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First data for deep seated xenoliths and mantle geotherms of Zarnitsa kimberlite pipe, Daldyn, Yakutia.

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First discovered in Yakutia and the largest in Daldyn region kimberlite pipe is composed from several phases including breccias and porphyric kimberlites. Commonly mantle xenolith from this pipe especially included in the prevailing grey breccia are nearly completely altered. Only relatively fresh material from the brownish - grey breccia from the drilling core and porphyric kimberlites includes material which could be used for the mineral thermobarometry.
The picroilmenites from the Zarnitsa pipe are forming three clusters according to the Cr- content: 0.5; 1.0 and 2.5 % $Cr2O_3$ (Ashchepkov,Amshinsky, Pokhilenko, 1980; Amshinsky, Pokhilenko,1984; Alymova et al., 2003) due to the different contamination degree of protokimberlites in mantle peridotites. The ilmenites from porphyric kimberlites are forming stepped trend consisting from three groups of different pressure intervals from 6.5 to 4.0 GPa but more continuous than those determined for the ilmenites from breccia (Ashchepkov et al ., 2010). The relatively low Cr diopsides are corresponding to the deeper part while those containing to 2 -3 of $Cr2O_3$ are from the middle part of the mantle section and are in association with the phlogopites contain the reflecting processes of the protokimbelite differentiation and contamination.
Peridotites from the lithosphere base are of Hi temperature type and slightly Fe - enriched and are referred to the porphyroclustic types where garnets contain up to 10% $Cr2O_3$ are they are relatively low in TiO_2. But there are alos varieties of reduced Cr and the Fe-enriched which are closer to the deformed type (Agashev et al., 2013).
The cold clot in the 60-5.5 GPa (34 mwm-2) are represented by Fe- low peridotites with the garnets of sub-Ca types. The Cr- low and LT eclogites are correspondent to the low 4.5-6.0 GPa interval similar to those from Udachnaya pipe. But near the pyroxenites lens the varieties enriched in Fe and sometimes hybrid pyroxenites appear like in most pf mantle sections in Yakutia.
In general the Fe# of the garnets beneath Zarnitsa pipe reveal essential increase which became more pronounced in the uppermost part of the SCLM. the basic cumulates and Phl -Ilm bearing Gar pyroxenites are detected near the Moho boundary.
the Gar - Px mantle geotherm in Zarnitsa SCLM is relatively cold. But the heating coinciding with the appearance of Ilm- pyroxenites and basic cumulates in the uppermost part of lithosphere were determined.
The trace elements for the mantle peridotites from the common un - enriched type show the peak in Pb, U for both Cpx and garnet probably marking post - subduction origion bu the enriched type reveal HFSE and Sr rise due to metasomatism.
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