



Seismic slip deficit along Nepal Himalayas: implications for seismic hazard

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In 1255, 1344 and 1408 AD, then again in 1833, 1934 and 2015, large earthquakes, devastated Kathmandu. The 1255 and 1934 surface ruptures have been identified east of the city, along comparable segments of the Main Frontal Thrust (MFT). Whether the other two pairs of events were similar, is unclear. Taking into account charcoal's "Inbuilt-ages", we revisit the timing of terrace offsets at key sites, to compare them with the seismic record since 1200 AD. The location, extent, and seismic moment of the 1833 and 2015 events imply that they released only a small part of the regional slip deficit, on a deep thrust segment that stopped north of the Siwaliks. By contrast, the 1344 or 1408 AD earthquake may have ruptured the MFT up to the surface in central Nepal between Kathmandu and Pokhara, East of the surface trace of the great 1505 AD earthquake which affected Western Nepal. If so, the whole megathrust system in Nepal ruptured during a sequence of earthquakes that lasted less than three centuries and propagated the rupture up to the surface from East to West. Today's situation in the himalayan seismic sequence might be close to that of the 14th century.