EARTHQUAKE POTENTIAL OF THE MAIN HIMALAYAN THRUST: EVIDENCE FOR WESTWARD DECREASE IN SLIP RATE

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We model the Main Himalayan Thrust (MHT) as a flat bounded by a downdip ramp to the north with moderate seismicity (including the 1991 Uttarkashi and 1999 Chamoli earthquakes) and by a frontal ramp to the south where the fault is expressed as fault propagation folds. Both ramps cause surface uplift rates higher than the flat. Occasionally, earthquakes nucleate on the downdip ramp and propagate to the frontal ramp, generating earthquakes of M8, Convergence between India and the Himalaya is partitioned between dip slip on the MHT, where great earthquakes occur, and deformation of the hangingwall, including right slip on the Karakoram fault and extension across south Tibet. Convergence between India and the Himalaya is increasingly oblique in the northwestern Himalayam, resulting in a decreased dip-slip component on the MHT and longer earthquake recurrence intervals there based on paleoseismology and historical records.