

METALLOGENESIS OF RICH URANIUM DEPOSITS IN XIANGSHAN OREFIELD, JIANGXI PROVINCE, CHINA

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METALLOGENESIS OF RICH URANIUM DEPOSITS IN XIANGSHAN OREFIELD, JIANGXI PROVINCE, CHINA Wen Zhijian(Beijing Research Institute of Uranium Geology, Beijing—China) Xiangshan uranium orefield located in Jiangxi Province, south of China, is the largest volcanogenic hydrothermal uranium orefield in China. More than forty years, extensive and comprehensive research on ore mineralogy has been conducted and a great number of papers on these uranium deposits have been published accompanying the uranium mining in Xiangshan orefield. However, the problem on the metallogeny of high-grade uranium deposits remains vague. A number of electronprobe tests indicate that francolite extensively coexists with uranium minerals. Chemical analyses also show that uranium contents are in approximately positive correlation with P_2O_5 . Further studies reveal that uranium and phosphorus have similar geochemical behaviors in hydrothermal condition, and both elements may be transported and precipitated together. That large amount of and rapid francolite precipitation is essential to high-grade uranium metallogenesis. The author put forward that the formation mechanism of rich uranium deposits is originated from colloidal co-precipitation of uranium and phosphorus minerals. Study on mantle xenoliths reveal that mantle fluids are rich in reducing gases and K^+ , Na^+ ions etc., so do the hydrothermal fluids. He/Ar isotope analyses prove that metallogenic hydrothermal fluids have been mixed with mantle fluids. Finally, on the basis of metallogenic feature of this orefield, a metallogenic model of rich uranium ores has been put forward.