

## Geochemical and mineralogical properties of harzburgite and dunite in Margı (NE Eskisehir) Area

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Study area which located in the Izmir-Ankara suture zone is found Tavsanlı zone peridotites. Harzburgites which is a host rock of magnesite have been subject to severe serpentinization. Dunite consists of mostly olivine, very few orthopyroxene and opaque mineral chromite. Harzburgite contains olivine, orthopyroxene, serpentine, talc, opaque mineral magnetite and chromite. Chrysotile, lizardite are common and antigorite is a small amount serpentin mineral according to the XRD. Rock has sieve / network-glass clock texture because of widespread serpentinization. REE (Rare Earth Elements) values of these rocks have positive La, Nd, Eu, Ho, Tm, Lu and negative Pr, Sm, Gd, Er, Yb anomaly by chondrites / normalized distribution and show rather depleted according to the chondrite. Can be said that mineral transformation temperature reaches amphibolite facies according to the mineral association.

## Raduzhnoe – epithermal breccia-hosted deposit (Northern Caucasus, Russia)

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The **Raduzhnoe deposit** is situated in the central part of North Caucasian Mountains within Jurassic depression zone, related with extensional-transensional tectonic regime, forming horst and graben structures. Intensive tectonic and magmatic activity was associated with the closure of the Tethys Ocean and the Andean type of subduction. Block movements began in the Early Jurassic (Pliensbachian). Jurassic volcanic formations are represented by Aalenian basalt-rhyolite and Bajocian basalt-porphry-trachytic formations. Rhyolites are the most common volcanic rocks at this area. Epimagmatic hydrothermal activity related to rhyolites led to: broad development of processes of silicification of host rocks, less their kaolinization, carbonation, sulphidation, baritization, chloritization, the widespread expression of alkaline metasomatism.

The ore occurrences are confined to the PZ granite ledge and zones of intense brecciation. Composition of the breccias is quite diverse. Breccias have been changed in a varying degree during gas-hydrothermal activity. Ore minerals which have been identified at Raduzhnoe are native gold, calaverite, dyscrasite, proustite, sulfides. Au content reaches up to 215 g / t, Ag and 4000 g / t.

At the deeper levels of the breccias the pyrite content increases and galena, sphalerite and chalcopyrite appear. Polymetallic mineralization is mainly associated with hydrothermally altered basement granites and Pliensbachian sandstones. Gold and silver are being in a finely dispersed state in sulfides.

Thus, at the Raduzhnoe there are allocated two types of mineralization: gold-silver (low-sulfidation gold-silver type) and gold-silver-containing polymetallic (low-sulfidation silver-gold-base metal type) [1]. Probably gold-silver-polymetallic mineralization is earlier process and is associated with developing of the global Jurassic polymetallic belt of the North Caucasus. Gold-silver subtype of mineralization is more recent, local and related to the final (solfatar) stage of volcanism.

[1] Sillitoe R.H., Hedenquist J.W. (2003) *Soc. Econ. Geol. Spec. Publ.* **10**, 315–343.