

Evolution of the Nanhua rift basin: a story of continental rift related to Rodinia break-up

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After the formation of a unified pre-Sinian basement for South China during the late-Mesoproterozoic Jinning (Sibao) Orogeny, a continental rift basin(the Nanhua Rift) was developed between the Yangtze and Cathaysia Blocks. Rifting started during Early-Neoproterozoic and did not come to a closure until the Silurian. A analysis of sedimentary facies, sequence stratigraphy, and tectonic indicators suggest that the Nanhua_Rift basin has undergone seven main stages. (1)Continental volcanic and molasse deposition---Baizhuian stage, the beginning of Early Neoproterozoic. (2)Platform carbonate deposition---middle to late Baizhuian stage, early-Early Neoproterozoic. (3)Starved basins---Hetongian stage. (4)Sea-floor volcanic eruptions and submarine hydrothermal deposition---latest Hetongianto the San-menjiean stage. (5)Turbidite deposition---Gongdongian stage, mid-Neoproterozoic. (6)Continental glaciation accompanied with renewed rifting---Chang'anian/Changtanian to Nantuoan stages, late-Early Sinian. (7)Carbonate and carbonaceous Shale/chert deposits---Late Sinian.

The Nanhua rift basin was developed into a failed rift basin, with stable platform margin along SE Yangtze Block from Cambrian until Early Ordovician.

The similarities between the sedimentary history of the Nanhua rift basin and that of the Adelaide Geosyncline in Australia support the idea that South China could have been the missing link between Australia-East Antarctica and Laurentia(Li et al., 19995).