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The Discovery and Geological Significance of Zhalongqiongwa Rich Magnetite in the Southern Bangong Co Area

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Abstract: Geological survey shows that the Mid-western segment of the Bangong Co-Nujiang River metallogenic belt is a concentration area enriched in magnetite. During the process of the 1:50,000 geological survey in Tibet, we found a ore enriched in magnetite occurring in the quartz diorite in Zhalongqiongwa, which is 20km far away to the NWW from Rutog. Magnetite-riched ore in the Zhalongqiongwa is controlled by NNE-striking normal faults. The ore bodies shape present vein with 3-6m length and 0.5-3m width. The average grade is as the following: Fe, 60 %. Ore veins are minly distributed in the second-order faults on the side of the major faults, which are all covered by the quaternary rock. Several granitic veins are developed in the second-order fault fracture zone, and present individually or associated with ore veins. Therefore, the formation time of granitic veins represents the mineralization time. Through the LA-ICPMS zircon U-Pb geochronological study, two weighted mean $^{206}\text{Pb}/^{238}\text{U}$ age of $85.60\pm 0.48\text{Ma}$ (MSWD=1.3) and $85.57\pm 0.72\text{Ma}$ (MSWD=1.6) for the zircons in quartz diorite and a granitic vein are obtained respectively. During this period, as an important

symbol of the extensional movement, the diabase dikes ($86.1\pm 1.5\text{Ma}$, MSWD=3.0) crops out in both sides of the Bangong Co-Nujiang River suture zone. Therefore, the extensional event at 85.57Ma is responsible for the ore-forming and ore-controlling fissures. The mineralization events are related to the intra-plate tectonic activity of the late Cretaceous occurring in the southern Tibetan plateau. Intra-plate extensional tectonic system is superimposed on the close-open transition system of the earlier Meso-Tethys ocean. During the extension of the upper crust, the ore-enriched fluid rise and emplace through the extensional faults, resulting in the formation of the mineralation.

Key words: Zhalongqiongwa, rich magnetit, intraplate metallogeny, extensional metallogeny, Bangong Co-Nujiang River metallogenic belt

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