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GENERAL GEOLOGY

20170001 Chen Jianping (Institute of High and New Techniques Applied to Land Resources, China University of Geosciences, Beijing 100083, China); Wang Xiang **On the Methodology of Lunar Lithological Classification Based on Spectral Characteristics as Exemplified from Apollo 16 Moon Landing Area** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 77－86, 7 illus., 2 tables, 82 refs.)

Key words: spectroscopy, Moon, petrology

This paper gets the sampling path coordinates by using the NASA planetary data system to provide the Apollo moon landing point image data sampling circuit, with the correction of data interferometer of Chang'E 2 interference imaging and India M3 data space. The authors adopt the analysis methods of the moon rock type spectrum characteristics, select mainly lithologic 87 classes, 285 pieces of rock samples of the 36 stations covered the Apollo moon landing, analyses the typical rock absorption reflection characteristics of each order by using M3 data after correction, establish the typical rock standard remote sensing image spectral library, then obtains good results by comparing Apollo 623 rock samples, at the same time, complete lithology profile around Apollo 16 landing sites and discuses the rock formation in the study area.

20170002 Dai Deqiu (Institute of Geology, Hunan University of Science and Technology, Xiangtan 411201, China); Zhou Changsheng **The Formation of Warking－Lovering Rim of Plagioclase－Olivine and Else Two Typical Ca－, Al－Rich Inclusions** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 64－70, 2 illus., 3 tables, 33 refs.)

Key words: petrology, chondrites

In this paper, the authors report the petrography, mineral chemistry and oxygen isotopes characteristics of three CAIs (C#1: plagioelase－olivine inclusion; GRV 022459－2RI5: type A inclusion; GRV 021579－3RI5: spinel－rich spherule inclusion) and their W－L rim. C#1 inclusion was crystallized from melts. The oxygen isotopes of W－L rim are similar with the interior minerals, and its argue for a same ^{16}O－rich reservoir of W－L rim and interior minerals of C#1 inclusion. The petrography and mineral chemistry argues that GRV 022459－2RI5 was likely assemblages of solar nebular condensates, and the W－L rim of the CAI was the latest assemblages of nebular condensates. GRV 021579－3RI5 was crystallized from melts, and the W－L rim of the spinel－rich spherule was the latest assemblages from the melts.

20170003 Ding Xiaozhong (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Wang Liang **Study on Geological Evolution and Stratigraphic Features of the Copernican Period of the Moon** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 10－18, 6 illus., 1 table, 42 refs.)

Key words: maria, stratigraphy

This paper explained the stratigraphic characteristics of each epoch of Copernican Period through the analyzing and studying on the typical impact craters, which provided the information for the features and effects of the younger impact action of the Moon. Finally, the paper discussed the stratigraphic boundary of Copernican Period－Eratosthenian Period briefly, and proposed a new program by integration discrimination based on lunar chronology multi－source data to re－determine the lower limit of Copernican Period.

20170004 Gan Hong (Lunar and Planetary Science Research Center, Institute of Geo-

chemistry, Chinese Academy of Sciences, Guiyang 550081, China); Wei Guangfei **Electrostatic Migration of Lunar Dust on Sunlit Surface: A Primary Theoretical Result** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 151－157, 3 illus., 31 refs.)

Key words: Moon, subaerial environment

In space environment, dust grains exposed in solar wind plasma and ultraviolet radiation carry positive electrostatic charge since photoemission dominates. Charged dust grains on the sunlit lunar surface are driven by electrostatic field and/or micrometeorite impacts. Assuming that the local electric field and the Debye length are 5 V/m and 1 m respectively, charged dust grains with the radius <0.37 μm move in "jumping mode", or else "bombing mode". The results showed that the dust events on lunar nightside detected by Lunar Dust Experiment (LDEX) in the orbit altitude of 20～60 km might be related to electrostatic field, but that on lunar dayside does not include the part of electrostatic migration.

20170005 Guo Dijun (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Liu Jianzhong **A Study of Lunar Typical Crater Ejecta and its Implications for Lunar Geologic Mapping** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 53－63, 7 illus., 2 tables, 43 refs., with English abstract)

Key words: lunar crust, map compilation

20170006 Ji Jinzhu (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Liu Jianzhong **Impact Basin of Mare Nubium: Reconstruction Andgeological Evolution** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 127－134, 8 illus., 47 refs., with English abstract)

Key words: maria, impact structure

20170007 Li Bo (Shandong Provincial Key Laboratory of Optical Astronomy and Solar－Terrestrial Environment, Institute of Space Sciences, Shandong University, Weihai 264209, China); Ling Zongcheng **Geochronology, Petrogenesis and Geological Significance of the Lunar Basalts around CE－3 Landing Site** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 19－28, 10 illus., 3 tables, 51 refs.)

Key words: lunar samples, basalts

Lunar basalts are mainly located in the Maria, and made up of anorthosite, pyroxene and olivine. Different from basahs in Earth, they are rich in Fe and depleted in Na and K. The origin, ages and compositions of the lunar basalts are the basis of understanding the formation and evolution of lunar rocks. The rock samples returned from the Moon have limited numbers and don't cover the CE－3 landing site, thus, the methods of analyzing the rocks in ground labs cannot be used to study lunar basalts. In this paper, the researches focused on the compositions, origin, distribution, age and sequence of basalts in and under lunar surface around CE－3 landing site. The methods the authors used in the paper included: crater size－frequency distribution, the underlying basahs identification, the compositions derived from the remote sensing data and so on.

20170008 Ling Zongcheng (Shandong Provincial Key Laboratory of Optical Astronomy and Solar－Terrestrial Environment, Institute of Space Sciences, Shandong University, Weihai 264209, China); Zhang Jiang **Lunar Global FeQ and TiO_2 Mapping Basedon the Recalibrated Chang'E－1 IIM Dataset** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 87－99, 8 illus., 3 tables, 52 refs.)

Key words: lunar crust, hyperspectral remote sensing

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20170009 Liu Jingwen (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550051, China); Liu Jianzhong **Comprehensive Analysis of the Lunar Orientale Basin and Research of the Initial Impact Condition** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 135—143, 9 illus., 33 refs.)

Key words: Moon, impact structure

Orientale Basin is the youngest multi—ring basin on the moon. Previously, there are a lot of researches about formation theories of Orientale Basin, but most of them are based on the vertical impact formation mechanisms. However, some scholars provide the image that Orientale Basin is an oblique impact, but there are no detail parameters. By comprehensively analyzing the LRO WAC image data, LOLA, M^3 and IIM, the authors interpret the topographic feature and material compositions of the Orientale Basin. Then combining the formation theory of impact craters, the authors suggest that it has a central uplift ridge (central uplift line) in the melt zone, which divides the center into the smooth and rough parts. It is perpendicular to the impact trajectory of Orientale Basin and caused by the shock wave putting during the impact process. Then using the GRAIL data, the authors discuss the reasons of the region gravity anomalies of Oriental Basin.

20170010 Lu Peng (College of Geoexploration Science and Technology, Jilin University, Changchun 130026, China); Chen Shengbo **Experimental Study on Bidirectional Reflectance Characteristics of Minerals on Lunar Surface** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 107—112, 9 illus., 22 refs.)

Key words: lunar crust, petrology

Surface material composition is an important part of lunar detection. The absorption features in visible band of mineral is analyzed in order to identify mineral on lunar surface. As a weathering product of lunar rock, the compositions of lunar soil consist of diagenetic minerals, such as plagioclase and vulcanite, and so on. Bi—directional reflectance of single minerals is studied in this paper, affected by composition, surface physical poperty and so on. Using Fileldspec 3 of ASD Company to measure spectra of anorthose and clinopyroxene ranging from 350 to 2 500 nm, bi—directional reflectance with different grain size are measured. Meantime, the result shows a remarkable bi—directional reflectance character. The hot spot is occurred in azimuth angle 0° or 180°. The reflectance increased when the particle size is decrease. The study on bi—reflectance make it possible to select geometric observation for improve the accuracy of lunar surface exploration.

20170011 Ma Ming (College of Geoexploration Science and Technology, Jilin University, Changchun 130026, China); Chen Shengbo **Major Element Abundances at the Apollo 15 Landing Site: Results from Diviner Data** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 144—150, 7 illus., 4 tables, 26 refs., with English abstract)

Key words: lunar samples, chemical elements, inverse problem

20170012 Shi Feng (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 55002, China); Li Shijie **Weathering Effects on Physical Property of Ordinary Chondrites** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 1—6, 6 illus., 1 table, 34 refs.)

Key words: meteorites, physical properties

Physical properties played important roles during evolutionary processes of meteorite parent bodies. Some physical properties of meteorite might be significantly altered due to terrestrial weathering. In order to investigate the influence of weathering on ordinary chondrite physical properties, the physical proper-

ties (grain density, bulk density, porosity, magnetic susceptibility, thermal conductivity, and reflectance spectrum) of different depth of a Kumtag meteorite were measured using density analyzer, kappameter, thermal conductivity analyzer and spectral photometer, respectivly. The results show that the grain density, porosity, magnetic susceptibility and reflection spectrum of H ordinary chondrite decrease with increasing weathering degree.

20170013 Sun Lingzhi (Shandong Provincial Key Laboratory of Optical Astronomy and Solar－Terrestrial Environment, Institute of Space Sciences, Shandong University, Weihai 264209, China); Ling Zongcheng **Radiative Transfer Modeling of Lunar Mafic Minerals: A Case Study in Chang'E－3 Landing Region** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 43－52, 7 illus., 3 tables, 44 refs., with English abstract)
Key words: maria, imaging spectral remote sensing, inverse problem

20170014 Wang Qinglong (College of Earth Sciences, Jilin University, Changchun 130061, China); Liu Jianzhong **Redefinition and Geological Significance of Periods of Basaltic Magma Filling in Lunar Mare Imbrium** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 29－42, 9 illus., 2 tables, 77 refs., with English abstract)
Key words: lunar samples, basalts, igneous activity

20170015 Xu Yingkui (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Li Xiongyao **Evolution of Lunar Magma Ocean and Crust Formation under Initial Conductive Lid.** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 1－9, 7 illus., 3 tables, 60 refs.)
Key words: magmas, lunar crust

The early state of the Moon is thought to be Lunar Magma Ocean (LMO). Studies of LMO not only have significant meaning for recognizing the internal structure of the Moon, but also can be indicative for the origin of the Moon and planets. The dominated model of the LMO suggests that after 80% of the LMO solidified, plagioclase starts to crystallize and floats to the surface to form anorthositic crust and the whole solidifying time for the LMO is only several million years. The dominated model has discrepancy with the Apollo observations that crystallization age of anorthosites span 270 Myr. To solve this problem, the authors focus on the temperature gradient in the LMO and apply mass transport under thermal gradient to its evolution. Chemical heterogeneity can occur in the initially homogenous silicate melt under thermal gradient, which is named thermal diffusion.

20170016 Yang Qiuju (School of Physics and Information Technology, Shaanxi Normal University, Xi'an 710119, China); Hu Zejun **Modeling and Prediction of Ultraviolet Auroral Oval Boundaries Based on IMF/Solar Wind and Geomagnetic Parameters** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 426－439, 5 illus., 6 tables, 40 refs.)
Key words: interplanetary space, geomagnetic field, regression analysis

The size of the auroral oval is closely related with the solar wind－magnetosphereionosphere coupling process, the accurate prediction of which plays an important role in space weather study and forecast. In this paper, a total of 3 805 000 poleward boundary points and 1 215 000 equatorward boundary points are automatically identified from Polar ultraviolet images by using the fuzzy c－means clustering method. With the massive dataset, the authors statistically analyze the relationship between the auroral oval boundaries and interplanetary magnetic field (IMF), solar wind parameters (SWP), and geomagnetic in-

dex.

20170017 Yao Meijuan (China University of Geosciences, Beijing 100083, China); Chen Jianping **The Grading and Evolution Analysis of Lunar Crater Based on Optimum Partition and Grading Method** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 119－126, 4 illus.,4 tables,29 refs.)
Key words: Moon, impact structure

Impact craters are the widespread units on the moon, which occupy most area of lunar surface. The diameter of craters is different from each other and varies from micrometers to hundreds of kilometers, and its degradation degree has a close relationship with age. In order to study the crater diameter and its evolution history, a quantitative grading method to classify the large variety of craters is needed. Combining with diameter, depth information of lunar crater database LU60645GT and age information of Lunar－Impact－Crater－Database (2011), the authors use optimum partition and grading method to classify the craters and make quantitative statistics of its morphological parameters.

20170018 Yu Wen (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Science, Guiyang 550081, China); Li Xiongyao **Laboratory Thermal Conductivity Measurement of Pyroxene Powder under Low Temperature and Atmospheric Pressure Conditions: Implication for the Studies on Lunar and Martian Surface Thermal Environment** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 99－106, 4 illus.,6 tables,39 refs., with English abstract)
Key words: Moon, Mars, pyroxenite

20170019 Zhang Jiang (School of Physics, Shandong University, Jinan 250100, China); Ling Zongcheng **Photometric Behaviors and Classification of Reiner Gamma Swirl Materials** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 113－118, 7 illus., 3 tables, 18 refs., with English abstract)
Key words: Moon, spectroscopy, magnetic field

20170020 Zhang Shuai (Shandong Provincial Key Laboratory of Optical Astronomy and Solar－Terrestrial Environment, School of Space Science and Physics, Shandong University (Weihai), Weihai 264209, China); Tian Anmin **A Statistical Study of the Plasma Sheet in the Near and Middle Earth Magnetotail** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 411－418, 10 illus., 32 refs.)
Key words: interplanetary space, electromagnetic field

In this paper, the probability of the Cluster－C1 satellite encountering the plasma sheet is examined statistically by utilizing the proton flux and β data from the CODIF and FGM equipment on board the Cluster－C1. Using data from July to November of the year 2001～2004, the distributions of the probability of the satellite in the plasma sheet are mapped on the Y－Dz plane (Dzdenotes the distance from the neutral sheet) during the southward and northward IMF periods, respectively. By comparison, the authors found that the plasma sheet is thinner during southward IMF periods than that during northward IMF periods. It is more obvious in the flank regions of the plasma sheet. The authors also found that the plasma sheet in the dusk side is thinner than that in the dawn side.

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20170021 Bing Zhiwu (Liaoning Institute of Geology and Mineral Resources Exploration, Shenyang 110032, China) **Variation of Deposi-**

tion Rate of the Major Coastal Estuaries in Liaoning Province during the Last Century (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 74－78, 4 illus., 1 table, 5 refs.)

Key words: sedimentation rates, coastal zones, Liaoning Province

Based on testing and checking by ^{137}Cs method and ^{210}Pb method, this paper quantitatively analyses 663 core samples from 13 drill holes to study the deposition rate changes in the main coastal estuaries in Liaoning Province over a hundred years. The result shows that the deposition rates vary in different areas and times. The deposition rate of estuary of Liaohe River is the largest (23.66 mm/a), belonging to medium－high rate deposition. The slowest rate is in the western Liaoning coastline, with gradually reducing trend. The deposition rate in the western Liaoning coast increases with depth.

20170022 Cai Tinglu (Key Laboratory of Coast & Island Development of Ministry of Education, School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023); Ni Jianyu **The Characteristics of Chemical Parameters and the Pollution Evaluation of Heavy Metals in Surficial Sediments of Four Typical Bays, Hainan Province** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 93－102, 2 illus., 7 table, 35 refs., with English abstract)

Key words: heavy metals, pollution source, Hainan Province

20170023 Chen Bin (Key Laboratory of Marine Hydrocarbon Resources and Environmental Geology, Ministry of Land and Resources, Qingdao 266071, China); Liu Jian **Study of Heavy Metals in Bottom Sediments of the East China Seas (Bohai, Huanghai and the East China Sea): A Review of Current Status** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 43－56, 2 illus., 7 tables, 112 refs.)

Key words: heavy metals, East China Sea

A great amount of heavy metals is discharged from large and small rivers into the Eastern China Seas, which include the Bohai, Huanghai and the East China Sea in total, and eventually preserved in the bottom sediments, which makes the marine environment faced with the serious heavy metal pollution. Various methods have been adopted to identify the sources of heavy metals in marine sediments, and the stable isotope of Pb is believed the most successful indicator. Although huge amounts of heavy metals have been discharged into the Chinese Eastern Seas, the marine sediment offshore remain in good quality, except the Jinzhou Bay which is faced with the serious heavy metal pollution.

20170024 Hou Xiyong (Yantai Institute of Coastal Zone Research, CAS, Yantai 264003, China); Hou Wan **Shape Changes of Major Gulfs along the Mainland of China since the Early 1940s** (Acta Geographica Sinica, ISSN0375－5444, CN11－1856/P, 71(1), 2016, p. 118－128, 5 illus., 5 tables, 17 refs.)

Key words: bays, China Seas

In this paper, spatial dataset of gulf shoreline and gulf shape in seven phases since the early 1940s was delineated based on topographic maps and remote sensing imageries, and a group of indices including the ratio of natural shoreline, the shoreline utilization degree, shoreline swing direction, gulf area, gulf shape index and gulf centroid were used to analyze the spatial－temporal characteristics of gulfs in detail.

20170025 Li Jianghai (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Zhang Huatian **Mid－Ocean Ridge Jump and Extension in the Context of Hotspots: Discussion on the Tectonic Evolution of Indian Ocean** (Geological Journal of China Universi-

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ties, ISSN1006－7493, CN32－1440/P, 22 (1), 2016, p. 74－80, 4 illus., 32 refs.)

Key words: sea floor, tectonic evolution, Indian Ocean

This paper is based on the compilation of the Indian Ocean Tectonic Map and the analyses of the tectonic pattern and significant tectonic events of Indian Ocean. Three problems are further discussed concerning the initial breakup mechanism of Indian Ocean, ridge jump and hotspots, and mid－ocean ridge extension. The authors draw the following conclusions: 1) the Indian mid－ocean ridges can be divided into two systems: Southeast Indian Ridge－central Indian Ridge－Carlsberg Ridge (East Branch), and Southwest Indian Ridge (West Branch); 2) the initial breakup was controlled by vertical compression－horizontal extension and developed along pre－Cambrian orogen; 3) Indian Ocean experienced two major ridge jump processes; and 4) the Atlantic and Pacific mid－ocean ridge systems joined in Indian Ocean in Paleogene. Its terminal was continuously fragmented.

20170026 Liu Jinqing (College of Marine Geosciences, Ocean University of China, Qingdao 266100, China); Zhang Yong **Distribution and Provenance of Heavy Minerals in Surface Sediments of the Qingdao Offshore Area** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 69－78, 4 illus., 2 tables, 29 refs.,)

Key words: heavy minerals, Shandong Province

Based on the data of 127 offshore sediments and 22 river sediments from Qingdao coastal area, the authors studied the distribution patterns and mineral provenance of the heavy minerals. The study area is characterized by a heavy mineral assemblage consisting of hornblende－epidote－biotite－limonite－authigenic pyrite. Three mineral assemblage provinces are recognized using cluster analysis. The offshore area around the Tianheng－Qianliyan Islands (Province 1) has a hornblende－epidote－limonite－biotite－actinolite assemblage, derived mainly from the Wulong River, partly influenced by the Yellow River. The offshore area to the east of Laoshan cape (Province 2) has a hornblende－epidote－limonite－garnet assemblage, largely attributed to relict sediment and coastal erosion. The nearshore area of Haiyang－Rushan (Province 3) has a hornblende－authigenic pyrite－biotite－hydrobiotite－epidote－limonite assemblage, indicating mixed sources of the Rushan River, the Yellow River and coastal erosion, dominated by materials from the Yellow River.

20170027 Liu Zhongya (Chinese Academy of Geological Sciences, Beijing 100037, China); Peng Xuanming **The Distribution and Activities of Active Faults in the Bohai Strait and Its Adjacent Areas** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 87－97, 8 illus., 39 refs.)

Key words: fractures, earthquakes, Bohai Strait

A high－resolution seismic survey has been carried out to reveal the distribution pattern and activity characteristics of the active faults in the Bohai strait and adjacent areas. The survey has found that the NNE－trending faults and NW－trending faults control the tectonic movement of the Bohai Strait, and the main faults in both directions have been active since Late Pleistocene. By comparing it with the earthquake data, the authors found that those faults are more active in the junction areas and have caused great earthquakes in history and have the possibility to happen again in the future. A further analysis of the distribution and activity characteristics of these faults shows that they are caused by movement of the Indian Plate and the Pacific Plate. s can control the distribution of earthquakes.

20170028 Pang Yumao (Institute of Oceanology, Chinese Academy of Science, Qingdao

266071, China); Zhang Xunhua **Comparative Study of Tectonic Evolution and Petroleum Geological Conditions of Typical Superimposed Basins in Upper and Lower Yangtze Block** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 133－142, 4 illus., 2 tables, 18 refs.)

Key words: structural evolution, Yellow Sea

The Yangtze region in South China bears great oil potential and is now one of the important sites for petroleum exploration in marine sediments in China. Upon the basis of tectonic evolution and deposition in the Yangtze block, this paper is devoted to the comparative study of the similarities and differences of macro－geological features between the Upper and Lower Yangtze. The results suggest that the tectonic evolution of the superimposed basins in the upper and lower Yangtze Block is similar in Paleo－Mesozoic, but different in Meso－Cenozoic. The time boundary of differentiation is about Indosinian and the controlling factors is the interaction among the Yangtze Block and adjacent tectonic units.

20170029 Shang Luning (College of Environmental Science and Engineering, Ocean University of China, Qingdao 266100, China); Zhang Xunhua **Fault Belts and Igneous Rocks of the Okinawa Trough and Adjacent Areas: Evidence from Gravity and Magnetic Data** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 99－106, 7 illus., 15 refs.)

Key words: igneous rocks, magnetic anomaly, Okinawa Trough

The Okinawa Trough is an active tectonic area with widespread faults and igneous rock bodies. In order to study the characteristics of the fault belts and igneous rocks, the authors calculated the vertical and horizontal derivatives of gravity and magnetic anomalies on 1∶1 000 000 scale. The results show that there are two groups of fault belts distributed in the Trough and adjacent areas, running parallel and perpendicular to the trough, respectively. The NW and NWW trending fault belts, which are perpendicular to the trough itself, are mainly strike－slip faults, formed in earlier time and gradually propagated southeastward together with the tectonic evolution of the East China Sea.

20170030 Sun Weiping (The Second Institute of Oceanography, SOA, Hangzhou 310012, China); Hu Chuanyu **Distribution and Sources of Trace Metals in the Surface Sediments of Prydz Bay, Antarctica** (Acta Sedimentologica Sinica, ISSN1000－0550, CN62－1038/P, 34(2), 2016, p. 308－314, 3 illus., 4 table, 39 refs.)

Key words: marine sediments, minor elements, Antarctica

Trace elements in marine sediment can be used to reflect anthropogenic influence on marine systems, to trace the origin and transformation of the marine substances, to indicate sedimentary environment and early diagenesis, and even to reconstruct the global change of climate. However, studies of trace elements in marine sediments are rarely reported from East Antarctica. Combined with biogenic silica and grain size of the sediments, the sources of trace elements were discussed based on the enrichment factors and principle component analysis.

20170031 Wang Zhen (Ocean University of China, College of Marine Geosciences, Qingdao 266100, China); Qiao Lulu **Progress on Retrieval Models of Suspended Sediment Concentration from Satellite Images in the Eastern China Seas** (Acta Sedimentologica Sinica, ISSN1000－0550, CN62－1038/P, 34(2), 2016, p. 292－307, 4 illus., 2 tables, 114 refs.)

Key words: marine sediments, China Seas

Remote sensing has been widely used to research suspended sediment concentration on sea surface. The hydrology and inherent opti-

cal properties of sea waters are very complex in the eastern China seas, which makes building retrieval models from satellite images more difficult. By comparing and summarizing former researches, some conclusions and suggestions about establishing inversion models have been offered. It can improve accuracy to build models separately in different time and regions identified by in-situ data. Areas containing different SSC have their own optimal bands combination to be used in models.

20170032 Wen Mingzheng (Environmental Geotechnical Engineering Institute, Ocean University of China, Qingdao 266100, China); Shan Hongxian **Resuspension of Sediments along the Bottom Boundary Layer: A Review** (Marine Geology & Quaternary Geology, ISSN0256-1492, CN37-1117/P, 36(1), 2016, p. 177-188, 6 illus., 2 tables, 18 refs.)

Key words: bottom boundary layer, sediments, quantitative analysis

Quantitative analysis of sediment resuspension has become one of the main research topics of marine sedimentation. This paper systematically analyzed and summarized the achievements of previous researchers. On the basis of the comprehensive review focusing on the theory, the influence factors of seabed sediment resuspension, the in-situ observation of sediment resuspension and the bottom boundary layer quantitative analysis of seabed sediment resuspension are also discussed. The paper will provide references for further researches.

20170033 Xi Yajuan (School of Geographic Sciences, East China Normal University, Shanghai 200241, China); Shi Yuxin **Spatial Difference and Provenance of Clay Minerals as Tracers of Intertidal Sediments in Hangzhou Bay** (Acta Sedimentologica Sinica, ISSN1000-0550, CN62-1038/P, 34(2), 2016, p. 315-325, 6 illus., 4 tables, 32 refs.)

Key words: sediments, Hangzhou Bay

Intertidal sediments in Hangzhou Bay were collected and analyzed by XRD. The clay minerals distribution characteristics and the source and origin of clay minerals in the study area were discussed by means of cluster analysis, combined with the hydrodynamic characteristics of the Hangzhou Bay. The results showed that surficial sediments in the tidal flat of Hangzhou Bay were mainly clayey silt and the others were sandy silt. The complex composition of clay minerals in the study area were mainly illite, kaolinite and chlorite, as well as a few smectite and vermiculite and 1.4 nm transitional mineral.

20170034 Zhang Junjue (State Key Laboratory of Resources and Environmental Information System, Institute of Geographic Sciences and Natural Resources Research, CAS, Beijing 100101, China); Su Fenzhen **Construction Land Expansion in Coastal Zone around the South China Sea Based on Different Geomorphologic Backgrounds in the Past 35 Years** (Acta Geographica Sinica, ISSN0375-5444, CN11-1856/P, 71(1), 2016, p. 104-117, 9 illus., 1 table, 20 refs.)

Key words: coastal features, coastal zones, built-up and associated land, South China Sea, South China, Malaysia

Data of coastal construction land around the South China Sea in 2010 and 1975 were extracted and the spatial-temporal characteristics of construction land expansion were discussed. Results showed that: 1) in South China Mainland and Malay Peninsula, construction land in coastal zone was generally expanded rapidly; 2) there were significant differences in construction land expansion between different geomorphology types because of natural resources, development difficulty and hinterland area; and 3) development patterns varied according to coastal geomorphologic features.

20170035 Zhang Liang (Key Laboratory of Marine Mineral Resources, Ministry of Land

and Resources, Guangzhou Marine Geological Survey, Guangzhou 510075, China); Wang Yaping **Grain Size Variation and Heavy Metals Distribution during Last Hundred Years under the Impact of Human Activities in the Inner Lingdingyang Bay of the Pearl River Estuary** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 27—41, 16 illus., 4 tables, 30 refs.)

Key words: heavy metals, sedimentation rates, Zhujiang River Mouth

3 sediment cores were collected in August 2012 at the Lingdingyang Bay of the Pearl River Estuary, the South China. On the basis of heavy metal analysis and ^{210}Pb dating, sedimentation rates over the past century are acquired. The distribution pattern and accumulation factors of heavy metals are discussed on the roles of natural and human activities. The results show that the mean grain size changes from 4Φ～7.5Φ in the 3 sediment cores.

20170036 Zhao Jingtao (Key Laboratory of Marine Hydrocarbon Resources and Environment Geology, Ministry of Land and Resources, Qingdao Institute of Marine Geology, Qingdao 266071, China); Dou Yanguang **Progress of Marine Paleo—Temperature Proxies and Their Application in the Okinawa Trough** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 123—132, 3 illus., 79 refs.)

Key words: marine paleo－temperature proxies, Okinawa Trough

Paleo－temperature reconstruction is one of the most important components in paleoceanographical studies. In this paper, the authors summarized the applicability, merits and faults of the above three paleo－temperature proxies from a global perspective, and analyzed their temporal and spatial differences of the results. Emphases are put on the research history and status in quo of Mg/Ca, Uk'37 and TEX86 in the Okinawa Trough, the importance of regional applicability of these paleo－temperature proxies, and the future challenge of paleo－temperature evolution mechanism studies since the last deglaciation in the Okinawa Trough.

STRUCTURAL GEOLOGY

20170037 Deng Jinfu (State Key Laboratory of Geologieal Processes and Mineral Resources, Key Laboratory of Lithosphere Tectonics and Lithoprobing Technology of Ministry of Education, China University of Geoscienees, Beijing 100083, China); Feng Yanfang **The Intrusive Spatial Temporal Evolutional Framework in the Southeast China** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(1), 2016, p. 3－16, 2 illus., 2 tables, 69 refs.)

Key words: orogenic belts, South China

For a long time, a lot of the models about the tectonic evolution and the nature of the orogenic zone of the Southeast China are suggested by many geologists, and there is large divergence of the views. Based on the intrusive tectonic map of China with the scale of 1∶2 500 000, by this paper the authors would like to join the discussion. Several topics are discussed as follows: 1) the tectonic nature of both the southeast margin of the Yangtze Craton and the Cathaysia region; 2) the recognition and segmentation of the Southeast ocean as a major oceanic basin; 3) the recognition about both the arc－arc and arc—continent "collision" and the continent—continent collision; 4) the tectonic pattern of the Yanshanian ocean－continent convergence; 5) the reorganization of the ocean—continent distribution; 6) the subduction—accretional orogenic zone and the end (t″); and 7) the continental—margin type ocean and the inter—continental ocean.

20170038 Fei Ping(Liaoning Institute of Geo-

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logical Exploration, Dalian 116100, China) **Relationship between the Composmon of Sedimentary Cover Formation and Space — Time Evolution of Tectonic Pai, Eogeography in Liaoning Province** (Geology and Resources, ISSN1671 — 1947, CN21 — 1458/P, 25(1), 2016, p. 17—21, 1 table, 4 refs.)

Key words: plate tectonics, continental dynamics, Liaoning Province

Guided by the theory of plate tectonics, the dynamic processes of continental block divergence, convergence, collision and orogeny are studied to divide the tectonic evolution stage of continental blocks in Liaoning Province. This region is composed of multiple paleogeographic tectonic units, including two first—order units (Jiao—Liao landmass and Jin— Ji—Liao landmass), three secondary—order units (Liaodong intracontinent, Yanliao rift and Yanliao intracontinent), eleven third — order units and fourteen fourth — order units. The relationship between the eomosition of sedimentary rock formation and the time and space structural evolution of tectonic paleogeographic units provides basic geological data for the research of the tectonic evolution environment in Liaoning Province.

20170039 Fu Jiangang(State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Liang Xinquan **Characteristics and Muscovite $^{40}Ar/^{39}Ar$ Age of Ductile Shear Zone in the Xitieshan Area, North Qaidam** (Geotectonica et Metallogenia, ISSN1001 — 1552, CN44 — 1595/P, 40(1), 2016, p. 14—28, 7 illus., 1 table, 59 refs., with English abstract)

Key words: shear zones, Qaidam Basin

20170040 Guan Chengyao (Department of Earthquake Science, Institute of Disaster Prevention Science and Technology, Sanhe 065201, China); Qi Jiafu **Ductile Extension Model of Rift Basin and Its Application in Bohai Bay Basin** (Chinese Journal of Geology, ISSN0563 — 5020, CN11 — 1937/P, 51(1), 2016, p. 165—17, 5 illus., 2 tables, 15 refs.)

Key words: rifts, Bohaiwan Basin

The ductile deformation in an extension basin is often ignored by scholars. The huge error of two familiar methods used to calculate the extension amount is due to the plastic deformation amount. This paper will build a model based on two methods that can calculate the "ductile extension amount" and the "fault—slip extension amount", respectively. The model is applied in Bohai Bay Basin. The results show that the ductile deformation rate is proportional with the fault—slip rate. In the rifting phase, the fault slipping is severe while the ductile deformation is very fast.

20170041 Guan Yili (State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Yuan Chao **Genesis of Mafic Enclaves from Early Paleozoic Granites in the South China Block: Evidence from Petrology, Geochemistry and Zircon U—Pb Geochronology** (Geotectonica et Metallogenia, ISSN1001 — 1552, CN44 — 1595/P, 40(1), 2016, p. 109—124, 9 illus.,3 tables, 47 refs., with English abstract)

Key words: Lower Palaeozoic, structural evolution

20170042 Guo Xiaoyu(Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Gao Rui **Recognition of the Surface Extent of the Longriba Fault Zone and Its Tectonic Implications Based on the Documentation of the ALOS — PALSAR Data** (Chinese Journal of Geology, ISSN0563 — 5020, CN11—1937/P, 51(1), 2016, p. 15—25, 4 illus., 2 tables, 47 refs.)

Key words: fracture zones, Qinghai—Tibetan Plateau

The Longriba fault zone is located in the easternmost of the Tibetan Plateau, extending NE—SW. It is parallel to the Longmenshan Fault Zone that is about 150 km away from

the Longriba fault zone to the east. Unlike the Longmenshan Fault Zone, the Longriba fault zone shows as a sharp GPS gradient, indicating the Longriba fault zone would contain important tectonic features. In this paper, integrated with surface geology and previous studies of geophysical data, the authors firstly employed ALOS－PALSAR satellite data to document the surface tectonic response, and therefore, to control the surface extent of the Longriba fault zone. The results show that the Longriba fault zone terminates to the west before approaching the Xianshuihe fault zone and shows perpendicular to the Fubianhe fault zone.

20170043 Han Jiangtao (Geo－Exploration Science and Technology Institute, Jilin University, Changchun 130026, China); Liu Guoxing **Electrical Structure Study on the Qinling Orogenic Belt and Weihe Graben** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 76－85, 6 illus., 23 refs.)

Key words: orogenic belts, telluric electromagnetic sounding

The Qinling orogenic belt is a typical intracontinental orogenic belt which has experienced strong deformation. The Qinling orogenic belt and the Weihe graben located in the north formed the unique basin－mountain system. However, the deep structure and the mechanism of basin－ mountain system coupling is not clear for lacking of the comprehension of deep dynamics. A 170 km magnetotelluric profile across the Qinling orogenic belt and the Weihe graben was conducted. The authors finally constructed a deep electrical structure model of Qinling orogenic belt and Weihe graben through broadband and long－period magnetotelluric observation.

20170044 Han Yao (China University of Geosciences (Beijing), Beijing 100083, China); Zhang Chuanheng **Configuration of Mid－Neoproterozoic ArcmBasin System in Eastern Jiangnan Orogenic Belt** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 285－299, 10 illus., 4 tables, 55 refs.)

Key words: orogenic belts, South China

The Wannian Group, Pingshui Group in Pujiang County and Shuangqiaoshan Group is a series of Precambrian basement rocks, outcropped in the eastern Jiangnan orogen. Though the study of stratigraphic sequence, sedimentary characteristics, zircon U－Pb age, and rock geochemical characteristics to these three formations, the authors aim to determine their Prototype basin respectively, and find out their relationship including spatial－temporal characteristics and Structural properties. The Wannian Group is a sequence of low－grade metamorphic volcanic rocks and terrigenous clastic rock. It is overlaid unconformably by the Qigong Formation, SiMian period. Its sedimentary environment is gradually deeper from bottom to top. The LA－ICP－MS zircon U－Pb show the age of the Wannian Group is (843.8+5) Ma, which indicate the volcanic rock of the Wannian Group belongs to Neo－Proterozoic.

20170045 Li Xiuzhen (College of Geosciences, Guilin University of Science and Technology, Guilin 541004, China); Yu He **A Summary of the Study Result of Jiangnan Old Land** (Yunnan Geology, ISSN1004－1885, CN53－1041/P, 35(1), 2016, p. 1－4, 1 illus., 1 table, 8 refs.)

Key words: tectonics

"Jiangnan Old Land" has an important significance in South China Tectonics. The predecessors have different cognizance of the formation of "Jiangnan Old Land" according to the different tectonic theory. The earliest one is mainly based upon the geosynclines－platform theory, which is called the fold zone of geosynclines inversion. Then, the theory basis is the plate tectonics, which is regarded as the orogenic zone of ocean－land collision. Thereafter, it is considered to be the inland

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collision orogenic zone according to the land dynamic theory.

20170046 Liu Jiang (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Li Laibing **New Interpretation for the "1.5 Ga Old Fissure" in the Bashi Mountain Geopark, Laiyuan County, Hebei Province** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(1), 2016, p. 17－28, 8 illus., 41 refs.)

Key words: fissure, geological park, Hebei Province

Liang Dingyi et al. (2002&) proposed that a ground fissure cropped out in the Baishi Mountain Geological Park, Laiyuan County, belonging to the northern segment of the Taihang Mountains. And the ground fissure formed at the same time when the Wumishan Formation deposited in Middle Proterozoic and filled by seismically collapsed breccias, including soft －sediment deformation structures. Combining with the regional tectonic evolution history of the north Taihang Mountains, the authors suggested that the Baishi Mountain fault likely formed as early as the stage of the Yanshan movement, then it experienced one or more phased faulting with different ratio of strike － slip, normal fault and thrust components.

20170047 Mu Lixiu (Geological Survey Academy of Xinjiang, Urumqi 830011, China); Li Ping **Preliminary Establishment of Wulanmoren Tectonic M'ange in Central Tianshan Mountains, and Its Tectonic Significance** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p. 34－39, 4 illus., 1 table, 20 refs.)

Key words: melange, structural evolution, Tianshan Mountains

Wulanmoren tectonic mélange consists of plutonic complex rocks, which mainly includes gabbro, olive gabbro, olive pyroxenite and plagioclase granite, and mafic volcanic rocks which are mainly composed of basalts, may represent the ocean crust fragments of Kirghizia Oceanic basin which were overlain by ocean sediment includes siliceous, siliceous siltstone, micrite and so on. The recognition of Wulanmoren tectonic m'ange provides important evidence to discuss whether the Kirghizia Oceanic basin extends to Baluntai area and existence of Tersky Oceanic basin between the Baluntai micro－plate and Middle Tianshan micro－plate.

20170048 Qi Bangshen (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Hu Daogong **Apatite Fission Track Study of the Cretaceous－Cenozoic Stepwise Uplift of the Middle Segment of the Qilian Mountains** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(1), 2016, p. 46－58, 5 illus., 1 table, 102 refs.)

Key words: Fission Track, apatite, Qilian Mountains

The Qilian Mountains constitutes the northeastern margin of the Tibetan Plateau, and hence characteristics of its tectonic activity recorded by apatite fission track (AFT) analysis play an important role in understanding the uplift and growth of the Tibetan Plateau. 22 samples collected for AFT analysis from the Qilian Mountain belt were located along NS—trending transect across southern Qilian fold belt, Shule Nanshan—Laji Shan suture zone, Central Qilian massif and Noth Qilian suture zone. AFT ages range from (13±2) Ma to (124±11) Ma, and mean track lengths range from (10.3±1.8) μm to (13.6±2.3) μm.

20170049 Qu Wei (College of Geology Engineering and Geomatics, Chang'an University, Xi'an 710054, China); Wang Yunsheng **Current Crustal Deformation Variation Characteristics of the Fenwei Basin and Its Surrounding Areas Revealed by GPS Data** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 828－839, 6 illus.,

2 table, refs.)

Key words: Global Positioning System, crustal movement, strain, Shaanxi Province, Shanxi Province

The Fenwei basin is of great importance in research of tectonic activity and geological hazards (such as the ground fissures and earthquakes) in China. This basin is actually a deep rift that divides North China into eastern and western parts. Bounded by the Qinghai—Tibet, Ordos, North China and South China blocks, the Fenwei basin is a accommodation zone of differential motions of these blocks, and the boundaries and decoupled strips of tectonics between western and eastern North China. The authors focused on the current crustal deformation characteristics of the Fenwei basin and its surrounding areas, especially the influence of the 2008 Wenchuan earthquake.

20170050 Shang Mingliang (Geological Survey Academy of Xinjiang, Urumqi 830011, China); Zheng Fei **The Geological Characteristics and Geological Implication of Sargan Fault in Atushi, Xinjiang** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p. 113—117, 6 illus., 9 refs.)

Key words: upthrust, structural evolution, Tarim Basin

Located in the northwestern Tarim Basin, Kalpin fault uplift includes several thrust nappe sheets, which are not parallel simply. Sargan fault that is located in the middle of Kalpin Fault Uplift has developed to be a right strike—slip fault so far. The authors propose that the development of Sargan fault which divides Kalpin thrust nappe sheets into Eastern overthrust body and Western overthrust body is much earlier than the development of overthrust in Kalpin. That obstruction from Bachu uplift effects Western overthrust body much more seriously than Eastern overthrust body explains non parallelism of thrust nappe sheets and the formation of modern tectonic framework in Kalpin Fault Uplift.

20170051 Shen Xiaoming (Key Laboratory of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Li Dewen **Strike—Slip Activities since the Late Pleistocene at the Middle Segment of the Heqing－Eryuan Fault Zone, Northwest Yunnan** (Geotectonica et Metallogenia, ISSN1001－1552, CN44－1595/P, 40(1), 2016, p. 29－37, 8 illus., 1 table, 22 refs., with English abstract)

Key words: Upper Pleistocene, strike－slip faults

20170052 Song Lihong (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Zhu Guang **Deformation Records in Late Mesozoic Plutons in the Bengbu Uplift in the Southeastern North China Craton and Their Tectonic Implications** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 400－418, 7 illus., 2 tables, 61 refs.)

Key words: uplifts, extension tectonics, stress fields, Anhui Province

A series of Late Mesozoic plutons are exposed in the Bengbu Uplift in the southeastern North China Craton, and record abundant deformation processes. This and previous zircon dating results show two phases of magmatism in this region, including Middle—Late Jurassic one (167～148 Ma) and Early Cretaceous one (130～112 Ma). Other plutons in this region all show brittle normal faulting at shallow levels. The deformation in the plutons suggests that transition from compression to extension regimes in the eastern North China Craton took place between 148 Ma and 130 Ma, and provides an example for structural evolution in a non basin area during the Early Cretaceous peak destruction of the craton.

20170053 Wan Yuanbo (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Li Zhiwu **Pop－Up**

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Structure in Fold－and－Thrust Belt and Its Implications: An Insight from Analogue Sandbox Models of Thrust Wedge (Geoscience, ISSN1000－8527, CN11－2035/P, 30(1), 2016, p. 110－121, 12 illus., 2 tables, 33 refs.)

Key words: folds, faults

Pop－up structure is widely developed in fold－and－thrust belt and strike－slip tectonic setting, and has been paid much attention for its great significance in petroleum exploration. Analogue sandbox modeling has proved to be a powerful visual tool for simulating such complex structures in various tectonic settings. This paper conducted a series of sandbox modeling to unravel the difference in structural geometry of pop－up structure during the development of fold－and－thrust belt, based on the same initial condition with various shortening velocities (0.3 mm/s, 0.1 mm/s, 0.005 mm/s).

20170054 Wang Jishan (Faculty of Earth Resource, China University of Geosciences, Wuhan 430074, China); Zhang Jun **Characteristics of the Tianjingshan Ductile Shear Zone in the Southern Anhui Province and Its EBSD Quartz Fabric Analysis** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(1), 2016, p. 96－105, 4 illus., 2 photos, 27 refs.)

Key words: ductile shear zones, Anhui Province

The characteristics of the Huangmao－Wucheng－Tunxi ductile shear zone in the Tianjingshan area, south of Anhui Province are studied on the basis of the geological section survey. It reveals that it is a large scale ductile shear zone with a trumpet in shape. It also shows that the ductile shear zone has experienced at least two stage deformation activities. The ductile deformation mechanism and quartz EBSD fabric analysis indicate that the metamorphic facies of ductile shear zone is low－greenschist to high－greenschist facies and in some areas even reaches low－middle amphibolite facies.

20170055 Wang Tao (Beijing Research Center, China National Offshore Oil Corp., Beijing 100028, China); Chen Jingyang **Structural Characteristics of the Fold Belts in the Papuan Basin** (Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 31－36, 7 illus., 11 refs.)

Key words: fold belts, structural evolution, Papua New Guinea

The Papuan Basin is a petroliferous basin with complex structure but low exploration degree. The structural evolution of this basin is mainly controlled by four tectonic events, i.e., intracontinental craton rift, Gondwana breakup, the Coral Sea split and Melanesia arc collision, which jointly influence and control the tectonic－sedimentary evolution and hydrocarbon accumulation. Three main fold belts are developed in the basin, i.e., the Irian fold belt, Papuan fold belt and Aure fold belt, with a major compression tectonic style. Due to the variations of extrusion stress, the tectonic compression strength of the fold belts shows a southward weakening trend, with complex structural styles. It is very important for the petroleum exploration in the Papuan Basin to further analyze the relationship between fold belt types and hydrocarbon－generation evolution.

20170056 Wang Yiwei (Northwest Sichuan Geological Party, BGEEMRSP, Mianyang 621000, China); Xie Qixing **The Fault Zone on the Southern Margin of the Yarlungzangbojiang Juncture** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 3－6, 13, 9 illus., 7 refs.)

Key words: fault zones, Yarlung Zangbo River, Tibet

The Fault on the southern margin of the Yarlungzangbojiang Juncture lies between the Yarlungzangbojiang Juncture and the Himalayan stratigraphic division. In the Gyangzê region, the fault zone occurs as NE－trending

fold and thrust association with the hanging side composed of flysch formation of the Triassic Namgyaixoi Group and the heading wall composed of the EW—trending Mesozoic fold—thrust zone. At Baishapaxia Village, Gyangzê, the fault zone is a high—angle thrust fault characterized by ductile—brittle deformation with a width of 150 m. The last faulting activity took place during Miocene—Pleistocene.

20170057 Wang Yongchao (Chinese Academy of Geological Sciences, Beijing 100037, China); Dong Shuwen **An Analysis of Late Mesozoic Tectonic Evolution Process in Northern China: Based on Basin Sedimentary Records in Northern Taihang Mountains** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 35—45, 6 illus., 51 refs.)
Key words: provenance analysis, sediments, Siberian Plate, Taihang Mountains

The northern Taihang Mountains are located at the junction of the Yanshan tectonic belt with the Taihang Mountains belt, and their superimposed basin development process documented the basin trending conversion process from EW to NE during Jurassic to Cretaceous, which is significant for depicting the intracontinental deformation process and its dynamic background during the Late Mesozoic in North China. Caogoubu Basin and Zhaobai Basin located in northern Taihang Mountains were selected as examples in this paper. According to the basic structural framework analysis of basins in combination with isotope chronologic data from magmatic rocks and sedimentology methods which include the detailed analysis of sediment provenance, prototype basin reconstruction and so on, tectonic evolution history of the northern Taihang Mountains during the Late Mesozoic can be detected.

20170058 Wu Tong (Science and Technology Innovation Team of Universities of Fracture Deformation, Sealing Properties and Fluid Migration, Daqing 163318, China); Fu Xiaofei **Brittle Ductile Deformation Characteristics of Anhydrite Salt Rock and Quantitative Evaluation of Its Sealing Ability** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(1), 2016, p. 127—137, 7 illus., 48 refs.)
Key words: Brittle, cap rocks, petroleum exploration

Based on the field outcrop observation, triaxial compression tests and microscopic observation, the deformation characteristics of anhydrite—salt rock in different brittle ductile regions were summarized, with the aspect of the deformation mechanism, fracture pattern, mechanical behavior, acoustic emission, etc. Sealing analysis of anhydrite—salt cap rock must consider brittle ductile deformation of the cap rock, fault deformation mechanism and fault zone internal architecture in different brittle ductile cap rock comprehensively, thereby improving vertical sealing ability evaluation system of cap rock.

20170059 Xiang Biwei (School of Resources and Environmental Engineering, Anhui University, Hefei 230601, China); Jiang Dazhi **Multi—Scale Numerically Modeling Flow Field Partitioning during Structural Deformation** (Geotectonica et Metallogenia, ISSN1001—1552, CN44—1595/P, 40(1), 2016, p. 1—13, 6 illus., 44 refs., with English abstract)
Key words: tectonic deformation, numerical simulation

20170060 Xu Tong (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Pei Xianzhi **Geochemical Features and Zircon LA—ICP—MS U—Pb Ages of the Neoproterozoic Zhangergou Metamorphic Andesitic Rocks in the Mianxian Liieyang Area of South Qinling Orogen: Evidence for Amalgamation of Rodinia Supercontinent** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(2), 2016, p. 434—450, 9 illus., 4 tables, 61 refs.)
Key words: metamorphic andesitic rocks,

Neoproterozoic Era, Nanling Mountains

This paper presents new results on zircon U—Pb dating, trace and major element analyses of Neoproterozoic Zhangergou metamorphic andesitic rocks in the Mianxian—Lüeyang Tectonic Zone of southern margin of South Qinling Orogen, and the Neoproterozoic tectonic evolution in the junction area between the South Qinling Plate and northwestern Yangtze Plate is also discussed. Combining the regional tectonic data, the authors conclude that the Zhangergou metamorphic andesitic rocks are the product of north trend subduction of Neoproterozoic Mianxian—Lüeyang Ocean and the magmatic response of Rodinia supercontinent.

20170061 Zhang Chunshan (Institute of Geomechanics, Chinese Academy of Geological Science, Beijing 100081, China); Wu Manlu **Measurement of Present—Day Stress and Analysis of Stress State in the Changbaishan Mountains of Jilin Province** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(3), 2016, p. 922—930, 8 illus., 1 table, 26 refs.)

Key words: geostress, geostress surveys, Changbai Mountains

This paper presents the values and the directions of present—day stress measured at different sites in the Chnagbaishan Mountains of Jilin Province. In order to understand the current state of stress in the Changbaishan Mountains and meet demand of volcanic monitoring, the in—situ stress measurement was carried in this region. The results indicate that the direction of maximum principal stress is mainly NW—NNW in the north of Tianchi and EW in the west of Tianchi. Based on the results, the state analysis of current stress was carried out for the region of Changbaishan Mountains. The state of present—day stress in this region is very complexity, because it was influenced by regional structure, magmatic movement and the geothermal field of Tianchi.

20170062 Zhang Qiang (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Zhang Guangya **Discussion of Structural Attributes for Karakum Basin in Late Permain—Triassic** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(1), 2016, p. 157—164, 6 table, 13 refs.)

Key words: arcuate structure, Karakum Basin

Karakum Basin, which is located in the south of Turan platform, NW trending, is one of the most important petroliferous basins in central Asia. According to the drilling, geophysics and outcrop data, the authors think that the Karakum Basin is a sedimentary basin which has a basement with accretionary complexes. It has nature of back—arc rift in Late Permian— Triassic. The evolution of Pre—Jurassic in Karakum Basin can be divided into four stages: 1) Paleotethys oceanic crust began to subduction before Carboniferous; 2) Silk Road Arc formed in Carboniferous—Early Permian; 3) Karakum Basin is located in the back—arc extensional position when Mashhad—North Pamir Arc formed in Late Permian—Triassic; and 4) Karakum Basin became a peripheral foreland basin in short week stage when Iran blocks collided with Eurasia in the end of Late Triassic.

20170063 Zhou Zaizheng (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Pei Junling **New Evidence for Rotation of Northeastern Pamir since Late Cenozoic** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 633—642, 6 illus., 2 tables, 69 refs., with English abstract)

Key words: Cenozoic, paleomagnetism, structural geology

20170064 Zou Guangfu (Chengdu Center of China Geological Survey, Chengdu 610081, China); Mao Qiong **Characteristics of Paleomagnetism and Its Tectonic Implications for the**

Phanerozoic in the Himalayan Blocks, Tibet (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 106—114, 5 illus., 2 tables, 22 refs.)

Key words: crustal movement, paleomagnetism

2 920 oriented paleomagnetic samples are collected from Ordovician—Paleogene sedimentary strata on the north slope of Qomolongma (Everest) in southern Tibet. As a result of thermal demagnetization and statistical analysis, primary components and new paleomagnetic data are obtained. Based on the new paleomagnetic data, the location of the magnetic pole and paleolatitude data of the Himalayan block from Ordovician—Paleogene are calculated. As result, Ordovician—Paleogene paleomagnetic apparent polar wander path and paleolatitude curve of the Himalayan block are determined.

GEOPHYSICS

20170065 Bu Lingbing (Collaborative Innovation Center on Forecast and Evaluation of Meteorological Disasters, Nanjing University of Information Science and Technology, Nanjing 210044, China); Zhang Zuyi **Characteristics of Perturbations Induced by Small—Scale Gravity Waves on Ice Particle Size Distribution of Noctilucent Clouds** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 453—464, 11 illus., 1 table, 45 refs., with English abstract)

Key words: atmosphere, acoustical waves

20170066 Cai Huiteng (Earthquake Administration of Fujian Province, Fuzhou 350003, China); Jin Xing **The Crust Structure and Velocity Structure Characteristics beneath Ninghua—Datian—Hui'an** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(1), 2016, p. 157—168, 9 illus., 1 table, 51 refs.)

Key words: crustal structure, velocity structure, deep seismic sounding, Fujian Province

Fujian located on the southeast edge of the Eurasia Plate has a strong neo—tectonic activity with anomalous development of the NE—oriented fault zone within the region, which is also the frequent area of moderate and strong seismic activities in South China seismic region. In order to understand better the velocity structure characteristics of crust and upper mantle and its deep tectonic background in southeast coast of China, the 3D artificial seismic sounding experiments were carried out through 18 explosions, four NW—oriented original and four NE oriented integrated longitudinal survey lines conducted by Earthquake Administration of Fujian Province in coordination with Geophysical Exploration Center of China Earthquake Administration in Fujian land during years 2010 and 2012.

20170067 Chang Jian (State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing 102249, China); Qiu Nansheng **Present—Day Geothermal Regime of the Jizhong Depression in Bohai Bay Basin, East China** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(3), 2016, p. 1003—1016, 8 illus., 4 tables, 53 refs.)

Key words: geothermal gradient, Jizhong Depression

In this paper, the authors studied present—day geothermal characteristics of the Jizhong depression systematically such as geothermal gradient, terrestrial heat flow, thermal lithosphere thickness and lithospheric thermal structure. The results show that the present—day geothermal gradients at depths 0～3 000 m in this region range from 20.8 ℃ · km^{-1} to 41.0 ℃ · km^{-1} with a mean of 31.6 ℃ · km^{-1}, lower 1～3 ℃ · km^{-1} than uncorrected value. The heat flow varies between 48.7～

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79.7 mW·m^{-2} with an average of 59.2 mW·m^{-2}. Present-day geothermal gradients and heat flow of this depression gradually increase from west (basin margin) to east (basin interior) horizontally.

20170068 Gong Chen (Key Laboratory of Earthprobe and Geodynamics, Institute of Geology, Chinese Academy of Geological Sciences, Ministry of Land and Resource, Beijing 100037, China); Li Qiusheng **Crustal Thickness and Poisson Ratio beneath the Huailai-Bayinonder Profile Derived from Teleseismic Receiver Functions** (Chinese Journal of Geophysics, ISSN0001-5733, CN11-2074/P, 59(3), 2016, p. 897-911, 9 illus., 1 table, 84 refs.)

Key words: crustal structure, receiver functions, Hebei Province, Inner Mongolia

The Central Asian Orogenic Belt (CAOB) between the Siberia paleo-continent and the North China paleo-continent has a close relationship with the evolution of the Paleo-Asian Ocean. The Xing'an-Mongolia Orogenic Belt (XMOB) as eastern part of the CAOB is located in North China. It is generally considered that the closure of the Paleo-Asian Ocean resulted in the formation of the XMOB, but there remain some disputes about the tectonic attribute of the northern margin of the North China Craton and where the Paleo-Asian Ocean finally closed and how it behaves due to complex evolution process, extensive coverage of Cenozoic sediments and the lack of high resolution deep exploration data. Structures and some major discontinuities beneath stations can be imaged by the receiver function method.

20170069 Han Song (Geo-Exploration Science and Technology Institute, Jilin University, Changchun 130026, China); Liu Guoxing **Deep Electrical Structure of Jingdezhen-Wenzhou Magnetotelluric Profile** (Chinese Journal of Geology, ISSN0563-5020, CN11-1937/P, 51(1), 2016, p. 86-98, 7 illus., 38 refs.)

Key words: magnetotelluric methods, South China

The South China Block has experienced a long and complicated tectonic evolution history which formed the present tectonic features. To investigate the deep lithospheric structure of the South China region, the authors completed a series of joint detection profiles of broad band magnetotelluric (MT) and long period MT under the auspices of SinoProbe-02 project. The profile introduced is Jingdezhen-Wenzhou profile located in the northeast part of the South China region with a length of about 400 km. Based on the data analyses, the 2D inversions were conducted and the lithospheric electrical structure model was finally obtained. The inversion model reveals that: the profile mainly consists of the Cathaysia block and Jiangnan orogen which borders the East Yangtze Block while the Jiangshao fault is the boundary fault of the two block.

20170070 Hu Litian (Key Laboratory of Petroleum Resources Research, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Hao Tianyao **The Moho Depth in the China Sea-West Pacific and Its Geological Implications** (Chinese Journal of Geophysics, ISSN0001-5733, CN11-2074/P, 59(3), 2016, p. 871-883, 8 illus., 8 table, 45 refs.)

Key words: Mohorovicic discontinuity, China Seas

The China Sea-West Pacific is the junction among Eurasian Plate, Indo-Australian Plate and Pacific Plate. The authors collect last satellite gravity and terrain data, as well as 183 control profiles, including multichannel seismic (MCS), oceanbottom seismometer (OBS) and so on. According to the crustal structure and the distribution of the Moho depth, the authors summarize the characteristics of the Moho depth in each region and conclude that the oceanic plate subduction plays a

major role in West Pacific marginal seas formation and the Moho lifting of east Asian continent. The collision between the Indo－Australian Plate and Pacific Plate is also an important factor for the evolution of the marginal sea in east Eurasian Plate, but it has little influence on the Philippine Sea Plate.

20170071 Ma Xuechang (Society of Old Scientist, Ministry of Land and Resources, Beijing, 100812, China) **Discussions on the Driving Force of Crustal Movement: Nuclear Energy and Earth Evolution** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(1), 2016, p. 24－36, 12 illus., 16 refs.)

Key words: crustal movement, asthenosphere

On the basis of the latest achievements in nuclear physics, astronomy and geology, this paper discusses the huge amount of heat energy released by large－scale uranium and plutonium nuclear chain fissions occurring about 4.5 billion years ago on all the original terrestrial planets and their satellites including Earth and Moon, and its effect on them. Gravity differentiation of the new planet compositions resulted in spherical－layer structure, i.e. a structure of the crust, mantle and core. The inner core, the center of Earth is solid under a very high pressure. Uranium and plutonium which deposited on the surface of the inner core continued their chain nuclear fission, but could not change the solid state of the inner core. The nuclear energy produced since then conducted outward in the form of heat convection.

20170072 Pei Junling (Key Laboratory of Paleomagnetism and Tectonic Reconstruction, Ministry of Land and Resources, Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Zhou Zaizheng **Strike－Slip of Altyn Tagh Didn't Result in Qaidam Basin Rotation since Middle－Miocene** (Journal of Jilin University, ISSN1671－5888, CN22－1343/P, 46(1), 2016, p. 163－174, 6 illus., 2 tables, 42 refs.)

Key words: paleomagnetism, Qaidam Basin

Based on the magnetostratigraphic study at Nanbaxian section, Qaidam Basin, a magnetic polarity sequence of Shangyoushashan Formation has been established. The magnetostratigraphic result suggests the age of 7.5～9.0 Ma. A stable high temperature characteristic remanence component is isolated by stepwise thermal demagnetization from 320 samples through a positive reversal test at the 95% confidence level, which may possibly represent the rock's primary remanence.

20170073 Peng Cong (Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China) **Deep Tectonic Framework in Chinese Continent: Upper Mantle Shear Velocity Model and Its Structure Characteristics** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 1－4, 4 illus., 4 refs.)

Key words: metallogenic area, upper mantle, S－waves, China

The difference of upper mantle shear wave velocity (VS) indicates the lateral heterogeneity of the upper mantle. Download the upper mantle shear velocity model of China and adjacent areas, combined with the fracture structure data, the result can help to understand the deep tectonic framework, and provide geophysical background information to explain the division of Chinese metallogenic province.

20170074 Qi Shaohua (State Key Laboratory of Earthquake Dynamics, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Liu Qiyuan **Attenuation of Noise in Receiver Functions Using Curvelet Transform** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 884－896, 10 illus., 1 table, 38 refs., with English abstract)

Key words: receiver functions, denoising

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20170075 Shen Wenbin (School of Geodesy and Geomatics, Wuhan University, Wuhan 430079, China); Luan Wei **Detection of the Slichter Mode Triplet Using Superconducting Gravimetric Observations** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 840－851, 7 illus., 4 table, 10 refs., with English abstract)

Key words: gravity field, gravimeters

20170076 Tian Yufang (Key Laboratory of Middle Atmosphere and Global Environment Observation (LAGEO), Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing 100029, China); Lü Daren **Preliminary Analysis of Beijing MST Radar Observation Results in the Mesosphere－Lower Thermosphere** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 440－452, 10 illus., 2 tables, 41 refs., with English abstract)

Key words: geological radar, atmosphere

20170077 Wang Qiao (Department of Geophysics, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Huang Qinghua **The Spatio－Temporal Characteristics of Geomagnetic Induction Vectors in North China** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(1), 2016, p. 215－228, 11 illus., 1 table, 61 refs.)

Key words: geomagnetism, North China

More than five years' variations of geomagnetic induction vectors for 13 geomagnetic stations in North China were obtained by using the robust estimation method, which has been verified and compared with the ordinary least square and the weighted least square methods. The authors proposed the following three principles of selecting a specified period of the results from the robust estimation method: 1) the relatively higher coherency between horizontal and vertical component at this period; 2) the much more stable results of the robust estimation at this period; and 3) the skin depth within the crust for the period. After investigating the stability of coherency resulting from different time window(one day and ten days), the authors chose the results with 640 second period for all stations finally, to be analyzed forward.

20170078 Wang Xixi (Institution of Meteorology and Oceanography, PLA University of Science and Technology, Nanjing 211101, China); Fang Hanxian **Analysis of Ionospheric Irregularities in F Layer Based on COSMIC Data** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 419－425, 5 illus., 3 table, 36 refs., with English abstract)

Key words: ionosphere, atmosphere

20170079 Wei Na (GNSS Research Center, Wuhan University, Wuhan 430079, China); Shi Chuang **Effects of Surface Loading and Heterogeneous GPS Network on Helmert Transformation** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 484－493, 8 illus., 2 tables, 22 refs., with English abstract)

Key words: earth's interior, geodynamics

20170080 Xu Xiao (State Key Laboratory of Continental Tectonics and Dynamics, Key Laboratory of Earthprobe and Geodynamics of MLR, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Gao Rui **The Crustal Structure of the Longmen Shan and Adjacent Regions: An Integrated Analysis of Seismic profiling and Gravity Anomaly** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 26－40, 8 illus., 55 refs.)

Key words: gravity anomaly, Qinghai－Tibetan Plateau

Uplift mechanism of the eastern Tibetan Plateau has been the study focus among geologists, and numerous models were proposed, which mostly was owing to the incomplete understanding of the lithospheric structure be-

neath the eastern Tibetan Plateau. In this paper, inversion, as well as integrated analysis and interpretation were carried out based on the SinoProbe－02 400 km－long wide－angle, reflection seismic line across the Longmenshan Fault Zone of eastern margin of the Tibetan Plateau. The results indicate that crustal structure beneath the Longmenshan Fault Zone and adjacent areas is composed of three layers, including the upper crust, middle crust and lower crust. The upper part of the upper crust is the sedimentary cover.

20170081 Yang Wencai (Lab. of Continental Tectonics and Dynamics, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China) **Raise the Curtain on Formation and Evolution of Nanling Mountains** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 257－266, 5 illus., 1 table, 33 refs.)

Key words: crustal evolution, Nanling Mountains

This paper presents 3D crustal density disturbance maps of the studied area, and finds information corresponding to the upper, middle and lower crustal structures respectively. The authors use a method called the multi－scale analysis for delineating density disturbances of the crust at different depths. This method of regional gravity data processing combines theories based on multi－scale wavelet analysis, spectral analysis of potential fields and geophysical inversions. The method of multi－scale analysis demonstrates its power for delineation of crustal structures and 3D locations of tectonic units of the Nanling Mountains, providing new evidences for understanding corresponding intraplate mountain－building processes.

20170082 Ye Zhourun (School of Civil Engineering, Institute of Geomatics Engineering, Hefei University of Technology, Hefei 230009, China); Liu Lintao **Formula of Moho Inversion in the Spectral Domain Using Vertical Gravity Gradient and Its Application** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 476－483, 6 illus., 2 tables, 32 refs., with English abstract)

Key words: Mohorovicic discontinuity, crustal structure

20170083 Yuan Yi (Laboratory of Seismology and Physics of Earth's Interior, School of Earth and Space Sciences, University of Science and Technology of China, Hefei 230026, China); Yao Huajian **Joint Inversion of Rayleigh Wave Vertical－Horizontal Amplitude Ratios and Dispersion Based on the Neighborhood Algorithm and Its Application** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 959－971, 12 illus., 1 table, 24 refs.)

Key words: crustal structure, Rayleigh waves

In this paper, the authors propose a joint inversion method using the dispersion and ZH ratio data based on the Neighborhood Algorithm. The authors conduct synthetic tests based on a theoretical model and prove the robustness of the joint inversion method, which can better constrain the shallow crustal structure. Compared to traditional inversion methods that only use dispersion data, the joint inversion can provide a more accurate crustal Vs model as well as Vp/Vs ratios for the layered crust. Finally, the authors apply the joint inversion technique to real measurements and obtain a more accurate crust shear velocity and Vp/Vs model beneath the station at Kunming (KMI) in southwest China.

20170084 Zhang Hongshuang (Key Laboratory of Earth Probe and Geodynamics, Ministry of Land and Resources, China Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Li Qiusheng **The Lithospheric Structure beneath the Northeastern Tibetan Plateau Inferred from S－Wave Receiver Functions** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1),

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2016, p. 5—14, 4 illus. 38 refs.)

Key words: lithosphere, Qinghai — Tibetan Plateau

The northeastern (NE) Tibetan Plateau is an ideal place for the study of plateau uplift and evolution. Its lithosphere records the process of the lithospheric deformation transforming from the Tibet to the stable Alashan and Ordos blocks. The observations demonstrate that: 1) beneath the northeastern Songpan—Ganzi terrane and the West Qinling orogenic belt, the LAB lies at 110～130 km which dips at a shallow angle to the northeast, and none lithospheric offset is observed beneath the East Kunlun Fault. The smooth LAB may indicate an intact lithosphere between these two blocks; 2) the lithospheric thickness is 135～150 km beneath the Qilian block, and the LAB phases are dispersive beneath the Qilian orogenic belt, in the western part of the Qilian block. The dispersive LAB phases may imply a complex tectonic lithosphere; 3) the LAB of the Alashan block lies at 130～150 km, which seems to converging beneath the Qilian block, but dose not across the Haiyuan fault yet; and 4) the lithospheric thickness of the Ordos block is 160～170 km, which imply a thick and rigid craton lithosphere.

20170085 Zhang Tao (Department of Computer Science and Technology, Tsinghua University, Beijing 100084, China); Xie Feng **Quantification and Optimization of Parameter Uncertainty in the Grid—Point Atmospheric Model GAMIL2** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 465—475, 6 illus., 5 tables, 35 refs.)

Key words: climate, atmosphere

Physical parameterization is one of the most important sources of uncertainties in the current climate system models. With the increasing complexity of models and the diverse requirements for climate studies, the priori and manual model tuning method for physical parameterization has become a bottleneck to further improve the climate system model. In this paper, the authors propose a "two—step" parameter optimization approach. Results show that the proposed metrics is improved by 7.5% compared with the standard GAMIL2 version using the proposed optimization method. The optimal parameters improve the condensation efficiency, leading to reducing the simulated bias of moisture and cloud fraction. Meanwhile, the adjustment of condensation further affects the simulation of temperature, geopotential height and wind.

SEISMIC GEOLOGY

20170086 Hao Guocheng (Faculty of Mechanical & Electronic Information, China University of Geosciences (Wuhan), Wuhan 430074, China); Chen Zhongchang **Time—Frequency Analysis of the Earth's Natural Pulse Electromagnetic Field Signal before and after the Lushan M_S 7.0 Earthquake Based on NSTFT—WVD Transform** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 276—286, 9 illus., 1 table, 39 refs.)

Key words: earthquakes

This paper aims at the non—stationary characteristics of Earth's natural pulse electromagnetic field (ENPEMF) signals by using the normalized STFT—WVD (NSTFT—WVD) transformation, and the main analysis focuses on time—frequency characteristics of the ENPEMF signal before Lushan M_S 7.0 earthquake. The results show that NSTFT—WVD transform can reflect the real ENPEMF signal time—frequency—energy spectrum distribution before and after the earthquake, which could render more obvious silent state in entire frequency and sustained 1～2 days before the earthquake. The timefrequency

representation of data channels 2 and 3 are basically consistent with this characteristic, which well represents the feature of impending earthquake precursors.

20170087 He Bi (Institute of Sedimentary Geology, Chengdu University of Technology, Chengdu 610059, China); Zhu Lidong **Discovery and Geological Significance of the Holocene Seismites in the Jinsha Site in Chengdu, Sichuan Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(1), 2016, p. 62－69, 4 illus., 43 refs.)

Key words: seismites, seismic deposition

The seismites are interpreted as a typical representative of catastrophic event deposits, and a general term for a group of genetically related rocks with the structures and sequences of the seismites. The seismites and seismic deposition are recognized for the first time in the Holocene strata in the Jinsha site, Chengdu, Sichuan Province. These strata are assigned to the alluvial deposits, and display gravel layers at the base, dark (carbonaceous) argillaceous layers (shale layers) in the middle part, and brown yellow soil layers in the upper part. There occurs a series of SE－trending normal faults on both sides of which well－defined faults at the top interface of the basal gravel layers constitute the horst structures

20170088 Li Ping (Institute of Disaster－Prevention, Sanhe 065201, China); Liu Hongshuai **Effects of River Valley Topography on Anomalously High Intensity in the Hanyuan Town During the Wenchuan MS8.0 Earthquake** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(1), 2016, p. 174－184, 13 illus., 1 table, 28 refs., with English abstract)

Key words: Wenchuan earthquake 2008, seismic intensity, Sichuan Province

20170089 Li Zhanfei (Institute of Geology, China Earthquake Administration, Beijing 100029, China); Liu Jing **Tecto－Geomorphic Analysis and Selection of Trench Sites along Haiyuan Fault in Songshan Site Based On High－Resolution Airbone LiDAR Data** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(1), 2016, p. 104－116, 7 illus., 4 tables, 31 refs.)

Key words: paleoearthquakes, Qinghai－Tibetan Plateau

In this paper, the authors first carried out a large－scale (1∶1 000) tecto－geomorphic mapping in the vicinity of the Songshan paleoseismic study site on the Laohushan section of the Haiyuan fault by using high resolution (1 m) airborne LiDAR. New paleoseismic results in two trenches opened near two previously published ones less than 150 m to the east were reported, which allows a comprehensive comparison of four trenches in such aspects as geomorphic setting, sedimentary environment, number of paleoseismic events and their deformation styles. The new paleoseismic results reveal a discontinuous paleoseismic sequence at 37380＋880BP including 5 events with different levels of certainty.

20170090 Wen Shaoyan (State Key Laboratory of Earthquake Dynamics, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Shan Xinjian **Three－Dimensional Co－Seismic Deformation of the Da Qaidam, Qinghai Earthquakes Derived from D－Insar Data and Their Source Features** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 912－921, 6 illus., 3 table, 18 refs.)

Key words: synthetic aperture radar, Qinghai Province

This paper used a least square iterative approximation algorithm based on priori knowledge to calculate three－dimensional co－seismic deformation of the Da Qaidam earthquakes from ascending, descending and wide－swath data of Envisat ASAR. The results show that the vertical deformation of M_W6.3 earthquake in 2008 occurred mainly in the south wall of the fault, where uplift is

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dominant. The maximum displacement is about 10 cm. The subsidence on the north wall of the fault is less than −1 cm. The east−west component on the south fault exhibits eastward movement with a maximum of 4 cm. The north wall moves westward with −2 cm maximum.

20170091 Yan Yafen (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Teng Jiwen **Aeromagnetic Field Characteristics and the Wenchuan Earthquakes in the Longmenshan Mountains and Adjacent Areas** (Chinese Journal of Geophysics, ISSN0001−5733, CN11−2074/P, 59(1), 2016, p. 197−214, 17 illus., 29 refs.)

Key words: Wenchuan earthquake 2008, aeromagnetic anomaly, Longmenshan Fault Zone

In this paper, the authors analyzed the aeromagnetic anomaly data in the Longmenshan Mountains and adjacent areas by different methods, such as vertical magnetization, horizontal and vertical derivation, upward continuation, frequency and wavelet transform. The results show that the characteristics of magnetic anomalies suggest this area could be divided into three magnetic anomaly blocks which have different medium properties in crust. There is a correlation between the aeromagnetic anomalies, top and bottom depths of the magnetic bodies and the 2008 Wenchuan M_S8.0 earthquake.

20170092 Zhang Ling (National Earthquake Response Support Service, Beijing 100049, China); Du Aimin **Characteristics of Geomagnetic Regular Diurnal Variation before Wenchuan Earthquake** (Chinese Journal of Geophysics, ISSN0001−5733, CN11−2074/P, 59(3), 2016, p. 952−958, 9 illus., 20 refs., with English abstract)

Key words: Wenchuan earthquake 2008, diurnal variations, Sichuan Province

20170093 Zhang Tiebao (Earthquake Administration of Sichuan Province, Chengdu 610041, China); Lu Qian **Anomalies of Thermal Infrared Radiation before Some Medium to Large Earthquakes in the Chuan−Dian (Sichuan−Yunnan) Rhombic Block** (Acta Geoscientica Sinica, ISSN1006−3021, CN11−3474/P, 37(2), 2016, p. 215−222, 9 illus., 61 refs.)

Key words: strong earthquakes, Sichuan Province, Yunnan Province

The Chuan−Dian rhombic block where medium to large earthquakes occurred frequently is the hotspot of studying earthquake precursors. In this paper, on the basis of many years' Moderate Resolution Imaging Spectroradiometer (MODIS) data of infrared brightness temperature determined through satellite remote sensing, the authors analyzed low frequency information of average brightness temperature before M≥5.0 earthquakes from April 2004 to August 2014 in the Chuan−Dian rhombic block. The results were obtained: 1)in the Chuan−Dian rhombic block, the satellite did not observe a large area of significant thermal infrared radiation anomalies before M≤6.1 earthquakes, which could help to predict the magnitude of earthquake after the appearance of such radiation anomalies; and 2)a large area of significant thermal infrared radiation anomalies appeared before the August 3, 2014, Ludian *M*6.5 earthquake.

20170094 Zhang Yueqiao (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Li Jian **Reinvestigation on Seismogenic Structure of the 1933 Diexi *Ms* 7.5 Earthquake, Eastern Margin of the Xizang (Tibetan) Plateau** (Geological Review, ISSN0371−5736, CN11−1952/P, 62(2), 2016, p. 267−276, 10 illus., 28 refs.)

Key words: earthquakes, Qinghai−Tibetan Plateau

Based on field investigation of morpho−structures of the dammed lake in the Diexi area and faults affecting the latest Pleistocene lacustrine deposits, and by taking into account

historical earthquakes and paleoearthquake studies in this zone, the authors propose in this paper an alternative view of seismogenic structure, analogous to that for the 2013, Lushan *M*s 7.0 earthquake that ruptured the southern segment of the Longmenshan Fault Zone. This model, namely the buried ramp—type thrusting, considers a W—dipping ramp at depths of 10～15 km beneath the Minjiang stream, which thrust eastward and produced repeated earthquakes in this deeply incised valley.

GEOCHEMISTRY

20170095 Chen Dandan (Nanjing Center of Geological Survey, China Geological Survey, Nanjing 210016, China); Song Shiming **Copper Isotopic Characteristics of the Water System in the Dexing Copper Deposit, Jiangxi Province, and Their Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(1), 2016, p. 188—195, 3 illus., 1 table, 22 refs.)

Key words: copper isotopes, copper ores, Jiangxi Province

According to the distribution of copper isotope values, three drainage sources were identified, i.e., orebody flowing water, orebody peripheral water and tailings water. Copper exists mainly as ions and particulate copper with different copper isotopic characteristics. The copper isotope values of the pyrite from railings water have a great impact on the copper isotopic composition in stream water. Copper isotope has a good potential in tracing geological prospecting and monitoring the environment.

20170096 Huang Shengxuan (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Wu Xiang **Research Progress on In—Situ Experimental and Theoretical Simulations of Element Partitioning under High Temperature and High Pressure** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(2), 2016, p. 117—126, 4 illus., 1 table, 69 refs., with English abstract)

Key words: element ratios, X—ray fluorescence spectra

20170097 Liang Tao (General Institute of Non—Ferrous Metals Geologic Exploration, Zhengzhou 450052, China); Lu Ren **Geochemical Features and Geologic Implcations of Banzhusi Cranite Porphyry Body in Xiong'er Mountain, Western Henan Province** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(1), 2016, p. 15—23, 6 illus., 1 table, 52 refs.)

Key words: adakite, geochemistry, Henan Province

There are 121 endogenetic metal deposits and mineralizaion spots distributed in west of longitude 112° E in Xiong'er Mountain, western Henan Province. Banzhusi body is originated from partial melting of the thickened lower crust, and its residual phases of partial melting source include garnets and rutiles. Banzhusi body is products of regional lithosphere delamination in Early Cretaceous, and the formation age of Banzhusi body is close to the time of regional endogenetic mineralization. The obvious enrichment in Au, Pb and Zn have been found in Banzhusi body. It was considered that Banzhusi area have large mineralization potential.

20170098 Miao Xiongyi (Key Laboratory of Coastal Wetland, China Geological Survey, Qingdao 266071, China); Hao Yupei **Spatial Distribution of Heavy Metals in the Surface Soil of Yellow River Delta and Influence Factors** (Marine Geology & Quaternary Geology, ISSN0256—1492, CN37—1117/P, 36(1),

2016, p. 57—68, 3 illus., 6 tables, 41 refs.)

Key words: heavy metals, Yellow River Delta

This research focuses on the distribution pattern of heavy metals in the surface soil and sediment of the Yellow River Delta. 219 samples were collected, including 25 samples from the shallow coastal wetland in 2006～2008. Modern techniques have been used to detect the contents of heavy metals. The result shows that the northern part of the delta is mainly effected by oil and gas exploration and production, the middle part of the delta affected by the River itself and the south part effected by agriculture and discharge of sewages. Even though the soil of the Delta is rich in organic matter, the heavy metal contamination remains on medium level or even lower in the upper deltaic plain, while pollution of heavy metals is higher in the shallow coast wetland.

20170099 Yang Junxiong (State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Liu Congqiang **Geochemical Behavior of Rare—Earth Element during the Weathering of Granite under Different Climatic Conditions** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 125—137, 9 illus., 3 tables, 41 refs.)

Key words: granite, weathering crust, rare earths

To illuminate the distribution and evolution characters of Rare Earth Element(REE) during granite weathering process under different climate conditions, this paper examined eight profiles located in the main distribution area of granite from mid—temperate zone to tropic zone in eastern China. The results show that the total concentrations (10^{-6}) of REE(ΣREE) of the weathered products were generally higher than those of the bed rocks in all places, and heavy REE(HREE) enriched relative to the light REE(LREE) while negative Eu anomaly were found more or less in all samples.

MINERALOGY

20170100 Cao Wenhong (State Key Laboratory for Estuarine and Coastal Research, East China Normal University, Shanghai 200062); Chen Jing **Magnetic Minerals as Tracers for the Mainland Coastal Rivers and West Taiwan Rivers** (Quaternary Sciences, ISSN1001—7410, CN11—2708/P, 36(1), 2016, p. 227—236, 6 illus., 1 table, 65 refs., with English abstract)

Key words: stream sediments, magnetic mineralogy, South China Sea, Taiwan Province

20170101 Chen Gang (Key Laboratory for High Temperature and High Pressure Study of the Earth's Interior, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Li Heping **Experimental Study on Thermal Diffusivity for Albite Aggregates under the Condition of High Temperature and High Pressure** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 7—11, 3 illus., 2 tables, 17 refs.)

Key words: albite

Albite is one of the most important minerals in the Earth's crust. Knowledge of its heat—transport properties under the condition of high temperature and high pressure is essential for understanding thermal regimes in the crust. In this paper, high pressure experimental apparatus was built on the pulse heating method, and thermal diffusivities of albite aggregates at 0.5 GPa, 1.0 GPa, 2.0 GPa and 373～973 K were measured. Pressure coefficients of thermal diffusivity for albite at different temperatures were 4.8%～9.2%/GPa, which were much higher than other common silicates of 4%.

20170102 Chen Zuan (Key Laboratory of Earth and Planetary Physics, Institute of Geo-

logy and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Yuan Xianhao **A Shock Wave Experimental Study on Damaping Olivine and Estimation of Its Parameters for Equation of State** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(1), 2016, p. 152－156, 6 illus., 1 table, 19 refs.)

Key words: olivine, high temperature－high pressure experiment, Hebei Province

Experiments of dynamical high pressure using shock waves are very effective to study physical properties of material under super－pressure. A shock wave experimental study on Damaping olivine with pressure from 10 to 45 GPa is presented in this paper. Combining previous work about isothermal equation of state for olivine, the temperature in experimental process is determined. The temperatures range from dozens of degree to 800 ℃ when the pressures of the experiments are between 10 and 30 GPa. Finally, the geodynamical implication of the experimental results to interior material movement in mantle is discussed.

20170103 Ding Jing (School of Graduates, China University of Geosciences, Beijing 100083, China); Song Tianrui **Occurrence and Origin of Monazites and Rutiles from Sedimentary Rocks of Chuanlinggou Formation in Changping Area of Beijing** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(2), 2016, p. 172－181, 9 illus., 1 table, 39 refs.)

Key words: rutile, genetic mineralogy

Monazite and rutile grains are found in the contribution by using energy spectrum analysis to study the silty mudstones, which are collected from the lower part of Chuanlinggou Formation in Changping area of Beijing. The maximum particle size of the monazite is up to 88 μm while the largest rutile is 20 μm. According to lots of backscattered images, the monazites show jagged edges and irregular shapes, appeared as fishes, birds, flowers, worms and so on. According to the preliminary age data, it is suggested that these monazites belong to secondary monazites, which are associated with the late hydrothermal event, not formed in the diagenetic stage.

20170104 Dong Yalin (School of Earth Science and Geological Engineering, Sun Yat－Sen University, Guangzhou 510275, China); Zhang Juquan **Crystal form Typomorphic Characteristics of Zircon from Houyu Cu－Mo－Au Deposit in Shanxi Province, China** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(1), 2016, p. 54－60, 8 illus., 3 tables, 17 refs.)

Key words: zircon, typomorphic characteristic, porphyry deposit, Shanxi Province

In order to discuss the growth condition for zircon and its relationship with the formation and evolution of magmatic rocks from the region, morphology of zircon was studied. Results show that in different lithological rocks, ratio of zircon's length and width is mostly between 1.5 ∶ 1 and 3 ∶ 1, meaning that the magma is alkaline. Zircons can be divided into R2, S2－5, P1－5, S7－10, S12－15 and so on according to Pupin's classification of zircon crystals. It shows that the zircons are crystallized in the alkaline magma and the temperature is lower. The liquid's temperature of the rocks is between 800 and 750 ℃.

20170105 Huang Shiqiang (China University of Geosciences, Beijing 100083, China); Song Yucai **Tourmaline in the Maocaoping Vein Cu Deposit, Western Yunnan Province: Characteristics, Chemical Composition, and Its Significance** (Acta Petrologica et Mineralogica, ISSN1000－6524, CN11－1966/P, 35(1), 2016, p. 124－138, 8 illus., 2 tables, 49 refs., with English abstract)

Key words: tourmaline, copper ores, Yunnan Province

20170106 Li Xiaofan (School of Resource and

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Environmental Engineering, Wuhan University of Technology, Wuhan 430070, China); Guan Junfang **Characteristics of Halloysite from Xishuangbanna Area, Yunnan Province, China** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 138—142, 4 illus., 3 tables, 25 refs.)

Key words: halloysite

Xishuangbanna halloysite (—2 microns) was characterized by a series of modern test methods, such as X—ray diffraction (XRD), scanning electron microscopy (SEM), Fourier infrared absorption spectrum (FT—IR) electron probe and X—ray fluorescence spectrometry (XRF). Results show that the Halloysite deposit gives priority to with 10A—halloysite, and contains some 7A—halloysite as well. Together with the method of heating, the authors studied the water in halloysite, and studied the structure of halloysite indirectly. The results show that the 10A—halloysite turn into 7A—halloysite easily. With heating, little water still remians in 7A—halloysite, especially the temperature reach 400 ℃.

20170107 Lu Meng (Faculty of Land Resource Engineering, Kunming University of Science and Technology, Kunming 650093, China); Tan Shucheng **Mineralogical Study of Cassiterite Grains from the Gejiu Tin Deposit** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1), 2016, p. 101—108, 2 illus., 4 tables, 20 refs.)

Key words: cassiterite, mineralogy

Through using scanning electron microscope, cathodoluminescence imaging, X—ray powder diffraction and electronic probe test, the mineralogy characteristics of various cassiterite crystals from the Gejiu tin deposit have been studies systematically in this paper, and their ore types include massive sulfide type, tourmaline veinlet belt type, tin dolomite, interlayer oxidized ore. According to the luminance difference of cassiterite under CL cathodoluminescence, it's found that two forming periods existed in the cassiterite ore of massive sulfide type, tourmaline veinlet belt and tin dolomite.

20170108 Ren Zengying (College of Resources and Environment Engineering, Guizhou University, Guiyang 550025, China); Wu Pan **Clay Minerals and Their Palaeoclimatic Indicators in the Mawo Karst Basin in Weining, Guizhou Province** (Sedimentary Geology and Tethyan Geology, ISSN1009—3850, CN51—1593/P, 36(1), 2016, p. 70—76, 3 illus., 1 table, 24 refs.)

Key words: clay minerals, karst features, Guizhou Province

This paper deals with the evolution of the palaeoclimatic conditions of the Mawo karst basin in Weining, Guizhou Province on the basis of composition, content, crystallinity index, chemical index and relative content of the clay minerals by using the X—ray diffraction analysis. The clay minerals in the study area are composed dominantly of mixed illite—montmorillonite layers (30%～75%) and chlorite (10%～45%), and subordinately of gaolinite (5%～20%) and illite (10%) with no montmorillonite, and derived from the weathering of the surrounding bedrocks.

20170109 Wang Han (State Key Laboratory of Marine Geology, Tongji University, Shanghai 200092, China); Zhou Zhengyu **Study on Petrological and Mineralogical Characteristics of Laos Stone by EPMA—XRD—SEM** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(1), 2016, p. 56—61, 2 illus., 3 tables, 17 refs.)

Key words: kaolinite, electron probe, X—ray diffraction analysis, scanning electron microsceopy, Laos

Since the newly—discovered Laos stones have highly similar appearances with Shoushan stones, it is difficult to correctly identify and evaluate them. Electron Microprobe (EPMA), X—ray Powder Diffraction (XRD) and Scanning Electron Microscopy (SEM) were used to study the chemical composition,

mineral components, and microstructure of the Laos stone. Results show that the Laos stone is mainly composed of kaolinite, dickite and their transitional minerals with minor nacrite. There is a positive correlation between the red color and the yellow color and the amount of impurity element Fe, which indicates that these colors are possibly caused by Fe. Laos stone's crystals are mostly irregular platy or uninterrupted pseudo — hexagonal platy. The smaller size the crystals have, the worse porosity of its crystals, leading to the finer texture and better seal engraving experience and therefore a higher value.

20170110 Wang Jianrui (Mineral College, Guizhou University, Guiyan 550025, China); Zhang Jie **Comparative Studies on the Surface Chemical Characteristics of Original and Weathering Ore between Collophane and Dolomite** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 63—71, 3 illus., 5 tables, 1 photo, 15 refs.)

Key words: dolomite, phosphorite deposit

XPS analysis is carried out to determine the surface structure of difference phosphate sample, to determine the forms and difference of carbon, oxygen, iron, fluorine, calcium, magnesium et. al on the surface of phosphate with similar compositions. The characteristics of surface chemistry of dolomite in phosphate rock are discussed. It shows that there is obvious difference on composition, status and structure between mineral surface and entirety.

20170111 Wang Wei (Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China); Wang Minfang **The Current Status and Prospects of the Study of Garnet in Skarn for Hydrothermal Fluid Evolution Tracing and Mineralization Zoning** (Acta Petrologica et Mineralogica, ISSN1000—6524, CN11—1966/P, 35(1), 2016, p. 147—161, 6 illus., 80 refs.)

Key words: garnet group, mineralogy

The composition, migration and evolution of hydrothermal fluids as well as the precipitation mechanism are the essence and main difficulties in the study of hydrothermal deposit. Skarn deposit has long been one of the most important hydrothermal deposits in that hydrothermal fluid in this kind of deposit has complex evolution process with multiple stages. Diopside and garnet are the most typical minerals in skarn deposit. Chemical elements zoning of garnet result from periodic emersion between fluid mobility and mineral reprecipitation, which could indicate the mechanism of major and trace elements zoning in prograde skarn fluid.

20170112 Wen Ke (Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Liu Guoqing **Process Mineralogical Study on the Maifan Stone in Nianzishan, Qiqihaer, Heilongjiang Province** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 1—7, 5 illus., 5 tables, 24 refs.)

Key words: meifanlite, mineral composition

Maifan stone is a natural medical stone and used in many fields, such as medicine, health care, agriculture, animal husbandry. The mineral and chemical composition, microstructure, thermal performances and micro—structural properties of Nianzishan Maifan stone are investigated by modern analytical techniques. It is showed that the Nianzishan Maifan stone is a structurally compact porphyritic calcium — alkaline magmatic rock. Its thermal stability is within 1 000℃ and possess a spongy porous structure with dominant pore size above 6 μm, so it can be used as excellent adsorbent in environmental field, and also as good drug carrier in pharmacy.

20170113 Xiong Fahui (State Key Laboratory for Continental Tectonics and Dynamics, In-

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stitute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Yang Jingsui **Exsolutions in Olivine from the Lower Cr# Dunite in the Purang Ophiolite, the Western Portion of the Yarlung—Zangbo Suture Zone in Tibet** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 79—89, 6 illus., 44 refs.)

Key words: olivine

Diopside and magnetite exsolutions occur as oriented intergrowths within olivine of the lower Cr# dunite in the Purang ophiolite, Tibet. The fresh lower Cr# dunite has a mineral assemblage of olivine, spinel and diopside. The Fo content of its olivine is 90.1～90.7, whereas the Cr# of spinel is very lower (about 19.8～20.7), much less than Cr# of the spinel in common dunite from ophiolite mantle (Cr#＞60). It is thus held that the formerly depleted mantle harzburgite reacted with the melt containing Ti, Al and Ca, and produced an olivine solid solution with the addition of Ti^{4+}, Al^{3+}, Ca^{2+}, Fe^{3+}, Cr^{3+}, which entered interstitial chromite. Due to the fast cooling rate of the rock or rapid tectonic emplacement, the exsolution textures in olivine and compositional zones of chromite have been preserved.

20170114 Xu Fang (School of Chemical and Environmental Engineering, Wuhan Polytechnic University, Wuhan 430023, China); Zhang Liping **Study on Biosorption Performance of Cd(Ⅱ) in Waste Water by Modified Mulberry Leaves** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(1), 2016, p. 62—68, 2 illus., 1 table, 28 refs., with English abstract)

Key words: adsorbent materials, adsorption

20170115 Xu Man (Key Laboratory of High—Temperature and High—Pressure Study of the Earth's Interior, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Tang Hongfeng **Research Progress in Experimental Study of Plagioclase Crystallization** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 61—69, 6 illus., 1 table, 17 refs.)

Key words: plagioclase, crystallization

The present review systematically summarizes the experimental studies on plagioclase crystallization in the following aspects: 1) restricting factors on plagioclase crystallization (including the effects of melt composition, temperature, pressure and H_2O content on the crystallization of plagioclase). Melt composition can affect the liquidus temperature of plagioclase and the an content of crystallized plagioclase. Temperature can affect the nucleation and growth, composition and morphology of plagioclase. The effect of pressure on plagioclase crystallization is complex. H_2O content can significantly lower the crystallization temperature of plagioclase and can determine the crystal size; and 2) the application of plagioclase crystallization experimental studies in interpreting magma processes. By studying the composition, texture and crystal size of plagioclase, changes of physical and chemical conditions during the evolution of magmas can be determined.

20170116 Yang Jing (School of Materials Science and Technology, China University of Geosciences, Beijing 100083, China); Ma Hongwe **Zeolitization of Potassic Syenites by Alkali—Hydrothermal Treatment and Its Mineralization Significance** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 38—42, 3 illus., 3 tables, 29 refs.)

Key words: syenites

Analcime and hydroxycancrinite were synthesized successfully by alkali—hydrothermal treatment of potassic syenite at 260 ℃ and 4 h. The two minerals analcime and hydroxycancrinite were formed by controlling the ratio of the syenite powder, NaOH and distilled water. The K_2O and partial SiO_2 of the syenite were dissolved into the solution during the synthesis. Zeolite formation of the three kinds of syenite by direct alkali—hydrother-

mal method is of importance to the potash salt preparation using insoluble potash resources while it is useful to interpret the mineralization mechanism of some metal ores, oil and gas formation, intergrowth and transformation of feldspars and zeolites, and natural zeolitization as well.

20170117 Yin Jingwu (Science Research Institute, China University of Geosciences (Beijing), Beijing 100083, China); Li Guowu **Fluornatropyrochlore, A New Pyrochlore Supergroup Mineral** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(1), 2016, p. 34－37, 4 illus., 5 tables, 10 refs.)
Key words: new minerals

Fluornatropyrochlore is a new pyrochlore supergroup mineral species from Boziguoer rare earth ore deposit, Baicheng County, Akesu Region, Xinjiang Autonomous Region, China. It occurs in the intrusive alkali granite rocks from the deposit. In this paper, its physical properties, chemical composition and crystal structure were studied, and the new name has been approved by the International Mineralogical Association Commission on New Minerals and Mineral Names. Nomenclature and Classification (CNMNC) (IMA 2013－056).

20170118 Zhang Mingji (State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Li Xiaofeng **Zircon LA－ICP－MS U－Pb Ages of Diabase from Yinshan Deposit and Its Geological Significance, Dexing, Jiangxi Province, South China** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(1), 2016, p. 25－33, 4 illus., 2 tables, 52 refs.)
Key words: diabase, LA－ICP－MS U－Pb dating

Based on the previous study, zircon LA－ICP－MS U－Pb dating has been conducted on the vein－like diabase in order to get the ages of mafic magmatic activity of the studied area. Results yield three groups of weighted average $^{206}Pb/^{238}U$ ages, (152±10) Ma, (346.6±5.3) Ma and (426±46) Ma. Consistent with the origin of zircons and the intercalated relationship between ore veins and the diabase, (157.4±1.7) Ma is considered to be the formation age of the diabase, which demonstrates that Late Jurassic mafic magmatism presented beside the felsic－intermediate magmatism in the Early－Middle Jurassic in this area. The other two older ages might be produced by the xenoliths zircons captured from wall rock, and it is possible for the mafic magma to be contaminated by the Paleozoic crust material during ascending. The diabase is likely distributed in stretch environment. Therefore, this area might be in a regional stretch tectonic setting in the Late Jurassic.

20170119 Zhang Zhidan (National Key Laboratory of Jilin Province Ecological Restoration and Ecosystem Management, Cultivating Base, College of Resource and Environmental Science, Jilin Agricultural University, Changchun 130118, China); Luo Xiangli **Research on XRD Phase for Clay Minerals in Organo－Mineral Complex of Major Soil from Jilin Province, China** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(1), 2016, p. 97－102, 4 illus., 2 tables, 27 refs.)
Key words: clay minerals

This paper selected the major cultivated soil (albic soil, black soil, chernozem) from Jilin Province, China as the research object, and used the XRD analysis method to study the composition characteristic of clay minerals in organo－mineral complex of soil (G0, G1 and G2), and deeply explored the evolution law and formation mechanism of clay minerals in organo－mineral complex of different soil types. The results show that the content of each complex was on a tendency of G0>G1>G2 for 3 different soil types, and the values of G0/G1 and G0/G2 were higher than 1. The evolutions of various minerals in the three groups of complex were different from each

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other, and the order of effect by weathering on organo—mineral complex of soil was G0>G1>G2.

20170120 Zhao Yonghong (Department of Geophysics, Peking University, Beijing 100871, China); Zhang Qiong **Experimental Observation of the Pressure Shadow Formation in Rock** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 264—270, 5 illus., 1 table, 47 refs.)

Key words: olivine, high temperature—high pressure experiment

Field geological observation showed that. pressure shadows with two regions filled with a low—viscosity phase located around a large single crystal or hard inclusion are widely observed in metamorphic rock. To quantitatively study the forming conditions of pressure shadow, samples which composed of fine—grained San Carlos olivine plus mid—ocean ridge basalt (MORB) containing dispersed sub—millimeter—sized single crystal beads of olivine or zirconia were deformed in torsion at high—pressure and high—temperature.

20170121 Zhao Youdong (State Key Laboratory for Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Wu Junqi **Mineral Chemistry of Biotite and Chlorite in Western Part of Fucheng Granite, Southern Jiangxi Province: Implications for Uranium Mineralization** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(1), 2016, p. 153—168, 9 illus., 3 tables, 49 refs.)

Key words: mineralogy, biotite, chlorite, uranium ores

The Fucheng granite is located to the east of Huichang basin, southern Jiangxi Province. There are several uranium deposits in the western part of the Fucheng granite which is in contact with shoshonite series volcanic rocks, with the Caotaobei uranium deposit being one of them. Chloritization of biotite in the granite is very common in the western Fucheng granite. Based on electron microprobe analysis data and theoretic calculation results of biotites and chlorites from the western part of the Fucheng granite, the authors studied the mineral chemistry of biotites and chlorites so as to discuss the relationship between chloritization of biotites and uranium mineralization. The results show that most of the biotites belong to siderophyllite. The oxygen fugacity ($\lg(fO_2)$) of magma of the Fucheng granite is estimated to be relatively low (-15.0～-14.3), which means that the magma was relatively strongly reduced. Its source rock was strongly reduced, which was beneficial to preliminary enrichment of uranium.

PETROLOGY

20170122 Shang Ying (Lunar and Planetary Science Research Center, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China); Li Shijie **The Reclassification of Weathering Degree of Antarctic Ordinary Chondrites** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 71—76, 2 illus., 3 tables, 20 refs.)

Key words: chondrites, weathering, alteration, Antarctica

There is a contradiction when categorizing some ordinary chondrites (OCs) from Grove Mountains (GRV), Antarctica, according to Wlotzka's criteria. That is only a minor of metal and troilite (less than 20%) were replaced by oxide while silicates being partly weathered, especially along cracks. The weathering degree of these OCs is all W1 if categorized by the oxidation of metal and troilite. However, they should be W5 by the weathering degree of silicates. Therefore, the authors propose new criteria to categorize the weathering degree of these OCs, in which the

weathering degree of metal and silicates are categorized into 5 and 4 progressive stages (they are W_m0, W_m1, W_m2, W_m3 and W_m4 for metal and W_s0, W_s1, W_s2 and W_s3 for silicates), respectively. Consequently, meteorites GRV 021588, GRV 021636, GRV 021772 and GRV 021957 which can't fit Wlotzka's criteria are all W_m1-W_s1.

1. IGNEOUS PETROLOGY

20170123 Chen Chao (Institute of Geological Survey, China University of Geosciences, Wuhan 430074, China); Zhou Tao **LA-ICP-MS Zircon U-Pb Dating, Geochemical Characteristics of Volcanic Rocks in Jianshui, Southeast Yunnan and Their Geological Implications** (Geotectonica et Metallogenia, ISSN1001-1552, CN44-1595/P, 40(1), 2016, p. 161-173, 9 illus., 2 tables, 50 refs.)

Key words: volcanic rocks, U-Pb dating, geochemistry, Yunnan Province

The age and tectonic setting of a set of basalt-andesite-dacite-rhyolite in Jianshui, Southeast Yunnan Province, south of the Shizong-Mile structural belt is studied in this paper. LA-ICP-MS zircon U-Pb dating of two samples yield (261.9±2.2) Ma (MSWD=0.80) and (264.8±1.7) Ma (MSWD=1.12) respectively. Considering the regional geologic background, rock association, and geochemical features, the authors argue that this set of volcanic rocks was formed in an extensional back-arc basin of active continental margin. They were derived from partial melting of the mantle and experienced crystallization differentiation and subsequent contamination of the upper crust. Similar to the island arc volcanic rocks at the Yunnan-Guangxi border and the island arc basalts along the Guangdong-Guangxi border, this set of volcanic rocks was most likely formed during the northward subduction of the Ailaoshan Ocean.

20170124 Chen Huimin (School of Earth Sciences, East China Institute of Technology, Nanchang 330013, China) **Geological and Geochemical Characteristics of Caledonian Granite Plutons in the Area of Huanan, Jiangxi Province and Its Geological Significance** (Geology of Fujian, ISSN1001-3970, CN35-1080/P, 35(1), 2016, p. 35-45, 6 illus., 2 tables, 33 refs.)

Key words: Caledonian granite, geochemistry, Jiangxi Province

Le'an, Doushui, ninggang as important members of granites formed Caledonian granite in the south of Jiangxi Province, are characterized by higher SiO_2 content (an average of 71.58%), K_2O/Na_2O ratio (an average of 1.62); A/CNK ratio (an average of 1.11). Is too weak a aluminum strongly peraluminous; rocks are enriched in large ion Pro stone elements Rb, Th, and relatively depleted in Ba, Sr, P, Ti, Eu losses were relatively obvious (an average εEu of 0.31). Isotopically they have relatively high $\varepsilon_{Nd}(t)$ value (an average of -6.02) and young Nd model age (an average of 1 417 Ma).

20170125 Chen Qile (Geological Research Academy of Xinjiang, Urumqi 830000, China); Huang Jian **Gechemical Characteristics of Late Paleozoic Volcanic Rocks in Kalaan-Qiakuerte Area, in Northeastern Margin of Junggar, and Its Tectonic Significance** (Xinjiang Geology, ISSN1000-8527, CN11-2035/P, 34(1), 2016, p. 62-67, 3 illus., 1 table, 9 refs.)

Key words: igneous rocks, lithogeochemistry, Junggar Basin

Late Paleozoic volcanic rocks are developed in Kalaan-Qiakuerte area of Northeastern margin of Junggar. Lower Devonian Zhuomubasitao Formation consists of marine volcanic sedimentary system withcal-alkaline series volcanic rocks. Upper Carboniferous Batamayineishan Formation consists of continental volcanic eruption system with alkaline

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series volcanic rocks. Based on geology and geochemistry of Late Paleozoic volcanic rocks, the authors consider that Early Devonian was in arc island environment, Late Carboniferous was in back—arc basin environment, and Permian was in extension environment, it has important significant for inverting tectonic evolution of Late Paleozoic.

20170126 Chen Shiyue (School of Geosciences, China University of Petroleum, Qingdao 266555, China); Zhang Yue **LA—ICP—MS U—Pb Dating for Paleozoic Granite from Xiaosaishiteng Mountain and Its Geological Significance** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 119—124, 4 illus., 20 refs.)

Key words: granite, zircon U—Pb dating

Zircon U—Pb dating was conducted for three magmatic rock samples from Xiaosaishiteng Mountain area, which yielded five average zircon U—Pb ages of (437±10) Ma, (487±14) Ma (XSST01), (390.8±9.1) Ma (XSST02), (400.1±7.9) Ma and (445.8±10) Ma (XSST03). These ages reflect three periods of Paleozoic granitoid magma intrusion epoch in 470～80 Ma, 440～450 Ma, 390～400 Ma and prove the granite in Xiaosaishiteng Mountain area formed at the Hercynian. By contrast of the age data in this paper and the phases of Paleozoic granitoid magmatism in structural belt of the North Qaidam Basin, the result that reveals the granitiod magma intrusion time of stage in 490～400 Ma is consistent with other areas of northern margin of the Qaidam Basin. These age's data play a major role on proving that the Xiaosaishiteng Mountain is a part of structural belt of the North Qaidam Basin.

20170127 Chen Youzhi (Department of Earth Sciences, Zhejiang University, Hangzhou 310027, China); Fu Jinhua **Researches on Basin Property of Ordos Block during Mesoproterozoic Changcheng Period** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(3), 2016, p. 856—864, 7 illus., 1 table, 104 refs., with English abstract)

Key words: granite, U—Pb dating, Anhui Province

20170128 Cui Yuliang (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Wang Genhou **Geochemical Characteristics and Tectonic Implication of Basalt in Lower—Middle Jurassic Sewa Formation in Renacuo Area of Gaize, Tibet, China** (Geoscience, ISSN1000—8527, CN11—2035/P, 30(1), 2016, p. 78—86, 10 illus., 1 table, 45 refs.)

Key words: igneous rocks, Tibet

The trachy basalt was discovered in Lower—Middle Jurassic Sewa Formation in Renacuo area of Gaize, Tibet. The geochemical characteristics indicate that they are generated in oceanic island environment within the oceanic slab, and that the magma is derived from enriched mantle without or with a little contamination of crust materials and sub—continental lithosphere. The oceanic island rock combination consists of basalt, basaltic gravel and limestone. Combined with the idea that Sewa Formation is seafloor fan sedimentary environment, it can be inferred that the Bangongcuo—Nujiang Ocean was mature oceanic crust in Early—Middle Jurassic.

20170129 Dai Junfeng (School of Eart Sciences, Lanzhou University, Lanzhou 730000, China); Gong Lei **The Mg/Fe Ratio of Ore—Bearing Basic—Ultrabasic Rocks** (Contributions to Geology and Mineral Resources Research, ISSN1001—1412, CN12—1131/P, 31(1), 2016, p. 42—46, 2 tables, 37 refs.)

Key words: basic—ultrabasic rock

There are many important ore deposits hosted in the basic—ultrabasic rocks, such as Cu—Ni sulphide deposits and podiform chromite deposits. Researches on petrogenisis and metallogenisis of basic—ultrabasic rocks applied generally the Mg/Fe ratio and ignored some crucial conditions such as SiO_2 content,

geological structure and rock alteration. In consideration of some important Cu－Ni deposits and chromite deposits at home and abroad and above conditions, this paper discussed the application of M/F in the rock classification and proposed new division fields based on calculation.

20170130 Ding Xiangli (State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Ren Zhongyuan **Magmatic Processes Involved in Formation of the Jinan Gabbros: Evidence from Melt Inclusions** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p. 174－190, 9 illus.,4 tables, 79 refs., with English abstract)

Key words: olivine, igneous activity

20170131 Duan Chao (Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, Chinese Academy of Geological Sciences, MLR, Beijing 100037, China); Mao Jingwen **Zircon U－Pb Geochronological and Hf Isotope Study on Tiaojishan Volcanic Formation, Mujicun, North Taihang Mountain and Implications for Regional Metallogeny and Magmatism** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(2), 2016, p. 250－266, 5 illus., 2 tables, 100 refs.)

Key words: igneous rocks, U－Pb dating, Taihang Mountains

The North Taihangshan Mountains area is one of the most important metallogenic belts in the East China. In this area, the Tiaojishan volcanic formation recorded the metallogenic－magmatism event times and resources in Mesozoic. The majority zircons from the andesite show the core－mantle texture. Based on the geochronology data, the authors infer that there might be two major metallogenic events, one is characterized by the forming of porphyry Cu－Mo deposits, and the other one is characterized by the forming of Au deposits.

20170132 Fan Yu (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Zhou Taofa **Genesis of the Qingyang－Jiuhuashan Complex Pluton in South Anhui Province and Its Geological Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 419－438, 10 illus., 3 tables, 104 refs., with English abstract)

Key words: granite, U－Pb dating, Anhui Province

20170133 Gan Chengshi (State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chnese Academy of Sciences, Guangzhou 510640, China); Wang Yuejun **The Petrogenesis and Tectonic Implication of Wengong Intrusion in the Nanling Range** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(1), 2016, p. 17－34, 13 illus., 5 tables, 81 refs.)

Key words: A－type granite, petrology, Guangdong Province

The early Yanshanian geology of southeastern China is characterized by widespread igneous rocks, especially granites. In this study, a set of new zircon U－Pb geochronological, elemental and Sr－Nd－Hf isotopic data is presented for the Wengong A－type granite in eastern Nanling range in northern Guangdong Province. Based on these geochemical data, it is proposed that the Wengong granites originated from mafic lower crust in response to the earliest Jurassic extensional setting. In combination with available data, it is inferred that the A－type granites in the Nanling range predominantly formed at 196～156 Ma, suggesting an early Yanshanian extensional event in SE China. These A－type granites probably formed in intra－plated extensional environment, indicating the transformation from Paleotethyan to Paleopacific domain after earliest Jurassic.

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20170134 Geng Ke (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Wang Ruijiang **Zircon SHRIMP U—Pb Geochronology of Congjia Granodiorite from Northwest Jiaodong Area** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 90—100, 5 illus., 2 tables, 94 refs.)

Key words: granite, U—Pb dating

In this paper, the authors studied the geological background and zircon SHRIMP geochronology of Congjia intrusion from Guojialing sequence. The dating result of zircons from porphyritic granodiorite is (127±1)Ma, suggesting that it was an early Cretaceous intrusion. The difference between ages from each intrusions of Guojialing sequence is very insignificant, indicating that they were emplaced almost at the same time at ca. 127.9 Ma. Multiple stage inherited zircon ages of Ar_3, Pt_1, J_3 obtained from zircons in Congjia intrusion and former researches imply that the magma source regions of Guojialing sequence are very complicated.

20170135 Wang Huaitao (School of Earth Sciences, Lanzhou University, Lanzhou 730000, China); Ren Wenxiu **Geochemical Characteristics and Tectonic Significance of A—Type Granite in the South Margin of Zhaobishan, Beishan Area** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1), 2016, p. 39—49, 8 illus., 3 tables, 45 refs.)

Key words: A—type granite, Gansu Province, Xinjiang, Inner Mongolia

The biotite monzogranite, located in the south margin of Zhaobishan, was intruded in Hongliuhe ophiolite. The results indicate that this biotite monzogranite belongs to A(A2) granite, which was formed by partial melting of young oceanic crust and island arc after had being used to be heated by basaltic magma in the extensional environment of Early Devonian.

20170136 Gong Qingshun (Hangzhou Research Institute of Geology, PetroChina, Hangzhou 310023, China); Zhu Chao **Volcanic Lithofacies Research on Kalagang Formation of Carboniferous in Santanghu Basin** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(1), 2016, p. 281—292, 10 illus., 1 table, 19 refs.)

Key words: volcanic rocks, Xinjiang

Volcanic lithofacies of Kalagang Formation in Santanghu Basin mainly consisted of volcanic explosive facies and effusive facies, yet volcano—sedimentary facies was poorly found. By using of wire line logging, geology and seismic data, logging response pattern for volcanic lithology identification was built, and then seismic inversion was runned restricted by the single—well facies in order to make clear of the areal distribution of volcanic lithofacies. The research results revealed that the main type of volcanic eruption was crevice eruption and crater was arrayed heatedly along the basement faults. Effusive facies that mainly consisted of andesite was spreaded like bedded. The results can effectively guide the exploration and evaluation for the volcanics of Kalagang Formation, and also provide the idea of the research can be used as a reference of volcano rock facies.

20170137 Gong Xiangkuan (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Chen Danling **The Determination of Triassic Ultramafic—Syenite Intrusive Body and Its Geological Significance, Western North Qinling** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 177—192, 8 illus., 3 tables, 137 refs., with English abstract)

Key words: Triassic, ultramafics, SHRIMP dating, Qinling Mountains

20170138 Guo Xianqing (Institute of Mineral Resources, Chinese Academy of Geological Science, Beijing 100037, China); Yan Zhen **Formation Age and Tectonic Attribute of Jin-**

shuikou Group Complex in the Nanshan Area, Qinghai Province (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(3), 2016, p. 589－606, 5 illus., 2 tables, 46 refs.)

Key words: granite, Qinghai Province

A suit of amphibolites facies meta－sedimentary rocks, outcropping in the Nanshan area of Qinghai, has been previously considered to be comparable with the Jinshuikou Group in the East Kunlun orogenic belt. But its formation age and tectonic attributes are still debated. This study carried out LA－ICP－MS zircon U－Pb dating and Lu－Hf composition analysis for sillimanite－mica－quartz schist and granitic pegmatite pluton. The study shows that the meta－sedimentary rocks in the Nanshan area was formed no earlier than 779 Ma, but later than 439 Ma, dominated by sediments from magmatic rocks with an age of ～779 M a. They possess similar sediment sources and tectonic attributes with contemporary meta－sedimentary rocks in the Danghe－Nanshan and Hualong areas of the South Qilian tectonic belt.

20170139 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: igneous rocks, 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.

20170140 He Guochao (CAS Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Science, Guangzhou 510640, China); Zhang Jian **LA－ICP－MS Zircon U－Pb Age of the Chuandu and Dabaoshan Porphyries in the Dabaoshan Ore Filed, Northern Guangdong Province and Its Metallogenic Implication** (Geotectonica et Metallogenia, ISSN1001－1552, CN44－1595/P, 40(1), 2016, p. 136－144, 4 illus., 1 table, 34 refs., with English abstract)

Key words: porphyry deposit, U－Pb dating, Guangdong Province

20170141 He Jiangtao (School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing 100085, China); Chen Bailin **Rock Deformation Mechanism of Northern Altun Margin－－Evidence from X－ray Fabric Analysis** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(1), 2016, p. 123－129, 4 illus., 1 table, 25 refs.)

Key words: granite, Altun Mountains

This paper reports the geological tectonic settings and regional stratigraphic rocks of northern Altun marginal area. Based on the quartz and sericite X－ray perofabrics analysis of altered deformed granite, granitic mylotite, deformed acidic volcanic rock and deformed dacitic tufffrom this area, the authors have some conclusions. According to the features of X－ray perofabrics analysis and schistosity, the authors hold that this ductile deformation moved in a right－lateral way. All this is consistent with the features of ductile－britde deformation zone formed by plate collision belt and oceanic crust closure in Dapinggou area of

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northern Altun.

20170142 Hu Rongguo (Guangxi Key Laboratory of Hidden Metallic Ore Deposits Exploration, Guilin University of Technology, Guilin 541004, China); Qiu Huaning **Anatexis and Cooling History of Granitic Gneiss in the Xitieshan Terrane, North Qaidam: Evidence from $^{40}Ar/^{39}Ar$ Geochronological Study of Leucosome** (Geotectonica et Metallogenia, ISSN1001—1552, CN44—1595/P, 40(1), 2016, p. 125—135, 4 illus., 2 tables, 51 refs., with English abstract)

Key words: granitic gneiss, Ar—Ar dating, Qaidam Basin

20170143 Huang Bo (School of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Fu Dong **The Age and Tectonic Implications of the Hegenshan Ophiolite in Inner Mongolia** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 158—176, 8 illus., 2 tables, with English abstract)

Key words: ophiolite, Upper Palaeozoic, Inner Mongolia

20170144 Huang Jian (Xinjiang University, Urumqi 830046, China); Zhu Zhixin **Geochemical Features of Lower—Middle Ordovician Volcanic Rocks of Qiaganbulake Formation in the South Koumenzi Area, Xinjiang, and Its Tectonic Significances** (Xinjiang Geology, ISSN1000—8527, CN11—2035/P, 34(1), 2016, p. 100—105, 5 illus., 1 table, 13 refs. with English abstract)

Key words: igneous rocks, lithogeochemistry, Xinjiang

20170145 Huang Penghui (Beijing Research Institute of Geological Engineering Design, Beijing 101500, China); Chen Xuanhua **Late Paleozoic Granitic Magmatism in West Junggar Metallogenic Belt (Xinjiang), Central Asia, and Its Tectonic Implication** (Geotectonica et Metallogenia, ISSN1001—1552, CN44—1595/P, 40(1), 2016, p. 145—160, 8 illus., 4 tables, 89 refs., with English abstract)

Key words: Upper Palaeozoic, granite, Junggar Basin

20170146 Huang Shunsheng (Geological Survey of Jiangsu Province, Nanjing 210018, China); Yang Yongbiao **Geochemical Characteristics and Their Geological Implications of the Jinshan Granites in the Liyang Basin, Jiangsu Province** (Journal of Geology, ISSN1674—3636, CN32—1796/P, 40(1), 2016, p. 15—22, 8 illus., 1 table, 25 refs.)

Key words: granite, lithogeochemistry, Jiangsu Province

The Jinshan area is located in the transitional zone between the Lower Yangtze region and Jiangnan uplift, and the intrusive rocks consist of granitic porphyry and quartz diorite porphyry. Petrochemical studies show that the Jinshan granites are high—K calc— alkaline and metaluminous magmatie rocks. Comprehensive regional geological setting, lithology and geochemical characteristics suggest that the tectonic mechanism of this area is converting from compression to extension, and that the granites mostly originated from partial mehing of lower crust as a resuh of decompression and experienced the magmatie evolution of crystallization and differentiation.

20170147 Jin Song (State Key Laboratory of Geological Processes and Mineral Resources, Faculty of Earth Science, China University of Geosciences, Wuhan 430074, China); Zhang Zhaoyi **Petrogenesis and Tectonic Implication for Jiaerluafu Granitic Porphyry Pluton in Western Junggar, Xinjiang: Constraints from the Element and Zircon Hf Isotope Geochemistry** (Chinese Journal of Geology, ISSN0563—5020, CN11—1937/P, 51(1), 2016, p. 262—280, 14 illus., 3 tables, 62 refs.)

Key words: granite porphyry, Xinjiang

The Jiaerluafu granite—porphyry pluton intruding the Haerjiawu Formation outcrops in the northern of western Junggar, Sara area,

and consists mainly of monzonitic granite mineralogically containing plagioclase, quartz, potassium feldspar and biotic. SiO_2 values between 69.54% and 71.25%, Al_2O_3 values between 13.92% and 14.93%, K_2O/Na_2O values between 1.04 and 1.07, and FeO^t/MgO values between 12.31 and 22.60. Primitive mantle normalized trace elements patterns reveal that large ion lithophile elements (LILE) Rb, Ba, Th are enriched, and strength element (HFSE)Nb, Ta, Sr, P, Ti are depleted. Previous studies and this study reveal that the Jiaerluafu granitic pluton formed in a post－collision tectonic environment. The pluton is partial melting product of new crustal material source area in Late Carboniferous.

20170148 Kang Jianli (Tianjin Center of Geological Survey, CGS, Tianjin 300170, China); Xiao Zhibin **Late Paleozoic Subduction of the Paleo－Asian Ocean: Geochronological and Geochemical Evidence from the Meta－Basic Volcanics of Xilinhot, Inner Mongolia** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(2), 2016, p. 383－397, 12 illus., 4 tables, 65 refs.)

Key words: igneous rocks, subduction zones, Inner Mongolia

The recta－basic volcanic Hinggan－Mongolian orogenics, lying at the Southeast of Xilinhot area, distributed in the east of the belt in Inner Mongolia, are the amphibolite part of Xilin Gol complex. From the amphibolite, by LA－MC－ICP－MS Zircon U－Pb Dating technique, this paper gets two formation ages: (334.5±3.5) Ma and (323.4±2.4)Ma, which belong to Late Carboniferous epoch. Based on these results, it is inferred that these volcanics were melting products of the metasomatized mantle wedge formed during the Paleo－Asian Ocean subduction northward. And therefore in Late Carboniferous the Paleo－Asian Ocean was not closed in study area but was in its subduction stage.

20170149 Lai Qunsheng (First Geological Exploration Institute of Henan Provincial Bureau of Geo－Exploration and Mineral Development, Zhengzhou 450000, China); Fan Zhongling **The Lithodemic Units of Adakite－Like-Granite on Genetic Types and Tectonic Settings for the Lingshan Pluton, East Qinling** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(31), 2016, p. 21－33, 10 illus., 4 tables, 17 refs., with English abstract)

Key words: S－type granite, Qinling Mountains

20170150 Lei Wanshan (College of Earth Science and Land Recourses, Chang'an University, Xi'an 710054, China); Xu Peng **LA－ICP－MS Zircon U－Pb Dating, Geological and Geochemical Features of Sujishan Gabbro Pluton, Eastern Bogda Mountains, and Their Tectonic Significances** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 317－330, 10 illus., 2 tables, 49 refs.)

Key words: gabbros, Bogeda Mountains, Xinjiang

Sujishan gabbro rock body lies in the eastern Bogda Mountains as well as southwest of the Kalameili ophiolite belt, and covers an area of 1.8 km^2. The lithology is of quartz－amphibole gabbro including higher amphibole (20%) and magnetite crystallization, which indicates original magma is water－rich and high oxygen fugacity. Its petrochemical feature shows that the magma belongs to the tholeiitic series. Rocks are enriched in LILE(Cs, Rb, Ba, Th, U) and remarkably depleted in Nb, Ta, Zr, Hf. The facts suggested that the Bogda rift was designated as a subduction－torn－type rift resulted from the oblique subduction of the paleo－Asian Ocean Plate towards the Junggar Plate along the Kalameili subduction belt.

20170151 Li Bile (College of Earth Sciences, Jilin University, Changchun 130061, China);

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Sun Yonggang **Zircon U－Pb Geochronology, Geochemistry and Hf Isotopic Composition and Its Geological Implication of the Fine－Grained Syenogranite in Dong'an Goldfield from the Lesser Xing'an Mountains** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(1), 2016, p. 1－16, 11 illus., 3 tables, 64 refs.)
Key words: syenogranite, lithogeochemistry, Xiao Hinggan Mountains

Occurred in Zhenzhumen Formation of Laoling Group of Proterozoic Era and controlled by ductile shear belt, the Huanggoushan gold deposit is one of the most representative deposits in Laoling gold－polymetallic metallogenic belt in southern Jilin Province. Based on the geological characteristics, mineral assemblage and the crosscutting relationship between different kinds of veins, the hydrothermal mineralization processes can be divided into two main stages, namely, stage Ⅰ pyrite arseno－ pyrite quartz and stage Ⅱ later stibnite－milky quartz. Isotopic studies of carbon, hydrogen and oxygen show that the ore forming fluids of mineralization Stage Ⅰ mainly derived from magmatic solutions, whereas fluids of mineralization stage Ⅱ mainly came from meteoric water in addition to the relicts of stage I ore forming solutions.

20170152 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, lithogeochemistry, 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. The major and rare elements are characterized by high Si, rich alkaline and obviously negative Eu, Ba, Sr, P and Ti anomalies. 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.

20170153 Li Pengju (School of the Earth Sciences and Resources, China University of geosciences, Beijing 100083, China); Yu Xinqi **Petrogenesis, Oxygen Fugacity Characteristics and Mineralization Significance of Two Kinds of Jurassic－Cretaceous Granites in Southern Anhui, SE China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 399－418, 12 illus., 4 tables, 143 refs., with English abstract)
Key words: Jurassic, Cretaceous, granite, Anhui Province

20170154 Li Wei (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Chen Junlu **Early Paleozoic Subduction of the Paleo－Asian Ocean: Zircon U－Pb Geochronological and Geochemical Evidence from the Kalatag High－Mg Andesites, East Tianshan** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 505－521, 11 illus., 2 tables, 104 refs., with English abstract)
Key words: andesite, Tianshan Mountains

20170155 Li Xiaohai (Shenyang Institute of Geology and Mineral Resources, CGS, Shenyang 110034, China); Yao Yulai **Characteristics of Triassic Biotite Monzogranite in Jarud Qi, Inner Mongolia** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 11－16, 7 illus., 3 tables, 25 refs., with English abstract)
Key words: A－type granite, lithogeochemis-

try, Inner Mongolia

20170156 Li Xinglong (School of Resources and Environment, Henan Polytechnic University, Jiaozuo 454000, China); Si Rongjun **Genesis and Geological Significance of Waijushan Neo－Archean Pluton in Songshan Area** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(1), 2016, p. 50－60, 11 illus., 1 table, 25 refs.)

Key words: trondhjemite, Henan Province

Songshan is the typical area in China, where the neo－archean granitic rocks were well exposed. The Waijushan gneissic trondhjemite is mainly distributed in Waijushan, which shows grayish－white color, medium－grained granitic texture, gneissic and banded structures. The geochemical characteristics of the Waijushan pluton shows that it was formed by the partial melting of aqueous basaltic oceanic crust under the high pressure environment during subduction process.

20170157 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, 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.

20170158 Li Zhucang (School of Earth Science and Resources Management, Chang'an University, Xi'an 710054, China); Li Yongjun **Geochemical Characteristics and Triassic Tectonic Significance of the Volcanic Rocks from Lower Huari Formation in West Qinling Mountains** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(1), 2016, p. 26－33, 7 illus., 3 tables, 22 refs.)

Key words: igneous rocks, geochemistry, Qinling Mountains

The Huari Formation, located in Hezuo region of West Qinling, are mainly consist of neutral to acidic volcanic rocks, including dacite, andesite, volcanic breccia and tuff. The rock geochemical results show that these rocks belong to calc－alkaline series, with the characteristics of high potassium and alumina, low alkali and titanium. Combined with the tectonic evolution of western Qinling orogenic belt, its suggested that lower Triassic Huari Formation was formed in island arc setting.

20170159 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 Mountain** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(2), 2016, p. 204－207, 3 illus., 2 tables, 6 refs., with English abstract)

Key words: igneous rocks, genesis, Changbaishan Mountains

20170160 Liu Ge (Geological Research Academy of Xinjiang, Urumqi 830000, China); Zhu Zhixin **Geochronology, Geochemistry and Petrogenesis of the Zhulumute A－Type Granites in West Junggar, Xinjiang** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 331－342, 6 illus., 2 tables, 65 refs.)

Key words: A－type granite, U－Pb dating, Junggar Basin

In this paper, zircon U－Pb dating and

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geochemistry of the Zhulumute granite are studied to constrain its geochronology and petrogenesis. This paper reports the results of high－precision zircon LA－ICP－MS U－Pb dating of the Zhulumute granite, which yields weighted mean $^{206}Pb/^{238}U$ ages of (299 ±1) Ma (n=11, MSWD = 0.96), corresponding to the Early Permian. Based on trace element ratios and related discrimination diagrams, the Zhulumute pluton can be A2 type granites, which are usually believed to have been formed in an post－collisional tectonic setting.

20170161 Liu Jianmin (School of Resource and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Yan Jun **Petrogenesis of the Volcanic Rocks in Fanchang Basin, the Middle－Lower Yangtze River Belt: Zircon Hf－O Isotopic Constraints** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 289－302, 6 illus., 3 table, 105 refs., with English abstract)

Key words: volcanic rocks, U－Pb dating, Mesozoic, Metallogenic Belt of Middle and Lower Reaches of Yangtze River

20170162 Ma Liyan (Wuhan Centre of China Geological Survey, CGS, Wuhan 430205, China); Liu Shusheng **Petrogenesis of the Tashan－Yangmingshan Granitic Batholiths: Constraint from Zircon U－Pb Age, Geochemistry and Sr－Nd Isotopes** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(2), 2016, p. 284－303, 8 illus., 5 tables, 60 refs.)

Key words: granite, zircon U－Pb dating, Hunan Province

In this paper, a research combined of LA－MC－ICP－MS zircon U－Pb chronology, geochemistry and Sr－Nd isotopes on several samples of different lithologies of granitoid is reported to constraint its petrogenesis and tectonic setting. The result shows three granitic samples of different granularity from the Tashan bathoilth yield ages from 213.4～221.5 Ma, while one sample from Yangmingshan batholith yields a age of 213.7 ～ 1.0 Ma, both of them belong to late Indosinian. Intergrated with Indosinian tectonic involvement of South China, partial melting of thickened middle crust under local extension－thinning mechanism may be the key factor controlling the granitic intrusionism of the Tashan－Yangmingshan region. 3 523 Ma inherited core of one zircon show that ancient Archaeozoic basement did exist in this region.

20170163 Peng Yuan (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Ma Yinsheng **Geological Characteristics and Tectonic Significance of the Indosinian Granodiorites from the Zongwulong Tectonic Belt in North Qaidam** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(2), 2016, p. 206－221, 11 illus., 2 tables, 66 refs.)

Key words: granodiorites, Indosinian, subduction zones

In order to research the Indosinian tectonic evolution features of the Zongwulong tectonic belt, the studies of petrology, geochronology and geochemistry were conducted for the Shailekeguolai granodiorite samples and Chahannuo granodiorite samples from that area. The results of zircon SHRIMP U－Pb dating of three samples for the Shailekeguolai granodiorite and Chahannuo granodiorite were (249.2±2.6) Ma, (242.7±1.9) Ma and (243.5±2.4) Ma respectively, which confirmed that the intermediate－acidic intrusive rocks of the Zongwulong tectonic belt were formed in the Early and Middle Triassic, and the existence of Indosinian tectonic－magmatic activity in North Qaidam has been proved.

20170164 Shi Bin (Faculty of Earth Sciences, China University of Geosciences, Wuhan 430074, China); Zhu Yunhai **Petrological, Geochemical Characteristics and Geological Significance of the Caledonian Peraluminous Granites in Heihai Region, Eastern Kunlun**

Mountains (Earth Science, ISSN1000－2383, CN42－1233/P, 41(1), 2016, p. 35－54, 7 illus., 3 tables, 79 refs.)

Key words: granite, petrology, Kunlun Mountains

Caledonian peraluminous granites (420.5 to 424.0 Ma), is closely related with the development and evolution of the crust. In Order to study their composition features and formation mechchanism, petrographical and geochemical investigations were carried out. It consists of biotite tonalite, biotite granodiorite, biotite granite, two－mica granite and muscovite granite in Heihai region. The melting materials of source are metagreywacke and metapelite. Based on regional geology, this paper suggests that Heihai peraluminous granites were formed by partial melting of the alumina－silica crust, which was caused by mantle underplating and extension of the southern subduction accretionary complex.

20170165 Sun Chunqing (Key laboratory of Cenozoic Geology and Environment, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); You Haitao **Differences between Whole Rock and In－Situ Analysis on Tephra: Evidence from the 1 600 a cal. B. P. Eruption of Jinlongdingzi Volcano** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(1), 2016, p. 97－104, 6 illus., 1 table, 49 refs.)

Key words: volcanic rocks, Sichuan Province

Tephra layers with unknown ages are usually identified and fingerprinted by their glass compositions. Additionally, its varve－ehronology can provide an advantage chronological framework for recent geological events which are difficult to date by other dating methods. A core drilled from Lake Sihailongwan (core 2008) shows that there is a tephra layer at 78～79 cm and an age of A.D. 308 was assigned to it by varve－chronology. The volcanic glass exhibits a heterogeneous composition, ranging from basaltic trachyandesite to tephriphonolite. For the applications to the tephrostratigraphy, whole rock analysis of tephra may be wrong and could not reflect the heterougeneous of primary magma while composition of glass is a better choice.

20170166 Sun Huiyi (Beijing SHRIMP Center, Institute of Geology, CAGS, Beijing 100057, China); Xie Hangqiang **Archean Magmatism and Metamorphism in the Huangbaiyu－Yangyashan Area, Eastern Hebei Province: Evidence from SHRIMP Zircon U－Pb Dating** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(1), 2016, p. 27－42, 7 illus., 1 table, 25 refs.)

Key words: igneous rocks, SHRIMP zircon U－Pb dating, Hebei Province

This paper reports SHRIMP zircon U－Pb ages of eight samples for different types of Archean meta－magmatic rocks in the Huangbaiyu－Yangyashan area, eastern Hebei Province, which include meta－gabbro, biotite plagioclase gneiss, gneissic monzogranite and gneissic K－rich granite. 3.1 Ga monzogranite (sample J1111) was identified for the first time in the area. Biotite plagioclase gneiss (sample J1116) also probably formed at －3.0 Ga. In meta－gabbros (samples Jl109 and Jl110), which are considered to form at the end of the Neoarchean although no －2.5 Ga magmatic zircon age has been determined, there are a few trapped zircons of 3.2～3.6 Ga.

20170167 Tang Zengcai (Zhejiang Institute of Geological Survey, Hangzhou 311203, China); Chen Zhongda **Geochronology and Geochemistry of Mesozoic Intrusive Rocks in the Yuhang－Lin'an－Fuyang Region, West Zhejiang and Their Geological Significance** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(3), 2016, p. 451－467, 8 illus., 4 tables, 72 refs.)

Key words: geochronology, geochemistry, U－Pb dating, Zhejiang Province

The Mesozoic magmatic intrusive events occurred frequently in the boundary of Yu-

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hang—Lin'an—Fuyang regions in western Zhejiang Province, accompanied with development of Xianlin—Qianjia granodiorites, Bashan—Changleqiao monzogranites and Heshanwu and Zhucun granites, all of which are closely related to mineralization. The research shows that the Late Jurassic granodiorite formed in a compression environment resulting from subduction of the Pacific Plate, the early Early Cretaceous monzogranite in a post—collisional environment from compression to extension and the late Early Cretaceous granite in the continuous extension environment.

20170168 Tao Gang (Institute of Sedimentary Ceology, Chengdu University of Technology, Chengdu 610059, China); Yang Wenguang **Lithological Characteristics and Sedimentary Models of the Lacustrine Hydrothermal Sedimentary Rocks of the Neogene Suonahu Formation on the Southern Edge of Qiangtang** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 72—81, 6 illus., 3 tables, 1 photo, 26 refs.)

Key words: extrusive rocks, Tibet

The lithology of the lacustrine hydrothermal sedimentary rocks in Neogene Suonahu Formation on the southern edge of Qiangtang terrance is studied. The shale—normalized REE patterns display middle REE enrichments and moderately strong positive Eu anomalies, indicating its medium—low hot—water sedimentary origin. On the basis of structural characteristics, 3 types of hydrothermal sedimentary rocks can be divided, they are brecciate type, filling rode type and region diffusing type far from the mouth, respectively. Accordingly, the sedimentary model of the sublacustrine hydrothermal sedimentary rocks is established.

20170169 Wan Le (College of Earth Sciences, Jinlin University, Changchun 130061, China); Liu Zhenghong **Zircon U—Pb Dating, Geochemistry and Their Significance of the Early Cretaceous Chaoyanggou Granites in Linxi, Inner Mongolia** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(1), 2016, p. 1—10, 10 illus., 2 tables, 36 refs.)

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

The Chaoyanggou pluton in Linxi area, Inner Mongolia, is tectonically located in the east of Xingan—Mongolia orogenic belt between the North China Plate and Siberian Plate. The LA—ICP—MS zircon U—Pb dating for the Chaoyanggou rock body indicates that the granite was emplaced in Early Cretaceous (126.2±2.5) Ma. Based on the (Yb+Nb)—Y and R1—R2 diagrams, all samples fall in post— collisional granite area and late orogenic granite area. Considering the regional geological setting, it is concluded that the Chaoyanggou granite pluton is the product of extensive background after collision.

20170170 Wang Dequan (Zhongshan Nuclear Industry Group Company, Xi'an 710054, China); Wang Jianguo **Analysis on Beitashan Group Volcano Rock Formation and Tectonic Environment in Qiongheba Ore Concentration Area** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 48—56, 10 illus., 1 table, 12 refs.)

Key words: volcanic rocks, minor elements, rare earths

The Devonian Beitashan Group volcano rocks in Qiongheba of the northern margin of East Junggar consist of basalt and andesite. It reveals the $Mg^{\#}$ value of basaltic andesite is 38.74～55.31, indicating that the original magma is differentiated from basaltic magma. The Beitashan Group volcanic rocks are characterized by low rare earth content with enrichment of LREE and loss of HREE, while the fractionation of light and heavy rare earth is not obvious. Based on the geochemical characteristics of the trace elements and main elements, it is considered that the Beitashan group volcanic rocks form in volcanic arc environment. The fluid occurred in the northward subduction of Kalamaili oceanic crust to man-

tle lithosphere results in the partial melting of garnet peridotite and spinel peridotite in the mantle wedge, forming the parent magma.

20170171 Wang Haipei (Geological and Mining Engineering Institute, Xinjiang University, Urumqi 830047, China); Guo Ruiqing **Genesis and Geological Significances of Nanhua Granitic Volcanic－Intrusive Complexes in Quruqtagh on the Northern Margin of the Tarim Block, China** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 239－261, 14 illus., 4 tables, 80 refs.)

Key words: granite, Tarim Basin

The Tarim Craton, one of the main three continental blocks (plates) in China, located in the center of Asia, was involved in the assembly and break－up of the Rodinia supercontinent during the Neoproterozoic. However, its tectonic evolution during these events remains more controversial. In this paper, petrology, geochemistry, zircon U-Pb age and Uf isotopic data for rhyolite and associated syenogranite were researched in Nanhua strata in the Quruqtagh block, northern Tarim Craton. The results show the uniformity in emplacement time, space and source materials for granitic volcanic－intrusive complexes. Zircon U-Pb dating results give an emplacement age of (735 ± 10) Ma for the syenogranite and (738.9±5.4) Ma for the rhyolite.

20170172 Wang Hongzuo (State Key Laboratory for Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Wu Junqi **Uranium－Bearing Volcanic－Intrusive Complexes in the Daqiaowu: Magma Mixing and Implications for Uranium Metallogenic Potential in the Gan－Hang Tectonic Belt** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(1), 2016, p. 30－42, 7 illus., 3 tables, 42 refs.)

Key words: complexes, Jiangxi Province

The Daqiaowu uranium deposit is a volcanic－intrusive rock－hosted uranium deposit, where zircon $\varepsilon_{Hf}(t)$ values of the volcanic－intrusive complex (dated at 138～125 Ma) exhibit a remarkable rise from approximately －13.0 to －3.0 through time. Zircon saturation temperatures of these rocks also show an increase from ～749 ℃ to ～846 ℃. These characteristics suggest that volcanic intrusive rocks in the Daqiaowu were generated by mixing of magmas derived from mantle and crust, and that more inputs of mantle－derived materials were added to younger rocks.

20170173 Wang Ruiqiang (State Key Laboratory for Mineral Deposits Research, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Qiu Jiansheng **Zircon U－Pb Ages and Hf Isotopic Compositions of the Sangsang Granitic Pluton in the Middle Segment of the Gangdese Belt: Constraints on the Petrogenesis and Tectonic Evolution** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(1), 2016, p. 81－91, 6 illus., 4 tables, 48 refs.)

Key words: granite, collision, Tibet

To better understand the petrogenesis and tectonic implications of the Sangsang granitic pluton located in the western part of the middle segment of the Gangdese belt, the authors have conducted an integrated study of the geochronology, elemental geochemistry, and zircon Hf isotopic compositions of the granitic pluton. Zircon LA－ICP－MS U－Pb dating for the Sangsang granitic rocks yields ages of 49～54 Ma, indicating that they were emplaced during Eocene. The granitic rocks have variable zircon $\varepsilon_{Hf}(t)$ values which are scattered from positive to negative values (＝－4.24～＋5.49), implying that different source components have contributed to magma genesis.

20170174 Wang Sen (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 10083, China); Zhang Da **Geochemistry, Zir-**

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con U—Pb Dating and Hf Isotope Composition of Granite in Fanshan Area, Pinghe County, Fujian Province, and Its Geological Significance. (Earth Science, ISSN1000—2383, CN42—1233/P, 41(1), 2016, p. 67—83, 9 illus., 4 tables, 49 refs.)

Key words: granite, Fujian Province

In order to study the chronological and geochemical characteristics of the Mesozoic granite and granodirite from Fanshan area and their relationship with the regional mineralization, the LA—MC—IC—PMS zircons U—Pb dating method was employed to assess the ages and Hf isotope composition, preceded by their petrological and geochemical studies. In comparison with the metamorphic basement near the study area, the authors suggest that the granitic rocks are probably derived from a Mesoproterozoic crust, but the granodiorite may have originated from a Mesoproterozoic crust—mixed with a fraction of mantle materials. Based on the comparative study with Zijinshan orefield, it is concluded that there are similar structural, lithogeneous and metallogenic features between the two areas, and there is huge prospecting potential to find "Zijinashan style" copper—gold polymetallic deposits in Fanshan area.

20170175 Wang Shun'an (Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, MLR, CAGS, Beijing 100037, China); Wang Xiaoxia **Zircon U—Pb Age and Geochemistry of Liijing Granitoid Pluton in Western Qinling and Their Significance** (Acta Petrologica et Mineralogica, ISSN1000—6524, CN11—1966/P, 35(1), 2016, p. 33—51, 9 illus., 3 tables, 62 refs.)

Key words: granite, lithogeochemistry, Qinling Mountains

The Lujing pluton is one of the "Five Golden Flower" granite plutons in the Western Qinling. Its main lithologies include porphyroid biotite admellite, phenocryst—bearing biotite adamellite, medium—fine—grained biotite monzonitie granite and coarse—grained biotite monzonitic granite. The geochemical features and formation ages of the Liijing pluton are similar to those of the Zhongchuan pluton, which is also one of the "Five Golden Flower" granites, suggesting that the Lujing pluton genic potential to the Zhongchuan pluton, may have similar petrogenic mechanism and metallogenic potential to the Zhongchuan pluton.

20170176 Wang Xiaoxian (Key Laboratory of Crustal Dynamics, Institute of Crnstal Dynamics, China Earthquake Administration, Beijing 100085, China); Zhang Jinjiang **Age and Geochemistry of the Cuona Leucogranite in Southern Tibet and Its Geological Implications** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(1), 2016, p. 91—103, 7 illus., 3 tables, 69 refs.)

Key words: granite, LA—MC—ICP—MS, U—Pb dating, Tibet

The Cuona leucogranite pluton is situated in the east of Himalayan orogen. LA—MC—ICP—MS zircon U—Pb dating reveals that leucogranites were crystallized at (17.7±0.3) Ma, representing the Miocene crustal anatexis. The study suggests that they are crust—derived high potassium calcalkaline and peraluminous S—type granite. The relatively high Lr (0.789 82～0.792 76) and low $\varepsilon_{Na}(t)$ (-19.5～-18.2) are well comparable with data of the metapelite from Greater Himalayan Crystalline complex (GHC), indicating that the leucogranites were generated from their partial melting.

20170177 Wang Xiaoxian (Key Laboratory of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Zhang Jinjiang **Geochemical Characteristics of the Chongba Leucogranites, Southern Tibet: Formation Mechanism and Tectonic Implications** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 264—275, 7 illus., 2 tables, 94 refs.)

Key words: granite, Tibet

The Chongba leucogranite pluton is situated in the eastern part of the Greater Himalayan leucogranite belt. Geochemical data show that these rocks are characterized by high SiO_2 (73.87%～74.95%), Al_2O_3 (14.20%～14.74%), K_2O(4.44%～4.89%), K_2O/Na_2O(1.19～1.42), A/CNK values (1.18～1.22), and enrichment in Rb, Th, U, depletion in Ba, Nb, Sr, Zr, and strong negative Eu anomalies (δEu=0.27～0.37). These features suggest that they are high potassium calc-alkaline and peraluminous S-type granites. The high Rb/Sr (2.6～8.6) and low CaO/Na_2O(0.18～0.20) ratios imply that the source rocks were probably pelites.

20170178 Wu Yueyong (Geological Survey Institute of Inner Mongolia, Hohhot 010020, China); Jiang Haijiao **Geochemical Characteristics of Early Cretaceous Volcanic Rocks in Qagan Obo Area, Sonid Left Banner, Inner Mongolia** (Geological Survey and Research, ISSN1672-4135, CN12-1353/P, 39(1), 2016, p. 1-14, 12 illus., 10 tables, 11 refs.)

Key words: volcanic rocks, Inner Mongolia

During the 1∶50 000 regional geological survey in Qagan Obo area, the authors studied the Mesozoic volcanic rocks which exposed in the edge fault of Erlian rift Basin in this area. For a more detailed study of the volcanic stratigraphy, volcanic rock facies, geochemistry, rare earth elements and trace elements, abundant information has been get. The study suggests that the volcanic rock in this area is Si-A1 supersaturated rock, calc-alkaline rock series, the source rocks should be sedimentary or rocks from the upper crust, which is a light rare earth enriched rocks with LREE clear fractionation and a significant negative Eu anomaly.

20170179 Wu Yufeng (Key Laboratory of Metallogeny and Mineral Assessment, Ministry of Land and Resources, Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Yang Fuquan **Geochemical Characteristics of Basaltic Andesite Subvolcanic Rocks in the Ashele Cu-Zn Deposit and Their Geological Significance** (Acta Petrologica et Mineralogica, ISSN1000-6524, CN11-1966/P, 35(1), 2016, p. 65-80, 10 illus., 2 tables, 70 refs.)

Key words: igneous rocks, lithogeochemistry, copper ores, zinc ores, Xinjiang

Geology, geochemistry and isotopic geochemistry are reported for the subvolcanic rocks from the Ashele Cu-Zn deposit. The rocks are basaltic andesites belonging to low-K tholeiite series. The trace elements are characterized by enrichment of Sr, Ba, and Th and depletion of Nb, Ta, Zr and Hr. Combined with the tectonic evolution of the southern margin of the Altay, the authors hold that the southern margin of the Altay was in an active continental margin setting during the Late Paleozoic, and the Ashele Basin was in an island arc setting.

20170180 Xiao Yandong (Geological Research Academy of Xinjiang, Urwnqi 830000, China); Zheng Jiaxing **Petrology and Geochemistry of the Taker Basi to Diorite from Eastern Junggar of Xinjiang** (Xinjiang Geology, ISSN1000-8527, CN11-2035/P, 34(1), 2016, p. 68-75, 7 illus., 3 tables, 18 refs.)

Key words: diorites, lithogeochemistry, Junggar Basin

Taker Basi Tao rock body is located in the northeastern margin of Junggar, south of Wulungu river afault, and the north of Kalamaili fault. In this paper, through the age of SHIRMP zircon U-Pb and the rock geochemical characteristics, Judge the rock mass is from subduction island arc environment, the rock magma source comes from mantle and crustal materials must have contributed to the formation of the rock, at the same time, it restrains the end of subduction effect of the eastern Junggar.

20170181 Xie Jiancheng (School of Resources

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and Environnvental Engineering, Hefei University of Technology, Hefei 230009, China); Xia Dongmei **Geochemistry of Late Mesozioc Granodiorites in Southern Anhui Province: Constraints for Rock — and Ore — Forming** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 439—455, 12 illus., 3 table, 130 refs., with English abstract)

Key words: granodiorites, Anhui Province

20170182 Xu Xiyang (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Jiang Neng **Petrogenesis and Geological Implications for the Mesozoic Granites in Qinglong Area, Eastern Hebei Province** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 212—232, 11 illus., 4 tables, 136 refs., with English abstract)

Key words: granite, Mesozoic, Hebei Province

20170183 Yang Zhongjie (Liaoning Institute of Geological and Mineral Survey, Shenyang 110031, China); Lu Weiyuan **Petrogeochemistry and Origin of the Cenozoic Volcanic Rocks In Fuxin—Zhangwu Area, Western Liaoning Province** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(1), 2016, p. 26—31, 9 illus., 4 tables, 4 refs., with English abstract)

Key words: igneous rocks, lithogeochemistry, Liaoning Province

20170184 Zeng Le (College of Earth Sciences, Jilin University, Changchun 130026, China); Chen Zhenghui **U—Pb Dating of Zircons and Ore— Bearing Potential of Zhulanbu Intrusions in the Southern Jiangxi Province** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(2), 2016, p. 199—207, 4 illus., 1 table, 29 refs., with English abstract)

Key words: biotite granite, U—Pb dating, Indosinian

20170185 Zhang Guang (College of Zijin Mining, Fuzhou University, Fuzhou 350116, China); Qiu Xiaoping **Geochemical Characteristics and Tectonic Implications of the Mafic Dikes in Shanghang Basin, Fujian Province** (Geology of Fujian, ISSN1001—3970, CN35—1080/P, 35(1), 2016, p. 1—5, 12 illus., 2 tables, 44 refs.)

Key words: mafic dikes, lithogeochemistry, Fujian Province

Systemmatic geochemical analyse reported for the Cenozoic mafic dikes in Shanghang Basin, they are alkaline rock series, this rocks are rick in LREE, Pb, depleted in LILE (Rb, Th, Sr, K), indicating geochemical characteristics irrelated to subduction belt. The characteristics of $\omega(CaO)/\omega(Al_2O_3)$ and discrimination diagrams of MgO followed by crystal fractionations of mafite. The characteristics of trace elements required that the low degree of melt (7%～15%) from upwelling asthenospheric mantle and garnet peridotite mantle produced the alkaline mafic dikes, and didn't have crustal contamination in the process of invasion. The study on the Shanghang Basin mafic dikes provides a new case for tectonic—magmatic activities in the inland area of Fujian Province.

20170186 Zhang Yafei (State Key Laboratory for Breeding Base of Nuclear Resources and Environment, East China Institute of Technology, Nanchang 330013, China); Wu Jianhua **SHRIMP U—Pb Geochronology, Geochemistry and Sr—Nd Isotopes of the Uranium—(Molybdenum) Related Rhyolite and Granitic Porphyry, Datan, Northern Heibei** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(1), 2016, p. 193—211, 13 illus., 2 tables, 106 refs.)

Key words: A—type granite, U—Pb dating, North China Craton

Datan volcanic basin, located at the northern margin of the North China Craton, is

an integral part of the Yan—Liao polymetallic (Mo—U—Ag—Pb—Zn) and Guyuan—Hongshanzi uranium belts. U—Pb dating on zircon by SHRIMP in this study suggests that rhyolite of the Zhangjiakou Formation and intruding granitic porphyry were emplaced at (140.2±1.9) Ma (2σ, MSWD = 1.7) and (131.7±1.1) Ma (2σ, MSWD = 0.8), respectively. Whole rock major and trace elements analyses indicate that they both exhibit typical geochemical features of A—type granite. Combining previous studies, the authors propose that the rhyolite and granitic porphyry were derived from partial melting of Paleoproterozoic (ca. 2.2～2.3 Ga) middle to lower crustal rocks of tonalitic to granodioritic compositions under an intra—plate extensional setting induced by lithospheric thinning and destruction of the North China Craton.

20170187 Zhang Yunqiang (Hebei Institute of Regional Geological and Mineral Resource Survey, Langfang 065000, China); Chen Haiyan **The Discovery of Tuff Interlayer from the Triassic Ermaying Formation in Northern Hebei Province and Its Geological Significance** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(1), 2016, p. 20—26, 2 illus., 1 table, 31 refs.)

Key words: tuff, zircon U—Pb, Hebei Province

The Ermaying Formation, previously assigned to Middle Triassic, is distributed in Xiabancheng—Pingquan area and mainly composed of fluvial red sandstone and mudstone rocks. During 1∶50 000 regional survey, the authors discovered a layer of rhyo—tuflfite in the upper part of the Ermaying Formation. Zircon LA—ICP—MS U—Pb dating of the tuff sample yielded an age of (234.2±2.6) Ma (MSWD=3.2). In combination with fossils, intrusive rocks and lithology, the authors hold that a more appropriate sedimentary time of the Ermaying Formation in northern Hebei may be Middle to Late Triassic.

20170188 Zhao Zelin (Graduate Department of Chinese Academy of Geological Sciences, Beijing 100037, China); Li Junjian **LA—ICP—MS Zircon U—Pb Age and Geochemistry of Gabbros from the Huanghuatan Copper—Nickel Deposit, Inner Mongolia** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(2), 2016, p. 208—216, 3 illus., 2 table, 32 refs., with English abstract)

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

20170189 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, 7 illus., 7 refs.)

Key words: tuff, lithogeochemistry, 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.

20170190 Zhou Wenting (Fundamental Science on Radioactive Geology and Exploration Technology Laboratory, East China Institute of Technology, Fuzhou 344000, China); Guo Guolina **Geochemical Characteristics and Tectonic Significances of the Rocks from Northeastern Jiangxi Ophiolite** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(1), 2016, p. 84—96, 10 illus., 1 table, 71 refs.)

Key words: harzburgite, basalts, petrology

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The harzburgites and basalts from northeastern Jiangxi ophiolite belt have been investigated in this study, with the aim to review Neoproterozoic tectonic environment. The results show that harzburgites are characterized by low TiO_2 (0.02%～0.37%), K_2O (0～0.02%) and Na_2O (0.02%～0.10%), along with high MgO (40.81%～44.58%) and ignition loss (10.09 %～13.47%), suggesting that the harzburgites suffered intensive alteration. The Chondrite－normalized REE patterns and primitive－normalized spider diagrams indicate that the harzburgites are sourced from a depleted mantle source suffered metasomatism in subduction zones. The geochemical characteristics indicate that the northeastern Jiangxi ophiolitic may have experienced multi－stage tectonic evolution.

20170191 Zhu Xinyou (Beijing Institute of Geology and Mineral Resources, Beijing 100012, China); Wang Yanli **Geological and Geochemical Characteristics of Xenoliths in Yaogangxian Granite, Hunan Province** (Acta Petrologica et Mineralogica, ISSN1000－6524, CN11－1966/P, 35(1), 2016, p. 16－32, 9 illus., 3 tables, 43 refs.)

Key words: granite, igneous processes, Hunan Province

There are several types of xenoliths, such as monzonite, quartz diorite porphyry, black rock and greisen schlieren, in the alkali feldspar granite of the Yaogangxian tungsten deposit, Hunan Province. In this paper, the authors studied the petrology, geochemistry of the xenoliths, alkali feldspar granite, and monzonite batholiths formed in Late Jurassic period. The greisen schlieren resulted from the transition from the alkali feldspar granite stage to the magma－hydrothermal stage. The fine biotite granite xenolith (Ⅲb) in the quartz porphyry was captured from the supplementary granite which was differentiated from the main magma, or from the granite pluton formed from the supplementary rocks.

2. METAMORPHIC PETROLOGY

20170192 Bian Xiang (Geological Survey Academy of Xinjiang, Urumqi 830011, China); Yi Qian **The Geochemical Characteristics, Zircon U－Pb Dating and Protolith Restoration of Xingxingxia Rock Group in Baluntai District, Xinjiang** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p. 76－83, 5 illus., 3 tables, 7 refs.)

Key words: gneisses, lithogeochemistry, Xinjiang

The authors conducted systematically petrography, zircon U－Pb geochronology and whole－rock geochemistry analysis for the felsic gneiss from Chinese Western Tianshan. The zircon samples yield a $^{206}Pb/^{238}U$ weighted age of (1 584±41) Ma, demonstrating that they were formed in Mesoproterozoic Changchengnian Period. Most samples are rich in LREE, weak in HREE, and negative Eu anomalies. The samples are rich in Rb, Sr, Ba, Zr; depleted in Th, U, Ta, Hf; $(La/Yb)_N$、$(Ce/Yb)_N>1$. The metamorphic mineral composition and internal association indicate that they are high greenschist－low amphibolite facies and medium－grade metamorphic series. Geochemical composition study reveals that the protolith of the Changchengnian Xinxingxia Group metamorphic rocks are mainly intermediate－basic volcanic rocks, with minor amount of iron－pelyte.

20170193 Chen Daoqian (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Zhang Huihua **Geochemistry and Petrogenesis of the Permian Metabasalts in the Jianglang Dome, Western Sichuan Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(1), 2016, p. 30－37, 7 illus., 1 table, 20 refs.)

Key words: metabasalt, geochemistry, Si-

chuan Province

A succession of bedded metabasalts occurs in the Permian strata in the Jianglang dome, western Sichuan Province. These rocks have well-defined pillow structures, and are composed mainly of hornblende (~80%), plagioclase (~15%) and minor quartz (<3%) and magnetite (~2%). The results show that the Permian metabasalts in the Jianglang dome may be assigned to ocean-floor basalts, and remnants of palaeo-Tethyan oceanic crust. The magmas may be derived from the depleted mantle mixed with minor enriched mantle components, and were not contaminated with crustal matter during the ascending processes.

20170194 Chen Xin (Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China); Zheng Youye **Exhumation Processes of UHP Metamorphic Belt in the Northern Qaidam and Their Constraints to Rutile Mineralization: Evidences from Compositional Zoning of Garnets in Yuqia and West Tieshiguan Areas** (Journal of Earth Sciences and Environment, ISSN1672-6561, CN61-1423/P, 38(2), 2016, p. 143-159, 9 illus., 3 tables, 49 refs.)

Key words: eclogite, ultrahigh pressure metamorphic zones, Qaidam Basin

The ore-forming prospect of eclogite-type rutile in Yuqia is different from that in West Tieshiguan, located in the northern Qaidam ultrahigh-pressure (UHP) metamorphic belt. The results show that the occurrences of Yuqia and West Tieshiguan eclogites are basically identical. Yuqia eclogite degenerates weakly with mineral idiomorphic granular, and garnets contain more inclusions. Major and trace earth elements have well-developed zoning characteristic, and the mantle and rim enrich rare earth element in garnets. The characters provide directions for the study area to further find eclogite-type rutile deposits in the northern Qaidam UHP metamorphic belt.

20170195 Guo Hongfang (Liaoning Institute of Geological Exploration, Dalian 116100, China); Wang Zhongjiang **Deformation and Metamorphism of Liaohe Group** (Northwestern Geology, ISSN1009-6248, CN61-1149/P, 49(1), 2016, p. 69-81, 15 illus., 21 refs.)

Key words: Liaohe Group, metamorphism

In this paper, the deformation and metamorphism of Liaohe Group and their relation have been discussed in detail. And then, the metamorphic facies, the distribution and dividing basis of metamorphic belt have been analyzed carefully. The results show that, the metamorphism and deformation of Liaohe Group were happened under the compression system when the volcanic sedimentary series of Paleoproterozoic ocean were subducted into the depths of the earth, and both of them belongs to the same thermodynamic process. Now, all existing tectonic phenomena can be considered to the final state of progressive deformation process under the same dynamic action.

20170196 Huang Jialong (Fujian Institute of Geology Survey and Research, Fuzhou 350013, China) **Discovery and Geological Characteristics of Neoproterozoic Granitic Gneiss in Southern Section Wuyishan Area** (Geology of Fujian, ISSN1001-3970, CN35-1080/P, 35(1), 2016, p. 26-34, 5 illus., 3 tables, 11 refs.)

Key words: granitic gneiss, LA-ICP-MS U-Pb dating, Fujian Province

Though regional geological survey of Chanting county and other four area (scale: 1: 50000), the authors found the granitic gneiss in Huzai area. The characteristics of petrochemistry show that granitic gneiss belong to aluminum supersaturation S-type granites, and the characteristics of geochemistry is similar to the within-plate granite or syn-collision granite. The LA-ICP-MS U-Pb dating of the zircons from the granitic gneiss in isotopic age is (729.4 ± 8.6) Ma, it's represents the crystallization age of gra-

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nitic gneiss. Huzai granitic gneiss is the new intrusion found in southern section of Wuyishan of Nanhuan period, it's significance for researching basement evolution of the Cathaysia.

20170197 Jiang Weijia (Key Laboratory of Crust—Mantle Materials and Environments, Chinese Academy of Sciences, Hefei 230026, China); Liu Yican **Metamorphic Heterogeneity within a Single Ultrahigh—Pressure Belt** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(2), 2016, p. 160—171, 9 illus., 70 refs.)

Key words: ultrahigh pressure metamorphic zones, eclogite

Ultrahigh—pressure (UHP) index minerals, such as coesite and diamond in eclogites and related metamorphosed supracrustal rocks from various orogenic belts, suggest that continental crustal rocks can be subducted to mantle depths of more than 120 km and subsequently return to the surface. Furthermore, eclogites and related eclogite—facies rocks, and low—grade mineral assemblage—bearing rocks (i. e. metagranite, granitic gneiss, metabasalt and amphibolite) commonly coexist in UHP metamorphic belts. On basis of the research, several key factors such as protolith nature, metamorphic fluids, structural deformation and retrogression, which affect the preservation of UHP metamorphic records, were discussed.

20170198 Li Ruibao (Key Laboratory for Study of Focused Magmatism and Giant Ore Deposits, Chang'an University, Xi'an 710054, China); Pei Xianzhi **LA—ICP—MS Zircon Age of Metamorphism Rocks in the Rouqigang Area of Western Gonghe Basin: Maximum Depositional Ages of Protolith and Provenance Feature** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(1), 2016, p. 93—114, 9 illus., 2 tables, 81 refs.)

Key words: metamorphic rocks, LA—ICP—MS Zircon Age

With two schist samples of the Jinshuikou Group in the Rouqigang area of Qinghai Province as the research object, this paper used the LA—ICP—MS zircon U—Pb isotopic geochronologic method to determine the formation age, sedimentary source of Jinshuikou Group and metamorphic basement affinity. More importantly, the U—Pb age spectrum of the schist'zircon highlights about the 780 Ma age of Neoproterozoic, but without representative 1 850 Ma age and 2 500 Ma age of North China Plate. In combination with regional data, the West Qinling basement, whose crystallization time is Early Neoproterozoic, is identical to the East Kunlun Block, the North Qaidam, and Qilian Block, which all express tectonic affinity to the Yangtze Plate.

20170199 Liang Youwei (Liaoning Institute of Geological Exploration, Dalian 116100, China); Guo Hongfang **Characteristics of Paired Metamorphic Belt (Melange) along Tekes Area in Western Tianshan Mountains** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1), 2016, p. 1—14, 7 illus., 4 tables, 19 refs.)

Key words: glaucophane schist, Tianshan Mountains

The Tekes paired metamorphic belt is an important part of the paired metamorphic belt in West Tianshan Mountains. Detailed observations and discussions on the characteristics of Tekes paired metamorphic belt are contribute to in—depth studying the paired metamorphic belt in entire western Tianshan Mountains. The time of metamorphism is about the end of Late Silurian Epoch. The rock groups of cordierite schist were formed by is—land arc type metamorphism with amphibolite facies in low—pressure facies series, but the ones of glaucophane schist were developed by subduction zone type metamorphism with low green schistfacies in high—pressure facies series.

20170200 Liu Jie (Liaoning Institute of Geo-

logical Exploration, Dalian 116100, China); Yang Zhongzhu **Zircon Shrimp Age of the Stratified Metamorphic Rocks in Faku Area, Northern Liaoning Province: Geological Implication** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 22－25, 4 illus., 1 table, 5 refs.)

Key words: metamorphic rocks, zircon SHRIMP age, Liaoning Province

The stratified metamorphic rock series, composed of metamorphic andesite, dacite and marble with metamorphic elastic rock formation is widely distributed in Faku area, northern Liaoning Province. The rock series, which is a major component of Paleozoic orogenic belt, is referred to as Early Permain Tongjiatun rock formation, Zhaobeishan rock formation and Carboniferous Mopanshan formation. Based on the temporal and spatial relation between the geological units and regional stratigraphie correlation to Northern Liaoning, the age of these strata are assigned to Early Permian.

20170201 Liu Xiaobin (Fourth Geological Team of Geological Exploration, Bureau of North China, Qinhuangdao 066013, China); Wang Yong **Metamorphism of Archean Intrusion and Supracrustal Rocks in the Area of Metamorphic Rock, Jidong, Jilin Province** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 5－11, 29, 2 illus., 6 refs.)

Key words: metamorphic rocks, Archean, Hebei Province

Archean intrusion is for most of the metamorphic rock area in metamorphism area of Jidong. Archean intrusion is divided into the two types of Archean hypabyssal intrusion and Archean plutonic intrusion according to its forming environment. This paper points out the different forming environment of Archean intrusion, discusses the basic characteristic of Archean intrusion and the difference between Archean intrusion and supercrustal rocks. There are the field identification features between Archean intrusion and supercrustal rocks in this paper. Identifying the Archean intrusion has important guiding significance on the regional geological mapping.

20170202 Liu Yaran (Beijing SHRIMP Center, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Jian Ping **Zircon SHRIMP U－Pb Dating and O Isotope of the Beitashan Ophiolitic Mélange in the East Junggar, Xinjiang, and Its Geological Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 537－554, 12 illus., 2 table, 22 refs.)

Key words: ophiolite, gabbros, granite porphyry, U－Pb dating, Junggar Basin

20170203 Qi Yunfei (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Zhang Lifei **Petrographic Features and Metamorphic Evolution of pumpellyite－Bearing Eclogite in Uzkaya Salma Area of the Belomorian Mobile belt, Russia** (Acta Petrologica et Mineralogica, ISSN1000－6524, CN11－1966/P, 35(1), 2016, p. 52－64, 5 illus., 2 tables, 41 refs.)

Key words: eclogite, petrology, Russia

The pumpdlyite in the eclogites from Uzkaya Salma area of the Belomorian mobile belt, Russia, was formed at the pre－eclogite stage under the condition of sub－greenschist facies. Pumpdlyite occurs as inclusions in garnet porphyroblasts and is associated with titanite, rutile, clinopyroxene, chlorite, epidote and quartz. In addition, rare granulous pumpellyite occurs as isolated inclusions in the matrix diopside. According to the composition features of pumpellyite, pumpellyite mostly belongs to pumpellyite－(Al) and rarely belongs to pumpelltie－(Fe).

20170204 She Jianzhong (Geological Survey Academy of Xinjiang, Urumqi 830000, Chi-

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na); Deng Hongtao **Geochemical Features and Structural Significance of Hongguleleng Ophiolite in Western Junggar, Xinjiang** (Xingjiang Geology, ISSN1000－8845, CN65－1092/P, 34(1), 2016, p. 40－45, 5 illus., 1 table, 13 refs.)

Key words: ophiolite, Tianshan Mountains

Study on the petrological, geochemical characteristics and Geochronology of Hongguleleng ophiolite located in the Western Junggar. The ophiolite composed predominantly of the ultramafic－mafic cumulates, mafic dyke, basic lava, and deep－sea sediments as well. Geochemical data analysis shows that the LREE enrichment and the HREE deficiency, general right deviation REE distribution pattern. It is relatively enriched in Ba, U, and Sr, especially in Ta, Yb, but poor in Nb, Hf, Ti. The geochemical characters show that the ophiolite was occurred in back－arc basin environment. Zircon LA－ICP－MS U－Pb dating for the granite yielded an age of(497.2±4.2) Ma(MSWD=1.4, n=10), indicating the formation of the Hongguleleng ophiolite is in Late Cambrian.

20170205 Shi Yonghong (School of Resource and Environment Engineering, Hefei University of Technology, Hefei 230009, China); Wang Juan **Investigation of P－T Conditions and Geochoronology for Garnet－Kyanite－Chloritoid Schist from the Susong Complex** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 493－504, 6 illus., 3 tables, 78 refs., with English abstract)

Key words: chlorite schist, Dabie Mountains

20170206 Tang Gaolin (Sichuan Liwu Copper Mining Company, Ganzi 626200, China); Zhang Huihua **Geochemical Features and Tectonic Setting of Metamorphic Rocks in the Liwu Group, Core of the Jianglang Dome, Western Sichuan Province** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(1), 2016, p. 41－47, 5 illus., 2 tables, 22 refs.)

Key words: metamorphic rocks, geochemistry, Sichuan Province

The core strata of Jianglang dome in the western margin of Yangtze Block are composed of metamorphic rocks of the Liwu Group. Geochemical studies on the Liwu Group metamorphic rocks are carried out to determine the source of rock－forming materials and tectonic setting. It reveals that the protolith of the samples are all sedimentary in origin and the protolith provenance of metamorphic rocks is mainly the continental upper crust. The study also indicates that the rocks are most likely formed in a back－arc basin tectonic setting after the convergence of Gondwana supercontinent. Magmatic activity of back－arc basin brings about abundant ore－forming materials, forms the initial source bed of Liwu－type Cu－rich deposits, and simultaneously receives the terrigenous deposition which formed the clastic rock series.

20170207 Wang Xiaoxian (Key Laboratory of Crustal Dynamics, Institute of Crustal Dynamics, China Earthquake Administration, Beijing 100085, China); Zhang Jinjiang **Early Paleozoic Orogeny in the Himalayas: Evidences from the Zircon U-Pb Chronology and Hf Isotope Compositions of the Palung Granitic Gneiss in Nepal** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(2), 2016, p. 190－205, 9 illus., 3 tables, 79 refs.)

Key words: granitic gneiss, Himalayan orogen

The Palung granitic gneiss in Nepal is a part of the Kathmandu thrust sheet of which the major mineral compositions are: quartz, plagioclase, K－feldspar, microcline and muscovite. Zircon U－Pb ages of the Palung granitic gneiss and the published geochronological results of the Cambrian－Ordovician granites/granitic gneisses demonstrate that the Early Paleozoic orogeny was existed in the Himalayas. The Early Paleozoic tectonic events preserved in the Himalayas are well compared

with the contemporaneous ones in Lhasa terrane, Qiangtang terrane and Baoshan—Tengchong terrane located in the southeast of the Tibetan Plateau.

20170208 Wu Xiao (Institute of Mineral Materials and Application, Southwest University of Science and Technology, Mianyang 621010, China); Sun Hongjuan **Petrologic Characteristics and Sedimentary Environment Analysis of Huabowan Quartzite in Qinghai Province** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 57—62, 4 illus., 3 tables, 15 refs.)

Key words: quartzite, sedimentary environment

This paper studies its mineral composition and quartz grain size distribution characteristics, analyzes the relationship between chemical composition and grain size of quartz, discusses the constraint of sedimentary environment on quartzite, and proposes some suggestions about its utilization. It suggests that the Moshigou Formation formed in littoral and neritic environment with high—energy coast character, sorting controls the mineral composition and grain size distribution of clastic sediment and the chemical composition varies with the content of muscovite.

20170209 Xu Lei (School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Jiang Xi **Geochemical Characteristics and Protolith Restoration of the Taishan Group Metamorphic Rocks in the Tianzumiao Area of Peixian County, Jiangsu Province** (Journal of Geology, ISSN1674—3636, CN32—1796/P, 40(1), 2016, p. 47—56, 6 illus., 4 tables, 7 refs.)

Key words: metamorphic rocks, lithogeochemistry, Jiangsu Province

This paper did statistical analysis of the petrological and geochemical features of the Taishan group metamorphic rocks in the Peixian County of Jiangsu Province. The result shows that the metamorphic rocks are dominated by biotite hornblende plagioclase gneiss, followed by biotite plagioclase gneiss and hornblende plagioclase gneiss, and then followed by biotite (hornblende) monzonitic gneiss, with locally migmatized gneiss. The Taishan group is rich in Fe, Mg and Ca, $\omega(Na) > \omega(K)$, and contains certain amounts of A1 and Si. Protolith restoration based on whole rock analysis and trace elements suggests that the original rocks of the Taishan group metamorphic rocks are intermediate—basic volcanic rocks, which are inferred to be andesite and basaltic andesite.

20170210 Yang Gaoxue (Earth Science and Resources College, Chang'an University, Xi'an 710054, China); Li Yongjun **Geochronology, Geochemistry and Petrogenesis of Pillow Basalts from Mayile Region in West Junggar** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 522—536, 8 illus., 3 tables, 160 refs.)

Key words: basalts, plumes, Junggar Basin

20170211 Zhang Mingfeng (Key Laboratory of Petroleum Resources of Gansu Province, Key Laboratory of Petroleum Resource Research of Chinese Academy of Sciences, Lanzhou 730000, China); Wang Xianbin **Review on Gas Formation of Serpentinization** (Journal of Earth Sciences and Environment, ISSN1672—6561, CN61—1423/P, 38(1), 2016, p. 11—20, 2 illus., 1 table, 92 refs., with English abstract)

Key words: serpentinization

3. SEDIMENTARY PETROLOGY

20170212 Cai Jia (Beijing Research Center, China National Offshore Oil Corp., Beijing 100028, China); Wu Keqiang **Sedimentary Facies of the Paleogene Funing Formation in the South Depression of the South Yellow Sea Basin**

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(Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 125－134, 11 illus., 31 refs.)

Key words: sedimentary facies, Yellow Sea

The south depression possesses the most important petroleum potential in the South Yellow Sea Basin, which contains eight sags and four uplifts and has a complicated structure. The Paleogene Funing Formation, a set of lacustrine sandstone and mudstone, with a thickness of 1 km is the most important source rock in the depression, and can be divided into four members. A comparison of logging, core, seismic profile and paleontology with the Subei Basin suggests that three kinds of sedimentary systems are developed in the south depression, including lacustrine, delta and carbonate platform systems.

20170213 Chen Shiyue (China University of Petroleum, School of Geosciences, Qingdao 266555, China); Bi Mingwei **Mixed Sedimentary Characteristics and Controlling Factors of Upper Paleozoic Group in Northern Qaidam Basin** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(2～3), 2016, p. 282－292, 7 illus., 35 refs.)

Key words: mixed sedimentary rock, sedimentary characteristics, Qaidam Basin

Various mixed sedimentary rocks and sequences with different formation mechanisms were formed in Late Paleozoic strata of Northern Qaidam Basin. Types of mixed sedimentary rocks can be divided into three categories based on differences in petrologyand size: eclipse source conglomerate, mixed sedimentary rock with coarse clastics, marl and lime mud stone, and mudstone with fossils. Mixed sequence formed in every environment, mixed facies can be divided into mixed gritty clastic shore, mixed low－energyclastic shore, mixed carbonate platform, and mixed muddy shelf. The authors believe that the combined action of tectonic movement, ecstatic sea level change, paleochmate and ancient basin slope angle led to the wide development of mixed sedimentary rocks.

20170214 Fan Mengmeng (Department of Geology, Northwest University, Xi'an 710069, China); Li Wenhou **Rare Earth Element Characteristics of Sediment Samples of Triassic Maximum Flooding Period in Longdong area of Ordos Basin and Their Provenance Significance** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(2～3), 2016, p. 390－397, 7 illus., 1 table, 26 refs.)

Key words: rock samples, rare earths, Ordos Basin

The period of Chang 7 deposition in Upper Triassic was the maximum flooding period of Ordos Basin. Rare earth elements (REE) analyses of rock samples from the study area and around the basin show that the REE characteristics of mndstone samples of the study area is similar to the characteristics of UCC, and the REE patterns are basically the same as the patterns of ancientgranite and metamorphic rocks around the basin, except for the ancient granite of Luliang Mountains in the east region. The experimental results demonstrate that the sediments of the study area were derived from UCC, with the main composition being felsic rock. All old lands around the basin provided sediments except Luliang Mountains, which were not uplifted at that time.

20170215 Fan Mengmeng (Department of Geology, Northwest University, Xi'an 710069, China); Li Wenhou **Diagenesis and Its Influence on Porosity of Chang 6 Reservoir in Southeast Ordos Basin** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(2～3), 2016, p. 448－453, 3 illus., 1 table, 17 refs.)

Key words: sandstone, porosity, Ordos Basin

Based on such means as thin section identification, scanning electron microscope and X－ray diffraction, the authors studied reservoir lithology, types of diagenesis and influence on pore evolution of Chang 6 reservoir in

southeast Ordos Basin. The mainsandstone types of Chang 6 reservoir are arkose and lithic feldspathic sandstones. Most sand grains are round－subangular and moderately sorted. The sandstone belongs to stage A of middle diagenetic stage. Diagenesis includes compaction, cementation, dissolution and metasomatism. Compaction and cementation reduced inidal pore volume by 68.8% and 16.90% respectively.

20170216 Hao Songli (Exploration and Development Research Institute of PetroChina Changqing Oilfield Company, Xi'an 710021, China); Li Zhaoyu **Sedimentary Characteristics of Turbidite of Chang 7 Member in Southwestern Ordos Basin** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(2～3), 2016, p. 424－432, 6 illus., 1 table, 15 refs.)

Key words: turbidite, Ordos Basin

Based on outcrops, cores and grain size analyses, the authors studied systematically sedimentary characteristics of turbidite of Chang 7 member in southwestern Ordos Basin. The results show that turbidites are subangular lithic feldspar sandstone with lowcompositional maturity and textural maturity. The turbidites exhibit typical turbidite particle size distribution. The sedimentary structures include graded bedding, flute cast, delve mold, gravity cast and collapse, and the common Bouma of turbidite sequences includes AB, ABC, ADE and AE. Topography of the lake basin, source supplyand tectogenesis seem to have been the important factors influencing formation and distribution of turbidites.

20170217 Ji Guofeng (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Fan Hong **Characteristics and Geological Significance of the Late Triassic Carnian Oolitic limestone in Hanwang Area, Northwest Sichuan Basin, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, (43)1, 2016, p. 68－76, 5 illus.,1 table,37 refs.)

Key words: oolitic limestone, Sichuan Province

Sedimentar in the lower part of y facies, paleoclimate and paleosalinity of Late Triassic Carnian oolitic limestone Ma'antang Formation, Northwest Sichuan Basin are studied based on former achievements, field investigation and sedimentary facies analysis. The Carnian limestone section is composed of three parts, occurred as composite oolite, concentric oolite, radial－concentric oolite and brain－like oolite from the bottom to top, and they are mainly deposited on carbonate ramps under the condition of decreased seawater energy and deep sea water.

20170218 Li Hongzhong (Key Laboratory of Mineral Resource, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Zhai Mingguo **Study on Geochemistry and Micro－Areacharacteristics of Paleoproterozoic Chemical Sedimentary Rocks from Zankan Area, West Kunlun, China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 233－250, 19 illus.,6 tables,108 refs.)

Key words: Paleoproterozoic Era, chemical precipitated rocks, Kunlun Mountains

Zankan iron ore deposit is one of the typical iron ores in West Kunlun area, China. There exist series of chemical sedimentary iron ore layers and siliceous rocks in the Zankan ore area. In this paper, the authors studied the geochemical and microfabric characteristics as well as mineral geochemistry of these chemical sedimentary rocks, whose analytical results supported that the ore deposit was sedimentary metamorphic genesis and were formed in the continental marginal sea with subsequent influence.

20170219 Liu Jinlong (College of Earth Sciences, Jilin University, Changchun 130061, China); Sun Fengyue **Zircon U－Pb Geochro-**

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nolog, Geochemistry and Hf Isotopes of Nankouqian Granitic Intrusion in Qingyuan Region, Liaoning Province (Earth Science, ISSN1000-2383, CN42-1233/P, 41(1), 2016, p. 55-66, 11 illus., 3 tables, 60 refs.)

Key words: **adakite, lithogeochemistry**

LA-ICP-MS zircon U-Pb dating and geochemical data of the Nankouqian granitic intrusion were studied to determine its formation time and tectonic background. The zircon U-Pb dating results indicate that the granitic pluton was formed in the Late Triassic (224±1)Ma. The granite shows calc-alkaline and metaluminous to weakly peraluminous affinities, with A/CNK ratio ranging from 0.98 to 1.07. The characteristics suggest that the primary magma was derived from partial melting of primarily Proterozoic lower crustal materials. Considering the regional tectonic evolution, the authors suggest the granites formed in the post-orogenic extension setting which could be related to the closure of the Paleo-Asian Ocean.

20170220 Meng Miaomiao (School of Energy Resources, China University of Geosciences, Beijing 100083, China); Kang Zhihong **Application of Trace Elements and Carbon-Oxygen Isotopes on the Research of Sedimentary Environment of the Qipan Formation in the Southwest Margin of Tarim Basin, China** (Journal of Chengdu University of Technology, ISSN1671-9727, CN51-1634/N, (43)1, 2016, p. 77-85, 4 illus., 3 tables, 35 refs.)

Key words: **sedimentary environment, trace elements, carbon isotopes, oxygen isotopes, Tarim Basin**

Parameters of trace elements and carbon-oxygen isotopes are used to analyze the paleosalinity, paleoclimate and oxidation-reduction environlnent and reconstruct the sedimentary environment of the Middle Permian Oipan Formation in the southwest margin of Tarim Basin. It shows that the Qipan Formation formed in a high salinity on shore marine sedimentary environment with a warm to dry climate, and in poor oxygen to anaerobic environment favorable to the enrichment of organic matter. It considers that the trace elements and carbon-oxygen isotopes parameters are closely related to the sea level changes.

20170221 Ni Liangtian (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Zhong Jianhua **Study on the Imbrication of Sand-Scale Particles in Modern Point Bar in Dunhuang City, Gansu** (Acta Sedimentologica Sinica, ISSN1000-0550, CN62-1038/P, 34(2), 2016, p. 207-221, 16 illus., 1 table, 29 refs., with English abstract)

Key words: **imbricate tectonics, Gansu Province**

20170222 Song Jinmin (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Liu Shugen **Characteristics and Sedimentary Geological Significances of Lower-Middle Cambrian Tempestites in Central Sichuan Basin** (Acta Petrolei Sinica, ISSN0253-2697, CN11-2128/TE, 37(1), 2016, p. 30-42, 8 illus., 36 refs., with English abstract)

Key words: **tempestite, Sichuan Basin**

20170223 Sun Jiaopeng (China University of Petroleum, School of Geosciences, Qingdao 266555, China); Yin Chengming **An Analysis of Late Carboniferous Sedimentary Tectonic Setting and Provenance of North Qaidam Area: Evidence from Well Shiqian 1** (Geological Bulletin of China, ISSN1671-2552, CN11-4648/P, 35(2~3), 2016, p. 302-311, 6 illus., 2 tables, 42 refs.)

Key words: **clastic rocks, geochemistry, Qaidam Basin**

Based on the knowledge of sedimentology, geochemistry and global tectonics, the authors systematically analyzed the well core samples of Kehike and Zhabusagaxiu Formations from Well Shixian 1 located in the Shihuigou area on the northern margin of the

Qaidam Basin. On the basis of the geochemical study of the clastic rocks and previous study results, the northern margin of the Qaidam Basin is regarded as a passive margin cratonic basin controlled by Zongwulong trough expansion in the north. The clastic rocks were sourced from the base of the Paleozoic orogenic belt in the northem Qaidam. The transgression was from north to south and the depositional systems were distributed from south to north, showing an overall pattern with mountains in the south and oceans in the north.

20170224 Sun Xiaoyong (Institute of Sedimentary Geology, Chengdu University of Technology, Chengdu 610059, China); Mou Chuanlong **Geochemistry and Sedimentary Environments of the Upper Ordovician Wufeng Formation in Guangyuan, Northern Sichuan and Zhenba, Southern Shaanxi Province** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(1), 2016, p. 46-54, 7 illus., 4 tables, 29 refs.)

Key words: sedimentary environment, geochemistry, Guangxi

The black shales with a great potential in the Upper Ordovician Wufeng Formation from the Guangyuan region, northern Sichuan to the Zhenba region, southern Shaanxi is interpreted as the key horizons for the marine oil and gas exploration in South China. Referenced to the previous results, the present paper focuses on the analysis of palaeoclimate, palaeodepth and palaeoredox conditions in the study areas. The analytical results including 0.64 for the average V/(V + Ni) ratio; 1.87 for the average U/Th ratio; 2.98 for the average V/Cr ratio, 15.07 for the average Ni/Co ratio and 0.23 for the average MnO/TiO_2 ratios suggest the highly reduced conditions in the marginal shallow sea during the deposition of the Wufeng Formation.

20170225 Tan Zhiyuan (Shandong University of Science and Technology, Qingdao 266590, China); Mou Chuanlong **Sedimentary Facies and Palaeogeography of Northern Qilian Area during the Middle Cambrian** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(1), 2016, p. 55-61, 7 illus., 1 table, 36 refs.)

Key words: lithofacies paleogeography, Qilian Mountains

The sedimentary facies and palaeogeographic analysis in this paper is based on the field and laboratory examination guided by the thoughts of "tectonic-controlled basin and basin-controlled facies"in integration with lithology, textures and structures, and fossil assemblages. Three sedimentary facies are discriminated including neritic shelf, bathyal and abyssal-oceanic basin facies, followed by the reconstruction of the sedimentary facies and palaeogeographic map of northern Qilian area during the Middle Cambrian. The results of research in the paper may provide a helpful approach to the sedimentary facies and palaeogeographic analysis for the orogenic zones.

20170226 Wang Jinyuan (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Xiang Fang **Planation Surfaces in the Three Yangtze Gorges Area: Evidences from the Cretaceous to Quaternary Deposits in the Yichang Region, Hubei Province** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(1), 2016, p. 77-84, 5 illus., 1 table, 20 refs.)

Key words: Quaternary deposit, Cretaceous

There are three major depositional cycles recognized in the Cretaceous to Quaternary deposits in the Yichang region, Hubei Province. These depositional cycles are interpreted to be the responses to the three phases of tectonic evolution and three phases of planation surfaces in the Three Yangtze Gorges areas west of Yichang. Referenced to the previous data, organic fossils and age determinations for the Quaternary Shanxiyao Formation, the planation surfaces cited above were dated at the Late Cretaceous-Eocene for the Exian plana-

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tion surfaces, the Pliocene—beginning of the Early Pleistocene for the Shanyuanian planation surfaces, and the end of the Early Pleistocene—the early stage of the Middle Pleistocene for the Yunmengian planation surfaces, respectively.

20170227 Wang Xiaolin (School of Earth Sciences and Engineering, Nanjing University, Nanjing, 210023, China); Hu Wenxuan **Discovery of Primary Dolomite in Evaporite Sequences of Hetian—1 Well, Middle Cambrian, Tarim Basin** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(2), 2016, p. 419—433, 7 illus., 1 table, 70 refs., with English abstract)

Key words: dolomite, Tarim Basin

20170228 Wu Xiyong (Faculty of Geosciences and Environmental Engineering, Southwest Jiaotong University, Chengdu 611756, China); Ling Sixiang **Elemental Migration Characteristics and Chemical Weathering Degree of Black Shale in Northeast Chongqing, China** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(2), 2016, p. 218—233, 5 illus., 5 tables, 48 refs.)

Key words: black shale, petrology

Black shales are special sedimentary rocks that contain significant amounts of organic matter and sulfide minerals; whereas, less is known about the elemental mobility and weathering mechanism in black shales during chemical weathering. For understanding the chemical weathering processes of black shale in different geographic locations, a number of Shuijingtuo Formation black shale samples were collected from three weathering profiles, namely, profile A (mid—ridge), profile B (near mountaintop), and profile C (valley) at Chengkou County, northeastern Chongqing in this paper.

20170229 Xiao Yu (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Li Guangming **Breccias from the Jienagepu Au—Sb Deposit in the Lhunze Region, Southern Tibet: Characteristics and Gological Implications** (Sedimentary Geology and Tethyan Geology, ISSN1009—3850, CN51—1593/P, 36(1), 2016, p. 38—45, 9 illus., 1 table, 15 refs.)

Key words: breccia, Au deposit, Sb deposit, Tibet

The Jienagepu Au—Sb deposit as a newly discovered potential Au—Sb deposit resides in the eastern part of the Himalayan Pb—Zn—Au—Sb metallogenic belt in southern Tibet. The breccias are found to be well developed in the Jienagepu Au—Sb mining district, and may be classified, on the basis of detailed petrographic studies, into three types: sedimentary breccias, fault breccias and karst—structural breccias. The sedimentary breccias were accumulated in the rapidly deposited environments associated with debris flows during the Jurassic.

20170230 Yin Senlin (College of Geosciences, China University of Petroleum (Beijing), Beijing 102249, China); Wu Shenghe **The Controlling Effect of Contemporaneous Reverse Faults on Alluvial Fan Depositional Architecture: A Case Study of Triassic Lower Karamay Formation at the Northwestern Margin of the Junggar Basin** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 218—228, 8 illus., 2 tables, 33 refs.)

Key words: alluvial fans, Junggar Basin

This paper deals with the depositional architectural characteristics of alluvial fan associated with contemporaneous reverse faults at compressional basin margin, taking the example of Triassic Karamay Formation at the northwestern margin of the Junggar Basin. Based on lithofacies study, hierarchical bounding surface analysis, outcrops and subsurface analogues as well as seismic data integration, the combination types of contemporaneous reverse faults at compressional basin margin are summarized. Meanwhile, the translation of

strike—slip fault had an impact over the sediment transportation from provenance; thus the fan bodies could also display a lateral migration overlying pattern.

20170231 Zhang Yingli (Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, MLR, CAGS, Beijing 100037, China); Wang Zongqi **Chromian Spinel, Zircon Age Constraints on the Provenance of Early Triassic Feixianguan Formation Sandstones from Huize Area, Upper Yangtze Region** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(1), 2016, p. 54—72, 8 illus., 4 tables, 75 refs.)

Key words: chrome spinel, provenance analysis

Huize area is situated between the Kanddian Oldland and Sichuan Basin with well—preserved sedimentary records. Achievements were mainly on sedimentary environments and lithofacies palaeogeography of the Feixianguan Formation. Its provenance and tectonic setting are not well understood. Based on sedimentary successions, the authors focus on the heavy mineral analysis to evaluate their sources. Heavy mineral fractions from approximately l0 kg sample No. 10HLS2 and 10HLS16 of silieiclastie rock were concentrated and separated into 100, 150 and 250 μm size fractions by standard techniques of density and magnetic separation at the Langfang Institute of Regional Geological and Mineral Resource Survey, Hebei Province, China. Detrital heavy minerals were separated from sample No. IOHLS2 for electron probe microanalysis (EPMA) and LA—ICP—MS U—Pb dating. Two mineral fractions above of roughly 300 grains were randomly handpicked in alcohol under a binocular microscope, mounted in epoxy along with known standards, and polished to expose grain centers for backseattered electron (BSE) imaging and EPMA analysis.

20170232 Zhang Zhenhong (National Engineering Laboratory of Exploration and Development of Low—Permeability Oil—Gas Fields, Xi'an 710018, China); Zhu Jing **Reservoir Characteristics of Thick Sandstone and Micro—Anisotropy of Delta Front Micro—Facies: A Case Study of Chang 6 Reservoir in Wucangbu Area** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(2~3), 2016, p. 440—447, 7 illus., 3 tables, 23 refs.)

Key words: sandstone, porosity, Ordos Basin

Based on data obtained from cast slice, mercury injection test, SEM, physical properties, and oil/water micro—displacement experiment, the authors made a thorough study of the petrological characteristics, porosity and permeability characteristics, pore structure characteristics, diagenesis and micro—anisotropy of Chang 6 reservoir in Wucangbu area, and analyzed the main influencing factors. The results show that the sedimentary environment of the Chang 6 thick sandstones reservoir is a delta front derived from the provenance in the northeast.

20170233 Zhou Juan (Geophysical Research Institute of Shengli Oilfield Branch Co., Dongying 257022, China); Luo Rongtao **Sedimentary characteristics of the Slope—Moving Fans in the Third Member of Shahejie Formation on the Southern Slope of Dongying Depression** (Journal of Geology, ISSN1674—3636, CN32—1796/P, 40(1), 2016, p. 107—112, 7 illus., 1 table, 11 refs.)

Key words: fan deltas, Shandong Province

At present, the third member of the Shahejie Formation on the southern slope of Dongying Depression has penetrated a new lithological reservoir type of slope—moving fans, which has attracted much attention of geologists. However, the poor understandings of these slope—moving fans as well as their unclear identification features have restricted the exploration progress. Therefore, with plenty of precise core observations, this study conducted statistical analysis of massive

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experimental data, and systematically summarized their unique sedimentary characteristics different from turbidities based on analysis of seismic data. It is considered that the formation of slope moving fans is controlled by the scale and construetivity of delta, slope angle, tectonic movement and variations of lake levels.

ROCKS & MINERALS DETERMINATION AND ANALYSIS

20170234 Cai Xiyao (Research Institute of Exploration & Production, SINOPEC, Beijing 100083, China); Li Huili **Exposure Indicators and Significance Formed during the Deposition of the Penglaiba Formation of Lower Ordovician of Well Yb5, Tarim Basin** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 915－921, 7 illus., 44 refs., with English abstract)
Key words: sedimentary sequence, Lower Ordovician, Tarim Basin

20170235 Cao Pan (Faculty of Materials Science and Engineering, Kunming University of Science and Technology, Kunming 650093, China); Zu Endong **Infrared and Raman Spectrum Analysis of Natural Alexandrite and Synthetic Alexandrite by Pulling Method** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(1), 2016, p. 8－11, 8 illus., 3 tables, 6 refs., with English abstract)
Key words: natural alexandrite, infrared spectra

20170236 Ding Meiting (Institute of Geologic Sciences of Jilin Province, Changchun 130012, China); Guo Shuang **Determination of Tantalum Pentoxide in Tantalum Ores with Alkali Fusion by ICP－MS** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 118－119, 130, 3 tables, 5 refs.)
Key words: tantalum ores, inductively coupled plasma mass spectrometry

A method for determination the content of Ta_2O_5 in Coltan was established by comparing mix－acid digestion with Na_2O_2 alkli fusion. The analysis results of alkli fusion received good reproducibility and accuracy, low detection limit. The detection limit is 0.13 ng/ml. The RE% is －2.6%. The content of Ta_2O_5 in Coltan is accurately measured.

20170237 Dong Chunyan (Beijing SHRIMP Center, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Wan Yusheng **Oxygen Isotopic Compositions of Zircons from Paleoproterozoic Metasedimentary Rocks in the Daqingshan－Jining Area, North China Craton: In－Situ SHRIMP Analysis** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 659－681, 16 illus., 3 tables, 80 refs., with English abstract)
Key words: metamorphic rocks, sedimentary rocks, Paleoproterozoic Era, SHRIMP, North China Craton

20170238 Dong Xuelin (Geological Experimental Testing Center of Hubei Province, Wuhan 430034, China); He Haiyang **Determination of Gallium in Rare Earth Ore by Inductively Coupled Plasma－Mass Spectrometry Using Polyurethane Foam Pre－Concentration / Separation** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 42－47, 1 illus., 3 tables, 28 refs., with English abstract)
Key words: rare earth deposit, gallium, ICP－MS

20170239 Fan Yaoyao (The Eleventh Laboratory of Chemical Geology and Mine, Chemical Geological Exploration of Guangdong, Guangzhou 510800, China); Hu Zongchao **Morphology and Photoluminescence Properties of the GdPO_4: Ce, Tb Nanomaterials with Ultrasonic－**

assisted Synthesis Characterized by X－Ray Diffraction, Infrared Spectroscopy and Scanning Electron Microscopy (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 152－158, 4 illus., 1 table, 25 refs., with English abstract)

Key words: nano materials, X－ray diffraction analysis, Fourier analysis, scanning electron microsceopy, transmission electron microscopy

20170240 Han Li (State Key Laboratory of Isotope Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Huang Xiaolong **Oxygen Fugacity Variation Recorded in Apatite of the Granite in the Dahutang Tungsten Deposit, Jiangxi Province, South China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 746－758, 7 illus., 2 tables, 52 refs., with English abstract)

Key words: apatite, tungsten ores, Jiangxi Province

20170241 He Panhong (Henan Radionuclide Detection Center of Nuclear Industry, Zhengzhou 450044, China); Yang Zhen **Determination of Trace Selenium in Uranium－Bearing Geological Samples by Hydride Generation－Inductively Coupled Plasma－Optimal Emission Spectrometry** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 139－144, 2 illus., 1 table, 20 refs., with English abstract)

Key words: uranium ores, selenium, ICP－AES

20170242 Huo Tengfei (College of Earth Sciences, Jilin University, Changchun 130061, China); Yang Debin **Petrogenesis of the Early Cretaceous Alkali－Rich Intrusive Rocks in the Central North China Block: Constraints from Zircon U－Pb Chronology and Sr－Nd－Hf Isotopes** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 697－712, 10 illus., 4 tables, 44 refs., with English abstract)

Key words: intrusions, U－Pb dating, North China Plate

20170243 Li Jing (College of Disaster Prevention, Sanhe 065201, China); Lu Lina **Raman Spectra Features of the Garnet In Elcogite from the Dabie Mountain and Its Geological Significances** (Journal of Mineralogy and Petrology, ISSN1001－6872, CN51－1143/TD, 36(1), 2016, p. 17－21, 3 illus., 1 table, 12 refs.)

Key words: garnet group, Raman spectra

Garnet in eclogite from high pressure metamorphic belt of Dabie Mountain is investigated by micro－Raman spectroscopic measurement. It shows that the garnet belongs to the pyrope and almandine groups, consistent with the results obtained by electron probe analysis. The high frequency region of the Raman shift and the full width at half maximum (FWTH) of the garnet shows inverse relationship and changes regularly from the middle of the particles to the edge. The study of the Rman characteristics of garnets in ectogites provides some information on discussion of Raman response of the high pressure mineral experienced the tectonic environment changes and the mechanism of the plate subduction and exhumation.

20170244 Li Ping (Research Institute of Exploration and Development, Shengli Oilfield Company, SINOPEC, Dongying 257015, China); Xu Xingyou **Accurate Determination of Volumes of Hydrocarbon Inclusions by High Resolution 3D Imensional Technique and Varying Fluorescence Intensity** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 159－165, 4 illus., 3 tables, 22 refs., with English abstract)

Key words: high－resolution methods, fluorescence analysis, hydrocarbons

20170245 Li Weiliang (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Cheng Xiuhua **Deter-**

mination of Trace Zirconium in Granodiorite by Inductively Coupled Plasma－Mass Spectrometry with Sealed Acid Digestion at High Pressure (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 32－36, 4 tables,18 refs.)

Key words: granodiorites, zirconium, ICP－MS

Determination of trace elements in rocks by Inductively Coupled Plasma－Mass Spectrometry with sealed acid digestion at high pressure is widely used in geological analysis. Zirconium occurs as insoluble accessory minerals such as zircon and rutile in granodiorite, so the recovery of zirconium is always low. This paper adds the pretreatment process of removing silicon, increasing the amount of hydrofluoric acid and introducing fluoride ions in the solution to form zirconium fluorine complex ions which improves the stability of zirconium. These steps improve the recovery of zirconium (up to 95%) and achieve an accurate determination of trace zirconium in granodiorite. The precision of this method is less than 5% (RSD, $n = 11$) and the detection limit is 0.052 μg/g.

20170246 Li Yong (College of Earth Sciences, Zhejiang University, Hangzhou 310027, China); Chen Cai **New Discovery of Nanhuaian Rift System in Southwestern Tarim Basin and Its Geological Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 825－832, 11 illus., 54 refs., with English abstract)

Key words: rifts, Nanhua Period, Tarim Basin

20170247 Li Ziqiang (Chengdu Analytical and Testing Center for Minerals and Rocks, Sichuan Bureau of Geology and Mineral Resources, Chengdu 610081, China); Li Xiaoying **Determination of Cr, Cu, Cd and Pb in Soil Samples by Inductively Coupled Plasma－Mass Spectrometry for an Investigation of Heavy Metal Pollution** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 37－41, 1 illus., 2 tables, 12 refs., with English abstract)

Key words: soils, heavy metals, ICP－MS

20170248 Liu Shen (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Feng Caixia **Zircon U－Pb Age, Geochemical, and Sr－Nd－Hf Isotopic Constraints on the Origin of Early Cretaceous Mafic Dykes from Western Shandong Province, Eastern North China Craton, China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 629－645, 7 illus., 5 tables, 156 refs., with English abstract)

Key words: basic rocks, U－Pb dating, Lower Cretaceous, North China Craton

20170249 Liu Yafei (Xi'an Center of Geological Survey, China Geology Survey, Xi'an 710054, China); Wang Lishe **Study on the Mineralogical Properties of an Unknown Ti－Zr－U Oxide Using EPMA, SEM, Raman Spectroscopy and EBSD Techniques** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 48－55, 4 illus., 1 table,22 refs.)

Key words: oxides, electron probe, scanning electron microsceopy, Raman spectra

Asub－micron uranium－bearing mineral in pomegranate amphibolite in the Altyn area was identified by Electron Microprobe (EPMA) and Scanning Electron Microscopy (SEM). Optical Microscope, Raman Spectroscopy and Electron Back Scattering Diffraction(EBSD) were used to study the chemical composition, occurrence state, physical and optical properties and crystal structure. Results show that this mineral is an opaque mineral closely associated with ilmenite and occurs at the edge of ilmenite.

20170250 Lou Qianqian (The Third Geological Group of Zhejiang Province, Jinhua 321001, China); Xiao Ancheng **A Method of Prototype**

Restoration of Large Depressions with Terrestrial Sediments: A Case Study from the Cenozoic Qaidam Basin (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 892－902, 9 illus. ,1 table, 47 refs. , with English abstract)

Key words: sedimentary basins, Cenozoic, Qaidam Basin

20170251 Qiu Linfei (Beijing Research Institute of Uranium Geology, Beijing 100029, China); Ou Guangxi **Micro－Area Analysis of Uranium Minerals by Micro FT－IR Spectrometry** (Acta Mineralogica Sinica, ISSN1000－4734, CN52－1045/P, 36(1), 2016, p. 43－47, 6 illus. , 2 tables, 10 refs.)

Key words: uranium minerals, FT－IR spectrometry

The in－situ non－destructive inspection of micro Fourier transform infrared spectroscopy (Micro FT－IR) is used to analyze uranium minerals in No. 338 uranium deposit of Xiazhuang ore field. The method avoids the disadvantages of high dosage and purity demands for the traditional method (KBr pressing disc method). The research shows that in－situ analysis of uranium minerals by micro FT－IR spectrometry is feasible, and it has the characteristics of less sample (the sheet area must bigger than 20μm×20μm) and in situ non－destructive. The other function of Micro FT－IR Spectrometry is MAPING, which can identify the contact relationship of different minerals rapidly and large－scale, and determine the composition of minerals.

20170252 Ren Shenglian (School of Resources and Environment Engineering, Hefei University of Technology, Hefei 230009, China); Liu Guoting **Deformation and Metamorphic Characteristics of Amphiboles in the Luonan－Luanchuan Fault Belt of the Qinling Orogen and Its Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 775－786, 9 illus. , 2 tables, 67 refs. , with English abstract)

Key words: hornblendite, Qinling Mountains

20170253 Shi Hongfeng (Nanjing Center of China Geological Survey, Nanjing 210016, China); Dong Changchun **Features and Geological Significance of the Plagioclases from the Intrusive Body in Xiangride Hydrological Station, Qinghai Province** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(1), 2016, p. 109－120, 11 illus. , 5 tables, 15 refs.)

Key words: plagioclase, Kunlun Mountains, Qinghai Province

With mafic enclave developed, the intermediate－acidic magmatic rocks are widely distributed in Xiangride area, Qinghai Province. They have high content of plagioclase, in which plagioclase zoning texture is common. Based on the field geological investigation and petrography study, the technology of EMPA is used to study the different types of plagioclases and the zoning texture of intrusive body in Xiangride Hydrometric Station for retrieving the magma evolution process, and then the genesis of plagioclase zoning has been discussed. The results show that the plagioelases have normal zoning and oscillation zoning textures.

20170254 Shi Lei (Nanjing Center of Geological Survey, China Geological Survey, Nanjing 210016, China); Sun Yanyan **Distribution Characteristics of 22 Organochlorine Pesticides in Soils from Some Areas of the Yangtze River Delta** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 75－81, 1 illus. , 3 tables, 15 refs.)

Key words: soils, chlorine, gas chromatography, Yangtze River Delta

In order to evaluate the agricultural ecological environment risk caused by industrialization over a long period of time, the distribution characteristics of 22 organochlorine pesticide residues in the soils under different land use forms from four perpendicular profiles were analyzed using Gas Chromatography.

Research results indicate that the mean concentrations of OCPs were in the order: vegetable land in industrial park (139.87 ng/g)〉waste land in industrial park (103.1 ng/g)〉vegetable land in agricultural areas (26.27 ng/g)＞paddy field in agricultural areas(2.50 ng/g). DDTs and HCHs were still the primary pollutants of OCPs in the topsoils. The ratio of (DDD＋DDE)/DDTs indicated that there was almost no new input of pollution in this area.

20170255 Song Hao (Chengdu University of Technology, Chengdu 610059, China); Zhang Chengjiang **Geochemical Constraints of Trace Elements on Ore－Forming Fluids in the Copper Polymetallic Deposits in the Middle Sanjiang Belts** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 804－814, 9 illus., 4 tables, 80 refs., with English abstract)
Key words: copper ores, polymetallic ores, geochemistry, Yunnan Province

20170256 Tang Suohan (Key Laboratory of Isotopic Geology, Ministry of Land and Resources, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Zhu Xiangkun **New Standard Solutions for Measurement of Iron, Copper and Zinc Isotopic Compositions by Multi－Collector Inductively Coupled Plasma－Mass Spectrometry** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 127－133, 4 illus., 5 tables, 18 refs., with English abstract)
Key words: copper isotopes, zinc isotopes, ICP－AES

20170257 Wang Chong (State Key Laboratory of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Peng Peng **The Generations and U－Pb Dating of Baddeleyites from the Taihang Dyke Swarm in North China and Their Implications for Magmatic Evolution** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 646－658, 7 illus., 4 tables, 61 refs., with English abstract)
Key words: igneous rocks, Paleoproterozoic Era, U－Pb dating, North China Craton

20170258 Wang Jianqi (State Key Laboratory of Continental Dynamics, Northwest University, Xi'an 710069, China); Liu Xiaoming **Proficiency Testing of the XRF Method for Measuring 10 Major Elements in Different Rock Types** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 145－151, 1 illus., 4 tables, 12 refs., with English abstract)
Key words: X－ray fluorescence spectra, major－elements analysis

20170259 Wang Jingli (State Key Laboratory of Continental Dynamics, Department of Geology, Northwest University, Xi'an 710069, China); Zhang Hongfu **Three Period Tectonic－Magmatic Events Recorded in Ancient Granulite of the North China Craton** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 682－696, 5 illus., 2 tables, 78 refs., with English abstract)
Key words: granulite, U－Pb dating, crustal evolution, North China Craton

20170260 Wang Lishe (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, MLR, Xi'an Center of Geological Survey, Xi'an 710054, China); Yang Pengfei **Isotopic Age and Genesis of Plagiogranite from Qingshuiquan Area in the Middle of South Altyn Tagh** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 759－774, 8 illus., 5 tables, 147 refs., with English abstract)
Key words: plagiogranite, isotope age, geochemistry, Xinjiang

20170261 Wang Luo (Polar Research Institute of China, Shanghai 200136, China); Li Jiang-

hai Study on Distribution Patterns of Reservoir Property of Carboniferous Volcanic Rocks in Dixi Area, Junggar Basin (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 877－891, 11 illus., 3 tables, 81 refs., with English abstract)
Key words: volcanic rocks, reservoirs, Junggar Basin

20170262 Wang Wei (School of Resources and Environment Engineering, Hefei University of Technology, Hefei 230009, China); Song Chuanzhong **P－T Conditions and Zircon U－Pb Analysis of the Taoyuan Ductile Shear Zone in Tan－Lu Fault Zone** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 787－803, 8 illus., 4 tables, 19 refs., with English abstract)
Key words: mylonite, U－Pb dating, Tancheng－Lujiang Fault Zone

20170263 Wang Zhengyu (School of Geoscience and Technology, Southwest Petroleum University, Chengdu 610500, China); Liu Chao **A Study of Fracture Development, Controlling Factor and Property Modeling of Deep－Lying Tight Sandstone in Cretaceous Thrust Belt K Region of Kuqa Depression** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 865－876, 14 illus.,2 tables, 63 refs., with English abstract)
Key words: fractured reservoir, Cretaceous, Kuqa Depression

20170264 Wen Lei (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Yang Haijun **Kuqa Late Cenozoic Fold－Thrust Belt in the Southern Flank of Tianshan Mountains** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 847－855, 16 illus., 39 refs., with English abstract)
Key words: fold and thrust belts, Cenozoic, Tianshan Mountains

20170265 Xu Guodong (Chengdu Center of Geological Survey, China Geological Survey, Chengdu 610081, China); Jin Bin **Determination of Trace Silver in Carbonate Rock Samples by Graphite Furnace Atomic Absorption Spectrometry with Ammonium Oxalate Matrix Modifier** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 134－138, 1 illus., 2 tables, 11 refs., with English abstract)
Key words: silver, flame atomic absorption spectrophotometry

20170266 Yang Chengfan (School of Ocean and Earth Science, Tongji University, Shanghai 200092, China); Yang Shouye **Using Vacuum Extraction－Isotopic Analysis Technology to Study Hydrogen and Oxygen Isotopic Compositions of Water Extracted from Weathering Profile Sediments** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 69－74, 2 illus., 32 refs.)
Key words: sediments, hydrogen isotopes, oxygen isotopes

Hydrogen and oxygen isotopic compositions of sediment－bound water, and the product of water－rock interaction, have an important significance to the study of palaeoclimate and palaeoenvironmental evolution. In this paper, combined thermogravimetry, vacuum extraction and liquid water isotopic analysis technology are used to extract different sediment－bound water in the weathering profile sediments of Hunan, and analyze their hydrogen and oxygen isotopes. As a result of isotopic equilibrium fractionation, the tighter the relationship between sediment－bound water and crystal structure, the more negative the relationship for hydrogen isotopic composition, and the more positive for oxygen isotopic composition. This method can provide valuable information for the study of earth surface processes and hydrological cycles.

20170267 Yang Haijun (Tarim Oilfield Company, PetroChina, Korla 841000, China); Li Yuejun **Madong Early Paleozoic Fold－Thrust**

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Belt in the Southern Tarim Basin (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 815－824, 8 illus., 1 table, 46 refs., with English abstract)
Key words: fold and thrust belts, structural analysis, Lower Palaeozoic, Tarim Basin

20170268 Ye Meifang (Xi'an Center of Geological Survey, China Geological Survey, Xi'an 710054, China); Liu San **Characteristics of Micas from Sericitolite of the Gongpoquan and Baishantang Deposits, Beishan Area by Scanning Electron Microscope, X－Ray Diffraction and Electron Microprobe Analyses** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 166－177, 4 illus.,2 tables,39 refs.)
Key words: sericite, phengite, scanning electron microsceopy, X－ray diffraction analysis, electron probe

The phyllic alteration zone is regarded as one of the most important near－surface markers in mineral exploration of porphyry deposits. The Gongpoquan and Baishantang copper deposits are two typical porphyry deposits in the Beishan metallogenic belt. A comprehensive structural and chemical study for white micas from sericitolites of these two deposits, utilizing polarized microscope, Scanning Electron Microscope (SEM), powder X－ray Diffractometer (XRD) and Electron Microprobe Analyzer (EMPA) is reported in this paper. It was discovered that both 1M polytype common sericites/muscovites and 2M1 polytype phengites coexist in the samples. The micas occur as irregular petals, kinked platelets or straight platelets during SEM observation. According to XRD analyses, both 1M and 2M1 polytypes coexist with different bo values in micas, indicating their different forming conditions.

20170269 Zhang Diqiu (China University of Geosciences, Beijing 100083, China); Wang Shuqin **The Main Geological Control Factors of Single Well Productivity for Carbonate Reservoir: Take the Reservoir Formation KT－I In North Truva Field, Kazakhstan as Example** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 903－914, 16 illus., 1 table, 33 refs., with English abstract)
Key words: carbonate rocks, carbonate reservoirs, Kazakhstan

20170270 Zhang Haidong (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Liu Jianchao **Petrology, Geochronology and Geochemistry Characteristics of Wang'Anzhen Complex in the Northern Taihang Mountain and Their Geological Significance** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 727－745, 13 illus., 3 tables, 44 refs., with English abstract)
Key words: complexes, petrology, geochronology, geochemistry, Taihang Mountains

20170271 Zhang Lijuan (PetroChina Tarim Oilfield Company, Korla 841000, China); Wu Guanghui **Structural Diagenesis in Carbonate Fault Damage Zone: A Case Study of the No. 1 Fault Zone in the Tarim Basin** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 922－934, 10 illus., 2 tables, 63 refs., with English abstract)
Key words: fracture zones, diagenesis, Tarim Basin

20170272 Zhang Qiang (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Huang Taizhu **The Cenozoic Faults in Western Tarim Basin, NW China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(3), 2016, p. 833－846, 9 illus., 56 refs., with English abstract)
Key words: block－fault movement, Cenozoic, Tarim Basin

20170273 Zhang Tingzhong (Zhangye Mine Exploration Institute of Gausu Nonferrous

Metal Geological Exploration Bureau, Zhangye 734000, China); **Rapid Determination of Geochemica Samples in 15 Kinds of Rare Earth Elements and Thorium Pmbp—Benzene Solvent Extraction by Icp—Aes** (Journal of Mineralogy and Petrology, ISSN1001—6872, CN51—1143/TD, 36(1), 2016, p. 37—40, 6 tables, 15 refs.)

Key words: samples, extraction

PMBP—benzene solvent is used to extract geochemical samples of 15 rare earth elements and thorium, and then formic acid—8—hydroxyquinoline solution is used to extract rare earth elements followed by extraction of thorium in the organic phase with 50% hydrochloric acid, which tested by ICP—AES after simultaneous determination. This method solves the problem of interference and limitation when using hydrochloric acid, nitric acid, hydrofluoric acid and perchloric acid digestion in ICP—AES determination of rare earth elements.

20170274 Zhong Yan (Tianjin Center, China Geological Survey, Tianjin 300170); Chen Yali **Stratigraphic Correlation and Lithofacies Paleogeography of Khondalite Series in the Western North China Craton** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(3), 2016, p. 713—726, 5 illus., 1 table, 28 refs., with English abstract)

Key words: sedimentary sequence, Paleoproterozoic Era, epicontinental seas, Ordos Basin

ECONOMIC GEOLOGY

20170275 Yu Xuefeng (Shandong Key Laboratory of Geological Processes and Resource Utilization in Metallic Minerals, Key Laboratory of Gold Mineralization Processes and Resources Utilization, Ministry of Land and Resources, Shandong Geological Sciences Institute, Jinan 250013, China); Zhang Tianzhen **A Study of Minerogenetic Series of Mineral Deposits in Shandong Province** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(1), 2016, p. 169—184, 2 illus., 1 table, 38 refs.)

Key words: metallogenic regularity, metallogenic prediction, Shandong Province

On the basis of summarizing geological conditions of ore formation and establishing deposit types of some solid minerals like oil, coal, gold, iron, copper, diamond, gypsum, halite, graphite, natural sulfur, fluorite and sapphire in such aspects as crust evolution stages, main mineralization stages and geological structure units associated with the mineralization, and according to the academic thoughts of metallogenetic series, 34 metallogenetic series have been recognized primarily in Shandong Province in this paper. The combination and distribution characteristics of metallogenetic series and relevant problems of metallogenetic series study in Shandong Province have been discussed.

1. METALS DEPOSITS

20170276 Cao Xiying (Team 607, Bureau of Nonferrous Metals Geological Exploration of Jilin Province, Jilin 132013, China) **Cu—Ni Mineralization and Continental Crust Condition in Hongqiling—Chajianling Ore Belt** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 45—48, 64, 1 illus., 64 refs.)

Key words: copper ores, nickel ores, Jilin Province

Hongqiling—Chajianling ore belt copper nickel sulfide deposit belongs to magmatic intrusion mineralization and metallogenic material copper, nickel and sulfur was derived from the mantle. The mineralization of copper nickel sulfide deposit is related to the melting of the mantle derived from the upwelling of

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the mantle after the continental collision, Mineralization dominated by deep liquation—penetration mode. Copper—nickel sulfide mineralization and ore key factors: 1) the Huifa River stone ring fracture quickly import; 2) the shallow brittle ductile fracture development; and 3) the mantle source magma continued, adequate supply.

20170277 Cao Yi (State Key Laboratory of Geological Processes and Mineral Resources, China University of Geosciences, Beijing 100083, China); Du Yangsong **Sulfide Zonal Texture and Its Geological Significance of Ores from the Dongguashan Copper (Gold) Deposit in Tongling, Anhui Province, China** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 334—350, 10 illus., 3 table, 137 refs., with English abstract)

Key words: copper ores, Anhui Province

20170278 Chao Weiwei (School of Earth Science and Resources, China University of Geosciences, Beijing 100083, China); Ye Huishou **Re—Os Isotopic Dating of Molybdenite from Luanling Gold Deposit in Xiong'er Mountain Ore Concentration Area of Western Henan Province and Its Geological Significance** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(1), 2016, p. 103—116, 6 illus., 2 tables, 60 refs.)

Key words: gold ores, Henan Province

The Luanling gold deposit mainly occur as the K—feldspar—quartz vein or altered rock in the structural fracture zone. For the purpose of studying the chronology of the gold mineralization in the Luanling gold deposit, the authors purified molybdenite from the gold—bearing feldspar quartz veins in the Luanling gold deposit. The Luanling gold deposit and Nannihu—Sandaozhuang as well as Shangfanggou Mo deposits were produced by the same mineralization system. The discovery of the Luanling Au deposit provides the basis for the study of Au—Mo deposits of the similar ore—forming conditions in the Xiong'er Mountain region.

20170279 Chen Dongxia (State Key Laboratory of Petroleum Resource and Prospecting, China University of Petroleum (Beijing), Beijing 102249, China); Liu Yuchen **Reservoir Characteristics and Its Control on Gas—Bearing Properties of the 5th Member of the Triassic Xujiahe Formation Continental Shale in the Sichuan Basin of China** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 174—184, 9 illus., 3 tables, 20 refs.)

Key words: shale, reservoirs, Sichuan Basin

Continental shale sequences are well developed in the Sichuan Basin, but the characteristic of complex petrology and lithology combination, strong heterogeneity and unclear reservoir property restricted the gas exploration and development process. On this basis, this paper also clarified the controlling effects of reservoir on the natural gas content and occurrence state. The research shows that there are three kinds of superposition—type reservoir structure in the 5th Member of the Xujiahe Formation (T_3X^5) in vertical, which are sand—rich type, interbedded type and mud—rich type.

20170280 Chen Yongfu (Institute of Gold Geology, Chinese Armed Police Force, Langfang 065000, China); Zhang Dong **Re—Os Dating of Molybenite from the Maoniugou Cu—Au Ore Deposit in the Northern Part of the Ngola Mountain, Qinghai Province, and Its Geological Significance** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 69—78, 6 illus., 2 tables, 96 refs.)

Key words: molybdenite, Qinghai Province

The Ngola Mountain lies at the conjunction between West Qinling and East Kunlun in the west of Central Orogenic Belt. In this study, the authors used the method of temporal and spatial distribution characteristics of specific type deposits to deduce the geological background and geodynamic process. Based

on a detailed study of geological features and ore-forming geochronology of the Maoniugou copper-gold deposit in northern Ngola Mountain, and combined with the traditional tectonic study and diagenetic evidence, the authors tried to explore the regional ore-forming geological background, the geodynamic process and the assignment of the Ngola Mountain through a comparison with the typical porphyry-skarn deposits in East Kunlun. The results show that the Maoniugou deposit is a small copper-gold skarn deposit closely related to Muleer granodiorite.

20170281 Dai Yanpei (Chengdu Center, China Geological Survey, Chengdu 610081, China); Zhang Huihua **Review on Jianglang Dome and Liwu-Type Cu-Rich Deposit in the Western Margin of Yangtze Block** (Journal of Earth Sciences and Environment, ISSN1672-6561, CN61-1423/P, 38(1), 2016, p. 66-78, 5 illus., 1 table, 68 refs.)

Key words: copper ores, Yangtze Block

Jianglang dome is located in the western margin of Yangtze Block, and is famous for the occurrences of Liwu-type Cu-rich deposit. Jianglang metamorphic core complex, source bed, mineralization age and the relationship between structural deformation and mineralization were summarized. The results show that zircon U-Pb dating on para metamorphic rocks and metabasalts can determine the formation ages of Liwu Group, Jianglangyan Formation and Jiabayan Formation.

20170282 Duan Xianzhe (Mining Engineering Post-Doctoral Mobile Research Station, University of South China, Hengyang 421001, China); Shi Hao **Geology and Genesis of the Granitic Niobium-Tantalum-Rubidium Deposit in Shihuiyao Area, Inner Mongolia** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(1), 2016, p. 32-40, 4 illus., 2 tables, 11 refs.)

Key words: niobium ores, tantalum ores, Inner Mongolia

The Shihuiyao Nb-Ta-Rb polymetallic deposit is a large rare metal deposit that was recently found in Xilinhot City, Inner Mongolia, China. By electronic microprobe (EMP) and X-ray fluorescence spectrometry (XRF) analyses on minerals and whole rock compositions of ores, with discussion on the geological characteristics and controlling factors as well as genesis of the deposit, the results can be demonstrated in this paper.

20170283 Fan Ziliang (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Xu Xiaochun **The Geological Features and Metallogenic Setting of the Porphyry Copper-Molybdenum-Gold Deposits in Tongling Ore District** (Acta Petrologica Sinica, ISSN1000-0569, CN11-1922/P, 32(2), 2016, p. 351-368, 8 illus., 199 refs., with English abstract)

Key words: porphyry deposit, polymetallic ores, Anhui Province

20170284 Feng Qiao (College of Geological Science and Engineering, Shandong University of Science and Technology, Qingdao 266510, China); Qin Yu **The Enrichment of Calcite and the Genesis of Uranium Deposits in Dongsheng Uranium Sandstone** (Geological Journal of China Universities, ISSN1006-7493, CN32-1440/P, 22(1), 2016, p. 53-59, 4 illus., 2 tables, 16 refs.)

Key words: uranium ores, Ordos Basin

Research on calcite in Dongsheng uranium area is carried out including the enrichment characteristics, inorganic carbon and oxygen isotopes, neighboring gas reservoirs inclusions trapping pressure, organic carbon isotopes and $^{3}He/^{4}He$ ratios. The results show that there is a close relationship between Dongsheng uranium mineralization and deep natural gas. The $\delta^{13}C$ values range from -19.6‰ to -1.11‰ and the $\delta^{18}O$ values range from -17.13‰ to -9.00‰ in calcite. The values of $\delta^{13}C$ vary widely, maybe due to the influence of surface water and deep natural

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gas.

20170285 Gao Yongbao (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, MLR, Xi'an Center of China Geological Survey, Xi'an 710054, China); Li Kan **Trace Elements, S, Pb, He, Ar and C Isotopes of Sphalerite in the Mayuan Pb－Zn Deposit, at the Northern Margin of the Yangtze Plate, China** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(1), 2016, p. 251－263, 8 illus., 5 tables, 69 refs., with English abstract)

Key words: sphalerite, lead－zinc deposit, Yangtze Region

20170286 Gong Yongjun (Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China); Yao Shuzhen **The Regularity of Gold Enrichment and Its Implications to Metallogenic Tectonics in Shuangwang Gold Deposit, Shaanxi Province** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(2), 2016, p. 189－198, 8 illus., 18 refs.)

Key words: gold ores, Shaanxi Province

This paper studies the relationship of spatial distribution among the breccia bodies, fractures and fissures, and gold grade taking KT5 ore body in the deposit for an example. The regularity of gold enrichment and its implications to metallogenic tectonics are discussed, combined with trend surface analysis. According to mineralization characteristics and the age of the mafic dyke swarms in the mine area, it is suggested that the ore－forming process happened mainly in Indosinian.

20170287 Gu Dazhao (Key Laboratory of Uranium Resource Exploration and Evaluation Technology, CNNC, Beijing Research Institute of Uranium Geology, Beijing 100029, China); Fan Honghai **Structural Evolution and Its Restriction on Uranium Mineralization in Gaudeanmus Area, Namibia** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(1), 2016, p. 83－93, 7 illus., 1 table, 16 refs.)

Key words: uranium ores, Namibia

The Gaudeanmus area is composed of Neoproterozoic felsic rocks interbedded with mafic rocks. This area experienced deep crustal strong ductile deformation, under the tectonic setting of continental collision events of the Damara phase. In the post－collision stage, extensive stretch thinning and granite magmatism formed a variety of leucogranites (alskites). Uranium minerals mainly exists in type D and type E of alaskites which are S－granites source from crust. The dense joint structures preserved in all kinds of rocks were formed by post－tectonic tectonic exhumation or magma upwelling that reached upper crust levels, which are closely associated with uranium enrichment. This study further discussed the Damara phase structure, ductile shear, the late stage brittle structure associated with the genesis of uranium mineralization.

20170288 Guo Zhijun (State Key Laboratory of Mineral Processing Science and Tectmology, Beijing General Research Institute of Mining and Metallurgy, Beijing 102628, China); Li Jinwen **Characteristics of Ore－Forming Fluid in Honghuaerji Scheelite Deposit, Inner Mongolia** (Mineral Deposits, ISSN0258－7106, CN11－1965/P, 35(1), 2016, p. 1－17, 8 illus., 3 tables, 33 refs.)

Key words: tungsten ores, Inner Mongolia

The Honghuaerji scheelite deposit is a newly discovered large W－Mo deposit in the middle and north of the Great Hinggan Mountains, Inner Mongolia. Combined with the Laser Raman analysis of the fluid inclusions, the authors have reached the conclusion that the scheelite－related fluids were of the medium－high temperature and low salinity $NaClH_2O$ fluid system. An analysis of C－H－O isotope reveals that the hydrothermal fluids were mainly of magmatic hydrothermal fluids, mixed with a little meteoric water. Studies indicate that the fluid related to tungsten mineralization might have been derived

mainly from crystallization and differentiation of magma, and the Ca^{2+} was probably released from the plagioclase by greisenization.

20170289 Han Xiaoping (Liaoning Institute of Geological Exploration, Dalian 116100, China) **Characteristics and Geological Implication of the Crypto－Explosive Breccia in the Dai, Etingchagan Pb－Zn－Ag Deposit in Inner Mongolia** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 46－51, 3 illus., 15 refs.)

Key words: lead－zinc deposit, Inner Mongolia

The Daletingchagan Pb－Zn－Ag ore deposit is located in the northeastern part of the Qagan Obo Fe－Pb－Zn metallogenic belt in the middle section of the Great Hingan Mountains. The wallrocks of ore are the Upper Jurassic Manketouebo Formation and the acid crypto－explosive breccia within the Yanshanian granite porphyry. The breccia body has a significant lithologic zonation, from rubble－bearing tuff at the center, with increasing of rubble size, gradually to shattered breccias in outside. The study of the crypto－explosive breccia will provide a significant reference for the ore prospecting in the depth and adjacent areas.

20170290 He Jingyang (State Key Laboratory of Ore Deposit Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550002, China); Xiao Jiafei **The Controls of the Palaeogeographic Environments on Manganese Deposits in Eastern Guizhou during the Early Datangpoan (Nanhuan)** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(1), 2016, p. 14－22, 4 illus., 73 refs.)

Key words: manganese ores, Guizhou Province

The Nanhuan sedimentary manganese deposits in eastern Guizhou and its adjacent areas are most important manganese resources of great exploration potential in China. Referenced to the previous results of research, this paper gives a detailed overview of current states of research concerning the palaeogeographic environments and their controls on the manganese deposits in eastern Guizhou and its adjacent areas during the early Datangpoan (Nanhuan). The controls of the palaeogeographic environments on the manganese deposits are manifested in origin, migration and enrichment, precipitation, mineralization and diagenesis of the ore－forming matter.

20170291 He Yonghai (Geological Team 209, Yunnan Nuclear Industry, Kunming 650032, China) **The Geological Feature and Preliminary Genesis Analysis of Chengba Cu－Mo Multimetallic Deposit in Tibet** (Yunnan Geology, ISSN1004－1885, CN53－1041/P, 35(1), 2016, p. 69－72, 1 illus., 3 refs.)

Key words: copper ores, polymetallic ores, Tibet

Chengba Cu－Mo multimetallic deposit is in the S margin of E Gangdise metallogenetic zone. The ore body is stratoid, lenticular, in the skarn, marble of outer contact of quasi－porphyritic adamellite and quartz albite porphyry. It is a typical porphyry－skarn type ore deposit. The exploration in recent years shows there is the wide prospecting space in the deep.

20170292 Huang Chixin (No. 6 Geologic Team of Guangxi, Guigang 537100, China); Wang Chuanjian **Geological and Geochemical Characteristics of Suwu Gold Deposit in Pingnan of Guangxi** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1), 2016, p. 12－18, 5 illus., 1 table, 6 refs.)

Key words: gold ores, Guangxi

Suwu gold deposit in Pingnan of Guangxi is located inside Liucen gold ore field of central Dayaoshan gold polymetallic metallogenic belt in eastern Guangxi. The orebodies occur predominantly in the NE－trending fault fracture zone, and subordinately in nearly EW and

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NW trends. The strike, scale, depth, thickness and grade of the orebodies are strictly controlled by faults and fractures, and the boundary line between orebody and wall rock is clear. The ores are mainly siliceous crushed rocks. The deposit is a mid—low temperature hydrothermal fracture filling type vein deposit.

20170293 Huang Xuan (Institute of Nuclear Resources Geological Survey, Nonferrous Metals and Nuclear Industry Geology Exploration Bureau of Guizhou Province, Guiyang 550005, China); Chun Guo **Geological and Geochemical Characteristics and Genesis of Carbonaceous—Siliceous—Pelitic Rock Type Uranium Deposits in Eastern Guizhou Province** (Mineral Resources and Geology, ISSN1001 — 5663, CN45—1174/TD, 30(1), 2016, p. 99—103, 2 illus., 3 tables, 13 refs.)

Key words: uranium ores, Guizhou Province

This paper made a case study of the Sinian — Cambrian carbonaceous — siliceous — pelitic rock type uranium deposit. Based on the research of the metallogenic conditions and geochemical characteristics of the deposit, the authors analyzed the metallogenic characteristics of this type of uranium deposits inside the study area from the perspectives of uranium—bearing horizons and metallogenic conditions. The author believed that this type of deposits were controlled by structural variation parts of Mohorovicic discontinuity, and long—term activities of the deep fractures caused activation and conversion of uranium in the area and final enrichment in parts.

20170294 Li Bin (Henan Nonferrous Metals Geological Exploration Institute, Zhengzhou 450052, China); Sun Lifang **Geological Characteristics and Prospecting Potential of Juzhugou Gold Deposit in Western Henan Province** (Mineral Resources and Geology, ISSN1001 —5663, CN45—1174/TD, 30(1), 2016, p. 58—64, 2 illus., 3 tables, 2 photos, 7 refs.)

Key words: gold ores, Henan Province

Zhuyangguan — Xiaguan fracture is an ultra—crustal fracture, and its length is more than 400 km and it reaches the upper mantle at depth. Along the fracture, Yanshanian granite rocks (veins) outcrop and a series of Cu, Au, Ag, Pb and Zn anomalies exist with obvious mineralization of nonferrous metals and precious metal. As an altered tectonite type gold deposit, Juzhugou gold deposit occurs in the subsidiary fracture zone of Zhuyangguan—Xiaguan fracture. This paper analyzed the characteristics and prospecting potential of Juzhugou gold deposit, and put forth that the prospecting potential of gold polymetallic deposits in Zhuyangguan Xiaguan fracture was great. With the further development of prospecting works in its deep part, this area might become an important gold polymetallic mineral base of China.

20170295 Li Chao (National Research Center for Geoanalysis, Beijing 100037, China); Pei Haoxiang **Age and Source Constraints for Kongxintou Copper — Molybdenum Deposit Shandong from Re—Os Isotope in Molybdenite and Chalcopyrite** (Acta Geologica Sinica, ISSN0001 — 5717, CN11 — 1951/P, 90(2), 2016, p. 240 — 249, 7 illus., 2 tables, 33 refs.)

Key words: molybdenite, chalcopyrite, Shandong Province

Kongxintou copper—molybdenum deposit produced from skarn which formed via contact metasomatism between Jiaodong Weideshan superunit Yuangezhuang monzonitic granite and Jingshan Group marble. The main orebody occur as lenticular, cystic and veined controlled by fissure structure within the rock body. This paper studied the molybdenite, chaleopyrite and magnetite adopting inductively coupled plasma mass spectrometry and thermal respectively. The results show that lomzatlon mass spectrometry testing Re—Os isotope technology the Re—Os isochron age of molybdenite is 117 ~ 1 Ma, chalcopyrite is 118±3.4 Ma, which consistent with Shang-

jiazhuang molybdenum deposit and Lengjia molybdenum deposit.

20170296 Li Gang (School of Earth Sciences, Guilin University of Technology, Guilin 541004, China); Kong Fanquan **Structure Ore Control and Prospecting Direction of Longtoushan Gold Deposit** (Mineral Resources and Geology, ISSN1001—5663, CN45—1174/TD, 30(1), 2016, p. 48—51, 4 illus., 10 refs.)

Key words: gold ores, Guangxi

The main orebodies of Longtoushan gold deposit are controlled by three kinds of metallogenic structures, namely volcanic edifice structure, fracture structure and embryonic fracture structure. Volcanic edifice structure controls the volcanic rock type gold ores which occur in the contact zone between volcano and wall rocks, and orebody IX is the most typical one among this type of gold deposits. It often manifests as collapse fracture occurrence caused by volcanic edifice surrounded by orebodies. The shape and grade of the orebodies are influenced by the development of volcanic edifice. The formation and location of the orebodies are closely related to the three kinds of ore—controlling structures.

20170297 Li Haili (Chinese Academy of Geological Sciences, Beijing 100037, China); Xiao Huiliang **Molybdenite Re—Os Isotopic Age of Fei'eshan Tungsten and Molybdenum Polymetallic Deposit in Chao'an, Guangdong Province** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(2), 2016, p. 231—239, 4 illus., 3 tables, 42 refs.)

Key words: tungsten ores, molybdenum ores, Guangdong Province

The Fei'eshan tungsten and molybdenum polymetallic deposit located in the eastern region of Guangdong Province is a prospecting potential deposit newly discovered, Intense tectonic and magmatic activities are frequent during Yanshanian in this area. The ore bodies occur mainly in granite and greisens, which controlled by faults of NE and SN and the types of deposit contain quartz vein type and greisens type. According to the rhenium content and the ratio of rhenium and osmium of molybdenum samples, origin of the ore—forming materials of the deposit derived from the crust.

20170298 Li Jun (Chengdu Center of China Geological Survey, Chengdu 610081, China); Ding Jun **Geochemical Characteristics of Magnetite from Beiya Gold Polymetallic Deposit in Western Yunnan and Its Constraint on Mineralization** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(2), 2016, p. 395—413, 9 illus., 4 tables, 26 refs.)

Key words: polymetallic ores, Yunnan Province

Based on detailed field geological investigation and mineralogical and petrological study, the authors divided the ore—forming process into two stages: early metasomatic mineralization stage and late melt—filling stage. Electronic microprobe and ICP—MS analyses of magnetite show that magnetite in the Beiya deposit is poor in Ti, V, Mn, Mg and rich in Si. Geological characteristics and magnetite geochemistry indicate that the Beiya iron deposit is associated with the intermediate to acidic alkali—rich magma rather than with the basic rocks or ultra basic rocks, that metasomatism is not the only mechanism of iron deposition, and the intrusion of the iron—enriched melt derived from magma might also have had to do with mineralization.

20170299 Li Wei (Shenyang Institute of Geology and Mineral Resources, CGS, Shenyang 110034, China); Chen Jingsheng **Geochemical Anomalies of the Copper Polymetallic Deposit in Dahuanghua Area, Inner Mongolia** (Geology and Resources, ISSN1671—1947, CN21—1458/P, 25(1), 2016, p. 41—45, 2 illus., 1 table, 4 refs.)

Key words: copper ores, polymetallic ores, Inner Mongolia

The Dahuanghua Cu—polymetallic de-

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posit is located in the south of Chifeng Au－Ag polymetallic metallogenic belt. With statistics and analysis of the elements of Cu, Au, Ag, W, Sb, Bi, Zn, Mo, Pb and As, the geochemical characteristics and anomalies of soil in the orefield are researched on the basis of geological exploration and geochemical profile survey. Seven integrated anomalies are delineated, including two B1 type, two B2 type and three B3 type of anomalies. The analysis and verification of the geochemical anomalies in the Dahuanghua Cu－polymetallic deposit would provide a reference for searching of mineral resources of the same type in the area.

20170300 Li Wei (Sichuan Institute of Geological Survey, Chengdu 610081, China); Yin Xianke **Geological Features and Prospecting Potential of the Baoguping Pb－Zn Deposit in Butuo, Sichuan Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 51－53, 59, 4 illus., 1 table, 5 refs.)

Key words: lead－zinc deposit, Sichuan Province

This paper has a discussion on ore genesis of the Baoguping Pb－Zn deposit in Butuo, Sichuan based on geological and geochemical features of the newly found out 2 mineralized zones. The Pb－Zn ore is confined to dolomitite of the Second Member of the Ordovician Dajing Formation and controlled by stratigraphical horizon and NE－trending faults and associated with obvious silicification and limonitization. The Pb－Zn deposit belongs to tectonic hydrothermal alteration rock type. Stratigraphical, lithological, tectonic, geomorphic, remote sensing, wallrock alteration and geochemical ore guides as well as suggestions on geological work in the future are put forward.

20170301 Li Wei (Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100037, China); Xie Guiqing **Multi－Superimposed Mineralization Process in Chengchao Iron Deposit, Southeastern Hubei Province: Evidence from the Study of Magnetite** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 471－492, 13 illus., 2 table, 98 refs., with English abstract)

Key words: magnetite, Hubei Province

20170302 Li Xiaohui (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Yuan Feng **3D Spatial Quantitative Analysis of Alteration in Yaojialing Zinc－Gold Polymetallic Deposit** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 390－398, 8 illus., 1 table, 61 refs., with English abstract)

Key words: zinc ores, gold ores, polymetallic ores, Metallogenic Belt of Middle and Lower Reaches of Yangtze River

20170303 Lin Bin (Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, Chinese Academy of Geological Sciences, MLR, Beijing 100037, China); Tang Juxing **A Preliminary Study of Geological Features and Metallogenic Epoch in Keyue Zn－Polymetallic Deposit, Tibet** (Mineral Deposits, ISSN0258－7106, CN11－1965/P, 35(1), 2016, p. 33－50, 12 illus., 4 tables, 45 refs.)

Key words: zinc ores, polymetallic ores, Tibet

Keyue is a newly discovered important deposit located along the antimony－gold polymetallic metallogenic belt. The ore－forming fluid is of middle－low temperature, low salinity, low density H_2O－NaCl system. According to the analytical results of ^{40}Ar－^{39}Ar isotopic data of sericite in the ore－bearing vein, the date of the hydrothermal activity of Keyue deposit can be defined at about 21.3 Ma accurately. According to the geological features, the Keyue deposit is a medium－low temperature hydrothermal vein zinc poly-

metallic deposit, which is the product of post—collision of India Plate and Eurasian Plate.

20170304 Liu Guoan (Research Institute No. 290 CNNC, Shaoguan 512026, China); Wang Xingming **Abnormal Recognition Based on Fractal Theory in Evaluation of Uranium Ore Potential in the Chengjiang Area, Northern Guangdong Province** (Geology and Prospecting, ISSN0495—5331, CN11—2043/P, 52(1), 2016, p. 139—145, 4 illus., 1 table, 41 refs.)

Key words: uranium ores, radioactivity surveys, Hubei Province

Based on the data of gamma spectrometry, soil radon measurement and component of the geochemical exploration in the Chengjiang area, northern Guangdong Province, this study applied the fractal theory to determine the lower limits of anomalies measured by three (radioactive) geophysical—geochemical methods, and compared them with those from traditional methods. The results show that the fractal theory can better reflect the laws of anomaly distribution and element enrichment. The authors also made analysis of the anomaly features from the three (radioactive) geochemical exploration methods, and speculate the possible existence of four (concealed) faults. The authors then forecasted the possible location of ore occurrence to provide evidence for the further prospecting uranium ore in the study area.

20170305 Liu Shuwen (School of Earth Science and Resources, Chang'an University, Xi'an 710054, China); Li Rongxi **Geochemical Characteristics and Metallogenic Mechanism of the Mayuan Pb—Zn Deposit on the Northern Margin of Yangtze Plate** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 101—110, 5 illus., 2 tables, 58 refs.)

Key words: lead—zinc deposit, Yangtze Plate

The Mayuan stratabound Pb—Zn deposit in Nanzheng of Shaanxi Province is located on the northern margin of the Yangtze Plate, and the orebodies are stratiform and hosted in breciated dolostone of the Sinian Dengying Formation. The ore minerals are mainly sphalerite and galena, and the gangue minerals comprise dolomite, barite, and small amounts of quartz, fluorite and calcite. This study mainly focused on the strontium, sulfur isotopes and the rare earth elements of the major ore and gangue minerals for the purpose of investigating the metallogenic mechanism. The $^{87}Sr/^{86}Sr$ ratios of the early precipitation product dolomite and the fluid inclusions of sphalerite range from 0.711 11 to 0.712 41, suggesting that Sr was derived from the crust, that is, ore—forming fluid had flowed through the basement and the Paleozoic clastic rocks which had a high $^{87}Sr/^{86}Sr$ ratios.

20170306 Liu Yinan (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Fan Yu **Geological Characteristics of Xiaobaozhuang Iron Deposit in the Lu—Zong Volcanic Basin, the Middle—Lower Yangtze River Valley Metallogenic Belt** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 319—333, 11 illus., 3 tables, 68 refs., with English abstract)

Key words: iron ores, Metallogenic Belt of Middle and Lower Reaches of Yangtze River

20170307 Liu Yunhe (Key Laboratory of Geosciences and Nuclear Technology, Chengdu University of technology, Chengdu 610059, China); Chen Youliang **Trace Element Geochemistry of Chorismite Type Uranium Ore in Haita, Miyi, Sichuan Province** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(1), 2016, p. 38—41, 3 illus., 2 tables, 2 photos, 7 refs.)

Key words: uranium ores, Sichuan Province

Geochemical characteristics of trace element and the REE for various rocks and minerals from the chorismite uranium ore in Haita, Miyi, Sichuan indicate that trace elements

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and REE of mineralized felsic veins are similar to those of felsic veins filling the in later ductile—brittle shear zone in the region. Indo—Chinese granite, schist and gneiss of the Wumaqing Formation, migmatization felsic veins are similar in trace elements and REE geochemistry which shows the uranium mineralization was related to structure and hydrothermal activity other than migmatization.

20170308 Lu Fang (No. 4 Geological Team in Guangxi, Nanning 530003, China); Peng Zhiyong **Geological Characteristics and Its Prospecting Direction of Wanzi Gold Deposit in Guangxi** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(1), 2016, p. 14—18, 3 illus., 11 refs.)

Key words: bauxite deposit, Cambodia

In Cambodia, the laterutic bauxite occurs in Mondulkiri highland, it is crust lateritic gibbsite of Quaternary system and formed by basalt weathering. The orebody distributes in the platform of slope as planar, the thickness is stable, the orebody distribution is restricted by the slope, the planar is irregular on the surface or shallow surface by the erosion of surface water. The scale is big and the resource is hundreds of million ton.

20170309 Ma Yuzhou (Geological Research Academe of Xinjiang, Urumqi 830000, China); Jin Liuyuan **The Metallogenic Condition and Prospecting Potential of Baluntai Kuixian Daban Lead—Zinc Deposit in Middle Tianshan Mountains** (Xinjiang Geology, ISSN1000—8527, CN11—2035/P, 34(1), 2016, p. 118—123, 3 illus., 1 table, 10 refs.)

Key words: lead—zinc deposit, Xinjiang

This paper is basing on data of geochemical exploration and regional geological survey, through the metallogenic regularities of mineralization potentiao evaluation, summarizes and concludes the metallogenic distribution pattern, metallogenic geological background and geological characteristics, analysis of the data of geochemical exploration and geophysical exploration. Established ore guide and prospecting model of mainly deposit. This paper provides medium—large Pb—Zn ore prospecting direction of this area.

20170310 Shen Mangting (Nanjing Center of China Geological Survey, Nanjing 210016, China); Zhou Yan **Geological Characteristics and Prospecting Potential of the Lead—Zinc Copper Polymetallic Deposit in the Hugang Area, Yongding Country, Fujian Province** (Geology and Prospecting, ISSN0495—5331, CN11—2043/P, 52(1), 2016, p. 70—83, 9 illus., 20 refs.)

Key words: lead—zinc deposit, copper ores, polymetallic ores, Fujian Province

This paper studies the lead—zinc copper polymetallic deposit in the Hugaug area, Yongding Country, Fujian Pruvinee. The authors analyze the regional geological background, mineralization eondilions, features of ore symbictic combination, ore generation order and ore eontrolling factors, as well as spatial and temporal distributions of deposits. The authors think that the mineralization of this area is a mainly stratitorm stratoid skarn body due to magmatie activity which was controlled by the Permian Qixia anti Chulmshan Formation limestone and sandy mudstone by Jingshe Formation.

20170311 Men Lanjing (Changchun Institute of Technology, Changchun 130021, China); Sun Jinggui **Ore—Forming Fluid and Mineralization of Wufeng—Wuxingshan Gold Deposit, Yanbian Area** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(2), 2016, p. 381—394, 10 illus., 2 tables, 23 refs.)

Key words: gold ores, Jilin Province

The Wufeng—Wuxingshan deposit is a type of important gold deposit in Yanbian. The genetically related Wufeng and Wuxingshan Au orebodies are located 3 km apart in the Shiren volcanic fault basin. Wufeng orebodies consist of vein type ones occurring in Jingouling Group volcanic rocks, and Wuxingshan

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orebodies occur as stock work—disseminated ones hosted in the contact zone between alkali—feldspar granites and sub—trachyandensite. The fluid inclusions in quartz from different mineralization stages were investigated using micro thermometric—measurements and Raman microprobe.

20170312 Nie Liqing (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Zhou Taofa **LA—ICP—MS U—Pb Zircon Age and Molybdenite Re—Os Dating of Donggushan, the First Tungsten Deposit Found in the Luzong Orefield, Middle—Lower Yangtze River Valley Metallogenic Belt.** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 303—318, 10 illus., 4 table, 124 refs., with English abstract)

Key words: tungsten ores, Metallogenic Belt of Middle and Lower Reaches of Yangtze River

20170313 Qi Jindong (Faculty of Land Resource Engineering, Kunming University of Science and Technology, Kunming 650093, China); Li Jun **Geological Characteristics and genesis of Hamubaizu Lava Type Iron Deposit in Dahongshan of Yunnan Province** (Mineral Resources and Geology, ISSN1001—5663, CN45—1174/TD, 30(1), 2016, p. 82—86, 3 illus., 1 table, 12 refs.)

Key words: iron ores, Yunnan Province

Hamubaizu lava type iron deposit is located in the east of Dahongshan Cu—Fe mining area, and the orebodies occur in the metamorphic sodic lava and greenschist of Hongshan Formation of Dahongshan Group. The orebodies occur as layered, stratoid and lenticular in form and the ore are mainly magnetite. The formation of the deposit is closely related to the eruption of Paleoproterozoic marine basic magma, and the deposit is characterized by volcanic overflow and volcanic eruption—sedimentation. In a preliminary estimate the deposit is a complex deposit formed by volcanic magma eruption—eruption sedimentation—metamorphism reformation.

20170314 Qin Jianhua (Chengdu Center, China Geological Survey, Chengdu 610081, China); Liao Zhenwen **Mineralization of the Carbonate—Hosted Pb—Zn Deposits in the Sichuan—Yunnan—Guizhou Area, Southwestern China** (Sedimentary Geology and Tethyan Geology, ISSN1009—3850, CN51—1593/P, 36(1), 2016, p. 1—13, 9 illus., 1 table, 37 refs., with English abstract)

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

20170315 Qin Jihua (No. 4 Geological Party, Xinjiang Bureau of Geology and Mineral Exploration and Development, Altay 836500, China); Geng Xinxia **Zircon LA—ICP—MS U—Pb Age of Intrusion from Xiaotuergen Copper Deposit in Altay, Xinjiang, and Its Geological Significance** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(1), 2016, p. 18—32, 6 illus., 1 table, 41 refs.)

Key words: copper ores, Xinjiang

The Xiaotuergen deposit is the first porphyry copper deposit discovered in Nuoerte Basin of Altay in recent years. The study of its geochronology will help further set up metallogenic model and summarize regional ore—forming pattern. Combining the ages of intrusive rocks and the tuff, the authors hold that the strata of the Xiaotuergen ore district belong to Early Devonian Nuoerte Formation. The zircon U—Pb age of ore—bearing granodiorite porphyry suggests that the Xiaotuergen porphyry copper deposit was formed later than 401 Ma, indicating that this deposit was formed in the Early Devonian.

20170316 Rong Jianfeng (Uranium Industry Development Co., CGNPC, Beijing 100029, China); Lin Yongzhao **Geologic Features of the Husab Uranium Deposit, Namibia** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(1), 2016, p. 1001—106, 7 illus., 2 tables, 10 refs.)

Key words: uranium ores, Namibia

Alaskite type U deposit is a major type of U deposits in Namibia. The Husab U deposit is considered as one of the most important discoveries in the world. Alaskite type U ore is the product of post-orogenic magmatism, occurring in the Proterozoic Damara orogenic belt. The alaskite rock mass intruded into the Khan Formation and Rossing Formation of the Nosib Group. The Alaskite may be divided into 6 types. D type and E type are the main host rocks. Fracture structure and turning parts of the dome are the favorable metallogenic positions.

20170317 Shen Baofeng (Tianjin Institute of Geology and Mineral Resources, Tianjin 300170, China); Zhang Kuo **Metallogenic Characteristics of Superimposed Iron Ore Deposits in China** (Mineral Deposits, ISSN0258-7106, CN11-1965/P, 35(2), 2016, p. 213-224, 5 illus., 35 refs.)

Key words: iron ores, China

Superimposed mineralization means that early mineralization experienced superimposition, compounding and transformation, and late mineralization included one or several periods, with late mineralization usually different from early ones in characteristics. In other words, the earlier ore deposit (orebody or source bed) was subjected to superimposition of late mineralization, and hence there is a sequence of mineralization time and superposition in space. In addition, early formed deposit experienced superimposition, compounding and transformation, which led to diversity and complexity. Sometimes large-size and rich deposits can be formed.

20170318 Shi Wenge (Northeastern University, Shenyang 110004, China); Yao Yuzeng **Research on Metallogeny of the Dishui Lacustrine Sedimentary Rock-Hosted Copper Deposit in Xijiang Region** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(1), 2016, p. 60-68, 11 illus., 2 tables, 24 refs.)

Key words: copper ores, Xinjiang

The Dishui copper deposit in Xinjiang Uygur Autonomous Region, a typical Cenozoic lacustrine sedimentary rock-hosted deposit, lies in the southwestern margin of Kuqa depression basin. The ore bodies occur as stratiform, between the overlying grey marl and the underlying greyish white medium-grained sandstone. The copper grade is positively related to Fe^{2+} while negatively to Fe^{3+}. Cuprite is the major ore mineral. The synthetic research indicates that the Dishui copper deposit experienced several genetic stages such as syn-sedimentary, diagenetie reformation and oxidation leaching. The deposit belongs to sedimentary transformation lacustrine sedimentary rock-hosted copper deposit.

20170319 Sun Yinghua (No. 607 Brigade, Jilin Bureau of Nonferrous Metal Geological Exploration, Jilin 132105, China); Jing Zhenggang **Metallogenic Regularity, Ore Genesis and Prospecting Indicators of the Cu-Ni Sulfide Deposit in Hongqiling Orefield, Jilin Province** (Geology and Resources, ISSN1671-1947, CN21-1458/P, 25(1), 2016, p. 52-55, 1 illus., 1 table, 10 refs.)

Key words: nickel ores, Jilin Province

The Hongqiling nickel orefield in Jilin Province is one of the significant mineralizing concentration zones of magmatic copper-nickel sulfide deposits in China. Of the three mafic-ultramafic rock belts outcropped in the area, some contain copper-nickel ore, while the others do not. Comparing the data from recent documents of prospecting for resources-crisis mines across the country and the relationship between structural control, lithofacies control, mineralization and types of rocks, this paper summarizes the prospecting indicators in the mafic-uhramafic rocks in this area, to provide theoretical basis for the searching of concealed rocks and the evaluation of mineralization around the area in the future.

20170320 Wang Jiawu (No. 103 Geological Party, Guizhou Bureau of Geology and Mineral Exploration and Development, Tongren 554300, China) **Comprehensible Prospecting Indicators Comprehensible Information and Lead－Zinc Metallogenic Prediction in Tangfang － Shejule Area of Guizhou Province** (Guizhou Geology, ISSN1000－5943, CN52－1059/P, 33(1), 2016, p. 29－35, 3 illus., 3 tables, 25 refs.)

Key words: lead－zinc deposit, geophysical exploration

In this paper, the remote sensing testing results of Tangfang－ Shejule area are studied and summarized, on the basis of comprehensible metallogenic information (Comprehensible information), the geochemical information is taken as guide, the genesis of lead－zinc deposit and comprehensible prospecting indicators are studied and summarized, the metallogenic prediction and mineral investigation are finished by known information and full model, 8 lead － zinc prospecting areas (Baibuka, Chenjiawuji, Yinchangkouzi, Yinchangpo, Daheishan, Xiaoshiqiao, Heitaoping and Jiugushui) are determined in this region and further work is suggested.

20170321 Wang Wei (Faculty of Earth Resources, China University of Geosciences (Wuhan), Wuhan 430074, China); Wang Minfang **Occurrence State of Platinum from the Tudun Cu－Ni Sulfide Deposit in Eastern Tianshan Mountains of Xinjiang and Their Geological Significance** (Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 85－96, 7 illus., 1 table, 48 refs.)

Key words:

Based on detailed research on the metallogenic geological setting, and previous petrological and geochemical evidence of the Tudun Cu－Ni deposit, this study performed in situ electron probe microanalysis (EPMA) on these metallic minerals from the disseminated ores and massive ores. The EPMA shows that the concentrations of platinum in the major metallic minerals vary from 490～2 450 g/t, averaging 1 713 g/t, and that the concentrations of palladium are low. The results show that the influence of hydrothermal metasomatism on pentlandite and pyrrhotite is the most likely process that resulted in the diffusive metasomatism of platinum, which is critical to the activation and re－enrichment of noble metals.

20170322 Wang Xiao (Faculty of Land Resource Engineering, Kunming University of Science and Technology, Kunming 650093, China); Wen Hanjie **Geological Characteristics and Genesis Significance of Laba Mo Deposit in Shangri－La of Yunnan Province** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1), 2016, p. 93－98, 4 illus., 2 tables, 8 refs.)

Key words: molybdenum ores, Yunnan Province

Laba Mo deposit is located in the Cu－Mo－Pb－Zn－Au－Ag polymetallic ore－concentrated area of Geza Island Arc. With the intense magmatic－tectonic activities in this area, the deposit has favorable metallogenic conditions. The ore bodies are hosted inside the late Yanshanian intermediate－acid intrusive bodies which include the biotite granodiorite－porphyry as well as marble, skarn and basalt in its outside contact zone. The deposit is in close relationship with the intermediate－acid porphyry in terms of time, space and genesis. The deposit is porphyry－hosted molybdenum deposit which is controlled by strata, structures and magmatic rocks.

20170323 Wang Yongqing (No. 6 Exploration Institute of Geology and Mineral Resources of Shandong Province, Zhaoyuan 265400, China); Peng Rui **Geological Characteristics of Yaojia Gold Deposit in Longkou City, Shandong Province** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 36－40, 57, 2 illus., 1 table, 2 refs.)

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Key words: gold ores, Shandong Province

Yaojia gold deposit in Longkou is located in the north of the famous Jiaojia Gold Metallogenic Belt in the northwest area of Jiaodong Peninsula, where the distinctive characteristics were well-developed NE- to NNE-trending fault structures. At the same time, the potassic altheration, siliciifcation, pyritephyllic alteration etc. in the broken altered zone and the development of quartz and polymetallic sulfide are important ore prospecting indicators. Based on the study of geological characteristics, it is considered that the genetic type of ore deposit is belonged to the middle-temperature hydrothermal gold deposit in deep hypabyssal magma.

20170324 Wang Yunfeng (Key Laboratory of Mineralogy and Metallogeny, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China); Chen Huayong **Porphyritic-Overlapped Mineralization of Tuwu and Yandong Copper Deposits in Eastern Tianshan Mountains, Xinjiang** (Mineral Deposits, ISSN0258-7106, CN11-1965/P, 35(1), 2016, p. 51-68, 9 illus., 43 refs.)

Key words: copper ores, Xinjiang

The Tuwu and Yandong copper deposits, located in the southern segment of the Dananhu-Tousuquan island arc belt, are important parts of the Central Asian Metallogenic Belt. According to the crosscutting relationships and mineral assemblages, the mineralization in both Tuwu and Yandong copper deposits can be divided into three periods: the porphyritic-mineralization period, the overlapped-mineralization period and the supergene period. The porphyritic-mineralization period and the overlapped-mineralization period are the metallogenic periods of copper in the Tuwu copper deposit, while the overlapped-mineralization period is the most important copper metallogenic period in the Yandong copper deposit.

20170325 Wang Zhengjiang (Faculty of Land and Resource Engineering, Kunming University of Science and Technology, Kunming 650093, China); Guo Tingting **Geochemistry and Provenance Analysis of the Daheishan Bauxite Deposit in Huize, Yunnan Province** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(1), 2016, p. 23-29, 7 illus., 16 refs.)

Key words: bauxite deposit, Yunnan Province

The Daheishan bauxite deposit in Huize, Yunnan resides in the basal part of the Upper Permian Xuanwei Formation underlain by the Emeishan basalts. The bauxite ores from the Daheishan deposit display micritic, oolitic and granular textures, and densely massive, stratified and stratoid structures. The bauxite and basalt samples in this study exhibit similar normalized distribution patterns. The ore-forming matter may be derived from the underlying Emeishan basalts, as indicated by LogNi and LogCr diagram.

20170326 Xian Yuanhong (No. 9 Gold Geological Team of CAPF, Haikou 571127, China); Guo Hua **Geological Characteristics of Shizhai Pb-Zn Polymetallic Deposit in Yangshan of Guangdong Province** (Mineral Resources and Geology, ISSN1001-5663, CN45-1174/TD, 30(1), 2016, p. 29-34, 6 illus., 1 table, 2 photos, 8 refs.)

Key words: lead-zinc deposit, Guangdong Province

Shizhai mining area of Yangshan is a skarn-type Pb-Zn polymetallic deposit which is located in Nanling W-Sn polymetallic metallogenic belt. It's the first time that No. 9 Gold Geological Team of CAPF has conducted exploration works on this type of deposits. This paper analyzed and summarized the geological characteristics, metallogenic regularity and prospecting potential of the polymetallic deposits in the area, and provided a clear direction and full and accurate geological data for further exploration works in the deep part of this area and expansion of pros-

pecting potential area in the future.

20170327 Xiao Xin (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Zhou Taofa **LA－ICP－MS in Situ Trace Elements and FE－SEM Analysis of Pyrite from the Xinqiao Cu－Au－S Deposit in Tongling, Anhui and Its Constraints on the Ore Genesis** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 369－376, 4 illus., 1 table, 58 refs., with English abstract)
Key words: copper ores, gold ores, sulfur deposit, Anhui Province

20170328 Xiao Yu (Xinjiang Geological Survey Institute of China Non Ferrous Metals Resource Geological Survey, Urumqi 830011, China); Xu Ouihong **On the Opening－Closing Tectonics and Hierarchical Mineralization of Tarim Plate: A Case Study of Strata－Bound Metal Deposits** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1), 2016, p. 35－41, 47, 1 illus., 17 refs.)
Key words: gold ores, Xinjiang

Based on study of the evolution of opening－closing tectonics and the paleogeographic changes of Tarim Plate, this paper analyzed the metallogenic regularity of strata－bound metal deposits in terms of time and space, and it divided the metallogenic period into three intensive metallogenic intervals (stages), which include the old (Proterozoic era, dominated by Mesoproterozoic era), the middle－aged (Neopaleozoic era, dominated by Devonian－Carboniferous period) and the young (Meso－Cenozoic era, dominated by Cretaceous－Neogene period). The author elaborated on the tectonic property of hierarchical mineralization and spatial distribution pattern of the deposits.

20170329 Yang Jianguo (Key Laboratory for the Study of Focused Magmatism and Giant Ore Deposits, Xi'an Institute of Geology and Mineral Resources, MLR, Xi'an 710054, China); Wang Lei **SHRIMP Zircon U－Pb Age and Its Signification of Guaishishan Mafic－Ultramafic Complex in Beishan Mountains, Gansu Province** (Geotectonica et Metallogenia, ISSN1001－1552, CN44－1595/P, 40(1), 2016, p. 98－108, 6 illus., 2 tables, 49 refs., with English abstract)
Key words: polymetallic ores, SHRIMP dating, Gansu Province

20170330 Yang Shuo (Geological Research Academy of Xinjiang, Urumqi 830000, China); Ma Yuzhou **Geological Characteristics and Genesis of Kekesai Copper Molybdenum Deposit in Sailimu Lake Area, Xinjiang** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p. 124－128, 4 illus., 1 table, 30 refs.)
Key words: copper ores, molybdenum ores, Xinjiang

Kekesai Cu－Mo deposit is located in the Sailimu Lake Cu－Pb－Zn metallogenic belt, West of Ring Lake Balkhash metallogenic belt, many medium－small scale Cu－Mo deposit and Pb－Zn deposit had been found in this area. Kekesai Cu－Mo deposit is a porphyry－type deposit that has been found in recent years. Through the study and analysis on Kekesai Cu－Mo deposit, the authors make a preliminary conclusion that Kekesai is a typical porphyry－type copper molybdenum deposit which closely relate with Late Paleozoic tectonic－magmatic activities. Mineralization occurred in the Late Carboniferous to Early Permian magmatic activity, and the sources of ore－forming materials derived from the partial melting of the thickened crust.

20170331 Ye Haimin (Nanjing Institute of Geology and Mineral Resources, China Geological Survey, Nanjing 210016, China); Zhang Xiang **In－Situ Monazite U－Pb Geochronology of Granites in Shimensi Tungsten Polymetallic Deposit, Jiangxi Province and Its Geological Significance** (Geotectonica et Metallogenia, ISSN1001－1552, CN44－1595/P,

40(1), 2016, p. 58—70, 6 illus., 1 table, 46 refs.)

Key words: polymetallic ores, U—Pb dating, Jiangxi Province

The Shimensi tungsten polymetallic deposit, located in the north part of the Dahutang ore field in the Jiuling metallogenic belt, North Jiangxi Province, is one of the world's largest tungsten deposits. In—situ LA—ICP—MS monazite U—Pb dating was used to determine the ages of the ore—bearing granites in this paper. Furthermore, their lower intercept ages on the Tera—Wasserburg plots and the corresponding weighted average $^{206}Pb/^{238}U$ ages are consistent within error, reflecting the crystallization age of the granites.

20170332 Yu Miao (Jilin Provincial Geological Prospecting Fund Management Center, Changchun 130012, China); Wu Hao **Geological Features and Genesis of the Taipingling Iron Deposit of Wangqing in Jilin Province** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 53—57, 1 illus., 4 tables, 2 refs.)

Key words: iron ores, Jilin Province

Based on the analyses of the geological conditions, the ore bodies of Taipingling iron deposit display zonal distribution, besides these bodies were hosted in skarn zone. The skarn occurs in the contact zone between Yenshanian period granodiorite and Permian system Miaoling Group marble, Occurrence is strictly controlled by the contact zone of rock mass and strata. The main type of skarns is andradite skarn, followed by garnet—diopside skarn, with a little epidote skarn.

20170333 Yu Shaopeng (Institute of Nonferrous Metals of Geology and Mineral, Investigation Bureau of Jilin Province, Changchun 130012, China); Yu Feng **Regional Geochemical Characteristics of Copper Lead Zinc Polymetallic Deposit in Xiagaijiadian, Bahrain Left Banner of Inner Mongolia** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 49—52, 1 illus., 2 tables, 3 refs.)

Key words: copper ores, lead—zinc deposit, Inner Mongolia

According to the geochemical analysis of the copper lead zinc polymetallic deposit in Xiagaijiadian, Bahrain Left Banner of Inner Mongolia autonomous region, the metallogenic prediction target area is delineated, the metallogenic location is determined, searching for the favorable sites of mineralization, to study the theory of the metallogenic belt, exploring metallogenic regularities, in order to provide basis for the further geological ore—prospecting.

20170334 Yuan Haichao (Northwest Nonferrous Metals Party of Geophysical and Geochemical Exploration, Xi'an 710068, China); Wang Ruiting **Geological Characteristics and New Prospecting Discovery of the Jinduicheng Superlarge Porphyry Molybdenum Deposit** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1), 2016, p. 172—184, 6 illus., 3 tables, 29 refs.)

Key words: porphyry molybdenum deposit, Henan Province

The Jinduicheng superlarge molybdenum deposit is located at western Henan fracture—uplift area of the southern margin of North China platform. The formation of this deposit has close relationship with multiple sets of structure and porphyry body. Therefore, this deposit has a classical porphyry molybdenum metallogenic model. The differences and changes about geological characteristics of this deposit on longitudinal and latitudinal gradients will provide an important guiding significance for deep prospecting of the other molybdenum bodies in the outside contact zone of Laoniushan rock mass.

20170335 Zeng Guoping (State Key Laboratory of Geological Processes and Mineral Resources, Faculty of Resources, China University of Geosciences, China University of Geosciences, Wuhan 430074, China); Yao

Shuzhen Ore－Forming Fluid and Metallogenic Mechanism of Tianwangtaishan Gold Deposit, Heilongjiang Province (Mineral Deposits, ISSN0258－7106, CN11－1965/P, 35(1), 2016, p. 85－102, 8 illus., 5 tables, 55 refs.)

Key words: gold ores, Heilongjiang Province

The Tianwangtaishan gold deposit is located in the northern segment of Tianwangtaishan volcanic edifice on the margin of Guliku－Huma volcano－graben basin, and lies in North Great Hinggan Mountains. The intense cooling and depressurization during the main stage was the most important reason for the precipitation of metallogenic elements. In addition, a study of fluid inclusion assemblages in stage (Ⅱ) suggests that immiscibility occurred during the main ore－forming stage. It is thus held that the intense cooling and depressurization of ore－forming fluid, associated with its immiscibility, are the main metallogenic mechanisms of this gold deposit.

20170336 Zhang Long (School of Earth Science and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Chen Zhenyu **The Application of Electron Microprobe Dating Method on Uranium Minerals in Changjiang Granite, Northern Guangdong** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 98－107, 4 illus., 2 tables, 28 refs.)

Key words: uranium ores, electron probe, Guangdong Province

Changjiang granite is a part of the Zhuguang Mountains, and is important U－bearing granite in the north of Guangdong Province. Uranium minerals in this granite are studied by Electron Microprobe. Results show that uranium minerals mainly fill in the spaces between minerals or are surrounded by pyrite. Uranium minerals are also found in quartz, biotite, chlorite and other minerals. The main types of uranium minerals are uraninite, pitchblende, uranothorite and uranophane. The chemical ages of uraninite and pitchblende dated by Electron Microprobe can be divided into three groups, about 155 Ma, 106 Ma and 74 Ma. The first group represents the formation age of Changjiang granite mass, and the second and third groups represent multiple stages of uranium mineralization.

20170337 Zhang Peng (Shenyang Institute of Geology and Mineral Resources, CGS, Shenyang 110034, China) **Geochemical Characteristics and Geological Signification of the Dataigou Iron Deposit in Benxi, Liaoning Province** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 56－59, 1 illus., 2 tables, 10 refs.)

Key words: iron ores, Liaoning Province

Study on the major and rare earth elements (REE) of Dataigou iron deposit reveals that the average bulk compositions of the banded iron formations (BIF) are rich in TFe_2O_3 and SiO_2 but low with Al_2O_3 and TiO_2 contents. These characteristics are consistent with those of the iron deposits in Anshan－Benxi, Wutaishan and Qianan. It shows that the Dataigou deposit is of volcanic－sedimentary metamorphic iron deposit, characterized by depletion of light REE and enrichment of HREE, with distinct positive anomaly of Eu, which indicates that the BIFs are the products of chemical sedimentation from paleo－seawater with significant input of volcanic hydrothermal fluids.

20170338 Zhang Shu (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Fan Yu **Characteristics of Ore－Forming Fluids in Nihe Iron Deposit in Luzong Volcanic Basin, Anhui Province, China: Evidences from He－Ar－H－O Isotopes** (Acta Petrologica Sinica, ISSN1000－0569, CN11－1922/P, 32(2), 2016, p. 377－389, 5 illus., 2 tables, 137 refs., with English abstract)

Key words: iron ores, Anhui Province

20170339 Zhang Wei (State Key Laboratory

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of Geological Processes and Mineral Resources, Faculty of Earth Resources, China University of Geosciences, Wuhan 430074, China); Wang Hongqiang **Mineralogy of the Au—Ag—Bi—Te—Se Assemblages in the Jiguanzui Cu—Au Skarn Deposit, Daye District, Southeastern Hubei Province** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 456—470, 12 illus., 3 table, 73 refs., with English abstract)

Key words: copper ores, gold ores, Hubei Province

20170340 Zhang Wengao (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijng 100081, China); Chen Zhengle **An Analysis of Tectonic Stress Field and Prospecting Direction in the Gaoshan Gold and Silver Deposit, Longquan Area, Zhejiang Province** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(2), 2016, p. 141—152, 7 illus., 2 tables, 62 refs.)

Key words: gold ores, silver ores, Zhejiang Province

Located in Suichang—Longquan area, the Gaoshan gold and silver deposit is a typical volcanic—subvolcanic meso—epithermal deposit with its mineralization closely controlled by fault activities. This paper mainly presents field measurements of joints and faults for identifying features of activities and the principal stress direction by using traditional methods in tectonic stress field research. Stages and times of the tectonic stress field are also determined based on deformation and intersection relations with structures and diagenesis ages of strata. The results show that the tectonic stress field in the Gaoshan gold and silver deposit can be divided into six periods.

20170341 Zhang Yin (Yunnan Exploration & Development Company of Cu Mineral Resources, Kunming 650051, China); Diao Kaishuai **The Hydrothermal Alteration Feature of Maoping Pb—Zn Deposit in Yiliang, Yunnan Province** (Yunnan Geology, ISSN1004—1885, CN53—1041/P, 35(1), 2016, p. 49—54, 3 illus., 1 photo, 5 refs.)

Key words: lead—zinc deposit, Yunnan Province

The wall rock close to ore of Maoping Pb—Zn deposit is D and C. The ore body is controlled by the core structure of Maomaoshan inverted anticline. The hydrothermal alteration zonation outwards from ore body is successively Pb—Zn metallogenesis zone—pyritization zone—calcitization zone—dolomitization zone. According to the characteristics of hydrothermal alteration zonation, the authors infer that the new Pb—Zn metallogenesis may be discovered on the E side of the present ore body.

20170342 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); Zang Yushi **Zircon SHRIMP U—Pb Age of the Yuhai Porphyry Copper Deposit in Eastern Tianshan Mountains of Xinjiang and Its Tectonic Implications** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 59—68, 6 illus., 3 tables, 64 refs.)

Key words: porphyry copper deposit, Xinjiang

The middle—large sized Yuhai copper deposit in Eastern Tianshan Mountains of Xinjiang was discovered in 2011 by No. 704 Geological Party of Xinjiang Nonferrous Bureau. The characteristics of geology, petrology geochemistry, orebody geology and alteration zoning show that the Yuhai copper deposit belongs to the porphyry Cu type, with ore—bearing intrusion being a set of sodium rich diorite—granodiorite bodies formed under the condition of ocean—continental subduction. Zircon SHRIMP U—Pb dating shows that the age of Yuhai intrusive rock is (422.3±4.0) Ma. This is the first discovery of an intrusive rock of Early Paleozoic in the Jueluotage metallogenic belt.

20170343 Zhao Tianyao (No. 4 Brigade of North China Geological Exploitation Bureau, Qinhuangdao 066013, China); Yu Yin **Geochemical Characteristics of Yanshanian Rock Mass in Dapai Iron Polymetallic Mining Area of Southwestern Fujian Province** (Mineral Resources and Geology, ISSN1001—5663, CN45—1174/TD, 30(1), 2016, p. 70—76, 81, 12 illus., 1 table, 9 photos, 10 refs.)

Key words: iron ores, Fujian Province

Through the preliminary research on Yanshanian rock mass in terms of petrography, petrochemistry, petrogeochemistry and geochronology, the results indicated that Yanshanian rock mass consisted mainly of porphyritic monzonitic granite, adamellite and quartz syenite with lesser granodiorite. The petrochemical and geochemical study indicated that the rock mass in the mining area was metaluminous—weakly peraluminous shoshonite series I—type granite. The rocks in the source region are the granulite facies rocks with lesser pyroxene, plagioclase and potassic feldspar. The rock mass in the mining area are formed at 150 Ma and 130 Ma, and it indicates that the formation of the rock mass in the mining area can be divided into at least two stages and it is complex massif.

20170344 Zhao Wenjin (Chinese Academy of Geological Sciences, Beijing 100037, China) **A Discussion on the Regional Tectonic—Magmatic Activity and the Metallogensis of Gangdise Porphyry Copper Belt Based on the Deep Structure of Continent — Continent Collision Belt in Southern Tibet** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 7—24, 19 illus., 53 refs., with English abstract)

Key words: porphyry copper deposit, Tibet

20170345 Zhao Zengyu (Geological Survey of Jiangsu Province, Nanjing 210049, China); Chen Huogen **Application of the Weighted Logistic Regression Model in Prediction of Volcanic Rock—Hosted Copper Deposits——Taking the Middle Part of Ning—Wu Basin as an Example** (Geological Journal of China Universities, ISSN1006—7493, CN32—1440/P, 22(1), 2016, p. 105—112, 3 illus., 3 tables, 18 refs.)

Key words: copper ores, Ningwu Basin, China

Application of the Weighted Logistic Regression model in prediction of volcanic rock type copper deposits in the middle part of Ning—Wu Basin is studied. First, the geological setting of ore—forming processes is analyzed. Three kinds of factors including geological body, structure and wall rock alteration are extracted based on the spatial distribution of copper deposits from the geologic map. Then, the spatial relationships between copper mineral occurrence and each evidence factor are analyzed. It is suggested that Niangniangshan and Gushan volcanic edifice play an important role in spatial distributions of volcanic rock—hosted copper deposits.

20170346 Zhou Taofa (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Wang Shiwei **Magmatism and Related Mineralization of the Intracontinental Porphyry Deposits in the Middle — Lower Yangtze River Valley Metallogenic Belt** (Acta Petrologica Sinica, ISSN1000—0569, CN11—1922/P, 32(2), 2016, p. 271—288, 8 illus., 1 table, 256 refs., with English abstract)

Key words: skarn deposit, Metallogenic Belt of Middle and Lower Reaches of Yangtze River

20170347 Zhou Yunfei (School of Civil and Environmental Engineering, University of Science and Technology (Beijing), Beijing 100083, China); Xu Jiuhua **Ore — Forming Fluid and Genesis of Xiaojiashan Tungsten Deposit in Barkol District** (Geotectonica et Metallogenia, ISSN1001—1552, CN44—1595/P, 40(1), 2016, p. 86—97, 9 illus., 3 tables, 36 refs., with English abstract)

Key words: tungsten ores, fluid inclusions,

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Xinjiang

20170348 Zhu Haibin (Sinomine Resource Exploration Co., Beijing 100089, China); Zhang Donghong **Geological Characteristics and Genesis of Chambishi Copper Deposit in Copper Belt of Zambia** (Mineral Resources and Geology, ISSN1001—5663, CN45—1174/TD, 30(1), 2016, p. 19—23, 28, 7 illus., 2 photos, 5 refs.)

Key words: copper ores, Zambia

Chambishi copper deposit is located in Central African copper (cobalt) belt, and is one of the typical sediment—hosted copper deposits in copper belt province of Zambia. This paper conducted research on geological characteristics of the deposit, variations of lithology and lithofacies as well as distribution characteristics of ores and minerals in the orebody. The author concluded that the primary sedimentary environment of the deposit is littoral (neritic) environment, and pointed out the clues for prospecting in other deposits of the same type.

20170349 Zhu Junquan (College of Earth Sciences, Jilin University, Changchun 130061, China); Sun Jinggui **Metallogenic Mechanism of Yanghuidongzi Copper Deposit in Eastern Heilongjiang Province: Mineralization—Alteration, Fluid Inclusions and Stable Isotope Tracing** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(2), 2016, p. 365—380, 10 illus., 6 tables, 28 refs.)

Key words: tungsten ores, Hunan Province

The Yanghuidongzi copper deposit is located in the Yanbian—Dongning metallogenic belt along the northern part of Xingkai—Yanbian magmatic—tectonic zone. The orebodies are mainly hosted in breccia zone of the inner contact zone between granodioritic porphyry and Triassic metamorphic rocks of Yanwangdian Formation in Huangsong Group, which are mainly lenticular and veinlike in shape. Detailed studies of geological features of ore deposit geology and petrography indicate that the wall—rock alterations include mainly biotitization, sericitization, silicification, chloritization, epidotization and carbonation, and the alteration zoning from the lithosome to the wall rock is in order of potassium silicate zone, phyllic zone and propylitization zone.

2. NONMETALS DEPOSITS

20170350 Cao Yangtong (School of Earth Sciences and Resources, Chang'an University, Xi'an 710054, China); Liu Chenglin **Evaporite Deposition and Potassium Enrichment Prospect from Upper Cretaceous to Paleogene in Yarkand Basin, Xinjiang** (Mineral Deposits, ISSN0258—7106, CN11—1965/P, 35(2), 2016, p. 300—314, 8 illus., 2 tables, 43 refs.)

Key words: evaporites, potash deposit, Xinjiang

Evaporite sedimentary layers are mainly in the upper member of Tuilok Formation and Aertashi Formation. Field work shows that rock salt outcrops are distributed in long stripe form along the foreland of West Kunlun Mountains and are characterized by lenticular sedimentation. However, the gypsum outcrops are distributed steadily laterally in most parts of the basin such as the foreland of West Kunlun Mountains, South Tianshan Mountains and Maigaiti Slope. Laboratory analysis shows that the primary saline minerals are halite, gypsum, and anhydrite, with minor polyhalite, glauberite and syngenite.

20170351 Kong Deyong (College of Resources and Environment, China Agricultural University, Beijing 100193, China); Li Baoguo **Seasonal Change of Water Absorption Capability and Moisture Content of the Top Salt—Crust in Lop Nur Dry Lake** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(2), 2016, p. 185—192, 7 illus., 6 tables, 42 refs.)

Key words: salt lakes, Xinjiang

Two observing sites within the Lop Nur dry salt lake were selected as field experiment areas to monitor the moisture content change on the surface of salt－crust, groundwater level and meteorological data, and a systematic observation lasted for more than one year. The field observation data indicate that the groundwater level is relatively stable, and it makes little contribution to the adsorbed water content of the surface in salt－crust in BOS. The absorption capability of salt－crust in BOS is remarkably stronger than that in WOS both under the conditions of high humidity and different temperatures in field test or laboratory simulation test, and the difference of water absorption capability is even more than 10 times, probably caused by the difference of the mineral compositions, such as the content of magnesium sulfate in the two observing sites during the salt－curst formation and development.

20170352 Li Jinsheng (Sichuan Institute of Metallurgical Geological Exploration, Chengdu 610051, China); Li Xing **Geological Features of the Wabanshan Phosphate Deposit in Hanyuan, Sichuan Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 60－62, 75, 6 illus., 22 refs.)

Key words: phosphate deposit, Sichuan Province

This paper has a discussion on mineral and chemical compositions of phosphate, ore type, ore grade, ore texture and structure, shape and thickness of orebodies of the Wabanshan phosphate deposit in Hanyuan, Sichuan Province.

20170353 Li Minghui (Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China); Yan Maodu **New Ideas on the Origins of Potash Deposits in Yunnan China and Laos** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(1), 2016, p. 60－65, 3 illus., 1 table, 34 refs.)

Key words: potash deposit, Yunnan Province, Laos

The Lanping－Simao Basin in the southwestern China is located at the junction of the Eurasian and Indian Plates, and adjacent to a large potash deposit of Khorat Basin and Sakon Nakhon Basin in Thailand and Laos. Chinese scientists thought that the potash deposit in Lanping－Simao basin should be as large or important as that in Khorat Basin and Sakon Nakhon Basin. The relationship between Mengyejing potash in Lanping－Simao Basin and potash deposits in the Sakon Nakhon Basin and Khorat Basins has long been discussed in many respects such as tectonic belt, depositional features, salt minerals, geochemical elements, and forming era.

20170354 Niu Yanhong (Qiqihar Branch, Research Institute of Regional Geological Survey of Heilongjiang, Haerbin 150036, China); Liu Baoshan **Zircon U－Pb Dating of Granitic Gneiss in Yichun, Heilongjiang, China and Its Geological Significance** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, (43)1, 2016, p. 95－101, 5 illus., 1 table, 14 refs.)

Key words: granitic gneiss, U－Pb dating, Heilongjiang Province

The Neoproterozoic granitic gneiss is reported for the first time in Yichun based on the regional geological survey in the Zhulabila river and its adjacent areas at 1∶50 000 scale. Zircon U－Pb dating yields $^{206}Pb/^{238}U$ concordant ages of －850 Ma and the weighted mean age of (850.2±2.1) Ma, which are defined by 23 grains. This age indicates that the emplacement time of the granitic gneisses is Neoproterozoic. The discovery of the Neoproterozoic granitic gneiss provides a new evidence for the tectonic and magmatic evolution in Yichun Heilongjiang Province.

20170355 Wei Haicheng (Qinghai Provincial

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Key Laboratory for Geology and Environment of Salt Lake, Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, Xining 810008, China); Fan Qishun **Chemical Elements in Core Sediments of the Qarhan Salt Lake and Palaeoclimate Evolution during 94～9 ka** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(2), 2016, p. 193－203, 4 illus., 1 table, 81 refs.)

Key words: salt lakes, Xinjiang

A 102 m long drill core (ISL1A) was obtained from the Qarhan Salt Lake in central eastern Qaidam Basin, northeastern Tibetan Plateau. An age－depth model was established with AMS ^{14}C and ^{230}Th dating. Chemical elements analysis was carried out for the core sediments, and two important factors including runoff of the lake and evaporation were identified using Principal Component Analysis. The chemical elements analysis results were combined with pollen analysis, grain size and percentage of halite in the sediments so as to reveal the evolution of the Qarhan Salt Lake during Late Pleistocene. The result indicates that the paleo－Qarhan Lake experienced several desalt and salinization stages. The environmental changes and the variations of the lake level reflected by the environmental proxies of Qarhan Salt Lake sediments are supported by other environmentalchange records in Qaidam Basin as well as adjacent areas.

20170356 Yang Kaijun (Geophysical & Geochemical Exploration Institute, Yunnan Nonferrous Metals Geological Bureau, Kunming 650216, China); Xue Lipeng **Metallogenic Regularity of Lishuping－Xiabaobao Phosphorus Ore Concentrated Area in Eastern Yunnan and Its Relation to Pb－Zn Mineralization** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1), 2016, p. 42－47, 4 illus., 1 table, 16 refs.)

Key words: phosphate deposit, Yunnan Province

This paper conducted analysis on the metallogenic background of Lishuping－Xiabaobao phosphorus ore concentrated area. It summarized that the ore－controlling factors included the middle and upper strata of Cambrian Yuhucun Formation as well as carbonate, clastic and siliceous facies in ancient ocean depressed basin environment, and the phosphorous mineralization was controlled by the ancient ocean depressed structure. The structural control over mineralization became weak in the later stage, but it still enhanced the secondary enrichment of phosphorous. The author believed that the ore－forming materials were phosphorous terrigenous clastic weathered sediments, and elaborated on the relationship between phosphorous mineralization and lead－zinc mineralization in terms of space and time.

20170357 Zhang Jie (No. 113 Geological Team, BGEEMRSP, Luzhou 646000, China); Ye Dingnan **Petrology and Petrogeochemistry as well as Fe, Ti Abundances of Clayrock of the Longtan Formation in the Guxu Coal Mine** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 63－65, 3 illus., 3 tables, 4 refs.)

Key words: claystone, element abundance, Sichuan Province

The Haifeng Block of the Guxu Coal Mine is rich in clay resources. This paper deals with petrology and petrogeochemistry as well as Fe, Ti abundances of clayrock of the Longtan Formation in the block. The study indicates that the clayrock and associated Ti is of industrial value.

20170358 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. First, the metallogenic rocks are the dolomite marble and silicon-bearing dolomitic marble of Paleoproterozoic Dashiqiaoan Formation. Second, the ore-forming fluid is the silicate hydrothermal solution intruded in Yanshanian. And third, 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.

20170359 Zou Hao (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Zhang Qiang **Geological Characteristics and ESR Dating of Xiachen Fluorite Deposit in Tiantai Basin, Zhejiang, China** (Journal of Chengdu University of Technology, ISSN1671-9727, CN51-1634/N, (43) 1, 2016, p. 86-94, 5 illus., 2 tables, 25 refs.)

Key words: fluorspar deposit, Zhejiang Province

Through the researches on the field geological characteristics of the Xiachen fluorite deposit and the ore microscopic characteristics and using the activation of electron spin resonance (ESR) dating method, this paper discusses the ore-forming geological characteristics and the quartz ESR age of the fluorite deposit in Xiachen, Zhejiang, China. The results show that this fluorite deposit is a hydrothermal filling type vein fluorite deposit. Its average metallogenic age is (75.3 ± 7.0) Ma. The metallogenic epoch of this ore deposit is mainly Late Cretaceous.

20170360 Zou Hao (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Dan Yong **Geochemical Evidence for Sources of Ore-Forming Material of Barite-Fluorite Deposits in Pengshui Area, Southeast Chongqing** (Geotectonica et Metallogenia, ISSN1001-1552, CN44-1595/P, 40(1), 2016, p. 71-85, 7 illus., 1 table, 53 refs.)

Key words: barite deposit, fluorspar deposit, metallogenesis, Chongqing

The barite-fluorite deposits in Southeast Chongqing are mainly hosted in the Lower Ordovician carbonate rocks, and the orebodies are obvious stratabound and primarily controlled by the NW trend structure. Two representative barite-fluorite deposits were studied in purpose of understanding their ore-forming mechanism. Trace element geochemistry of ores shows that the Lower Cambrian Niutitang Formation is likely the source of ore-forming material for the barite-fluorite deposits. REE geochemical analysis results indicate that many deposits have contemporaneous characteristics, δEu and δCe anomaly suggest a high oxygen fugacity and open system environment for the ore-forming processes. Tb/Ca-Tb/La and La/Yb-∑REE plots display that the barite-fluorite deposits are hydrothermal origin.

3. PETROLEUM GEOLOGY

20170361 Bao Shujing (Oil & Gas Survey Center, China Geological Survey, Beijing 100029, China); Lin Tuo **Preliminary Study of the Transitional Facies Shale Gas Reservoir Characteristics: Taking Permian in the Xiangzhong Depression as an Example** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(1), 2016, p. 44-53, 13 illus., 28 refs., with English abstract)

Key words: shale gas, Hunan Province

20170362 Chen Honghan (Department of Petroleum Geology, China University of Geosci-

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ences, Wuhan 430074, China); Lu Ziye **Hydrothermal Alteration of Ordovician Reservoir in Northeastern Slope of Tazhong Uplift, Tarim Basin** (Acta Petrolei Sinica, ISSN0253—2697, CN11—2128/TE, 37(1), 2016, p. 43—63, 16 illus., 5 tables, 63 refs., with English abstract)

Key words: carbonate reservoirs, Tarim Basin

20170363 Cheng Lixue (Exploration Company of SINOPEC, Chengdu 610041, China); Wang Wei **Differences of Quartz Sandstone Reservoir Characteristics for the Member 2 of Xujiahe Formation in Northeast Sichuan Basin, China** (Journal of Chengdu University of Technology, ISSN1671—9727, CN51—1634/N, 43(2), 2016, p. 207—215, 10 illus., 1 table, 19 refs.)

Key words: sandstone reservoirs, Sichuan Basin

Differences of provenance direction, depositional condition, diagenesis and fracture fault system and characteristics between the quartz—sandstone reservoirs of Member 2 of Upper Triassic Xujiahe Formation in the area of Yuanba and Malubei area of northeast Sichuan are studied by means of debris section identification, core observation, sandstone grain size probability statistics and physical characteristic analysis. It shows that the Member 2 of Xujiahe Formation in the area is controlled by provenance, deposition, digenesis and structural pressure. The characteristics of reservoir development are different due to different geological conditions in different areas.

20170364 Dai Jinxing (Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Ni Yunyan **Origins of Secondary Negative Carbon Isotopic Series in Natural Gas** (Natural Gas Geoscience, ISSN1672—1926, CN62—1177/TE, 27(1), 2016, p. 1—7, 2 illus., 4 tables, 20 refs.)

Key words: shale gas, coal—formed gas

The carbon isotopic series of alkane gases could be divided into three types. After a comparative study, the authors found that negative carbon isotopic series of secondary origin for both shale gas and coal—derived gas appeared in the area where source rocks (shales) are at over—mature stage while it was not observed in the area where source rocks(shales) are only at mature—high mature stage. As a result, extremely high maturity (>200℃) is the main controlling factor for negative carbon isotopic series of secondary origin.

20170365 Dai Junsheng (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Liu Jingshou **Numerical Simulation of Stress Field of Fu—2 Member in Tongcheng Fault Zone and Development Suggestions** (Journal of China University of Petroleum, ISSN1673—5005, CN37—1441/TE, 40(1), 2016, p. 1—9, 8 illus., 4 tables, 29 refs.)

Key words: reservoirs, formation breakdown pressure, numerical simulation

Based on numerical simulations of the ancient stress field of the fracture formation, the fracture occurrence of Fu—2 Member in Tongcheng fault zone was predicted. Present—time in—situ stress orientations for wells were determined using the core velocity experiment and micro seismic monitoring technology. The results are as follows: the present—time horizontal maximum stress is NEE. Fractures with the NEE maximum stress direction open first and fractures with the SEE direction open afterwards in the process of waterflooding. Fracture opening pressure increases when the angle between the fracture direction and the maximum horizontal stress direction increases. Fracture depth and opening pressure also have positive correlation.

20170366 Dai Liming (College of Marine Geosciences, Ocean University of China, Qingdao 266100, China); Li Sanzhong **3D Numerical Modeling of Oil and Gas Accumulation Process**

Controlled by Da 1 Fault, Chezhen Depression (Geotectonica et Metallogenia, ISSN1001－1552, CN44－1595/P, 40(1), 2016, p. 47－57, 8 illus., 1 table, 54 refs., with English abstract)

Key words: reservoir formation, numerical simulation

20170367 Dong Dazhong (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Wang Yuman **Breakthrough and Prospect of Shale Gas Exploration and Development in China** (Natural Gas Industry, ISSN1000－0976, CN51－1179/TE, 36(1), 2016, p. 19－32, 7 illus., 8 tables, 14 refs., with English abstract)

Key words: shale gas, petroleum exploration, China

20170368 Du Jinhu (PetroChina Exploration & Production Company, Beijing 100007, China); Wang Zecheng **Discovery of Intra－Cratonic Rift in the Upper Yangtze and Its Coutrol Effect on the Formation of Anyue Giant Gas Field** (Acta Petrolei Sinica, ISSN0253－2697, CN11－2128/TE, 37(1), 2016, p. 1－16, 16 illus., 1 table, 27 refs., with English abstract)

Key words: fault－downwarping basins, reservoir formation, Sichuan Basin

20170369 Fang Qian (College of Geosciences, China University of Petroleum, Beijing 102249, China); Xu Huaimin **Characteristics and Genesis of Oil－Gas－Water Immiscible Inclusions in Sandstone Reservoirs** (Acta Petrolei Sinica, ISSN0253－2697, CN11－2128/TE, 37(1), 2016, p. 73－79, 5 illus., 27 refs., with English abstract)

Key words: lithologic reservoir

20170370 Fu Juanjuan (School of Energy Resources, China University of Geosciences (Beijing), Beijing 100083, China); Guo Shaobin **Reservoir Characteristics and Enrichment Conditions of Shale Gas in the Carboniferous－Permian Coal－Bearing Formations of Qinshui Basin** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(2), 2016, p. 167－175, 7 illus., 2 tables, 29 refs.)

Key words: shale, reservoirs, Basin

Qinshui Basin, as one of the most important coal－bearing basins in China, not only has plenty of coal and coal－bed methane resources, but also has a lot of shale reservoirs. Comprehensive experimental methods, including X－ray diffraction, NMR, FIB－SEM, microscopic identification of thin sections and nitrogen adsorption etc. were applied to analyze the characteristics of organic geochemistry, rock and mineral composition and pores evolution of organic－rich shale gas reservoirs. The results show that different types of pores and micro fractures developed here, which provide enough spaces for the storage of shale gas.

20170371 Ge Mingna (Oil & Gas Survey, China Geological Survey, Beijing 100029, China); Zhang Jinchuan **Shale Oil Accumulation Conditions and Resource Calculation of the Shahejie Formation in the Western Sag, Liaohe** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 64－73, 10 illus., 2 tables, 25 refs.)

Key words: shale gas, petroleum exploration, Liaohe Basin

To identify shale oil exploration potential of Shahejie Formation from Liaohe west sag and the controlling factors of shale oil, focused on Es_3 Formation, combined with seismic and logging data, based on an emphasis on organic－rich shale hydrocarbon potential, reservoir property and oil－bearing assessment by the FIB－SEM, automatic helium porosity determination and BET－BJH tests, the shale oil resource calculation methods of Es_3 are analyzed. It is concluded that Es_3 Formation has a good exploration prospect and should be selected as an area with abundant organic matter, moderate thermal evolution, high porosity－permeability and oiliness. In

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contrast, formations with too low thermal evolution or too high content of clay, will be avoided.

20170372 Gong Lei (Science and Technology Innovation Team on Fault Deformation, Sealing and Fluid Migration, Northeast Petroleum University, Daqing 163318, China); Zeng Lianbo **Characteristics of Micro-Fractures and Contribution to the Compact Conglomerate Reservoirs** (Geotectonica et Metallogenia, ISSN1001-1552, CN44-1595/P, 40(1), 2016, p. 38-46, 8 illus., 1 table, 30 refs., with English abstract)

Key words: fractured reservoir

20170373 Gong Xianfeng (No. 3 Oil Production Plant, Zhongyuan Oil Field Company, Puyang 457000, China) **Sedimentary Facies Evolution in the Lower Submember of the Third Member of the Shahejie Formation in the Wei-2 Block, Weicheng Oil Field, Dongpu Depression** (Sedimentary Geology and Tethyan Geology, ISSN1009-3850, CN51-1593/P, 36(1), 2016, p. 85-89, 2 illus., 1 table, 10 refs., with English abstract)

Key words: sedimentary facies, petroleum exploration, Henan Province

20170374 Guo Tonglou (Exploration Company, SINOPEC, Chengdu 610041, China) **Discovery and Characteristics of the Fuling Shale Gas Field and Its Enlightenment and Thinking** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(1), 2016, p. 29-43, 15 illus., 4 tables, 33 refs., with English abstract)

Key words: shale gas, petroleum exploration, Sichuan Basin

20170375 Jiang Yuqiang (School of Geoscience and Technology, Southwest Petroleum University, Chengdu 610500, China); Song Yitao **Fine Lithofacies of China's Marine Shale and Its Logging Prediction: A Case Study of the Lower Silurian Longmaxi Marine Shale in Weiyuan Area, Southern Sichuan Basin, China** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(1), 2016, p. 107-118, 8 illus., 3 tables, 42 refs.)

Key words: shale, lithofacies classification, Sichuan Basin

Fine lithofacies research and prediction of marine shale are of great importance for the successful shale gas exploration. Based on the key parameters of shale and fractures, a lithofacies classification scheme for marine shale is proposed by using TOC content and mineral composition. Combined with TOC, thin section, X-ray diffraction and other core testing data, differences of lithofacies for Longmaxi Formation in the Weiyuan area have been analyzed. Furthermore, based on probabilistic neural network (PNN), shale lithofacies of Longmaxi Formation in the Weiyuan area have been predicted by using well log.

20170376 Jin Zhijun (State Key Laboratory of Shale Oil and Gas Enrichment Mechanisms and Effective Development, Beijing 100083, China); Hu Zongquan **Controlling Factors on the Enrichment and High Productivity of Shale Gas in the Wufeng-Longmaxi Formations, Southeastern Sichuan Basin** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(1), 2016, p. 1-10, 11 illus., 1 table, 20 refs.)

Key words: shale gas, petroleum exploration, Sichuan Basin

Based on a comparison of geological and surface conditions for shale gas in China and America, the authors conclude that marine strata in South China having similar properties to those of America are targets for shale gas exploration, and the Sichuan Basin and its surroundings are favorable exploration areas. Comprehensive analysis of the shale gas reservoir indicates that organic matter content is the principal control on shale gas enrichment, the organic micro-pores are the main reservoir space, horizontal bedding fractures ensure horizontal seepage, and that the high sili-

ceous mineral content ensures good fracturing effect, high pressure coefficient indicates high degree of shale gas enrichment.

20170377 Jiu Kai (Beijing Jingneng Petroleum & Gas Resources Co., Beijing 100022, China); Ding Wenlong **Reservoir Space and Evolution Process of Longmaxi Shale in the Fenggang Area of Northern Guizhou Province** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 195－205, 7 illus., 2 tables, 37 refs.)

Key words: shale, reservoirs, Guizhou Province

Study of shale reservoir space is one of the core contents of shale oil and gas, and shale pores have a great influence on the reservoir capacity and the percolation feature of the reservoir. Microscopic analyses of thin sections, scanning electron microscopy, focused ion beam milling(FIB), field emission SEM(FE－SEM)and Energy Dispersive Spectrometer(EDS) were used to determine the genesis, size, morphology, distribution, connectivity of the Longmaxi shale reservoir in the study area. Based on the genesis of reservoir space and the developing positions of the pores, classification of the reservoir space was analyzed. The reservoir spaces of Longmaxi shale in the study area are divided into inorganic pores, organic pores and fractures.

20170378 Kang Yuan (State Key Laboratory of Continental Dynamics, Northwest University, Xi'an 710069, China); Sun Wei **The Quantitative Analysis of Causes of Low Pressure and the Pressure Evolution in the Niujuanhu Area of Santanghu Basin, Xinjiang** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(1), 2016, p. 103－110, 7 illus., 3 tables, 23 refs., with English abstract)

Key words: petroleum exploration, Xinjiang

20170379 Kong Qingfen (Research Institute of Exploration and Development, PetroChina Changqing Oilfield Company, Xi'an 710018, China); Zhang Wenzheng **Two Types of Sandstone Features and Formation Origin in the Chang 9 Interval of Yanchang Formation, Central Ordos Basin** (Natural Gas Geoscience, ISSN1672－1926, CN62－1177/TE, 27(1), 2016, p. 81－91, 13 illus., 2 tables, 26 refs.)

Key words: reservoirs, Ordos Basin

Due to the prospective drilling, more and more interests have been paid to the Chang 9 interval of Yanchang Formation in central Ordos Basin in the last few years. Despite of its optimum oil production, there are two types of Chang 9 sandstone reservoirs with distinct variation of sedimentary properties in western or eastern field. The three aspects of sandstone characteristics including mineral components, sedimentary facies, and sandstone distribution features are compared to demonstrate differences of features respectively in western or eastern fields in this paper.

20170380 Kong Qingfen (Research Institute of Exploration and Development, PetroChina Changqing Oilfield Company, Xi'an 710018, China); Zhang Wenzheng **Origin of Natural Gas in Ordovician in the West of Jingbian Gasfield, Ordos Basin** (Natural Gas Geoscience, ISSN1672－1926, CN62－1177/TE, 27(1), 2016, p. 71－80, 10 illus., 3 tables, 20 refs.)

Key words: natural gas, genesis, Ordos Basin

Based on the analysis of the geochemical characteristics of natural gas, deepening the understanding of distinguishing the origin of high－over mature gas, this paper investigated the primary source of the natural gas of Ordovician in the west of Jingbian Gasfield by the correlation of gas－gas and gas－source and the analysis of the spacial combination of source－reservoir－cap rocks. The results show that the Ordovician natural gas in the west of Jingbian Gasfield mainly belongs to coal－formed gas and there is some oil－type gas which is characterized by self－generation and self－preservation in local areas.

20170381 Li Fang (Chengdu University of

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Technology, Chengdu 610059) **Potential Exploration Areas of Paleozoic Shale Gas in Sichuan Basin** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 71－75, 5 illus., 22 refs.)

Key words: shale gas, Sichuan Province

Three Paleozoic marine source rocks such as shales of the Lower Cambrian Qiongzhusi Formation and the Lower Silurian Longmaxi Formation and argillutite of the Upper Permian Longtan Formation were developed in the Sichuan Basin. Comprehensive study of the 3 source rocks gives such potential shale gas exploration areas as Leshan－Weiyuan－Ziyang belt for the Qiongzhusi Formation, Qijiang－Zigong belt for the Longmaxi Formation and Qijiang－Yibin－Zigong belt and Wanxian－Dazhou belt for the Longtan Formation.

20170382 Li Wenzheng (PetroChina Hangzhou Research Institute of Geology, Hangzhou 310023, China); Zhou Jingao **Main Controlling Factors and Favorable Zone Distribution of Xixiangchi Formation Reservoirs in the Sichuan Basin** (Natural Gas Industry, ISSN1000－0976, CN51－1179/TE, 36(1), 2016, p. 52－60, 6 illus., 2 tables, 19 refs., with English abstract)

Key words: carbonate reservoirs, Sichuan Basin

20170383 Li Wuguang (Exploration and Development Institute, PetroChina Southwest Oil and Gas Field Company, Sichuan Chengdu 610041, China); Zhong Bing **A New Method for Gas Diffusivity Evaluation in Matrix Rocks of Shale Reservoir** (Acta Petrolei Sinica, ISSN0253－2697, CN11－2128/TE, 37(1), 2016, p. 88－96, 8 illus., 22 refs., with English abstract)

Key words: reservoir prediction

20170384 Liang Xing (PetroChina Zhejiang Oilfield Company, Hangzhou 310023, China); Wang Gaocheng **Comprehensive Evaluation Technology for Shale Gas Sweet Spots in the Complex Marine Mountains, South China: A Case Study from Zhaotong National Shale Gas Demonstration Zone** (Natural Gas Industry, ISSN1000－0976, CN51－1179/TE, 36(1), 2016, p. 33－42, 7 illus., 2 tables, 28 refs., with English abstract)

Key words: shale gas, reservoir evaluation, Yunnan Province

20170385 Liao Zhiwei (School of Earth Sciences and Engineering, Nanjing University, Nanjing 210023, China); Hu Wenxuan **A Preliminary Investigation of the Development and Hydrocarbon Potential of the Black Shales in the Upper Permian Dalong Formation, Southern Anhui Province in the Lower Yangze Region, China** (Geological Journal of China Universities, ISSN1006－7493, CN32－1440/P, 22(1), 2016, p. 138－151, 7 illus., 49 refs.)

Key words: source rocks, petroleum exploration, Lower Yangtze Region

The Upper Permian Dalong Formation in the Lower Yangtze Region with black shales is potential for hydrocarbon source rock. In order to improve the understanding about it, the authors conducted a comprehensively combined study of petrology and organic geochemistry based on three recently－discovered Dalong black shales outcrops in the southern Anhui province, with the aim to characterize the development and hydrocarbon potential of the Dalong black shales. The results show that the black shales developed widely in all the three outcrops, including the Niushan (Xuancheng City), Caicun (Jingxian County) and Changqiao (Jingxian County).

20170386 Liu Shugen (State Key Laboratory of Oil and Gas Reservoir Geology and Exploitation, Chengdu University of Technology, Chengdu 610059, China); Deng Bin **Unique Geological Features of Burial and Superimposition of the Lower Paleozoic Shale Gas across the Sichuan Basin and Its Periphery** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 11－28, 9 illus., 2 tables, 64

refs., with English abstract)
Key words: shale gas, petroleum exploration, Sichuan Basin

20170387 Mao Junli (School of Energy Resources, China University of Geosciences (Beijing), Beijing 100083, China); Jing Tieya **Petrology Types and Organic Geochemical Characteristics of Shale in the Western Depression, Liaohe** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 185－194, 7 illus., 3 tables, 20 refs.)
Key words: shale, reservoir geochemistry, Liaoning Province

Based on the core observation of the Western Sag of Liaohe, combined with rock slice and X－diffraction quantitative analysis of whole rock, this study improves the lacustrine mudstone lithology classification method. According to the new classification scheme, shale can be divided into three types: clay shale, felsic shale and mixed shale. Organic geochemical analysis and hydrocarbon generation kinetic experiments show that the organic matter of the clay shale and mixed shale (including carbonate type) developed in the semi－deep to deep lake with laminated structure is dominated by type Ⅰ－Ⅱ$_1$. It has strong hydrocarbon generation potential, and is followed by felsic shale and massy mudstones.

20170388 Pan Jiping (Strategic Research Center of Oil & Gas Resources, Ministry of Land and Resources, Beijing 100034, China); Lou Yu **Target Post－Evaluation of China's "12th Five－Year" Oil and Gas Exploration and Development Planning and Its "13th Five－Year" Target Prediction** (Natural Gas Industry, ISSN1000－0976, CN51－1179/TE, 36(1), 2016, p. 11－18, 2 illus., 7 tables, 16 refs., with English abstract)
Key words: petroleum exploration, China

20170389 Pan Lei (Research Institute of Petroleum Exploration and Development, Petroleum Exploration and Development Branch, SINOPEC, Chengdu 610041, China); Shen Jishan **Provenance Types and Controlling Factors of the 4th Member of the Xujiahe Formation in the Yuanba－Tongnanba Area, Northeastern Sichuan Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(1), 2016, p. 104－108, 6 illus., 1 table, 10 refs.)
Key words: reservoirs, Sichuan Province

The industrial gas flows have been explored recently in the 4th member of the Xujiahe Formation in the Yuanba－Tongnanba area, northeastern Sichuan. Judged from drill cores and thin section examination, the sediments in the 4th member of the Xujiahe Formation may emanate from several structural belts in the Longmen, Micang and Daba Mountain areas. The fissures may contribute to the improvement of the permeability of the dense sandstones. The fissure development in feldspar－rich sandstones in eastern Yuanba and calcium－rich sandstones and conglomerates in western Yuanba is believed to be most favourable exploration conditions in the 4th member of the Xujiahe Formation.

20170390 Qin Shengfei (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Zhou Guoxiao **Geochemical Evidence of Water－Soluble Gas Accumulation in the Weiyuan Gas Field, Sichuan Basin** (Natural Gas Industry, ISSN1000－0976, CN51－1179/TE, 36(1), 2016, p. 43－51, 5 illus., 5 tables, 34 refs., with English abstract)
Key words: gas fields, Sichuan Basin

20170391 Qin Yanqun (Petroleum Exploration & Development Research Institute, Petro China, Beijing 100083, China); Zhang Guangya **Geological Characteristics and Deep Water Hydrocarbon Accumulation Patterns of Transformed Passive Continental Marginal Basins: A Case History from Basins of West Africa Mar-**

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gin in Equatorial Atlantic (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 229－239, 7 illus., 35 refs., with English abstract)
Key words: deep－basin gas, West Africa

20170392 Qin Yong (Key Laboratory of CBM Resources and Reservoiring Process, Ministry of Education, China University of Mining and Technology, Xuzhou 221008, China); Shen Jian **On the Fundamental Issues of Deep Coalbed Methane Geology** (Acta Petrolei Sinica, ISSN0253－2697, CN11－2128/TE, 37(1), 2016, p. 125－136, 6 illus., 3 tables, 28 refs., with English abstract)
Key words: coalbed gas

20170393 Shan Xiuqin (PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Zhang Jing **Dolomite Karst Reservoir Characteristics and Dissolution Evidences of Sinian Dengying Formation, Sichuan Basin** (Acta Petrolei Sinica, ISSN0253－2697, CN11－2128/TE, 37(1), 2016, p. 17－29, 12 illus., 44 refs., with English abstract)
Key words: carbonate reservoirs, Sichuan Basin

20170394 Shao Longyi (College of Geosciences and Survey Engineering, China University of Mining and Technology (Beijing), Beijing 100083, China); Liu Lei **Characteristics and Influencing Factors of Nanopores in the Middle Jurassic Shimengou Shale in Well YQ－1 of the Northern Qaidam Basin** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 164－173, 10 illus., 4 tables, 37 refs.)
Key words: shale, petroleum exploration, Qaidam Basin

The Northern Qaidam Basin (NQB) is a typical continental limnic basin and is also one of the basins with most shale gas potential. In this paper, the characteristics and influencing factors of nanopores of the shales in the Middle Jurassic Shimengou Formation of Well YQ－1 in the Yuqia area of NQB were studied by using nitrogen gas adsorption, total organic carbon content, organic matter maturity, and X－ray diffraction analyses. The results showed that the nanopore structures in the Shimengou shale are complex, and these nanopores can be subdivided into two types based on the nitrogen adsorption－desorption curves and pore diameter distribution.

20170395 Shi Miao (School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Yu Bingsong **Pore Characteristics and Significance of the Longmaxi Formation Shale Gas Reservoirs in Northwestern Guizhou Province, China** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 206－217, 8 illus., 1 table, 25 refs., with English abstract)
Key words: shale gas, reservoirs, Guizhou Province

20170396 Song Mingshui (SINOPEC Shengli Oil field Company, Dongying 257001, China); Zhao Leqiang **Quantitative Assessment on Trap Oil－Bearing Property in Ultra－Denudation Zones at the Northwestern Margin of Junggar Basin** (Acta Petrolei Sinica, ISSN0253－2697, CN11－2128/TE, 37(1), 2016, p. 64－72, 4 illus., 1 table, 25 refs., with English abstract)
Key words: traps, petroleum exploration, Junggar Basin

20170397 Tan Cong (School of Earth Sciences and Resources, China University of Geosciences (Beijing), Beijing 100083, China); Yu Bingsong **Application of Fluid Inclusion in Evaluating Holes Filling Strength of Carbonate Reservoir: A Case History from Tarim Basin** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 253－263, 7 illus., 3 tables, 25 refs., with English abstract)

Key words: fluid inclusions, reservoirs, Tarim Basin

20170398 Tang Xuan (Key Laboratory of Shale Gas Exploration and Evaluation, Ministry of Land and Resources, China University of Geosciences, Beijing 100083, China); Zhang Jinchuan **The Reservoir Property of the Upper Paleozoic Marine—Continental Transitional Shale and Its Gas—Bearing Capacity in the Southeastern Ordos Basin** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(2), 2016, p. 147—157, 8 illus., 3 tables, 26 refs.)

Key words: reservoirs, Ordos Basin

The Upper Paleozoic marine—continental transitional shale is important gas—rich shale in the Ordos Basin. A series of studies have been carried out on the gas generation and resource potential, but it lacks of detailed reservoir characterization and its impact on the gas content. This constrains the shale gas exploration and exploitation. The results show that the Upper Paleozoic shale contains high TOC (0.5%～11%) and high thermal maturity (1.0%～3.0% R_o), and its organic matter belongs to type III kerogen.

20170399 Tian Zepu (School of Earth and Space Sciences, Peking University, Beijing 100871, China); Liu Bo **Diagenesis of Bioclastic Carbonates of the Cretaceous Mishrif Formation in the Rumaila OilField, Iraq** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 41—50, 6 illus., 2 tables, 32 refs., with English abstract)

Key words: bioclastic sedimentation, Cretaceous, Iraq

20170400 Wang Pengyan (School of Earth Sciences, Northeast Petroleum University, Daqing 163318, China); Li Yaohua **Multiple Provenance Analysis of the Chao 84—6 Well Area during the Deposition of the 4th Member of the Quantou Formation in the Central Depression, Songliao Basin** (Sedimentary Geology and Tethyan Geology, ISSN1009—3850, CN51—1593/P, 36(1), 2016, p. 90—97, 7 illus., 3 tables, 27 refs.)

Key words: petroleum exploration, Songliao Basin

The Chao 84—6 well area was located in the intersection of the Tongyu—Baokang drainage system in the southwest and Changchun—Huaide drainage system in the south of the Songliao Basin during the deposition of the 4th member of the Cretaceous Quantou Formation in the Central depression, Songliao Basin. In the light of heavy mineral assemblages, ZTR indices and sandstone distribution, the authors in this paper contend that the sediment sources may be composed of the provenance I controlled by the Baokang drainage system in the southwest, provenance III controlled by the Huaide drainage system in the south, and provenance II controlled by the double drainage systems.

20170401 Wang Ruyue (School of Energy Resources, China University of Geosciences (Beijing), Beijing 100083, China); Gong Dajian **Brittleness Evaluation of the Lower Cambrian Niutitang Shale in the Upper Yangtze Region: A Case Study in the Cengong Block, Guizhou Province** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 87—95, 8 illus., 1 table, 42 refs.)

Key words: shale gas, petroleum exploration, Guizhou Province

In this paper, the brittleness of Niutitang shale was evaluated and analyzed in the study area based on the data of core mechanical test, array sonic logging, mineral composition and fracture parameters. The results show that the relationship between brittleness and brittle mineral content is not a simple positive correlation. The brittleness and fracability of shale are determined by the content of brittle minerals and TOC (total organic carbon), the degrees of thermal evolution (diagenesis stage) and fracture development. This understanding will guide the exploration and development of

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shale gas and is very helpful for optimizing drilling and fracture stimulation intervals in southern China.

20170402 Wang Xiangzeng (Shaanxi Yanchang Petroleum (Group) Co., Xi'an 710075, China) **Advances in Unconventional Gas Exploration and Development of Yanchang Petroleum Group** (Acta Petrolei Sinica, ISSN0253—2697, CN11—2128/TE, 37(1), 2016, p. 137—144, 9 illus. 26 refs., with English abstract)

Key words: unconventional gas, Ordos Basin

20170403 Wang Xiangzeng (Shaanxi Yanchang Petroleum (Group) Co., Xi'an 710075, China); Zhang Lixia **The Heterogeneity of Shale Gas Reservoir in the Yanchang Formation, Xiasiwan Area, Ordos Basin** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 134—145, 14 illus., 2 tables, 20 refs.)

Key words: shale, reservoirs, Ordos Basin

Chang 7 and Chang 9 shales are the main reservoir for shale gas enrichment in the Yanchang Formation of Ordos Basin. The heterogeneity of the macro framework, geochemical parameters, microscopic pore structure and mechanical parameters was analyzed on the basis of the core analytical data and logging interpretation results of lacustrine shale. The results show that the density and frequency of siliceous lamina are high and the heterogeneity is strong. The siliceous lamina can effectively improve the property of shale, and provide favorable space for free gas enrichment and migration. Shale section with stronger heterogeneity has better physical properties for the free gas seepage and enrichment.

20170404 Wang Xibin (School of Petroleum Engineering, China University of Petroleum, Qingdao 266580, China); Hao Yanzheng **Genetic Research of Flaggy Lacustrine Carbonate in the First Member of Shahejie Formation, Dongying Depression** (Journal of China University of Petroleum, ISSN1673—5005, CN37—1441/TE, 40(1), 2016, p. 27—34, 7 illus., 19 refs.)

Key words: carbonate rocks, sedimentary evolution, Dongying Sag

This study focused on the flaggy lacustrine carbonate reservoir in the first member of Shahejie Formation of the HB area in Dongying Depression. The analysis of the carbonate genesis is through a combination of core observation, thin section and paleontology identification, integration of lithofacies, logging facies and geochemical characteristics. The results show that the carbonate can be divided into early—stage, mid—stage and late—stage sedimentary bodies.

20170405 Wang Yuman (Research Institute of Petroleum Exploration & Development, Petro China, Beijing 100083, China); Wang Shufang **Lithofacies Characterization of Longmaxi Formation of the Lower Silurian, Southern Sichuan** (Earth Science Frontiers, ISSN1005—2321, CN11—3370/P, 23(1), 2016, p. 119—133, 5 illus., 4 tables, 25 refs.)

Key words: shale, lithofacies classification, Sichuan Basin

Lithofacies characterization is fundamental to the geologic evaluation and favorable layers and plays selection in shale gas exploration. Based on the outcrops and drilling data, a lithofacies classification method for marine shale was developed to finely characterize the lithofacies of the Upper Ordovician Wufeng—Lower Silurian Longmaxi shale through analysis of mineral composition, thin section, geochemical and logging data.

20170406 Wu Bingwei (Exploration and Development Research Institute, PetroChina Liaohe Oil Field Company, Panjin 124010, China) **The Cenozoic Stratigraphy in Deepwater Area of Southern Qiongdongnan Basin** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 63—66, 3 illus., 1 table, 7 refs., with English abstract)

Key words: source－reservoir－cap assemblage, Cenozoic, Qiongdongnan Basin

20170407 Xie Shizhang (Drilling and Production Co., CNOOC Energy Technology and Services, Tianjin 300452, China); Xu Hao **Analysis of Classification and Causes of Water Production in CBM Reservoir** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 47－50, 55, 1 illus., 1 table, 17 refs., with English abstract)

Key words: coal reservoirs

20170408 Xu Ming (China University of Geosciences, Beijing 100085, China); Qian Xinyu **Discovery of Oil－Bearing Dolomite in Dazhuoma Area of Qiangtang Basin and Its Significance** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(2～3), 2016, p. 379－382, 2 illus., 15 refs.)

Key words: petroleum exploration, dolostone, Qiangtang Basin, Tibet

The dolomite serves as the most important reservoir which has always been the key to the evaluation and exploration of oil and gas. The oil－bearing dolomite was found recently near the Dazhuoma area, Amdo. The oil－bearing dolomite develops in the Buqu Formation of Middle Jurassic with the thickness over 30 m and the length over 80 m. The rocks are the medium－coarse－graindolomite. The discovery of oil－bearing dolomite in Dazhuoma area expands the distribution and extent of dolomite reservoir, which can provide new basis for the oil exploration and disposition in Qiangtang Basin.

20170409 Xu Xuemin (National Research Center for Geoanalysis, Beijing 100037, China); Wang Shuangqing **Thermal Simulation Experiment for Evolution on Gas－Bearing Properties Evaluating the Influence of Thermal of Shale** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 186－192, 4 illus., 1 table, 19 refs., with English abstract)

Key words: shale gas, hydrocarbon generation, pore structure

20170410 Xu Yaobo (Xi'an Research Institute, China Coal Technology and Engineering Group Corp, Xi'an 710077, China) **Research on the Production Rule and Prevention Method of Pulverized Coal in Horizontal CBM Well** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 43－46, 1 table, 12 refs.)

Key words: coalbed gas

According to the on－site data, this paper identified the formation reason, production rule and prevention method of coal dust in horizontal well. Research results show that the coal dust may produce because of the variation of stress on the borehole, coal rock material components and composition, drill tool grinding, coal seam bending section of well and working system change such as to make the liquid drop rate, the content of clay minerals will greatly influence the output of coal dust as well.

20170411 Yang Yanhui (North China Oilfield Company, PetroChina, Renqiu 062552, China); Meng Zhaoping **Research on Stress Sensitivity of Coal Reservoir and a New Method for Its Evaluation** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 38－42, 46, 1 illus., 4 tables, 15 refs., with English abstract)

Key words: coalbed gas

20170412 Yang Yuning (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Wang Jian **The Susceptibility of the Shale Gas Resources Abundances Based on the Grey Association Analysis** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(1), 2016, p. 109－112, 3 tables, 15 refs.)

Key words: shale gas

The shale gas exploration is developing into a new field of the exploration and devel-

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opment of natural gas in China. Referenced to the representative shale basins in North America and the Lower Palaeozoic shale strata in the Sichuan Basin in China, the present paper focuses on the shale gas accumulation conditions and controlling factors influencing the shale gas resources abundances based on the grey association analysis. The technological processes of this method may be generalized as follows. The result of research in this study may provide one useful approach to the future research of shale gas resources abundances.

20170413 Yu Xuan (Key Laboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Hou Guiting **Quantitative Prediction of Tectonic Fractures of Lower Jurassic Ahe Formation Sandstones in Dibei Gasfield** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 240－252, 10 illus., 2 tables, 45 refs.)

Key words: tectonic fractures, tight sandstone, Tarim Basin

The lower Jurassic low－porosity and low－permeability tight sandstone is a major reservoir of Dibei gas field in the Kuqa depression, Tarim Basin. As a migration channel and reservoir space, the development features and distribution of tectonic fractures is the key to oil and gas exploration and development. This study adopts the latest 3D structural map of the Dibei area, taking geological setting, geometry of strata, and faults into consideration, and divides the Ahe Formation into three sections. Based on the measured rock mechanics parameters, a three dimensional elastic finite element numerical simulation method is used to calculate the maximum principal stress of Pliocene structural stress field in the Kuqa Depression.

20170414 Yuan Jianying (Key Laboratory of Reservoir Description, Northwest Branch of PetroChina Research Institute of Petroleum Exploration and Development, Lanzhou 730020, China); Huang Chenggang **The Characteristics of Carbonate Reservoir, and Formation Mechanism of Pores in the Saline Lacustrine Basin: A Case Study of the Lower Eocene Ganchaigou Formation in Western Qaidam Basin** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(1), 2016, p. 111－126, 8 illus., 4 tables, 70 refs.)

Key words: reservoirs, Qaidam Basin

In recent years, significant progress has been achieved in exploring petroleum of dense reservoir of Eocene in Western Qaidam Basin. It mainly consists of lacustrine carbonate rocks. By combining the petrologic, structural and geochemical methods, most dolomite rocks has the clay crystal structure and minority was algal dolomite. They have characteristics of "medium porosity － ultra －low permeability", which mainly includes micrite dolomite and a little of algal dolomite. The pores of the rocks are mainly the intercrystalline pores, and there are a little of dissolution pores locally.

20170415 Yuan Yuan (State Key Laboratory of Petroleum Resources and Prospecting, China University of Petroleum, Beijing 102249, China); Jiang Zhenxue **Reservoir Characteristics of High Abundance and Low Thermal Stage Lacustrine Shale: An Example from the Middle Jurassic Shale in the Northern Qaidam Basin** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(3), 2016, p. 541－552, 9 illus., 1 table, 14 refs.)

Key words: reservoirs, Qaidam Basin

This study takes Lacustrine Shale of Middle Jurassic, North Qaidam Basin as an example to study rock type, geochemical and mineralogical compositions, porosity structure and gas－bearing features using cores observation, organic geochemical analysis, XRD mineral testing and low temperature nitrogen adsorption, FE－SEM, methane isothermal adsorption, FE－SEM and methane isothermal adsorption. The results show that, com-

pared with marine shale, shale in the study area is characterized by "two high, two low, two types", i. e. high organic matter and clay mineral contents, low thermal maturity and brittle mineral contents. Organic matter types are mainly type Ⅱ and type Ⅲ.

20170416 Yuan Yusong (Petroleum Exploration and Production Research Institute, SINOPEC, Beijing 100083, China); Zhou Yan **Formation Mechanism and Characteristics of Non-Tectonic Fractures in Shales** (Geoscience, ISSN1000-8527, CN11-2035/P, 30(1), 2016, p. 155-162, 7 illus., 1 table, 32 refs.)

Key words: shale, petroleum exploration

On the basis of the previous research and considering the inherent characteristics of shale, a category scheme of shale fractures has been put forward, and the forming mechanisms of the non-tectonic shale cracks has been summarized. According to the core and field observations, the authors briefly depicted the characteristics of the non-tectonic shale cracks. Among the non-tectonic cracks of shale, those bedding cracks formed in the diagenesis and those overpressure fractures induced by under compaction or hydrocarbon generation have close relationship with shale gas accumulation and preservation.

20170417 Zeng Weite (Hainan Geological Survey, Haikou 570206, China); Ding Wenlong **Research on the Fracture Effectiveness of the Lower Cambrian Niutitang Shale in the Southeastern Chongqing and Northern Guizhou Areas** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(1), 2016, p. 96-106, 9 illus., 34 refs.)

Key words: shale, shale fracture, Guizhou Province

Based on the observation and description of Niutitang shale core fractures in southeast Chongqing and north Guizhou Province, the effectiveness of fractures was analyzed quantitatively by using logging and regional geological data, meanwhile, the controlling factors of natural fractures effectiveness were researched qualitatively. The relationship between shale gas content and fractures effectiveness was discussed based on the desorption experiments of shale core. The results show that fractures are abundant in Niutitang shale core. The significant difference between deep laterolog resistivity values and shallow laterolog resistivity values revealed the high effectiveness of natural fractures with wild aperture, steep angle and far extending in longitudinal.

20170418 Zhang Jinchuan (School of Energy Resources, China University of Geosciences (Beijing), Beijing 100083, China); Yang Chao **Deposition and Distribution of Potential Shales in China** (Earth Science Frontiers, ISSN1005-2321, CN11-3370/P, 23(1), 2016, p. 74-86, 5 illus., 2 tables, 37 refs.)

Key words: shale gas, petroleum exploration, China

The tectonic setting that develops shale in China is complex. Located respectively in the northwestern, northern and southern China, Tarim, North China and South China plates are relatively limited while their geological activities are relatively strong. They impact each other and independently control the tectonic movements and sedimentary environment. Furthermore, the three plates have been influenced greatly by the peripheral plates since Mesozoic. Tectonic-sedimentary setting of the plates are very different. As a result, potential shale and shale gas concentrate in middle China with great alternation of deposition and distinguish migration of distribution.

20170419 Zhang Shuangbin (School of Energy Science and Engineering, Henan Polytechnic University, Jiaozuo 455000, China); Su Xianbo **Experimental Optimization of Proppant for Hydraulic Fracturing in Coal Reservoir** (Coal Geology & Exploration, ISSN1001-1986, CN61-1155/P, 44(1), 2016, p. 51-55, 4 il-

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lus., 1 table, 13 refs., with English abstract)

Key words: coalbed gas

20170420 Zhang Shunli (College of Energy Resources, Chengdu University of Technology, Chengdu 610059, China); Song Xiuzhang **Reservoir Characteristics and Controlling Factors in the 4th Member of the Xujiahe Formation in the Xinchang Structural Zone, Western Sichuan Province** (Sedimentary Geology and Tethyan Geology, ISSN1009－3850, CN51－1593/P, 36(1), 2016, p. 98－103, 7 illus., 17 refs.)

Key words: reservoirs, Sichuan Province

With the aid of core observation, thin section examination, CL and SEM, the present paper deals with petrology, reservoir space types and physical properties, and the effects of sedimentary environments, diagenesis, tectonism on reservoir potential of the reservoir rocks in the Xujiahe Formation in the Xinchang structural zone, western Sichuan Province. The diagenetic processes of the reservoir rocks in the study area include compaction, cementation, dissolution and replacement. The favorable reservoir rocks occur in the medium － to fine－grainded sandstones with moderate to good sorting and low matrix contents.

20170421 Zhang Tao (Key Laboratory of Analytical and Testing Techniques, Beijing Center for Physical and Chemical Analysis, Beijing Academy of Science and Technology, Beijing 100089, China); Wang Xiaofei **Study on Influencing Factors in Determining Pore Characteristics of Shale by Mercury Intrusion** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(2), 2016, p. 178－185, 3 illus., 2 tables, 22 refs., with English abstract)

Key words: shale, pore structure

20170422 Zhao Jingzhou (School of Earth Sciences and Engineering, Xi'an Petroleum University, Xi'an 710065, China); Wang Rui **Adsorption Characteristics of Chang 7 Shale from the Triassic Yanchang Formation in Ordos Basin, and Its Controlling Factor** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 146－153, 11 illus., 1 table, 24 refs.)

Key words: shale, reservoirs, Ordos Basin

The Chang 7 Member in the Zhidan－Ganquan region of the Ordos Basin is a set of dark mudstones and shales deposited in a deep lacustrine setting. With high TOC, type II_1 organic matter and *R*o mostly of 0.6% ～ 1.2%, the Chang 7 mudstones and shales are confirmed to be the principal source of the widely distributed oils in the Ordos Basin. In order to discuss the adsorption characteristics of Chang 7 organic－rich shales, the authors analyzed the test results of isothermal adsorption, the content of organic carbon, XRD, thermal maturity and liquid nitrogen adsorption of 16 shale samples chosen from the study area.

20170423 Zhou Lei (Beijing Key Laboratory for Unconventional Gas Geologic Evaluation and Development, China University of Geosciences, Beijing 100083, China); Kang Zhihong **The Geological Conditions for Shale Gas Accumulation in the Lower－Middle Jurassic, the Frontal Areas of the Altun Mountains** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(1), 2016, p. 54－63, 10 illus., 1 table, 32 refs.)

Key words: shale gas, petroleum exploration, Altun Mountains

The complex structural evolution of the Frontal Areas of the Altun Mountains involves early faulted depression stage, middle depression stage and late uplift stage, in which continental lacustrine shale developed in the Early Jurassic faulted depression. Total organic carbon(TOC) content ranges from 1% to 4% and the organic matter maturity varies from 0.8% to 2.5% based on the Rock－Eval pyrolytical data of 25 outcrop samples, indica-

ting that the laminated shale has high organic matter abundance and is in oil and gas generation window, reflecting that the source rock quality is good. The average clay mineral contents and siliceous mineral contents are 52.51% and 37.42%, respectively.

20170424 Zhu Yanming (Key Laboratory of Coal Methane Resouce & Resource Formation Process, Ministry of Education, China University of Mining and Technology, Xuzhou 221008, China); Wang Yang **Qualitative — Quantitative Multiscale Characterization of Pore Structures in Shale Reservoirs: A Case Study of Longmaxi Formation in the Upper Yangtze Area** (Earth Science Frontiers, ISSN1005 — 2321, CN11 — 3370/P, 23(1), 2016, p. 154 — 163, 12 illus., 2 tables, 29 refs.)

Key words: shale, reservoirs, South China

Microscopic pore structures and their primary controlling factors on the Lower Paleozoic Longmaxi shale in the upper Yangtze area were investigated using a field — emission scanning electron microscope, highpressure mercury intrusion, low—temperature nitrogen adsorption and carbon dioxide adsorption. Pore morphology and pore size distributions from macropores to micropores were successfully characterized. Combined with the geochemical parameters and mineral composition, the factors influencing the nanoscale pore structure were analyzed.

20170425 Zuo Zhaoxi (School of Resources and Earth Science, China University of Mining and Technology, Xuzhou 221116, China); Chen Shangbin **Application of Laser Raman Spectroscopy to the Evaluation of the High — and Overhigh — Maturity of Shale and Coal** (Rock and Mineral Analysis, ISSN0254 — 5357, CN11—2131/TD, 35(2), 2016, p. 193 —198, 4 illus., 25 refs., with English abstract)

Key words: shale, Raman spectra, maturity

4. COAL GEOLOGY

20170426 Cao Daiyong (State Key Laboratory of Coal Resources and Safe Mining, China University of Mining and Technology, Beijing 100083, China); Guo Aijun **New Interpretation of Coalfield Tectonic Evolution: From Coal — Forming Basins to Coal — Bearing Tectonic Units** (Coal Geology & Exploration, ISSN1001 — 1986, CN61 — 1155/P, 44(1), 2016, p. 1—8,16, 2 illus., 9 tables, 33 refs., with English abstract)

Key words: mine field structure

20170427 Fang Jiahu (College of Geoscience and Surveying Engineering, China University of Mining & Technology, Beijing 100083, China); Li Zhi **Comprehensive Evaluation of Geological Structure Complexity of 8th Seam in Luling Mine** (Coal Geology & Exploration, ISSN1001 — 1986, CN61 — 1155/P, 44(1), 2016, p. 22 — 26, 30, 3 illus., 3 tables, 12 refs.)

Key words: mine field structure, Shanxi Province

In order to improve the accuracy of the evaluation of geological structure complexity of 8th seam in Luling mine, on the basis of the qualitative evaluation, four evaluation indexes were selected, they were fault density, fault strength, fault strike impact index and fold plane deformation coefficient. Then the grey fuzzy comprehensive evaluation method was used to evaluate the geological structure complexity of 8th seam quantitatively. Four types and their distributions of structural complexity were obtained, which were respectively simple, medium, complex and extremely complex. The above evaluation results are basically in accord with mine actual situation, and their validation is reasonable.

20170428 Jiang Linhua (School of Safety Sci-

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ence and Engineering, Henan Polytechnic University, Jiaozuo 454000, China); Jiang Jiayu **Research on Relationship between Gas Content and Gas Pressure Based on Langmuir Adsorption** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 17－21, 2 illus., 3 table, 20 refs.)

Key words: coal and gas outburst

In order to investigate the relationship between gas content and gas pressure, the Langmuir equation was deduced, the influence factors of adsorption constant was analyzed and summarized, and the internal relation between gas content and gas pressure was illustrated preliminarily. Meanwhile the relevant experimental study and theoretical calculation of coal of different metamorphic grade were carried out. The results show that the adsorption time, the pressure point setting, the temperature and the moisture content are main influencing factors of the Langmuir adsorption constant. The calculation results about gas content and gas pressure by modified Langmuir equation are related to the metamorphic degree. The low gas content may correspond to a high gas pressure in low rank stage, while the situation is opposite in high rank stage. Gas pressure 0.74 MPa and gas content 8 m^3/t is only approximately consistent in lean coal.

20170429 Jiang Wenping (Xi'an Research Institute of China Coal Technology & Engineering Han Baoshan Group Corp., Xi'an 710054, China); Zhang Qun **Effect on CBM Drainage Characteristics of Pore Structure of Tectonic Coal** (Natural Gas Geoscience, ISSN1672－1926, CN62－1177/TE, 27(1), 2016, p. 173－179, 6 illus., 1 table, 22 refs.)

Key words: pore, coal－formed gas

By the mercury injection test and low temperature liquid nitrogen adsorption test, combined with ground coalbed methane (CBM) drainage test, the coal pore structure characteristics and the influence on CBM drainage characteristics were studied. The pore types are mainly the cylinder shaped hole, the ink bottle shaped hole and the slit flat. The pore system of tectonic coal determines the characteristics of the more gas reservoir accumulation and the not unobstructed output channel, which leads to the fluctuation characteristics of the gas drainage of CBM ground well.

20170430 Nie Haogang (Xi'an Institute of Geology and Mineral Resources, Xi'an 710054, China); Zhao Fenghua **Analysis on Coal Facies Characteristics of Jurassic Coal in Turpan－Hami Basin, Xinjiang** (Geoscience, ISSN1000－8527, CN11－2035/P, 30(1), 2016, p. 144－149, 2 illus., 4 tables, 18 refs.)

Key words: coal facies, Tu－Ha Basin, Xinjiang

In order to identify the original coal forming environment of Turpan－Hami Basin, Xinjiang region, this paper utilizing the coal－petrographic method, through the GI－TPI relation diagram, the petrographic characteristics of Jurassic coal in Turpan－Hami Basin are discussed. Four coal facies are divided, i.e.: deep overlying water forest swamp facies, wetland forest swamp facies, wetland marsh facies and low lake marsh facies. By the coal facies analysis, three kinds of coal forming swamp system are divided in the basin, they are river swamp system, hybrid swamp system and lacustrine swamp system. And evidence is provided for the coal－forming environment in Turpan－Hami Basin.

20170431 Wang Yan (School of Geoscience and Technology, Southwest Petroleum University, Chengdu 610500, China); Li Liqin **Inertinite of Coal－Rocks and Its Application to the Paleoenvironment Reconstruction of Peat and Mire** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 375－380, 2 illus., 23 refs.)

Key words: peat, reflectance, paleoenvironment

Inertinite of coal—rocks is a common micropetrological unit of coal and is transformed from fibrous tissue of woods. The inertinite not only identifies carbonization level of plants before forming coals, but also is an effective approach to reconstruct the paleoenvironment of peat and mire. These results are drawn into a histogram, and then get the average inertinite reflectance through calculation. The auto—counter can spot the maceral and the mineral composition in the total of 500 samples, and form an arrow diagram with even space. The inertinite reflectance (R_o) can be calculated by counting the ratio of the maceral in the total volume of the samples.

20170432 Xiao Xiaochun (School of Mechanics and Engineering, Liaoning Technical University, Fuxin 123000, China); Ding Xin **Coal Rock Microscopic Damage Evolution Model and Permeability Increase Mechanism Research under Ultrasound** (Natural Gas Geoscience, ISSN1672—1926, CN62—1177/TE, 27(1), 2016, p. 166—172, 7 illus., 2 tables, 38 refs.)

Key words: permeability, coal rocks

Permeability refers to that under certain pressure difference, material allows fluid through porous media. It is an important physical parameter to describe porous media permeability. Based on the continuum mechanics and phenomenological theory, the theoretical model of effective stress and damage caused by mechanical and thermal ultrasonic irradiating effects was established, considering the significant influence of secondary damage of ultrasound on granular coal and rock permeability in meso—scale. The results show that the ultrasonic effect can effectively improve the permeability of coal and rock particles system, the gradual increase of effective stress is the main reason for the permeability—increase by ultrasound.

20170433 Zhang Aihua (College of Resources Science & Technology, Beijing Normal University, Beijing 100875, China); Tao Mingxin **Advance of Research on the Occurrence State and Content of Nitrogen in Coal** (Coal Geology & Exploration, ISSN1001—1986, CN61—1155/P, 44(1), 2016, p. 9—16, 5 illus., 69 refs.)

Key words: coal

This paper summarizes the current status of research on occurrence state and content of nitrogen in coal. Organic nitrogen is considered as the major mode in coal and exists in the forms of pyridine (N—6), pyrrolic(N—5),quaternary nitrogen (N—Q) and nitrogen oxides (N—X). Relative amount of these four nitrogen—bearing functional groups change with coal rank and the pyrolysis of coal. Studies have shown that nitrogen content in coal varies from 0.5% to 2.5%, and is mainly influenced by several geological factors including coal rank, coal—forming age, depositional environment, coal—forming plants, macerals and magmatic intrusion. At present, study of nitrogen content in coal focuses on the relationship between the nitrogen content and coal rank, and considers that the nitrogen content increases with coal rank, but decreases rapidly in the late stage of coalification.

20170434 Zhang Kunpeng (Key Laboratory of CBM Resources and Reservoir Formation Process, Ministry of Education, School of Resources and Earth Science, China University of Mining and Technology, Xuzhou 221116, China); Jiang Bo **Identification and Distribution of Structure of Seam No. 3 in Xinjing Mine on the Basis of Well Logs** (Coal Geology & Exploration, ISSN1001—1986, CN61—1155/P, 44(1), 2016, p. 123—127, 131, 4 illus., 1 table, 12 refs.)

Key words: coal texture, Shanxi Province

Based on observation and analysis of deformation and distribution of different coal structure, combined with different response characteristics of different coal structure on logs, this paper identifies and divides different

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coal structures of seam No. 3 in Xinjing Mine. The results show that structures of seam No. 3 are primarily of coal of class Ⅰ and class Ⅱ, and locally coal of class Ⅲ develops. The coal structure which has been seriously destroyed mostly develops in the superposition area of tectonic movements of different periods; axis of anticline and syncline, small faults also can be seen in the vicinity. Coal structures suffering minor damage are mainly located in the area with seams of gentle occurrence and wings of folds.

5. GEOTHERMICS GEOLOGY

20170435 Li Xiaolin (Key Lab. of Geo-Environment of Qinghai Province, Environmental Geological Prospecting Bureau of Qinghai Province, Xi'ning 810007, China); Wu Guolu **Suggestions for Geothermal Genetic Mechanism and Exploitation of Zhacang Temple Geothermal Energy in Guide County, Qinghai Province** (Journal of Jilin University, ISSN1671-5888, CN22-1343/P, 46(1), 2016, p. 220-229, 8 illus., 2 tables, 26 refs.)

Key words: geothermal resources, Qinghai Province

The regional distribution of the thermal anomaly is studied by the macroscopic interpretation of satellite remote sensing, aeromagnetic heat and gravity anomalies. On this basis, the heat channel and infiltration channel of the hot spring are analyzed, as well as the geothermal genetic mechanism and exploitation. Covering by the sandy slate, Reguang fault of NNW (F1)is the heat source channel. It belongs to a fracture-deep cycle geothermal system.

20170436 Luo Min (Sichuan Institute of Geological Engineering Investigation, Chengdu 610072, China); Ren Rui **Type, Distribution and Genesis of Geothermal Resource in Sichuan Province** (Acta Geologica Sichuan, ISSN1006-0995, CN51-1273/P, 36(1), 2016, p. 47-50, 2 illus., 1 table, 6 refs.)

Key words: geothermal resources, Sichuan Province

Geothermal resource in Sichuan Province may be divided into bulge mountain and sedimentary basin types based on geological structure and geological setting. They are controlled by feature and landform. This paper makes an approach to genetic models for the two types.

20170437 Wu Haiquan (Institute of Geological Survey of Anhui Province, Hefei 230001, China); Yang Zedong **Distribution Characteristics of Geothermal Resources in Anhui Province and Their Development and Utilization Suggestions** (Journal of Geology, ISSN1674-3636, CN32-1796/P, 40(1), 2016, p. 171-177, 1 illus., 2 tables, 18 refs.)

Key words: geothermal resources, Anhui Province

Anhui Province is rich in geothermal resources, with a huge development and utilization potential. Investigations of geothermal resources in Anhui Province and the regionalized demonstration study showed that the geothermal resources can be divided into the convection type of uplifting mountains and the conduction type of sedimentary basins. The former type is mainly distributed in the Dabie Mountain, Chaohu City-Hexian County and the southern mountainous areas, while the latter type is dominantly distributed in the Bo-Fu faulted basin, Huainan faulted fold belt and Hefei faulted basin. The discovered geothermal fluids in Anhui Province are mostly warm-hot water or warm water, with little hot water.

20170438 Zhao Na (Tianjin Geothermal Exploration Development Designing Institute, Tianjin 300250, China); Wang Guanghui **Geochemical Characteristics and Occurrence Environment of Geothermal Water in Dongli Lake Area, Tianjin, China** (Contributions to Geolo-

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gy and Mineral Resources Research, ISSN1001－1412, CN12－1131/P, 31(1), 2016, p. 142－146, 4 illus., 3 tables, 10 refs.)

Key words: geothermal resources, Tianjin

Dongli Lake area is located in the center of Shan Lingzi geothermal anomaly at the Cangdong fault zone with three geothermal reservoirs. Quality, temperature of the deep reservoir in Ordovician system and Wumishan Formation is suitably calculated with chalcedony geothermometer, temperature of the shallow reservoir in Minghuazhen Formation with the K－Na geothermometern. In Dongli Lake area the geothermal water in Ordovician system and Wumishan Formation is well connected and convects strongly in vertical direction. Reservoir in Minghuazhen Formation is locally supplied with water through vertical cracks in the bedrock.

PALEONTOLOGY

20170439 Li Shoujun (Shandong University of Science and Technology, Qingdao 266590, China); Wang Lili **Study on Paleontological Fossil Characteristics and Protection Plan in Yantai District of Shangdong Province** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(1), 2016, p. 39－46, 1 illus., 6 tables, 26 refs.)

Key words: paleontological fossil, Shandong Province

To operationalize the regulation on the protection of fossils, raise the level of scientific research of fossils, facilitate the reasonable utilization of fossils and coordinate the relationship between the geological heritage protection and economic development in Yantai, first of all, data collection andfield investigation were conducted, specific to identification results and distribution characteristics of fossils. The vertical and horizontal direction distribution characteristic of fossils form Proterozoic to Cenozoic age was obtained on the basis of comprehensive analysis.

1. MICROPALAEONTOLOGY

2. PALEOBOTANY

20170440 Chen Yuxuan (Yunnan Key Laboratory for Palaeobiology, Yunnan University, Kunming 650091, China); Shen Jiajia **Fossil Records of *Marattiopsis*/*Marattia* (Marattiales) in the Mesozoic of China: Diversity, and Geographic and Geological Distributions** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55(1), 2016, p. 98－107, 2 illus., 3 tables, 41 refs.)

Key words: Pteridophyta, Mesozoic, China

Marattiopsis is a fossil genus the Order Marattiales of Eusporangiopsida of important component worldwide. Due to the between fossil and that belongs to the Class pteridophytes. It is an of the Mesozoic floras morphological similarities extant plants, both *Marattiopsis* and *Marattia* have been applied to describe fossil specimens. The diversity and location of the genus declined sharply during the Middle Jurassic, and only occurred in Northeast China. Since the Late Jurassic, the genus completely disappeared from the Mesozoic of China.

20170441 Deng Zhenzhen (Key Laboratory of Orogenic Belts and Crustal Evolution, School of Earth and Space Sciences, Peking University, Beijing 100871, China); Huang Pu **New Observations of *Sphenophyllum Pseudotenerrimum* Sze (Sphenopsida) from the Late Devonian of South China** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55

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(1), 2016, p. 45－55, 5 illus., 2 tables, 34 refs.)

Key words: Sphenophyllum, Devonian, South China Plate

Based on newly collected material from the Wutong Formation of Changxing, Zhejiang Province, the morphological characters and ontogeny of vegetative parts of *S. pseudotenerrirnurn* are studied in this paper. Morphometric analysis indicates that *S. pseudotenerrimurn* probably has intercalary growth that is similar to the *Carboniferous Sphenophyllum* and the extant genus *Equisetum*. For the development of this plant, the activities of intercalary meristems will make the internode length extended, and by this way the axis length increases, while the internode number shows no or little changes.

3. PALEOZOOLOGY

20170442 An Wei (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Kuang Hongwei **Detrital Zircon Dating and Tracing the Provenances of Dinosaur Bone Beds from the Late Cretaceous Wangshi Group in Zhucheng, Shandong Province** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 453－471, 8 illus., 75 refs.)

Key words: Dinosaur Bone, Shandong Province

The mass burial of dinosaur bone fossils in the Upper Cretaceous Wangshi Group in Zhucheng Basin has been a research focus in recent years. However, the provenance of the dinosaur bone fossils and the accurate depositional age of the bone beds remain ambiguous. The authors study the depositional age of the dinosaur bone beds and trace their provenances. The youngest single grain age (YSG) of sample 090414－24－D was 77.3 Ma, representing the maximum depositional age of the dinosaur bone beds. According to the chronological study of Hongtuya Formation of Wangshi group, the authors suggest that the deposition time of Hongtuya Formation should be older than 73.5 Ma.

20170443 Chen Can (China University of Geosciences, Wuhan 430074, China); Chen Xiaohong **Nanzhang－Yuan'an Fauna, Hubei Province and Its Significance for Biotic Recovery** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(3), 2016, p. 409－420, 4 illus., 49 refs.)

Key words: Nanzhang－Yuan'an fauna, Hubei Province

The upper part of the third member of the Lower Triassic Jialingjiang Formation in western Hubei Province is a 30 m－thick laminated limestone, which contains many kinds of marine reptile fossils including such as Hupehsuchia, Ichthyosauria and Sauropterygia and others from Yingzishan and Yangping of Yuan'an County and Xunjian and Gujin of Nanzhang County in western Hubei Province. These marine reptiles form an excellent Nanzhang－Yuan'an fauna characterized by occurrence of abundant Hupehsuchia, which coexists with Ichthyosauria and Sauropterygia.

20170444 Ding Ming (Zhejiang Museum of Natural History, Hangzhou 310014, China); Zhang Qi **New Material of Ephialtitidae (Insecta: Hymenoptera: Stephanoidea) from the Middle－Upper Jurassic of Inner Mongolia, China** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55(1), 2016, p. 87－97, 3 illus., 33 refs.)

Key words: Hymenoptera, Jurassic

Two female insects assigned to Ephialtitidae (Hymenoptera) are described herein from the Middle－Upper Jurassic Daohugou Beds of Ningcheng County, Inner Mongolia, China. Based on one specimen, a new species, *Stephanogaster rasnitsyni* sp. nov., is established and attributed to the subfamily Ephialtitinae, and the other specimen is assigned to Karataus

exilis Zhang, Zhang and Rasnitsyn, 2014 in the Symphytopterinae. The two specimens are housed in the Zhejiang Museum of Natural History.

20170445 Lei Qianping (Natural Department of Changzhou Museum, Changzhou 213022, China) **New Trilobite Materials from the Cambrian Balang Formation in Northwestern Hunan Province** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55(1), 2016, p. 19－30, 5 illus., 55 refs.)

Key words: Trilobita, Cambrian, Hunan Province

The Balang Formation with abundant trilobites is well exposed in northwestern Hunan Province. Two trilobite species *Dinesus bura* (Qiu,1980) and *Eosoptychoparia guizhouensis* Yuan in Zhang et al., 1980 are described herein from two sections of the Balang Formation in Paiwu, Huayuan County, northeastern Hunan Province. The materials found newly from the Balang Formation in northwestern Hunan not only extended the geographic distribution of the two genera but also provide more evidences correlating the Balang Formation between northwestern Hunan Province and other areas.

20170446 Li Xiaobo (College of Earth Sciences, Jilin University, Changchun 130061, China); Zhang Meisheng **Cambrian Trace Fossils and Their Paleoecological Significances from the Huludao Area, Liaoning Province, China** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55(1), 2016, p. 31－44, 5 illus., 96 refs.)

Key words: ichnofossils, Cambrian, Liaoning Province

A Cambrian trace fossil assemblage was discovered in Huludao area, Liaoning Province, China, composed mainly of *Treptichnus pedum*, *Planozites montanus* and *Palaeophycus heberti*. The *Tredtichnus pedum* from the fine－grained sandstone in the upper part of Mantou Formation (Series 2－Series 3), show the feeding trace of priapulid worms. This implied that *priapulids* were major members of the benthic macrofauna at the time. Combined with the fact of the first extensive occurrence of benthic trace fossils were mainly at the upper part of Mantou Formation, their increase might be a result of a regional ecological amelioration event occurring on the North China Platform (Craton).

20170447 Liu Lujun (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China); Yao Zhaoqi **Discovery of *Gigantonoclea Cathaysiana* Yang in the Permian Leping Formation of South China and Its Significance** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55(1), 2016, p. 56－69, 2 illus., 17 refs.)

Key words: Leping Formation, gigantopterides, South China Plate

The cuticle from the Leping Formation of Jiangxi was described and compared with *Gigantonoclea cathaysiana* from the Xiaofengkou Formation (the Lower Shihhotse Formation) of Henan Province. The study results that the fossil cuticle is identical with the latter one and has been ascribed in the same species. Thus, the identification of the cuticle with *Gigantonoclea cathaysiana* will afford a basic fundament for correlation of non－marine Permian strata both from North and South China. Consequently, a major advance in correlation of the Permian coal－bearing strata is made by the present work.

20170448 Qin Yulong (Sichuan Institute of Geological Survey, Chengdu 610081, China); Fan Guoqiang **Discovery of the Cretaceous Key Fossils and Its Significance in Risum, Ngari, Tibet** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 22－24, 3 illus., 1 table, 2 refs.)

Key words: fossils, Cretaceous, Tibet

A great amount of Cretaceous key fossils are discovered in Risum, Ngari, Tibetan. Ac-

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cording to these key fossils, especially, *Orbitolina* (*Columnorbitolina*) *rutogensis* Zhang, *O.* (*Orbitolina*) *birma*nica Sahni, *Stylina parvistella* Volz, *O.* (*Palorbitolina*) *umbellata* Zhang, *O.* (*Palorbitolina*) discaidea, the Middle—Upper Jurassic Lagongtang Formation, Upper Jurassic Laduoren Formation and Upper Jurassic Risum Formation divided by 1: 250 000 regional geological survey in Rutog sheet should be belonged to Lower Cretaceous.

20170449 Shen Zhen (College of Resource and Environment Engineering, Guizhou University, Guiyang 550003, China); Peng Jin **Arthricocephalites (Trilobite) from the Cambrian and Its Stratigraphic Significance** (Acta Palaeontologica Sinica, ISSN0001—6616, CN32—1188/Q, 55(1), 2016, p. 9—18, 2 illus, 33 refs., with English abstract)

Key words: Trilobitoidea, Cambrian, Guizhou Province

20170450 Tang Feng (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100057, China); Zhong Ling **Hydrozoan—Like Ediacaran Fossils from South China** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(1), 2016, p. 1—9, 2 illus., 32 refs.)

Key words: medusoid organisms, South China

An abundant and diversified assemblage of benthic fossils from the Ediacaran Doushantuo black shales in the Wenghui section of Guizhou Province contains two discoidal carbonaceous forms, *Kullingia rotadiscopsis* sp. nov. and *Eoaequorea xingi* gen. & sp. nov. The fossils have well—preserved concentric rings and radiating lines, and resemble many circular casts and moulds in Edia— caran clastic and carbonate rocks in the world, such as *Aspidella*, *Ediacaria*, *Cyclomedusa*, *Eoporpita*, *Ovatoscutum*, *Spriggia* and Kullingia. The Doushantuo carbonaceous macrofossils help us to inquire into the current functional identifications of circular disks as the holdfasts of unknown organism or scratch circles.

20170451 Wang Shiqi (Key Laboratory of Vertebrate Evolution and Human Origins, Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing 100044, China); Deng Tao **Female Preference Promotes Asynchronous Sex Evolution in Elephantiformes** (Vertebrata Palasiatica, ISSN1000—3118, CN11—1905/Q, 54(1), 2016, p. 51—66, 9 illus., 2 tables, 31 refs.)

Key words: Mammalia, Miocene

Sexually dimorphic characters are usually thought to enhance copulatory success by intraspecific competition; for example, larger body size and stronger tusks are sexually dimorphic characters in fossil and extant male proboscideans. Here, the authors show that some sexually dimorphic characters in fossil Elephantiformes, the largest group of proboscideans, are strongly correlated with the evolution of this group rather than direct sexual competition. In Miocene *Platybelodon grangeri* and *Gomphotherium angustidens*, males tended to initially possess evolutionarily more derived characters than females, and females then evolved similar variation. This phenomenon may have occurred as a result of female preference.

20170452 Wang Xari (Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Ji Yannan **Four—Winged Dinosaurs or Sexual Dimorphism of Dinosaurs** (Journal of Geology, ISSN1674—3636, CN32—1796/P, 40(1), 2016, p. 1—6, 10 illus., 12 refs., with English abstract)

Key words: dinosaurs, fossils, Liaoning Province

20170453 Wang Xiaoming (Department of Vertebrate Paleontology, Natural History Museum of Los Angeles County, Los Angeles, California 90007, USA); Wang HongJiang **New Record of a Haplocyonine Amphicyonid in**

Early Miocene of Nei Mongol Fills a Long－Suspected Geographic Hiatus (Vertebrata Palasiatica, ISSN1000－3118, CN11－1905/Q, 54(1), 2016, p. 21－35, 5 illus., 1 table, 47 refs., with English abstract)
Key words: Miocene, Vertebrata, biostratigraphy, Inner Mongolia

20170454 Wang Zhihao (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China); Zhen Yongyi **Review of the Ordovician Conodont Biostratigraphy in the Different Facies of North China** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40(1), 2016, p. 1－16, 7 illus., 41 refs., with English abstract)
Key words: conodonts, Ordovician, North China

20170455 Wu Wenyu (Key Laboratory of Vertebrate Evolution and Human Origins, Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, Beijing 100044, China); Meng Jin **Restudy of the Late Oligocene Dormice from Northern Junggar Basin** (Vertebrata Palasiatica, ISSN1000－3118, CN11－1905/Q, 54(1), 2016, p. 36－50, 4 illus., 1 table, 34 refs.)
Key words: Oligocene, Mammalia, Junggar Basin

A new glirid genus and species, *Gliruloides zhoui*, is named based on specimens from the Late Oligocene Tieersihabahe Mammal Assemblage Zone I (Tie－I zone) of the northern Junggar Basin, Xinjiang. The authors discuss the differences of *Gliruloides* from *Glirulus* and *Vasseuromys* and assign the Anatolian *Vasseuromys duplex* and *Vasseuromys* aff. V. duplex from the Early Miocene of Turkey to *Gliruloides*. It is posited that *Gliruloides* and *Glirulus* may share a common ancestor similar to Glis guerbuezi *from the Lower Oligocene of Thrace, Turkey*. *Gliruloides* might live in a relative wet and warm biotope.

20170456 Xie Junfang (Zhejiang Museum of Natural History, Hangzhou 310014, China); Zhang Shukang **A New Type of Dinosaur Eggs from Early Cretaceous of Gansu Province, China** (Vertebrata Palasiatica, ISSN1000－3118, CN11－1905/Q, 54(1), 2016, p. 79－88, 2 illus., 39 refs., with English abstract)
Key words: dinosaur eggs, Lower Cretaceous, Gansu Province

20170457 Xu Shichao (Shanxi Museum of Geology, Taiyuan 030024, China); You Hailu **A New Hadrosauroid Dinosaur from the Late Cretaceous of Tianzhen, Shanxi Province, China** (Vertebrata Palasiatica, ISSN1000－3118, CN11－1905/Q, 54(1), 2016, p. 67－78, 2 illus., 44 refs.)
Key words: Cretaceous, Hadrosauridae, Shanxi Province

A new non－hadrosaurid hadrosauroid dinosaur (*Datonglong tianzhenensis* gen. et sp. nov.) is reported. The new taxon is recovered from the Upper Cretaceous Huiquanpu Formation of Tianzhen County, Shanxi Province in northern China. Comparative studies indicate advanced non－hadrosaurid hadrosauroids experienced a complex pattern in the evolution of their dentary, especially dentary dentition. Derived hadrosaurid features occurred frequently in these taxa, such as high height/width ratio of tooth crown in Bactrosaurus, one primary and one faint ridges in Gilmoreosaurus, median placed primary ridge in *Zhanghenglong*, rostrally inclined coronoid process in Nanningosaurus, and two functional teeth in each alveolus in *Datonglong*. This implies incredible diversities and attempts close to the origin of Hadrosauridae and difficulties to elucidate their phylogenetic relationships.

20170458 Zhang Zhaoqun (Key Laboratory of Vertebrate Evolution and Human Origins of Chinese Academy of Sciences, Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Scicences, Beijing 100044, China); Yang Rui **Morphology and**

Taxonomy of Gazella (Bovidae, Artiodactyla) from the Late Miocene Bahe Formation, Lantian, Shaanxi Province, China (Vertebrata Palasiatica, ISSN1000－3118, CN11－1905/Q, 54(1), 2016, p. 1－20, 6 illus., 4 tables, 28 refs., with English abstract)

Key words: Miocene, Vertebrata, biostratigraphy, Shaanxi Province

HISTORICAL GEOLOGY & STRATIGRAPHY

20170459 Chen Ruiming (Xi'an Center of Geological Surey, China Geological Survey, Xi'an 710054, China); Chen Fenning **Early Permian Fusuline Assemblages from the Annanba Section, Eastern Altun Mountains** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40(1), 2016, p. 51－56, 5 illus., 1 table, 26 refs., with English abstract)

Key words: biostratigraphy, Permian, Altun Mountains

20170460 Chu Dongru (Geological Survey of Anhui Province, Hefei 230001, China); Liu Jiayun **An Updated Stratigraphic Subivision of the Cambrian System in Anhui Province** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40(1), 2016, p. 85－91, 1 illus., 2 tables, 33 refs.)

Key words: stratigraphy, Cambrian, Anhui Province

Based on the newly measured Cambrian sections and the newly adopted "Stratigraphic Chart of China" with the four－fold subdivision of the Cambrian System, the Cambrian stratigraphy of Anhui Province is revised and updated. The numerical ages of the base of the Cambrian System, the provisional Series 2, Series 3, and the Furongian Series is 541 Ma, 521 Ma, 509 Ma and 497 Ma, respectively. The Cambrian－Ordovician boundary is 485.4 Ma.

20170461 Guo Feng (Hebei Key Laboratory of Environmental Change and Ecological Construction, College of Resources and Environmental Sciences, Hebei Normal University, Shijiazhuang 050016, China); Zhao Can **Pollen Assemblages of *Tamarix* Cone Sedimentary Veins and Environmental Change in the Southern Margin of Taklimakan Desert for about the Last 400 Years** (Acta Palaeontologica Sinica, ISSN0001－6616, CN32－1188/Q, 55(1), 2016, p. 136－144, 5 illus., 1 table, 42 refs.)

Key words: palynological assemblage, paleoenvironment, Taklimakan Desert

The *Tamarix* cone sedimentary vein in arid area is not only a means of counting years, but also contains climate and environment information. Therefore it can be used as an effective method for the research of modern high resolution climate change in arid areas. Based on sedimentary vein counting and the dating methods such as AMS ^{14}C, ^{137}Cs and ^{210}Pb, this paper has established the time series of *Tamarix* cone sedimentary veins in the Damagou, Cele Oasis, Southern margin of the Taklimakan desert, and by means of sporopollen assemblage analysis and WAPLS, reconstructed the paleovegetation and paleoclimate for the last nearly 400 years.

20170462 Guo Jinjing (School of Geology and Geomatics, Tianjin Chengjian University, Tianjin 300384, China); Han Wenfeng **Stratigraphic Framework of Mesozoic－Cenozoic Red Bed in Zhang County, Northern Margin of Western Qinling and Its Geological Significance** (Northwestern Geology, ISSN1009－6248, CN61－1149/P, 49(1), 2016, p. 82－91, 5 illus., 26 refs.)

Key words: conglomerate, stratigraphic framework, sequence stratigraphy

The Mesozoic－Cenozoic red beds are distributed in Zhang County, northern margin of Western Qinling, their stratigraphic frameworks and ages have long been controversial.

After studying the angular unconformities between these red beds and their underlying strata, the angular unconformities among different red beds, analyzing the sedimentary sequence and stratigraphic characteristics of these red beds, and discussing the relationships between these red beds and the faults in the northern margin of Western Qinling, the stratigraphic framework of these red beds in Zhang County has been revised through combining the data of pollen analysis.

20170463 Li Ganyu (Earth Science & Resources College, Chang'an University, Xi'an 710054, China); Li Yongjun **Revision and Regional Correlation of the Hala'Alate Formation in Western Junggar Basin** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40 (1), 2016, p. 76－84, 3 illus., 2 tables, 27 refs.)

Key words: lithostratigraphy, Upper Carboniferous, Junggar Basin, Xinjiang

On the basis of the latest 1∶50 000 regional geological mapping of the Mayitabake area in the western Junggar Basin, the Late Carboniferous Hala'alate Formation is revised. A parastratotype section has been established for the Hala'alate Formation, the original holostratotype section of the Hala'alate Formation as defined by Wang Yujing *et al*. has been modified. The clastic rocks in units 1～6 of the original holostratotype section are reassigned to the Early Carboniferous Baogutu Formation, whereas volcanic and volcaniclastic rocks in the original holostratotype section that were designated as the Lower Permian Jiamuhe Formation by Wang Yujing et al. are now reassigned to the lower Hala'alate Formation. The Hala'alate Formation of revision can be subdivided into seven members and it is Late Carboniferous in age.

20170464 Li Zhensheng (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Nie Feng **Redefinition of Formation Age of Late Paleozoic Strata in the Eastern Junggar Tectonic Zone and Its Implications for Evolution of Regional Geological Structure** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(3), 2016, p. 569－588, 5 illus., 3 tables, 97 refs.)

Key words: sequence stratigraphy, Junggar Basin

Combined with previously published age data for zircons from magmatic rocks and sandstone, the data in this study indicate that the formation age of the most geological bodies was formed between 336 Ma and 268 Ma, with several bodies with ages 336 Ma sporadically exposed mainly along Erqix, Armantai and Kelameili tectonic zones. Most of pre－Carboniferous and Carboniferous marine strata should belong to the Pennsylvanian System, with part being contemporaneous heteropical sediments. The Carboniferous continental strata should be Permian Cisuralian series. The Late Paleozoic oceanic basin in eastern Junggar underwent contemporaneous subduction－collision.

20170465 Lin Hong (Institute of Geological Sciences of Jiangxi Province, Nanchang 330000, China); Zheng Bing **Neogene Sedimentary Facies in the Eboliang Area of the Northern Qaidam Basin** (Journal of Stratigraphy, ISSN0253－4959, CN32－1187/P, 40 (1), 2016, p. 57－62, 4 illus., 1 table, 16 refs.)

Key words: depositional system, Neogene Period, Qaidam Basin, Qinghai Province

Based on the analysis of outcrop sections, drill cores, and 2D seismic data, the Neogene sedimentary facies in the Eboliang area of the northern Qaidam Basin was investigated. Five sedimentary facies were recognized, including alluvial fan, fan delta, braided river, braided fluvial deltas and lacustrine facies. A further study of seismic data suggests that parallel－subparallel seismic reflection may represent largescale lacustrine depositional system. The depositional systems in Eboliang I, Eboliang

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II, and Lenghu area consist mainly of alluvial fan, fan delta and lacustrine deposits. Those in Lenghu VI, Lenghu VII, Eboliang III, and Nanbaxian area consist mainly of alluvial fan, braided river, delta and lacustrine deposits.

20170466 Liu Cangyu (School of Marine Sciences, China University of Geosciences, Beijing 100083, China); Xin Renchen **Application of the Organic Carbon Content in the Sequence Stratigraphy Analysis of the Deep—Water Sediments** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000—3754, CN23—1286/TQ, 35(1), 2016, p. 48—52, 4 illus., 1 table, 31 refs., with English abstract)

Key words: organic carbon, sequence stratigraphy, Songliao Plain

20170467 Liu Gengwu (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China); Li Jianguo **Miocene Fossil Floral Horizons in the Oiyug Basin, Southern Central Tibet, and Related Stratigraphic Problems** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 92—99, 1 table, 24 refs., with English abstract)

Key words: biostratigraphy, Cenozoic, Tibet

20170468 Liu Yue (Institute of Geological Survey of Jilin Province, Changchun 130061, China); Zhang Xuehai **Stratigraphic Sequence and Sedimentary Characteristics of Permian Shuweimenke Formation in Kaerwaxi Area of East Kunlun Mountains of Xinjiang** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 12—14, 2 illus., 3 refs.)

Key words: sequence stratigraphy, Kunlun Mountains, Xinjiang

Describe strata sequence and measured section exposed of Shuweimenke Formation of Permian in Kaerwaxi area of east of Kunlun mountains of Xinjiang Province. Record the rock combination and lateral variation characteristics of the group formation. Research area Shuweimenke formation mainly is a set of carbonate rocks sedimentary sequence, local contains clastic rocks and volcanic clastic rocks. According to analysis the rocks sedimentary characteristics of the strata, the authors oint out that the strata formation sedimentary environment and sedimentary facies.

20170469 Long Wenguo (Wuhan Center of China Geological Survey, Wuhan 430205, China); Zhou Dai **Discovery of Late Ordovician—Early Silurian Graptolites and Its Significance in Daguangba Area of Hainan Island** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(31), 2016, p. 10—14, 2 illus., 21 refs., with English abstract)

Key words: graptolites, sedimentary facies, Hainan Island

20170470 Mai Wen (CNOOC Energy Technology & Services— Oil Field Engineering Research Institute, Engineering Technology Branch, Tianjing 300452, China); Zhu Youhua **Miocene Calcareous Nannofossil Stratigraphy and Palaeoenvironment of the Bd19—2—2 Well in the Qiongdongnan Basin, Northern South China Sea** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 17—25, 4 illus., 20 refs.)

Key words: biostratigraphy, Miocene, Neogene Period, Qiongdongnan Basin, South China Sea

Calcareous nannofossils in Well BD19—2—2, Qiongdongnan Basin, northern South China Sea, were analyzed in this study. Calcareous nannofossils are abundant in the upper part of the Well (1 800～2 550 m), whereas the lower part (2 574～3 100 m) is depauperate in fossils. Nine calcareous nannofossil zones or assemblage zones are recognized on the basis of index fossils. Biozonal fossils defining the lowermiddle Miocene and middle—upper Miocene boundaries are discussed. On the basis of calcareous nannofossil abundance,

diversity and association, the Early—Late Miocene depesitional and paleoenvironmental history of the northern South China Sea is discussed in detail.

20170471 Miao Qiaoyin (Key Laboratory of Ground Fissures and Geological Disasters, Jiangsu Institute of Geological Survey, Nanjing 210046, China); Chen Huogen **A Reconsideration of Age of the Basement Rocks beneath Loose Fluvial Sediments in the Zhenjiang Area along the Yangtze River** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 107—112, 9 illus.,1 table, 7 refs.)

Key words: lithostratigraphy, Cretaceous, Jiangsu Province

The basement rocks beneath loose fluvial deposits in the Zhengjiang area along the Yangtze River have been regarded as the Upper Cretaceous Pukou Formation by previous investigators on the basis of limited outcrop and drill core data. A restudy of drill cores shows that these basement rocks consist mainly of volcaniclastic sediments that are lithologically similar to Lower Cretaceous rocks in this region. Thus, the basement rocks are reclassified as the Lower Cretaceous Shangdang and Gecun formations.

20170472 Shi Chenglong (School of Earth Sciences and Mineral Resources, China University of Geosciences, Beijing 100083, China); Liu Dianbo **Soft—Sediment Structures Developed in Northern part of North China Paleocontinent and Their Constraint on Geodynamic Environment of Sedimentary Basin** (Geological Review, ISSN0371—5736, CN11—1952/P, 62(1), 2016, p. 37—53, 14 illus., 32 refs., with English abstract)

Key words: paleoearthquakes, North China

20170473 Shi Xianbin (Hubei Institute of Geological Survey, Wuhan 430034, China); Wong Maozhi **Sequence Stratigraphy of Middle Permian Gufeng Formation from Selenium—Rich Area in Enshi, Southwestern Hubei Province** (Geology and Mineral Resources of South China, ISSN1007—3701, CN42—1417/P, 32(31), 2016, p. 1—9, 5 illus., 1 table, 27 refs.)

Key words: sequence stratigraphy, Hubei Province

By researching the stratigraphic section, combined with trace element analysis, sequence boundary, sequence division and comparison, in addition the influence of the spatial distribution of selenium of selenium — rich Middle Permian Gufeng Formation was studied. Through comparison analysis, sequence — internal structures and types of basic sequence with transgressions ofthe area was obvious difference, and the sedimentation paleogeographic feature was formed in shallow water in the southern side and deep water in northern side. Through analysis of the coupling relationship of sequence stratigraphy and selenium anomaly, high selenium anomalous character was discovered near Ⅱ — typesequence boundary in Gufeng Formation, that the new prospecting criteria was established.

20170474 Song Mingchun (Shandong Provincial Bureau of Geology and Mineral Resources, Ji'nan 250013, China); Jiao Xiumei **Stratigraphic Sequence and Tectonic Setting of the Jining Group in Shandong Province** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 26—40, 6 illus., 32 refs., with English abstract)

Key words: sequence stratigraphy, Paleoproterozoic Era, Shandong Province

20170475 Wan Qiu (Geological Survey of Anhui Province, Hefei 230001, China) **Sedimentary Facies and Evolution of the Permian Ziqiu Section in Changyang County, Hubei Province** (Journal of Geology, ISSN1674—3636, CN32—1796/P, 40(1), 2016, p. 7—14, 4 illus., 15 refs., with English abstract)

Key words: lithofacies, sedimentary evolution, Hubei Province

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20170476 Wang Lemin (Geological Prospecting Fund Project Management Center of Xinjiang, Urumqi 830001, China); Zhao Tongyang **Discussion on Stratigraphy and Age of the "Kanas Group" in Altay, Xinjiang** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40 (1), 2016, p. 67—75, 3 illus., 2 tables, 32 refs.)

Key words: lithostratigraphy, Sinian, Cambrian, Altai Mountains

This paper presents preliminary results from a study of the lithostratigraphy and metamorphic history of the "Kanas Group" in Altay, Xinjiang. The "Kanas Group" includes a thick succession of flysch deposits with different metamorphic grades. The "Kanas Group" is broken up into four formations, including, in ascending order, the Yilieketasi Formation which is a suite of gneiss and migmatite, the Beiliute Formation which is a suite of crystalline schist, the Sumudaierge Formation which is a suite of median—to fine—grained metamorphic rocks, and the Zhelikaite Formation which is a suite of metamorphosed finegrained clastic sediments. The "Kanas Group" was deposited on a passive continental margin in shallow continental shelf environments, prior to the Early Ordovician closure of the Paleo—Asian Ocean.

20170477 Wang Zhensheng (Research Institute of Exploration and Development, Dagang Oilfield Company, CNPC, Tianjin 300280, China); Tang Ge **Spatial—Temporal Evolution of the Cretaceous Sedimentary Sequences and Basin Filling Patterns in the Termit Basin of West Africa** (Journal of Stratigraphy, ISSN0253—4959, CN32—1187/P, 40(1), 2016, p. 100—106, 6 illus., 10 refs.)

Key words: sequence stratigraphy, Cretaceous, West Africa

The Termit Basin is a Meso—Cenozoic rift basin located in eastern Niger. It is an important sedimentary basin with abundant petroleum resources. The sedimentary sequences and basin filling history of the Termit Basin are complex because of the multi—phase tectonic control, various tectonic styles and multiple sedimentary processes. With the application of sequence stratigraphy, the Cretaceous sedimentary history and basin filling patterns of the Termit Basin were analyzed. The results show that there are three major tectonic evolution phases, various geomorphological backgrounds in basin edge, and five basin filling patterns.

20170478 Wu Zijie (Liaoning Provincial Institute of Geological Exploration, Dalian 116100, China); Wang Xuan **Stratigraphic Framework and Model for Neoproterozoic Qingbaikou Period Rocks in Benxi Area of the Eastern Liaoning Province** (Contributions to Geology and Mineral Resources Research, ISSN1001—1412, CN12—1131/P, 31(1), 2016, p. 87—91, 3 illus., 1 table, 8 refs.)

Key words: sequence stratigraphy, Liaoning Province

Neoproterozoic Qingbaikou System is widely developed and completely outcropped in eastern Liaoning province. The paper uses sedimentology, stratigraphy, sequence stratigraphy and other theory of geosciences to investigate characteristics of petrographic and rock association and spatial distribution pattern of the system, and summarizes the previous researches and divide Qingbaikou System into two sequences III. The internal system tracts of the sequences are studied to establish model, stratigraphic framework of the system in Benxi area showing that evolution of Qingbaikou System at different stages inherited palaeogeographic pattern of the previous stage.

20170479 Yu Bo (Research Institute of Shaanxi Yanchang Petroleum (Group) Co., Xi'an 710075, China) **Characteristic of Upper Paleozoic Sequence Stratigraphy in East—Southern Ordos Basin** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1),

2016, p. 92—100, 7 illus., 1 table, 16 refs., with English abstract)

Key words: sequence stratigraphy, Ordos Basin

20170480 Zeng Yuren (Resources Institute, China University of Geosciences, Wuhan 430074, China); Huang Jianguo **Determination and Its Geologic Significance of Middle Permian Runge Formation in Angdaer Lake Area, Qiangtao Basin, Tibet** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(1), 2016, p. 58—63, 3 illus., 1 table, 18 refs., with English abstract)

Key words: sequence stratigraphy, Tibet

20170481 Zhang Xiaoshi (Sedimentary Institute, Chengdu University of Technology, Chengdu 610059, China); Zhao Bing **Stratigraphic Characteristics of Ziliujing Formation, Jurassic Series and Discovery of Dinosaur Footprints in Dafang, Guizhou Province** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(1), 2016, p. 50—57, 70, 7 illus., 1 table, 4 refs.)

Key words: Dinosau, fossils, sequence stratigraphy, Guizhou Province

In this paper, Ziliujing formation in Lijiawan is described, thelithology association, stratigraphic contact relation and transverse variation are also discussed. According to Bivalia and Estheris fossil assemblage zones, Ziliujing Formation belongs to be low Jurassic system and Xintiangou Formation belongs to middle Jurassic system. Dinosaur footprints were discovered in Ma'anshan section for the first time. According to kithology association and sedimentary structure, Ziliujing Formation is costal lake and shallow lake subfacies of lake facies composed of sand flat, mud flat, sand, mud mixed flat and shell bank microfacies. Ziliujing Formation has been divided into 2 long period base level cycle sequences and 5 middle period base level cycle sequences.

20170482 Zhao Zhongquan (Key Laboratory of Marine Mineral Resources, MLR, Guangzhou, 510760, China); Zhong Guangjian **Cenozoic Sequence Stratigraphy and Seismic Facies Analysis of Xisha Trough Basin in Northern South China Sea** (Marine Geology & Quaternary Geology, ISSN0256—1492, CN37—1117/P, 36(1), 2016, p. 15—26, 7 illus., 2 tables, 24 refs.)

Key words: sequence stratigraphy, South China Sea

The Xisha Trough Basin is a large Cenozoic deep—water sedimentary basin with lower exploration degree, which is located in the western part of the north slope of the South China Sea. New high—precision multichannel seismic data combined with geological character of the surrounding area were used to analyze the sequence stratigraphy of the basin. 8seismic reflection interfaces were identified in the study area. Combined with seismic amplitude cyclic changes, 3 seismic super sequences and 8 seismic sequences were divided for the Cenozoic of the study area, and the top—bottom contact relationship, reflection characteristics, formation thickness, velocity and Ps of each seismic sequence were described in detail.

20170483 Zhou Zhicheng (Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, Nanjing 210008, China); Luo Hui **The Sharp Change between the Ecosystems of Two Organic Deposits across the Permian—Triassic Boundary in the Yudongzi Section, Jiangyou, Sichuan, South China** (Acta Palaeontologica Sinica, ISSN0001—6616, CN32—1188/Q, 55(1), 2016, p. 70—86, 15 illus., 63 refs.)

Key words: ecosystem, Feixianguan Formation, Sichuan Province

The latest Paleozoic colonial coral *Waagenophylium* sp. occurs near the top of the Upper Permian Changxing Formation in the Yudongzi Section of Jiangyou, Sichuan. It is directly covered by the Early Triassic microbialite near the bottom of the Feixianguan

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Formation. The boundary between the Permian and Triassic is also the boundary between the two organic deposits that respectively has specific and complex ecosystems. A sharp change takes place from the coral stratum ecosystem to the microbialite ecosystem. Colonial coral in the former is taken over by benthic microbial assemblage in the latter.

GEOCHRONOMETRY & ISOTOPE GEOLOGY

20170484 Han Qiong (Geological Research Academy of Xinjiang, Urumqi 830000, China); Zhao Tongyang **Zircon U—Pb Age and Its Geological Significance of Biliewutixi Rock Body in Western Altay Mountains** (Xinjiang Geology, ISSN1000—8527, CN11—2034/P, 34(1), 2016, p. 46—53, 7 illus., 2 tables, 34 refs.)
Key words: LA—ICP—MS dating, Altai Mountains

Biliewutixi rock body is main consisted of gneissic gneissose granite, LA—ICP—MS dating age means its crystal age is (469.8±2.9)Ma which belongs to mid—Ordovician. Middle Ordovician to Early Paleozoic ocean crust subduction Asia within the time limit Altai micro landmass land conversion, marking the ancient Asian Early Paleozoic subduction and mountain building is completed, the Altay micro landmass into the continent—arc collision stage.

20170485 He Wenxing (Fujian Institute of Geologic Survey of Province, Fuzhou 350013, China) **Indosinian Rock U—Pb Zircon Age and Geological Significance in Gutian County of Southwestern Fujian Province** (Geology of Fujian, ISSN1001—3970, CN35—1080/P, 35(1), 2016, p. 16—25, 5 illus., 1 table, 10 refs.)
Key words: rock mass, zircon U—Pb dating, Fujian Province

Based on the geological characteristics of Indosinian rock mass and contact relation in Gutian area, in order to determine the age of magmatic intrusion, collecting representative of different types of rock samples to LA—ICP—MS zircon U—Pb dating, the magmatic rock forming age was 232.2 ~ 235.3 Ma and belong to Mid—three Triassic period. Therefore, objectively determined in different periods of granite, is important for studying tectonic movement and the transformation of the Late Paleozoic strata, and prospecting direction indicator.

20170486 Li Fengchun (Shandong Geological Analysis Project Laboratory, The Testing Center of Shandong Bureau of China Metallurgical Geo-logy Bureau, Jinan 250014, China); Hou Minglan **Optimization of Analytical Conditions for LA—ICP—MS and Its Application to Zircon U—Pb Dating** (Rock and Mineral Analysis, ISSN0254—5357, CN11—2131/TD, 35(1), 2016, p. 17—23, 3 illus., 2 tables, 25 refs.)
Key words: ICP—MS, U—Pb dating

During LA—ICP—MS analysis, the key factor influencing data accuracy of sample analysis is whether the sample can be uniformly delivered from the laser sample chamber to the torch of the ICP—MS. An external container between LA and ICP—MS and a multi—channel rotary sampling cell, which can effectively eliminate the sample position effect during the laser ablation was designed for the study reported in this paper. The pattern of aerosol delivered to ICP—MS is approximately continuous and at the same time, this can greatly improve the stability.

20170487 Li Hongwei (Guangdong Geological Survey, Guangzhou 510080, China); Xie Yecai **The SHRIMP Zircons U—Pb Dating and Geological Significance of Dayanshan Pluton in Guangdong Province, China** (Acta Mineralogica Sinica, ISSN1000—4734, CN52—1045/P, 36(1), 2016, p. 91—96, 7 illus., 2 tables, 26

refs.)

Key words: granite, SHRIMP U—Pb dating

According to 1∶50 000 regional geological survey, contact relationship between Dayanshan pluton and the overlying Lower Cretaceous strata(K1b) is unconformity. The Concordia age of the SHRIMP zircon U—Pb dating of granodiorite from Dayanshan pluton is (230.3±3.1) Ma(MSWD=3.1), and it shows that Dayanshan pluton is the product of Indonesian magmatism. Its Al_2O_3 is 13.72%～14.35%, A/CNK is 1.08～1.26, Rb/Sr is 3.27～6.24, and trace element composition is similar to Nanling Indonesian granites. It is the typical crustal transformation type granite (S—type). The research indicates that Dayanshan pluton was formed in the process of syn—collisional orogeny between Indonesian block and Southern China block, and its diagenesis was closely related to the melting of thickened crustal material in the collision process.

20170488 Li Jian (Institute of Geomechanies, Chinese Academy of Geological Sciences, Beijing 100081, China); Zhang Yueqiao **Micromorphology of Quartz in Fault Gouge from the Middle Segment of the Qingchuan Fault Zone and Its Chronological Implications** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(2), 2016, p. 153—162, 9 illus., 1 table, 67 refs.)

Key words: quartz, geochronology

Fault gouge, as the product of the brittle shear deformation in fault zone, records the information of fault slipping mode and activity time. The micromorphology textures of quartz in fault gouge, in particular, can be used to semi—quantitatively estimate a relative time of fault activity. This statistical result indicates that the latest activity time of the middle segment of Qingchuan fault was in late Pleistocene, and no obvious activity happened in Holocene. This viewpoint is well consistent with structural geomorphology investigations along the active fault zone.

20170489 Li Zhao (China University of Geosciences, Beijing 100083, China); Chen Yuelong **Formation and Evolution History on the Northern Qilian Orogen: the Evidences from Compositions of Rivers' Sediments and Their Zircon U—Pb Ages, Hf Isotopic Compositions** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(2), 2016, p. 267—283, 10 illus., 4 tables, 66 refs.)

Key words: stream sediments, U—Pb dating, Qilian Mountains

Through systematic study of geochemistry, zircon U—Pb dating and Hf isotopic compositions on rivers' sediments in the Northern Qilian Orogen, it shows that REE and other trace element patterns of the sediments are consistent with those of upper crust. Generally, the contents of trace elements in sandy sediments are lower than those of silts because of dilution by quartz grains. The higher contents of As, Sb, Cu, and Zn in rivers' sediments indicate a potential prospect of sulfide mineralization in the Northern Qilian Orogen comparing to the abundances of these elements in averaged upper continental crust. Nd model ages are between 1.89 Ga and 1.12 Ga, the average age of which is 1.68 Ga. Nd model ages of sandy sediments in northern and middle segments, the Northern Qilian Orogen are older than those of silts, which imply that nearby provenances contain more basement components than remote provenances.

20170490 Liu Xinyao (School of Earth Science and Mineral Resources, China University of Geosciences, Beijing 100083, China); Dong Guochen **Geochemistry and LA—ICP—MS Zircon U—Pb Dating for Trachyte Porphyry of Hongshan Intrusion in the Southern Taihang Mountains** (Geological Bulletin of China, ISSN1671—2552, CN11—4648/P, 35(1), 2016, p. 43—54, 12 illus., 4 tables, 40 refs.)

Key words: porphyry, zircon U—Pb dating, Taihang Mountains

Based on detailed field investigation, the

authors studied the petrology, geochemistry and geochronology of trachyte porphyry in Hongshan intrusion. Based on the data obtained, the authors hold that Hongshan volcanic rocks originated from partial melting of an EMI－type mantle source, contaminated by LCC. Trachyte porphyry formed in the same time as the Hongshan intrusion in the Mesozoic Cretaceous. Magmatic activities took place in the transformation period of the collision environment, causing the partial melting of the mantle and producing the trachyte porphyry. This might have been one of the important ways of lithospheric mantle thinning.

20170491 Luo Lai (Hunan Institute of Geological Survey, Changsha 410116, China); He Liang **SHRIMP U－Pb Age of Gaojian Group in the Southeastern Margin of Yangtze Craton** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(31), 2016, p. 15－20, 4 illus., 1 table, 29 refs., with English abstract)

Key words: isotope age, basalts, andesite

20170492 Peng Yuan (Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing 100057, China); Ma Yinsheng **SHRIMP Zircon Ages of the Dagangou Volcanic Rocks in the Eastern Kunlun Orogenic Belt and Their Implications** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(2～3), 2016, p. 356－363, 5 illus., 1 table, 24 refs., with English abstract)

Key words: volcanic rocks, orogenic belts, SHRIMP zircon U－Pb age, Kunlun Mountains

20170493 Shen Liang (College of Earth Sciences, Jilin University, Changchun 130061, China); Liu Yongjiang **Zircon U－Pb Geochronology in Halahei Area, Horqin Right and Its Geological Significance Front Banner of Inner Mongolia** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 220－238, 7 illus., 2 tables, 54 refs.)

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

The Halahei stratigraphic cross－section, that is previously identified as Permian Linxi Formation and Jurassic Baiyingaolao Formation, located in the Horqin Right Front Banner, Inner Mongolia, central and southern Great Xing'an Range, has been geochronologically investigated using zircon LA－ICP－MS U－Pb dating in this study. The results presented here show the peak ages of 282 Ma, 317 Ma and 134 Ma, 242 Ma, 284 Ma for the Linxi Formation and the Baiyingaolao Formation, respectively. These data illustrates that the Baiyingaolao Formation should belong to the Cretaceous rather than the Jurassic as previously regarded. The research also reveals that the absence of the Triassic strata in eastern Great Xing'an Range is ascribed to the ablation of structural uplift afterwards.

20170494 Wang Mingyang (College of Geology and Mining Engineering, Xinjiang University, Urumqi 830046, China); Nijiati Abuduxun **Discovery and Geochronology of Khondalite Series in Western Kuluketage, NW China** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p. 17－24, 4 illus., 1 table, 43 refs.)

Key words: lithogeochemistry, Zircon U－Pb dating

High grade metamorphic rocks assemblage characterized by graphite, Al－rich minerals, such as sillimanite, andalusite and cordierite) exposed in western Kuluketage area, petrology and geochronology of which will help to learn more about the basement characteristics of Tarim Craton. Petrological and geochemical characteristics indicate that the rocks assemblage above belong to typical khondalite series and has consanguinity with North China Craton and adjacent regions. The research results above provide a new evidence for Early Precambrian tectonic evolution of Tarim Craton and rehabilitation or reconstruc-

tion of Columbia supercontinent.

20170495 Wang Sai (School of Earth Sciences and Resources, China University of Geosciences, Beijing 100083, China); Ye Huishou **Zircon U－Pb Chronology, Geochemistry and Hf Isotopic Compositions of the Huoshenmiao Pluton, Western Henan Province** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(2), 2016, p. 293－316, 8 illus., 4 tables, 93 refs.)

Key words: U－Pb dating, Henan Province

The Huoshenmiao pluton located in the west of the Luanchuan ore district, southern margin of the North China Craton (NCC) is mainly composed of quartz diorite, monzo－granite and granite porphyry. The Huoshenmiao pluton is closely related to the Huoshenmiao Mo deposit. Geochemistry and zircon Hf isotope show that the Huoshenmiao pluton belongs to I－type granite, and it results from ascending magma formed by partial melting of different source regions. The quartz diorite stems from remelting of the enriched mantle, while the monzo－granite and granite porphyry are the products of mafic magma derived from remelting of the enriched mantle mixed with felsic magma derived from remelting of the Taihua TTG.

20170496 Xiang Anping (Institute of Mineral Resources, China Academy of Geology Sciences, Beijing 100037, China); She Hongquan **Ar－Ar Age of Muscovite from the Greisenization Alteration Zones of the Honghuaerji Tungsten Polymetallic Deposit, Inner Mongolia, and Its Geological Significance** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 108－116, 4 illus., 1 table, 21 refs.)

Key words: tungsten ores, Ar－Ar dating, Greater Hinggan Mountains

The newly found Honghuaerji tungsten polymetallic deposit is a large scale tungsten deposit in northeast Daxinganling in China. The alteration includes sericitization and greisenization. The metallic minerals are scheelite and molybdenite. These minerals in rock body show the belt characteristics of W in the top and Mo in the bottom. Geological characteristics indicate that it is a high temperature hydrothermal deposit. In order to constrain the timing of hydrothermal activities, Ar－Ar dating of muscovite from the greisenization alteration zones was carried out. The Ar－Ar dating yields an Ar－Ar plateau age of (174.4±1.2) Ma and an isochron age of (173.2±4.3) Ma. Combined field geology, U－Pb ages and Re－Os ages indicate this deposit formed during the Jurassic period and may be the product of Yanshanian tectonic magmatic activity.

20170497 Yang Bin (School of Geosciences and Info－Physics, Central South University, Changsha 410083, China); Liu Jianming **Carbon and Oxygen Isotopic Evidences of Hydrothermal Sedimentary Mineralization in Silurian Period in Southeastern Guangxi** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1), 2016, p. 135－140, 7 illus., 2 tables, 13 refs.)

Key words: carbon isotopes, oxygen isotopic, hydrothermal sedimentary, Guangxi

Silurian stratum is the main ore－bearing horizon of Pb－Zn deposits in Bobai－Cenxi area of southeastern Guangxi, where occurs the stratified Pb－Zn deposits in Fozichong and Dongtao. Their directly ore－bearing wall rocks are stratified green rocks and carbonate rock interlayers in clastic rock strata of lower Silurian series. The results of carbon and oxygen isotope detection show that the $\delta^{18}O$ value of the carbonate rock interlayers inside the ore－bearing horizon is lower than that of normal marine limestone.

20170498 Yang Li (State Key Laboratory of Continental Tectonics and Dynamics, Institute of Geology, Chinese Academy of Geological Science); Chen Wen **Ages and Geochemistry of the Erbeng Granite in Southern Tianshan Oro-**

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genic Belt, Xinjiang: New Constraints on the Tectonic Evolution of the Southern Tianshan Ocean (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(1), 2016, p. 152－166, 12 illus., 3 tables, 76 refs.)

Key words: granite, zircon U—Pb age, Tianshan Mountains

Erbeng plutons are located along the South Tianshan Late Paleozoic intrusive rock belts. LA—ICP—M S dating yielded a zircon U—Pb age of (296.1±1.8) Ma(MSWD 0.05), suggesting that this body was emplaced in the Early Permian. Geochemically, they show transition features from I to A type granites. This age, together with their geochemical signatures of I—A type granite and the zircon saturation temperatures of 819～837 ℃, indicates that this body was emplaced at a transition stage from syncollision to post－collision. From the zircon U—Pb ages combined with regional geological background, the authors infer that the southern Tianshan Ocean might have been closed at least before the beginning of the Early Permian.

20170499 Yang Xue (College of Chemistry and Molecular Engineering, Qingdao University of Science and Technology, Qingdao 266042, China); Li Chao **A Rapid Method to Determine the Re－Os Age and Re Content of Molybdenite by Inductively Coupled Plasma－Mass Spectrometry** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 24－31, 1 illus., 4 tables, 30 refs.)

Key words: molybdenite, ICP－MS

Re－Os isotope method is a powerful tool for dating ore deposits, but digesting samples with the Carius tube is complicated and dangerous. A simple and quick method to determine the age of molybdenite Re－Os and Re content has been established. This method, without spike addition, can avoid the trouble of sealing and opening the Carius tube and the process of separating and purifying Re and Os, which significantly improves the experimental efficiency.

20170500 Yu Xinqi (School of Earth Science and Resources, China University of Geosciences, Beijing 100085, China); Chen Ziwei **LA－ICP－MS Zircon Age of Volcanic Rock of Shiling Formation in Tunxi Area, South Anhui Province, and Redetermination of Its Epoch** (Geological Bulletin of China, ISSN1671－2552, CN11－4648/P, 35(1), 2016, p. 175－180, 4 illus., 1 table, 15 refs.)

Key words: rhyolites, U－Pb dating, Anhui Province

The Tunxi area in south Anhui Province is located in the eastern segment of the Jiangnan Neoproterozoic Orogen and possesses some volcanic rocks of Shiling Formation like rhyolite and tuff. Based on the K－Ar age 115－139 Ma by 1∶50 000 regional geological survey, previous studies believed that these volcanic rocks of Shiling Formation from Tunxi area were formed during Late Jurassic to Early Cretaceous. Owing to the change of the Jurassic－Cretaceous boundary from 135 Ma to 145 Ma (revised by International Commission on Stratigraphy), the Shiling Formation has thus changed its formation epoch from Late Jurassic－Early Cretaceous to Early Cretaceous.

20170501 Zeng Zhongcheng (Shaanxi Center of Geological Survey, Xi'an 710016, China); Lin Lujun **Geochronological and Geochemical Characteristics and Tectonic Implications of Qiong'amutaike Pluton in Northeastern Pamir** (Journal of Jilin University, ISSN1671－5888, CN22－1343/P, 46(1), 2016, p. 119－134, 9 illus., 4 tables, 31 refs.)

Key words: isotope age, geochemistry, Pamirs

Qiong'amutaike pluton located at Qiangtang Block in the northeastern Pamir has a close relationship with Bangong Lake－Nujiang suture zone. Based on the tectonic environment of the region, the authors suggest that Qiong'amutaike pluton and evolved into

the rich—potassium series from the mid—potassium calc—alkali rock series, generated in a transitional setting of syn—collisional (compressional) and post—collisional (extensional), indicating the collision between Qiangtang massif and Gangdisi massif. These rocks are post—orogenic granites.

QUATERNARY GEOLOGY & GEOMORPHOLOGY

20170502 Bai Peirong (Guizhou Geological Survey, Guiyang 550018, China); Ma Desheng **The Characteristics of Sedimentary Environment of Upper Carboniferous—Lower Permian Laigu Formation in Jiuzila Area of Tibet** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(1), 2016, p. 64—70, 4 illus., 12 refs.)

Key words: glaciation, Tibet

The study area located at the north—central Gangdise belt. It drifts toward north when the glaciations occurred at the northern margin of Gondwanaland in Carboniferous and Permian of Late Paleozoic. According to the profile measurement and route survey, the lithology of Laigu Formation are mixed deposits include caustic rock clip carbonate rock and glacial erratic boulder. Through the analysis of the gravel in the sediments at the first—third sections of Laigu Formation, the authors established a glacial sedimentary sequence and reshaping the glacial event, and restore the ancient landform at the study area.

20170503 Cao Xiaoyue (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjiag 210023, China); Yin Yong **Sedimentary Records and Environmental Evolution of the Core Ldb01 in Lingshui County, Hainan Island** (Quaternary Sciences, ISSN1001—7410, CN11—2708/P, 36(1), 2016, p. 31—43, 6 illus., 3 tables, 33 refs., with English abstract)

Key words: Holocene, sedimentary facies, sedimentary environment, Hainan Province

20170504 Dai Chen (Collaborative Innovation Center of South China Sea Studies, Nanjing University, Nanjing 210023); Gao Shu **Shallow Seismic Stratigraphic Records of Holocene Geomorphological Dynamics from Barrier—Lagoons of Southeast Hainan Island** (Quaternary Sciences, ISSN1001—7410, CN11—2708/P, 36(1), 2016, p. 57—65, 6 illus., 1 table, 35 refs.)

Key words: sedimentary evolution, Holocene, Hainan Province

20170505 Dai Yan (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023, China); Wang Xianyan **The Neotectonic Activity of Wanchuan Catchment Reflected by Geomorphic Indices** (Acta Geographica Sinica, ISSN0375—5444, CN11—1856/P, 71(3), 2016, p. 412—421, 6 illus., 1 table, 36 refs., with English abstract)

Key words: morphostructures, regional tectonics, Qinghai—Tibetan Plateau

20170506 Dong Tingting (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023, China); Ge Chendong **Distribution of Inorganic Carbon Characteristics and Its Significance in the Surficial Sediment of Xincun Lagoon, Lingshui, Hainan Island** (Quaternary Sciences, ISSN1001—7410, CN11—2708/P, 36(1), 2016, p. 86—92, 4 illus., 34 refs., with English abstract)

Key words: sediments, Hainan Province

20170507 Duan Guiling (Wuhan Center of Geological Survey, China Geological Survey, Wuhan 430205, China); Duan Ruichun **Improvement on Effective Separation between Cadmium and Tin in Soil Samples for the Determination of Cadmium Isotopic Composition** (Rock and Mineral Analysis, ISSN0254—

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5357, CN11－2131/TD, 35(1), 2016, p. 10－16, 1 illus., 4 tables, 21 refs., with English abstract)
Key words: soils, ICP－MS

20170508 Gao Shu (Collaborative Innovation Center of South China Sea Studies, Nanjing University, Nanjing 200023, China); Zhou Liang **Processes and Sedimentary Records for Holocene Coastal Environmental Changes, Hainan Island: An Overview** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 1－17, 127 refs., with English abstract)
Key words: sedimentary evolution, Holocene, Hainan Province

20170509 Guan Junlei (Chengdu Center of China Geological Survey, Chengdu 610081, China); Geng Quanru **Petrology, Petrochemistry and Zircon U－Pb Dating and Hf Isotope Features of Xiamari Granites in Tanggula Magmatic Belt, Qinghai－Tibetan Plateau** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(2), 2016, p. 304－333, 4 illus., 41 refs., with English abstract)
Key words: stalagmites, paleoclimate

20170510 Jia Peihong (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023, China); Xu Wei **The Evolution of Coastal Geomorphology Pattern in Recent 26 Years and Its Spatial－Temporal Distribution around the Two Lagoonal Areas in Lingshui County, Hainan Island** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 103－112, 9 tables, 25 refs., with English abstract)
Key words: landforms, Hainan Province

20170511 Li Gaocong (Collaborative Innovation Center of South China Sea Studies, Nanjing University, Nanjing 210023, China); Gao Shu **Geomorphological Evolution of Major Catchment Basins of Hainan Island, Southern China** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 121－130, 3 tables, 46 refs., with English abstract)
Key words: landforms, Hainan Province

20170512 Li Wensheng (Guangdong Institute of Geological Survey, Guangzhou 510080, China); Dou Lei **Element Geochemical Characteristics and Controlling Factors of the Quaternary Sediments in the Pearl River Delta Plain** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(31), 2016, p. 68－77, 5 illus., 3 tables, 18 refs.)
Key words: sediments, elements geochemistry, Quaternary, Zhujiang River Delta

Based on multi－purpose regional geochemical survey in Pearl River Delta Economic Zone, quaternary sediments of 44 cores were emplaced in the Pearl River delta plain. Totally 39 elements and indicators for soils and sediments were determined. The results indicate that the average concentrations of most elements in sediment were significantly enriched, the heavy metal elements Cd、Hg、Cu、Pb、Zn、Ni and As have accumulated remarkably, especially. Element type and enrichment degree are distinguishing in different area of the Pearl River delta pain. The main enrichment areas are West River and North River alluvial, Tan River and East River alluvial are the background area. The main factors that control the element contents of sediments in this area are the source material and the change of sedimentary environment.

20170513 Li Xiang (School of Geosciences, China University of Petroleum, Qingdao 266580, China); Li Rihui **Quaternary Magnetostratigraphy Recorded in the Sediments of Core Tjc－1 in the Western Bohai Sea** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 208－215, 30 refs., with English abstract)
Key words: magnetostratigraphy, Bohai Bay

20170514 Li Xiao'an (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023, China); Yin Yong **The Evolution of Sedimentary Environment of Lingshui Barrier — Lagoon Coast since the Late Pleistocene, Southeastern Hainan Island** (Quaternary Sciences, ISSN1001—7410, CN11—2708/P, 36(1), 2016, p. 44—56, 2 tables, 31 refs., with English abstract)

Key words: Holocene, Upper Pleistocene, sedimentary evolution, Hainan Province

20170515 Liu Shuhua (School of Geography, South China Normal University, Guangzhou 510631, China); Huang Jiayi **A Speleothem $\delta^{13}C$ Record and Control Mechanism during 120～103 ka B. P. from Northern Sichuan Province, Central China** (Acta Geologica Sinica, ISSN0001—5717, CN11—1951/P, 90(2), 2016, p. 334—340, 4 illus., 25 refs.)

Key words: stalagmites, paleoclimate, Sichuan Province

A stalagmite(SZ2) collected from Suozi Cave in northeastern Sichuan, China, established with δ13C data, provides a high—resolution spleothem $\delta^{13}C$ time series during 120～103 ka. The SZ2 $\delta^{13}C$ record appeared to be significantly different from the long — term change trend of the $\delta^{13}O$ record. The $\delta^{13}C$ record and growth rate of SZ2 show the consistency in the whole trend, which mainly reflected that CO_2 degassing and carbonate sediment influenced by drip rates over a speleothem surface influence the SZ2 $\delta^{13}C$ record on the long—time scale. On a short time scale, the SZ2 $\delta^{13}C$ record appeared to be consistent with the change trend of the $\delta^{13}O$ record. The SZ2 $\delta^{13}C$ record may be mainly influeneed by vegetation above the cave(proportion of C_3 to C_4 plant), density of vegetation, soil microbial activity and cave ventilation.

20170516 Ma Zhenhua (Key Laboratory of Western China's Environmental Systems & College of Earth and Environmental Sciences, MOE, Lanzhou University, Lanzhou 730000, China); Li Xiaomiao **Extraction and Analysis of Maxianshan Planation Surfaces in Northeastern Margin of the Tibetan Plateau** (Acta Geographica Sinica, ISSN0375—5444, CN11—1856/P, 71(3), 2016, p. 400—411, 6 illus., 3 tables, 51 refs., with English abstract)

Key words: planation surfaces, Qinghai—Tibetan Plateau

20170517 Meng Jie (School of Geographical Science, South China Normal University, Guangzhou 510631, China); Wen Xiaohao **Grain—Size Distribution along the Tumen Section of Southern Tengger Desert, Northwestern China and Its Paleoclimatic Implications during the Last Deglacial** (Marine Geology & Quaternary Geology, ISSN0256—1492, CN37—1117/P, 36(1), 2016, p. 165—176, 6 illus., 3 tables, 22 refs.)

Key words: grain size, Last Deglacial, Tengger Desert

The Tumen sequence(41LD—52L)at the southern edge of the Tengger Desert in the northwestern China covers the time span of 14930—11640 aB. P. synchronously with the last Deglacial. It consists of 3 layers of loess—like sandy loams, 2 layers of sandy loess, 2layers of lacustrine facies, and 2 layers of paleosol. The results of grain — size analysis show that silty sands dominate the major proportion ranging from 21.69% up to 79.47% with an average of 50.33%; Sands comes the second with a distribution range of 3.97%～75.37% and an average of 38.17%; The lowest proportion is clay, ranging from 2.34% to 34.02% with an average of 11.50%.

20170518 Pan Zhixin (School of Geography and Planning, Sun Yat—Sen University, Guangzhou 510275, China); Peng Hua **A Study of the Development of Red Bed Landforms in Zion National Park, the United States** (Acta Geoscientica Sinica, ISSN1006—3021, CN11—3474/P, 37(1), 2016, p. 116—126, 9 illus., 4 tables, 30 refs.)

Key words: red beds, Danxia landform,

United States

As the research on red beds and Danxia landforms in China is becoming increasingly known by geoseientists outside China, it is quite necessary for Chinese researchers to know and understand red beds and their geomorphic development in other countries. Based on field investigation and analysis of rock samples, this paper looks at the developmental mechanism of landforms in Zion National Park from the aspects of geological setting, lithological features, and exogenic forces. In terms of general geologic structure, Zion is a fault block formed on the western margin of the Colorado Plateau. Moreover, this study also found that rock hardness values do not positively correlate with mountain slopes in Zion. The uniformity of a certain rock layer can also affect mountain slopes.

20170519 Sun Jiaopeng (China University of Petroleum, School of Geosciences, Qingdao 266580, China); Chen Shiyue **Early Neoproterozoic Glacier Event in Oulongbuluke Block: Evidence from CIA Index** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(1), 2016, p. 29－36, 2 illus., 1 table, 32 refs.)

Key words: glacier event, Neoproterozoic Era, Qinghai Province

Most of the ICV results on the collectted glutenite samples from the bottom of Quanji group (including Mahuanggou Formation and Kubaimu Formation), Quanji Mountain and Oulongbuluke Mountain outcrops in Oulongbuluke block, greater than 1 or less than 1. That means the glutenite sedimentary in the bottom of Quanji Group is an initial sedimentary formed in the district with intense tectonic activity. With the summary on the previous chronology studies, the authors limit sedimentation time of glacial deposit formation with a large number of low CIA indexes glutenites during (780±20) Ma to (740±16) Ma and correspond it to the international Kaigas glacial epoch and Beiyixi glacial epoch.

20170520 Tian Qingchun (College of Geographical Science, Shanxi Normal University, Linfen 041000, China); Yang Taibao **Variation Characteristics and Influencing Factors of Organic Carbon Isotope from Palaeolake Sediments in Hoh Xil Area** (Acta Sedimentologica Sinica, ISSN1000－0550, CN62－1038/P, 34(2), 2016, p. 260－267, 4 illus., 49 refs.)

Key words: lake sediments, Middle Pleistocene, Qinghai－Tibetan Plateau

A multiproxy record, including grain size, organic carbon and nitrogen, and the stable isotope compositions of organic carbon ($\delta^{13}C$) obtained from Core BDQ06 in the marginal Hoh Xil area, Tibetan Plateau, provided evidence for climate change since Mid－Pleistocene. The influencing factors and variation characteristics of organic carbon isotope were reviewed. The organic carbon content is controlled by autophyte from lake. The variation of organic carbon isotope is mainly related to the ratio of emergent plant to submerged plant, indicating fluctuation of lake level. Variations of the $\delta^{13}C$ can be used to estimate various sources of organic matter in the aquatic environment. The higher $\delta^{13}C$ values and lower C/N ratios show the dominance of the submerged plant in the lake, and may reflect higher lake level and more moderate climate. The lower $\delta^{13}C$ value is attributed to contributor of emergent aquatic plant and planktont, which used atmospheric CO_2 for photosynthesis, indicating lower lake level and drier climate.

20170521 Wang Shuang (Key Laboratory of Marine Hydrocarbon Resources and Environment Geology, Qingdao Institute of Marine Geology, Ministry of Land and Resources, Qingdao 266071, China); Wang Yonghong **Magnetic Properties and Provenance of Surface Sediments in the Bohai and Yellow Seas** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 216－226, 4 illus., 45 refs., with English abstract)

Key words: magnetostratigraphy, Yellow

Sea, Bohai Sea

20170522 Wu Hong (Institute of Remote Sensing Application of Guilin University Technology, Guilin 541004, China); Jia Zhiqiang **Non-Glacial Origin of the Great Cobblestones in the Highest Peak Area of Mao'er Mountain in Guangxi: Evidence from Remote Sensing, Geology and Morphology** (Acta Geologica Sinica, ISSN0001-5717, CN11-1951/P, 90(3), 2016, p. 500-512, 13 illus., 48 refs.)

Key words: glacial features, Guangxi

At the main peak area of Mao'er Mountain, so-called The First Peak of South China, are distributed with some blunt shaped granite boulders. This study aimed at whether they are glacial origin and its significance to clarify the phenomenon. For this reason, the authors carried out the research from the perspective of remote sensing, geology and geomorphology etc. Multi-scale and multi-mode geomorphology interpretation using TM, Quickbird-2 and TM-DEM, shows that the main peak position of Mao'er Mountain does not have the geomorphic environments for formation of glaciers drift gravels. It is concluded that the granite boulder distributed at Mao'er Mountain peak area formed jointly from the factors, such as faults, weathering and denudation, and slope gravity. They are only the product of simple weathering and collapse from the bedrock of main peak, rather than glacial boulders.

20170523 Ye Xiang (Laboratory for Coast & Ocean Geology, Third Institute of Oceanography, State Oceanic Administration, Xiamen 361005, China); Xu Yonghang **Variations in Sediment Source and Marine Environment Characteristics during the Late Holocene on the Continental Shelf off Southeastern Hainan Island** (Quaternary Sciences, ISSN1001-7410, CN11-2708/P, 36(1), 2016, p. 18-30, 3 tables, 72 refs., with English abstract)

Key words: marine sediments, Holocene, Hainan Province

20170524 Zeng Fangming (Qinghai Institute of Salt Lakes, Chinese Academy of Sciences, Xining 810008, China) **Provenance of the Late Quaternary Loess Deposit in the Qinghai Lake Region** (Earth Science, ISSN1000-2383, CN42-1233/P, 41(1), 2016, p. 131-138, 2 illus., 1 table, 42 refs., with English abstract)

Key words: loess, Quaternary, Qinghai Province

20170525 Zhang Feng (Key Laboratory of Oasis Ecology, Ministry of Education, Xinjiang University, Urumqi 830046, China); Fu Xudong **Relationships between Oxygen Isotope Compositions of Quartz and Grain Size from Dune Sands and Fluvial-Lacustrine Sediments in the Taklimakan Desert** (Geological Review, ISSN0371-5736, CN11-1952/P, 62(1), 2016, p. 73-82, 6 illus., 1 table, 66 refs.)

Key words: quartz, oxygen isotopes, Loess Plateau

Oxygen isotopic composition of quartz has been regarded as a good source tracer, and grain size analysis is widely applied to investigate sedimentary environment. However, there are few studies combining quartz $\delta^{18}O$ values with granulometry to explore provenance of aeolian sands in the Chinese deserts. In this paper, oxygen isotopic compositions of quartz in various size fractions and grain-size distribution were determined for fluvial-lacustrine sediments and dune sands from the Taklimakan desert, western China. The results show that dune sands are generally composed of very fine sand and fine sand, whereas fluvial-lacustrine sediments are almost dominated by silt and clay.

20170526 Zhang Huasheng (School of Geographical Sciences, Southwest University, Chongqing 400715, China); Yin Jianjun **Discussion about the Mechanism of the Weak Summer Monsoon Events during the Early Holo-**

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cence: A Case Study of Precisely Dated Stalagmite Record from Lianhua Cave, Hunan Province, China (Acta Sedimentologica Sinica, ISSN1000－0550, CN62－1038/P, 34(2), 2016, p. 281－291, 8 illus., 1 table, 56 refs.)

Key words: Holocene, monsoon, Hunan Province

The Early Holocene is an important period of Solar radiation strengthening, global warming and along with ice sheets melting. The cause of the colder events and the weaker summer monsoon in the Asian monsoon region during the Early Holocene has always been the focus of research. It has important significance for the study of the links among the Asian monsoon, ocean and polar regions. Based on $^{28}U/Th$ dates and ^{53}S oxygen isotopic data of stalagmite LHD5 from Lianhua Cave, Hunan Povince, China, a Holocene Asian monsoon evolution record was reconstructed, and the average resolution is 8 year in the Early Holocene. From the LHD5 stalagmite record, the end of Younger Dryas was at (11 748 ± 30) a B. P., the start of the Holocene was at (11 684 ± 39) a B. P., and the conversion time is about 64 years, which is consistent with the records of the gicc05 ice core from Greenland in the error range.

20170527 Zhang Xiang (School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing 210023, China); Ge Chendong **Distribution Patterns of Sedimentary Organic Matter in Xincun and Li－An Lagoons of Lingshui County, Hainan Island and Their Source Implications** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 78－85, 1 table, 24 refs., with English abstract)

Key words: sediments, provenance analysis, Hainan Province

20170528 Zhao Linlin (School of Geology and Geomatics, Tianjin Institute of Urban Construction, Tianjin 300384, China); Xu Qinmian **Sedimentary Evolution of Bg10 Borehole in Northern Coast of Bohai Bay during Late Cenozoic** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 196－207, 2 illus., 63 refs., with English abstract)

Key words: Pliocene, Quaternary, logging curves, sedimentary environment, Bohai Bay

20170529 Zhou Liang (Collaborative Innovation Center of South China Sea Studies, Nanjing University, Nanjing 210023, China); Gao Shu **Sediment Accumulation and Carbon Burial in Two Tropical Lagoons, Southeastern Hainan Island** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 66－77, 4 illus., 4 tables, 78 refs., with English abstract)

Key words: lagoonal sedimentation, Hainan Province

GEOCHEMICAL EXPLORATION

20170530 Li Guotao (Geological Exploration Institute of Shandong Zhengyuan, Jinan 250013, China); Xie Shuyun **Vertical Distribution of Geochemical Elements in the Overburden of the Chagangnuoer Iron Deposit, Xinjiang** (Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 76－84, 5 illus., 24 refs.)

Key words: geochemical exploration, iron ores, Xinjiang

The northwest China region is widely covered by gobi deserts, which lies in the Paleo－Asia metallogenic domain and has excellent metallogenic conditions. This study analyzed the element concentration distribution at different depths and of different grain sizes of soil covers of an orebody in the Chagangnuoer iron ore deposit, in order to provide references for geochemical prospecting in covered areas.

A total of 11 soil samples collected from the surface to the bedrock along one vertical soil profile were analyzed, and the depths of the soil samples were 5, 15, 30, 45, 60, 75, 90, 105, 120, 135 and 150 cm, respectively.

20170531 Li Yang (Geological Survey Institute of Jilin Province, Changchun l30061, China); Chen Ming **Application of Geochemical Information to the Inference of Geological Structure System——A Case Study of the Mountainous Areas in the Middle East of Jilin Province** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 74－77, 1 illus., 4 refs.)

Key words: geochemical exploration, Jilin Province

This paper chooses 39 elements (including oxide) to process 1∶200 000 stream sediment survey dates in the central－eastern mountain area of Jilin Province, according to the geochemical information from factor analysis, and add to spatial distribution characteristics of the main ore－forming elements, the accompanying elements and rock－forming elements, this paper infers geological bodies and faults after integrated interpretation.

20170532 Liao Hongming (Geology and Mining Engineering College, Xinjiang University Urumqi 830000, China); Li Ping **Gold Geochemical Characteristics and Prospecting Criteria in Daerbute Area, Western Junggar, Xinjiang** (Xinjiang Geology, ISSN1000－8527, CN11－2036/P, 34(1), 2016, p. 129－133, 3 illus., 3 tables, 7 refs.)

Key words: geochemical exploration, gold ores, Xinjiang

Daerbute area has good prospecting potential for gold, to expand the result, the authors analyzed the geochemical and geological characteristics of the gold and summarized the prospecting marks of stratum、structure and Au－As－Sb abnormal combination, these are conducive to prospecting.

20170533 Liu Hanliang (Institute of Geophysical and Geochemical Exploration, Chinese Academy of Geological Sciences, Langfang 065000, China); Zhang Bimin **The Application of Soil Geochemical Measurement Method to the Huaniushan Pb－Zn Deposit, Gansu Province** (Geophysical and Geochemical Exploration, ISSN1000－8918, CN11－1906/P, 40(1), 2016, p. 33－39, 5 illus., 2 tables, 27 refs.)

Key words: geochemical soil surveys, lead－zinc deposit, Gansu Province

The study of fine particle total measurement over the Huaniushan Pb－Zn deposit of Gansu Province was conducted. The authors have revealed that major ore－forming elements Pb and Zn show obvious background－anomaly contrast and strong concentration coefficient. In addition, they have positive correlation with Ag, Sb, As, Au, Hg and Cu. There are Pb－Zn－Ag－Au－Sb－As－Cu－Hg geochemical anomalies delineated by this method and the anomalies are located right over the known orebodies, indicating that the geochemical exploration method can be used to effectively locate reliable prospecting targets in Gobi desert terrain.

20170534 Lu Xuepu (Fifth Geological Survey of Jilin Province, Changchun 130103, China); Liu Xingqiao **The Evaluation of the Effect about the Geochemical Exploration of 1∶250 000 in Wangqing County and Chunhua Sheets by New Method over Again** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 82－88, 2 illus., 2 tables, 8 refs.)

Key words: geochemical exploration, Jilin Province

The 1∶250 000 regional geochemical data over again can objectively reflect the geochemical features of regional geological structure and geological background of mineralization, by comparing the new method of 1∶250 000 regional geochemical data over again with 1∶200 000 regional geochemical data. The geochemical prospecting information is more clear and accurate. It is very necessary and immi-

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nent to carry out 1∶250 000 the geological exploration in area where is the thick cover of forest and swamp landscape over again.

20170535 Ryu Haitao (Ninth Geological and Mineral Resource Exploration and Exploitation Institute of Inner Mongolia, Xiling Gol 026000, China); Meng Qinghai **REE Characteristics and Ore Source of Shicheng Rock—Mass in Songshan, Henan Province** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1), 2016, p. 34—38, 3 illus., 1 table, 10 refs.)

Key words: rare earths, igneous rocks, Henan Province

In ancient Proterozoic, the Shicheng alkaline rock—mass was formed as a result of magmatic intrusion. As shown by statistical analysis of REE in these rock—masses, the total content of ωREE is nearly6 times as the crustal clarke value, the ratio of ωLREE/ωHREE is nearly 1.5 times as that of the crust, and the fractionation of LREE and HREE is slight, whereas Eu is strongly depleted, and Ce is not basically depleted. The results show that the magma and metallogenetic materials of these rock—masses might be derived mainly from the same magma chamber in the upper mantle, both of them were homologous, and they assimilated and mixed the crustal materials with different degree during the intrusion of magma.

20170536 Shi Changyi (Institute of Geophysical and Geochemical Exploration, Chinese Academy of Geological Sciences, Langfang 065000, China); Liang Meng **Average Background Values of 39 Chemical Elements in Stream Sediments of China** (Earth Science, ISSN1000—2383, CN42—1233/P, 41(2), 2016, p. 234—251, 4 illus., 5 tables, 57 refs.)

Key words: geochemical exploration, China

Large amounts of high quality basic geochemical data covering a land area of about 6 900 000 square kilometers have been gained by regional geochemical survey mainly featuring stream sediment measurement since 1978 in China. Based on the total original data of the national 1∶200 000 stream sediment survey, background values of 39 elements in stream sediments are calculated for the nationwide 9 tectonic units, 12 landscape areas and 19 metallogenic belts. The results show that geochemical distributions of elements are different among various landscapes, metallogenic belts and tectonic units because of different geological backgrounds and landscape conditions.

20170537 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., with English abstract)

Key words: geochemical exploration, ring structure

20170538 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. The Sb, Au, Ag and Hg anomalies in stream sediments are high and in large scale. 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 co-

incident. 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.

20170539 Wu Hongwei (Third Geological Survey of Jilin Province, Siping 136000, China) **Geophysical and Geochemical Characteristics and Exploration Prospects in Mangna Area, Tibet** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 61—64, 3 illus., 1 table, 6 refs.)

Key words: geochemical exploration, Tibet

Based on Tibet Mangna area geology and soil geochemical anomaly characteristics analysis, combined with ore—forming geological conditions in the region and concentration centers obviously can be optimized for exploration and subsequent mining investigation target area. The conclusion of this mining area looking for copper and magnetite bed.

20170540 Xu Yunfeng (Sichuan Institute of Geological Survey, Chengdu 610081, China); Qin Yulong **Pedogeochemical Anomalies and Prospecting for the Jiajika Rare—Metal Granitic Pegmatite Deposit** (Acta Geologica Sichuan, ISSN1006—0995, CN51—1273/P, 36(1), 2016, p. 139—143, 4 illus., 2 tables, 13 refs.)

Key words: geochemical exploration, lithium ores, polymetallic ores, Sichuan Province

1∶10 000 pedogeochemical survey in the south of Jiajika collects 403 soil samples which are analyzed for 7 rare elements. Cluster analysis and factor analysis are carried out by the use of SPSS statistical software. 6 pedogeochemical anomalies of Li—Be—Nb—Ta—Rb and Sr—Cs are delineated which provides scientific basis for mineral exploration in the future.

20170541 Yan Mingshu (Southeast Sichuan Geological Party of Chongqing Bureau of Geology and Minerals Exploration, Chongqing 400038, China); Li Yu **Geochemical Characteristics of 1∶50 000 Stream Sediments and in Xainza, Tibet, and Their Prospecting Significance** (Geophysical and Geochemical Exploration, ISSN1000—8918, CN11—1906/P, 40(1), 2016, p. 10—16, 4 illus., 2 tables, 18 refs.)

Key words: stream sediment surveys, Tibet

On the basis of 1∶50 000 stream sediment —10～+60 mesh survey in Alpine Lake Hill Landscape of Xainza City, Tibet, this paper discussed the characteristics of stream sediment element content and combinations, element background values in ophiolite zone, element anomalies and their prospecting significance in ophiolite and sedimentary zone. The results show that, in the sedimentary zone, most elements are significantly enriched, except for such elements as Cr, Co, Ni and Hg. The characteristics of element combinations better reflect mineralization. On the contrary, in the ophiolite zone, the elements of Cr, Co and Ni show very high relationship, but the element combinations fail to reflect good mineralization.

20170542 Yu Bin (Geophysical Exploration Bureau of CMGB, Baoding 071051, China); Zhang Guoyi **The Development and Innovation of Blind Ore Geochemical Prospecting Method from Primary Halo and Superimposed Primary Halo to Structural Superimposed Halo** (Contributions to Geology and Mineral Resources Research, ISSN1001—1412, CN12—1131/P, 31(1), 2016, p. 92—98, 5 illus., 4 tables, 20 refs.)

Key words: geochemical exploration

Structural superimposed halo method is a new technique for prospecting blind ore developed from the theory of primary halo method for blind ore. The superimposed primary halo method was put forward according to the hydrothermal ore characterized by multi—periods and multi—stages ore formation and ore halo. Strict structural control on the ore formation and ore halo resulted in the theory of

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structural superimposed halo method. This paper introduces process of the development and innovation.

20170543 Yu Junmin (Geological Brigade No. 5 of Jiangxi Nonferrous Metals Geological Exploration Bureau, Jiujiang 332000, China); Wu Zhongrui **Discussion on Ore－Bearing Features of the Strata in the Qi'anchuoluo Area, Inner Mongolia** (Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 70－75, 5 illus., 8 refs.)

Key words: ore－bearing potential, geochemical exploration, Inner Mongolia

This study performed systematical geochemical analysis of the strata in the Qi'anchuoluo area of Inner Mongolia based on the test results of trace elements in rocks and soil specimens, and then discussed the geochemical characteristics of ore－hosting elements including Au, Ag, Pb, Mo, W, Cu, Zn, As, Sb, Bi, Hg and Sn in each strata. The authors also analyzed the metallogenic potentials of the ore－forming elements from the aspects of relative enrichment or depletion, variations, overlapping intensity during post－sedimentary processes to reveal the main ore－hosting strata in the study area.

20170544 Yue Dabin (No. 402 Geological Team, BGEEMRSE, Chengdu 611730, China); Liao Xingjian **Ditch Sediment Geochemical Survey and Prospecting in Beichuan, Sichuan Province** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 148－152, 4 illus., 2 tables, 21 refs.)

Key words: geochemical exploration, gold ores, Sichuan Province

R－type cluster analysis and factor analysis of ditch sediment geochemical data in the Jinfengqiao area, Beichuan, Sichuan are carried out. The results indicate that concentration Clarkes of Cu, Pb, Zn elements are higher which is related to weak mesothermal activity. As and Sb anomalies are related to Au mineralization.

20170545 Zhang Jing (Nanjing Center of China Geological Survey, Nanjing 210016, China); Chen Guoguang **Geophysical and Geochemical Anomalies of the Nihe Mine in the Lu－Zong Basin and Their Prospecting Significance** (Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 156－162, 6 illus., 3 tables, 15 refs.)

Key words: magnetic anomaly, geochemical exploration, Anhui Province

The Nihe iron mine, located in the northwest of the Lu－Zong Mesozoic volcanic basin, is representative of the Lu－Zong porphyrite iron mines, and is also a great prospecting breakthrough in the middle and lower reaches of the Yangtze River metallogenic belt in recent years, with important research value. With systematic study of physical measurements, geophysical prospecting and geo－chemical survey data, this study qualitatively analyzed the geophysical and geochemical anomalies in this area. It is considered that gravity data, magnetic data and CSAMT anomalies can help to roughly locate the contact position between the strata and the ore－bearing rocks.

20170546 Zhang Peng (Xi'an Institute of Geological and Mineral Exploration, Xi'an 710100, China); Zhang Xuwei **Geochemical Exploration Information Evaluation and Ore－Searching Prospect of the Qagan Us Gold Deposit** (Geophysical and Geochemical Exploration, ISSN1000－8918, CN11－1906/P, 40(1), 2016, p. 46－50, 7 illus., 2 tables, 16refs.)

Key words: stream sediment surveys, gold ores, Xinjiang

Based on 1∶25 000 stream sediment survey results of the Qagan Us gold deposit in Hejing County of Xinjiang and summarization of the distribution of elements, the authors integrated favorable combinations of the elements and delineated the anomalies. Then in the anomaly the authors found K3, K4 ore-

bodies through comprehensive geological prospecting. On the basis of an analysis of the axial primary halo zoning of K3 orebody, the authors hold that K3 orebody still has good extension below 160 m.

20170547 Zhou Shuguang (Xinjiang Research Center for Mineral Resources, Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi 830011, China); Zhou Kefa **Application of Logistic Regression Methods in Geochemical Data Analysis and Mineral Exploration: Example from Karamay Region** (Northwestern Geology, ISSN1009—6248, CN61—1149/P, 49(1), 2016, p. 234—240, 3 illus., 2 tables, 30 refs.)

Key words: geochemical exploration, gold ores, Xinjiang

To identify geochemical anomalies from multivariate geochemical data and to get gold deposits related information, logistic regression method is used to analyze geochemical data (sixteen hydrothermal/epithermal elements are included) of this study area. The results demonstrate that the developed logistic regression model is effective for geochemical anomalies identification and gold prediction, because the model can not only identify the geochemical anomalies where there are known gold deposits, but also identify other strong geochemical anomalies where there is no known deposit.

20170548 Zuo Qionghua (Yunnan Land and Resources Vocational College, Kunming 650217, China); Wang Wei **Regional Geochemical Characteristics and Prospecting Direction of the Zhenkang Area in Yunnan Province** (Journal of Geology, ISSN1674—3636, CN32—1796/P, 40(1), 2016, p. 23—30, 7 illus., 1 table, 11 refs.)

Key words: geochemical exploration, polymetallic ores, Yunnan Province

Based on 1 : 50 000 stream sediment measurements, this work calculated and analyzed the regional geochemical parameters of the Zhenkang area in Yunnan Province, and discussed the element distribution, petrogeochemical characteristics and composite features of anomaly elements. The result shows that the concentrations of the elements Cu, Ni, Hg, Mo, Zn and As in the Permian Shazipo Formation are 2 to 4 times higher than those of the national average values of stream sediments, and that the Shazipo Formation possesses the most promising prospecting potential in this area. The anomaly element association of Zn, Pb and Cu is distributed in the vicinity of the Luziyuan anticlinorium axis. Integrated with the geological characteristics and distribution of mineral deposits, nine prospecting targets were delineated, which may provide important geochemical evidence for prospecting polymetallic ores in the study area.

GEOPHYSICAL EXPLORATION

20170549 Ba Zhenning (Department of Civil Engineering, Tianjin University, Tianjin 300072, China); Liang Jianwen **Free—Field Responses of Spherical SH—, P— and SV—Wave Sources in a Layered Visco—Elastic Half Space** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 606—623, 10 illus., 2 tables, 27 refs., with English abstract)

Key words: seismic exploration

20170550 Bi Benteng (Institute of Geophysics and Geomatics, China University of Geosciences, Wuhan 430074, China); Hu Xiangyun **Multi—Scale Analysis to the Gravity Field of the Northeastern Tibetan Plateau and Its Geodynamic Implications** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 543—555, 9 illus., 1 table, 91 refs., with English abstract)

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Key words: seismic exploration, aftershocks

20170551 Cai Ji (College of Marine Geosciences, Ocean University of China, Qingdao 266100, China); Li Yuguo **Feasibility to Detect Gas Hydrate by Using Time Domain Marine CSEM Method** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 159－163, 3 illus., 2 table, 8 refs.)

Key words: gas hydrates, porosity, saturation

There is a significant resistivity difference between the gas hydrate and the sea－floor sediment. Measuring the electromagnetic anomaly caused by the resistivity difference below sea－floor can contribute to detecting the layout and saturation of target gas hydrate reservoir. The authors build several one－dimensional resistivity models with gas hydrate reservoirs having different porosity and saturation. Using the models, the authors investigated the electromagnetic anomaly caused by gas hydrate reservoirs and the feasibility to detect gas hydrate by using time domain marine CSEM method.

20170552 Cao Jingji (COSL－UPC Allied Borehole Acoustic Laboratory, School of Geosciences & Technology, China University of Petroleum (East China), Qingdao 266580, China); Tang Xiaoming **Radiation Efficiency of a Multipole Acoustic Source in a Fluid－Filled Borehole** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 757－766, 15 illus., 1 table, 40 refs., with English abstract)

Key words: secismic logging

20170553 Chen Shengchang (School of Earth-Sciences, Zhejiang University, Hangzhou 310027, China); Zhou Huamin **Re－Exploration to Migration of Seismic Data** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 643－654, 13 illus., 54 refs.)

Key words: seismic migration

The formula of migration of seismic data are re－derived by using the forward propagation equations of seismic waves, in which the migration of seismic data is viewed as an approximate solution to the linear waveform inverse problem, a scattering migration method being suitable for scattering seismic data and a reflection migration method being suitable for reflection seismic data are proposed. Basing on the scattering theory of seismic wave propagation, the migration method of seismic data introduced in this paper is an improvement to current migration technique and theory, and establishes a solid theoretical base of mathematical physics for the migration of reflection seismic data. The migration results from the new methods have correct phase, accurate position and improvement resolution.

20170554 Chen Weiying (Key Laboratory of Mineral Resources, Institute of Geology and Geophysics, Chinese Academy of Science, Beijing 100029, China); Xue Guoqiang **Study on the Response and Optimal Observation Area for SOTEM** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 739－748, 12 illus., 48 refs.)

Key words: transient electromagnetic methods

SOTEM is a kind of time domain electromagnetic method with great detecting depth and high resolution. In order to further understand and promote this method, studies on its distribution of electromagnetic field response and diffusion characteristics was conducted in this paper. Calculation results based on the 1Dforwarding theory of SOTEM indicate that grounded wire source can excite both horizontal and vertical induced current underground. The horizontal current includes upper and lower parts (also called return current). The maximum of horizontal induced current mainly focus on the area close to the source and diffuses downward vertically. The maximum of vertical induced current diffuses along the direction of 45 degrees with the ground surface with a weaker amplitude and faster

speed than horizontal induced current. All the six EM components have the ability for geophysical detection.

20170555 Chen Wenqian (Key Laboratory of Oasis Ecology Ministry of Education, College of Resource and Environment Science, Xinjiang University, Urumqi 830046, China); Ding Jianli **Classification Method of Land Cover Based on GF－1 Image** (Arid Land Geography, ISSN1000－6060, CN65－1103/X, 39(1), 2016, p. 182－189, 3 illus., 3 tables, 32 refs., with English abstract)

Key words: land cover, remote sensing

20170556 Cheng Jia (Key laboratory of Active Tectonics & Volcano, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Xu Xiwei **Cause and Rupture Characteristics of the 2014 Ludian M_S6.5 Mainshock and Its Aftershock Distribution Using the Coulomb Stress Changes** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 556－567, 5 illus., 4 tables, 63 refs.)

Key words: seismic exploration, aftershocks

The M_S 6.5 Ludian earthquake in 2014 occurred in a complex tectonic region with aftershocks distributed on two conjugated fault planes. The authors study this detailed rupture characteristic and the tectonic regime of the earthquake. The results show the rupture of the NEE plane activated the dislocation of the NNW plane, while the dislocation of the NNW plane obstructed the further movement of the NEE plane. And the Ludian earthquake in 2014 behaved as a mainly NNW－ruptured event with conjugated aftershock distribution. Finally, the authors calculated the coulomb stress changes on the aftershocks by the mainshock. And the results show the aftershocks clustered in the area west to the NEE rupture plane were triggered by the M_S6.5 Ludian earthquake.

20170557 Cheng Jiulong (State Key Laboratory of Coal Resources and Safe Mining, China University of Mining and Technology, Beijing 100083, China); Chen Ding **Synthetic Aperture Imaging in Advanced Detection of Roadway Using the Mine Transient Electromagnetic Method** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 731－738, 7 illus., 2 tables, 36 refs.)

Key words: transient electromagnetic methods, synthetic aperture radar

During the data processing and interpretation of the mine transient electromagnetic method(MTEM), it is an important goal to improve the identification of the geo－electrical interface between low resistivity abnormal body and surrounding rock in advanced detection. To achieve this end, the transient electromagnetic field is transformed into the pseudo－seismic wavefield based on the function relationship between spreading electromagnetic field and seismic wavefield in whole－space. Meanwhile, the signal of pseudo－seismic after transform is processed with correlative stack to strengthen the amplitude and improve signal－noise－ratio(SNR) using the synthetic aperture imaging(SAI). The data of different detection directions on one surveying point in the MTEM are imaged as aperture data, which would highlight weak anomalies and improve SNR.

20170558 Fan Yehuo (University of Electronic Science and Technology of China, Chengdu 611713, China); Li Wei **Analysis of EM－MWD Channel Based on NMM** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 1125－1130, 10 illus., 9 refs.)

Key words: measurement while drilling, electromagnetic waves

In this paper, a theoretical model of EM－MWD has been set up based on the numerical mode matching method(NMM) and source equivalent principle. This model can consider radial and axial heterogeneities, and facilitate

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analysis of effects of casing, mud, high—conductivity layers, and high resistivity layers on signal transmission. The correctness of this theoretical model has been proved by calculation and field test. The influences of formation resistivity, working frequency, casing, drilling mud, pillar, high conductivity layers and high resistivity layers on the signal transmission are analyzed.

20170559 Fan Yupeng (Hebei Institute of Geological Survey, Shijiazhuang 050081, China); Jiang Xingyu **Geochemical Anomaly Characteristics and Prospecting in the Census Region of Kouzitou, Fuping County, Hebei Province** (Geological Survey and Research, ISSN1672—4135, CN12—1353/P, 39(1), 2016, p. 76—80, 3 illus., 1 table, 12 refs.)

Key words: CSAM method, uranium ores, Inner Mongolia

1∶10 000 rock geochemical survey for cryptoexplosive breccia was finished and 10 anomalies were delineated on the basis of comprehensive analysis of geological and geochemical data. The drilling verification shows that pyrite phyllic develops strongly, and five molybdenum ore bodies and seven silver (gold) ore bodies were found. The estimate amount of molybdenum metal is 83 t, silver 10.67 t, associated gold 61.81 kg. The primary halo anomalies belong to the the ore anomalies. The Ag—Mo multiple metal ore bodies occur in cryptoexplosive breccia. The authors researched the enrichment range of elements and calculated the occurrence site of blind ore body and made a recommendation for further validation.

20170560 Fang Yunfeng (Ocean University of China, Qingdao 266100, China); Nie Hong-Mei **3D SRME Based on Joint Regularization and Sparse Inversion** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 673—681, 7 illus., 12 refs., with English abstract)

Key words: seismic exploration, inverse problem

20170561 Feng Yongge (Institute of Theoretical and Applied Geophysics, School of Earth and Space Science, Peking University, Beijing 100871, China); Wang Haiang **Blind—Faults of Datong Earthquake Sequence: JHD and Coulomb Stress Analyses** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 568—577, 10 illus., 37 refs., with English abstract)

Key words: seismic sequence, subsurface structure, Shanxi Province

20170562 Fu Yuanyuan (Key Laboratory of Earthquake Prediction, Institute of Earthquake Science, China Earthquake Administration, Beijing 100036, China); Gao Yuan **Phase Velocity Tomography of Rayleigh and Love Waves Using Ambient Noise in Northeast China** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 494—503, 8 illus., 22 refs., with English abstract)

Key words: elastic waves, tomography, Northeast China

20170563 Gao Yang (Key Laboratory of Coal Resource Exploration and Comprehensive Utilization, Ministry of Land and Resources, School of Geophysics and Information Technology, China University of Geosciences, Beijing 100083, China); Wang Chunxian **Application of Seismic Facies Analysis Technology in Coal Seismic Exploration** (Coal Geology & Exploration, ISSN1001—1986, CN61—1155/P, 44(1), 2016, p. 107—111, 7 illus., 10 refs.)

Key words: seismic facies, coal exploration

Seismic facies analysis technique has become a new technology of coal lithology seismic exploration. This paper expounded the seismic facies analysis method based on waveform classification, classified different waveform through artificial neural network detection technology to classify different waveform to achieve the purpose of distinguishing different targets. Respectively using the methods

to delineate the scope of igneous rocks, to predict washing－thinned belt of coal seam and to identify fault, collapsed column and other geological anomalies as examples, the effectiveness of the seismic facies analysis technology in the field of seismic exploration for the lithology of coal field was discussed.

20170564 Gu Qinping (Institute of Geophysics, China Earthquake Administration, Beijing 100081, China); Ding Zhifeng **Pn Wave Velocity and Anisotropy in the Middle－Southern Segment of the Tan－Lu Fault Zone and Adjacent Region** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 504－515, 7 illus., 84 refs., with English abstract)

Key words: S－waves, Mohorovicic discontinuity, Qinghai－Tibetan Plateau

20170565 Guo Jiao (Kunming University of Science and Technology, Kunming 650093, China); Zhu Guchang **Remote Sensing Geological Survey of Bauxite Deposits in Dazhuyuan－Longxing Area of Northern Guizhou Province** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1), 2016, p. 117－121, 7 illus., 5 refs.)

Key words: remote sensing, bauxite deposit, Guizhou Province

The study area is located in the southeast of Daozhen County of Guizhou with rich bauxite resources and favorable prospecting potential. Based on multi－spectral remote sensing data provided by Landsat 8 satellite, this paper conducted large－middle scale remote sensing geological interpretation, tracing of ore－bearing horizon, extraction of prospecting information and field identification, and quickly delineated the syncline structure which controlled the distribution of bauxite deposits and relatively bauxite－enriched sections. The results provide basic data for further investigation of mineral resources in this study area.

20170566 Guo Zhiqi (Geo－Exploration Science and Technology Institute, Jilin University, Changchun 130026, China); Liu Cai **Modeling and Analysis of Frequency－Dependent AVO Responses in Inelastic Stratified Media** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 664－672, 14 illus., 46 refs., with English abstract)

Key words: AVO techniques

20170567 Hu Xinqiang (College of Geological Sciences and Engineering, Shandong University of Science and Technology, Qingdao 266590, China); Gu Zhaofeng **Seismic Shape Features and Distribution of Shallow Gas in the Sea Area off the Yangtze River Estuary** (Marine Geology & Quaternary Geology, ISSN0256－1492, CN37－1117/P, 36(1), 2016, p. 151－157, 3 illus., 3 tables, 11 refs.)

Key words: shallow gas, seismic facies, Yangtze River, China

There are various kinds of shallow gas seismic reflections in shape in the region off the Yangtze River estuary. They can be classified into following categories: 1) According to general shape: the curtain－like reflection, the column－like reflection and the gas chimney－like reflection; 2) According to the shape of the top interface: shallow gas with irregular top interface and shallow gas with regular top interface; 3) According to the shape features on lateral: upright and protruded shallow gases; and 4) According to the combined shape features: shallow gas with multiple－layer strong reflection in vertical direction, with reflection interrupted on lateral and with reflection varying in vertical direction.

20170568 Huang Jichao (Lanzhou Institute of Seismology, China Earthquake Administration, Lanzhou 730000, China); Wan Yongge **Heterogeneity of Present－Day Stress Field in the Tonga－Kermadec Subduction Zone and Its Geodynamic Significance** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/

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P, 59(2), 2016, p. 578－592, 10 illus., 66 refs., with English abstract)

Key words: **stress fields, focus**

20170569 Huang Xingfu (State Key Laboratory of Continental Tectonics and Dynamics, Key Laboratory of Earthprobe and Dynamics, Institute of Geology, Chinese Academy of Geological Sciences, MLR, Beijing 100037, China); Feng Shaoying **Development of the Yinchuan Basin: Deep Seismic Reflection Profile Revealed the Linkages between Shallow Geology and Deep Structures** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 53－66, 5 illus., 58 refs.)

Key words: **deep seismic sounding, geophysical exploration**

The NW trending deep seismic reflection profile across the Yinchuan Basin precisely revealed the boundary faults and crust structures of the Yinchuan Basin. It has great significances for understanding development of the Yinchuan Basin. Helanshan eastern piedmont fault as the western margin fault of Yinchuan Basin is a gentle dipping listric fault which extends downward to the boundary of upper crust and low crust. According to previous studies of layered reflections, we inferred that the layered reflections consist of mafic magma result from the mantle magma underplating. The authors proposed that the layered reflections under the low crust counteract the crust thinning effect which ultimately lead to the nearly flatten Moho under sedimentary basin.

20170570 Huang Zongli (SinoProbe Center, Chinese Academy of Geological Sciences, Beijing 100035, China); Guo Jia **Analytical Continuation of the Two－Dimensional Potential Field in an Active Space** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 704－710, 10 illus., 25 refs.)

Key words: **potential field continuation**

Downward continuation of the potential field has a great significance in practices. However, the existing downward continuation methods cannot continue a potential field over the source and their numerical calculation is unstable. The authors define a new function PFGR which has both the potential field and geometry properties. The authors also present a novel continuation method which can analytically continue the potential field into the lower half－space including the source. This method can steadily continue the potential field over the source. And the test on synthetic data confirmed the reliability of this new method.

20170571 Huang Zongli (Key Laboratory of Metallogeny and Mineral Assessment, Institute of Mineral Resources, MLR, Chinese Academy of Geological Sciences, Beijing 100037, China); Wang Dian **A Huge Deep Fault System at the East Edge of Eurasia: The New Tectonic Interpretation Based on Satellite Gravity** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(1), 2016, p. 25－34, 12 illus., 34 refs.)

Key words: **gravity anomaly, Eurasian Plate**

Through the subtle processing of satellite gravity data, a regular distribution of gravity anomaly combination was found at the east edge of Eurasia. In order to study geological significance of the combination of these anomalies, the authors adopted gravity inversion based seismic constraints, and the result shows that there exist positive relationships between the discovered gravity anomaly, the uplift of the Moho and the deep fault. According to the gravity anomalies and geological information, the authors found a huge deep fault system at the east edge of Eurasia. The main fault stretches more than 3 000 km from Guangzhou northward to the sea of Okhotsk. On the eastern side of the main fault zone, there are 9 parallel faults distributed approximately equidistantly; these faults trend NE and extend to the continental margin into the sea.

20170572 Lei Tao (Hubei Subsurface Multi-scale Imaging Key Laboratory, Institute of Geophysics and Geomatics, China University of Geosciences, Wuhan 430074, China); Gu Hanming **Illumination of Marine Full-Azimuth Survey** (Chinese Journal of Geophysics, ISSN0001-5733, CN11-2074/P, 59(2), 2016, p. 693-703, 8 illus., 3 tables, 44 refs., with English abstract)

Key words: seismic exploration

20170573 Li Guanghui (Department of Information and Engineering, Jilin University, Changchun 130012, China); Li Yue **Random Noise of Seismic Exploration in Desert Modeling and Its Applying in Noise Attenuation** (Chinese Journal of Geophysics, ISSN0001-5733, CN11-2074/P, 59(2), 2016, p. 682-692, 9 illus., 2 tables, 52 refs., with English abstract)

Key words: seismic exploration, denoising

20170574 Li Hongqiang (State Key Laboratory of Continental Tectonics and Dynamics, Institute of Geology, Chinese Academy of Geological Sciences, Beijing 100037, China); Gao Rui **Near Vertical Deep Seismic Reflection Profile Reveal the Sketch of Qinling Mountains Orogenic Belt-Weihe Garben-Ordos Block's Moho by Big Charge Shots** (Chinese Journal of Geology, ISSN0563-5020, CN11-1937/P, 51(1), 2016, p. 67-75, 5 illus., 29 refs.)

Key words: deep seismic sounding

Ten large charge shots data of northern Qinling-Weihe graben-southern Ordos were processed by near vertical incidence principle. The authors obtained a single fold section which can reveal the deep structure of this region. The section shows that the northern Qinling orogenic belt's Moho reflection appears at 13 s(TWT)and ascend gradually from south to north. While getting into Weihe graben, the Moho reflection is deepened shapely, and the pattern of Moho reflection looks like arc. The preliminary results shows the converge between the Oinling and Weihe graben. The Moho cannot continuous tracking and Moho on both sides have different reflective characterstic at 130~140 km. It likely represents the boundary between the Weihe graben and Ordos block.

20170575 Li Huaqiang (Tianjin Geophysical Exploration Center, Tianjin 300170, China) **Research on the Integrated Geophysical Prospecting of Polymetallic Pb-Zn Deposit in Gadaban Area** (Contributions to Geology and Mineral Resources Research, ISSN1001-1412, CN12-1131/P, 31(1), 2016, p. 99-107, 6 illus., 6 refs.)

Key words: geophysical exploration, lead-zinc deposit, Inner Mongolia

Based on the results of research in Gadaban area in Inner Mongolia, this paper deals with the geological issues. The results indicated that the mineralized body is characterized by well fitting of surface alteration with low resistivity, high magnetics, high polarizability anomlies. Intersections of the fit area and fault are the key targets. For the disseminated sulfide deposit containing pyrrhotite, etc, the combination of areal IP survey and high magnetic delineation could directly guide study on the regional tectonic framework and fracture distribution and location of shallow ore bodies.

20170576 Li Zhanfeng (No. 1 Geological Team, Henan Provincial Non-Ferrous Metals Geological and Mineral Resources Bureau, Zhengzhou 450016, China) **Drilling Practice of Wire-Line Core Drilling in Quasi-Horizontal Hole** (Exploration Engineering, ISSN1672-7428, CN11-5063/TD, 43(1), 2016, p. 48-50, 4 illus., 8 refs.)

Key words: wire line coring

According to the related technical requirements on the core drilling in quasi-horizontal hole construction and by using of the existing CS 1000P6 L core drill and common wire-line coring tools, the setting and fi-

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shing advices of inner pipe assembly were designed and improved for regular operation of ordinary wire－line core drilling technology under the condition of core drilling dip close to zero. Comparing with the effect received by the commonly used trip－round coring, the working efficiency was greatly improved with purchase cost saving of special drill rod, wire－line drilling tools and fishing appliance. The improved conveying device has the advantages of simple structure, reliable performance, low cost and easy operation. It is proved in field production practice that the geological requirements are met with expected purpose and effect, the experience is accumulated for the core drilling construction in quasi－horizontal hole.

20170577 Liang Hongyi (Geophysical Exploration Company, Sichuan Bureau of Coal Geology, Chengdu 610072, China); Xie Xiaoguo **The Application of Comprehensive Geophysical Prospecting Method to Coal Exploration in the Qiangtang Basin** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 144－147, 5 illus., 10 refs.)

Key words: geophysical logging, Qiangtang Basin

This paper deals with the application of comprehensive geophysical prospecting method to coal exploration in the Qiangtang basin. CSAMT is applied to stratigraphy, influence of FIX and FXV faults basement uplift caused by magmatite on the Zhasu Formation as coal－bearing formation. Logging data are used for interpreting physical characteristics of the main coal in exploration area. Temperature measurement data are used for finding out the geothermal gradient of 18.1℃/km in this region.

20170578 Lin Jun (Key Lab. of Geo－Information Exploration & Instrumentation, Jilin University, Changchun 130026, China); Wang Lin **Research and Development on the Air－Core Coil Sensor for Mine Transient Electromagnetic Exploration** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 721－730, 12 illus., 1 table, 46 refs., with English abstract)

Key words: transient electromagnetic methods

20170579 Liu Wei (Geophysical Survey Team, Henan Coal Geology Bureau, Zhengzhou 450009, China); Gao Zhaokui **Application of the 3D Seismic in Decollement Structure Interpretation** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 112－115, 5 illus., 6 refs.)

Key words: three－dimensional seismic methods, mine field structure

Decollement structure has big effect on the occurrence, thickness and depth of coal seam, particalarly on coal mining. This paper illustrates the application of 3D－seismic exploration technology in nicely depicting decollement structure by taking the decollement structure interpretation of one district in Henan Province, discusses the recognition feature of decollement surface on the time section and 3D data cubes, explains that 3D－seismic is an effective detection means for decollement structure.

20170580 Liu Wenming (Xi'an Research Institute, China Coal Technology and Engineering Groop Corp, Xi'an 710077, China); Liu Wanjin **Seismic Multi－Attributes Inversion Using Neural Network and Its Application in Predicting Lithology of Coal Seam's Roof** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 103－106, 111, 5 illus., 14 refs.)

Key words: coal seam roof, coal rocks

The lithology of coalbed's roof has huge impact on the safe mining. Through training the data of seismic attributes (including P－impedance) and gamma ray logging data by neural network algorithm, the authors can get the nonlinear relationship of them, then the authors apply the nonlinear relationship to the whole seismic data volume and get pseudo

gamma ray data volume. Compared to P—impedance, the gamma ray data can better distinguish the sandstone and mudstone, therefore, the authors can predict the lithology of coalbed's roof more directly and accurately, also improve the resolution on lithology prediction issues.

20170581 Liu Yuping (Key Laboratory of Marine Mineral Resources, MLR, Guangzhou Marine Geological Survey, Guangzhou 510075, China); Ding Longxiang **Seabed Sediment Analysis Using Sub—Bottom Profile Data** (Geophysical and Geochemical Exploration, ISSN1000—8918, CN11—1906/P, 40(1), 2016, p. 66—72, 5 illus., 2 tables, 15 refs.)
Key words: seismic profiles, marine geophysical exploration, South China Sea

Research on seabed classification and recognition is of great significance. The reflection intensity of sub—bottom profile data is mainly related to the seabed sediment types. In this paper, the authors selected a sub—bottom profile data in the South China Sea as the study object, drew the contour map by extracting the RMS amplitude of the sub—bottom profile data and analyzed the macroscopic characteristies of the seabed sediment in the study area. Compared with deep sea video recording, the method of seabed amplitude characteristic attributes of sub—bottom profile data is suitable for direct seabed analysis.

20170582 Niu Zengyi (Key Laboratory of Oasis Ecosystem of College of Resources Environmental Science, Xinjiang University, Education Ministry, Urumqi 830046, China); Ding Jianli **Soil Salinization Information Extraction Method Based on GF—1 Image** (Arid Land Geography, ISSN1000—6060, CN65—1103/X, 39(1), 2016, p. 171—181, 6 illus., 6 tables, 29 refs., with English abstract)
Key words: remote sensing, salinization

20170583 Shi Yanfang (Shandong Geo—Engineering Exploration Institute, Ji'nan 250014, China); Liu Zhiyong **Application of Natural Gamma Logging and Inter—Hole CT Technology on Geological Survey in Karst Region** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 65—67, 77, 2 illus., 4 refs.)
Key words: geophysical logging, karst features

In the limestone area, because of Karst development and weathering, it is difficult to geological survey. In this paper, through a geological survey in Jinan, the writers introduce the application of natural gamma ray logging and inter—hole CT technology, and achieved the expected results. In this area, it is accurate to divide the karst zone by the application of gamma ray logging. Combining with drilling data, the survey accuracy was improved. The Karst development in the borehole was detected by using the electromagnetic wave inter—hole CT technology, and which can guide the follow—up work better.

20170584 Sun Nianren (Institute of Geological Survey of Jilin Province, Changchun 130012, China); Wang Yunhui **The Application of the Large Power Induced Polarization Method in a Gold—Copper Mine of Tibet** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 71—73, 2 illus., 1 table, 4 refs.)
Key words: geophysical exploration, gold ores, Tibet

In this paper, the authors introduce the application of the large power induced polarization method in a gold—copper mine of Tibet. According to the geology survey results in the exploration area, the authors choose the IP intermediate gradient and IP sounding method of time domain, and found four IP anomalies. On the basis of the physical characteristics of the rocks and minerals, extrapolate the polarized object features. And several gold—copper ore bodies were found by using drill—hole exploration.

20170585 Wang Feng (College of Earth Sciences, East China Institute of Technology,

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Nanchang 330013, China); Wu Zhichun **The Application of CSAMT to Detecting Deep Geological Structures in the Zoujiashan Area of the Xiangshan Uranium Orefield** (Geophysical and Geochemical Exploration, ISSN1000－8918, CN11－1906/P, 40(1), 2016, p. 17－20, 3 illus., 1 table, 14 refs.)

Key words: controlled－source audio magnetotelluric methods, uranium ores, Jiangxi Province

This paper describes the application of the controlled source audio frequency magnetotelluric sounding (CSAMT) in search for deep geological structure in Zoujiashan area, Xiangshan volcanic basin. The results show that the CSAMT method divided the boundary of different groups and the basement interface, identified three faults, revealed the morphological characteristics of underground rock and structure successively above the depth of 21 300 m. The boundaries of different groups divided by CSAMT method agree well with the actual locations, as shown by the comparison with drilling information. The results show that the CSAMT method is effective in the deep geological information detection in this area.

20170586 Wang Haiyan (State Key Laboratory of Continental Tectonics and Dynamics, Beijing 100037, China); Gao Rui **Research of the Crustal Property of the Songpan－Garze Block** (Chinese Journal of Geology, ISSN0563－5020, CN11－1937/P, 51(1), 2016, p. 41－52, 4 illus., 1 table, 53 refs.)

Key words: granite, aeromagnetic anomaly, isotope age

The Songpan－Garze block, located in the northeastern part of the Tibetan Plateau, occupies an elongate triangular area between East Kunlun－West Qinling orogenic, the Qiangtang terrane, and Longmen Shan fault zone. Based on a synthesis that includes reflective seismic profile, deep seismic sounding profile, regional aeromagnetic anomaly data, and granitoid isotopic data, we suggest that the Songpan－Garze block might exhibit the characteristics of a continental craton. Moreover, the authors infer that the Proterozoic metamorphic basement of the Songpan－Garze block might have a property with that of the Yangtze block.

20170587 Wang Qiang (Key Laboratory of Marginal Sea Geology, South China Sea Institute of Oceanology, Chinese Academy of Sciences, Guangzhou 510301, China); Qiu Xuelin **Analysis and Processing on Abnormal OBS Data in the South China Sea** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 1102－1112, 12 illus., 1 table, 13 refs.)

Key words: marine geophysical exploration, ocean bottom seismographs, South China Sea

This paper is focused on reprocessing on these 2OBSs′ data by use of the methods of checking data format, comparing signals with adjacent OBSs and resampling the data. Finally we acquire these 2OBSs′ seismic record sections in which abundant seismic phases are clearly seen. The authors also obtain the seismic record section of OBS03 along the profile OBS973－3 in the Nansha Island using the same methods above. The instrument OBS06 along the profile OBS2006－2 and the instrument OBS03 along the profile OBS973－3 are the same instrument confirmed by checking their logs recorded by 2006 and 2011, respectively. It demonstrates that the processing method for abnormal OBS data is reliable and effective.

20170588 Wang Shuang (College of Resources and Environment Science, Xinjiang University, Urumqi 830046, China); Ding Jianli **Remote Sensing Monitoring of Soil Salinization Based on Surface Spectral Modeling** (Arid Land Geography, ISSN1000－6060, CN65－1103/X, 39(1), 2016, p. 190－198, 8 illus., 1 table, 28 refs., with English abstract)

Key words: salinization, remote sensing

20170589 Wang Xinxin (Key Laboratory of

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Earth and Planetary Physics, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Huang Xiaoge **Experimental Study on Electrical Conductivity of Pyrolite and Piclogite at High Temperature and High Pressure** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 624－632, 5 illus., 2 tables, 41 refs., with English abstract)

Key words: electrical conductivity, pyrolite

20170590 Wang Yongguo (Institute of Geology and Mineral Resources Exploration, Qinghai Bureau of Nonferrous Metal and Geological Exploration, Xining 810000, China); Wang Zhonglian **Three－Component Borehole Magnetic Survey in the Galinge Iron Polymetallic Deposit in Qinghai Province** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 92－96, 3 illus., 1 table, 2 refs.)

Key words: magnetic prospecting, polymetallic ores, Qinghai Province

The Galinger iron polymetallic orefield is located Gobi desert, covered by Quaternary layer of 120～200 meter thick. After the drilling project, three－component magnetic survey in boreholes is the most direct way to search blind orebodies in the bottom of or nearby the holes. Based on the Galinger orefield, the authors research the change rule analysis of the three－component borehole magnetic survey data in of AZ and $\Delta H'$ curves and $\Delta T'$ vector. In the seeking of orebodies around the borehole and in the deep, this method is effective to guide the distribution of drill holes scientifically and promote the probability of positive drill hole.

20170591 Wu Bin (Geophysical Exploration Team, SBGEEMR, Chengdu 610072, China); Zou Jun **The Application of Spectrum Induced Polarization to Gas Hydrate Exploration** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 135－138, 2 illus., 1 table, 13 refs.)

Key words: geophysical exploration, gas hydrates, Qinghai Province

This paper deals with the basic principles and technical method of the application of spectrum induced polarization method to gas hydrate exploration. The method was used to determine the occurrence and depth of gas hydrate in the Tuotuo River region. Several electrical property parameters can be obtained by the use of the spectrum induced polarization method. The exploration depth of this method is large. This method provides reliable geophysical basis for the exploration of gas hydrate and an effective geophysical technique for detection of the thickness of the permafrost layer in the Tuotuo River region.

20170592 Wu Yihao (School of Geodesy and Geomatics, Wuhan University, Wuhan 430079, China); Luo Zhicai **Regional Gravity Modeling Based on Heterogeneous Data Sets by Using Poisson Wavelets Radial Basis Functions** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(3), 2016, p. 852－864, 5 illus., 7 tables)

Key words: gravity field, wavelet transform, geodesy

The high－accuracy and high－resolution regional gravity modeling based on heterogeneous data sets is a focused issue in physical geodesy. With the abundant multi－sources data, including satellite－only global gravity models, and airborne, shipboard as well as terrestrial gravity data sets, the regional gravity field could be further improved. However, these heterogeneous data sets have different spatial coverage and resolutions, various error characteristics as well asdifferent spectral contents. Thus, how to make use of these heterogeneous data sets remains an unsolved problem. Under the framework of remove－compute－restore methodology, only the residual disturbing potential is parameterized by using Poisson wavelets radial basis functions(RBFs).

20170593 Wu Zhenbo (State Key Laboratory

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of Lithospheric Evolution, Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Xu Tao **Crustal Shear－Wave Velocity Structure beneath the Western Tibetan Plateau Revealed by Receiver Function Inversions** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 516－527, 8 illus., 2 tables, 71 refs., with English abstract)

Key words: seismic exploration, crustal structure, North China Plain

20170594 Xie Hua (College of Earth Sciences, Chengdu University of Technology, Chengdu 610059, China); Yi Haisheng **Application of Magnetic Susceptibility Measurement in Sedimentary Manganese Deposits** (Contributions to Geology and Mineral Resources Research, ISSN1001－1412, CN12－1131/P, 31(1), 2016, p. 116－120, 3 illus., 2 tables, 18 refs.)

Key words: geophysical exploration, manganese ores

In order to investigate the application of magnetic susceptibility in sedimentary manganese deposit susceptibility test measurement on the drill core of Xialei manganese deposit in Guangxi has been carried out. This paper points out that susceptibility can be used as an index to rapidly distinguish manganese－bearing sequence in field. Details of Mn carbonate ore susceptibility anomly in Xialei manganese deposit show that carbonate minerals are magneticaly low and contribute very small to susceptibility, that high susceptibility anomly is indication of accompanying iron minerals, that high or low susceptibility of Mn ore depends on strong or weak magnetism of magnetic mineral s in the Mn carbonate ore, that chlorite absorbs Fe－bearing materials and its content is a key factor to influence susceptibility of Mn carbonate ore.

20170595 Xie Mengyu (University of Chinese Academy of Sciences, Beijing 100049, China); Shi Baoping **Numerical Simulation of Fault Instability due to an Arbitrary Static Stress Perturbation: A Comparison with the Dieterich Model and Coulomb Failure Model** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 593－605, 10 illus., 1 table, 41 refs., with English abstract)

Key words:

20170596 Xie Rukuan (China Aero Geophysical Survey and Remote Sensing Center for Land and Resources, Beijing 100083, China); Wang Ping **Depth Estimation of Potential Field by Minimum Inversion Fitting Error** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 711－720, 17 illus., 1 table, 40 refs., with English abstract)

Key words: gravity exploration, inverse problem, algorithms

20170597 Xu Jincheng (Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing 100029, China); Zhang Jianfeng **Residual Static Correction Based on Migrated Gathers** (Chinese Journal of Geophysics, ISSN0001－5733, CN11－2074/P, 59(2), 2016, p. 655－663, 10 illus., 19 refs.)

Key words: static correction, prestack migration, seismic exploration

Using migrated gathers to pick up the residual time shifts of the shot and receiver, a new residual static corrections method is presented. The method of residual static corrections is used to improve the resolution of pre－stack migration. The authors obtain the residual time shifts by migrated gathers rather than CMP gathers in the conventional method, which can reduce the artificial picking error by incorrect migration or indistinct events. The authors test this method on two field data set examples. The proposed method can be used both in 2D and 3D field data sets, which can be easily combined to conventional seismic data processing.

20170598 Yang Binnan (Institute of Geophysics & Geomatics, China University of Geosciences, Wuhan 430074, China); Wang Jiajun **Electrical Structural Features of Strata Bound Carlin—Type Gold Deposit in Southwest Guizhou Province——Audio Magnetotelluric Sounding of Shuiyindong Section** (Guizhou Geology, ISSN1000—5943, CN52—1059/P, 33(1), 2016, p. 1—7, 13, 4 illus., 1 table, refs.)

Key words: Carlin—type gold deposit, audio magnetotelluric methods, Guizhou Province

Shuiyindong gold deposit is an important part of Karlin— type gold deposits in southwest Guizhou, the orebody occurs in impure carbonate rock of low angle, the main orebody is controlled by the two sides of Huijiaobao anticline 500 m nearby as stratiform and stratoid. On the basis, audio mangnetotelluric sounding was studied in the precedence target area of east Huijiabao anticline, the electrical structure features are known from shallow plane to Maokou Formation, middle Dyas of this area, it was supposed the axial surface of Huijiabao anticline leaned east to Namazhai area.

20170599 Yang Xiaoping (Key Laboratory of Active Tectonics and Volcano, Institute of Geology, China Earthquake Administration, Beijing 100029, China); Liu Baojin **Survey of Crustal Structure and Fault Activity around Southern Shijiazhuang in the Eastern Margins of Taihangshan Mts.** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 528—542, 6 illus., 85 refs., with English abstract)

Key words: gravity field, lithosphere, Qinghai—Tibetan Plateau

20170600 Yin Gang (7th, Department Mechanical Engineering College, Shijiazhuang 050003, China); Zhang Yingtang **Research on Geometric Invariant of Magnetic Gradient Tensors for a Magnetic Dipole Source and Its Application** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(2), 2016, p. 749—756, 9 illus., 24 refs., with English abstract)

Key words: electromagnetic field, numerical analysis

20170601 Yu Anxi (College of Electronic Science and Engineering, National University of Defense Technology, Changsha 410073, China); Wang Qingsong **An Insar Performance Evaluation Method Based on Virtual Prominent Scatterers** (Chinese Journal of Geophysics, ISSN0001—5733, CN11—2074/P, 59(3), 2016, p. 865—870, 7 illus., 1 table, 22 refs., with English abstract)

Key words: synthetic aperture radar

20170602 Zeng Zhaohan (Geophysical Research Institute, SINOPEC, Nanjing 211103, China); Pei Yunlong **The Influence of Combination Vibroseis on Imaging Accuracy of High—Precision Exploration** (Geophysical and Geochemical Exploration, ISSN1000—8918, CN11—1906/P, 40(1), 2016, p. 61—65, 6 illus., 2 table, 15 refs.)

Key words: vibroseis, seismic exploration

The explosive effect of vibroseis is directly related to the quality of acquired data by vibroseis. Usnally combined excitation of means is used to ensure energy. This method will theoretically influence the effect of seismic data. The reflection time difference between the combinations lead to out—phase stacking, which affects the geological imaging precision. Through theoretical calculation, modeling and real seismic data analysis, the authors found the influence regularity of time—space domain. With less number of vibroseis area array, combined with high folds and geophone array, the authors effectively reduce the influence. This method also improves the efficiency and reduce cost, is easier to implement in the complex surface area, and is more suitable for high precision acquisition.

20170603 Zhang Yinsong (Geotechnical Engi-

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neering Testing Center of Chongqing, Chongqing 400707, China); Li Bin **The Application of the Transient Electromagnetic Method to the Waters Geological Investigation** (Geophysical and Geochemical Exploration, ISSN1000－8918, CN11－1906/P, 40(1), 2016, p. 160－162, 5 illus., 15 refs.)

Key words: transient electromagnetic methods, engineering geological investigation

To conduct engineering geological investigation in waters, common geophysical prospecting methods frequently fail to satisfactorily determine bedrock topography as well as strike and development extent of the blind fault in the investigated area. Taking the traversing project of the Yangtze River natural gas pipeline network in Jiangjin as a study case, the authors detected the river depth, overburden thickness and bedrock topography of the whole area by adopting the transient electromagnetic method to carry out survey in waters. Drilling verification shows that data consistency is fairly good, suggesting that the transient electromagnetic method has a good prospect in waters survey.

20170604 Zheng Bing (School of Geosciences and Info－Physics, Central South University, Changsha 410083, China) **A Theoretical Study of the Detection Depth of WFEM under the Condition of Transition Zone** (Geophysical and Geochemical Exploration, ISSN1000－8918, CN11－1906/P, 40(1), 2016, p. 78－82, 6 illus., 14 refs., with English abstract)

Key words: electromagnetic method

HYDROGEOLOGY & ENGINEERING GEOLOGY

1. HYDROGEOLOGY

20170605 Chen Wen (Wuhan Center of China Geological Survey, Wuhan 430205, China); Li Qinghua **Analysis on Hydrochemical Characteristics and Formation Mechanism of Groundwater in Qinzhou Port Area, Guangxi, China** (Geology and Mineral Resources of South China, ISSN1007－3701, CN42－1417/P, 32(31), 2016, p. 78－84, 5 illus., 3 tables, 18 refs., with English abstract)

Key words: groundwater, Guangxi

20170606 Cheng Dong (State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences, Wuhan 430074, China); Liao Peng **Effect of FeS Colloids on Desorption of As(V) Adsorbed on Ferric Iron** (Earth Science, ISSN1000－2383, CN42－1233/P, 41(2), 2016, p. 325－330, 5 illus., 24 refs.)

Key words: sediments, groundwater

The iron colloids in groundwater are associated with contaminants such as arsenate in transport processes, but the mechanism underlying the process is not clear. In this study, batch static adsorption and desorption experiments were conducted to investigate the effect of FeS colloids on desorption of As(V) adsorbed on Fe_2O_3－coated sand, as well as the influences of HA, $H_2PO_4^-$ and HCO_3^- on the desorption. The results show that FeS colloids at low concentrations desorbed As(V) mainly by competing adsorption sites on the surface of Fe_2O_3－sand, while desorption at high concentrations is mainly due to the competitive adsorption for As(V) with Fe_2O_3－sand.

20170607 Cqiao Bo (Research Institute of Exploration and Development, Changqing Oil Field Company, Xi'an 710018, China); Zhang Changmin **Controlling Factors on the Miocene Channel in Baiyun Sag, Pearl River Mouth Basin** (Geoscience, ISSN1000－8527, CN11－2035/P, 30(1), 2016, p. 200－208, 8 illus., 33 refs.)

Key words: waterways, Baiyun sag, Zhujiangkou Basin

During 21～18.5 Ma, 13.8～12.5 Ma and 10.5～8.5 Ma of Miocene, the channels developed in Baiyun Sag. In these three stages, the shape and architecture of the channels were different. During 21～18.5 Ma, the architecture of the channel was simple, the channel extended a long distance and the sediment was deposited in the distal end. In 13.8～12.5 Ma, the channel migrated northward. During the early of 13.8～12.5 Ma, the channel only developed in the south, then developed upstream. The channel in 10.5～8.5 Ma became deeper and narrower, and had the convergent feature. These changes of these channels' migration and shape feature were due to different controlling factors in these stages.

20170608 Hong Tao (Institute of Karst Geology, CAGS, Guilin 541004, China); Xie Yunqiu **Hydrochemical Characteristics Study and Genetic Analysis of Groundwater in a Key Region of the Wumeng Mountain, Southwestern China** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(1), 2016, p.11－18, 5 illus., 5 tables, 15 refs., with English abstract)

Key words: groundwater, hydrochemistry, Guizhou Province

20170609 Li Chongbo (Geological Survey Academy of Xinjiang, Urumqi 830011, China); Chu Hongkuan **Study on the Classification and Characteristics of Groundwater System in the Hami Basin** (Xinjiang Geology, ISSN1000－8527, CN11－2035/P, 34(1), 2016, p.139－143, 2 illus., 9 refs.)

Key words: groundwater system, Hami Basin, Xinjiang

Groundwater system division is a key foundation for Xinjiang coal base with groundwater resources. Based on the topography and geomorphology, regional geological conditions and hydrogeology conditions of the Hami Basin, the groundwater system in the Hami Basin was divided in taking the systematic theoretical analysis of groundwater. According to the principles and basis, the groundwater system can be divided into the fourth grade system including three the second groundwater systems(the second grade system), the eight sub－ systems(the thrid grade system). The division of groundwater system has important theoretical and practical significance for Xinjiang coal base with groundwater resources.

20170610 Mao Ruoyu (Key Laboratory of Groundwater Circulation and Environmental Evolution, Ministry of Education, China University of Geosciences (Beijing), Beijing 100083, China); Guo Huaming **Distribution Characteristics and Genesis of Fluoride Groundwater in the Hetao Basin, Inner Mongolia** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(2), 2016, p.260－268, 10 illus., 1 table, 22 refs., with English abstract)

Key words: fluoride groundwater, hydrogeochemistry

20170611 Wang Weiqi (Geological Environmental Monitoring Central Station of Jilin Province, Changchun 130021, China); Niu Kun **Study on the Relationship and Effect of the Evaluation Index in DRASTIC Model** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p.89－91, 2 illus., 4 refs.)

Key words: groundwater quality evaluation

Traditional DRASTIC Model was a linear weighting method, which contained 7 evaluation indices. The relationship among the evaluation indices has been analyzed in this paper, which have been divided into natural index and controlled index. Taking the assessment of aquifer vulnerability in the valley of Yanji City as an example, the effect in evaluation result has been analyzed.

20170612 Wei Yingchun (State Key Laboratory of Coal Resources and Safe Exploitation, China University of Mining and Technology, Beijing 100083, China); Zhang Qiang **The In-**

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fluence of the Salinity of Groundwater in Coal Measures on low Rank Coalbed Methane in the South Margin of Junggar Basin (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 31－37, 5 illus., 3 tables, 23 refs., with English abstract)

Key words: hydrogeologic conditions, coalbed gas, Junggar Basin

20170613 Xu Guangquan (School of Earth Science and Environmental Engineering, Anhui University of Science and Technology, Huainan, 232001 China); Sun Fengying **Evolution Process and Prediction of Karstic Geologic Abnormal Bodies in Panxie Coal Mining Area in Huainan** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 62－68, 3 illus., 1 table, 15 refs.)

Key words: karst, cylindrical structure, Anhui Province

Aiming at the hazards caused by water inrush from karst passages during deep mining, this paper discusses the characteristics of the geologic abnormal bodies (called GAD) according to recent detection data in Panxie mine. Based on the analysis of macroscopic geological background, from the sedimentary history, tectonic history, development of the ancient karst and interaction of ground water, GAD evolution process has been deduced. Through the analysis of the ancient landform and hydrogeological characteristics of dewatering test in different depth, some important karst information is obtained indirectly. The distribution of GAD is predicted, which can provide a valuable reference for how to prevent and control karst water disasters during deep mining.

20170614 Yang Yun (Department of Hydroscienees, School of Earth Sciences and Engineering, Nanjing University, Nanjing 210093, China); Wu Jichun **Analysis of the Uncertainty of Groundwater Numerical Simulation Based on the DREAM Algorithm** (Geological Review, ISSN0371－5736, CN11－1952/P, 62(2), 2016, p. 353－361, 5 illus., 10 tables, 17 refs.)

Key words: groundwater, numerical simulation

Numerical simulation of groundwater is often affected by the uncertainty of model generalization, observation errors and so on. For an ideal groundwater simulation model, the uncertainty of the simulation results which affected by the uncertainty of model structure generalization and the head observation errors is systematically analyzed. The study results show that the uncertainty of model structure generalization and the head observation errors cause the uncertainty of the groundwater simulation simultaneously. However, the uncertainty of model structure generalization is the controlling factor.

20170615 Yu Wenqi (School of Resources and Environmental Engineering, Hefei University of Technology, Hefei 230009, China); Qian Jiazhong **The Water Inrush Risk Assessment of Roof of Seam 13－1 in Xieqiao Mine Based on GIS and AHP** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 69－73, 3 illus., 1 table, 14 refs.)

Key words: coal seam roof, water gushing, Anhui Province

In order to solve the problem of evaluation of water inrush risk of seam 13－1 in Xieqiao mine, the spatial analysis of Arc GIS was used to set up the special layers through the collection and normalization of the data of main control factors. The AHP method was used to determine the weighted proportion of each main control factor. The main control factors were superimposed according to the weight after the dimensionless processing, and the partitioning scheme of water inrush risk in coal seam was put forward. The results of comparison between water inrush data of roof and the partition show that the linear vulnerability index method can evaluate the water inrush risk in seam roof accurately, objectively and quantitatively.

20170616 Zhou Nianqing (School of Civil Engineering, Tongji University, Shanghai 200092, China); Li Zhangping **Spatial Variability Characteristics of Eh and pH in West Dongting Lake Wetland and Analysis of Their Impact Factors** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(1), 2016, p. 126－133, 9 illus., 3 tables, 24 refs.)

Key words: wetlands, Dongting Lake

The spatial distribution characteristics of Eh and pH are the basis of studying contaminant existing form, migration and transformation mechanism in wetland. 12 drilling holes of the two monitoring sections are deployed in the estuary wetlands of Lihe River and Yuanhe River of the West Dongting Lake, Hunan Province, and the depths of holes are 8.0～14.0 m. Distribution pattern and spatial variability of Eh and pH were studied by the site and laboratory tests in the wetland hyporheic zones, and the impact factors were discussed. The results show that the Eh values are -57.8～238 mV with the average of 124.67 mV, and the pH values are 5.1～9.1 with the average of 7.4; the hyporheic zone of West Dongting Lake wetland is weak alkaline and reduction environment.

2. ENGINEERING GEOLOGY

20170617 Fang Wanling (Tianjin Institute of Geological Survey and Research, Tianjin 300191, China); Li Xueyun **Comprehensive Evaluation and Analysis on the Engineering Geological Stability of Tianjin Urban Construction** (Geological Survey and Research, ISSN1672－4135, CN12－1353/P, 39(1), 2016, p. 64－70, 5 illus., 6 tables, 12 refs.)

Key words: engineering geological stability, Tianjin

According to the survey data of active faults and crustal stability, a comprehensive evaluation of Tianjin urban construction engineering geological stability was carried with GIS hierarchical analysis method in this paper. The study on tectonic stability was major aspect while the study on urban construction medium stability and ground stability were complementary. According to the relevant standards of building seismic design, it is not necessary to consider the effects of faults activity on the buildings for this research area in city construction planning.

20170618 Guo Angqing (Qiqihar Institute of Mineral Resources Exploration and Development, Qiqihar 161006, China) **Engineering Geology of the Open Pit Slope of the Wunugetushan Copper－Molybdenum Mine in Inner Mongoijia** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 84－91, 3 illus., 1 table, 3 refs.)

Key words: slope stability, engineering geology, Inner Mongolia

The engineering geological characteristics of the open pit slope of Wunugetushan Cu－Mo mine are analyzed in respect to the natural background conditions, structural types of rock mass, rock mechanics parameters, engineering geological petrofabric features, slope engineering geological zoning, slope stability evaluation, slope failure type and size. Calculation of the slope stability shows that the A－A' profile in A zone and the E－E' profile in C zone cannot reach the requirement of safety factor. The slope stabilities in other zones are well. As of now, the slope is generally stable, without significant damage, which can basically represent the future slope failure type and stability state.

20170619 Han Fuqiang (No. 5 Institute of Geo－Exploration of Henan, Zhengzhou 450001, China); Zhang Jinling **Comprehensive Control of Unstable Slope in Lanzhou** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 78－84, 6 illus., 9 refs.)

Key words: slope stability, Gansu Province

For the comprehensive control of an un-

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stable slope in Lanzhou, by the use of anti-slide pile, soil retaining plank, pre-stressed anchor cable, passive protection net, active protection net, cutting (drainage) channel and backfill planting, the optimal combination of safety benefit, ecological benefit and economic benefit were achieved. Based on the analysis on regional engineering geological conditions, the paper puts forward the overall design ideas and introduces the design of various engineering measures as well as the construction points.

20170620 Han Jiangang (Inner Mongolia Institute of Geological Survey, Hohhot 450001, China); Quan Zhixi **Engineering Geological Condition of Caosiyao Molybdenum Deposit and the Influences on Exploitation** (Contributions to Geology and Mineral Resources Research, ISSN1001-1412, CN12-1131/P, 31(1), 2016, p. 147-154, 2 illus., 2 tables, 11 refs.)

Key words: engineering geological conditions, manganese ores, Inner Mongolia

Caosiyao molybdenum deposit is hosted by the basement strata—the Archean medium-strong metamorphic rock series of leptite and granulite in Huangtuyao Formation of Jining—Huangtuyao Group. The saturated and compressive strength of the host is 10.56～106.02 MPa belonging to weak-hard rocks which are conductive to mining but unfavorable to support. The rocks and ore body are generally mediumstable but partially weak. The engineering geological exploration belongs to the third kind of type one. In the future mining, more attention should be paid to the weak intercalation, especially in structurally fractureed zone and cataclastic area where engineering geological problems are easily to happen in tunnel and mining works.

20170621 Li Bingping (Center for Hydrogeology and Environmental Geology Survey, CGS, Baoding 071051, China); He Jibin **Analysis on the Mechanism of Water Increase by Fracturing in Bedrock Well** (Exploration Engineering, ISSN1672-7428, CN11-5063/TD, 43(1), 2016, p. 61-65, 5 illus., 1 table, 10 refs.)

Key words: hydraulic fracturing

The water increase by fracturing in the bedrock strata is closely related to rock properties. Because of different mechanical properties and fracture structure of each lithology, the fracturing mechanism and process methods are also different. According to the strata characteristics of bedrock groundwater and combined with the water increasing test of hydraulic fracturing, this paper focuses on the analysis on the formation mechanism of hydraulic fracturing and explores the relationship between different layers as well as their mechanical properties and the fracturing.

20170622 Li Lisheng (Fujian Institute of Geological Survey and Drawing, Fuzhou 350011, China) **Comparative Analysis of Rock and Soil Characteristics and Ground Condition in the North and South Port of Minjiang River, Fuzhou City, Fujian Province** (Geology of Fujian, ISSN1001-3970, CN35-1080/P, 35(1), 2016, p. 72-77, 3 illus., 4 refs.)

Key words: foundations, Fujian Province

This paper has summarized the geotechnical characteristics of the north and south port of Minjiang River in Fuzhou, and also analyzes the differences and influence on bridge engineering between them, including evaluating he two port foundation conditions. Advice would be provided for the selection of foundation bearing layer in bridges and across-tunnel engineering.

20170623 Niu Guosheng (Beijing Vibroflotation Engineering Co., Beijing 100102, China) **Application of Vibro-Replacement Stone Column in the Reservoir Dam Foundation Treatment** (Exploration Engineering, ISSN1672-7428, CN11-5063/TD, 43(1), 2016, p. 75-80, 2 illus., 1 table, 9 refs., with English abstract)

Key words: gravel piles, foundation stabilization

20170624 Qiao Cheng (Key Laboratory of Mountain Surface Process and Hazards, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Ministry of Water Resources, Chengdu 610041, China); Ou Guoqiang **Review on Numerical Modeling Methods of Debris Flow** (Journal of Earth Sciences and Environment, ISSN1672－6561, CN61－1423/P, 38(1), 2016, p. 134－142, 71 refs.)

Key words: debris flows, numerical simulation

As a kind of multiphase mixture medium, the debris flow has the complicated physical processes and kinetic characteristics. Numerical modeling methods based on the physical processes provide an effective measure to explore the mechanism of complex physical phenomena for debris flow. Numerical modeling methods for the debris flow dynamic problems were reviewed. The results show that traditional computing methods based on mesh have considerable development and application history, but have problems such as mesh disordering when dealing with large deformation and fast transportation of free surface flow.

20170625 Sun Qifa (Shenyang Institute of Geology and Mineral Resources, CGS, Shenyang 110034, China); Tian Hui **Study on the Land Subsidence of Shenyang Region Based on PS－InSAR, Precise Leveling and Other Technologies** (Geology and Resources, ISSN1671－1947, CN21－1458/P, 25(1), 2016, p. 79－83, 5 illus., 1 table, 5 refs.)

Key words: land subsidence, Liaoning Province

In order to recognize the status of land subsidence in Shenyang region, the permanent scatterer interferometric synthetic aperture radar (PS－InSAR) and other technologies are adopted on the basis of local precise leveling data and the 1:50 000 topographic maps of the region in different periods. The result shows that, before 1984, Shenyang area is basically stable; since 1984, the land subsidence has gradually developed; then after 2007, the rapid development of land subsidence in local areas became more serious.

20170626 Wang Dewei (Chengdu Center of Geological Survey, CGS, Chengdu 610081, China); Lin Qifei **Genetic Mechanism of the Apoluo Landslide in the Sunshui River Basin** (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 114－117, 4 illus., 5 refs.)

Key words: landslides, Sichuan Province

The Apoluo landslide is located on the right bank of the Apoluo Gully in the upper reaches of the Sunshui River in Xide, Liangshan Prefecture and is a large landslide induced by a rainstorm. The study reveals that the landslide is developed in the Panxi red bed where the rock is very fragmented under the influence of fold structures. Downcutting of the Sunshui River and influent seepage of surface water resulted in the destabilization of the landslide. An exceedingly torrential rain on Aug. 31, 2012 eventually triggered the Apoluo landslide.

20170627 Wang Hanxi (Northeast Normal University, Changchun 130117, China); Liu Yong **Analysis on Settlement Deformation of Municipal Solid Waste Sanitary Landfill Site Jilin** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 73－77, 3 illus., 3 tables, 12 refs., with English abstract)

Key words: waste disposal sites, subsidence

20170628 Wang Lei (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Li Bin **Run－Out Prediction of Large Thick－Bedded Unstable Rock: A Case Study of Daxiang Unstable Rock in Yangjiao Town, Wulong County, Chongqing** (Earth Science Frontiers, ISSN1005－2321, CN11－3370/P, 23(2), 2016, p. 251－259, 9

illus., 1 table, 31 refs.)

Key words: landslides

Taking the Daxiang unstable rock as a study case, this paper aimed at predicting the dynamic characteristics of long run-out landslide-debris flow. Based on geological and geomorphological survey, the development characteristics and failure pattern of Daxiang unstable rock were analyzed. The DAN3 Dcode and the rheological parameters calibrated through the inversion analysis of Jiweishan landslide were used for the analysis of the Daxiang unstable slope. The simulation results show that the movement process of rockslide-debris avalanche could be divided into four stages as launching, deflection and throwing, crash and erosion, and long range accumulation.

20170629 Wang Luhe (China Pingmei Shenma Energy and Chemical Group Co., Pingdingshan 467000, China); Zhao Chunxiao **Permeability Characteristics of Fractured Rock Based on Digital Image and Numerical Simulation** (Coal Geology & Exploration, ISSN1001-1986, CN61-1155/P, 44(1), 2016, p. 100-102, 6 illus., 5 refs.)

Key words: crack rocks

Based on real cross-sectional images of rock, by tailoring, binary and vector conversion, then importing numerical calculation software, a numerical model was established, the water pressure field and seepage velocity field were analyzed and the permeability coefficient was calculated. From analysis it was found that the water pressure showed the law of progressive decrease from the water inlet to the outlet. The seepage field was uneven, the active channels of seepage were mainly the well connected cracks, and in different boundary conditions, the permeability coefficient of rock mass calculated based on Darcy's law was different.

20170630 Yin Xiaobo (Hunan Zhongda Construction Engineering Technical Testing Co., Changsha 410205, China); Zhong Yanming **Improved GA-Based Identification Method of Power Function Model for Rock Joints** (Coal Geology & Exploration, ISSN1001-1986, CN61-1155/P, 44(1), 2016, p. 85-89, 2 illus., 2 tables, 12 refs., with English abstract)

Key words: rock mass structure

20170631 Yuan Peng (College of Construction Engineering, Jilin University, Changchun 130026, China); Zhao Dajun **Design of Emergency Control Scheme for Mountain Collapse in Lianghekou of Baoxing Country** (Exploration Engineering, ISSN1672-7428, CN11-5063/TD, 43(1), 2016, p. 20-26, 7 illus., 6 tables, 9 refs.)

Key words: unstable rock, avalanches, Sichuan Province

Lushan earthquake on April 20 led to a large number of secondary geological hazards, such as the development of dangerous rock mass collapse in Baoxing country, by which the lifeline provincial road S210 and more than 500 people were threatened, the earthquake relief work and post-disaster reconstruction were affected. Based on the full consideration of the nature situation of restoration region, pre-stressed anchor cable bolting, sheet pile retaining wall and rail barrier pile were adopted to form protective barriers and piles, which controlled the dangerous rock disasters at the top of dangerous rock mass in controlling region, colluvial deposit layer and the lower slope in the influence of rainstorm, and also overcame the weak bending resistance of passive network column. These measures won the precious time for the post-disaster reconstruction in Baoxing County.

20170632 Zhang Limin (Civil and Environmental Engineering School, Beijing University of Science and Technology, Beijing 100083, China); Zhang Hui **A Damage Constitutive Model for Rock Mass with Non-Persistently Closed Joints under Uniaxial Compression Load**

(Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 79－84, 6 illus., 16 refs., with English abstract)
Key words: jointed rock mass

20170633 Zhang Tao (Technical Center for Geological Hazard Prevention and Control, CGS, Chengdu 611734, China); Shi Shengwei **Analysis on Stability of Chenjiawan Landslide in Sichuan Province and the Prevention Recommends** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(1), 2016, p. 14－19, 8 illus., 4 tables, 9 refs.)
Key words: landslides, Sichuan Province

Due to the mountain's special geological background and human engineering activities, Chenjiawan landslide was divided into landslide Ⅰ# and landslide Ⅱ# as well as potential unstable slope by the middle ridge in the plane position. By geological disasters investigation, landslide's characteristics and geological origin mechanism were studied, and the stability analysis was evaluated. The results showed that only landslide Ⅰ# was in unstable state in rainstorm conditions. According to the landslide's terrain features and stability analysis, combined with the situation of the protected objects, two prevention and treatment programs of "anti－slide piles＋drainage ditches" and "pre－stressed anchors＋short anti－slide piles＋drainage ditches" were proposed for landslide Ⅰ#. Through comparative analysis, "anti－slide piles＋drainage ditches" was recommended as implementing scheme.

ENVIRONMENTAL GEOLOGY

20170634 Chen Jianping (Mining College, Liaoning Technical University, Fuxin 123000, China); Qiu Yan **Effect of Three Cations on Total Hardness of Groundwater** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(1), 2016, p. 47－51, 5 illus., 5 table, 19 refs.)
Key words: groundwater, water hardness, cations

Experiment using indoor immersion tests by changing the immersion time and concentrations of Na^+, H^+ and NH_4^+ was conducted to study its kinetic and thermodynamic behavior and to analyze the soil leachate total hardness changes. Results show that effects of three cations on soil leachate total hardness are different. The hardness replacement influence by NH_4^+ is the greatest. The influence of H^+ is greater than Na^+. In the same soil layer, the higher the leaching solution concentration is, the higher the total hardness replacement rate and the substitution amount will be. Three cations leaching solution can replace most Ca^{2+} and Mg^{2+} in the soil in one hour. Therefore, in the event of heavy rainfall or irrigation up to one hour, Ca^{2+} and Mg^{2+} will gradually move downward and lead to the groundwater total hardness increasing eventually.

20170635 Chen Ningsheng (Hazards and Environment, Key Laboratory of Mountain Hazards and Chinese Academy of Sciences, Chengdu 610041, China); Javed Iqbal **Tendency Prediction of Debris Flow Triggered by "8·3" Ludian Earthquake of Yunnan, China** (Journal of Chengdu University of Technology, ISSN1671－9727, CN51－1634/N, (43)1, 2016, p. 102－108, 3 illus., 1 table, 22 refs.)
Key words: seismic hazard, debris flows, Yunnan Province

A large number of secondary geological disasters occurred during the "8·3" Ludian earthquake of Yunnan Province. The disaster is resulted from the falling of soil strength duo to pre－drought and rainstorms. For assessment of secondary geological hazards, the effects of topography, geological conditions, earthquake and drought on debris flow development are analyzed, and the assessment in-

dexes are established. A speedy quantitative assessment of hazards sensibility is exercised by using GIS spatial analysis technology.

20170636 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.)

Key words: environmental geology, oil and gas fields, Songliao Basin

The Daqing oilfield in Songliao Basin is one of the major oil and gas production bases of China, with abundant oil and gas resources as well as groundwater and geothermal resources. After more than half a century of sustained development and construction, Daqing oilfield has entered the middle and late stage of development. The comprehensive water content of the oilfield is up to 90% and more. It should be paid great attention to immediately carry out investigation, evaluation, monitoring and research work and take countermeasures.

20170637 Guo Yonghai (Beijing Research Institute of Uranium Geology, Beijing 100029, China); Li Nana **Characteristics and Implications of Groundwater Isotopes in Yamansu and Tianhu Preselected Section for China's High Level Radioactive Waste Disposal Repository** (Acta Geologica Sinica, ISSN0001－5717, CN11－1951/P, 90(2), 2016, p. 376－382, 2 illus., 2 tables, 25 refs.)

Key words: waste disposal sites, groundwater

Deep geological disposal of high－level radioactive waste is considered to be more stable and safer way to isolate high－level radioactive waste from human environment. Normally, the surrounding rock is expected to be low－permeable matrix. The safety of geological disposal depends on the screen effect of surrounding rock and flow with nuclear waste transport through complex fractured rocks. Therefore, it is very important to conduct hydrogeological assessment at potential disposal sites of interest. Yamansu and Tianhu area, the important potential area for China's high level radioactive waste repository, is located in Xinjiang Uigur municipality, northwesten China.

20170638 Han Zhaoqing (Center for Historical Geographic Studies, Fudan University, Shanghai 200433, China); Ran Youhua **The Changing Distribution of Rocky Desertification in the Guangxi Region, 1930s to 2000** (Acta Geographica Sinica, ISSN0375－5444, CN11－1856/P, 71(3), 2016, p. 390－399, 4 illus., 4 tables, 25 refs., with English abstract)

Key words: rock desertification, Guangxi

20170639 Li Hao (College of Resources, Sichuan Agricultural University, Chengdu 611130, China); Zhang Xinbao **Assessment of Sediment Rate of a Kast Hill Peak－Cluster Depression Catchment Using ^{137}Cs Technique—A Case Study on Yaji Experimental Site** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(1), 2016, p. 57－63, 4 illus., 1 table, 25 refs.)

Key words: soil erosion, Cs－137, Guangxi

The Karst area of Southwest China is one of the regions having the most fragile ecological environment in China. A study on sediment depositional rate was undertaken in a hill peak－cluster depression catchment in Yaji experimental site in Guilin City by using ^{137}Cs technique and the sediment depositional rate was assessed. The average sediment deposition rate and specific sediment yield of the depression were estimated to be 0.104 cm·a^{-1} and 13.68 t·km^{-2}·a^{-1}, respectively for the period from 1963 to 2008. results indicate that the surface soil loss rate was slight in Karst mountain area having dense forest vegetation.

20170640 Liu Hui (College of Architecture and Civil Engineering, Xi'an University of Science & Technology, Xi'an 710054, China); Yang Gengshe **Multilevel Loess Landslide Risk Evaluation Based on Monte－Carlo Method** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 94－99, 102, 3 illus., 5 tables, 15 refs.)

Key words: landslides

Based on the theory of Monte－Carlo method and with the combination of simplified Bishop method, this paper established the analytical status function for the stability and reliability of the landslide under the condition of the limit equilibrium, put forward the calculation method for the stability of the loess landslide based on the probability, obtained that the destroy probability of all the slide faces are related to each other during the destroy of the multilevel loess landslide after calculation of the relevant safety margin coefficients during the sliding of the landslide of each level, meanwhile, established the evaluation index for the loess landslide risks based on the probability theory. Taking the landslide in Yangzhuang Village as the example, the stability coefficient and reliability of the Category－III landslide were calculated respectively, so as to reflect the dangerous degree of the Category－III landslide in Yangzhuang village quantitatively.

20170641 Nan Xuejiao (Tianjin Key Laboratory of Marine Resources and Chemistry, Tianjin University of Science and Technology, Tianjin 300457, China); Yu Xiaoping **Progresses on the Interaction between Selenium and Mercury in an Aquatic Ecosystem** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 1－9, 2 tables, 70 refs.)

Key words: ecosystem, mercury, selenium

In this paper, the speciation and distribution characteristics of mercury and selenium in the aquatic ecosystem and their interaction mechanisms were reviewed. Meanwhile, the reasonable addition of selenium compounds into water will be an effective way to inhibit the methylation processes of mercury in organisms. The development direction for the studies of interaction mechanisms between mercury and selenium and its physical effects in organisms were also reviewed.

20170642 Ni Xiangnan (Department of Earth and Environment Sciences, Xi'an Jiaotong University, Xi'an 710049, China); Guo Wei **Spatial－Temporal Patterns of Land Desertification and Their Relationships with Climate Variations in the Coastal Region of Western Hainan Island** (Quaternary Sciences, ISSN1001－7410, CN11－2708/P, 36(1), 2016, p. 144－153, illus., 4 table, 34 refs., with English abstract)

Key words: desertification, Hainan Province

20170643 Peng Ling (School of Land Science and Technology, China University of Geosciences, Beijing 10083, China); Xu Suning **Regional Landslide Risk Assessment Using Multi－Source Remote Sensing Data** (Journal of Jilin University, ISSN1671－5888, CN22－1343/P, 46(1), 2016, p. 175－186, 10 illus., 4 tables, 26 refs.)

Key words: landslides, risk analysis, Yangtze Three Gorgees

The head area of the Three Gorges is selected as the study area. Using multi－source remote sensing data as the major data source, the authors extracted the environment information pregnant with landslides including geomorphological, land cover, geological and hydrology by stereo image processing and spectral analysis, and analyzed the landslide hazard by using the random forest model. Finally, a landslide risk map is developed by integrating the elements at risk and landslide hazard datasets.

20170644 Wang Jiakun (No. 207 Geological Team, BGEEMRSP, Leshan 614000, China) **Control of Debris Flow in the Gangouqiao Gully**

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in Chaping Township, Anxian (Acta Geologica Sichuan, ISSN1006－0995, CN51－1273/P, 36(1), 2016, p. 118－122, 7 illus., 1 table, 3 refs.)

Key words: debris flows, geologic hazards, Sichuan Province

Gangouqiao Gully in Chaping Township, Anxian County is a gully with high frequency debris flow. Massive landslide and collapse resulted from the Wenchuan Earthquake on May 12, 2008 provide rich material source for debris flow which caused great losses to local production and life. This paper puts forward some control countermeasures based on field investigation combined with calculation.

20170645 Wang Zhe (Graduate Department of Chinese Academy of Geological Sciences, Beijing 100037, China); Tan Keyan **Origin of Heavy Metals in Total Suspended Particle and Their Influence on Soil Environmental Quality in an Industrial Area of South China** (Rock and Mineral Analysis, ISSN0254－5357, CN11－2131/TD, 35(1), 2016, p. 82－89, 3 illus., 3 tables, 31 refs.)

Key words: heavy metals, soil quality assessment

The environmental effects of heavy metals in atmospheric TSP and surface soil(0～20 cm) were studied in an industrial city of southern China. TSP samples were collected by atmospheric active sampling technique. The content of heavy metals in TSP was determined by Atomic Fluorescence Spectrometry and Inductively Coupled Plasma－Mass Spectrometry. The characteristics and sources of heavy metals were analyzed by enrichment factor and Pearson coefficient method. The results show that the highest content of Zn, Pb and Cd in the study area is 30 809.06 $\times 10^{-6}$, 9 902.91 $\times 10^{-6}$, and 1 011.21$\times 10^{-6}$, respectively, which are 201.43, 222.53, 5 616.20 times higher than the soil background values in China, and thus the pollution is serious.

20170646 Xie Xianjian (School of Geography and Resources Science of Neijiang Normal University, Neijiang 641000, China) **Concentration and Spatial Distribution Characteristics and Pollution Evaluation on Cd in Soil from Neijiang City, China Based on GIS and Index of Geoaccumulation** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(1), 2016, p. 82－88, 4 illus., 4 tables, 20 refs.)

Key words: soil pollution, cadmium, Sichuan Province

In order to determine the concentration of Cd and its potential degree of pollution of soils from Neijiang City, China, 406 soil samples were collected and spatial distribution characteristics and the pollution status of Cd based on GIS and index of geo－accumulation were evaluated. results indicate that the pollution grade levels of soil Cd in Neijiang City were pollutionfree, mild to moderate pollution, and moderate pollution according to the Kriging interpolation analysis.

20170647 Yang Ya(State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences, Guiyang 550081, China); Ji Hongbing **A Study on Chemical Forms and Leaching Characteristics of Trace Elements in Coal Gangue from Xinhua Coal Mine in Guizhou Province, China** (Earth and Environment, ISSN1672－9250, CN52－1139/P, 44(1), 2016, p. 36－46, 4 illus., 6 tables, 29 refs.)

Key words: coal gangue, minor elements, leaching methods, Guizhou Province

Chemical forms and leaching characteristics of nine trace elements As, Cd, V, Zn, Co, Cr, Cu, Ni and Pb in different weathering degree of coal gangue from Xinhua coal mine area in Guizhou Province, China were investigated by using BCR sequential extraction procedures and soaking experiments of contamination releasing regularity of coal gangue. results of BCR sequential extraction procedures show that As and Cd in coal gangue were mainly in the form of the acid soluble,

reducible and oxidizable occurrence, and other trace elements V, Zn, Co, Cr, Cu, Ni and Pb were mainly in the form of residual occurrence. Except for V, the percentage of chemical forms of other trace elements was affected by the weathering degree of coal gangue.

20170648 Yi Caiwen (School of Earth Science and Geological Engineering, Sun Yat-Sen University, Guangzhou 510275, China); Chen Binghui **Geochemical Characteristics of Rare Earth Elements in Dabaoshan Acid Mine Drainages, Guangdong Province, China** (Earth and Environment, ISSN1672 - 9250, CN52 - 1139/P, 44(1), 2016, p. 73-81, 6 illus., 7 tables, 27 refs., with English abstract)

Key words: mine environment, waste water, rare earths, Guangdong Province

20170649 Yu Peng (School of Environmental Studies, China University of Geosciences, Wuhan 430074, China); Ma Teng **Feasibility of Oilfield Wastewater Disposal in the Underpressure System of Basin** (Journal of Jilin University, ISSN1671 - 5888, CN22 - 1343/P, 46(1), 2016, p. 211-219, 7 illus., 2 tables, 22 refs.)

Key words: groundwater pollution

Based on the hydrological and geological conditions of Shiwu depression in Songliao Basin, the groundwater flow and pollutant transport model are constructed to predict storage ability and describe space distribution features of the underpressure area under the condition of infusing wastewater. This research shows that the underpressure system of Shiwu depression is a natural closed storage reservoir with capacity up to 1.241×10^8 m^3, which is suitable for wastewater injection and storage. The system pressure gradient is 0.005~0.008 MPa/m, and the pollutants are less likely to escape.

20170650 Zhang Qiang (Jilin Provincial Geological Prospecting Fund Management Center, Changchun 130061, China); Zhang Yichen **Mining Geological Environment Partition of Mineral Resources Exploration Area in Tonghua City, Jilin Province** (Jilin Geology, ISSN1001-2427, CN22-1099/P, 35(1), 2016, p. 94-98, 3 illus., 1 table, 6 refs.)

Key words: mine environment, Jilin Province

Based on the detailed survey of mining geological environment of mineral resources exploration area in Tonghua City, 9 evaluation factors about resources destruction, geological hazards, environmental pollution have been selected to build multi-level fuzzy evaluation method to divide the risk grades of mining geological environment. Research results show that the percentage of low-grade area of mining geological environment problem is above 60%, at the same time, the serious area of mining geological environment problem is mainly distribute in the northeast and the east part of Tonghua City.

20170651 Zhao Qingling (Lunan Geo-Engineering Exploration Institute of Shandong Province, Jining 272100, China); Li Qingcai **Health Risk Assessment of Carcinogenic and Non-Carcingenic Substances in Underground Water from the Shuangcun Karst System of Central-Southern Shandong Province** (Rock and Mineral Analysis, ISSN0254 - 5357, CN11-2131/TD, 35(1), 2016, p. 90-97, 2 illus., 3 tables, 18 refs.)

Key words: karst environment, groundwater, Shandong Province

In this paper, Shuangcun karst water samples in central-southern Shandong Province were chosen to evaluate human health risk. Using the risk assessment model of USEPA, the risk induced by two carcinogenic substances, such as As, Cr(Ⅵ) and seven non-carcinogenic substances (Hg, F, CN^-, NO_2^- N, NH_4^+ - N, NO_3^- - N, phenols) are evaluated. Results show that concentration of NO_3^- - N and NO_2^- - N in samples from several sites exceeds the limiting value of Hygienic Standard for Drinking Water (GB5749-2006). In terms of annual personal health risk

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caused by gene toxic substances through water drinking, Cr(Ⅵ) shows greater risk than As. In terms of risk caused by non-gene toxic substances, the induced risk has the sequence of NO_3^- — N F NO_2^- — N Hg CN^- NH_4^+ — N phenols.

20170652 Zhao Qingling (Lunan Geo-Engineering Exploration Institute of Shandong Province, Yanzhou 272100, China); Li Qingcai **Geochemical Characteristics of Plowing Layer Soil in South Jining Region, Shandong Province, China and Its Contribution Factors** (Earth and Environment, ISSN1672-9250, CN52-1139/P, 44(1), 2016, p. 25-35, 5 illus., 4 tables, 32 refs.)

Key words: cultivated land, soil geochemistry, Shandong Province

Southern district of Jining Region, Shandong Province, China is one famous production base for commodity grain, high quality garlic, rice and organic vegetables. Herein, 77 plowing layer soil samples were collected in southern Jining coal filed, and 26 indexes of the samples were detected. According to statistic result, variable coefficients of geochemical index in southern Jining plowing layer soil were in the order of Hg〉CEC〉S〉Cd〉Na_2O〉Mo〉CaO〉Corg〉As〉Mn〉Cu〉MgO〉Co〉Li〉Ni〉TFe_2O_3〉Se〉Zn〉F〉Cr〉Pb〉B〉SiO_2〉Sr〉K_2O〉pH. Results show that variable coefficients of Hg, CEC and S were all higher than 50% which was completely consistent with the frequency histogram and the comparison histogram of average and background value. On the basis of the results above, cause of plowing layer soil in southern Jining Region was meticulously analyzed with *R* factor analysis method.

MATHEMATICAL GEOLOGY

20170653 Chen Yuan (Research Institute of Exploration and Development, Tarim Oilfield Company, PetroChina, Korla 841000, China); Xian Rangzhi **Lithology Identification Method While Drilling Based on PCA-RBF Neural Network** (Acta Geologica Sichuan, ISSN1006-0995, CN51-1273/P, 36(1), 2016, p. 156-160, 165, 1 illus., 4 tables, 22 refs.)

Key words: neural network, gypsum salt rock, Tarim Basin

This paper has a discussion on lithology identification method while drilling based on PCA-RBF neural network by the example of gypsum salt rock formation in DB-X Well, Tarim Oilfield and puts forward lithology identification method for gypsum salt rock formation based on PCA and RBF neural network. A RBF neural network model for lithology identification of gypsum salt rock formation is set up.

20170654 Hou Manqing (School of Earth Sciences, East China University of Technology, Nanchang 330013, China); Wu Zhichun **Establishment of a Three-Dimensional Geological Model of the Zoujiashan-Julong'an Area in Le'an of Jiangxi Province** (Journal of Geology, ISSN1674-3636, CN32-1796/P, 40(1), 2016, p. 118-124, 9 illus., 11 refs.)

Key words: geological modeling, uranium ores, Jiangxi Province

The Zoujiashan-Julong'an area, located in the west of the Xiangshan volcanic basin in Le'an of Jiangxi Province, contains typical volcanic uranium deposits in China. With the constant improvement of uranium deposit exploration methods and technology, three-dimensional modeling of metallogenic process and orebody structure is helpful for deep prospecting work. This study collected and analyzed the multivariate geological-geophysical data obtained by CSAMT measurements and drilling, and constructed the fault structures and lithological interface with drilling-CSAMT-drilling profiles using GOCAD, MapGIS, Coredraw and Auto CAD software.

20170655 Li Dawei(PetroChina Research Institute of Petroleum Exploration and Development, Beijing 100083, China); Xiong Huaping **Preprocessing of the Data Tapping Based on Global Typical Oil and Gas Field Database** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(1), 2016, p. 66－70, 1 illus., 4 tables, 7 refs.)

Key words: data bases, data processing, oil and gas fields

Oil industry has entered upon "big data" epoch for many years, the data tapping or mining is an effective method to fully utilize the value of the data asset, and the data preprocessing is one of the study focuses of the data mining. The significance and situation of the data mining and preprocessing are analyzed, the basic thinking of the data mining in oil industry was presented. Taking Global Typical Oil and Gas Field database from an international petroleum exploration and development service and consultant company as the example, the detailed methods of the data mining preprocessing are dissected by taking "recovery factor" as the mining object.

20170656 Li Yuan (School of Geosciences and Info－Physics, Central South University, Changsha 410083, China); Mao Xiancheng **The Spatial Analysis of Mineralization in Xiadian Gold Mining Area Based on Geostatistics and Surpac Software** (Contributions to Geology and Mineral Resources Research, ISSN1001－1412, CN12－1131/P, 31(1), 2016, p. 29－35, 11 illus., 6 tables, 16 refs.)

Key words: geostatistics, gold ores, Shandong Province

Qualitative analysis of spatial distribution of mineralization in old mining area and extraction of most favorable mineralization index is necessary for the ore prediction to the depth and in the surroundings. This paper, taking ore body group in Xiadian gold deposit for example, builds geological database and uses Surpac software to calculate experimental Variograms and fit theoretical Variograms and obtain the best search ellipsoid parameters and build search ellipsoid model which reveals the distribution law of mineralization. Finally, the projection of mineralization contour map is drawn in the three－dimensional coordinate axis plane which intuitively display continuous direction of the gold grade inside ore body and provide a data basis for computing subsequent mineralization indicators.

20170657 Ma Jinfeng (Key Laboratory of Marine Mineral Resources, Ministry of Land and Resources, Guangzhou 510075, China); Liang Jian **Application of BP Neural Network to Geochemical Exploration of Natural Gas Hydrates** (Journal of Geology, ISSN1674－3636, CN32－1796/P, 40(1), 2016, p. 113－117, 5 illus., 2 tables, 10 refs.)

Key words: gas hydrates, BP neural network system

Geochemical methods used in the exploration of natural gas hydrates have uncertainty of parameters, and are in lack of result credibility due to the error transfer. This study applied the artificial neural network technology as a breakthrough point to explore natural gas hydrates, and established a neural network model through training. Using the nonlinear mapping technique, the authors revealed the nonlinear relationship among the multiple attributes during the evaluation of natural gas hydrates. The calculation suggests that the classification of the neural network can effectively remedy the defect of multiple solutions. It is illustrated that the BP neural network model based on geochemical data can simulate the study area and can further realize the classified evaluation of natural gas hydrates.

20170658 Qin Chuli (Geological Survey Institute of Guangxi, Nanning 530023, China); Wu Guoquan **Application of Micromine Software in Shidonggou Silver Polymetallic Mining Area** (Mineral Resources and Geology, ISSN1001－5663, CN45－1174/TD, 30(1),

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2016, p. 141－146, 6 illus., 4 tables, 17 refs.)

Key words: Micromine software, geologicalmodel, gold ores

Based on Micromine software platform and combined with the geological data related to Shidonggou silver polymetallic deposit, the author established a 3D surface model superposed by geologic data, and it gave a true and effective revelation of the relationship among various factors related to the genesis of the de posit. On this basis, this paper conducted spatial grade value assignment by applying inverse distance weighted method on the orebodies and made a fast estimation on mineral reserves. It also built a systematic model of prospecting and mining engineering which provided scientific basis for the exploration, mining de sign and construction management of the deposit.

20170659 Tang Yongqiang (Research Institute of Petroleum Exploration and Development, SINOPEC, Beijing 100083, China); Lu Chengyuan **Simple Calculating Algorithm of the Relative Permeabilities by the Production Data of Five－Spot Well Pattern** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(1), 2016, p. 71－75, 5 illus., 13 refs.)

Key words: permeability, algorithms

A simple method is proposed in this paper to approximately calculate the relative permeabilities with the help of the production data. And then taking the waterflooding test data in the five－spot well pattern model as an example, the oil and water relative permeabilities of the cores are computed, and meanwhile integrated with CMG model, the experimental results are fitted to demonstrate the accuracy of the calculating method. Finally comparing with the other approaches, the method is proven to possess more simple and concise advantage in the calculation of the relative permeabilities.

20170660 Wang Qiao (Geological Survey Institute in Coal Mine Exploration of Guizhou Province, Guiyang 550008, China); Dou Yanbao **Program Compiling for Coal Field Drilling Comprehensive Results by Excel VBA** (Coal Geology & Exploration, ISSN1001－1986, CN61－1155/P, 44(1), 2016, p. 27－30, 1 illus., 2 tables, 12 refs.)

Key words: computer programs

Coal drilling comprehensive results analysis and statistical calculations is important foundation works of correlation of histogram drawing, coal seams and coal reserves calculation. Although the traditional analyses work has used Excel, manual processing is demanding. VBA language is embedded in the EXCEL and easy to grasp, and development of the related calculation program can greatly improve the efficiency of the technical staff. A comprehensive results analysis program has been developed with VBA and has been applied in the project of coal exploration area design in Jiegou of Hezhang County, Guizhou Province. Practice has proved that the program is efficient and has high accuracy.

20170661 Wang Zefeng (Beijing H. E. M. E. New － Tech. Development Co., Beijing 100044, China); Zhong Shihang **The Application of Secondary Development of Autocad in Achievement Graphs to Karst Exploration** (Geophysical and Geochemical Exploration, ISSN1000－8918, CN11－1906/P, 40(1), 2016, p. 163－166, 6 illus., 8 refs.)

Key words: digital cartography, engineering geological investigation

The karst caves whose diameter is more than lm at the depths of 0～13 m were the objects in the exploration of concealed karst of Gui－Guang Railway. Landsonar was used in the tunnel part, and 4 491 karst caves more than l m in diameter were marked along the 68 km surveying line. As there is no ready－made software and standard to draw the achievement graphs in karst cave exploration, the means put forward in this paper are the best methods to take the advantage of the sec-

ondary development of AutoCAD to program a software and draw the graphs.

20170662 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, 14 illus., 4 refs.)

Key words: data, boreholes

This paper briefly introduces to the application of Excel, Map GIS and MGT6 software in drawing borehole 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.

EXPLORATION ENGINEERING

20170663 Cai Jiapin (Beijing Institute of Exploration Engineering, Beijing 100083, China); Zhao Yi **Research on the Pressure－Temperature Core Sampler for Ocean Exploration** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 60－63, 14 illus., 8 refs.)

Key words: drilling tool

In view of the natural gas hydrate reservoir environment and relying on the research on the geological survey project "the design and technical study on in－situ drilling and sampling equipments for the water formations", pressure－temperature core sampler for ocean was developed. On the basis of laboratory test, functional marine experiment was made on the developed drilling tools in shallow water and deep water successively. After the improvement, the functional test of pressure－temperature core sampler was made in 1 392 m deep sea with success, which lays a solid foundation for the ocean exploration and sampling of natural gas hydrate in China.

20170664 Dong Hongbo (Ningbo Security Quality Supervision Station of Municipal Public Engineering, Ningbo 315000, China); Wang Ziyang **Application Research on Properties of Protection Slurry for Diaphragm Retaining Wall Trenching in Soft Soil** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 70－72, 1 illus., 3 tables, 9 refs.)

Key words: underground diaphragm walls

For the construction of diaphragm retaining wall trenching in sand－bearing soft soil layer, the construction quality will be affected by the collapse of side wall of trench. Water loss reducing, appropriate slurry viscosity increasing and collapse prevention are the key for wall protection in trenching. According to the geological conditions of a diaphragm retaining wall trenching engineering in Ningbo, partially hydrolyzed polyacrylamide (PHP), calcium polyacrylonitrile (CPAN) and potassium nitryl humate (NKHm) were taken as additives; the optional ratio of slurry performance was ascertained by the orthogonal test. The test results show that when using PHP, the amount of water loss is small with thin mud cake; CPAN and NKHm have evident effects on fluid loss control with moderate viscosity. The test result is applied in the engineering practice and the good effect of wall protection is received.

20170665 Feng Changying (Jilin Sixth Geological Prospecting Engineering Team, Yanji 133401, China); Liu Dianyou **Application of Air Reverse Circulation Continuous Sampling in Auriferous Conglomerate** (Exploration Engi-

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neering, ISSN1672—7428, CN11—5063/TD, 43(2), 2016, p. 48—52, 4 illus., 2 tables, 8 refs.)

Key words: air drilling, reverse circulation drilling

Good effects were received by the application of air reverse circulation continuous sampling technology with rational drilling equipments and drilling parameters in an auriferous conglomerate mine of Jilin. The practice shows that the recovery of rock samples is more than 98% in auriferous conglomerate by the use of air reverse circulation continuous sampling technology, where sampling is difficult; and along with DTH hammer technology, drilling efficiency in hard rocks can be improved with the cost being reduced. The paper introduces the construction equipment, pipe configuration and the process of air reverse circulation continuous sampling technology.

20170666 Gan Xin (College of Construction Engineering, Jilin University, Changchun 130026, China); Yin Kun **Analysis on the Bottomhole Flow Field and Structural Optimization of Air Reverse Circulation Drill Bit** (Journal of Jilin University, ISSN1671—5888, CN22—1343/P, 46(1), 2016, p. 187—194, 11 illus., 17 refs.)

Key words: exploration engineering, bit

In order to improve the application effect of the reverse circulation air hammer drilling technique, on the construction of rock—socketed pile by using software Fluent, the authors analyzed the horizontal inclination angle θd of flushing nozzles and horizontal inclination angle θk of pressure—restoring grooves on the reverse circulation drill bit used in the construction of rock—socketed pile. The effects of the θd of flushing nozzles and the θk of pressure—restoring grooves on the suction coefficient of reverse circulation drill bit are obtained.

20170667 Hu Moupeng (China Petroleum Pipeline Engineering Corporation, Langfang 065000, China); Chen Xuejian **Hydraulic Test of Water Curtain System for Underground Water—Sealed Oil Storage Cavern and Water Curtain Drilling Construction** (Exploration Engineering, ISSN1672—7428, CN11—5063/TD, 43(1), 2016, p. 81—84, 7 illus.,14 refs.)

Key words: underground space, drilling

Water curtain system is the most critical part of underground water—sealed oil storage, which is composed mainly of water curtain channel, water curtain hole, additional water curtain holes, monitoring well and instrument well. The results of hydraulic test are the basis of the water curtain system apprising and the construction quality of water curtain hole is the guarantee of hydraulic test and the test results. According to the project of an underground water—sealed oil storage cavern in Liaoning, the paper explains the hydrological test method during the water curtain construction, analyzes the function and correlation of each hydrological test during the construction and introduces the construction technology of water curtain hole.

20170668 Ji Jingming (State Key Laboratory of Oil & Gas Reservoir Geology and Exploitation, Southwest Petroleum University, Chengdu 610500, China); Yang Yuanguang **Research on Fuzzy Evaluation Method for Cement Slurry in Main Performance** (Exploration Engineering, ISSN1672—7428, CN11—5063/TD, 43(2), 2016, p. 24—27, 5 tables, 10 refs.)

Key words: cementing, drilling fluid property

Based on the shape and direction of different fuzzy membership function's distributional curve, the authors selected the fuzzy distribution which is suitable to describe the cement slurry's thickening time, liquidity index, API fluid loss, compressive strength. By comparing the actual performance of cement slurry designed and measured with actual cementing quality score, the authors got the parameters of related membership function.

Taking the 5 wells as an example, the results obtained from this evaluation method are verified by existing literature and the average fitting error of the cementing quality of the site is raised to −3.34% by −12.26%, which means this method can be used as a practical and reliable method for optimization of cement slurry system and admixture.

20170669 Ji Weijun (Beijing Institute of Exploration Engineering, Beijing 100083, China); Zhang Mingde **Research and Application of Flushing Fluid Technology for Potassium Ore Resource Investigation Project of Lenghu Town in Qinghai Province** (Exploration Engineering, ISSN1672−7428, CN11−5063/TD, 43(1), 2016, p. 54−57, 7 tables, 7 refs.)

Key words: inhibitive drilling fluid, Qinghai Province

An investigation and evaluation on potassium mineral resources in Lenghuzhen of Qinghai Province is required by the project. There are large segments of halite and gypsum layer in the formation of Lenghu Town in Qinghai Province with loose stratum and high pressure coefficients. According to the special circumstances in this region, an salt resistance and collapse control non−dispersible flushing fluid was developed. The application shows that this flushing fluid has good salt and calcium tolerance, anti−sloughing and suspension property. The density of the flushing fluid should be adjusted according to the different formation pressure coefficients.

20170670 Mu Jiong (EuerTech−Drilling & Production Co., CNOOC, Tianjin 300452, China); He Pengfei **Wellbore Trajectory Control Technique for Shallow Extended Reach Ultra−Long Horizontal Well I38H** (Exploration Engineering, ISSN1672−7428, CN11−5063/TD, 43(2), 2016, p. 57−59, 3 illus., 3 tables, 12 refs.)

Key words: hole trajectory

I38H is a prior drainage horizontal well in adjustment wells of Bohai oilfield, which was used for injection in later stage. 827.0 m horizontal section was designed to satisfy injection−production relation of 3 wells in the surrounding. I38 H is also a shallow displacement well with horizontal and vertical ratio of 2.47. For the safety of drilling operation, by the optimization of hole configuration, rational design of wellbore trajectory, the use of beck rotary steering tool and the reamer while drilling, well I38 H drilling operation was successfully completed.

20170671 Nie Hongyan (No. 247 Nuclear Industry Brigade of Tianjin North China Geological Exploration Bureau, Tianjin 301800, China); Dong Zhenkun **Drilling Process for Deviation Prevention and Control in Water Sensitive Formation in Altay Region** (Exploration Engineering, ISSN1672−7428, CN11−5063/TD, 43(1), 2016, p. 51−53, 1 illus., 2 tables, 7 refs.)

Key words: water sensitive bed, drilling, Xinjiang

Ashele copper mine in Xinjiang Altay region is in typical altered water sensitive formation mainly with tuff, amphibolite, large stratigraphic dip and obvious rock anisotropy, borehole is easily deviated in drilling process. The frequent accidents of hole shrinkage, collapse, block falling and sticking restricted the selection of deviation prevention and correction technologies, which makes it difficult for the field drilling construction to meet the requirements of fast and economic geological prospecting. By the analysis on deviation prevention and correction technologies in the constructed water sensitive formation, a series of technical measures of deviation prevention and correction in water sensitive formation is presented to improve the quality of drilling hole.

20170672 Sun Jianhua (Institute of Exploration Techniques, CAGS, Langfang 065000, China); Wang Lingang **Analysis on Small Diameter Wire−Line Core Drilling Technology in Deep Hole** (Exploration Engineering,

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ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 12－17, 1 table, 11 refs.)

Key words: wire line coring, core drilling

This paper briefly analyzes the technical design of wire－line core drilling for deep geological hole and discusses the borehole structure design, technical risk factors and drilling safety. At the same time, the suggestions are made on the reasonable selection of diamond wire－line core drilling bit, the improvement of service life of wire－line core drill pipe and the evaluation method.

20170673 Sun Qingchun (College of Petroleum Engineering, Xi'an Shiyou University, Xinxiang 453700, China) **Analysis on Plugging Measures for Leakage in Liujiagou Formation of Dongsheng Gas Field** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 53－56, 3 illus., 8 refs., with English abstract)

Key words: lost of circulation, plugging

20170674 Tian Wei (Research Institute of Geological Prospecting Technology of Jilin Province, Changchun 130103, China); Zhong Yu **Development of a Double Elastic Plates Rope Coring Tool** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 114－117, 5 illus., 1 table, 2 refs.)

Key words: drilling tool

The paper analyzed the shortcomings and deficiencies of the original wire line core bit and developed the new one. The new drilling tool abandoned the original design ideas and changed the positioning mode of the inner pipe assembly of the original drilling tool and the trajectory of the upper elastic plate, and added the location of lower elastic plate. The practice proves that the new drilling tool basically solved the problem of the slowdown in the inner tube assembly and easy to be blocked, which led to the failure of salvage.

20170675 Wang Lianjie (Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China); Cui Junwen **Determination of Three－Dimensional in Situ Stresses by Anelastic Strain Recovery in Tengchung Scientific Drilling Hole** (Acta Geoscientica Sinica, ISSN1006－3021, CN11－3474/P, 37(1), 2016, p. 111－115, 6 illus., 1 table, 28 refs.)

Key words: Scientific Drilling Hole, Yunnan Province

Three－dimensional in－situ stress is measured by anelastic strain recovery method (ASR) in Scientific Drilling well in Tengchong of Yunnan province. ASR method is an economic and practical new method, which is developed for three－dimensional in－situ stress measurement at great depth in recent years. In－situ stress state is obtained in depth from 720 m to 1 098 m by ASR method. The results of measurement show that the maximum and intermediate principal stress is nearly horizontal, and the minimum principal stress is nearly vertical. The direction of the maximum horizontal stress is from 30° to 45°. Measurement results by ASR are compared with the focal mechanism solution. Comparison shows that the results by ASR are in good agreement with focal mechanism solutions.

20170676 Xie Baojun (Daqing Drilling and Exploration Engineering Corporation, Daqing Oilfield Co., Daqing 163413, China); Wang Liansheng **Experiments of the Oil－Displacing Agent Influences on the Cementing Quality** (Petroleum Geology & Oilfield Development in Daqing, ISSN1000－3754, CN23－1286/TQ, 35(1), 2016, p. 89－91, 4 tables, 10 refs.)

Key words: cementing

Since 1990s, Daqing oil field had entered the tertiary recovery phase. The injected polymer and ASP enhance the oil recovery have played an important role in the stability of the oil production. In order to research the influences of new oil displacing agent on the cementing quality of the newly drilled wells, the following indoor experiments are carried out:

the polymer and ASP invading the drilling fluid and cement slurry and moreover the cement stone cured by the polymer and ASP. The test shows that the new oil displacing agents have a greater influence than that of the formation water on the drilling fluid and cement slurry performances.

20170677 Yan Tingfu (Fifth Geological Survey of Jilin Province, Changchun 130061, China); Zhang Yuanqing **The Effect of Polymer Solid－Free Drilling Fluid in Coal Series Water Sensitive Formation** (Jilin Geology, ISSN1001－2427, CN22－1099/P, 35(1), 2016, p. 111－113, 2 illus., 4 refs.)

Key words: drilling fluid, drilling

Kalun lake sedimentary rocks in coal series strata encountered water swelling, peeling off and collapse, wire line coring using polyacrylonitrile ammonium salt polymer solid－free drilling fluid rope, the water sensitive formation is effectively inhibited, which both to improve drilling efficiency and quality, and to reduce the drilling accident and labor intensity.

20170678 Zeng Zailin (Geological Investigation Team of Gannan, Geological Prospecting Bureau of Jiangxi Province, Ganzhou 341000, China); LiangJmgshi **Application of Gannan Drill in Rare Earth Ore Prospecting** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(1), 2016, p. 44－47, 2 illus., 4 tables, 6 refs.)

Key words: drilling, rare earth deposit, Jiangxi Province

South Jiangxi area is the production base of weathering－crust－ionic－absorption－type RE ore. In the long－term exploration and development practice, a new exploration means Gannan drill was invented. In this paper, the basic structure, operating method and the requirements of technical quality of Gannan drill are introduced. By contrasting the application effect of this new method and that of traditional exploration means, the suitability of Gannan drill to the exploration and evaluation for this type of deposit is reflected.

20170679 Zhai Lixin (101 Team of Bureau of Non－Ferrous Geology of Liaoning Province, Fushun 113015, China); Yang Jianli **Experimental Application of DTH Hammer Reverse Drilling Technology in Lala Copper Mine** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(1), 2016, p. 66－69, 7 illus., 2 tables, 10 refs.)

Key words: down－hole hammer drilling, reverse circulation drilling

According to the existing dust pollution and serious core(sample) loss in air drilling operation in open pit mine, productive experiment was carried out with air DTH hammer reverse circulation drilling technology in Lala copper opencast mine of Sichuan to test the penetration rates, the effects of dust control and core(sample) recovery percentage. The experiment was performed on 3 bore holes with total drilling depth of 483 m, average drilling efficiency 8.83 m / h and the whole length of core(sample) 252.43 m. The effect of reverse circulation drilling was good and different drilling assembly had no influence on the effect of reverse circulation drilling. There was no dust dispersion in the test site.

20170680 Zhao Fusen (The First Hydrogeology Team of China National Administration of Coal Geology, Handan 056000, China); Zhang Kai **Research on Hot Dry Rock Well Drilling Technology** (Exploration Engineering, ISSN1672－7428, CN11－5063/TD, 43(2), 2016, p. 18－23, 13 illus., 5 tables, 10 refs.)

Key words: hot dry rocks, core drilling, Qinghai Province

ZR1 hot dry rock well has the characteristics of high temperature, high hardness and high abrasiveness. Polysulfonate drilling fluid system was selected in the construction for its good keeping of rheology and low filtration under high temperature and high pressure. By the analysis on the factors such as formation

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lithology and petrophysical property, the cone bit suitable for the well drilling in high hardness and high abrasive formation was selected and 1.24 m/h average ROP was obtained. Through the experiment and practice, the cementing technology of high temperature (130 ℃) was mastered, water sealing and cementing quality is qualified by inspection. By the use of Chuan 5— 4 type coring apparatus, coring operations were successfully completed in the high temperature, high pressure, and the broken formation with core recovery of 45% ～ 83%.

20170681 Zhong Yu (Institute of Geological Prospecting Technology of Jilin Province, Changchun 130103, China); Tian Wei **Research on the Technology of Auger Hole and Grouting Pile** (Jilin Geology, ISSN1001—2427, CN22—1099/P, 35(1), 2016, p. 92—93, 98, 3 illus., 2 tables, 6 refs.)

Key words: boreholes, drilling fluid

The technology of auger hole and grouting pile is based on the geological characteristics, groundwater condition, drill with cement protecting — wall and penetration of cement grouting principle. The construction task of pile foundation is completed by used auger hole, under the conditions of groundwater, silt stratification, flow plastic clay layer and collapse stratum and so on, in the construction of a construction site. The practice has proved that the auger hole and grouting pile technology is feasible.

20170682 Zou Daoquan (No. 8 Geology Team of Fujian, Longyan 364012, China) **Application of Controlled Directional Drilling Technology in Makeng Mining Area** (Exploration Engineering, ISSN1672 — 7428, CN11 — 5063/TD, 43(1), 2016, p. 70—74, 3 illus., 4 tables, 9 refs.)

Key words: directional drilling, Fujian Province

Whipstocking by screw drill and directional technology by fiber optic gyroscope measurement were applied in ZK8321 branch hole of Makeng mining area to avoid upper complex hole segment and the influence on exploration. The paper analyzes the difficult construction technologies, introduces the construction measures and the effects and summarizes the practice experience.

20170683 Zuo Ruqiang (Ministry of Land and Resources of China, Beijing 100812, China) **International Advancement of Drilling Bits for Oil and Gas Well (1) —Kymera Hybrid Bit** (Exploration Engineering, ISSN1672—7428, CN11—5063/TD, 43(1), 2016, p. 4—6, 4 illus., 3 refs.)

Key words: bit

Baker Hughes commercially launched a new hybrid bit, Kymera bit, which combines features of a PDC and roller cone bit in Q4 2011. Kymera bit is especially suitable for difficult — to — drill formation, such as hard, stick—slip, hard—soft interbedded formations in shale plays, as well as for directional and horizontal well drilling. Kymera bit can increase ROP with roller cone's ingressive capability in hard formation, improve PDC cooling condition, decrease torque fluctuation obviously, and also control well trajectory effectively. Kymera bit has been successful in oil and gas field applications in many counties. The development background of Kymera bit and case studies are given.

20170684 Zuo Ruqiang (Ministry of Land and Resources of China, Beijing 100812, China) **Exploration Engineering: Rock and Soil Drilling and Tunneling** (Exploration Engineering, ISSN1672—7428, CN11—5063/TD, 43(2), 2016, p. 1—4, 6 illus., 4 refs.)

Key words: bit

Fuse Tek bit, a PDC + Impregnated diamond hybrid bit, launched by NOV in 2013. It is suitable for drilling medium — hard to hard and abrasion formations. The Fuse Tek bits were widely used in Congo, Ecuador, China, Colombia, etc. Applications have shown

that the Fuse Tek bits could increase the ROP obviously and bit life 1 — 3 times or more compared with PDC bit or roller cone bit. Pexus hybrid bit, a PDC + Carbide hybrid bit, launched by Shear Bits in 2014, which used extensively in Western Canada to drill glacial till, comprised of a hard top layer of boulders, drilled by rotary carbide element and a soft bottom layer of sand and shales drilled by PDC cutters. The whole interval can be drilled in one run with one Pexus bit. Those three types of hybrid bits are significant for realization of "one bit, one well" in the future.

PROSPECTING EXPLORATION

20170685 Lei Tianci (Wuhan Centre of China Geological Survey, Wuhan 430205, China); Luo Shixin **Application of Weights of Evidence Method for Prediction of W — Snpolymetallic Deposits Based on Multi — Source Information in Nanling Metallogenic Belt** (Geology and Mineral Resources of South China, ISSN1007 —3701, CN42—1417/P, 32(31), 2016, p. 34 —42, 8 illus., 3 tables, 20 refs., with English abstract)

Key words: metallogenic prediction, Nanling Mountains

20170686 Sun Wuguo (No. 7 Geological Brigade of Liaoning, Dandong 118003, China); Lian Tao **Geological Characteristics and Prospecting Significance of the Bambari Greenstone Belt in the Central African Republic** (Geology and Resources, ISSN1671 — 1947, CN21 — 1458/P, 25(2), 2016, p. 208—212, 4 illus., 2 tables, 5 refs.)

Key words: greenstone, gold ores, Central African Republic

The Archean Bambari greenstone belt, located in the north of the Congo craton, trending northwest with a length of 250 km and width of 10 ~ 24 km, is lithologically composed of Archean granite, Banded iron Formation (BIF), amphibolite, sericite schist and quartz sericite schist. A large iron—gold associated deposit is found in the eastern part, covering 1/3 of the area. A comparative study concludes that, in the central and western area of the Bambari greenstone belt, it is still significant for prospecting.

20170687 Wang Kuifeng (Key Laboratory of Gold Mineralization Process and Resource Utilization Subordinate, Ministry of Land and Resource, Jinan 250013, China); Han Xiangyin **Study on the Mineral Resource Carrying Capacity and Protection Degree in Shandong Peninsula** (Geological Survey and Research, ISSN1672 — 4135, CN12 — 1353/P, 39(1), 2016, p. 47—55, 9 illus., 8 tables, 25 refs.)

Key words: mineral resources, Shandong Province

Based on the analysis of the ore—forming geological characteristics, distribution, reserves of the status quo of Shandong peninsula, the authors set up the mineral advantage analysis model by analytic hierarchy process (AHP) and applied to the research area, then, building the forecasting analysis model to evaluate the mineral resources guarantee ability and the demand for the study area. The results show that the advantage mineral kinds of Shandong peninsula is gold, coal, graphite, copper, silver, talc, granite mine. Mineral resources carrying capacity is divided into four levels: Yantai City is first rate, Weifang City is secondary rate, Qingdao City is tertiary rate, Weihai and Rizhao cities are poor rate.

20170688 Xie Xie (Xi'an Center of China Geological Survey, Xi'an 710054, China); Yang Jianguo **Metallogenic Conditions and Prospecting Potential of Mafic — Ultramafic Rocks along Dashantou — Heishan Area in Beishan, Gansu Province** (Northwestern Geology, ISSN1009 — 6248, CN61 — 1149/P, 49(1),

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2016, p. 15—25, 3 illus., 5 tables, 24 refs.)
Key words: metallogenic prediction, basic rocks, Gansu Province

The Dahantou—Heishan area is located in northern margin of the Tarim Plate, where mafic—ultramafic rocks related to mineralization are more widespread. The ore—bearing rock is more controlled by Miaomiaojing—Xishuangyingshan fracture and secondary faults, with the diagenetic age concentrated in the age of 358～397 Ma. After carrying out the research on geological characteristics, petrological characteristics and rock geochemistry of several copper—nickel mineralized mafic—ultramafic rocks, and combining with the geological prospecting practices in recent years, it's considered that the ore—forming conditions for copper—nickel mineralization associated with ferruginous mafic—ultramafic rocks are very well, which has a potential to further search for copper—nickel magmatic deposits.

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