

## **Geochemical features of host rocks of iron adsorption type REE deposit in south Jiangxi province, China**

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REE is one of the most important resources in China. However, unlike the LREE rich deposit, like the famous Bayan Obo REE-Nb-Fe deposit, REE deposits in south China are important because of their high HREE contents. Moreover, REEs in south China occur in the form of iron adsorption, which are much easier to extracted. They were usually released by weathering of REE-rich granite, and then adsorption by clay minerals such as kaolinite. There are large area of granitic rocks in south China, but only few of them are related to REE mineralization, most of which is concentrated in Jiangxi, Guangdong and Fujian province. The reason is still unclear, and there is great uncertainty whether the source and age of granitic rocks were connected to REE gathering. In this contribution, geochemical features of granite with different ages from south Jiangxi province are studied to provided constraints to the host rocks of the REE sources.

In addition to the basement rocks, granitic rocks in south Jiangxi intruded during three period, that is Caledonian, Indosinian and Yanshanian. Among them, the Yanshanian magmatic activity is most important since it is close related to all kinds of mineralization, like Cu, Au, W, Sn, REE, etc. Unlike the other rare metals like W and Sn, REE in south Jiangxi mainly occurred in the form of iron adsorption.

Granite formed in Caledonian have low in REE, with REE contents range from 85ppm to 250ppm. while, granite formed in Indosinian are relatively rich in REE, with an REE average of 310ppm. Granite formed in Yanshanian have the highest REE contents (with an average of 400ppm), however, the REE content decreased as differentiation degree increased. Geochemical studies show that Indosinian and Yanshanian granites have the potential to form REE deposit regardless their sources and forming process, while Caledonian granites in south Jiangxi could not. However, while granite differentiation degree increasing, HREE contents increase as whole REE contents decrease, provided an effective approach to create HREE rich deposit.

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