

西藏努日、程巴铜-钼-钨矿床硫铅同位素地球化学

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中文摘要: 努日、程巴矿床是冈底斯成矿带东段南缘紧邻雅鲁藏布江缝合带产出的两个斑岩-矽卡岩矿床, 两矿床矿化元素组合分别为Cu-Mo-W和Mo-Cu。文章以努日和程巴矿床中主要金属硫化物为研究对象, 采用S、Pb同位素研究方法对矿床成矿物质来源进行探讨。硫同位素研究结果表明, 两矿床硫同位素组成 $\delta^{34}\text{S}$ 值范围均较窄, 具明显塔式分布特征, 矿床硫主要来自深源岩浆; 努日矿床硫同位素组成在空间上具有一定的变化规律, 指示矿区41线附近存在隐伏岩体。矿石铅同位素组成表明, 两矿床成矿物质中均有幔源和壳源物质的参与, 不同的是壳源物质源区存在差异, 努日矿床壳源物质源区为拉萨地块结晶基底, 而程巴矿床壳源物质则可能来源于印度-亚洲大陆碰撞过程中的印度大陆岩石圈物质。努日和程巴矿床的矿化元素组合与其成矿物质源区特征是相对应的, 冈底斯成矿带矿化元素组合由南向北的分带性系不同的壳源物质基础加之不同程度的幔源物质混染造成的。

中文关键词: [硫同位素](#) [铅同位素](#) [矿化元素组合](#) [成矿物质来源](#) [努日](#) [程巴](#)

Sulfur and Lead Isotopic Geochemistry of the Nuri and Chengba Cu-Mo-W Deposits in Tibet

Abstract: The Nuri and Chengba deposits adjacent to the Yarlung Zangbo suture zone are two porphyry-skarn deposits occurring at the southern edge of the eastern Gangdise metallogenic belt. The metallogenic element combinations in these two deposits are Cu-Mo-W and Mo-Cu, respectively. In this paper, S and Pb isotopic compositions in main metal sulfides from the Nuri and Chengba deposits were studied to investigate the source of the ore-forming materials. The sulfur isotopic characteristics show that the $\delta^{34}\text{S}$ values of sulfides from these two deposits vary in a narrow range and have obvious characteristics of tower-type distribution, which implies that the sulfur in the two deposits was mainly derived from the deep-seated magma; however, the sulfur isotopic composition of the Nuri mineral deposit shows a certain degree of variation in space, indicating that the buried magmatic rock mass occurred in an area near No.41 exploration line in this mining area. Ore lead isotopic composition indicates that the ore-forming metal materials of these two deposits were derived from both the mantle and the crust, but they were different in the crust-derived material source. The crust-derived materials in the Nuri ore deposit came from the crystalline basement of Lhasa block, while those in the Chengba ore deposit might have been derived from the substances of the Indian continental lithosphere during the continental collision between the India and the Asian continent. The ore-forming element combinations of the Nuri and Chengba deposits are consistent with their source features of ore-forming materials. Therefore, from south to north in the Gangdise metallogenic belt, the zonation of mineralization was caused by the different sources of crust-derived materials and different degrees of mantle-derived material contamination.


keywords: [sulfur isotope](#) [lead isotope](#) [metallogenic element association](#) [source of ore-forming materials](#) [Nuri](#) [Chengba](#)

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