

Geochemical characteristics and zircon La-ICP-MS U-Pb dating of granite from Hukeng intrusion, Jiangxi Province, South China

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Geochemical Characteristics

The Hukeng intrusion located in northwest of Ji'an city in Jiangxi province is one part of Wugongshan W-Sn-Cu-Bi-Mo multi-metallic belt in the north margin of middle section of Caledonian fold belt in South China. The lithologies are predominated by muscovite granite and binary granite. They have A/CNK ratios of 1.32-1.48, high values of Al₂O₃, Na₂O and K₂O and very low content of P₂O₅ (<0.05%). The granites all have similar REE patterns showing LREE-enrichment and strong negative Eu anomalies ($\delta\text{Eu}=0.013\text{-}0.021$).

La-ICP-MS U-Pb Ages Dating

Many magmatic intrusions occur in Wugongshan metallogenic belt, where the precision datings of other intrusions have been studied in detail [1]. This study determined the zircon U-Pb age of granite from Hukeng intrusion as $151.6\pm 2.6\text{Ma}$ by La-ICP MS. The calculated T_{zr} values range from 676 to 695°C.

Discussions

The major and trace element data for the granites indicate that Hukeng intrusion is strongly peraluminous. They are formed in middle Mesozoic magmatic activity in Wugongshan metallogenic belt. Combined with geology and tectonic setting [2], Hukeng intrusion was generated in extensional environment in $151.6\pm 2.6\text{Ma}$.

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- [1] Lou *et al.* (2005) *Acta Geologica Sinica* **5**, 636-644.
[2] Liu *et al.* (2007) *Acta Mineralogica Sinica* (suppl.) 282-284.

The soil and groundwater investigation and evaluation of a certain field in Fuyang, Zhejiang Province

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In order to provide background value of environmental variables and provide scientific basis for contaminant control or treatment, we have investigated and evaluated the soil and groundwater of a certain field in Fuyang, Zhejiang province. We have collected datum of geological, hydrogeologic, drilling, water quality, environmental evaluation and related materials through field survey in the study area. Moreover, we have drilled 10 bore holes and collected soil samples and groundwater samples of each bore hole, together with one surface water sample, and sent them to laboratory for analysis. We have finished seven major categories of analysis of 15 soil samples, seven major categories of analysis of 10 groundwater samples and an analysis of inorganic contaminant item of a surface water sample.

Most of the analysis results show that the values of HMs are within the range of soil background value in Zhejiang province. At some sample point, the values of Chromium, Cadmium, Mercury, Arsenic or Nickel are higher than the soil background value in Zhejiang province, but they do not exceed the intervention value of Holland criteria, and other values of HMs in the soil are lower than the limits to report. Conclusively, the soil is not contaminated. As for the groundwater, most of the indices fulfill the I or II criteria. Most of the analyzing items fulfill the IV criteria. The analysis result of indices to the water with relatively worse quality shows that the turbidity of well 1 exceeds the V criteria, and the turbidities of well 2, 4, 5, 6, 7 are within the range of IV criteria. Fe in the well 1, 2, 4 and 9 exceeds the V criteria, Mn in the well 1, 4, 5 and 9 exceeds the V criteria. The quantities of Fe and Mn are within the range of IV criteria in other wells. According to the requirement and required steps of <Criteria of Groundwater Quality>, we find that the quality rank of the groundwater in this field is worse. Moreover, we detect Cu and Zn whose values fulfill the national surface water I criteria. The concentration of the total P exceeds the V criteria, and the concentration of other contaminants is less than the limits to report.