



TEACHERS AND RESEARCHERS  
EXPLORING AND COLLABORATING

# Welcome to *PolarConnect*

With Yamini Bala and the  
Velvet Ice Expedition

**Thursday 22 January 2015**

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

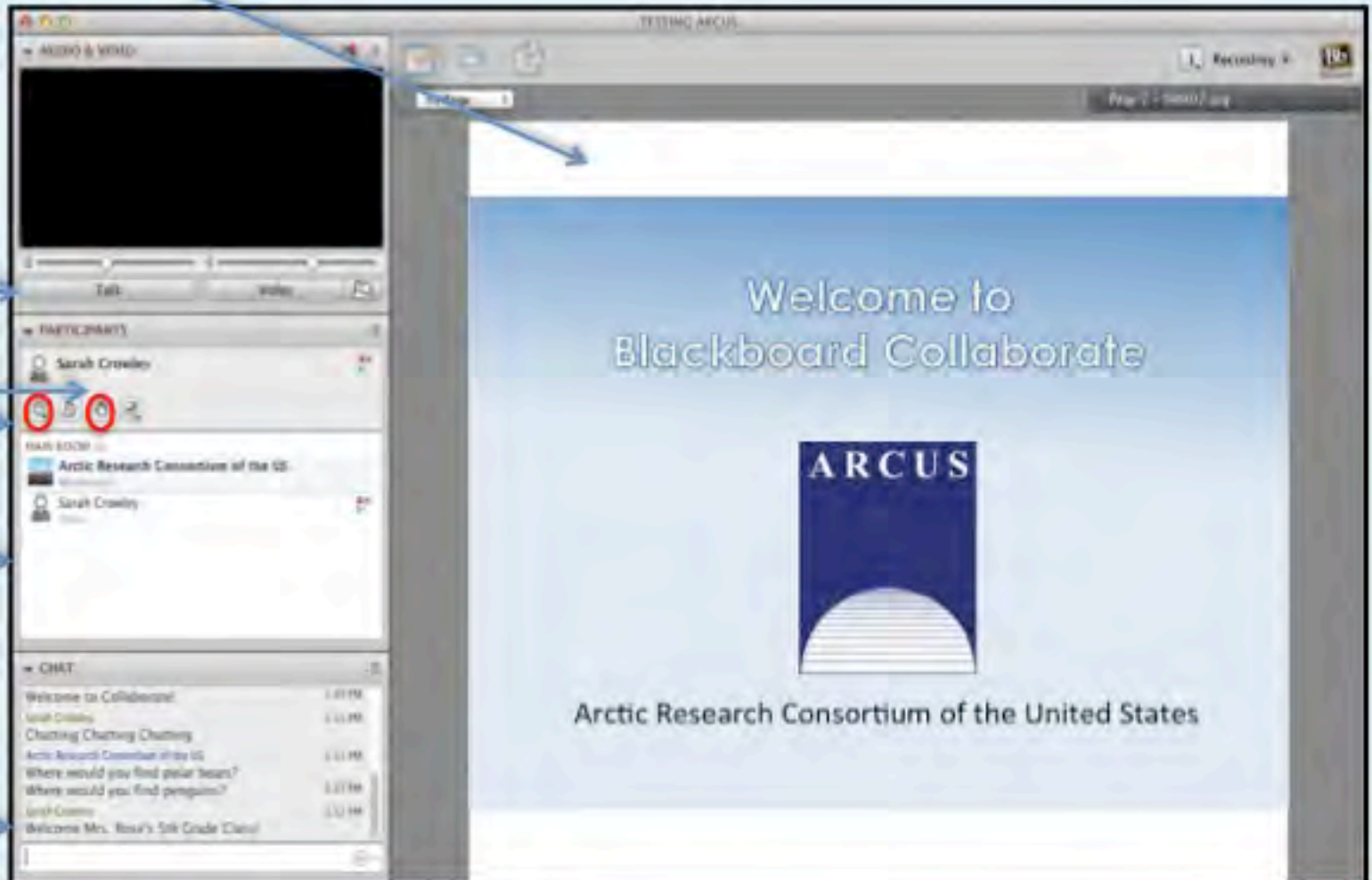
**Click** to Talk,  
**Unclick** to finish talking

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. The main area displays a presentation slide titled "Welcome to Blackboard Collaborate" with the ARCUS logo and the text "Arctic Research Consortium of the United States". The left sidebar contains several panels: a "Talk" panel with a microphone icon, a "PARTICIPANTS" panel listing "Sarah Crowley" with a hand icon, a "CHAT" panel with a list of messages, and a "SHARE" panel. Arrows from the text on the left point to these specific interface elements.

## 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

**In the chat box please introduce yourself by typing your:**

- ✓ Name
- ✓ School / Institution
- ✓ The number of students and adults participating with you in the same location



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# 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 2010-2013, nearly 50 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.



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# Questions

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- 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

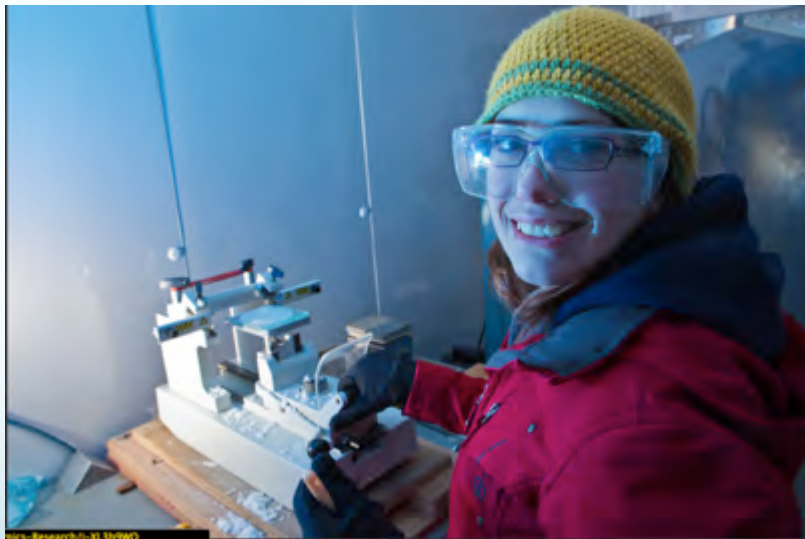


Erin Pettit,  
Principal Investigator



# We are the Velvet Ice Team!

Tiffany Green,  
Graduate of UAF!



Rachel Obbard,  
Co-Principal Investigator



We arrived in Antarctica on  
December 5, 2014!





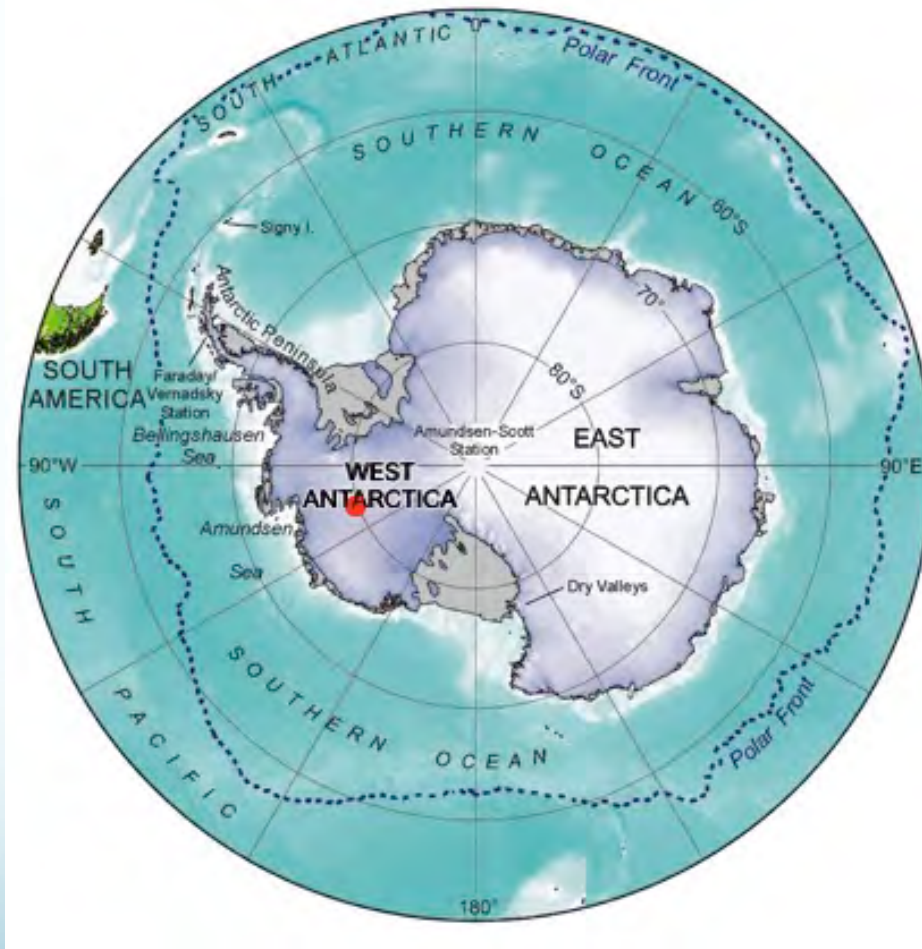
After 3 weeks of waiting for  
a flight in McMurdo...



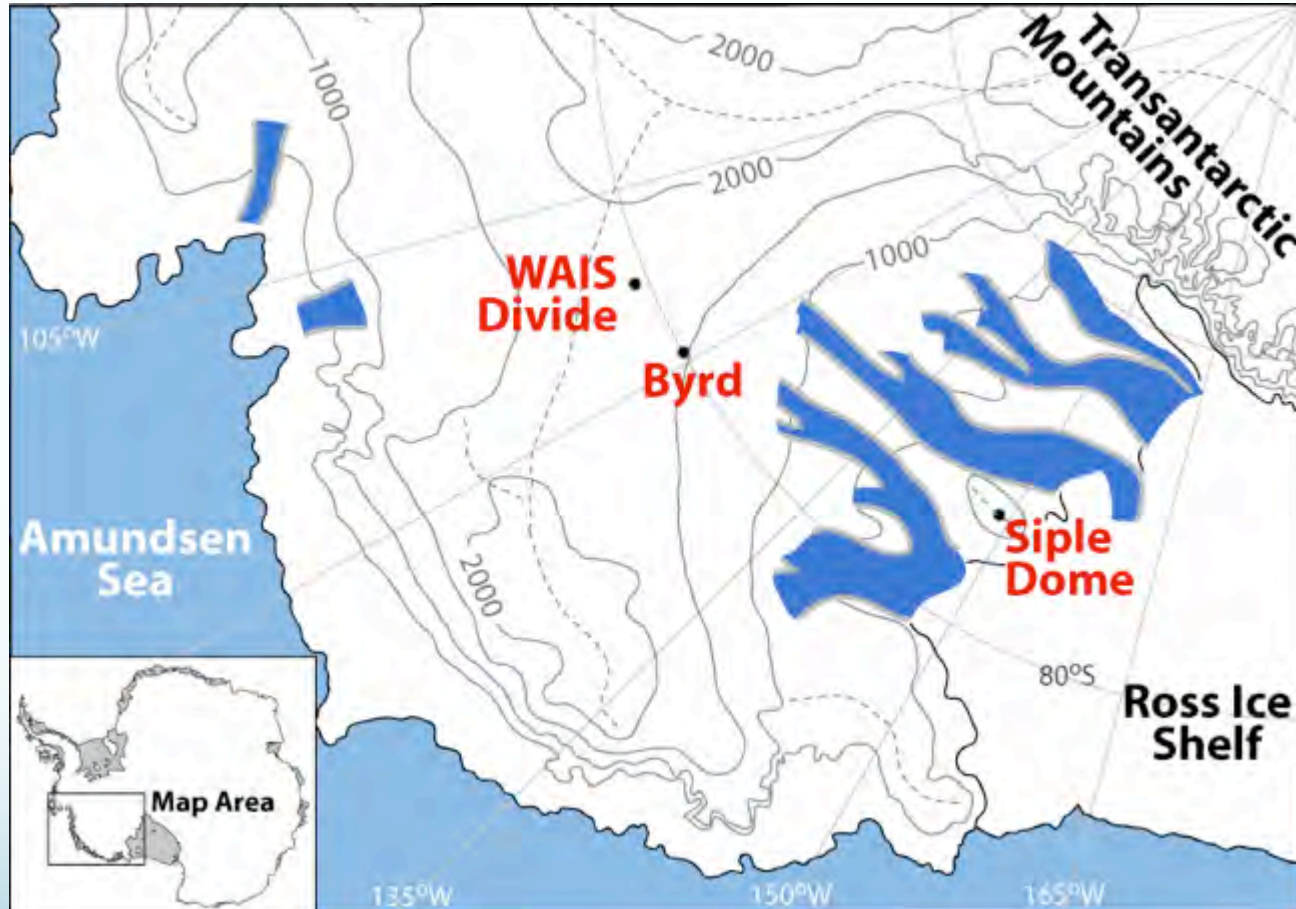
... we finally made it to WAIS Divide  
on January 4<sup>th</sup>!



# WAIS is the West Antarctic Ice Sheet



A Divide is the place where Ice flows in two separate directions



# WAIS Divide is flat, white, and cold!

Average annual temperature  $-31\text{ }^{\circ}\text{F}$

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

About 1 meter of snow per year

Photo by Ursula Rick, 2007

# Life at WAIS Divide

# The “Town” of WAIS Divide



# Eating at WAIS





# Showering at WAIS



# When you gotta go!



# Tent Village



# Transportation



# Snow Pit Project

We marked out a territory,



Dug a big pit,



Dug a smaller trench next to it,





Cover the top of the big pit



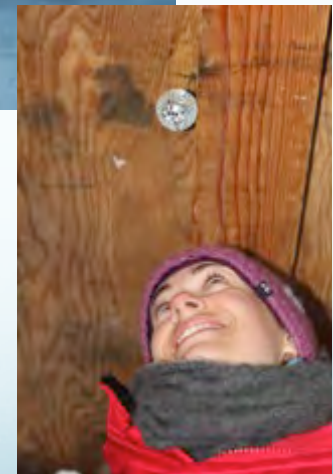
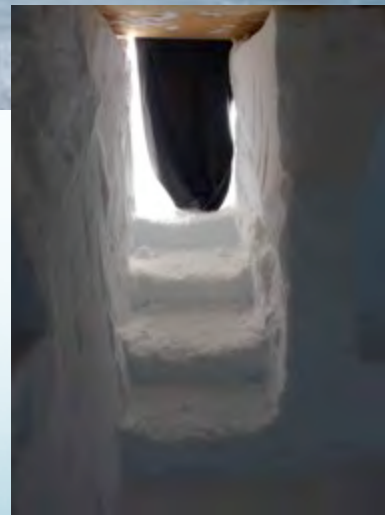
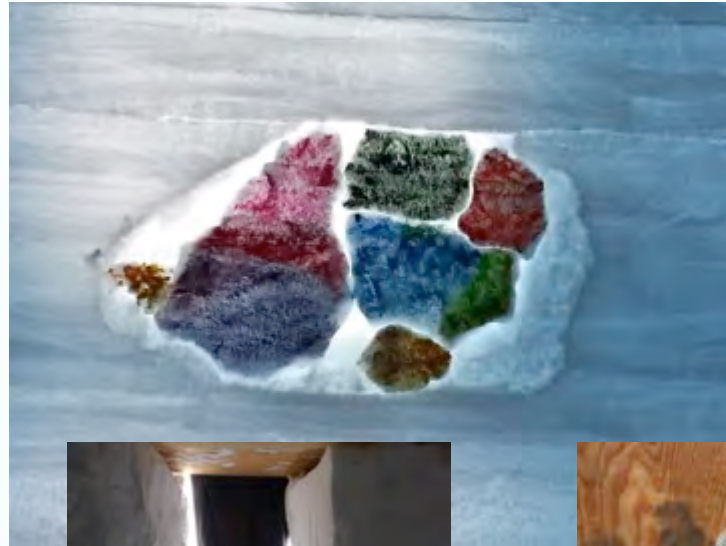
But let light come into the  
uncovered trench.



As light shines through the wall between them, the layers of snow and ice are seen!



We added some fun stuff too!



# Borehole Logging

# Why WAIS Divide?

- Deep Ice : 3465 meters – over two miles high!
- Lots of climate history in each layer of snow!

2014 snow

2013 snow

68,000 more years of  
snowfall compressed  
into ice



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



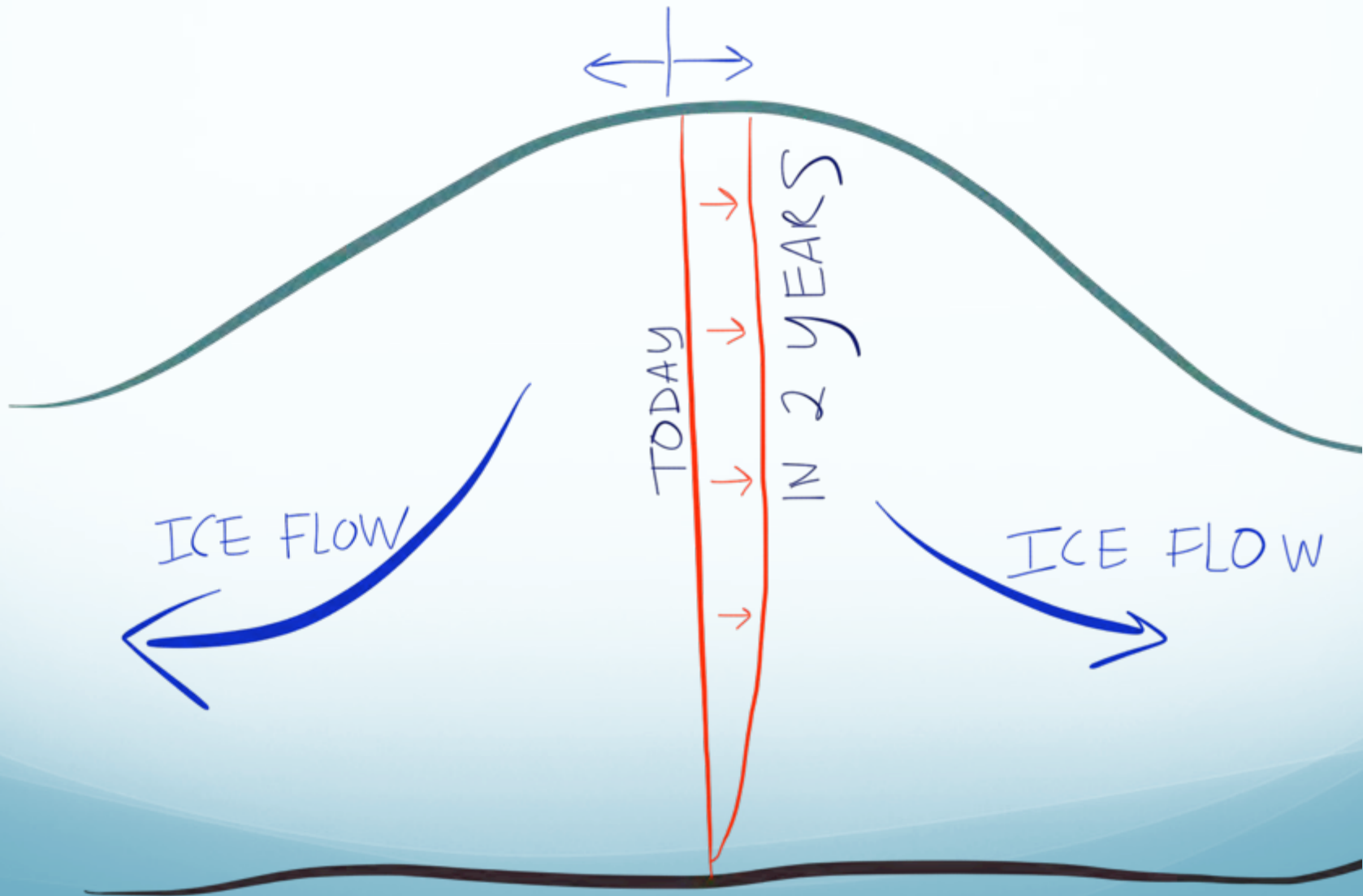
Photos by Jay Johnson and Brian Bencivengo, 2007

And now there's a big hole



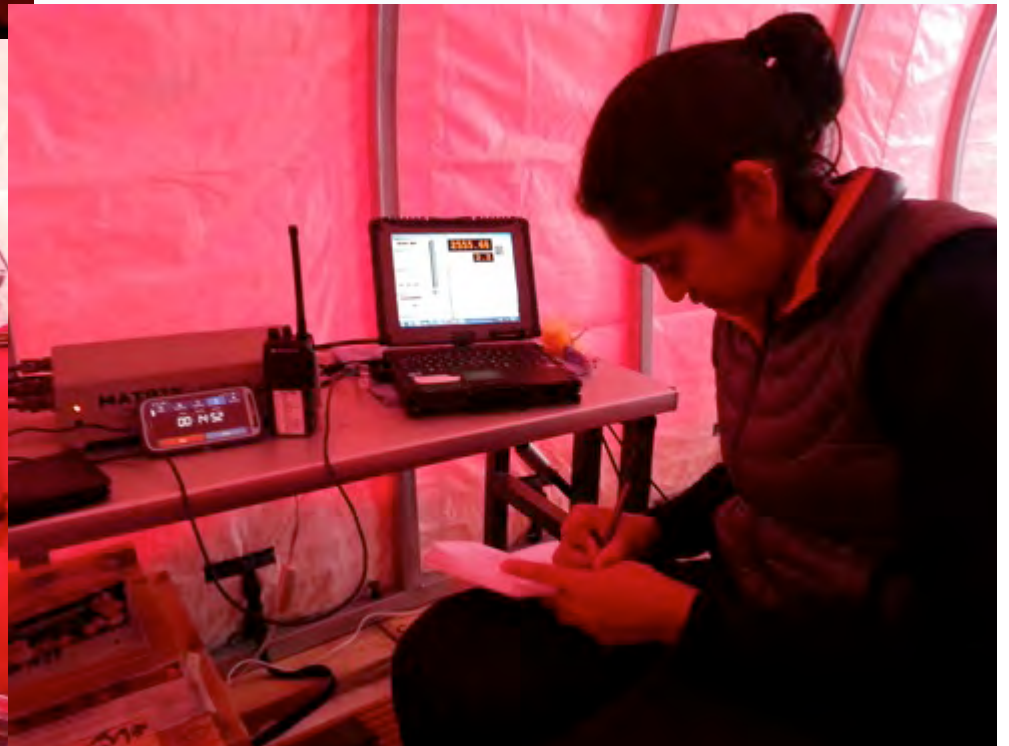
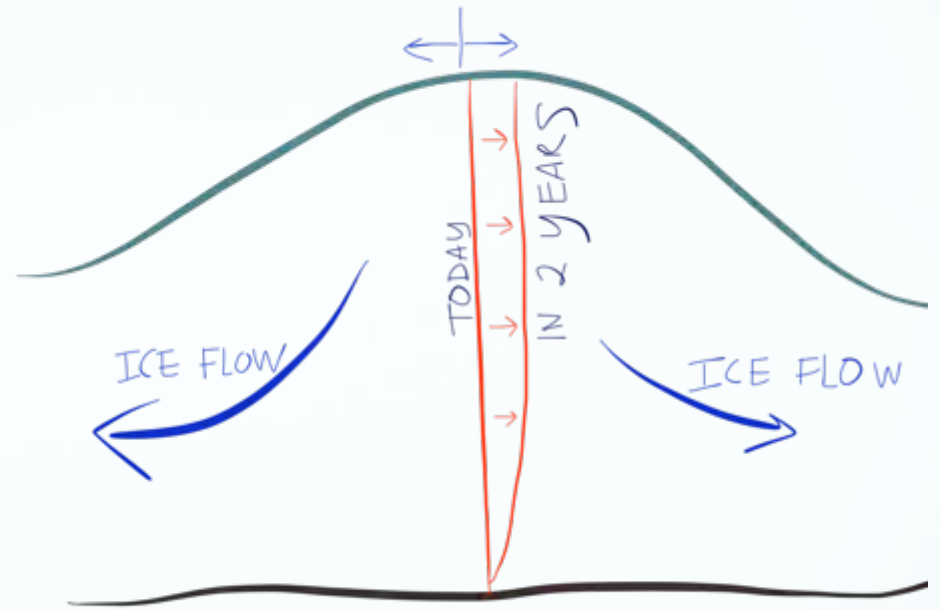


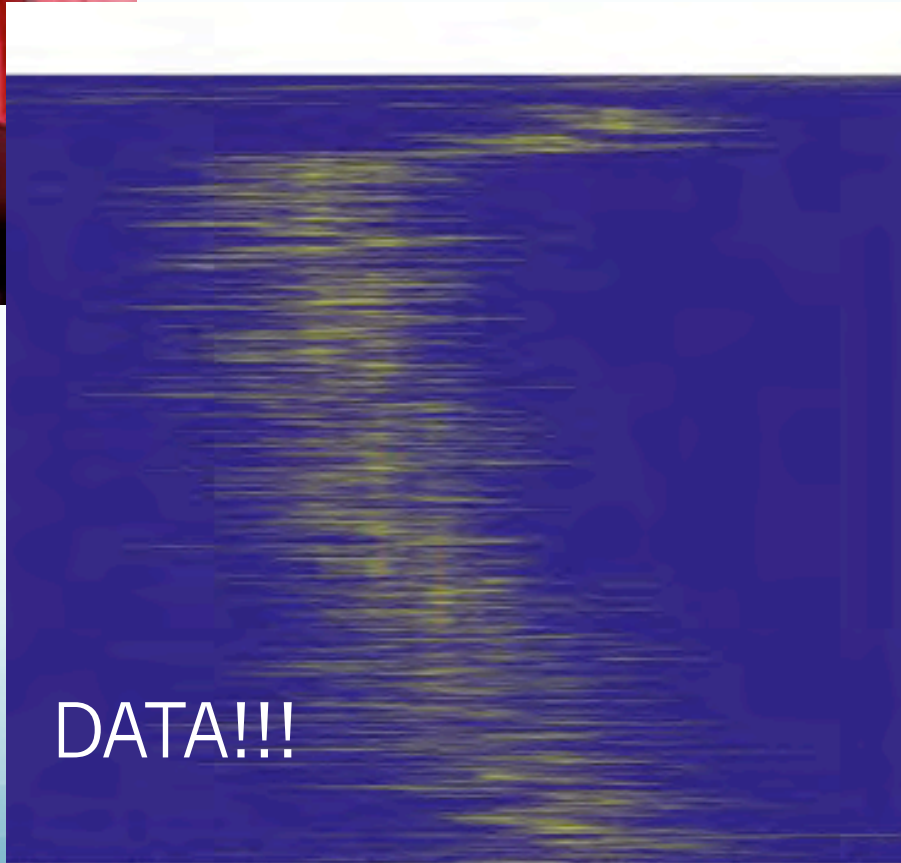
And the big hole is moving!



# Measuring the movement

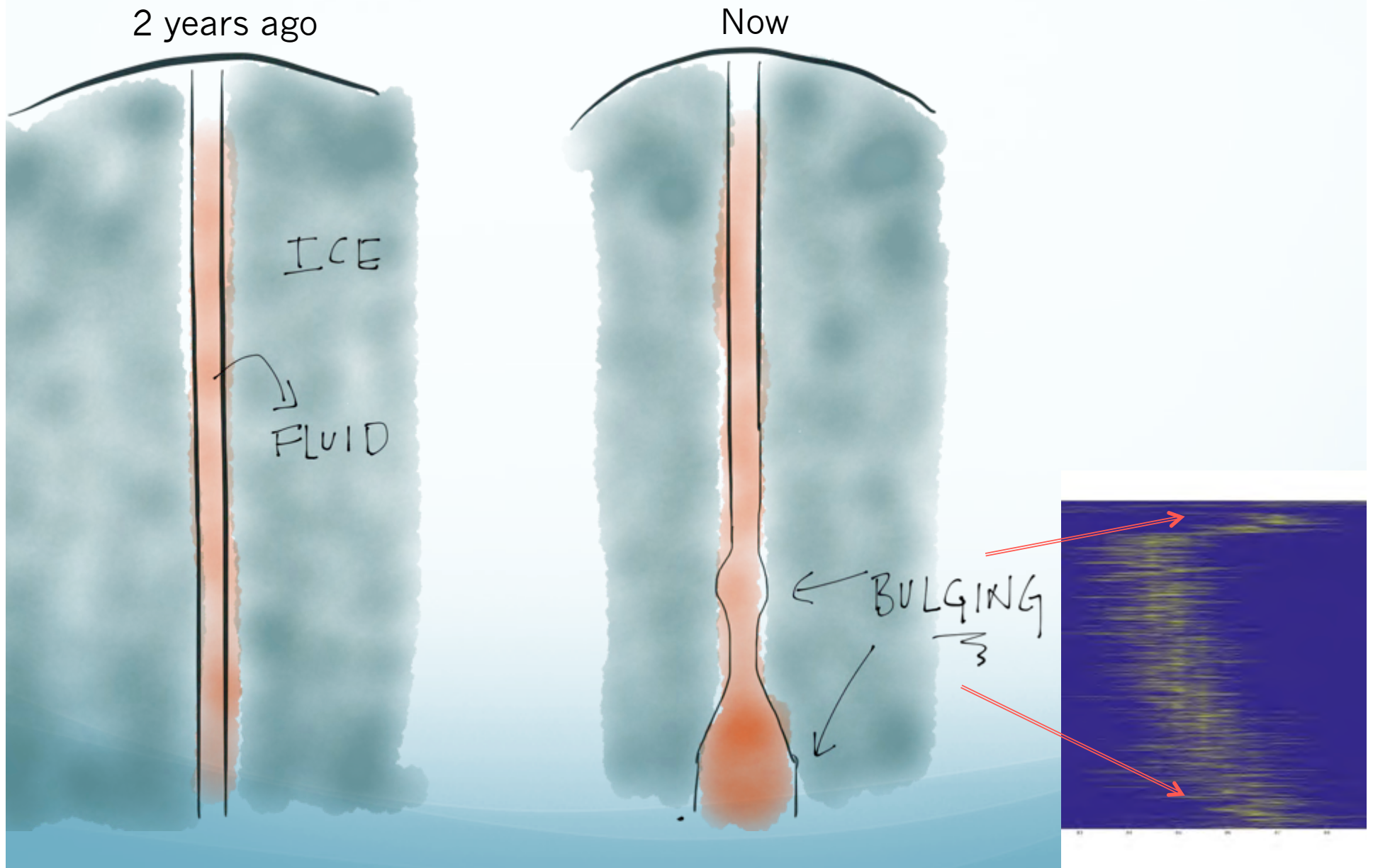




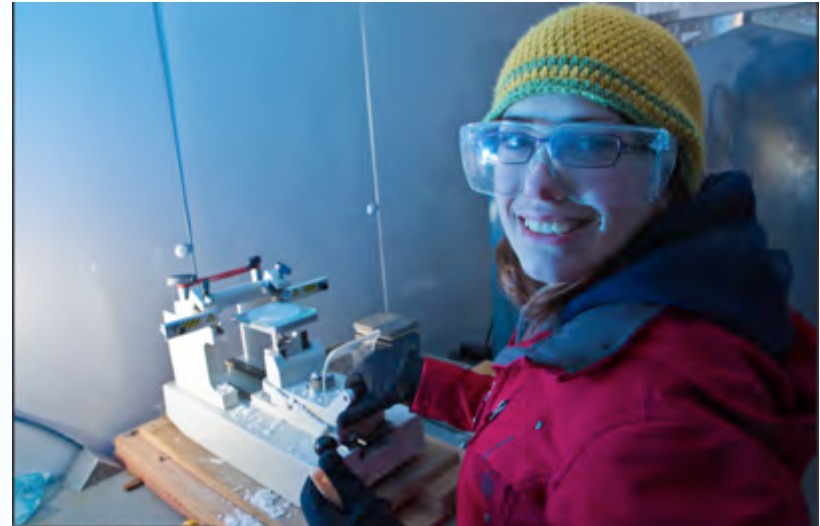


DATA!!!

# What are these data telling us?



# Tiny ice crystals control movement



The climate at the surface controls  
the tiny crystals!

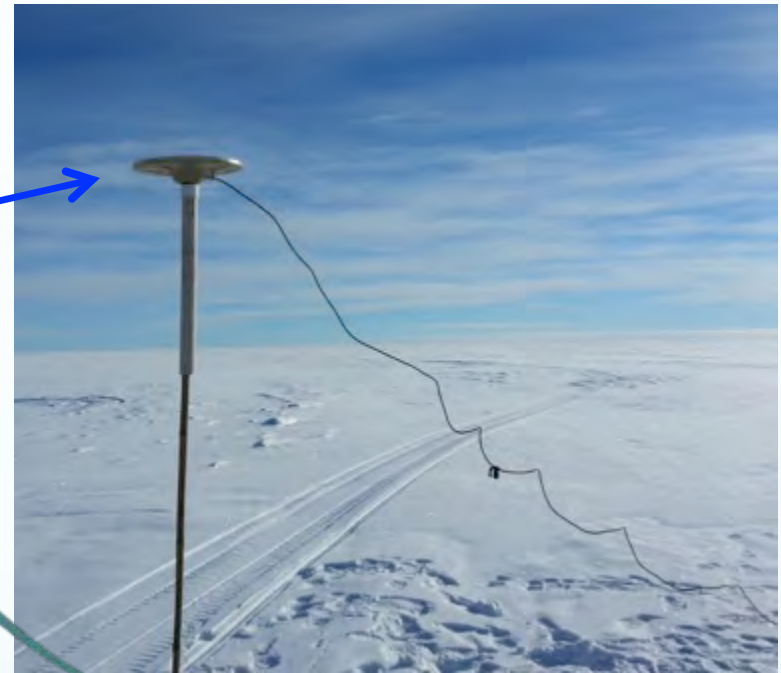
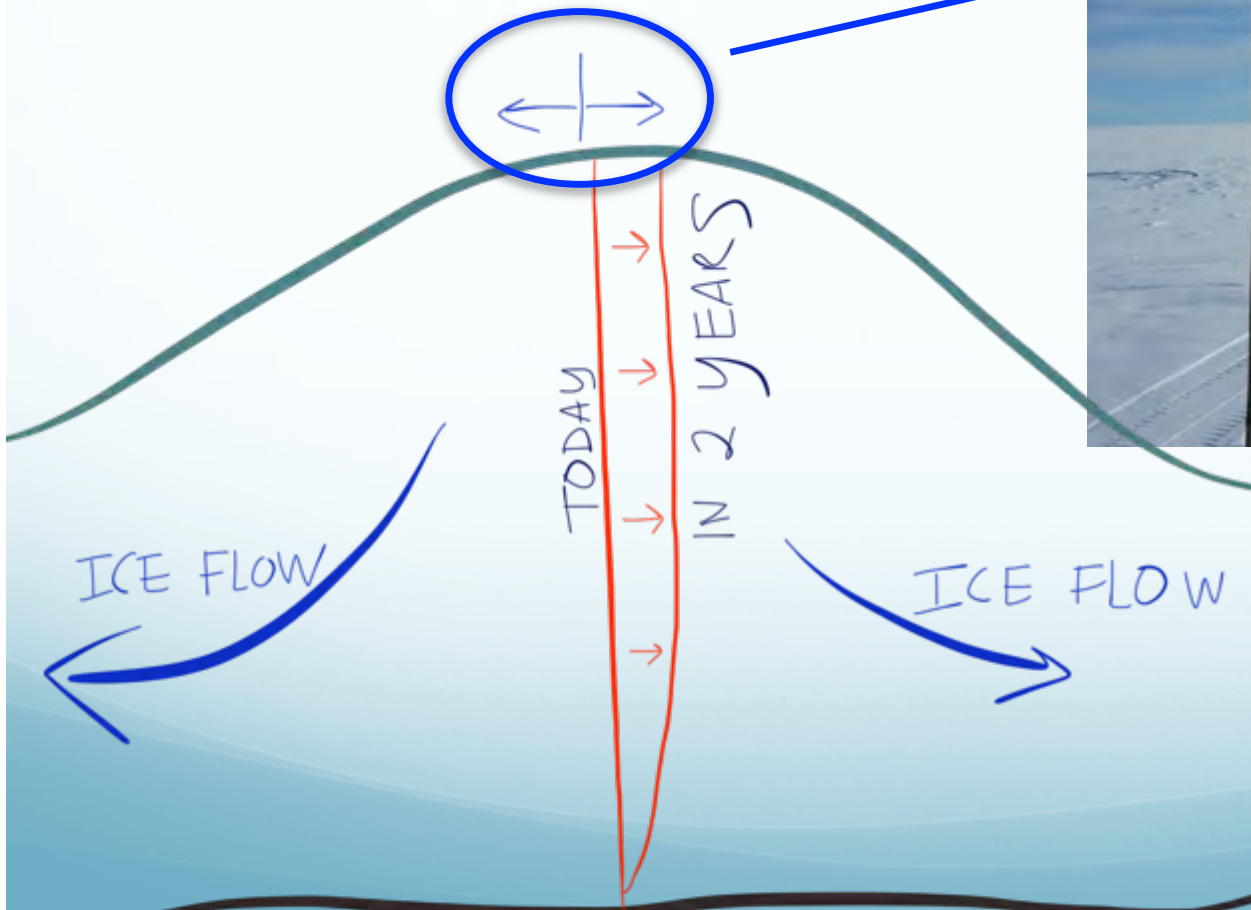


# GPS and Radar



# Boreholes aren't the only way to measure ice movement

GPS on the surface



# And Radio waves – which can see through ice





Other Fun Stuff!

# 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)



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# Thank You!

*An archive of the event will be available shortly.*  
<http://www.polartrec.com/polar-connect/archive>

