

Predicting prognosis computer models and quantitative estimation of expected resources of gold deposits in Kazakhstan

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A new method of express estimation of eroding level and size of Akbakay type gold deposits was worked out on a basis of volumetric geological and computer modeling. The method is based on synthesis of a multi-component generalized geological model of deposits and their computer analogues generated through "Genesis" predicting expert system. Being a key link to the method, this system is instrumental means for modeling expert's geological knowledge to be used for problem solution.

A basis of geological expert models is a theory of artificial intellect and expert system technology. "Genesis" expert system transforms expert's diversified information into geological knowledge unknown previously, forms a knowledge base to be used in revealing new empirical regularities.

The database and knowledge bases have been first created for 20 deposits. Expert system testing was performed for standard properties with fixed eroding level and gold reserves (Akbakay, Aksakal, Kenzhem, Beskempir, Altynsay, Zhaksy); prognostic indications ranking was done by informative features. Data on mineralogical-geochemical and metasomatic zonality of ore-magmatic systems proved their highest value in gold deposits prediction. The final knowledge model also includes geological, structural and morphological factors (250 parameters).

Application of complete and shorten computer variants of knowledge models for estimation of eroding level and gold potentiality of several new prospects in Chu-Ili Folded Belt was described in the report.