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Discussions on the sedimentary-tectonic event and tectonic setting of the North Tarim Basin in Cryogenian-Cambrian

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Across the Tarim Basin, limited surface outcrops of Cryogenian to Cambrian sedimentary succession are completely exposed in the vicinity of Aksu area(Northwest Tarim), Kuruktag(Northeast Tarim)and Southwest Tarim, thus provides a unique, well preserved and accessible means by which to study the early development of the north Tarim Basin. Based on the field geological investigation in the northwestern and northeastern of Tarim Basin, with the referencing of paleomagnetism mapping and previous research, basin evolution process in Cryogenian-Cambrian is discussed according to sedimentary-tectonic event and other evidences. The major lithological types of Cryogenian-Cambrian system in Northeast Tarim are: tillite, clastic rocks(rich in organic matter) and carbonate ,with interbeds of volcanic rocks while in Northwest Tarim, the calstic rocks and carbonate are the common rock type, with tillite and volcanic interbeds in a small amount. The north margin of Tarim Block, which was a part of Rodinia supercontinent, neighboring the northwestern margin of Australia, was deeply rifted in Cryogenian-Ediacaran and developed into two rifts in the northwestern and northeastern margin, while formed a thick layer of the rift-passive margin deposits and the layer in the northwestern rift was not completely developed as the northeastern. The deepest rift-passive magin sediment which can be observed is Cryogenian-Middle Ordovician strata, and the period can be divided into Cryogenian faulted period (supercontinent rifting stage) and Ediacaran-Middle Ordovician subsidence period (plate drifting stage).