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Analysis on Uranium Mineralization Potential of Late Yanshanian Granites in Sichuan of Sanjiang Area

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The Sanjiang area is an important granite distribution area in China, except for South China, in which granites is complex and complete. Based on fully collecting date about it,this paper explores the significance of uranium anomalies in the area combining with the uranium geochemical anomalies in the Sichuan area.

1 Regional geological background

The study area is located in the western of Sichuan, in the middle-northern of Sanjiang, southwest of China. Since the late Paleozoic,Magmatic rocks in the area are extremely developed, especially Mesozoic granite effect is strong, and it is unique and rare in the world as the complex lithology and complete type.The late Indosinian is the first peak of granitic magmatic activity in this area, and the late Yanshanian is another important granite magma activity in this area.

2 Profile of the Late Yanshan Granite in the study area

Granite intrusion activities to form a large north-south granite belt in Gaogong-Queershan-Genie,in addition that other acid intrusion rock scale of the late Yanshan in the study area is small and distributing dispersedly. Gaogong-Queershan-Genie Granite belt distributs from north to south, including 9 granites bodies-Gaogong, Dongzhongda, Queershan, Changduoke, Xinguolongba, Cuopu, Nuoluolong, Rongyicuo, Dagenie. [1] Besides, some granites, such as Gongbana, Cuojielei, Zhalong, Xinhuoshan and so on, are distributed sporadically, of which lithology is two long granite or positive long granite, and lithology of others, such as Geka, Cuolong, Luolong and so on, are granodiorite and quartz diorite ,of which proportion are small, scattered and irregular.

3 Uranium geochemical anomalies and granite distribution in the study area

In the study area, there are one first-level concentration center, namely, the uranium geochemical anomaly area :the anomalous area is 13000km^2, the NAP value is 39435, the larger coefficient of variation is 0.854(Xie Xuejin, 2008). Concentrated centers are located in the northern part of the Beigenie granite in the Haizishan area, and this area is including Beigenie , Rongyicuo, Cuopu and Ruoluolong granites which are belonging to the late Yanshanian. Uranium anomaly in Haizishan area is obvious and have large range and high strength. The anomalous distribution of uranium is closely related to the late Yanshanian granite , obtained the uranium anomalies of the 692×10^{-6} sediments(Xu Zhengqi, 2016). In addition, in this area, a secondary concentration center distributes the area of the north side, and it sets better than the Queershan granite. It is worth noting that the anomalous location of uranium found by predecessors is basically the same as this area, and once again, it has proved that the Queershan granite has a large uranium mineralization potential.

The correlation between uranium anomalies in the study area and anomalies of W, Be, Rb and Li is good, and also the correlation with anomalies of W is the most consistent. It can be used as a sign to seek U in this study area.

4 Comparison of geochemical characteristics

In the study area, the Yanshanian granites are consistent with the uranium granites in the South China region, and are rich in silicon, rich in potassium and supersaturated in aluminum,but there are some differences. Calcium and magnesium , for example, are much lower than the uranium granite in South China. The biggest difference is that the rare earth content in the late Yanshanian granite

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is higher than in South China. Except for the total amount of rare earth elements, the late Yanshanian granite has typical characteristics of uranium granite in South China.

5 Conclusion

Based on the analysis of the geochemical characteristics of the Yanshanian granites, in Sanjiang of Sichuan Province, and the analysis of uranium anomalies in the regional water deposits, the following conclusions are drawn:

1)The distribution of uranium anomalies in the study area is closely related to the distribution of granite bodies in late Yanshanian stage. The supreme concentration centers is related to Beigenie and Rongyicuo, and the secondary concentration centers are related to the Queershan granite.

2)The geochemical characteristics of the late granites, Sanjiang of Sichuan Province, are similar to those of the uranium granites in southern China, and the uranium mineralization potential is huge.

3)U has good correlation with some elements, such as W, Be, Rb and Li. Especially W, its geochemical anomalies can be used as a sign to seek U in this study area.

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References

Xie Xuejin, 2008. *Geochemical Atlas of 76 elements in Southwest China*. Beijing: Geological Publishing House, 144 (in Chinese).

Xu Zhengqi, Zhang Chengjiang, Zhou You and Yin Minghui, 2016. The geochemical anomaly characteristics of uranium and thoriumand its prospecting significance in the northern of Sanjiang，Haizishan area, China. *Computing Techniques for Geophysical and Geochemical Exploration*, (06): 837–842.