



TEACHERS AND RESEARCHERS
EXPLORING AND COLLABORATING

Welcome to a Special Event!

Taking PolarTREC to the Classroom and Beyond

Reflecting on the Experience

2 December 2014

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

The screenshot shows the Blackboard Collaborate interface. On the right, a presentation slide is displayed with the text "Welcome to Blackboard Collaborate" and the ARCUS logo (Arctic Research Consortium of the United States). On the left, a control panel is visible with various icons and a list of participants. Blue arrows point from text labels on the left to specific icons in the control panel: "Slides will be shown here" points to the top-left icon; "Exit the presentation" points to the top-right icon; "Click to Talk, Unclick to finish talking" points to the microphone icon; "Raise your hand to ask a question" points to the hand icon; "Share with emoticons" points to the emoticon icon; "List of all participants" points to the list icon; and "Chat with one person or the entire group" points to the chat icon.

Please Note:

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

Questions & Discussions




Two ways to interact:

1. Type your questions or comments in the text chat box
2. Or, Raise your hand with the “hand button”.
 - PolarTREC staff will call on you.
 - Click on the Talk button to speak and unclick when done (if using VOIP) or unmute your phone *6
 - Speak loud and clear and directly into the phone to talk.

Agenda

- Update on the program and products
- Reflecting on the Experience
 - Teachers Reflection
 - Researchers Reflection
- ARCUS Resources for Staying Connected & Your Needs
- Additional Announcements & Adjourn

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



TEACHERS AND RESEARCHERS
EXPLORING AND COLLABORATING

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**

Reflections & Reports

A chance to hear from your cohort of researchers and teachers.

- Implementation in the classroom
- Updates on outreach and lesson plans
- Highlights of challenges, surprises and successes

- Future plans to collaborate with the cohort and research teams.

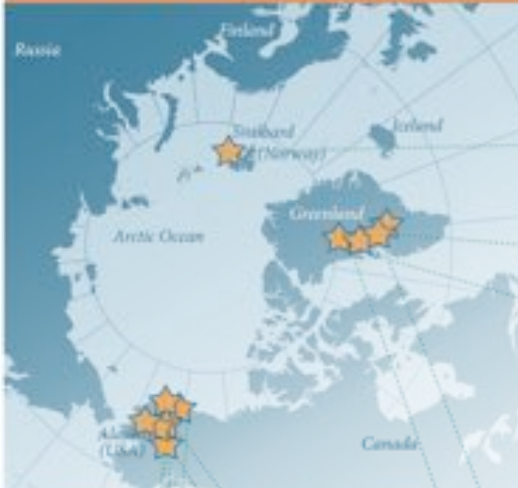


www.polartrec.com

Follow Expeditions • Teaching Resources • Live Connections

Take your students on a polar science adventure with PolarTREC! Your classroom could be virtually transported to an icebreaker in the Amundsen Sea, a remote field camp in Alaska, or an archipelago of islands in the high Arctic. Experience the excitement of the polar regions by reading journals, looking at pictures, watching videos, and interacting with teachers and researchers working in the polar regions by asking questions online and joining PolarConnect live events from the field.

Join the 2014-2015 PolarTREC teachers on their ARCTIC expeditions!



High Arctic Change 2014/Svalbard REU

T: Peggy McNeal, Los Coches Creek MS, CA
 E: Julie Brigham-Grette, Univ. of Massachusetts
 Ross Powell, Northern Illinois University, IL
 D: 21 July - 20 August 2014
 L: Ny Alesund, Svalbard, Norway



Alborge Survey of Polar Ice 2014/IceBridge

T: Russell Hood, East High School, AK
 E: Michael Studinger, NASA Goddard Space Flight Center
 D: 5 - 24 April 2014
 L: Kangerlussuaq, Greenland



Joint Science Education Project 2014

E: Lynn Reed, National Science Foundation Office of Polar Programs Einstein Fellow
 D: 27 June - 18 July 2014
 L: Various Stations, Greenland



T: Teacher, School, State
 E: Researcher, Institution, State
 D: Expedition Dates
 L: Expedition Location



Historical Ecology for Risk Management 2014

T: Sion Proctor, South Mountain Community College, AZ
 E: Anne Garland, ARIES Nonprofit Inc., IL
 D: 14 July - 9 August 2014
 L: Barrow, Alaska, USA



Arctic Sunlight and Microbial Interactions 2014

T: Regina Brinker, Christensen MS, CA
 E: Rose Cory, University of Michigan, MI
 D: 15 June - 9 July 2014
 L: Toolik Field Station, Alaska, USA



Microbial Changes in Arctic Freshwater

T: Lauren Water, St. Mary's Academy HS, CO
 E: Byron Crump, Oregon State University, OR
 D: 15 June - 3 July 2014
 L: Toolik Field Station, Alaska, USA



Oceanographic Conditions of Bowhead Whale Habitat 2014

T: Lisa Self, Springs School, NY
 E: Carin Ashjian, Woods Hole Oceanographic Institution, MA
 D: August - September 2014
 L: Barrow, Alaska, USA



Climate Change and Pollinators in the Arctic

E: Emily Dodson, Crawford Middle School, KY
 E: Christine Urbanowicz, Dartmouth College, NH
 D: 9-30 June 2014
 L: Kangerlussuaq, Greenland



Shrinking Arctic Icecaps

E: Tina Ciarametara, Ipswich Middle School, MA
 E: Jason Briner, State University of Buffalo, NY
 D: 2-22 August 2014
 L: Western Greenland



Arctic Ground Squirrel Studies 2014

E: Andre Wille, Aspen High School, CO
 E: Cory Williams, University of Alaska, AK
 D: 26 May - 19 June 2014
 L: Toolik Field Station, Alaska, USA



Carbon Balance in Warming and Drying Tundra 2014

E: Tom Lane, Bellows Free Academy, VT
 E: Marguerite Mauritz, University of Florida, FL
 D: July - August 2014
 L: Healy, Alaska, USA



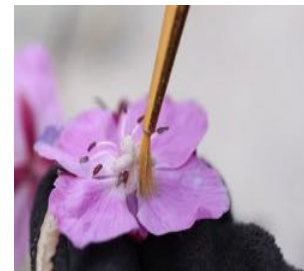
Climate Change and Pollinators in the Arctic

Kangerlussuaq, Greenland

June 2014



- Travel: United States National Guard in a C130
- Housing
 - Occasionally we would stay at KISS
 - Mostly we camped in the field
- Research – how is temperature change and the resulting influx/ de-flux of pollinators effecting vegetation
 - Three locations based on temperature to mimic temperature gradient (ibuttons)
 - Selected 27 sites (3 types of flowers x 3 temperature locations for each flower x 3 locations per flower per temperature location)
 - Took readings at each site and determined vegetation
 - Bagged 15 flowers for no pollination at each site
 - Hand Pollinated 15 flowers at each site
 - Left 15 flowers alone at each site
 - Returned to each site 3 times
 - Counted and caught pollinators during each return
 - Going on now – seed pods have been collected and seeds are being counted along with other analysis

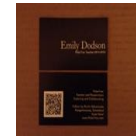


Side Research

- Caught bees to dissect later to determine if there is a presence of a parasite (I caught a bees for outreach)



Climate Change and Pollinators in the Arctic Outreach/Classroom



- Informational Talk at Joseph Beth before expedition
- Show and Tell talk for children at Joseph Beth after expedition
- Created children's book based on expedition
- Coffee drink at Joseph Beth created to bring awareness to expedition
- Outreach day at Coffee Times
- Pictures of me drinking coffee (given by Coffee Times) in Greenland to showcase at Coffee Times
- Tools: pens, business cards, coffee sleeves, posters, stamps
- Polar Field call to middle school science teacher conference
- TV interview after expedition
<https://www.youtube.com/watch?v=SjSiUrECGt4>
- News Article write up
<http://www.fcps.net/news/features/2014-15/polartrec>
- Presenter at bee conference (Spring 2015)
- Arctic Day in classroom (Spring 2014)
- Postcards sent to students (student created prior to trip) from Greenland with authentic Greenland stamp (Spring 2014)
- Ecology Unit: Hand pollination, interdependence, mimicking research (Fall 2014)
- Weather Unit: Discuss how air and water currents for the polar regions effect our weather (Fall 2014)
- More to come...

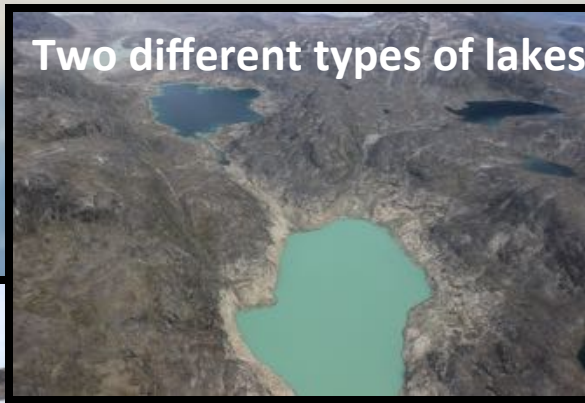


Exploring Greenland's Shrinking Icecaps

Sediment core



Two different types of lakes



Strange findings



Newly forming moraines



Welcome to Greenland



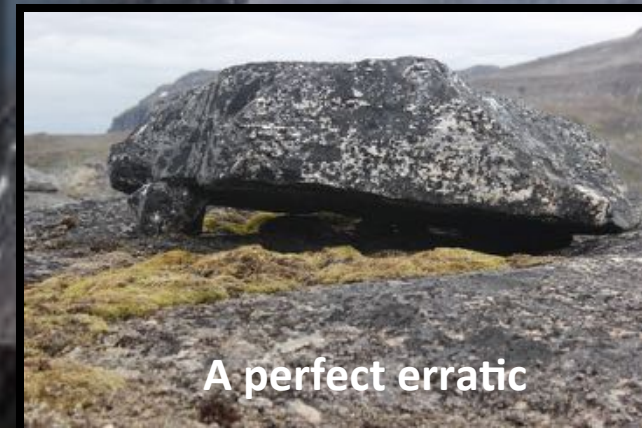
Home Sweet Home



On a nunatak



A perfect erratic



Peggy McNeal
High Arctic Change 2014 Svalbard, Norway

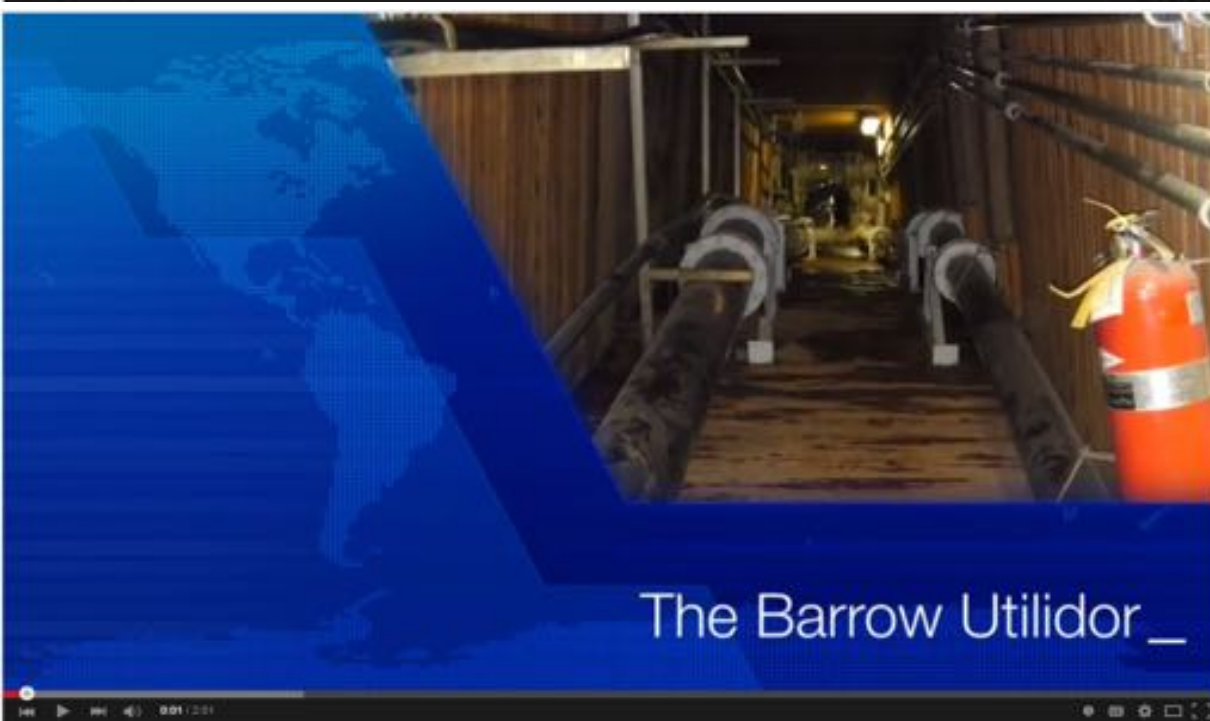


Peggy McNeal
High Arctic Change 2014 Svalbard, Norway





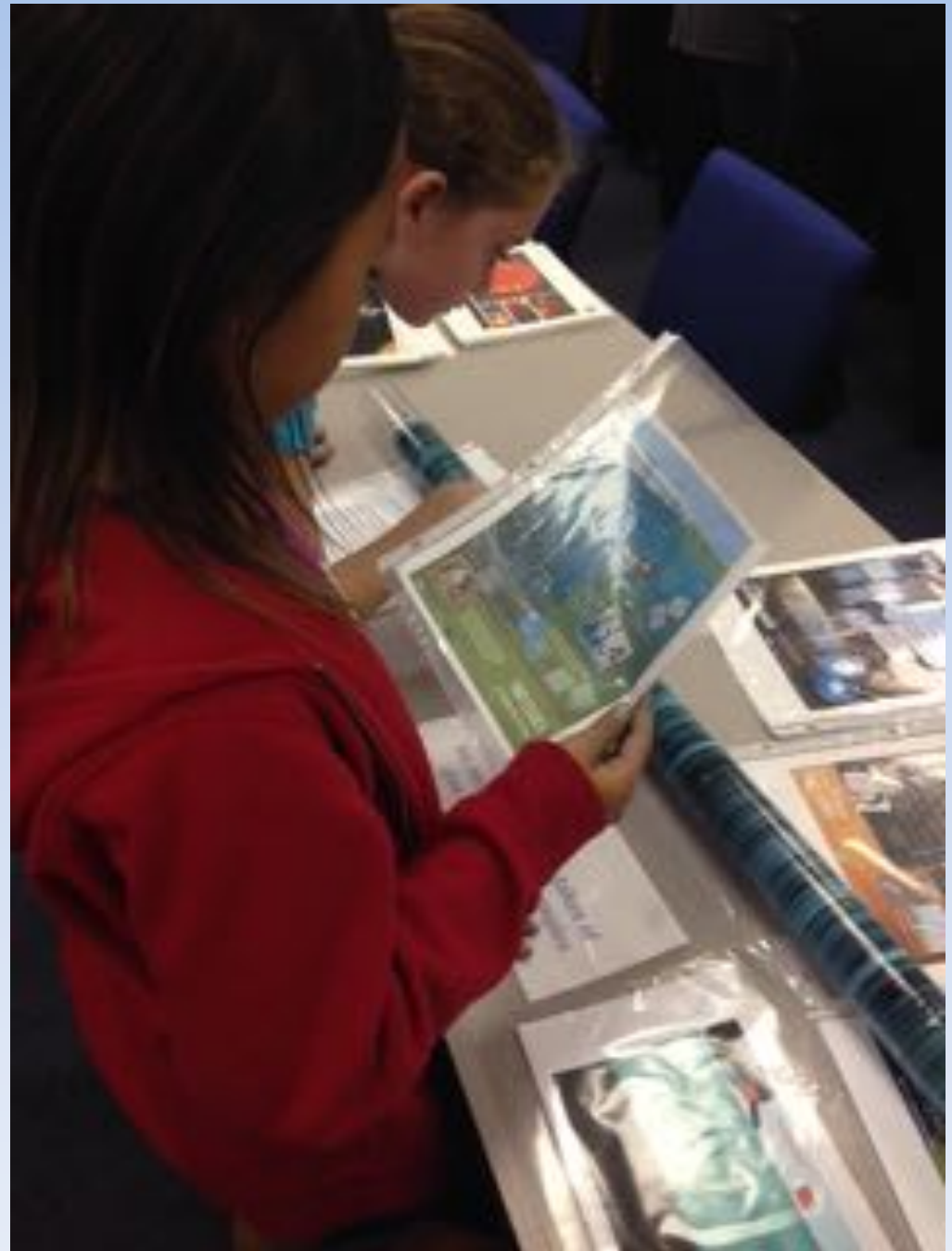
- ### Barrow, Alaska 2014
- Spent 4 Month
 - Learned about coastal erosion and life in Barrow.
 - Created 21 videos using the iPad
 - Using some of the videos in my lessons on climate change and coastal process.



Regina Brinker

**Arctic Sunlight and Microbial
Interactions 2014**

Toolik Field Station



Regina Brinker
Arctic Sunlight and Microbial Interactions 2014
Toolik Field Station



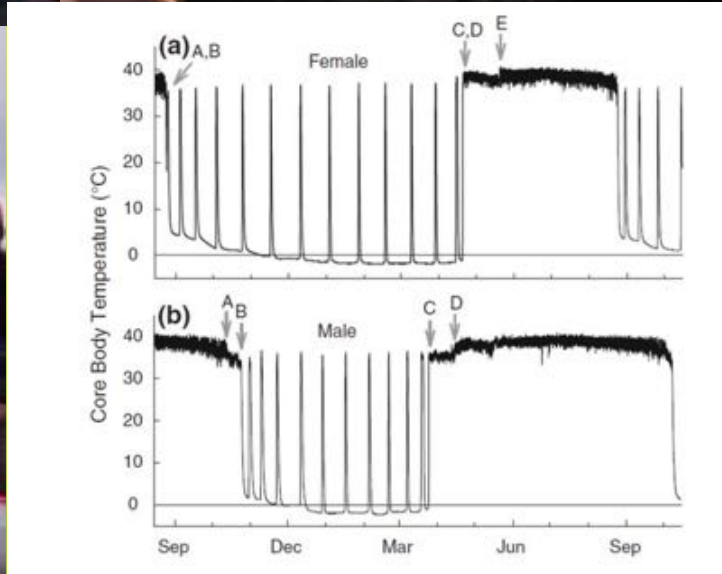
Team Squirrel

The Circadian Rhythms of Arctic Ground Squirrels

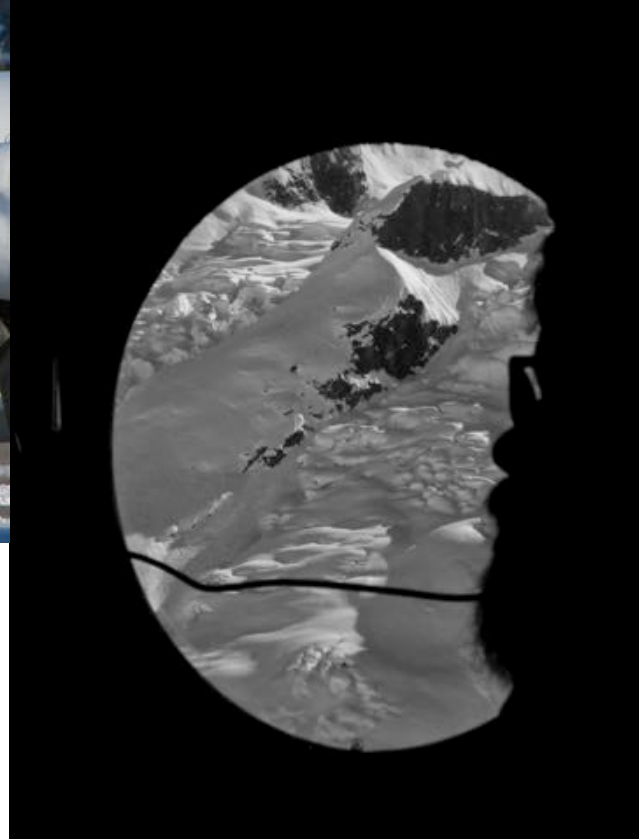
Kate, Cory, Victor, Jeanette and Andre



The Science of Circadian Rhythms



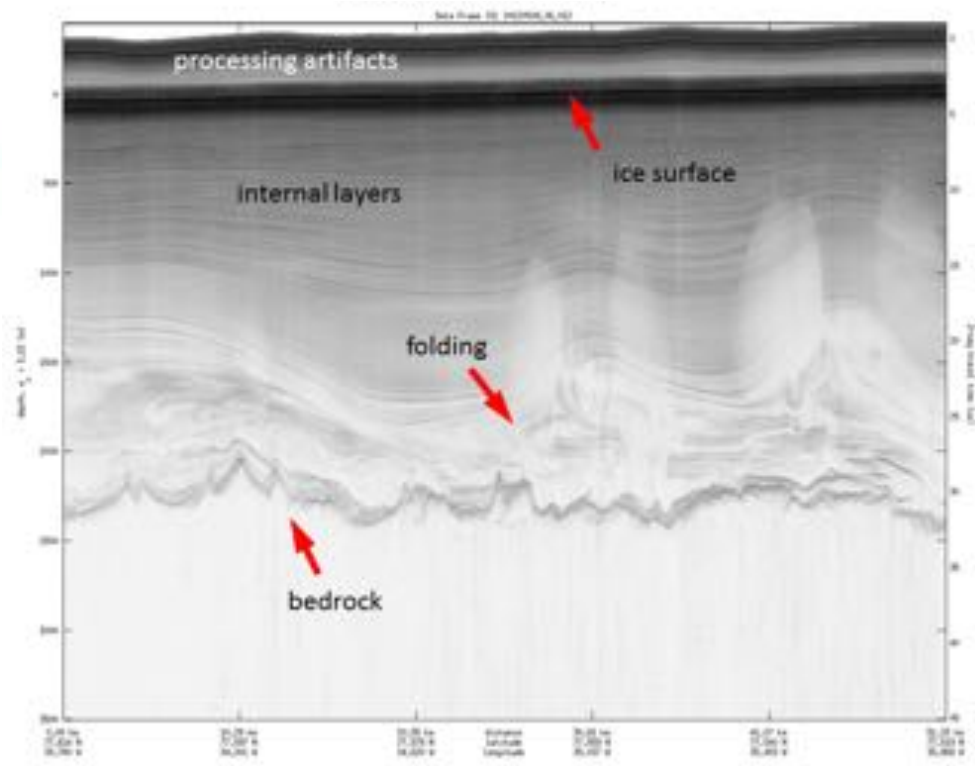
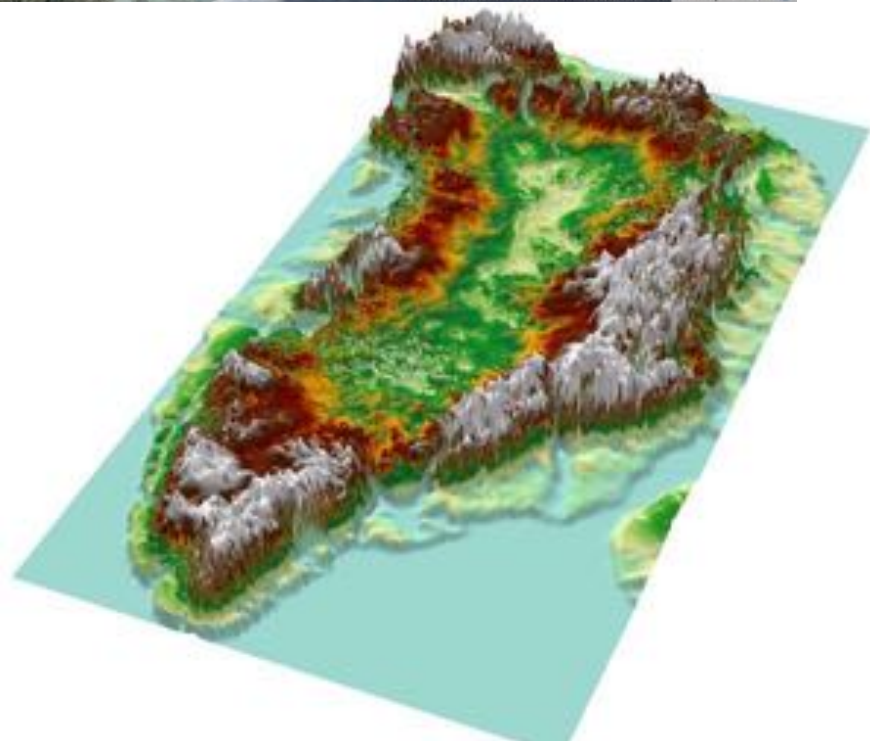
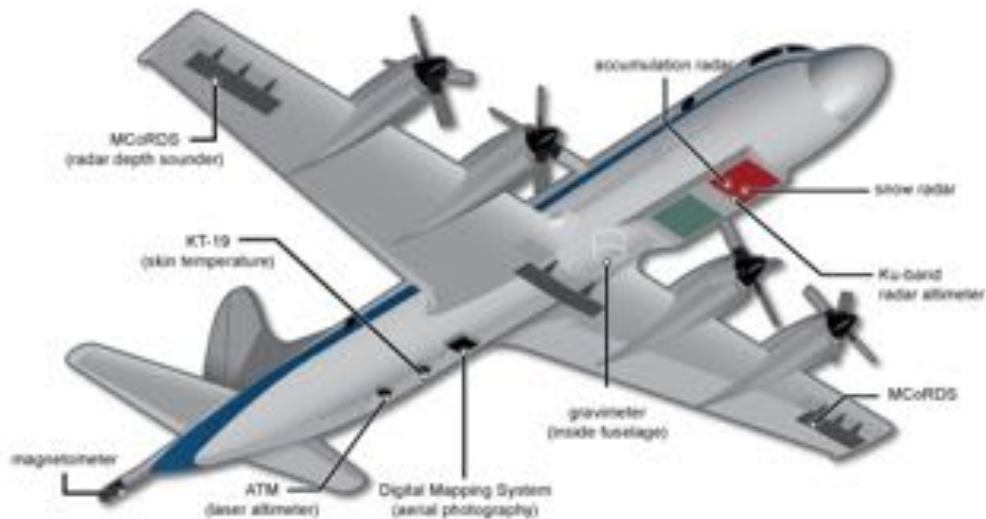
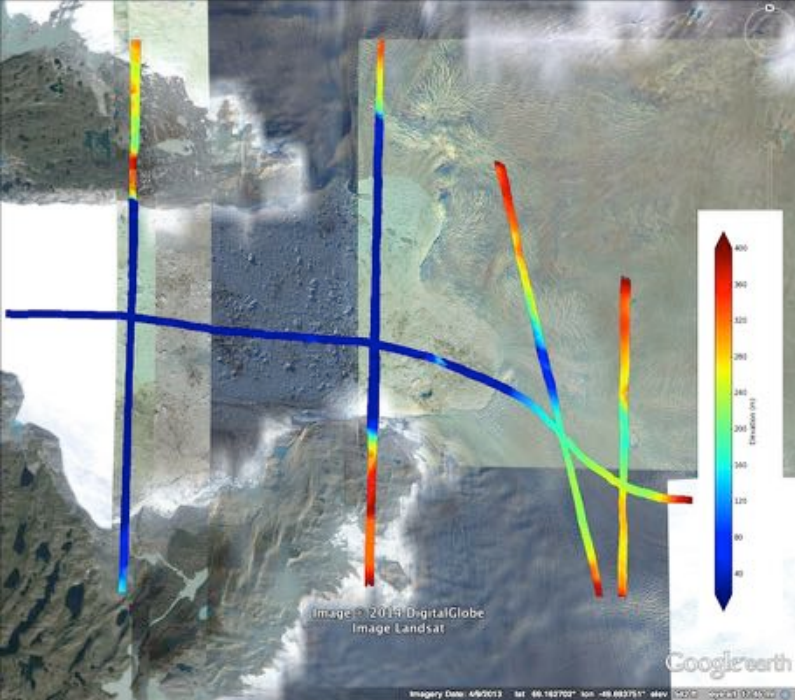
Understanding the remarkable physiology of ground squirrels involves first capturing them, then surgically implanting a body temperature logger. They also have a light sensitive collar to monitor activity above ground. At the end of the field season, animals must be recaptured to retrieve the data.



Russell Hood

Operation Ice Bridge, Greenland 2014



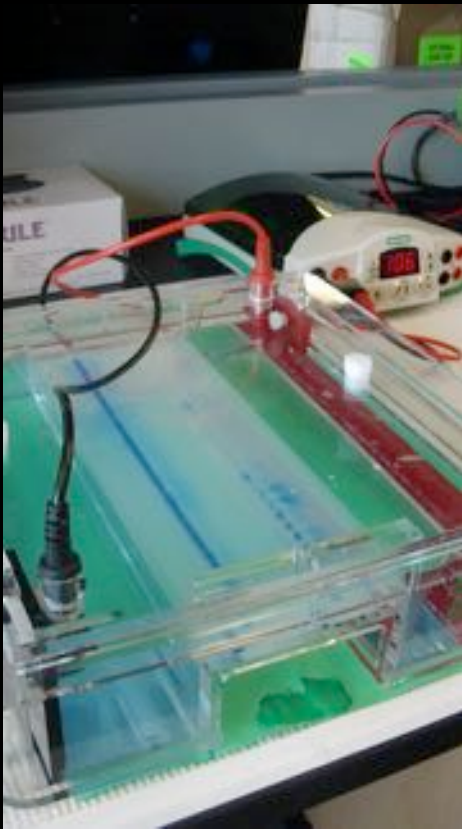


Microbial Changes in Arctic Freshwater



Bringing it to SMA

- DNA extraction
- Gel electrophoresis
- Role of microbes in ecosystems
- Loretto Earth Network
- CC alumni profile
- Lower school assembly



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- PolarConnect w/Lucy 12/12
- PolarConnect plans with Yamini
- Facebook pages
 - Dominique
 - Yamini
 - Alex
- IceCube Webinars w/Armando

Join the 2014-2015 PolarTREC teachers on their ANTARCTIC expeditions!



Sea floor Changes and the Antarctic Circumpolar Current

T: Jillian Worsam, Sinoqua Middle School, AZ
 R: Lawrence Lawver, University of Texas - Austin, TX
 D: 18 September - 25 October 2014
 L: Research Vessel NB Palmer

T: Teacher, School, State
 R: Researcher, Institution, State
 D: Expedition Dates
 L: Expedition Location



Antarctic Ice Sheet Dynamics

T: Dominique Richardson, Cabrillo Marine Aquarium, CA
 R: Frank Nitsche, Columbia University, NY
 D: March - April 2015
 L: Research Vessel NB Palmer, East Antarctica

PolarTREC is funded by the National Science Foundation Office of Polar Programs and managed by the Arctic Research Consortium of the United States. For more information, visit us online or e-mail info@polar-trec.com.



Ice Cube Neutrino Observatory 2014

T: Armando Cossade, G Works, Inc. for the Puerto Rico Department of Education
 R: Jim Madsen, University of Wisconsin, WI
 D: 3 - 23 January 2015
 L: South Pole Station



Microbiolites in Lake Joyce Antarctica

T: Lucy Coleman, Natamas Charter School, CA
 R: Dawn Sumner, University of California, Davis
 D: 10 October - 17 December 2014
 L: Lake Joyce, Dry Valleys



West Antarctic Ice Sheet Microstructures

T: Yamini Bala, Chicago, IL
 R: Bin Petit, University of Alaska, AK
 D: 1 December - 20 January 2015
 L: WAIS Divide



Weddell Seals in the Ross Sea 2014

T: Alex Ebers, Pink Palace Museum, TN
 R: Jennifer Burns, University of Alaska, AK
 D: 6 November - 19 December 2014
 L: McMurdo Station



Tectonic History of the Transantarctic Mountains 2014

T: Brian DuBay, Grissom Middle School, MI
 R: Samantha Hansen, Univ. of Alabama, AL
 D: 3 November - 19 December 2014
 L: McMurdo Station



Staying Connected

- Alumni Survey
- Expedition pages
- Social networking tools
- Travel Requests
- Other?
- Future PolarTREC Proposal

Your Ideas, Needs, and Questions



Thank You!

An archive of the event will be available.

