



USGS NSF Internship Opportunity

● Point of Contact Name:	Aaron Wech
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● USGS Center:	Volcano Science Center
● Project Title:	Slow earthquakes in Alaska and the Pacific Northwest
● Summary:	Slow earthquakes occur regularly in subduction zones of Alaska and the Pacific Northwest. The goal of this project is to use seismic and/or geodetic data to understand how these events occur and what their relationship is to large damaging earthquakes
● Project Hypothesis or Objectives:	Subduction zone plate interfaces experience variable degrees of coupling, and movement is accommodated by a continuum of slip modes. In the region between the locked fault where large megathrust earthquakes occur and deeper stable slip, recent discoveries suggest that plate movement can be accommodated by slow earthquakes. Slow slip plays a critical role in relieving stress on the plate interface, but neither the physics controlling slow slip nor the hazard posed by the juxtaposition of slow slip and seismogenic zones is very well understood. The goal of this project is to expand on USGS research efforts to understand the physics and hazards associated with slow slip. USGS tremor catalogs for Cascadia and Alaska serve as a basis for detailed analysis of low-frequency earthquakes, spatiotemporal patterns, and geodetic signals associated with large and small slow slip events. Potential projects could focus on one or more of these datasets in Cascadia and/or Alaska. In addition, new data from the Alaska Amphibious Community Seismic Experiment has potential for similar studies. The resulting product will elucidate the role of slow slip in subduction zones and improve our understanding of seismic hazards in the Pacific Northwest and Alaska regions.
● Duration:	Up to 12 months
● Internship Location:	Anchorage, AK
● Keywords:	Earthquakes, Geology, Geologic Hazards/Volcanology, Geophysics
● Applicable NSF Division:	GEO (Atmospheric, Earth Sciences, Ocean Sciences, Polar Programs)

● **Intern Type Preference:** Any Type of Intern

● **Duties/Responsibilities:** This opportunity will provide professional development through interaction with USGS seismologists within both the Earthquake Science Center and Volcano Science Center. The fellow will collate data from existing datasets, including USGS tremor catalogs, and collaborate with USGS mentorship to make observations and interpretations, leading to a conference presentation led by the student. Work will be computational, requiring and fostering programming skills. Though focused on subduction zone tremor and slip, the internship is based at the Alaska Volcano Observatory in Anchorage, offering significant exposure to volcano seismology and both scientific research and operational monitoring within an active volcano observatory.

● **Expected Outcome:** The project will culminate in a conference presentation, and may also result in a journal article and future collaboration.

● **Special skills/training Required:** The applicant must have a background in time series analysis of large geophysical data sets and scientific programming (e.g., Python, Matlab).
