

The Kola Peninsula: a new region to apply matheronian geostatistics

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The Kola Peninsula at the NW of Russia is a well-known industrial region with many deposits of very different genetic types, geological positions and inner structures: apatite (Khibiny mountains), apatite+magnetite+rare metals (Kovdor), copper+nickel+PGE+chromite in layered intrusions (Pechenga, Moncha, Sopcha, Pansky and Imandrovsky massifs), iron in the banded iron formation (Olenegorsk and many others) etc.

New economic realities in a recent mining industry force us to look for the most flexible, quick and precise methods of evaluation of mining ore bodies, especially, according to nuances of their geology. The matheronian geostatistics appears to be a suitable tool to solve a wide range of related problems. Among them, the problem of non-confirmation of resources at some deposits in action is of big interest for us, which is usually resulted from their poor preliminary geological prospecting or / and using too large blocks with averaged component content when evaluating.

An integrated package GEOTECH-3D is created in the Mining Institute of KSC RAS to model geological structures of the deposits under investigation, to build block models of ore bodies with geostatistical evaluation of their various parameters and, finally, to project different variants of their underground and open-pit mines. Nowadays GEOTECH-3D is adopted to the needs of the "Apatite" and "Kovdor" joint-stock companies and Sopcha chromite deposit.