

*Welcome to the
PolarTREC Researcher Informational Webinar!*



**Teachers & Researchers
Exploring & Collaborating**

18 August 2009

www.polartrec.com



WELCOME TO WIMBA



ARCTIC RESEARCH CONSORTIUM OF THE UNITED STATES

Raise your hand to ask a question

List of all participants

Return to the lobby or exit

Slides will be shown here

If using VOIP, press and hold here to talk

Your connection strength

'Chat' with one person or the entire group

The interface shows a toolbar with a connection strength indicator, a 'TALK' button, and various communication icons. Below the toolbar is a chat window with a 'To:' dropdown menu set to 'Main Room'. To the right is a 'People (3)' list showing participants: Kristin_Timm, kristina_creek, and Kristin_Timm. At the bottom right, there are buttons for 'Exit - Lobby' and 'Help'.

Please note:

- Participant using the telephone can mute/unmute by pressing *6 on the phone.
- Today's event will be recorded and archived.

Presentation Outline



- Introductions
- What is ARCUS?
- What is PolarTREC?
- Goals and Project Elements
- Info for PolarTREC Researchers
- The Application Process
- Questions & Answers

What is ARCUS?

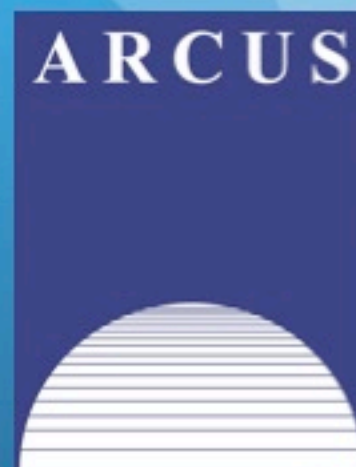
ARCUS (Arctic Research Consortium of the United States) is a non-profit corporation consisting of institutions operated for educational, professional, or scientific purposes. ARCUS provides leadership in advancing knowledge and understanding of the Polar Regions through a variety of programs and outreach endeavors.

ARCUS and PolarTREC

ARCUS was awarded funding from the National Science Foundation to manage PolarTREC from 2007-2009.

ARCUS has applied for continuation funding from the National Science Foundation for PolarTREC.

OUR FUNDING FOR NEXT YEAR IS STILL PENDING.



The PolarTREC Team



Janet Warburton

PolarTREC PI &
Project Manager



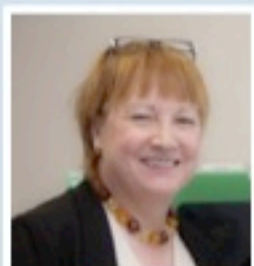
Kristin Timm

PolarTREC
Project Manager



Ronnie Owens

Web Developer



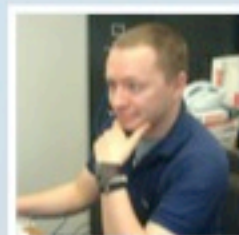
Susan Fox

Executive Director



Helen Wiggins

Director of Programs



Zeb Polly

Systems Administrator



Joed Polly

Video Production

...with help from the
entire staff at ARCUS



What is PolarTREC?

PolarTREC (Teachers and Researchers Exploring and Collaborating)

PolarTREC is a professional development experience in which K-12 teachers are paired with researchers to participate in a 2-6 week polar research experience.

PolarTREC is **not** teachers simply observing and reporting, taking a vacation, or only fulfilling a personal dream.



Goals of PolarTREC

The goal of PolarTREC is to invigorate polar science education by bringing K-12 educators and IPY researchers together through hands-on field experiences.

- ➔ **Improve teacher content knowledge** and instructional practices to bring polar science to the classroom
- ➔ To **increase public and student understanding** of and engagement in the polar regions, and encourage interest in science, technology, engineering, and mathematics (STEM)
- ➔ **Improve polar researchers' understanding** of and engagement in K-12 education to strengthen and enrich outreach and dissemination of their research
- ➔ To **develop networks of support** between polar researchers and teachers for ongoing collaboration and mutual learning

Elements of PolarTREC

Arctic or Antarctic
Field Research Experience



Professional Development



Sustained
Community & Support



Classroom & Public
Connections



Field Research Experience



- Teacher matched with researchers and travel to exotic locations in the polar regions
- Experiences last from 2 to 8 weeks
- Experience involves intense field work—teachers become members of team
- Experience involves safety and classroom training
- Teachers communicate daily with public

Field Research Experience

- Anticipate PolarTREC 2010-2014
- Anticipate involving over 48 teachers (About 12/year)
- Anticipate 6 Arctic/6 Antarctic Projects/Year
- Example Locations: Greenland, Alaska, Russia, Svalbard (Norway), McMurdo, Ship Based, Dry Valleys, and many more!
- Example Research topics: Remote sensing of ice sheets, tundra vegetation, archaeology, climate change, snow chemistry, oceanography, meteorology, ocean ecology, and many more!

Professional Development



- Teachers are immersed in scientific content and get experience with the latest scientific equipment
- Teachers and researchers work together to bring the science into the classroom—science that students can connect with
- Teachers utilize experiences to develop lessons that meet District requirements and National and/or State standards

Classroom & Public Connections



Outreach supported through the use of technology tools:

- *“PolarConnect” presentations*
- *Online journals & videos*
- *Photo albums*
- *Podcasts*
- *“Ask the Team” forums*

Connections also provide:

- Students provided with new and relevant information and data
- Connections to researchers doing polar research in the here and now

Sustained Community & Support



- **Funding** to help the ongoing relationship between teacher and researcher
- **Teacher Partners**; where teachers are matched with another teacher
- The **CARE Network** - a discussion groups between teachers and researchers
- The **Learning Resources** database, an online collection of polar related lessons and activities
- The CARE and PolarEducation **List serves** to share ideas and opportunities

CARE

CONNECTING ARCTIC/ANTARCTIC RESEARCHERS & EDUCATORS

CARE is a professional development network that brings together teachers and researchers to discuss field experiences, current science issues, content, technology resources, and pedagogy.



Successful PolarTREC Researchers are:

- Willing to teach and mentor a teacher before, during, and after the field experience.
- Open to learning from another professional.
- Are able to communicate their expectations and listen to those of the teacher.
- Willing to commit to about 8 hours of formal preparation activities before the field season, as well as informal communication with the teacher.
- Willing to participate in about 2 hours of program evaluation activities (sending in questions pre-field and phone interview post-field).

How researchers benefit from PolarTREC

- Share their research with a much wider audience than otherwise possible
- Teachers synthesize and ‘translate’ science into terms the public can understand
- Researchers gain a better understanding of the K-12 educational system and pedagogical practices
- Extra set of willing hands and new ideas in the field



What you Get:

- A well prepared, enthusiastic, hard-working team member.
- A great amount of “easy” project outreach, often including web, print, TV, and in person outreach and education.
- Personal satisfaction of teaching a teacher and contributing to the improvement of K-12 STEM education.
- Improvements to the scientific process and your research.
- A lasting connection to the education community.
- Improvements in your ability to teach and communicate your science, and interact with those outside your scientific discipline.

All for the bargain price of \$0!

- We work with NSF logistics providers to cover all travel to and from the field, meals, outdoor gear, etc.
- ARCUS provides support for teachers where NSF logistics providers or schools do not cover it.
- ARCUS provides teachers with technological equipment, training, ongoing support, and the infrastructure to communicate from the field.
- Optional personal or project costs you may incur include: your travel to orientation, travel to meet your teacher, pre-field communications costs, materials or books sent to your teacher, etc.

What some researchers have said:



“I’ve got **two big projects** going on at the same time now.

“One of the things that we find very, very powerful is finding somebody that we can then leverage in the **future for team outreach.**”

“It really **increased our public image** and **bridged the separation** between science and the public at large.”

“He [the PolarTREC teacher] **challenged us to think bigger.** For a Center of our magnitude we ought to be thinking big anyway.

“We all feel very strongly that we need to be...not only just learning what we were learning but **trying to share it** so outreach and education is an important part of what we do so we all recognize it is worth the effort to do that.”

PolarTREC Application Timeline

2009

2010

2011

Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb



Applications Accepted



Selection Committee Convened



Teachers are matched to selected projects in close collaboration with the research team and selection committee.



Selected teachers travel to Fairbanks, AK for training



Arctic Expeditions
Arctic Pre-Field Calls

Antarctic Expeditions
Antarctic Pre-Field Calls

Matching Process

- Approximately 250 Teacher Applications Reviewed Internally
- Top 100 applications reviewed by selection committee of teachers, researchers, and others
- Finalist pool of 30-40 created by looking at best applicant science interest and matching with research projects
- Selected researchers review approximately 6-8 best applications for their project
- Researchers and ARCUS conduct approximately 3 teacher interviews per project
- Researchers, with any needed help from ARCUS, select the teacher they will be working with
- Collaboration starts immediately!

Application Tips

- SPELL CHECK & PROOFREAD!!!
- Write thorough but concise answers
- When describing your project, think abstract—not proposal
- Describe clear goals and expectations for the teacher and how this experience fits into your project
- Read the question thoroughly, address all parts
- Read the researcher expectations at www.polartrec.com
- Keep us informed of your funding status
- Be as accurate as possible, but we will follow up in the fall to see if any parts of the project have changed

Why Join PolarTREC?

Teachers:

- A role model for students
- Integral part of the science team
- Engage in actual science with working scientists
- Transfer real science to the classroom
- Establish a network of professional contacts



Students & The Public:

- See that ordinary people can do science
- Make connections between science and the real world
- Can have a dialogue with their teacher and researchers
- Science and scientists become accessible!



Preliminary Evaluation Results

Students showed significant changes in several key areas, including:

- Amount of time that they spent in school **exploring science research activities**
- Importance of **understanding science for their future work**
- Importance of understanding the Polar regions as a **person living in today's world**
- The greatest report of change was the students' **knowledge of general physical science concepts** and those specifically related to the Polar regions



Frequently Asked Questions

How long has the program been in existence?

What are the exact dates of the program?

Do you need to be a U.S. citizen to apply?



Do you have to be a NSF-Funded researcher to Apply?

What are the costs to the research team?

Can I apply if I have already participated in PolarTREC?

My colleague would like to apply, but is currently in the field working. What should they do?

Frequently Asked Questions

Do researchers need to apply for supplemental funding to participate in PolarTREC?

How do we know teachers are physically qualified for an expedition?

Can I work with a teacher I already know?

Can I get a teacher that lives and works close to me?

How many researchers apply to PolarTREC and how many get accepted to host a teacher?

What if my research location or tasks are “extreme”?

Do I have to attend the PolarTREC Orientation in Fairbanks, Alaska?



Frequently Asked Questions

How will teachers gain adequate knowledge of the research methods and equipment before the expedition so as to be actual contributors rather than spectators?

Do teachers or researchers receive a stipend during participation?

What kind of time commitment is expected of researchers?

As a graduate or PhD student, can I host a Teacher on my project?

I would like a Chemistry teacher; can I get someone like that?



Additional Questions?

Please read the following documents available on our website: www.polartrec.com

- Frequently Asked Questions
 - Goals and Objectives
 - Teacher and Researcher Requirements
- ... and review the upcoming, current, and past teacher expedition journals on the website.

The archive of this event will be sent to everyone who registered for the event. Please share!

Thank You for Your Interest in PolarTREC!

Remember:

Researcher Applications are due **Sunday, 20 September 2009**

We will keep applicants informed of our funding status!

Question or Concerns?
ARCUS 907-474-1600

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