



TEACHERS AND RESEARCHERS  
EXPLORING AND COLLABORATING

# Welcome to *PolarConnect*

with Yamini Bala and the Velvet Ice –  
West Antarctic Ice Sheet Microstructures  
PolarTREC Expedition

**Thursday, 11 December 2014**

10:00 a.m. AKST

(11:00 am PST, 12:00 pm MST, 1:00 pm CST, 2:00 pm EST)

# 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 displays the text "Welcome to Blackboard Collaborate" and the ARCUS logo (Arctic Research Consortium of the United States). On the left, a sidebar contains several panels: a "Talk" panel with a microphone icon, a "Participants" panel listing participants like "Sarah Crocker" and "Arctic Research Consortium of the US", and a "Chat" panel with a list of messages. Blue arrows point from text labels on the left to specific icons and panels in the interface.

## Please Note:

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

# Participant Introductions

**Please type in the chat box:**

- ✓ Name
- ✓ Affiliation (School, Institution, Etc.)
- ✓ The number of students and adults participating with you in the same location

# What is PolarTREC?

PolarTREC is a professional development experience in which K-12 teachers are paired with researchers for 2-6 week research experiences in the polar regions.

From 2010-2015, nearly 70 teachers from around the United States will join scientists in the Arctic and Antarctica to learn about science, the polar regions, and to share what they have learned with their students and communities.

# 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.**

# We are the Velvet Ice Team!

Yamini Bala,  
PolarTREC Teacher



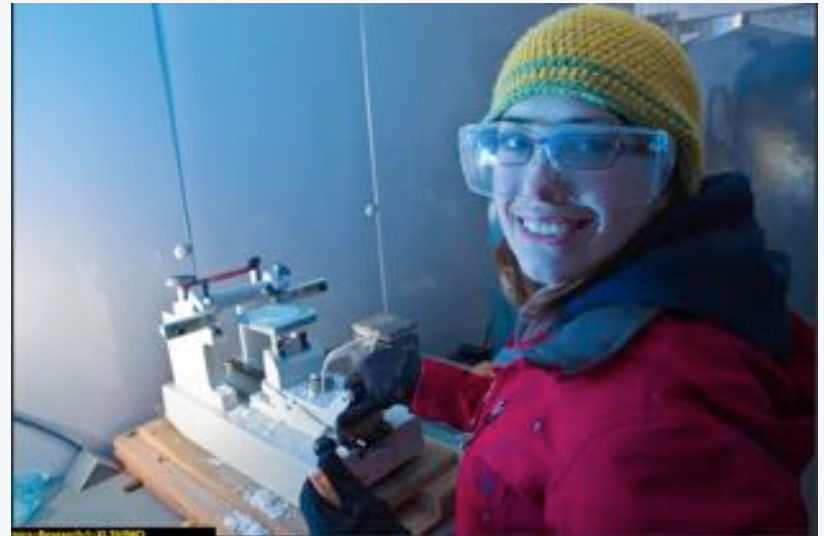
Erin Pettit,  
Principal Investigator



# We are the Velvet Ice Team!

Rachel Obbard,  
Co-Principal Investigator

Tiffany Green,  
Student at UAF



We are working in Antarctica as  
scientists!





# Antarctica is a big place!



# Where are we?



Antarctica is the highest, driest,  
and coldest place in the world.



It is the highest because there are almost  
2 MILES  
of snow on top of the land in most places!





It's the driest, because it is one  
huge desert!

In some places it has not rained in over 2 million  
years!

It's the coldest, because the temperature can go below -100F but rarely above 40F!



The annual layers of snow are very clear. Scientists can learn a lot by studying them.



Right now, there is sunshine  
24 hours a day!





We wear  
**ECW** gear to  
stay warm and  
cozy, like a big  
red jacket, snow  
pants, and  
bunny boots.



# To get here, we flew on a Hercules LC-130



# We rode on a Terra-Bus!



# And learned to drive a snowmobile!



So far, we have seen seals...



beautiful ice formations...





...and a **volcano!**

Mt. Erebus is one of the two most active volcanoes in the world!

We hope to see  
**penguins** soon!





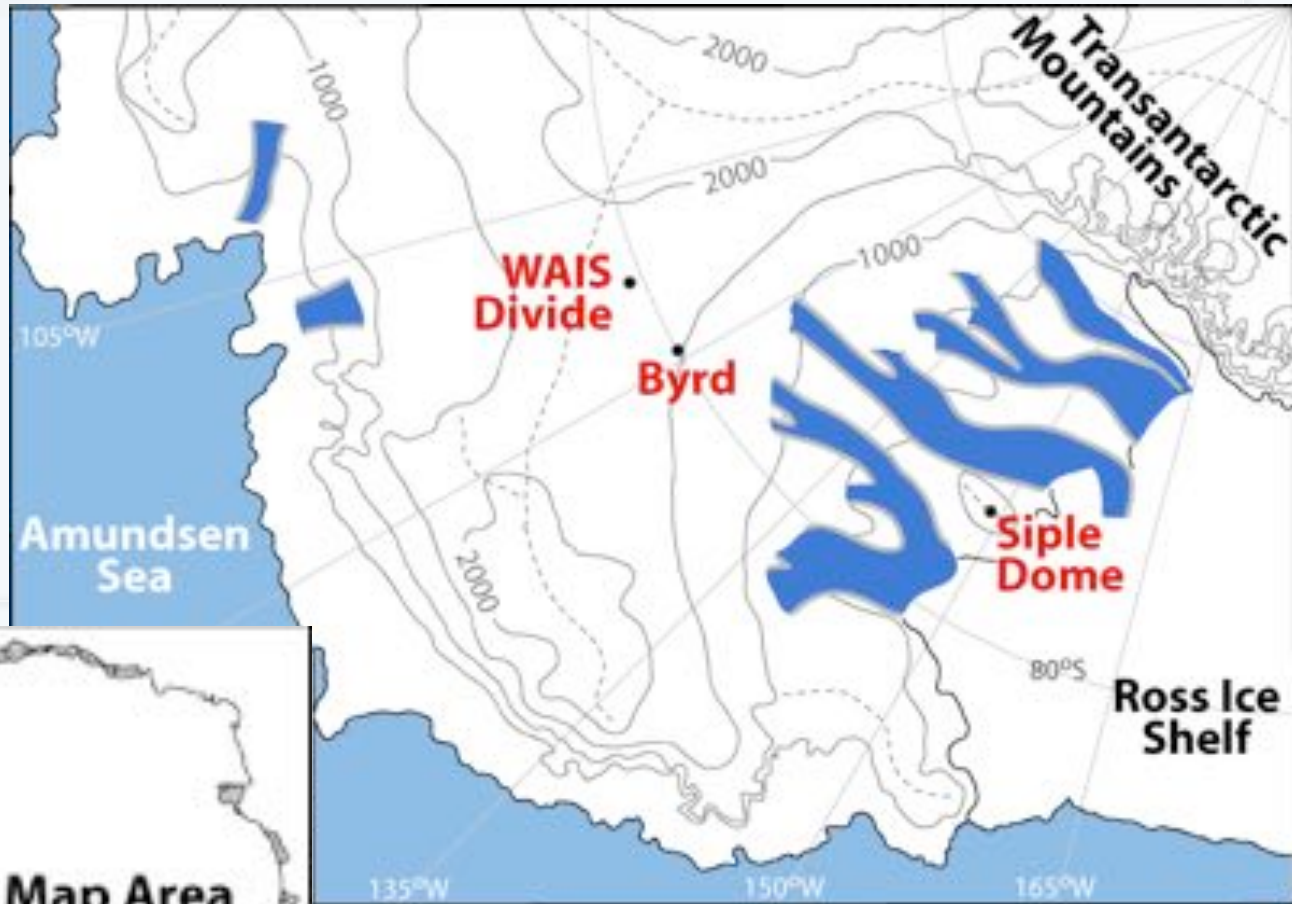
# Next week, we leave for WAIS Divide Camp



# Where is WAIS Divide?

a **divide** is a boundary separating opposing flow directions

## West Antarctic Ice Sheet



# What is it like at WAIS?

Flat and white!

Average annual surface temperature  $-24\text{ }^{\circ}\text{F}$

Summer temperatures are  $0\text{ }^{\circ}\text{F}$  to  $-15\text{ }^{\circ}\text{F}$

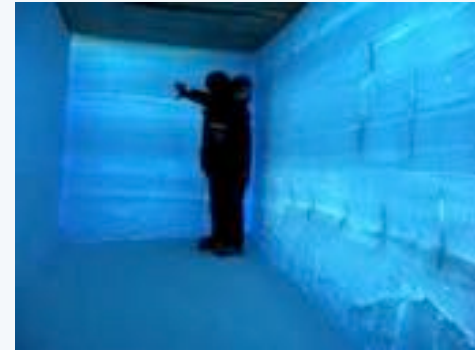
About 1 meter of snow per year

# Where we will eat and sleep?



# Why WAIS Divide?

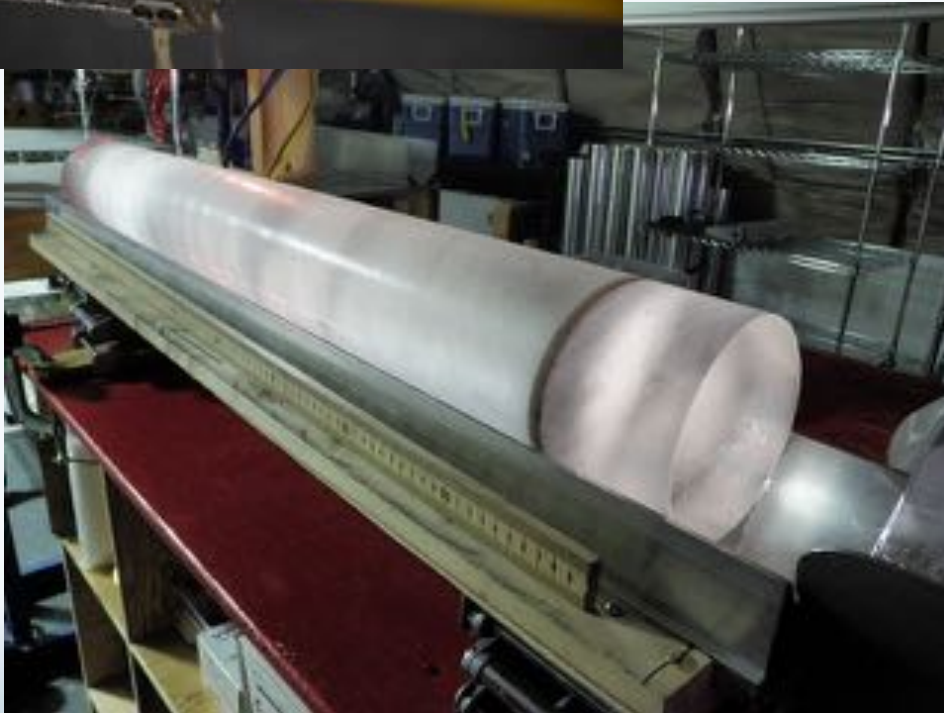
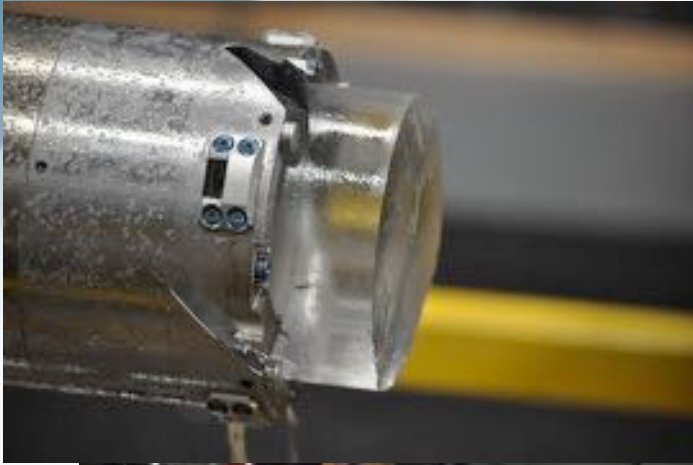
- Thick (3465 m) ice (lots of climate history)
- Undisturbed horizontal layers
  - Minimal horizontal ice flow (3-5 m/year)
  - Relatively smooth bed topography
  - Individually identifiable annual layers of at least 1 cm thickness in ice 40,000 years old.



Well-behaved stratigraphy to an age of at least 80,000 years!

In 2005-2010, 3405 m of ice core were collected

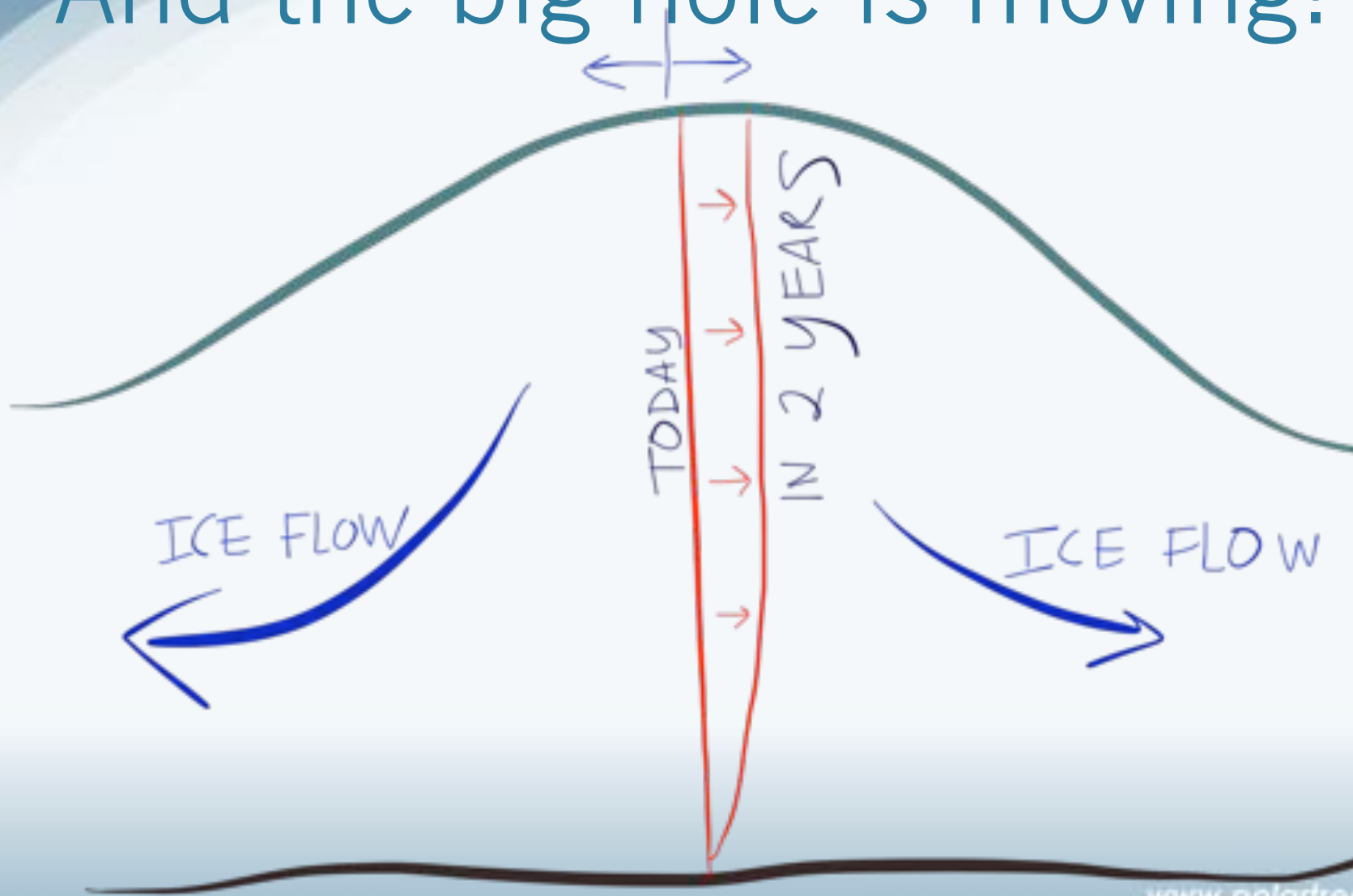
A 6.5 inch diameter drill produced  
core sections about 4.8 inches wide  
These are stored in 1 meter sections



# And now there's a big hole



# And the big hole is moving!

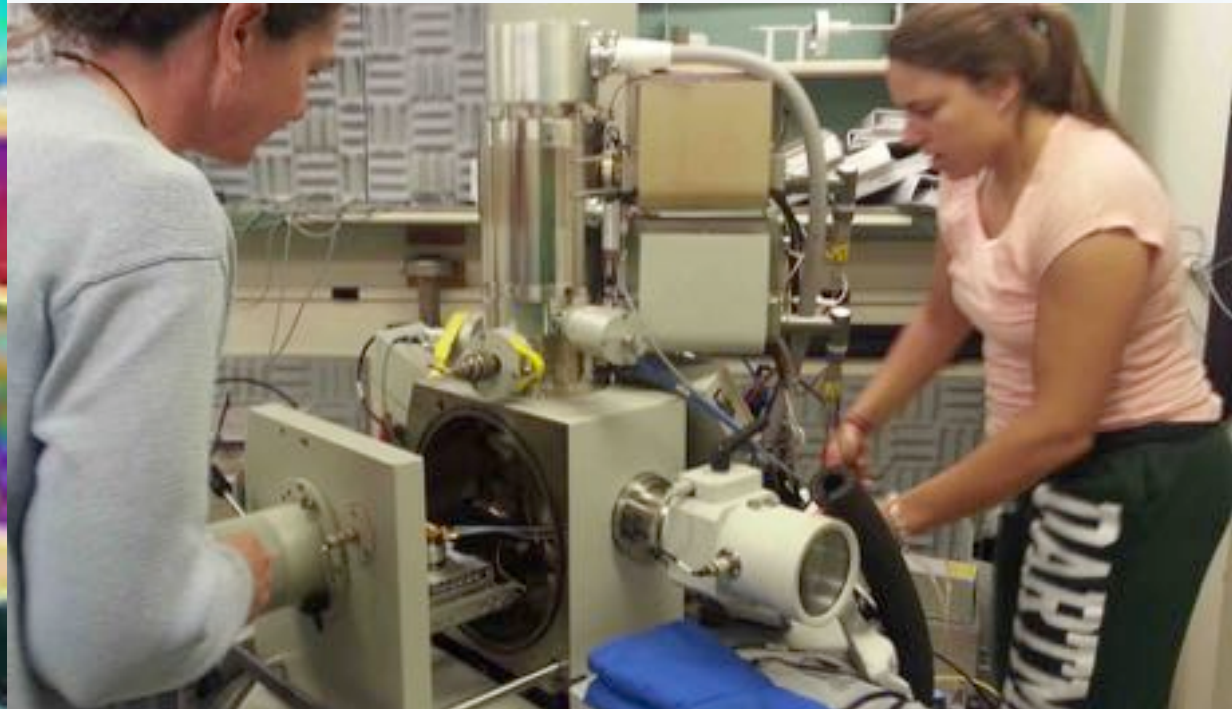


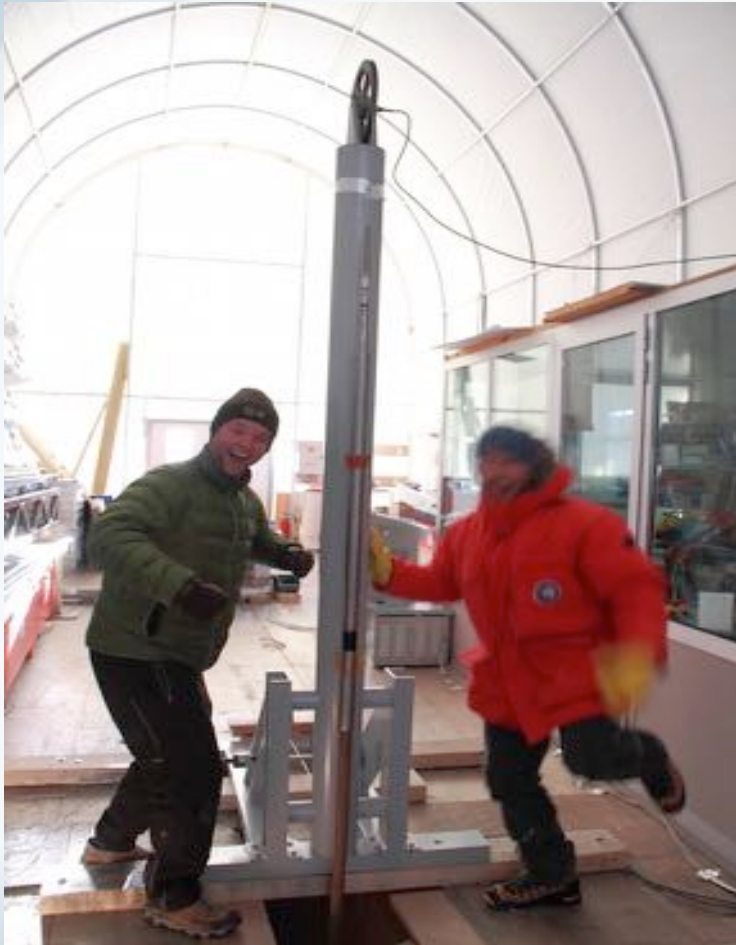


We can  
measure this  
movement



# Tiny ice crystals control movement





We will also do a  
Good Luck Dance

# Questions?

- Questions about Antarctica
- Questions about WAIS Divide
- Questions about Velvet Ice Project



# Velvet Ice Expedition

[www.tinyurl.com/VelvetIce](http://www.tinyurl.com/VelvetIce)

[www.facebook.com/VelvetIce](http://www.facebook.com/VelvetIce)

[www.twitter.com/frozenyamini](http://www.twitter.com/frozenyamini)

# 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.**



TEACHERS AND RESEARCHERS  
EXPLORING AND COLLABORATING

# Upcoming Events

Watch for and register for upcoming events at [www.polartrec.com](http://www.polartrec.com)!

# Thank You!

*An archive of the event will be available shortly.*

<http://www.polartrac.com/polar-connect/archive>

