

Crustal seismic structure of Gheshm region, southeast Iran

Inversion of local earthquake travel times were used to derive a simple model for the crustal velocity structure beneath the Gheshm Island. The P-wave and S-wave travel times from 112 well-located aftershocks of the 2005 Gheshm earthquake (MW 5.8) sequence recorded by the IIEES local seismic network were inverted to determine a 1D velocity model of the upper crust. The network was operational from December 2005 until March 2006 and for the recorded events average ratio of P-wave to S-wave velocity is calculated as 1.78. The limited range of earthquake depths (between 8 km and 22 km) prevents any reliable determination of velocity interfaces deeper than 20 km. The resulting P-wave velocity model comprises an upper crust with 8 km and 4 km thick sedimentary layers with P-wave velocities (V_p) of 5.43 and 5.92 km s⁻¹, respectively, above 8 km thick layer of upper crystalline crust (V_p 6.19). Depth of the Moho was estimated based on the variation of average coda Q at 1 Hz (Q_0) as a function of maximum sampling depth. A sharp rise around 40 km depth is most likely an indicator of lower attenuation of Moho.

Primary author: SABOURI, Mania (Engineering Seismology)

Presenter: SABOURI, Mania (Engineering Seismology)

Track Classification: Theme 1. The Earth as a Complex System