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Shear-wave velocity structure beneath the Dinarides from the inversion of Rayleigh-wave dispersion

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The basic outline of the Dinarides formation evolves around the interaction between Adria microplate and European mainland due to the north-east movement of Adria. This interaction included many complex tectonic processes such as subduction, collision and extension. The Dinaric mountain belt is one of the most under-researched parts of the Alpine-Mediterranean collision zone. So far, most of the regional seismic studies were focused on the upper-middle crust while the deeper structures remained poorly investigated and the regional geodynamics is still not fully understood.

In order to get more details about the regional tectonic history, we use seismic surface wave data and investigate uppermost mantle structures beneath the Dinarides. We analyzed more than 250 teleseismic earthquakes recorded at 74 stations and used a two-station method to get Rayleigh wave dispersion measurement on an inter-station path length larger than one wavelength. We measured surface wave phase velocities at discrete periods in the range from 20 s to 160 s and inverted these results to obtain shear-wave velocity model. Our preliminary results show negative velocity anomaly under the North-West Dinarides and positive anomaly beneath the Pannonian basin and the Adriatic sea, clearly supporting results from previous studies and strengthening the premise of a slab gap existence in the North-West Dinarides.