

PLATE TECTONICS OF CHINA AND THE ADJACENT AREAS

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China is located in the eastern part of Eurasian plate, the northern margin of Indian plate and the western margin of Philippine Sea plate. Three Precambrian cratons and the associated Paleozoic accretionary and collisional folded belts constitute the tectonic framework of China. The basement of Sino-Korean craton was formed about 18 Ga ago. In the southeast, the Precambrian continental crust did not grow considerably during Paleozoic. The so-called Huanan Caledonides between Yangtze and Cathaysian massives is nothing but an early Paleozoic aulacogen whose extension in Korean peninsula is the Ogcheon belt.

The northward B-type subduction of the intervening ocean crust between the Yangtze-Cathaysian craton and the Sino-Korean craton was completed in Devonian. The following A-type subduction caused double continental crust which existed for a much longer time. The >80 km deep mountain root enabled ultra-high pressure metamorphism. The E-W trending high mountain range blocked the monsoon from the south and enabled the Triassic red bed to be formed to the north. The ancient Yangtze River carried the detritus from the unroofing mountain range to the west to build up the huge Songpan-Ganzi submarine fan system. The Permo-Carboniferous shallow marine and terrestrial sedimentary basins between the two cratons mark a transform fault. The Tan-Lu fault is a hinge fault and occurred at the climax of the continental shortening. The differential uplifting and erosion gave rise to an apparent left-lateral offset between Dabie and Su-Lu. The Dabie-Su-Lu suture extends to Imjingang zone in the middle of Korean peninsula, and then connects to the Hida marginal belt in Japanese Islands. The area to the southeast of Honam fault cannot be correlated to Sino-Korean craton but the Cathaysian massif. The Taebaeshan area at the northeastern end of Ogcheon belt is a klippe from the north which was later on right-laterally offset by Honam fault.

In the southwest, several microcontinents were split from Gondwana and accreted to the Paleozoic Eurasia as pioneers, when the Mesozoic Tethys ocean was consumed along the Eurasian continental margin. The Paleogene collision of Indian to Eurasian created the magnificent Himalayas and Tibet Plateau. Some orogens in NW China such as the Central Tianshan and Arjin Mts. are actually huge fault zones rejuvenated by this collision. The faulted slices and blocks which make up the fault zones are actually components of the surrounding tectonic units the fault ever cut through.

The oldest accretionary folded belt along the eastern margin of Eurasian continent is Middle Jurassic to Early Cretaceous. This belt extends from Shimanto belt in SW Japan through Ryukyus, the Central Range of Taiwan, Palawan to the northern Borneo. The late Mesozoic and Cenozoic thermal-structural events in the eastern part of China is relevant to unknown depth-seated mechanism.