NOBLE METALS AS INDICATORS OF MAGMATIC PROCESSES

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The distribution of Pt, Pd, Rh, Ir, Ru, Os, Au, Ag in rocks and ores of basic-ultrabasic intrusive complexes of NE Baltic Shield is studied. The complexes are of different formation type and age (2.45-0.38 Ga) and have the different types of ores (Cu-Ni with PGE and Au, low-sulfide Pt-Pd with Au and chromite with PGE). The noble metals concentrations of intrusive complexes (Pechenga, Pados, Pansky, Kovdozersky, Monchepluton, Kovdor, Lesnaya Varaka) are similar to the analogous complexes of world. The average Pd/Ir ratio is of 20-25, the minimum one is for the chromite ores and host dunites of Sopcheozerskoye, Pados, Bol'shaya Varaka. The low-sulfide Pt-Pd ores of layered intrusions (Pansky and Kovdozersky) have the higher Pd/Ir ratio, and the carbonatites of Kovdor and Sebl'yavr have the highest ones. The noble metals distribution is studied also for rock series of some intrusive complexes. The main intrusive phases in every massif have the metals distribution similar to rock/chondrite ratio. The ores have the different ratios. The Kovdor magnetite ores are enriched in Ir, Ru, Os, and the late carbonatite sulfides are enriched in Au and Ag.Dunites and chromite ores of Sopcheozerskoye deposit of Monchepluton have the Ir-Os-Ru specialization; dunites, harzburgites and chromite ores of Pados have the Os-Ir-Ru specialization; rocks and chromite ores of Imandra pluton have the Os-Pt-Ru specialization. The rocks and ores of layered intrusions have the Pt-Pd specialization with enriching in Rh for Pansky massif and in Ru for Kovdozersky and Gluboky massifs. Both layered intrusions types have the elevated contents of Au and Ag. The concentration rate from rock to ore is increased in range Os-Ag from 10 to 1000. The basic-ultrabasic complexes of Kola metalogenic province have the Ru-Pd specialization.