Geophysical Research Abstracts
Vol. 21, EGU2019-15977-2, 2019
EGU General Assembly 2019


# Compositional features of the Cr- pyropes from the Syuldyukar kimbelrlite fields Yakutian kimberlite province and Shandongu pipe, Angola

Alexander Ivanov and Alexander Tolstov
Geo-Scientific Research Enterprise of ALROSA Company, Mirny, Russia

Compositional fields of pyropes of lherzolitic paragenesis from of newly found el'dukar field and diamond-bearing kimberlite pipe Serdyuchka in Yakutia and new pipe Shandongu found in Angola are discussed. They have very similar distributions $Cr2O_3$ –CaO in N.Sobolev's et al (1973) diagram for pyropes. The differences in pyrope compositions are expressed in MgO - MnO diagrams. Compositions of Shandongu pyropes are characterized by high MgO 21 wt % and MnO $\sim$ 0.4% wt%. Compositions of pyropes Tr. Serduchka have a higher content of manganese dioxide at an average of 0.5% wt% and MgO– 19 % weight and pyrope minal is consequently less. Mn content is highly dependent from the temperature and used as the thermometer (Creighton, 2009). Ni in the pyropes from Sel'dukar are higher also and this is consistent with the higher temperatures for pyropes (Griffin et al., 1989) from Snadongu pipe which is also visible at the PT plot determined with the pyrope thermobarometry (O'Neil-Wood, 1979 – P Ashchepkov et al; 2010).
Lherzolitic garnets well differ by the manganese which is statistically higher for the Serdyuchka pipe. The reconstructions with the garnet thermobarometry shows that the lithospheric mantle in Seldukar field have some si,ilarities with the the Mirninsky field located at a distance of 120 km It show the sharp division to the 4 parts with the sharp boundaries at 2.8, 4.2 and 6 GPa The lower part reval the depletion of the lower part to dunites. The convection branch is pronounced from 4.5 GPa to 6.2 GPa showing the heating to1400oC. The general Fe#ol is rather high $\sim$ 0.1 ranging to 0.05 – 0.08 for the most depleted samples.
The lithosphere beneath the Shandongu pipe have the boundaries at 2 , 3.5 , 4.3, 5.2. 6 GPa . The Fe#ol is varting from 0.06 to 0.08 slighly rising to the top pf mantle column.
The pyrope geotherms of Sel'dyukar are more heated $\sim$by 50-70oC compared to Shandongu.
Garnets of eclogitic paragenesis from Serduchka pipe are reffereto the upper part of mantle section are less in calcium and more ferrous than the compositions of pyropes from Sandongu.
Another example of Aykhal and Morkoka pipe . The pyrope populations of both pipes show high amount of sub –Ca garnets Those from Aykhal contain much higher Mn abd Ni and thus show higher – temperature conditions that pyropes from Morkoka pipe.
Such HT features and high Mn content may be typial features of diamondiferous pipes. Which as also determined for the pyropes from highly diamondiferous Carnian collector near the Lena river mouth (Sobolev et al., 2013).
The trace element characteristics of the minerals from both Serdyuchka and Sahndongu pipes determined by LAM ICP MS will be also discus