Geophysical Research Abstracts
Vol. 18, EGU2016-2877, 2016
EGU General Assembly 2016
© Author(s) 2016. CC Attribution 3.0 License.

Seismic anisotropy beneath the greater region of the central External Dinarides from observations of SKS-splitting

Senad Subašić, Snježan Prevolnik, and Marijan Herak
Department of Geophysics, Faculty of Science, University of Zagreb, Zagreb, Croatia

Measurements of SKS wave splitting beneath greater region of the central External Dinarides (Dalmatia, Croatia) were made in order to investigate seismic anisotropy in the upper mantle and the lithosphere. The area is located in the broad and complex Africa-Eurasia convergent plate boundary zone, where Adriatic microplate interacts with the External Dinarides. We used broadband recordings (more than 3500 analyzed seismograms) from 10 permanent stations situated along the Croatian coastal region. The splitting parameters – fast axis and delay time – were measured using the Silver and Chan method. Seismic anisotropy was observed on all stations. Fast axis directions are fairly uniformly oriented approximately in the NE-SW to NNE-SSW direction, thus perpendicularly to the strike of the Dinarides. Average delay times range between 0.7 and 1.0 seconds. Slight counter-clockwise rotation in average fast axis directions was observed for the stations in the northern part of the studied area, as well as a small increase in average delay times, with respect to the stations in the southern part. We also observed differences in splitting parameters for back-azimuths sampling different tectonic units (Euroasian plate and Adria), however, due to poor back-azimuthal coverage and limited dataset, more measurements have to be made to enable reliable validation of this observation. Fast axis directions coincide with the direction of the maximum tectonic pressure in the crust and with observed fast directions of P-waves in the crust, which might imply a significant crustal component of measured anisotropy, alongside the component resulting from the upper mantle structures.