



TEACHERS AND RESEARCHERS  
EXPLORING AND COLLABORATING

# Welcome to PolarTREC Webinar: Meet and Greet

*Program & Project Overview for 2016-2017*

[www.polartrec.com](http://www.polartrec.com)

Slides will be shown here

Exit the presentation

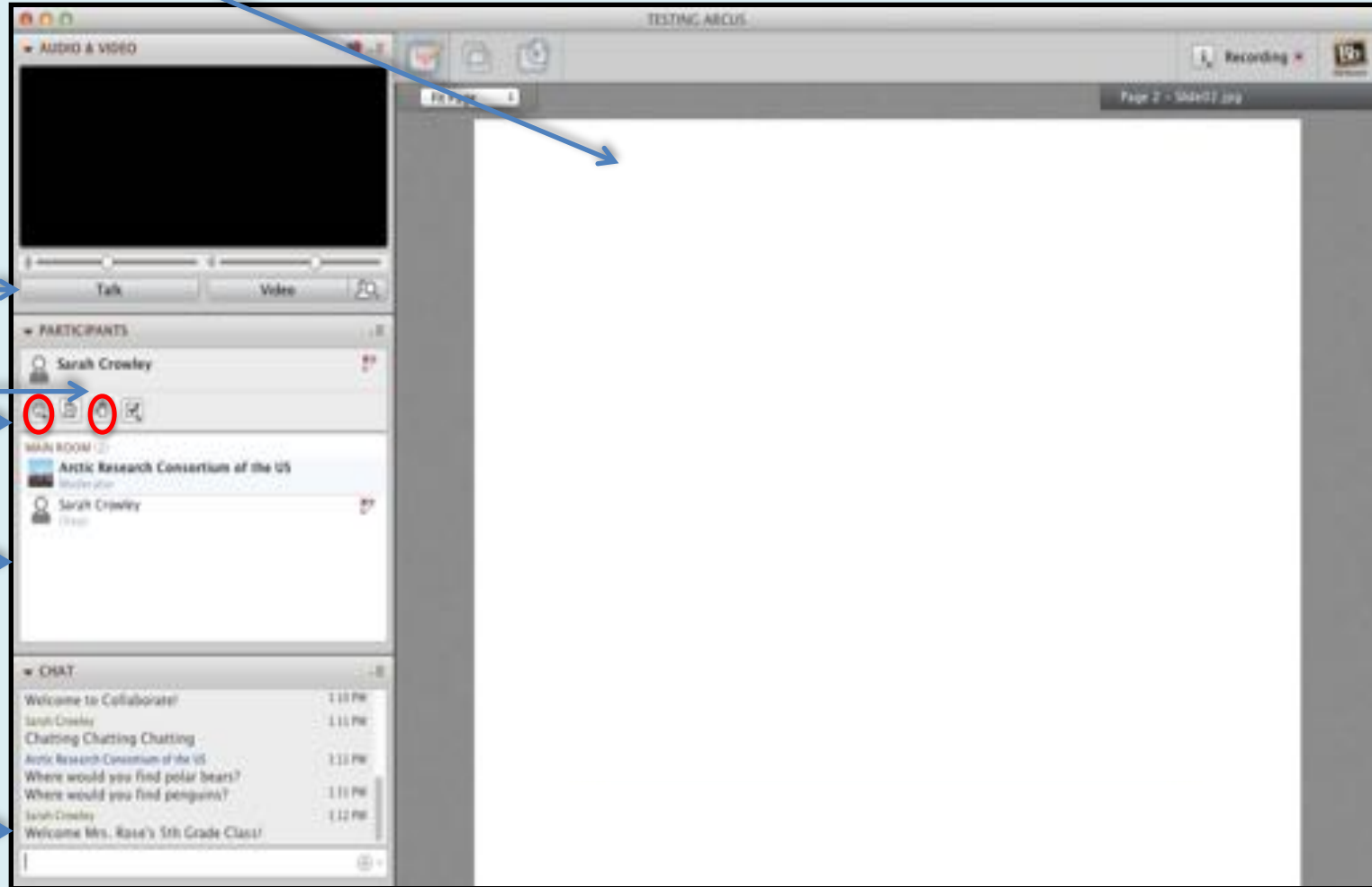
**Click** to Talk,  
**Unclick** to finish talking

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.

# Agenda for Webinar

1. Overview of PolarTREC Program (5 min)
2. Program Requirements for Teachers & Researchers (5 min)
3. Program Evaluation (5 min)
4. Introduction to the 2016-2017 PolarTREC Introductions (40 min)
5. Questions & Answers (5 min)



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# PolarTREC Overview

# Meet the PolarTREC Team

**Janet Warburton**

PolarTREC PI and  
Project Manager



**Sarah Bartholow**

PolarTREC  
Project Manager



**Angela Larson**

Evaluation



**Joed Polly**

Video Production



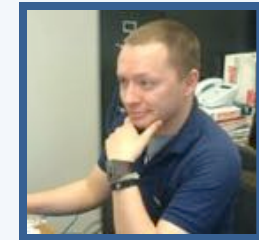
**Julie Griswold**

Orientation Asst.



**Ronnie  
Owens**

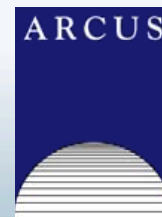
Web Developer



**Zeb Polly**

Systems Administrator

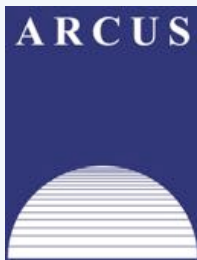
...with help from the  
entire staff at ARCUS



# Support and Funding



We are funded by the National Science Foundation Office of Polar Programs for the 2016-17 season.



We are administered by the Arctic Research Consortium of the United States, a non-profit member consortium based in Fairbanks, Alaska. [www.arcus.org](http://www.arcus.org)



Arctic logistics support (including teacher travel, clothing, and equipment provided by CPS).



Antarctic logistics support (including teacher travel, clothing, and equipment provided by Antarctic Support Contractor ASC)

*...With other support and funding provided for specific projects on a situational basis.*

# What is PolarTREC?

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

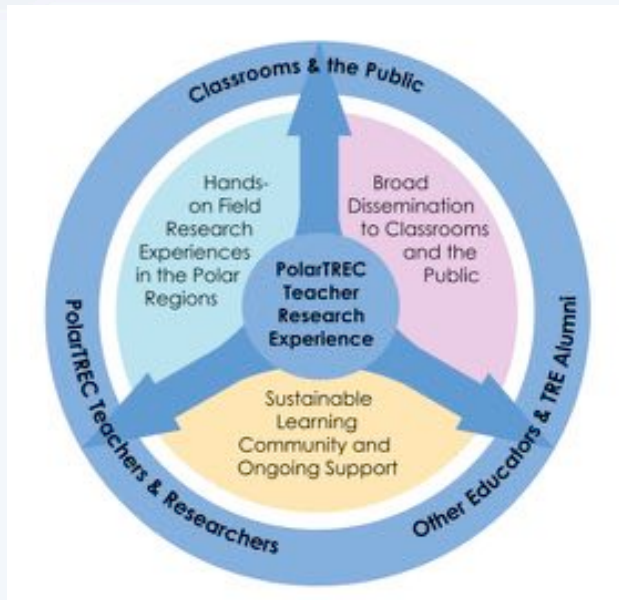








# Goals of PolarTREC



- To improve **teacher science and content knowledge** of the Polar Regions and integration of topics into their classroom instruction.
- To increase teachers' **knowledge and use of science and engineering practices** with their students in the classroom.
- To develop teachers' **educational leadership skills**.
- To increase **students' understanding and engagement in the Polar Regions** and interest in polar STEM careers.
- To develop **long-term professional relationships** between teachers and researchers and **to develop researcher understanding of K-12 education** to strengthen outreach and dissemination of their research.



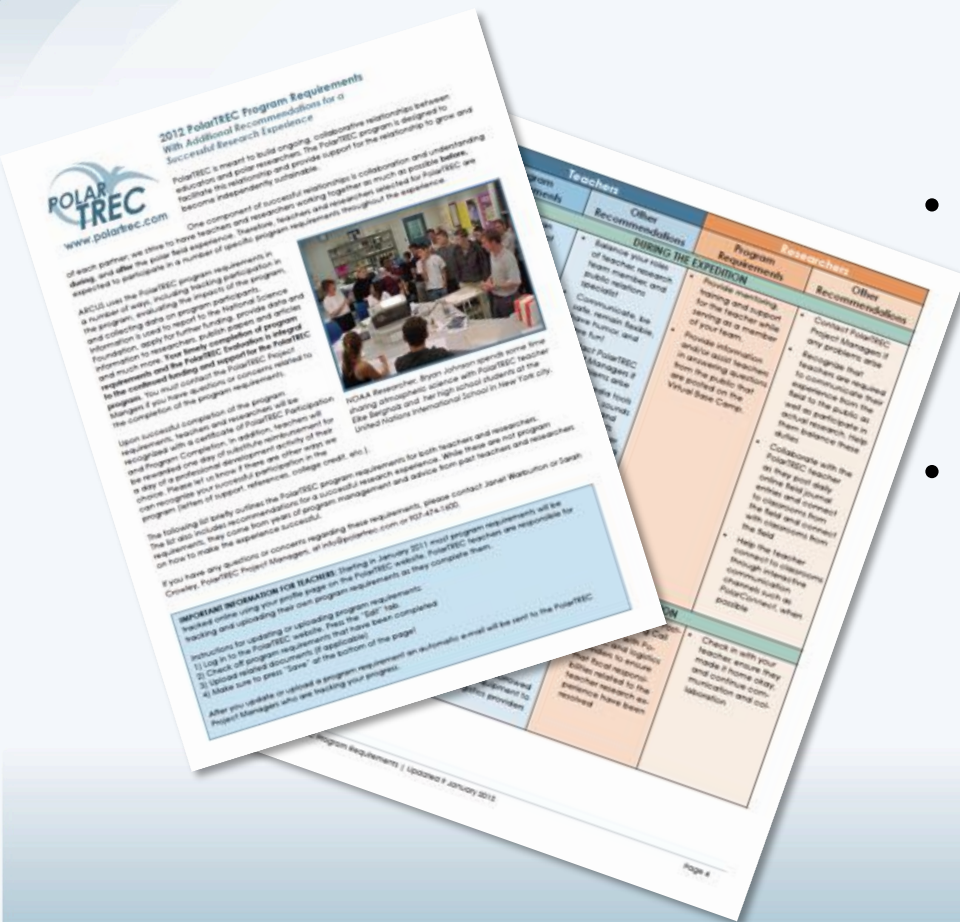
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# PolarTREC

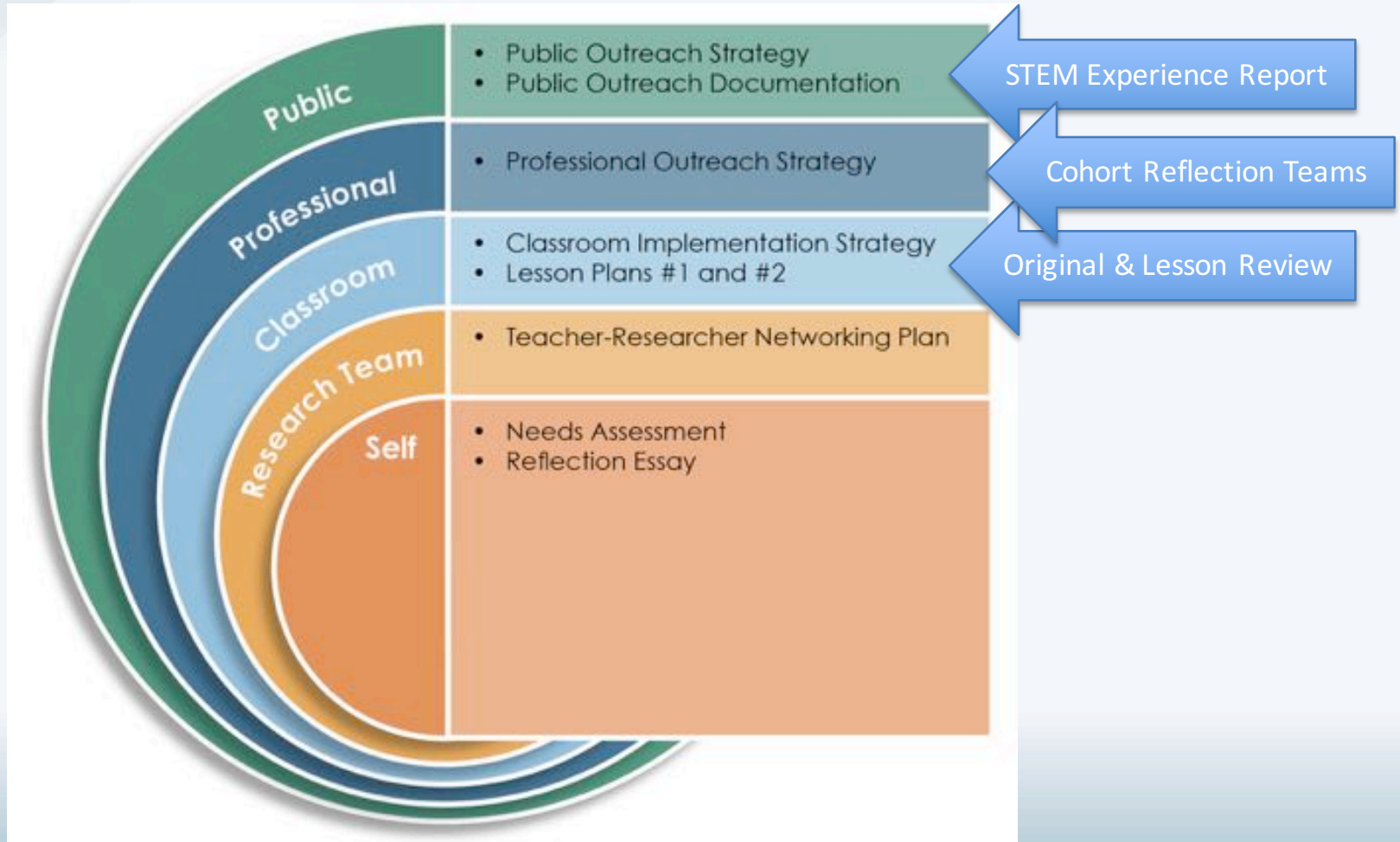
## Program Requirements

# Program Requirements

- There are detailed program requirements and recommendations for before, during, and after the expedition
- Teachers have “deliverables”, but will need the support of and communication with the research teams to accomplish these goals
- Just like evaluation, important to our tracking, reporting, and continuation of the program



# Education and Outreach Plan

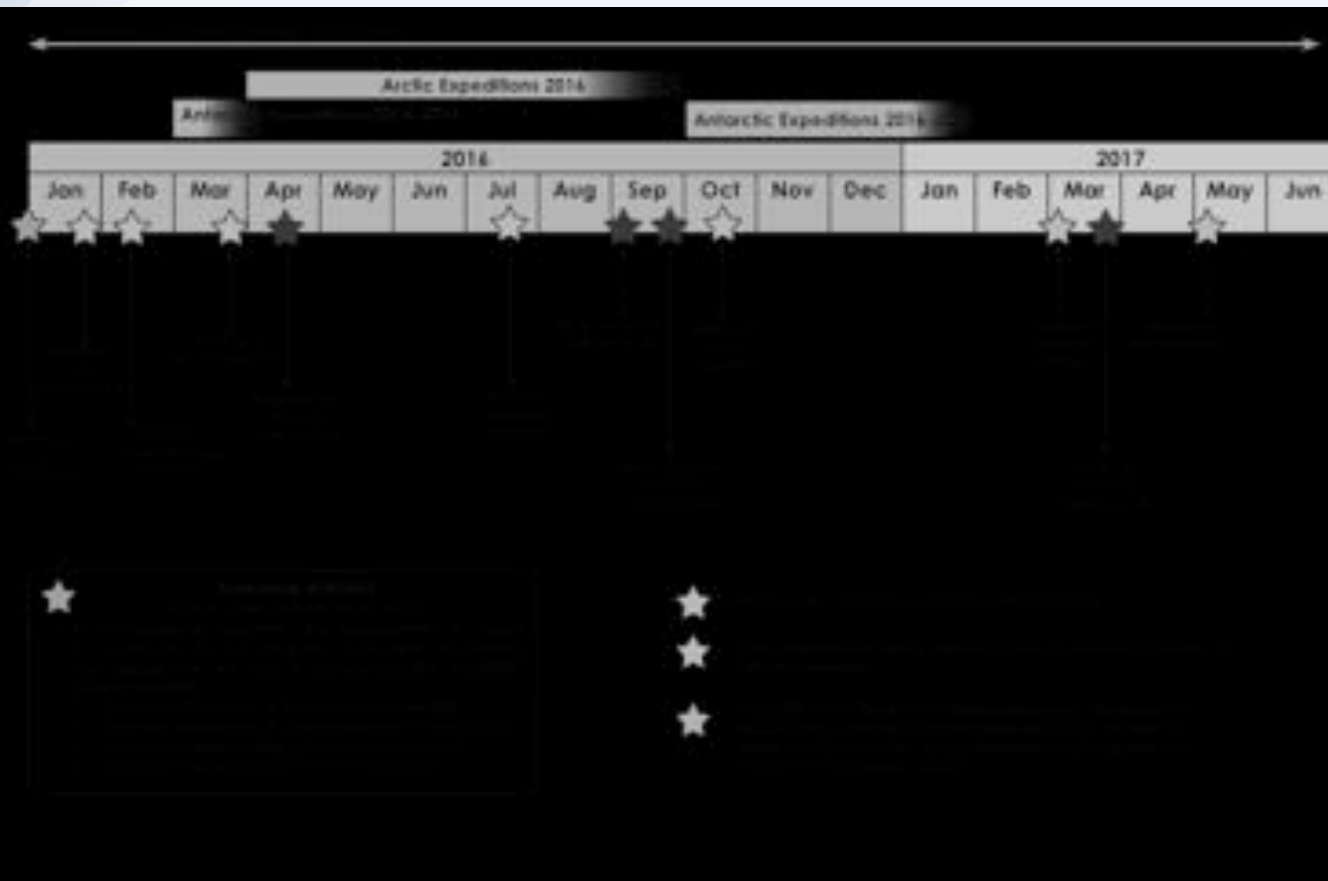


# Phone Calls and Webinars

- Progress, planning, and reflection
- Series of 4 webinars (web seminars)
- We encourage researcher participation for Webinar 1 and 4
- 2 phone calls: Pre-Field & Post-Field for each team with logistics and staff



# Timeline of Activities



## PolarTREC Teacher Participation Timeline

- Apply, Selection & Match
- PolarTREC Exposure and Orientation
- Partner Teacher & Cohort Collaboration
- Education and Outreach Planning
- Visit Researcher's Institution
- Pre-Expedition Logistics & Evaluation
  - Content Pre-Test & Instructional Survey
  - Pre-Field Team Logistics Call
  - Cohort Outreach/Logistics Webinar
- Field Research Experience
  - Daily Online Journaling
  - Host PolarConnect Events
  - Q&A Interactions with Students
- Post-Expedition Follow-up & Evaluation
  - Monthly Evaluation Activities
  - Post-Field Team Logistics Call
  - Field Wrap-up Webinar with Cohort
  - Administer Student Pre-Survey
  - Group-based Reflection Activities
- Post-Expedition Education and Outreach
  - Publish STEM Experience Report
  - Host Researcher Visit to Classroom
  - Test and Submit Original Lesson
  - Refine Existing Lessons with Cohort Team
  - Attend Science or Education Meetings
  - Collate & Publish Teacher Portfolio
  - Submit Learning Resources
- Summative Follow-up & Evaluation
  - Administer Student Post-Survey
  - Content Post-Test & Instructional Survey
  - In-depth Evaluation Interview
  - Year End Webinar with Cohort
- PolarTREC Investment & Advancement
  - Co-Lead Teacher Training
  - Partner Teacher for New Cohort
  - Reviewer on Selection Committee
  - Leadership in PolarTREC Network
  - Use in Partner STEM Initiatives
  - Compete for State/Regional Awards
- Up to seven years post-expedition, teachers continue to use the PolarTREC expedition technology, multimedia, and experiences while continuing to create lessons directly related to polar research. (ARCUS 2014b)

# Program Evaluation

- Angela Larson & Jen Danielson of Goldstream Group
- We need your help collecting data. **Participate in the evaluation**
- Teachers: Bring evaluation form to orientation.





# 2016-2017 Projects & Participants

Why PolarTREC??  
(1min)





**Teachers and Researchers:  
Introduction (1 min)**

Name, School, City, State

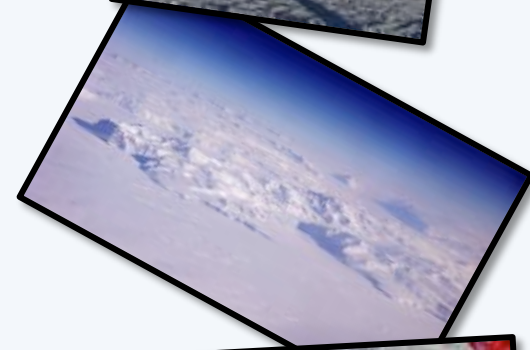
Why did you apply to PolarTREC this year??

Researchers add:

**Project Information ( 1 min)**

Project Title & Location

Primary goal of the research project



# Teachers Headed To the Arctic Part 1



**Stanley Stoknicki Michael Loranty**

Vegetation Impacts on Permafrost  
(Cherskiy, Russia)



**Karen Temple-Beamish Marguerite Mauritz**

Carbon Balance in Warming and Drying Tundra  
(Healy, Alaska)



**Anne Schoeffler Christine Urbanowicz**

Climate Change and Pollinators  
(Kangerlussuaq, Greenland)



**Ivy McDaniel**

**Rose Cory**

Arctic Sunlight and Microbial Interactions  
(Toolik Field Station, AK)

# Teachers Headed To the Arctic Part 2



**Sandra Thornton**



**Katrin Iken**



**Sarah Hardy**



**Russ Hopcroft**

Ocean Exploration: Chukchi Borderland Project  
(Northern Chukchi Sea)



**Dieuwertje DJ Kast**



**George Kling**



**Byron Crump**

Microbial Changes in Arctic Freshwater  
(Toolik Field Station, Alaska)

# Teachers Headed To the Arctic Part 3



**Rebecca Himschoot Michelle Mack Becky Hewitt**

Deep Roots: Role of roots, fungi, and deep nitrogen in permafrost warming  
(Toolik Field Station, Alaska)



**Kelly McCarthy**



**John Woods**



**Nathan Kurtz**



**Jefferson Beck**

Airborne Survey of Polar Ice / Operation IceBridge  
(Greenland)

# Teachers Headed To Antarctica Part 1



**Kate Miller**

IceCube  
(South Pole Station)



**Jim Madsen**



**Eric Thuma**

Neutron Monitoring  
(McMurdo Station)



**Jim Madsen**



**Timothy Dywer**

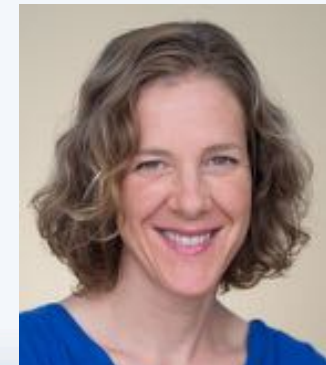


**Art Woods**



**Bret Tobalske**

Physiology and biomechanics of polar gigantism  
(McMurdo Station)



**Amy Moran**



# Teachers Headed To Antarctica Part 2



**Joshua Heward**



**Byron Adams**

Tough Tards: Biodiversity & Ecology of Tardigrades  
(McMurdo Station)



**Cara Pekarck**



**Bethany Jenkins**



**Dreux Chappell**



**Kristen Buck**

Diatoms: Their associated bacteria & iron bonding ligands  
(West Antarctic Peninsula)

# Teachers Headed To Antarctica Part 3



**Maggie Kane**



**John Woods**



**Nathan Kurtz**

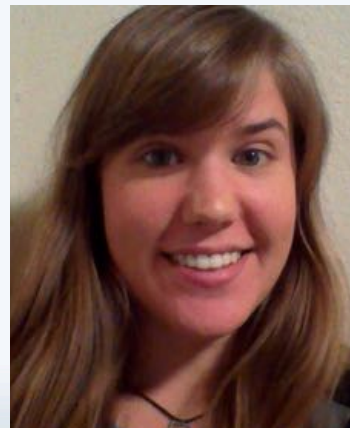


**Jefferson Beck**

Airborne Survey of Polar Ice / Operation IceBridge  
(Punta Arena, Chile & Antarctica)



**David Thesenga**



**Lynn Kaluziensi**



**Gordon Hamilton**

Flow and Fracture Dynamics  
(McMurdo Shear Zone)

## Some of your support staff

**Janet Warburton**

PolarTREC PI and  
Project Manager



**Sarah Bartholow**

PolarTREC  
Project Manager



**Elaine Hood**

Antarctic Support Contractor  
Communications/ Education and Outreach



**Robbie Score**

CH2MHill Polar Field Services

# Closing Thoughts & Next Steps

# How to Succeed

## **Communicate**

Expectations, instruction, outreach plans, problems/praise to ARCUS

## **Be Flexible**

Plans change moment to moment, be prepared

## **Research comes first**

Be an excellent research assistant, be a sponge, not all field work is sexy!

## **Make safe sacrifices to meet goals**

Sleep, fun, comfort, status/authority

## **Bring your unique skills to the team**

Readiness to lend a hand, humor, special skill/strength, positive attitude

# NSF Hopes for PolarTREC

- Support the integration of research and education
- Convey research experience to K-12 classrooms
- Develop inquiry-based activities for students
- Share with PIs the experience of K-12 educators, develop long-term relationships
- Professional development for your career
- Improve outreach, education, broader impacts

# Travel Support

- We have a limited amount of funding to support pre- or post- field collaborations between teachers and researchers
- Please consider:
  - Teacher Visit to Lab or Researcher's Inst.
  - Researcher Visit to School or Classroom
  - Data Workshop or Preparatory Meeting
  - Team Conference Presentation



**Questions?**



# Thank You for Participating in PolarTREC!

**For Questions & More Information:**

**Janet Warburton, PI, Project Manager**

[warburton@arcus.org](mailto:warburton@arcus.org)

**Sarah Bartholow, Project Manager**

[sbartholow@arcus.org](mailto:sbartholow@arcus.org)

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