Central California Seismic Experiment
2013 to 2015

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We will be running a seismic survey across the Central Valley, CA during 2013-2015. The survey will consist of approximately 40 stations deployed at fixed locations along the line. They will be used to detect the ground motion from distant earthquakes, which will be used to produce a map of the structure 20-200 km beneath the line.

This experiment is designed to test whether an unusual feature that has been observed beneath the Central Valley at a depth of 100-300 km is a fossil slab from the extinct subduction system or is a drip that originated under the Sierra Nevada Mtns. The results will affect our understanding of the behavior of the San Andreas Fault.

The experiment is part of the research programs at the University of New Mexico in Albuquerque, and the California Institute of Technology in Pasadena. Students, faculty and staff at these universities are conducting the experiment. The National Science Foundation is funding this experiment.
Two Models to be tested for the original of a deep anomaly beneath the Central Valley. The row of inverted triangles denotes the locations of the survey line.

We are seeking landowners along the seismic line who are willing to have one of the stations on their property. We are looking for sites that are near occupied dwellings or in other secure areas that we can get access to every 2-4 months to recover data. The station will take about ½ a day to install and will be out for up to 2 years. We will need occasional access (every 2-4 months) to adjust the sensor and recover the data. An example of a station deployment is shown below. The site will be returned to its original condition when the station is removed.

Seismic Station Description

The station has a sensor (a seismometer) that detects ground motions. It is buried approximately 1 foot below the ground surface. Near the sensor we place a metal post that supports a metal box about 2 feet of the ground and solar panel on the top. The metal box holds the data logger, which records the data from the sensor along with a time signal, and a battery that powers the system. The battery is charged by the solar panel. A small GPS antenna is also mounted on top of the post to provide accurate time information.

We will visit the site every 2-4 months to recover the data and to make small adjustments to the sensor.

This type of sensor has been deployed at 100’s of locations around the world. The particular site shown on the left is in the high Andes of Peru.