

GeoPRISMS Steering and Oversight Committee Highlights, Spring 2012

March 8-9, 2012, NSF Headquarters, Arlington, VA
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Introduction

The Spring 2012 GeoPRISMS Steering and Oversight Committee Meeting focused on reviewing the recent Planning Workshops for Alaska and Eastern North America (ENAM) primary sites, and revisions to the associated sections of the Implementation Plan (IP). Significant discussion took place about the role that community experiments might play in carrying out GeoPRISMS Science, along with the GSOC's responsibility in managing them. Finally, GSOC offered updated advice to NSF regarding GeoPRISMS funding priorities based on the outcomes of the workshops.

NSF Update

James Beard joined NSF as the OCE-ODP liaison to GeoPRISMS. Donna Blackman, new to MG&G, will help with GeoPRISMS. EAR director Bob Detrick and GEO director Tim Killeen has left NSF.

The new GeoPRISMS solicitation is now live. GeoPRISMS funding remains stable at ~\$5 M. Twenty proposals were submitted during the last GeoPRISMS call (July 2011); ten were funded, most relating to Cascadia.

This spring, NSF OCE struggled with significant budget issues. As a result, approximately 25% of those submitting proposals to the MG&G call on February 15 were given the option to withdraw their proposals for this review cycle, and to resubmit them in August. This action was prompted by a 5% budget cut in all OCE programs, an above-average mortgage on MG&G core funds, the large number of field programs proposed, among other factors. This situation is not expected to continue, and does not affect any other NSF programs. GeoPRISMS sequestered funds were not affected.

Implementation Planning Workshops and IP Updates

Implementation Plans (IP) for the Alaska-Aleutians and ENAM primary sites are being prepared, following the two fall workshops. [*These IP's have been released and can be found at <http://www.geoprisms.org/science-plan.html>.*] Both IPs are very ambitious, true to the breadth of interests expressed at the workshops. The IPs are expected to attract many proposals, increasing proposal pressure as desired. They will also serve as guidance for proposals submitted to other programs. Based on the MARGINS experience, community workshops will play a big role in further focusing research directions, by guiding strong interdisciplinary and collaborative research.

Funding Strategies and Priorities

The GSOC discussed updates to research priorities for the new GeoPRISMS solicitation, based on the outcomes of the recent workshops (Alaska and ENAM). GSOC reiterated the importance of allowing for a mix of both large and small proposals, encompassing field, data, lab, and theory, and both community-driven and PI-driven experiments. This will allow the most flexibility for innovative and unexpected projects.

Following completion of updated IPs for the Alaska and ENAM primary sites, proposals should be accepted for all North American primary sites, ensuring high proposal pressure. Data assessment and assimilation projects for all primary sites also should be accepted this year, although NSF requested clarity in the definition of data assessment and assimilation. Proposals to carry out thematic studies would be acceptable if they can be justified within the context of the active primary sites.

GSOC re-emphasized that proposals need to be accepted to work on the Cascadia AAF data, which becomes available in May.

Cascadia Initiative Update

The Cascadia Initiative/Amphibious Array Facility (AAF) has completed the year 1 deployment: 62 instruments are now on the ground, and 8 are pending. Year 2 will see retrieval of the instruments and redeployment to the south. Years 3 and 4 deployments are open to some revision, after data from previous years are analyzed. A white paper submitted to the Cascadia workshop lays out options for deployment in the vicinity of the triple junction, which should be solidified soon.

Data evaluation is an issue in advance of the upcoming redeployments. Science proposals are not being accepted, subject to the Dear Colleague Letter (DCL) issued by NSF, although proposals to do quality control (QC) and reorientation are. Science proposals may be considered after the data have been recovered, but this may be too late to make decisions about the next deployment. One solution is a RAPID proposal to evaluate the data. Alternatively, combined QC and science proposals could be submitted. Proponents should talk to their program officers.

Cascadia Workshop Planning

The joint GeoPRISMS-EarthScope science workshop on Cascadia, to be held in early April, attracted a large number of applications, including many local investigators and lots of students and postdocs. The main goal of the workshop is to bring people up to speed and to develop much stronger interdisciplinary research efforts and collaborations. The most important outcome will be an outline or roadmap for future research, with a 3-5 year timeline. *[The Cascadia Science Workshop outcomes can be found at <http://www.geoprisms.org/past-meetings/207-cascadia-apr2012.html>.]*

Community Experiments & Expeditions

GSOC recommendations for GeoPRISMS community experiments were discussed. Advantages of being designated a community experiment include recognition as a high-priority effort to achieve GeoPRISMS goals, support for mini-workshops and working group meetings, and access to communications and data distribution channels through the GeoPRISMS Office. The GSOC can (1) provide feedback to proponents if requested, (2) assess how/if the proposal meets the criteria of a community experiment, and (3) consider requests for out-of-cycle proposal submission under unusual circumstances. *[A revised list of GSOC recommendations has been posted on-line at: <http://www.geoprisms.org/community-projects.html>.]* GSOC emphasized that NSF must also commit to fund science proposals to use open-access data from community experiments.

The Community Expedition concept is designed to facilitate GeoPRISMS research by providing a means to share logistics for multiple projects, for example, coordinating transportation and timing for field operations (e.g., boats, air transportation to remote islands etc.) The GSOC and GeoPRISMS Office can help the community self-organize, coordinate submission of related proposals, hold planning workshops to facilitate coordination, and disseminate plans and logistical information on-line.

AGU 2011 Activities

GeoPRISMS was very busy at AGU, as in previous years. There were many GeoPRISMS-related and –sponsored sessions, encompassing hundreds of presentations. The Monday GeoPRISMS Townhall and Community / Student Forum was very well attended, despite the somewhat remote location. Three mini-workshops were also held at the Grand Hyatt, with good attendance. These were reviewed in the Spring 2012 Issue of the GeoPRISMS Newsletter.

Magmatic Rifting and Active Volcanism Conference 2012 Report

GeoPRISMS sponsored several attendees to attend the *Magmatic Rifting and Active Volcanism Conference 2012*, given its relevance to upcoming East African Rift System (EARS) efforts; The Afar Consortium is a collaboration between British and Ethiopian scientists, with American and French participation. This collaboration was spurred by a large dike intrusion in 2005; the conference represented a synthesis of that program. Presentations reviewed active magmatism and deformation in the area, geophysical evidence for lithospheric structure and melt, the timing and composition of magmatism and deformation. The workshop demonstrated high levels of societal relevance, with a new program on geohazards at Addis Ababa University, and important mineral and energy resources. Geotourism was also highlighted as an opportunity for the area.

EARS Primary Site Workshop Planning

The EARS planning workshop needs to occur soon, to build on established momentum, including a range of current NSF funded projects in the area. Research in EARS also requires significant ramp-up time, and the research community needs reassurance that this effort will go forward. There needs to be significant African involvement in both planning and research. Workshop conveners were decided. *[The EARS workshop took place Oct 25-27, 2012 in Morristown, NJ.]*

New Zealand Primary Site Planning Workshop

A planning workshop for the New Zealand primary site should be held within the year. This is likely to be a smaller workshop (60-70 attendees, with particular emphasis on seismogenesis (slow slip along the Hikurangi margin), surface processes (building on S2S), and subduction initiation. The international community needs to be engaged in this effort, and will be critical to the success of the workshop. The workshop should be held in New Zealand, to engage as many New Zealand researchers as possible. *[The New Zealand workshop has been scheduled for April 15-17, 2013 in Wellington, NZ.]*

USGS - GeoPRISMS Interactions

John Haines, Coordinator of the Coastal and Marine Geology Program of the USGS, provided an overview and perspective on USGS – GeoPRISMS interactions and future opportunities. He noted that marine geoscience at the USGS is not as healthy as it should be, and collaborating with programs such as GeoPRISMS can strengthen both parties. The role of the USGS is to do good science that is relevant to society. GeoPRISMS can help to fill out the “research” aspect of these efforts, in particular, because the USGS lacks ships, offshore seismic facilities, drilling, etc. GeoPRISMS has done a great job engaging USGS researchers in its activities; the USGS would like to engage GeoPRISMS researchers. The Extended Continental Shelf (ECS) surveys are one obvious project-level connection. The USGS director (Marcia McNutt) would like to see stronger programmatic collaborations, e.g., where the USGS helps to support of UNOLS fleet, or provides technical support where possible. Basic research in marine geohazards offers strong opportunities for enhanced academics and USGS collaborations. Open data access and data sharing are also important.

Initiative Updates

Ongoing RIE and related projects include:

- Shillington et al, working in northern Malawi, continue to pick events to better constrain the geometry of seismically active faults in the hanging wall of the local rift system.

Ongoing SCD and related projects include:

- Magneto-telluric data have been collected along the CAFE transect in Cascadia, and a proposal is pending to densify MT data on-land. An offshore extension of that line has been proposed.

- Naliboff (postdoc with Billen) is modeling crustal deformation to test the serpentinization process due to plate bending when approaching the trench.
- The SERPENT experiment across the Nicaraguan trench (Key, Constable, Evans, Lizarralde) shows more conductivity as the plate begins to bend into the trench. Anisotropy also increases toward the trench. This work has been submitted for publication.
- Syracuse's analyses of earthquakes in Central America have been extended to the west to look for continued correlations between seismic velocities and geochemical variations.
- Tudge (postdoc with Tobin) is working on Vp-porosity relationships along the Nankai margin to constrain how physical properties change throughout the system.
- Jicha (with Singer and Kay) is looking at magma compositions on Aleutian arc samples, a reconnaissance study using existing samples.
- Kelley and Cottrell continue to work on new methods to constrain the processes responsible for the redox conditions of arc magmas. In contrast to hypotheses, they find that arc magmas become reduced, closely associated with sulfur loss due to degassing.
- Chadwell has recently been funded for one year to review deformation data and models for Cascadia to decide where to put offshore instruments. He is testing new, inexpensive wave glider technology to do submarine geodesy.
- The newly funded Mount St Helens project (Bachman et al.) is just getting started, with co-funding from EarthScope and strong USGS partnership. The end-product will be the largest, best-imaged volcano in the world, with an emphasis on how magma is focused at volcanoes. Lots of background work still has to be done, along with permitting.

Ongoing S2S and related projects include:

- Kniskern's study of sediment flux and the partitioning of organic material in Waipaoa, NZ is progressing well. Several others are wrapping up.
- Roering started a numerical modeling project of hillslope processes in Oregon and Waipaoa, to understand the causes and magnitudes of landscape lowering.
- Blair was funded to study carbon cycling at subduction margins, specifically Hikurangi, Cascadia, and Alaska-Aleutians, using samples from core repositories as well as from the upcoming Alaska IODP cruise.
- Mohrig's delta dynamics project, recently funded through FESD, is recognized to have direct relevance to GeoPRISMS objectives.

GeoPRISMS Data Portal and Updates

Andrew Goodwillie provided an update about the GeoPRISMS data portal and capabilities. The data management plan tool has been developed and is proving very useful, allowing people to quickly generate the documents required by all new NSF proposals. A web-based data submission tool has also been added; each submitted dataset gets a unique DOI. New samples can also be registered. A data compliance reporting tool is also available, which can be quickly assessed and approved by NSF program managers. New references and datasets have been added. Suggestions from the community are always welcome.

Education and Outreach Update

For the AGU Outstanding Student Presentation, there were two clear prize winners this year, and four high-quality honorable mentions. *[The recipients are listed in the Spring 2012 issue]*

The Distinguished Lectureship Program continues to be highly subscribed, with 8 speakers scheduled to visit 27 schools this academic year. Schools should be reminded that the speakers are

“Distinguished Lecturers”. A list of “Best Practices” should be prepared and shared with the host schools. [A *Best Practices* webpage can now be found at <http://www.geoprisms.org/dlp-best-practices.html>]

The EarthScope-sponsored *Earth Science E&O Provider Summit*, a two-day meeting held in Tempe, Arizona in February 2012, was designed to enable coordination among the many different organizations that provide Earth Science education and outreach programs, to help define common formats, diminish redundancy, and increase the efficiency of deploying such resources. MARGINS/GeoPRISMS efforts in developing and disseminating mini-lessons were commended, noting that the Earth Science E&O community would benefit from this program continuing and expanding.

GeoPRISMS’ bid to NSF to support a new REU program was unsuccessful. The decision to resubmit will be made after the proposal reviews have been received and digested.

Other Business

Ramon Arrowsmith was thanked for his efforts on behalf of GSOC, in particular, for helping to solidify GeoPRISMS ties with EarthScope. The next GSOC meeting was tentatively scheduled in association with the upcoming EARS workshop.