

Characteristics of platinum group elements (PGE) distribution in mantle xenoliths from kimberlite Udachnaya pipe (Yakutia).

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We report PGE data in xenoliths of the deformed and granular peridotites. The deformed peridotites are the most deep-seated rocks and represent a narrow range of depth (180-220 km) while granular peridotites are located throughout the section of the lithospheric mantle. PGE distribution in the deformed peridotites [1] generally corresponds to that in our granular peridotites and xenoliths from Lesotho [2]. But in contrast with broad range of PGE concentrations in granular peridotites, the deformed peridotites show nearly flat pattern from Os to Pt, except of Pd (Fig.1). Granular peridotites show good positive correlation between PGE and Fe₂O₃. We suppose that they are enriched in PGE by iron phase during its evolution. As for deformed peridotites we propose that they were depleted in Ir and Os followed by the increase of Ga and Cpx on the first stage of mantle metasomatism. On the last stage the enrichment of Pt, Pd and Re was probably a result of submicron sulphide phase's precipitation in the interstices of mantle rocks.

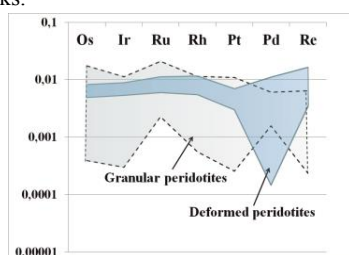


Figure 1. The PGE distribution in mantle xenoliths of the Udachnaya pipe.

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[1] Ilyina et al. (2016) Dokl. Earth Sci. 467, 694-697. [2] Pearson et al (2004) Chem. Geology 208, 29-59.