

The discovery and significance of the 1.84 Ga alkaline syenite in the southern margin of the NCC

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1.85-1.60 Ga is the early stage of steady development for the cover of the North China Craton (NCC), when the most important tectonic movement of the Craton is extension and breakup which leads to relatively large-scale extensional magmatism (such as alkaline rocks, diabase dykes, rapakivi granites, bimodal volcanic rocks and A-type granites etc.) and some aulacogens [1].

The 1.84 Ga Jialu aegirine syenite mass in the southwestern margin of the Xiong'er – Zhongtiao trigeminal aulacogen is the oldest alkaline intrusive body discovered in the southern margin of the NCC for the first time (figure 1). Study on the ancient alkaline syenite is of great theoretical and practical to discuss the questions about the Paleoproterozoic geotectonic evolution of the NCC and the breakup and reconstruction of Columbia supercontinent.

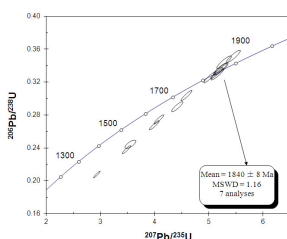


Figure 1: Shrimp U-Pb concordia diagram of zircon in Jialu aegirine syenite in Luonan county of Shanxi province, China

In the northern margin of the Xiong'er – Zhongtiao aulacogen there still are 1.84 Ga bimodal volcanics of Xiyanghe group[2]. It is suggested that this aulacogen began to stretch and breakup from 1.84 Ga. The 1.84 Ga probably represents the upper limit time of the Lüliang movement in the NCC and the collision of eastern and western North China block, is also the lower limit of formation time of Xiong'er group.

[1] Yan *et al* (2007) *Geol. Jour. Of Chin. Uni.* **13** (2), 161-174

[2] Zhao *et al* (2004) *Chin. Sci. Bul.* **49** (22), 2342-2349