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Paleo-plate Reconstruction and Drift Path of the Tarim Block from Neoproterozic to Early Palaeozoic

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The Neoproterozic strata which mainly distributes in the periphery of the Tarim Block records lots of tectothermal events related to the assembly and breakup of Rodinia Supercontinent, yet the positon of the Tarim Block in Rodinia remains controversial .Based on collection and selection of the published paleomagnetic data and the paleomagnetism method, we reconstruct the Tarim Block on the northwest edge of Australia Plate and the southwest edge of Tarim (the present position) connects with the northwest edge of Australia (the present position) in Rodinia ,also we obtain the paleolatitude and drift path from Neoproterozic to early Paleozoic of the Tarim Block.Moreover, combined with our field work and the isotope chronology data of representative rocks in the Tarim periphery, we discuss the significant tectonic events during the process of the Tarim's drift from Neoproterozic to early Palaeozoic.Based on the analysis of the tectothermal events on the periphery of Tarim and the drifting characteristics of Tarim and Australia,we conclude that there was a strongly rifting event surrounding Tarim during 830-700Ma,which causes Tarim breaking off Rodinia Supercontinent. However,the separation was not complete, Tarim joined Gandwana along with Australia.During the Neoproterozic to early Paleozoic, the Tarim block, on the whole, presented a drift parh from high north latitude to south latitude, and had a rapid return process to north latitude in the Ordovician. In this process, through comparing the change of the Tarim's paleolatitude and Australia's paleolatitude, we find that their paleolatitude changes are extremely similar before 450Ma. Therefore, we conclude that their separation time was about 450 Ma.