Evolution of mantle column of pipe Sytykanskaya, Yakutia kimberlite

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Separate PTXFO2 diagrams for xenocrysts from porhyric kimberlite (PK), autolithis breccia and 160 xenoliths from Sytykanskaya pipe Alakit (Yakutia) method show differnce. It is expalined by the evolution of the protokimbelie melts and reactional wall rocks. Early BK xenocrysts reveal stepped layered sction of 5 units, in AK section is more complex but smoothed due metasomatism. Xenoliths diplay several P-Fe# arrays. PT for the ilmenites show the migration of protockimbelrlites to middle part (4GPa) of SCLM and upper accompanied by AFC. The geochemistry of parental melts for xenocryst of Gar and Cpx from ABK, BK, metasomatic peridotite xenoliths and pyroxenites differ. Xenocrysts from ABK were produced by protokimberlite close to carbonatite with inclined linear REE and HFSE dips. Parental melts for metasomatic xenoliths are less inclined with lower La/Ce_n and without troughs in TRE spidergrams. Gar from Cr websterites show round REE patterns and deep troughs in Ba-Sr but enrichment in Nb-Ta-U. The Cpx REE are more inclined and inflected with variations in LREE due to AFC differentiation.

^{40}Ar-^{39}Ar ages for peridotite micas in Alaki show 1154 Ma) for dispersed phlogopites and probably of continental arc of Rodinia. Veined alkaline and Ti-rich veins with pargasite and richterite ~1015Ma corresponds to the plume event. The~600-550 Ma emarks stage of Rodinia break-up. Stage 385 Ma is protokimberlite related. Grant 11-05-00060.