



Seismic Structures Below the Eastern Alps from P and S Receiver Functions

Irene Bianchi (1), Meghan S. Miller (2), and Goetz Bokelmann (1)

(1) Department of Meteorology and Geophysics, University of Vienna, Vienna, Austria (irene.bianchi@univie.ac.at), (2) Department of Earth Sciences, University of Southern California, Los Angeles, USA

The Eastern Alps (EA) are the result of the European and Adriatic plates convergence. The architecture of this portion of the Alpine collision has been furthermore affected by a lateral (east directed) tectonic extrusion caused by the retreating subduction of the nearby Carpathians.

We perform Ps and Sp receiver functions on datasets collected from permanent and temporary seismic stations located in the EA. We retrieve the Moho depth, the presence of anisotropy at the crust-mantle boundary, and the LAB. We deliver sets of images that shed light on the complex structures building the mountain chain. The Adriatic lower crust shows consistent anisotropic features that help define the Adriatic plate northward boundary/extension. The lack of persistent anisotropy in the European crust witnesses a different response to deformation of the two plates, and the plate boundary appears to be further north than the recognized boundary on surface. Both P and S receiver functions detect a strong LAB signature in the area. The LAB is located at about 100 km depth in the westernmost and southernmost portion of the study area, while it is shallower towards the east. This feature reflects the thinning of the lithosphere caused by the eastward extrusion of the Eastern Alps towards the Pannonian Basin.