

## **FORMATION MECHANISM OF A BRECCIAS-VEIN SYSTEM OF THE JINYINZHAI URANIUM DEPOSIT, SOUTH CHINA**

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The Jinyinzhai uranium deposit occurs in a strike slip fault in Southern China and is hosted in the Upper Permian Dangchong Formation. The Dangchong Formation is composed of interstratified shales, sandstones and coalbeds and was folded in Late Triassic time forming three NNE-trending anticline-syncline pairs in the ore district. The uranium ore bodies are exclusively made up from breccias cemented by quartz veins in the cores of the anticlines. The breccias are almost in situ broken fragments of the Dangchong Formation with angular to sub-angular morphologies. There are two types of uranium ores: disseminated ores of the breccias themselves and randomly-oriented uraniferous quartz veinlets. The metalliferous fluids were originated from circulating meteoric water with low-salinity (1~5.4 % wt. NaCl), low-mediate temperature (160~245°C), and wide range of pressure (300~650 Mpa). The folded and silicified shales in the Dangchong Formation acted as the impermeable seals to the hydrothermal fluids accumulating in three anticline cores. The geometry of the breccia-vein system indicates that its formation was in direct response to hydraulic fracturing. Early quartz crystals in some veins are fractured implying episodic hydrofracturing. The hydraulic fracturing may have resulted in the formation of the breccia-vein system and the uranium mineralization.