

# Long Term GPS Deformation Rates in the Karakoram terrane of Ladakh

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We present long term deformation rates in the Karakoram terrane of Ladakh, derived from a decade (1997-2008) of GPS measurements, made at two continuous stations and ten campaign sites. GPS measurements over this eleven year period give well constrained present day deformation rates in this region with errors of less than 0.3mm. The results provide a fairly clear picture of the Trans-Himalayan kinematics and deformation mechanism in this region by producing an well constrained annual slip rate along the Karakoram fault, convergence rate across the Himalaya and east-west extension across the whole of

southern Tibet. Eleven years of campaign measurements along the Karakoram fault zone indicate a well constrained dextral slip rate of 2.5 mm/yr in the Panamik Segment and 1.8 mm/yr in the southeastern Tangste segment of the fault. The results also indicate insignificant internal deformation within Ladakh, other than that associated with the slip rate of the Karakoram fault. Ladakh sites indicate a convergence rate of 15 to 18 mm/yr with respect to south India, 12 to 15 mm/yr with Delhi in North India as well as Almora north of MBT and extension of 14 to 15 mm/yr with respect to Lhasa in southeastern Tibet.