



Proceedings of the Second Russia–China International Meeting on the
Central Asian Orogenic Belt (September 6–12, 2017, Irkutsk, Russia)

INTRODUCTION TO THE PROCEEDINGS VOLUME OF THE SECOND RUSSIA–CHINA INTERNATIONAL MEETING ON THE CENTRAL ASIAN OROGENIC BELT

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Second Russia–China International Meeting on the Central Asian Orogenic Belt (September 6–8th, 2017, Irkutsk, Russia) with post-conference excursion (September 9–12th, 2017, Baikal area, Siberia, Russia) continues tradition of the Russian–Chinese conferences begun in 2015.

The first China–Russia Meeting on the Central Asian Orogenic Belt (CAOB) was held in September 2015 in Beijing. It was a very successful experience that enabled scientists from Russia, China and several other countries to get together and discuss new research results on the origin and development of the CAOB.

The Central Asian Orogenic Belt is one of the largest accretionary orogens on Earth and occupies about 50 % of Northern and Central Eurasia. It is situated be-

tween the Siberian, North China and Tarim cratons, and its development lasted from the Latest Mesoproterozoic to the Early Mesozoic. Detailed studies have shown that the origin of the CAOB resulted from the closure of three ancient ocean basins, namely the Palaeo-Asian, Solonker and Mongol–Okhotsk oceans and formation of a large-scale composite accretionary orogen.

There are two contrasting hypotheses concerning the evolution of the CAOB. The first model regards the CAOB as an originally single and long chain of Early Palaeozoic intra-oceanic island arc systems and back-arc basins that were produced by continuous subduction-accretion processes. This model is similar to the Mesozoic evolution of the North American Cordillera and predicts the existence of large orogen-parallel

strike-slip faults. Another view suggests that the CAOB comprises a collage of microcontinents and oceanic as well as continental margin arcs that collided with one another and eventually accreted to the Siberian craton. This view corresponds to models of continent and arc-continent collisions. In general, this view looks similar to the present south-west Pacific style of accretion and may be considered as a major mechanism of large-scale orogen building.

Both models suggest that each part of the CAOB had its own particular tectonic evolution. This is why it is important to study different parts of the CAOB in Central Asia and to share new research results with colleagues within the international geoscience community. Combining international and across-border comparative studies will allow us to improve our understanding of the origin and development of the CAOB as a whole. Moreover, such scientific collaboration provides a platform for communication between Russian, Chinese and other countries' geologists to present new results, ideas and tectonic models and to determine key area and novel approaches for future research and cooperation.

Main topics could be announced as following:

- Evolution of Palaeo-oceans: from accretion to collision (ophiolites, ocean plate stratigraphy, tectonics, magmatism, metamorphism and deformation styles);
- Across-border correlations within the CAOB and nomenclature;

- Continental crustal growth and architecture;
- Intra-plate processes and mantle plume;
- Ore-forming systems and mineralization in Central Asian;
- Superposition of palaeo-Pacific and Okhotsk tectonics;
- Continental amalgamation in the CAOB, Neoproterozoic to Palaeozoic and Mesozoic palaeogeography and palaeomagnetism;
- Reconstructing the crustal structure and tectonics of the CAOB using geophysical techniques.

Sponsoring Organizations / Senior Representatives of the Second Russia-China International Meeting on the Central Asian Orogenic Belt:

- Institute of the Earth's Crust, Russian Academy of Sciences, Siberian Branch (IEC SB RAS), Irkutsk, Russia. Responsible scientists: Dmitry Gladkochub, Tatiana Donskaya, Eugene Sklyarov;
- Federal Agency of Scientific Organizations, Moscow, Russia;
- Institute of Geology Chinese Academy of Geological Sciences of Geology and Beijing SHRIMP Center, Chinese Academy of Geological Sciences (CAGS), Beijing, 100037, China (Zen-Qian Hou, Tao Wang, Jing-Yi Li, Dun-Yi Liu, Alfred Kröner);
- Project of Atlas of geological maps in Central and eastern Asian by five Asian countries/ Shu-Wen Dong (Beijing, China), O. Petrov (VESGEI, Russia);

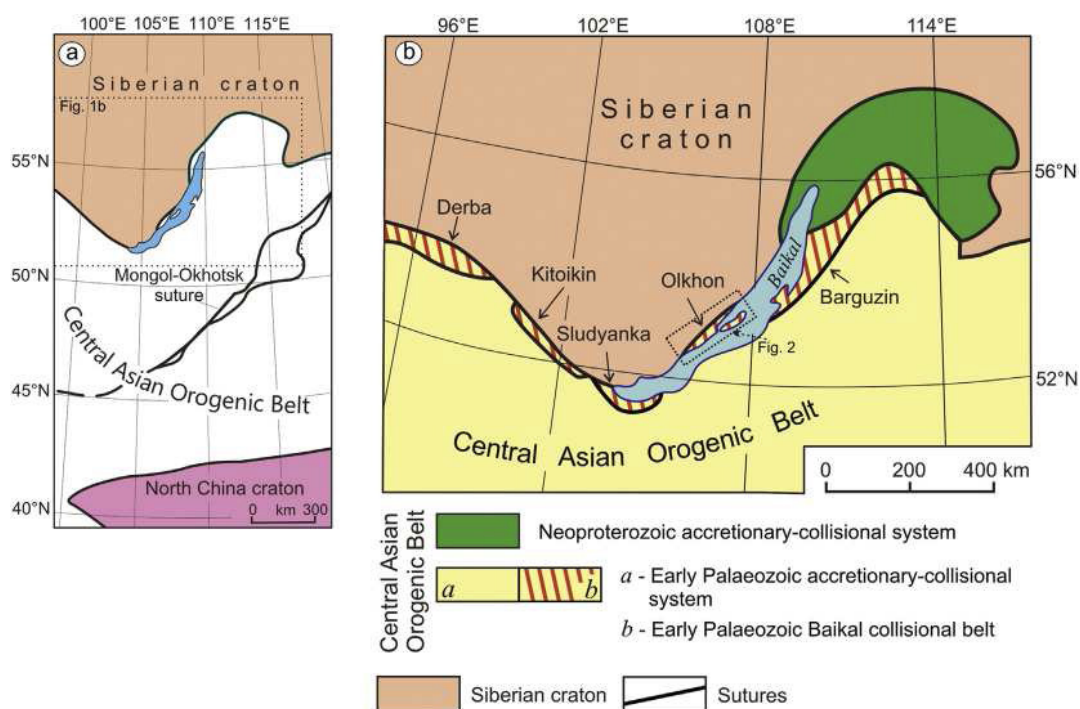


Fig. 1. Tectonic sketch map of Central Asia (a) and terranes in the Early Palaeozoic Baikal collisional belt of the northern CAOB (b).

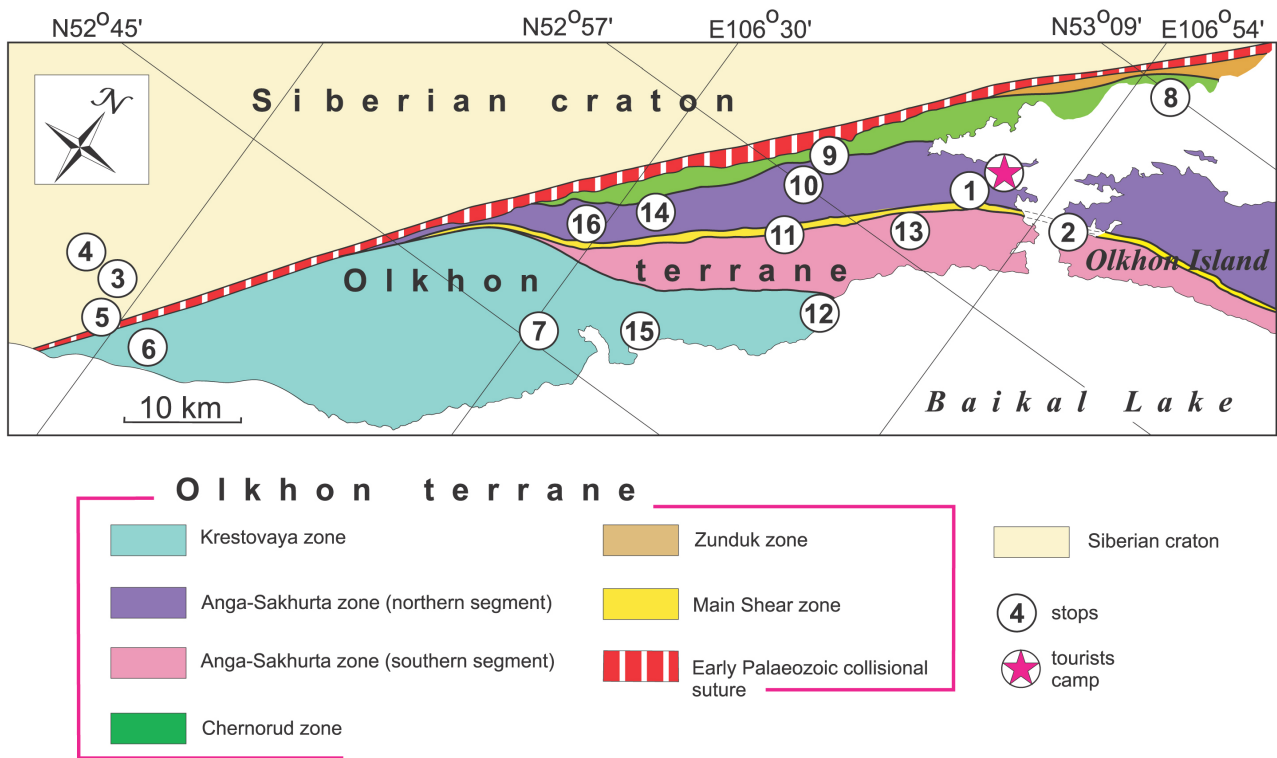


Fig. 2. Simplified tectonics of the Olkhon terrane and location of stops.

- Major State Basic Research Program (973) of China (Tectonic superposition in eastern CAOB and large-scale mineralization) /Bei Xu (Beijing, China);

- Institute of Geology and Geophysics, Chinese Academy of Sciences / Wenjiao Xiao;

- Novosibirsk State University, Ministry of Education and Science, Russia: Program 220, Project № 14.Y26.31.0018/ Inna Safonova.

After two days of scientific session in the Institute of the Earth's Crust, Russian Academy of Sciences, Siberian Branch (IEC SB RAS) post-conference field excursion titled "The anatomy of the composite Olkhon terrane: Cross section from the southern margin of the Siberian Craton into the northern CAOB" will be organized for participants.

Leaders of the excursion are: Valentin Fedorovsky, Dmitry Gladkochub, Tatiana Donskaya, Eugene Sklyarov, Anatoliy Mazukabzov and colleagues.

The observations and purpose of field trip are given below.

The Central Asian orogenic system (Fig. 1, a) is a collage of microcontinents and terranes of different ages originating in island arcs, ophiolites, back-arc-basins, accretionary wedges, turbidite-basins, and passive margin settings. Most of these consist of igneous and sedimentary associations, but some terranes are composed of metamorphic rocks of uncertain tectonic

affinity which, in turn, are collages of genetically and chronologically different units. Olkhon is one of such terranes of uncertain origin, located in the northeastern CAOB at the boundary with the Siberian craton (Fig. 1, b). It belongs to the Baikal collisional belt which is a part of the early Palaeozoic accretionary-collisional system, together with the metamorphic terranes of Derba, Kitoikin, Sludyanka, and Barguzin (Fig. 1, b) that developed at about the same time and under similar conditions along the boundary of the Siberian craton and the Neoproterozoic accretionary-collisional system (Fig. 1, b).

The Olkhon terrane includes Olkhon Island and the adjacent landmass of the western Lake Baikal shore (Fig. 2) at the collisional suture zone with the Siberian craton. The Olkhon terrane was produced by Ordovician collision as a collage of numerous chaotically mixed tectonic units composed of sedimentary, volcanic and plutonic complexes of different ages and originating in different tectonic settings. The Olkhon collisional collage resulted from three main deformation events: thrusting followed by doming and then strike-slip faulting. The events of metamorphism, magmatism, and tectonism extended over a period from 510 to 450 Ma, constrained by U-Pb zircon ages of rocks from the Olkhon terrane.

During the excursion participants will have a unique opportunity to observe the postulated evolution in ex-

cellent outcrops (Fig. 2) along a cross-section from the southern margin of the Siberian craton into the Olkhon terrane which is a part of the northern segment of the CAOAB.

Participation in the conference and field excursion have confirmed 70 and 40 scientists consequently

which represent Russia, China, Germany, Mongolia, Czech Republic, United Kingdom and Japan.

This issue of *Geodynamics & Tectonophysics* contains 60 proceedings which were presented by participants of the Second Russia–China International Meeting on the Central Asian Orogenic Belt.