Geophysical Research Abstracts
Vol. 14, EGU2012-12569, 2012
EGU General Assembly 2012

Recording Plate Boundary Deformation Processes Around The San Jacinto Fault, California

K. Hodgkinson, D. Mencin, A. Borsa, O. Fox, C. Walls, and E. Van Boskirk
UNAVCO, 6350 Nautilus Drive, Boulder, CO 80301, USA (hodgkinson@unavco.org)

The San Jacinto Fault is one of the major faults which form the San Andreas Fault System in southern California. The fault, which lies to the west of the San Andreas, is one of the most active in the region. While strain rates are higher along the San Andreas, 23-37 mm/yr compared to 12-22 mm/yr along the San Jacinto, there have been 11 earthquakes of M6 and greater along the San Jacinto in the past 150 years while there have been none of this magnitude on the San Andreas in this region. UNAVCO has installed an array of geodetic and seismic instruments along the San Jacinto as part of the Plate Boundary Observatory (PBO). The network includes 25 GPS stations within 20 km of the surface trace with a concentration of borehole instrumentation in the Anza region where there are nine boreholes sites. Most of the borehole sites contain a GTSM21 4-component strainmeter, a Sonde-2 seismometer, a MEMS accelerometer and a pore pressure sensor. Thus, the array has the capability to capture plate boundary deformation processes with periods of milliseconds (seismic) to decades (GPS). On July 7th 2010 a M5.4 earthquake occurred on the Coyote Creek segment of the fault. The event was preceded by a M4.9 earthquake in the same area four weeks earlier and four earthquakes of M5 and greater within a 20 km radius of the epicenter in the past 50 years. In this study we will present the signals recorded by the different instrument types for the July 7th 2010 event and will compare the coseismic displacements recorded by the GPS and strainmeters with the displacement field predicted by Okada [1992]. All data recorded as part of the PBO observatory are publically available from the UNAVCO, the IRIS Data Management Center and the Northern California Earthquake Data Center.