



## **Seismic properties of Cabo Ortegal (Spain) continental lower crust and upper mantle rocks inferred from Crystallographic Preferred Orientation (CPO) patterns measured by EBSD**

**S. Llana-Fúnez** (1), D. Brown (2), R. Carbonell (2), J. Alvarez-Marrón (2) and M. Salisbury (3)

(1) Department of Earth and Ocean Sciences, University of Liverpool, UK, (2) Institute of Earth Sciences "Jaume Almera", CSIC, Barcelona, Spain, (3) National Research Council of Canada, Canada (slf@liverpool.ac.uk / Fax: +441517945196 / Phone: +441517945145)

The development of crystallographic preferred orientation patterns in rocks during deformation processes at high pressure and high temperature conditions is one of the sources of seismic anisotropy in rocks in the lower crust and upper mantle. We have measured CPO in major rock-forming minerals in 15 samples, also used for laboratory measurements of seismic velocities at high pressure (presented in a separate contribution). CPO has been measured using electron back-scattered diffraction (EBSD) techniques in a SEM at the University of Liverpool. Three groups of samples were studied: ultramafic rocks, mafic granulites and eclogites and quartzofeldspathic gneisses. Olivine, orthopyroxene and clinopyroxene were indexed in ultramafic rocks. Clinopyroxene (omphacite or diopside), garnet, plagioclase, quartz and amphibole were indexed in mafic granulites and eclogites. Quartz and plagioclase were indexed in quartzofeldspathic gneisses. Software by David Mainprice is used to convert CPO data into  $V_p$  and  $V_s$  with respect to structural reference in the samples. The rock specimen collection samples the upper tectonic unit in the Cabo Ortegal Complex of NW Spain. The rock specimens are representative of the transition between the upper mantle and the lower crust of a continental crust simultaneously deformed at peak metamorphic conditions of 800°C and 1.7 GPa in the Devonian prior to the Variscan Collision in

Western Europe.