

Hosting a PolarTREC Teacher: A Method to Facilitate Antarctic Outreach and Dissemination of Research

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PolarTREC teacher 2010-2011

(Accompanied John Stone's field research (I-414): Constraints on the Last Ross Sea Ice Sheet from Glacial Deposits in the Southern Transantarctic Mountains)

The NSF funded PolarTREC program aims to advance polar science education and understanding by bringing K-12 educators and polar researchers together through hands-on field experiences. Through the pairing of researchers and teachers, PolarTREC is dedicated to:

- Improving teacher instructional practices, especially the use of inquiry-based learning to translate polar science to the classroom, thereby increasing student interest in science, technology, engineering, or mathematics (STEM) careers.
- Improving polar researchers' understanding and engagement in K-12 education to strengthen and enrich outreach and dissemination of research.

As part of the "Race to the Top" initiative, there are three national priorities for STEM education: 1) increasing STEM literacy so all students can think critically in science, math, engineering and technology; 2) improving the quality of math and science teaching so American students are no longer outperformed by those in other nations; 3) expanding STEM education and career opportunities for underrepresented groups, including women and minorities.

In order to address these priorities, there were two primary issues I hoped to better understand: 1) How to better bring scientific inquiry into the classroom; 2) Which skills students need to possess upon exiting high school in order to find success in science, math, and engineering disciplines.

During the 2010-2011 Antarctic field season I accompanied John Stone's (University of Washington) research group to their series of remote camps along the Beardmore Glacier. My role with the research team was to assist with collection of samples and data in the field. My function as a PolarTREC teacher was to enable students and the general public to experience the research project through the posting of daily journals, answering questions about the project through an "Ask-the-Team" forum, maintain a photo album, and to provide real-time "Polar Connect" webinars to students and community members around the world.

As a result of my participation in John Stone's research, students and community members have demonstrated an increased interest in Antarctica along with a desire to understand the current knowledge amassed by the scientific community. This experience has greatly enriched my ability to bring relevant science into the classroom and engage my students in learning. As a result of this opportunity, I have implemented the following into my instructional practices:

- Increased the number and quality of hands-on classroom activities and introduced new laboratory activities
- Developed new or revised content for lessons and laboratories
- Introduced new technologies in class and laboratory exercises
- Increased requirements for formal written and oral reports
- Discussed polar-related science careers and related jobs with students

The PolarTREC program matches teachers and researchers with similar scientific interests and outreach goals. There are many benefits to hosting a PolarTREC teacher during your field research. These include, but are not limited to:

- Fulfilling the outreach and education goals of your team, institution, and NSF's Broader Impacts
- Connect your research to new audiences and build connections to the education community
- Inspiring the next generation of polar scientists

