2006 Fall Meeting
Search Results

Cite abstracts as **Author(s) (2006), Title, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract xxxxx-xx**

Your query was:
boroschek

HR: 10:35h
AN: **S42C-02**
TI: Slip Distribution of the 2005 Mw 7.8 Tarapaca, Chile Earthquake
AU: ***Minson, S E**
EM: *minson@caltech.edu*
AF: *Seismological Laboratory California Institute of Technology, 1200 E. California Blvd. MC 252-21, Pasadena, CA 91125-2100 United States*
AU: **Simons, M**
EM: *simons@caltech.edu*
AF: *Seismological Laboratory California Institute of Technology, 1200 E. California Blvd. MC 252-21, Pasadena, CA 91125-2100 United States*
AU: **Helmberger, D V**
EM: *helm@gps.caltech.edu*
AF: *Seismological Laboratory California Institute of Technology, 1200 E. California Blvd. MC 252-21, Pasadena, CA 91125-2100 United States*
AU: **Comte, D**
EM: *dcomte@dgf.uchile.cl*
AF: *Universidad de Chile, Casilla 2777, Santiago, Chile*
AU: **Boroschek, R**
EM: *rboro@ing.uchile.cl*
AF: *Universidad de Chile, Casilla 2777, Santiago, Chile*
AU: **Ji, C**
EM: *ji@geol.ucsb.edu*
AF: *University of California, Santa Barbara, 1140 Girvetz Hall, Santa Barbara, CA 93106- 1100 United States*
AB: On June 13, 2005, a large earthquake with a preliminary USGS moment magnitude of 7.8 struck the Tarapaca province in Chile. The initial USGS focal mechanism and Harvard CMT indicate that this was an approximately 115 km deep normal faulting event located over 200 km inland of the Peru-Chile trench. However, little else is known about the source mechanism of this earthquake, in particular, or about deep normal events in this region, in general. In this study, we determine the slip distribution of the Tarapaca earthquake using a finite fault wavelet inversion methodology. We compare the results of finite fault inversions using only teleseismic broadband waveforms to ones which also incorporate local strong motion seismograms, Envisat radar data, and limited local GPS data. Our velocity structure is a one-dimensional velocity model derived from a local three-dimensional double- difference tomographic model (Comte et al., 2004). Preliminary results based on finite fault inversions of teleseismic data indicate a steeply dipping fault geometry and moment release of $6.17*10^{27}$ dyne cm. By combining local seismic and geodetic data, with teleseismic data we obtain much better resolution of the slip distribution than can be achieved with teleseismic data alone. With the results of the combined inversion, we can determine which nodal plane of the focal mechanism ruptured, and compare the locations of significant slip concentrations to thermal models of the subducting slab.
DE: 1240 Satellite geodesy: results (6929, 7215, 7230, 7240)
DE: 1242 Seismic cycle related deformations (6924, 7209, 7223, 7230)
DE: 7215 Earthquake source observations (1240)
DE: 7230 Seismicity and tectonics (1207, 1217, 1240, 1242)
DE: 8170 Subduction zone processes (1031, 3060, 3613, 8413)
SC: Seismology [S]

MN: 2006 Fall Meeting

New Search