

## **Magnetic structure and tectonic significance of the middle and lower reaches of the Yangtze River and the northern section of the Qinhang belt -- enhancement and detection of satellite magnetic data**

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The characteristic mineralization of the Extensive Mesozoic Granite Province in South China has obvious spatial zonation, such as the Cu-Au-Pb-Zn-Ag multi-metal metallogenic belt across Qinhang, the Cu-Fe-Au-S-Pb-Zn multi-metal metallogenic belt in the middle and lower reaches of the Yangtze River, the Cu-Au-Ag-Pb-Zn multi-metal metallogenic belt in the central Zhejiang-Wuyishan and the W(Sn)-Cu multi-metal metallogenic belt in the Jiangnan uplift. However, the deep structure of the metallogenic system has always been an unsolved difficult problem and a hot topic of research. The difference of magnetic characteristics of geological bodies can reflect some shallow boundaries and deep structures of metallogenic systems. By enhancing the characteristics of magnetic data, the recognition of these magnetic boundaries is more reliable and the significance of its geological structure can be further understood. In this paper, we perform a downward continuation of satellite magnetic data in South China by means of numerical solutions of the mean value theorem. By comparing the downward continuation results of the satellite magnetic data and aeromagnetic data in South China, the downward continuation enhances the detailed features of the satellite magnetic data. On this basis, the edge detection of the magnetic data is carried out by the obtained results from downward continuation. Thus, the edge of the magnetic difference of a geological body is more obvious. The statistical results of rock magnetism show that the susceptibility of granite and granite porphyry in this area is low, whereas that of intermediate-felsic rocks (such as diorite) is generally high. Five zones and belts can be delineated by magnetic edges: the Lower Yangtze foreland fault-fold belt, the Jiangnan uplift belt, the western Zhejiang depression, the northern Fujian uplift-fold region and the southeastern coastal volcanic rock region. The main faults include the Tancheng-Lujiang fault, Jiangnan fault, Xuechuan-Huzhou fault, Jiangshan-Shaoxing fault, Nancheng-Dayu fault and Lishui-Zhenghe fault. These faults are the main channels for magma upwelling and have important geological significance for the formation of ore deposits.

### **References**

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