Project Abstract

My main objective during this internship was to search locally recorded seismic data for micro-earthquakes and tremor on the Superstition Hills Fault, California. I first spent a few weeks gaining familiarity with the mapping and seismic analysis software packages Generic Mapping Tools (GMT), Antelope, and Seismic Analysis Code (SAC). I then created an Antelope database of seismic data collected during an on-going temporary deployment of seven Portable Broadband Instrument Center (PBIC) stations along the Superstition Hills Fault. After analyzing this data I have identified ~250 events which were not in the SCEC or ANSS catalogs, but most have P-S wave times of 3-6 seconds indicating they are too far away to be on the Superstition Hills Fault. Only ~5 of these events had the appropriate P-S wave times to be on the Superstition Hills Fault, and only ~10 tremor-like events were identified. The Superstition Hills Fault does not appear to be a highly seismogenic fault, but it is possible that future analysis of the data in this on- going project will find enough micro-earthquake and tremor events to find a meaningful correlation between the two.