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New Ediacaran Paleomagnetic Pole for the South China Block: Reappraisal of Paleogeography

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Paleogeography of the South China Block from the breakup of Rodinia to the assemblage of Pangea is widely debated and many alternative models have been produced due to the lack of reliable paleomagnetic poles before the Late Paleozoic (Zhang et al., 2015; Li et al., 2017). Published Ediacaran poles do not match each other and do not have a fold test to determine primary magnetization. We present a new study from the boundary of Doushantuo and Dengying Formations (551 Ma) of the SCB that passes both polarity and fold tests. We have sampled the red sandstone member at the top of the Doshantuo Formation from four sections that are separated by 10 - 120 km located in the south part of Shaanxi Province. From these sampled sections two sections showed results with primary magnetizations. We obtained both low and high temperature components (LTC and HTC) performing thermal and alternating field demagnetizations. The high temperature component can be evaluated from both HTC directions and demagnetization circles to the antipode. The LTC directions are usually scattered with some clustering close to the present field of the Earth. The new paleogeographic position of the South China Block is at the equator which differs from previous publications. Using our new pole, we re-evaluate the Ediacaran paleogeography of Asia and its relationship with Gondwana continents.