# The geochemical characteristics of molybdenum ore deposits in east Qinling orogenic belt, north China

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## Introduction

The molybdenum mineralization district in east Qinling orogenic belt is tectonically located in the south edge of north China Craton, where a series of molybdenum ore deposits are discovered. These ore deposits retain the largest capacity of molybdenum in China. The most important mineralization of these molybdenum ores is porphyry type genetically forming with the Yanshan granites (Mesozoic) in Qinling orogenic belt. In this study, both the granitic samples and molybdenum ore samples are collected for detailed geochemical analyses to focus on the genesis of these molybdenum ore deposits.

## Experiment and Results

Major elements, trace elements and REE are determined by XRF, ICP-AES and ICP-MS, respectively. The major elements that the samples are alkali granite and syenite-granite, which are formed in an anorogenic, syn-collisional or postorogenic environment. The chondrite normalized spider diagram and the MORB normalized diagram for the trace elements of the samples are both similar to that of the upper continent crust. The total REE amount is 32.1-251.4ppm, with an average 113.3ppm. The highest δEu anomaly is 1.7, while most of samples are less than 1 (with an average value of 0.67). The Re-Os ages of molybdenum ore give 144.8 ~ 132.40 Ma (Li et.al, 2005), resembling the same period of massive Yanshanian granitic intrusives, indicating that the metallogenesis of these molybdenum deposits are relevant to the Mesozoic magmatic activities in east Qinling orogenic belt. In fact these ore deposits are associated with the small medium-sized acidic intrusives.

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## References

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# The geochemical characteristics and its tectonic backgrounds of the Lower Silurian flysch sandstones in North Qilian orogenic belt

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The North Qilian orogenic belt is an elongated unit situated between the North China plate in north and Qaidam plate in the south. The lower Silurian Angzanggou Formation is distributed in Zhenglu, Cuijiadun sections in the eastern sector of the orogenic belt. Angzanggou Formation is dominated by clastic deposits, which is typical turbidite deposit of flysch facies. Sandstones collected from Zhenglu section consist of SiO2 ranging from 61.83% to 69.90% and $Fe_2O_3$*+MgO(3.83—4.98), $Al_2O_3/SiO_2$(0.13—0.17), $K_2O/Na_2O$ (0.89—1.35), $Al_2O_3$/（CaO+ $Na_2O$）(0.81—2.76). The provenance analyses and tectonic setting distrimination indicate that the terrigenous materials come from the active continental margin and orogenic belts. Sandstones collected from lower part of Cuijiadun section consist of $Fe_2O_3$*+MgO(5.03—5.11), $Al_2O_3/SiO_2$(0.12—0.14), $K_2O/Na_2O$(0.43—1.26), $Al_2O_3$/（CaO+$Na_2O$）(2.21—3.53). The upper part of Cuijiadun section consist of $Fe_2O_3$*+MgO(15.6—17.63), $Al_2O_3/SiO_2$(0.24—0.28), $K_2O/Na_2O$(0.25—0.85), $Al_2O_3$/（CaO+$Na_2O$）(0.98—1.42). The provenance analyses indicate that the lower part of the turbidite is mainly derived from a mixed provenance between ancient orogenic belt of Alashan Plate to the north and active continental margin to the sorth.The upper part come from the eroded mid-basic igneous rocks implying an environment of back-arc basin.

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