A prospecting porphyry Cu-Au deposit in Shaxi-Changpushan region by geochemical and geophysical exploration, Anhui, east China

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Introduction

Shaxi porphyry Cu-Au deposit was one of the importance discoveries of the exploration in the middle-lower Reaches of River in China in 1970's. It has been explored that there is about 500,000 tone's copper with middle-lower grade (Cu=0.4-0.2%) in this region [1]. The geological and geochemical study has been fully invested and proved it as a prospecting area for porphyry Cu-Au mineralization [2, 3]. By this study, we took investigation on the field geological, geochemical and geophysical surveys, which is proved to be a prospecting porphyry copper-gold deposit in Changpushan adjacent to Shaxi.

Methods and Results

Six exploration lines with electric method and 3 geological-geochemical profiles had been measured. The enclosed areas covered all the anomaly from field survey, and all the exploration lines are little longer than the field survey profile to cover all the possible anomaly areas and obtain more information about the contact zones formed by clastic rocks and underground intrusive rocks. A geological model responsible for controlling the porphyry Cu-Au deposit was also proposed in the studied area. We proposed that Shaxi-Changpushan region as advantage to form a large porphyry Cu-Au deposit, which is accorded with result from Yang *et al.* [4].

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Geochemistry and rock association in the Karamaili Paleo-Asian ophiolite in east Junggar, NW China suggest ridge-trench interaction

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The Central Asian region is a complex orogenic belt created during the evolution and closure of the Paleo-Asian Ocean at ~1000 - 300 Ma. The Karamaili ophiolite, in the NE corner of the Junggar basin in NW China, represents a remnant of the Paleo-Asian oceanic crust and a key element for reconstructing the subduction-accretion processes that formed the orogenic belt. We have recently dated magmatic zircons from the quartz diorite of Karamaili ophiolite using LA-ICPMS method, and these zircons yield a 371 Ma age. The geochemical characteristics of the bulk of the mafic lavas in the ophiolite are transitional between those of N-MORB and IAT (e.g. [1]), although E-MORB and OIB-like mafic lavas have also been reported [2]. Other distinctive rock groups in the ophiolite include evolved (intermediate to acidic) and low-Ti boninitic lavas, peralkaline A-type granites, as well as gabbro-norite bodies containing major nickel-copper deposits (i.e., the Kalatongka Ni-Cu deposit of [3]) and metamorphic rocks containing gold deposits. We propose that the complex orogenic rock and mineral deposit association in the Karamaili ophiolite indicates ridge-trench interaction and was tectonically emplaced in a manner similar to that proposed for the intrusive rocks in the Chugach Mountains in southern Alaska [4, 5]

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