

V11A-03B: MongOl Sh11-2: Olivine Reference Material for In-situ Microanalysis

Monday, 10 December 2018

08:30 - 08:45

📍 *Marriott Marquis - Liberty I-K*

A new olivine reference material – MongOl Sh11-2 - for *in-situ* analysis has been prepared from a central portion of a large (20X20X10 cm) mantle peridotite xenolith from a ~0.5 Ma old basaltic breccia at Shavaryn-Tsaram, Tariat region, central Mongolia. The xenolith is a fertile mantle lherzolite with minimal signs of alteration during and after its transport to the surface. Around 10 grams of 0.5 to 2 mm gem quality olivine fragments were separated under binocular microscope and analysed by EPMA, LA-ICP-MS, SIMS and bulk analytical methods (ID ICP-MS for Mg and Fe, XRF, ICP-MS) in six Institutions worldwide for major, minor and trace elements. The results show that the olivine fragments are sufficiently homogeneous in respect to major (Mg, Fe, Si) and minor and trace elements. Significant inhomogeneity revealed only for phosphorus (homogeneity index of 12.4 (e.g. Boyd *et al.* 1967)), while Li, Na, Al, Sc, Ti and Cr show minor inhomogeneity (homogeneity index between 1-2). The possible presence of some mineral and fluid-melt micro-inclusions is probably responsible for the inconsistency in concentration obtained by local and bulk analytical methods for Al, Cu, Sr, Zr, Ga, Dy and Ho. Here we report reference and information concentrations for Si, Mg, Fe, Li, Na, Al, P, Ca, Sc, Ti, V, Cr, Mn, Co, Ni, Cu, Zn, Ga, Sr, Y, Zr, Dy, Ho, Er, Tm, Yb, and Lu.

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