Paleo-earthquake on Daliangshan Fault, Southwest China

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Wenchuan earthquake of M8.0 told us that it is dangerous to underestimate those faults, which are active but no destructive earthquake recorded. The Daliangshan fault is an important section of Xianshuihe-Xiaojiang fault system. However, it has been neglected for a long time because of no destructive earthquake records along this fault zone. To re-evaluate the seismic hazard of the fault, we made an investigation on the paleo-earthquake along the southern segment of Daliangshan fault. A trench excavated on southern segment of the fault demonstrated two paleo-events of M \geq 7.0. The ¹⁴C data suggested that the latest event occurred near the beginning of the Christian era, between 1520 cal B.P. and 1950 cal B.P tested by the State Key Lab. of Earthquake Dynamics of China, and between BC 400 and AD 460 tested by Beta Lab. The investigation of tectonic geomorphology and measurement of fault displacement demonstrated the co-seismic displacement produced by the latest event was about 6-9 m. Thus, combined the slip rate of 3 mm/yr along the segment, we estimated the occurrence interval of earthquake of M \geq 7.0 is about 2000-3000 yr.

