

China Geological Survey

**Progresses and Outlook for
International Cooperation of
Earth Sciences along the
“Belt and Road”**

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中国地质调查局
CHINA GEOLOGICAL SURVEY



China Geological Survey has established bi-lateral cooperation with 50 countries and signed MOU with 16 countries along the “Belt and Road”, focusing on geological mapping, assessment of mineral resources, hydrogeology, global changes, and Antarctic geology and Lunar exploration.

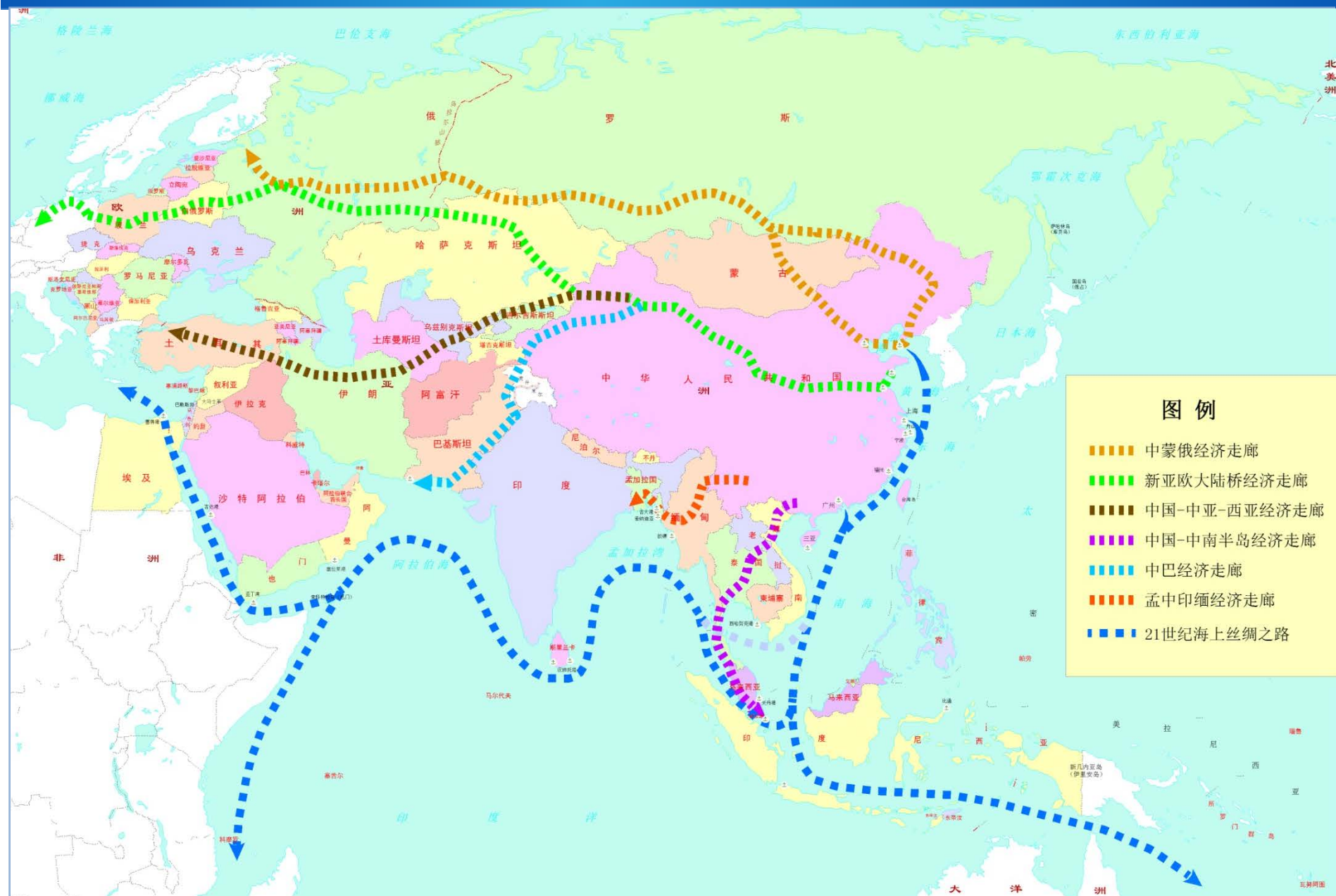


The MOU Signed by China Geological Survey

Continent	MOU
ASIA (14)	Cambodia, Japan, Korea, Mongolia, Viet Nam, Philippine, Indonesia, India, Saudi Arabia, Pakistan, Laos, Thailand, Tajikistan
Africa (12)	South Africa, Egypt, Madagascar, Tanzania, Zimbabwe, Ethiopia, Nigeria, Sudan, Eritrea, Chad, Morocco, Guinea
South America(6)	Brazil, Argentina, Chile, Venezuela, Peru, Guyana
North America(2)	USA, Canada
Europe(11)	France, England, Germany, Sweden, Switzerland, Netherlands, Denmark, Finland, Norway, Russia, Poland
Pacific(3)	Australia, New Zealand, Papua New Guinea



Economic Corridors along the “Belt and Road” (B&R)



International Research Centers of Earth Sciences



Research Center of Karst, UNESCO, was established in Karst Institute of CAGS.



Another international Center, the UNESCO Category II Research Center on Global Scale Geochemistry, will soon establish in the Institute of Geophys. & Geochem. Exploration in Langfang, Hebei Province.

International Research Centers of Earth Sciences



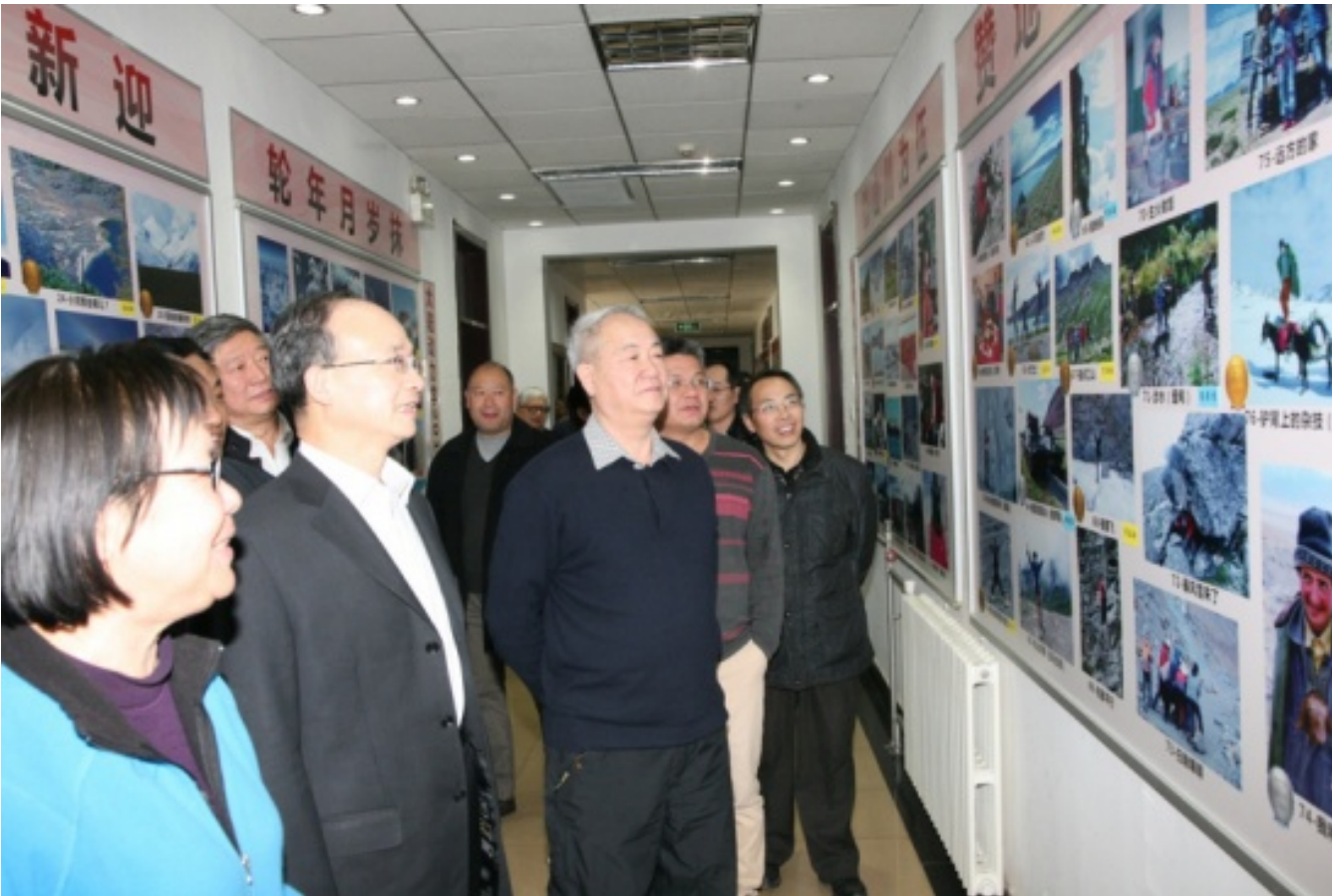
Beijing SHRIMP CENTER in Institute of Geology, CAGS, one of the platforms for developing science & technology in China, has become international center for high resolution U-Pb isotopic dating.



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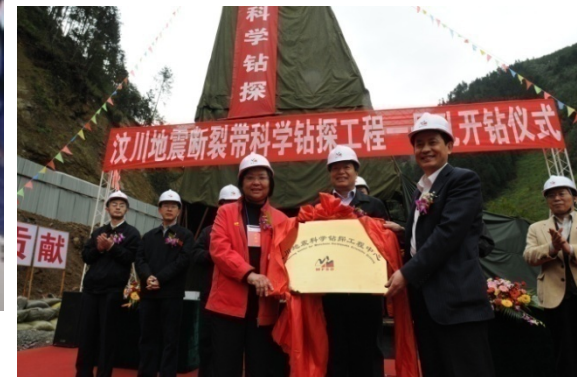
International Research Centers of Earth Sciences



State Key Laboratory of Continent Tectonics and Geodynamics in Institute of Geology, CAGS has become an international research center in Earth Sciences.



Confocal Raman Spectrometer



Deep Drilling of Seismic Fault of Ms 8 Earthquake



中国地质调查局
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Developing Earth Sciences by International Cooperation

Increasingly Deeper Comparative Study on International Cooperation

International communication and cooperation with developed countries on regional geological mapping, potential evaluation of mineral resources, marine geology, environmental geology, hydrogeology, urban geology, global climate change and earth system science are widely deployed, from all of which we have obtained positive achievements, improved the scientific and technological level, and deepened the bilateral and multilateral geological research.

国际合作地球化学填图
International Cooperation Project in Geochemical Mapping



Energy and mineral resources distribution in Central Asia and adjacent areas



Prognostic map of Sino-U.S. cooperative mineral resources quantitative evaluation on a regional scale



1:5,000,000 Geological map of Asia



Joint geological survey, geophys. exploration and geochem. survey.



Joint research on orogenesis, deep processes, metallogenesis, climate changes, hydrogeology, geologic hazards.



Cooperation in the geo-information building, academic exchange, mineral resources usages, and the geopark management.





Deep Scientific Drilling sponsored by China Geological Survey and International Deep Drilling Programs (ICDP)

International Deep Profiling across the Tibetan Plateau and Himalaya Mts. (Project INDEPTH-- A Multinational Initiative)



CAGS (CGS), China University of Geosciences (CUGB)



Cornell, Syracuse, Stanford, Columbia, SUNY Albany, New Mexico State, Washington, UC Santa Cruz, Oregon State



GeoforschungsZentrum Potsdam, Wuertzburg, Potsdam, Kiel, Karlsruhe



Geological Survey of Canada, Alberta

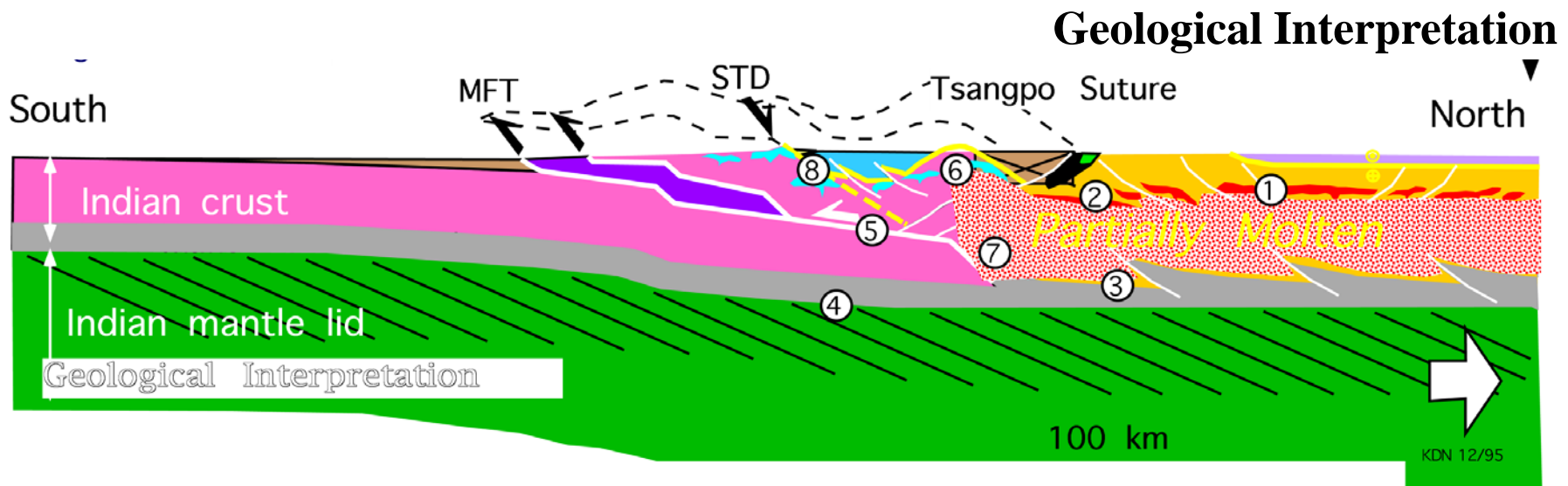
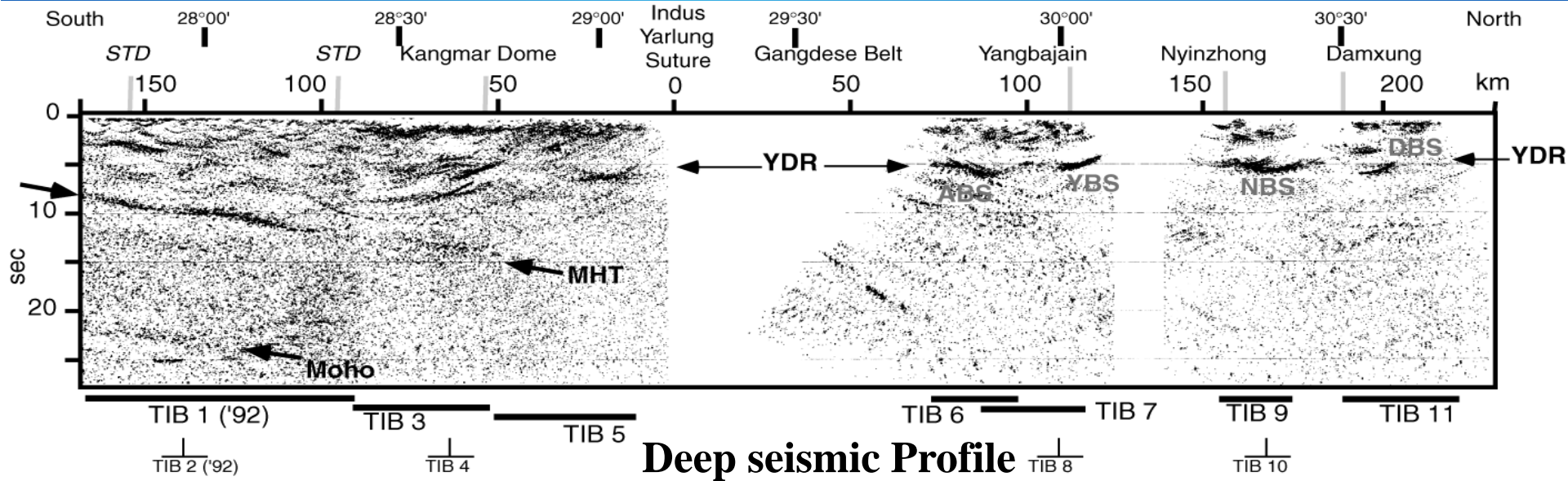


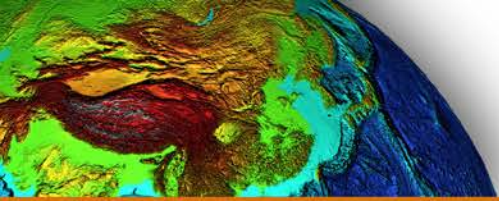
中国地质调查局
CHINA GEOLOGICAL SURVEY

Signing MOU, Field Deployment and Discussion of the INDEPTH Project

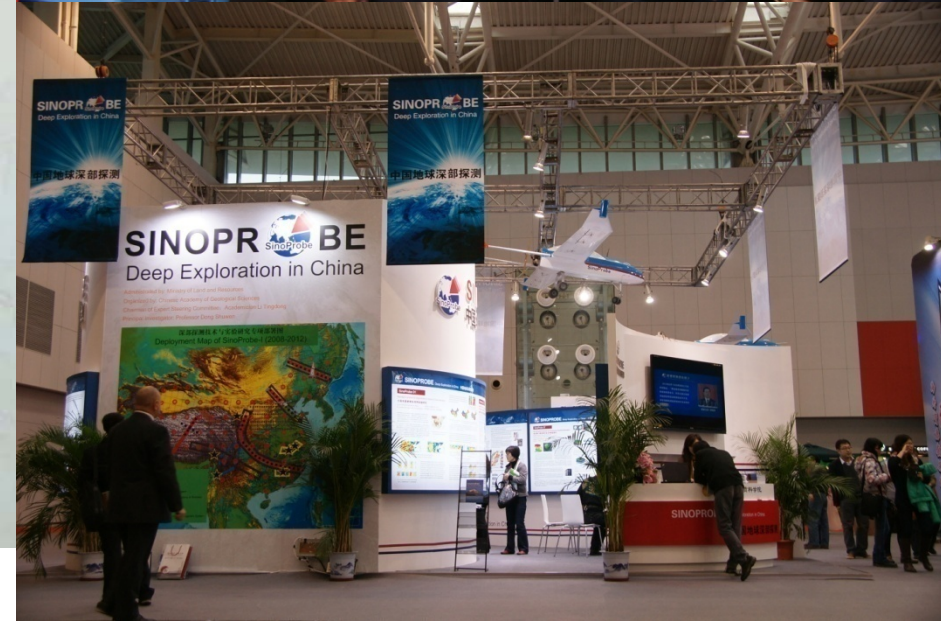
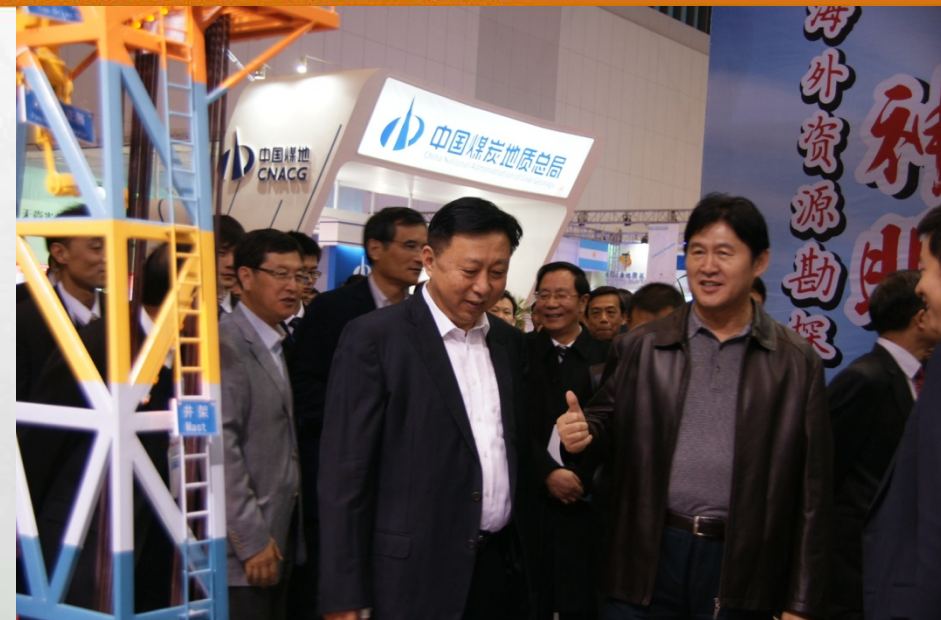


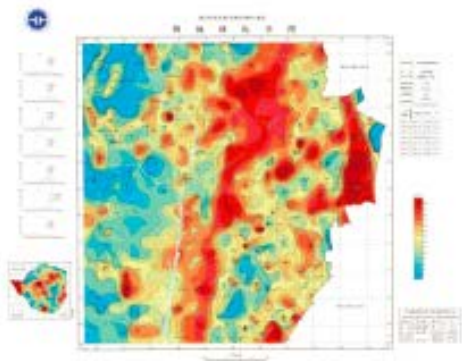
INDEPTH seismic reflection discovered the MHT, indicating northward subduction of the Indian Continental Plate





Sinoprobe progress attracted attentions in the 2012 Tianjin Mining Congress





Working in field in Zimbabwe with the Geological Survey of Zimbabwe and an attached

Cooperation with Ethiopia Geological Survey to conduct field investigation in Ethiopia

China Geological Survey expanded cooperation for geological, geophysical and geochemical survey along the "B&R".

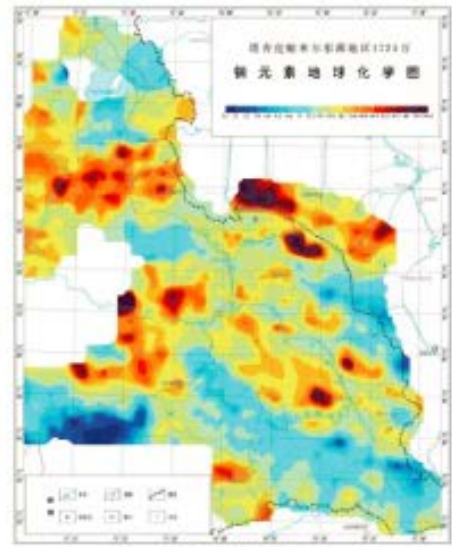
Wide communication and cooperation with the developing countries in Asia, Africa and Latin America in areas such as comprehensive mapping, comparative research of regional geological minerals, digitalized geological mapping and technical training of geochemical mapping and technology output .



Cooperation with Zambia Geological Survey to conduct filed investigation in Zambia

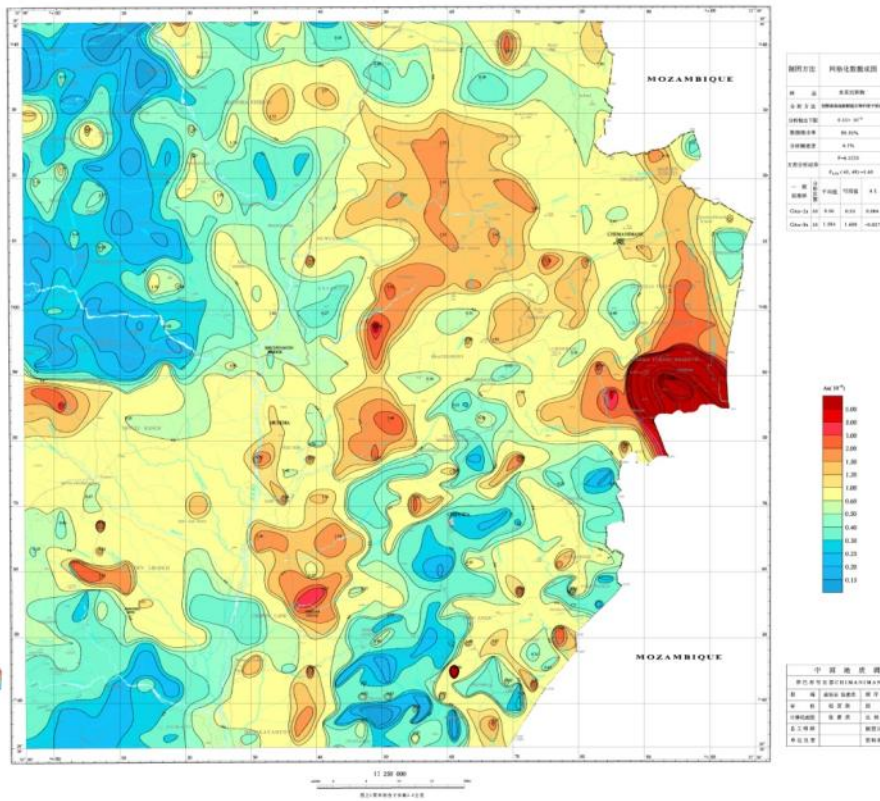


Cooperation with the Head Department of Geology under the Government of the Republic of Tajikistan to conduct geochemical mapping work on Pamirs and an attached geochemical map.

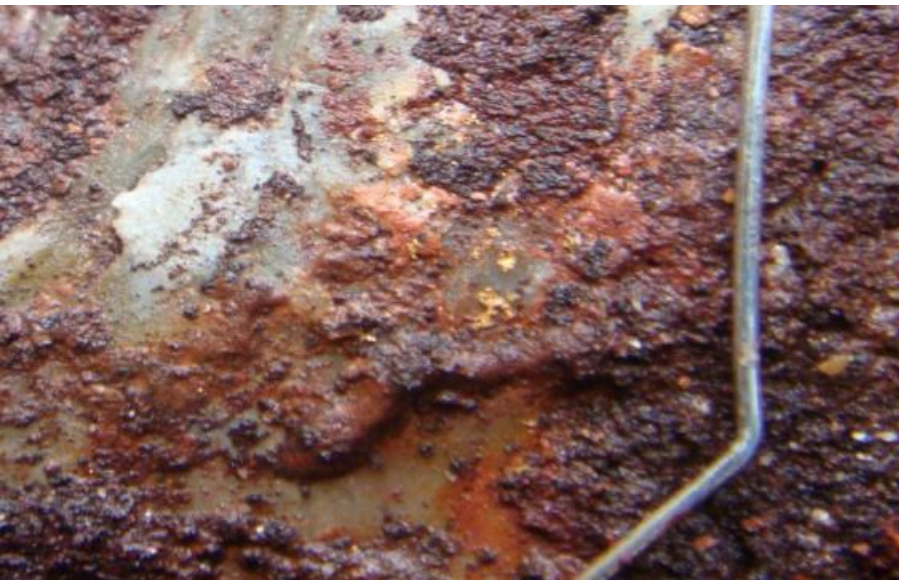
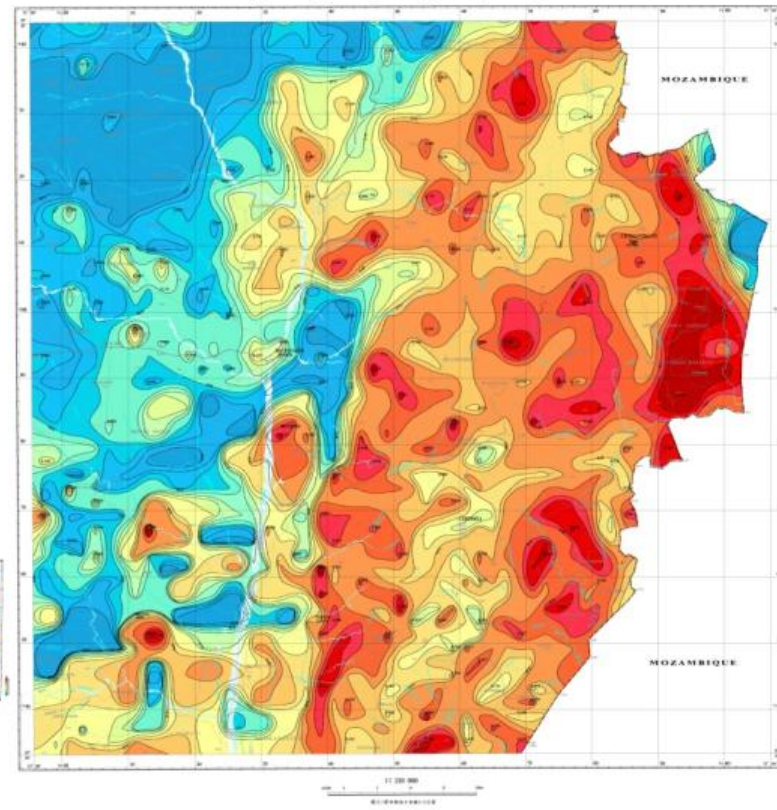


Cooperation with Peru Geological Survey to conduct geological survey on the Andes

津巴布韦东部CHIMANIMANI地区
金地球化学图

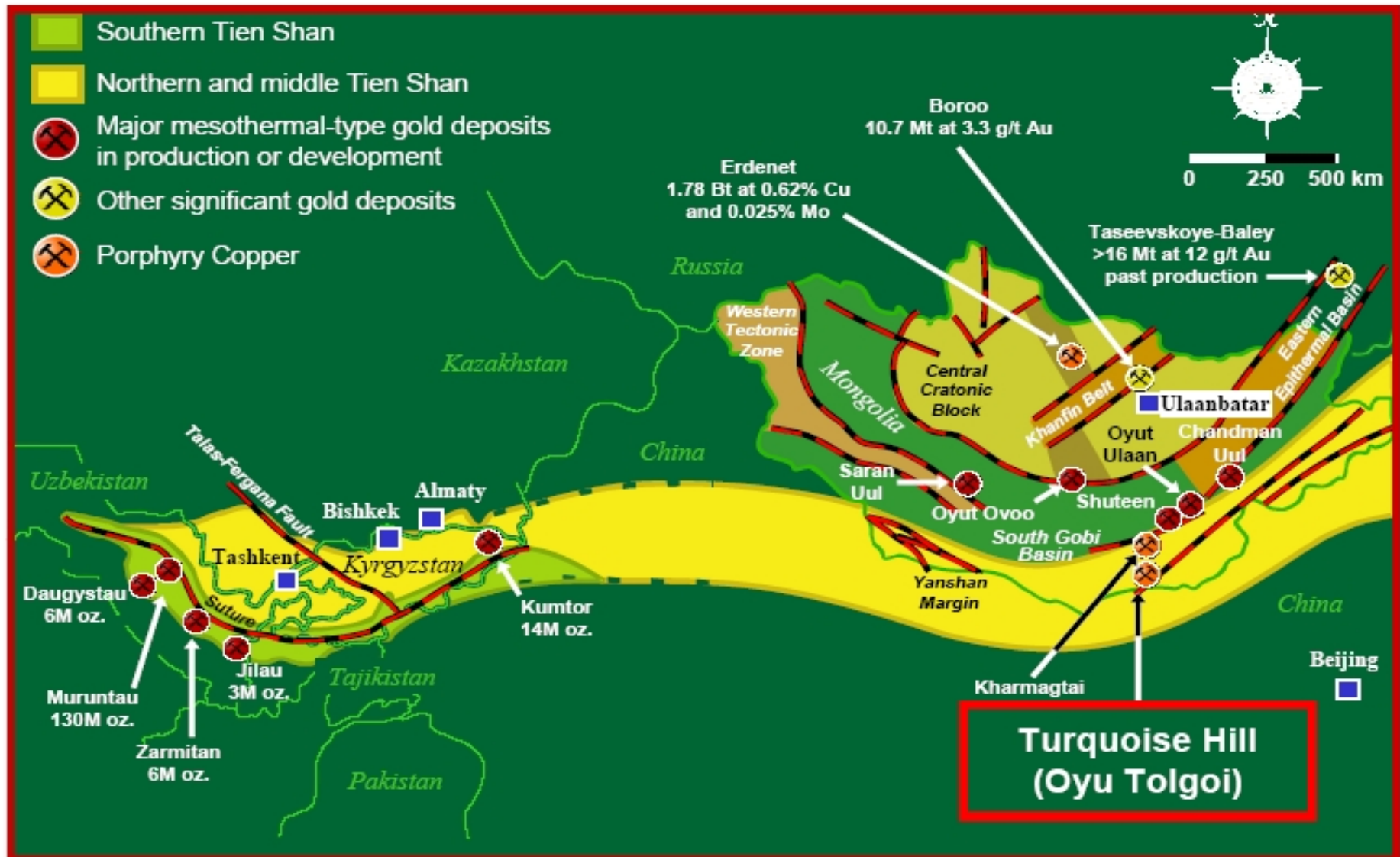


津巴布韦东部CHIMANIMANI地区
锑地球化学图

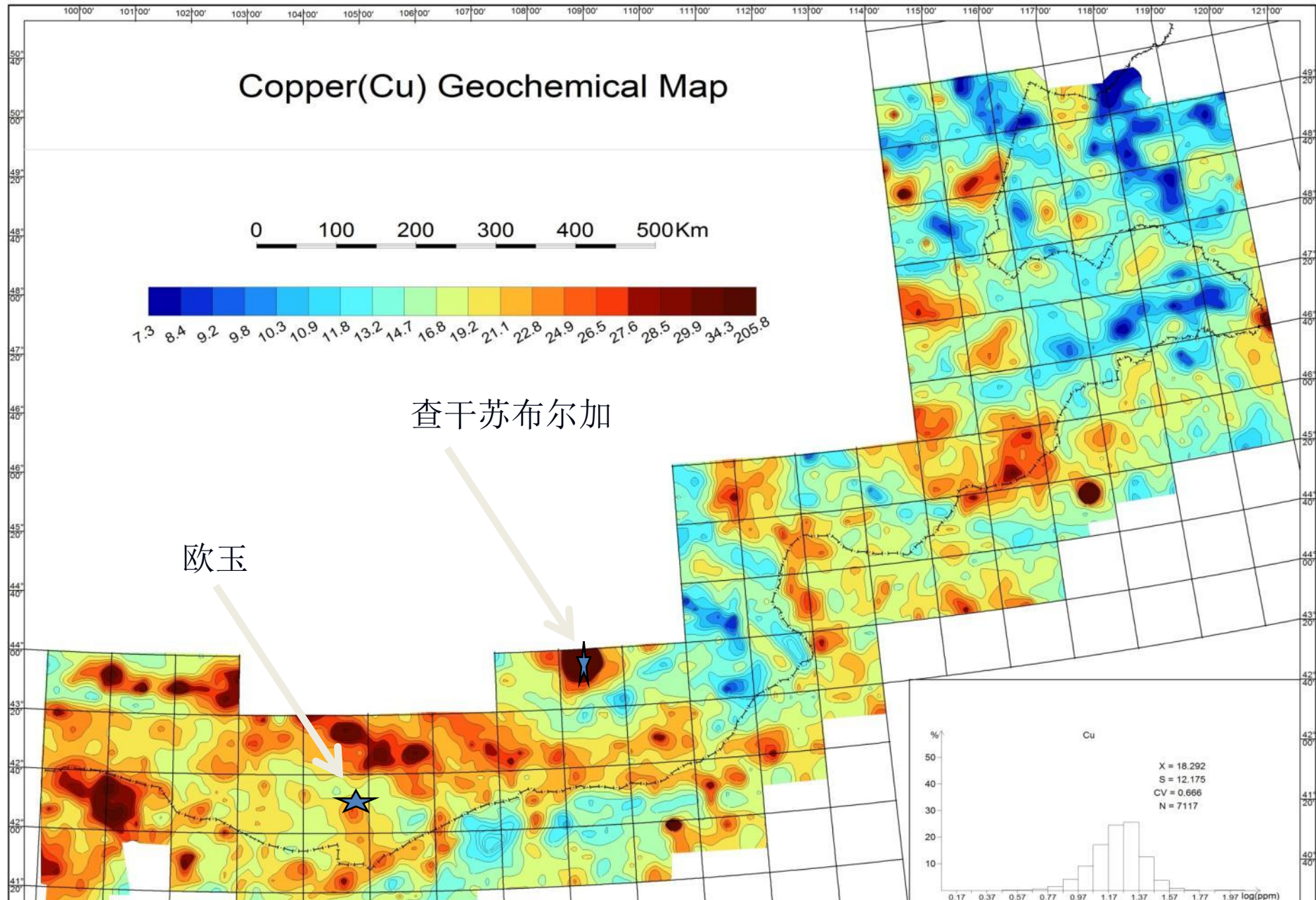


Cooperation of geochemical survey between China Geological Survey and Zimbabwe Geological Survey lead to the discovery of new gold deposits.

Many geologists disagree on metallogenesis and potential mineral resources after the discoveries of large-scale copper deposits along the border areas between China and Mongolia.



Chinese-Mongolia Cooperation of Geochemical mapping in border areas between the two countries accumulated valuable data for Copper deposits

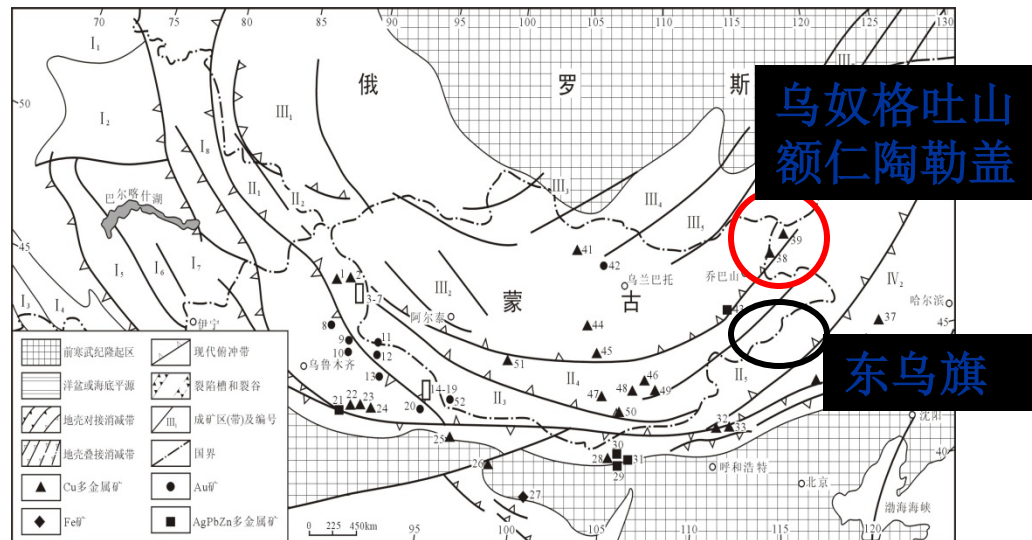
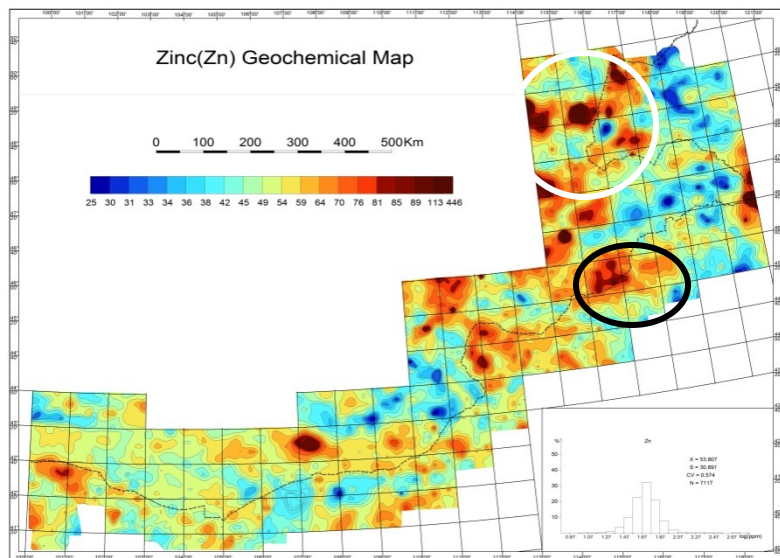
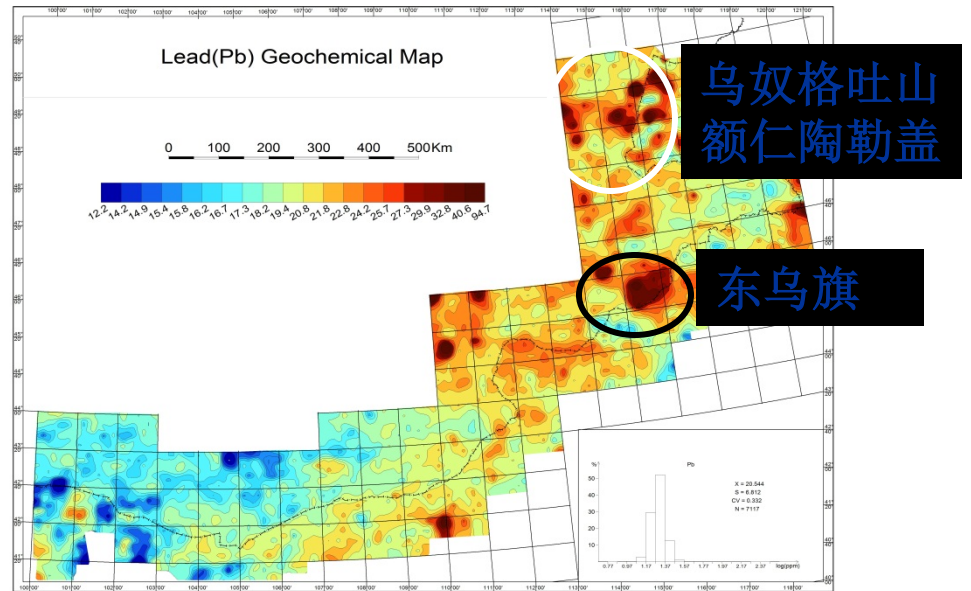
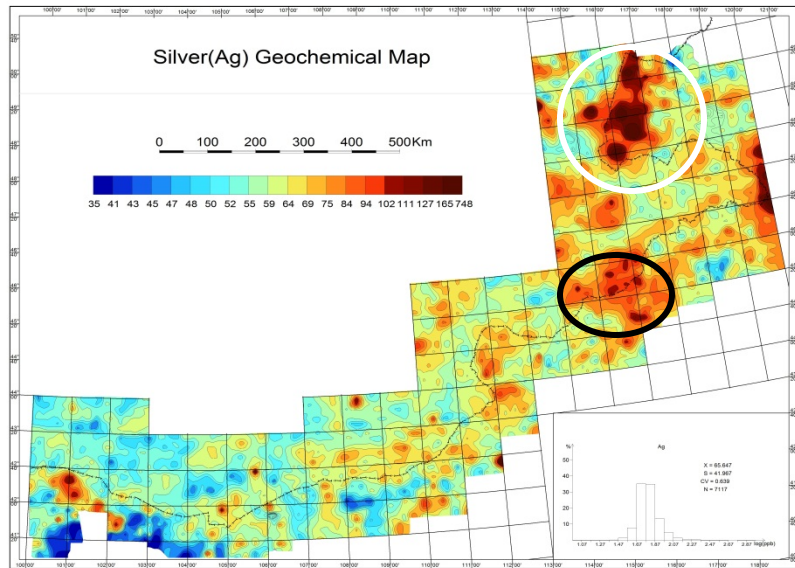




Sampling and workshop of the Sino-Mongolia joint geochemical mapping



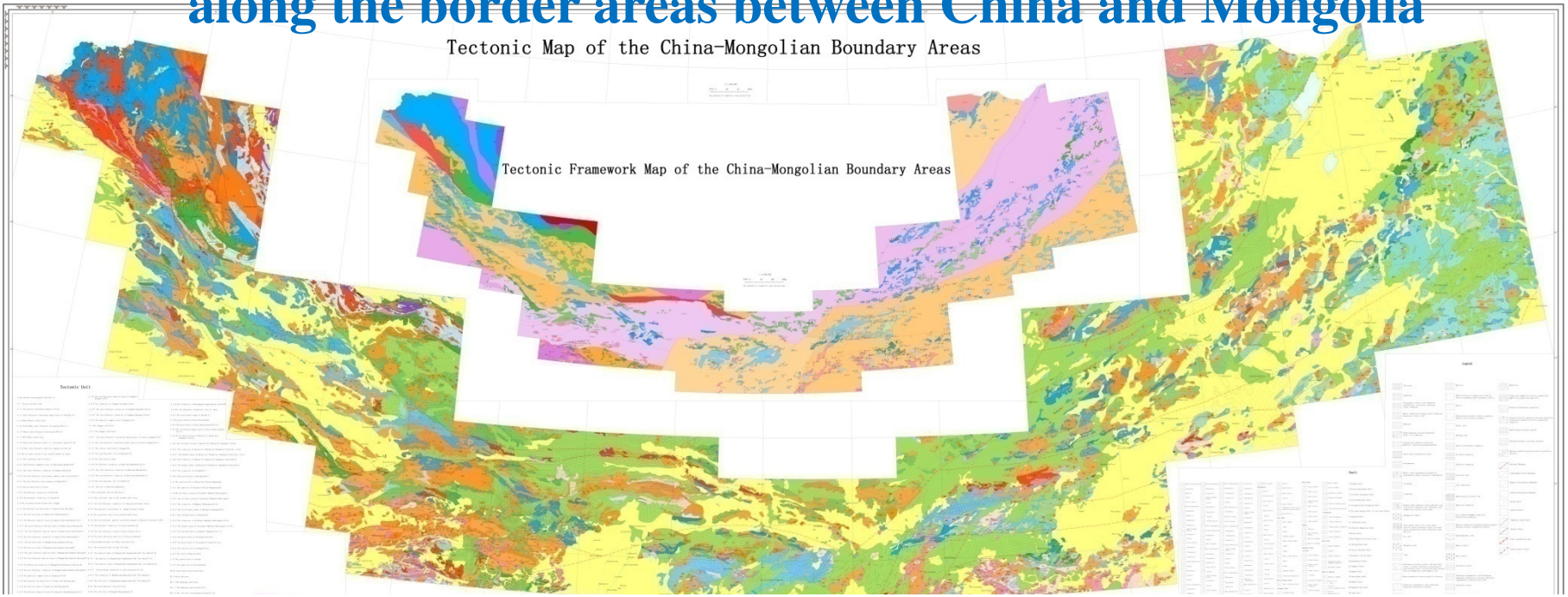
Discovered new targets for exploration of copper deposits



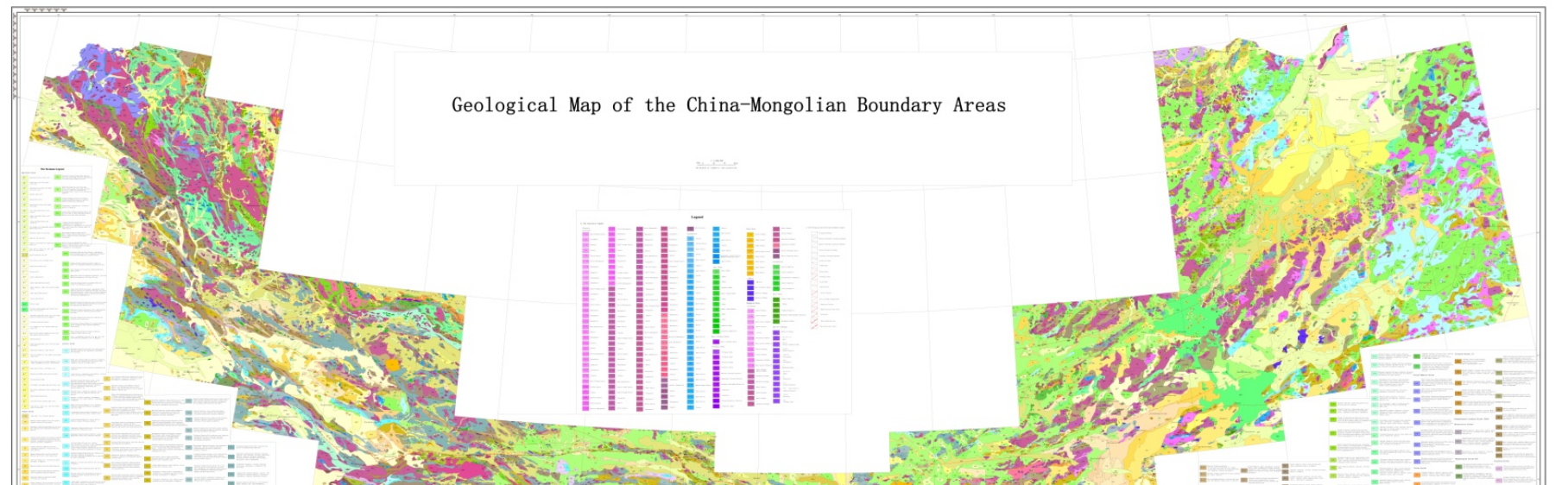
Jointly compiled new geological and tectonic maps along the border areas between China and Mongolia

Tectonic Map of the China-Mongolian Boundary Areas

Tectonic Framework Map of the China-Mongolian Boundary Areas



Geological Map of the China-Mongolian Boundary Areas



-180° -150° -120° -90° -60° -30° 0° 30° 60° 90° 120° 150° 180°



Sponsored by the Chinese Government

China Geological Survey organized training classes for geologists and administrators from different countries each year.



图

- 援外培训国家
- 海洋
- 大陆

-180° -150° -120° -90° -60° -30°



China Geological Survey will carry out 9 support plans in 2016-2020, which is quite helpful for expanding cooperation along the “B&D”.

- * Continental Energy Mineral Investigation Plan
- * Important Mineral Resources Investigation Plan
- * Basin Geological Investigation Plan for Important Economic Zones and Urban Agglomeration
- * Support Plan for Geological Disaster Prevention and Geoenvironment Protection
- * Basic Geological Support Plan for Land and Resources Development and Protection
- * Basic Geological Survey and Information Service Plan for the “Belt and Road”
- * Science and Technology Support Plan for Geological Survey
- * Geological Data Updating and Application Service Plan
- * Marine Geological Survey Plan



Three Programs will be carried out along the “Belt and Road”

***Comparative Research of Metallogenic Belts along the “B&R”.**

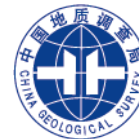
Leading Institution: Institute of Mineral Resources, CAGS. Chief Geologist: Zongqi Wang.

***Global Geochemical Survey and Remote Sensing Interpretation.**

Leading Institution: Institute of Geophysical and Geochemical Exploration. Chief Geologists: Xueqiu Wang.

***Comprehensive Processing and Service of Geological Data and Mineral Resources. Leading Institute: Development and Research Center of China Geological Survey. Chief Geologist: Yunchuan Xiang.**

***Total Investment: ~125 Million Dollars in 2016-2020.**



Construction and Development of International Research Centers

Developing International Research Centers:

Research Center of Karst, UNESCO

Research Center of Global Scale Geochemistry, UNESCO

State Key Laboratory of Continent Tectonics and Geodynamics

Beijing Ion Probe Center, CAGS

Earth Science Research Center for Shuanghai Cooperation Organization

Regional Research Centers Under Construction:

Northeast Asian Research Center of Earth Sciences, Shenyang Center of CGS

Southeast Asian Research Center of Earth Sciences, Chengdu Center of CGS

Research Center for Eastern African Geology, Tianjin Center of CGS

Research Center for West & North African Geology, Wuhan Center of CGS

Research Center of South America and Oceania Geology, Nannjing Center of CGS

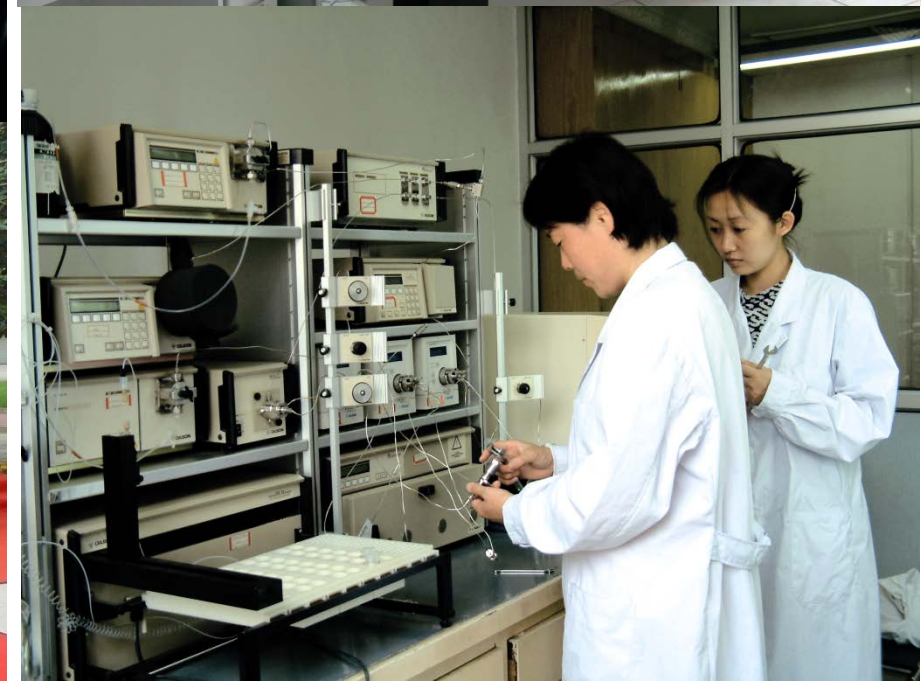
Remote Sensing Data Center, China Aero Geophysical and Remote Sensing Center for Land and Resources

The Shanghai Cooperation Organization, UNESCO Research Centers, IUGS and CCOP, China ASEAN Exposition and China International Mining Congress are all platforms for geo-scientific and personal exchanges.

Expanding Personal Training for Geological Survey, Administration and Technology



Expanding Cooperation for the Construction of Laboratories and Education of Graduate Students



A photograph of a sunset with two people silhouetted against the bright orange and yellow sky. The sun is low on the horizon, creating a strong glow. The foreground is dark, showing the silhouettes of the people and the ground they are standing on.

**Thank You for
Your Attention.**