

Adria-Europe crustal structure relationship and the Moho gap in the Eastern Alps (project EASI)

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Project EASI is the first implemented Complementary Experiment within the AlpArray program (<http://www.alparray.ethz.ch>) and stands for Eastern Alpine Seismic Investigation. The seismological field experiment ran for one year, from Summer 2014 to Summer 2015, composed of 55 broadband stations deployed in zig-zag in a ca. 15 km-wide band along longitude 13.35°E, spanning 540 km from the Czech-German border to the Adriatic Sea.

Here we present results using P-to-S converted waves from teleseismic distances. The European Moho deepens from north to south from the Bohemian Massif to the Alps until reaching a steeply dipping ramp-like structure beneath the Tauern Window. The Adriatic Moho deepens from south to north to end in a zone which is anisotropic. The extent of the gap where there is no clear conversion signal has to be confined by further receiver function inversions, and then compared to earlier results using PmP phases that located this Moho hole. We investigate the anisotropic nature of the lower crust of both plates, as well as the average crustal V_p/V_s -ratio variation along the profile. We conclude on the structural relationship of Adria and Europe at the crustal level, and infer their respective positions at depth. Furthermore, preliminary results on S-to-P conversions illuminating the lithosphere-asthenosphere boundary test the significant depth variation of this boundary along the EASI transect and complement our receiver function study.