

Structural Properties of the 2015 Mw7.8 Nepal Earthquake

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The Himalaya orogenic belt is the largest continental collision zone on Earth and presents extreme seismic hazards to growing population centers in Nepal, India and China. Seismologists believe that earthquake rupture zones start and end at locations where there are changes in material properties and/or fault plane changes geometry. The 2015 Nepal earthquake is the most significant sequence along the Himalaya since modern digital earthquake recordings have become available and provides important new data.

In this study, we relocate aftershock hypocenters and conduct 3D P- and S-wave tomography of the source region. This study will benefit from the waveforms recorded by near-field temporary arrays of nearly 100 broadband and short-period seismic stations deployed by the Chinese Academy of Sciences, Stanford University, and Tokyo University. This study extends our previous work (Bai et al., 2016; Pei et al., 2016) which relocated aftershocks within one month and conducted two-dimensional P-wave tomography of the source area. It is our goal to deepen the understanding of the velocity heterogeneity of the earthquake source zones and the geometry of the MHT, along with the Moho and other crustal discontinuities.

References:

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