Volcanic Belts of the Verkhoyansk-Kolyma Mesozoides

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The Verkhoyansk-Kolyma Mesozides are located in the northwestern Pacific mobile belt. They resulted from the collision of the Verkhoyansk margin of the Siberian continent and the Kolyma-Omolon microcontinent which occurred in post-Bathonian time. Two peaks of volcanic activity are established here: in Oxfordian-Volgian and Aptian-Albian time.

During the late Jurassic, in the zone where suboceanic crust of a small oceanic basin is subduction beneath the continent, a continuous basalt-andesite-rhyolite calc-alkaline series of the Uyandina-Jasachnaya belt developed. Parameters, lateral and vertical zoning of compositions of the volcanites correspond to those of magmatic formations of a reduced island arc. The rocks are enriched in Au and Ag. In the adjacent areas of the continent, in the zones of local gapping, belts of calc-alkaline and subalkaline volcanites and subvolcanoes, mainly of acid composition, were formed. Their parameters correspond to volcanites of the andesite and latite geochemical types of active continental margins. The rocks are enriched in Sn, Pb, Zn, Cu, and Ag. Au is subordinate.

After completion of the folding in Aptian-Albian time, in the regional extension zones along the northern border of the newly-formed active margin of the Siberian continent, outpouring of lavas of shoshonite-latite-trachyte composition and emplacement of comagmatic small intrusions and subvolcanoes occurred, with the formation of the Djakhtardakh-Oloy volcanic belt. The rocks belong to geochemical types of shoshonites, latites, granitoids of the alkaline series, and rare-metall granitoids of the alkaline series. They are rich in rare earths, Be, Nb, Zr, Au, Ag, Bi, Sb, Pb, and Zn.

In all of the volcanic belts, apical and near-contact zones of subvolcanic massifs, located below the geochemical barrier of volcanic- aleuritic rocks, are promising for Au-Ag and complex ores.