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New insights into the global paleogeography at onset of Cryogenian

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The most striking aspect of the Cryogenian global geographic maps is the absence of polar continents. Most lands, either connected or isolated then, were located in the low-latitude area between 30°N and 60°S. Accumulating paleomagnetic data, however, indicate that the South China block and potentially its adjacent plates may have experienced multiple rapid latitudinal movements and was likely located in very high latitude area at the Cryogenian global colds' approach (∼720 Ma). This presentation will address the high-latitude continental blocks during break-up of Rodinia. Existing sedimentary and paleomagnetic data show the possibility that, during ∼830-720 Ma, there were two plaeolatitudinally different continent groups, even if both begat by Rodinia. The high-latitude continent group, represented by South China and India, and probably other small Asian blocks, was located in the northern hemisphere and has siliciclastic-dominated pre-Cryogenian strata. The low-latitude continent group, characterized by Laurentia and Australia, occupied the equatorial region and southern hemisphere and has carbonate-rich pre-Cryogenian strata. The polar continents were able to record a global greenhouse climatic condition pre- or during Cryogenian. They were also able to record the initial growth of the Snowball Earth ice sheets and thus have the great potential to test the synchroneity of the cryogenian glaciations.