

Features of Distribution of Ore Deposits in the Western Part of the Altai-Sayan Folded Area and the Role of Granitoid Magmatism

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The Altai-Sayan folded area (ASFA) is composed mainly of the Vendian-Cambrian volcanogenic-sedimentary rocks of oceanic and island-arc complexes and magmatic rocks different age and composition. In the eastern part of the ASFA magmatic complexes of Cambrian and Ordovician age, mainly composed by diorite, granodiorite, granite, break through volcanogenic-sedimentary sequences. Formation of these granitoids happened in island-arc and collisional environment. At the western part of the territory granite complexes of the Devonian age are widespread. Mesozoic granitoids which formed in the intraplate conditions are also presented in the region.

Metallogenic analysis of the ASFA in general indicates that gold mineralization and partly iron, copper and molybdenum is confined to the areas of granitoid magmatism of different ages. In the western part gold mineralization is confined to granitoid complexes of the Devonian age. Gold mineralization of northern and eastern parts is related to the Cambrian and Ordovician granitoids. In the south-western and southern parts of the region, gold is minor ore component associated with iron, lead, zinc and silver. In the eastern and northern parts, gold is main industrial commodity and associates with copper, molybdenum, iron, lead, zinc. The uneven distribution of the massifs of granitoids determines the patchy gold mineralization with the allocation of ore districts and clusters. There is direct correlation between the volume of granitoid magmatism and the number and size of the gold ore deposits. The main stages of the granitoid magmatism of ASFA determine the main stages of the formation of gold mineralization.

Biography:

Dr. Alexandr I Chernykh is the Director General of the FSBI "TsNIGRI" - the leading enterprise of the State Geological Service of the Russian Federation in the field of geology and metallogeny of diamonds, non-ferrous and noble metals. He holds PhD degree in geology and mineralogy. Dr. Chernykh is a member of the editorial board of leading Russian geological journals, the author and co-author of more than 100 publications. A.I. Chernykh is an expert in the metallogeny and in the mineral exploration and prospecting methods for solid mineral deposits.