**PERUSE: Peru seismic experiment locating earthquakes and seismic tomography**

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**Peru Subduction Experiment (PERUSE): 50-station wirelessly link, 50-station stand alone seismological network**

The PERUSE project started in the summer of 2008, consists of a linear array of 50 wireless broadband seismic stations (CENS) and 50 stand alone stations (CalTech).

The 50 seismic stations (line 1, pink) are wirelessly linked using 802.11b protocol to collect the data in near real time and provide information about the health and operation of the network and each station.

The stand alone stations (line 2, orange) were completely installed by January 2010.

The light blue small triangles represent line 3, which is in preparation. The installation of these sites will occur in 2011.

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**Peru Subduction Experiment (PERUSE): receiver function and local earthquake results**

An event detector was developed to identify local earthquakes and pick the p-wave arrivals. We processed a subset of the data collected for local events. Using a non-linear model, we detected and located local earthquakes not available in global catalogs.

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**Peru Subduction Experiment (PERUSE): Gravity measurements and tomographic results**

Top left: Map view of the gravity survey. Red stars are parallel to line 1 of our seismic network. Blue stars are parallel to lines 2 and 3 of our seismic network.

Top right: Ray tracing of a local event on July 12, 2009, M6.0. Bending of the rays is due to the velocity contrast at the moho discontinuity.

Middle right: Map view of the network, blue triangles indicate the stations. Red circle shows the location of the July 12th event.

Bottom right: Observed travel times are fitted to a numerical forward model to estimate an accurate location of the event.

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