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Platinum Group Elements and Re in Spinel Lherzolite Xenoliths of the Tuva-Mongolian Massif (East Sayan, Siberia, Russia) show no Evidence for Ancient Lithospheric Mantle

A.V. Ivanov (1), E.I. Demonterova (1), S.V. Palesskii (2), I.V. Nikolaeva (2), S.V. Rasskazov (1)

(1) Institute of the Earth's Crust SB RAS, Irkutsk, Russia (aivanov@crust.irk.ru), (2) Institute of Geology and Mineralogy SB RAS, Novosibirsk, Russia (ctac@uiggm.nsc.ru)

Tuva-Mongolian massif (microcontinent) was originally described as a lithospheric structure, which consists of Neoproterozoic basement with included Early Precambrian blocks and Neoproterozoic sedimentary cover. The Tuva-Mongolian massif is situated within Paleozoic mobile belt of southern framing of the Siberian craton and considered as a key structure in many geodynamic studies. However, its existence was questioned recently. We analyzed platinum group elements and rhenium by isotope dilution ICP-MS in granular spinel lherzolites entrained as xenoliths in the Late Cenozoic volcanic rocks erupted within the Tuva-Mongolian massif. The lherzolites are characterized by low Mg/(Mg+Fe) (˜ 89), low chondrite normalized (Os/Ir)n (˜ 0.14) and high (Pd/Ir)n (˜ 0.7). Similar values are typical for spinel and garnet lherzolites from Vitim volcanic field located within Paleozoic lithospheric structures of southern framing of the Siberian craton. Cratonic peridotites elsewhere in the world show much higher values for Mg/(Mg+Fe) and (Os/Ir)n and lower (Pd/Ir)n. Thus, studied fragment of the lithospheric mantle of the Tuva-Mongolian massif shows no sign of the Early Pre-Cambrian lithosphere. (Study is supported by RFBR 05-05-64281 and MK-1588.206.5).