

Implementation of a Mentoring Program for Junior Women in Physical Oceanography

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LONG-TERM GOALS

This proposed work, through its focus on the retention of women in the field of physical oceanography, will allow further capitalization on the investment the funding agencies and the universities have made on the education of women students. Essentially, this work seeks to stem the loss of intellectual capital from the physical oceanographic field.

OBJECTIVES

The primary objective of this proposed work is to implement a mentoring program that meets these goals:

- (1) The program should provide continuity of mentoring from a young woman's graduate career, through her postdoctoral years to the early years of her permanent job.
- (2) The program should establish a collective rather than an individual responsibility within the physical oceanography community for the mentoring of junior women.
- (3) The program should provide a variety of mentoring resources and mentors for a range of issues.
- (4) The program should cast a wide net to avoid exclusiveness.
- (5) Involvement in this mentoring program should be open to those who self-identify as a physical oceanographer. Each of these goals is intended to make mentoring opportunities universally available and of higher quality by expanding the reach of mentoring opportunities beyond individual home institutions.

APPROACH

A steering committee is primarily responsible for the plan to reach the objectives of this proposal. The steering committee members are:

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History of MPOWIR: The steering committee organized an NSF and ONR-funded workshop entitled Mentoring Physical Oceanography Women to Increase Retention (MPOWIR) that was conducted at the Airlie Center in Warrenton, Virginia on October 9-12, 2005. Twenty-nine physical oceanographers, men as well as women, assembled for the purpose of designing a mentoring program for junior women in the field of physical oceanography in order to help remove barriers in their career development. MPOWIR workshop participants designed a community-mentoring program that would provide continuity from the Ph.D. attainment through the early years of a young woman's scientific career. Importantly, the workshop participants decided to focus on the collective community responsibility for mentoring rather than on mentoring that matched a single junior scientist with a single senior scientist. The working hypothesis is that a network of mentors would better fulfill the various needs of a junior scientist. To make mentoring accessible to junior women in a wide-variety of positions and at different types of workplaces, workshop participants designed a program with three diverse elements: 1) Internet-based mentoring that reaches out to the community as a whole, 2) The Pattullo conference, targeted to junior women, 3) Socials on mentoring that engage the broad community.

Support from DOE, NASA, NSF and ONR was secured in the spring of 2007 to implement the abovementioned programs. The ONR-funded component focuses on supporting the leadership effort of these programs.

WORK COMPLETED

Work completed over the last year:

1. Further developed and maintained the MPOWIR website: The MPOWIR website (www.mpowir.org) has provided a space for the distribution of MPOWIR surveys, profiles of female physical oceanographers and information on all MPOWIR activities. Additionally, resources associated with tracking, mentoring, and encouraging the participation of women in science are listed and updated. Finally, a blog format was introduced to create further dialogue for physical oceanographers spread across the country. The blog has received 1200 hits since August, 2008.

2. Planned and secured funding for the second Pattullo conference, which will take place in Charleston, South Carolina from May 23-25, 2010.
3. Planned a fourth MPOWIR Town Hall Meeting for the 2010 Ocean Sciences Meeting in Portland, Oregon. This Town Hall will focus on careers in oceanography.
4. Initiated mentoring groups: To keep the momentum generated by the Pattullo conference, mentoring groups were established in the fall of 2008. Groups comprise 6-7 junior women, and 2 senior facilitators who combine both mentoring and coaching roles. Five mentor groups (31 total junior participants) are currently enrolled, combining both Pattullo attendees, and other individuals who have expressed interest. The mentor groups are intended to support both peer and traditional mentoring on a smaller more intimate basis.
5. Collected statistics on graduation rates in physical oceanography: A statistics database has been created and is actively maintained with historical and current data gathered from institutions on the number of graduate students entering and graduating from physical oceanography departments each year. The data gives a concrete measure of graduation rates and retention in the field. Additionally, a comprehensive survey was administered to physical oceanography graduate students in the falls of 2007 and 2008 for the purpose of assessing mentoring needs in the community. This survey will be repeated each fall. The database of MPOWIR contacts consists of over 200 people including current and former steering committee members, mentor group members, Pattullo conference attendees, survey respondents, and general inquiries.

RESULTS

The primary results to date are:

1. The successful planning and execution of the Pattullo Conference: The first Pattullo Conference was held on May 18-21, 2008 in Charleston, South Carolina. Twenty-four junior women and 16 senior oceanographers (men and women) attended this conference. Results from that conference were summarized in the 2008 annual report. Planning for the second annual Pattullo Conference is underway. Further information on the Pattullo Conference can be found at: www.mpowir.org
2. The expansion of MPOWIR to include an awareness of careers in government laboratories. Toward that end, funds were obtained to develop and initiate an MPOWIR seminar series at both JPL and Goddard. Each year, one junior participant will be invited to JPL for a seminar and visit; another participant will be invited to Goddard. This fall, MPOWIR received 10 applications and 2 junior women were selected. Feedback from the junior participants and senior hosts at NASA was extremely positive. Additionally, funds were secured for a student internship at either AOML, GFDL or PMEL. The students will be integrated into an ongoing program of mutual interest for a period of 8 to 10 weeks. The students will be supervised and mentored by a designated NOAA researcher. The application process is currently underway and 9 NOAA scientists volunteered to host an intern. We are currently working on expanding this effort to include other government labs.
3. A database with graduation statistics: A database is actively maintained and filled with historical and current data gathered from institutions on the number of graduate students entering and graduating from physical oceanography departments. The data gives a concrete measure of

graduation rates and retention in the field. As with data collected by NSF and by other researchers, our data shows that nearly half of all Ph.D. graduates in physical oceanography are female and the percentage of women in the field drops sharply they progress in their careers.

4. An updated website: The MPOWIR website (www.mpowir.org) remains a central clearing place for information, resources, discussion opportunities, a new blog, and the formation of the mentor groups. As was clear from the geographical distribution of the conference attendees, many junior women are isolated in departments that are not traditionally considered to be “oceanographic”. While this provides an opportunity for fruitful interdisciplinary research, and thus places junior women at the leading edge of physical oceanographic science, this can also be isolating and create difficulties for their becoming involved in larger research programs. The internet based resources are intended to bridge the geographical divides, and to provide information, resources, and to encourage peer and traditional mentoring opportunities.

The primary resources provided on the website include:

- a. Space for the distribution of the surveys described above. Survey results are also displayed (<http://www.mpowir.org/newstats.html>).
- b. Profiles of female physical oceanographers that illustrate different career paths and provide a context for women in the physical oceanographic community. A web based form allows individuals to add their own profile to the site.
- c. Information, registration, and photos from the 2008 Pattullo Conference are hosted on the website.
- d. Resources associated with tracking, mentoring, and encouraging the participation of women in science are listed and updated.
- e. A new blog is now available.

IMPACT/APPLICATIONS

This proposed work aids efforts to create a scientific workforce whose diversity matches that of the student population and, in a broader sense, that of the U.S. population as a whole, by aiding the retention of women in the field of physical oceanography.

TRANSITIONS

The intent of this proposal is to design this mentoring program for the physical oceanography community essentially as a pilot project that, if successful, could be expanded to include women and minorities in all areas of ocean sciences at a later date.

RELATED PROJECTS

PUBLICATIONS

Lozier, M.S., 2005. A community effort toward the retention of women in physical oceanography. *Oceanography*, **18**, 35-38.

Lozier, M.S., 2006. Mentoring program for women in physical oceanography. *EOS*, **87** (12), 123&126.

Lozier, M.S., A. Adcroft, L. Beal, A. Bower, D. Byrne, A. Capotondi, V. Coles, K. Lavender, C.M. Lee, J. MacKinnon, K. Shearman, L. St. Laurent, L. Thompson, and D. Witter. 2006. *MPOWIR: Mentoring physical oceanography to increase retention. Report of a workshop held October 9-12, 2005*. 32 pp. [Online] available at: <http://www.mpowir.org>.

Valvo, L.M., M.S. Lozier, and V. Coles, 2008. The Pattullo conference report and update on other MPOWIR activities. Report of a workshop held May 18-21, 2008. 35pp.

Martini, K., Frajka-Williams, E., and Mouw, C., 2009. The Pattullo conference: building community through mentoring. *Oceanography*, **22**, 226-227.

Lozier, M. S., 2009. A successful first Pattullo conference. *Oceanography*, **22**, 224-225.

HONORS/AWARDS/PRIZES

Awards related to this grant:

Duke University, University-wide Award for Excellence in Mentoring, 2007

Woods Hole Oceanographic Institution, H. Burr Steinbach Scholar, 2008

Keynote Speaker: Physical Oceanography Dissertation Symposium, 2008