

## Trace element behavior in Cr-bearing spinels from different occurrences

D. LENAZ<sup>1\*</sup>, A. LOGVINOVA<sup>2</sup>, B. O'DRISCOLL<sup>3</sup>,  
F. PRINCIVALLE<sup>1</sup>, B. SCHMITZ<sup>4</sup>, N.V. SOBOLEV<sup>2</sup>  
AND A. ZANETTI<sup>5</sup>

<sup>1</sup>University of Trieste, 34127 Trieste, Italy (\*correspondence: lenaz@units.it)

<sup>2</sup>Institute of Geology and Mineralogy, Russian Academy of Sciences, Novosibirsk, Russian Federation

<sup>3</sup>Keele University, Keele ST5 5BG, UK

<sup>4</sup>University of Lund, 22362 Lund, Sweden

<sup>5</sup>CNR-IGG, 27100 Pavia, Italy

Trace element data for spinels are not very common in the literature. In this study, we present a synthesis of chromite trace element compositions obtained via LA-ICP-MS from different occurrences: I) kimberlites, garnet/spinel peridotites and chromites included in diamonds (Siberia); II) ophiolites (Shetland, Ballantrae and Oman); III) ordinary chondrites.

Within the first group, chromites from garnet/spinel peridotites are usually enriched in Ga, V, Zn, Mn compared to those from kimberlites, whilst the behavior of these trace elements in diamond-hosted chromite inclusions is intermediate between these two end-members. The trace elements of ophiolitic chromites resemble the previous group, particularly the diamond-hosted inclusions. Among them limited compositional differences are related, for example, to Ga content that is possibly a function of the tectonic setting from which they originated. Other elements showing a certain variation are cobalt and lead. These two elements, even within the same ophiolitic complex, show different behavior possibly related to their tectonic occurrence or to the contemporary crystallization of other phases. Compared to the terrestrial samples the meteorite chromites are significantly enriched in Ga, V, Zn, Mn, Bi, Pb, and depleted in Ni and Co content.

Ongoing work is aimed at elucidating the potential applications of the chromite trace element data as petrogenetic and tectonic discriminants and the reason of the presence of large Bi and Pb values in specific sample suites.