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Geodynamics and ore mineralization in Bayankhongor metallogenic belt, Central Mongolia

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ayankhongor metallogenic belt is one of the main gold producing area in Mongolia. In the regional geotectonic setting the Bayankhongor metallogenic belt is north-west trending tectonic zone, which consists of several tectonic units as Archean Baidrag terrane, Burd metamorphic unit, Bayankhongor ophiolite belt, Zag metamorphic belt and southern part of Hangai intra-continental basin. The tectonic zones of Bayankhongor belt has several episodes magmatic activity starting from Proterozoic continuing to Cambrian, Early Paleozoic, Late Paleozoic, and Mesozoic.

The Bayankhongor belt is known by its gold mineralization since ancient time, and there are remnants of old mining activity at the several places. Ore mineralization is closely associated with long history of geodynamic setting of the belt starting from old oceanic crust through accretion, collision and obduction as well as intra-continental magmatic activity.

Results of various stage geological stud, indicate that there are many deposits and occurrences of gold, copper, tungsten, iron, nickel and PGE etc. Copper, nickel and PGE mineralization thought to be related with mafic and ultramafic units of ophiolite belt, and formed during oceanic setting. Gold bearing quartz vein zones, and cold copper bearing scarn deposits, which must be primary source of placer deposits, are mainly distributed along the south and south west part of the belt.

Placer deposits mainly found along the along the mountain Jargalant, which is obducted ophiolite zone, and Burd passive continental margin terrane and Bombogor Proterozoic metamorph terrane. Age of placer deposits ranges from Mesozoic to Recent.

We study age and geochemistry of magmatic rocks which are distributed in and around the ore mineralization occurrences, in order to make clear its genetic relation and as well as reconstruction of tectonic evolution of Bayankhongor metallogenic belt. Result petrochemistry and of age dating analyses will be discussed and presented.

Keywords: Bayankhongor, ophiolite, gold, placer, PGE, magmatic rocks