

Deformational style in North-Western part of the Punjab Foreland

We analyzed seismic events occurring in Thal region at northwest (NW) margin of Punjab Foreland basin south of the Himalayan Frontal Thrust. For this study, focal mechanism solutions of moderate to small sized events were determined. We performed Moment tensor inversion for recent 23 events occurring during time period 2010-2017, while for older events (i.e. 1981, 1982, 1996 and 1999), first P-wave polarity technique was used. The study shows that strike-slip faulting prevails in the area as observed in 19 events for which the waveform inversion has been performed. Strike of the faults, depicted on the basis of these events, is nearly consistent direction i.e. north-south, but, dip of the faults and depth of the events is increasing northwards representing a north-dipping slab. We observed that movement of the blocks, along depicted strike-slip faults compensates effect of each other. The low occurrence of larger earthquakes in this region may be due to cumulative slip absorbed aseismically in the decollement of Salt Range in the north.

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