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GeoDay Abstract

**Long-term deformation rates on the Himalayan deformation front in Jammu & Kashmir, India, with implications of recent fault activity on the Reasi thrust.**

Most of the active shortening in the Himalayan fold-thrust belt is presumably focused along the thrust front. In the Central Himalaya, such as in Nepal, ~50% of the total India-Eurasia convergence is accommodated along a narrow region of the Subhimalayan tectonostratigraphic units, where deformation is localized on the emergent Himalayan Frontal thrust (HFT). Shortening rates are not uniform along strike of the deformation front. Toward the Western Himalaya, ~20-40% of the total convergence is accommodated along the HFT, where frontal deformation becomes distributed across two or more active structures. Farther west, in the state of Jammu & Kashmir (J&K), regional estimates suggest even lower slip rates. The structural pattern of the HFT in J&K is distinctly different from areas to the east, such as Nepal, where the thrust front is characterized as a broad fold with no surface expression of an emergent thrust fault. Towards the hinterland, structures such as the Reasi thrust may indicate Quaternary thrust activity, and could represent areas where shortening is being accommodated away from the HFT. There are many uncertainties in our understanding of the tectonics in J&K, thus, the focus of the project is to assess how much India-Asia convergence is accommodated by folds and/or faults at the deformation front in J&K and determine long-term slip rates. We will address what is the relevant kinematic model of the subsurface structures that is at play at the thrust front. The project will furthermore provide a better understanding of the tectonics and long-term deformation in the Western Himalaya.