FLUID-RICH LATE MAGMATIC GENESIS OF PGE MINERALIZATION IN PALEOPROTEROZOIC LAYERED INTRUSION PANSKY TUNDRA, KOLA PENINSULA, NW RUSSIA.

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The Pansky Tundra layered intrusion was emplaced during an epoch of the Early Proterozoic rifting within Archaean basement of the Kola Peninsula, Fennoscandian Shield. This layered intrusion consists of norite-gabbronorite-gabbro rough megacycles and contains rhythmically layered horizon (RLH), that host noneconomic sulphide Ni-Cu and relatively rich PGE mineralization. The zircon U-Pb age of gabbronorite corresponds to 2470+\-9 Ma and mineral Sm-Nd isochron age 2487+\-51 Ma with eNd(T)= -2.1+\-0.5. RLH includes thin layers of norite, olivine-gabbronorite, melanocratic norite and troctolite, injected by more later sill-like pyroxene anorthosite with an enclaves of gabbronorite. The PGE mineralization locates namely within pyroxene anorthosite lenses and forms the mineralised zones comprising the ore-bearing metasomatically altered anorthosite. These lasts are composed of two successively-formed metasomatic association: 1) replacement of pyroxene by tremolite and magnetite; 2) later stage of alteration of rocks which consist of epidote-zoisite-chlorite-albite-sericite-quartz association in the paragenesis with sulphide-PGE mineralization (tellurides, bismutides and sulphides of Pd and Pt).The anorthosites and ore-bearing metasomatically altered anorthosites are characterised by the higher FeO/MgO ratio than host gabbronorites, positive Eu-anomaly and lower contents of HREE. Besides the mineralised rocks are clearly enriched by the Te, Au, Se, Ir, Cu, Ni and sharp depleted in Cr. The fluid phases were analysed thermo-ion emission mass-spectrometric method and show high contents of N2, CO, CH4 and SO2 comparably with the host gabbronorites in temperature interval 700-1200 °C. Such high temperature fluids were probably responsible for the transport of Cu, Ni and PGE and later precipitation in more cool and oxidising zones, forming PGE-rich horizons.