



Reconstructing the role of South China in Pangea and earlier supercontinents

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The history of the South China Craton and the constituent Yangtze and Cathaysia blocks is directly linked to Earth's Phanerozoic and Precambrian record of supercontinent assembly and dispersal. Exposed Archean rocks are limited to isolated fragments in the Yangtze Block and preserve a record of Meso- to Neo-Archean igneous activity, sedimentation and metamorphism associated with a period of global craton formation and stabilization that corresponds with assembly of the Kenor supercontinent/supercraton. However, there is insufficient data to link its history with other similar aged cratons. The tectonostratigraphic record in South China in the Paleoproterozoic, corresponding with assembly of Nuna, suggests that rock units in the Yangtze Block were spatially linked with northwestern Laurentia and possibly Siberia, whereas Cathaysia was joined to northern India. From the formation of Rodinia at the end of the Mesoproterozoic through to that of Pangea in the mid-Paleozoic, Cathaysia remained joined to northern India. Early Neoproterozoic supra-subduction zone magmatic arc-back arc assemblages ranging in age from ~1000 Ma to 810 Ma occur within Cathaysia, along its northwestern margin, and along the southeastern margin of the Yangtze Block. These rocks provide a record of convergent plate interaction along the periphery of Rodinia, which continued along the western margin of the Yangtze Block until around 700 Ma and correlates with similar along strike subduction zone magmatism in northwest India, Seychelles and Madagascar. During final assembly of Gondwana in the early Paleozoic suturing of India-South China with the Western Australia-Mawson blocks along the Kuunga Orogen resulted in the accretion of the Sanya Block of Hainan Island with the rest of Cathaysia. The accretion of Laurussia to Gondwana in the mid-Paleozoic to form Pangea corresponds with the initiation of lithospheric extension along the northern margin of Gondwana and the separation of a number of continental blocks, including South China, which then drifted northward across the Paleo-Tethys to collide with the Asian segment of Pangea in the Permo-Triassic.