



NATIONAL SCIENCE FOUNDATION
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ARLINGTON, VIRGINIA 22230

NSF 16-061

Dear Colleague Letter: Onshore-Offshore Seismological Studies of the Aleutian Arc

March 15, 2016

Dear Colleague:

There is gathering momentum and interest in the community in developing new activities that span the traditional Earth-Ocean Science boundaries. This is especially relevant at subduction zones where active processes span the coastline. Subduction zones are among the most dynamic features on Earth, producing large and powerful earthquakes that can cause major damage in the near-field, the local, the regional, and far-field (tsunamis). The National Science Foundation (NSF) has long supported basic research to understand the seismogenic zone in these regions. We believe that spatially and temporally coincident onshore-offshore seismic studies provide a much more comprehensive picture of the structures and seismic activity that characterize subduction zones than either land- or marine-based studies alone. The [Cascadia Initiative](#) is a recent example of a successful experiment at a subducting margin that utilized a network of onshore-offshore seismic stations. That effort has recently concluded after a five-year term.

Recent reports and community workshops have highlighted the Aleutian Arc as another priority study region for understanding the active processes at subduction zones and their associated geohazards:

- **Amphibious Array Facilities Workshop (October 22-24, 2014) and [Report](#) (February 2015)**
- **[GeoPRISMS Science Plan](#)**

NSF recognizes the unique opportunity offered by the upcoming deployment of the EarthScope Transportable Array (TA) in Alaska to conduct an onshore-offshore seismic experiment along the Aleutian subduction zone. The TA will be fully deployed in Alaska in 2017, and is planned to operate for two years (subject to the availability of funding). This opportunity also takes advantage of NSF's investment in the [Ocean Bottom Seismometer Instrument Pool \(OBSIP\)](#), which includes instruments capable of deployment in shallow water. The timing is right for focus on the Aleutian Arc.

NSF will entertain proposals for cross-coastal field campaigns that leverage the TA with deployments of seismic instrumentation offshore and perhaps additional deployments of land seismometers. Given the far greater coverage of TA instruments on the Alaskan mainland, we expect that proposals would focus on areas along or to the east of the Alaskan Peninsula (one such area is highlighted in the workshop report referenced above).

PROPOSAL PREPARATION AND SUBMISSION

- Proposals should reflect broad community engagement and participation. Results from funded projects must be made available to the public (via appropriate public repositories including the

Seismological Facilities for the Advancement of Geosciences and EarthScope (SAGE) Data Management System) immediately after standard quality control and processing steps. Proposals should not include significant data analysis. Follow on work would be considered separately in future proposals to the relevant programs.

- Proposers should submit inquiries to the Ocean Bottom Seismometer Management Office (OMO), managed through IRIS, to estimate total costs associated with deployments. Forms supplied by IRIS should be included in the proposal submission as supplementary documents. Proposers should request the number of instruments appropriate for the targeted geographic area and resolution.

TO WHAT PROGRAM SHOULD I SUBMIT MY PROPOSAL?

NSF Ocean and Earth Sciences Divisions cooperatively manage an inherently cross-coastal effort in the Geodynamic Processes at Rifting and Subducting Margins (GeoPRISMS) program. The Aleutians Arc was identified as a top priority study area in the GeoPRISMS Science Plan, and the GeoPRISMS program has already funded a number of field efforts in the Aleutian Arc that would benefit from understanding the broader geophysical framework of this region. While additional funds may be provided by other programs as appropriate, interested parties should plan to submit all proposals for seismic instrument deployments such as those described here to the upcoming GeoPRISMS deadline (July 15, 2016). The GeoPRISMS budget will not increase to accommodate these proposals, though GeoPRISMS funds will be leveraged with funds from other programs within the Directorate of Geosciences. Please note that NSF anticipates revising the GeoPRISMS solicitation prior to April, and the revised version will reflect the content of this letter and other related areas of program interest.

PEER REVIEW AND FUNDING

Proposals for onshore-offshore projects complementing the TA will be reviewed with and compete for funding with other proposals submitted to the participating programs. As such, the total monetary request (including ocean bottom seismometer costs included in the proposal budget, and ship costs estimated as part of the UNOLS ship time request) should be commensurate with the proposed scope of activities, and should be consistent with prior award sizes within those programs.

PIs are **strongly** encouraged to contact one of the program officers listed below early in the proposal development process:

- Maurice Tivey (Marine Geology and Geophysics, mtivey@nsf.gov)
- Deborah Smith (Marine Geology and Geophysics, dksmith@nsf.gov)
- Jennifer Wade (GeoPRISMS, jwade@nsf.gov)
- Gregory Anderson (EarthScope, greander@nsf.gov)

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