

Lithospheric and mantle structure under the Zagros Collision Zone; Insights from 3D teleseismic P-wave tomography

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We map the lateral variations of P-wave velocity beneath the Zagros collision zone in Iran down to 800 km depth by teleseismic regional tomography. We invert 23240 relative residuals from three temporary seismic networks across the collision zone in NW and central Zagros and a large number of permanent stations distributed over the Iranian Plateau. We interpret the anomalies observed in our tomographic model in terms of upper mantle geodynamical processes of the collision zone. A salient feature of our model is a ~225 km thick lithosphere beneath the Zagros, almost twice as thick as the rest of Iran.

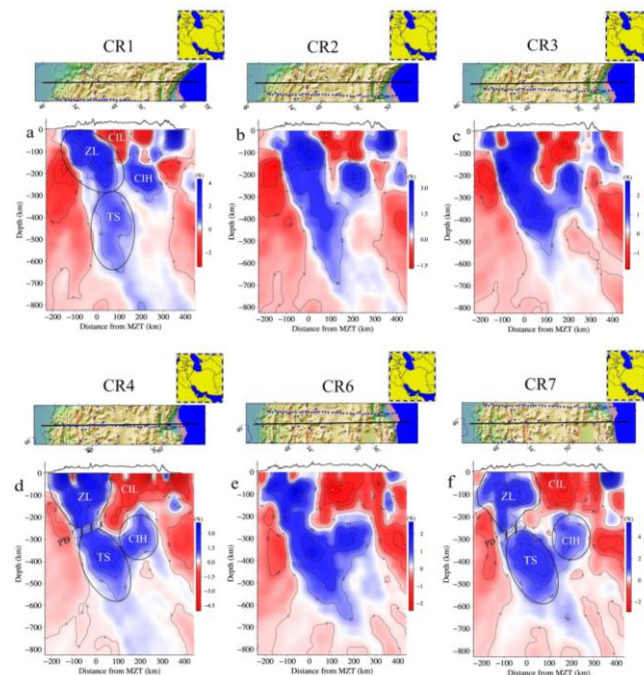


Figure 1. Six vertical cross sections through the western part of the tomography model. The outlines of the major velocity anomalies discussed in the text are shown by shapes and abbreviations: ZL (Zagros lithosphere), CIL (central Iran low), CIH (central Iran high) and TS (Tethyan slab). The small hatched rectangle marked as PD denotes the partial detachment of the subducted slab.

Related Publications to the project: (Harvard format)

- Veisi, M., Sobouti, F., Chevrot, S., Abbasi, M., Shabanian, E., Manuscript submitted for publication. Lithospheric and mantle structure under the Zagros Collision Zone; Insights from 3D teleseismic P-wave tomography.

Conferences:

- Veisi, M., Sobouti, F., Chevrot, S., Abbasi, M., Shabanian, E., 2019. Upper mantle structures of the NW Iran using 3D teleseismic tomography. Tehran, Iran: 8th International Conference on Seismology & Earthquake Engineering.