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# Lithospheric structure of the Eastern Iranian plateau from integrated geophysical modeling: A transect from Makran to the Turan platform

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## Abstract

We present a 2D profile of density and temperature distribution in the lithosphere across Iran along a more than 1600 km long profile extending from the Oman Gulf in the South to the Kopeh-Dagh and the Turan platform in the North. Gravity, geoid, topography and surface heat flow data were used for modeling, assuming local isostatic equilibrium. As much as possible, crustal structure has been constrained by seismic data. Crustal thickening is found under the Taftan-Bazman volcanic-arc (up to 47 km), under the Binalud foreland (~54 km) and beneath the Kopeh-Dagh mountains (up to 50 km) whereas thin crust has been obtained under the Oman Gulf (20 km). Moho depth under the Lut block and the Turan platform is about 40 km. The lithospheric thickness is ~90 km under the Oman Gulf and increases slightly until the Jazmourian depression. Then the lithospheric-asthenospheric boundary (LAB) bends significantly and sinks to ~260 km under the Taftan-Bazman volcanic-arc. The LAB depth is about 190 km beneath the Lut block. A slight increase of LAB depth under the Binalud foreland towards the North may indicate a suture zone. Under the Turan platform, the LAB depth reaches ~210 km. We also modeled two possible positions of the deep suture

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