

## **Preliminary Data on new Olivine reference material MongOL Sh11-2 for *in-situ* microanalysis**

BATANOVA V.<sup>1,2</sup>, SOBOLEV A.V.<sup>1,2</sup>, THOMPSON J.M.<sup>3</sup>,  
DANYUSHEVSKY L.<sup>3</sup>, GOEMANN K.<sup>4</sup>, PORTNYAGIN M.  
<sup>5,2</sup>, GARBE-SCHOENBERG D.<sup>6</sup>, HAURI E.<sup>7</sup>, KIMURA J.-I.<sup>8</sup>,  
CHANG Q.<sup>8</sup>, SENDA R.<sup>8</sup>, CHAUVEL C.<sup>1</sup>, CAMPILLO S.<sup>1</sup>,  
AND IONOV D.<sup>9</sup>

<sup>1</sup> Univ. Grenoble Alpes, ISTERre, CNRS, IRD, IFSTTAR F-38000 Grenoble, France, valentina.batanova@univ-grenoble-alpes.fr

<sup>2</sup> Vernadsky Institute of Geochemistry and Analytical Chemistry, Moscow, Russia

<sup>3</sup> CODES, University of Tasmania, Tasmania, Hobart TAS 7001, Australia

<sup>4</sup> SCL University of Tasmania, Tasmania, Hobart TAS 7001, Australia

<sup>5</sup> GEOMAR Helmholtz Centre for Ocean Research Kiel, Kiel, Germany

<sup>6</sup> Christian-Albrechts University of Kiel, Kiel, Germany

<sup>7</sup> Carnegie Institution of Washington, Washington, DC, USA

<sup>8</sup> Japan Agency for Marine-earth science and technology (JAMSTEC), Yokohama, Japan

<sup>9</sup> Geosciences Montpellier, Univ. Montpellier, Montpellier, France

A new olivine reference material - MongOL Sh11-2 - for *in-situ* analysis has been prepared from a central portion of a large (20x20x10 cm) peridotite xenolith from a ~0.5 Ga 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. About 10 g of 0.5-2 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 laboratories worldwide for major and trace elements. The results show that the olivine fragments are homogeneous in Mg, Fe, Si and seventeen minor and trace elements. Minor inhomogeneity of  $\pm 9-13\%$  (2RSE) is observed for Al and P.

Preliminary reference and information concentrations  $\pm 2\text{SE}$  are (oxides in wt%, elements in mg g<sup>-1</sup>): SiO<sub>2</sub>=40.74 $\pm$ 0.29, MgO=48.79 $\pm$ 0.09, FeO=10.17 $\pm$ 0.02, Li=2.19 $\pm$ 0.17, Na=127 $\pm$ 10, Al=238 $\pm$ 20, Ca=688 $\pm$ 9, Sc=3.4 $\pm$ 0.3, Ti=39 $\pm$ 3, V=5.7 $\pm$ 0.3, Cr=125 $\pm$ 3, Mn=1117 $\pm$ 15, Co=148 $\pm$ 4, Ni=2822 $\pm$ 29, Cu=1.13 $\pm$ 0.07, Zn=56 $\pm$ 1.8, Y=0.075 $\pm$ 0.005, P=67 $\pm$ 9, Er=0.013 $\pm$ 0.0007, Tm=0.003 $\pm$ 0.0002, Yb=0.029 $\pm$ 0.0009, Lu=0.007 $\pm$ 0.0003.