

# Central China Orogenic Belt and amalgamation of East Asian continents

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The Central China Orogenic Belt (CCOB) comprises, from the east to the west, the Tongbai-Dabie, Qinling, Qilian and Kunlun Orogens, and preserves abundant and important amalgamation records of the North China, South China, Qaidam, Tarim and Qiangtang Blocks. The CCOB offers an excellent window to the tectonic evolution from Proto-Tethys to Paleo-Tethys domains and the formation of East Asian continent. In this Centennial Review of Gondwana Research, we assemble comprehensive and multidisciplinary information of geological, geochemical, geophysical and high-precision geochronological dataset from individual orogens of the CCOB, together with a synthesis of Paleomagnetic data, to gain insights on the tectonic framework and evolutionary history of CCOB. The detailed and highly-integrated analysis leads to the following major conclusions. (1) Prior to ca. 550 Ma, break-up of the Rodinia supercontinent led to the formation of Proto-Tethys Ocean, wherein the above crustal blocks were isolated discrete units. (2) During ca. 541–485 Ma, spreading of all the embranchments of the Proto-Tethys Ocean at the early stage and the onset of subduction at the late stage. (3) Up to ca. 485–444 Ma, continued subduction of the Proto-Tethys Oceans resulted in opening and closing of the back-arc basin in the Qinling area. (4) During ca. 444–420 Ma, the Proto-Tethys Oceans along the Qilian and Shangdan were closing. (5) During ca. 420–300 Ma, the Paleo-Tethys Ocean in the Kunlun area inherited the Proto-Tethys Ocean, while the Paleo-Tethyan Mianlue Ocean experienced spreading. (6) At ca. 300–250 Ma, subduction retreat of the Kunlun Ocean occurred from the Aqikekulehu-Kunzhong suture to the Muztagh-Buqingshan-Anemaqen suture. (7) The Paleo-Tethys Ocean underwent eastward diachronous closing processes throughout the Kunlun to Qinling and Dabie areas during ca. 250–200 Ma; (8) The entire CCOB range has evolved into intracontinental deformation since 200 Ma.