

*TRACE ELEMENT AND Sr-Nd ISOTOPE GEOCHEMISTRY OF FLUORITE FROM  
THE XIANGSHAN URANIUM DEPOSIT, SOUTHEAST CHINA*

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**Abstract**

The trace element and Sr-Nd isotope geochemistry of fluorite have been investigated in the Xiangshan volcanic rock-hosted uranium deposit in southeast China. Detailed Sr-Nd isotope data of the hydrothermal fluorite closely associated with the uranium mineralization suggest that ore-forming fluids were a combination of mantle-derived fluid and fluids equilibrated with basement metamorphic rocks. This model is consistent with previously published H-O isotope data and is incompatible with meteoric water as the only ore-forming fluid. Trace element geochemical profiles across the uranium orebody can be interpreted to reflect reaction between the host rocks and a mantle-derived fluid containing high U and Th with low Th/U ratios. The mantle-derived fluid is considered to have been U-, F- and carbonate-rich. Mixing with shallowly circulated meteoric water within the fractures of the host volcanic rocks caused dilution and cooling of the ore-forming fluid and subsequent precipitation of fluorite and uranium ore.

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