National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230

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Dear Colleague Letter: Clarification of the proposal submission process for the Cascadia Initiative

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The Cascadia Initiative (CI) is a project to build an onshore/offshore network of seismic and geodetic stations from Cape Mendocino in California to Cape Flattery in Washington. The network is targeted at understanding the structure and processes of this subduction margin, which has a history of large earthquakes every 300-500 years. The Cascadia Initiative is a community experiment: the data will be made freely available as quickly as possible.

Half of the funds were allocated to build 60 Ocean-Bottom Seismometers (OBS). These instruments were built by the three Ocean Bottom Seismometer Instrument Pool (OBSIP) Institutional Instrument Contributors (IICs), which are Scripps Institution of Oceanography, Woods Hole Oceanographic Institute and Lamont Doherty Earth Observatory. These new instruments have Trillium Compact seismometers and pressure gauges. A subset of the instruments is trawl-resistant so they can be deployed on the continental shelf.

The OBS deployments began in late summer 2011. The network configuration and site locations were determined at a planning workshop in Portland, Oregon in October 2010.

- Workshop: Cascadia Initiative Workshop, Oct. 14-15, 2010
- Cascadia Amphibious Facility Planning Group report (July, 2009)

Both the onshore and offshore components of the CI are ongoing. The 27 USArray sites have been recording data since September 2010; 283 Plate Boundary Observatory (PBO) GPS stations were upgraded to high-rate, real-time data collection by October 2013; and a majority of instruments in each year's ocean floor deployment have recorded useful data.

The Cascadia Initiative Expedition Team (CIET) has been tasked with implementing the community science plan. The CIET has collected each year's OBS data from the ocean floor. These data have basic clock drift corrections applied by the IICs, who upload the data to the Incorporated Research Institutions for Seismology (IRIS) Data Management Center (DMC). The data are available to everyone. However, the data initially lack basic metadata that land-based seismologists are used to receiving from the DMC, including horizontal component orientations and data quality information. For the initial years' CI OBS data, IRIS analysts determine instrument orientations and associated uncertainty, and these metadata are available upon completion of the determinations (http://www.obsip.org/data/obs-horizontal-orientation/). Additional PI efforts to produce instrument metadata for the offshore CI array may have merit. The Marine Geology and Geophysics (MGG) program may consider such a proposal. As the goal of the CI is to engage a broad community of Ocean Sciences (OCE) and Earth Sciences (EAR) researchers, NSF believes it is critical to have these types of metadata openly available to the community soon after collection of the data.

This Dear Colleague Letter is meant to update the community about where to submit various types of CI proposals and on what time scale. We have identified two classes of proposals that are important for the success of this first community experiment:

A. Derived onshore/offshore data products.
   This category refers to higher order data products, including those that integrate onshore and offshore data. Examples include earthquake catalogs, moment tensor solutions, tremor catalogs etc. Generating these higher-order products is challenging as it involves integrating very different types of data from multiple non-uniform networks and therefore requires specific funding for the task. It also provides first-order information upon which a great deal of science can be done.
B. Science proposals using CI data (onshore and offshore) to address a variety of questions.

Data are already available from the onshore instruments as well as from the offshore instruments for deployments that have been completed.

Type A proposals can be stand-alone proposals, and data products may be generated as parts of a Type B science proposal.

Where should I submit my proposal?

- CI proposals primarily involving land studies: EarthScope. Such proposals should be submitted to the EarthScope program. EarthScope contacts are Greg Anderson (greander@nsf.gov) and Maggie Benoit (mbenoit@nsf.gov) The EarthScope deadline is 23 August each year.
- CI proposals primarily involving ocean studies: Marine Geology and Geophysics (MGG). Such proposals should be submitted to the MGG Program in OCE. The MGG contact is Donna Blackman (dblackma@nsf.gov). The MGG deadline is 15 February or 15 August each year.
- The GeoPRISMS program has adopted a phased support approach for work at Primary Sites and the window for Cascadia emphasis has passed. Therefore, MGG and EarthScope will generally be the most appropriate programs for CI proposals. Outcomes relevant to the GeoPRISMS program can be detailed in the context of a project's Broader Impacts.

CI was undertaken as a community experiment, so it is crucial that every proposal explicitly describe how derivative products that could enable other research will be made publically available in a timely manner throughout the project. Please note that CI data analysis proposals may be considered for co-review by EarthScope, and MGG, so prospective submitters should be sure to discuss this possibility prior to submission.

It is essential that any PI wishing to submit contact the relevant program officer(s) listed above PRIOR to submitting the proposal. Failure to do so could result in NSF returning the proposal without review.

PIs proposing new measurements or instrument deployments that may leverage or be complementary to CI should submit requests to the relevant core program from 2014 onward.

David Conover
Division Director
Ocean Sciences Division

Wendy Harrison,
Division Director
Earth Sciences Division