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Structural Alteration Characteristics and Mineralize Significance of Late Paleozoic Magmatic Rocks in the Area of Wanquan-Wutonggou, Xinjiang

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The Wanquan-Wutonggou area is located in the east of the northern tianshan mountains in Xinjiang, belonging to the Bogda-Harlik tectonic belt. The study area is controlled by three large fractures in the southern margin of Junggar basin, the northern rim of Tuha basin and the Kelajuli – Qijiaojin-Balikuntage belt. The formation is belong to volcanic-sedimentary rock series. Through researching the geological background, evolution pattern, construction of the late Paleozoic magmatic rocks in Wanquan-Wutonggou region, focusing on the geochemical characteristics and hydrothermal alteration characteristics of the acidic and alkaline intrusive rocks and its relationship with uranium mineralization. Therefore, we preliminary studied the coupling relationship among tectonics, magmatism zone and uranium mineralization, determining the favourable prospecting direction.

The study area had experienced many tectonic

movement with the the strongest in variscan, and has a continental plate edge and intracontinental tectonic features which have an inner link with the cause of volcanic rocks and granites and uranium mineralization. Geochemical datas of these rocks show that the carboniferous Liushugou group distributed on the south of Balikuntage mountain are mainly a set of calc-alkali basalt and acidic volcanic rocks, rhyolitic pyroclastic rocks. Granite intrusive rocks are the high k calc alkaline series with an general better uranium enrichment degree than volcanic. From that the higher composition of potassic, the better enrichment of uranium.

In general, the alterations such as silicide, epidotization, chloritization developed in the basalt, andesite, dacite and other meso basaltic volcanic rocks were beneficial to the iron and copper mineralization; The potassic alteration of feldspar granite was favorable to the enrichment of uranium.

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