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Geochronological Framework and Tectonic Background of Granites in Southern Margin (Anhui area) of the North China Block

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The southern margin (Anhui area) of the North China Block is located in the north of Lu'an Fault, the west of Tanlu Fault. The North China Block is the most important area in the study of the early Precambrian granitic magmatism. From Paleoproterozoic to Late Paleozoic, the area was in the craton evolution stage. The magmatism was weak. Since the Mesozoic, for the destruction of the craton, it became one of important reigns where Mesozoic magmatism strongly developed in Eastern China. The formation of granite was the most important igneous activity. The results of systematic geochronology analysis indicate that the igneous rocks could be divided into three age groups in the area, i.e. the Proterozoic, the Neoproterozoic, and the Mesozoic, respectively.

Mopanshan granite is one of the most typically Paleoproterozoic granite which mainly intruded into the Wuhe Group. The zircon U–Pb isotopic ages of Mopanshan granite is 2196 ± 23 Ma. Mopanshan K-feldspar granite is A-type granite, it indicates a non-orogenic extensional tectonic setting.

Neoproterozoic diabase distributed sporadically in Huaibei. the diabase intrude into the Upper Sinian Jinshanzhai Group. Representative rock terrain is Guishan diabase terrain (896.6 ± 16 Ma), which formed in the intraplate extensional tectonic environment (Wang, et, 2011).

The magmatic activity was strongly developed since Mesozoic period. The intrusive bodies are mainly distributed in Huaiyuan, Bengbu, Fengyang, Wuhe, and Huaibei areas.

The late Jurassic granites are mainly distributed in Jingshan and Tushan, Bengbu. The Jingshan granite was the typical intrusion with the age of 160 Ma. The granite might form in the post-collision extensional tectonic environment, which was related to of the Dabie-Sulu belt.

The Early Cretaceous granites could be divided into two stages, the early stage and the late stage respectively. The early stage was mainly distributed in Bengbu and Huaibei, such as Houmachang granite (130.5 ± 3.8 Ma), Qianchang granite (127.1 ± 1.3 Ma). The late stage granites are mainly distributed in Bengbu, such as Xijiazhuang granite (115 Ma). Further research suggests that the Early Cretaceous granites formed in the extensional tectonic setting, which is related to the craton destruction caused by the subduction of the Izanagi Plate to the Eurasian Plate.

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