GEODYNAMIC REGIMES OF GOLD DEPOSITS FORMATION

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The regularities of formation and localization of largest gold deposits (LGD) with reserves of more than 100 tons of gold is the most actual problem for the investigations at the current trend of global mining industry. Systematization of the data for LGD gave the opportunity to characterize the ore forming processes, which lead to their geologic, industrial and formation affiliation; to select geodynamic phases and stages of ore formation and to develop the links of the ore with geologic complexes and geotectonic surroundings. On this basis the criteria for perspective evaluation and prognosis of LGD are developed. The most important one is the geodynamic regime of ore forming stage.

In shields provinces LGD are concentrated in green stone belts. Ore formation proceeds in successive crust granitization regimes. Stratiform-type LGD are connected with ancient platforms. Fractured and blocked cover dislocations and cover-basement zone control the ore. Another genetic group is gold bearing conglomerates formed in the block sinking regimes and associated depression filling with clastogenic gold. In evgeosyncline regions the ore forming phase is coordinated with activation of block structures and mantle-crust and crust granitoid magamatism. In miogeosyncline regions LGD are localised in carbon bearing beds. The fold structures of interrupted type and dotted belts of mantle-crust and crust granitoids conforming fractured-blocked systems are typical. LGD in middle massifs are localised in resonance edge structures of basement or cover and reflect the regimes of adjacent regions. LGD of the regions of tectonic-magmatic activization are connected with plutonogenic and plutonogenic-volcanogenic types of ore-magmatic systems. The arch lifts are typical in the phases of renewal of block and fracture structures, which control the belt and focused localization of deposits.