

**CHARACTERISATION OF THE METASOMATIC AGENT IN MANTLE XENOLITHS FROM DEVES,
MASSIF CENTRAL (FRANCE) USING COUPLED IN-SITU TRACE- ELEMENT AND O, SR, ND
ISOTOPIC COMPOSITIONS**

RENAC CHRISTOPHE 1, TOURON STEPHANIE 1, COTTIN JEAN-YVES 1, O' REILLY SUZANNE Y. 2,
GRIFFIN WILLIAM L. 2

presenter's e-mail: christophe.renac@univ-st-etienne.fr

1 - Department of Geology-UMR 6524 "Magmas et Volcans", University of Jean Monnet, Saint-Etienne
Cedex, France

2 - GEMOC ARC National Key Centre, Earth and Planetary Sciences, Macquarie University, Australia

Keywords: Mantle metasomatism, Massif Central, In situ trace element, Stable and radiogenic isotopes

Abstract

Spinel lherzolites and harzburgites from Mont-Briançon and Marais de Limagne in the Devès volcanic district display coarse-grained to porphyroclastic microstructures and the modal content of volatile-bearing phases increases with the degree of deformation. Clinopyroxene and/or spinel are partly or totally reacted to amphibole. The coupled interpretations of traces, REE and O-Sr-Nd data on clinopyroxene and amphibole indicate that the metasomatised mantle beneath the Devès is a mixture of depleted and enriched mantle associated with an alkaline, HFSE-poor, LREE-, U- and Th- rich compositions of carbonate-rich silicate fluid/melt metasomatic agent. Oxygen isotopes and REE data of clinopyroxene-amphibole pairs indicate an [La/Yb]_N enrichment related to an increasing metasomatic agent/rock ratios.