

Paper Number: 2204

An Introduction to the Major NSFC Program “Reconstruction of East Asian Blocks in Pangea”

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Pangea is the youngest supercontinent in Earth's history and its main body formed about 300-250 million years ago. As supported by voluminous evidence from reliable geological, paleomagnetic and paleontological data, configurations of major continental blocks (e.g. Gondwana and Laurasia) in Pangea have been widely accepted. However, controversy has long surrounded the reconstructions of East Asian blocks in Pangea. So far, most Pangea reconstructions assume that continental blocks in East Asia had never joined the main body of Pangea before its breakup with the opening of the Atlantic Ocean at ~180 Ma. In these reconstruction models, East Asian blocks were positioned as isolated blocks around the Paleo-Tethyan Ocean. These reconstructions were mainly based on geological and paleomagnetic data before the 1990's but did not fully consider recent data for major collisional mountain belts between continental blocks in East Asia. To precisely reconstruct the East Asian blocks in Pangea, the Natural Science Foundation of China (NSFC) has set up a Major NSFC Program entitled “Reconstruction of East Asian Blocks in Pangea” (Project code: 41190070; Duration: 2012-2016; Funds: 20,000,000 RMB), which consists of the following five sub-projects: (1) Paleomagnetic constraints on reconstruction of East Asian Blocks in Pangea; (2) Tectonic framework of the Proto-Tethyan Ocean and Early Paleozoic amalgamation of microcontinental blocks in East Asia; (3) Closure of Eastern Paleo-Tethyan Ocean and assembly of microcontinental blocks in South China and adjacent areas; (4) Collisional events in the western segment of the Central China Orogen and their bearing on the assembly of East Asia; and (5) Closure of the Paleo-Asian Ocean and reconstruction of East Asian blocks in Pangea. In the past few years, researchers in these projects have carried out extensive geological and geophysical investigations on the Central Asian Orogenic Belt (CAOB), Central China Orogen and Eastern Paleo-Tethyan Belt and produced large amounts of new data, which, combined with previous studies, enable us to determine the timing and processes of opening and closing of the Paleo-Asian Ocean, Proto-Tethyan Ocean and Paleo-Tethyan Ocean. The outcomes of the program will not only answer where, when and how continental blocks in East Asia were assembled and whether or not they had become parts of Pangea before the breakup of the supercontinent, but will also improve and develop the theory of plate tectonics.

Acknowledgements: NSFC (41190070, 41190075, 41190074, 41190073, 41190074), Hong Kong RGC GRF (HKU7063/13P and 17301915), HKU Seed Funding (201311159126) and Small Project Funding (201409176061).

