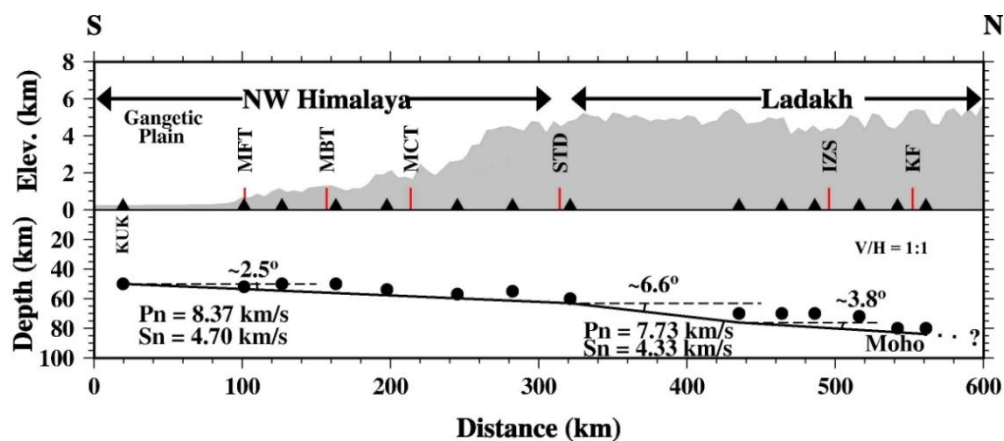


Nature of the Indian Moho beneath the NW Himalaya and Ladakh

The Himalaya-Tibet orogen is formed due to undergoing of Indian plate beneath Eurasian plate. Numerous geological and geophysical experiments in various segments of the Himalaya-Tibet orogen show that the nature of the undergoing Indian plate is enigmatic, as it dips at varying angles along the orogen. In general, two schools of thought exist on the fate of the dipping of the Indian plate beneath the Eurasian plate: (1) underthrusting at a low angle (2) underthrusting at a steep angle. The knowledge of the well constrained dip of Indian Moho (crust-mantle boundary) can be helpful not only to understand the tectonics of this region but also can provide much reliable uppermost mantle velocities to prepare more realistic evolution models for this region.

To know the seismic nature of the uppermost mantle beneath the NW Himalaya and Ladakh, Nagaraju and co-workers used the regional earthquakes, from either side of the dip direction (downdip and updip) of the dipping Indian Moho, and recorded over an exclusive seismic network in the NW Himalaya and Ladakh, which crosses different tectonic units in the Himalaya-Tibet orogen. The results suggest that the Indian Moho is underthrusting at a shallow angle beneath the Himalaya, steepens abruptly further north of the Southern Tibet Detachment and continues at a shallow angle beneath the Ladakh region (Tibetan Himalaya). Also they found higher true Pn and Sn velocities beneath the NW Himalaya compared to Ladakh and suggests that the shield like material is limited to south of Indus Zangpo Suture (or Southern Tibet only).



Variations in the dip of the Indian Moho from the Main Frontal Thrust (MFT) to Karakoram Fault (KF).

Further Details: Nagaraju Kanna, K.S. Prakasam and Sandeep Gupta, 2016,

Pure and Applied Geophysics, DOI 10.1007/s00024-016-1451-4, <http://rdcu.be/n9SU>.