



Petrology and Geochemistry of mantle xenoliths from Margasan, Baikal Lake region (Russia) Preliminary results

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Off-cratonic mantle xenoliths collected from the Margasan volcanic field in eastern Siberia (Russia) were analysed to characterize their mineralogical composition, their petrological and geochemical properties. The xenoliths are spinel bearing lherzolite and have been transported to the surface by alkali basalts.

The studied samples are fertile lherzolites with modal compositions as follows: Forsterite 56% - 78%, orthopyroxene 35% - 16%, clinopyroxene 6% - 20% and spinel 0% - 4.5%. The majority of the samples have textures ranging from protogranular to equigranular. Some of the samples with equigranular texture show characteristic foliation suggesting deformation in the depths. Frequently, olivine grains show kink-bands. The clinopyroxenes show characteristic spongy rims with variable width as a consequence of interaction with intergranular circulating melts/fluids. Alternatively they could be formed en route to the surface due to pressure decrease. Microprobe analyses have shown that Forsterite (Fo) contents in olivine vary from 89 to 90. The $\text{Mg}^{\#} \times 100$ in orthopyroxene and clinopyroxene ranges from 90 to 90.5 and 89 to 91 respectively. Spinel are Al_2O_3 -rich with $100 \times \text{Cr}^{\#}$ ranging from 9 to 17. The TiO_2 , Cr_2O_3 and Na_2O contents in clinopyroxene vary from 0.4% to 0.7%, 0.6% to 1.1% and 0.6 to 2.1 respectively. The clinopyroxene spongy rims consist of glass and second generation clinopyroxene, which differs from the primary clinopyroxenes in that the TiO_2 , Al_2O_3 and Na_2O contents are lower than in the primary clinopyroxenes. According to the model of batch melting the studied xenoliths indicate that they are the residues after 1.5% to 7% partial melting. The calculated equilibrium temperature at a pressure of 15 kbar ranges from 940°C to 1120°C, indicating that xenoliths have been sampled from different depths.