Tectonic Units Division of Crystalline Basement in the Tarim Basin, NW China

ZHOU Xiaobei[*], LI Jianghai, LI Wenshan, CHENG Yalin and WANG Honghao

School of Earth and Space Sciences, Peking University, Beijing 100871, China

By the geological investigation for crystalline basement outcrops in Northeast and northwest margins of Tarim Basin, we provide essential constrains interpreting the structure, petrology and age of the pre-Sinian basement. On the basis of interpretation for aeromagnetic anomalies, according to mainly rock magnetisability, in the light of structural consistence together with well and seismic profile, it is held that the basement rock in Tarim Basin can be divided into following six zones: l) Neoarchean-Paleoproterozoic folded basement in southwest Tarim. 2) Meso-Neoproterozoic epizonal metamorphic basement in north Tarim. 3) Suture zone ophiolite complex in the central Tarim. 4) Early Paleozoic deformed Meso-Neoproterozoic basement in southeast Tarim. 5) Neoproterozoic basement modified after mafic magma in Bachu area. 6) intermediate-acidic intrusive rocks. On the analysis of structural features for each division, combining pre-existing zircon age, it is believed that Neoarchean-Paleoproterozoic folding feature in south Tarim is caused by a northwest compression; the basement of Altun in southeastern Tarim is identical with that in southwest before Neoproterozoic, which has been subducted and collided in early Paleozoic. There could be Archean nucleus deep in the north Tarim, in which the basement was mainly composed of Meso-Neoproterozoic, judged from the Archean outcrops in Quruqtagh, northeast Tarim; the suture zone in central Tarim was formed at last, in Sinian the basin started development of integrated cover layer.

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* Corresponding author. E-mail: xbzhou@pku.edu.cn