

Data from Earthquakes and EarthScope PBO GPS Stations Used to Identify Seismogenic Faults Westernmost Basin and Range

Ryan Lindsay and Dr. Vince Cronin

The Basin and Range Province has long been used as a modern analog for ancient petroliferous extensional provinces. The active structures listed in the Quaternary Faults and Folds Database of the United States (<http://earthquake.usgs.gov/regional/qfaults/>) may not account for all seismic activity in the Lake Tahoe-Reno area of California and Nevada. Thesis research is to identify seismogenic faults in the Lake Tahoe-Reno area, involving fieldwork combined with spatial analysis of earthquakes and differential motion of GPS stations. Data from the Plate Boundary Observatory (PBO) GPS stations are being used to measure present-day strain across the area. Location data for earthquake foci derived from EarthScope and other sources define seismogenic regions within which active faults might be found. Earthquake focal mechanism solutions permit application of the Seismo-Lineament Analysis Method (SLAM; Cronin et al., 2008, *Env. & Eng. Geosci.*, 14 (3), 199-219), to spatially correlate faults observed at the ground surface to earthquakes, facilitating identification of seismogenic faults.