing), Beijing 100083, China); Wang Guangcai **Extracting High－Frequency Anomaly Information from Fluid Observational Data: A Case Study of the Wenchuan M_S 8.0 Earthquake of 2008** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1673－1684, 10 illus., 1 table, 46 refs.)

Key words: strong earthquakes, fluids, temperature, Wenchuan earthquake 2008

With improvement of underground fluid observation technology, the sampling frequency of data has been obviously improved, especially after the digital transformation. The authors introduced the PDF (probability density distribution) method, and analyzed the observed fluid data of water level and water temperature at 72 stations in the area of the north－south seismic zone before the Wenchuan M_S 8.0 earthquake on 12 May, 2008. The analysis results show that 16 water level and 14 water temperature data had the high－frequency anomalies before the earthquake, and the points with abnormal information were concentrated in the tectonic belts of southwest Yunnan Province.

20170786 Tang Wenqing (Chengdu Center, China Geological Survey, Chengdu 610081, China); Zhang Qingzhi **Coseismic Displacement and Movement Velocity around the Lushan Focal Area, Western Sichuan Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 105－112, 2 illus., 3 tables, 37 refs.)

Key words: Longmenshan Fault Zone, seismic exploration

Based on discontinuous GPS data from

the micro－earthquake observatories before and after the Lushan earthquake in 2013, the coseismic displacement and velocity vector fields have been obtained around the Lushan focal area, western Sichuan. The authors conclude that the Lushan earthquake in 2013 may be interpreted as a thrusting event on the southeastern side of the southern part of the Longmenshan Fault Zone. The seismogenic structures are represented by the minor faults between the front range fault and Xinjin fault. The Lushan earthquake in 2013 only had an important effect on the southern part of the Longmenshan Fault Zone and the areas around the Lushan focal area.

20170787 Teng Yuntian (Institute of Geophysics, Chinese Earthquake Administration, Beijing 100081, China); Hu Xingxing **Extending Dynamic Range of the Seismic Data Acquisition System by Using Multi－Channel ADC** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1435－1445, 8 illus., 1 table, 68 refs.)

Key words: earthquakes, data acquisition

To meet the application requirements, a multi－channel AD converter sample grading method for extending the dynamic range of seismic data acquisition is put forward in this paper. In the multi－channel AD converter sample grading method, several ADC channels are put in parallel, and simulated input signals are sent to each channel. Synchronous sampling and digital conversion are made on the full range input signal in each channel with different input voltage ranges in each channel for conversion.

20170788 Wang Qiong (Earthquake Administration of Xinjiang Uygur Autonomous Region, Urumqi 830011, China); Xie Chaodi **Dynamically Triggered Aftershock Activity and Far－Field Microearthquakes Following the 2014 M_S 7.3 Yutian, Xinjiang Earthquake** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1383－1393, 11 illus., 3 tables, 50 refs.)

Key words: strong earthquakes, aftershocks

The authors systematically examine how dynamic stresses from seismic waves following the 2014 M_S7.3 Yutian, Xinjiang, earthquake affect aftershocks and regional microseismicity in the near and far field. The full Coulomb stress changes are computed based on the discrete wave number method. The authors find that the static Coulomb stress changes caused by the M_S 7.3 earthquake discourage aftershocks occurrence in the southwestern part of the aftershock zone, which may explain why the aftershock activity in this region is relatively weak.

20170789 Wang Xiaofang (Key Laboratory of the Marginal Sea Geology, South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou 510301, China); Xiao Jie **Dynamic Responses of the Xianshuihe and Longmenshan Fault Zones to Regional Tectonic Loading** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1403－1413, 9 illus., 2 tables, 28 refs.)

Key words: earthquakes, regional tectonics, Longmenshan Fault Zone

In order to study the trigger interaction between the Wenchuan earthquake and the earthquakes on the Xianshuihe fault zone as well as the stress changing with the effect of regional tectonic loading, the authors studied the seven major earthquakes in the Xianshuihe and Longmenshan Fault Zones. The results show that the trigger interaction between the Wenchuan earthquake and the earthquakes on Xianshuihe fault zone is different.

20170790 Wu Zhonghai (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Zhao Genmo **Tectonic Genesis of the 2015 *Ms* 8.1 Nepal Great Earthquake and Its Influence on Future Strong Earthquake Tendency of Tibetan Plateau and Its Adjacent Region** (Acta Geologica Sini-

返回目录

ca, ISSN0001－5717, CN11－1951/P, 90(6), 2016, p. 1062－1085, 15 illus., 4 tables, 72 refs.)

Key words: strong earthquakes, Nepal, Qinghai－Tibetan Plateau

Aftershock distribution, focal mechanism interpretation, inversion result of source rupture process of the 2015 M_s 8.1 Nepal great earthquake and Cenozoic tectonic of the Himalayan orogenic belt shows that the M_s 8.1 great earthquake resulted from low－angle subduction of Indian Plate towards the Eurasian Plate along the Main Himalayan Thrust (MHT) fault zone. The focal rupture was active at most during the Holocene, with high frequencies and high magnitudes. Along the MHT, earthquakes with $M_s \geqslant 7.5$ occurred very 500 years and the average interval of earthquake segmentation rupture was only 10 years or so during active phase of earthquakes.

20170791 Xi Jilou (Key Laboratory of Earthquake Prediction, Institute of Earthquake Science, CEA, Beijing 100036, China); Guan Huaping **Geo－Electric Field Changes Observed at Lhasa Geomagnetic Station before and after the 2015 Nepal *M* 8.1 Earthquake** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 1－13, 9 illus., 1 table, 19 refs.)

Key words: strong earthquakes, geoelectric field, Nepal

The main purpose of this paper is to analyze the characteristics of the geo－electric field observations, with the long time span and the large amplitude abnormal changing, in the Lhasa geomagnetic station before and after the Nepal *M* 8.1 strong earthquake, occurred in April 25 th, 2015. The observation condition, the observation system, and the observation data of the Lhasa station have been preliminary discussed firstly, and then the main characteristics of the abnormal change and evolution process are analyzed and studied, using "the synthesis energy accumulative" and "the power as MSA spectrum analysis" methods, from two aspects of time domain and frequency domain.

20170792 Yin Zhiqiang (China Institute of Geo－Environment Monitoring, Beijing 100081, China); Xu Yongqiang **The Development and Distribution Characteristics of Geohazards Induced by August 3, 2014 Ludian Earthquake and Comparison with Jinggu and Yingjiang Earthquakes** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(6), 2016, p. 1086－1097, 10 illus., 2 tables, 18 refs.)

Key words: earthquakes, Yunnan Province

In this paper, the authors, on the basis of in site investigation of geohazards and interpretation of remote sensing images, studied the development and distribution of geohazards triggered by the Ludian earthquakes, and propose a concept of Dry Landslide. At the same time, the geohazards triggered by Ludian, Jinggu and Yingjiang earthquakes were discussed in terms of geohazards and magnitude, geomorphology, structural activity, slope angle, seismic intensity and population density.

20170793 Yu Lu (State Key Laboratory of Earthquake Dynamics, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Shan Xinjian **Deformation of the 2013 Pakistan M_W7.7 Earthquake Derived from Sub－Band Insar** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1371－1382, 10 illus., 2 tables, 40 refs.)

Key words: earthquakes, ground deformation, Pakistan

On September 24, 2013, an M_W 7.7 earthquake strok Awaran, Balochistan Province, Pakistan, causing large strike slip up to 10 m. The coseismic deformation field, produced by TerraSAR－X short wave radar data, shows dense and extensive interference fringes which bring difficulties to the phase unwrapping.

返回目录

The sub－band InSAR is a new method for obtaining absolute phase, with a little or without phase unwrapping. This method shortens the bandwidth to increase the wavelength, and could reduce the number of fringes, which decreases the difficulty of phase unwrapping.

20170794 Yu Yang (Lanzhou Institute of Seismology, China Earthquake Administration, Lanzhou 730000, China); Shen Jun **The Application of Petroleum Seismic Data to the Buried Active Fault Detection—A Case Study of Active Faults Surveying in Songyuan City** (Seismology and Geology, ISSN0253－4967, CN11－2192/P, 38(2), 2016, p. 423－433, 6 illus., 19 refs.)

Key words: seismic exploration, subsurface structure, active faults, Songliao Plain

Located in the south of the Songliao Basin, Songyuan City is one of the few high seismic intensity regions (Ⅷ degree regions) in Northeast China. In this paper, the main features of petroleum－related seismic data and major methods for extracting tectonic information are presented. Under the comprehensive use of the "3D" structure in the interpretation of the results, accurate spatial distribution information of main faults are obtained in the study region, this offers an effective approach to preliminary judgement of the activity of faults in the region.

20170795 Yue Xiaoyuan (Earthquake Administration of Beijing Municipality, Beijing 100080, China); Wu Anxu **Temporal－Spatial Evolution of Apparent Stresses before Moderate－Strong Earthquakes in the Capital Circle Area of China** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 119－131, 7 illus., 1 table, 25 refs.)

Key words: strong earthquakes, stress, Beijing

Using the near－source Brune model, the authors calculate apparent stresses of $M_L \geqslant 2.0$ earthquakes occurred in the capital area of China since 2002 using seismic waveform data recorded by the Capital Circle Digital Seismic Network. The authors discussed scaling relations of source parameters, and choose the $2.0 \leqslant M_L \leqslant 2.9$ earthquakes to analyze and discuss anomalous variation characteristics in time and space before medium－strong earthquakes. The results show that apparent stresses have an obvious high value anomaly before many medium－strong earthquakes, and the earthquakes occurred at high value anomaly area. It can be seen that apparent stress state of can provide evidence for seismic risk analysis in the capital region.

20170796 Zhu Aiyu (Institute of Geophysics, China Earthquake Administration, Beijing 100081, China); Zhang Dongning **The Numerical Simulation on the Seismogenic Mechanism of the Lushan M_S7.0 Earthquake Constrained by Deformation Observation** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1661－1672, 7 illus., 1 table, 81 refs.)

Key words: strong earthquakes, seismogenic tectonics, numerical simulation, Longmenshan Fault Zone

The authors established a two－dimensional finite element model of the Lushan earthquake and its adjacent region. Using the results of deformation observation of the Lushan M_S7.0 earthquake on April 20, 2013 as constraints, the authors explored some possible factors, such as eastward extrusion of Qinghai Tibetan Plateau, characters of regional topography, lower velocity zone, detachment surface, tectonic faults, and et al., and how these factors impact the rupture character of the Lushan earthquake and its seismogenic process.

GEOCHEMISTRY

20170797 Guo Jiangfeng (School of Earth and

返回目录

Environment, Anhui University of Science & Technology, Huainan 232001, China); Yao Duoxi **Geochemistry of the Rare Earth Elements of Coals from the Longtan Formation in Chongqing and Its Geological Implication** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 51－58, 5 illus., 8 tables, 15 refs.)

Key words: rare earths, geochemistry, coal, Chongqing

The geochemical features of the rare earth elements of coals from the Longtan Formation in Chongqing were studied using the methods of inductively coupled plasma mass spectrometry (ICP－MS), X－ray fluorescence (XRF), powder X－ray diffraction (XRD). The results show that REE distribution patterns of coal samples are similar with each other. The left curve is at a high degree and the right is low and the curve is like the shape of "V" as a whole. The curve of light REEs is steep and heavy REEs is rather flat in the mass.

20170798 Hao Shuang (Tianjin Institute of Geology and Mineral Resources, China Geological Survey, Tianjin 300170, China); Li Huimin **The Comparison of the Principle and Applicability between Two Methods of Deducting the Initial Common Lead for in Situ LA－ICP－MS U－Pb Isotope Dating of Cassiterite** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 622－632, 10 illus., 5 tables, 28 refs.)

Key words: cassiterite, LA－ICP－MS U－Pb isotope

For the purpose of deducting the initial common lead of in situ LA－ICP－MS U－Pb isotope dating of cassiterite, this paper discussed the theory, effect, advantages and limitations of concordia and isochron methods and the basic principles for selecting a suitable method in experiment based mainly on the authors' studies, combined with recently reported related references. The results show that the two methods have different advantages and limitations in deducting the initial common lead of in situ LA－ICP－MS U－Pb isotope dating of cassiterite. In practical work, it is very important to choose an appropriate method according to the age range of cassiterite, total U, Pb content, common lead relative content and dating accuracy requirement of the samples.

20170799 Ren Chao (Key Laboratory of Surficial Geochemistry, Ministry of Education, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Wang Hongtao **Macroscopic and Spectroscopic Study on Fluoride Sorption by HAP** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 289－298, 8 illus., 2 tables, 55 refs.)

Key words: fluorine, adsorption, nuclear magnetic resonance

In this research, the authors adopted low－cost non－metal mineral hydroxyapatite (HAP) as adsorbent to study the geochemical behavior and mechanism of F adsorption as a function of reaction time, pH, and initial Concentration. After 48 hours, the reaction reached equilibrium and yielded a maximum adsorption amount of 21.6 mg/g at pH 6 through regression analysis using Langmuir equation. To further understand the mechanisms of F adsorption on HAP, the authors employed advanced geochemical approaches, such as XRD, SEM, HR－TEM, and 19F solid state NMR, to characterize the sorption products before and after reaction.

20170800 Shao Wenjing (Key Laboratory of Surgical Geochemistry of Ministry of Education, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Song Yinxian **Spatial－Temporal Variation and Associated Driving Factors of pH Values in Soils in the Past 30 Years in the Southern Jiangsu Province** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 264－273, 5

illus., 2 tables, 42 refs.)

Key words: soils, pH values, Jiangsu Province

Through the investigation of pH values of cultivated soils in the Southern Jiangsu Province in 2010s, and comparing with two spatial distribution maps of soil pH in 1980 and 2003 from previous studies, the spatial—temporal variation of pH values and associated factors have been discussed in this paper. The results showed that the spatial distribution pattern of soil pH in 2010s was significantly different from that in 1980, with lower soil pH values in the west part of the study areas than those in the east in 2010s, which is associated with natural conditions and social behaviors.

20170801 Tan Mei (Institute of Sedimentary Geology, Chengdu University of Technology, Chengdu 610059, China); Zhao Bing **Geochemical Characteristics and Genesis of T/P Boundary Clay and Event Clay in Dafang Aera, Guizhou Province** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(6), 2016, p. 979—988, 13 illus., 7 tables, 9 refs.)

Key words: clay, lithogeochemistry, Guizhou Province

The Permian and Triassic strata are widely distributed over Dafang area, Guizhou Province. Clay at the boundary between Permian and Triassic was discovered which is 12～14 cm in thickness. Tectonic background of boundary clay and event clay is related to felsic volcanic ash deposit in active continental margin, which is different from things of mud of Shabaowan Member and Jiujitan Member whose source area was feldspar arenite. Most of the trace elements in boundary clay are similar to those in event clay except Th, Y, Nb, Cd, Ga, In and Ta which are much higher than in volcanic event clay. It is thus inferred that there might have existed a little material from cosmic event in boundary clay.

20170802 Yan Deyu (School of Energy Resources, China University of Geosciences, Beijing 100083, China); Huang Wenhui **Trace Element Characteristics of the Lower Cambrian Black Shales in Middle and Lower Yangtze Area, China** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(3), 2016, p. 42—50, 4 illus., 2 tables, 35 refs.)

Key words: minor elements, rare elements, shale, South China

Petrologic characteristics and elemental geochemical characteristics of black shales were studied systematically, and the causes of enrichment of trace elements were analyzed in detail. The results show that the black shales were formed in reductive environment of gentle slope in shallow to bathyal milieu. The layered element enrichment belts were of sedimentary origin, and abundant substances were mainly from oceanic hydrothermal fluid. These evidences indicate the existence of oceanic hydrothermal fluid during the deposition process.

MINERALOGY

20170803 Chen Zhu (Key Laboratory of High—Temperature and High—Pressure Study of the Earth's Interior, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Zhou Li **Experimental Research on Hydrothermal Synthesis of Lanthanum Phosphate Nanowire under CO_2—Saturated Condition** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 285—288, 3 illus., 27 refs.)

Key words: rare earth minerals, phosphates

Properties of the rare earth phosphate LaPO_4 functional materials depend on the crystal structure, morphology, grain size and other factors. Moreover, preparation method affects the crystal structure, morphology, and grain size of LaPO_4. In this paper, La$(NO_3)_3$ ·

返回目录

$6H_2O$ and $(NH_4)2HPO_4$ were used as initial reaction materials to prepare nanowires and nanoparticals under CO_2 — free condition and CO_2 — saturated condition, respectively. Compared with CO_2 — free condition, it turns out that, the as — synthesized La PO_4 samples possess more sharp diffraction peak as well as better crystallinity under CO_2 — saturated condition.

20170804 Ding Xin (School of the Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Li Jiankang **Crystallization Experiment Study of Zabuyelite Using Hydrothermal Diamond Anvil Cell** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 873—878, 4 illus., 1 table, 26 refs.)

Key words: lithium, crystals, high temperature—high pressure experiment

The crystal — rich inclusions (CIs) are a common type of fluid inclusion in granite pegmatite. Zabuyelite is one of the main spodumene minerals which contain crystal—rich inclusions. Therefore, mechanisms for the formation and P—T conditions of zabuyelite will have important implications for the entrapment conditions of the crystal—rich inclusion. Crystallization experiments were conducted in a hydrothermal diamond anvil cell (HDAC) using Li_2CO_3 — H_2O as starting materials. The results of nine experiments performed indicate that the nucleation of crystals started at 550 (±30) ℃, the crystals stopped quick growth when temperature decreased by 15 ℃, and then crystals growth was slow and stopped until temperature was at 400(±50) ℃. The temperature of zabuyelite crystallization concentrate on 550～400 ℃ and pressure has no effect on its growth.

20170805 Fu Kaibin (Key Laboratory of Solid Waste Treatment and Resource Recycle, Ministry of Education, Mianyang 621010, China); Dong Faqing **Bioleaching of Copper Sulphides and Their Crystal Structure** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 215—219, 2 illus., 3 tables, 26 refs.)

Key words: sulfides, crystal structure

In order to study the effect of mineral crystal structure on copper sulphide bioleaching, bioleaching of copper sulphide minerals was investigated through a comparison of bond length, bond order, and crystalline interplanar spacing. The bioleaching results show that after 48 days, copper extraction from djurleite, bornite, covellite, and chalcopyrite was 95.12%, 84.5%, 54.1% and 18.33%, respectively. The rank for bioleaching of copper sulphides shows the order of djurleite bornite covellite chalcopyrite. Comparison of crystal structure parameters revealed that the highest copper extraction from djurleite is due to its long bond length, large crystal interplanar spacing and low bond strength. The crystal — chemical properties are key factors, which affected the interaction between bacteria and copper sulphides.

20170806 Li Zhenli (State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Ye Lin **Primary Research on Trace Elements in Sphalerite from Tianqiao Pb — Zn Deposit, Northwestern Guizhou Province, China** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 183—188, 5 illus., 1 table, 28 refs.)

Key words: sphalerite, lead — zinc deposit, Sichuan Province, Yunnan Province

Using ICP—MS, trace elements in sphalerite were analysed in this study. Results show that sphalerite is rich in Ge and Ga and poor in Mn, In, Sn and Cd, with a higher Zn/Cd ratio, which is clearly different from that of skarn—type, SEDEX—type and magmatic hydrothermal—type. However, it similar to sphalerite from classical MVT deposits (i.e. Mengxing and Niujiaotang deposit, etc.), except that the concentration of Cd (about 1 282

$\times 10^{-6}$) is relatively lower, as compared to the Huize and Shanshulin Pb—Zn deposits in the same region. It is suggested that the Tianqiao Pb—Zn deposit belongs to a MVT Pb—Zn deposit, and formed at medium temperature.

20170807 Luo Jinhua (Panzhihua University, Panzhihua 617000, China); Li Junhan **Study of Technological Mineralogy on Electrotitanium Slag in Panzhihua Mining Area** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(2), 2016, p. 11—16, 6 illus., 8 tables, 12 refs.)

Key words: iron minerals, titanium ores, technical mineralogy

The Titanium slag of ilmenite smelted by electronic furnace in Panzhihua mining area is studied by multi elements analysis, optical microscope, scanning electron microscope, electronic probe etc. It is showed that the electrotitanium slag mainly contain Ti, Fe, Si, Mg, Ca, Al and some other elements, and the contents of $w(TiO_2)$ is 71%, $w(MgO+CaO)$ is 9.29%. It cannot be directly used as raw materials of preparation of titanium dioxide and sponge titanium by chlorination process. Electro—titanium slag mainly contains anosovite and ilmenite with minor anatase. The study provides as useful reference for the comprehensive application of titanium slag in Panzhihua Mining area in the future.

20170808 Ma Yanfang (Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, Xining 810008, China); Zhang Zhihong **Li^+ Enrichment Behavior of Sodium Sulfate in the Saline Lake Brine at Different Temperatures: The Case of Laggor Salt Lake Brines in Tibet** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(3), 2016, p. 307—312, 5 illus., 7 tables, 15 refs.)

Key words: brines, saturation, Tibet

Through isothermal evaporation process for sodium sulfate subtypes of salt lake brine, the authors made a comparative study of the enrichment regularity and saturation points of lithium at different temperatures. Lithium is crystallized in the form of $Li_2SO_4H_2O$, $Li_2SO_4 \cdot 3Na_2SO_4 \cdot 12H_2O$, $Li_2SO_4 \cdot Na_2SO_4$ and $Li_2SO_4 \cdot 3K_2SO_4$ by evaporation. On such a basis, the authors established the correlation between lithium and sulfate concentration and, according to the composition and temperature, calculated the concentration entropy.

20170809 Qin Shan (Key Laboratory of Orogenic Belts and Crustal Evolution, MOE, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Liu Jinqiu **The Development and Prospect of Mineralogy in China** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(4), 2016, p. 970—978, 2 illus., 2 tables, 15 refs.)

Key words: mineralogy, China

Mineralogy is one of the basic subjects in earth sciences, which has a long history and made a great contribution to human civilization. In recent years, the great progresses of science and technology, as well as the rapid development of related disciplines, have deeply affected the mineralogy. This report summarizes the present research and the development of mineralogy from multi—aspects, and puts forward the priority areas and the key development directions of mineralogy in China. The perspective of mineralogical development in the future is also prospected.

20170810 Ruan Qinfeng (Faculty of Earth Sciences, Guilin University of Technology, Guilin 541004, China); Song Lin **Mineralogical Characteristics of Dioptase from Kaokoveld, Namibia** (Journal of Guilin University of Technology, ISSN1674—9057, CN45—1375/N, 36(2), 2016, p. 223—227, 5 illus., 2 tables, 11 refs.)

Key words: dioptase, mineral assemblages, Namibia

Mineralogical characteristics of Kaokoveld dioptase is investigated by X—ray power analysis, infrared spectroscopic analysis, elec-

tronprobe wave spectrum analysis, IR spectra, Raman spectra and Uv—vis spectra analysis. The dioptase with the associations of quartz and endlichite, and green to light cyan columanar crystals combinated by hexagonal prism and rhombohedron, occurs in Kaokoveld, Kunene region, Namibia.

20170811 Tao Yinlong (School of Earth Science and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Liu Jiajun **Electron Microprobe Characteristics of Barium Deposits in the Southern Qinling Mountains, China** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 277—284, 4 illus., 5 tables, 14 refs.)

Key words: barium, electron probe, Qinling Mountains

There are various kinds of barium minerals in a large Ba metallogenic belt in the Southern Qinling Mountains. Through electron microprobe analyses of ores and mineralization for Ba—deposits in the large barium metallogenic belt, combining with previous research results, the authors conclude that barium has a variety of occurrence, such as barite, witherite, barytocalcite, norsethite, celsian, hanjiangite, ankangite, hyalophane, rosceolite and so on. Pyrite is the main sulfide, meanwhile millerite, sphalerite, sulvanite, digenite, bornite can be also seen.

20170812 Wang Ling (College of Materials and Chemistry and Chemical Engineering, Chengdu University of Technology, Chengdu 610059, China); Yang Yiping **Discovery of Zisha Mineral Resources in Rong County, Sichuan Province, China and Its Mineralogy and Petrology Characteristics** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 301—306, 5 illus., 4 tables, 6 refs.)

Key words: quartz, kaolinite, illite, hematite

With all the similarities on mineralogy and petrology feature straits of Zisha clay from Yixing area, the authors are able to identity Rong County pot clay as a good Zisha mineral resource. By comparing different mineralogy and petrology features between pot clay from Rong County and clay from Yixing Zisha, the authors concluded that pot clay from Rong County is composed of SiO_2(64.29%), Al_2O_3(22.72%), Fe_2O_3(6.51%), and K_2O(3.81%); sum of above is 97.33% and the harmful composition CaO content is 0.35% only. Mineral compositions of quartz, kaolinite, illite and hemalilte are 35%～40%, 25%～30%, 30%～35% and 3%～5%, respectively.

20170813 Xu Longhua (Key Laboratory of Solid Waste Treatment and Resource Recycle, Ministry of Education, Southwest University of Science and Technology, Mianyang 621010, China); Dong Faqin **Surface Crystal Chemistry in Selective Flotation of Diaspore from Kaolinite Using Anionic Collector** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 265—270, 5 illus., 2 tables, 17 refs.)

Key words: kaolinite, flotation

In the sodium oleate(Na OL) flotation system, the flotability of diaspore and kaolinite was studied. It was found that results for the flotation of diaspore are significantly better than that of kaolinite. The infrared spectral analysis show that Al sites on the surface of minerals react with carboxyl group of oleic acid by chemisorption. The surface broken bond densities and the interaction energy of planes to reagents were calculated using Materials Studio software. The results found that the sizes of the surface broken bond densities of the mineral crystal planes and interaction energy with oleate ions for diaspore are (100) (001) (010), and (010) (110) (001) for kaolinite.

20170814 Yang Yuling (China University of Geosciences, Beijing 100083, China); Guo Ying **The Influence of Different Standard Illu-**

minants on Tourmaline Color Red (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 220－224, 6 illus., 7 tables, 17 refs.)

Key words: jasper, assessment

To obtain the color parameters of tourmaline color red, the experiment simulate on Color iControl. Therefore, the best lighting illuminant can be determined. Compared with the spectral power distribution of illuminant D65, illuminant A and illuminant CWF, following results were obtained. The spectral power distribution of illuminant D65 is continuous, relatively smooth and of high color temperature. Combined with statistic analysis, the experiment found that the influence of illuminants change on L^* of tourmaline color red is little.

20170815 Yue Zilong (School of Earth Science and Mineral Resources, China University of Geosciences, Beijing 100083, China); Du Yangsong **Geological Significance and Composition Characteristics of Biotite in Guihuachong Granodiorite, Anhui Province** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(2), 2016, p. 27－33, 9 illus., 1 table, 22 refs.)

Key words: biotite, granodiorite porphyry, Anhui Province

The Guihuachong copper deposit is a porphyry－skarn composite type copper deposit newly discovered and formed in the Early Cretaceous, which is located in the transition zone between Fanchang Basin and Tongling transitional belt. In this paper, for the study of the origin of magma, diagenesis, physical and chemical conditions, petrographic and mineralogical characteristics of the biotites in Guihuachong granodiorite are investigated, and their forming conditions and the geological significances are discussed.

20170816 Zhang Dan (Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); He Hongping **Heterogeneous Hydrothermal Synthesis of Saponite and Factors Affecting Its Crystallinity** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 241－246, 6 illus., 4 tables, 18 refs.)

Key words: saponite, chrysotile

In this study, a series of samples were synthesized by altering Si/Al ratio (fixing the Mg/(Si＋Al) ＝3∶4), reaction temperature and time. Characteristic reflections of phyllosilicate were recorded in XRD patterns of the resulting products with d(060)≥0.153 nm, indicating a successful synthesis of saponite. The well－crystallized saponite was obtained in the initial Si/Al ratio range of 5.43～7.89, and their crystallinities increased with increasing reaction temperature and time. At a temperature of 160 ℃, brucite and analcime formed as impurities, resulting from the low dissolution ability of brucite and the excess of Si_4^+ and Al_3^+ in the solution. Both of them disappeared with extension of reaction time. At a temperature of 300 ℃, a small amount of chrysotile was formed, corresponding to the rapid release of Mg_2^+.

20170817 Zheng Weihong (School of Life Science, Huzhou University, Huzhou 313000, China); Pan Guxiang **Study on Preparation and Slow－Release Properties of Coated Urea Fertilizer by Using Non－Metallic Minerals and Ethylcellulose** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 247－252, 7 illus., 18 refs.)

Key words: nonmetals, minerals

A dynamic leaching experiment was used to study the slow－release properties of the coated fertilizer. The effect of the type of mineral, ratio of non－metallic mineral and urea, weight of secondary coating on the slow－release performance is discussed. Results demonstrate that the slow－release effect of urea slow－release fertilizer prepared by using palygorskite is better than with other non－metallic minerals.

PETROLOGY

20170818 Weng Kai (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, MLR, Xi'an Center of Geological Survey, Xi'an 710054, China); Xu Xueyi **The Geochemistry and Chronology Characteristics and the Geological Significance of Ultramafic Rock in Mayile Ophiolite, West Junggar, Xinjiang** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(5), 2016, p. 1420-1436, 11 illus., 3 tables, 118 refs.)

Key words: ophiolite, ultramafics, geochemistry, geochronology, Xinjiang

Mayile ophiolitic mélange belt is located in the southwest of the West Junggar orogenic belt, which is the largest ophiolitc mélange belt in the region. The ultramafic and mafic rocks of the ophiolite are crucial to study the tectonic evolutionary history of the Paleo-Asian. This paper selects the ultramafic rock in Mayile ophiolite that makes systematic petrology, geochemistry and chronology study. The result shows that the ultramafic rock in Mayile ophiolite is characterized by abundant Al_2O_3 and CaO, and the content of TiO_2 is equal to the mantle peridotite's of subduction zone. The curve of REE is LREE-enriched type, and trace element is affected by corrosion, which presents two different kinds of curve characteristic. Mafic rock is divided into two groups. The Nb and Ta are positive anomaly characteristic, which represents the fragments of the seamount and ocean island.

1. IGNEOUS PETROLOGY

20170819 Bao Xinshang (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100083, China); Yang Liqiang **Origin and Mineralization Mechanism of the Water in Parent Magma of Porphyry Deposit** (Journal of Earth Sciences and Environment, ISSN1672-6561, CN61-1423/P, 38(4), 2016, p. 473-482, 4 illus., 73 refs.)

Key words: igneous rocks, porphyry deposit

The parent magma rich in water (mass fraction of water is more than 4%) is the critical factor for the enrichment and mineralization of ore-forming elements (Cu, Au, etc.), and one of the key to the formation of magma-hydrothermal systems. The main characteristics include that the occurrence of amphibole phenocrysts, enriched light rare earth elements, depleted middle rare earth elements, and $w(Sr)/w(Y)>40$ and $w(La)_N/w(Yb)_N>40$. The water of porphyry metallogenic system in arc settings is derived from the dehydration melting of oceanic plate or metasomatized lithospheric mantle. However, the water of porphyry metallogenic system in post-collisional settings, which is lack of direct subduction source, is likely to be derived from mixing of water-rich mafic magma with melt at lower and/or upper-crustal depths, or from crystallization differentiation of ore-related magmas themselves.

20170820 Chen Bolin (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Li Songbin **Zircon SHRIMP U-Pb Dating of Intermediate-Felsic Volcanic Rocks from the Kaladawan Area, Altun Mountains and Its Tectonic Environment** (Acta Geologica Sinica, ISSN0001-5717, CN11-1951/P, 90(4), 2016, p. 708-727, 8 illus., 4 tables, 64 refs.)

Key words: igneous rocks, SHRIMP dating, Altun Mountains

In this study, zircon SHRIMP UPb dating for the intermediate-felsic volcanic rocks from the volcanic-sedimentary rocks was conducted and yielded an age of 477~485 Ma, which confirms the existence of intermediate

返回目录

and felsic magmatic activity in the Kaladawan area during Early Paleozoic. Petrogeochemical study also indicates that the volcanic rocks reflect the tectonic setting of active continental margin (Island arc) and magma source is characteristic of I—type and I—S transition type. In combination with dating and tectonic setting tracing of the ophiolitic mélange, high pressure metamorphic mudstone, eclogite, intermediate — felsic intrusive rocks in the Hongliugou — Lapeiquan structural belt, the authors suggest that the intermediate — felsic volcanic rocks in the Kaladawan area are related to a tectonic setting of active continental margin (Island arc) and the age is roughly consistent with the final phase of ophiolitic mélange, representing that the syn — collision intermediate — felsic volcanic rocks resulting from the subduction of oceanic crust process.

20170821 Chen Fang (Geological Survey of Anhui Province, Hefei 230001, China); Peng Zhi **Geological and Geochemical Characteristics and LA—ICP—MS Zircon U—Pb Ages of the Jinzhai Intrusion in Anhui Province** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 879—895, 13 illus., 3 tables, 76 refs.)

Key words: A—type granite, lithogeochemistry, zircon U—Pb dating, Anhui Province

The Jinzhai moyite intrusion is located in the north Huaiyang tectonic zone of Dabie orogenic belt. LA—ICP—MS zircon U—Pb dating yields an age of (129.7±1.5) Ma, suggesting it may be the product of the Early Cretaceous magmatism. Several lead — zinc mineralization occurrences are found to distribute around the Jinzhai intrusion, and to be consistent with the regional magmatism and mineralization. The characteristics indicate that the Jinzhai moyite is A—type granite and might be the product of partial melting of lower crust source rock. The Jinzhai moyite is the intraplate A1—type originating in the post orogenic extension environment, but not the alkaline granite generating in anorogenic tectonic background.

20170822 Chen Fang (Geological Survey of Anhui Province, Hefei 230001, China); Du Jianguo **Geochemical Characteristics and LA—ICP—MS Zircon U—Pb Geochronology of Xujiawan Monzogranite in the Eastern Part of North Huaiyang and Their Geological Significance** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(3), 2016, p. 329—338, 3 illus., 2 tables, 48 refs., with English abstract)

Key words: monzogranite, LA—ICP—MS U—Pb dating

20170823 Chen Fei (College of Earth Science, Jilin University, Changchun 150061, China); He Zhonghua **The Ages and Petrogenesis of Granite Porphyry in Tarqi Area, Inner Mongolia** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(5), 2016, p. 776—789, 12 illus., 4 tables, 44 refs.)

Key words: porphyry, Inner Mongolia

Based on geological characteristics, zircon U—Pb ages and geochemical features, the authors studied the ages and petrogenesis of granite porphyry in Tarqi area. The zircon U—Pb ages (136.5～126.4 Ma) indicate that the granite porphyry was formed in Early Cretaceous. According to the regional geological data, Taerqi granite porphyry and Baiyingaolao volcanic rocks in the study area may be the products of contemporaneous magmatism, and were probably formed in an extensional environment.

20170824 Chen Gaochao (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Shi Jizhong **Zircon U—Pb Dating about Volcanic Rocks of Ganquan Formation in Dahulishan Area, Ejina Banner and Its Geological Implication** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(2), 2016, p. 141—148, 4 illus., 1 table, 15 refs.)

Key words: igneous rocks, Inner Mongolia

Volcanic and clastic rock members of Ganquan Formation within Yin'e Basin has outcropped in Dahulishan area very well. The volcanic rock member is consists of basalt with crystal pyroclast and intermediate—acidic volcanic rocks, forming a bimodal volcanic rock assemblage. Combining with the contact relationships among these strata, it's determined that the age of Ganquan Formation is Late Carboniferous—Early Permian. This data has a great significance for analyzing the depression and filling evolution process of Hongshishan—Heiyingshan in the northern part of Yin'e Basin. Thus, this Late Carboniferous basin belongs to the rift basin, developing a rapid cleavage and depositing giant thick clastic rocks and volcanic rocks.

20170825 Chen Guochao (Key Laboratory of Western China's Mineral Resources and Geological Engineering, Ministry of Education, Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, Ministry of Land and Resources, School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Pei Xianzhi **Genesis of Magma Mixing and Mingling of Xiangjiananshan Granite Batholith in the Eastern Section of East Kunlun Orogen: Evidence from Mafic Microgranular Enclaves (MMEs)** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 226—240, 13 illus., 2 tables, 62 refs.)

Key words: granite, orogenic belts, Kunlun Mountains

East Kunlun Orogen is a natural site to study the magma mixing and mingling, where a lot of granitic magmatic rocks outcropped with widely developed mafic microgranular enclaves in it. Taking the Xiangjiananshan granitic batholith in eastern section of East Kunlun Orogen as the object, the paper has studied the field geological characteristics of mafic microgranular enclaves developed in the batholith, in order to research the magma mixing and mingling and the magma dynamics process. The enclaves have fine grained to medium—coarse grained texture, and contain phenocrysts like plagioclase, amphibole, quartz, mafic minerals edged quartz, and K—feldspar, which stretch across the host rocks and enclaves occasionally.

20170826 Chen Yang (Laboratory for High Temperature and High Pressure Study of the Earth's Interior, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China); Zhang Hui **Altered Country Rocks of No. 807 Pegmatite Vein in the Kalu'an Ore Area, Xinjiang: Ore—Forming Element Diffusion Model and Its Influencing Factors** (Geochimica, ISSN0379—1726, CN44—1398/P, 45(3), 2016, p. 268—280, 10 illus., 4 tables, 29 refs.)

Key words: pegmatite, wall—rock alteration, ore—forming elements, Xinjiang

Based on the studies on altered country rock samples from No. 807 pegmatite vein in Kalu'an ore area in Xinjiang, it is found that major element oxides such as Fe_2O_3, Al_2O_3, K_2O, TiO_2 and trace elements such as Li, Rb, Cs, Be reach their maximum contents at approximately 0.5 m away from the contact zone between the pegmatite vein and the country rocks, and tend to decrease in the direction from the contact zone to the country rocks, while the content of SiO_2 shows an opposite tendency of variation. By employing the data fitting of variation rates of component contents and the corresponding distance away from the contact zone, it is suggested that the component migration patterns are controlled mainly by diffusion. Among the factors that influence the diffusion distance, the variation rate for component contents is the primary factor, while both effective diffusion coefficient and diffusion time are the secondary factors.

20170827 Chen Zheng (Development and Research Center, China Geological Survey, Beijing 100037, China); Li Junjian **LA—MC—**

ICP—MS Zircon U—Pb Dating of Granite of Southwestern Oyu Tolgoi Region in South Mongolia and Its Geological Significance (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 578—582, 3 illus., 1 table, 18 refs.)

Key words: granite, Mongolia

The zircons from biotite granite in southwestern Oyu Tolgoi region show clear oscillatory zoning, indicating that they were formed by normal crystallization of magma. U—Pb dating of 22 zircons was conducted by LA—MC—ICP—MS method. The results show that the data of 21 zircons are clustered around the concordia of (334±2)～(335±2) Ma, yielding a weighted mean $^{206}Pb/^{238}U$ age of (335.6±1) Ma, which implies that the crystallization of biotite granite in southwestern Oyu Tolgoi region occurred in Early Carboniferous.

20170828 Chen Zhihong (Nanjing Institute of Geology and Mineral Resources, Nanjing 210016, China); Zhao Ling **Zircon U—Pb Dating and Hf Isotopic Study on the Buried Moyite in the Luzong Basin** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(2), 2016, p. 55—61, 3 illus., 2 tables, 22 refs.)

Key words: syenogranite, zircon U—Pb dating, Metallogenic Belt of Middle and Lower Reaches of Yangtze River

The Luzong Basin is one of the most important volcanic basins in the Middle—Lower Yangtze Region. Precise LA—ICP—MS zircon U—Pb dating and Hf isotope analysis for two buried moyite samples (ZK2001—900 and ZK2001—1100) in the Longzong Basin are presented in this paper. Zircon LA—ICP—MS U—Pb ages and Hf isotopes data indicate that the moyite was formed in ~130 Ma, and the corresponding zircon $\varepsilon_{Hf}(t)$ values are between -7.5～-3.5 and -8.3～-1.6, respectively. The age of the buried moyite is contemporary with those of magmatism in the Longzong Basin in Early Cretaceous (135 Ma～127 Ma), implying that they all formed in the lithospheric extensional setting.

20170829 Cong Zhichao (College of Earth Sciences, Jilin University, Changchun 130061, China); Sun Fengyue **Zircon U—Pb Age and Geochemistry of the Magmatic Rocks in the Jiamusi Massif, NE China and Their Tectonic Implications** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1141—1152, 7 illus., 2 tables, 60 refs., with English abstract)

Key words: igneous rocks, U—Pb dating, geochemistry

20170830 Dang Zhicai (Tianjin Institute of Geology and Mineral Resources, China Geological Survey, Tianjin 300170, China); Li Junjian **TIMS Zircon U—Pb Age of Bayinnuoergong Granite Pluton of Alxa Block, Inner Mongolia** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 593—598, 3 illus., 2 tables, 29 refs.)

Key words: granite, U—Pb age, Inner Mongolia

The Bayinnuoergong granite pluton in the southeast of Alxa Block is located to the northwest of North China Craton and distrbuted in Yabula—Bayinnuoergong tectonic belt in the south of Huoershen—Chaganchulu tectonic belt, controlled generally by NEE—trending structure. Combined with the previous research in the study area, it is held that there are at least two magmatic activities in this area, which occurred in Late Carboniferous (304 Ma) and Early Permian (289～272 Ma).

20170831 Dang Zhicai (Tianjin Institute of Geology and Mineral Resources, China Geological Survey, Tianjin 500170, China); Li Junjian **LA—ICP—MS Zircon U—Pb Dating of the Gabbro from Xiaonanshan, Siziwang Banner, Inner Mongolia, and Its Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4),

返回目录

2016, p. 583－592, 8 illus., 4 tables, 53 refs.)

Key words: gabbros, U－Pb age, Mongolia

Located on the northwestern margin of the North China Craton, Siziwang Banner belongs tectonically to Bayun Obo marginal rift. It is about 100 km away from the north of Solonker suture. LA－ICP－MS U－Pb dating of zircons from Xiaonanshan ore－bearing gabbro yielded an age of (272.7±2.9) Ma, indicating that the pluton should be the Mid－Permain intrusion. According to the regional geology, combined with the geochemical features, it may be inferred that the intrusion may be associated with intraplate tectonic setting.

20170832 Du Jingguo (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Du Yangsong **Magmatic Processes in Jiaochong Gold Deposit, Tongling, China: Evidence from Dioritic Porphyrite** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 221－229, 8 illus., 1 table, 29 refs.)

Key words: igneous rocks, gold ores, Anhui Province

This paper presents new petrographic observations and microprobe analyses for the dioritic porphyrite from the Jiaochong gold deposit. The results show that the temperatures are 806.84～808.75, 791.00～797.86 and 660.3～683.9 ℃, respectively. The pressures are 6.75～7.06 kb, 4.63～4.87 kb, and 2.06～2.12 kb, respectively. The corresponding formation depths are 25.52～26.70, 17.50～18.40 and 7.79～8.02 km, respectively.

20170833 Duan Yaoyao (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Li Yalin **The Discovery of the Early Triassic Gabbro Rocks of the Duolong Accretionary Complexes in Southern Qiangtang Terrane of Tibet and Its Geological Significance** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 887－893, 5 illus., 2 tables, 12 refs.)

Key words: complexes, lithogeochemistry, Tibet

The outcropped Late Triassic－Jurassic accretionary complexes are located along northern Bangong Co－Nujiang suture zone where a large subduction－type Duolong porphyry copper－gold ore concentration area is developed. Bulk－rock major and trace elements, Sr－Nd isotope and LA－ICP－MS zircon U－Pb data are reported for gabbro rocks sampled from the Duolong accretionary complexes. It is considered that the end of Early Triassic igneous activity probably resulted from the northward subduction of the Bangong Co－Nujiang Ocean crust which interacted with the lithospheric mantle material. The discovery and understanding provide the northward subduction of the Bangong Co－Nujiang ocean crust in Early Triassic with important evidence of magmatism.

20170834 Feng Chong (Tianjin Branch of CNOOC, Tianjin 300452, China); Wang Qingbin **Geochemical Characteristic of Mesozoic Granite of the Penglai 9－1 Buried Hill, Bohai Bay and Its Geological Significance** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(4), 2016, p. 752－768, 10 illus., 3 tables, 62 refs.)

Key words: granite, zircon U－Pb dating, lithogeochemistry, Shandong Province

The large Penglai 9－1 oilfield in the Bohai Bay Basin is the first discovered buried hydrocarbon reservoir of the Mesozoic granite. The geochemical characteristics and origin of the rocks provide important clues for the mechanism of Mesozoic tectonic environment and continental crust growth of Bohai Bay Basin. In conclusion, the Penglai 9－1 granite pluton were formed by partial melting of lower crustal materials including subduction materials in the crust thickening background due to the postcollisional extension.

20170835 Fu Chao (Tianjin Center, China Geological Survey, Tianjin 300170, China); Li Junjian **LA—ICP—MS Zircon U—Pb Dating of Gabbro Alatengsuoyinbo, Khovd, Mongolia, and Its Geological Implications** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 572—577, 4 illus., 1 table, 30 refs.)

Key words: gabbros, U—Pb age, Mongolia

Alatengsuoyinbo region in Khovd, Mongolia, is located in the southern Altay tectonic zone which possesses a series of arcbasin and accretionary complexes. This paper reports the zircon age of gabbro and its tectonic environment. 15 grains of gabbro zircon are assigned to two categories: one type of zircons has obvious band rhythm and the other type of zircons is uniform and clean without inclusion. The gabbro was formed during Late Carboniferous. The research shows that the gabbro was formed at the end stage of the plate subduction and collision, being the product of mafic magmatic activities under the background of Altay orogeny.

20170836 Fu Chao (Tianjin Center, China Geological Survey, Tianjin 500170, China); Li Junjian **LA—ICP—MS Zircon U—Pb Dating of Monzogranite in Bayintolgoi, Gobi — Altay, Mongolia, and Its Geological Implications** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 565—571, 5 illus., 1 table, 25 refs.)

Key words: monzogranite, U—Pb age, Mongolia

Bayintolgoi region in Mongolia is located in the southern South—Gobi—Altay tectonic zone. In this region, tectonic movement is active and intermediate—acidic intrusive rocks are well developed. Analysis of LA—ICP—MS zircon U—Pb ages was conducted for zircons from monzogranite in Bayintolgoi, Mongolia. As revealed by the cathodoluminescence images, all the zircons from monzogranite are euhedral—subhedral and have oscillatory zoning, with almost all the zircons having high Th/U ratios. The data provide new evidence for the Upper Carboniferous orogeny in South—Gobi—Altay tectonic zone.

20170837 Gao Jinggang (MOE Key Laboratory of Western Mineral Resources and Geological Engineering, Earth Science and Resources College, Chang'an University, Xi'an 710054, China); Li Wenyuan **Geochemical, Zircon U—Pb Dating and Sr—Nd—Pb Isotope Characteristics for Late Devonian Pluton of the Boluohuoluo Area, West Tianshan and Its Geological Implication** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(5), 2016, p. 1379—1390, 9 illus., 4 tables, 58 refs., with English abstract)

Key words: igneous rocks, Upper Devonian, U—Pb dating, isotope geochemistry, Tianshan Mountains

20170838 Guo Fusheng (Fundamental Science on Radioactive Geology and Earploration Technology Laboratory, East China University of Technology, Nanchang 330013, China); Yang Qingkun **Geochemical Characteristics and Petrogenesis of the Acidic Volcano—Intrusive Complexes, Xiangshan, Jiangxi Province** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(4), 2016, p. 769—784, 11 illus., 1 table, 60 refs.)

Key words: igneous rocks, Pb—Sr—Nd isotope, Jiangxi Province

The Xiangshan volcanic basin comprises volcano—intrusive complexes that are composed of tuff, rhyolite dacite, porphyry rhyolitic dacite, porphyroclastic lava, coarse grained porphyry and porphyritic granite. This paper discussed the origin and evolution of these igneous rocks based on their whole rock major and trace elements, as well as Pb—Sr—Nd isotopes. The Xiangshan volcanic basin comprises volcano—intrusive complexes that are composed of tuff, rhyolite dacite, porphyry rhyolitic dacite, porphyroclastic lava, coarse grained porphyry and porphyritic

返回目录

granite. The paper discussed the origin and evolution of these igneous rocks based on their whole rock major and trace elements, as well as Pb—Sr—Nd isotopes.

20170839 Han Qiang (Institute of Exploration and Development of Northwest Oil Branch, SINOPEC, Urumqi 830011, China); Zhu Yunhui **Petrological Characteristics and Zircon U—Pb Age for Magmatic Rocks from Pre—Sinian Basement of the SDQ Area of Shaya Rise in Tarim Basin, NW China** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(5), 2016, p. 1493—1504, 5 illus., 2 tables, 74 refs., with English abstract)

Key words: igneous rocks, Sinian, U—Pb dating, Tarim Basin

20170840 Han Xiaoping (Liaoning Institute of Geological Exploration, Dalian 116100, China); Wang Haipeng **The Recognition and Geological Significance of TTG Rock Assemblage in the Permian—Triassic Intrusive Rocks in Fuxin, Liaoning Province** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(2), 2016, p. 108—112, 5 illus., 2 tables, 6 refs.)

Key words: intrusions, Liaoning Province

Applying intrusive rock TAS diagram and An—Ab—Or norm mineral classification diagram, the $T_1T_2G_1G_2$ rock assemblage is recognized in the Permian—Triassic intrusive rocks in Fuxin area, Liaoning Province, showing well time—space polarity. The main part of the rock assemblage is distributed in the north, which is a good evidence for the regional and phased evolution of the Paleo—Asia oceanic plate subduction. The TTG assemblage is closely related to the formation of Au and Au—Cu deposits. Therefore the correct and effective recognition of TTG rock assemblage would provide clues for the exploration of the same kind of mineral deposits in the area.

20170841 Han Yu (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Niu Manlan **Defromation Features and Zircon U—Pb Dating of the Granitic Dikes from the Feidong Area and Its Implications on the Tectonic Activity of Tan—Lu Fault Zone during Early Cretaceous** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1049—1066, 6 illus., 1 table, 87 refs.)

Key words: granite, strike—slip faults, U—Pb dating

A large—scale NNE—striking sinistral ductile shear belts and a low angle ductile normal fault are exposed in Xiwei area from the Feidong segment of the Tan—Lu Fault Zone that is located between Dabie orogen and Sulu orogen. The strike—slip ductile shear belt formed from the activity of the Tan—Lu Fault Zone and the low angle ductile normal fault was developed in extensional tectonic settings. There are a great deal of granitic dikes in the strike—slip ductile shear belt and both sides of the normal fault, including deformed and undeformed dikes. Studies on structure and isotope chronology of these dikes indicate the low angle normal fault happened during 129～126 Ma, but the forming time of the strike—slip ductile shear zone is later than 125 Ma. Combined with previous research results, the extensional activities of Tan—Lu Fault Zone started as early as 130 Ma, but it did not last during the Early Cretaceous, a sinistral strike—slip could take place in the Late Cretaceous.

20170842 Hu Jun (Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Wang He **Geochronology and Geochemistry of the Carboniferous volcanic rocks in Zhongyangchang from Tianshuihai Terrane, Xinjiang: Petrogenesis and Geological Significance** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1699—1714, 9 illus., 3 ta-

bles, 102 refs.)

Key words: volcanic rocks, Carboniferous, geochronology, geochemistry, Xinjiang

A suit of interbedding basalts, basaltic andesites and rhyolites distributes in Zhongyangchang located in the western part of Tianshuihai terrane. In this paper, the signatures of geology, petrology, geochronology and geochemistry characteristics on the rocks are researched. Three groups of ages are acquired by LA－ICP－MS zircon U－Pb dating of rhyolite. The age of (343.5±4.1) Ma indicates the volcanic rocks are formed during Early Carboniferous. The Early Carboniferous volcanic rocks in Zhongyangchang may be the record of the extension in early period for the western part of Palo－Tethys Ocean, providing new evidence for the pattern of poly－islands oceanic basin in Karakorum－Tianshuihai terrane.

20170843 Hu Peiyuan (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Li Cai **A Back－Arc Extensional Environment of the Early Carboniferous Paleo－Tethys Ocean in Tibetan Plateau: Evidences from A－Type Granites** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1219－1231, 9 illus., 3 tables, 100 refs., with English abstract)

Key words: A－type granite, U－Pb dating, Qinghai－Tibetan Plateau

20170844 Hu Wanlong (Key Laboratory of Mineral Resources of Western China, School of Earth Sciences, Lanzhou University, Lanzhou 730000, China); Jia Zhilei **Geochronology and Geochemistry Characteristics of the Granites from the Huashigou Area, South Qilian and Their Tectonic Significance** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 242－253, 12 illus., 3 tables, 85 refs.)

Key words: monzogranite, Qilian Mountains

The monzonitic granites intruded into Devonian－Carboniferous Amunike Formation in a long strip fashion in the Huashigou area. According to the zircon U－Pb weighted mean age of (252.0±2.1) Ma determined using LA－ICP－MS, it was suggested that the rock was formed in Late Permian. The study shows that the Huashigou monzonitic granites is the product of partial melting of Mid－Neoproterozoic basaltic lower crust by the under plating heating of Late Paleozoic basaltic magma under the tectonic setting of orogenic compression transforming into post orogenic extension.

20170845 Jiang Xiaojun (No. 208 Geological Party of Nuclear Industry, Baotou 014000, China); Xu Zhongyuan **Petrogenesis and Tectonic Setting of the Granites in Honggeertu Area, Central Inner Mongolia: Constraints from LA－ICP－MS Zircon U－Pb Chronology and Geochemistry** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 750－765, 12 illus., 5 tables, 44 refs.)

Key words: granite, U－Pb age, Inner Mongolia

Honggeertu granites, located in central Inner Mongolia and belonging to southern Solon－Linxi fault, is mainly composed of middle－fine to middle－coarse grained syenite granites and monzonitic granites. The rocks belong to highly fractionated I－type granites formed in a post orogenic tectonic environment. Zircon LA－ICP－MS dating yielded $^{206}Pb/^{238}U$ weighted average ages, i.e., (267.2±1.4) Ma(MSWD=1.5), (269.2±1.6) Ma (MSWD=1.7) and (272.1±1.2) Ma (MSWD=0.38), indicating that the rock was formed in the Middle Permian. The new data suggest that the collision between NCC and Siberian Craton was earlier than the formation of the rock, and should be at least as early as 267.2～272.1 Ma.

20170846 Jin Xia (Geological Survey of Gansu Province, Lanzhou 730000, China); Huang Zeng'ao **Petrological and Geochemical Charac-**

返回目录

teristics of Sidingheishan Batholiths and Discussion on Its Genesis (Gansu Geology, ISSN1004－4116, CN 62－1191/P, 25(2), 2016, p. 20－28, 4 illus., 1 table, 47 refs.)

Key words: adakite, Gansu Province

Sidingheishan batholiths is one of representative example of the Beishan tectono－magmatic belt in Gansu Province, which is the largest scale and the most rock types, and composed of Sidingheishan pluton, Shuanggoushan pluton and Ma'anshanbei pluton. On the basis of the study, combined with the tectonic locations of granite occurrence and field observation data, Shuanggoushan pluton were most likely derived from the partial melting of basaltic lower crust in the thickened crust resulted from hot mantle material upwelling as several mushroom cloud and the thermally altered ground uplifting to the bottom of continental crust in Mid and Late Permian.

20170847 Kang Lei (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, MLR, Xi'an Center of Geological Survey, CGS, Xi'an 710054, China); Xiao Peixi **Chronology, Geochemistry and Petrogenesis of Monzonitic Granite and Quartz Diorite in Mangai Area: Its Inspiration to Early Paleozoic Tectonic－Magmatic Evolution of the Southern Altyn Tagh** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1731－1748, 10 illus., 4 tables, 121 refs.)

Key words: monzogranite, quartz diorite, geochronology, geochemistry, Altun Mountains

Early Paleozoic monzonitic granite and quartz diorite, outcropped in Mangai area of the southern Altyn Tagh, its' ages are each (322.8±2.2) Ma and (319±1.7) Ma with the method of LA－ICP－MS zircon U－Pb dating. According to geochemical data, the former is ascribed to shoshonitic with peraluminous S－type granite which be characterized by high $(La/Yb)_N$ and Sr/Y and low contents of HREE, Yb and Y, and the latter is ascribed to high K calc－alkaline series with metaluminous to slightly peraluminous I－type granite which has the characteristic of low $(La/Yb)_N$ and Sr/Y and high contents of HREE, Yb and Y. Consequently, the authors consider that Early Paleozoic tectonic－magmatic evolution of southern Altyn Tagh should be subdivided into three stages.

20170848 Lai Anqi (Faculty of Land and Resource Engineering, Kunming University of Science and Technology, Kunming 650093, China); Li Wengchang **Zircon U－Pb Dating, Geochemical Characteristics of Songnuo Quartz Monzonite Porphyries in the Geza Arc, Yunnan Province, and Their Geological Significance** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 955－969, 11 illus., 2 tables, 35 refs.)

Key words: quartz monzonite, zircon U－Pb age, Yunnan Province

This apaper through the LA ICP MS zircon U－Pb dating method to obtain crystallization age of brass mineralization quartz monzonite porphyry is (204.7+1.4) Ma (MSWD = 0.21). Regional tectonic evolution and lithogeochemical characteristics show that the ore bearing rock body is formed in volcanic arc tectonic environment. Its formation is closely related with the westward subduction of Garze－Litang oceanic crust. Combined with the study on geochemical and Zircon U－Pb dating, Songnuo copper polymetallic deposit and Pulang copper deposit have similar geochemical characteristics and rock forming and ore forming ages and they show larger resource potential and good prospecting potential.

20170849 Lei Wanshan (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Guo Junfeng **Lithogeochemistry and LA－ICP－MS Zircon U－Pb Age and Its Tectonic Significance of Sujishan A－type Granite Pluton, Eastern Bogda Mountains** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 231－241, 7 illus., 3 tables,

57 refs.)

Key words: A-type granite, Xinjiang

The Sujishan granite, formed at Balikun, Xinjiang Province, is a ferro-edenite alkali-feldspar granite, locating tectonically at the eastern segment of the Bogda orogenic belt. These characteristics show that it belongs to A-type granite, and specifically most of the samples fall into the range of A2-type granite according to the discrimination diagrams. In combination with granites emplaced at adjacent region, the Sujishan A-type granite marked a limited stretching mechanics related with rifting, which may be the product of oblique subduction of the paleo-Asian Ocean plate along the Kalameili subduction belt.

20170850 Li Bin (Shenyang Institute of Geology and Mineral resources, CGS, Shenyang 110034, China); Chen Jingsheng **Zircon U-Pb Geochronology and Geochemistry of the Dahuanghua Syenogranite in Aohan Qi, Inner Mongolia** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(2), 2016, p. 113-120, 6 illus., 2 tables, 27 refs.)

Key words: syenogranite, U-Pb dating, Inner Mongolia

Based on the study of zircon U-Pb geochronology and geochemistry of the Dahuanghua syenogranite in Aohan Qi, Inner Mongolia, the formation time, petrogenesis and tectonic background are discussed. The result of the zircon U-Pb age by laser ablation ICP-MS technique is (162.6±1.9) Ma, indicating that the Dahuanghua syenogranite is formed in late Middle Jurassic. Combining the geochemical and regional geological characteristics, it is suggested that the Dahuanghua syenogranite should be generated in postcollisional extension tectonic setting with the evolution of Mongolian-Okhotsk suture zone.

20170851 Li Jie (Faculty of Earth Resource, China University of Geosciences, Wuhan 430074, China); Lü Xinbiao **Geochronological and Geochemical Characteristics of the Rhyolites in Taerqi of Middle Greater Hinggan Mountains and Their Geological Significance** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(6), 2016, p. 906-918, 9 illus., 2 tables, 66 refs.)

Key words: rhyolites, lithogeochemistry, Greater Hinggan Mountains

In this paper, detailed LA-ICP-MS zircon U-Pb geochronological and element geochemical studies were carried out for the rhyolites. The zircon U-Pb dating yielded a weighted average age of (132±2) Ma(MSWD=1.5, 2σ), indicating that the rhyolites were formed at the middle stage of the Early Cretaceous. Rock geochemical characteristics show that the rocks are peraluminous cal-alkaline rhyolites, which are characterized by high SiO_2(71.6%~77%), high potassium and alkali content (K_2O=4.5%~5.46%, Na_2O+K_2O=7.94%~9.64%). Trace elements have a similar variation trend that systematic enrichment of LILE and depletion of HFSE as well as LREE fractionation are more obvious than that of HREE, and also show significant weak anomaly of Eu (δEu=0.22~0.7).

20170852 Li Man (College of Geology and Mining Engineering, Xinjiang University, Urumqi 850049, China); Chai Fengmei **LA-ICP-MS Zircon U-Pb Ages, Geochemistry and Hf Isotopic Composition of Jinbaogou Granite Porphyry in Eastern Hebei and Their Geological Implications** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(5), 2016, p. 790-806, 12 illus., 3 tables, 71 refs.)

Key words: porphyry, Inner Mongolia

The Jinbaogou gold deposit in eastern Hebei has been recently identified as a large porphyry gold deposit. The orebodies mainly occur in Jinbaogou granite porphyry and the contact zone between the granite porphyry and the biotite-hornblende plagiogneiss of Archean Qian'xi Group. Integrated with the regional geological materials, it is considered that the Middle Jurassic granites in the eastern

返回目录

Hebei, including the Jinbaogou granite porphyry and volcanics of Tiaojishan, were under the tectonic settings of crustal thicke-ning and the subduction of ancient Pacific Plate towards Eurasian Plate, and were emplaced during the relaxation after extrusion stress.

20170853 Li Xianghui (School of Earth Sciences and Engineering, Nanjing University, Nanjing 210046, China); Wang Chengshan **Chronology of the Volcanic Rock Intercalations within the Flysch of the Songpan—Ganzi Folded Belt and Its Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(6), 2016, p. 879—886, 3 illus., 2 tables, 1 plate, 25 refs.)

Key words: andesite, tuff, Sichuan Province

Several intercalations of volcanic and pyroclastic rocks were firstly discovered within the flysch of the Songpan—Ganzi folded belt. Samples were taken in northwestern Songpan of Sichuan Province and southwestern Hezuo of Gansu Province. Using U—Pb isotope measurement of LA—ICP—MS, the authors conducted dating of four samples and obtained ages of (205.9±1.6) Ma, (208.9±1.8) Ma, (210.4± 1.6) Ma and (212.3 ± 1.5) Ma separately, precisely showing the late Norian—early Rhaetian age of the Late Triassic. These are the age representatives of volcanic eruptions during the flysch accumulation and indicate that the deposition might have not stopped until the early Rhaetian.

20170854 Li Yongjun (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Xu Qian **Intracontinental "Lagged Arc Volcanic Rocks" and Its Geological Significance: Evidence from Early Permian Lagged Arc Magmatism in Northern Urho Area of Western Junggar** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 190—199, 11 illus., 35 refs.)

Key words: igneous rocks, Junggar Basin

The "Lagged arc volcanic rocks" distributed in Urho area in the south of Hala'alat Mountain of West Junggar. It is composed of Urho dyke swarms and Baiyanghe basalt, which constitute a complete continental volcanic apparatus and is angular unconformably overlying on the Jiamuhe molasse formation of Lower Permian system. All samples are characterized by the enrichment of LILE (K, Ba, Sr), the depletion of HFSE (Nb, Ta, Zr, Hf), positive $\varepsilon_{Nd}(t)$ values and relatively low initial Sr isotopic ratios, indicating that the source of the volcanic rocks is the enriched mantle. "Lagged arc volcanic rocks" occurred after the closure of ocean basin and the disappearance of trench arc basin system in surface, and later than post—orogenic sedimentary record, suggesting that the final completion of the subduction in Western Junggar was in the late Early Permian.

20170855 Li Zhuang (School of Earth and Space Sciences, Peking University, Beijing 100871, China); Meng En **Geochronology, Geochemistry and Origin of the Early Cretaceous Jianyi Pluton in Dashiqiao, Liaoning Province** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(2), 2016, p. 101—107, 5 illus., 2 tables, 19 refs.)

Key words: granodiorites, geochronology, Liaoning Province

The Jianyi pluton, located in Dashiqiao, Liaoning Province, Northeast China, is dominated by granodiorite. The zircons from the granodiorite show euhedral shape, oscillatory and sector—zoning, with high Th/U ratios ()0.1), suggesting a typical magmatic origin. Integration of the new data with recent geological studies concludes that the Jianyi pluton and the Early Cretaceous magmatism in the eastern North China Craton was formed in an extensional setting similar to back—arc basin, which may be related to the subduction of the Paleo—Pacific oceanic plate.

20170856 Lin Jingyin (Jilin Team, China Geological Survey Center for Building Materials Industry, Changchun 130012, China); Dong

Peixin Preliminary Analysis of Geological Characteristics and Genesis of the Obsidian from Changbaishan Mountains (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 204－207, 3 illus., 2 tables, 6 refs.)

Key words: obsidia

The obsidian in Changbaishan area is the result of volcanic activities. It is formed by the specific eruption of the Changbaishan volcano, with special geological characteristics. The obsidian is also the evidence for the history and culture of Changbaishan Mountains. Based on analysis of chemical composition and tests of physical properties, this paper preliminarily studies the characteristics, formation, distribution and genesis of the obsidian from Changbaishan Mountains, which would provide a reference for the development and utilization of the obsidian in the area.

20170857 Liu Rui (Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China); Yang Zhen **Zircon U－Pb Ages, Elemental and Sr－Nd－Pb Isotopic Geochemistry of the Hercynian Granitoids from the Southern Segment of the Da Hinggan Mts.: Petrogenesis and Tectonic Implications** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1505－1528, 15 illus., 6 tables, 118 refs., with English abstract)

Key words: granitoid, U－Pb dating, isotope geochemistry, Greater Hinggan Mountains

20170858 Liu Xiu (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Yu Xinqi **The First Discovery of Indosinian Quartz Porphyry in Dongkengkou Village, Southern Anhui Province** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 1015－1024, 7 illus., 2 tables, 32 refs., with English abstract)

Key words: quartz porphyry, Indosinian, Anhui Province

20170859 Liuq Ingping (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059); Huo Yan **The Petrogeochemistry of Volcanic Rock of the Nianbo Formation in Gangdisê** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 323－327, 6 illus., 1 table, 26 refs.)

Key words: igneous rocks, Tibet

This paper deals with geochemistry of volcanic rock of the Nianbo Formation of the Linzizong Group in Coqên, West Gangdisê and correlates it with that of volcanic rock of the Nianbo Formation in the Lhünzhub Basin. The paper indicates that as compared with volcanic rock of the Nianbo Formation in the Lhünzhub Basin, volcanic rock of the Nianbo Formation of the Linzizong Group in the West Gangdisê is richer in K, Rb and Th and depleted in Nb, Ta and Ti. Isotopic dating indicates that volcanic rock of the Nianbo Formation of the Linzizong Group in the west Gangdisê is older than that of the Nianbo Formation in the Lhünzhub Basin. The west Gangdisê lay in post－collision setting, while the Lhünzhub Basin lay in collision－transitional setting.

20170860 Ma Fangbin (Geological Research Institute of China Chemical Geology and Mine Bureau, Zhuozhou 072754, China); Xi Guoqing **Geochemical Characteristics and Petrogenesis of Hongbaoshan－Jianquan Mafic－Ultramafic Intrusions in Eastern Tianshan, Xinjiang** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 176－188, 10 illus., 2 tables, 36 refs.)

Key words: ultramafics, lithogeochemistry, Tianshan Mountains

Located in the Kawabulake area of eastern Tianshan, the Hongbaoshan－Jianquan manficultramafic intrusions exhibit as vein and lenticular, with outcropped area of ～8 km^2. It mainly consists of dunite, peridotite and wehrlite. The geochemical data shows that

返回目录

these intrusions belong to magnesian ultramafic rocks. The geochemical diagrams of major and trace elements correlation indicate that the primary magma of Hongbaoshan—Jianquan intrusions is cal—alkaline basaltic magma that formed in mantle, their diagenesis are mainly controlled by the magmatic crystallization, and contaminated by the crust during upward of magma.

20170861 Nan Yun (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Liu Yiqun **Characteristics and Origin of Amygdale and Crack Fillers in Volcanic Rock of Late Carboniferous in Santanghu Basin, Xinjiang** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1901—1913, 7 illus., 5 tables, 105 refs.)

Key words: volcanic rocks, Upper Carboniferous, Xinjiang

As products of hydrothermal activity, amygdale and crack fillers in volcanic rock carried the information of physical and chemical condition during fluid precipitation. The authors studied on the characteristics and origin of amygdale and crack fillers in volcanic rock of Late Carboniferous in Santanghu Basin, Xinjiang, by means of the observation of drill cores and thin sections, and the analysis of X—ray diffraction, electron microprobe and scanning electron microscopy. There were two kinds of amygdale fillers in the study area. Distribution of crack fillers was obviously zonation. Veins filled with zeolite, calcite, and celadonite mainly existed in taupe andesite, while quartz veins only distributed in dark—gray andesite.

20170862 Qi Ruirong (No. 4 Geological Survey Party, Gansu Bureau of Geology and Mineral Resource Exploration, Jiuquan 735000, China); Lei Zhicai **Geochemical Characteristics of Xinjing Adakitic Quartz—Diorite Complex from the Beishan Area, Gansu Province and Its Geological Significance** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(2), 2016, p. 134—140, 5 illus., 3 tables, 16 refs.)

Key words: adakite, lithogeochemistry, Gansu Province

The Xinjing quartz—diorite, lies in the Beishan area, Gansu Province, is occurred in the Paleozoic Beishan island arc belt. The results of petrochemistry show positive Eu anomalies, indicating that the plagiogranite porphyry shows characteristics of adakitic rocks. These adakitic rocks were formed by the partial melting of subducting slab with MORB features under some physical and chemical conditions, and then they were directly emplaced to the near surface. Thus, these adakitic rocks have close spatial temporal relationship with gold mineralization in this studying area.

20170863 Qi Youqiang (State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Hu Ruizhong **Zircon U—Pb Geochronology and Geochemical Characteristics of the Mafic Intrusions in Northwestern Guizhou Province, and Their Significances to the Lead—Zinc Mineralization** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 933—949, 12 illus., 4 tables, 50 refs.)

Key words: basic rocks, zircon U—Pb dating, Guizhou Province

This study carried out detailed exploration in the Ermachong and Baiyanqing intrusions located in Maomaochang and Liangshan lead—zinc mine respectively. The intrusive rocks consisted mainly of fine—grained gabbros and main rock—forming minerals are plagioclase (labradorite) and clinopyroxene (augite). The addition of crustal material into the mantle source was probably the main cause of the mantle enrichment. The relationship between the diagenesis and mineralization in the study area are displayed in the following aspects. One is the coupling between tectonic

activities and the other is that the mafic rocks may play an important role as a chemical barrier in the process of mineralization.

20170864 Qiangba Zhaxi (Regional Geological Survey Party, Tibetan Bureau of Geology and Mineral Exploration and Development, Doilungdeqen 851400, China); Wu Hao **Early Cretaceous Magmatism in Dongqiao, Tibet: Implications for the Evolution of the Bangong—Nujiang Ocean and Crustal Growth in a Continent—Continent Collision Zone** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(5), 2016, p. 648—666, 9 illus., 2 tables, 59 refs.)

Key words: igneous rocks, suture zones, Tibet

In this paper, the authors report the LA—ICP—MS zircon U—Pb age and whole—rock major and trace element composition data of the diverse Early Cretaceous magmatic rocks from Dongqiao. The new data obtained by the authors, together with recently published data, led the authors to develop a model of bidirectional subduction and subsequent slab break—off of the lithosphere of the Bangong—Nujiang Ocean which can explain the two magmatic events in the region from BNSZ to the southern Qiangtang terrane. Research on high Sr rhyolites indicates that the extensive magmatism and continent—continent collision contributed significantly to the crustal growth after the closure of Bangong—Nujiang Ocean in Early Cretaceous.

20170865 Qiu Yiran (State Key laboratory of Geological Processes and Mineral Resources, China University of Geosciences (Beijing), Beijing 100083, China); Luo Zhaohua **The Solidification Process of Qingpi Village Miyi Mafic Intrusion, Sichuan Province** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 241—254, 10 illus., 4 tables, 47 refs.)

Key words: magmatic differentiation, iron ores, Sichuan Province

In this paper, the author takes the Qingpi Village Miyi mafic intrusion, Sichuan Province as an example, using petrography and mineral composition profile and quantitative texture analysis to clarify the solidification process of non—ore bearing intrusions, then compares it with ore bearing intrusions of Panzhihua to explain the difference in the formation process between them. Petrographic analysis shows that rock forming minerals of medium grain gabbro from Qingpi Village intrusions can be divided into 4 generations. Quantitative texture analysis reveals the coarsening process in the later period of solidification, which is the important evidence for the solidification process of closed magma system, consistent with the petrographic and crystal composition profile analysis.

20170866 Ruan Qingfeng (Faculty of Earth Sciences, Guilin University of Technology, School of Chemistry and Pharmacy, Guangxi Normal University, Guuilin 541004, China); Qiu Zhihui **Morphology and Genesis of Lantern—Shaped Prehnite Aggregate in Basalt from Qiaojia in Yunnan Province, China** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(2), 2016, p. 1—10, 8 illus., 2 tables, 21 refs.)

Key words: granite, Kunlun Mountains, Yunnan Province

Morphology and formation of the lantern—shaped prehnite aggregates in amygdaloidal and porphyritic basaltic druse, Qiaojia in Yunnan Province, China, are systematically studied by optical microscope, scanning electron microscope, electron back scatter diffraction, electron probe, Raman probe and other modern instruments.. It reveals that prehnite formed in low temperature (151.5 ℃～169.1 ℃)and low salinity (10.11%～11.81%) hydrothermal solutions with a small amount of organics in the hydrothermal solution, such as methane, which makes prehnite crystals form as aggregates of pellets with smaller specific surface area. It is considered that sources of

返回目录

strontium in miarolitic cavity are closely related to Lower Permian strontium carbonate formation directly below the basalt rock.

20170867 Song Weimin (College of Resources and Civil Engineering, Northeast University, Shenyang 110819, China); Tao Nan **Geochronology and Geochemistry of the Aolansandui Pluton in Horqin Right Wing Middle Banner of Inner Mongolia** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 932－942, 14 illus., 2 tables, 45 refs.)

Key words: granite, lithogeochemistry, Inner Mongolia

Geochronology and geochemistry of the Aolansandui pluton in Horqin Right Wing Middle Banner of Inner Mongolia were studied. Comprehensive analysis shows that the syenitegranite was formed by low pressure felsic crust partial melting. In (Y＋Nb)－Rb, (Yb＋Ta)－Rb, Nb－Y－Ce diagrams combined with regional tectonic evolution, the authors hold that the syenogranite was formed in a post－orogenic setting. In the Middle Late Triassic period, the regional tectonic regime in Horqin Right Wing Middle Banner of Inner Mongolia underwent significant changes, and experienced asthenosphere upwelling after squeezing into the orogenic lithosphere and thinning.

20170868 Sun Jiaopeng (China University of Petroleum, School of Geosciences, Qingdao 266555, China); Chen Shiyue **Geochemical Composition of Glutenite from Quanji Group in Oulongbuluke Mountain Outcrop and Its Geological Significance** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 174－182, 8 illus., 1 table, 23 refs.)

Key words: conglomerate, lithogeochemistry

There is a marked difference between major elements and trace elements in the lower part of glutenite segment (Pt_{3qna}) and quartz sandstone (Pt_{3qnb}) from the Quanji Group Oulongbuluke block. Major and tract elements in quartz sandstone (Pt_{3qnb}) samples except for SiO_2, V, Zr, and Hf contents were higher than those in glutenite segment (Pt_{3qna}) samples, and the remaining elements are visibly lower than those in glutenite segment (Pt_{3qna}) samples. Subsequently, the rift trough gradually expanded, tectonic activity in the study area gradually stabilized, terrigenous clastic rock compositional maturity and structural maturity of Quanji Group also significantly increased.

20170869 Tan Panpan (Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Lu Zhenquan **Geochemistry and Geological Implications of the Volcanic Rocks in the Potential Areas of the Permafrost Hydrates from the Tuotuohe Area, Southern Qinghai Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 87－96, 8 illus., 3 tables, 44 refs., with English abstract)

Key words: volcanic rocks, Qinghai Province

20170870 Tang Jinhui (School of Nuclear Engineering and Geophysics, East China Institute of Technology, Fuzhou 344000, China); Lou Feng **LA－ICP－MS Zircon U－Pb Age of Early Jurassic Granite Basement in Rencha Volcanic Basin and Its Geological Significance** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 989－997, 4 illus., 1 table, 25 refs.)

Key words: granite, U－Pb age, Guangdong Province

Rencha basin is one of the typical Mesozoic－Cenozoic volcanic fault basins in northeast Guangdong Province. Drilling exploration reveals that its basement is mainly composed of Paleozoic metamorphic rocks and graphic granite. In order to further investigate the formation age of the basement rock masses and to improve the knowledge of geological evolution of the area, the authors conducted

isotope dating of the samples of graphic granite basement from two drill holes in the basin. The ages not only deepen the understanding of the formation and evolution of the Rencha Basin but also provide new chronologic data for the report that northeast Guangdong Province was lack of magmatic activity in Early Jurassic.

20170871 Tang Wenlong (Tianjin Center of China Geological Survey, Tianjin 300170, China); Li Junjian **LA－ICP－MS Zircon U－Pb Dating of Monzogranite of Harshatewula Area in South Gobi Province, Mongolia, and Its Geological Significance** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 559－564, 3 illus., 1 table, 22 refs.)

Key words: monzogranite, zircon, Mongolia

High precision LA－ICP－MS zircon U－Pb dating of the Harshatewula monzogranites was conducted. The analyses indicate that the intrusion was formed at (327.0±2.1) Ma, belonging to Early Carboniferous. The age is a relatively reliable and directly measured datum which provides the evidence for the existence of an island arc magmatite belt composed of Beishan tectonic belt, Harlike－Dananhu island arc belt and Gobi－Tianshan island arc magmatite belt. This result has great significance for the understanding of the tectonic－geological evolution in this area.

20170872 Tang Wenlong (Tianjin Center of China Geological Survey, Tianjin 300170, China); Li Junjian **LA－ICP－MS Zircon U－Pb Dating of Alkali－Feldspar Granite on the Periphery of the Oyu Tolgoi Deposit, Mongolia, and Its Geological Significance** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 553－558, 3 illus., 1 table, 22 refs.)

Key words: granite, zircon, Mongolia

The alkali－feldspar granite of the study area located 20 km south of the superlarge Oyu Tolgoi Cu－Au deposit. The tectonic setting of the study area belongs to Paleozoic island arc zone of Gobi－Tianshan controlled by intersection of the near－latitudinal fault and an oblique transverse fault on the south margin of Siberian Plate. A sample was collected from Onealkali－feldspar granite, and CL characteristics of zircons suggest magmatic origin. LA－ICP－MS U－Pb dating of zircon from the sample shows that the emplacing age is (286.0±0.91) Ma (MSWD=1.4), belonging to Permian period. The study area is characterized by multiperiodic diagenesis and mineralization. The isotope age provides not only the direct evidence for the multiperiodic magmatic activities but also the prospecting direction for the study area.

20170873 Tang Xin (National Deep Sea Center, Qingdao 266061, China); Yang Yaomin **The Significances and Compositions of Melt Inclusions in the Basalt from South Atlantic 15°S Hydrothermal Field** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 362－371, 5 illus., 5 tables, 27 refs.)

Key words: basalts, fluid inclusions, Atlantic Ocean

The characteristics of silicate minerals, metals and fluid phase in the melt inclusions contain the information on composition changes of magma and separation process of metal ore－forming materials in the process of magma evolution. Therefore, melt inclusions in the basalt plagioclases from the 15°S hydrothermal field of the South Middle Atlantic Ridge (SMAR15°S) are selected as research object so as to study the contribution of the magmatism to the mineralization. Analyses of scanning electron microscopy, energy spectrometer and laser Raman spectroscopy reveal that some metal minerals such as chalcopyrite, pyrite, magnetite and chromite exist in the melt inclusions. It is considered that these metal minerals are precipitated in the melt inclusions from the magma by the degassing processes.

20170874 Tian Jian (Faulty of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Liao Qunan **Mantle Underplated Pluton and Stitching Granite Pluton from South Side of the Karamaili Fault in Eastern Junggar: Geochronological, Geochemical and Sr—Nd Isotopic Constraints on Their Petrogenesis and Tectonic Implications** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1715—1730, 12 illus., 3 tables, 103 refs.)

Key words: alkali feldspar granite, hornblende gabbro, underplating, Junggar Basin

Dishuiquan—Xumuban intrusions containing K—feldspar granite pluton and visible smaller hornblende—gabbro pluton are located in the south side of the Karamaili fault in Fuyun County, Xinjiang, which shows a characteristic of NWW zonal distribution. The K—feldspar granite pluton is made of K—feldspar granite porphyry and K—feldspar granite, whose characteristics is similar with A—type granite. The hornblende—gabbro pluton is surging K—feldspar granite pluton, quartz diorite is visible in the magma mixing zone. According to intrusion regional geology, the bimodal rock associations and $R_2 - R_1$ diagram, the authors can find that a Dishuiquan intrusion is formed in intra—continent extension environment and the granite pluton is a stitching body.

20170875 Tian Jiepeng (China University of Geosciences, Beijing 100083, China); Tian Jingxiang **Jiaodong—Type Gold Deposit Related to Crust Source Remelting Layered Granite and Crust—Mantle Mixed Granodiorite** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 987—996, 4 illus., 46 refs.)

Key words: granite, gold ores, Shandong Province

Jiaodong—type gold deposit refer to the gold deposits related to the layered magmatic activities of the crust remelting and crustal—mantle mixing magma, which show different deposit types in response to their structural positions and ore hosting structure. The gold deposits of this kind contain altered tectonite—type and quartz vein type, etc. This resulted in further expansion of the metallogenic structural plane in the vicinity of the Guojialing granodiorites and increasing of fluid concentration, finally leading to the formation of gold ore bodies when the granodiorite reached a specific depth.

20170876 Wang Bohua (No. 313 Team, Anhui Bureau of Geology and Mineral Resources, Liu'an 237010, China); Zhang Huaidong **Geological and Geochemical Characteristics and Genesis of Magmatic Rocks Related to Porphyry Mo Deposits in the Beihuaiyang Region** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 46—62, 9 illus., 5 tables, 129 refs.)

Key words: igneous rocks, molybdenum ores, Anhui Province

This study has investigated the intrusive rocks in the field which are closely related with porphyry molybdenum deposit, by using the method of whole—rock major elements, trace elements and isotope geochemistry research, and discussed its petrogenesis. This research shows that the scale of metallogenetic rock body is small, and the lithology is porphyry granite, which is controlled by the fault structure in northeast and northwest. The chemical composition of rocks is characterized by high silicon, and potassium alkali—rich, belonged to high—K calc—alkaine—shoshonitic series, metaluminous—peraluminous rocks. Trace and rare earth elements have similar characteristics and show features of crustal sources. Sr—Nd—Pb—Hf isotope geochemical characteristics show that those metallogenic granitic magma has the same sources with Dabie Cretaceous granites.

20170877 Wang Chaowei (Key Laboratory of Tectonic Controlled Mineralization and Oil

Reservoir, MLR, Chengdu University of Technology, Chengdu 610059, China); He Zhengwei **Rock Formation and Mineralization in the Dulan－Qagan Us He Area, Qinghai Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 187－190, 194, 3 illus., 1 table, 13 refs.)

Key words: rock structure, metallogenesis, Qinghai Province

The Dulan－Qagan Us He area is located in south Qinghai Province, extending across the Early Paleozoic Qimantag－Dulan suture zone and the north East Kunlun magmatic arc. This paper deals with geological features and ore control factors of Cu, Pb, Zn deposits as well as relation of rock formation with mineralization on the basis of the features of metamorphic, volcanic, intrusive and sedimentary formation in the studied area.

20170878 Wang Dandan (Oil and Gas Survey, China Geological Survey, Beijing 100029, China); Li Shizhen **SHRIMP U－Pb Dating of Detrital Zircon from the Upper Permian Linxi Formation in Eastern Inner Mongolia, and Its Geological Significance** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 1021－104, 9 illus., 1 table, 93 refs.)

Key words: clastic rocks, U－Pb age, Inner Mongolia

The Guandi－Zhaijiagou geological section of Linxi Formation in Linxi County and the Taohaiyingzi geological section of Linxi Formation in Ar Horqin Banner are the typical sections in the north part of Northeast China. The age of the sections is late stage of Late Permian according to the newly found conchostracans, pollen and spores. Combined with other studies in the study area, the authors have come to the conclusion that the maximum depositional age of the Linxi Formation is 253～257 Ma and the minimum depositional age of Linxi Formation is 238～242 Ma. The peak ages of 260 Ma and 262 Ma are consistent with the magmatic events of the collisional suturing and collage between the North China Platform and the Siberia Plate.

20170879 Wang Dongsheng (Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, CAGS, MLR, Beijing 100037, China); Wang Zongqi **Geochemical and Geochronological Characteristics of Tangjiagou Tonalites in the South Qinling** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(2), 2016, p. 71－81, 8 illus., 3 tables, 1 photo, 45 refs.)

Key words: complexes, diorites, lithogeochemistry, zircon U－Pb dating

The Tangjiagou tonalities mainly consist of quartz, plagioclase, K－plagioclase and biotite with minor amphiboles. Geochemical analysis shows that the tonalities displays ω(SiO_2) content between 59.23% and 65.74%, ω(K_2O) content between 1.53% and 6.57%, ω(Na_2O) content of 3.69%～5.81%, σ index of 1.64 to 3.63 except for one sample, indicating that it belongs to calc－alkaline series. It also reveals that the Tangjiagou tonalities have ω(Al_2O_3) content between 15.37% and 18.37%, A/CNK ratio of 0.90 to 1.02, A/NK ratio of 1.39 to 1.70, suggesting the metaluminous－peraluminous feature. The rocks show ω(FeO) content between 1.58% and 3.97%, ω(Fe_2O_3) content between 1.35% and 2.42%, ω(MgO) content of 1.08%～3.11%, ω(TiO_2) content of 0.50%～0.84%, ω(P_2O_5) content of 0.14%～0.30%.

20170880 Wang Feng (College of Earth Sciences, Jilin University, Changchun 130061, China); Xu Wenliang **The Offset Distance of the Dunhua－Mishan Fault: Constraints from Paleozoic－Mesozoic Magmatism within the Songnen－Zhangguangcai Range, Jiamusi, and Khanka Massifs** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1129－1140, 3 illus., 151 refs.)

Key words: igneous rocks, Paleozoic, Mesozoic, igneous processes, Songnen Plain

返回目录

The Dunhua—Mishan Fault is one of important branches of the northern segment of Tan—Lu Fault, its distance and age of large—scale sinistral strike—slip faulting remains a hot debate. In this study, the geochronological data of the Paleozoic—Mesozoic igneous rocks within the Songnen—Zhangguangcai Range, Jiamusi, and Khanka massifs, together with their spatial and temporal variations, provide close constraints in this regard. The results indicate that the eastern margins of the Songnen—Zhangguangcai Range and Khanka massifs experienced common geological evolution during Early Paleozoic, and the western margin of the Khanka Massif and the eastern margin of the Songnen—Zhangguangcai Range Massif experience the common magmatic history in the Early Mesozoic.

20170881 Wang Hongjie (Research Center for Orogenic Geology, Xi'an Center of Geological Survey, Geological Survey of China, Xi'an 710054, China); Chen Junlu **LA—ICP—MS Zircon U—Pb Dating and Its Geological Implications of Post Collision Granite in the Sawuer Mountain** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(2), 2016, p. 93—104, 12 illus., 4 tables, 15 refs.)

Key words: granodiorites, Xinjiang

The Tasite pluton is located in the Sawuer Mountain of West Junggar, Jimunai County, Xinjiang. The pluton consists of granodiorite, monzonite granite, etc. According to U—Pb age analysis, the formation age of the granodiorite from the Tasite pluton is (332±1.9) Ma (the middle stage of Early Carboniferous). All of the geochemical features above show that the Sawuer Mountain in the middle stage of Early Carboniferous or the West Junggar is in post—collisional environment. The confirmation of post—collisional I type granites in the middle stage of Early Carboniferous provides new tectonic evolution evidence for the West Junggar region.

20170882 Wang Liangyu (Faculty of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Liao Qunan **Petrogenesis and Tectonics of Late Early Cretaceous Shoshonitic Volcanic Rocks in Xilin Hot, Inner Mongolia** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(6), 2016, p. 919—931, 10 illus., 2 tables, 61 refs.)

Key words: igneous rocks, Inner Mongolia

According to the research on zircon dating and cross section, the authors redefined Late Jurassic Manketou Formation as Early Cretaceous Meletu Formation in the southwestern segment of the Greater Xinggan Mountains. Rocks have obvious iron—depletion evolution trend in the AFM diagram and "Barbed" evolution trend in the SiO_2—K_2O diagram, with conspicuous characteristics of shoshonites. Studies show that the intermediate acidic volcanic rocks of the Meletu Formation in the study area have magmatic evolution characteristics of the same source region. Magma originated from enrichment of mantle metasomatism and was formed in a stretching tectonic background and related to the retreat of subduction of the Pacific Plate.

20170883 Wang Lishe (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, Xi'an Center, China Geological Survey, MLR, Xi'an 710054, China); Li Zhiming **Geochemistry and Geochronology of Amphibolite in the East of Qikeshan in South Altyn Tagh and Their Genetic Significance** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(4), 2016, p. 739—751, 7 illus., 4 tables, 52 refs.)

Key words: amphibolites, lithogeochemistry, U—Pb age, Altun Mountains

The geochemical analysis of the amphibolite in the east of Qikeshan indicates it belongs to tholeiitic series with high SiO_2 and Al_2O_3 contents of 46.99%～51.01% and 13.85%～15.82%, MgO and FeO—T contents of 7.00%～7.71% and 12.4%～13.5%. Diagrams of MgO vs. SiO_2, Al_2O_3, CaO and FeO—T,

Cr vs. Rb and Rb/Nb vs. Rb/Zr exhibit that partial melting and fractional crystallization has occurred in the magma evolution. The new data and previous studies indicate that the protolith was not the product of the Neoarchean Era, but formed in the expansion period after the assembly of the Neoproterozoic Rodinia supercontinent, and experienced the peak metamorphism of Early Paleozoic South Altyn, revealing that the original ancient Tethys was closed in (502±14) Ma.

20170884 Wang Liyuan (College of Zijin Mining, Fuzhou University, Fuzhou 350116, China); Zheng Youye **The Discovery of the Early Cretaceous Zenong Group Volcanic Rocks and Geological Significance in Jiwa Area in South of the Central Lhasa Subterrane** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(5), 2016, p. 1543-1555, 6 illus., 2 table, 55 refs., with English abstract)

Key words: igneous rocks, Lower Cretaceous, Tibet

20170885 Wang Peng (No. 4 Geology and Mineral Exploration Team, Gansu Provincial Bureau of Geology and Mineral Exploration and Development, Jiuquan 735000, China); Xia Mingzhe **Petrological and Geochemical Characteristics of Xingdi No. I Mafic Rocks in Kuruktag in Xinjiang** (Gansu Geology, ISSN1004-4116, CN 62-1191/P, 25(2), 2016, p. 29-36, 11 illus., 2 tables, 6 refs.)

Key words: lithogeochemistry, Xinjiang

Xingdi No. 1 rock is located in the Kuruktage area in the northern margin of the Tarim Plate. The lithofacies of the rock is simple and alteration weak, the main rock types are gabbro, gabbro-norite and gabbrodiorite, showing gradual contacts between various lithofacies. The gabbro rock zircon U-Pb concordant age of (728±3) Ma, combined with regional researched results, indicating the tectonic setting of forming the rock is a continental rift environment, maybe related to the cleavage event of the ancient super-continent Rodinia.

20170886 Wang Tao (Qinghai Geological Survey Institute, Northern Qinghai-Tibetan Plateau Geological Processes and Mineral Resources Laboratory, Xining 810012, China); Li Bin **Characteristics of Chronology and Geochemistry of the Early Silurian Monzagranite in the Wulonggou Area, East Kunlun and Its Geological Significance** (Journal of Mineralogy and Petrology, ISSN1001-6872, CN51-1143/TD, 36(2), 2016, p. 62-70, 7 illus., 4 tables, 26 refs.)

Key words: monzogranite, Lower Silurian, Kunlun Mountains

Wulonggou gold deposit is an orogenic-type gold deposit in the middle part of the East Kunlun. Study of zircon U-Pb dating and geochemical analysis on the Early Silurian monzagranite in the deposit show that the emplacement age of monzagranite is (438±2.8) Ma. Geochemical analysis reveals that the monzagranite has high silicon (68.13%~71.14%) content, alkaline [$\omega(Na_2O+K_2O)$=7.81%~8.43%], K(Na_2O/K_2O=0.70-0.75), low Al_2O_3, Fe_2O_3, MnO and MgO contents.

20170887 Wang Xiaowei (Geological Survey of Gansu Province, Lanzhou 730000, China); Yang Chunxia **Geochemical Characteristics of Carboniferous Bimodal Volcanic Rocks in Shibanquan, Beishan and Its Tectonic Significance** (Northwestern Geology, ISSN1009-6248, CN61-1149/P, 49(2), 2016, p. 25-33, 7 illus., 1 table, 40 refs.)

Key words: igneous rocks, lithogeochemistry, Gansu Province

Located in the southern margin of Beishan orogenic belt, the carboniferous volcanic rocks (Hongliuyuan Group) have constituted a unique bimodal volcanic rock combination in time and space, which are mainly characterized by shorter Daly discontinuous and a large number of acidic volcanic rock, with a small

amount of intermediate and basic volcanic rocks. The rhyolites were formed in a continental rift environment, its dynamics system may be associated with intracontinental stretching tension effect, suggesting that the Late Paleozoic rift were developed to the peak stage in the late period of Early Carboniferous and/or the early period of Late Carboniferous. Thus, the Late Carboniferous serves as the major turning point for the geodynamic environment gradually changing from the extension and tension to the collision and compression, and this studying area was stepped into the ollision orogenic evolution stage at the end of Permian.

20170888 Wang Yanquan (College of Earth Sciences, Jilin University, Changchun 130061, China); Sun Deyou **Geochemical and Sr—Nd Isotopic Constraints on the Origin of Eocene Intermediate—Basic Volcanic Rocks from the Liaohe Segment of the Tan—Lu Fault Zone** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1101—1113, 11 illus., 2 tables, 82 refs., with English abstract)

Key words: basic rocks, geochemistry, Eocene, Tancheng—Lujiang Fault Zone

20170889 Wang Yunfeng (No. 4 Geology and Mineral Exploration Team, Gansu Provicial Bureau of Geology and Mineral Exploration and Development, Jiuquan 735000, China); Chen Shiqiang **Geochemical Features and Tectonic Setting of Seerteng Rock Group, Western Langshan in Inner Mongolia** (Gansu Geology, ISSN1004—4116, CN 62—1191/P, 25(2), 2016, p. 15—19, 43, 9 illus., 3 tables, 9 refs.)

Key words: lithogeochemistry, Inner Mongolia

Seerteng rock group, located at the Western Langshan in Inner Mongolia, and has important implications for mineral exploration explore plate tectonic evolution of the northern margin of the western part of North China Late Archean and guide the district iron and copper. By Geochemistry and tectonic environment of the Seerteng rock group which is in the area of Shangde—Minglu found that the rocks show Na rich and potassium poor, LREE enrichment, Eu slight loss, and overall enrichment of trace elements. Simultaneous deposition of a thick carbonate rocks show the Shangde—Minglu in the vicinity of the sea is deep, and is not conducive to iron, copper deposition material.

20170890 Wang Zhihui (College of Earth Sciences, Jilin University, Changchun 130061, China); Yang Hao **Discovery and Geological Significance of the Eocene Granodiorites in the Sanjiang Basin, NE China: Evidence from Zircon U—Pb Chronology, Geochemistry and Sr—Nd—Hf Isotopes** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1823—1838, 11 illus., 4 tables, 106 refs.)

Key words: granodiorites, Eocene, Sanjiang Plain

magmatic sources, petrogenesis and tectonic setting. Studies suggested that these granodiorites chemically belong to weak peraluminous and high—K calc—alkaline I—type ones, and their primary magma could be derived from partial melting of Late Mesoproterozoic to Neoproterozoic crustal material. The summary and spatio—temporal compare of zircon Hf isotope data in the Sanjiang Basin and the east part of the Jiamusi Massif, suggest that the Sanjiang Basin and the east part of Jiamusi Massif have similar history of crustal growth. Therefore, the authors argue that the basement of the Sanjiang Basin may be one part of the Jiamusi Massif. In addition, the identification of the Cenozoic Linshan pluton constrains that the timing of formation of the Fujin uplift should be the Eocene, not the Mesozoic as previously suggested.

20170891 Wei Longmeng (School of Earth and Space Sciences, University of Science and

Technology of China, Hefei 230026, China); Yang Yizeng **Petrogenesis of Yanzhiba Granite in South Qinling: Constraints from Zircon U—Pb Ages, Geochemistry and Sr—Nd—Pb Isotope** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(4), 2016, p. 527—546, 8 illus., 4 tables, 85 refs.)

Key words: granite, Qinling Mountains

Qinling orogenic belt is produced by long—time complicated orogenic processes with widely distributed Neoproterozoic to Mesozoic magmatic activities. Yanzhiba granitic pluton, which is located in the easternmost part of Wulong granitic plutons, is one of the major components of Early Mesozoic magmatism in Ningshan area of South Qinling. Zircon U—Pb dating results and geochemical characteristics of Yanzhiba pluton were reported. Zircon U—Pb dating results of five samples give (202.9±3.5), (201.0±3.0), (202.1±2.6), (200.4±5.4), (205.5±3.3) Ma, respectively.

20170892 Wei Xiaolin (College of Earth Sciences, Jilin University, Changcun 130061, China); Zeng Xiaoping **Geochemistry and Geological Significance of Intermediate—Acid Intrusive Rocks in Chaganganuo Area, East Kunlun Mountains** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(2), 2016, p. 1—10, 8 illus., 4 tables, 21 refs.)

Key words: granodiorites, lithogeochemistry, Kunlun Mountains

The Chaganganuo area is located in the middle—east part of Qimantage Mountains, western section of East Kunlun Mountains. The geological characteristics mentioned above indicate that these intermediate—acidic intrusive rocks are I—type granites. Combining with regional geological information, it's shown that a large number of dark microgranular enclave contained in these granitic rocks, with the evidence of obvious magma—mixing characteristics. In Middle Triassic, this area was experienced the conversion stage from the end of oceanic subduction to the beginning of collision orogeny. Thus, the discovery of these intrusive rocks has a great significance for the further study on tectonic magmatic belt and the evolution history in Qimantage area, East Kunlun Mountains.

20170893 Wu Cailai (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Lei Min **Zircon SHRIMP Dating and Genesis of Granites in Wulan Area of Northern Qaidam** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(4), 2016, p. 493—516, 18 illus., 5 tables, 89 refs.)

Key words: granite, SHRIMP dating, Qaidam Basin

Zircon SHRIMP U—Pb dating of granites in Wulan area of northern Qaidam indicates that Hadesengou rock mass was formed at (413±3) Ma, Xugeigou rock mass at (254±3) Ma, Yiluoshan rock mass at (251±1) Ma, hornblende diorite and granite of Cbahanruo rock mass at (249±1) Ma and (248±2) Ma, Chahanhe rock mass at (240±2) Ma, granodiorite and granite of Shailekeguo rock mass at (250±1) Ma and (244±3) Ma, respectively. The data show that the early A—type granite might have originated from Paleoproterozoic continental crust, whereas the late I—type granite originated from Mesoproterozoic crust.

20170894 Wu Qi (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Niu Manlan **Zircon U—Pb Age, Petrogenesis of the Changgang A—Type Granites in the Lujiang Segment of the Tan—Lu Fault Zone and Their Implication** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 1031—1048, 12 illus., 6 tables, 122 refs.)

Key words: A—type granite, U—Pb dating, Tancheng—Lujiang Fault Zone

The Changgang intrusion located in the

返回目录

Lujiang segment of the Tan—Lu Fault Zone, consists mainly of syneoganrite — porphyry. Zircon U— Pb dating yields a mean $^{206}Pb/^{238}U$ age of (120±2) Ma, obviously later than the formation timing of the adakites from the southern Tan—Lu Fault Zone (STLFZ). The characteristics of these rocks suggest a prominent difference in original depth between magmas of A—type granites and STLFZ adakites. Finally the authors suggested that the parental magma for Changgang A — type granites was derived from partial melting of the Paleoproterozoic (t_{DM2} (Hf) = 2417 ~ 2248 Ma) middle to lower crust from the Yangtze Craton in plagioclase stability and garnet— free field (<40 km). Prior to 120 Ma, the garnet — bearing Meso— to Neo — Archean thickened lower crust (>40 ~ 50 km) beneath the STLF, which was the principal source of the STLFZ adakites, had been removed.

20170895 Xia Yanju (Key Laboratory of Metallogenic Prediction of Nonferrous Metals of Ministry of Education, School of Geosciences and Info—Physics, Central South University, Changsha 410083, China); Wu Qianhong **Zircon Geochronology and Trace Element Characteristics of the Woniushan Granites in Taibus Banner** (Geological Bulletin of China, ISSN1671 — 2552, CN11 — 4648/P, 35(6), 2016, p. 943 — 952, 8 illus., 3 tables, 460 refs.)

Key words: granite, U — Pb dating, Inner Mongolia

The Woniushan granite in Taibus Banner of Inner Mongolia is located in the middle part of the Late Paleozoic — Early Mesozoic magmatic belt on the northern margin of the North China Plate. Through the analysis of REE characteristics, diagrams of tectonic setting, crystallization environment, and Ti thermometer in zircon, combined with regional geological setting and magmatic characteristics, the authors hold that the Woniushan granite, as the mixture of crust and mantle, was formed during the tectonic—magmatic activities of paleo — Asian Ocean subducting to the Northern North China Plate. The results confirm that, in late Hercynian period, the genetic relationship of the magmatite of the middle part of the Late Paleozoic—Early Mesozoic magmatic belt on the northern margin of North China Plate was the same as that of the eastern and western parts.

20170896 Xiang Zhongjin (Institute of Geology, Chinese Academy of Geological Science, Beijing 100037, China); Yan Quanren **New Evidence for the Ages of Ultramafic to Mafic Dikes and Alkaline Volcanic Complexes in the North Daba Mountains and Its Geological Implication** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 896—916, 7 illus., 5 tables, 75 refs.)

Key words: alkali basalts, zircon U—Pb dating, Daba Mountains

This study discussed the formation ages of these rock assemblages using zircon U—Pb dating and phlogopite $^{40}Ar/^{39}Ar$ isotopic dating and their genesis and implications for the tectonics. Zircon U — Pb dating yielded two ages of (399±1) Ma and (451±4) Ma for the Langao and Zhenping diabases, which are the youngest and oldest emplacement ages for the basic dikes. Geochemical data show that major elements of Langao and Zhenping diabases and other mafic dikes have been plotted on the same tendency line and their trace elements and rare earth elements features are also identical. These features are similar to OIB signature, indicating that they originated from a same mantle source. Systematic dating results show that the ultramafic to mafic dikes and alkaline basalts originated from the same magmatic source, with magmatic activity starting at 450 Ma and ending at ~400 Ma.

20170897 Xie Chenglong (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Chen Juan **Inherited Zircon U—Pb Geochronology of the Late Mesozoic Igneous Rocks from**

the Zhangbaling Uplift Segment of the Tan—Lu Fault Zone: Magma Source Affinity and Its Tectonic Implications (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(4), 2016, p. 976—1000, 14 illus., 1 table, 224 refs., with English abstract)

Key words: igneous rocks, Mesozoic, U—Pb dating, Tancheng—Lujiang Fault Zone

20170898 Xie Kairui (College of Earth Science, East China Institute of Technology, Nanchang 330013, China); Wu Jianhua **Petrogenesis of Early Late Jurassic Rhyolites from the Zhirui Basin in Southern Daxing'An Range: Their Chronologic and Geochemical Constrains** (Geochimica, ISSN0379—1726, CN44—1398/P, 45(3), 2016, p. 249—267, 9 illus., 3 tables, 92 refs., with English abstract)

Key words: rhyolites, geochemistry, Greater Hinggan Mountains

20170899 Xie Qinglu, (School of Earth and Space Sciences, University of Science and Technology of China, Hefei 230026, China); Li Shuangqing **Zircon Ages and Geological Significances of Intermediate—Mafic Dykes in Susong Terrene of Dabie Orogenic Belt** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(3), 2016, p. 318—333, 6 illus., 2 tables, 61 refs.)

Key words: basic rocks, Yangtze Plate

Numerous Early Cretaceous intermediate—mafic dykes intrude into the high—pressure metamorphic rocks of Susong Group in Susong terrene of Dabie orogenic belt. They are one of the important objects for understanding the process of mantle—crustal interaction during the deep subduction of the continental plate and the tectonic response in the uplift. Zircon U—Pb ages of these intermediate—mafic dykes obtained by the LA—ICP—MS technique were reported and the geological implications were discussed.

20170900 Xing Hao (State Key Laboratory of Geological Processes and Mineral Resources, Faculty of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Zhao Xiaobo **Early Paleozoic Geological Environment of Metallogeny in Bayinbuluk Region, Western Tianshan: Igneous Rocks and Their Dating, Elementary and Isotopic Constraints** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1770—1794, 19 illus., 6 tables, 133 refs., with English abstract)

Key words: igneous rocks, Lower Palaeozoic, geoenvironment, Tianshan Mountains

20170901 Xu Wei (College of Earth Science, Jilin University, Changchun 130061, China); Hu Peiyuan **The Discovered of Yanqiang Ling Ophiolitic Remnants in Duolong Ore Concentration Area, Gêrzê County, Tibet** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(5), 2016, p. 642—647, 1 illus., 1 plate, 30 refs.)

Key words: ophiolite, Tibet

The Duolong ore concentration area, located on the northern margin of Bangong Co—Nujiang River suture zone, possesses giant prospective typical gold—rich porphyry copper deposits in Tibet. Combined with previous studies, the authors hold that the Duolong ore concentration area developed on the basis of accretionary wedge and was in extensional setting during the Early Cretaceous. The discovery and determination of Yanqiang Ling ophiolite further constraint the geological setting of the Duolong ore concentration area and provide a new clue for extension and study of Bangong Co—Nujiang River suture zone.

20170902 Xu Yawen (Tianjin Institute of Geology and Mineral Resources, Tianjin 500170, China); Li Chengdong **Age and Geochemistry of Strongly Peraluminous Granite in Airgin Sum Area, Inner Mongolia, and Its Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 605—613, 9 illus., 2 tables, 37

refs.)

Key words: monzogranite, U—Pb age, Inner Mongolia

Airgin Sum monzogranite plution is located in western Xilin Gol—Airgin Sum Precambrian block, Inner Mongolia. Its age of (418.5±1.1) Ma obtained by LA—MC—ICP—MS U—Pb zircon dating means that Airgin Sum plution was formed at the end of Late Silurian. It is suggested that the strongly peraluminous monzogranite was formed in the post—collisional setting and resulted from partial melting of crustal material after exhumation of over thickened crust. It is thus concluded that the northern orogen in Airgin Sum—Sonidzuoqi had collided between arc and block before Late Silurian, followed by a post—collision and post—orogenic extension setting during Upper Silurian—Middle Devonian.

20170903 Xue Huaimin (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China) **Geochronology, Geochemistry and Petrogenesis of Volcanism in the Liyang Volcanic Basin on the Southeastern Margin of the Middle—Lower Yangtze Region** (Geochimica, ISSN0379—1726, CN44—1398/P, 45(3), 2016, p. 213—234, 5 illus., 3 tables, 114 refs.)

Key words: volcanic rocks, volcanism, geochemistry, Yangtze River

The Liyang volcanic basin, located on the southeastern margin of the Late Mesozoic volcanic belt developed in the Middle—Lower Yangtze region, is characterized by existing volume rhyolitic rocks, which is obviously different from other volcanic basins in the belt. Volcanic/subvolcanic rocks in the Liyang Basin have the highest SiO_2 contents, but the lowest Na_2O+K_2O contents as compared with other volcanic basins in the Middle—Lower Yangtze volcanic belt. Ggeochemically, these rocks exhibit strongly fractionated REE patterns, invariably show a relative enrichment in light rare—earth elements and an obvious depletion in high—field—strong elements (HFSE) such as Nb, Ta and Ti. Obvious negative anomalies, and their δEu values decrease rapidly with increasing SiO_2 contents, indicating that plagioclase differentiation may have played an important role during the evolution of magmas.

20170904 Yang Shuo (College of Earth Science, China University of Geosciences, Wuhan 430074, China); Xiang Shuyuan **LA—ICP—MS Zircon U—Pb Age and Geochemical Characteristics of Jiada Potassic Volcanic Rocks in Zhongba Terrane, Tibet** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(6), 2016, p. 894—905, 16 illus., 2 tables, 52 refs.)

Key words: igneous rocks, Tibet

Cenozoic potassic volcanic rocks are widely distributed in the Tibetan Plateau, mainly in northern Tibet and Lhasa block with a few reports in Zhongba terrane. The study of Jiada potassic volcanic rocks found in Zhongba terrane shows that the rocks are almost exclusively trachyte, and the magma erupted incessantly by overflowing and erupting. These rocks are also characterized by high potassium and high aluminum, rich LILE, LREE and Sr, and poor HFSE, Y and Yb, with Eu negative anomaly. Their geochemical characteristics are similar to those of typical adkite rocks. The LA—ICP—MS zircon U—Pb age of trachyandesites is (17.03±0.32) Ma, which means that these volcanic rocks were formed in Miocene. The Jiada potassic magma was derived from partial melting of thickened crust. The rocks represent post—collisional tectonic setting and extension environment.

20170905 Yang Xiaoyong (School of Earth and Space Sciences, University of Science and Technology of China, Hefei 230026, China); Gu Huangling **Metallogenic Relationship between Yanshanian Magmatic Rocks and Cu—Au—Mo Deposits in Guichi Area of Anhui: Evidences from Geological—Geochemical—Geophysical Characteristics** (Journal of Earth Sci-

ences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 444－463, 11 illus., 2 tables, 46 refs.)

Key words: igneous rocks, Anhui Province

Guichi area in Anhui is one of the most important Cu－Au deposits in the Middle－lower Yangtze metallogenic belt, which is rich in gold, silver, copper, molybdenum, sulfur and other mineral resources. The metallogenic relationships among the geology, magmatic rocks, geochemistry－geophysics, other geological systematically studied; Paodaoling gold Zhujiachong gold deposit, Tongshan Cu－Au features and Au－Ag polymetallic deposits were analyzed, combined with geological, geophysical and geochemical information, the prospecting characteristics of ore exploration are established.

20170906 Yang Zhangzhang (Team No. 1, Shaanxi Bureau of Geology and Mineral Resources, Ankang 725000, China); Li Silong **LA－ICP－MS Zircon U－Pb Dating and Geological Significance of Shidiquan Gabbro in Delingha, Qinghai Province** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 1081－1090, 10 illus., 4 tables, 35 refs.)

Key words: gabbros, zircon U－Pb dating, geochemistry, Qinghai Province

Through detailed field observation as well as petrology analysis, geochemistry analysis and U－Pb isotopic dating method, the authors will discuss the problems of petrology, geochemical characteristics, and formation time and magma origin in the study area in depth. Afterwards, zircon grains with fine crystalline shape and transparency were mounted in epoxy mounts and next been polished to section the crystals in half for further analysis. These steps were undertaken at the Langfang Rock and mineral testing technology, Co. Ltd., Hebei Province, China

20170907 Yao Wei (Guangdong Bureau of Geology and Mineral Resources, Shaoguaa 512028, China); Chen Hun **A Study of Geochemistry and Genesis of the Huanshan Rock Mass in North Guangdong Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 217－220, 7 illus., 4 tables, 6 refs., with English abstract)

Key words: lithogeochemistry, Guangdong Province

20170908 Yu Haifei (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Zhang Zhicheng **SHRIMP and LA－ICP－MS U－Pb Ages and Geological Significance of the Volcanic Rocks in the Tiaojishan Formation in Ming Tombs Area in Western Hills, Beijing** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 807－826, 10 illus., 1 table, 59 refs.)

Key words: igneous rocks, Western Hills, Beijing

The SHRIMP and LA－ICP－MS U－Pb dating and whole rock geochemical analysis are employed to reveal the formation age and temporal as well as spatial characteristics of the Tiaojishan Formation. By the geochemical analysis, the volcanic rocks in the Tiaojishan Formation in Ming Tombs area has a high Al_2O_3, CaO, Na_2O, low TiO_2 and MgO, fall into trachyandesite and dacite field in TAS diagram with enrichment of LREE and LILE (K, Sr, Ba) and depletion of HREE and HFSE (Nb, Ta, Ti), moreover, these intermediate－acidic rock has a high Sr/Y ratio, while the levels of Yb and Y is low.

20170909 Yuan Lingling (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Zhang Xiaohui **Petrogenesis and Geodynamic Implications of Appinite Suite** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1556－1570, 10 illus., 1 table, 135 refs.)

返回目录

Key words: appinite, diagenesis, geodynamics

The appinite suite is a group of hornblende-rich intrusive rocks, which display a lithological compositional range from ultramafic to felsic and can be composed of hornblendite, hornblende gabbro, hornblende diorite, tonalite and biotite granite. With regard to elemental geochemistry, the appinites show a low-K tholeiitic, calc-alkaline or shoshonitic affinity, with enrichment in large ion lithosphere element and light rare earth element. The appinitic parental magmas generally originate from partial melting of subcontinental lithospheric or asthenospheric mantle modified by oceanic-slab subduction. These pristine mafic magmas then undergo fractional crystallization, crustal assimilation or mixing with crustal melts, and form different endmembers of the appinite suite.

20170910 Zhang Aikui (College of Earth Sciences and Mineral Resources, China University of Geosciences, Beijing 100083, China); Mo Xuanxue **Petrogensis and Tectonic Setting of Yemaquan Triassic Granite from the West of the Eastern Kunlun Mountain Range, China** (Acta Mineralogica Sinica, ISSN1000-4734, CN52-1045/P, 36(2), 2016, p. 157-173, 8 illus., 6 tables, 55 refs.)

Key words: granite, genesis, Kunlun Mountains

Based on the petrology, geochemistry, and geochronology of the granitoids, the authors consider that the syn-collisional orogenic stage of the Late Paleozoic-Early Mesozoic is 235~224 Ma, and post-collisional orogenic stage is 224 ~ 204 Ma. Associated with intrusive rocks in syn-collisional orogenic stage are quartz monzodiorites-granodiorites. The granite source region of monzogranite including dioritic enclaves, has the signs of EM Ⅱ, different from other monzogranite. Yemaquan Triassic granite formed as the deep course of mantle underplating, "lag-type" oceanic material partial melting and crust partial melting.

20170911 Zhang Xiaofei (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100085, China); Liu Junlai **Geochronological and Geochemical Features of Volcanic Rocks of Dashizhai Formation in Ural Sutai of Xilin Hot, Inner Mongolia, and Their Geological Significance** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(5), 2016, p. 766-775, 9 illus., 3 tables, 43 refs.)

Key words: igneous rocks, Inner Mongolia

Based on 1∶50 000 regional geological survey, the authors studied the volcanic rocks of Dashizhai Formation developed in the southern Central Asia Orogenic Belt (CAOB) within Ural Sutai of Xilin Hot, Inner Mongolia in such aspects as filed occurrence, petrology, zircon U-Pb isotopic geochronology and geochemistry. LA-ICP-MS zircon U-Pb dating results show that the rocks were formed at about (287.5±1.4) Ma (MSWD=3.1) in the early period of Early Permian. Petrological and geochemical data reveal that the rocks are a suite of mid-acid volcanic rocks characterized by rich Si, alkali and Al, poor Ti, Mg, Fe and Ca, and abundant trace elements and REEs with coincident distribution pattern exhibiting a right-inclined seagull-type distribution pattern.

20170912 Zhang Yingli (Key Laboratory of Metallogeny and Mineral Assessment, MLR, Institute of Mineral Resources, CAGS, Beijing 100037, China); Wang Zongqi **Detrital Zircon Geochronology of the Late Paleozoic Taohekou Formation and Its Constraints on the Paleozoic Magmatic Events in North Daba Mountains** (Acta Geologica Sinica, ISSN0001-5717, CN11-1951/P, 90(4), 2016, p. 728-738, 3 illus., 1 table, 48 refs.)

Key words: clastic rocks, Daba Mountains

The Taohekou Formation in North Daba Mountains is a volcanic-sedimentary succession which preserves relatively complete sedi-

mentary records. Detrital zircon U－Pb ages from sandstone collected at the same position were measured by the LA－ICP－MS method in this study. The age and CL images for magmatic detrital zircons indicate that there occurred three－stage magmatism, that is, Early Silunian, Middle Silunian and Early Devonian, corresponding to the intrusive rocks at 431～439 Ma, trachyte of the Banjiuguan Formation at 426. 9 Ma, and basalts of the Taohekou Formation at 414. 3 Ma, respectively.

20170913 Zhang Yongmei (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100083, China); Zhang Liqiang **Petrology, Zircon U－Pb Geochronology and Hf Isotopes of the Husite Complex in West Tianshan, Xinjiang** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1749－1769, 12 illus., 4 tables, 87 refs., with English abstract)

Key words: complexes, petrology, U－Pb dating, hafnium isotopes, Xinjiang, Tianshan Mountains

20170914 Zhang Yuyan (Key Laboratory of Uranium Resource Exploration, Beijing Research Institute of Uranium Geology, CNNC, Beijing 100029, China); Li Ziying **Primary Study on the Origin of Myrmekite in Eastern Guidong Granitic Massive** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(2), 2016, p. 17－26, 7 illus., 1 table, 10 refs.)

Key words: granite, Guizhou Province

The myrmekite occurs in intermediate－acidic intrusive rocks of eastern Guidong granitic massive, usually ranges from 3% to 5%, sometimes up to 8%, with various occurrence and shapes. Myrmekite becomes poorly developed as the grain size of the rocks becomes finer during the evolution of magma. From early to late in age and from coarse to fine in crystal size, myrmekite is found less and less, whereas the myrmekitic quartz is decreasing. Myrmekite metasomatism and albite metasomatism exist in the same space and same time with counter proportion. It is considered that myrmekite is results from metasomatism and caused by rock deformation stress.

20170915 Zhao Bingbing (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Deng Yufeng **Petrogenesis of the Wusan Pluton in West Junggar: Evidence from Geochronology, Petrology and Geochemistry** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(5), 2016, p. 950－970, 11 illus., 7 tables, 105 refs.)

Key words: igneous rocks, lithogeochemistry, Junggar Basin

The Paleozoic acidic intrusive rocks are widely developed in West Junggar and some of them contain dark microgranular enclaves. The study on chronology and geochemistry of the magmatic rocks in this area has a great significance for understanding the mechanism of magma mixing and regional tectonic evolution in West Junggar. The geochemical and the regional tectonic characteristics indicate that the Wusan pluton may be formed in the post－collision setting. Development of dark microgranular enclaves in the Wusan pluton and the sharp contact between host rock and the enclaves show their contact relation.

20170916 Zhao Dongyu (Key Laboratory for High Temperature and High Pressure Study of the Earth's Interior, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Zhang Bo **Amphibole－Melt Dihedral Angle in the Process of Melt－Rystallization of Trachybasalt: Effects of Temperature and Pressure** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(3), 2016, p. 341－354, 8 illus., 4 tables, 32 refs.)

Key words: trachybasalts, high temperature, high pressure

The mineral－melt dihedral angle is a very important parameter to further understand the crystallization kinetics and the textural evolution of magma. Using trachybasalt as the starting material, two series of melt－crystallization experiments (temperature series and pressure series) were conducted at the pressures of 0.6～2.6 GPa, the temperatures of 800 ℃～900 ℃ and the annealing time of 100 h, to investigate the influence of temperature and pressure on the mineral－melt dihedral angle. The effects of temperature and pressure on the dihedral angle were discussed by comparing the observed cumulative frequency of the amphibole－melt dihedral angles in the run products with the theoretical cumulative frequency curve.

20170917 Zhao Zelin (Graduate School of Chinese Academy of Geological Sciences, Beijing 100057, China); Li Junjian **TIMS Zircon U－Pb Isotopic Dating of Salazha Mountain Granites from the North Margin of Alxa, Inner Mongolia, and Its Tectonic Implications** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 599－604, 3 illus., 1 table, 525 refs.)

Key words: granite, U－Pb age, Inner Mongolia

The Salazha Mountain on the north margin of Alxa Block is situated at the conjunction of North China Block and Tarim Block, or between Enger Us ophiolites belt and Quaganqulu ophiolites belt. To determine its magmatic issues, the authors collected samples from distinct positions of Salazha Mountain so as to conduct TIMS zircon U－Pb isotopic dating. The result shows that the granities were formed during Indosinian period. The ages of the three sampling spots are (233.1±5.8) Ma, (228.1±0.4) Ma, and (207.7±0.8) Ma, representing the formation age of Salatoerhan granodiorite, Wuliji granite and granodiorite, respectively.

20170918 Zhong Hui (Shenyang Institute of Geology and Mineral Resources, CGS, Shenyang 110032, China); Gao Xiaoyong **Discussion on Petrology and Genesis of the Pisolitic Tuff in Xinmin Formation in Ar Horqin Qi, Inner Mongolia** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 121－124, 5 illus., 7 refs.)

Key words: tuff, Inner Mongolia

The pisolitic tuff, occurring in the Xinmin Formation in Ar Horqin Qi, Inner Mongolia, contains 65% of volcanic pisolites (or volcanic mud balls). The volcanic pisolites are developed in concentric layered rhythmic texture, some of which are filled with feldspar crystal fragments around the pisolites. By analyzing the characteristics of texture and component of crystal fragments, it is considered that the pisolitic tuff is evolved from the flowing hot volcanic ash with high－energy and high－density, accompanied with atmospheric precipitation during volcanic eruption.

20170919 Zhou Xinhuai (Tianjin Branch of CNOOC China, Tianjin 300452, China); Huang Lei **Geochemistry of Mesozoic Granite from Penglai 9－1 Oilfield of Bohai Sea and Its Regional Tectonic Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1839－1850, 11 illus., 2 tables, 69 refs.)

Key words: granite, Mesozoic, lithogeochemistry, North China Craton

The Penglai 9－1 granite is discovered in the Bohai Sea. The study on its geochronology and petrogenesis is important for understanding the regional tectonics due to the significant location of the Bohai Sea within the North China Craton. The zircon LA－ICP－MS age of the Penglai 9－1 granite is 160～165 Ma. This granite is a metaluminous to peraluminous granite and belongs to the high－K calc－alkaline series. The geochemistry show the Penglai 9－1 granite belongs to C－type adakite. The characteristics of this granite imply that the Bohai region was under a compressional and crustal thickening environ-

ment during 160～165 Ma, and the craton destruction did not occur during this time, and the regional dynamics probably still controlled by the collision of North and South China blocks.

20170920 Quan Rui (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Dong Guochen **Zircon U－Pb Ages, Hf Isotopic Compositions and Geochemistry Characterisitics of the Hongshan Ore－Bearing Syenite Porphyries from Southern Taihang Mountains** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 1064－1080, 9 illus., 4 tables, 54 refs.)

Key words: syenite porphyry, Taihang Mountains

In this paper, zircon U－Pb dating, petrogeochemical investigation and zircon Hf isotope analysis of the ore bearing syenite porphyry are studied to constrain its geochronology and petrogenesis. LA－ICP－MS zircon U－Pb choronology indicates that the porphyry was emplaced at 130.45～131.4 Ma, slightly older than the Hongshan syenite (132～135 Ma) and the formation of the Han Xing type iron skarn deposits (133～137 Ma). It shows the Hongshan ore bearing syenite porphyry was emplaced in the summit of magma activity in the region of Taihang Mountains and formed in the timing of large scale lithospheric thinning in North China Block.

2. METAMORPHIC PETROLOGY

20170921 Chai Guanglu (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Li Shuangying **Geochemical Characteristics and Geological Implications for the Metamorphic Rocks of Foziling Group in Eastern of North Huaiyang Tectonic Belt** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 29－45, 8 illus., 4 tables, 45 refs.)

Key words: metamorphic rocks, geochemistry, Anhui Province

Foziling group of North Huaiyang is a set of lower metamorphic rocks which had undergone multiple deformations and metamorphism. Its tectonic setting is continental island arc and active continental margin and its provenance are mainly quartzite sedimentary rocks and felsic igneous provenance. That shows the characteristics of North China Plate－affinitive. The above information suggests that Foziling Group has undergone the tectonic transformation from the passive continental margin of northern Yangtze to the active continental margin of southern margin of North China.

20170922 Chen Xiaoyu (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100085, China); Liu Junlai **The Exhumation and Uplift of the Southern Shigu Complex since Early Cretaceous Evidenced by Zircon and Apatite Fission Track** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 727－737, 7 illus., 2 tables, 1 plate, 44 refs.)

Key words: complexes, Qinghai－Tibetan Plateau

The Shigu complex lies on the southeastern margin of the Tibetan Plateau, and is mainly distributed in Shigu and Zhongdian areas. The analytical results show that the Shigu complex firstly experienced a slow cooling and exhumation from Early Cretaceous (133～145 Ma) to Oligocene(31 Ma), and a relatively rapid cooling process started from Oligocene. Time－temperature history simulated by inverse modeling of apatite fission track also reflects a relatively rapid cooling process at the second stage. From regional structural analysis, it is suggested that the far－field effects of the collision between the Lhasa and Qiangtang plates may have strongly

返回目录

affected the Early Cretaceous exhumation of the complex.

20170923 Jia Zhilei (Key Laboratory of Mineral Resources of Western China (Gansu Province), School of Earth Sciences, Lanzhou University, Lanzhou 730000, China); Dou Xiaoyu **Protolith Reconstruction of Leptynite in Yushishan Area, South Qilian, Gansu Province** (Gansu Geology, ISSN1004－4116, CN 62－1191/P, 25(2), 2016, p. 9－14, 7 illus., 1 table, 33 refs.)

Key words: protolith, lithogeochemistry, Gansu Province

Located in the southwest of the south Qilian and the junction zone of the Qilian－Qaidam－Altyn blocks, Yushishan area underwent complicated tectonics. The leptynites are the major rocks of Aoyougou Group of Changchengian Period in Yushishan area. However, the protolith of leptynite is difficult to distinguish as the result of synantexis. Using the way of petrogeochemistry, the paper researched the leptynite and reconstructed its protolith. The results show the protolith of leptynite belongs to medium－acid magmatic rock and is syenitoid with the characteristics of HFSE and high Na_2O+K_2O contents.

20170924 Li Yongshou (Key Laboratory of Salt Lake Resources and Chemistry, Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, Xining 810008, China); Yang Xingke **Discovery and Thermodynamic Characteristics of High－Grade Metamorphic Rock Series along the South of Yantan Fault in Bei-shan, Xinjiang and Its Tectonic Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1688－1698, 11 illus., 1 table, 64 refs.)

Key words: metamorphic rocks, Xinjiang

The high－grade metamorphic rock series, representing metamorphic product in the middle－lower crust, was first found in south of Yantan fault of Beishan, Xinjiang. It is consisted of plagioclase－gneiss, migmatites, amphibolites and a small quantity of granulites. Through detailed field survey, petrography mineral－chemical study, find that the basic granulite is consisted of diopsides, hypersthenes, brown hornblendes and labradorites. It has an evolution from the granulite facies rocks into amphibolite facies rocks by retrograde metamorphic reactions. Research shows that the clinopyroxenes and hornblendes of those granulites in this area have metamorphic genetic, the clinopyroxene is formed in high pressure environment and the hornblendes formed in the middle and low－pressure environment.

20170925 Liao Kun (Geophysical Exploration Team, SBGEEMR, Chengdu 610072, China); Zhi Chao **Low－ and Very Low－Grade Metamorphism of the Kunyang Group and Its Tectonic Significance in Southeast Yunnan** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 179－186, 7 illus., 3 tables, 41 refs.)

Key words: illite, metamorphism, Yunnan Province

The Kunyang Group in the southeast Yunnan Province was subjected to low－ and very low－grade metamorphism or burial metamorphism in the Jinning period. According to illite crystallinity, metamorphic facies of the Kunyang Group may be is divided into prehnite－pumpellyite facies and greenschist facies. According to the b_0 values of illite, metamorphic facies of the Kunyang Group belongs to middle－low pressure one in an extensional basin which differed from compressional tectonic setting on the northwestern margin of the Yangtze Plate.

20170926 Liu Gui (Key Laboratory of Neotectonic Movement and Geohazard, MLR, Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Shi Yaolin **The Interaction between Reaction and Deformation: An Experimental Study Using Mylonite Samples under High Temperature and**

High Pressure (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1663－1674, 6 illus., 2 tables, 46 refs., with English abstract)

Key words: mylonite, high temperature－high pressure experiment, deformation

20170927 Liu Huan (College of Earth Sciences and Recourses, Chang'an University, Xi'an 710054, China); Gao Dong **Metamorphism of the Meiziya Formation in Northern Hanyin, Shaanxi Province** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 237－247, 6 illus., 3 tables, 20 refs.)

Key words: biotite, garnetite, metamorphism, Shaanxi Province

Based on the field investigation, the relationship between garnet and biotite metacrystal has been analyzed and researched. Using garnet－biotite geothermometer, the widely exposed muscovite quartz schist with garnet－bearing biotite metacrystal has been studied in this paper. The results show that three periods of biotite and garnet were developed in this studying area, the garnet porphyroblast has obvious growth zoning, but the biotite without any growth zoning. For this studying area, the metamorphic temperatures range from 511 to 572 ℃, most of them change from 530 to 560 ℃. Their metamorphic pressures vary from 0.16 to 0.84 GPa, and their metamorphic event mainly corresponds to high green schist face.

20170928 Liu Jinheng (College of Earth Science, Jilin University, Changchun 130061, China); Hu Peiyuan **The Establishment and Significance of the Upper Permian－Lower Triassic Tianquanshan Formation in Central Qiangtang, Northern Tibet: The Constraint on the Tectonic Evolution of Lungmu Co－Shuanghu－Lancang River Area** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 667－673, 4 illus., 1 table, 1 plate, 34 refs., with English abstract)

Key words: metamorphic rocks, Tibet

20170929 Liu Shuo (School of Resourse and Environmental Engineering, Hefei University, Hefei 230009, China); Zhu Guang **Reappraisal of Protolith Ages and Formation Mechanism for the Metamorphic Core Complex in Hongzhen, Huaining County, Anhui Province** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(3), 2016, p. 585－603, 9 illus., 3 tables, 41 refs., with English abstract)

Key words: complexes, Anhui Province

20170930 Meng Qingfeng (Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Yu Xiaofei **Zircon U－Pb Geochronology, Geochemistry and Petrogenesis of the Quartz Monzonite from the Jidetun Molybdenum Deposit in Jilin Province** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(5), 2016, p. 917－932, 12 illus., 3 tables, 70 refs., with English abstract)

Key words: quartz monzonite, zircon U－Pb dating, Xiao Hinggan Mountains

20170931 Nie Feng (School of Resources and Environment Engineering, Hefei University of Technology, Hefei 230009, China); Zhang Zhongbao **Comparison Study of Typical Rocks Separated from Feidong Group and Huoqiu Group in the Tan－Lu Fault Zone (Anhui Segment)** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1087－1100, 7 illus., 3 tables, 46 refs., with English abstract)

Key words: amphibolites, biotite schist, petrography, U－Pb dating, Tancheng－Lujiang Fault Zone

20170932 Ren Huaping (School of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Wang Yongfeng **Preliminary Studies on the Microstructure and Water Content of the Mayoumu Harzburgite from the**

返回目录

Southern Yarlung Zangbo Suture Zone (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1653－1662, 6 illus., 1 table, 96 refs., with English abstract)

Key words: harzburgite, ultrastructure, constitutional water, Tibet

20170933 Ren Liudong (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Li Chong **Two Types of Metamorphism in the Qinling Complex, Tongbai Area, Henan Province** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1596－1610, 7 illus., 2 tables, 78 refs., with English abstract)

Key words: gneisses, granulite, metamorphism, Qinling Mountains

20170934 Shao Tongbin (State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Song Maoshuang **Brittle and Semi－Brittle Fractures of Antigorite Serpentinite in Triaxial Compression** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1675－1687, 8 illus., 1 table, 81 refs., with English abstract)

Key words: serpentinite, brittleness

20170935 Shi Yonghong (School of Resources and Environment Engineering, Hefei University of Technology, Hefei 230009, China); Wang Juan **Analysis of Metamorphic Petrology and Geochronology for Feidong Group and Its Discussion on the Deformation Period** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1067－1086, 10 illus., 3 tables, 58 refs., with English abstract)

Key words: metamorphic rocks, petrography, thermodynamics, geochronology, Tancheng－Lujiang Fault Zone

20170936 Wang Bin (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, Ministry of Land and Resources, Xi'an 710054, China); Chen Bo **Geological Features of Djanydjer Ophiolitic Melange and Chronology of Gabbro in Kyrgyz, South Tianshan Mountains** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 198－209, 7 illus., 2 tables, 45 refs.)

Key words: ophiolite, Kyrgyzstan

Djanydjer ophiolitic melange in the Kyrgyzstan, South Tianshan suture are composed of serpentinized peridotite, gabbro, basalt and chert. Two groups U－Pb zircon ages of (422.0±2.0) Ma(MSWD=1.2) and (397.3±3.9) Ma (MSWD = 0.6) have obtained for the gabbro. Considered with chronology studies of ophiolites in China－Kyrgrz, South Tianshan, the older age (422 Ma) represents the crystallization of gabbro, which implies the oceanic basin separated the Tarim Craton and Kyrgyz Middle Tianshan terrane has existed in the early stage of the Late Silurian. Compared with the age spectrum of zircons from Tarim Craton and Atbashi greywacke, the protolith of the muscovite－quartz schist has a depositional age <406 Ma and the provenance was probably in the North and Middle Tianshan.

20170937 Wang Jingya (School of Resources and Environment Engineering, Hefei University of Technology, Hefei 230009, China); Ren Shenglian **Metamorphism and Deformation Analysis of Rocks in Southern Margin of Shirenshan and Its Tectonic Significance, Qinling, China** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 870－880, 6 illus., 5 tables, 32 refs., with English abstract)

Key words: fracture zones, Qinling Mountains

20170938 Wang Mingliang (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Zhang

Jiagui LA－ICP－MS Zircon U－Pb Dating of the Metamorphic Rocks in the Ailaoshan Tectonic Belt, Western Yunnan, and Its Geological Implications (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 738－749, 4 illus., 1 table, 1 plate, 26 refs.)

Key words: metamorphic rocks, Ailao Mountains, Yunnan Province

In order to determine the age of Ailaoshan Group and its tectonic affinity, the authors chose granodioritic gneiss (SM－15 and SM－22), its synchronic deformational granite vein intrusion (SM－18) in the high－grade metamorphic rock series and its proximate meta－sandstone(NO－1) in the low－grade metamorphic rock series as research objects and present new results of zircon U－Pb dating of four samples so as to do the accurate chronology tests. Two groups of ages were identified in sample SM－15 and SM－22. In sample SM－15, the older magmatic group yielded an age of 722～740 Ma and the metamorphic younger group yielded an age of (29.9±0.5) Ma. In sample SM－22, the older is (232.3±4.3) Ma and the younger is (29.2±0.4) Ma.

20170939 Wang Yawei (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Liu Liang **Multi－Metamorphism of Amphibolite in the Qinling Complex, Qingyouhe Area: Revelation from Trace Elements and Mineral Inclusions in Zircons** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1467－1492, 10 illus., 5 tables, 141 refs., with English abstract)

Key words: complexes, amphibolites, metamorphism, Qinling Mountains

20170940 Wei Chunjing (MOE Key Laboratory of the Orogenic Belt and Crustal Evolution, School of Earth and Space Sciences, Peking University, Beijing 100871, China) **Granulite Facies Metamorphism and Petrogenesis of Granite (Ⅱ): Quantitative Modeling of the HT－UHT Phase Equilibria for Metapelites and the Petrogenesis of S－Type Granite** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1625－1643, 10 illus., 1 table, 81 refs., with English abstract)

Key words: granulite facies, metamorphism

20170941 Wei Chunjing (MOE Key Laboratory of the Orogenic Belt and Crustal Evolution, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Zhu Wenping **Granulite Facies Metamorphism and Petrogenesis of Granite (Ⅰ): Metamorphic Phase Equilibria for HT－UHT Metapelites/Greywackes** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1611－1624, 8 illus., 2 tables, 41 refs.)

Key words: granulite facies, metamorphism

Granulites have attracted much attention as a window of probing the lower crust tectonic evolution. Since 1990s one of the most important advances in the study of granulite is quantitatively modeling the melting reactions, melt compositions, melt loss and its influence on mineral assemblages in high－grade rocks. Based on a series of P－T projections, compatibility diagrams and qualitative P－T pseudosections for fixed bulk－rock compositions in the simple systems involving KASH, NKASH and KFMASH, and available experimental results, discussions were presented in this paper in terms of the relations among melting reactions, mineral assemblages, bulk－rock compositions and P－T conditions for the meta－pelitic and greywacke rocks under HT－UHT conditions.

20170942 Yang Min (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Liu Liang **Geochronology of Detrital Zircons from Metaclastic of Erlangping Complex in the North Qinling Belt and Its Tectonic**

返回目录

Implication (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1452－1466, 3 illus., 1 table, 143 refs.)

Key words: complexes, sedimentary rocks, isotope age, Qinling Mountains

Detrital zircon is the most stable minerals in the sedimentary rocks. The detrital zircon age spectra are widely used to determine the maximum age of deposition, to identify the provenance in sedimentary rocks and to study the evolution history on their source region. Erlangping complex, one of the main tectono－stratigraphic units of the North Qinling belt, consists of three tectonic slices: the northern clastic slice, the middle ophiolite slice and the southern metaclastic slice. This paper carried out the detrital zircons from the southern metaclastic slice by LA－ICP－MS U－Pb dating.

20170943 Yu Xingxing (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Zhang Jianxin **Zircon U－Pb Geochronology and Hf－Isotope Compositions of the Eclogitic Metasedimentary Rocks in Xiangzigou, North Qilian Mountains and Their Geological Implications** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1437－1451, 8 illus., 5 tables, 81 refs., with English abstract)

Key words: eclogite, U－Pb dating, isotope age, Qilian Mountains

20170944 Yu Zhuoying (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); He Bizhu **Seismites in the Early and Middle Silurian Strata of Shuntuoguole Area in Tarim Basin: Records of High－Resolution Tectonic Events** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(3), 2016, p. 313－325, 10 illus., 7 tables, 51 refs., with English abstract)

Key words: seismites, Tarim Basin

20170945 Yuan Dongyang (School of Earth Science, China University of Geosciences, Wuhan 430074, China); Li Dewei **Geochronology and Geochemical Characteristics of Amphibolite in Guandi Complex, Zhoukoudian Area and Its Geological Significance** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 149－164, 9 illus., 3 tables, 57 refs.)

Key words: amphibolites, lithogeochemistry, Beijing

The Guandi complex outcrops on both the north and south sides of the Fangshan pluton, being composed offelsic gneiss, plagioclase amphibolite and migmatite. The amphibolites are dispersed throughout the gneiss in Guandi complex. Element variation diagrams and petrography characteristics indicate that the protolith consists of clinopyroxene and plagioclase. Hf isotopic compositions indicate that they are sourced from an enriched lithospheric mantle. Data of trace elements illustrates that these amphibolitic dikes are characterized by enriched LILE(Rb, Ba, K), and have depleted HFSE patterns with pronounced negative Nb, Ta and Zr anomalies, which are consistent with an arc－related enriched mantle source region.

20170946 Zhang Huihua (Chengdu Center of China Geological Survey, Chengdu 610081, China); Dai Yanpei **Geochemical Characteristics and Zircon U－Pb Dating of Amphibolite of the Jiaba Rock Formation within the Jianglang Dome, Western Sichuan Province and Its Geological Significance** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(2), 2016, p. 47－54, 5 illus., 2 tables, 25 refs.)

Key words: amphibolites, geochemistry, Sichuan Province

A suite of bedded amphibolites occur in the Jiaba Rock Formation of the Jianglang dome in the western margin of the Yangtz Block. The rocks are mainly composed of hornblende (80%～85%), plagioclase (10%～15%) and minor quartz (3%). Geochemical

analyses and LA－ICP－MS zircon U－Pb dating are carried out to investigate the protolith, formation age and tectonic setting of the amphibolites. It suggests that at least some part of the Jiaba Rock Formation formed in the Palaeoproterozoic and Palaeoproterozoic or Archean metamorphosed basements may exist in the Jianglang dome. Therefore, the formation ages of some strata in the area need to be reassessed.

20170947 Zhang Limin (Key Laboratory of Western China's Mineral Resources and Geological Engineering, Ministry of Education, Earth Science & Resources College, Chang'an University, Xi'an 710054, China); Li Yongjun **Geochemical Characteristics and Depositional Environment of the Silicalite from the Darbut Phiolitic Mélange Zone in North Xinjiang** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 70－83, 5 illus., 4 tables, 53 refs.)

Key words: silicolite, lithogeochemistry, Junggar Basin

The Late Paleozoic silicalites are covered the ophiolites with thin layered shape, which is generally and often transformed into lenticular structure in oceanic subduction and tectonic emplacement process in Darbut, West Junggar. In order to explore the provenance and sedimentary environment, the petrography and geochemistry studies about these silicalites from the cross section of the Darbut ophiolites have been carried out in this paper. The results show that these silicalites mainly show purple and gray color, which are composed of microcrystal authigenic quartz sand cryptocrystals. And the microcrystal authigenic quartzes are visible observed by microscope.

20170948 Zhao Shanrong (School of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Xu Chang **Crystallographic Orientation of the Exsolution Microstructure in Pyroxene, Occurring in Lherzolite from Wenchang Area, Hainan, China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1644－1652, 7 illus., 1 table, 24 refs.)

Key words: lherzolite, Hainan Province

Exsolution lamellae in pyroxene, occurring in lherzolite xenoliths in basalts from Wenchang area, Hainan Province, China, are investigated by electron backscatter diffraction (EBSD) to determine the eptaxial relationship. Combining with the electron microprobe analysis (EMPA), it is shown that clinopyroxene (diopside) host exsoluded a set of orthopyroxene (enstatite－pigeonite) lamellae and a set of clinopyroxene (augite) lamellae, with different orientations. The lamellae appear as liner traces on the thin sections tested by EBSD, so it is necessary to find a method to determine the crystallographic plane indices of the lamellae. The authors introduced a "zone cross" method, by coordination rotation on Wuff net, to determine the plane indices for the lamellae.

3. SEDIMENTARY PETROLOGY

20170949 Feng Xudong (State Key Laboratory for Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210046, China); Zhang Dong **Sedimentary Microfacies of the Cretaceous Shallow－Water Lacustrine Delta Deposits in the Songliao Basin: An Example from the Pu I 1－3 Oil Reservoirs of the Eastern Xing－3 block, Xingshugang Oilfield, Daqing** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 1－10, 7 illus., 24 refs.)

Key words: sedimentary evolution, Songliao Basin

On the basis of well logs, mud logs, analytical data and regional geological background, this paper conducts a systematic study of the types, characteristics, association

返回目录

patterns, planar distribution and evolution of the sedimentary microfacies in the Pu I 1－3 oil reservoirs of the eastern Xing－3 block, Xingshugang Oilfield, Songliao Basin. The shallow－water lacustrine delta deposits in the Pu I 1－3 oil reservoirs consist of two sedimentary subfacies including the delta distributary plain and delta front subfacies; 11 sedimentary microfacies including the distributary channel, abandoned channel, natural levee, crevasse splay, overbank thin－bedded sheet sandstone, interdistributary bay, subaqueous distributary channel, subaqueous crevasse splay, distributary channel mouth bar, sheet sandstone and subaqueous interdistributary bay microfacies.

20170950 Hui Langbo (School of Geology and Geomatics, Tianjin Chengjian University, Tianjin 300384, China); Guo Jinjing **Genesis of Red－Bed Sandstones in the Minxian Region, Western Qinling Mountains** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 38－46, 6 illus., 1 table, 25 refs.)

Key words: sandstone, Qinling Mountains

The red－bed strata represented by the Upper Cretaceous Mogou Formation in the Xijiang Basin, Minxian are made up of purplish red thick massive conglomerates at the base, followed upwards by red－bed sandstones with tremendous thickness. The genetenic analysis based on depositional sequences, grain sizes and surface features of quartz grains shows that this succession of sandstones has tremendous thickness interbedded with dry channel deposits and thin gravel beds in which the gravels have the features of desert varnish. All the above－mentioned features suggest that the red－bed sandstones in the study area should be generated from the eolian deposition in the xerothermic conditions.

20170951 Jiang Ran (College of Resource and Environmental Engineering, Guizhou University, Guiyang 550000, China); Fu Yong **Application of the Removing Carbonate Method to Study the Origin of Silica in 'Bainitangceng' of Yunnan－Guizhou Area** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 236－244, 3 illus., 1 table, 36 refs.)

Key words: silicolite, ICP－MS, Yunnan Province, Guizhou Province

Bainitangceng in the Yunnan and Guizhou areas has a close relationship with manganese deposits. In this paper, Bainitangceng siliceous limestone in Yunnan and Guizhou areas was selected and HCl was used to remove the carbonate minerals in siliceous limestone to acquire simple composition siliceous components. Trace elements in siliceous components were determined by ICP－MS/OES. The origin of siliceous components is discussed by comparing the trace elemental composition of the whole rock of siliceous limestone and siliceous components after removing carbonate. Results show that the siliceous component of 'Bainitangceng' may have been derived from hydrothermal fluid, which is important for explaining the formation of Permian manganese deposits.

20170952 Li Jianghai (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Ma Liya **Geologic Genesis and Significance Research of Global Saline Giants** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 619－632, 8 illus., 49 refs.)

Key words: evaporites, global

Based on the reconstruction of paleoplate and sedimentary lithofacies, the stratigraphic correlation and structure analysis of evaporation salt basins, this paper had discussed the development, distribution and geologic genesis and significance of global saline giants. The evolution of orogenic belt, the assemblage and breakup of supercontinent, the arid climate zone (between 30° N and 30° S), the

changes of sea level and other factors had important influence on the development and distribution of saline giants. The saline giants developed in relatively closed plateaus and basins with recharge of subsurface seawater in arid environment. The saline giants generally distributed in the narrow rift belt inner continental plates, remnant oceanic basins in Tethyan orogenic belt, sea—land transitional zones, epicontinental sea and platform center of isolated plates.

20170953 Li Yihe (College of the Geosciences, Northeast Petroleum University, Daqing 163318, China); Shang Yao **Sedimentary Characteristics and Models of the Composite Shallow Water Delta with the Multiple Sources** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 1—9, 5 illus., 23 refs.)

Key words: deltas, sedimentary facies model, Songliao Plain

With the help of the core, well logging, seismic data and so on, the fine investigation and analyses were conducted for Yaojia Formation Member—1 in the western slope of Songliao Basin. The achievements showed that the climate of the multi—source composite shallow water delta depositional was dry, the ancient terrain was flat, the sources were pretty plenty and powerful, and moreover many drainage systems were well—developed, thus the following three subfacieses were divided: delta plain, delta front and front delta.

20170954 Liang Jie (Key Laboratory of Tibetan Environment Changes and Land Surface Processes, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China); Hou Juzhi **Review on Investigating Changes in Lake Ecosystems Using Sedimentary Pigments** (Quaternary Sciences, ISSN1001—7410, CN11—2708/P, 36(3), 2016, p. 630—645, 4 illus., 2 tables, 127 refs.)

Key words: lake sediments, pigments, quantitative analysis

Lake sediments contain valuable information on past changes in climate, environment, and ecosystems, which could be used to investigate the influence of climate and human activities on lake ecosystems. Sedimentary pigments have been proposed as useful proxy indicators for algae and bacterial populations. Pigments are also used to investigate anthropogenic influence on lake ecosystem. In this paper, the authors reviewed the complexity of pigments from production to sediment burial, mathematical techniques for analysis of pigment data.

20170955 Liang Wei (Chengdu Center, China Geological Survey, Chengdu 610081, China); Mou Chuanlong **Origin and Sedimentary Characteristics of Mixed Carbonate—Siliciclastic Sediments of the Third Series of Cambrian in Hunan Province, South China** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(4), 2016, p. 881—896, 5 illus., 62 refs.)

Key words: diamictite, carbonate rocks, South China

Field observation and petrologic analysis are used to investigate sedimentary characteristics of outcrops and grain/mineral compositions of the mixed carbonate—siliciclastic sediments. On the basis, types of lithological association and sedimentary characteristics of the mixed sedimentary successions and mixed carbonate—siliciclastic sediments were summarized for the first time. There are 4 types of mixed sedimentary successions with 6 kinds of lithofacies zones developing in Third Series of Cambrian of Hunan, to the north of the Jingzhou—Lianyuan—Longhui—Ningxiang areas.

20170956 Liao Zhiwei (School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Hu Wenxuan **Volcanic Origin of Claystone near the Permian—Triassic Boundary in the Deep Water Environment of the Lower Yangtze Region and Its Im-**

plications for LPME (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(4), 2016, p. 785－800, 10 illus., 1 table, 70 refs.)

Key words: claystone, Anhui Province

The volcanogenic claystone, deposited globally, especially around the Tethyan Realm in the Permian－Triassic Boundary (PTB), plays a significant role in understanding the triggering mechanism and associated geological events for the Latest Permian Mass Extinction (LPME). Here, the authors present research of claystones around the PTB on mineralogy, petrology and geochemistry, which has filled the blank in this area. The results show that the components of the PTB claystone are composed mainly of volcanogenic clays (illite, etc.), and phenocryst minerals (such as quartz, calcite, pyrite and magmatic zircon).

20170957 Lu Jingwen (University of Chinese Academy of Sciences, Beijing 100049, China); Li Yuan **Sedimentary Facies in the Lulehe Formation, Pingtai Area, Qaidam Basin, Qinghai Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 55－61, 8 illus., 18 refs.)

Key words: sedimentary facies, Qaidam Basin

The Qaidam Basin is a giant Mesozoic－Cenozoic petroleum basin in northwestern China. This paper deals, on the basis of core examination, SEM, well logs and laboratory data, with sedimentary structure, grain size, sedimentary sequence and sedimentary facies types in the Lulehe Formation, Pingtai area, Qaidam Basin, Qinghai Province. The Lulehe Formation constrained by the proximal sediments is primarily built up of conglomerates, gravelly coarse－grained sandstones, muddy siltstones and mudstones with trough and tabular cross－beddings, and poor compositional and textural maturity. This study will provide reliable geological data for the future petroleum exploration in the study area.

20170958 Lu Junji (Department of Earth Sciences, Institute of Land Resources Engineering, Yunnan Engineering Laboratory for Prediction and Evaluation of Mineral Resources, Kunming University, Kunming 650093, China); Hu Yuzhao **Sedimentary Facies, Paleocurrent, Provenances and Prospecting Significance of Kuzigongsu Formation in the Northern Ore Belt of the Sareke Copper Deposit in Wuqia, Xinjiang: Evidence from Gravel Statistic Analysis** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 963－970, 5 illus., 4 tables, 27 refs., with English abstract)

Key words: alluvial fans, provenance, Xinjiang

20170959 Niu Hong (School of Environmental Studies, China University of Geosciences, Wuhan 430074, China); Liang Xing **Paleoclimate Instruction of Sediment Grain Size and Deuterium－Oxygen Isotope in Saline Stratum of Hengshui** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 499－507, 4 illus., 1 table, 44 refs.)

Key words: sediments, grain size, paleoclimate

The characteristics of saline stratum in Hengshui have always been concerned. In order to discuss the paleoenvironment and the paleoclimate in Hengshui area, grain size and pore water stable isotope (δD, $\delta^{18}O$) of clay collected from Hengshui saline stratum (thickness of 130 m) by drilling were analyzed. The standard deviation of sediment grain size shows that the hydrodynamic strength changed from weak to strong and then to weak, there is a deep gravel layer in 90～65 m, which reflects a strong hydrodynamic strength and a humid clime. The TDS and $\delta^{18}O$ reflect the affect of atmospheric precipitation and human irrigation above 6 m.

20170960 Shen Lijian (Key Laboratory of Metallogeny and Mineral Assessment, Insti-

tute of Mineral Resources, Chinese Academy of Geological Sciences, MLR, Beijing 100037, China); Liu Chenglin **A Study of the Sedimentary Environment of the Upper Member of the Paleogene Yunlong Formation in Lanping Basin, Yunnan Province: Evidence from Carbon and Oxygen Stable Isotopes** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(3), 2016, p. 301－306, 3 illus., 1 table, 33 refs.)

Key words: sedimentary environment, carbon isotopes, oxygen isotopes, Yunnan Province

Yunlong salt－bearing Formation in Lanping Basin were formed in a strong arid environment in Paleogene. Yunlong Formation archived an entire first－class circle in the lake evolution, i. e., a fresh lake became a salt lake, then evolved into a playa and finally turned back to be a fresh lake again. According to Z values of all samples (ranging from 92 to 107, all lower than 120) and the composition of carbon isotopes, the lake was likely a continental fresh or brackish lake at that time, with relatively low water salinity. The paleotemperature is relatively high, and might be correlated with M. Therefore, the paleoclimate was dry and hot during the generation of Yunlong Formation, and the termination of evaporate deposition was mainly caused by an open lake environment.

20170961 Song Ying (School of Geosciences, China University of Petroleum (East China), Qingdao 266580, China); Zhang Junxia **Decomposition the Detrital Grain Ages by Kernel Density Estimation and Its Applications: Determining the Major Tectonic Events in the Songliao Basin, Northeast China** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 265－276, 6 illus., 78 refs.)

Key words: thermal evolution, geochronology, Songliao Basin

This paper introduces a statistical technique for analyzing isotope age, called Kernel Density Estimation (KDE), which involves the age data, but explicitly takes into account the analytical uncertainties by inherent adaptive bandwidth functions. Such adaptive functions vary the bandwidth according to the local density, avoiding the uncertainties from analytical errors and age abundance. Finally, the authors used the KDE to study two independent thermochronology date sets in Northeast China: the zircon U－Pb ages of Phanerozoic granitoids in Greater Xing'an Range and the single grain fission track ages of detrital apatite in the Songliao Basin.

20170962 Sun Jiaopeng (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Chen Shiyue **Palaeoenvironments of the Delingha Basin in Qinghai during the Carboniferous** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 30－37, 4 illus., 1 table, 25 refs.)

Key words: carbonate rocks, lithogeochemistry, Qinghai Province

The analyses of 12 pieces of carbonate rock samples from the Carboniferous strata in the Delingha Basin, Qinghai have reflected that during the Carboniferous, the Delingha area was once in the marine saline water environments with saline and dysaerobic sea water, humid and highly evaporated conditions, and plenty of terrigenous supply. This type of humid and reducing environments may be favorable for the propagation of organisms and preservation of organic matter, and thus may be the ideal sites for the development of the Carboniferous source rocks.

20170963 Wei Yongfeng (Geology Exploring and District Surveying Team, Shuangliu 610213, China); Zhao Zhiqiang **Geochemical Characteristics and Sedimentary Environment of Cherts from Jianshan Mélange Belt in West Kunlun** (Xinjiang Geology, ISSN1000－8845, CN65－1092/P, 34(2), 2016, p. 197－203, 5 illus., 3 tables, 29 refs.)

Key words: silicolite, lithogeochemistry, Kunlun Mountains

返回目录

Jianshan Mélange belt consists of basic—ultrabasic rock, basic volcanic rock, basic volcanic clastic rock and cherts, in schistose structure or massive structure. According to radiolarian era, Siliceous rocks formed during middle Triassic Period, and Jianshan Mélange belt was still in the stage of development. Cherts of formation age and tectonic background were consistent with the ophiolite mélange belt from Xijinlan.

20170964 Wu Beijuan (Faculty of Resource and Environment Sciences, Hunan Normal University, Changsha 410081, China); Peng Bo **A New Chemical Index of Identifying the Weathering Degree of Black Shales** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(4), 2016, p. 818—832, 5 illus., 3 tables, 51 refs.)

Key words: shale, weathering

In combination with the one—way ANOVA analysis and the multivariate discriminate analysis methods, this study conducted major elements analysis for the samples from fresh and weathered black shales of Lower Cambrian in central Hunan to define the differences of their chemical components. Establishment of major element discriminate method can further define chemical weathering index of weathering degree of black shales. It is shown that different major elements have different degree of influence on the chemical difference between the fresh and weathered black shales, and such influencing degree decreases. This new chemical index can overcome the weakness of all the existed chemical indices, and can be used to identify the weathering degree of black shale.

20170965 Yang Jiyou (No. 402 Geological Team, BGEEMRSP, Chengdu 611730, China); Qin Song **Glacial—Marine Diamictite of Gondwana Facies in the Sêbrong, East Gangdisê** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 195—199, 6 illus., 2 tables, 36 refs.)

Key words: conglomerate, sedimentary environment, Tibet

Glacial—marine diamictite with a total thickness of 325 m in the Sêbrong, East Gangdisê occurs in terrigenous clastic rock. The petrology and sedimentary characteristics indicate a coastal—neritic environment. Fossil assemblage indicates the cold water environment in Early Permian Artinskian. These show that the glacial—marine diamictite was formed by glaciations in an intracontinental rift environment with an average temperature of 0～10 ℃ and within paleolatitude of 15°～35°.

20170966 Yu Liangliang (Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Xu Deru **Nd Isotopic and Geochemical Constraints on the Provenances and Tectonic Settings of the Carboniferous Sandstones in Western Hainan Province, South China** (Geochimica, ISSN0379—1726, CN44—1398/P, 45(3), 2016, p. 235—248, 8 illus., 3 tables, 53 refs.)

Key words: sandstone, Carboniferous, geochemistry, sedimentary environment, Hainan Province

Geochemical compositions and Sm—Nd isotopic characteristics can effectively identify the provenances and tectonic settings of elastic sedimentary rocks. This paper focuses itself on two Carboniferous successions, i. e., the Lower Carboniferous Nanhao Formation and the Upper Carboniferous Qingtianxia Formation in the Shilu region, western Hainan Province, South China. Major and trace element compositions and Sm—Nd isotopic compositions were analyzed for 12 sandstone samples from the Nanhao Formation (7) and the Qingtianxia Formation (5) in order to investigate their provenance and tectonic environment, and to provide constraints on the tec-

tonic evolution of the Hainan Island during the Carboniferous period.

20170967 Yu Xiaohui (Institute of Geology, China Earthquake Administration, Beijing 100029, China); Shen Jun **The Discovery of Microbial Debris in the Coarse Clastic Rock of the Early Mesoproterozoic in Liaoning Province, China and Its Paleoenvironmental Significance** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(4), 2016, p. 284-291, 6 illus., 21 refs.)

Key words: microorganisms, clastic rocks, Liaoning Province

This paper argues that the cause of these sandy microorganisms particles is that the microbial matground in the relatively hydrodynamically quiet supratidal flat or high tide mud flat was damaged by the storm and tsunami disaster events by intense tectonic movement and high frequency sea-level movement in the early transgression movement at the beginning of the Mesoproterozoic erathem. Then it was transported to the strong hydrodynamic and bimodal cross-bedding developed area of the tidal channel with the tide flow and deposited with detrital material; in the process of transportation, these particles damaged by the storm were rounded and sorted.

20170968 Zeng Zhongcheng (Shaanxi Center of Geological Survey, Xi'an 710068, China); Lin Lujun **Tectonic Setting of the Greywackes from the Permian Shenxianwan Formation in the Daftar Area, Taxkorgan, Xinjiang** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(2), 2016, p. 20-29, 8 illus., 4 tables, 31 refs., with English abstract)

Key words: sandstone, lithogeochemistry, Xinjiang

20170969 Zheng Deshun (Institute of Resource and Environment, Henan Polytechnic University, Jiaozuo 454000, China); Sun Fengbo **Geochemical Characteristics of Argillaceous Rocks of the Mesoproterozoic Bingmagou Formation in Yichuan, Western Henan and Its Environment and Provenance** (Geological Journal of China Universities, ISSN1006-7493, CN32-1440/P, 22(2), 2016, p. 254-263, 7 illus., 2 tables, 43 refs.)

Key words: mudstone, lithogeochemistry, North China

Based on the analysis of geochemical characteristics of REE and trace element of argillaceous rocks in Bingmagou Formation, the sedimentary environment and properties of provenance and their tectonic significance were discussed in this study. The results showed that Chondrite normalized REE and trace elements have a high different between LREE and HREE, which showed anomaly negative δEu, anomaly insignificant Ce, and enrich Rb, Th, La, Ce, Nd, Zr, Hf, etc. Compared with the average upper crust, it was enriched in Sc, V, Cr, Co, Ni, Rb.

20170970 Zhou Boyu (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Liu Taixun **Sedimentary Characteristics and Model for the Cretaceous Oil sand Deposits in the Fengcheng Area, Northwestern Junggar Basin** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(2), 2016, p. 2-19, 10 illus., 15 refs.)

Key words: sedimentary evolution, Junggar Basin

The Cretaceous oil sand resources reside in the Fengcheng area, northwestern Junggar Basin. This paper focuses, in terms of core and thin section examination, well logs and laboratory data, on the type, distribution and evolution of sedimentary microfacies and construction of the sedimentary model for the Cretaceous Qingshuihe Formation. The results of research in this study may provide useful references to the future exploration and development of the Cretaceous oil sand deposits in the Fengcheng area.

ROCKS & MINERALS DETERMINATION AND ANALYSIS

20170971 Cheng Xiuhua (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Li Weiliang **Determination of Germanium and Tellurium in Geological Samples by a Self－Developed Hydride Generation Device Paired with Inductively Coupled Plasma－Mass Spectrometer** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 265－270, 3 illus., 1 table, 17 refs., with English abstract)

Key words: disperse elements, ICP－MS

20170972 Fan Lianjie (Key Laboratory of Karst Dynamics, Ministry of Land and Resources of Guangxi, Institute of Karst Geology, Chinese Academy of Geological Sciences, Guilin 541004, China); Pei Jianguo **Rare Earth Element Composition of Carbonate Rocks Afforded by LA－ICP－MS and Its Formation Environment of the Zhaidi Underground River in Guilin** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 251－258, 2 illus., 1 table, 23 refs., with English abstract)

Key words: underground streams, ICP－MS, Guangxi

20170973 Han Zhangxiong (Shaanxi Key Laboratory of Exploration and Comprehensive Utilization of Mineral Resources, Xi'an Testing and Quality Supervision Center for Geological and Mineral Products, Ministry of Land and Resources, Xi'an 710054, China); Ma Yani **Optimal Conditions for Determination of Fluoride in Plant Samples by Microwave Digestion Coupled with Ion Selective Electrode Method** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 397－401, 3 tables, 17 refs., with English abstract)

Key words: fluorine, ion selective electrode methods

20170974 Hao Yuanfang (Shenyang Center of Geological Survey, China Geological Survey, Shenyang 110032, China); Liu Xin **Determination of Trace Cadmium and Tin in Lead Alloys by Inductively Coupled Plasma－Mass Spectrometry** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 378－383, 1 illus., 3 tables, 12 refs.)

Key words: cadmium, tin, ICP－MS

Due to the low concentrations of cadmium and tin in lead alloys and the single element analysis performed by using the national standard method, the analytical protocol is very complex and the detection limit is not ideal. In this paper, a new analytical method for determining trace cadmium and tin in lead alloys by Inductively Coupled Plasma－Mass Spectrometry is reported. The detection limits of Cd and Sn are 0.05 ng/g and 0.04 ng/g, respectively, which are much lower than those of the national standard method (1～6 μg/g). The precision of the method is 4.0%. The method needs a relatively small sample weight, which simplifies the analytical process and can determine trace elements in alloys precisely and accurately.

20170975 He Changjing (State Key Laboratory Breeding Base of Green Chemistry－Synthesis Technology, College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, China); Liu Wenhan **Effect of the Surfactants on Atomization Efficiency of Lead－Zinc Mineral Powder Suspension Determined by Atomic Spectrometry** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 245－250, 3 illus., 1 table, 18 refs., with English abstract)

Key words: lead－zinc deposit, atomic absorption spectra

20170976 He Jiale (Chengdu Center of Geological Survey, CGS, Chengdu 610081, China); Pan Zhongxi **The Application of Laser Raman Spectroscopy to Rock and Mineral Identification** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 346—349, 3 illus., 1 table, 19 refs.)

Key words: mineral and rock identification, Raman spectra

Rock—mineral identification is an important basis for geological research, and its precision, accuracy and degree of research have a direct impact on the regional geological prospecting work. But the results of identification are easy to be influenced by the size of the mineral, the optical change of mineral because of making sample, the experience level of appraisers and so on, with traditional method of optical microscope. The laser Raman spectroscopy is one of important methods of rock—mineral identification. It has many advantages, such as non—destructive, high sensitivity and high resolution. By laser Raman spectroscopy and mapping scan, mineral composition, stress distribution and alteration information can be obtained accurately and conveniently.

20170977 Jiao Ju (National Research Center for Geo—Analysis, Beijing 100037, China); Yang Xiaotao **Development of a Portable Li—K Analyzer and Its Application in the Determination of Lithium in Spodumene** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(4), 2016, p. 366—372, 3 illus., 1 table, 22 refs., with English abstract)

Key words: spodumene, spectroscopy

20170978 Lan Gaoyong (Institute of Karst Geology, Chinese Academy of Geological Sciences, Guilin 541004, China); Wang Hua **Influence on the Chemistry Quenching of Low Level Tritium in Natural Water by the Solid Polymer Electrolysis Enrichment Method** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(4), 2016, p. 415—419, 3 tables, 18 refs., with English abstract)

Key words: water, electrolytic analysis

20170979 Li Junjie (Beijing Research Institute of Uranium Geology, Beijing 100029, China); Liu Hanbin **Accurate Measurement of Argon Isotope Composition of Air by Argus Multi—Collector Noble Gas Mass Spectrometer** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(3), 2016, p. 229—235, 3 illus., 2 tables, 22 refs., with English abstract)

Key words: Ar—Ar dating

20170980 Li Keji (Institute of Multipurpose Utilization of Mineral Resources, Chinese Academy of Geological Sciences, Chengdu 610041, China) **Determination of Major Components in Rock Salt by X—Ray Fluorescence Spectrometry with Sample Fusion** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(3), 2016, p. 290—294, 1 illus., 3 tables, 11 refs., with English abstract)

Key words: salt rock, X—ray fluorescence spectra

20170981 Luo Ronggen (Fujian Zijin Mining and Metallurgy Testing Technology Co., Shanghang 364200, China) **Determination of Total Mercury in Gold—Loaded Carbon by Solid Mercury Analyzer** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(4), 2016, p. 420—424, 3 tables, 12 refs., with English abstract)

Key words: mercury, recovery ratio

20170982 Ma Shengfeng (National Research Center for Geoanalysis, Beijing 100037, China); Wen Hongli **Determination of Nb and Ta in Nb—Ta Ore by Inductively Coupled Plasma—Optical Emission Spectrometry with a Combined Microwave Digestion Hydrofluoric Acid—Resistant System** (Rock and Mineral Analysis,

ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 271－275, 5 tables, 13 refs., with English abstract)

Key words: niobium ores, tantalum ores, inductively coupled plasma atomic emission spectroscopy

20170983 Shen Yu (Xi'an Northwest Geological Research Institute for Nonferrous Metals, Xi'an 710054, China); Zhang Ni **Determination of Pt, Pd, Ru, Rh in Geochemical Samples by ICP－MS with Microwave Digestion and Dual－Cloud Point Extraction** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 259－264, 1 illus., 3 tables, 23 refs.)

Key words: trace elements, ICP－MS

Traditional cloud point extraction methods commonly enrich elements in the viscous surfactant. However, the viscosity of the solution will adversely affect the detection signal of the plasma. Harmful agents such as methanol are usually adopted as a thinner to reduce the viscosity of the organic phase, but the organic component affects the stability of the plasma, and organic absorption on the injection tube will enhance elemental memory effect. These disadvantages limit the widespread application of Inductively Coupled Plasma－Mass Spectrometry (ICP－MS) in cloud point extraction. A method to determine Pt, Pd, Ru, Rh in geochemical samples by ICP－MS based dual－cloud point extraction has been established and reported in this paper. The results show that the proposed method succeeds in the simultaneous enrichment of trace platinum group elements in complex matrix geochemical samples, improving the stability of the ICP－MS measurement.

20170984 Song Ping (National Research Center for Geo－Analysis, Beijing 100037, China); Wen Hongli **Determination of Bromine and Iodine in Rock, Soil and Sediments by Inductively Coupled Plasma － Mass Spectrometry Using Pyrohydrolysis with Liquid Nitrogen Trap** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 384－388, 1 illus., 2 tables, 17 refs., with English abstract)

Key words: bromine, iodine, ICP－MS

20170985 Wang Bing (The First Institute of Oceanography, State Oceanic Administration, Qingdao 266061, China); Gao Fenglei **Feasibility Study on the Application of Automatic Potentiometric Titrator in the Measurement of Organic Carbon in Marine Sediments** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 402－408, 2 illus., 1 table, 21 refs., with English abstract)

Key words: marine sediments, organic carbon, potentiometry

20170986 Wang Hongyue (Key Laboratory of Mineral Resources, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Liu Yanhong **Synthesis of Amino Polyurethane Foam and Its Application in Trace Gold Enrichment in Geological Samples** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 409－414, 3 illus., 2 tables, 22 refs., with English abstract)

Key words: trace elements, gold, recovery ratio, ICP－AES

20170987 Wang Yanli (State Key Laboratory Breeding Base of Nuclear Resources and Environment, East China Institute of Technology, Nanchang 330013, China); Luo Mingbiao **Determination of Trace Rhenium in Sandstone－Type Uranium Deposits by Inductively Coupled Plasma－Mass Spectrometry with Magnesium Oxide Sintering** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 373－377, 3 tables, 22 refs., with English abstract)

Key words: uranium ores, rhenium, ICP－MS

20170988 Yin Xiao (Shenyang Center o f Geological Survey, CGS, Shenyang 110032, China); Chi Guangcheng **The Application of Electron Probe Spectrum Analysis to Feldspar Identification** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 350—352, 2 tables, 16 refs.)

Key words: metamorphic rocks, electron probe

It is difficult to distinguish feldspar from quartz in metamorphic rock under a microscope due to their similar refractive index, especially quartz of very small size (less than 0.05 mm) and feldspar without twin. This study applies electron probe spectrum technology to feldspar identification of 25 samples of metamorphic rock. The results show that electron probe spectrum technology has an effect on feldspar identification.

20170989 Zhang Ni (College of Material Engineering, Jinling Institute of Technology, Nanjing 211169, China); Lin Chunming **Review on the Application of X—ray Diffraction in Gem Identification, Synthesis and Crystal Structure Research** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(3), 2016, p. 229—235, 5 illus., 70 refs., with English abstract)

Key words: X—ray diffraction analysis

20170990 Zhang Sheng (Key Laboratory for Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Chen Genwen **Determination of Boron Content in Hydrothermal Vapor by Ion Selective Electrode Method: Insights into the Gaseous Transport of Boron** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(4), 2016, p. 358—365, 2 illus., 41 refs., with English abstract)

Key words: boron, ion selective electrode methods

ECONOMIC GEOLOGY

20170991 Li Junjian (Tianjin Center, China Geological Survey, Tianjin 300170, China); Tang Wenlong **The Division of Metallogenic Belts in Sino—Mongolian Border Area** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 461—487, 1 illus., 1 table, 137 refs.)

Key words: metallogenic area, metallogenic belts, China, Mongolia

Based on the theories of plate tectonics—geodynamics and the results of informational—structural map and minerogenetic map (1∶1 000 000) which were completed by experts from Mongolia and China, this paper firstly provides a unified division of the metallogenic belts in this area. In addition, this paper suggests that the western part of the sub—metallogenic belt of Oyu Tolgai—Chagan Subuerga large—superlarge porphyry deposits in Mongolia is connected with the sub—metallogenic belt of the Chinese East Tianshan—Beishan submetallogenic belt, and this understanding provides the prospecting direction in search for porphyry deposits in this area.

20170992 Liu Lin (Shaanxi Key Laboratory of Exploration and Comprehensive Utilization of Mineral Resources, Xi'an 710054, China); Rui Huichao **Present Situation and Development Tendency of Metallogenic Prediction** (Journal of Geomechanics, ISSN1006—6616, CN11—3672/P, 22(2), 2016, p. 223—231, 2 tables, 43 refs.)

Key words: metallogenic prediction, current research

Based on the summarization and generalization of the metallogenic prediction development process, the authors illuminated the related theory and the commonly used methods

返回目录

of metallogenic prediction as well as the orebody location prediction research. The authors discussed the development trends of metallogenic prediction from four different aspects, with aim to provide some useful advises and references for prediction of mineralization.

1. METALS DEPOSITS

20170993 Cai Zhichao (Henan Institute of Geological Survey, Zhengzhou 450001, China); Luo Xue **Geological and Geochemical Characteristics and Genesis of Yaguila Lead－Zinc－Silver Deposit in the Gongbujiangda County of Tibet** (Contributions to Geology and Mineral Resources Research, ISSN1001－1412, CN12－1131/P, 31(2), 2016, p. 172－181, 10 illus., 4 tables, 12 refs.)

Key words: lead－zinc deposit, silver ores, Tibet

Yaguila lead－zinc deposit in the Gongbujiangda County of Tibet is located in the back－arc fault up lift area of Longgeer－Gongbujiangda. The main ore bodies are layeroid occurring at places where lithology is transformed within the second lithologic member of Laigu Formation of Upper Carboniferous－Lower Permian Series. The deposit differs evidently from skarn－veinlike hydrothermal type, Sedex－magmatic fluid reworking type deposits in aspects of geological, geochemical and fluid inclusion characteristics thus the authors consider it as an epigenetic stratabound lead－zinc－silver deposit.

20170994 Chao Huixia (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Su Shengrui **Research on the Geological Characteristics of the Miaoya REE Deposit, Hubei Province** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 102－108, 4 illus., 19 refs.)

Key words: rare earth deposit, Hubei Province

Miaoya REE deposit, located in the transitional zone between northeast margin of Northern Daba Mountains and western margin of Wudang uplift, is an oversize Niobium－REE deposit associated with syenitecarbonatite complexes. Combined with regional geological background and geological characteristics of the deposit, the authors suggest that the carbonate rocks formed after the syenite, has a close relation with the syenite magma, and think that the mineralization material may have come from syenite magma's intrusion, then underwent gas－water hydrothermal metasomatism after magmatism period, that is, all kinds of carbonatization alteration impelled niobium and rare earth elements to be enriched and precipitated.

20170995 Chen Qinggang (No. 115 Geological Party, Guizhou Bureau of Geology and Mineral Exploration & Development, Qingzhen 551400, China); Chen Qun **Discussion of Metallogenic Epoch of Bauxite Deposit in Central Guizhou Province** (Guizhou Geology, ISSN1000－5943, CN52－1059/P, 33(2), 2016, p. 101－107, 3 illus., 15 refs.)

Key words: bauxite deposit, Guizhou Province

In this paper, the sequence structural features of bauxite deposit in central Guizhou Province, the roof and floor formation, the surface feature, lithofacies paleogeography features are compared and discussed, the evolution of central Guizhou uplift affect the metallogenic epoch of bauxite deposit, the metallogenic epoch of bauxite deposit in central Guizhou is divided to Lower Carboniferous, the stratum is Jiujialu Formation, and the accordance are discussed.

20170996 Chen Tianhua (Sichuan Institute of Uranium Geological Survey, Chengdu 610061, China); Chen Gang **U－Ra Equilibrium Coefficient of a Uranium Deposit in Roigê, Sichuan Province** (Acta Geologica Sichuan,

ISSN1006－0995，CN51－1273/P，36(2)，2016，p. 224－227，6 illus.，2 tables，4 refs.)
Key words：uranium ores，Sichuan Province

The Roigê uranium ore field lies in the west end of the south Qinling uranium ore belt. The main uranium deposit type is carbonaceous－siliceous－pelitic rock type. This paper deals with U－Ra equilibrium coefficient of a uranium deposit in the Roigê uranium ore field，providing scientific basis for radioactive logging data correction，uranium orebody delineation and reserve calculation.

20170997 Chen Xing (Geologcal Survey of Guizhou，Guiyang 550018，China)；Xue Chunji **Origin of H_2S in Uragen Large－Scale Zn－Pb Mineralization，Western Tianshan：Bacteriogenic Structure and S－Isotopic Constraints** (Acta Petrologica Sinica，ISSN1000－0569，CN11－1922/P，32(5)，2016，p. 1301－1314，8 illus.，2 tables，80 refs.)
Key words：lead－zinc deposit，mineral deposit genesis，biomineralization，hydrogen sulfide，Tianshan Mountains

The Uragen is the largest Zn－Pb ore deposit proven in northwestern China so far，but the origin of H_2S needed during the large－scale Zn－Pb mineralization is unclear. Based on the field survey and ore microscopy observations，the further observations，measurements and analysis of the ores by FESEM，EDS and MS have been carried out in this paper. The results show that the H_2S needed in the large－scale Zn－Pb mineralization might originate mainly through bacteria sulfate reduction (BSR). The reaction of bacteria sulfate reduction under the catalyzing of hydrocarbon organic matter in the basin fluids might be an important process of Uragen large－scale Zn－Pb mineralization.

20170998 Chen Xuanhua (SinoProbe Center，Chinese Academy of Geological Sciences，Beijing 100037，China)；Chen Zhengle **Late Paleozoic Concentrated Mineralization of Balkhash－Junggar Metallogenic Belt in the Western Part of the Central Asian Metallogenic Domain** (Journal of Earth Sciences and Environment，ISSN1672－6561，CN61－1423/P，38(3)，2016，p. 285－305，7 illus.，1 table，111 refs.，with English abstract)
Key words：metallogenesis，metallogenic belts，Xinjiang

20170999 Cheng Long (College of Earth Sciences，Chengdu University of Technology，Chengdu 610059，China)；Zhu Guoren **Genesis and Prospecting Potential for the Balanghe Au Deposit in Kangding，Sichuan Province** (Acta Geologica Sichuan，ISSN1006－0995，CN51－1273/P，36(2)，2016，p. 269－271，1 illus.，3 tables，41 refs.，with English abstract)
Key words：gold ores，Sichuan Province

20171000 Cun Xiaoni (State Key Laboratory of Continental Dynamic，Department of Geology，Northwest University，Xi'an 710069，China)；Wu Bailin **Study on Uranium Occurrence State of Daying Sandstone－Type Uranium Deposits in Ordos Basin** (Northwestern Geology，ISSN1009－6248，CN61－1149/P，49(2)，2016，p. 198－212，10 illus.，5 tables，31 refs.)
Key words：uranium ores，Inner Mongolia

Through using electron probe，sequential chemical extraction and α－track methods，the uranium occurrence state of Daying sandstone－type uranium deposits in Ordos Basin has been studied. The results show that the uranium ore is rich in coffinite，containing very small amounts of water silicon coffinite and titanium uranium. These uranium mineral occur as assemblages，mainly exist in pyrite，calcite and the cracks of organic matter.

20171001 Dou Xiaoyu (Gansu Management Center of Geological Exploration Fund，Lanzhou 730000，China)；Duan Xiaohua **Geologic Feature and Prospecting Mark of Miaoshan Gold Deposit in Lixian County of Gansu Province** (Gansu Geology，ISSN1004－4116，

返回目录

CN 62－1191/P, 25(2), 2016, p. 44－49, 4 illus., 1 table, 7 refs.)

Key words: gold ores, Gansu Province

Miaoshan gold deposit in Lixian County is located in the western Qinling Mountains orogenic belt, frequent magmatic activity, hydrothermal alteration ore, ore structure and development. Through field observation and indoor finishing exploration geological characteristics in the region, that Miaoshan gold mine occurred in Carboniferous and the clastic rock formation, magma source and ore－forming fluid along the fracture, fracture movement, in the favorable position of enrichment, in low temperature hydrothermal deposits.

20171002 Gao Ke (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Tang Juxing **Geological and Geochemical Characteristics and Significance of the Sena Cu－Au Deposit from Duolong Ore－Concentration Area, Tibet, China** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 199－207, 8 illus., 2 tables, 37 refs.)

Key words: copper ores, gold ores, Tibet

Based on a detailed geological survey in the field of the area, this paper studies geochemical characteristics of quartz diorite porphyrite, which has a close relationship with the mineralization in the area. Results show that the regional porphyry is a high calc－alkali meta－luminous peraluminous rock, belonging to I－type granite. Combined with regional tectonic evolution, it is apparent that the Sena Cu－Au deposit may have formed in the northward subduction stage of the Bangonghu－Nujiang Tethys Ocean.

20171003 Gao Yaning (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Yang Xingke **Study on S_2 Foliation, Conditions of Temperature－Pressure on Biotite－Garnet Metacryst Minerals and the Relation of Ore－Control in Jindoupo Ore Area of the Northern Hanyin, South Qinling** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 464－472, 6 illus., 3 tables, 31 refs.)

Key words: gold ores, Qinling Mountains

The foliation of Silurian Meiziya Group in Jindoupo ore area of the northern Hanyin, South Qinling is mostly S_2 foliation. The massive occurrence data from mapping as well as section plane based on large measuring scale indicate that the tendency of S_2 foliation are 305°～355° with the dip angle of 25°～50°; the S_2 foliation, which inclines towards the north, is stable as well as placid. After comprehensive mapping and analysis, the distribution direction of S_2 foliation is mainly the same as that of gold mineralization, and has obvious constraint on mineralization.

20171004 Gao Yaning (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Yang Xingke **Study on Primary Halo Characteristics of q_6 Gold－Bearing Quartz Veins in Xifengshan Gold Deposit, Xinjiang** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 124－133, 3 illus., 3 tables, 18 refs.)

Key words: gold ores, Xinjiang

Based on the investigation for geological characteristics of Xifengshan gold deposit, the significant q_6 gold－bearing quartz vein has been selected to implement the primary halo geochemistry measure and abnormalities modeling. After testing and analyzing the 10 elements of q_6 gold－bearing quartz vein, the results show that the strength of Au primary halo in earth surface is greater than that in drilling and trench. The Au primary halo of q_6 in earth surface is extremely clear, which reaches the scale of primary halo in ore－body. And the horizontal zoning of Au primary halo in q_6 quartz vein is basically symmetrical, indicating the northern tendency to incline of ore－body.

20171005 Gu Xuexiang (School of Earth Sci-

ences and Resources, China University of Geosciences, Beijing 100083, China); Dong Lianhui **Formation and Evolution of the Epithermal—Porphyry Au Polymetallic Mineralization System in the Tulasu Volcanic Basin of the West Tianshan, Xinjiang** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(5), 2016, p. 1283—1300, 10 illus., 5 tables, 98 refs., with English abstract)

Key words: porphyry deposit, gold ores, mineral deposit genesis, Tianshan Mountains

20171006 Han Jiquan (No. 1 Regional Geological Survey Team, Xinjiang Bureau of Geology and Mineral Exploration and Development, Urumqi 830013, China); Xu Xinfang **Geological Characteristics of the Qiaoerma Iron Deposit in Nileke, Xinjiang Province** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(3), 2016, p. 204—209, 4 illus., 3 tables, 15 refs.)

Key words: iron ores, Xinjiang

The Qiaoerma ore deposits lies in the northeastern margin of the Yili Block produced in Lower Carboniferous Dahalajunshan formation volcanic rocks. Mineralization rock is acidic tuff welded tuff, andesitic lithic tuff and andesitic volcanic breccia. Through regional geology, deposit geological characteristics, comparative study of the adjacent iron ore deposit geological characteristics and features within the same metallogenic belt, it is suggested that Qiaoerma iron ore genesis type belongs to volcanic hydrothermal iron deposit with a great prospect.

20171007 Han Jiquan (No. 1 Regional Geological Survey Team, Xinjiang Bureau of Geology and Mineral Exploration and Development, Urumqi 830013, China); Xu Xinfang **Geological Feature of the Donggou Gold Deposit in Shanxi Province** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(3), 2016, p. 210—214, 3 illus., 5 refs.)

Key words: gold ores, Shanxi Province

Donggou area in Xiaxian County, Shanxi Province, is located in the south of contact zone between the Erdos massif and Hehuai massif in the North China Plate, in the middle of Zhongtiao Mountain uplift in Taihang Mountain area. With complete stratum exposed and strong magmatic activities, the metallogenic condition is very superior. Gold ore bodies are discovered in diabase vein and contact zone of the surrounding rock. So the authors inferred the mineralization refers to the incursion of diabase vein and the contact zone. The cause is about the deposit with low temperature in fracture zone. The authors can prospect better with the basis and suggestion by the analysis of geological features and geochemical anomalies.

20171008 Han Yixiao (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Liu Yunhua **Origin of the Breccia and Metallogenic Geological Background of Mayuan Pb—Zn Deposit** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(4), 2016, p. 94—101, 11 illus., 36 refs., with English abstract)

Key words: lead—zinc deposit, Shaanxi Province

20171009 He Ge (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Gu Xuexiang **Fluid Inclusions and H—O Isotopes of the Halegati Fe—Cu Deposit in the West Tianshan, Xinjiang: Implications for Ore Genesis** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(6), 2016, p. 1795—1808, 8 illus., 4 tables, 70 refs.)

Key words: iron ores, copper ores, fluid inclusions, hydrogen isotopes, oxygen isotopes, mineral deposit genesis, Xinjiang, Tianshan Mountains

The Halegati Fe—Cu deposit is located in the Boluokenu polymetallic belt in the West Tianshan, Xinjiang. As a typical skarn deposit, its ore bodies occur as stratoids or lenses at the contact zone between the Late Devonian

intermediate to acid intrusive rocks and the Upper Ordovician carbonate rocks. Based on the study of fluid inclusions and hydrogen and oxygen isotopic geochemistry, the aim of this paper is to discuss the characteristics, origin and evolution of ore－forming fluids and to provide an insight into the ore genesis. Based on geologic and fluid inclusion characteristics, it is suggested that fluid immiscibility (boiling) may be the main mechanism for metal precipitation in this deposit.

20171010 Hu Xipeng (No. 403 Geological Team, BGEEMRSP, Emeishan 614200, China); Zhang Jili **Geological Features and Their Prospecting Significance of the Hongnipo Cu Deposit** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 264－268, 3 illus., 1 table, 4 refs.)

Key words: copper ores, Sichuan Province

The Hongnipo Cu deposit is located in middle sector of the Kangdian Axis of the Yangtze Paraplatform. The deposit is confined to the Hekou and Tianshengba formations of the Proterozoic Hekou Group. The orebodies occur as stratoid and lenticular forms. This paper deals with its regional geological setting, geological features, geophysical and geochemical expression and prospecting history.

20171011 Jia Xin (No. 4 Geological and Mineral Exploration Team, Gansu Provincial Bureau of Geology and Mineral Exploration and Development, Jiuquan 735000, China); Chen Shiqiang **Geological Characteristics and Prospecting Direction of Shaliang Iron Deposit in Sunan County, Gansu Province** (Gansu Geology, ISSN1004－4116, CN 62－1191/P, 25(2), 2016, p. 37－43, 4 illus., 2 tables, 10 refs.)

Key words: iron ores, Gansu Province

Shaliang iron deposit, located in the same metallogenic belt where have Huashugou and Heigou iron deposit in Jingtieshan Mountain, is one of the main part of Kawa ore concentration area. Shaliang iron deposit lies in Huashugou Formation of Proterozoic Changcheng System. Through study and analysis on stratigraphic sequence, characteristic in ore－hosted strata, tectonic system, intrusive rock, feature of the ore body of Shaliang iron, this paper suggests that the further prospecting directions should be mainly in ore－bearing stratum and synclinal fold. It's of important reference significance for the exploration of Shaliang iron and Kawa iron.

20171012 Jin Hongzhan (No. 8 Geological Team, Xinjiang Bureau of Geology and Mineral Resources, Aksu 611230, China) **Prospecting Potential of Au, Fe Deposits in the Paergang Region, East Tianshan Mountains** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 228－233, 6 illus., 2 tables, 4 refs.)

Key words: gold ores, Tianshan Mountains

The Paergang region in the east Tianshan Mountains extends across the Aierbinshan Fe－Mn－Cu－Au－W－Sn－Pb－ Zn－U－Mg and the Kuruk Tag Cu－Ni－Pb－Zn－Au－Fe－REE－U ore belts. Some Au, Fe, Cu deposits has been found in this region. This paper has a discussion on prospecting potential of Au and Fe deposits, especially, fracture－altered rock－type gold deposit and sedimentary－metamorphic iron deposit, on the basis of geological, geophysical and geochemical data and remote－sensing information.

20171013 Jing Ming (Sichuan Institute of Land Survey Planning, Chengdu 610045, China); Deng Tao **Geological Features and Ore Criteria of the Baiwan Li Deposit in Barkam** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 280－283, 4 illus., 1 ref.)

Key words: lithium ores, ore guide of prospecting, Sichuan Province

The Baiwan Li deposit lies in the northwest of the Keeryin anticline of the Songpan－Garzê fold system and in the northeastern

Keeryin pegmatite field of the Jinchuan rare metal metallogenic region. This paper deals with geological setting, geological features, ore genesis and prospecting criteria for the Baiwan Li deposit.

20171014 Li Jianfeng (College of Urban and Environmental Science, Liaoning Normal University, Dalian 116029, China); Wang Keyong **Discussion on the Magmatic Evolution Sequence and Metallogenic Geodynamical Setting Background Hongling Pb—Zn Deposit in the Southern Da Xing'an Mountains** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(5), 2016, p. 1529—1542, 6 illus., 2 tables, 87 refs.)

Key words: lead—zinc deposit, igneous activity, metallogenic dynamics, Greater Hinggan Mountains

Hongling Pb—Zn deposit is a large scale polymetallic deposit which is located in the eastern Inner Mongolia. The ore bodies mainly occur in the outer contacting belt of the Late Yanshan granite and Permian Dashizhai Formation, controlled by NE strike faults. The authors carried out chronological research in allusion to Hongling ore district and the main intrusive rocks of its peripheral region. Finally, the authors hold the opinion that this area is not strongly affected by the Pacific tectonic system, and draw the conclusion that the continental dynamics background of Hongling Pb—Zn deposit is continental crust extensional environment after the collision orogenic of Mongolia—Okhotsk orogenic belt.

20171015 Li Jie (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100083, China); Luo Zhaohua **The Genesis of Layered Iron Bodies Occurring in the Middle Zone of Panzhihua Intrusion, Zhujiabaobao mine: Evidence from Quantitative Crystal Textural Analysis** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(3), 2016, p. 210—220, 12 illus., 1 table, 53 refs.)

Key words: iron ores, Sichuan Province

Magmatic iron deposit, occurring in Panzhihua layered intrusion, is one of the most important iron resources in China and builds up Emeishan mantle plume. However, the metallogenic mechanism is still left controversial. In this paper, the middle zone of Panzhihua intrusion in Zhuiiabaobao mine is investigated. With the analysis of quantitative clinopyroxene texture, the genesis of layered iron bodies has been put forward based on field and microscopic observation. In the aspect of petrography, the textures of clinopyroxene and plagioclase in dissolved samples have been obviously changed by dissolution and the dissolved parts were occupied by oxide.

20171016 Li Jiuming (Xinjiang Instituted of Ecology and Geography, Chinese Academy of Sciences, Wulumuqi 830011, China); Zhou Kefa **Geological Characteristics, Tectonic Evolution and Prospecting Direction of Dongduaoba Gold Deposit in Tajikistan** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(2), 2016, p. 165—175, 6 illus., 1 table, 29 refs., with English abstract)

Key words: gold ores, Tajikistan

20171017 Li Junjian (Tianjin Center, China Geological Survey, Tianjin 300170, China); Tang Wenlong **Re—Os Isotopic Dating of Molybdenites from the Bilugangan Porphyry Mo Deposit in Abag Banner, Inner Mongolia, and Its Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(4), 2016, p. 519—523, 3 illus., 1 table, 21 refs.)

Key words: molybdenum ores, Inner Mongolia

In this paper, the authors conducted for the first time Re—Os isotope analysis of molybdenite from the Bilugangan porphyry Mo deposit in Abag Banner, Inner Mongolia and obtained the molybdenite Re—Os isotope modal ages between (236.9±3.7) Ma and (238.7

±2.4) Ma and weighted average value of (237.9±1.7) Ma, which indicate that the mineralization of Bilugangan Mo deposit occurred in Indosinian period. The results obtained by the authors provide important references for the further study of ore-forming regularity in the Slonker- Huolinguole metallogenic belt.

20171018 Li Junjian (Tianjin Center, China Geological Survey, Tianjin 300170, China); Zhao Zelin **Metallogenic Epoch of the Aoyoute Copper Deposit in Dong Ujimqin Banner, Inner Mongolia** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(4), 2016, p. 537-541, 2 illus., 1 table, 11 refs.)

Key words: copper ores, Inner Mongolia

The Aoyoute copper deposit located in Dong Ujimqin Banner of eastern Inner Mongolia is one of the most typical deposits along the Erlian- Dong Ujimqin Banner metallogenic belt. The deposit lies in a suite of Jurassic continental volcanic rocks and sub-volcanic rocks. The country rocks are mainly composed of volcanic breccia, conglomeratic ignimbrite, rhyolite and rhyolite porphyry. The results show that the metallogenic epoch of the Aoyoute copper deposit is (187.11±3.50) Ma.

20171019 Li Junjian (Tianjin Center, China Geological Survey, Tianjin 300170, China); Zhou Yong **Re-Os Isotopic Dating of Molybdenites from the Sansheng W-Mo Deposit in Huade County, Inner Mongolia, and Its Geological Significance** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(4), 2016, p. 531-536, 3 illus., 1 table, 18 refs.)

Key words: molybdenite, Inner Mongolia

Located in Huade Country of Inner Mongolia on the northern margin of North China Block, the Sansheng W-Mo deposit is a postmagmatic mesothermal deposit. In consideration of the age data, the authors hold that the Sansheng W-Mo ore deposit was formed in late Yanshanian period, consistent with the age data of the formation of main ore deposits in this region. Rhenium content in molybdenite is 0.5548×10^{-6}, indicating the crustal origin. The ore-forming event resulted from large-scale Yanshanian tectonic and igneous activities and took place in an intercontinental tectonic environment.

20171020 Li Junjian (Tianjin Center, China Geological Survey, Tianjin 500170, China); Fu Chao **The Metallogenic Age of the Shamai Wolframite Deposit in Dong Ujimqin Banner, Inner Mongolia** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(4), 2016, p. 524-530, 4 illus., 2 tables, 34 refs.)

Key words: tungsten ores, Inner Mongolia

The Shamai wolframite deposit in Dong Ujimqin Banner of Inner Mongolia is located within the Erlian- Dong Ujimqin Banner arc-basin belt in the Greater Hinggan Mountains-Inner Mongolia orogenic belt south of the Ergenshan fault. The isotopic ages indicate that the mineralization of Shamai wolframite deposit occurred in late Yanshanian, consistent with the age of the formation of the main ore deposits on the west slope of the Greater Hinggan Mountains regionally. Consistent with the positive initial ε_{Nd} value of granites scattered in central Asian orogenic belt, the initial ε_{Nd} value of the wolframite is positive, indicating a depleted mantle source.

20171021 Liang Shuai (Geological Survey Institute of Liaoning Province, Shenyang 110000, China) **Geochemistry Characteristics and Ore-Forming Significance of Mineralization Rock in Hongluoshan-Wuzhishan Region** (Northwestern Geology, ISSN1009-6248, CN61-1149/P, 49(2), 2016, p. 34-44, 11 illus., 7 tables, 34 refs.)

Key words: polymetallic ores, Liaoning Province

The Hongluoshan-Wuzhishan region is

important molybdenum, lead and zinc polymetallic metallogenic belt in west Liaoning Province. Results of previous studies show that the mineralization in this area has a close genetic relationship with widespread granitic rocks. Based on field investigation and indoor testing analysis methods, the origin, geochemical characteristics and its geological significance of these granites have been studied in this paper. The result show that these granites belong to K－feldspar granite and monzonitic granite.

20171022 Liu Enfa (No. 4 Institute of Geological Exploration, Henan Bureau of Geology and **Mineral Exploration and Development, Zhengzhou 450001, China**); **Li Jianquan Genetic Types and Prospecting Direction of the Chanzhanhe Copper Deposit in Yunnan Province** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 167－170, 5 illus., 14 refs.)

Key words: copper ores, Yunnan Province

Quite a few copper deposits of volcanic－sedimentary clastic rock type and continental sandstone－shale type are discovered in the southwestern Yangtze Block, which is one of the significantly important copper metallogenic belts in China. The Chanzhanhe copper deposit has typically the characteristics of both types. Based on the geological conditions, the characteristics of the two types of deposits are analyzed. The result reveals that this area is favorable for middle－large scale copper mineralization.

20171023 Liu Jianguo (College of Earth Sciences, Jilin University, Changchun 130061, China); Wang Jian **Formation of Al－Rich Type Podiform Chromitites in the Kudi Ophiolite** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(6), 2016, p. 1182－1194, 7 illus., 4 tables, 56 refs.)

Key words: chromite, Kunlun Mountains

Small scale chromite deposit was discovered in Kudi ophiolite, western Kunlun orogenic belt. Ore bodies are in podiform and stratiform, which closely associate with dunite. Based on systematic calculation and comprehensive analysis, the authors consider that the Al－rich type chromitites of Kudi ophiolite are most likely to be interaction products of tholeiitic melt/mantle peridotites with the melt likely derived from back－arc spreading ridge considering its high H_2O content.

20171024 Liu Shibao (Qinghai Geological Survey, Xining 810000, China); Li Jianbing **Geochemical Characteristics of the Volcanic Rocks from the Maoniushan Formation in the Dadakenwulashan Pb－Zn Deposit, East Kunlun and Its Significance** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 11－24, 14 illus., 5 tables, 30 refs.)

Key words: lead－zinc deposit, Kunlun Mountains

The petrology, rock geochemical characteristics and chronology of the volcanic rocks from the Maoniushan Formation in the Dadakenwulashan Pb－Zn deposit have been studied in this paper. The petrographic characteristics show that these volcanic rocks mainly consist of andesite, tuff, dacite and rhyolite. And theirs chemical composition suggest that these volcanic rocks can be divided into trachydacite, dacite and rhyolite. The rock geochemical characteristics indicate that these volcanic rocks are characterized by High K calc－alkaline series.

20171025 Liu Xiaoxue (Tianjin Center, China Geological Survey, Tianjin 300170, China); Tang Chao **Major Elements Geochemical Characteristics of Sandstone－Type Uranium Deposit in North－East Ordos Basin and Its Geological Implications** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(3), 2016, p. 169－176, 6 illus., 1 table, 32 refs., with English abstract)

Key words: uranium ores, Ordos Basin

20171026 Liu Yin (State Key Laboratory for

返回目录

Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Hu Kai **The Characteristics of Organic Matter and Its Relationship with the Formation of Carlin－Type Gold Deposits in Southwest Guizhou Province** (Geochimica, ISSN0379－1726, CN44－1398/P, 45(3), 2016, p. 281－302, 11 illus., 6 tables, 73 refs.)

Key words: Carlin－type gold deposit, organic material evolution, mineral deposit genesis, Guizhou Province

The southwestern Guizhou Province is an important enrichment area of the Carlin－type gold deposits, in which usually contain abundant organic matter. In this paper, a detailed organic geochemistry investigation has been performed on six typical Carlin－type gold deposits and four paleo－oil reservoirs in southwestern Guizhou Province. The results indicate that the migration of hydrocarbons may not be the main reason for the formation of gold deposit, and the roles of organic matter in the ore－forming process are mainly reflected in the preconcentration of Au, the reduction of Au ion, the supply of sulfur and accommodation space for Au sedimentation.

20171027 Liu Youping (Guizhou Institute of Technology, Guiyang 550003, China); Zhou Wenlong **A Research on Characteristics of Ore－Bearing Rock Series and Mineralization Principles of Bauxite from Guizhou Province, China** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 289－294, 10 illus., 1 table, 20 refs.)

Key words: bauxite deposit, metallogenic regularity, Guizhou Province

There were some studies on bauxite－bearing rock series, but their perspective in Guizhou Province, China requires further study. The authors discussed the characteristics and laws of bauxite－bearing rock series systematically on the basis of package exploration and research results, combining with the latest results of mineralization zone dividing as the center of Guiyang area, Wuchuan－Zhengan－Daozhen area, Zunyi area and Kaili－Huangping－Fuquan－Wengan area. The authors consider that there are some differences of spatiotemporal distribution, ore－bearing strata, underlying strata, the thickness of the ore－bearing series, mineral assemblage and symbiosis associated minerals between bauxite－bearing rock series from Guizhou Province and other places.

20171028 Liu Yunhua (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Li Zhen **Geological Characteristics, Ore－Forming Ages and Geological Significance of Donggou－Jinlongshan Gold Deposit, South Qinling Belt** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 81－93, 11 illus., 2 tables, 48 refs.)

Key words: gold ores, Qinling Mountains

Donggou－Jinlongshan gold deposit located in flysch folded－thrust belt brachyanticline in southern Qinling orogen is considered to be a typical Carlin－type gold deposit and its metallogenic epoch yet to be determined. Combining with regional date that the mineralization has a relationship with deep buried rock, and the deposit type is a remote epithermal deposit which is related to the deep hydrothermal fluid after the magmatic stage; the mineralization occurred in the squeeze－extended transition period at 141～142 Ma in the early Late Mesozoic; it suggests that the decompression and warming environment at the squeeze－extended transition period is the most favorable metallogenic geodynamic background.

20171029 Liu Zhanqing (Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Liu Shanbao **Structural Analysis of Jiulongnao Orefield in Nanling Area: A Case Study on Taoxikeng Tungsten Deposit** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4),

2016, p. 148－165, 18 illus., 1 table, 46 refs.)

Key words: tungsten ores, Nanling Mountains, Jiangxi Province

Taoxikeng tungsten deposit of Jiulongnao orefield in Nanling area is a typical quartz－vein－type wolframite deposit, and was formed both by the limits of faults and the granites in the south area of Jiangxi Province. In order to do structural analysis of the deposit, eight middle－tunnels mapping and near－ground or hole drillings were completed, by which the geometry and structural and constructional characteristics of ore－bearing quartz veins, vein group, ore body and ore－bearing granites were measured in detail, as well as collected statistical data of occurrences of ore veins and ore－related faults.

20171030 Lu Sanming (Public Geological Survey Management Center of Anhui Province, Hefei 230091, China); Ruan Linsen **Two Stages of Diagenesis and Metallogenesis of Shapinggou Molybdenum Lead－Zinc Ore Field in Jinzhai County, Anhui Province** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(6), 2016, p. 1167－1181, 7 illus., 3 tables, 50 refs.)

Key words: molybdenum ores, lead－zinc deposit, Anhui Province

On the basis of regional tectonic background, ore controlling structure, ore－bearing country rock and country rock alteration etc, it can be proposed that molybdenum deposit and lead－zinc deposit formed from two different metallogenic systems, with hydrothermal lead－zinc deposit formed earlier than porphyry molybdenum deposit. The geological survey and isotopic chorological data show that magmatic rocks formed likely from two magmatic events. The magmatic rock in the first stage consists of granodiorite and monzonitic granite in the early Early Cretaceous, both of which are the host rocks for hydrothermal Pb－Zn metallogenic system.

20171031 Luo Yanan (No. 3 Institute of Geological Survey, Henan Bureau of Geology and Mineral Resources, Xinyang 464000, China); Chen Jiawei **Tectonomagmatic Activity and Mo Metallogeny in the Qinling－Dabie Orogenic Belt** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 234－238, 257, 3 illus., 2 tables, 13 refs.)

Key words: molybdenum ores, Qinling Mountains, Dabie Mountains

Checkerboard lattice structure in the Qinling－Dabie orogenic belt is ore－controlling "hotbed" which resulted in coupling ore formation of crustal structure aroused by deep processes. Molybdenum polymetallic ore－formation in the Qinling－Dabie orogenic belt may be divided into two phases such as porphyry type Mo－Cu ore－formation during 142～130 Ma and porphyry type Mo ore－formation during 128.7～113.1 Ma. The Mo deposits occur in Yanshanian intermediate－acid porphyry and endocontact and exocontact, forming porphyry type, skarn type, quartz vein type and cryptoexplosive breccia type Mo polymetallic deposits.

20171032 Meng Yumiao (State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Hu Ruizhong **Research Progress on Sb Geochemistry and Sb Isotopes** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 339－348, 2 illus., 28 refs., with English abstract)

Key words: antimony, geochemistry

20171033 Nie Zhangxing (No. 311 Geological Team, Anhui Bureau of Geology and Mineral Resources Exploration, Anqing 246003, China); Shi Lei **U－Pb Zircon Geochronology of Magmatic Rocks from the Zhaceqiao Gold Deposit in the Dongzhi Area, South Anhui Province and Its Metallogenic Significance** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(6), 2016, p. 1146－1166, 13 il-

lus., 4 tables, 54 refs.)

Key words: gold ores, Anhui Province

LA—ICP—MS U—Pb zircon dating for igneous rocks indicates that the Zhaceqiao intrusions was emplaced between the Late Jurassic and Early Cretaceous, with granodiorite porphyry in the 143～148 Ma, granodiorite in 145 Ma, and diorite porphyrite in the late(142 Ma). The Zhaceqiao gold mineralization is closely related to post—magmatic large—scale hydrothermal alteration, during which the gold was enriched and deposited under the continuous magmatic activity and hydrothermal action.

20171034 Peng Dawei (College of Earth Science, Jilin University, Changchun 130061, China); Wang Keyong **Hydrothermal Superimposed Mineralization, Characteristics and Source of Ore—Forming Fluids of the Huanggoushan Pb — Zn Deposit, Jilin Province** (Northwestern Geology, ISSN1009 — 6248, CN61—1149/P, 49(2), 2016, p. 105—116, 9 illus., 2 tables, 21 refs.)

Key words: lead—zinc deposit, Jilin Province

In order to explore the sources and characteristics of the fluid, the micro thermometry and C—D—O isotopic geochemistry methods of fluid inclusions are used to research the nature of the ore—forming fluids in each stage of hydrothermal superimposed mineralization. Results indicate that the ore—forming fluid of the first stage belongs to mid—low temperature, low — salt NaCl — H_2O system. The δD_{H_2O}, $\delta^{18}O_{H_2O}$ and $\delta^{13}C_{V-PDB}$ of these fluid inclusions are —74.8‰～—87.4‰, 8.3‰～9.8‰ and -9.6‰～-10.8‰, respectively, showing some characteristics of magma water.

20171035 Peng Nengli (Hunan Institute of Geological Survey, Changsha 410016, China); Liu Wei **A Comparative Study of Luota and Huayuan Lead — Zinc Ore Field in the Northwest Hunan Province** (Contributions to Geology and Mineral Resources Research, ISSN1001 — 1412, CN12 — 1131/P, 31(2), 2016, p. 190 — 198, 2 illus., 1 table, 46 refs.)

Key words: lead—zinc deposit, Hunan Province

Relative big Pb—Zn reserves occur at Luota and Huayuan lead—zinc ore fields in the Northwest Hunan Province lead — zinc ore belt. Based on the previous data comparative study of the two ore fields is carried out in respects of geotectonic background, geological characteristics of the ore deposits, geochemical characteristics, ore—control pattern, ore genesis etc. The results show that there are some differences between them. Ore in Luota ore field is formed in Middle Devonian Epoch while Huayuan orefield in Early Devonian Epoch. They are the products of deep fault activity in the southwest margin of Yangtze Platform at different times and places.

20171036 Peng Yiwei (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Gu Xuexiang **Genesis of the Tawuerbieke Gold Deposit in the Tulasu Basin, Western Tianshan: Evidence from Geochronology and Stable Isotopes** (Acta Petrologica Sinica, ISSN1000 — 0569, CN11 — 1922/P, 32(5), 2016, p. 1361—1378, 10 illus., 4 tables, 119 refs., with English abstract)

Key words: gold ores, mineral deposit genesis, isotopic geochronology, Tianshan Mountains

20171037 Qi Changwei (Qinghai Bureau of Geological Survey, Xining 810001, China); Liu Shibao **REE Characteristics of the Host Strata and Tectonite in the Jinhong Lead—Zinc Deposit in Yunnan Province** (Geology and Resources, ISSN1671 — 1947, CN21 — 1458/P, 25(2), 2016, p. 164—166, 3 illus., 1 table, 3 refs.)

Key words: lead—zinc deposit, Yunnan Province

With study of regional geological background, the REE compositions of the ore—

返回目录

hosting strata and ore—controlling fault rocks in the Jinhong Pb—Zn deposit are analyzed. The REE distribution patterns and characteristics show that the ore—hosting dolostone belongs to LREE enrichment—HREE flat type, with highly fractionated light and heavy rare earth elements, notable Eu and Ce anomalies, quite different (La/Yb)N, (La/Sm)Nand(Gd/Yb)Nvalues. The tectonite is also LREE enrichment—HREE flat type, with high fractionation of LREEs and HREEs, weak Eu anomaly, distinct Ce anomaly, similar(La/Yb)N, (La/Sm)Nand(Gd/Yb)Nvalues. The above characteristics are micro—indicators for metallogenic prediction.

20171038 Qin Tinrong (No. 2 General Party, Guizhou Bureau of Geology of Nonferrous Metals and Uranium, Liupanshui 553004, China); Wei Ajun **Comparison of Basalt Cu Deposits in Yunnan—Guizhou to the Keweenaw Cu Deposit** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 247—252, 2 illus., 1 table, 46 refs.)

Key words: copper ores, Yunnan Province, Guizhou Province, North America

This paper correlates the basalt Cu deposits in Yunnan and Guizhou with the Keweenaw Cu deposit in USA in respect to geological condition, ore—formation and ore control factors. The results show that the two differ largely in three respects. Firstly, they differ in geological background such as magma effusion time limit, inactivity period, lava thickness and so on. Secondly, they differ in ore—bearing rock series, i. e. absence of sedimentary conglomerate interlayer, flow—top breccia and amygdaloidal basalt in the basalt flow in Yunnan and Guizhou. Thirdly, there was absence of burial metamorphism of basalt in Yunnan and Guizhou provinces.

20171039 Qiu Zengwang (Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemisty, Chinese Academy of Sciences, Guangzhou 510640, China); Wang He **Zircon U—Pb Geochronology and Lu—Hf Isotopic Composition of Quartz Porphyry in the Changpu Sn Polymetallic Deposit, Guangdong Province, SE China and Their Geological Significance** (Geochimica, ISSN0379—1726, CN44—1398/P, 45(4), 2016, p. 374—386, 7 illus., 4 tables, 66 refs.)

Key words: tin ores, polymetallic ores, U—Pb dating, hafnium isotopes, Guangdong Province

The Changpu Sn polymetallic deposit is located in the Lianhuashan fault belt, eastern Guangdong Province. The deposit is a medium—sized hydrothermal vein—type Sn—Pb—Zn deposit, and genetically related to quartz porphyry. In this paper, zircon U—Pb geochronology and Lu—Hf isotopic composition of quartz porphyry have been obtained. Based on the analytical results and regional tectonic evolution, the quartz porphyry of the Changpu deposit was suggested to have been formed in a post—collision extensional tectonic setting that was triggered by the subduction of the paleo—Pacific Plate.

20171040 Qu Chengyi (Geologic Survey of Fujian Province, Fuzhou 350013, China) **Geological Characteristics and Prospecting Marks of Guomuyang Wolframite Deposit in Qingliu County, Fujian Province** (Geology of Fujian, ISSN1001—3970, CN35—1080/P, 35(2), 2016, p. 149—155, 3 illus., 4 refs.)

Key words: tungsten ores, Fujian Province

Guomuyang wolframite deposit lays in inner contact zones of late Jurassic granite and Sinian Sanxizhai Formation, controlled by the NE faults. On the basis of the ore vein structure, wall—rock alteration, mineral paragenesis feature, and combining with researches of the typical ore deposit in adjacent region, the Guomuyang deposit belongs to the high—moderately hydrothermal quartz vein wolframite deposit.

20171041 Shen Xuehua (Nanjing Institute of Geology and Mineral Resources, Nanjing

返回目录

210016, China); Yao Chunyan **Geochemical Characteristics and Genetic Discussion of the Saersoc Au—Cu Polymetallic Deposits in Southern Margin of Altay Mountains, Xinjiang** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(2), 2016, p. 84—92, 3 illus., 1 table, 24 refs., with English abstract)

Key words: polymetallic ores, Xinjiang

20171042 Shen Zhanwu (Chengdu Center, China Geological Survey, Chengdu 610081, China); Jin Canhai **Mineralization Age of the Maoping Pb—Zn Deposit in the Northeastern Yunnan Province: Evidence from Rb—Sr Isotopic Dating of Sphalerites** (Geological Journal of China Universities, ISSN1006—7493, CN32—1440/P, 22(2), 2016, p. 213—218, 4 illus., 2 tables, 29 refs., with English abstract)

Key words: lead—zinc deposit, Yunnan Province

20171043 Shi Laohu (Tianjin Huakan Mining Investment Co., Tianjin 300171, China); Xue Lanhua **Characteristic of Wall Rock Alteration and Its Ralation with Gold Mineralization of the Phapon Gold Deposit in Laos** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(3), 2016, p. 184—190, 4 illus., 16 refs.)

Key words: Laos, gold ores

Phapon gold deposit is located in the west of central Laungprabang island arc. Ore body occurs in thick—huge thick limestone in Carbonic—Lower Permian and controlled by the NW—NNW striking faults. It is middle—low temperature hydrothermal deposit. On the basis of the field geological investigation, mineral micro—structure study and the alterated rock element content, the authors studied the correlation of wall rock alteration with gold mineralization. It is suggested that wall rock alteration takes middle—low temperature alterated mineral association as silicide, limonite, siderite ore and calcite. With alteration strength increasing, the Au, Si and Fe elements are increasing, but Ca decreasing.

20171044 Song Chao (Key Laboratory of Computational Geodynamics, CAS, College of Earth Science, University of Chinese Academy of Sciences, Beijing 100049, China); Wei Wei **Geological Characteristics of the Laoshan'ao Shear Zone and Its Relationship with the Xiangdong Tungsten Deposit, Chaling, Eastern Hunan Province** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(5), 2016, p. 1571—1580, 7 illus., 57 refs.)

Key words: tungsten ores, shear zones, Hunan Province

The characteristics of the Laoshan'ao shear zone and its relationship with the Xiangdong tungsten deposit are long—standing controversial issues. In this paper, systematical macro and micro—structures analyses were conducted along the Laoshan'ao shear zone and the Xiangdong tungsten deposit. Two stage events are defined on the base of these structural observations. The authors suggest that the emplacement of the Batuan pluton in the Late Jurassic and the development of the Laoshan'ao shear zone jointly facilitated the formation of the Xiangdong tungsten deposit.

20171045 Song Wei (School of Computers, Guangdong University of Technology, Guangzhou 510006, China); Lei Liangqi **Characteristics of Phytogeochemistry and Prospecting Choices of Effective Plants and Elements in Kalatongke Cu—Ni Ore Field, Xinjiang** (Journal of Guilin University of Technology, ISSN1674—9057, CN45—1375/N, 36(2), 2016, p. 105—206, 3 illus., 4 tables, 33 refs.)

Key words: geochemical vegetable surveys, copper ores, nickel ores, Xinjiang

The vegetation in Kalatongke Cu—Ni ore field belongs to a type of soil gravel hungriness one. Seriphidium terrae—albae (Krasch.) Poljak. is a dominant floral community and Nanophyton erinaceum (Pall.) Bunge and

Artemisia frigida Willd., etc. major associated plants in the ore field. The main geochemical types of plants in this region are rich in Ca and Mg, but poor in K and Na. From the region background area, the mining area to the upper part of the deposit, contents of ore-forming elements and associated elements increase gradually and probability distribution curve changes from single peak normal distribution to multi peak distribution in plant community and most plant species.

20171046 Sun Shengsheng (State Key Laboratory of Geological Processes and Mineral Resources, School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Xue Chunji **H-O-S-Pb Isotopic Tracing and Re-Os Dating of Bogutu Gold Deposit, Western Tianshan, Xinjiang** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(5), 2016, p. 1346-1360, 10 illus., 3 tables, 118 refs., with English abstract)

Key words: gold ores, isotopic tracer methods, electron probe, Xinjiang, Tianshan Mountains

20171047 Tang Juxing (Key Laboratory of Metallogeny and Mineral Resource Assessment, Institute of Mineral Resources, Chinese Academy of Geological Sciences, MLR, Beijing 100037, China); Ding Shuai **The First Discovery of the Low Sulfidation Epithermal Deposit in Linzizong Volcanics, Tibet: A Case Study of the Sinongduo Ag Polymetallic Deposit** (Acta Geoscientica Sinica, ISSN1006-3021, CN11-3474/P, 37(4), 2016, p. 461-470, 3 illus., 56 refs., with English abstract)

Key words: polymetallic ores, North China

20171048 Tian Xiangsheng (No. 3 Geology and Mineral Exploration Team, Gansu Provincial Bureau of Geology and Mineral Exploration and Development, Lanzhou 730050, China); Yang Jing **Mesozoic-Cenozoic Lifting and Cooling Process of Jinchuan Copper-Nickel Sulfide Deposit: the Evidence from Fission-Track Method** (Gansu Geology, ISSN1004-4116, CN 62-1191/P, 25(2), 2016, p. 50-55, 75, 9 illus., 2 tables, 38 refs.)

Key words: copper ores, nickel ores, Gansu Province

Based on the theory of Thermochronology, the authors analyzed to explore the deposit in the Mesozoic uplift cooling process. Through the apatite fission track length, apatite and zircon and apatite stone paths thermal analysis simulation traces the history of the age, come Jinchuan intrusion since the Mesozoic uplift has been in continuous cooling stage and inferred Jinchuan in the Middle Jurassic and Late Cretaceous rock has experienced two-stage rapid uplift cooling event, infer that it is related to the activity of Altyn Tagh fault, which causing the deposit to suffer a certain transformation.

20171049 Wang Baoquan (Qiqihar Institute of Mineral Exploration and Development, Qiqihar 161006, China) **Geological Characteristics and Prospecting Indicators of the Erzhixian Pb-Zn-Cu Deposit in Tayuan, Heilongjiang Province** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(2), 2016, p. 144-149, 3 illus., 1 table, 2 refs.)

Key words: lead-zinc deposit, copper ores, Heilongjiang River

The Erzhixian Pb-Zn-Cu deposit in Tayuan, Heilongjiang Province is a skarn and hydrothermal type of polymetallic deposit. The mineralization is strictly controlled by the Tahahe fault and secondary N-S- and NNE-trending faults. The author discusses the orefield geology, characteristics of orebody and ore, as well as the genesis of the deposit. The prospecting indicators are also summarized.

20171050 Wang Dachuan (School of Earth Science and Resources, China University of Geoscience, Beijing 100083, China); Duan Shigang **Zircon U-Pb Age, Hf Isotopic and**

返回目录

Geochemistry of Volcanic Rocks from Tiemulike Iron Deposit in Western Tianshan, Xinjiang, and Their Geological Significance (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1391－1408, 14 illus., 3 tables, 92 refs.)

Key words: iron ores, igneous rocks, U－Pb dating, lithogeochemistry, Xinjiang, Tianshan Mountains

The Tiemulike iron deposit is located in the middle segment of Awulale iron－copper metallogenic belt of which the host rock is a series of middle to acid rocks containing andesite, trachyandesite and rhyolite. In this paper, representative samples of volcanic rocks from the Tiemulike iron deposit were analyzed for major, trace element and zircon U－Pb, Lu－Hf dating to validate their tectonic setting and formation ages. Combined with the regional geological data, the authors therefore suggest that the high－K calc－alkaline to shoshonitic volcanic rocks were probably the products of continental island－arc magmatism during the late stage subduction to continental collision.

20171051 Wang Jianqi (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Wang Juli **Helium and Argon Isotopic Compositions of Fluid Inclusions in Pyrite from Saridala Gold Deposit in Xinjiang** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 117－123, 2 illus., 1 table, 28 refs.)

Key words: gold ores, Xinjiang

Saridala gold deposit is located within Bing Daban ductile shear zone in the northern margin of Middle Tianshan. After analyzing the subsequent processes that may affect He－Ar original isotopic compositions of ore－forming fluid, the helium and argon isotopic compositions of fluid inclusions in pyrite were analyzed to trace fluid origin by using an inert gas isotopic mass spectrometer. He and Ar isotopic compositions indicate that ore－forming fluid of the Saridala gold deposit is derived from crust, which origin from deep circulation of atmospheric water, and the mantle－derived He means nothing to do with direct mantle process but drops a hint that may existed certain geologic bodies related to the interaction between mantle and crust.

20171052 Wang Jiaqi (China University of Geosciences, Beijing 100083, China); Qu Xiaoming **Comparative Study of Genesis of Ore－Bearing Porphyry and Barren Porphyry in Xiongmei Copper Deposit, Tibet** (Mineral Deposits, ISSN0258－7106, CN11－1965/P, 35(3), 2016, p. 437－455, 12 illus., 2 tables, 53 refs.)

Key words: copper ores, Tibet

The authors found two groups of porphyries by using LA－ICP－MS zircon U－Pb dating of porphyry body in the Xiongmei copper deposit. One group of porphyry is ore－bearing porphyry and its age is (106.7±0.48) Ma(MSWD = 0.92); the other group of porphyry is barren porphyry with its three age parts being (121.8±2.3) Ma (MSWD = 0.32), (122.8±2.1) Ma (MSWD = 1.16), and (121.5±2.5) Ma (MSWD= 0.54). Ore－bearing porphyry and barren porphyry all belong to strongly peraluminous S－type granitoids, but the sources of the ore－bearing porphyry are composed of greywacke and the sources of barren porphyry are based on argillaceous rock.

20171053 Wang Lei (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100083 China); Liu Jiajun **Mineral Association and Mechanism of Mineral Precipitation of Lianzigou Gold－Telluride Deposit in Xiaoqinling Gold Orefield, Shaanxi Province** (Mineral Deposits, ISSN0258－7106, CN11－1965/P, 35(3), 2016, p. 456－474, 8 illus., 4 tables, 35 refs.)

Key words: gold ores, Shaanxi Province

The Lianzigou gold deposit is an impor-

tant gold deposit in the Jialu gold orefield within the Xiaoqinling region. The deposit is hosted in the highly metamorphic gneiss which is the main rock type of the Qincanggou Formation of the Archean Taihua Group. Ores mainly occur as quartz－vein type. Detailed petrographic and electron microprobe analysis of ore minerals was carried out. Numerous tellurium minerals were identified, such as calaverite, krennerite, petzite, hessite, altaite, melonite and native tellurium. In addition, large amounts of native gold were recognized in the fractures in quartz and pyrite, coexisting with sulfides and tellurides.

20171054 Wang Xiaozheng (China University of Geosciences, Beijing 100083, China); Lü Junchao **Geological Characteristics of the Liujiushan Copper－Silver Deposit in Heilongjiang Province** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 137－143, 6 illus., 2 tables, 17 refs., with English abstract)

Key words: copper ores, silver ores, Heilongjiang Province

20171055 Wang Xinli (China Nonferrous Metals Industry Association, Beijing 100814, China); Gu Xuexiang **Geological Features, Metallogenic Setting and Exploration Potential of the Skarn Fe－Cu Polymetallic Deposits in the Eastern Segment of the Boluokenu Mineralization Belt, Xinjiang** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1315－1332, 12 illus., 1 table, 87 refs., with English abstract)

Key words: skarn deposit, iron ores, copper ores, polymetallic ores, mineral deposit genesis, Xinjiang

20171056 Wang Xuefeng (State Key Laboratory of Geological Processes and Mineral Resources, School of the Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Huang Yongsen **Geology, S－Pb－Os Isotopic Compositions and Re－Os Dating of the Lingdong Gold Deposit in the Eastern Tianshan** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1409－1419, 8 illus., 3 tables, 36 refs.)

Key words: gold ores, isotopic tracer methods, isotope age, Tianshan Mountains

Much more world－class gold deposits, which are the main part of the "Asian Gold Belt", have been found along the northern margin folding－thrusting fault zone of southern Tianshan in the western region of Tianshan. But few are found along that in the eastern region of Tianshan. The Lingdong gold deposit with gold grade of 3.5 g/t. is a new－discovered and explorating important deposit along the zone in the eastern region of Tianshan. This study show that Lingdong gold deposit is a brittle－ductile shear zone hosted orogenic gold deposit mineralizing under collision deformation setting. The orogenic gold deposit is showing a better exploration prospect along the northern margin folding－thrusting fault zone of southern Tianshan in the eastern region of Tianshan and should be paid much more attention.

20171057 Wang Yanxun (Fujian Institute of Geology Survey, Fuzhou 350013, China) **Geological Characteristics and Exploration Perspective of the Chipingli Molybdenum Deposit in Minhou County, Fujian Province** (Geology of Fujian, ISSN1001－3970, CN35－1080/P, 35(2), 2016, p. 119－124, 3 illus., 3 refs.)

Key words: molybdenum ores, Fujian Province

The Chipingli molybdenum deposit is produced by cracks of Late Jurassic volcanic rocks around the deposit. There is a few porphyry bodies. The alterations, such as pyritization, sericitization and silicification, are closely associated with the contact zone. The anomaly element of Molybdenum showed large oval face shape. The deposit have been found ten ore bodies and the ore bodies type is vein and lenticular mainly. The mineral is

mainly Molybdenite, which is well related with phyllic alteration and pyritization, belonging to the porphyry type deposit. Analysis shows that there is good exploration perspective for molybdenite.

20171058 Wang Yong (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China) **Fluid Inclusions, $\delta^{34}S$ Values and Ore Genesis for the Shiduolong Pb—Zn Deposit** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 261—263, 268, 6 illus., 1 table, 15 refs., with English abstract)

Key words: lead—zinc deposit, Qinghai Province

20171059 Wang Yong (School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Tang Juxing **EPMA Analysis of Hydrothermal Biotite from the Bangpu Porphyry Mo—Cu Deposit of Tibet, China and the Characteristics of Early Ore—Forming Fluids** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(4), 2016, p. 440—447, 3 illus., 2 tables, 27 refs., with English abstract)

Key words: porphyry molybdenum deposit, porphyry copper deposit, electron probe, Tibet

20171060 Wu Xiaoyan (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Mao Xiaodong **Microscopic Characteristics of Ore and Metallogenic Periods of the Tianbaoshan Pb—Zn Deposit in Sichuan Province** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(2), 2016, p. 154—158, 2 illus., 1 table, 10 refs.)

Key words: lead—zinc deposit, Sichuan Province

The Tianbaoshan deposit, composed of two ore blocks, i. e. Tianbaoshan and Xinshan, is one of the largest Pb—Zn deposits in the Yunnan—Guizhou—Sichuan epithermal metallogenic province. The ore minerals are mainly sphalerite and galena, with minor pyrite and chalcopyrite. Based on field observation, the authors identify and study the rock and mineral samples and polished sections. According to the assemblage and interrelations of minerals, the forming sequence is determined. The Tianbaoshan Pb—Zn deposit is then divided into 3 metallogenic periods with 5 mineralization stages.

20171061 Xing Bo (Key Laboratory of Metallogeny and Mineral Assessment, MLR, Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Xiang Junfeng **Rb—Sr Isochron Age of Sulfides and Sulfur Isotopic Composition from Lamellar Ores of the Luotuoshan Sulfur Polymetallic Deposit in Western Henan Province and Its Constraints on the Ore Genesis** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(6), 2016, p. 998—1014, 7 illus., 2 tables, 2 plates, 106 refs.)

Key words: polymetallic ores, Henan Province

In this paper, Rb—Sr dating was carried out for nine sulfides samples (comprising six sphalerite and three pyrrhotite samples) from lamellar ores of the Luotuoshan sulfur polymetallic deposit, which yielded an isochron age of (139.6±2.6) Ma, suggesting that the metallogenic epoch of Luotuoshan deposit is Early Cretaceous. Sulfur and strontium isotopes of these sulfides show that $\delta^{34}S$ values of the ores have a narrow range of +1.7‰～+3.3‰ (averagely+2.44‰), with more obvious tower—shaped distributional features, and that the values of $(^{87}Sr/^{86}Sr)_i$ range from 0.709 704 to 0.709 943, with an average of 0.709 823, which implies that ore—forming materials mainly originated from deep—seated magma of the lower crust.

20171062 Xing Bo (School of Earth Sciences and Resources, China University of Geoscience, Beijing 1000831, China); Zheng Wei **Sulfide Microanalysis and S Isotope of the Miao-**

shan Cu Polymetallic Deposit in Western Guangdong Province, and Its Constraints on the Ore Genesis (Acta Geologica Sinica, ISSN0001-5717, CN11-1951/P, 90(5), 2016, p. 971-986, 10 illus., 3 tables, 59 refs.)

Key words: polymetallic ores, Guangdong Province

The ore bodies occur in Devonian terrigenous clastic rocks and argillaceous carbonate rocks in stratoid and lenticular forms. By using LA-ICP-MS in-situ microanalysis technology, the authors investigated the trace elements characteristics of pyrite and sphalerite. The study shows that the pyrite in the Miaoshan Cu polymetallic deposit is characterized by enrichment of Se, Te, As and depletion of Ni. The Co/Ni and S/Se ratios indicate that the pyrite is likely magmatic hydrothermal deposit in origin. On the basis of field geological features, situ microanalysis data and S isotope compositions, the authors can conclude that the Miaoshan Cu polymetallic deposit belongs to hydrothermal related skarn deposits.

20171063 Xu Fang (Western Fujian Geologic Party, Sanming 365001, China) **On Geology Characteristics and Genesis of the Yuansha Molybdenum Deposit in Zhangping City, Fujian Province** (Geology of Fujian, ISSN1001-3970, CN35-1080/P, 35(2), 2016, p. 113-118, 3 illus., 2 refs.)

Key words: molybdenum ores, Fujian Province

The Yuansha Mining Area is located in the Middle East of southwestern Fujian Province, on the intersection between the Zhenghe-Dapu deep fault and the Lianjia-Yongding fault zone, where the ore-forming geological condition is good and very rich in mineral resources in the area. Molybdenum ore body is mainly produced in north east or north east to fracture and the research shows that the deposit should belong to magmatic hydrothermal type deposit.

20171064 Xue Chunji (State Key Laboratory of Geological Processes and Mineral Resources, School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Zhao Xiaobo **Problem on Porphyry Cu-Au Metallogenic Environment in Central Asian: An Overview** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(5), 2016, p. 1249-1261, 2 illus., 1 table, 135 refs., with English abstract)

Key words: porphyry copper deposit, gold ores, mineral deposit genesis, Central Asia

20171065 Xue Lanhua (Tianjin Huakan Mining Investment, Co, Tianjin 300171, China); Shi Laohu **Mineralization and Metallogenic Evolution of the Phapon Gold Deposit, Laos** (Geological Survey and Research, ISSN1672-4135, CN12-1353/P, 39(3), 2016, p. 191-197, 5 illus., 1 table, 12 refs.)

Key words: gold ores, Laos

Phapon gold deposit is located in the central of Laungprabang island arc in north of Laos. Ore body occurs in NNW striking faults of thick-huge thick limestone of Carbonic-Lower Permian. It is delineated by 6 ore bodies at present, appears as large pulse. The research indicated that Phapon gold metallogenic material is from limestone of Carbonic-Lower Permian, the gold migration is by chloric complex, the mineralization temperature is low, which is epithermal vein-type deposits. Construct power throughout the mineralization process, and play a leading role.

20171066 Yang Minggui (Jiangxi Bureau of Exploration and Development of Geology & Mineral Resources, Nanchang 330002, China); Xu Meigui **The Structural Composite Metallogenic Characteristics of Hubei-Anhui-Jiangxi Giant Ore Concentration Area** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(4), 2016, p. 129-136, 6 illus., 22 refs.)

Key words: polymetallic ores, South China

Through a comprehensive research, the

返回目录

authors put forward that the adjoining areas among Hubei, Anhui and Jiangxi provinces located in the eastern part of the Yangtze reversed S－shaped structure in the Huanan Ocean tectonic domain were compounded with the clusters of Tancheng－Lujiang fault zone of the Neocathaysian structural system during the Yanshanian period, and thus formed a giant endogenetic ore concentration area accumulated by a huge amount of metals. Therefore, it is called as the E－Wan－Gan giant ore concentration area, and the polymetals such as W, Cu, Au, Ag, U and Te occupy an important position in China.

20171067 Yang Ting (No. 405 Geological Party, Hunan Bureau of Geology and Mineral Exploration, Jishou 406007, China); Yang Shaoxiang **Mineralization Enrichment Characteristics and Ore－Controlling Factors of the Shizishan Pb－Zn Deposit in Western Hunan Province** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 814－821, 4 illus., 2 tables, 1 plate, 3 refs.)

Key words: lead－zinc deposit, Hunan Province

Located in northwestern Hunan Province, the Shizishan Pb－Zn deposit is stratabound and contains huge amounts of Pb and Zn resources. The ores are hosted in the Lower Cambrian Qingxudong Formation, a sequence of algal and clastic limestones, ranging from 22.6m to 237 m in thickness. The ore－hosting rocks are divided into the upper, middle and lower unit. The authors discussed the major factors controlling the mineralization on the basis of analysis of the distribution of ore－bearing rocks and ore enrichment.

20171068 Yang Wenlong (College of Earth Science, Jilin University, Changchun 130061, China); Li Bile **SHRIMP Zircon U－Pb Ages and Its Geological Significance of Crystal Ignimbrite in the Duocaima Pb－Zn Deposit, Tuotuohe Area, Qinghai Province** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 59－69, 9 illus., 3 tables, 34 refs., with English abstract)

Key words: lead－zinc deposit, Qinghai Province

20171069 Ying Lijuan (Key Laboratory of Metallogeny and Mineral Assessment, Ministry of Land and Resources, Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Wang Kuo **Lead Isotope Geochemistry in the Qulong—Jiama—Bangpu Ore Concentrated Area of Tibet** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 320－328, 3 illus., 1 table, 34 refs., with English abstract)

Key words: copper ores, polymetallic ores, source of ore material, Tibet, Gangdise Range

20171070 You Jun (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Hong Tao **Characteristics of Magmatic Activity in the Xilekuduke Mo－Cu Ore District, Fuyun County, Xinjiang, and Its Constrains on Regional Tectonic Evolution in Late－Post Collisional Stages** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1262－1282, 12 illus., 5 tables, 134 refs., with English abstract)

Key words: molybdenum ores, copper ores, igneous activity, structural evolution, Xinjiang

20171071 Zeng Wei (Tianjin Institute of Geology and Mineral Resources, Tianjin 300170, China); Sima Xianzhang **Geochronology, Geochemistry and Sr－Nd Isotope Characteristics of Zhou'an Cu－Ni－PGE Deposit: Genesis of Mafic－Ultramafic Rock and Ore Deposit** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(4), 2016, p. 1232－1248, 12 illus., 4 tables, 154 refs.)

Key words: nickel ores, platinum ores, U－Pb dating, geochemistry, mineral deposit genesis

Zhou' an copper－nickel－PGE deposit located in the northern margin of South Qinling tectonic belt which is on the south side of Shangdan fault. The mafic－ultramafic intrusions mainly composing of lherzolite and some dunite, amphibolite, gabbro which develop serpentinized and chloritization alteration are concealed beneath the Cenozoic sediments and Mesoproterozoic Daqueshan Formation. The copper－nickel ore body located at the inner contact zone of Zhou'an intrusion and Daqueshan Formation. All the results of this study suggest that Zhou' an ultramafic intrusions formed in Neoproterozoic and derived from asthenosphere which might be the tectonic response of the Rodinia supercontinental breakup event. The contamination of the crust material cause the saturation of suffer and copper－nickle sulfide segregation.

20171072 Zhang Daokuo (Henan Geophysical Exploration and Remote Sensing Center, Zhengzhou 450000, China); Wang Qingchao **Structural and Magmatic Control of the Zhulazhaga Gold Deposit in Inner Mongolia** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 125－129, 4 illus., 6 refs.)

Key words: gold ores, Inner Mongolia

The Zhualazhaga gold deposit is situated in the Meso－Neoproterozoic Bayinnuoergong depression belt, at the NS－trending axis of anticline and in the southern part of NNW－trending fault. The ores occur in the first member of Agulugou Formation, Jixian System, Mesoproterozoic Erathem. With study on the regional tectonic evolution, and structural and magmatic rock control, it is concluded that the ore－controlling factor of Zhulazhaga gold deposit is the interlayer－gliding fracture zone derived from E－W－trending reverse thrust, which is closely related with Variscan igneous activity. The study also shows that the geological conditions on the northeastern area are similar to those of the Zhulazhaga gold deposit, suggesting that it should be the target for exploration.

20171073 Zhang Guozhen (State Key Laboratory of Geological Processes and Mineral Resources, School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Li Zhidan **Ore Geology of Muruntau World－Class Gold Deposit and S－Pb Isotopic Tracing** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(5), 2016, p. 1333－1345, 9 illus., 3 tables, 57 refs., with English abstract)

Key words: gold ores, isotopic tracer methods, Tianshan Mountains

20171074 Zhang Hai (Guizhou Province Bureau of Geology and Mineral Resources, No. 113 Geological Brigade, Liupanshui 553001, China); Meng Changzhong **Sources of the Ore－Forming Material from Yunluheba Ore Field in Northwest Guizhou Province, China: Constraints from S and Pb Isotope Geochemistry** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 271－276, 5 illus., 2 tables, 30 refs.)

Key words: lead－zinc deposit, Guizhou Province

In this paper, the authors focus on the Yunluheba Pb－Zn ore field (including Haoxing, Shunda, Fuqiang and Shizdong Pb－Zn deposits) in the northwest of Guizhou Province, which has not been well studied until now, and try to determine the source of ore－forming materials by analysing the sulphur and lead isotopic compositions for different sulfides. The analytical results of sulphur isotopes show that most sulphides from the Haoxing mining area have a narrow $\delta^{34}S$ range (-1.5‰～2.7‰), suggesting that sulphur mainly originated from the mantle. Moreover, one pyrite sample has a very low $\delta^{34}S$ value (i.e. -18.1‰), which could have resulted from the reduction of bacterial sulphur.

20171075 Zhang Jian (Sichuan Institute of Uranium Geological Survey, Chengdu

返回目录

610061, China) **Geological Features and Ore Genesis for the Qingganglin Pb－Zn Deposit in Hezhang, Guizhou Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 253－257, 2 illus., 8 tables, 5 refs., with English abstract)

Key words: lead－zinc deposit, Guizhou Province

20171076 Zhang Lianchang (Key Laboratory of Mineral Resources, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Feng Jing **Deposit Types, Origin and Metallogenetic Regularity of Taxkorgan Iron Ore Belt in West Kunlun Mountains** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 427－443, 7 illus., 2 tables, 38 refs.)

Key words: iron ores, Kunlun Mountains

Based on the studies of the geological evolution, field investigation of the ore－bearing rock series, zircon U－Pb isotope chronology and typical iron ore deposits of Taxkorgan Block in West Kunlun, the characteristics and forming ages of regional ore－bearing formation, ore deposit type and metallogenic regularity were summarized. The results show that the previously defined "Bulunkuole Group" actually contains Paleoproterozoic (2 100～2 500 Ma) and Early Cambrian (510～540 Ma) sedimentary metallogenic events, which are suffered to the intensely metamorphism and deformation in both Middle－Late Proterozoic (800～1 800 Ma) and Hercynian－Indosinian (200～410 Ma).

20171077 Zhang Long (School of Earth Science and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Chen Zhenyu **EPMA Study on Characteristics of Uranium Minerals in Uranium－Bearing and Uranium－Barren Granites in Northern Guangdong and Its Prospecting Significance** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 310－319, 4 illus., 1 table, 33 refs., with English abstract)

Key words: uranium minerals, electron probe, Guangdong Province

20171078 Zhang Xinnian (Hunan Xinlong Mining Co., Zhaoyang 422927, China) **Ore Control Structure of the Longshan Au－Sb Deposit** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 243－246, 2 illus., 9 refs.)

Key words: gold ores, antimony ores, Sichuan Province

The Longshan Au－Sb deposit is one of typical Au－Sb deposits in Hunan. It is located at the core of the Longshan dome and characterized by well－developed fractures which bay be divided into NWW－, NNE－, NE－ and NW－trending. Au－Sb veins are controlled by NWW－ and NNE－trending fractures.

20171079 Zhang Zebin (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); He Yu **Fluid Inclusions and Ore Genesis for the La La Cu Deposit, Sichuan Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 258－260, 1 illus., 2 tables, 2 refs.)

Key words: copper ores, Sichuan Province

This paper deals with ore genesis of the Lala Cu deposit in Huili, Sichuan based on study of the fluid inclusions. The fluid inclusion for ore from the Lala Cu deposit is characteristic of fluid inclusions for the ore subjected to metamorphism and recrystallization. Therefore, the Lala Cu deposit should be considered as a volcanic－sedimentary－metamorphic one.

20171080 Zhang Zhaowei (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, MLR, Xi'an Institute of Geology and Mineral Resources, Xi'an 710054, China); Qian Bing **Petrogeochemical Characteristics of the Xiarihamu Magmatic Ni－Cu**

Sulfide Deposit in Qinghai Province and Its Study for Olivine (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 45－58, 6 illus., 1 table, 35 refs.)

Key words: copper ores, nickel ores, Qinghai Province

Located in eastern Kunlun orogenic belt in Qinghai Province, the super－large Xiarihamu magmatic Ni－Cu sulfide deposit is the second ones after Jinchuan Ni－Cu sulfide deposit. Combined with regional chronology and other geological information, it's believed that the Xiarihamu super－large magmatic Ni－Cu sulfide deposit was the result of early lower Devonian magmatism and mineralization in the margin of Qaidam basin, eastern Kunlun orogenic belt. By the way, there maybe have better metallogenic conditions and prospecting potentiality in the depth of No. Ⅰ and Ⅱ intrusions, especially the place of magmatic origin or flowing direction, but the other three mafic－ultramafic intrusions that mainly belonged to magnesium peridotite have bad metallogenic condition on Ni－Cu sulfide deposit, and no economic value.

20171081 Zhao Jiancang (Institute of Geology and Mineral Resources Exploration, Jiuquan Iiron and Steel (Group) Co., Jiayuguan 735100, China); Jia Junwei **Study on Geological Characteristics and Prospecting Direction of Taergou Tungsten Deposit in Subei County, Gansu Province** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(3), 2016, p. 198－203, 3 illus., 2 tables, 17 refs., with English abstract)

Key words: tungsten ores, Gansu Province

20171082 Zhao Ligang (Tianjin Institute of Geology and Mineral Resources, Tianjin 300170, China); Li Chengdong **A Tentative Discussion on Zircon U－Pb Geochronology and Geochemistry of Ore－Bearing Intermediate－Acid Intrusive Rocks in the Bainaimiao Copper Ore District and the Metallogenic Epoch** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 542－552, 7 illus., 3 tables, 26 refs.)

Key words: copper ores, Inner Mongolia

In order to determine the metallogenic epoch and ore－forming environment of the Bainaimiao copper deposit, the authors carried out research on isotope geochronology and geochemistry of ore－bearing intermediate－acid rocks. The trace elements are obviously depleted in Ta and Nb. According to comprehensive ages and geochemical characteristics of ore－bearing granodiorites and the regional tectonic background, the authors consider that the Bainaimiao copper deposit was on the whole formed in the Early Paleozoic and characterized by multi－period mineralization. In addition, the metallogenesis was related to the subduction event of ancient Mongolia Ocean in the Early Paleozoic.

20171083 Zhong Senfang (No. 4 Geological Party of Fujian Province, Ningde 352100, China) **Geological Features and Deep Prospecting of Qinxi Silver Polymetallic Deposit in Zhongning County, Fujian Province** (Geology of Fujian, ISSN1001－3970, CN35－1080/P, 35(2), 2016, p. 125－134, 6 illus., 1 table, 2 refs.)

Key words: polymetallic ores, Fujian Province

Silver polymetallic deposit was decoded in the third rhyolitic vitric tuff of Nanyuan formation. Ore bodies are vein, lenticular. Mineral composition is mainly of silver (gold) ore, with horizontal and vertical zoning. It is the Shallow into low temperature volcanic subvolcanic hydrothermal silver polymetallic deposit. According to the theory of deep prospecting and the occurrence, shape and ore controlling characteristics of the related ore bodies, the middle section of the 955～850 m can be used as a new prospecting area. Through the production and exploration, the authors has obtained 955～850 (122b＋333) of 72.35 × 10^4 t new ore reserves.

20171084 Zhou Weigui (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Li Yusheng **Geochemical Evidence for the Hydrothermal Sedimentary Origin of Rhodochrosite Deposit in Gaoyan, Chongqing** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 159－163, 6 illus., 1 table, 22 refs.)

Key words: rhodochrosite, Chongqing

The Gaoyan manganese deposit in Chongqing is located in the Late Sinian Qinba Mn sedimentary basin. The rhodochrosite ores occur in the top of Doushantuo Formation in the form of ooid or pellet. The results show that the rhodochrosite is mainly marine authigenic product related to marine sedimentation, with little affection of terrigenous material. The deposition process of rhodochrosite is involved with hot water. The rhodochrosite is the result of hydrothermal sediment.

20171085 Zhou Wuyong (China University of Geosciences, Wuhan 430047, China) **On the Geological Characteristics and Ore－Finding Perspective of the Yinkeng Lead－Zinc Deposit in Pucheng County, Fujian Province** (Geology of Fujian, ISSN1001－3970, CN35－1080/P, 35(2), 2016, p. 135－141, 1 illus., 2 tables, 4 refs.)

Key words: lead－zinc deposit, Fujian Province

Pucheng lead and zinc deposit exist in Exocontact between Early Proterozoic Mayuan Group Nanshan Formation, Dajinshan Formation and Granitic body. The ore types are controlled by the faulted structures. The north east fault is the main ore controlling structure in the area. The ore bodies are distributed along both sides of the northeast fault, while the northeast fault has the characteristics of multiple stages. Ore forming materials come from the Early Proterozoic ore－bearing formation and the Late Yanshanian magmatic hydrothermal.

20171086 Zou Hao (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Zhang Qiang **Geological Characteristics and Ore－Forming Material Sources of the Laoxiangkeng Iron－Polymetallic Deposit in Tengchong Block, Yunnan Province** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(2), 2016, p. 34－46, 6 illus., 2 tables, 3 photos, 34 refs.)

Key words: polymetallic ores, Yunnan Province

Geology and ore－forming material sources of Laoxiangkeng iron polymetallic ore in Tengchong block are studied through field investigation, combined with analysis of main, trace, rare earth elements and Pb isotopes. It shows that the ore bodies are lenticular, or stratiform－like in shape with compacted and brecciaed ore. Microscope observation reveals there are magnetite, pyrrhotite, chalcopyrite and a variety of metallic minerals in the ore.

2. NONMETALS DEPOSITS

20171087 Cheng Guofan (Guizhou Institute of Technology, Guiyang 550005, China); He Ying **A Preliminary Study on Ore－Forming Conditions and Its Model for Banqi Secondary Phosphate Deposit, Ceheng County, Guizhou Province, China** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(2), 2016, p. 189－197, 7 illus., 17 refs.)

Key words: phosphate deposit, Guizhou Province

Based on primary data from geological investigation report, the geological background and ore－deposit characteristics were described and the ore forming conditions were also discussed. Meantime, descriptive ore forming model was established as well. By contrasting with the phosphate deposits from central Tennessee in USA, a new type phos-

phate deposit was proposed in the research. A new distribution area of caves accumulation type phosphate deposits was pointed out in the Southern China and some new data were provided for further studies on ore forming conditions and its mechanism of secondary phosphate deposits in the Southern China.

20171088 Deng Xiulin (Sichuan Division, Geological Exploration Center, China Building Material Industry, Chengdu 610017, China) **Geological Features and Genesis for Dolomitite Used as Aggregate in Dujiangyan, Sichuan Province** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 221—223, 1 illus., 2 tables, 3 refs.)

Key words: dolostone, Sichuan Province

Dolomitite deposit used as aggregate in Dujiangyan, Sichuan is located in the Longmenshan—Dabashan platform margin depression of the Yangtze paraplatform. The dolomitite is constituent of the Devonian Shawozi Formation and the Lower Permian Series and occurs as thick bedded form, belonging to a neritic chemical deposit.

20171089 Lin Xi (Fujian Institute of Geological Survey, Fuzhou 350013, China) **Geological Characteristics and Prospecting Perspective in the Macaoke Ore Section, Zhongsha Fluorite Deposit in Ninghua County, Fujian Province** (Geology of Fujian, ISSN1001—3970, CN35—1080/P, 35(2), 2016, p. 142—148, 2 illus., 6 refs.)

Key words: fluorspar deposit, Fujian Province

Zhongsha fluorite ore bodies are occurred as veins in WEE—trending fissure structures, which are controlled by fracture. The fluorite ore body is closely related with Caledonian porphyaceous adamellite in space and time. Based on metallogenic geological background and geological characteristics of the deposit, the fluorite deposit belongs to medium to low temperature magmatic hydrothermal filling type.

20171090 Liu Jie (State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Wen Hanjie **Structures and Sedimentary Environment of Phosphorite in Zhijin County, Guizhou Province, China** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(2), 2016, p. 253—259, 5 illus., 1 table, 38 refs., with English abstract)

Key words: phosphate deposit, Guizhou Province

20171091 Lu Shufan (Guizhou Academy of Geology Survey, Guiyang 550005, Guizhu, China); He Yongzhong **The Interface Controlling Characteristic and Prospecting Significance of Wuchuan—Yanhe Area Fluorite (Barite) Mine in Northern Guizhou Province** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(2), 2016, p. 96—100, 2 illus., 15 refs.)

Key words: fluorspar deposit, Guizhou Province

Wuchuan—Yanhe area is an important base of fluorite in the northern Guizhou Province. In the area the deposits are range and concentrated and is expected have good exploration potential for the fluorite (barite). The distribution of fluorite (barite) ore was significantly affected by the joint of northwest direction, and exist in the Ordovician Tongzi and Honghuayuan formations limestone. According to the interface ore controlling of fluorite mine, in the area control features in concealed area north west to joints, under the Meitan Formation shale, and in the favorable structural collapse space are looking for potential large—scale fluorite deposit resources.

20171092 Ren Junping (Tianjin Center, China Geological Survey, Tianjin 300170, China); Zuo Libo **Geodynamic Evolution and Mineral Resources Present Research in Bangweulu Block, Northern Zambia** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(4),

返回目录

2016, p. 979－996, 6 illus., 2 tables, 15 refs.)

Key words: diamond, Zambia

Bangweulu Block of northern Zambia is affected by Paleoproterozoic Ubendian tectonic zone, Neoproterozoic Kibaran tectonic zone, Neoproterozoic Irumide tectonic zone and the Pan African Lufulian tectonic zone and there have gold, manganese and diamond deposits (occurrence). The authors study geodynamic evolution and mineral resources present research in Bangweulu Block and think that the area has a good prospecting potential. The authors provide geological data and scientific basis for the expansion of Chinese mining enterprises and mineral exploitation right registration which are fit for mineral resources exploration and exploitation of "go global" strategy and "One Belt and One Road" strategy of national implementation.

20171093 Xia Bingwei (School of Earth Science and Resources, China University of Geosciences, Beijing 100083, China); Cao Huawen **Exploration of Fluorite Deposit by the Combination of VLF－EM and EH4 on Shallow－Covered Area——A Case Study of the Shuitou Deposit** (Journal of Guilin University of Technology, ISSN1674－9057, CN45－1375/N, 36(2), 2016, p. 228－233, 4 illus., 24 refs.)

Key words: fluorspar deposit, Inner Mongolia

To explore the effect of VLF－EM and EH4 for semi－concealed fluorite deposits in the grassland, Shuitou fluorite deposit in Linxi area is selected as the case study. Based on the geological or geochemistry data, the effective combination of VLF－EM and EH4 can be efficient to forecast the location of the buried ore bodies. It has many advantages over traditional models: 1) the two methods, from shallow to deep, can be compared and complemented one another; 2) it can provide a scientific basis for further exploration of fluorite deposits; and 3) it is one way of exploring the concealed and semi－concealed deposits.

20171094 Ye Zhanghuang (Jiangxi Science and Technology Normal University, Nanchang 330038, China); Yan Qiang **Geological Characteristics and Ore Genesis of Yaokang Kaoline Deposit in Hepu, Guangxi** (Journal of Guilin University of Technology, ISSN1674－9057, CN45－1375/N, 36(2), 2016, p. 207－213, 6 illus., 13 refs.)

Key words: kaolin, mineral deposit genesis, Guangxi

Yaokang kaolin deposit is a super large scale deposit, with reserve of 197.7 million tons, and elutriation concentrate up to 75 million tons. It is a typical granite weathered residual deposit, and weathering is the main ore－genesis mechanism. The ore－forming original rock is Nachedong moyite pluton, which has a high feldspar content (>60%) and lower iron and titanium content(<1.5%). Multiple regional faults caused abundant ductile deformation structures, humid and rainy climate conditions could further contribute to the decomposition of rocks. Feldspar can be transformed into kaolinite by two ways: feldspar－sericite－kaolinite and feldspar－kaolinite.

20171095 Zhang Wengao (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Yang Xingke **Characteristics of Fracture and Ore－Prospecting of Naoyangping Zinc－Fluorite Deposit, North Daba Mountain** (Geotectonica et Metallogenia, ISSN1001－1552, CN44－1595/P, 40(2), 2016, p. 323－334, 12 illus., 3 tables, 29 refs.)

Key words: fluorspar deposit, fractures, metallogenic prediction

This paper summarizes the evolutionary sequence of ore control fractures and ore－control mechanism. The NW－SE trending faults are the main ore－control structures. The EW trending fractures were produced in Late Indosinian－Early Yanshanian, whereas the NW－SE and NE－SW trending fractures were produced in Early Yanshanian. The

transtensional faults resulted from the dextral strike slipping shearing were conducive to the migration of ore fluids and emplacement of the orebodies. The authors suggest that the strain ellipsoid and restoration of the principal compressive stress direction is NNE (340° - 350°) during the period of mineralization.

20171096 Zheng Mianping (Key Laboratory of Saline Lake Resources and Environments, Institute of Mineral Resources, Chinese Academy of Geological Sciences, MLR, Beijing 100037, China); Chen Wenxi **New Findings and Perspective Analysis of Prospecting for Volcanic Sedimentary Boron Deposits in the Tibetan Plateau** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(4), 2016, p. 407－418, 8 illus., 3 tables, 48 refs.)

Key words: boron deposit, Qinghai－Tibetan Plateau

This paper reports the new achievements in the prospecting for volcanic sedimentary boron deposits. The presence of strata of boron－rich volcanic sedimentary binary structure in the Tibetan Plateau was discovered and confirmed for the first time. The tectonic location, stratigraphic combination and the age of the strata are consistent with features of the strata of the large volcanic sedimentary boron deposits in Western Anatolia Plateau. The strata have positive high anomaly of rare alkali metal elements, and boron element content has reached ore cutoff grade in some intervals. In addition, crumbly or banded borate minerals were found.

20171097 Zhu Xingge (Liaoning General Team, China Construction Materials and Geological Prospecting Center, Shenyang 110004, China); Liu Didi **Analysis on the Metallogenic Factors of the Talc Deposits in Erhulai Area, Eastern Liaoning Province** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 150－153, 2 illus., 1 table, 2 refs.)

Key words: talc deposit, Liaoning Province

Through the correlation analysis of the representative drill holes in the talc deposits founded in Erhulai area, Eastern Liaoning, the metallogenic factors are summarized in three aspects: 1) the metallogenic rocks are the dolomite marble and silicon－bearing dolomitic marble of Paleoproterozoic Dashiqiaoan Formation; 2) the ore－forming fluid is the silicate hydrothermal solution intruded in Yanshanian; and 3) the leading factors that control the shapes, occurrences and spatial distributions of the orebodies are the fault belts and interbedded fractures, which are affected by the regional E－W－trending structure. Based on the study of metallogenic characteristics, the prospecting targets are predicted.

3. PETROLEUM GEOLOGY

20171098 Bai Yunshan (Wuhan Center of China Geological Survey, Wuhan 430205, China); Wang Qiang **Exploration Prospects Analysis of Shale Gas of Middle Permian Xiaojiangbian Formation in the Lianyuan Depression, Central Hunan Province** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(2), 2016, p. 159－165, 3 illus., 4 tables, 11 refs.)

Key words: shale gas, Hunan Province

The analyses on characteristics of physical properties and geochemistry were taken on the favorable horizon of the shale gas of the Permian Xiaojiangbian Formation of the Lianyuan Depression in Central Hunan Province, and a comprehensive interpretation was made together with the geological conditions. The Xiaojiangbian Formation buried in depth, mainly distributes in the trapped syncline of the central structural belt, with bright prospects of shale gas development.

20171099 Bao Jianping (Key Laboratory of

返回目录

Exploration Technologies for Oil and Gas Resources (Yangtze University), Ministry of Education, Department of Geochemistry, Yangtze University, Wuhan 430100, China); Si Chunsong **Study on Origin and Source of Solid Bitumen from the Xiaocaoba Paleo－Reservoir in the Northern Guizhou Depression** (Geochimica, ISSN0379－1726, CN44－1398/P, 45(3), 2016, p. 315－328, 9 illus., 1 table, 36 refs., with English abstract)

Key words: oil reservoirs, asphalt, genesis, Guizhou Province

20171100 Cao Baojun (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Gao Tao **Rational Developing Strategies of the Volcanic Gas Reservoirs in Block D of Xushen Gasfield** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 54－57, 4 illus., 2 tables, 16 refs.)

Key words: crystalline reservoirs, exploitation

Block D of Xushen Gasfield is the volcanic gas reservoirs with the bottom water. Because of the formation water produced in the gas wells on the partial sides of the block, the well productivity and developed effects are affected. In the light of the gas wells with different types of the produced water, according to the principle of "over－all consideration and classified management", the reasonable developing strategies adopted for the block were established. Considering the pressure dropped units, fault segmentation and reservoir connectivity, six well blocks were divided. Each well block takes "low discharge/drainage and high control" as the overall developing strategy, the reservoir pressures in the high－position should be maintained, and moreover the edge and bottom water conings must be slowed down. The production of the single well was managed to ensure the three stabilities.

20171101 Cao Xinxing (State Key Laboratory of Organic Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Cruangzhou 510640, China); Song Zhiguang **The Characteristics of Organic Matter in Maoming Oil Shales and Their Paleoclimate Significance** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 243－252, 7 illus., 3 tables, 43 refs., with English abstract)

Key words: oil shale, Guangdong Province

20171102 Chao Hui (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Hou Mingcai **Study on Diagenesis and Reservoir Characteristics of Qianfoya Formation in Yuanba Area, Northeast Sichuan, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 282－290, 15 illus., 1 table, 13 refs., with English abstract)

Key words: reservoirs, diagenesis

20171103 Chen Fang (Key Laboratory of Marine Mineral Resources, MLR, Guangzhou Marine Geologic Survey, Guangzhou 510075, China); Zhuang Chang **Calcareous Nannofossils and Foraminifera Biostratigraphy on the Northeastern Slope of the South China Sea and Variation in Sedimentation Rates** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 416－424, 5 illus., 4 tables, 23 refs.)

Key words: gas hydrates, South China Sea

Middle Pleistocene to Holocene calcareous nannofossils and foraminifera biostratigraphy in 5 sites (GMGS05, GMGSOT, GMGSO8, GMGS09 and GMGS16) from the Dongsha gas hydrate drilling area of the northeastern South China Sea have been studied. A total of 3 nannofossils events and 2 foraminifera events from middle Pleistocene to Holocene were recognized. The results suggested that the gas hydrate drilling area is located at sedi-

mentary body with high sedimentation rate, which is advantageous to gas hydrate formation. This conclusion is consistent with the previous research.

20171104 Chen Huanqing (Research Institute of Petroleum Exploration and Development, PetroChina, Beijing 100083, China); Hu Yongle **Tracing and Identifying of Volcanic Bodies and Their Application on the Effective Exploitation of Gas Reservoir——Taking Volcanic Reservoir of the Member 1 of Yingcheng Formation in Xudong Area of Songliao Basin as an Example** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 494－504, 9 illus., 1 table, 29 refs.)

Key words: reservoirs, Songliao Basin

Volcanic reservoirs have the characteristics of strong anisotropism, large lateral variation, difficult effective prediction and exploitation. Taking the member 1 of Yingcheng Formation in Xudong area of Songliao Basin as an example, combined with the core, logging, seismic data and analytical test, the basic characteristics of volcanic bodies were described, and the application of tracing and identifying of volcanic bodies on the effective exploitation of gas reservoir was explained according to the detailed reservoir division, lithofacies classification and analysis of reservoir physical property, and prediction of favorable development area.

20171105 Chen Lei (State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing 102249, Chin); Jiang Zhenxue **Characteristics of Microscopic Pore Structures and Their Effect Impacts on Methane Adsorption Capacity in Continental Shales** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 335－343, 8 illus., 3 tables, 34 refs.)

Key words: shale gas, methane, adsorption

In this paper, the authors conduct a pilot study of continental shales based on a case study of the fifth member of the Upper Triassic Xujiahe Formation in the western depression, Sichuan Basin. The microscopic pore structures of the shales were investigated by using low－temperature nitrogen gas adsorption method. Multiple structural parameters of the shales were calculated, including the specific surface area, pore size distribution, pore volume and average pore diameter. Finally, the authors address the effect of microscopic pore structure characteristics on the methane adsorption capacity of the shales. Results show that the average pore diameter of the shales ranges from 7.81 to 9.49 nm.

20171106 Chen Meiling (Key Laboratory of Exploration Technologies for Oil and Gas Resources of Education, Yangtze University, Wuhan 430100, China); Pan Renfang **Comparison of "Sweet Spots" Characteristics of Shale Oil Reservoir Rocks between Shahejie Formation in China and Bakken Formation in North America** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(4), 2016, p. 438－446, 6 illus., 2 tables, 39 refs.)

Key words: shale, Jiyang Depression

The characteristics and formation mechanism of the shale oil reservoir rocks in the Shahejie Formation and Bakken Formation shale are discussed. The characteristics of sweet spots of shale oil features for the Shahejie Formation are as follows: 1) the organic matter is dominated by type I kerogen; 2) total organic carbon is large than 2.36%; 3) reservoir is composed of laminated argillaceous limestone, argillaceous dolomite, limestonem udstone, oil mudstone and oil shale; 4) the porosity is larger than 3% and permeability is less than $0.5\times10^{-3}\mu m^2$; 5) brittle minerals content is over 20%; 6) oil saturation is in the range of 60%～90%; 7) shale thickness ranges from 13.60 m to 90.00 m; and 8) the reservoir rocks for the petroleum system are lower of the 3rd of Shahejie Formation.

返回目录

20171107 Chen Xiaohong (Wuhan Center of China Geological Survey, Wuhan 430205, China); Zhang Guotao **Deposit Environment of the Ediacaran Doushantuo Formation in Yichang Area, Western Hubei Province, China and Its Geological Significance for Shale Gas** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(2), 2016, p. 106—116, 4 illus., 4 tables, 24 refs., with English abstract)

Key words: shale gas, Hubei Province

20171108 Chen Xinghong (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Wang Lei **Performances Evaluation and Application of the Meor Complex Bacteria** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 92—96, 3 illus., 2 tables, 14 refs., with English abstract)

Key words: microorganisms, oil and gas migration

20171109 Chen Zhipeng (PetroChina Zhejiang Oilfield Company, Hangzhou 310023, China); Liang Xing **Genesis Analysis of Shale Reservoir Overpressure of Longmaxi Formation in Zhaotong Demonstration Area, Dianqianbei Depression** (Natural Gas Geoscience, ISSN1672—1926, CN62—1177/TE, 27(3), 2016, p. 442—448, 5 illus., 2 tables, 15 refs.)

Key words: shale gas, reservoirs, Sichuan Basin

The data of drilling, well logging, well testing verified the overpressure in Longmaxi Formation of Zhaotong area. The paper analyzed the distribution characteristics, formation mechanism of overpressure, and discussed the relationship between overpressure and enrichment of shale gas. The result shows that there are close connections among the overpressure distributions and burial depths, structural location, preservation condition of shale reservoirs; hydrocarbon — generation, rocks denudation, tectonic compression and tight surrounding rock are main formation mechanisms of shale reservoirs overpressure.

20171110 Chi Liwei (Faculty of Energy Resources, China University of Geosciences, Wuhan 430074, China) **Master Controlling Factor Analyses of the Hydrocarbon Accumulation and Favorable Belt Prediction for Fangzheng Fault Depression in Yi—Shu Graben** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 31—35, 5 illus., 1 table, 15 refs.)

Key words: fault block reservoir, mineralization controls

Fangzheng Fault Depression in Yi—Shu Graben is the important exploration replacing field of Daqing oilfield. On the basis of the previous studies on the hydrocarbon accumulation conditions, the comprehensive analyses on the master controlling factors of the hydrocarbon accumulation are conducted. The achievements show that there are three main controlling factors in this aspect: the petroleum distribution of the depression is controlled by the hydrocarbon scope of the source rocks and hydrocarbon — generating evolution; the key on the hydrocarbon accumulation is the much better reservoir physical properties and mudstone caprock. Furthermore three favorable exploring belts are predicted.

20171111 Chu Qingzhong (College of Vehicle and Energy, Yanshan University, Qinhuangdao 066004, China); Chen Xiaozhe **Developmed Effects Analyses and Quantitative Evaluating Method for Qinjiatun Complex Fault—Block Oilfield** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 58—63, 4 illus., 1 table, 22 refs., with English abstract)

Key words: fault block reservoir, analytical hierarchy process

20171112 Dong Hui (Xi'an Center of Geological Survey, CGS, Xi'an 710054, China); Li Hong **Application of Organic Fluid Inclusion to Study the Characteristics of Gas Reservoir Formation: Example from the Sulige Gas Field in Western Ordos Basin** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 248－256, 4 illus., 19 refs.)

Key words: natural gas, Inner Mongolia

After studying the diagenesis sequence about the sandstone gas bed of the Sulige gas field in Western Ordos Basin, the petrography of organic fluid inclusions has been studied through carrying out petrographical observation and fluid inclusion microthermometry under microscope, the homogenization temperatures and salinities of these organic fluid inclusion shave been analyzed, and the formation characteristics of gas reservoir in the Sulige gas field have been discussed in this paper. Results indicate that the sandstone of gas bed had experienced diagenesis of compaction, pressolution, cementation, quartz secondary increase, dissolution and fracturing. According to the distribution characteristics and the physical phase state of organic fluid inclusions, two stages organic fluid inclusions have been identified by microscope serration.

20171113 Du Jiangmin (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Zhang Xiaoli **The Applicability of Well Logs Prediction Models of Organic Carbon Content in Source Rocks of the Tight Oil: A Case of the Source Rocks of Lower Section of N_1 Formation in Qaidm Basin** (Journal of Northwest University, ISSN1000－274X, CN61－1072/N, 46(2), 2016, p. 239－245, 5 illus., 23 refs.)

Key words: source rocks, Qaidam Basin

In the early stage of tight oil exploration, well logging is considered as one effective method for evaluation of hydrocarbon source rocks. The organic carbon content of N_1 Formation in Zhahaquan Depression in Qaidam Basin was predicted using two kinds of quantitative prediction model: logging curve superposition model(ΔLogR technique) and multiple regression equation model. Then the best prediction model was selected through comparing the prediction results. The results show that the multiple regression equation models are more accurate than the ΔLogR method in the study area, which is probably attributed to the choice of the reference stratum or some parameters in ΔLogR method.

20171114 Fang Yanjun (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Sun Hongguo **Technical and Economic Limits for the Optimization and Combination of Asp Series of the Strata in Daqing Oilfield** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 81－85, 5 illus., 1 table, 8 refs., with English abstract)

Key words: remaining oil, reserves, Songliao Plain

20171115 Fu Xuehai (Key Laboratory of Coalbed Methane Resources and Reservoir－Formation Process, Ministry of Education, China University of Mining Technology, Xuzhou 221116, China); Deleqiati Jianatayi **Resources Characteristics and Separated Reservoirs' Drainage of Unconventional Gas in Coal Measures** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 36－40, 1 illus., 1 table, 19 refs.)

Key words: coalbed gas, shale gas, gas hydrates

Coal measures area group of multiply superposed reservoirs which contain combed methane, shale gas and tight sandstone gas (there is also a gas hydrate reservoir lying on the Jurassic coal seam in the Mull coalfield, Qinghai Province); the transitional coal measures mainly contain coalbed methane and shale gas; the inland coal measures feature coalbed methane and tight sandstone gas; the mixed

返回目录

reservoir containing coalbed methane and shale gas often appears in coal measures owing to the coal—mud—sand structure system. In China, coalbed methane resources are about 36.8×10^{12} m^3; shale gas and tight gas resources are about 32×10^{12} m^3 and 20×10^{12} m^3 respectively in coal measure(not including the Northeast China).

20171116 Gao Shuling (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Zhang Hechuan **High—Concentration Polymer Flooding Field Test with Well Infilling after Polymer Flooding** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 94—98, 4 illus., 3 tables, 19 refs., with English abstract)

Key words: petroleum, production

20171117 Gao Wenxi (No. 1 Oil Production Plant of Daqing Oilfield Co., Daqing 163000, China) **Simulating Test on the Stress Sensitivity of Advanced Water Injection for the Low—Permeability Oil Reservoir** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 52—55, 5 illus., 10 refs.)

Key words: low permeability reservoir, oil reservoir simulation

In the light of the stress sensitivity problem of advanced water injection for the extra—low—permeability reservoir, the sensitivity test is caught out under the conditions of simulating the actual formations. The natural cores are chosen from certain oilfield for the experiment, the stress sensitivity phenomena are respectively simulated in the following stages: water injection, depressurized production and pressure recovery. In the process of the experimental data, considering the co—action of the axial and radial stresses on the core, the achievements show that during the advanced water injection, the effective stress of the core is reduced, and moreover the core plastic deformation occurs, the permeability increases with strong stress sensitivity phenomenon, the lower the permeability is, the stronger the stress sensitivity will be.

20171118 Guo Jingxing (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Song Xiaoqian **Detailed Reservoir Architecture Analyses of Mouth Bar in Shangyi Block of Shanghe Oilfield, Huimin Sag** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(3), 2016, p. 378—386, 4 illus., 1 table, 21 refs.)

Key words: reservoirs, Shandong Province

In order to find the distribution of remaining oil, based on the abundant core and well logging data, the mouth bar reservoir in the third and the fourth sand groups of the second member of Shahejie Formation was analyzed for many aspects, including the grading system of architecture interfaces, the identification and characteristics of a single mouth bar and the vertical evolution law. The results show that the mouth bar reservoir can be classified into 5 grades architecture interfaces. The origin types of the fifth and fourth architecture interfaces are flood shale and argillaceous layers, respectively. The origin types of the third architecture interface are sedimentary with poor physical properties and diagenetic calcareous sandstone, and can be further subdivided into shale interlayer, calcareous interlayer and transitional interlayer.

20171119 Guo Xiaowen (Key Laboratory of Tectonics and Petroleum Resources, Ministry of Education, China University of Geosciences, Wuhan 430074, China); Liu Keyu **Relationship between Tight Sandstone Reservoir Formation and Petroleum Charge in Dabei Area of Kuqa Foreland Basin** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(3), 2016, p. 394—402, 6 illus., 2 tables, 21 refs.)

Key words: petroleum exploration, Xinjiang

The tight sandstone reservoirs below the salt and gypsum unit in the Dabei area of the Kuqa foreland basin are characterized by deep burial, low porosity and permeability, which produce natural gas and minor light oil. The relationship between tight sandstone reservoir formation and petroleum charge in the Dabei area of the Kuqa foreland basin are studied by combining the porosity evolution of the tight sandstone reservoirs based on the analysis the tight sandstone reservoirs characters, natural gas and light oil maturity, and petroleum charge history.

20171120 Guo Xiuying (School of Economics and Management, Southwest Petroleum University, Chengdu 610500, China); Chen Yicai **The Application of Fuzzy Similarity Method to Preferably Favorable Target Area of Marine Shale Gas in South China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 326－335, 4 illus., 5 tables, 31 refs., with English abstract)

Key words: marine environment, shale gas, South China

20171121 Guo Yingchun (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Song Yan **Characteristics and Genetic Mechanism of Near－Source Accumulated Accumulation for Continuous－Type Tight－Sand Gas** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 433－440, 10 illus., 1 table, 20 refs., with English abstract)

Key words: sandstone, traps, petroleum exploration

20171122 Hao Binbin (Institute of Oilfield Chemicals, CNOOC Oilfield Services, Yanjiao 065201, China); Hu Jinjun **Laboratory Study and Field Application of High－Performance Shale Inhibitor Atrol** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 154－158, 5 illus., 3 tables, 15 refs., with English abstract)

Key words: shale, inhibitor, Bohaiwan Basin

20171123 He Yingfu (SINOPEC Exploration and production Research Institute, Beijing 100083, China); Wang Haitao **Opitimization and Steam Flooded Characteristics of the Horizontal Well Pattern** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 120－125, 8 illus., 1 table, 15 refs., with English abstract)

Key words: petroleum, production

20171124 He Yu (Ocean College, Zhejiang University, Hangzhou 310058, China); Chen Anqing **Analysis of Shale Gas Potential of Lower Cambrian Hetang Formation in Northwest Zhejiang, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 300－307, 9 illus., 30 refs., with English abstract)

Key words: shale gas, Lower Cambrian, Zhejiang Province

20171125 Hu Xia (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China) **Characteristics of the Oil Shale in Yong'An Field of Jixi Basin** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 165－169, 1 illus., 4 tables, 13 refs., with English abstract)

Key words: oil shale, Heilongjiang River

20171126 Huang Chenggang (Key Lab. of Reservoir Description of CNPC, Lanzhou 730020, China); Yuan Jianying **The Geochemical Characteristics and Formation Mechanism of the Eocene Lacustrine Dolomite Reservoirs in the Western Qaidam, Xinjiang** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 230－242, 8 illus., 3 tables, 53 refs., with English abstract)

Key words: dolostone, reservoirs, Qaidam

Basin

20171127 Huang Pan (State Key Laboratory of Organic Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Ren Jiangling **Biomarker and Carbon Isotopic Compositions of Source Rock Extracts and Crude Oils from Mahu Sag, Junggar Basin** (Geochimica, ISSN0379－1726, CN44－1398/P, 45(3), 2016, p. 303－314, 7 illus., 2 tables, 16 refs.)

Key words: source rocks, biomarkers, carbon isotopes, Junggar Basin

GC, GC－MS and GC－IRMS analyses were performed on six extracts from source rocks within the Lower Permian Fengcheng Formation (P_1f) and ten oils collected from the Mahu Sag, Junggar Basin. Based on molecular and carbon isotopic compositions, the oils can be classified into three groups. Group 1 oils are representatives of the end member of type I oils, which are derived from "typical" source rocks within the Lower Permian Fengcheng Formation (P_1f). In contrast, Group 2 oils are representatives of the end member of type 1I oils. Group 3 oils are of intermediates between types I and II oils. The six source rock extracts are more or less different from the "typical" source rocks within the Lower Permian Fengcheng Formation (P_1f) and type I oils, but similar to source rocks within the Middle Permian Lower Wuerhe Formation (P_2w) and type lI oils in molecular compositions.

20171128 Huang Wenming (Chuan－Qing Drilling Engineering Company Limited, Geological Exploration & Development Research Institute, Chengdu 610051, China); Ma Wenxin **Gas Accumulation Process and Main Controlling Factors of He－8 and Shan－1 Member in Western Sulige Gasfield** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 521－532, 7 illus., 19 refs., with English abstract)

Key words: natural gas, Tarim Basin

20171129 Huang Xuefeng (Henan Polytechnic University, Jiaozuo 454003, China); Wu Wei **Assessment of the Source Rocks from the Dongying Formation in the Liaozhong Depression, Liaodong Bay** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 81－86, 6 illus., 1 table, 18 refs.)

Key words: source rocks, maturity, Liaoning Province

This paper deals with the organic the lower submember of the 2nd member of the Formation (Ed_3) in the Liaozhong Depression, geochemical analysis and assessment of the source rocks from Dongying Formation (Ed^{2-1}) and the 3rd member of the Dongying Liaodong Bay, with the emphasis on organic matter abundance, type and maturity based on the organic geochemical parameters. The analytical results indicate that the source rocks from the lower submember of the 2nd member of the Dongying Formation (Ed^{2-1}) display 0 to 3 mg/g for S_1+S_2, 0% to 1.5% for TOC, Ro <0.5% and III to II2 types of organic matter.

20171130 Huang Yun (Institute of Geophysics, Research Institute of Exploration and Development, Xinjiang Oilfield Company, PetroChina, Urumqi 830013, China); Liang Shuyi **Characteristics and Formation Mechanism for Dolomite Reservoir of Permian Pingdiquan Formation of Shazhang Fault－Fold Belts in Junggar Basin** (Xinjiang Geology, ISSN1000－8845, CN65－1092/P, 34(2), 2016, p. 224－229, 5 illus., 20 refs.)

Key words: reservoirs, Junggar Basin

Dolomitic rock reservoir is a special origin and rich－hydrocarbon formation in Junggar Basin, which belongs to tight oil. Existing results all focus on Permian Fencheng Formation located in northwest margin, and Lucaogou Formation located in eastern margin, it is studied little that the Permian Pingdiquan

Formation of Shazhang fault — fold belts in northeastern margin. Attributed by lithology, reservoir space and formation mechanism, the dolomitic rock of the Pingdiquan Formation is divided into 5 types lamina dolomitic rock, uniform distribution, irregular thin — bed, clumps and crack filling.

20171131 Ji Tianliang (Research Institute of Unconventional Oil and Gas and New Energy, China University of Petroleum, Qingdao 266580, China); Lu Shuangfang **Productivity Predicting Method of the Fractured Horizontal Wells in the Tight Oil Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 165—169, 4 illus., 17 refs., with English abstract)

Key words: tight oil, horizontal wells, productive capacity

20171132 Jiang Hongfu (Hailer Exploration and Development Headquarter of Daqing Oilfield Co., Hulunbeier 021000, China); Wang Yunzeng **Application of the Large—Scale Fracturing Technique in Extra— Low Permeability Reservoir Development** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 70—74, 1 illus., 2 tables, 24 refs., with English abstract)

Key words: low permeability reservoir, hydraulic fracturing

20171133 Jiang Lina (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China) **Controlling Actions of the Overpressure on the Petroleum Migration and Accumulation of Fuyu Dense Oil Reservoirs in Sanzhao Sag** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 7—13, 5 illus., 23 refs., with English abstract)

Key words: oil and gas migration, overpressure, Songliao Plain

20171134 Jiangbo (Key laboratory of Coalbed Methane Resources and Reservoir—Formation Process, Ministry of Education, Xuzhou 221008, China); Wang Jilin **The Stress Characteristics of the Daning—Jixian Area and Its Influence on the Permeability of the Coal Reservoir** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(3), 2016, p. 17—23, 7 illus., 19 refs.)

Key words: coal—formed gas, reservoirs

This paper explored a stress evaluation method and technique process fitted for coal reservoir, based on the analysis and calculation of well log for coalbed methane exploitation. The study has revealed that the maximum and minimum horizontal principal stress of the 5# coal seam has a general waving variation trend of low— high— low— high from the east to the west of the Daning— Jixian Area; The vertical principal stress has a general variation trend of low in East and high in West, but the increasing trend decreases in the middle area with complex geological structures. The 5# coal seam is generally under the stress transition depth, and is significantly affected by the vertical principal stress, which is in favor of the stretch of coal seam fracture and the increase of permeability, as in a tension stress environment.

20171135 Li Airong (School of Earth Science and Engineering, Xi'an Petroleum University, Xi'an 710065, China); Zhang Jingong **The Reservoir Macroscopic Heterogeneity and Its Influence Factors in Yujiaping Area, Ordos Basin** (Journal of Northwest University, ISSN1000—274X, CN61—1072/N, 46(2), 2016, p. 246—255, 10 illus., 3 tables, 20 refs.)

Key words: reservoirs, Ordos Basin

To study the macroscopic heterogeneity of tight sandstone reservoir in Yujiaping area of Ordos Basin and the factors which control it. Analysis characteristics of reservoir include the rhythmic, and the distribution of sand

body in the horizontal and vertical, and the change of permeability parameter in order to study of macroscopic heterogeneity about layers and interlayer, plane and so on in reservoir. The research showed that the reservoir with strong heterogeneity in study area, which physical properties were controlled by sedimentary microfacies and diagenesis, and the buried depth, microcracks, grain size and mineral composition had a certain influence on the reservoir heterogeneity.

20171136 Li Feng (Oil & Gas Survey Center, China Geological Survey, Beijing 100029, China); Yin Jinyin **Structural Characteristics and Main Controlling Factors of Hydrocarbon Accumulation of the Lower Permian Post－Salt and Pre－Salt Sequences in the Pre－Caspian Basin** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 327－334, 6 illus., 9 refs.)

Key words: salt, oil and gas reservoir

To improve the understanding of the regularities of hydrocarbon accumulation and provide exploration data, this paper studies the structural characteristics and controlling factors of hydrocarbon accumulation in the two post－ and pre－salt sequences by using the latest data of drilling, seismic section interpretation and structural mapping. The results show that large－scale paleo－uplift and slope were developed in the Paleozoic pre－salt sequence and the Hercynian weathering and leaching greatly improved carbonate reservoir properties. Reef, shoal and karst controlled hydrocarbon accumulation.

20171137 Li Gen (Bohai Oil Research Institute, Tianjin Branch of CNOOC, Tianjin 300452, China) **Calculating Model of the Swept Area for the Individual Well with the Straight Edge Water Considering the Gravity** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 48－51, 5 illus., 14 refs., with English abstract)

Key words: oil and gas reservoir, dipmeter logging

20171138 Li Hai (Wuhan Center of China Geological Survey, Wuhan 430205, China); Liu An **Geological Characteristic of Cambrian Black Shale and Prediction of Shale Gas Prospective Area in Western Hubei Province** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(2), 2016, p. 117－125, 7 illus., 21 refs.)

Key words: shale gas, Hubei Province

Through the analysis of basic data such as field surface outcrops, drilling cores and typical profile, source rock quality, four items including evolution stage of organic matter, reservoir characteristic and preservation condition have been studied to illustrate the geological characteristics of Cambrian black shale in Western Hubei. It was on this basis that shale gas prospective areas were predicted using comprehensive information method. The result indicate that the Niutitang Formation of Cambrian black shale in the study area were characterized by wide distribution, great thickness, high organic content, good kerogen type, high thermal evolution degree and great hydrocarbon generation potential.

20171139 Li Jing (Research Institute of Geomechanics and Engineering, China University of Petroleum, Qingdao 266580, China); Han Chen **Multi－Parameter Characterization of the Reservoir Lithologies and Their Influences on the Physical Properties** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 36－42, 5 illus., 3 tables, 14 refs.)

Key words: igneous reservoir

Igneous rocks are characterized by many types, more complex lithology, and rather stronger reservoir heterogeneity. How to accurately describe the igneous rocks lithology characteristics and analyze the influences of the lithologies on the reservoir physical properties possess very bigger significance on the

exploration and development of the igneous hydrocarbon reservoirs. With the help of the multi－parameter integrating method: well logging data, rock mechanics parameters, petrophysical property features and so on, the Permian igneous－rock lithologies and their impacts on the reservoir physical properties are figured out for Well Block Hsh2.

20171140 Li Mou (Chengdu University of Technology, Chengdu 610059, China); Xie Yuan **An Approach to the Geology of the Shale Gas in the Lower Permian Kalagang Formation, Jimunai Depression, Northern Xinjiang** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 67－74, 9 illus., 1 table, 25 refs.)

Key words: shale gas, Xinjiang

The geological characteristics of the shale gas in the Lower Permian Kalagang Formation, Jimunai Depression, northern Xinjiang are approached on the basis of organic geochemical signatures and reservoir characteristics. The mineral compositions include quartz, feldspar and clay minerals. The pore types are composed of macropores, mesopores and micropores. The reservoir spaces are represented by intergranular and intergranular solution openings. The porosity values vary from 0.97% to 1.52%, and the permeability values from 0.0097 to 0.0197 mD with an average of 0.0139 mD, implying that the black shales in the study area have good reservoir potential.

20171141 Li Pingping (State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing 102249, China); Guo Xusheng **Paleo－Oil－Reservoirs Reconstruction and Oil Correlation of Changxing Formation in the Yuanba Gasfield, Sichuan Basin** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 452－462, 9 illus., 1 table, 29 refs.)

Key words: petroleum exploration, Sichuan Basin

The natural gases from the Changxing Formation (P_2 ch) in the Yuanba gas field are mainly derived from oil cracking, but the volume of oil－cracking gas has not been evaluated quantitatively and the source of the paleo－oil has not been studied systematically. Solid bitumen, commonly developed in the P_2ch reservoirs, is a direct product of oil cracking which had finished before the regional uplift and structure deformation in the Yuanba gas field. As a result, the paleo－oil zone can be recognized by the solid bitumen. Basing on the lateral and vertical distribution of solid bitumen, seven reliable and four probable paleo－oil reservoirs have been found out.

20171142 Li Shaojie (Research Institute of Exploration and Development of Shengli Oilfield, SINOPEC, Dongying 257015, China) **Performances and Gas Breakthrough Law for CO_2 Near－Miscible Flooding in the Low－Permeability Bar and Shoal Oil Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 110－115, 4 illus., 2 tables, 14 refs.)

Key words: low permeability reservoir, carbon dioxide, oil and gas migration

The much better development effects are achieved for the CO_2 near－miscible flooding pilot test in the low－permeability bar and shoal reservoirs of Block Gao 89 in Zhenglizhuang oilfield. Based on the daily production, gas－absorbed profiles, GOR, wellhead CO_2 contents and other data, the performances and gas breakthrough law are researched for the continuous CO_2 near－miscible flooding. The results show that the mechanism enhanced oil recovery by CO_2 is made full use, the crude oil flowability is well improved, oil increment is obvious, the gas breakthrough is shown in different levels for some oil wells; the standards of the gas breakthrough are established in Block Gao 89, the main stimulations and measures are presented to improve the gas flooding effects in each breakthrough

返回目录

stage by means of the above standards and field test practice.

20171143 Li Song (Coal Reservoir Laboratory of National Engineering Research Center, Coalbed Methane Development and Utilization School of Energy Geology, China University of Geosciences (Beijing), Beijing 100083, China); Tang Dazhen **Progress in Geological Researches on the Deep Coalbed Methane Reservoirs** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(3), 2016, p. 10—16, 66 refs.)

Key words: coal—formed gas, reservoirs

Based on the study of representative publications in recent years, this paper wholly summarized the progress in researches on physical properties of deep CBM reservoirs from the following four aspects: pore and fracture structures, adsorption and desorption characteristics, diffusion and seepage processes of gas in coal reservoir, and the transformability of coal reservoir. Since deep coal reservoirs are located in complex geological environments with high temperature, high pressure and high stress; thus, the permeability evolution of coal reservoir, the equilibrium relationship among CBM adsorption, desorption, diffusion and seepage, as well as the stress and strain behavior of coal tend to be more complex.

20171144 Li Wuguang (Exploration and Development Institute of Southwest Oil and Gas Field Company, PetroChina, Chengdu 610041, China); Zhong Bing **Evaluating Method of the Stress Sensitivity for the Artificial Fracures in the Shale** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 159—164, 5 illus., 1 table, 16 refs.)

Key words: shale gas, hydraulic fracturing, stress

Shale reservoir is characterized by low permeability, tight and no production without hydraulic fracturing, so it is necessary for the large—scale hydraulic fracturing to induce the artificial fractures where the shale gas can be mobile. In order to quantitatively study the stress sensitivity of the artificial fractures, by means of the indoor similar physical—property simulating experiment, the changed laws are analyzed for the fracture width, permeability and porosity with the effective stress. The research achievements show that for the fractures without the proppant, there are no obvious differences among the initial permeability, and moreover the changed laws of the stress sensitivity appear to be the same, with the rise of the stress, the enhanced degree of the core permeability decreases rapidly and furthermore the stress sensitivity is extremely strong for the shale fracture—induced core.

20171145 Li Ying (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Hao Ziyan **Performance Evaluation and Application Effects for the Resin— Type Depth Profile—Controlling Agent** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 105—109, 3 illus., 4 tables, 10 refs.)

Key words: low permeability reservoir, petroleum exploration

Block Sheng—155 in Daqing Oilfield belongs to low—medium—permeability reservoirs. At later stage of high water cut, because of the rather serious formation heterogeneity, the water—flooded development effects are influenced. In order to further enhancing the oil recoveries, the researches and field test on the deep—profile—controlling technique are carried out. In the light of the reservoir characteristics, formation temperature and water quality of the block, three—formulation systems are designed for the resin—type depth—profile—control agent. By evaluating the initial viscosity, initial setting time, initial setting viscosity, final setting time, viscosity, gelling viscosity and its retention rate, breakthrough pressure, core plugged rate and other

performance indexes for the system, formula—1 system of the agent with the best comprehensive performances is selected.

20171146 Liu An (Wuhan Center of China Geological Survey, Wuhan 430205, China); Bao Hanyong **Analysis of the Shale Gas Geological Conditions of the Upper Ordovician Wufeng Formation— Lower Silurian Longmaxi Formation in Hubei Province and Predict the Favorable Zone** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(2), 2016, p. 126—134, 7 illus., 18 refs.)

Key words: shale gas, Hubei Province

The authors analysis the geological conditions of shale gas at the bottom of the Upper Ordovician Wufeng Formation—Lower Silurian Longmaxi Formation in Hubei Province, based on field geology investigation and previous studies of shale gas in Hubei Province. The gas content is controlled by preservation condition, and most area of Hubei Province with bad preservation condition, structure stable area is better in gas content. Lichuan synclinorium, west of Zigui basin, Dangyang synclinorium are the favorable area zones for shale gas exploration in Hubei Province.

20171147 Liu Cunge (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Li Guorong **Seismic Sequences, Evolution and Control Factors of Large Cambrian Progradational Platform—Slope System in the Northern Tarim Basin, Northwest China** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(4), 2016, p. 669—687, 10 illus., 1 table, 69 refs.)

Key words: source rocks, Tarim Basin

With the objective of understanding the seismic sequences, styles, evolution and control factors of Cambrian platform—slope system in the Tahe oilfield, northern Tarim, this study discusses the origin of platform, forming environment of unconformities, and marine source rocks using high precision three dimensional (3D) seismic data of secondly acquisition and comprehensive interpretation of the conventional 3D seismic and drilling data. The Cambrian marine hydrocarbon source rocks in the Tahe oilfield are well developed, especially with the Yuertus Formation distributed throughout the region, and the slope—basin source rocks of Wusongger Fm., Awatag Fm. and Upper Cambrian are distributed in the eastern Tahe oilfield.

20171148 Liu Guoheng (State Key Laboratory of Petroleum Resource and Prospecting, China University of Petroleum, Beijing 102249, China); Huang Zhilong **The Research of SiO_2 Occurrence in Mud Shale Reservoir of the Yanchang Formation in Ordos Basin** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 1016—1029, 6 illus., 1 table, 36 refs., with English abstract)

Key words: reservoirs, Ordos Basin

20171149 Liu Jing (School of Earth and Space Sciences, Peking University, Beijing 100871, China); Shi Kaibo **The Sequence Controlling Feature and Its Impact on Gas Injection Development of Low—Permeability Layers of Donghe1 Reservoir in Tarim Basin** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(5), 2016, p. 832—841, 4 illus., 3 plates, 31 refs., with English abstract)

Key words: sandstone, permeability, petroleum exploration, Tarim Basin

20171150 Liu Keyu (Research Institute of Petroleum Exploration & Development, PetroChina, Beijing 100083, China); Lu Xuesong **Quantitative Fluorescence Techniques and Their Applications in Hydrocarbon Accumulation Studies** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(3), 2016, p. 373—384, 9 illus., 1 table, 25 refs.)

Key words: petroleum exploration

In this paper, the authors present the

返回目录

principles, sample preparation procedures, key parameters and some field application examples in hydrocarbon accumulation studies, including 1) the palaeo and residual oil zone delineation and reservoir evolution history reconstruction using the QGF and QGF－E techniques; 2) evaluating tight oil reservoir zones, which are difficult to be detected by well logging data using the QGF－E technique; and 3) cross－correlation between TSF, iTSF, QGF＋ spectral signatures and other geochemical parameters to detect geochemical characteristics of crude oils, core and oil inclusion extracts. Some pitfalls and other potential application of the techniques are also discussed.

20171151 Liu Li (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Zhao Yingcheng **Porosity Quantitative Evolution Model of the Ultra－Low－Permeability Reservoirs in Block B153** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 36－42, 4 illus., 1 table, 27 refs.)

Key words: low permeability reservoirs, pore

Through the comprehensive integration of thin sections, scanning electron microscopy, clay mineral's X diffraction, rock physical properties and the other data, taking Reservoir Chang 63 in Block B153 of Huaqing oil－field as an example, the basic characteristics, diagenesis, porosity evolution and so on are studied. And furthermore, in combination of the burial and thermal histories, the quantitative porosity evolution models are established. The achievements show that Reservoir Chang 63 has reached Stage A of the middle diagenetic phase, and experienced the compaction, cementation, dissolution reconstruction during the burial. The former two has player obvious damage role in the reservoir physical properties, while the latter has improved a certain degree, but the effects are not remarkable.

20171152 Liu Miao (Production Engineering Research Institute, Daqing Oilfield Co., Daqing 163453, China) **Establishment and Practice of the Wellbore Integrity Managing System for Rumaila Oilfield** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 75－80, 2 illus., 5 tables, 11 refs.)

Key words: cementing, Iraq

The initial oil and water well designs of Rumaila oilfield just consider only one pressure barrier between the reservoirs and the surfaces, rather than the more usual international dual barrier system, and moreover the corrosive media along with the produced fluids in the oil wells result in the happening of many potential risks such as the casing corrosion and so forth; and furthermore because of the war factor, the wells lack maintenance for quite a long time, the problem of the wellbore integrity occurs frequently, so the oilfield operation and production are seriously influenced. Since 2010, through investigating the problem and drawing the experiences of the international corresponding standards, a set of the diagnosing and maintaining and managing systems of the wellbore integrity are established.

20171153 Liu Yikun (MOE Key Laboratory of Enhanced Oil Recovery, Northeast Petroleum University, Daqing 163318, China); Shen Anqi **Performances and Oil Displaced Effects of the Composite－Ion Profile Controlling Agent Prepared by the Sewage** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 101－104, 3 illus., 5 tables, 15 refs., with English abstract)

Key words: petroleum exploration

20171154 Liu Yongjun (Bohai Oilfield Research Institute of Tianjin Branch of CNOOC, Tianjin 300452, China); Xu Changgui **Formation of the Strike－Slip Inverse Structural Belt and Its Controlling Action on the Oil Re-**

servoirs in Liaozhong South Subsag (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 16－21, 7 illus., 31 refs., with English abstract)

Key words: oil and gas reservoir, strike－slip faults, mineralization controls, Liaoning Province

20171155 Lu Xiangguo (MOE Key Laboratory of Enhanced Oil Recovery, Northeast Petroleum University, Daqing 163318, China); Hu Guangbin **Influences of the Polymer Retention Characteristics on the Enhanced Oil Recovery of the Chemical Flooding** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 99－105, 4 illus., 4 tables, 21 refs.)

Key words: petroleum, production

In order to reveal the polymer flooding mechanism and relationship between the oil displacing agent viscosity and polymer－flooding enhanced recovery, under the conditions of the same viscosity and same concentration, the characteristics of the viscosification, rheological behaviors, viscoelasticity and seepage of the polymer and glycerin were tested, and moreover the experimental researches on the displaced effects of the two solutions (same－viscosity glycerin and polymer) and their injection orders were carried on the homogeneous and heterogeneous cores. The results show that with the increase of the concentrations, their viscosities are increased, but the polymer viscosifying ability is stronger than that of the glycerin. And with the increase of the shear rate, the apparent viscosity of the glycerin keeps constant, while that of the polymer solution is on the contrary.

20171156 Lu Zhiyi (School of Geosciences, China University of Petroleum, Beijing 102249, China); Yue Dali **Application of Stochastic Modeling Method in the Mouth－Bar Reservoir Architecture Modeling** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 29－35, 8 illus., 2 tables, 24 refs., with English abstract)

Key words: deltas, geological modeling

20171157 Lu Ziye (Department of Petroleum Geology, Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China); Chen Honghan **The Coupling Relationship between Hydrothermal Fluids and the Hydrocarbon Gas Accumulation in Ordovician of Shunnan Gentle Slope, Northern Slope of Tazhong Uplift** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 487－498, 10 illus., 2 tables, 47 refs.)

Key words: petroleum exploration, Xinjiang

Natural gas accumulation has become one of the hot spots in the current research. In this paper, 44 samples of the Ordovician in Shunnan area have been employed to make diagenetic observation, fluid inclusions measurement, carbon and oxygen isotope measurement and Raman spectrum, aiming to recognize the hydrothermal fluid flows and speculate the time of the hydrothermal fluid flows and the accumulation of the oil and gas. The silicified limestone and the calcite, quartz cement in the cracks and caves are the products of hydrothermal fluids, accompanied with the first stage of gas accumulation during late Hercynian－Indosinian.

20171158 Luo Shengyuan (Wuhan Center of China Geological Survey, Wuhan 430205, China); Wang Chuangshang **Shale Gas Research of Luzhai Formation, Low Carboniferous in Guizhong Depression** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(2), 2016, p. 180－190, 9 illus., 19 refs.)

Key words: shale gas, Guangxi

Many oil seepage and asphalt have been discovered in Guizhong Depression, which indicated a bright prospect in the geological setting of marine shale gas. This thesis focused on the black shale at the bottom of the Lower

返回目录

Carboniferous Luzhai Formation (C_1l) in this area. According to rich OM matter shale thermal maturity and combined with previous research, the northwest area of this depression, where faults is undeveloped and the thickness of capping rock exceed 180 m is the main target stratum of shale gas exploration areas.

20171159 Ma Debo (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); He Dengfa **Structural Features of Shear Fault System and Its Control on Hydrocarbon Distribution in Halahatang Area, North Tarim Basin** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 470－483, 11 illus., 1 table, 20 refs.)

Key words: shear zones, petroleum exploration, Tarim Basin

There are several groups of shear fault systems consisting of NE and NW main faults in Halahatang area, North Tarim Basin. The shear fault systems control the distribution of oil reservoirs. Based on the geophysical identification of shear fault, this paper analyzes the structural features of the shear fault system and its control on hydrocarbon distribution in the study area. Nine kinds of typical structural styles of shear fault are founded. The characteristic of stratified deformation in the study area is controlled by change of paleotectonic stress field. The structural features of the shear fault systems in Halahatang area determine the oil and gas distributes among multiple layers and concentrates along faults.

20171160 Meng Xuangang (School of Oil and Natural Gas Engineering, Southwest Petroleum University, Chengdu 610500, China); Du Zhimin **Seepage Characteristics and Their Affecting Factors for the Fractured Horizontal Cracks** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 73－77, 7 illus., 10 refs.)

Key words: fracturing, seepage flows

In order to break through the restrictions that the fractured horizontal fractures must be rounded, a more general elliptical horizontal fracture filtrating model was studied. Based on Newman's product method and thought of Green's function, the pressure response of the fractured horizontal cracks was given by the product of the elliptical source function in an infinite formation and the strip source function in the vertical strip－shaped formations. The seepage characteristics of the horizontal fractures were analyzed from both responses of the pressure and its derivative. The impacts of the comprehensive factor of the fractures and permeability, crack shapes, crack opening, crack location and other parameters on the flow characteristics were studied.

20171161 Miao Fengbin (Wuhan Center of China Geological Survey, Wuhan 430205, China); Wang Qiang **Shale Reservoir Characteristics of Ceshui Formation in Lianyuan Depression in the Middle of Hunan Province** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(2), 2016, p. 172－179, 6 illus., 1 table, 12 refs.)

Key words: shale, reservoirs

Based on the characteristics of "self－generation and self－accumulation" and "low porosity and lowpermeability", the study on shale reservoir is a key issue in the exploration and development of shale gas. Based on a vast amount of data from outcrops, well cores and experimental analysis, the reservoir characteristics of Ceshui Formation are analyzed in detail, such as the regional distribution, mineral composition, physical properties and gas content. The comprehensive evaluation indicates that the Ceshui Formation in Lianyuan Depression can be an excellent reservoir for shale gas.

20171162 Miao Qianyou (State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing

102249, China); Zhu Xiaomin **Breakthrough and Innovation of Traditional Petroleum Geological Theory and Unconventional Petroleum Resource Potential** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 505－516, 7 illus., 74 refs.)

Key words: unconventional petroleum, oil and gas resource

For the practice of petroleum exploration, the traditional petroleum geological theory has made great contributions to the development of petroleum industry. In the perspective of condition of unconventional hydrocarbon accumulation, "source" is not only the rock generating hydrocarbon, but also reservoir and target; tight rock can be effective reservoir; enclosed mechanism of unconventional hydrocarbon is different from the conventional hydrocarbon; continuous and quasi－continuous hydrocarbon accumulation is not controlled by traditional trap condition; detention and short distance migration can form hydrocarbon reservoir; the evaluation methods of storage conditions are not exactly the same as conventional hydrocarbon.

20171163 Miao Zhiguo (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China) **Influences of the Effective Driving Coefficient on the Development Effects of Low and Ultra－Low－Permeability Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 43－47, 3 illus., 5 tables, 19 refs., with English abstract)

Key words: low permeability reservoirs

20171164 Ou Chenghua (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum University, Chengdu 610500, China); Chen Wei **Geometric Analysis and Kinematic Simulation of Oblique－Thrust Fault－ Related－Fold of Buzurgan Anticline in Zagros Basin** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 385－393, 4 illus., 29 refs.)

Key words: petroleum exploration, Zagros Basin

Zagros Basin is one of the most important basins in the international petroleum industry because of its rich oil and gas resources and the complex structure system, and it is crucial to the understanding of the structural characteristics of Zagros Basin as to whether oblique－thrust fault－related－fold exist or not. Based on the fault－related－fold theories, and by using the dip angle domain analysis and fold axial plane analysis methods, geometrie analysis of the structure of Buzurgan anticline in Zagros Basin was carried out, and the time structure of To diagrams, the time domain horizontal slices and the seismic profiles parallel to the strike of the fault of Buzurgan anticline were made.

20171165 Pan Renfang (Key Laboratory of Exploration Technologies for Oil and Gas Resources, Ministry of Education, Yangtze University, Wuhan 430100, China); Chen Meiling **Characteristics of Shale Organic Matter Thermal Evolution in Paleogene Shahejie Formation in Jiyang Depression** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 277－283, 6 illus., 1 table, 40 refs.)

Key words: shale, thermal evolution, Jiyang Depression

Paleogene Shahejie Formation is investigated for its excellent shale oil potential in Jiyang depression, Bohai Bay Basin. Based on the detailed statistics of the pyrolysis geochemical parameters for five exploration wells for shale oil, the analyses of original total organic carbon (TOCo) of a source rock, the convertible carbon (Cc), the oil in place from S_1 and generation potential from S_2 etc., the characteristics of the shale organic matter thermal evolution of Shahejie Formation has been studied in this paper. The results suggest that Shahejie Formation shale (lower part

返回目录

of the 3rd and upper part of the 4th Member of Shahejie) is of particular exploration interest, which yields the maximum pyrolysis temperature (Tmax) values ranging from 423 ℃ to 450 ℃.

20171166 Pan Tao (School of Energy Resource, China University of Geosciences, Beijing 100083, China); Zhu Lei **Organic Matter Characteristics in Longmaxi Formation Shale and Their Impacts on Shale Gas Enrichment in Southern Sichuan** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 344－349, 9 illus., 23 refs.)

Key words: shale gas, enrichment, Sichuan Basin

Based on the drilling data, core samples, outcrop data and geochemical experimental analyses of core samples of Changning and Weiyuan region, the authors researched lower Silurian Longmaxi organic matter characteristics and their impacts on the enrichment regularity of shale gas. The results showed that the main types of organic matter are type I and II1 in the study region. Organic carbon content is very high (average TOC＝2.52%), and the thermal evolution level is high (R_o＝2.1% ～ 3.5%). The organic matter has strong influence on the enrichment of shale gas. Kerogen type determines the methane adsorption capacity, the organic carbon content, and thermal evolution level determines the amount of product and the content of gas in the shale.

20171167 Pan Tingting (Reservoir Geophysics Research Centre, BGP Inc. of PetroChina, Zhuozhou 072751, China); Zhang Feng **Evaluation of the Relative－Permeability－Curve Normalizing Method for the Different Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 78－82, 1 table, 17 refs., with English abstract)

Key words: reservoirs, permeability

20171168 Peng Xianfeng (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Deng Hucheng **Research and Application of Fracture Valid Characterization Approach in Daniudi Gas Field, Ordos Basin, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 320－325, 9 illus., 2 tables, 12 refs., with English abstract)

Key words: fractured reservoir, Ordos Basin

20171169 Qin Yong (Key Laboratory of Coalbed Methane Resources and Reservoir－Formation Process, Ministry of Education, China University of Mining and Technology, Xuzhou 221116, China); Wei Chongtao **Geological Controls of Free Natural Gas Reservoirs in Coal Measures and Overlying Strata in the Central and Southern Qinshui Basin** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 24－35, 9 illus., 3 tables, 24 refs.)

Key words: coal－formed gas, Shanxi Province

In the central and southern Qinshui Basin, the continuously－deposited Upper Carboniferous to Triassic strata constitute favorable hydrocarbon source－reservoir－caprock assemblage, the thermal evolution degree of the coal organic matters is high, the hydrocarbon generation and expulsion are intense, and CMG shows are very strong, which provides the abundant gas source and reservoiring prospects for CMG accumulator. Tectonic heat event during the middle Yanshan Movement led to the two strong secondary hydrocarbon generation and expulsion from the Permo－Carboniferous coal seams, providing a rich gas source for the shale and tight sandstone reservoirs in the coal measures and overlying strata.

20171170 Qiu Zhen (Research Institute of Pe-

troleum Exploration and Development, PetroChina, Beijing 100083, China); Tao Huifei **Source Rock Evaluation and Enrichment Conditions of Shale Oil for Lucaogou Formation in Jimsar Sag** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 533－546, 7 illus., 1 table, 48 refs.)

Key words: source rocks, shale, Junggar Basin

The source rocks of Lucaogou Formation in Jimusar sag, Junggar Basin is a set of excellent continental hydrocarbon source rock, and is also one of the hotspots of the shale oil and gas research in China. On the basis the examination of 580 meters of 18 well cores, observation of thin sections and organic geochemistry analysis, the rocks types and organic geochemistry characteristics of the source rocks were comprehensively studied. Through comprehensive study, the organic carbon content limit value of the high quality and effective source rock of the Lucaogou Formation hydrocarbon source rocks was 2.0%. Meanwhile, the hydrocarbon source rocks with TOC≥2.0% were also the favorable layers for shale oil in the Jimusar sag.

20171171 Ren Guoling (School of Biotechnology, Daqing Normal University, Daqing 163712, China); Zhang Hong **Field Test Effects of the Endogenous Microbial Flooding in Daqing Oilfield** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 97－100, 3 tables, 29 refs., with English abstract)

Key words: microorganisms, petroleum exploration

20171172 Ren Junfeng (PetroChina Changqing Oilfield Company, Xi'an 710018, China); Yang Wenjing **Discussion on Characteristics and Origin of Majiagou Formation Dolomite Reservoir in Ordos Basin, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 274－281, 5 illus., 4 tables, 15 refs., with English abstract)

Key words: dolostone deposit, reservoirs, Ordovician, pore, Ordos Basin

20171173 Shang Xiaosen (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Ding Yunhong **Horizontal Well Fractured Modes in the Gas Reservoirs Based on the Permeability Gradings** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 60－65, 6 illus., 2 tables, 27 refs.)

Key words: oil and gas reservoir, horizontal wells, fracturing

Horizontal well fracturing is the important technique to develop low－permeability oil－gas reservoirs, especially the unconventional gas resources, including the following three typical segmentation fracturing forms: conventional, fine staged and fracture network ones. With the help of the numerical simulation, taking the permeability as the quantitative index, the optimizing standard of the horizontal well fracturing methods in the gas reservoirs is established on the basis of the permeability gradings. The achievements show that under the conditions of equal fractured scale and equal controlled area, the latter is advantageous than the former two, but with the rise of the permeability, the preference is decreased gradually. And moreover the advantage of the latter－fracture network fracturing can be further subdivided into absolute, relative and inconspicuous ones.

20171174 Shen Zhongshan (No. 4 Oil Production Plant of Daqing Oilfield Co., Daqing 163511, China); He Xin **Geological Characteristics of the Faulted Zone in North Xingshugang Oilfield of Songliao Basin** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 22－25, 6 illus., 11 refs., with English ab-

返回目录

stract)

Key words: oil fields, fracture zones, Songliao Plain

20171175 Shi Ning (Shenzhen Branch, CNOOC, Guangzhou 510240, China) **Gravity Flow Channel Lithologic Traps in the eastern Part of the Deep－Water Areas of the Baiyun Depression** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(2), 2016, p. 75－80, 4 illus., 15 refs.)

Key words: traps, petroleum exploration, Guangdong Province

During the early Miocene, there occurred two types of sedimentary facies zones intersecting each other in the eastern part of the deep－water area of the Baiyun depression: one is the deep－water gravity flow channel sandstone deposits in the ancestral Zhujiang delta source system, and the other is the carbonate rock canyon channel deposits in the Dongsha uplift platform organic reef source system. The integration of sequence stratigraphic, sedimentological and structural analysis has disclosed that beneath the 21.0 Ma shelf break in the eastern part of the deep－water area of the Baiyun Depression, the excellent banded gravity flow channel sandstones developed in the early lowstand systems tract may contribute to important oil and gas reservoirs of the lithologic traps.

20171176 Song Chuanzhen (Petroleum Exploration and Production Research Institute, SINOPEC, Beijing 100083, China); Lin Changzhi **Study on Composite Steam Stimulation with Carbon Dioxide and Chemical Agents of Low Permeability Heavy Oil Reservoir** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 336－343, 18 illus., 4 tables, 17 refs., with English abstract)

Key words: low permeability reservoir, viscous crude oil

20171177 Song Jiaxuan (Department of Geology, State Key Laboratory of Continental Dynamics, Northwest University, Xi'an 710069, China); Gong Hujun **Oil－Controlling Factors Analysis of Chang 2 Reservoir of Bailangcheng and Resiwan Oilfield in Ordos Basin** (Journal of Northwest University, ISSN1000－274X, CN61－1072/N, 46(2), 2016, p. 261－270, 8 illus., 5 tables, 37 refs.)

Key words: reservoirs, Ordos Basin

Bailangcheng and Resiwan are two close Oilfields which deposited in delta plains environment in Ordos Basin. They have been found great different in properties in Chang 2 reservoir. The main aim of this study is to analyze the oil－controlling factors of the Chang 2 reservoir in the two oilfields based on electron microscope(SEM), casting thin－sections and X－ray diffraction dataset. The study suggests that Chang 2 reservoir of these two oilfields is the low－porosity and low－permeability reservoir type, but the reservoir property in Resiwan oilfield is poorer. The main controls of reservoir characteristics are sedimentation as well as digenesis processes.

20171178 Song Yan (Research Institute of Petroleum Exploration and Development, PetroChina, Beijing 100083, China); Liu Shaobo **Research on Formation Model and Geological Evaluation Method of the Middle to High Coal Rank Coalbed Methane Enrichment and High Production Area** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 1－9, 11 illus., 2 tables, 31 refs.)

Key words: coal－formed gas, enrichment

In this paper, considering the geological characteristics of the middle to high rank coal bearing basins in China, three different middle to high coal rank CBM production fields including the south of Qinshui Basin, the east of Ordos Basin and Lianghuai coal mines were chosen as the study fields. Combining the analysis of geological factors statistics, and the experimental and production data, the results indicate that the coupling of gas content and

permeability of coal reservoir determine the formation of enrichment and high production area.

20171179 Sun Yaoting (School of Geosciences in China University of Petroleum, Geo—Science Research Institute, Shengli Oilfield Company of SINOPEC, Qingdao 266580, China); Sun Chao **Controlling Factors of Mesozoic Igneous Rock Reservoirs in Zhuangxi Area of Jiyang Depression, Shandong Province, China** (Journal of Chengdu University of Technology, ISSN1671—9727, CN51—1634/N, 43(3), 2016, p. 257—265, 8 illus., 21 refs.)

Key words: igneous reservoir, Mesozoic, mineralization controls, Jiyang Depression

The Mesozoic igneous rocks reservoirs develop in Xiwa Formation and Mengyin Formation of the Zhuangxi area. This paper analyzes the igneous rock reservoir spaces and the controlling factors of the reservoirs. The results show that there mainly develop three types of reservoir spaces in the igneous rocks. They are the pores, the dissolution pores within matrix and the structure cracks. The reservoir physical properties are controlled by lithology, petrographical facies and diagenesis. Almond hole—shape andesite and volcanic breccia are transformed by tectonic movement and dissolution to form a large number of structural cracks connecting pores and dissolved pores, and have good reservoir properties.

20171180 Sun Zhenglong (No. 1 Factory Xinjiang Oilfield, PetroChina, Karamay 834000, China); Xin Junwu **Geochemical Characteristics of Reservoir Oil Layers in the Hongshanzui Oilfield, Junggar Basin** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 332—334, 8 illus., 1 table, 5 refs.)

Key words: mud logging, oil reservoirs, Junggar Basin

Abnormal gas logging display makes oil—gas—water interpretation and discovery of oil reservoirs difficult in the Hongshanzui oilfield, Junggar basin. This study selects the core and crude oil samples of anomalous display to analyze the geochemical logging characteristics in order to find out the characteristics of oil reservoir with anomalous display in this area. From the study it is concluded that the peaks spectra of thermal chromatography for crude oil with high density in the Hongshanzui oilfield focus on S21 and S22. The peak spectra of gas chromatography are dome—shaped and light hydrocarbon components are invisible.

20171181 Tian Shuofu (College of Resources and Environment Engineering, Guizhou University, Guiyang 550025, China); Yang Ruidong **Lithofacies and Paleogeography Evolution and Characteristics of Shale Gas Accumulation in Lower Carboniferous, Guizhou Province, China** (Journal of Chengdu University of Technology, ISSN1671—9727, CN51—1634/N, 43(3), 2016, p. 291—299, 6 illus., 3 tables, 16 refs., with English abstract)

Key words: shale gas, Lower Carboniferous, lithofacies paleogeography, Guizhou Province

20171182 Wang Chaoping (School of Geosciences, Yangtze University, Jingzhou 434023, China); Liu Tiantian **Depositonal Systems in the Middle Jurassic Shaximiao Formation in the Central Part of Western Sichuan Depression** (Sedimentary Geology and Tethyan Geology, ISSN1009—3850, CN51—1593/P, 36(2), 2016, p. 62—66, 2 illus., 1 table, 26 refs.)

Key words: petroleum exploration, Sichuan Province

In the light the provenance and seismic analysis, two depositonal systems are recognized for the Middle Jurassic Shaximiao Formation in the central part of western Sichuan Depression, including the alluvial fan—alluvial plain (braided stream)—braided delta—lake depositional system controlled by the Longmenshan provenance in the western part, and alluvial plain (meandering stream)—meander-

返回目录

ing delta—lake depositional system controlled by the Micangshan—Dabashan provenance in the eastern part. The oil and gas accumulations reside mostly in the meandering stream—meandering delta depositional system in the eastern part. The knowledge of the depositional systems in this study may be helpful to the future exploration and development of the oil and gas resources in the study area.

20171183 Wang Chuang (Key Laboratory of Oil & Gas Resources and Exploration Technology, Ministry of Education, Wuhan 434020, China); Hu Wangshui **The Evolution of Barrier Bar Sand Body and Reservoir Property under the Sequence Stratigraphic Framework in Taiyuan Group 2 Formation in Daniudi Gas Field, Ordos Basin, China** (Journal of Chengdu University of Technology, ISSN1671—9727, CN51—1634/N, 43(3), 2016, p. 354—361, 5 illus., 1 table, 22 refs., with English abstract)

Key words: gas fields, sand bodies, Ordos Basin

20171184 Wang Dengfang (College of Earth Science, Chengdu University of Technology, Chengdu 610059, China); Liu Ming **Distribution Characteristics of Dark Mudstone and Geochemical Characteristics in Chang—7 of Yanchang Formation in Northern Jiyuan, Ordos Basin** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(2), 2016, p. 92—98, 6 illus., 5 tables, 24 refs.)

Key words: mudstone, petroleum exploration, Ordos Basin

The distribution characteristics, organic abundance, organic matter type and maturity of organic matter of dark mudstones in the Chang 7 reservoir of Jiyuan area are systematically studied on the basis of observation of drilling wells of Feng4, Jing5, Feng 6 and Jing1 and statistics of over 100 wells for mudstone thickness log interpretation. It reveals that the highest pyrolysis peak temperature (Tmax/℃) reaches 448 ℃, suggesting that the mudstone generally enter the mature stage. Therefore, organic matters in the dark mudstones have high abundance and enter their mature stage, a excellent potential for oil and gas source rocks.

20171185 Wang Duanyang (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Ji Nanyu **Improvement on the Determinating Method of the Polymer Content in the Produced Water** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 116—119, 4 tables, 10 refs., with English abstract)

Key words: petroleum, production

20171186 Wang Gaiyun (Key Laboratory of Marine Mineral Resources, Guangzhou Marine Geological Survey, MLR, Guangzhou 510075, China); Liu Jinping **Characteristics and Genetic Mechanism of Tight Sandstone Reservoirs of Lower Crataceous in North Yellow Sea Basin** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(3), 2016, p. 523—532, 7 illus., 1 table, 24 refs.)

Key words: reservoirs, Yellow Sea

By core observation, thin section analysis, scanning electron microscope observation, mercury penetration analysis, porosity and permeability statistics, the reservoirs characteristics of Lower Cretaceous in eastern depression in North Yellow Sea Basin were researched in this paper. According to deposition, diagenesis, burial history, and so on, the origin mechanism of tightness of the reservoirs was analyzed. The results show that the sedimentary facies type of reservoirs is mainly fan delta. Reservoir physical properties are poor, belonging to extra—low porosity and extra—low permeability tight sandstone reservoirs. Main reservoir spaces are corrosion pores between grains or in grains and a few micro—fractures.

20171187 Wang Guanmin (School of Geosci-

ences, China University of Petroleum (East China), Qingdao 266580, Chma); Xiong Zhouhai **Genetic Types of the Fracture and Its Control on Hydrocarbon Accumulation in Bozhong Sag** (Journal of Geomechanics, ISSN1006－6616, CN11－3672/P, 22(2), 2016, p. 346－356, 6 illus., 34 refs.)

Key words: fractures, pool－formed model, mineralization controls, Bohai Sea

Based on numerous seismic interpretations to Bozhong sag, the study classifies the fracture of Neogene and Paleogene into four types in terms of the process of faults development. They are extinct fracture, inheritance fracture, inheritance－reformed fracture, and new fracture. Combined with the current statistics of reservoir, the analysis shows that each type has a different effect on the hydrocarbon migration and accumulation.

20171188 Wang Jianbo (Research Institute of Petroleum Exploration and Development, SINOPEC Northeast Petroleum Branch, Changchun 130062, China); Gao Yuncong **Response Characteristics of CO_2－Immiscible－Flooding Wag in the Ultra－Low Permeability Oil Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 116－120, 2 tables, 19 refs., with English abstract)

Key words: low permeability reservoir, oil and gas migration, carbon dioxide

20171189 Wang Jue (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Chen Huanqing **Configuration Characterization of the Fan－Delta－Front Reservoirs——Taking Yulou Oil Layers in West Liaohe Sag as a Case** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 20－28, 6 illus., 1 table, 35 refs., with English abstract)

Key words: fan deltas, Liaohe River

20171190 Wang Ke (Research Institute, CNOOC, Beijing 100028, China); Zhang Yang **Characteristics and Thermal Evolution History of Source Rocks in the Wenchang－A Sag, Pearl River Mouth Basin** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 196－203, 8 illus., 4 tables, 40 refs.)

Key words: source rocks, Zhujiangkou Basin

In order to better understand the process and mechanism of hydrocarbon accumulation and identify the source rock potential of Wenchang－A sag in Pearl River mouth basin, this study uses the technique of basin modeling to reconstruct the thermal evolution history in the study area based on the analysis of source rock distribution, organic matter abundance, types and maturation. The result shows that each layer of source rock of the Wenchang－A sag is widespread, with a high organic matter abundance and a large thickness. The organic matter of Wenchang Formation is of type II1; while that of Enping Formation, type III.

20171191 Wang Kun (Research Institute of Petroleum Exploration and Development, PetroChina, Beijing 100083, China); Ren Xincheng **Migration Pathway System of the Reservoir in Shawan Formation in Chepaizi Salient, Junggar Basin** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 350－359, 7 illus., 4 tables, 30 refs.)

Key words: oil and gas reservoir, Junggar Basin

The Neogene Shawan Formation is one of the important hydrocarbon－rich strata in Chepaizi salient. Based on the analysis of reservoir distribution and oil nature, coupled with results of previous studies, the accumulation process of Shawan hydrocarbon is divided into two stages: paleoreservoir stage and secondary adjustment stage. The migration pathway systems and their spatial combinations are discussed.

20171192 Wang Qiang (Wuhan Center of Chi-

返回目录

na Geological Survey, Wuhan 430205, China); Bai Yunshan **Study on Mineral Composition and Brittleness Characteristics of the Ceshui Formation Shale in Lianyuan Depression** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(2), 2016, p. 166—171, 3 illus., 1 table, 18 refs.)

Key words: shale gas, Hunan Province

The mineral com position and brittleness characteristics of the Ceshui Formation in Lianyuan depression were studied by X—ray diffraction (XRD) in this paper. The results showed that the Ceshui Formation in Lianyuan depression has complexes mineral com position. The quartz content is most abundant, average of 72.61%, respectively the minor component is clay, average of 19.46%. In general, the mineral com position characteristics of the Ceshui Formation in Lianyuan sag are similar to Woodforth shale in the North America.

20171193 Wang Rui (No.3 Oil Production Plant of Daqing Oilfield Co., Daqing 163113, China) **Identification and Distribution Characteristics of the Internal Interbeds in the Thick Sandbodies of the Braided River** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 83—87, 3 illus., 1 table, 22 refs., with English abstract)

Key words: reservoirs, sand bodies, three—dimensional models, Heilongjiang River

20171194 Wang Shaoyong (Research Institute of Petroleum Exploration and Development, CNPC, Beijing 100083, China); Wang Shejiao **Reservoir Property and Pore — Throat Characteristics of Mixed Tight Sedimentation: A Case Study of Dujiatai Pay Set in Leijia District, Western Liaohe Depression** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(2), 2016, p. 448—459, 5 illus., 37 refs.)

Key words: reservoirs, Liaohe River

Due to the mineral composition complexity, mixed tight sedimentation develops complicated pore structures and varies reservoir properties. The mixed tight dolomite—analcite sedimentation has tight oil resource potential in Dujiatai pay set in the fourth Member of Shahejie Formation in Leijia district, western Liaohe depression. The mixed tight reservoir were divided as dolomicrite, fine grained diamictite and analcimolith based on X—ray powder diffraction (XRD) analysis.

20171195 Wang Shibo (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Tang Yifu **Oil and Gas Distribution Laws of Heidimiao Reservoirs in South Placanticline—Gulong Area** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 10—15, 4 illus., 1 table, 25 refs., with English abstract)

Key words: structural reservoir, lithologic reservoir

20171196 Wang Shibo (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Liu Jianning **Characteristics of Formation S0 Oil Reservoir and Trap Prediction in Aogula Area of Songliao Basin** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2016, p. 1—6, 5 illus., 1 table, 34 refs., with English abstract)

Key words: oil reservoirs, reservoir prediction, Songliao Plain

20171197 Wang Wei (SINOPEC, Exploration Company, Chengdu 610041, China); Huang Manning **Main Controlling Factors of the Tight Sandstone Gas Reservoir of Upper Triassic Xujiahe Formation in Yuanba Area, Sichuan Province, China** (Journal of Chengdu University of Technology, ISSN1671—9727, CN51—1634/N, 43(3), 2016, p. 266—273, 6 illus., 8 refs., with English abstract)

Key words: tight sands, mineralization controls

20171198 Wang Xiabin (Energy Institute, China University of Geosciences, Beijing 100083, China); Jiang Zaixing **Controls of Multistage Slope Breaks on the Hydrocarbon Traps in Beixi Slope of Hailaer Basin** (Geological Journal of China Universities, ISSN1006—7493, CN32—1440/P, 22(2), 2016, p. 360—367, 9 illus., 17 refs., with English abstract)

Key words: traps, Hailar Basin

20171199 Wang Weiming (State Key Laboratory o f Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Li Yong **Correlation of Sandstone Framework with Sandstone Porosity ——By the Example of the Xujiahe Formation in the Middle Longmenshan** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 191—194, 7 illus., 1 table, 15 refs.)

Key words: porosity, reservoirs

A study of drill cores from the Chuanke—1, WFSD—1 and WFSD—3 wells and outcrop specimens indicates that sandstone of the Xujiahe Formation in the Longmenshan foreland basin consists of terrigenous detrital and authigenic minerals as well as clay minerals. Calculation of sandstone porosity and study of correlation of sandstone framework with sandstone porosity show that the Longmenshan foreland basin was a continental basin with small area, proximal provenance and rapidly changing sedimentary facies which resulting in potential gas accumulation reservoir.

20171200 Wei Dong (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Ma Zhonghao **Mesozoic — Cenozoic Structure Characteristics and Coexisting Relationships of Multiple Energy Minerals in Weibei Uplift of Ordos Basin** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(3), 2016, p. 355—364, 4 illus., 2 tables, 31 refs.)

Key words: energy sources, Ordos Basin

On the basis of analyzing and summarizing the spatial distribution and genetic relationship of multiple energy minerals, the relationship between period of tectonic movement, sedimentary formation, characteristics of tectonic unit, fold structure and multiple energy minerals were discussed according to the characteristics of tectonic evolution. The results show that the basin formation—differential uplift in Indosinian—Early Yanshanian forms the stable deep and semi—deep lacustrine facies containing oil shale and the unstable swamp facies containing coal sedimentary formation in Weibei uplift.

20171201 Wei Kai (Wuhan Center of China Geological Survey, Wuhan 430205, China); Chen Xiaohong **Geochemical Characteristics of Black Shale Series from Wufeng — Longmaxi Formation in Wulong Area, Zigui County, Hubei Province and Its Significance for Shale Gas** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(2), 2016, p. 135—141, 3 illus., 1 table, 13 refs.)

Key words: shale gas, Hubei Province

Trace elements and Total Organic Carbon (TOC) content of black shale in Wufeng—Longmaxi Formation from Wulong section in Zigui County, Hubei Province are analyzed. The results show that the U/Th, Ni/Co, V/Cr and V/Sc ratios can indicate the variation of redox conditions and sea level, as well as the strata loss at Ordovician—Silurian boundary. By comparing the consecutive thickness of organic—rich shale, TOC values and gas—bearing of Wulong section and its adjacent region, we suggest that there exists a paleogeographic framework with alternating uplifts and depressions in Wulong, Guluoping and Jiuwanxi area. This conclusion may be of significance to predict the potential development area

返回目录

of shale gas in the region.

20171202 Wen Quan (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China) **Differences of the Hydrocarbon Accumulation near the Faults in Different Migration Directions** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 26－30, 4 illus., 33 refs., with English abstract)

Key words: fractures, oil and gas migration, oil and gas accumulation

20171203 Wu Jin(Langfang Branch of Petroleum Exploration and Development Research Institute, PetroChina, Langfang 065007, China); Liang Feng **Characteristics of Micropore Structure of Longmaxi Formation Shale Gas Reservoirs in Northeast District of Chongqing, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, 43(3), 2016, p. 308－319, 7 illus., 2 tables, 39 refs.)

Key words: shale gas, reservoirs, pore structure, Chongqing

Field－emission environmental scanning electron nitrogen adsorption and high－pressure mercury injection are characterize the micropore structures and their morphology, pore－size distribution from drilling Well WX－1 core samples microscope (FE－SEM), low－pressure used to qualitatively and quantitatively connectivity, specific surface area and of Lower Silurian Longmaxi Formation shale in Northeast Chongqing. The pore－size distributions of different experiments are comprehensively analyzed to gain a fine characterization from microscopic scale to macroscopic scale. It shows that there are five kinds of pores types of the shale. Distribution of the organic nanopores exhibits non－uniformity duo to the burial compaction. It also reveals that the pore structures of the shale gas reservoir of Longmaxi Formation are relatively complex and mostly in open shapes and there are some ink－bottle－like pores and blind pores which influence the flow of gas.

20171204 Wu Qilin (College of Geosciences, Chengdu University of Technology, Chengdu 610059, China); Fang Zhongyu **Application of Multi－Attribute Inversion Method in Reservoir Prediction: A Case Study of Lufeng A Area in the Pearl River Mouth Basin** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 415－424, 5 illus., 31 refs.)

Key words: reservoirs, Zhujiangkou Basin

This paper integrate s the seismic data, logging and geological data, and concludes that the P－wave impedance and Vp/Vs are the sensitive parameters of lithology identification. On the basis of seismic amplitude and the properties of frequency division and prestack inversion, the relationship between the property and porosity is analyzed by using multi－attribute inversion method. The results of multi－attribute inversion show porosity generally above 18% in the northeast and the west of the study area, which belongs to the reservoir type of beach sand and dam sand, and it is a thick layer.

20171205 Wu Xiaozhi (Research Institute of Petroleum Exploration and Development, PetroChina, Beijing 100083, China); Zhao Yumei **Geological Characteristics and Tectonic Evolution of Alxa Terrane in the Northern Qilian Mountain** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 547－560, 7 illus., 22 refs., with English abstract)

Key words: petroleum exploration, Qilian Mountains

20171206 Wu Zhiping (School of Geoscience in China University of Petroleum, Qingdao 266580, China); Zhang Jing **Development Characteristic of Strike－Slip Duplex in the Eastern Part of Liaodong Bay Depression and Its Petroleum Geological Significance** (Acta

Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(5), 2016, p. 848－856, 8 illus., 34 refs.)

Key words: strike－slip faults, oil and gas reservoir, Liaoning Province

On the basis of the analogy analysis of structural characteristics and the theoretical model of strike－slip duplex, this paper studies the development characteristic of strike－slip duplex in the eastern part of Liaodong bay depression and its petroleum geological significance along with practical achievement of hydrocarbon exploration. The results indicate that, controlled by the multi－dynamic source geology background caused by the coexistence of strike－slip and extension, the Cenozoic tectonic evolution of Liaodong Bay Depression reflects a superposition effect of rift and depression as well as extension and strike－slip.

20171207 Xie Chaoyang (Hailer Petroleum Exploration and Development Headquarters, Hulunbeir 021008, China); Shang Litao **Research and Test of Large－Scale Inside－Seam Steering Fracturing Technique** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 66－69, 4 illus., 1 table, 20 refs., with English abstract)

Key words: hydraulic fracturing, Hailar Basin

20171208 Xu Jin (Wuxi Research Institute of Petroleum Geology, SINOPEC, Wuxi 214151, China); Xi Binbin **Geochemical Characteristics of Synthetic Hydrocarbon Inclusions in Rock Salt－ Crude Oil and Their Implication for Oil Source Comparison** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 389－396, 4 illus., 31 refs., with English abstract)

Key words: oil－source rock correlation, chromatography, mass spectrometry

20171209 Xu Mo (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Southwest Petroleum University, Chengdu 610500, China); Guo Xiao **New Productivity Evaluating Method of the Water－Producing Gas Well in Low－Permeability Gas Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 64－68, 6 illus., 1 table, 12 refs.)

Key words: low permeability reservoir, productive capacity

According to the field production and operation conditions, the water－gas mass ratio is variable under the working condition of the water－producing gas well, if the mass ratio is regarded as the constant value to analyze the productivity of the gas well, wrong results will occur. Therefore, considering the water－gas mass ratio changed with different working systems, taking the stress sensitivity, start－up pressure gradient, gas slippage effect and skin contamination into consideration, the productivity formula is deduced for the water－producing gas wells based on stable percolation theory.

20171210 Yan Jianping (Sichuan Key Laboratory of Natural Gas Geology, Chengdu 610500, China); Wen Danni **The Quantitative Evaluation Method of Low Permeable Sandstone Pore Structure Based on Nuclear Magnetic Resonance (NMR) Logging** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1543－1552, 7 illus., 5 tables, 29 refs.)

Key words: low permeability reservoirs, geophysical logging, nuclear magnetic resonance, pore structure, Dongying Sag

The low permeability sandstone reservoir, which has been an important target of exploration and development for oil and gas increase in reserves and production, is difficult to identify accurately because of the complex pore structure. The pore structure classification of complex low permeability sandstone and the investigation of the petrol－physical diversity of rock samples in different types are

返回目录

helpful to determine the reservoir type and the fluid properties of low permeability sandstone reservoir.

20171211 Yan Ruitao (College of Geoscience, China University of Petroleum, Beijing 102249, China); Zeng Lianbo **Fracture Development Characteristics and Its Formation Mechanism in Lower Member 1 Shahejie Biolithite Reservoir, Z Oilfield, Bohai Bay** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(2), 2016, p. 484－493, 8 illus., 33 refs.)

Key words: petroleum exploration, Bohai Bay

Based on cores, thin sections and FMI data, the characteristics and controlling factors of natural fractures in biolimestone reservoir in Lower Member 1 of Shahejie Formation in Bohai Bay area were studied. The formation mechanism was then analyzed. The results showed that fractures were mostly generated by structure movement and diagenesis. The fractures caused by structure movement could be further divided into shear fractures and extension fractures. The fractures formed in early stage were largely NE－SW normal fault style fractures and the fractures in late stage were mainly NE－SW, NW－SE shear fractures and near EW extensional fractures.

20171212 Yang Haibo (Chinese Academy of Geological Sciences, Beijing 100037, China); Wang Hongwei **Distribution Laws, Geochemical Characteristics and Evaluation Optimization of the Oil Shale in Daqing Peripheral Exploration Basins** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 148－153, 2 illus., 5 tables, 12 refs., with English abstract)

Key words: oil shale, geochemistry, Songliao Plain

20171213 Yang Xiao (State Key Laboratory of Petroleum Resources and Prospecting, Institute of Unconventional Natural Gas Research, China University of Petroleum, Beijing 102249, China); Jiang Zhenxue **A Comparative Study on Whole－Aperture Pore Structure Characteristics between Niutitang and Longmaxi Formation of High－Maturity Marine Shales in Southeastern Chongqing** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 368－377, 8 illus., 4 tables, 32 refs.)

Key words: shale gas, pore structure, Chongqing

In order to deepen the understanding of this complexity, the authors analyzed the whole－aperture pore structure characteristics of two sets shales using a combination of field－emission environmental scanning electron microscope (FEI－SEM), high－pressure mercury injection and low－temperature gas (N_2 and CO_2) adsorption experiments. The results show that the pore volume of the Niutitang and Longmaxi formations were in the range of 0.020 2～0.040 2 mL/g and 0.025 5～0.031 0 mL/g, respectively.

20171214 Yang Xinliang (School of Petroleum Engineering, Northeast Petroleum University, Daqing 163318, China); Zhou Hongliang **Determination of the Reasonable Shut－In Pressure Measuring Times in the Low－Permerbility Oil Reservoir** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 69－72, 2 illus., 1 table, 19 refs.)

Key words: low permeability reservoir

In order to improve the reliability of well test interpretation and reduce the production lose due to the well shut－in, the researches on the reasonable pressure measuring time are conducted for the low－permeability oil reservoir. By means of the pressure buildup curve and considering the influences of the borehole storage and skin effects, the determing methods for conventional shut－in time are presented; in the consideration of the effects of the boundaries and oil drainage radius on the time, and moreover with the help of the semi

—log plot regression, the mathematical expression between the investigation radius and shut—in time is obtained.

20171215 Yao Tingting (Key Laboratory of Oil and Gas Resources and State, School of Earth Science, China University of Petroleum, Beijing 102249, China); Bao Zhidong **Diagenesis and Causes of Tight Sandstone of Chang 8 Reservoirs in the West of Jiyuan Oilfield of Ordos Basin** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(2), 2016, p. 99—111, 14 illus., 3 tables, 8 photos, 24 refs.)

Key words: reservoirs, Ordos Basin

The lithology, characteristics of physical property are analyzed and the diagenetic types, stages, diagenetic evolution sequence, diagenetic environment are studied on the basis of observation of drilling core, identification of thin sections, combined with the analysis of SEM, CL, X—ray, so as to explore the cause of formation of dense Chang 8 reservoirs in the west of Jiyuan Oilfield. The reservoir physical properties of underwater diversion channel are well developed with 8%～18% porosity and 0.3×10^{-3}～14×10^{-3} permeability.

20171216 Yi Wei (PetroChina Coalbed Methane Company Limited, Hancheng 715400, China); Xiong Xianyue **Heterogeneity and Significance of Coal Reservoir of Upper Paleozoic in Southeast Margin of Ordos Basin** (Geological Journal of China Universities, ISSN1006—7493, CN32—1440/P, 22(2), 2016, p. 378—384, 6 illus., 4 tables, 15 refs.)

Key words: coalbed gas, Ordos Basin

Systematic studies were conducted on coal reservoir in terms of rock characteristics, physical characteristics, adsorption characteristics, and gas characteristics. The results showed that the 3, 5, 11 coal seam, with stable distribution and large thickness, is the main target for exploration and development of coalbed methane. Half—bright coal seam and semi—dark coal with high vitrinite content has better fracture resistance, whereas a low ash—lean coal was also found, with anthracite and a small amount of high grade coal identified in some sections. The authors found that coal rock porosity and permeability are low, showing strong adsorption, short adsorption time and the higher desorption rate.

20171217 Yue Yaodong (Jilin College of the Earth Sciences, Changchun 130021, China); Zhu Jianwei **Geological Modeling and Optimizing Horizontal Well Design for Well Block L126 in Longhupao Oilfield** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 88—93, 5 illus., 1 table, 15 refs., with English abstract)

Key words: oil and gas reservoir, geological modeling, numerical simulation

20171218 Zeng Xiongwei (Wuhan Center of China Geological Survey, Wuhan 430205, China); Wang Chuanshang **On the Sedimentary Facies of Middle Cambrian Tianheban Formation in Yichang, Hubei Province and Its Hydrocarbon Significance** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(2), 2016, p. 142—148, 6 illus., 9 refs.)

Key words: natural gas, Hubei Province

Based on outcrop sedim entary facies analysis of Fenghuangping section, Yichang, Hubei, this paper argues that the Tianheban Formation mainly formed in restricted to open subtidal zone. In addition, shallow shelf facies at the bottom and tidal flat facies in the lower and top part were also developed. According to the Y D—2 well cores, it is considered that the natural gas accumulation of the Tianheban Formation in Y D—2 well is partly related to the fracture, but it is more important to the palaeokarst reservoir. The authors conclued that the natural gas source in the Niutitang Formation shale gas, but the possible oil cracking could not be rule out.

20171219 Zhang Guotao (Wuhan Center of China Geological Survey, Wuhan 430205, China); Chen Xiaohong **Physical Property Characteristic of Permian Shale Reservoir in the Shaoyang Depression, Central Hunan Province** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(2), 2016, p. 149—158, 6 illus., 4 tables, 27 refs.)

Key words: shale, reservoirs, Hunan Province

In an attempt to elucidate the physical properties of the Permian shale reservoirs in the Shaoyang sag, the authors investigated mineral com position and content of shales by using X—ray diffraction method, and measuring surface area and pore volume of shales by the method of BET (low temperature nitrogen adsorption method), then discussed the controlling factors of the physical properties of reservoir through combing with the organic geochemistry of shale reservoir.

20171220 Zhang Jian (Exploration and Development Institute of Southwest Oil & Gas Field Company, PetroChina, Chengdu 610050, China); Wang Lansheng **The Development and Application of the Evaluation Method of Marine Shale Gas in Sichuan Basin** (Natural Gas Geoscience, ISSN1672—1926, CN62—1177/TE, 27(3), 2016, p. 433—441, 11 illus., 3 tables, 24 refs.)

Key words: shale gas, Sichuan Basin

A set of shale with high quality, high maturity, large abundance and good type of organic matter exist at the bottoms of Cambrian and Silurian in Sichuan Basin, which are favorable target of shale gas exploration and development. Through characteristic parameter research of petromineralogy, organic geochemistry, gas content and physical properties, the authors confirm Longmaxi Formation is the main strata of shale gas exploration at the stage. Combined with exploration and producing practice, the authors put forward the optimization methods of shale gas favorable area, producing area and core producing area. And practice has proved that these methods are effective.

20171221 Zhang Jian (Institute of Geophysics, Research Institute of Exploration and Development, Xijiang Oilfield Company, PetroChina, Urumqi 830013, China); Cui Qin **Hydrocarbon Accumulation Conditions of the Lower Assemblage in Sikeshu Sag, the Southern Margin of Junggar Basin** (Xinjiang Geology, ISSN1000—8845, CN65—1092/P, 34(2), 2016, p. 269—274, 5 illus., 1 table, 11 refs.)

Key words: oil and gas reservoir, Junggar Basin

The lower assemblage refers to several reservoir—cap assemblages consisted of Tugulu Group of Lower Cretaceous and strata below in Sikeshu sag, the southern margin of Junggar basin. Three sets of source rocks develop in these regions where stores abundant resources but is low degree exploration. The well—developed reservoirs have high quality, such as the Upper Jurassic Qigu Formation and the Lower Cretaceous Qingshuihe Formation. Traps are mainly large structural ones. Faults connecting source rocks with reservoirs and unconformity between Jurassic and Cretaceous provide good passages of hydrocarbon migration.

20171222 Zhang Junfeng (PetroChina Exploration and Production Company, Beijing 100007, China); Bi Haibin **Applicability of the Predicting Method for the Oil and Gas Production and Their Reserves in the Tight Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 151—158, 8 illus., 4 tables, 25 refs., with English abstract)

Key words: reservoirs, petroleum, yields, reserves

20171223 Zhang Wangming (State Key Labo-

ratory of Petroleum Resource and Prospecting, China University of Petroleum, Beijing 102249, China); Zeng Jianhui **Hydrochemistry Characteristics and Origin of Formation Water of Paleogene and Neogene in the Western Qaidam Basin** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 558－568, 8 illus., 1 table, 42 refs., with English abstract)

Key words: hydrochemistry, water－rock interaction, dolomitization, chloritization, Qaidam Basin

20171224 Zhang Xiaobo (Chinese Academy of Geological Sciences, Beijing 100037, China); Zuo Zhaoxi **Interlayer Heterogeneity in Pore Structure of Shale Gas Reservoir in the Yima Area, Henan Province** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(3), 2016, p. 340－348, 10 illus., 16 refs.)

Key words: shale gas, reservoirs, Henan Province

The pore permeability of coal－bearing shale and the heterogeneity of the pore layer were characterized by using high－pressure mercury intrusion (HPMI), low－pressure nitrogen gas adsorption (LP－N2A) and pulse decaying permeability instrument (PDP). The main factors of heterogeneity between layers were analyzed. The results show that the micropores and mesopores of Upper and Lower Shihezi Formation shale are well developed, which provide attachment area and space for gas storage and transport. The macropores of Shanxi Formation are extensively developed, which provide space for gas storage. The relative error of pore volume and diameter of the Upper Shihezi Formation is very small, and the pore volume is distributed evenly. The relative error of specific surface area of Shanxi Formation is insignificant, the pore surface area is distributed evenly.

20171225 Zhang Xiuyun (No. 8 Oil Production Plant of Daqing Oilfield Co., Daqing 163514, China) **Differences in the Oil－Gas Accumulation by the Fault and Sandbody Match in Different Migration Directions** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 14－19, 7 illus., 23 refs., with English abstract)

Key words: pool－formed model

20171226 Zhang Xuejun (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China) **Fluorescence Spectra Analyzing Method and Its Application in the Oil Inclusions of the Tight Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 43－48, 5 illus., 1 table, 11 refs., with English abstract)

Key words: tight sands, fluid inclusions, fluorescence analysis

20171227 Zhang Zhongxun (No. 2 Oil Production Plant of Daqing Oilfield Co., Daqing 163414, China) **Calculating Methods of the Polymer－Flooding Controlling Degree Based on the Geological Model** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 111－115, 1 illus., 3 tables, 11 refs., with English abstract)

Key words: petroleum, production, three－dimensional models

20171228 Zhao Jianhua (College of Geosciences, China University of Petroleum, Beijing 102249, China); Jin Zhenkui **Main Diagenesis Controlling Factors for Longmaxi Formation Organic Matter－Rich Shale in Sichuan Basin** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 140－147, 4 illus., 1 table, 39 refs., with English abstract)

Key words: shale, mineralization controls, Sichuan Basin

20171229 Zhao Shuxia (Sinopec Key Laboratory of Marine Oil & Gas Reservoirs Produc-

返回目录

tion, Beijing 100083, China); Wang Rui **Ieffluences of the Dissolution on the Relative Permeabilities for CO_2 Flooded Low—Permeability Oil Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(3), 2016, p. 126—129, 5 illus., 1 table, 10 refs., with English abstract)

Key words: low permeability reservoir, solution

20171230 Zhao Wei (International Co. Ltd., CNOOC, Beijing 100027, China); Han Wenming **Petroleum Geology and Hydrocarbon Accumulation in the Albertine Graben, East Africa Rift** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 275—279, 3 illus., 10 refs.)

Key words: petroleum exploration, East Africa

The Albertine graben located in the northern part of the western branch of the East Africa Rift is a typical continental rift basin. Significant oil discovery means the excellent geological conditions in this basin. Miocene mudstone is main hydrocarbon resource with the kerogen type of I to II1. Multi—provenance from axial and lateral orientation can afford sufficient coarse—grained clastic sediments which can be the efficient reservoir for the oil and gas. This paper has a discussion on three kinds of accumulation models in different parts in this basin. There are still some large potential for the further exploration in basin transition zone and faulted anticline traps.

20171231 Zhou Guangzhao (School of Geosciences and Technology, Southwest Petroleum University, Chengdu 610500, China); Xu Chengyu **Numerical Value Analysis on Variable Characteristics of Elastic Property of Tight Sandstone Based on Porosity Perturbation Model** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(2), 2016, p. 112—120, 11 illus., 1 photo, 27 refs.)

Key words: porosity, tight sands, elasticity

Porosity has an important effect on formation rock elastic properties. The study of relation between porosity and rock elastic properties plays an important role in the physical modeling, design of well drilling and completion and interpretation of seismic well logging. Therefore, the effect of porosity effective stress coefficient on the elastic properties of tight sandstone of Shanxi and Taiyuan Formation in southern Qinshui Basin is discussed on the basis of the micro pores and heterogeneity of rock skeleton.

20171232 Zhou Lu (State Key Laboratory of Reservoir Geology and Development, Southwest Petroleum University, Chengdu 610500, China); Ren Benbing **The Seismic Response Feature and the Distribution Prediction of Oolitic Beaches of Feixianguan Formation in the Northern Sichuan Basin** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(2), 2016, p. 425—447, 23 illus., 2 tables, 39 refs.)

Key words: petroleum exploration, Sichuan Basin

Through well—seismic calibration of oolitic beach reservoir section and combined with analysis of seismic forward digital modeling, four seismic response patterns of corresponding various oolitic beach reservoir were established and anomalous characteristics of seismic response in different parts of the oolitic beach reservoir were summarized. Based on corresponding relations between seismic and sedimentary facies, sedimentary facies features of 1st, 2nd and 3rd members of Feixianguan Formation were recovered. Integrating seismic anomaly characteristics of oolitic beach reservoir and sedimentary facies distribution range, distribution characteristics in the region were predicted.

20171233 Zhou Xiang (Faculty of Resource, China University of Geosciences (Wuhan),

Wuhan 430074, China); He Sheng **Characteristics and Classification of Tight Oil Pore Structure in Reservoir Chang 6 of Daijiaping Area, Ordos Basin** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 253－265, 11 illus., 5 tables, 34 refs.)

Key words: reservoirs, Ordos Basin

Based on the data such as cast thin section, scanning electron microscope, X－ray diffractometry and mercury－injection, this paper has researched the micro－pore structure classification and evaluation of tight oil reservoir Chang 6 in Daijiaping area according to the feature and genetic analysis. The results showed that the reservoir space of reservoir Chang 6 is mainly characterized by intragranular dissolved pore and residual intergranular pore, and secondly by intergranular dissolved pore and debris dissolved pore associating with flaky, curved lamellar throat and necking throat mainly.

20171234 Zhou Yan (Laboratory of Structural and Sedimentological Reservoir Geology, Petroleum Exploration and Production, Research Institute of SINOPEC, Beijing 100083, China); Li Shuangjian **Characteristics of Paleo－structure and Hydrocarbon Accumulation of Marine Sequence in the Middle and Upper Yangtze Region** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(3), 2016, p. 365－377, 13 illus., 27 refs.)

Key words: oil and gas accumulation, Yangtze Plate

Based on the geology, drilling, seismic and test data, the depth maps of critical interface, erosion degree maps, paleo geological map, superimposed tectonic map and evolution profiles of paleo－structure were compiled, and the uplift and depression patterns of marine sequence were studied, and the petroleum migration and accumulation, and preservation conditions were analyzed. The results show that the uplift and depression patterns in Caledonian are dominated by EW and NE directions, and appear four depressions including West Hubei depression, South Sichuan depression, Southeast Guizhou depression and North Jianghan Basin depression, and three uplifts including Jiangnan－Xuefeng uplift, Middle Guizhou uplift and Leshan－Longnusi uplift.

20171235 Zhu Changyu (Key Laboratory of Petroleum Engineering, MOE, China University of Petroleum, Beijing 102249, China); Cheng Shiqing **Well－Test Analyzing Method with Three－Zone Composite Model for the Polymer Flooding** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 106－110., 6 illus., 16 refs., with English abstract)

Key words: petroleum, production

20171236 Zhu Hongtao (Key Laboratory of Tectonics and Petroleum Resources, China University of Geoscien, Wuhan 430074, China); Li Sen **The Types and Implication of Migrated Sequence Stratigraphic Architecture in Continental Lacustrine Rift Basin: An Example from the Paleogene Wenchang Formation of Zhu I Depression, Pearl River Mouth Basin** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 361－372, 9 illus., 36 refs.)

Key words: petroleum exploration, Zhujiangkou Basin

Based on the sequence stratigraphic units analysis of Paleogene Wenchang Formation of Huizhou and Enping sags, Zhu 1 Depression, Pearl River Mouth Basin, this paper defined the concept of migrated sequence stratigraphic architecture and divided into autogenic and allogenic migration. Autogenic migrated sequences are mainly controlled by horizontal displacement of low－angle syndepositional normal fault, whereas allogenic migrated sequences are controlled by the different tectonic activation episodes of boundary fault on both

sides of the basin. In other words, autogenic and allogenic migrated sequences are controlled by one and two syndepositional boundary fault, respectively.

4. COAL GEOLOGY

20171237 Chen Jian (School of Earth and Environment, Anhui University of Science and Technology, Huainan 232001, China); Chen Ping **Geochemistry of Trace Elements in the Mengtuo Neogene Lignite of Lincang, Western Yunnan Province** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 83－89, 3 illus., 3 tables, 36 refs.)
Key words: minor elements, geochemistry, lignite, Yunnan Province

To investigate the geochemical characteristics of trace elements in the Mengtuo Neogene lignite of Lincang in western Yunnan, a total of 11 lignite samples were collected, and the trace elements were determined by ICP－MS and ICP－CCT－MS(As and Se). Results indicated that the enriched trace elements were different from the Dazhai Ge－rich coals. The REY concentrations in Mengtuo lignite range from 121 mg/kg to 420 mg/kg, with an average of 251 mg/kg, higher than that of Chinese coals. The UCC－normalized REY distribution patterns of Mengtuo lignite are characterized by the significant positive Ce anomaly and negative Eu anomaly, obviously differentiating from that of Dazhai coals, suggesting a terrigenous input of REY from weathered granite.

20171238 Cui Xiaonan (School of Energy Resources, China University of Geosciences, Beijing 100083, China); Huang Wenhui **Study on the Geochemistry of Rare Earth Elements in the Permian Coal from Xiayukou, Weibei Coalfield** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 90－96, 6 illus., 3 tables, 38 refs., with English abstract)
Key words: coal, rare earths, geochemistry, Shaanxi Province

20171239 Li Shengfu (Chengdu University of Technology, Chengdu 610059, China); Chen Hongde **Tectonic Evolution and Coal Accumulation about the Southern Margin of Yili Basin in Xinjiang since Middle Cenozoic Era** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 220－228, 5 illus., 1 table, 12 refs.)
Key words: coal accumulation regularity, structural evolution, Xinjiang

The Yili Basin is famous for its rich resources of coal and uranium, especially in the southern margin of this basin. This paper focuses on analyzing how the structures evolution since Middle Cenozoic era affect and control the formation and mineralization of coal. The results show that the regional tectonic background determines the formation and evolution of the basin, thus affecting the coal forming environment and coal potential in this studying area. The structure or structural features serve as the results of tectonic evolution after coal－forming, that is, the tectonic activities affect coal accumulation or preservation, and the difference of tectonic activities impact the preservation state and distribution of coal seam.

20171240 Li Tiejun (Faculty of the Sciences, Southwest Petroleum University, Chengdu 610500, China); Zhao Yunxiang **Calculating Method of the Permeability Based on the Improved Pressure Drop after the Coal Seam Fractured** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2016, p. 170－174, 5 illus., 3 tables, 14 refs., with English abstract)
Key words: coal seam, permeability

20171241 Liu Bei (School of Energy Resources, China University of Geosciences, Beijing 100083, China); Huang Wenhui **Geo-**

chemistry Characteristics of Sulfur and Its Effect on Hazardous Elements in the Late Paleozoic coal from the Qinshui Basin (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 59－67, 7 illus., 2 tables, 45 refs.)

Key words: coal, sulfur, pyrite, Shanxi Province

Sulfur in coal is the main carrier of many hazardous trace elements. Based on sulfur form analysis, inductively coupled plasma－mass spectrometry and X－ray diffraction, the distribution of sulfur and hazardous trace elements in coal from the Qinshui Basin were analyzed and the influence of sulfur on hazardous trace elements was discussed. The results show that organic sulfur is the main type of sulfur in coal, accounting for 78% of total sulfur. Pyritic sulfur only dominates in some high－ sulfur coals of the Taiyuan Formation.

20171242 Meng Meichen (School of Geophysics and Information Technology, China University of Geosciences, Beijing 100083, China); Liu Chuanyu **Sensitive Parameters of Free and Absorbed Gas Identifications for the Coal－Measure Strata in South Qinshui Basin** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 170－174, 5 illus., 12 refs., with English abstract)

Key words: coal seam, Poisson's ration

20171243 Qu Qinyuan (Key Laboratory of Crust－Mantle Materials and Environments, School of Earth and Space Sciences, University of Science and Technology of China, Chinese Academy of Sciences, Hefei 230026, China); Liu Guijian **A Review of the Geochemistry of Tin (Sn) in Chinese Coals: Measurement, Concen tration, Distribution and Modes of Occurrence** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 68－73, 2 illus., 1 table, 39 refs.)

Key words: tin, coal, presence modes, minor elements

Generally, Sn in Chinese coals was 2～3 μg/g, relatively higher than the world average and the earth crust abundance. As the content of Sn in Chinese coal ranges from 0.4 to 10.5 μg/g, it is suitable to use the ICP－MS or high sensitivity AAS as the measuring instruments after digestion with microwave oven. Based on the occurrences of Sn, the genetic factor of some coal seams which were enriched in Sn was discussed here. Moreover, the mobile ionic Sn and organically bounded Sn should be paid much attention because of their high possibility of emitting into the environment.

20171244 Wang Tinghao (School of Energy Resources, China University of Geosciences (Beijing), Beijing 100083, China); Huang Wenhui **Progress of Research on Mineralization Mode of Large Coal－Ge Deposits in China: Coal－Ge Deposit in Wulantuga of Inner Mongolia and Lincang of Yunan Province** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 113－123, 8 illus., 5 tables, 29 refs.)

Key words: coal, presence modes, Yunnan Province

In the paper, the authors mainly compare two basins unique features respectively. The situation of Ge in coal in Yunnan Province is abundant and in the stage of mature development. The known reserve is high to 800 tons in Bangmai Basin in Lincang County, which belongs to extra－large Ge deposit. The approximate area is 16.4 km^2 of Bangmai Basin, which is a small－scale Neogene faulted basin. The coal－Ge deposit in Shenli coalfield in Inner Mongolia is in the stage of development. Monzonitic granite and diorite outcrop in western mineral land have high Ge value above 15×10^{-6} after sampling and testing.

20171245 Wang Tong (China National Administration of Coal Geology, Beijing 100038, China); Feng Fan **Fundamental Structural Framwork and Cognition of Junggar Coal Ba-**

sin, Xinjiang (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(4), 2016, p. 628－638, 10 illus., 43 refs., with English abstract)

Key words: coal, Junggar Basin

20171246 Wei Wenjin(Sichuan Bureau of Coal Geology, Chengdu 610072, China) **Cause of Differences between No. 1 and No. 2 Layers of the Ducengzi Coal Seam in the Hulipo Coal Mine, Luzhou of Sichuan Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 272－274, 3 tables, 5 refs.)

Key words: coal, coalification

The Ducengzi coal seam in the Hulipo coal mine is the major minable one which is divided into two layers. The distance between the first and second layers is very small, average of about 0.16 m. The Metamorphic grade of two layers is similar, both belong to medium metamorphic bituminous coal, however, their GR. I is quite different. Moreover, the two layers are different in coal type. The first layer is 1/2 medium coking coal, while the second layer is 1/3 coking coal. This paper believes that their difference in coal type results from behavior differences which are originated from sedimentary environment.

20171247 Yang Ning (School of Energy Resources, China University of Geosciences, Beijing 100083, China); Tang Shuheng **Geochemistry of Trace Elements in the No. 5 Coal from the Chuancaogedan Mine, Junggar Coalfield** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 74－82, 8 illus., 4 tables, 26 refs.)

Key words: coal, geochemistry, Junggar Basin

In order to ascertain the geochemical features of trace elements in the No. 5 coal seam at Junggar Coalfield's Chuancaogedan Coal mine, the mineral composition characteristics were observed through optical microscope, SEM and the X－ray Diffraction (XRD) method, the contents of trace elements in coal were determined by Inductively Coupled Plasma Mass Spectrometry (ICP－MS), and the occurrence of trace elements were then analyzed based on statistics. The results show that the contents of Li, Be, F, U, Hg in the No. 5 coal seam is higher than that in the No. 6 coal and Chinese coal. Li, F, Ga, Se are strong inorganic affinity elements, Be, As, U are organic affinity elements, and Hg is of significant positive correlation with sulfur content. Organic combination, inorganic compounds and sulfide bonded forms are the dominant occurrences of these trace elements in the No. 5 coal.

20171248 Zheng Fulong (No. 121 Geological Brigade of Fujian Province, Longyan 364021, China) **Coalfield Slip Tectonic Characteristics and Direction of Coal field in Fujian Province** (Geology of Fujian, ISSN1001－3970, CN35－1080/P, 35(2), 2016, p. 104－112, 6 illus., 10 refs.)

Key words: nappe structure, coal fields, Fujian Province

This paper first discusses the coalfield complex main coal controlling structures of Fujian province － sliding cover structure. Through the analysis of the nappe type sliding cover structure thought, Fujian Province to find there are three main coal directions. One is under nappe on either side of the coal－bearing basin. Two is in the sliding cover structure coal－bearing basin of the development of common, overlying Cui Pingshan Formation, Xikou Formation, and Mesozoic strata, volcanic rocks and under the "red layer". Three is used the sliding thrust superimposed type sliding cover structure characteristics of coal measures strata fold more looking for mining area coal resources.

5. GEOTHERMICS GEOLOGY

20171249 Ni Gaoqian (Sichuan Institute of

Geological Engineering Investigation, Chengdu 610072); Wei Yuting **Geothermal Resource in Sichuan Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 239－242, 1 illus., 8 tables, 5 refs.)
Key words: geothermal resources, Sichuan Province

Sichuan is rich in geothermal resources. This paper divides the geothermal resources in Sichuan into 2 types, 4 resource regions and 3 thermal storage types based on geomorphic conditions, geotherm－forming geological action and occurring conditions and has a discussion on characteristics of various geothermal resources.

20171250 Qian Hongqiang (Tianjin Geothermal Exploration and Development－Designing Institute, Tianjin 300250, China); Wang Juan **Analysis of Leakage Formation and Selection of Leaking Stoppage Methods in Geothermal Well Drilling in Tianjin Area** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(3), 2016, p. 226－230, 3 illus., 5 tables, 11 refs.)
Key words: drilling, geothermal resources, Tianjin

Geothermal drilling in Tianjin, well leakage is a common phenomenon. According to the formation difference, well leakage can be divided into pore type leakage and fissured－cavern leakage. Pore type leakage mainly occurred in sandstone and gravel, the leakage is small, it is relatively simple to deal with. Fissured－cavern leakage often with large leakage loss, and is not easy to work. This paper analyzes the causes of two kinds of leakage, separately sets their respective plugging methods and the cautions for construction. The emphasis is on the analysis of fissured－cavern leakage, and through two examples to prove the construction. In this paper, the formation leakage and plugging technology in geothermal drilling has a certain reference.

20171251 Yu Yan (Tianjin Institute of Geothermal Exploration and Development Design, Tianjin 300250, China); Qin Lihong **Practical and Theoretical Calculation Comparative Study on the Geothermal Resources Development in Tianjin** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(3), 2016, p. 221－225, 2 illus., 4 tables, 9 refs.)
Key words: geothermal resources, Tianjin

It is great necessary to study the geothermal development potential in Tianjin since it contains abundant geothermal resources. In this study, the authors analysed geothermal reserve, geothermal fluid reserve and recycled geothermal reserve of the six reservoirs, which are lower than 4 000 meters by geothermal reserve method. Based on the actual production in 2013, the authors applied to production coefficient method and heat balance to calculate the geothermal fluid production under various conditions. The authors found that the actual production is significantly smaller than the theoretical values. Artificial reinjection can increase the use ratio of the geothermal resource.

PALEONTOLOGY

1. MICROPALAEONTOLOGY

20171252 Cao Wenxin (State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences, Beijing 100083, China); Xi Dangpeng **Seawater Incursion Event in Songliao Basin: New Evidence from Calcareous Nannofossils of SK－1** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 866－871, 3 illus., 1 plate, 35 refs.)
Key words: nannofossils, Songliao Basin

The Songliao Basin is the largest non－marine oil－bearing basin in China. Due to the

返回目录

absence of sufficient evidence, the hypothesis of seawater incursion(s) into the Songliao Basin remains controversial. Marine fossil materials can provide direct explanations. More recently, a few calcareous nannofossils were discovered from units 1 and 2 of the Nenjiang Formation in drill hole SK－1. In these fossils, some taxa have been positively identified, namely *Calculites obscurus*, *Calculites ovalis*, Quadru *M* sp., and *Micula* sp.

20171253 Zheng Wei (Key Laboratory of Biogenic Traces & Sedimentary Minerals of Henan Province, Institute of Resource and Environment, Henan Polytechnic University, Jiaozuo 454003, China); Yuan Yuyang **Microbial Mats and Mineral Microstructure Features of Meso－Neoproterozoic Ruyang and Luoyu Group in Lushan Area** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(2), 2016, p. 385－394, 4 illus., 38 refs.)

Key words: microorganisms, Precambrian

Based on observation, description and genesis of outcrops, the MISS in Lushan area can be divided into three types: Mat growth feature, Mat destruction feature, and Mat decay feature. With the aid of micromorphological observation, the authors analyzed and discussed morphological feature, geologic structure, components, genesis and sedimentary environment of MISS. Based on microscopic analysis for quartz grain and composition characteristic of MISS, the authors found that microbial community develop in the relatively high－energy and fine－grained sediments environment. Therefore, the authors conclude that MISS mainly developed near intertidal zone to supralittoral zone.

2. PALEOBOTANY

20171254 Wang Daning (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Wang Xuri **The Palynoflora Alternation and the Paleoclimate Change at the Turning Time between Late Jurassic and Early Cretaceous in Northern Hebei and Western Liaoning Province** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(4), 2016, p. 449－459, 2 illus., 60 refs.)

Key words: palynological assemblage, paleoclimate, China

Based on the sporopollen assemblages, the authors reconstructed the paleoclimate and palaeoenvironment of the study area: warm and humid low mountains and hills in Middle Jurassic, arid wastelands in Late Jurassic, cool and damp low mountains in the early stage of Early Cretaceous, cool and damp high mountains in the middle stage of Early Cretaceous, warm and humid low lands and fenlands in the late stage of Early Cretaceous and exothermic low lands in the latest stage of Early Cretaceous. In addition, this paper proposes a "sanctuary" model for the biota alternation at the turning time between Late Jurassic and Early Cretaceous.

20171255 Zhang Yujin (Shenyang Center of Geological Survey, CGS, Shenyang 110034, China); Wu Xinwei **Early Cretaceous Plant Fossils and Their Paleoenvironment in Longjiang Basin on the Eastern Slope of Middle Great Hinggan Mountains** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 856－865, 2 illus., 1 table, 3 plates, 38 refs.)

Key words: floral studies, Greater Hinggan Mountains

3. PALEOZOOLOGY

20171256 Chen Jun (Jilin University Museum, Changchun 130061, China); Yin Yongqian **The Mammuthus－Coelodonta Fauna from Dabusu National Key Fossil Locality, Jilin Province** (Geological Bulletin of China,

返回目录

ISSN1671－2552，CN11－4648/P，35(6)，2016，p. 872－878，1 illus.，2 tables，23 refs.)

Key words： **fossils，Jilin Province**

Mammuthus－Coelodonta Fauna is the most representative and typical mammalian fauna in the late Pleistocene period in the Northern Hemisphere. The fossils of the fauna are widely distributed in the northeast part of China. Its evolution，development and extinction are closely related to the development of the palaeo－human civilization. This paper summarized the composition，geographical distribution and paleo－environment of the *Mammuthus－Coelodonta* Fauna. The combined features of the fauna from Dabusu National Key Fossil Locality in Jilin Province were analyzed. The latest statistics on specimens of the locality have 23 species，21 genus，13 families and 6 orders.

20171257 Chu Jianpeng (School of Earth Sciences and Resources，Chang'an University，Xi'an 710054，China)；Li Yong **Redefinition of Tuckerbasitao Formation Based on Newly Discovered Fossils in Eastern Tianshan** (Xinjiang Geology，ISSN1000－8845，CN65－1092/P，34(2)，2016，p. 192－196，3 illus.，9 refs.，with English abstract)

Key words： **Brachiopoda，Xinjiang**

20171258 Li Fengjiang (Key Laboratory of Cenozoic Geology and Environment，Institute of Geology and Geophysics，Chinese Academy of Sciences，Beijing 100029，China)；Wu Naiqin **Quantitative Distribution and Calculation of Ecological Amplitude of Land Snail *Metodontia* in the Chinese Loess Plateau and Adjacent Regions** (Quaternary Sciences，ISSN1001－7410，CN11－2708/P，36(3)，2016，p. 564－574，5 illus.，2 tables，41 refs.)

Key words： **Fruticicolidae，Loess Plateau**

Metodontia genus is among the common modern and fossil land snails in the Chinese Loess Plateau and adjacent regions. In this paper，quantitative distributions of the dominant species of *Metodontia* and their relations to climate，latitude，longitude and altitude are reported and the optimum ranges of MAT，MAP，July average temperature and July precipitation for *Metodontia* huaiensis and *Metodontia* yantaiensis are quantitatively reconstructed using 4 weighted averaging (WA) models.

20171259 Li Zhiguang (Laboratory of Orogenic Belt and Crustal Evolution，Ministry of Education，and Department of Geology and Geological Museum，Peking University，Beijing 100871，China)；Sun Zuoyu **LA－ICP－MS Zircon U－Pb Age of the Fossil Layer of Triassic Xingyi Fauna from Xingyi，Guizhou Province and Its Significance** (Geological Review，ISSN0371－5736，CN11－1952/P，62(3)，2016，p. 779－790，4 illus.，1 table，53 refs.)

Key words： **faunal studies，U－Pb dating，Guizhou Province**

In this study，the authors focus on the isotopic dating of Xingyi Fauna. The volcanic tuffs sample PW1 and PW2 (approximately 15 kg in total) were collected from the Nimaigu Section，Wusha Town，Xingyi City，where yield abundant fossils of marine reptiles，fishes and invertebrate. Sample PW1 was collected from the vertebrate fossil layer，sample PW2 from the position 21 m higher than the vertebrate fossil layer. The stuffs were concentrated and separated by standard techniques of density and magnetic separation at the Yuneng Mineral Separation Service Company at Langfang，Hebei Province，China.

20171260 Liang Jingzhi (School of Earth and Space Science，Peking University，Beijing 100871，China)；Huang Baoqi **Benthic Foraminifera's Implications on Paleo－Environment Variability in MD12－3432 in the Northern South China Sea since MIS 11** (Earth Science Frontiers，ISSN1005－2321，CN11－3370/P，23(4)，2016，p. 292－300，6 illus.，1 table，

返回目录

28 refs.)

Key words: foraminiferas, South China Sea

In this study, samples from sediment core MD12—3432(19°16.88′N, 116°14.52′E, water depth 2 125 m) retrieved from the lower northern continental slope, northern South China Sea, are selected as the major research material. By applying multiple paleo—environmental poxies analysis, including benthic foraminifera abundance, coarse fraction percentage, specific environment indicator' percentage and abundance as well as relevant results from previous studies, the paleoceanographic history of the northern South China Sea is reconstructed. Different from previous studies, the results indicate that from Marine Isotope Stage 11(MIS 11, approximately 400 ka B. P.) the primary productivity in the northern SCS is high in warm interglacial period and low in cold glacial period, and it is mainly influenced by the intensity of precipitation controlled by the East Asian Summer Monsoon.

20171261 Meng Yazhou (Key Laboratory of Stratigraphy and Paleontology, Ministry of Land and Recourses Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Ji Zhansheng **Discovery of the Late Jurassic Coral Fauna in the Baoji Area, Tibet and Its Significance** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 833—847, 7 illus., 1 table, 41 refs.)

Key words: reefs, Tibet

14 genus 21 species Late Jurassic Oxfordian—Kimmeridgian corals were first discovered in the west bank of Nam Co, Baoji area, Tibet. The corals indicate that the yielding strata is not Middle Permian Xiala Formation as it was thought previously. The discovery of the Tukari Formation provides critical stratigraphic evidence for carrying out oil and gas exploration in the Late Jurassic reef facies carbonate rock of the Coqên Basin. Therefore, the Tukari Formation is suggested to be the new target stratum for the oil and gas exploration in the Coqên Basin.

20171262 Pang Yanchun (Institute of Sedimentary Geology, Chengdu University of Technology, Chengdu 610059, China); Lin Li **Worm—Like Fossil Assemblage from Niutitang Formation of Fuquan County, Guizhou Province** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(4), 2016, p. 612—618, 4 illus., 2 tables, 48 refs.)

Key words: Vermes, Guizhou Province

A large number of macrofossils were preserved in—situ as carbonaceous compressions in black shales of the Lower Cambrian Niutitang Formation in Weiganping area of Fuquan, Guizhou Province. The microstructure characters of these fossils are not clear. The discovery of the worm—like fossil assemblage in Fuquan enriches the Cambrian Niutitang biota, and provides new information and materials for the study of evolution of Early Metazoans.

20171263 Wei Xuemei (School of Earth Science, East China University of Technology, Nanchang 330013, China); Wei Hengye **Was the End—Guadalupian Mass Extinction Caused by the Emeishan LIP Eruption?** (Acta Sedimentologica Sinica, ISSN1000—0550, CN62—1038/P, 34(3), 2016, p. 436—451, 7 illus., 160 refs.)

Key words: mass extinction, carbon isotopes, strontium isotopes

In order to figure out whether Emeishan LIP was the main cause of this biotic crisis, this paper reviews the end—Guadalupian mass extinction, the Emeishan LIP eruption, the C and Sr isotopic changes in Capitanian and the main causes of this mass extinction. Combined with some of the authors' data, they believe that: 1) the impact of end—Guadalupian mass extinction on the benthos was not serious as once to be thought; 2) the negative excursion of C isotope near the G—LB was affected mostly by diagenesis and facies change;

and 3) the main causes of this mass extinction were probably sea level fall and marine anoxia, instead of Emeishan LIP eruption.

20171264 Xiao Chuantao (Geosciences School, Yangtze University, Wuhan 430100, China); Tian Yicong **Discovery of Pelmatozoan reefs of Early Tremadocian at Liujiachang in Songzi Area** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 170－177, 2 illus., 22 refs.)

Key words: reefs, Hubei Province

It is the first time that Pelmatozoan reefs was discovered from early Tremadocian strata (lower Nanjinguan Formation) of Early Ordovician at Liujiaehang in Songzi area of Hubei Province. In the discussion of the relationship between filter feeding of pelmatozoan and destruction of the stromatolites lamina in the study area, this paper argues that the baffling of pelmatozoan may be the main reason blocking off part of the lamina growth of stromatolites, while filter feeding of pelmatozoan may be secondary reason, As the pelmatozoan is not a wandering animal or boring animal, the predation and disturbing ability may be poorer than that of other boring animals.

20171265 Xing Lida (State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciencs, Beijing 100083, China); Lockley Martin G. **Early Jurassic Sauropod Tracks from the Yimen Formation of Panxi Region, Southwest China: Ichnotaxonomy and Potential Trackmaker** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 851－855, 4 illus., 1 table, 21 refs.)

Key words: dinosaurs, Southwest China

Dinosaur track and bone records often occur at different locations. However, a few formations show a close correspondence between bones and tracks that correspond to likely trackmakers. In this paper, the authors report sauropod tracks (*Brontopodus*) in very close geographic and stratigraphic proximity to the type locality of the eusauropod *Tonganosaurus* hei in the middle－upper parts of the Lower Jurassic Yimen Formation in Tongbao Village, Huili County, Panxi region of Sichuan Province. This Huili track－trackmaker correlation is possibly existent, but still needs more evidence to confirm. As the first Jurassic sauropod tracks found in the Panxi region, the Tongbao *Brontopodus* tracks have provided evidence indicating coexistence of primitive sauropod and basal sauropodomorphs in Southwest China during Early Jurassic.

HISTORICAL GEOLOGY & STRATIGRAPHY

20171266 Chen Xiaohong (Wuhan Center of China Geological Survey, Wuhan 430205, China); Zhou Peng **Lithostratigraphy, Biostratigraphy, Sequence Stratigraphy and Carbon Isotope Chemostratigraphy of the Upper Ediacarian in Yangtze Gorges and Their Significance for Choronostratigraphy** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(2), 2016, p. 87－105, 5 illus., 3 tables, 37 refs.)

Key words: Dengying Formation, sequence stratigraphy, South China

Litho－, bio－, sequence－ and carbon isotope chemo－stratigraphy of the Upper Ediacaran ranging from upper part of the Doushantuo Formation to the Shibantan member of the Dengying Formation in eastern Yangtze Gorges were studied in this paper. Conclusions show that there are different kinds of sedimentary facies, which included such as platform, slope with high steep margin and basin faci es, in the upper part of the Doushantuo Formation and lower part of the Dengying Formation in the eastern Yangtze Gorges.

20171267 Chu Jianpeng (School of Earth Sciences and Resources, Chang'an University,

返回目录

Xi'an 710054, China); Li Yong **Research Progress on Carboniferous Strata in Bogda Area, Eastern Tianshan** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 229－236, 3 illus., 15 refs.)

Key words: sequence stratigraphy, Carboniferous, Tianshan Mountains

The project of geological survey in 1∶250 000 Sandaoling Sheet made some research progresses on carboniferous stratigraphic redivision, including the unconformity interface found in Tuckerbasstao Formation. According to the fossils of lower strata in Jiangbasstao Formation, it's thought that the geological age of this lower stratum is the middle and late period of Early Carboniferous. Based on contact relationship between these strata, fossils and zircon U－Pb age, the geological age of Qijiaojing Formation has been revised as early period of Late Carboniferous. The results suggest that the Liushugou Formation, Qijiaojing Formation, Qijiagou Formation and Ashenkala Formation belong to different sedimentary facies with same geological age.

20171268 Du Senguan (Anhui Academy of Geological Survey, Hefei 230001, China); Du Jianguo **Stratigraphic Age, Subdivision, and Correlation of Wutong Group in Huangshan and Tongling, Anhui Province** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40(2), 2016, p. 151－161, 9 illus., 1 table, 25 refs.)

Key words: Upper Devonian, Lower Carboniferous, stratigraphic classification, stratigraphic correlation, Anhui Province

This article describes the subdivision and correlation of the late Devonian and Early Carboniferous Wutong Group in the Tongling and Huangshan areas. On the basis of lithostratigraphic characteristics sediment structures, sedimentary facies, and biostratigraphic data, the spatial distribution and variation of the Wutong Group is discussed. A subaerial exposure surface is recognized and a sedimentary hiatus is inferred to be present in the upper Wutong Group, between the Leigutai and Chengjiabian formations. The spatial variation of this exposure surface is controlled by paleotopography, paleoclimate, and loval structures.

20171269 Fu Chao (Tianjin Center, China Geological Survey, Tianjin 300170, China); Li Junjian **The Division and Correlation of Strata in the Mid－Western Part of Sino－Mongolian Border Area** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 503－518, 17 illus., 76 refs.)

Key words: stratigraphic classification, China, Mongolia

In the Sino－Mongolian border area, the Early Precambrian－Cenozoic strata are widely distributed but assigned to different stratigraphic classification systems. On the basis of lithostratigraphy and tectonic evolution, the authors hold that, from Altay of China to Gobi－Tianshan of Mongolia, the strata are continuous and can be divided in unified way. With the Ertysh－Burgen fracture, Karamic fracture, Borzon fracture and East Mongolia－Diebusigo fracture as the boundary, the strata in mid－western border area can be divided into three parts, i. e., Altay zone, Junggar－Gobi Altay zone and Beishan－Gobi Tianshan zone. In this paper, the unified division and correlation of strata in this area were carried out.

20171270 Guo Jianqiang (No. 402 Geological Team, BGEEMRSP, Chengdu 611730, China); Liu Zhiyong **New Knowledge of the Longshan Formation in the Karakorum Mountains** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 203－209, 10 illus., 1 table, 10 refs.)

Key words: sequence stratigraphy, Kalakunlun Mountains

The Longshan Formation is exposed to the south of the Mazar－Kengxiwar fracture zone and in Aketa River basin, Tuoche Lake, Shenxianwan, Chalukou and Tianshui Lake in

the Karakorum Mountains. Its age has been debatable. 1∶50 000 regional geological survey during 2012—2014 changed the Longshan Formation into the Longshan Group which was divided into the Aketahe Formation composed of sandstone and conglomerate in the lower part and the Chalukou Formation composed of limestone in the upper part.

20171271 Kang Jianwei (Key Laboratory of Sedimentary Basins and Oil and Gas Resources, Ministry of Land and Resources, Chengdu 610081, China); Mou Chuanlong **Sequence Stratigraphic Analysis of the Sinian Strata in the Aksu Region, Xinjiang** (Sedimentary Geology and Tethyan Geology, ISSN1009—3850, CN51—1593/P, 36(2), 2016, p. 47—54, 9 illus., 26 refs.)

Key words: sequence stratigraphy, Xinjiang

The depositional systems in the Sinian Linkuanggou section in the Aksu region, Xinjiang may fall into the littoral, siliciclastic tidal—fiat and carbonate tidal—flat depositional systems. These depositional systems have recorded the evolution from the siliciclastic rock systems to the carbonate rock systems of the Sinian strata in the Aksu region. The multiphase tectonic movements are interpreted as the major controlling factor for the formation, development and evolution of the sequence stratigraphy.

20171272 Lai Jin (College of Geosciences, China University of Petroleum, Beijing, 102249, China); Wang Guiwen **The Diagenetic Sequence Stratigraphy Characteristics of Upper Triassic Xujiahe Formation in Central Sichuan Basin** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(6), 2016, p. 1236—1252, 10 illus., 50 refs.)

Key words: sequence stratigraphy, Sichuan Province

On the basis of the combination features of rock and mineral using thin sections, X—ray data, Elemental Capture Spectroscopy (ECS) logging, diagenesis features of sequence stratigraphic framework of the Upper Triassic Xujiahe Formation in central Sichuan Basin were studied from two aspects of controlling of sequence boundary on diagenesis and evolution rule of diagenesis within different base—level cycles. The results show the Xujiahe Formation can be divided into two super long—term sequence cycles and five long—term sequence cycles.

20171273 Li Ya (Key Laboratory of Stratigraphy and Paleontology, Ministry of Land and Resources; Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Yao Jianxin **Middle—Late Triassic Terrestrial Strata and Establishment of Stages in the Ordos Basin** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(3), 2016, p. 267—276, 5 illus., 1 table, 16 refs.)

Key words: sequence stratigraphy, Ordos Basin

In this paper, the authors selected the Qishuihe section and Kuyehe section in the Ordos Basin to carry out the study of establishing new stages of Middle—Late Triassic terrestrial strata. The authors first summarized the lithostratigraphic classification of the Ordos Basin, then analyzed the occurrence, development and flourishing of various organisms so as to find out the biological assemblages and biological boundaries, and finally established four new stages: the Middle Triassic Yintaian stage and Jinsuoguanian stage, and the Upper Triassic Yangjiapingian stage and Jiaopingian stage.

20171274 Li Zhichao (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Li Wenhou **Cenozoic Stratigraphy and Paleoenvironments in the Weihe Area, Shaanxi Province** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(2), 2016, p. 168—178, 1 illus., 1 table, 75 refs., with English abstract)

返回目录

Key words: Cenozoic, stratigraphy, sedimentary environment, Shaanxi Province, Weihe River

20171275 Liang Yan (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China); Tang Peng **Early — Middle Ordovician Chitinozoan Biostratigraphy of the Upper Yangtze Region, South China** (Journal of Stratigraphy, ISSN0253 — 4959, CN32 — 1187/P, 40(2), 2016, p. 136 — 150, 6 illus., 1 table, 50 refs., with English abstract)

Key words: Chitinozoa, Lower Ordovician, Middle Ordovician, biostratigraphy, South China

20171276 Liu Zhirong (Institute of Disaster Prevention Science and Technology, Yanjiao 065201, China); Shen Jun **Grain Size Analysis of the Late Pleistocene Sediments in Sanhe County, Hebei Province** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(5), 2016, p. 997 — 1005, 5 illus., 1 table, 25 refs.)

Key words: stratigraphy, Hebei Province

Measurement, OSL dating and grain size analysis for the Quaternary section in the Qixinzhuang area, Sanhe County, Hebei province, were carried out to better understand the deposition environment of this area. The results of this study provide important basic data for research of the formation and development of North China Plain, the change history of Chaobai River downstream, sedimentation rate during the late Pleistocene. Measured section is located in the bottom wall of the Xinxiadian fault, and this study also has important significance for studying the difference activity of two planes and fracture property.

20171277 Mao Fengjun (Research Institute of Petroleum Exploration & Development, PetroChina, Beijing 100083, China); Liu Ruohan **Palaeogeographic Evolution of the Upper Cretaceous in Termit Basin and Its Adjacent Areas, Niger** (Earth Science Frontiers, ISSN1005 — 2321, CN11—3370/P, 23(3), 2016, p. 186 — 197, 11 illus., 1 table, 27 refs.)

Key words: structural evolution, sedimentary environment, West Africa

In this paper, the authors take the Termit Basin and its adjacent areas as the study area. On the basis of tectonic evolution, the authors comprehensively utilize geochemistry, stratigraphy and geophysics to analyze the paleo—sedimentary environment and Paleogene provenance in the study area. The study suggested that during the early Cenomanian in the study area the transgression began to occur, and it achieved maximum transgression in the Santonian, then the sea level began to descend.

20171278 Mei Mingxiang (School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing 100083, China) **System — Level Division of the Archean Eonothem: An Important Advancement and a Bold Proposal of Precambrian Chronostratigraphical Division** (Journal of Stratigraphy, ISSN0253 — 4959, CN32 — 1187/P, 40(2), 2016, p. 186—208, 4 illus., 238 refs.)

Key words: Lower Cambrian, stratigraphic classification

With further investigation of the evolutionary history of the Precambrian Earth, a number of significant changes over time have been recognized. This has led to a more thorough understanding of Precambrian Earth and offers an opportunity to establish and to revise the chronostratigraphic division of the Precambrian. A revised time scale of the Precambrian is proposed, including: 1) the redefinition of theHadean, Archean, and Proterzoic Eon on the basis of modern stratigraphic concepts; 2) the geological meaning of the lower boundary of the Arehean Eon; 3) a revised definition of the Archean—Proterozoic boundary; and 4) a tentative system—level subdivision scheme for the Archean Eonothem.

20171279 Ran Huaijiang (Geoscience Center, Great Wall Drilling Company, CNPC, Beijing 100101, China) **Jurassic Sedimentary Sequence in Sarybulak of the South Turgai Basin in Kazakhstan** (Journal of Stratigraphy, ISSN0253-4959, CN32-1187/P, 40(2), 2016, p. 179-185, 7 illus., 10 refs., with English abstract)

Key words: sequence stratigraphy, sedimentary sequence, Jurassic, Kazakhstan

20171280 Ren Wei (State Key Laboratory of Oil & Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Liu Feng **High Resolution Sequence Stratigraphy of Lower Cretaceous Kubla Formation in Bongor Basin, Middle Africa** (Journal of Chengdu University of Technology, ISSN1671-9727, CN51-1634/N, 43(3), 2016, p. 344-353, 8 illus., 1 table, 17 refs., with English abstract)

Key words: Lower Cretaceous, high resolution sequence stratigraphy, Africa

20171281 Ren Xudong (Regional Geological Surveying Team, BGEEMRSP, Chengdu 610213, China); Peng Dong **Advances in Research into the Runiange Formation in the Luhuo-Dawu Structure Zone, Sichuan Province** (Acta Geologica Sichuan, ISSN1006-0995, CN51-1273/P, 36(2), 2016, p. 200-202, 209, 5 illus., 1 table, 36 refs.)

Key words: sequence stratigraphy, Sichuan Province

1∶50 000 Luhuo Sheet regional geological survey reveals that the Runiange Formation is a set of strata of general order, partial disorder (slump deposits mixed chaotic). Enthetic carbonate slump block and volcanic olistostrome as well as diagenetic carbonate block belong to sedimentary mélange without Francisco mélange shear phenomenon. Therefore, it is not an ophiolitic mélange.

20171282 Tang Wenlong (Tianjin Center of China Geological Survey, Tianjin 300170, China); Li Junjian **The Division and Correlation of Strata in the Mid-Eastern Part of Sino-Mongolian Border Area** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(4), 2016, p. 488-502, 7 illus., 50 refs.)

Key words: stratigraphic classification, China, Mongolia

In the Sino-Mongolian border area, the Early Precambrian-Cenozoic strata are widely distributed but assigned to different stratigraphic classification systems. Based on the research results of Inner Mongolian strata obtained in recent years, the authors arranged the rock assemblages and fossils of Mongolian strata, carried out stratigraphic division and correlation of the strata in the mid-eastern part of Sino-Mongolian border area in the light of strata exposed within China's territory. The results show that the strata are continuous, and hence their unified division is practical.

20171283 Tian Shugang (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Li Zishun **Late Carboniferous-Permian Tectono-Geographical Conditions and Development in Eastern Inner Mengolia and Adjacent Areas** (Acta Geologica Sinica, ISSN0001-5717, CN11-1951/P, 90(4), 2016, p. 688-707, 9 illus., 25 refs., with English abstract)

Key words: tectonostratigraphy, Inner Mongolia

20171284 Wang Dan (State Key Laboratory for Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Ling Hongfei **Organic Carbon Isotope Stratigraphy of the Early Cambrian Huitong Section in Hunan Province, Southeastern Yangtze, China** (Geological Journal of China Universities, ISSN1006-7493, CN32-1440/P, 22(2), 2016, p. 274-288, 7 illus., 1 table, 96 refs.)

返回目录

Key words: stratigraphic correlation, Cambrian, Hunan Province

In this paper, the authors conduct a high-resolution organic carbonisotope chemostratigraphy of the deep-water chert in the Liuchapo Formation and black shales in the Xiaoyanxi Formation, which were collected from drill cores in the Huitong section of Hunan Province. Results indicate four positive $\delta^{13}C_{org}$ excursions (termed P1, P2, P3and P4) and two negative $\delta^{13}C_{org}$ excursions (termed N1 and N2) in ascending order. Combined with the fossil records and zircon U-Pb dating data, the authors correlate the $\delta^{13}C_{org}$ curve of the Huitong section with the $\delta^{13}C_{org}$ and $\delta^{13}C_{carb}$ curves of other sections in Hunan and shallow-water areas including Yunnan and Three Gorges.

20171285 Wang Dongdong (Shandong Provincial Key Laboratory of Depositional Mineralization & Sedimentary Minerals, Qingdao 266590, China); Li Zengxue **Coal and Oil Shale Paragenetic Assemblage and Sequence Stratigraphic Features in Continental Faulted Basin** (Earth Science, ISSN1000-2383, CN42-1233/P, 41(3), 2016, p. 508-522, 9 illus., 60 refs.)

Key words: sequence stratigraphy

In order to research the geological phenomenon of coal and oil shale paragenetic development in continental fault basin, sedimentology, tectonics, energy geology, sequence stratigraphy related theories and methods are used for studying coal and oil shale paragenetic development characteristics. The study found that five types of coal and oil shale association exist in continental fault basin. The development of coal seam and oil shale similarly need stable tectonic and fewer terrigenous detrital material supply, and organic matter composition both contain higher plants debris and algae in paragenetic coal seam and oil shale.

20171286 Xu Guifen (School of Energy Resources, China University of Geosciences, Beijing 100083, China); Lin Changsong **Evolution of Palaeo-Uplift and Its Controlling on Sedimentation of Kapushaliang Group of Early Cretaceous in Western Tabei Uplift** (Earth Science, ISSN1000-2383, CN42-1233/P, 41(4), 2016, p. 619-632, 11 illus., 28 refs., with English abstract)

Key words: sequence stratigraphy, Tarim Basin

20171287 Xu Liming (Fujian Institute of Geology Survey and Research, Fuzhou 350013, China); Jin Chunshuang **The Establishment of Marine Early Cretaceous Strata in East Area of Zhejiang Coast and Its Significance** (Geology of Fujian, ISSN1001-3970, CN35-1080/P, 35(2), 2016, p. 92-103, 6 illus., 3 tables, 11 refs.)

Key words: sequence stratigraphy, East China Sea

The formative age of "Shipu limestone" has been controversy all along, which is at Shipu Town, Xiangshan County, Ningbo City, Zhejiang Province. This paper study elastic zircon dating of the glutenite which is in the lower of "Shipu limestone", as a result the elastic zircon age is mainly 120～112 Ma, which is the lower limit age of "Shipu limestone" Combining with the investigation fruit of predecessor, this result show that the age of intrusive dike is about 100Ma in the "Shipu limestone". Thus, the sedimentary age of "Shipu limestone" is 112～100 Ma, which is Aptian-Albian of Early Cretaceous. This is similarly with Yunlin Group in Taiwan, and their invasion horizon formed in the same period of seawater intrusion from east to west.

20171288 Xu Shilin (College of Resources and Environmental Engineering, Guizhou University, Guiyang 550025, China); Yang Ruidong **Carbon and Oxygen Isotopic Composition and Its Significance of Jialu Formation Marble, Neoproterozoic Xiajiang Group in Southeast Guizhou Province, China** (Guizhou Geology,

ISSN1000－5943，CN52－1059/P，33(2)，2016，p. 91－95，107，5 illus.，1 table，23 refs.，with English abstract)

Key words： **sedimentary environment，sequence stratigraphy，Guizhou Province**

20171289 Yang Sen (School of Earth Science and Resource，Chang'an University，Xi'an 710054，China)；Pei Xianzhi **Provenance Analysis and Structural Implications of Gequ Formation at the Buqingshan Area in the Eastern Segment of the East Kunlun Region** (Geological Bulletin of China，ISSN1671－2552，CN11－4648/P，35(5)，2016，p. 674－686，5 illus.，2 tables，65 refs.)

Key words： **sequence stratigraphy，Kunlun Mountains**

Detailed statistics of gravel composition，gravel granulometry and the LA－ICP－MS U－Pb dating of detrital zircons from conglomerate bed in Delisitan of Buqingshan show that this conglomerate was derived from the nearby place with rapid accumulation. This conglomerate consists mainly of quartzite and granite and subordinately of siliceous rocks and basic rocks，with minor sandstone and limestone. A comprehensive analysis reveals that the Gequ Formation is a mollasse formation of the littoral－shallow facie which deposited on an active continental margin. It represents both the beginning of the Paleo－Tethys northward subduction and the sedimentary responding of tectonics at the beginning of the subduction.

20171290 Yao Mingjun (Exploration and Development Research Institute Sinopec Jianghan Oilfield，Wuhan 430223，China)；Bao Hanyong **Stratigraphic and Sedimentary Characteristics of Wufeng－Longmaxi Formation in the Western Hunan－Hubei Region** (Geology and Mineral Resources of South China，ISSN1007－3701，CN42－1417/P，32(2)，2016，p. 191－197，5 illus.，9 refs.)

Key words： **sedimentary microfacies，shale，Hunan Province，Hubei Province**

Taking the shale which deposited in late Ordovician to early Silurian in western Hunan and Hubei region as this research object，based on the observation of field and core，the analysis of well－logging and samples，it studied the stratigraphic development and sedimentary characteristics of Wufeng－Longmaxi Formation in this area. The results indicate that，the thickness of shale in western Hunan and Hubei region is between 40 and 60 m，the shale can divided into 3 sub－members and 9 sub－layers with the characteristics of high gamma value (GR)，low density and high organic matter abundance，mainly with ash black－black siliceous－carbonaceous shale.

20171291 Yu Shenyang (Key Laboratory of Economic Stratigraphy and Palaeogeography，Nanjing Institute of Geology and Palaeontology，Chinese Academy of Sciences，Nanjing 210008，China)；Li Yue **Limestone Beds of the Silurian Lungmachi Formation in Daguan，Yunnan and Their Platform Margin Implications** (Journal of Stratigraphy，ISSN0253－4959，CN32－1187/P，40(2)，2016，p. 162－167，4 illus.，25 refs.，with English abstract)

Key words： **Silurian，lithostratigraphy，Yunnan Province**

20171292 Zhan Xiaogang (Geophysical Research Institute，Zhongyuan Oilfield，SINOPEC，Zhengzhou 450000，China)；Zhao Junsheng **Paleogeomorphic Reconstruction in the Permian Maokou Age in the Puguang Area，Northeast Sichuan Province** (Acta Geologica Sichuan，ISSN1006－0995，CN51－1273/P，36(2)，2016，p. 210－212，2 illus.，1 table，8 refs.)

Key words： **sequence stratigraphy，Sichuan Province**

The Permian Maokou Formation in the Puguang area，Sichuan basin is a marine carbonate formation as an open－platform deposition. The drilling data reveal its good hydrocarbon exploration potentiality. Ancient geomorphology research is the basis of reservoir

返回目录

prediction. This paper deals with the paleogeogmorphic reconstruction of karst depression, karst slope and karst upland in the Permian Maokou Age in the Puguang Area.

20171293 Zhang Chunlei (Institute of Geoanalysis of Anhui Province, Hefei 230001, China); Zha Shixin **New Progress and Understanding of the Baidashan Group, Southern Margin of the North China Block** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 22－28, 5 illus., 18 refs.)

Key words: sequence stratigraphy, North China

Recently, the author has measured Baidashan Group section which exposed a sequence of complete and continuous layer on the Henan－Anhui border of southern margin on the north China Block. There are conodonts molecules of the Middle－Late Ordovician in carbonatite of Baidashan Group: Belodina compressa, Panderodus gracilis, Pseudobelodina dispansa (?) and Bryozo, Calthrop, Small shells, Archaeostraca etc., which filled the blank of the region that has been no fossil record. According to the characteristics of stratigraphic sequence, lithologic combination, the biota appearance, the ancient sedimentary environment of geography, and combined with a large number of limestone thin section results, it is concluded that the Baidashan Group belongs to the Early Paleozoic era.

20171294 Zhang Lusuo (Hebei Bureau of Coal Geology, Shijiazhuang 050085, China); Yang Sencong **The Corresponding Relation Between Jurassic Stratigraphic Classification of North Hebei and the Stratigraphic Chart of China** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(4), 2016, p. 840－848, 2 tables, 42 refs.)

Key words: stratigraphic correlation, Jurassic, Hebei Province

The authors have compared Jurassic stratigraphy in north Hebei with the Chart on the basis of preliminary study, and expect to cause the extensive attention among the peers. The authors hold that: the age of Xiahuayuan Formation in Northern Hebei Province should be changed from Early－Middle Jurassic to Middle Jurassic, and the horizon is consistent with the Yaopo Formation in Western Hill of Beijing; the horizon of the Nandaling Formation and the Badaowan Formation is the same; the layer of the Jiulongshan Formation and the Tiaojishan Formation correspond to the Toutunhe Formation; the age of the Houcheng Formation is Late Jurassic, and the horizon is the same as the Tuchengzi Formation; the Zhangjiakou Formation should belong to Lower Cretaceous.

20171295 Zhang Na (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210046, China); Ma Chunmei **Holocene Epeirogenic Process at the Kaizhuang Site, Northern Jiangsu Province** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40(2), 2016, p. 209－218, 5 illus., 2 tables, 53 refs.)

Key words: Holocene, regression, Jiangsu Province

AMS^{14}C geochronology, redox－sensitive elemental geochemistry, and grain－size data of the Kaizhuang Site in northern Jiangsu Province are analyzed to infer the epeirogenic history of this area. The results show that V/(V＋Ni) ratios and granularity－proxies for redox conditions and sedimentary dynamics, respectively－decrease and then increase upsection, suggesting that this site experienced environmental changes related to sea－level regression about 5200 aB. P. Sedimentary environment in the fourth layer (10 300～5 200 a B. P.) remains anoxic without distinct water stratification. Anoxia, sedimentary dynamics, and coarse particles decrease up section, although sedimentary dynamics becomes more complex, indicating a transformation to neritic environment.

20171296 Zhao Juxing (School of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Li Chang'an **Quaternary Chronostratigraphy of Borehole S3 — 7 in Dongting Basin** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(4), 2016, p. 633—643, 4 illus., 5 tables, 35 refs.)

Key words: geochronology, stratigraphy

Based on detailed stratigraphic and lithological interpretations, the borehole was dated by paleomagnetism, ESR and AMS ^{14}C, to establish its chronostratigraphic sequence. Compared with other two typical boreholes, the Quaternary chronostratigraphic sequence of the Dongting basin was established. The results suggest that the Pleistocene and Early—Middle Pleistocene boundaries of the central Dongting basin are located at the depths of 240～300 m and 90～95 m, respectively, and the boundaries of Middle—Late Pleistocene and Pleistocene/Holocene are located at the depths of 28～50 m and 1.5～3.1 m, respectively.

20171297 Zhou Chuanming (Key Laboratory of Economic Stratigraphy and Palaeogeography, Nanjing Institute of Geology and Plalaeontology, Chinese Academy of Sciences, Nanjing 210008, China) **Neoproterozoic Lithostratigraphy and Correlation across the Yangtze Block, South China** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(2), 2016, p. 120—135, 3 illus., 4 tables, 100 refs., with English abstract)

Key words: Lower Sinian, stratigraphic correlation, Yangtze Region

GEOCHRONOMETRY & ISOTOPE GEOLOGY

20171298 Deng Wenbing (School of Earth Science and Resource, Chang'an University, Xi'an 710054, China); Pei Xianzhi **LA—ICP—MS Zircon U—Pb Dating of the Chahantaolegai Syenogranites in Xiangride Area of East Kunlun and Its Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(5), 2016, p. 687—699, 8 illus., 2 tables, 63 refs.)

Key words: syenogranite, U—Pb dating, Kunlun Mountains

A suite of syenogranites is exposed in the Chahantaolegai area along the eastern section of East Kunlun Orogenic Belt. LA—ICP—MS zircon U—Pb weighted average ages is (239.9±0.7) Ma, suggesting the formation of syenogranites in Middle Triassic. According to the geochemical characteristics, it is suggested that Chahantaolegai syenogranites belong to peraluminous high—potassic calc—alkaline series. Combined with regional studies, the authors hold that Chahantaolegai syenogranites are of the transitional type formed in the transformation from subduction to syn—collision, being a product of the late stage of the subduction of Buqinshan—A'nyemaqenOcean on the southern margin of the East Kunlun in Middle Triassic.

20171299 Duan Ming (Laboratory of Non—fossil Energy Minerals, Tianjin Center of China Geology Survey, Tianjin 300170, China); Li Zhidan **Zircon LA—ICP—MSU—Pb Ages and Geochemical Characteristics of Monzonitic Granite from Baiyinnuoer Pb—Zn Deposit, Chifengcity, Inner Mongolia** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(3), 2016, p. 161—168, 7 illus., 2 tables, 21 refs.)

Key words: zircon U—Pb, lead—zinc deposit, Inner Mongolia

The Baiyinnuoer ore deposit in Inner Mongolia is the largest Pb—Zn deposit in Da Hinggan Mountains metallogenic belt. The authors dated the zircons of two samples from the granodiorites using the LA—MC—ICP—MS method. Two reliable weighted mean $^{206}Pb/^{238}U$ ages are (254.8±1.6)Ma (MSWD

=3.0, n=29) and (245.6±3.5) Ma (MSWD=5.9, n=13). All samples fall into the high K calk-alkali series region and have metaluminous characteristics.

20171300 He Wenxing (Fujian Geological Survey Research Institute, Fuzhou, 350013) **Tectonic Structure Significance and Archean Zircon in Liancheng County, Cathaysia Massif** (Geology of Fujian, ISSN1001-3970, CN35-1080/P, 35(2), 2016, p. 85-91, 2 illus., 1 table, 13 refs.)

Key words: tectonics, Fujian Province

Geochemical characteristics of gabbro porphyrite are low content of Cao, MgO and compatible elements, high content of Na_2O, K_2O and incompatible elements of in Liancheng County. It shows that the magma was derived from the enrichment of the mantle or by the contamination of crustal materials. Zircon provided abundant deep information. Zircon source analysis that Liancheng area exists or ever existed in the Archean basement. The zircon U-Pb age at different times reflects the geological evolution information in Liancheng Cathaysia Massif. It is provides new materials for the study of the Cathaysia Massif.

20171301 Hou Chenyang (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Yang Tianshui **In-Situ SHRIMP U-Pb Dating of Rutiles in Eclogite from Dabie UHP Metamorphic Belt and Its Geochronological Significance** (Journal of Earth Sciences and Environment, ISSN1672-6561, CN61-1423/P, 38(3), 2016, p. 334-340, 5 illus., 1 table, 41 refs.)

Key words: geochronology, eclogite, SHRIMP U-Pb dating, ultrahigh pressure metamorphic zones

In-situ SHRIMP U-Pb dating of rutile in eclogite from Dabie ultra-high pressure (UHP) metamorphic belt was studied. The U-Pb age of rutile obtained is (219±4) Ma, consistent with the previous TIMS results of rutiles within the error range. This consistence points to the feasibility of in-situ SHRIMP U-Pb dating of rutile. The dating results indicate no obvious differences for the U-Pb ages of rutiles from different occurrences. Taking together with the previous dating results, it is suggested that the U-Pb age of rutile in Jinheqiao eclogite is the cooling age, representing the tectonic exhumation time of Dabie UHP metamorphic belt.

20171302 Pan Chengze (National 305 Project Office, Urumuqi 830000, China); Qiu Lin **Tectonic Evolution of the Iritish Belt in Ust-Kamenogorsk Area, Kazakhstan: New Geochronological Evidence** (Northwestern Geology, ISSN1009-6248, CN61-1149/P, 49(2), 2016, p. 189-197, 5 illus., 1 table, 22 refs., with English abstract.)

Key words: zircon U-Pb dating, structural evolution, Kazakhstan

20171303 Sang Jizhen (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Pei Xianzhi **LA-ICP-MS Zircon U-Pb Dating and Geochemical Characteristics of Gabbro in Qingshuiquan, East Section of East Kunlun, and Its Tectonic Significance** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(5), 2016, p. 700-710, 8 illus., 2 tables, 47 refs.)

Key words: gabbros, zircon U-Pb dating, Kunlun Mountains

Located in central Eastern Kunlun suture zone on the northern side of Qingshuiquan ophiolite, the Qingshuiquan gabbro consists mainly of hornblende gabbros. Tectonic discrimination diagrams indicate that the gabbro formed in an island arc setting of active continental margin. Combined with regional studies, the authors hold that Qingshuiquan gabbro rocks might have formed at the initial stage of the northward subduction of Central Eastern Kunlun back-arc limited ocean, re-

presented by the Qingshuiquan ophiolite.

20171304 Shi Zhiqiang (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Shi Yuruo **SHRIMP U－Pb Ages of Zircons from Banded Magnetite Quartzite of Shachang Formation in Miyun Area of Beijing and Their Significance** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(4), 2016, p. 547－557, 5 illus., 2 tables, 43 refs.)

Key words: zircon, Precambrian, U－Pb age, craton

Based on the CL images of zircons, together with the petrography of rocks, the ages should represent two stages of metamorphism of the banded magnetic quartzite, which are similar with the time of two large－scale metamorphic events (namely ~2.44 Ga and ~1.82 Ga) in the eastern block of North China Craton. Fortunately, a round zircon with the age of (2 517±12)Ma is found, representing the age of detrital zircon from the magnetite quartzite. It also indirectly constrains that the banded iron formation is formed at (2 46±418)－(2 517±12)Ma, most likely at the end of Neoarchean by combining previous data.

20171305 Wang Shuangshuang (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Han Yanbing **U－Th－Pb Dating of Monazite by LA－ICP－MS Using Ablation Spot Sizes of 16 μm and 10 μm** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 349－357, 4 illus., 2 tables, 22 refs., with English abstract)

Key words: monazite, ICP－MS

20171306 Wang Shuqing (Tianjin Institute of Geology and Mineral Resources, Tianjin 300170, China); Xin Houtian **Geochronology, Geochemistry and Geological Significance of Early Paleozoic Wulanaobaotu Intrusive Rocks, Inner Mongolia** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(4), 2016, p. 555－569, 11 illus., 3 tables, 59 refs.)

Key words: geochronology, igneous rocks, Inner Mongolia

The study of magmatism can reveal the orogenic tectonic evolution. In this paper, zircon LA－MC－ICPMS U－Pb dating, Hf isotopic compositions and whole rock geochemical data of the Early Paleozoic dioritic rocks from Wulanaobaotu region, central part of the Xing－Meng Orogenic belt are present. Thus, the authors propose that the Wulanaobaotu dioritic intrusive rocks were likely formed in an active continental margin setting during Late Cambrian to Early Ordovician, consistent with the existence of Early Paleozoic subduction－related tectonic－magmatic belt in Xing－Meng orogenic belt. The enriched zircon Hf isotopic characteristics further northern suggest the magma originated from a Precambrian basement source.

20171307 Wu Lin (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Wang Fei **(U－Th)/He Dating of International Standard Durango Apatite** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1891－1900, 3 illus., 6 tables, 56 refs.)

Key words: apatite, Th－U dating

(U－Th)/He isotopic dating has been widely used in geochronological studies for sub－surface geological processes. Durango apatite is a commonly used international standard for (U－Th)/He dating. Accurate determination of its age could verify the feasibility of the experimental protocol. (U－Th)/He dating laboratory of Institute of Geology and Geophysics, Chinese Academy of Sciences (IGGCAS) was established in 2013. Four batches of a total 40 Durango apatite grains have been tested in this newly－built laboratory. All 40 age results are in the range of 28.95 Ma to 34.11 Ma and the peak of the age proba-

返回目录

bility distribution is (31.61±2.7) Ma, which is consistent with the international calibrated ages.

20171308 Yu Wenchao (State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences, Wuhan 430074, China); Du Yuansheng **LA－ICP－MS Zircon U－Pb Dating from the Nanhuan Datangpo Formation in Songtao Area, East Guizhou Province and Its Geological Significance** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(3), 2016, p. 539－549, 7 illus., 1 table, 31 refs.)

Key words: stratigraphic correlation, zircon U－Pb dating, Guizhou Province

A remarkable sedimentary differentiation arises in the horst and graben areas within the Nanhua Rift Basin during Nanhuan. Based on the detailed fieldwork on the Nanhuan sequences in the Jiangjunshan Profile, Songtao Area, East Guizhou Province, South China, a stratigraphic correlation is carried out with the Nanhuan sequences in the graben and horst areas in the Nanhua Basin. The sedimentary differentiation is showed in the lithological and thickness changes of the Tiesiao Formation and the first Member in the Datangpo Formation. This result proves that the ending time of the Sturtian Glaciation in East Guizhou Province is synchronic.

20171309 Zhang Wenlong (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Chen Gang **Detrital Zircon U－Pb Geochronology from Zhaoling Formation in Tangwangling** (Acta Sedimentologica Sinica, ISSN1000－0550, CN62－1038/P, 34(3), 2016, p. 497－505, 6 illus., 48 refs., with English abstract)

Key words: conglomerate, U－Pb dating, Ordos Basin

20171310 Zhao Shuyue (Qiqihar Branch, Heilongjiang Institute of Geology Survey and Research, Harbin 150036, China); Han Yandong **Discussion on Sedimentary Age of the Mohe Formation in North Area of Mohe Basin: Constraint of Zircon LA－ICP－MSU－Pb Geological Age of Biotite Quartz Diorite Mylonite** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(3), 2016, p. 177－183, 4 illus., 2 tables, 20 refs., with English abstract)

Key words: Zircon LA－ICP－MS U－Pb age, Mohe Formation, Inner Mongolia

20171311 Zhou Zhiguang (College of Geoscience and Resources, China University of Geosciences, Beijing 100083, China); Wang Guosheng **Zircon Ages of Gabbros in the Siziwangqi, Inner Mongolia and Its Constrain on the Formation Time of the Bayan Obo Group** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(6), 2016, p. 1809－1822, 8 illus., 1 table, 111 refs., with English abstract)

Key words: Baiyunebo Group, gabbros, geochronology, Inner Mongolia

QUATERNARY GEOLOGY & GEOMORPHOLOGY

20171312 Gu Yansheng (State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences, Wuhan 430074, China); Liu Humei **Environmental Change Documented by Pluvial Phytolith Records in the Past 26 ka on East Edge of Tengger Desert** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(4), 2016, p. 605－611, 4 illus., 27 refs.)

Key words: paleoclimate, environmental geology, Tengger Desert

The desert and Gobi deposition are prevailing in the west edge of the middle Helan Mountain, which is subject to the frangibility of eco－environment. It is important to ex-

plore the relationship between the climate change and deposition response of Gobi desert since the Last Glacial, apluvial profile of late Late Pleistocene on the east edge of Tengger desert is employed to rebuild the palaeoenvironmental change based on the phytolith analysis. On the basis of regional geological survey, geomorphology pattern and Quaternary sediment distribution in the west of middle Helan Mountain and east edge of Tengger desert were investigated in detail. Based on the AMS^{14}C dating and phytolith records, paleovegetation and paleoclimate changes are reconstructed in detail.

20171313 Ji Yunping (Institute of Hydrogeology and Environmental Geology, Chinese Academy of Geological Sciences, Shijiazhuang 050061, China); Wang Guiling **The Discovery of Aragonite Sedimentary on the Top of Lacustrine Sedimentary in the Middle Pleistocene in Yangyuan Basin, Hebei Province and Its Scientific Significance** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 178－185, 6 illus., 2 tables, 36 refs., with English abstract)

Key words: aragonite, Quaternary, Hebei Province

20171314 Jiang Nan (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Wang Yong **Sedimentary Record of Environmental Evolution since ca 2 000 cal yr B. P. Ago in Qehan Lake, Inner Mongolia** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(6), 2016, p. 953－962, 6 illus., 1 table, 79 refs.)

Key words: paleoclimate, Inner Mongolia

A 97cm long lacustrine section from Qehan Lake, situated in eastern Inner Mongolia, was used to reestablish the environment and climate changes since the last 2070 cal a BP. The chronological framework was built on seven AMS^{14}C ages. On the basis of pollen－spore characteristics and grain size distribution, three environmental stages can be recognized. From 2070～1150 cal a B. P., this interval was featured by high total pollen concentration, with the dominance of Artemisia and Chenopodiaceae; lacustrine sediments were mainly composed of silt and each fraction presented quite low amplitudes of increases, indicating the weak hydrological conditions and high lake level; this period was characterized by a warm, cool and slightly humid climate.

20171315 Jiang Zhaoxia (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Liu Qingsong **Quantification of Hematite and Its Climatic Significances** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 674－679, 9 illus., 96 refs.)

Key words: hematite, magnetic minerals, climate

Based on the molecular proxies, histories of paleoclimate evolution since the Late Deglaciation have been reconstructed in the East Asian monsoon regions, and the boreal region of the Northern Hemisphere. As a representative site, the authors outlined the progresses in molecular paleoclimate reconstructions over the last decade in the Dajiuhu peat deposit, Central China. The studies clearly prove that molecular proxies, especially those related to microbial activities, are powerful tools for paleoclimate reconstructions.

20171316 Jiao Tengteng (Key Laboratory of Western China's Environmental Systems, Ministry of Education, College of Earth Environmental Sciences, Lanzhou University, Lanzhou 730000, China); Li Jiarui **Changing Trends of Sea Surface Temperatures in the North Atlantic during the Holocene: A Study of Model－Data Comparison** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 747－757, 3 illus., 2 tables, 92 refs.)

返回目录

Key words: Holocene, temperature, numerical simulation, experimental studies, North Atlantic

Changing trends of the sea surface temperatures (SSTs) in the North Atlantic were analyzed in this study through comparing proxy records and climatic simulation results. Climatic simulation results are from a long-term transient simulation performed with a coupled atmosphere-ocean-sea ice general circulation model, the Kiel Climate Model (KCM), forced by the Earth's orbital variations for the last 9 500 years. Other forcing factors such as Greenhouse gas and continental ice sheets have been neglected.

20171317 Kang Wenjun (Key Laboratory of Active Fault and Volcano, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Xu Xiwei **Thermochronological Evidence for Division of Quaternary Uplifting Stages of Namjagbarwa Mt.** (Chinese Journal of Geophysics, ISSN0001-5733, CN11-2074/P, 59(5), 2016, p. 1753-1761, 5 illus., 1 table, 50 refs.)

Key words: Quaternary, uplifts, thermochronology, Himalayas

In this paper, the authors collected eight samples from a vertical profile near the Gega village, Namjagbarwa Mt. core region in the eastern Himalayan syntaxis, with elevations ranging from 3 022 m to 4 048 m. The samples are dated at the lab. of Apatite to Zircon Inc Company with the LA-ICPMS method. The authors obtain reliable AFT cooling central ages and track length data of the eight samples.

20171318 Li Dawei (Key Laboratory of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Li Dewen **Discovery of Sand Wedge/Ice Wedge Cast of Last Glaciation in Wuhai Basin and Its Paleoclimatic Significance** (Journal of Earth Sciences and Environment, ISSN1672-6561, CN61-1423/P, 38(3), 2016, p. 410-419, 6 illus., 3 tables, 37 refs., with English abstract)

Key words: paleoclimate, last glacial age, grain-size analysis, Ordos Basin

20171319 Li Ju (Institute of Urban Meteorology, China Meteorological Administration, Beijing 100089, China); Cao Xiaoyan **Analysis of Spectral Characteristics for Wind Velocity in the Low Layer of the Atmosphere in the Beijing-Tianjin-Hebei City Cluster Area during Summer** (Chinese Journal of Geophysics, ISSN0001-5733, CN11-2074/P, 59(5), 2016, p. 1553-1565, 7 illus., 2 tables, 55 refs.)

Key words: atmospheric circulation, Beijing, Tianjin, Hebei Province

Power spectrum and wavelet were used to analyze data from 6wind profiler stations in the Beijing-Tianjin-Hebei city cluster area during summer 2010. The results show the differences of frequencies among 6 stations are smaller closer to the ground, and bigger farther away from the ground. The differences of frequencies greater than 1-day are smaller than the frequencies less than 1-day. Obvious diurnal oscillations, which are different with locations of stations and effects by topography, are identified at hundreds meters level for all of stations.

20171320 Liu Jingjing (State Key Laboratory of Marine Geology, Tongji University, Shanghai 200092, China); Zhang Jiangyong **Vegetation Changes Recorded by Leaf-Wax N-Alkanes around the South China Sea** (Quaternary Sciences, ISSN1001-7410, CN11-2708/P, 36(3), 2016, p. 553-563, 4 illus., 1 table, 69 refs.)

Key words: vegetation, South China Sea

Changes of terrestrial vegetation which are recorded by leaf wax from higher plants are in response to paleoclimate changes. Several indexes of n-alkanes derived from leaf wax, including CPI, Σ Odd(C_{25-33}), ACL and $\delta^{13}C_{n-alkane}$ are used to indicate changes of sedi-

ment sources, the terrestrial input and vegetation types. The authors collect the remote sensing dataset of the Land Cover Type and the Vegetation Continuous Fraction from LP DAAC, and preliminarily investigate and calculate the CJC4 plant coverage around the South China Sea (SCS).

20171321 Lun Zijian (School of Environmental Studies, China University of Geosciences (Wuhan), Wuhan 430074, China); Gu Yansheng **Phytolith Records in the Surface Soils of Dajiuhu Wetland and Their Environmental Significance, Shennongjia Mountains** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 656－665, 4 illus., 66 refs.)
Key words: wetlands, vegetation, magnetic susceptibility, Hubei Province

This study aims at learning the relationship between modern vegetation compositions, phytolith indices and physicochemical indicators, in order to learn the environmental significance of phytolith in the surface soils of Dajiuhu Wetland. Dajiuhu Wetland is located in the northwest part of Shennongjia forest region, Hubei Province. Original peats, which can provide continuous records of the subtropical alpine wetland climate, are conserved here. Phytolith analysis in the surface soils is the basis of palaeoenvironment reconstruction.

20171322 Sun Weiyi (Key Laboratory for Virtual Geographic Environment, Ministry of Education, State Key Laboratory of Geographical Environment Evolution, Jiangsu Provincial Cultivation Base, School of Geography Science, Nanjing Normal University, Nanjing 210023, China); Liu Jian **Modeling Study on the Characteristics and Causes of East Asian Winter Monsoon on Centennial Time Scale** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 722－731, 7 illus., 2 tables, 45 refs.)
Key words: palaeomonsoon, genesis, numerical simulation, Eastern Asia

The characteristics and causes of the East Asian winter monsoon (EAWM) on centennial time scale were analyzed in this paper, based on the climate simulation results over the past 2 000 years using the Community Earth System Model (CESM) with the low resolution (T31_g37, which is equivalent to 3.75°×3.75°). It has an important scientific significance to recognize the climate change on centennial time scale and distinguish the influence of the external forcing on the EAWM. There are six experiments to be compared in this research.

20171323 Wang Fu (Tianjin Centre, China Geological Survey, Tianjin 300170, China); Li Jianfen **Paleo－environment Change and River Channel Infilling since Late MIS 3 Recorded by Drilling Core QX01 from the Coastal Lowland of Bohai Bay** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 301－309, 5 illus., 3 tables, 28 refs.)
Key words: buried channels, environmental geological surveys, Bohai Bay

In this paper, the authors used an AMS 14C and OSL dated core (QX01) from the coastal lowland of Bohai Bay to decipher the late Pleistocene paleo－environment change and river channel infilling. Sedimentary facies, grain size, largeamplitude changes in benthic foraminifer's assemblage and diatom assemblage composition indicate that the major environmental changes occurred during the last 40 000 years in the study area. Then the last glacial maximum came, the sea water retreated out of Bohai Sea and the study area was swamp or shallow lake; the sedimentation stopped or at a very low level till the early Holocene, 8 ka. With the end of the last glacial maximum, the sea water came back again during 8～4 ka, represented by fresh swamp, salt marsh, and shallow sea deposits.

20171324 Wang Junting (College of Resources and Environmental Sciences, Hebei Normal

返回目录

University, Shijiazhuang 050024, China); Lu Suqing **The Airborne Pollen Assemblages and Their Relationship with Climatic Factors in Hunyuan County, Shanxi Province** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 542－552, 8 illus., 4 tables, 35 refs.)

Key words: pollen analysis, climate, Shanxi Province

This paper tries to reveal the characteristics of airborne pollen assemblages and their relationship with climatic factors based on the pollen trap data collecting from 2007 to 2009 at the eastern Loess Plateau in Hunyuan County, Shanxi Province. The RDA analysis between pollen influxes and climate factors show that the pollen assemblages at Hunyuan are mainly influenced by the average wind speed and maximum wind speed, then by the relative humidity, temperature and precipitation.

20171325 Yin Jianjun (Key Laboratory of Karst Dynamics, Ministry of Land and Resources of Guangxi, International Research Center on Karst, Auspices of UNESCO, Institute of Karst Geology, Chinese Academy of Geological Sciences, Guilin 541004, China); Lin Yushi **A Tentative Discussion on a Heavy Precipitation Event Recorded by Stalagmites from Qixing Cave, Guizhou Province** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(3), 2016, p. 326－332, 3 illus., 1 table, 37 refs.)

Key words: stalagmites, Guizhou Province

In the background of global warming and higher frequency of extreme events, the study and investigation of the mechanism of extreme events that are likely to happen at present and in the future constitute a realistic and urgent work. Using geological records to reconstruct the past extreme events is an important method for detecting the extreme events. In this study, choosing Qixing Cave (25°59′N, 107°16′E, 978 m a. s. l.) in Guizhou Province as the study object, the authors investigated two calcite－aragonite stalagmites with similar depositional characteristics, and found that the same tawny laminas deposit in the top part of the two stalagmites may record the same heavy precipitation event.

20171326 Zhang Enlou (State Key Laboratory of Lake Science and Environment, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing 210008, China); Chen Jianhui **Subfossil Chironomid Archives and Its Application in Palaeolimnological and Global Change Study in China** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 646－655, 3 illus., 88 refs.)

Key words: Quaternary, fossils, paleoenvironment

Chitinous head capsules of chironomid larvae can be well preserved in lacustrine sediments. Owing to its distinctive characteristics, subfossil chironomids has attracted increasing attentions of scientists for paleoenvironment reconstructions. In China, relationships between subfossil chironomids and environmental factors have been investigated continuously in the lower and middle reaches of the Yangtze River, Tibetan Plateau and Semi－arid region of Xinjiang and Inner Mongolia.

20171327 Zhang Fengju (State Key Laboratory of Lake Science and Environment, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing 210008, China); Xue Bin **The Lake Status Change of China since the Late Quaternary and Its Significance for Palaeoenvironment** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(3), 2016, p. 598－611, 3 illus., 1 table, 125 refs., with English abstract)

Key words: Late Quaternary, lakes, paleoenvironment, China

Lake level changes respond to variations in regional water balance and are sensitive to climate changes. Thus it has been one of the most important indicators applied to reconstruct paleoprecipitation and water budget.

The 80 lakes, which compiled in the Chinese Lake Status Data Base (CLSDB, Ver. 2, in press), have provided the information of the spatial changes of lake status for each one-thousand year.

GEOCHEMICAL EXPLORATION

20171328 Chen Jian (Institute of Geology and Mineral Exploration, Qinghai Bureau of Geology of Nonferrous Metals, Xining 810007, China) Zhong Hao **The Application of Element Ore-Forming Energy Method to the Extraction of Geochemical Anomaly Information** (Acta Geologica Sichuan, ISSN1006-0995, CN51-1273/P, 36(2), 2016, p. 335-338, 3 illus., 1 table, 13 refs.)

Key words: geochemical exploration, Qinghai Province

The present paper tries to extract information of ore-forming element geochemical anomalies from 1 : 10 000 soil geochemical survey data in Muri, Qilian by use of element ore-forming energy method. The ore-forming energy anomalies characteristic of comprehensive geochemical information in this area are delineated and classified at all levels on the basis of histogram screening, providing scientific basis for optimizing geochemical anomalies and future prospecting.

20171329 Shi Jianmin (Shenyang Institute of Geology and Mineral Resources, CGS, Shenyang 110034, China); Shi Shaoshan **Correlation Analysis of Circular Structures and Geochemical Anomaly and the Significance in Ore Searching** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(2), 2016, p. 181-185, 5 illus., 5 refs.)

Key words: geochemical exploration, ring structure

With Map GIS platform, the correlation of element anomaly by geochemical survey and circular structures interpreted by remote sensing is analyzed. Based on the interrelationships of spatial positions of the two factors, the coupling types are classified. According to the remote sensing interpretation of the structural framework in the surveying area, the distribution characteristics of the element anomaly in the structural framework are recognized. This coupling relationship can be used in geological investigation for mineral resources to improve geochemical anomaly verification and mineral exploration.

20171330 Wang Chunnyu (Development and Research Center of China Geological Survey, Beijing 100037, China); Lü Jun **Delineation of Prospecting Target by Geochemical Survey: The Discovery of the Daxintun Antimony-Gold Deposit in Heihe, Heilongjiang Province** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(2), 2016, p. 186-191, 4 illus., 2 tables, 8 refs.)

Key words: geochemical exploration, antimony ores, gold ores, Heilongjiang Province

The Daxintun antimony-gold deposit is located in the northeast of the Daxinganling metallogenic belt, with frequent tectonic and magmatic activities. With the soil geochemical survey, some anomalies of Sb, Au, Hg, Ag, As and W are delineated, among which Sb, Hg and Au anomalies are dominated. The concentration centers of each element are essentially coincident. The delineated soil geochemical anomalies are then confirmed by trenching, with the finding of antimony-gold orebodies. The Daxingtun antimony-gold ore prospecting target is successfully established.

20171331 Xu Guohu (No. 11 Geological Team, Xinjiang Bureau of Geology and Mineral Resources, Changji 831100, China); Zhang Jiankui **Discussion on Geochemical Anomalies and Ore-Prospecting Direction of Suwushijie Area in Middle Altyn** (Northwestern Geology, ISSN1009-6248, CN61-1149/P, 49(2),

返回目录

2016, p. 257—262, 1 illus., 2 tables, 7 refs.)
Key words: geochemical exploration, polymetallic ores, Xinjiang

Based on the geochemical data of Suwushijie area in Middle Altyn, the distribution characteristics about 39 kinds of geochemical elements have been briefly introduced. After analyzing the geochemical anomalies of this studying area, the main metallogenic types and ore—prospecting direction have been discussed in this paper. Relating to polymetallic deposit, the volcanogenic massive sulfide Cu polymetallic deposits, Cu—Ni deposits related to Ordovician mafic—ultrabasic complex, skarn—quartz vein type W—Sn polymetallic deposits related to Early Paleozoic magmatism, rare metallic and REE deposits, as well as Au deposits with tectonic altered rock type will be served as the main ore—prospecting directions.

20171332 Xu Yanlong (Geological Survey of Gansu Province, Lanzhou 730000, China); Huang Zengbao **Accumulate Multiply Superposition on Chemical Prospecting Adhibition and Forecast Soil Measurement Ht—1 Synthetical Anomaly in Mingshui Area Gansu Province** (Gansu Geology, ISSN1004—4116, CN 62—1191/P, 25(2), 2016, p. 68—75, 5 illus., 4 tables, 9 refs.)
Key words: geochemical exploration, soils, Gansu Province

Mingshui is located in the north of Beishan Mountain in Gansu Province. The regional exploration of geochemical data indicate that the Au, Cu, W, Mo and Sn exploration abnormities, are in large—scale, high intensity and obvious abnormity concentration centers, which distributed along the Lower Carboniferous volcanic rocks, that acidic volcanic rocks exposed. Based on 1∶50 000 soil measurement geochemical survey, the Ht—1—1 synthetically anomaly being analyzed, according to the characteristics of elements combination. It would be declined the front halo, near ore halo, and tail halo. At the same time, two Ⅱ—grade geochemical anomaly areas also be declined.

20171333 Yan Hongze (School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Sun Binbin **Comparison of Ashing and Microwave Digestion in Analyzing Geoelectrochemical Polyurethane Foam Samples** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(3), 2016, p. 276—283, 3 illus., 1 table, 18 refs., with English abstract)
Key words: lead—zinc deposit, geo—electrochemical methods, Inner Mongolia

GEOPHYSICAL EXPLORATION

20171334 An Shaole (School of Earth Science and Engineering, Xi'an Shiyou University, Xi'an 710065, China); Yuan Bingqiang **Gravity and Magnetic Anomalies and Their Relation to the Metallogenic Belt in the Central Segment of the Qinling Orogenic Belt** (Geological Journal of China Universities, ISSN1006—7493, CN32—1440/P, 22(2), 2016, p. 299—307, 8 illus., 3 tables, 33 refs.)
Key words: magnetic anomaly, orogenic belts, Qinling Mountains

In order to study the relationship between gravity, magnetic anomalies and mineralization belt in the central segment of the Qinling orogenic belt, the authors collected and processed the gravity and magnetic survey data of the Qinling orogenic belt. The authors also analyzed and interpreted the distribution characteristics of gravity and magnetic anomalies and inferred fault structures in the study area. The results of this research are useful for studying geological evolution of the Qinling orogenic belt, geological structures (especially in deep structures), and fracture distribution. The findings will also provide an important

reference for predicting favorable areas of mineralization.

20171335 Ao Huaihuan (Guizhou Academy of Geologic Survey, Guiyang 550005, China); Zhang Dengpan **Discussion of Topography Influence and Correction by High－Density Electrical Method** (Guizhou Geology, ISSN1000－5943, CN52－1059/P, 33(2), 2016, p. 132－139, 7 illus., 2 tables, 4 refs.)

Key words: multi－electrode resistivity methods, transient electromagnetic methods

By study the influences of high－density electrical method by the topography, according to the geophysical work of "1∶50 000 hydrogeology and environmental geology survey of Wumeng mountain area in 2015", the topography correction is introduced, the results before and after correction are compared. The method is improved effective by compare with TEM information, hydrogeology information and some drilling projects, it affords examples for water exploration in the mountain area.

20171336 Cao Quanbin (PetroChina Hangzhou Research Institute of Petroleum Geology, Hangzhou 310023, China); Yang Zhili **Influencing Factor Analysis and Application of Pre－Stack Simultaneous Inversion Technique** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 136－141, 6 illus., 17 refs., with English abstract)

Key words: prestack inversio

20171337 Geng Meixia (Institute of Geophysics and Geomatics, China University of Geosciences, Wuhan 430074, China); Huang Danian **Three－Dimensional Constrained Inversion of Full Tensor Gradiometer Data Based on Cokriging Method** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1849－1860, 8 illus., 1 table, 47 refs.)

Key words: gravity exploration, inverse problem, kriging, geostatistics

In this paper, cokriging inversion equation is framed with several components with known densities as constrains. The method proposed can easily conclude the prior information, for example the known densities, into the inversion equation, so that non－uniqueness of inversion can be reduced. This method is tested on sythetic models and the inverted results show that the resolution, especially the vertical resolution of the resulted model can be significantly improved with the densities as constrains.

20171338 Ji Yanju (College of Instrumentation and Electrical Engineering, Jilin University, Changchun 130026, China); Xu Peng **Geometric Parameter Fitting of Air Flight Based on PCA－RBF Neural Network** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1498－1505, 11 illus., 5 tables, 32 refs.)

Key words: aero－electromagnetic methods, neural network system

This paper calculated abnormal response of the electromagnetic coil to arbitrary attitude change of transmit－receive coil based on the airborne electromagnetic system. The authors proposed the fitting algorithm for the principal component analysis and RBF neural network (PCA－RBF). Then the authors fitted the batch electromagnetic response of the line profile with the radial basis function (RBF) neural network method. Finally the authors analyzed theoretical simulation data and actual flight data from the Tongbai area, Henan Province. The results show that the PCA and RBF fitting method can fit the airborne electromagnetic data better, which provide a new approach to process the flood data from airborne electromagnetic surveys.

20171339 Ke Naichen (Key Laboratory of Earthquake Prediction, Institute of Earthquake Science CEA, Beijing 100036, China); Hua Wei **Inversion for the Minimum 1D Velo-**

city Model of the Xiaowan Reservoir Area (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 38－47, 6 illus., 2 tables, 21 refs., with English abstract)

Key words: velocity, one－dimensional models, Yunnan Province

20171340 Li Ang (Exploration and Development Research Institute of Daqing Oilfield Co., Daqing 163712, China); Zhang Liyan **Numerical Modeling and Characteristic Analyses of the Elastic Wavefields in the Fracture Media** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 127－133, 6 illus., 2 tables, 21 refs., with English abstract)

Key words: elastic waves, numerical simulation

20171341 Li Chenwei (Chengdu University of Technology, Chengdu 610059); Zeng Min **Mineralization Information Extraction for Vegetation－Covered Area of the Gaoyan Mn Deposit in Chongqing with Remote Sensing** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 328－331, 345, 6 illus., 7 refs.)

Key words: remote sensing, manganese ores, Chongqing

Remote sensing technology is one of the most important prospecting methods. However, its effect is not obvious in most vegetation coverage areas. This study applies a kind of mineralization information extraction method in vegetation coverage area based on Landsat 8 multi－spectral remote sensing data to the vegetation coverage area of the Gaoyan Mn deposit in Chongqing. This method uses specific mask technique for eliminating interferences of vegetation, water, snow, cloud in order to utilizing band ratio method in high vegetation coverage area to extract valuable remote sensing mineralization and alteration information. Then, false color composite is made by use of variety of bands. Finally, in combination with geological data, remote sensing anomaly characteristics of the manganese ore beds and their roof and floor are determined.

20171342 Li Jianhui (Hubei Subsurface Multi－Scale Imaging Key Laboratory, Institute of Geophysics and Geomatics, China University of Geosciences, Wuhan 430074, China); Colin G. Farquharson **A Vector Finite Element Solver of Three－Dimensional Modelling for a Long Grounded Wire Source Based on Total Electric Field** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1521－1534, 14 illus., 1 table, 48 refs.)

Key words: electromagnetic field, finite element methods, forward modelling

In the authors' three－dimensional scheme, the source item in the Helmholtz equation of total electric field, the governing equation for vector finite element (FE) method, could be dealt with in the form of HED. By this model, the authors also validated the algorithm presented here. For a conductive prism buried in a homogeneous half－space with a 100 m－long grounded wire, the electric field calculated by the algorithm was compared with those calculated by the integral equation method based on secondary electric field, the finite volume method based on total electric field and the FE method based on magnetic vector potential. The results show that these four numerical solutions coincide well with each other.

20171343 Li Xiyuan (College of Geosciences, Northeast Petroleum University, Daqing 163318, China); Jing Tian **Identifying Method of the Seismic Wave Field Characteristics and Their Lithofacieses for the Volcanic Rocks** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 121－126, 7 illus., 18 refs., with English abstract)

Key words: volcanic rocks, elastic waves

20171344 Li Zhenchun (Department of Geoscience, China University of Petroleum (East China), Qingdao 266580, China); Yang Fusen **High－Precision Numerical Simulation of First－Order Qp－Waves in the Transversely Isotropic(TI) Medium Optimized by the LS－RSGFD Method** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1477－1490, 13 illus., 1 table, 47 refs.)

Key words: VTI media, numerical simulation

In order to overcome the limitations of anisotropic elastic wave modeling, the authors studied the numerical simulation methods of first－order qP－waves in the acoustic approximated VTI and TTI media. Numerical results demonstrate that TI first－order qP－wave equation can describe the kinematics features of qP－waves in anisotropic media; introducing a control parameter can mitigate the instability problem and thus stabilize qP－wave propagation in heterogeneous TTI media; and applying the optimal LS－RSGFD method can acquire high－precision synthetic seismic recordings.

20171345 Liu Dechang (National Key Laboratory of Science and Technology on Remote Sensing Information and Image Analysis, Beijing Research Institute of Uranium Geology, Beijing 100029, China); Yan Bokun **The Application of Airborne Hyper－spectral Remote Sensing Technology to Mineral Resources Exploration** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(3), 2016, p. 349－358, 16 illus., 4 tables, 17 refs.)

Key words: remote sensing, geophysical exploration

In this study, the authors put forward several methods, such as metallogenic environment analysis, ore deposit locating model, and tracking of ore bearing structures, for ore prospecting in the Liuyuan－Fangshankou and Xiemisitan areas based on the airborne hyper－spectral remote sensing images obtained by using CASUSASI/TASI spectrometers of China National Key Laboratory of Science and Technology on Remote Sensing Information and Image Analysis. Application examples, in which 7 ore prospects were identified, demonstrated that the methods presented in this study are valuable for ore prospecting, and the achievement can be further used in other areas.

20171346 Liu Lei (Geosciences Research Institute of SINOPEC Shengli Oilfield Company, Dongying 257015, China); Jia Lingxiao **Joint Application of Two Inverting Methods in NP－4 Structural Zone** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 130－135, 6 illus., 16 refs., with English abstract)

Key words: fan deltas, inverse problem

20171347 Peng Zidong (China University of Geosciences, Beijing 100083, China); Shen Junfeng **The Application of Near－Infrared Spectroscopy to Identify Altered Minerals and Its Implications for Geologic Prospecting: A Case Study of the Gangcha Gold Deposit in Gansu Province** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 822－831, 10 illus., 7 tables, 27 refs.)

Key words: infrared spectra, gold ores, Gansu Province

On the basis of geological mapping of the mining area, a BJKF－1 near－infrared mineral analyzer was used for drill hole ZK07－4 along No. 7 exploration line, drill hole ZK08－6 along No. 8 exploration line, and drill holes ZK27－1, ZK27－3, ZK27－4 along No. 27 exploration line to study the alteration characteristics. Some major alteration minerals were identified by the analyzer, which included illite, mica, dickite, kaolinite etc. According to the distribution and content changes of alteration minerals, phyllic alteration is related to mineralization, and the proven orebodies are mainly located in the phyllic alteration zone.

返回目录

20171348 Qu Niannian (China University of Geosciences, Beijing 100083, China); Yao Lian **Study of Three－Dimensional Spatial Shapes and Determination of Intermediate－Acid Intrusive Rock in Middle and East Guizhou Province** (Guizhou Geology, ISSN1000－5943, CN52－1059/P, 33(2), 2016, p. 126－131, 5 illus., 7 refs.)

Key words: geophysical exploration, Guizhou Province

With the higher exploration level of resources and the decreasing of surface mine, it is of great significance to find and delicate concealed and semi－concealed intermediate－acid intrusive bodies in the mineral exploration. Based on the regional gravity data, combining with magnetic data, geochemical data and previous geological research, we indentified concealed and semi－concealed intermediate－acid intrusive bodies, and obtained their three－ dimensional spatial shapes by three dimensional inversion, quantitative analyzed their three－dimensional spatial shapes and the relationship with mineral, finally provides important information for deep prospecting.

20171349 Teng Fei (Tianjin Center of China Geological Survey, Tianjin 300170, China); Zhang Yan **Gravity and Magnetic Anomalies Features in the Erlian－Dong Ujimqin Banner Area** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(4), 2016, p. 614－621, 6 illus., 39 refs.)

Key words: magnetic anomaly, geophysical exploration, Inner Mongolia

In this paper, the authors tried to explore regional deep－seated structures and their roles in the ore－forming process in the Erlian－Dong Ujimqin Banner area based on the result of 1∶200 000 gravity and magnetic data interpretation and the study of regional geological data and physical properties of rocks. Metallogenic settings of Late Paleozoic were studied based on the zonation of gravitational and magnetic fields in the study area. The study of 1∶200 000 gravity and magnetic anomalies provided important information in search for endogenetic metallic deposits from different aspects in the study area, and as a result, 6 prospective zones were delineated.

20171350 Wang Liang (Guizhou Academy of Geologic Survey, Guiyang 550005, China); Fan Yumei **Determination of Mineralization Prospecting Area in Southeast Guizhou by Regional Geophysical and Geochemical Prospecting Information** (Guizhou Geology, ISSN1000－5943, CN52－1059/P, 33(2), 2016, p. 117－125, 2 illus., 27 refs.)

Key words: magnetic anomaly, gold ores, Guizhou Province

In the gold concentration area of Tianzhu－Jinpin－Liping, the exploration degree is low and has no breakthrough in the deep area. The deep study shows linear fracture structure and magmatic－hydrothermal activities in this area, it's found gold element anomaly distribution has good corresponding relation with it, 16 gold mineralization prospecting areas are determined. It's predicted the east of F1 is quartz vein gold area, granite gold discovery between F1 and F0, Jiangnan axis margin area is microscopic disseminated gold studying area. The occurrence of gold has deep relation with metallographic clastic rock and relative stratum, or deep magmatic activity.

20171351 Wu Yiquan (College of Electronic and Information Engineering, Nanjing University of Aeronautics and Astronautics, Nanjing 211106, China); Cao Zhaoqing **Change Detection of Multi－Temporal Remote Sensing Images Based on Contourlet Transform and ICA** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1284－1292, 9 illus., 36 refs.)

Key words: remote sensing, image processing

In order to improve the accuracy and computational efficiency of change detection of multi－temporal remote sensing images, a change detection algorithm based on contour-

let transform and independent component analysis(ICA)is proposed. The experimental results show that compared with the existing three change detection algorithms such as the algorithm based on PCA, the algorithm based on ICA and the algorithm based on wavelet transform and ICA, the proposed algorithm in this paper can more effectively separate change information and reduce computational complexity.

20171352 Xie Zhifeng (No. 2 Geology and Mineral Exploration Team, Gansu Provincial Bureau of Geology and Mineral Exploration Bureau, Lanzhou 730020, China); Meng Zhen **Discussionon Control of Structures to Ore Bodies in Delenuoer Iron Deposit from Geomagnetic Anomaly** (Gansu Geology, ISSN1004－4116, CN 62－1191/P, 25(2), 2016, p. 56－61, 7 illus., 1 table, 13 refs.)

Key words: magnetic anomaly, iron ores, Gansu Province

The formation age of Delenuoer iron mine ore－bearing strata is Mesoproterozoic. Subsequently, it experiences many stages and times tectonic superimposition activities. On the basis of the ground magnetic survey data of potential field conversion and structural enhancement processing, this paper takes the information extraction and interpretation of the deep structure, initially establishes a mining area's basic tectonic framework, reveals different periods, different directions and different natures of structure to control the ore body, better solves a difficult problem that complex ore body shape is disadvantages of prospecting, and effectively improve ore occurrence rate of the drilling engineering.

20171353 Xu Weidong (Institute of Disaster Prevention, Sanhe 065201, China); Zhang Xuemin **Relationship between very Low Frequency Electromagnetic Wave Attenuation and Directions** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 60－67, 5 illus., 15 refs., with English abstract)

Key words: electromagnetic waves, attenuation

20171354 Yang Rui (No. 3 Oil Production Plant of Daqing Oilfield Co., Daqing 163113, China) **Characteristics and Influencing Factors of the Seismic Wave Field in Two－Phase VTI Medium** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(3), 2016, p. 142－150, 4 illus., 1 table, 27 refs., with English abstract)

Key words: elastic waves

20171355 Zeng Weiling (College of Energy Resources, Chengdu U niversity of Technology, Chengdu 610059, China); Duan Xinguo **The Logging Interpretation Model of Organic Carbon of the Yanchang Formation in the Heshui Region, Ordos Basin** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 320－322, 327, 8 illus., 2 tables, 12 refs.)

Key words: geophysical logging, Ordos Basin

This paper sets up a mathematic model of TOC, resistivity log and natural gamma by means of multivariate regression analysis. And this model is applied to the logging interpretation of organic carbon of the Yanchang Formation of Zhuang－50 and Ning－70 wells in the Heshui Region, Ordos Basin. The results show validity of the model.

20171356 Zhang Bo (College of Geo－exploration Sciences and Technology, Jilin University, Changchun 130026, China); Yin Changchun **3D Modeling on Topographic Effect for Frequency－/Time－Domain Airborne EM Systems** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1506－1520, 17 illus., 29 refs.)

Key words: aero－electromagnetic methods, forward modelling

In this paper, the authors present analgorithm using edge－based unstructured finite－element method (FEM). The authors find

返回目录

that:1)for frequency—domain AEM systems, the real part of AEM response contains more information to deep earth than the imaginary part; and 2)for time—domain AEM system, the magnetic induction dB/dt reveals the underground conductivity distribution better than the B field. These features provide the theoretical basis for identification and correction of topographic effect from the AEM measurements.

20171357 Zhang Lijuan (Institute of Disaster Prevention, Sanhe 056200, China); Zhang Yanfang **Basic Feature and Reflection Problem of Thermoelastic Wave in Liquid—Solid Interface** (Earthquake, ISSN1000—3274, CN11—1893/P, 36(2), 2016, p. 68—75, 1 illus., 1 table, 13 refs.)

Key words: elastic waves, reflectance coefficient

In this paper, the authors established an equation of thermoelastic wave equation in thermal elastic fluid medium. It is pointed out that two kinds of waves can propagate in the medium possibly. The basic concept and characteristics of the thermoelastic P wave have been established. The reflection problem of thermoelastic waves in a liquid—solid interface has been studied. In addition, the reflection coefficient, the expression of the transmission coefficient, the character of reflective thermal elastic P wave and the type of SVS wave have also been given.

20171358 Zhang Yanfang (Institute of Disaster Prevention, Sanhe 065200, China); Zhang Lijuan **Propagation Problem and Basic Feature of Thermoelastic P Wave in Medium with Fluid Interlayer** (Earthquake, ISSN1000—3274, CN11—1893/P, 36(2), 2016, p. 76—84, 5 illus., 1 table, 9 refs., with English abstract)

Key words: elastic waves, P—waves

20171359 Zhao Guifu (No. 2 Geology and Mineral Exploration Team, Gansu Provincial Bureau of Geology and Mineral Exploration and Development, Lanzhou 730000, China); Wei Liang **Discussing Geophysical Exploration Methods on Dry—Hot—Rock According to Geothermal Exploration Results in Gonghe—Guide Basin of Qinghai Province** (Gansu Geology, ISSN1004—4116, CN 62—1191/P, 25(2), 2016, p. 62—67, 6 illus., 1 table, 12 refs., with English abstract)

Key words: geophysical exploration, geothermal fields, Qinghai Province

HYDROGEOLOGY & ENGINEERING GEOLOGY

1. HYDROGEOLOGY

20171360 Cheng Yaping (College of Environmental Science and Engineering, Guangxi Scientific Experiment Center of Mining, Metallurgyand Environment, Guilin University of Technology, Guilin 541004, China); Chen Yudao **Review of Quantitative Tracing Studies on Karst Underground River** (Journal of Guilin University of Technology, ISSN1674—9057, CN45—1375/N, 36(2), 2016, p. 242—246, 3 illus., 2 tables, 8 refs.)

Key words: underground streams, karst, Guangxi

In this paper, the quantitative trace technology for karst underground stream has been reviewed, including tracer selection, monitoring and data explanation. Present studies indicate that sodium fluorescein is the first candidate and it is the important foundation in automonitoring with high accuracy, high density and multi—index. Quantitative tracer test can provide parameters of groundwater flow field, hydrogeological structure, tracer retaining time, velocity of transport, dispersion coefficient and provide scientific information for estimation of karst underground stream vulnera-

bility and solute transport.

20171361 Dai Minghong (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023, China); Li Yutao **Temporal and Spatial Variation of Reference Crop Evapotranspiration in Guizhou Province, China** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 342－352, 9 illus., 3 tables, 25 refs.)

Key words: karst features, groundwater, evaporation, Guizhou Province

Taking Guizhou Province as an example, based on the FAO－56 Penman－Monteith equation and meteorological data, the reference crop evapotranspiration (ETo) from 1961 to 2014 in Guizhou Province was estimated. The reference crop evapotranspiration was interpolated in the whole province by using IDW method and temporal and spatial variation of ETo were analyzed. Results show that ETo in the west of Guizhou is higher than that in the eastern and middle part of the province.

20171362 Fang Zhen (Earthquake Administration of Anhui Province, Hefei 230031, China); Sun Panpan **Causes of Groundwater Level Decreases in Wan－27 Well since October 2012** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 85－93, 7 illus., 3 tables, 30 refs., with English abstract)

Key words: groundwater exploitation, water level, hydrochemistry, genesis

20171363 Gu Xiaoyuan (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Lu Qingyuan **Deltaic Progradation and Geo－envrionmental Succession of Coastal Wetlands in the Yellow River Delta** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(3), 2016, p. 682－692, 4 illus., 3 tables, 24 refs.)

Key words: wetlands, Yellow River Delta

The authors study sedimentary sequences formed since the last postglacial in the Yellow River Delta area, reconstruct paleo－environmental evolutions since nearly 10 000 years ago, and analyze controls of the evolutions upon the coastal wetlands successions, on the basis of sedimentary observations, microfossils and dating data from five cores drilled in the Delta area in 2007, together with historic records and remote sensing data. The emphases are put on the discussions upon the deltaic progradation and wetlands successions, and also on the summarization of changes in ecology from aquatic systems to shallow sea wetland, tidal flat wetland and upper delta plain wetland systems and to terrestrial ecosystems.

20171364 Gui Herong (School of Resources and Civil Engineering, Suzhou University, Suzhou 234000, China); Chen Song **Isotopic Geochemical Characteristics of Groundwater and Its Geological Significance in Sunan Mining Area, Anhui Province** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 133－139, 5 illus., 2 tables, 18 refs.)

Key words: groundwater, geochemistry, Jiangsu Province

In order to understand the characteristics of isotopes in groundwater, the analysis of T, D, ^{18}O, $^{87}Sr/^{86}Sr$, $^{13}C_{dic}$ and $^{18}O_{dic}$ compositions of groundwater samples from loose aquifer, sandstone aquifer and limestone aquifer in Sunan mining area, Anhui Province had been performed. The result were used to discuss the evolutionary age, isotope characteristics and its influencing factors of groundwater samples based on traditional graphic methods. The results showed that the tritium contents in groundwater samples from three aquifers are low, which suggests that the groundwater in Sunan mining area are supplied by sub－modern water.

20171365 Liu Pengyu (Institute of Karst Geology, CAGS, Karst Dynamics Laboratory, MLR & GZAR, Guilin 541004, China); Xu Dandan **Analysis of Hydro－Chemical Charac-**

teristics and Ion Resource from Zhaidi Underground River in Guilin, Guangxi (Journal of Guilin University of Technology, ISSN1674—9057, CN45—1375/N, 36(2), 2016, p. 234—241, 8 illus., 3 tables, 19 refs.)

Key words: groundwater, hydrochemistry, Guangxi

From Zhaidi Underground River, the water samples were analyzed in August 2012 in wet season in addition to on—site measurement. Chemical analysis shows groundwater chemical type and salinity and hardness. The result indicates that ion sources come from carbonate dissolution and water rock interaction. The result shows Zhaidi underground river belongs to micro hardness, related to Ca^{2+}, HCO_3^-. Water chemistry type is HCO_3^-Ca, ion mainly comes from dissolution of carbonate rock, dolomite and human activity, with regularities of distribution.

20171366 Ma Jing (No. 3 Geological Team, Anhui Bureau of Coal Geology, Suzhou 234000, China) **Hydrogeology of No. 2 Shaft in the Yuandian Block, Huaibei Coalfield** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 284—288, 4 tables, with English abstract)

Key words: water yield, aquifers

20171367 Qi Jixiang (Institute of Hydrogeology and Environmental Geology, Chinese Academy of Geological Sciences, Shijiazhuang 050061, China); Zhang Zhigan **New Precipitation Method Sampling Procedure of ^{14}C Dating of Groundwater and the Evaluation of the Formerly—Obtained ^{14}C Dating Results** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(3), 2016, p. 387—397, 4 illus., 5 tables, 28 refs., with English abstract)

Key words: groundwater, North China Plain

20171368 Sun Fengxia (Key Laboratory of Earthquake Prediction, Institute of Earthquake Science, CEA, Beijing 100056, China); Cui Yueju **Hydrochemcal Response of Hot Springs around Hetao Basin to the 15 April 2015 M_S 5.8 Alxazuoqi Earthquake** (Earthquake, ISSN1000—3274, CN11—1893/P, 36(2), 2016, p. 105—118, 5 illus., 1 table, 47 refs., with English abstract)

Key words: springs, geochemistry, precursor, Hetao Basin

20171369 Sun Xiaolong (Key Laboratory of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Wang Guangcai **Geochemical Characteristics of Emergent Gas and Groundwater in Haiyuan Fault Zone** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(3), 2016, p. 140—150, 7 illus., 1 table, 58 refs., with English abstract)

Key words: soils, hydrochemistry, groundwater

20171370 Yang Ping (College of Earth Science, Jilin University, Changchun 130026, China); Wang Xinmin **Predicting the Trends of Pollutant Concentrations in Groundwater Based on the Combined Method of the Improved Quantification Theory and RBF Artificial Neural Network** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(3), 2016, p. 151—155, 5 tables, 17 refs.)

Key words: groundwater, water quality

In this paper, an improved quantification theory I proposed by Chikio Hayashi was used as a preprocessing tool to covert quantitative data to qualitative data and to reduce data dimensionality for 20 factors impacting groundwater quality. Then 8 important characteristic factors were used as nodes of input layer in RBF Neural Networks, and RBF ANN model was created through training and learning the sampling data of monitoring well, finally migration and transformation law of pollutants were revealed. The result is relatively accurate for a wide range and has some promotional value.

20171371 Yang Qiaofeng (China University of Geosciences (Beijing), Beijing 100083, China); Wang Ruijiua **Hydrogeochemistry and Stable Isotopes of Groundwater from Shouguang, Laizhou and Longkou in the South Coast Aquifer of Laizhou Bay** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(4), 2016, p. 801－817, 18 illus., 3 tables, 47 refs.)

Key words: groundwater, stable isotopes, Shandong Province

Groundwater salinization is attributed either to evaporation, dissolution or mixing. Seawater intrusion falls into the latter, i. e. mixture of fresh groundwater and seawater, which implies this mixture, occurs not only in the dissloved salts but also in water molecules. The authors confirmed that the groundwater samples in Longkou is also directly recharged from local precipitation, whereas for Shouguang, based on the altitude effect and the local hydrological setting, the authors infer the groundwater is probably recharged from the precipitation of southern mountainous area.

2. ENGINEERING GEOLOGY

20171372 Cui Suli (Geological Department, State Key Laboratory of Continental Dynamics, Northwest University, Xi'an 710069, China); Wang Anguo **Laboratory Test on Compaction Properties of Expansive Soils Reinforced with Cement Kiln Dust (CKD) Content** (Journal of Northwest University, ISSN1000－274X, CN61－1072/N, 46(2), 2016, p. 256－260, 4 illus., 3 tables, 17 refs.)

Key words: expansive soil

In this paper, chemical composition analysis, water properties test, and standard compaction tests have been conducted on expansive soils and expansive soils－CKD mixtures with different CKD content ratio, to study the feasibility of CKD as a modified material for expansive soil roadbed. The analysis of the results on the basic physical properties, water－physical property and the compaction properties have been given, and the results show that with the increase of CKD content ratio the plasticity index decrease, the optimum moisture content is also reduced, while the maximum dry density is increased. It indicated that adding CKD to expansive soil can improve its compaction properties.

20171373 Liu Jin (School of Earth Science and Engineering, Hohai University, Nanjing 211100, China); Zhang Da **Reinforcement Mechanism of Soil Slope Surface with Polymer Soil Stabilizer and Its Application** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(3), 2016, p. 420－426, 7 illus., 2 tables, 27 refs., with English abstract)

Key words: slope stability, engineering geology

20171374 Liu Jinxia (College of Physics, Jilin University, Changchun 130012, China); Cui Zhiwen **Relationships between Uniaxial Stress and S－Wave Reflection Coefficients** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1469－1476, 6 illus., 1 table, 22 refs.)

Key words: stress, S－waves, reflectance coefficient

The investigation of subsurface stress is most important for geophysical exploration. This paper analyzed relationships between uniaxial stress and S－wave reflection coefficients based on the known weak－anisotropy approximations for the anisotropic parameters in stressed media and the reflection coefficients in anisotropic media. The authors proposed a new simple relationship to improve the estimation accuracy of larger uniaxial stress for an interface between an isotropic overburden and an anisotropic medium induced by horizontal uniaxial stress.

返回目录

20171375 Pang Yajin(Key Laboratory of Computational Geodynarnics, University of Chinese Academy of Sciences, Beijing 100049, China); Zhang Huai **Changes of Crustal Stress Induced by Groundwater Over－Pumping in North China Plain** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(4), 2016, p. 1394－1402, 6 illus., 1 table, 43 refs., with English abstract)
Key words: groundwater exploitation, geostress, North China Plain

20171376 Pei Yandong(Tianjin Center, China Geological Survey, Tianjin 300170, China); Wang Guoming **Engineering Geological Characteristics of Late Quaternary Sediments in the Southern Coastal Area of Tianjin Binhai New Area** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(3), 2016, p. 215－220, 2 illus., 2 tables, 19 refs., with English abstract)
Key words: engineering geology, Quaternary, Tianjin

20171377 Su Yuandong (Tibet Institute o f Geological Survey, CNNC, Chengdu 610059, China); Liu Ying **Genetic Mechanism for the Rehegou Debris Flow** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(2), 2016, p. 306－309, 1 table, 7 refs.)
Key words: debris flows, Sichuan Province

The Wenchuan Earthquake on May 20, 2008, resulted in frequent geohazards, especially debris flow in Southwest China. The present paper has a discussion on genetic mechanism for the Rehegou debris flow based on geological, hydrogeological, topographical and meteorological data, providing scientific basis for control of the debris flow. The results indicate the Rehegou mud flow as a heavy rains－dam type debris flow.

20171378 Yao Shengnan (State Key Laboratory of Earthquake Dynamics, Institute of Geology China Earthquake Administration, Beijing 100029, China); He Changrong **Frictional Sliding of Plagioclase Gouge under Lower－Crust Temperature and Relatively Low Effective Normal Stress** (Seismology and Geology, ISSN0253－4967, CN11－2192/P, 38(2), 2016, p. 290－302, 8 illus., 1 table, 31 refs.)
Key words: plagioclase, lower crust, mechanical properties, flexural－slip

The discovery of tremors on the lower crust portion of the San Andreas Fault has attracted more attention on the mechanical properties of the lower crust in recent years, and some experimental studies have been carried out to understand the mechanical behavior. This study is to examine whether the velocity－weakening behavior of plagioclase gouge also applies to relatively lower effective normal stress. The authors found that the frictional sliding of plagioclase are basically the same with the previous results obtained under effective normal stress of 200 MPa, both of which show velocity weakening over the entire temperature range.

20171379 Yuan Sufeng (Shaanxi Provincial Transport Planning Design and Research Institute, Xi' an 710054, China); Wang Wensheng **Site Stability Evaluation and Environmental Impact Analysis on the Working Face of Old Coal Mine in Pangzhuang** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(2), 2016, p. 213－219, 1 illus., 4 tables, 12 refs., with English abstract)
Key words: coal mines, tailings, stability, environmental impact statements

20171380 Zhao Wuji (Department of Architecture, Binzhou University, Binzhou 256600, China); Yin Zhiqiang **Multi－stage Development Characteristics and Geomorphic Evolution Process of the Xijitan Super Large Landslide in the Guide Basin, Upper Reaches of Yellow River** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(3), 2016, p. 709－721, 11 illus., 1 table, 32 refs., with English abstract)
Key words: landslides, Yellow River

ENVIRONMENTAL GEOLOGY

20171381 Cao Liwan (Department of Geosciences, University of Tiibingen, Hölderlinster. 12, Tiibingen 72076, Germany); Hu Shouyun **The Spatio－Temporal Variation of Magnetic Properties of Tree Leaves in Linfen, China and Its Indication to the Atmospheric Pollution of Heavy Metals** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1729－1743, 13 illus., 2 tables, 54 refs.)

Key words: air, magnetic properties, heavy metals, Shanxi Province

Fly ash from industry makes irreparable destruction to human health and ecological system. Here, the authors applied tree leaves with a high spatial resolution of fly ash receivers to investigate air quality in Linfen city, northern China. The spatial distribution of magnetic susceptibility(MS)indicates that values decrease with their distance from the source of contamination. agnetic particles around industrial areas are mainly low－coercivity magnetite, occurring in a larger grain－size range.

20171382 Chen Xinhua (Institute of Resource and Environment, Henan Polytechnic University, Jiaozuo 454003, China); Guo Qiaoling **Distribution and Risk Assessment of Heavy Metal Pollution in Surface Sediment of Kuye River around Coal Mining Area in Shanxi Province, China** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 370－375, 2 illus., 6 tables, 15 refs.)

Key words: environmental pollution, heavy metals, risk analysis

Characteristics of heavy metals(As, Cu, Pb, Zn, Cd, Cr, Co, and Mn)contamination in surface sediment of Kuye River around coal mining area and non－coal mine area in Shaanxi Province, China were analyzed by using index of geo－accumulation and potential ecological risk index. Results indicate that all the contents of heavy metals in Kuye River are higher than soil background values of northern Shaanxi Province. Cd takes a great effect, and it should be monitored and governed in the future.

20171383 Ding Wei (College of Resource and Environmental Engineering, Guizhou University, Guiyang 550025, China); Chen Jing'An **Investigation on Sources of Organic Carbon in Major Rivers in the Catchment of Fuxian Lake, Yunnan Province** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 290－296, 6 illus., 3 tables, 34 refs.)

Key words: water pollution, organic carbon, pollution source, Yunnan Province

In this study, $\delta^{13}C$ values and concentrations of dissolved organic carbon (DOC) and particle organic carbon (POC) of soils, plants, and inflow water were measured to investigate the spatial distribution, source and controlling factors of the organic carbon in Fuxian Lake, Yunnan Province. The results showed that the inflow waters had high DOC concentrations, ranging from 2.79 to 38.02 mg/L, while the concentration of DOC was evidently higher in the west and north than that in the east.

20171384 Du Xuejian (College of Environment and Civil Engineering, Chengdu University of Technology, Chengdu 610059, China); Sun Shuqin **Research on Engineering Control Effect on Hongchun Gully Debris Based on FLO－2D Model** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 376－381, 7 illus., 4 tables, 6 refs.)

Key words: debris flows, integrative harnessing, Sichuan Province

This paper select Ganxipu ditch, Dashui ditch, and Xindianzi ditch from Hongchun

返回目录

Bully as research zones, using the two－dimensional rheological model FLO－2D, continuity equation and motion equation, combined with digital elevation model of network, to set up watershed model, analyze and calculate the debris flow accumulation depth and flow velocity under the condition of engineering governance. Regulation effect on debris was also analyzed by computer numerical methods.

20171385 Fang Chuning (Guangdong Hydrogeology Battalion, Guangzhou 510510, China); Wu Lixia **Eco－geochemical Forecast of Puning Soil Environmental Based on Ecological Geochemistry Surveys** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 353－358, 3 illus., 2 tables, 18 refs.)

Key words: soil geochemistry, Guangdong Province

Based on delayed geochemical hazard model and multifractal model, element speciation and total elements of heavy metals in topsoil from Puning City, Guangdong Province, China were studied. The authors derived that the feature of As, Cd, Pb, Cu, Ni, and Zn is consistent with the delayed geochemical hazards model. Results show that the transformation of TRCP to available form may accelerate and produce geochemical hazard. Based on high concentration continuous multifractal model, Hg and Pb are strongly influenced by human activities.

20171386 Feng Hangjian (Institute of Geological Survey, China University of Geosciences, Wuhan 430074, China); Zhou Aiguo **A Comparative Study on Plum－Rain－Triggered Landslide Susceptibility Assessment Models in West Zhejiang Province** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(3), 2016, p. 403－415, 10 illus., 3 tables, 57 refs., with English abstract)

Key words: landslides, Zhejiang Province

20171387 Gao Yongzhi (Heilongjiang Institute of Geological Exploration and Research, Harbin 150036, China); Zheng Weizheng **Assessment of Geological Environment of Mines in Heilongjiang Province Based on RS and GIS** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 171－175, 2 illus., 1 table, 7 refs.)

Key words: mine, environmental gelolgy, Heilongjiang Province

Supported by the technology of remote sensing (RS) and geographic information system (GIS), the geological environment of mines in Heilongjiang Province is assessed. With quantitative evaluation of the environmental quality, the evaluated results are classified to find out the main environmental geological problems and areas. The evaluation results provide basis for planning and decision－making to protect and improve the geological environmental of mines and to eliminate and reduce the environmental geological hazards.

20171388 Gu Guoliang (Earthquake Administration of Tianjin Municipality, Tianjin 300201, China); Wang Xiaolei **Spatialization of Population and Housing Data in Tianjin Oriented to Rapid Earthquake Loss Assessment** (Earthquake, ISSN1000－3274, CN11－1893/P, 36(2), 2016, p. 149－158, 8 illus., 4 tables, 21 refs., with English abstract)

Key words: seismic hazard, evaluation, Tianjin

20171389 Guo Angqing (Qiqihar Institute of Mineral Resources Exploration and Development, Qiqihar 161006, China) **Negative Effect of the Development and Construction in the Oilfield in Songliao Basin on Geological Environment: A Case Study of Daqing Oilfield** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 176－180, 1 table, 7 refs., with English abstract)

Key words: environmental geology, oil and gas, Songliao Basin

20171390 Hu Qichao (Department of Environ-

mental Science and Engineering, Huaqiao University, Xiamen 361021, China); Hu Gongren **Characteristics of Organic Carbon (OC) and Elemental Carbon (EC) in $PM_{2.5}$ in Winter in Xiamen City, China** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 336－341, 3 illus., 2 tables, 40 refs.)

Key words: air, environmental pollution, organic carbon, carbon, pollution source, Fujian Province

In order to investigate the characteristics of carbon pollution in atmospheric $PM_{2.5}$, $PM_{2.5}$ samples had been synchronously collected in urban and suburban areas of Xiamen City, China from December 10th , 2014 to January 9th , 2015. Concentrations of organic carbon (OC) and elemental carbon (EC) were analyzed by thermal optical transmission (TOT). Xiamen shows a lighter anthropogenic carbon pollution level with the comparative lower concentrations of OC and EC comparing with some domestic and foreign cities.

20171391 Jia Xinsheng (Chuankou Oil Factory, Yanchang Oil Field Co., Yanan 716000 China); Zhang Dong **Hydrogen and Oxygen Isotopic Compositions of Groundwater and Surface Water in South Piedmont Plain of Taihang Mountain and Its Environmental Significance** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 281－289, 7 illus., 2 tables, 22 refs., with English abstract)

Key words: groundwater, oxygen isotopes, hydrogen isotopes, Taihang Mountains

20171392 Jiang Songhe (Department of Environmental Science and Engineering, Huaqiao University, Xiamen 361021, China); Hu Gongren **Speciation and Ecological Risk Assessment of Heavy Metals in Soil from Anxi Tieguanyin Tea Garden** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 359－369, 3 illus., 6 tables, 32 refs.)

Key words: soils, heavy metals, risk analysis, Fujian Province

Modified BCR sequential extraction procedure was applied to extract the speciation of heavy metals (Li, Fe, Zn, Ba, Sr, Ti, Co, Cr, Cd, Mn, Mg, Cu, Ni, Pb, and V) in soil from Anxi Tieguanyin Tea Garden. The bioavailability and ecological risk of heavy metals were evaluated. Results of extraction test show that the speciation of Cd decreases in the order of acid soluble〉residual〉reucible〉oxidizable; the speciation of Pb decreases in the order of reducible〉oxidizable〉acid soluble〉residual; the speciation of Cu decreases in the order of reducible〉oxidizable〉residual〉acid soluble; and the other heavy metals are mainly residual state.

20171393 Li Qian (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, Peking University, Beijing 100871, China); Tian Xiaoru **Paleo－Environmental Significance of Oxygen and Carbon Isotopic Records in Lacustrine Limestone from Anjihaihe Formation, Northern Tianshan** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(3), 2016, p. 398－409, 6 illus., 3 tables, 51 refs., with English abstract)

Key words: paleoenvironment, Tianshan Mountains

20171394 Liu Dianfeng (Department of Bioengineering, Puyang Vocational and Technical Institute, Puyang 457000, China); Lian Bin **Effect of Earthworms on Organic Chemical Components of Soil** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 318－328, 3 illus., 4 tables, 26 refs.)

Key words: soils, organic compounds

To investigate the effect of earthworms on organic chemical components of soil and illuminate the mechanisms of weathering soil minerals by earthworm, the authors extracted organic compounds by solvent methanol from

the soils treated with earthworms, and then characterized the organic components of soil extracts using GC－MS after silylation derivatization. Results showed that hydrocarbons were the most abundant components among all extract, followed by esters. There were 22 exclusive components in the soils treated with earthworms and 26 exclusive components in control group.

20171395 Lu Gang (Guizhou Institute of Geo－environment Monitoring, Guiyang 550004, China) **Analyses of Important Geo－disasters Distribution Rules and Influence Factors of Guizhou Province** (Guizhou Geology, ISSN1000－5943, CN52－1059/P, 33(2), 2016, p. 108－112, 3 illus., 2 tables, 17 refs., with English abstract)
Key words: geologic hazards, Guizhou Province

20171396 Sun Haoran (Key Laboratory of Karst Environment and Geohazard Prevention, Ministry of Education, Guizhou University, Guiyang 550003, China); Xu Siqin **Leaching Study on Arsenic of Antimony Ore Zone by and Antimony in the Soil Tartaric and Malic Acid** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 304－308, 6 illus., 1 table, 18 refs.)
Key words: soil pollution, arsenic, antimony

Leaching effect on arsenic and antimony in soil of antimony ore area in Guizhou Province, China by tartaric and malic acid was studied. Experimental results show that the leaching efficiency of soil arsenic and antimony by tartaric and malic acid increases significantly with increasing of concentrations of acids and increases gradually with increasing leaching time. Experimental results also show that the leaching effect of tartaric and malic acid gradually decreases with increasing pH from 3 to 12.

20171397 Sun Peng (School of Energy and Environment, Inner Mongolia University of Science and Technology, Baotou 014010, China); Li Yanwei **Heavy Metal Pollution in Topsoil from the Baotou Industry Area and Its Potential Ecological Risk Evaluation** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 433－439, 2 illus., 3 tables, 22 refs., with English abstract)
Key words: soils, heavy metals, Inner Mongolia

20171398 Wang Tengyun (School of Earth Science and Resources, China University of Geoscience (Beijing), Beijing 100083, China); Zhou Guohua **The Relationship between Heavy Metal Contents of Soils and Rice in Coastal Areas, Fujian Province, Including Influencing Factors** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 295－301, 1 illus., 4 tables, 26 refs., with English abstract)
Key words: heavy metals, Fujian Province

20171399 Wang Tujin (School of River and Ocean Engineering, Chongqing Jiaotong University, Chongqing 400074, China); Pan Jin **Speciation and Translocation Characteristics of Soil Heavy Metals in the Water Level Fluctuating Zone of Pengxi River in Three Gorges Reservoir Area** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(4), 2016, p. 425－432, 2 illus., 3 tables, 23 refs., with English abstract)
Key words: soils, heavy metals, Yangtze Three Gorgees

20171400 Wang Yanli (State Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environmental Sciences, Beijing 100012, China); Liu Lang **Mass Concentration Analysis and Comparative Study on $PM_{2.5}$ in Beijing City, China in 2014** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(3), 2016, p. 309－317, 6 illus., 1 table, 26 refs., with English abstract)
Key words: environmental pollution, pollu-

tants, quantitative analysis, Beijing

20171401 Xue Kaixi (State Key Laboratory Breeding Base of Nuclear Resources and Environment, East China University of Technology, Nanchang 330013, China); Zhao Baoyun **An Indoor Experimantal Study on Rainfall Infiltration of Unsaturated Red—Clay** (Earth and Environment, ISSN1672 — 9250, CN52 — 1139/P, 44(3), 2016, p. 382—389, 10 illus., 7 tables, 8 refs., with English abstract)
Key words: red soils, percolation, experimental studies

20171402 Yang Tianqing (China Earthquake Network Centers, CENC, Beijing 100045, China); Xi Nan **Fast Determination Method of Seismic Intensity Distribution Based on Discrete Disaster Information** (Earthquake, ISSN1000—3274, CN11—1893/P, 36(2), 2016, p. 48—59, 8 illus., 2 tables, 20 refs., with English abstract)
Key words: seismic hazard, discrete element methods, seismic intensity

20171403 Yin Xian'e (Liupanshui Btanch, Guizhou Institute of Geo—environment Monitoring, Liupanshui 553001, China); Chang Zhisheng **Temporal—Spatial Distribution and Influence Factor Analyses of Geologic Disaster in Shuicheng County, Guizhou Province** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(2), 2016, p. 113—116, 131, 5 illus., 6 refs., with English abstract)
Key words: geologic hazards, Guizhou Province

20171404 Zhang Peiquan (Earthquake Administration of Guangxi, Nanning 530022, China); Long Anming **A Case Study of Hazard Process and Its Origin of an Earthquake in the Panglinghe River Basin in 2010** (Earthquake, ISSN1000—3274, CN11—1893/P, 36(2), 2016, p. 159—166, 3 illus., 6 tables, 11 refs., with English abstract)
Key words: seismic hazard, genesis, Guangxi

20171405 Zhang Yongshuang (Key Laboratory of Neotectonic Movement and Geohazard, Ministry of Land and Resources, Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Guo Changbao **Research on the Geohazard Effect of Active Fault on the Eastern Margin of the Tibetan Plateau** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(3), 2016, p. 277—286, 13 illus., 19 refs.)
Key words: geologic hazards, Qinghai—Tibetan Plateau

The geohazard effect of active fault is one of the important subjects of engineering geology and geohazard research. Based on typical geohazard cases on the eastern margin of the Tibetan Plateau, the authors point out that the coupling mechanism of endogenic and exegetic geological processes is the research direction of geohazards in the future, which can provide important theoretical basis for early recognition and prevention of geohazards in the tectonic active regions.

20171406 Zhang Yueqiao (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Li Hailong **Impact of the 30～40 ka B. P. Warm—Humid Climate in Tibet on the Geo—Environment of the Deep—Incised River Valleys in West Sichuan Province** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(4), 2016, p. 481—492, 11 illus., 1 table, 52 refs., with English abstract)
Key words: climatic controls, geo—ecosystem, Sichuan Province

20171407 Zhou Li (School of Marine Sciences, Sun Yat—Sen University, Guangzhou 510275, China); Shi Guiyong **Preliminary Study on the Microscopic Morphology and Chemical Composition, and Its Source of PM 2.5 in Guangzhou of Guangdong Province** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(3), 2016, p. 302—309, 3 illus., 1 table,

返回目录

31 refs., with English abstract)
Key words: pollutants, ICP—MS

MATHEMATICAL GEOLOGY

20171408 Chen Dingxin (Staff Room 907, PLA Rocket Force Engineering University, Xi'an 710025, China); Liu Daizhi **Application and Improvement of Spatial Temporal Kriging in Geomagnetic Field Interpolation** (Chinese Journal of Geophysics, ISSN0001 — 5733, CN11—2074/P, 59(5), 2016, p. 1743—1752, 8 illus., 1 table, 66 refs.)
Key words: geomagnetic field, interpolation methods

This paper utilized Spatial Temporal Kriging method to improve the interpolation of regional geomagnetic field, by taking time domain information into consideration. A new kind of vector distance was defined to improve the method, meanwhile, selection of the weight in vector distance was discussed. Interpolation of geomagnetic field data from 32 monitoring stations in the region of longitude 87.2 °E～126.6 °E, latitude 19.0 °N～49.6 °N illustrated that, the results of methods which made use of information in time domain were much better than the traditional ones.

20171409 Han Pengwei (Kunming Institute of Prospecting Design, China Nonferrous Metals Industry, Kunming 650051, China); Wu Yinglong **The Application of Excel to the Single Well Steady Flow Pumping Test** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 289—292, 7 illus., 6 refs., with English abstract)
Key words: hydrogeological parameters

20171410 Huang Fei (Key Laboratory of Geo—Special Information Technology, MLR, Chengdu University of Technology, Chengdu 610059, China); He Zhengwei **A Study of Faults in the Nujiang—Lancangjiang—Jinshajiang Area, Southwest China by MAPGIS Based on Fractal Theory and GIS** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 339—342, 3 illus., 2 tables, 10 refs.)
Key words: numerical analysis, fractures, Southwest China

The Nujiang—Lancangjiang—Jinshajiang area in Southwest China is a famous nonferrous and precious metal metallogenic belt. Faulted structure is of great importance to the metallogeny. This paper studies quantitatively the faulted structures in the Nujiang—Lancangjiang—Jinshajiang area by MAPGIS based on fractal theory and GIS. MAPGIS is used for calculating fractal dimension D. ARCGIS is used for analyzing the frequency of the faulted structure. The fractal dimension of 1.8 is favorable to mineralization in this area. The fractal dimension of ore controlling faults is larger than that of common faults. Dense area of faults is not mostly favorable metallogenic one.

20171411 Li Lei (Tianjin Survey Center of China Geological Survey, Tianjin 300170, China); Zheng Jinna **Discussion and Practice on Multi—Source Heterogeneous Spatial Data Integrating Technology: Taking 1∶50 000 Regional Geologic Map Spatial Database as an Example** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(3), 2016, p. 237—240, 2 illus., 7 refs., with English abstract)
Key words: digital mapping, spatial database

20171412 Ouyang Fei (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Luo Xianrong **Digital Mine Construction and 3D Geological Modeling in Jinchang Gold Deposit** (Journal of Guilin University of Technology, ISSN1674—9057, CN45—1375/N, 36(2), 2016, p. 214—222, 7 illus., 28 refs., with English abstract)
Key words: geological modeling, gold ores,

Heilongjiang Province

20171413 Wang Li (Zhanjiang Branch of CNOOC, Zhanjiang 524057, China); Tan Wei **Valuating Method of the Remained Oil Saturation for the Watered— Out Reservoir Based on Parallel Conduction Model** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(2), 2017, p. 134—139, 4 illus., 1 table, 21 refs., with English abstract)

Key words: remaining oil, saturation

20171414 Wei Yemin (No. 137 Geological Team, Sichuan Bureau of Coal Geology, Dazhou 635006, China); Hu Shaohui **The Application of GIS Technology to Basic Geographical Information Updating——By the Example of 1∶10 000 Basic Geological Information Data (Core Elements) Updating of Sichuan Province** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(2), 2016, p. 343—345, 1 illus., 1 table, 6 refs., with English abstract)

Key words: geographic information system, numerical analysis, Sichuan Province

20171415 Zhang Yanhai (No. 11 Geological Party, Hebei Bureau of Geology and Mineral Resources, Xingtai 054000, China); Bai Ming **Drawing of Borehole Column Based on Mapgis ASCII Code Files** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(2), 2016, p. 192—195, 207, 12 illus., 6 refs.)

Key words: date, boreholes

This paper briefly introduces to the application of Excel, Map GIS and MGT6 software in drawing date, boreholes column with examples. In the example, the actual drilling data from mine are adopted. By the software, the ASCII code files are generated first, and the footage per round trip lines are drawn then. After the establishment of the template for drawing of borehole column, the footage per round trip data can be input finally. With this drawing template, other borehole columns can be drawn by directly inputting footage per round trip data.

20171416 Zhao Zitong (State Laboratory of Geohazards Prevention and Geoenvironment Protection, Chengdu University of Technology, Chengdu 610059, China); Shen Junhui **The Application of Unascertained Mathematics Method to the Extraction of Integrated Deformation Modulus Value in Intensive Altered Rock Zone** (Journal of Chengdu University of Technology, ISSN1671—9727, CN51—1634/N, 43(3), 2016, p. 372—377, 4 tables, 15 refs., with English abstract)

Key words: wall rocks, deformation modulus, mathematical methods

20171417 Zhou Xiaoxi (Tianjin Center, China Geological Survey, Tianjin 300170, China); Chen Anshu **Design and Realization of Uranium Mine Drilling Database of the Important Basins in North China** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(3), 2016, p. 231—236, 7 illus., 2 tables, 5 refs.)

Key words: data bases, uranium ores

In this paper, based on the Requirements for integrated drilling data application of uranium geological survey, through analysis of the types and characteristics of coal and oil, uranium drilling datal data, the design of uranium mine drilling database is performed. Then a uranium mine drilling data acquisition and mapping system is developed in C/S framework, the system can provide management of multi—source drilling data and improve the efficiency of the data usage. Duning parctiacl application, uranium mine drilling database began to provide important data foundation for the uranium survey and research.

EXPLORATION ENGINEERING

20171418 Liu Jiying (Exploration and Deve-

返回目录

lopment Research Institute, Daqing Oilfield Company, Daqing 163712, China); Zhang Juhe **Distribution Characteristics of the Polymer Residue in the Polymer Flooded Reservoirs** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(2), 2017, p. 86－91, 3 illus., 5 tables, 20 refs., with English abstract)

Key words: oil and gas migration

20171419 Xiao Hongyan (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences (Wuhan), Wuhan 430074, China); Xu Xiaoqing **Application of Novel Collector Dosage RA－92 in the Flotation Procedure of Low－Grade Carbonate Manganese Ore** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(3), 2016, p. 284－289, 1 illus., 3 tables, 22 refs., with English abstract)

Key words: refractory mineral, recovery ratio

20171420 Zou Changchun (School of Geophysics and Information Technology, China University of Geosciences, Beijing 100083, China); Xiao Liang **General Design of Geophysical Logging of the CCSD－SK－2 East Borehole in the Songliao Basin of Northeast China** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(3), 2016, p. 279－287, 2 illus., 5 tables, 27 refs., with English abstract)

Key words: geophysical logging, Songliao Basin

PROSPECTING EXPLORATION

20171421 Luo Zhaohua (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100083, China); Guo Jin **Ore－Related Geoanomaly Sequences: Examples from the Middle Exploration Area of the Lalingzaohuo River, Qinghai Province** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(4), 2016, p. 212－225, 9 illus., 29 refs., with English abstract)

Key words: metallogenesis, mineral resources

20171422 Wang Ta (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Ji Wenhua **Geological Mapping for Special Issues and a Discussion on Related Topics** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(5), 2016, p. 633－641, 21 refs.)

Key words: geologic mapping

Geological mapping is expected to be the main task in China's future geological survey. This paper proposes and discuses geological mapping for special issues or thematic geological mapping, this kind of mapping is focused on such aspects as solving important geological issues, investigating natural resources and geological environments, studying a specific target geological body, and meeting higher social need, with the integration of geological survey and scientific research. Its scale and scope will depend on the key geological problems and geological target bodies. The concept, necessity and methods of thematic geological mapping are discussed in this paper.

20171423 Wu Xiyan (Key Laboratory of Active Tectonics and Volcano, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Yu Guihua **A Rapid Mapping System in Chinese Active Fault Survey Project** (Seismology and Geology, ISSN0253－4967, CN11－2192/P, 38(2), 2016, p. 397－409, 6 illus., 2 tables, 19 refs.)

Key words: active faults, digital cartography

This paper studies on the rapid methodology of producing active fault survey atlas. This study has been applied to the ongoing active fault survey projects, and resulted in more effective process, normative data and

返回目录

beautiful atlas. Thus these researches will be easier to be used in the future application such as publication, internet sharing, and city development. This methodology has reference value to similar map－producing system in standardization and software development.

20171424 Wu Yihao (School of Geodesy and Geomatics, Wuhan University, Wuhan 430079, China); Luo Zhicai **The Approach of Regional Geoid Refinement Based on Combining Multi－Satellite Altimetry Observations and Heterogeneous Gravity Data Sets** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(5), 2016, p. 1596－1607, 9 illus., 6 tables, 37 refs.)

Key words: geoid

This paper focuses on the role of satellite altimetry in geoid determination as well as the proper combination of multisatellite altimetry data sets and heterogeneous gravity observations for regional geoid refinement. Based on the remove－compute－restore methodology, the residual disturbing potential is parameterized by using Poisson wavelets radial basis functions (RBFs). Meanwhile, the long and short－wavelength part of the gravity field is represented by global gravity model (GGM) and residual terrain model (RTM), respectively.

KEYWORDS INDEX

返回目录

返回目录

返回目录

返回目录

返回目录

返回目录

返回目录

AUTHORS INDEX

Duan Yaoyao 20170833
Fan Lianjie 20170972
Fang Chuning 20171385
Fang Yanjun 20171114
Fang Zhen 20171362
Feng Chong 20170834
Feng Hangjian 20171386
Feng Xudong 20170949
Feng Yongge 20170760
Fu Chao 20170835 20170836
20171269
Fu Kaibin 20170805
Fu Xuehai 20171115
Gao Jinggang 20170837
Gao Ke 20171002
Gao Shanghua 20170776
Gao Shuling 20171116
Gao Wenxi 20171117
Gao Yaning 20171003 20171004
Gao Yongzhi 20171387
Geng Meixia 20171337
Gu Guoliang 20171388
Gu Xiaoyuan 20171363
Gu Xuexiang 20171005
Gu Yansheng 20171312
Gui Herong 20171364
Guo Angqing 20171389
Guo Fusheng 20170838
Guo Jiangfeng 20170797
Guo Jianqiang 20171270
Guo Jingxing 20171118
Guo Xiaowen 20171119
Guo Xiuying 20171120
Guo Yingchun 20171121
Han Jiquan 20171006 20171007
Han Pengwei 20171409
Han Qiang 20170839
Han Xiaoping 20170840
Han Yixiao 20171008
Han Yu 20170841
Han Zhangxiong 20170973
Hao Binbin 20171122
Hao Shuang 20170798
Hao Yuanfang 20170974
He Changjing 20170975
He Dengfa 20170714 20170715
He Ge 20171009
He Jiale 20170976
He Wenxing 20171300
He Yingfu 20171123
He Yu 20171124
Hou Chenyang 20171301
Hu Jun 20170842
Hu Peiyuan 20170843
Hu Qichao 20171390
Hu Wanlong 20170844
Hu Xia 20171125
Hu Xipeng 20171010
Hu Yang 20170716
Huang Chenggang 20171126
Huang Fei 20171410
Huang Guangming 20170717
Huang Hanyu 20170718
Huang Pan 20171127
Huang Peng 20170719 20170720
Huang Wei 20170696 20170697
Huang Wenming 20171128
Huang Xuefeng 20171129
Huang Yun 20171130
Hui Langbo 20170950
Ji Tianliang 20171131
Ji Yanju 20171338
Ji Yunping 20171313
Jia Xin 20171011
Jia Xinsheng 20171391
Jia Zhilei 20170923
Jiang Hongfu 20171132
Jiang Laili 20170721
Jiang Lina 20171133
Jiang Nan 20171314

Jiang Quanke 20170761
Jiang Ran 20170951
Jiang Songhe 20171392
Jiang Xiaojun 20170845
Jiang Zhaoxia 20171315
Jiangbo 20171134
Jiao Ju 20170977
Jiao Tengteng 20171316
Jin Hongzhan 20171012
Jin Xia 20170846
Jing Ming 20171013
Kang Jianwei 20171271
Kang Lei 20170847
Kang Wenjun 20171317
Ke Naichen 20171339
Lai Anqi 20170848
Lai Jin 20171272
Lan Gaoyong 20170978
Lan Xianhong 20170698
Lan Yefang 20170699
Lei Wanshan 20170849
Li A'wei 20170762
Li Airong 20171135
Li Ang 20171340
Li Bin 20170850
Li Chenwei 20171341
Li Dawei 20171318
Li Feng 20171136
Li Fengjiang 20171258
Li Gen 20171137
Li Hai 20171138
Li Jianfeng 20171014
Li Jianghai 20170952
Li Jianhui 20171342
Li Jie 20170851 20171015
Li Jing 20171139
Li Jingchang 20170722
Li Jiuming 20171016
Li Ju 20171319
Li Junjian 20170991 20171017
Li Junjie 20171018 20171019 20171020
Li Keji 20170979
Li Lei 20170980
Li Man 20171411
Li Mou 20170852
Li Pingping 20171140
Li Qian 20171141 20170763 20171393
Li Shaojie 20171142
Li Shengfu 20171239
Li Shengqiang 20170777
Li Song 20171143
Li Tiejun 20171240
Li Wuguang 20171144
Li Xianghui 20170853
Li Xiyuan 20171343
Li Xushan 20170764
Li Ya 20171273
Li Yihe 20170953
Li Ying 20171145
Li Yongjun 20170854
Li Yongsheng 20170778
Li Yongshou 20170924
Li Yuanjie 20170765
Li Zhenchun 20171344
Li Zhenli 20170806
Li Zhichao 20171274
Li Zhiguang 20171259
Li Zhongdong 20170779
Li Zhuang 20170855
Liang Jie 20170954
Liang Jingzhi 20171260
Liang Shuai 20171021
Liang Wei 20170955
Liang Yan 20171275
Liao Kun 20170925
Liao Zhiwei 20170956
Lin Jingyin 20170856
Lin Tian 20170700

Lin Wei 20170723
Lin Xi 20171089
Liu An 20171146
Liu Bei 20171241
Liu Chao 20170724
Liu Cunge 20171147
Liu Dechang 20171345
Liu Dianfeng 20171394
Liu Enfa 20171022
Liu Gui 20170926
Liu Guoheng 20171148
Liu Huan 20170725 20170927
Liu Jianguo 20171023
Liu Jie 20171090
Liu Jin 20171373
Liu Jing 20171149
Liu Jingjing 20171320
Liu Jinheng 20170928
Liu Jinxia 20171374
Liu Jiying 20171418
Liu Keyu 20171150
Liu Lei 20171346
Liu Li 20171151
Liu Lin 20170992
Liu Miao 20171152
Liu Pengyu 20171365
Liu Rui 20170857
Liu Shibao 20171024
Liu Shuo 20170929
Liu Siqing 20170701
Liu Xiaoxue 20171025
Liu Xiu 20170858
Liu Yikun 20171153
Liu Yin 20171026
Liu Yongjun 20171154
Liu Youping 20171027
Liu Yue 20170780
Liu Yunhua 20171028
Liu Zhanqing 20171029
Liu Zhirong 20171276
Liuq Ingping 20170859
Lu Gang 20171395
Lu Jingwen 20170957
Lu Junji 20170958
Lu Lu 20170702
Lu Renqi 20170726
Lu Sanming 20171030
Lu Shufan 20171091
Lu Xiangguo 20171155
Lu Zhiyi 20171156
Lu Ziye 20171157
Lun Zijian 20171321
Luo Jinhua 20170807
Luo Li 20170781
Luo Ronggen 20170981
Luo Shengyuan 20171158
Luo Yanan 20171031
Luo Zhaohua 20171421
Ma Debo 20171159
Ma Fangbin 20170860
Ma Jing 20171366
Ma Shengfeng 20170982
Ma Yanfang 20170808
Mao Fengjun 20171277
Mei Mingxiang 20171278
Meng Meichen 20171242
Meng Qingfeng 20170930
Meng Xuangang 20171160
Meng Yazhou 20171261
Meng Yuanku 20170727
Meng Yumiao 20171032
Miao Fengbin 20171161
Miao Qianyou 20171162
Miao Zhiguo 20171163
Nan Yun 20170861
Ni Gaoqian 20171249
Nie Feng 20170931
Nie Zhangxing 20171033
Niu Hong 20170959
Ou Chenghua 20171164

Ouyang Fei	20171412	Ren Xudong	20171281
Pan Chengze	20171302	Ruan Qinfeng	20170810
Pan Renfang	20171165	Ruan Qingfeng	20170866
Pan Tao	20171166	Sang Jizhen	20171303
Pan Tingting	20171167	Shan Shuaiqiang	20170730
Pang Yajin	20171375	Shang Xiaosen	20171173
Pang Yanchun	20171262	Shao Tongbin	20170934
Pei Yandong	20171376	Shao Wenjing	20170800
Peng Dawei	20171034	Shao Yanxiu	20170782
Peng Nengli	20171035	Shao Ye	20170783
Peng Xianfeng	20171168	Shen Lijian	20170960
Peng Yiwei	20171036	Shen Qihan	20170731
Peng Zidong	20171347	Shen Tingting	20170732
Qi Changwei	20171037	Shen Xuehua	20171041
Qi Jixiang	20171367	Shen Yu	20170983
Qi Ruirong	20170862	Shen Zhanwu	20171042
Qi Youqiang	20170863	Shen Zhongshan	20171174
Qian Hongqiang	20171250	Shi Jianmin	20171329
Qiang Zhengyang	20170766	Shi Laohu	20171043
Qiangba Zhaxi	20170864	Shi Ning	20171175
Qin Shan	20170809	Shi Yonghong	20170935
Qin Tinrong	20171038	Shi Zhiqiang	20171304
Qin Xiaoli	20170728	Song Chao	20171044
Qin Yong	20171169	Song Chuanzhen	20171176
Qiu Yiran	20170865	Song Jiaxuan	20171177
Qiu Zengwang	20171039	Song Ping	20170984
Qiu Zhen	20171170	Song Wei	20171045
Qu Chengyi	20171040	Song Weimin	20170867
Qu Niannian	20171348	Song Yan	20171178
Qu Qinyuan	20171243	Song Ying	20170961
Quan Rui	20170920	Su Daolei	20170784
Ran Huaijiang	20171279	Su Yuandong	20171377
Ren Chao	20170799	Sun Fengxia	20171368
Ren Guoling	20171171	Sun Haoran	20171396
Ren Huaping	20170932	Sun Jiaopeng	20170868 20170962
Ren Jishun	20170729	Sun Jing	20170767
Ren Junfeng	20171172	Sun Peng	20171397
Ren Junping	20171092	Sun Qiushi	20170733
Ren Liudong	20170933	Sun Shengsheng	20171046
Ren Wei	20171280	Sun Weiyi	20171322

Sun Xiaolong 20170785 20171369
Sun Xiaomeng 20170734
Sun Yaoting 20171179
Sun Zhenglong 20171180
Tan Mei 20170801
Tan Panpan 20170869
Tang Jiafu 20170735 20170736
Tang Jinhui 20170870
Tang Juxing 20171047
Tang Wenlong 20170871 20170872
20171282
Tang Wenqing 20170786
Tang Xin 20170873
Tao Yinlong 20170811
Teng Fei 20171349
Teng Jiwen 20170768
Teng Yuntian 20170787
Tian Jian 20170874
Tian Jiepeng 20170875
Tian Shugang 20171283
Tian Shuofu 20171181
Tian Xiangsheng 20171048
Wang Baoquan 20171049
Wang Bin 20170936
Wang Bing 20170985
Wang Bohua 20170876
Wang Chao 20170737
Wang Chaoping 20171182
Wang Chaowei 20170877
Wang Chuang 20171183
Wang Chunnyu 20171330
Wang Dachuan 20171050
Wang Dan 20171284
Wang Dandan 20170878
Wang Daning 20171254
Wang Dengfang 20171184
Wang Dongdong 20171285
Wang Dongsheng 20170879
Wang Duanyang 20171185
Wang Feng 20170880
Wang Fu 20171323
Wang Gaiyun 20171186
Wang Guanmin 20171187
Wang Hongjie 20170881
Wang Hongyue 20170986
Wang Jianbo 20171188
Wang Jianqi 20171051
Wang Jiaqi 20171052
Wang Jingya 20170937
Wang Jue 20171189
Wang Junting 20171324
Wang Ke 20171190
Wang Kun 20171191
Wang Lei 20171053
Wang Li 20171413
Wang Liang 20171350
Wang Liangyu 20170882
Wang Ling 20170812
Wang Lishe 20170883
Wang Liyuan 20170884
Wang Mingliang 20170938
Wang Peng 20170885
Wang Qiang 20171192
Wang Qiong 20170769 20170788
Wang Rui 20171193
Wang Shaoyong 20171194
Wang Shibo 20171195 20171196
Wang Shifeng 20170738
Wang Shuangshuang 20171305
Wang Shuqing 20171306
Wang Ta 20171422
Wang Tao 20170886
Wang Tengyun 20171398
Wang Ting 20170739
Wang Tinghao 20171244
Wang Tong 20171245
Wang Tujin 20171399
Wang Wei 20171197
Wang Weiming 20171199
Wang Xiabin 20171198

Wang Xiaofang 20170789
Wang Xiaowei 20170887
Wang Xiaozheng 20171054
Wang Xinli 20171055
Wang Xuefeng 20171056
Wang Yanli 20170987 20171400
Wang Yanquan 20170888
Wang Yanxun 20171057
Wang Yawei 20170939
Wang Yong 20171058 20171059
Wang Yongsheng 20170740
Wang Yunfeng 20170889
Wang Zhihui 20170890
Wang Zhiyuan 20170689
Wei Chunjing 20170940 20170941
Wei Dong 20171200
Wei Kai 20171201
Wei Longmeng 20170891
Wei Wenjin 20171246
Wei Xiaolin 20170892
Wei Xuemei 20171263
Wei Yemin 20171414
Wei Yongfeng 20170963
Wen Quan 20171202
Weng Kai 20170818
Wu Beijuan 20170964
Wu Cailai 20170893
Wu Jin 20171203
Wu Lin 20171307
Wu Qi 20170894
Wu Qilin 20171204
Wu Xiaoyan 20171060
Wu Xiaozhi 20171205
Wu Xiyan 20171423
Wu Yihao 20171424
Wu Yiquan 20171351
Wu Zhenhan 20170741
Wu Zhiping 20171206
Wu Zhonghai 20170790
Xi Jilou 20170791
Xia Bingwei 20171093
Xia Yanju 20170895
Xiang Zhongjin 20170896
Xiao Chuantao 20171264
Xiao Hongyan 20171419
Xie Chaoyang 20171207
Xie Chenglong 20170897
Xie Hui 20170770
Xie Kairui 20170898
Xie Qinglu 20170899
Xie Zhifeng 20171352
Xing Bo 20171061 20171062
Xing Hao 20170900
Xing Lida 20171265
Xu Fang 20171063
Xu Guifen 20171286
Xu Guohu 20171331
Xu Jin 20171208
Xu Liming 20171287
Xu Liqing 20170742
Xu Longhua 20170813
Xu Mo 20171209
Xu Shilin 20171288
Xu Wei 20170901
Xu Weidong 20171353
Xu Xianbing 20170743
Xu Yanlong 20171332
Xu Yawen 20170902
Xu Yuchen 20170690
Xue Chunji 20171064
Xue Huaimin 20170903
Xue Kaixi 20171401
Xue Lanhua 20171065
Yan Deyu 20170802
Yan Hongze 20171333
Yan Jianping 20171210
Yan Ruitao 20171211
Yang Geng 20170744
Yang Haibo 20171212
Yang Jiyou 20170965

Yang Keji 20170745
Yang Min 20170942
Yang Minggui 20171066
Yang Ning 20171247
Yang Ping 20171370
Yang Qiaofeng 20171371
Yang Rui 20171354
Yang Sen 20171289
Yang Shuo 20170904
Yang Tianqing 20171402
Yang Ting 20171067
Yang Wenlong 20171068
Yang Xiao 20171213
Yang Xiaoyong 20170905
Yang Xingke 20170746
Yang Xinliang 20171214
Yang Yuling 20170814
Yang Zhangzhang 20170906
Yang Zhihua 20170747 20170748
Yao Mingjun 20171290
Yao Shengnan 20171378
Yao Tingting 20171215
Yao Wei 20170907
Ye Xiaozhou 20170749
Ye Zhanghuang 20171094
Yi Wei 20171216
Yin Jianjun 20171325
Yin Xian'e 20171403
Yin Xiao 20170988
Yin Zhiqiang 20170792
Ying Lijuan 20171069
You Jun 20171070
Yu Dingjie 20170750
Yu Haifei 20170908
Yu Liangliang 20170966
Yu Lu 20170793
Yu Shenyang 20171291
Yu Wenchao 20171308
Yu Xiaohui 20170967
Yu Xingxing 20170943
Yu Yan 20171251
Yu Yang 20170794
Yu Zhuoying 20170944
Yuan Dongyang 20170945
Yuan Lingling 20170909
Yuan Sufeng 20171379
Yue Xiaoyuan 20170795
Yue Yaodong 20171217
Yue Zilong 20170815
Yun Long 20170771
Zeng Wei 20171071
Zeng Weiling 20171355
Zeng Xiongwei 20171218
Zeng Zhongcheng 20170968
Zha Xianfeng 20170751
Zhai Mingjian 20170752
Zhan Xiaogang 20171292
Zhang Aikui 20170910
Zhang Bo 20171356
Zhang Chunlei 20171293
Zhang Dan 20170816
Zhang Daokuo 20171072
Zhang Enlou 20171326
Zhang Fengju 20171327
Zhang Guotao 20171219
Zhang Guozhen 20171073
Zhang Hai 20171074
Zhang Huihua 20170946
Zhang Jian 20171075 20171220
20171221
Zhang Junfeng 20171222
Zhang Kuihua 20170753
Zhang Lianchang 20171076
Zhang Lijuan 20171357
Zhang Limin 20170947
Zhang Liuyi 20170691
Zhang Long 20171077
Zhang Lusuo 20171294
Zhang Na 20171295
Zhang Ni 20170989

Zhang Peiquan	20171404	Zhao Zhigang	20170754
Zhang Sheng	20170990	Zhao Zitong	20171416
Zhang Wangming	20171223	Zheng Deshun	20170969
Zhang Wengao	20171095	Zheng Fulong	20171248
Zhang Wenlong	20171309	Zheng Mianping	20171096
Zhang Xiaobo	20171224	Zheng Wei	20171253
Zhang Xiaofei	20170911	Zheng Weihong	20170817
Zhang Xinnian	20171078	Zheng Xiaoli	20170755
Zhang Xiuyun	20171225	Zhong Hui	20170918
Zhang Xuejun	20171226	Zhong Senfang	20171083
Zhang Yanfang	20171358	Zhou Boyu	20170970
Zhang Yanhai	20171415	Zhou Chuanming	20171297
Zhang Yingli	20170912	Zhou Guangzhao	20171231
Zhang Yongmei	20170913	Zhou Jianbo	20170756
Zhang Yongshuang	20171405	Zhou Le	20170703
Zhang Yueqiao	20171406	Zhou Li	20171407
Zhang Yujin	20171255	Zhou Lu	20171232
Zhang Yuyan	20170914	Zhou Weigui	20171084
Zhang Zebin	20171079	Zhou Wuyong	20171085
Zhang Zhaowei	20171080	Zhou Xiang	20171233
Zhang Zhongxun	20171227	Zhou Xiaoxi	20171417
Zhao Bingbing	20170915	Zhou Xinhuai	20170919
Zhao Dongyu	20170916	Zhou Yan	20171234
Zhao Guifu	20171359	Zhou Zhiguang	20171311
Zhao Jiancang	20171081	Zhu Aiyu	20170796
Zhao Jianhua	20171228	Zhu Changyu	20171235
Zhao Juxing	20171296	Zhu Guang	20170757
Zhao Ligang	20171082	Zhu Hongtao	20171236
Zhao Shanrong	20170948	Zhu Kechao	20170704
Zhao Shuxia	20171229	Zhu Xingge	20171097
Zhao Shuyue	20171310	Zhu Yongchao	20170693
Zhao Wei	20171230	Zhuo Yanqun	20170758
Zhao Wuji	20171380	Zong Xian	20170705
Zhao Zelin	20170917	Zou Changchun	20171420
Zhao Zhe	20170692	Zou Hao	20171086

返回目录

SERIALS

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返回目录

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ISSN1000—3118 CN11—1905/Q
Xinjiang Geology
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Xinjiang Petroleum Geology
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Yunnan Geology
ISSN1004—1885 CN53—1041/P