



Crustal Anisotropy across Northern Japan by Receiver Functions

I. Bianchi (1), G. Bokelmann (1), and K. Shiomi (2)

(1) University of Vienna, Austria (irene.bianchi@univie.ac.at), (2) National Research Institute for Earth Science and Disaster Prevention, Tsukuba, Japan

Rapid plate convergence, frequent earthquakes and many volcanoes make the tectonic setting of Northern Japan particularly interesting. This is even more the case, in the wake of the destructive $MW = 8.9-9.0$ Tohoku-oki earthquake, on March 11, 2011. In this study a receiver function data-set was created using teleseisms recorded at 58 seismic stations located in Northern Japan and belonging to the Japanese National (HI-net) network, with the aim of constraining the orientation of anisotropy symmetry axes, the depth of anisotropic layers in the crust, and the relation with the tectonic stress field. A harmonic expansion of this data-set has been computed up to the second degree and order ($k=2$), and the results are shown along transects which cross Northern Japan.

Seismic anisotropy in the crust has been previously investigated, but the precise depth extent is not yet clear. We focus on that question, and also on how much of the anisotropy in the crust is related to tectonic stress induced by plate convergence across the subduction zone, and how much by intrinsic characteristics of the rocks. Preliminary results highlight differences in the orientation of the anisotropic axes at different depth inside the crust, from the surface to the Moho, and lateral variations in the symmetry direction of anisotropic axes are shown.