TEACHERS AND RESEARCHERS EXPLORING AND COLLABORATING

POLAR TREC

Welcome!
PolarTREC Informational Webinar

Wednesday, 29 July 2015

Blackboard collaborate

Slides will be shown here

Exit the presentation

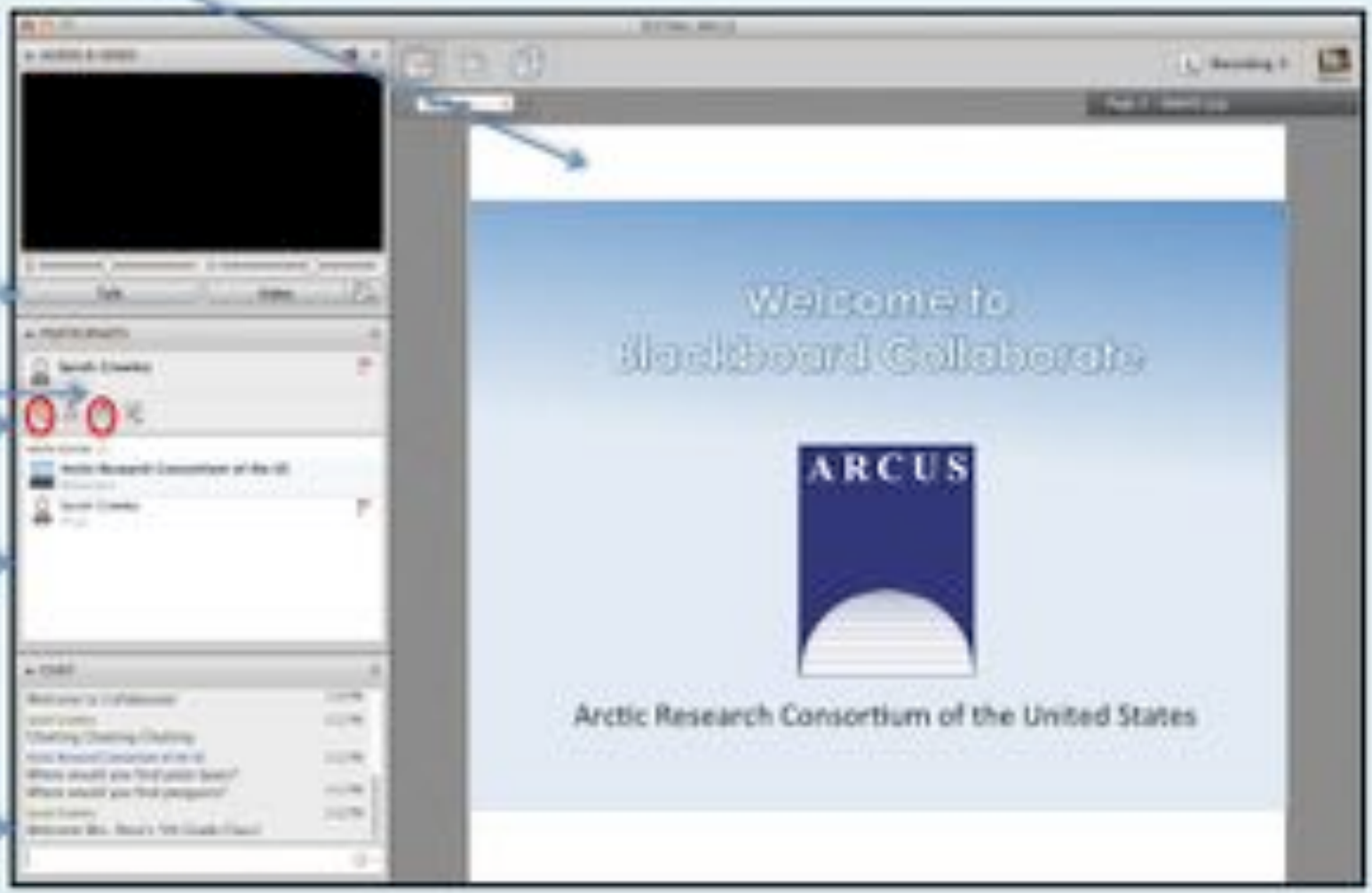
Click to Talk, **Unclick** to finish talking

Raise your hand to ask a question

Share with emoticons

List of all participants

Chat with one person or the entire group



Please Note:

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

Questions

During the Presentation:

- Type your question in the text chat box

At the End of the Presentation:

- Raise your hand with the “hand button”.
- PolarTREC staff will call on you.
- Speak loud and clear and directly into the phone to ask your question.

Click on the Talk button to speak.

Unclick when you are done.

Presentation Outline

- Introductions
- What is ARCUS?
- What is PolarTREC?
- Goals and Project Elements
- Program Impacts & Benefits
- The Application Process
- If You Are Selected
- If You Are Not Selected
- FAQ's & 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 though a variety of programs and outreach endeavors.

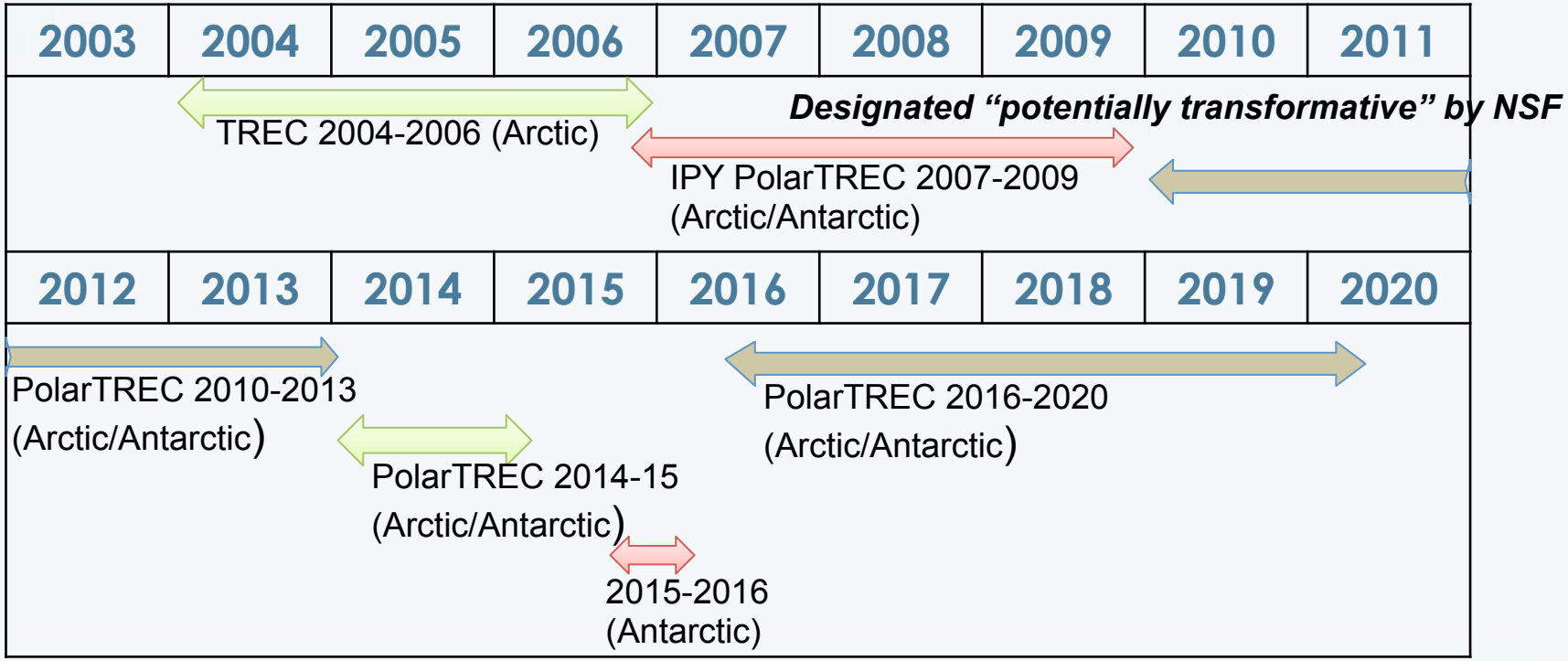
ARCUS is based in Fairbanks, Alaska and works with primarily arctic scientists around the world to facilitate interdisciplinary collaboration, outreach and education within and outside the science community.

ARCUS
ARCTIC RESEARCH CONSORTIUM OF THE UNITED STATES

ARCUS & PolarTREC

- ARCUS manages PolarTREC with years of experience, integration of best practices in teacher research experiences, and connections with the polar research community.
- ARCUS was awarded funding from the National Science Foundation Division of Polar Programs to manage PolarTREC from 2010-2015. Project involved over 60 teachers (~ 12/year).
- ARCUS continues to manage PolarTREC in 2016-2020.
- ARCUS runs additional education and outreach programming, as well as various science coordination programs and initiatives.

Funding History



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Video Production

…with help from the entire staff at ARCUS

What is PolarTREC?

PolarTREC (**T**eachers and **R**esearchers **E**xploring and **C**ollaborating)

PolarTREC is a professional development teacher research experience in which K-12 teachers (focusing on middle and high school level) are paired with researchers to participate in a 3-6 week polar research experience.

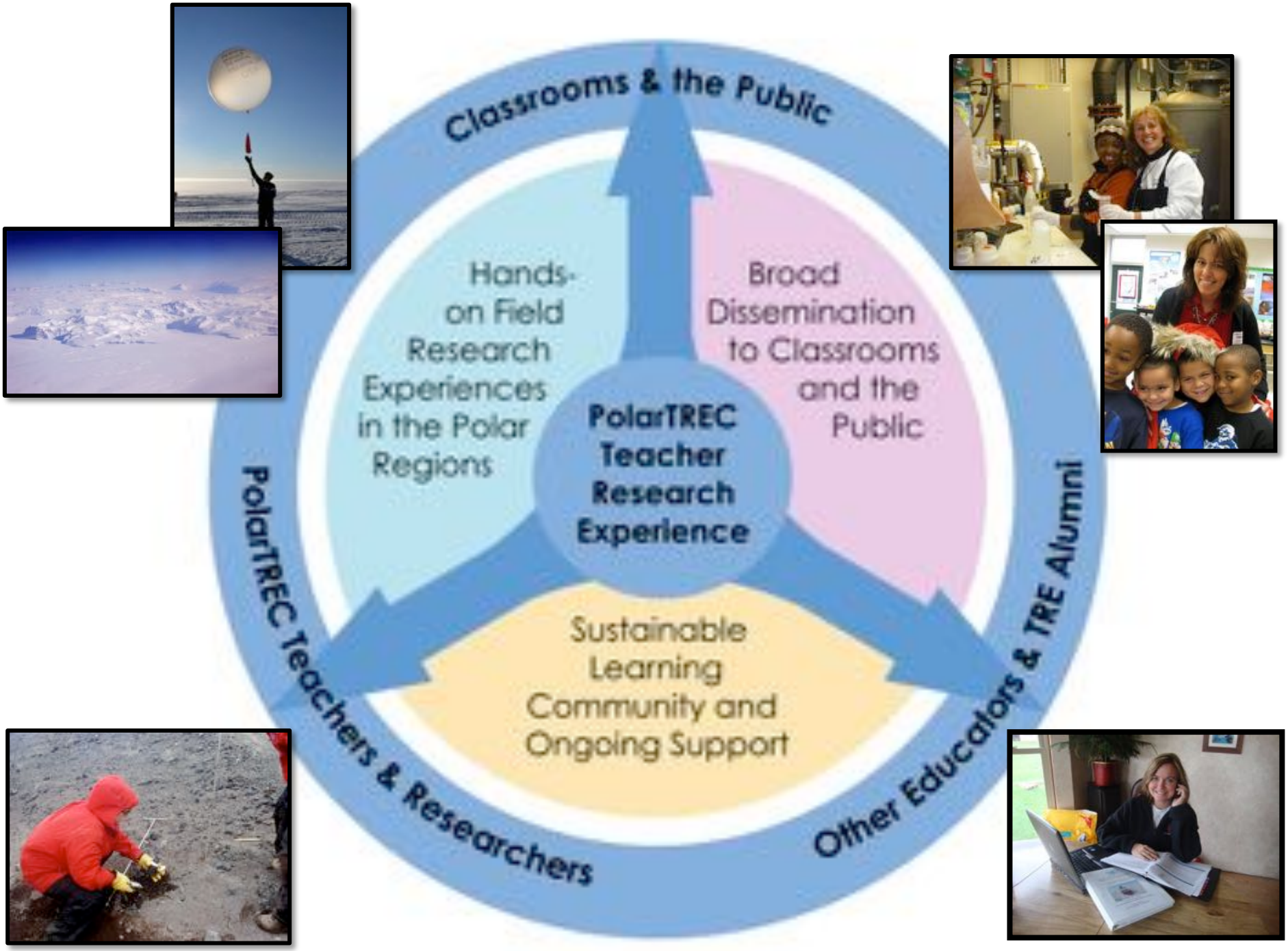
PolarTREC **is not** teachers simply observing and reporting science, taking a vacation, or only fulfilling a personal dream to visit the polar regions.

PolarTREC **is** Transformational!

Project Goals and Elements

Teachers and Researchers Exploring and Collaborating

The goal of PolarTREC is to advance polar science education through **improved teacher content knowledge** and **instructional practices, increased teacher knowledge and use** of **science and engineering**, **development of teacher leadership skills, development of long-term professional relationships** between teachers and researchers, **increasing researcher understanding** of the education system, and to **enrich the outreach and dissemination of polar research** across all disciplines.


Classrooms & the Public
Hands-on Field Research Experiences in the Polar Regions
Broad Dissemination to Classrooms and the Public
PolarTREC Teacher Research Experience
Sustainable Learning Community and Ongoing Support
PolarTREC Teachers & Researchers
Other Educators & TRE Alumni

Intensive 1-Week Orientation:

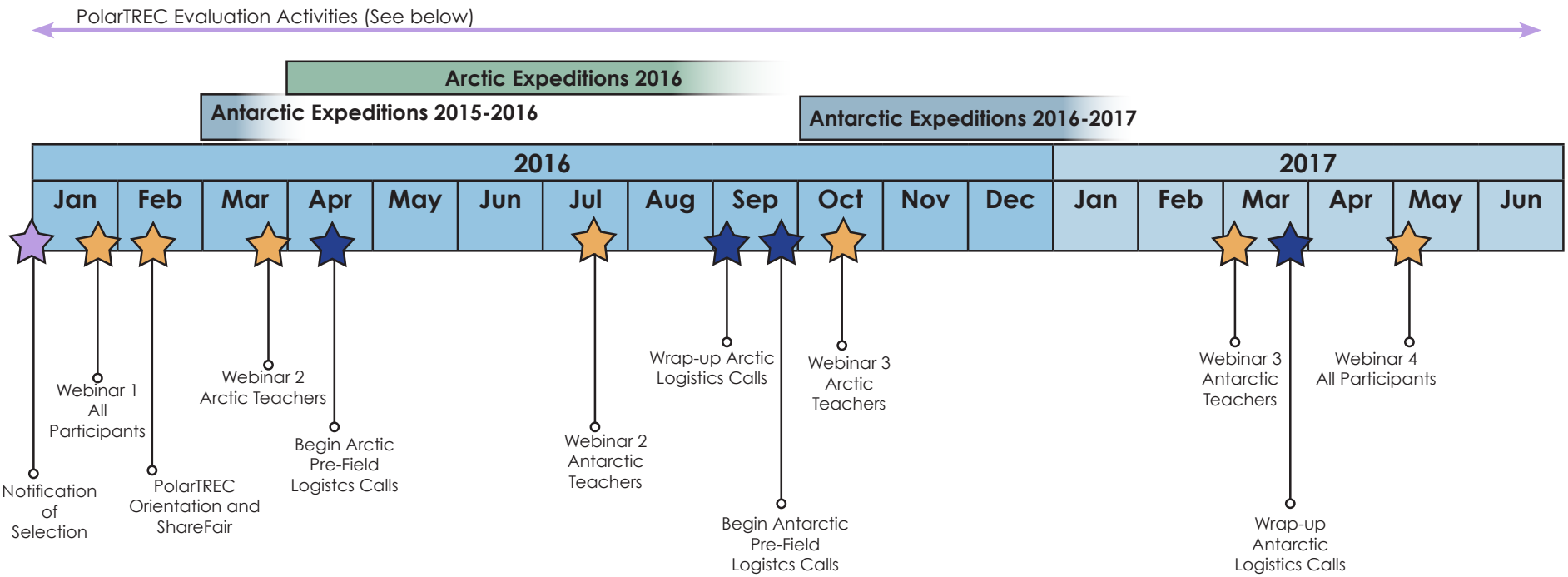
- Technology Training
- Education/Outreach Planning
- Polar Science
- Safety
- Cohort Team Building

Teachers practice technology at the 2011 Orientation.

Key Program Activities

- Comprehensive Selection Process
- Researchers Make Final Selections
- Detailed Logistic Support
- Substitute & Other Expenses Covered
- Alumni Involvement
- Pre\Post Expedition Travel Support
- Long-term Access to Resources & Support

2016-2017 Timeline of Major Program Activities



Evaluation Activities

Angela Larson/Goldstream Group

All participating teachers and researchers as asked to contribute to our program evaluation throughout their experience. We aim to understand the PolarTREC program's effect on:

- teacher polar science & content knowledge
- teacher integration of polar science into classrooms
- student understanding and interest in science
- researcher engagement in K-12 education

Phone Calls, In-Person Meetings, and Webinars

Note: Additional training webinars may be held for teachers as demand warrants.

PolarTREC will offer enrichment/professional development opportunities through out the year which may include of webinars, field courses, and presentations at regional and national conferences. All TBD.

Teacher Research Experience

- Teacher matched with researchers and travel to locations in the polar regions.
- Experiences last from 3 to 6 weeks (or MORE!)
- Experience involves intense field work —teachers become members of the team.
- Experience involves safety and classroom training.
- Teachers communicate daily with public.

Polar Expedition Locations

Approximate locations. Some locations have had several teachers.

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 Outreach

Outreach supported through the use of technology tools:

- *PolarConnect* presentations
- Online journals & videos
- Photo albums
- Journal commenting & reply

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 nurture ongoing relationships between teacher and researcher
- **Teacher Partners -** where teachers are matched with another teacher for mentoring and advice
- The **Learning Resources** database, an online collection of polar related lessons and activities
- PolarEducation **E-Mail Listserve** to share ideas and opportunities
- **International Connections** to polar focused groups for ongoing collaborations and opportunities

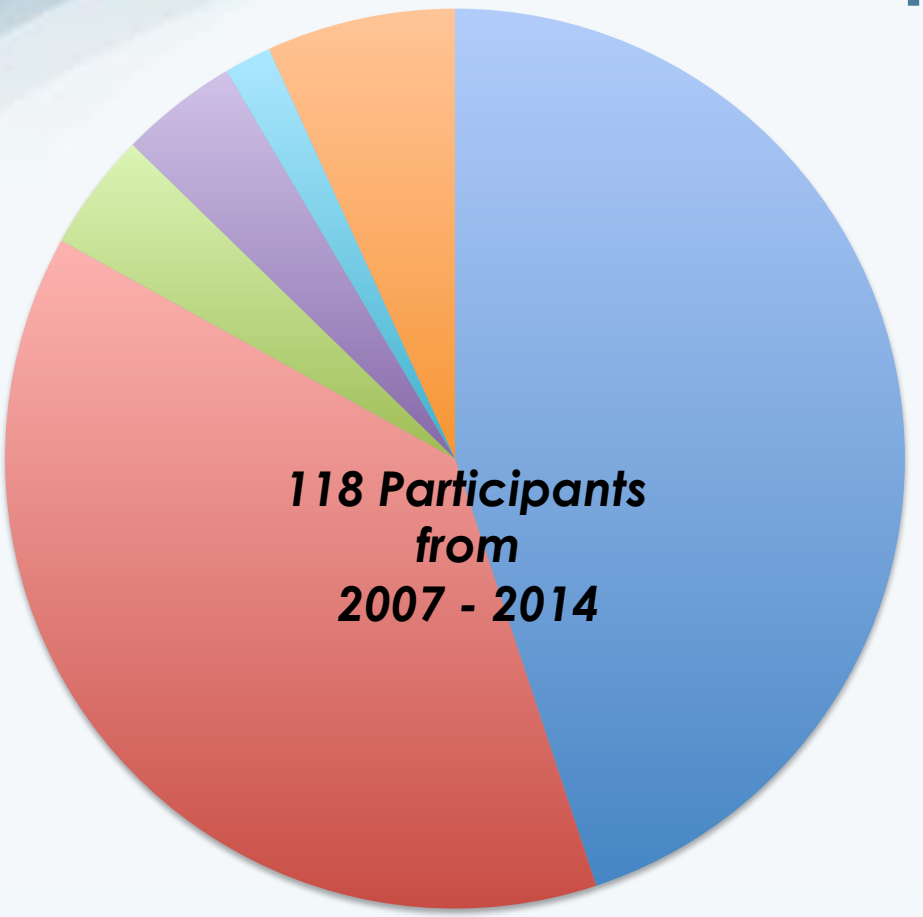
Program Impacts & Benefits

PolarTREC Participants

	Year	Total Teachers	Arctic	Antarctic
NSF IPY Award	2007-2008	**20**	11	9
	2008-2009	**15**	10	5
	2009-2010	**19**	14	5
NSF OPP Award	2010-2011	**15**	11	4
	2011-2012	**14**	8	6
	2012-2013	**17**	12	5
	2013-2014	**18**	12	6
NSF OPP	2014-2015	**18**	11	7
		136*	89*	47

* Totals include 9 NSF Einstein Fellows

Participants by Grade



- High School (45%)
- Middle School (38%)
- Elementary (4%)
- Informal Educators (4%)
- Community College (2%)
- Einstein Fellows (7%)

Over **100 Polar related lessons** developed

Over **50,000 participants** connected to **Polar Regions** through live events

82% for the very first time

Over **700,000 unique visitors** to our website

Over **2 million unique page visits** to website

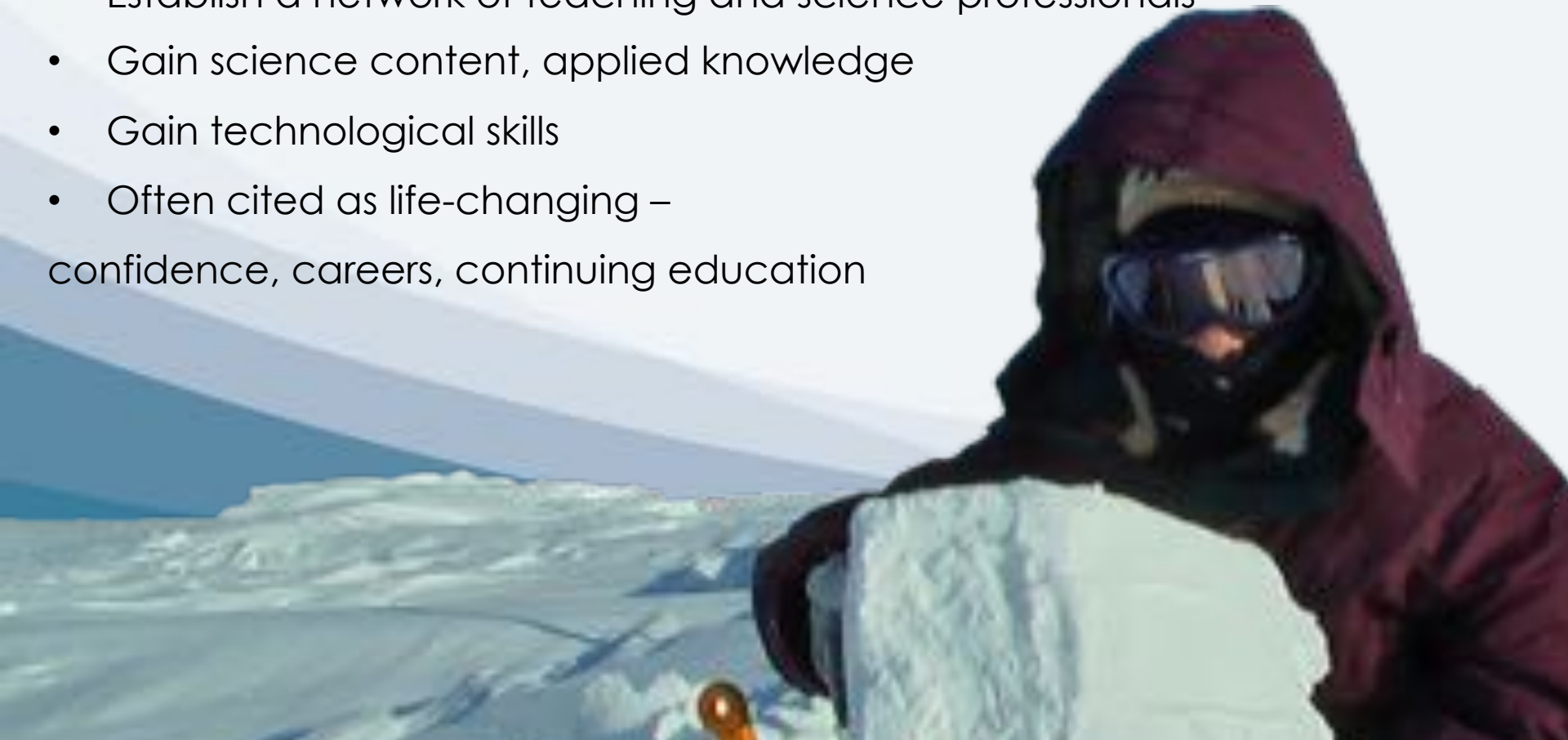
Other partners include **NASA, NOAA, USGS, BLM, NPS**

PolarTREC IS Transformative!

How Teachers Benefit

- Integral part of a science team, engage in actual science with working scientists and acquire an understanding of inquiry science
- Transfer the experience and excitement to the classroom
- Professional rejuvenation, seen and treated like a professional
- Establish a network of teaching and science professionals
- Gain science content, applied knowledge
- Gain technological skills
- Often cited as life-changing –

confidence, careers, continuing education



What Researchers 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.
- 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.
- And much more!

How Students Benefit

- See that ordinary people can do science
- See that science is fun, exciting, and doesn't consist of people in lab coats and contrived experiments
- Make connections between real science, teamwork, and solving problems in the real world
- Participate in more inquiry-based science in the classroom

- Can have a dialogue with real researchers
- Increased knowledge in numerous science subject areas. Yahoo!

Students of PolarTREC Teacher Elizabeth Eubanks present at the State of the Arctic Conference in 2010.

The Application Process

Application & Program Timeline

2015 **2016** **2017**

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

Applications Accepted

Selection Committee Convened

Top ~40 teachers are matched to selected projects, for review

Researchers interview, make final selections

Teacher Orientation

Arctic Expeditions

Arctic Pre-Field Calls

Antarctic Expeditions

Antarctic Pre-Field Calls

Ongoing:
- Teacher, Researcher, ARCUS Communications
- Pre / Post Field Visits (School/Institution)
- PQ or other Medical Preparations
- Related Training
- Related Education and Outreach activities

Matching Process

- **September:** Approximately 200-300 teacher applications reviewed Internally
- **Sept/Oct:** Top 100 applications reviewed by selection committee of teachers, researchers, and others
- Finalist pool of top 40 created by selection committee
- **Mid-October:** All applicants notified of application status. Start looking at top applicants, select research projects
- **Late October:** Selected researchers review approximately 6-8 best matches for their project
- **November:** Researchers and ARCUS conduct approximately 3 teacher interviews per project
- **Late November:** Researchers, with any needed help from ARCUS, select the teacher they will be working with
- **January:** Webinar 1: Introduction to PolarTREC Projects
- **February 7-12:** PolarTREC Orientation and Sharefair

The Application Form

- Fill out the application at **www.polartrec.com**
- It is combination short answer and essay questions
- Some questions may require research and preparation
- You must have an email address to complete the application
- Your answers may not save if you navigate away from the page or close the page
- A Word version is available online; we **highly recommend** using it to type your answers and then cut and paste into the web form
- If you cannot access the application or have any troubles, please email info@polartrec.com as soon as possible
- Do not wait until the last minute; all applications are due **Tuesday, 8 September 2015 at 5 pm Alaska Daylight Time**

Application Tips!

- **Spell-check and proofread!**
- Write thorough, but concise answers.
- Take note of word limits for certain questions.
- Be clear about your personal and professional goals, and how this fits into your professional development strategy and career.
- Outline clear ideas about how you will share this experience with your classroom, community, peers, the public, media, etc.
- Provide past examples when possible.
- Read the questions thoroughly, and address all parts.
- Do your homework and look through the website! We provide all teachers with a journal (blog), photo gallery, etc.
- **Make sure e-mails from us are coming to your inbox!**

Please don't…

- Misspell PolarTREC, Arctic, or Antarctic!
- Just write "I, I, I" and "Me, Me, Me"
- Paraphrase your essay question answers
- Write responses that are too brief or vague
- Submit incomplete answers
- Mail or e-mail us additional documentation, lesson plans, photos, etc.

If you have corrections or changes to your application, you can either resubmit the application or you can send specific instructions with your corrected answer to info@polartrec.com until the application deadline.

If You Are Selected

Selected Teachers Are Provided:

- Training for the experience virtually and in-person, including 1 week orientation in Fairbanks, Alaska
- Limited travel support for pre- or post- field meetings between teacher and research team
- Technological equipment for duration of participation, including laptop, camera, related accessories
- Most outdoor gear and clothing to be comfortable in the field and complete the work, including jacket, boots, etc.
- Substitute teacher expenses during orientation week and expedition if during the school year
- Travel expenses related to the orientation and expedition
- Some assistance with other miscellaneous costs

Selected Researchers Are Provided:

- 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.
- Researchers, 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.

Costs Teachers May Incur:

- Personal apparel and gear not provided, such as long underwear, socks, gloves, toiletries, etc.
- Some medical insurance and/or evacuation insurance if costs are not covered under your insurance
- Personal travel adjacent to the expedition, or travel related to your outreach activities before or after the expedition
- Possibly salary related costs, depending on your school and their policies
- PolarTREC teachers **DO NOT** receive a stipend for their participation in the program

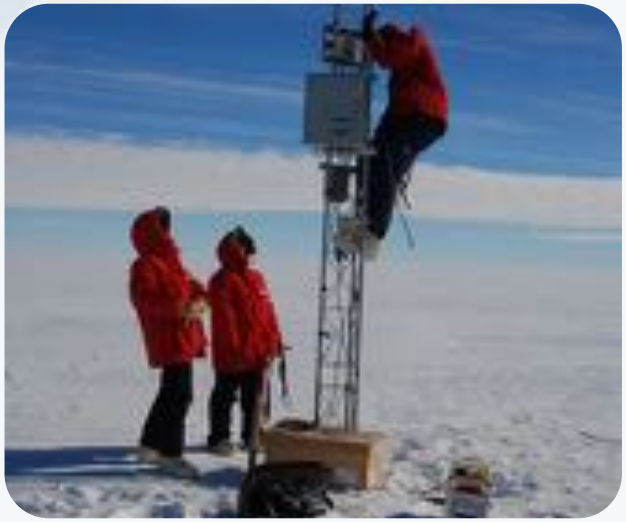
Teacher Expected Time Commitment

- 1 week in Alaska for Orientation likely in February 2016
- Participation in 3-4 two-hour webinars related to the training
- Participation in 1 or more pre-field logistics phone call
- Approximately 3-6 weeks in the field, plus associated travel days to and from the site
- Additional personal time for technology training and practice, as needed
- Additional personal research time/reading related to the subject of the expedition, as needed
- Outreach activities before and after the expedition, as you determine
- Completion of PolarTREC program requirements and evaluation components

Researcher Expected Time Commitment

- 8 – 9 hours of reading applications and selecting a teacher for your team
- Participation in (2) 1 hour webinars related to the program
- Participation in 1 or more pre and post field logistics phone calls
- Commitment to working with teacher in the field
- Additional time sharing reading related material with the teacher, as needed
- Outreach activities before and after the expedition, as you and teacher determine
- Completion of PolarTREC evaluation components (no more than 1 hour)

I didn't get picked! Now what?



- **Apply again in the future!**
- **Follow an expedition at www.polartrec.com!**
- Read about the science in the teacher journals
- Utilize lessons and activities in PolarTREC Learning Resources Database
- Post questions/comments to journals
- Take initiative in bringing polar science into your classroom.
- Watch short videos on PolarTREC YouTube channel
- Share a “Polar Profile” with your students and explore careers
- Check out the beautiful photography in the Photo Gallery and ARCUS Internet Media Archive

- Participate in a “PolarConnect” live event from the Arctic or Antarctica
- Sign up for the Polar Education E-Mail List http://www.polartrec.com/education-list
- Become a member of our International networks and partners (free)

  - APECS – Association of Polar Early Career Scientists www.apecs.is

  - PEI – Polar Educators International www.polareducator.org

Frequently Asked Questions

EXPEDITION INFORMATION

When would the different programs be? I saw the 3 week program was the shortest program.

How is it decided whether you stay 3 weeks or up to 6 weeks?

What are the dates of the 2016-2017 program/expedition?

Can participants be full time teachers, and participate during the summer break?

If a teacher does not want to miss any school time (summer vacation runs basically all June and July), what are their chances of finding a researcher that is in the field during those months?

Do you participate all online. Or do you have to go to Alaska?

Would this experience be informative for a middle school earth science teacher who works with highly talented students?

APPLICATIONS

Do you intend to favor participants with or without a previous similar experience ?

I was very fortunate to be in the top 40 participants before it was narrowed down to the final participants last year. What could increase my chances of making the final selection?

What sorts of experience, preparedness, plans, and background should I emphasize to be most competitive in the application process?

How do you recommend approaching the application as an informal educator?

Do you find that schools work well with teachers when they are accepted?

RESEARCHER: What does PolarTREC look for in a competitive application?

COSTS

Would travel costs, substitute teachers, etc. be covered during the longer expedition? I saw that it was covered for the week long training in Alaska in February.

What if you are not able to make the Training in February?

What are the fees?

Is there any sort of stipend involved with the program?

ELIGIBILITY

Since I am not currently in a K-12 classroom, am I eligible to apply?

Can one participate in this program if they reside outside of America?

Can I apply if I teach something other than middle or high school?

Am I eligible to participate if I do not work in a classroom, but do educate both students and teachers?

RESEARCHER: Do graduate students qualify as researchers to apply for the program, or do you need a project PI to apply?

OTHER QUESTIONS

What ship(s) will you use? What base(s) will you use in the Arctic or Antarctic?

If I start a project, is it possible to continue to get data --and information to share with my and other courses around the nation?

What type of research projects will be conducted?

Will there be darkness or light during the expeditions?

What are will you be doing, exactly..?

What are the physical fitness requirements?

What cold weather apparel should the educator provide?

I was assuming that we are paired with researchers based on our experience, is that true?

I am a chemistry teacher and am very interested in the PolarTREC program. Will any of the research have a chemistry application?

I'm really interested in this opportunity and would love to know more about the educational background necessary for participating in this program. Also curious to find out more about what previous educators have developed within their communities upon completion of the program. Thank you!

Join PolarTREC!

Application Period: Monday, 20 July 2015 through Monday, 8 September 2015

www.polartrec.com/teachers

www.polartrec.com/researchers

Additional Questions?

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

- Frequently Asked Questions (for Teachers and Researchers)
- Program Goals and Objectives
- Teacher and Researcher Requirements

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

Thank You!

For Questions & More Information:

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