

# ***Welcome to Live from IPY!***

## ***Reporting from 78°North!***

With Missy Holzer, Svalbard REU Students, and the High Arctic Change '08 Team in Svalbard, Norway

**August 4, 2008**

9:00 AM Alaska Daylight Time [7:00 AM HDT, 10:00 AM PDT, 11:00 AM MDT, 12:00 PM CST, 1:00 PM EDT]





## **What is PolarTREC?**

PolarTREC is a professional development experience in which K-12 teachers are paired with researchers in authentic polar research experiences.

In the next three years 36 teachers from around the United States will join scientists in the Arctic and Antarctic in celebration of the International Polar Year!

**[www.polartrac.com](http://www.polartrac.com)**

# The PolarTREC Team



**Wendy Warnick**

PolarTREC PI  
Executive Director



**Helen Wiggins**

Program Coordinator



**Janet Warburton**

PolarTREC  
Project Manager



**Kristin Timm**

PolarTREC  
Project Manager



**Ronnie Owens**

Web Developer



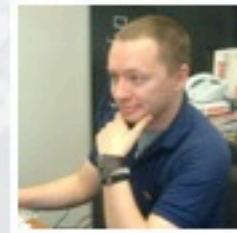
**Ben Wade**

Web Developer



**Tina Buxbaum**

Electronic Media  
Project Manager



**Zeb Polly**

Systems Administrator



**Joed Polly**

Video Production

...with help from the  
entire staff at ARCUS



# **International Polar Year (IPY)**

**2007-2009**



The International Polar Year (2007-2009) is an exciting scientific campaign focusing on the world's polar regions!

IPY is a time for discovery, science, learning, and awareness about the polar regions with activities for youth, scientists, and the public.

**[www.ipy.org](http://www.ipy.org)**

## ***Where is Ms. Holzer & the Team?***



# High Arctic Change '08

Dates: July 8 – August 16, 2008

Location: Svalbard, Norway

The team will travel to Svalbard, Norway, located in the High Arctic, to investigate how high latitude glaciers, melt-water streams, and sedimentation in lakes and fjords respond to climate change.

The Svalbard region has been marked by the retreat of glaciers, reductions in sea ice, and measurable warming throughout the Holocene period, and more specifically during the last 90 years. The Svalbard archipelago has preserved geologic records of climate change since the last ice age and into the 20th century, which makes it an ideal location for this study.



## Who we are talking with today:



**Missy Holzer**

PolarTREC Teacher

Chatham High School  
Chatham, New Jersey

## Who we are talking with today:

Mike Retelle, PhD  
Bates College  
Lewiston, ME



Al Werner, PhD  
Mt. Holyoke College  
South Hadley, MA

### **And REU Students:**

Anthony Novak, student, Oregon State University

Emily Mortazavi, student, University of Arizona

Jesse Burrows, student, Northern Arizona University

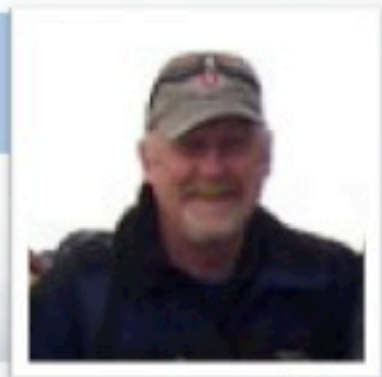
Steve Bate, student, UNIS, home country is England

Antoine Cousot, student, UNIS, home country is France



# High Arctic Change '08

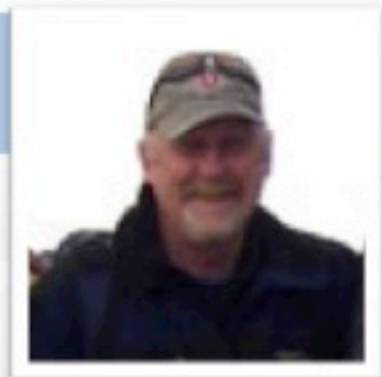
## Svalbard REU



- What is Svalbard REU?
  - Research Experience for Undergraduates
  - Experience with field research in the Arctic
  - Develop & carry out original research projects
  - Thesis projects at home academic institutions
  - Collaboration with UNIS (University Centre in Svalbard)

# High Arctic Change 08

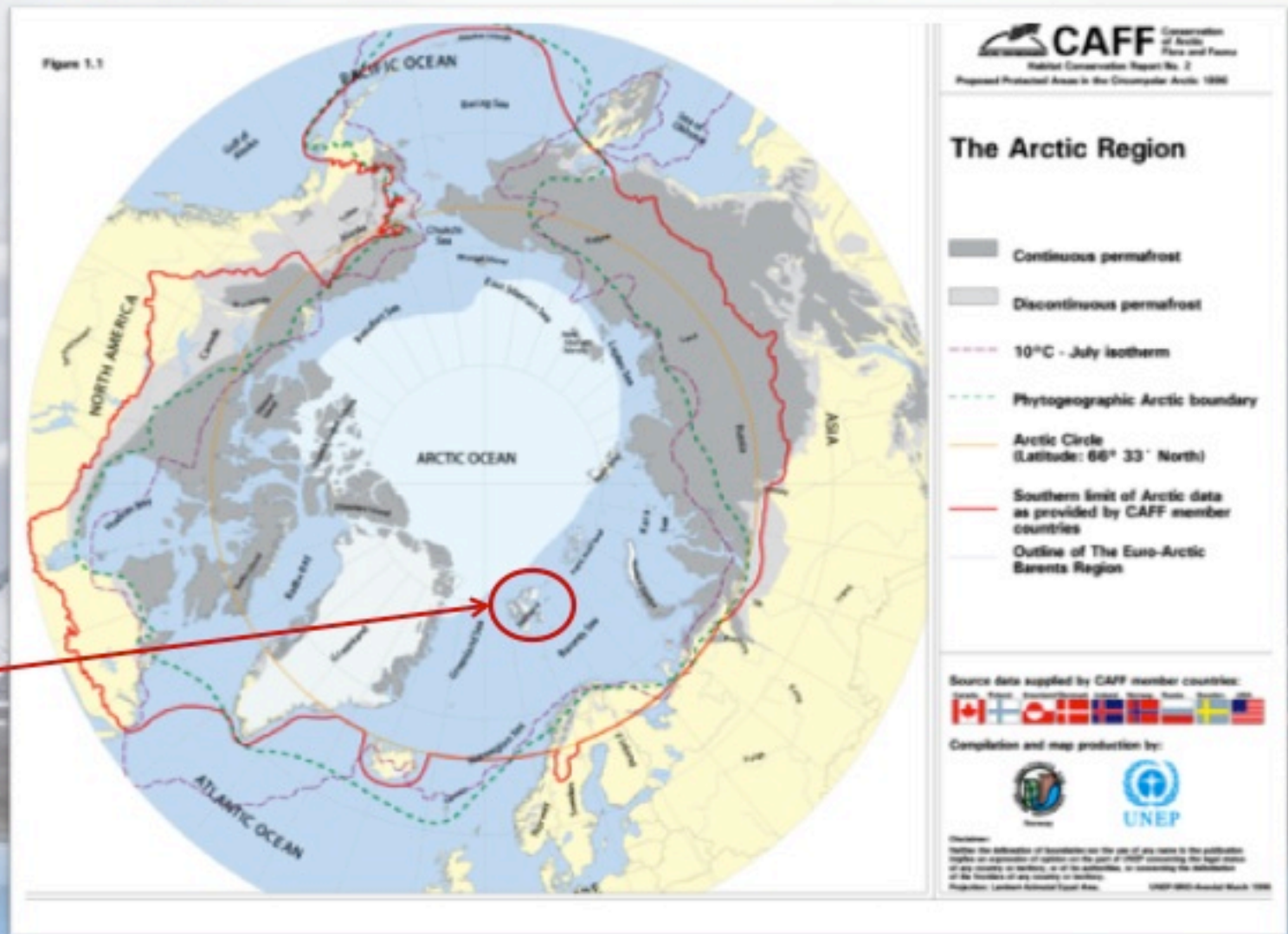
## Svalbard REU



### Research Questions:

1. What are the links in environmental processes between climate, glacial, fluvial lacustrine and fjord systems?
2. How are measured environmental changes expressed in the sediment records of the fjord and lacustrine systems?
3. Can relationships be derived from the current sedimentation and meteorological observations that will allow for the historic sedimentation record to be better interpreted?

# Geographic Overview of Svalbard



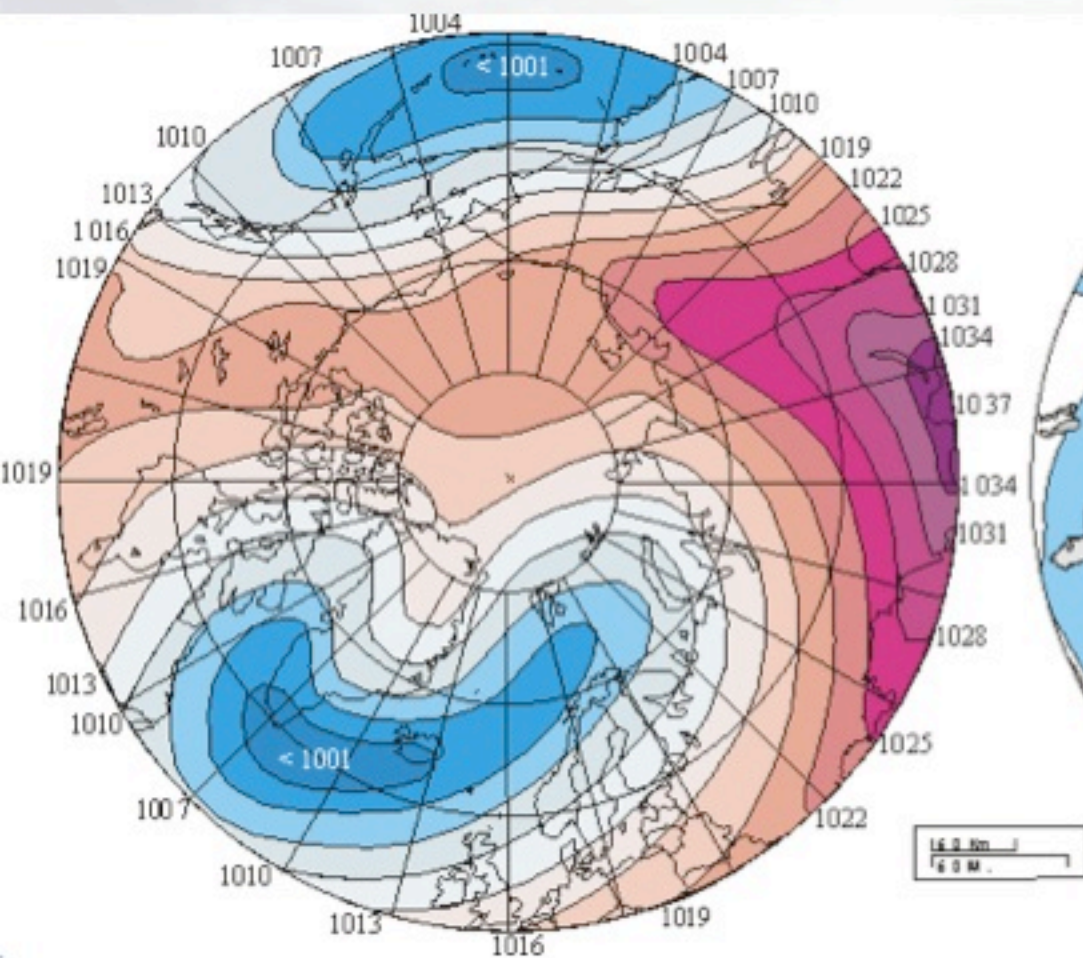
Svalbard

# Geographic Overview of Svalbard

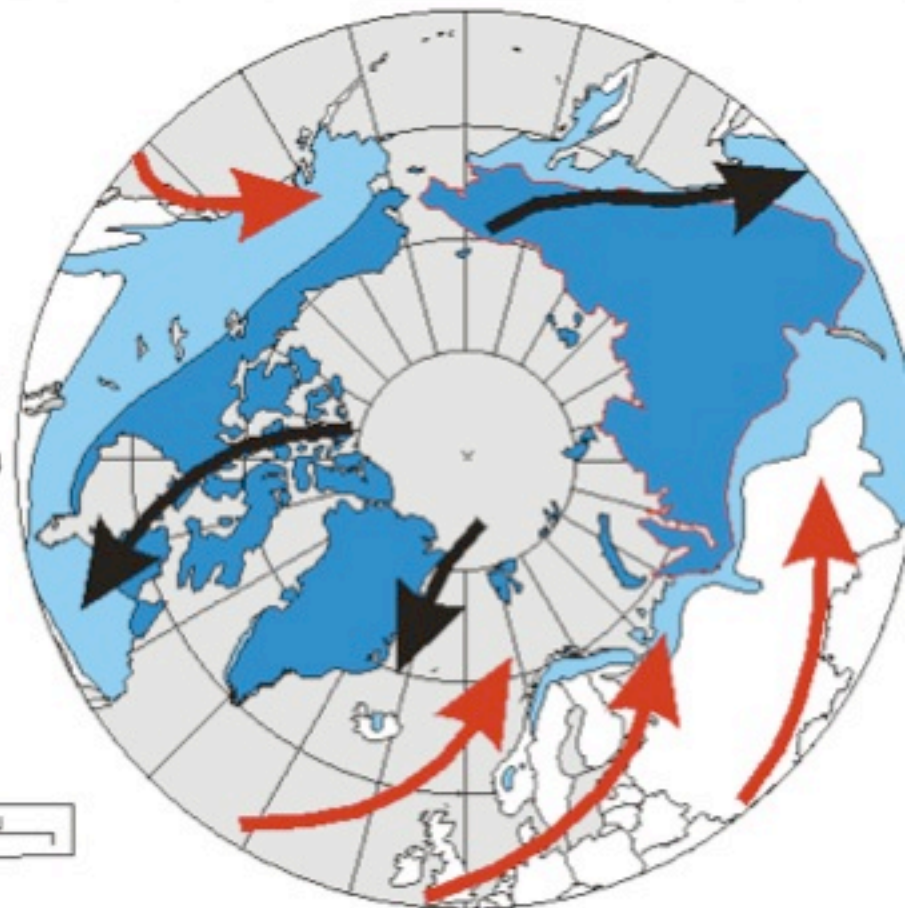


Svalbard

# Geographic Overview of Svalbard

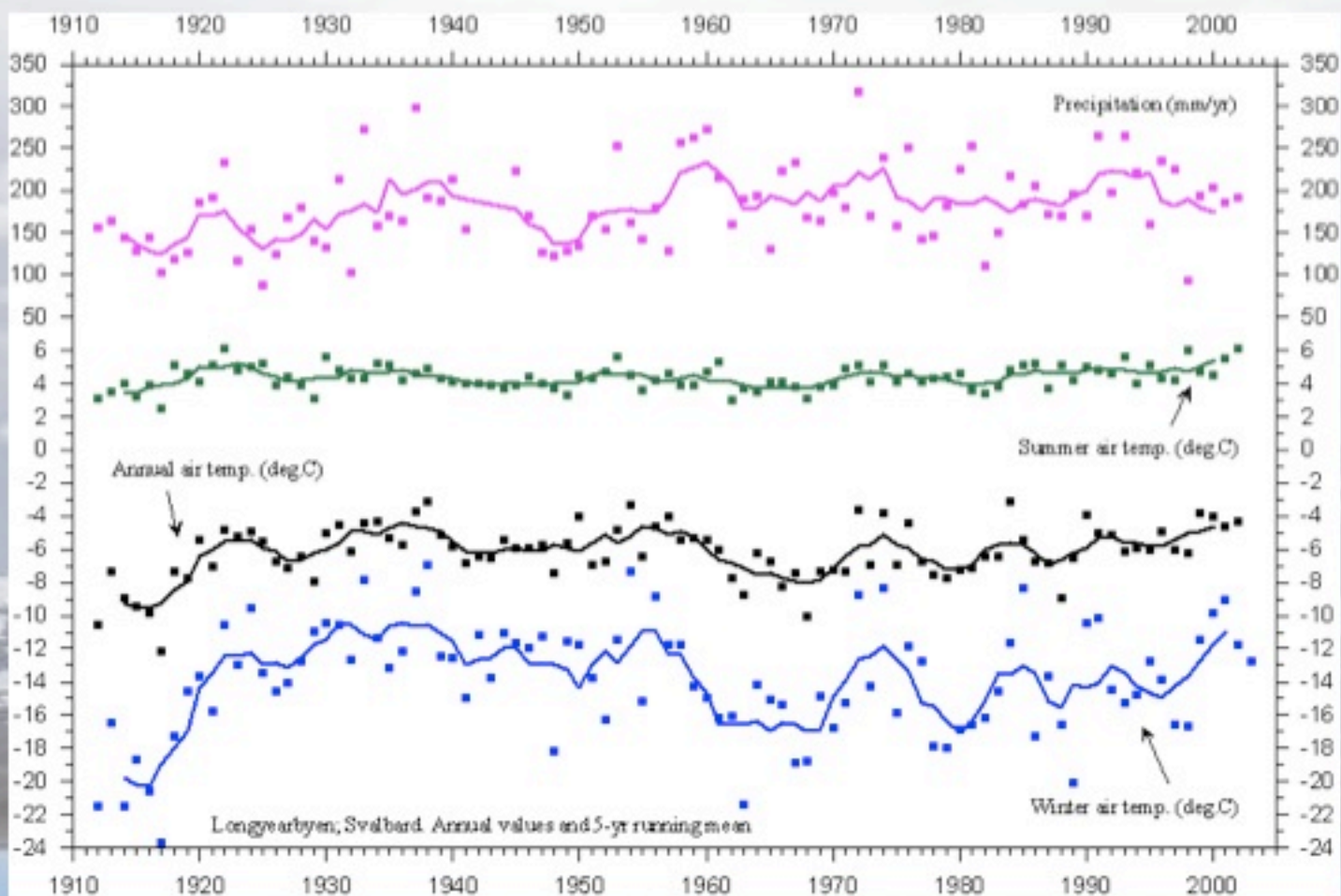


Avg. Dec/Jan/Feb sea level pressures



Winter permafrost & surface air flow

# Geographic Overview of Svalbard



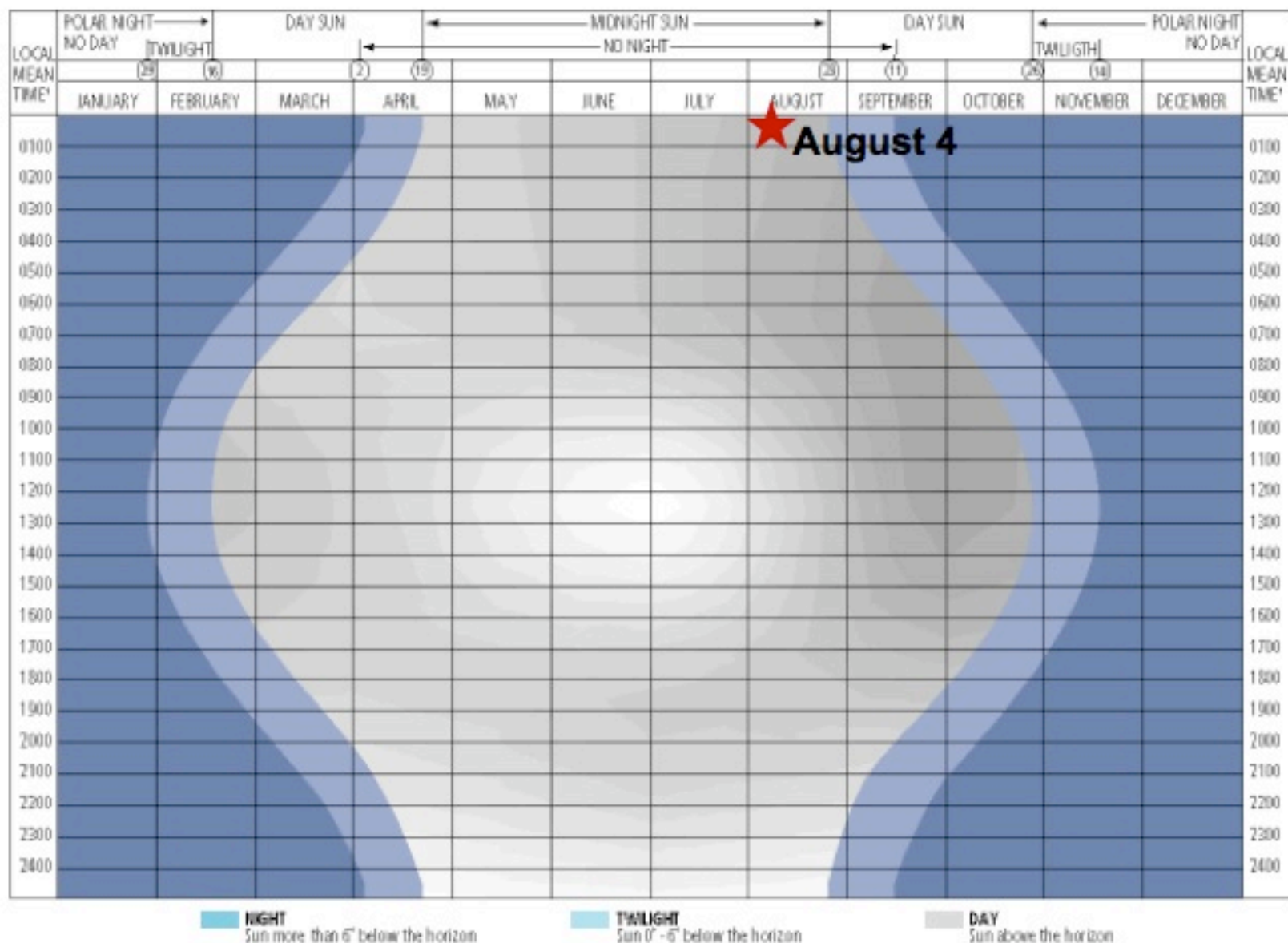
# Geographic Overview of Svalbard

April



October



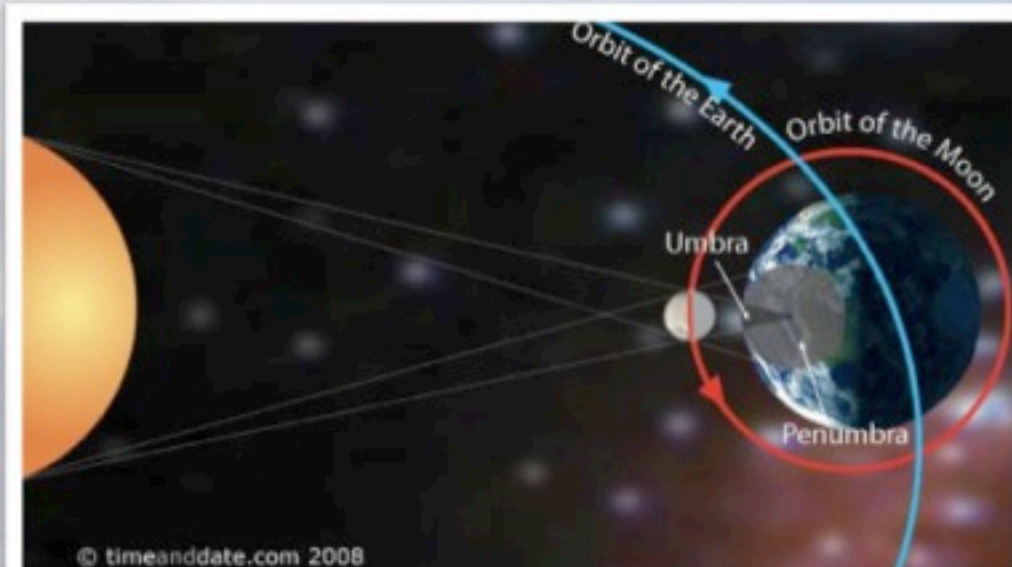


<sup>1</sup> Not adjusted for summer time.



# Geographic Overview of Svalbard

**August 1, 2008  
Solar Eclipse Path**



© timeanddate.com 2008

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

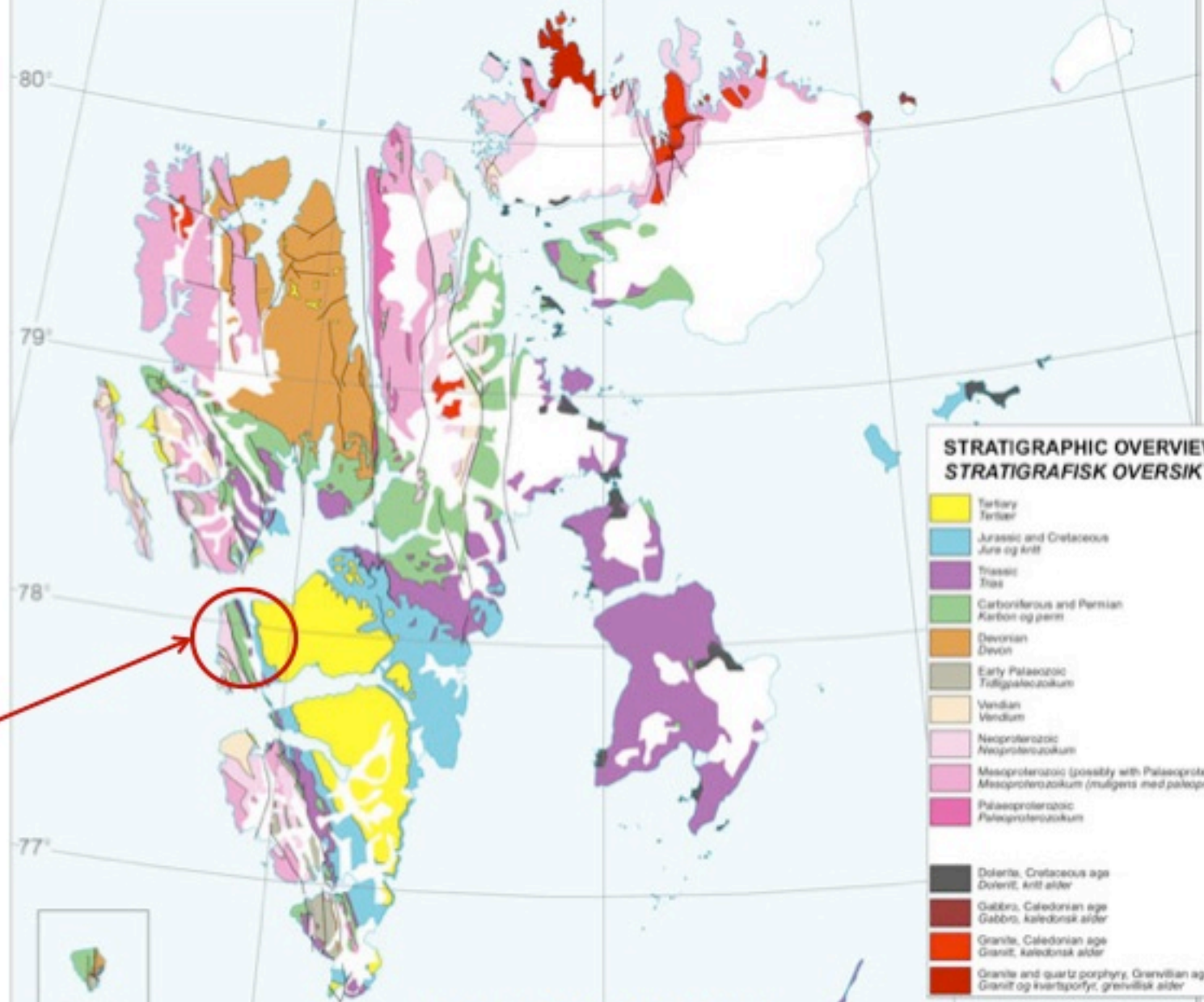


[www.hermit.org](http://www.hermit.org)



# Geologic Overview

SCALE / MÅLESTOKK 1:3 000 000  
0 20 40 60 80 100  
km



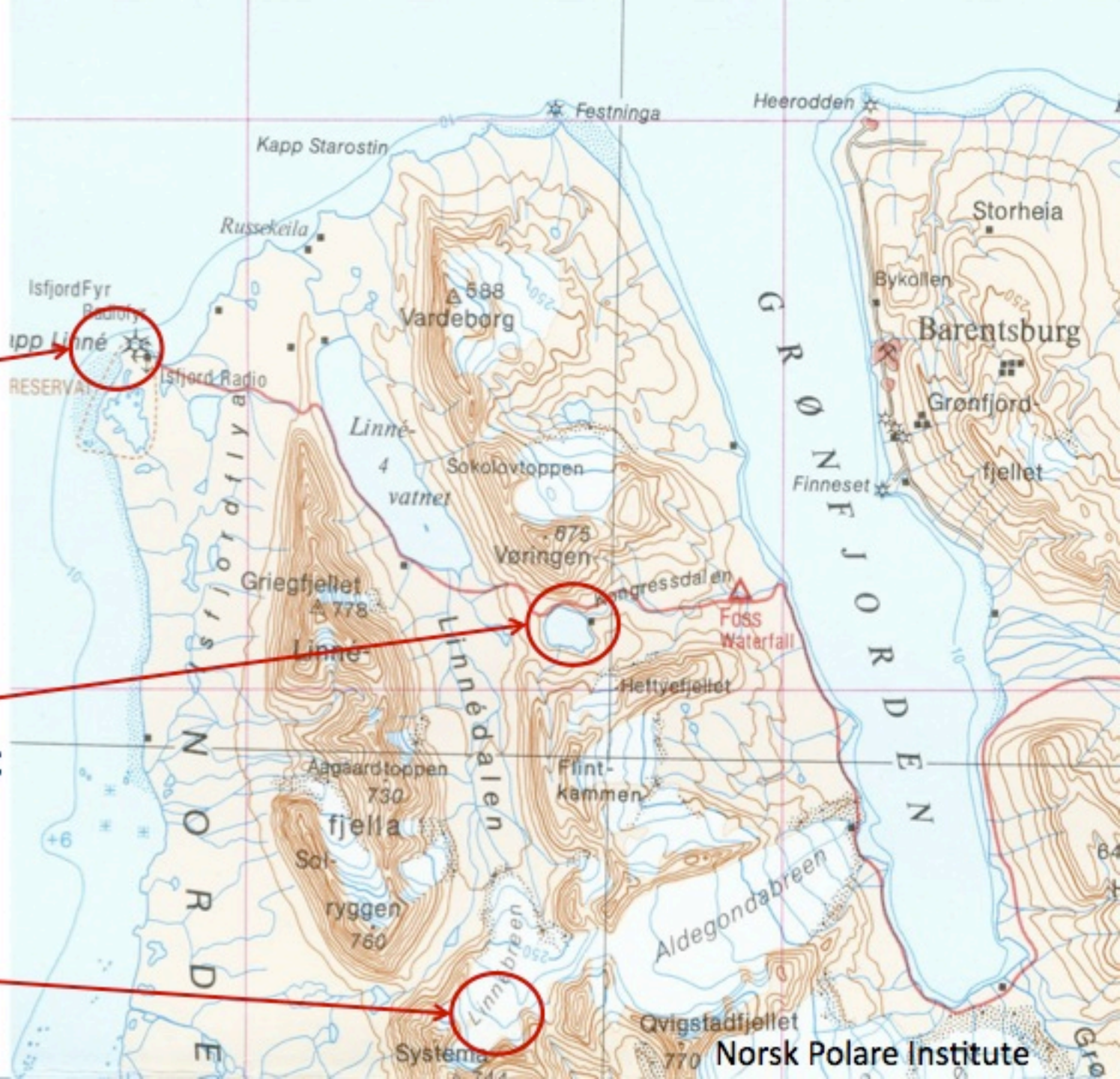
Kapp Linne



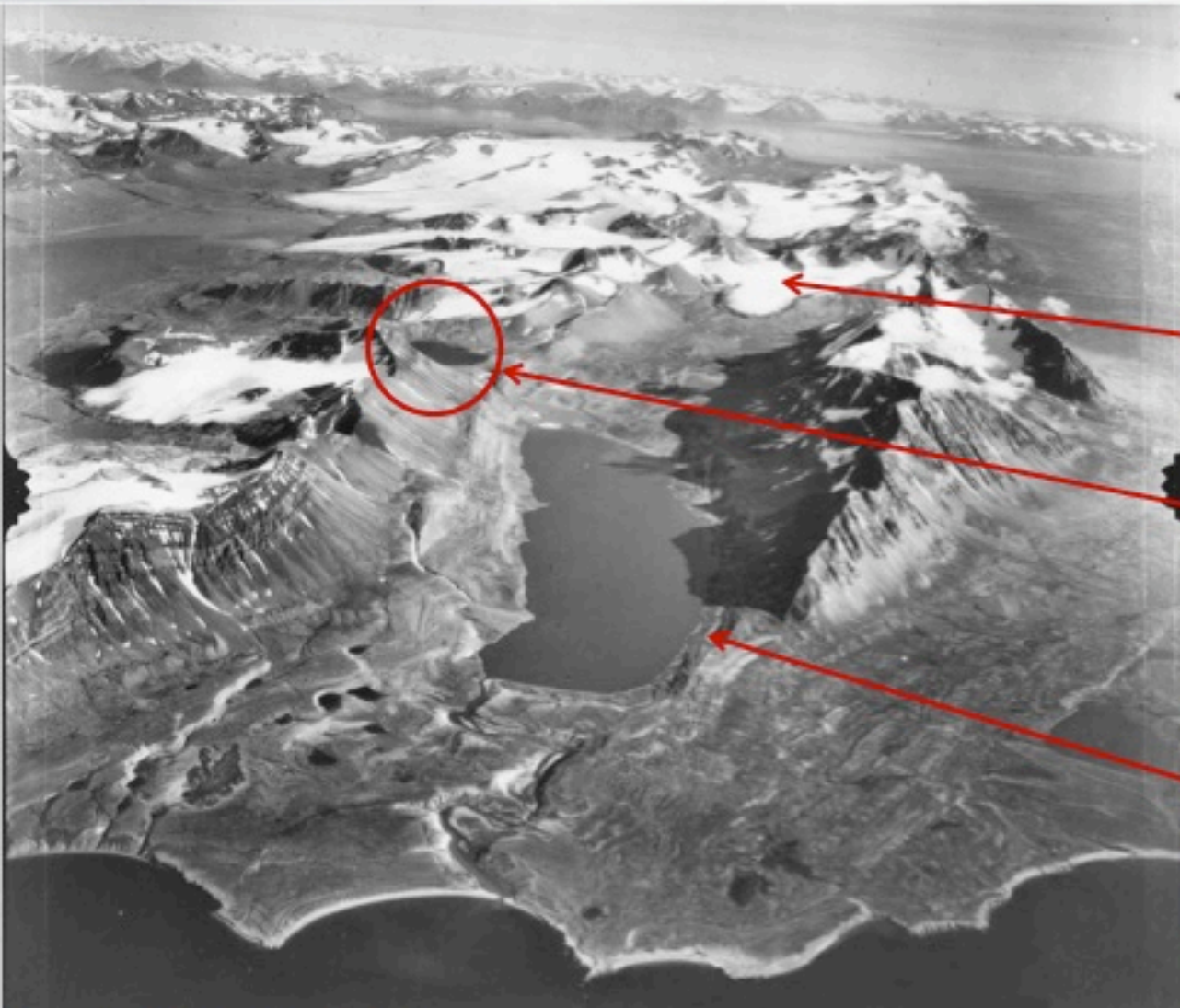
**Isfjord Radio  
(our station)**

**Kongressvatnet**

**Linnebreen**



# Geologic Overview




Aerial View of the  
Linnedalen  
looking South

Linnebreen

Kongressvatnet

Linnevatnet

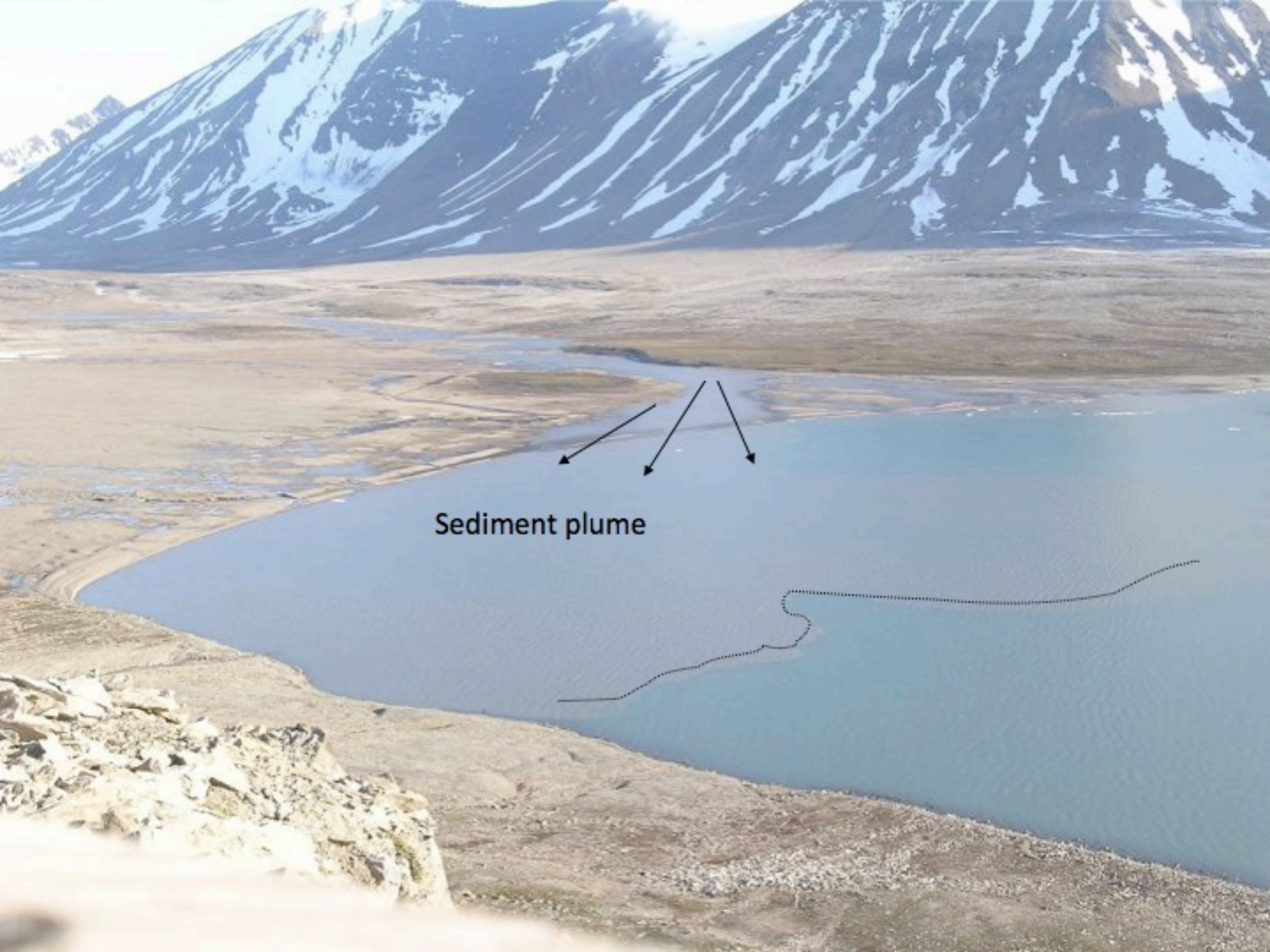
High Arctic Change '08  
[www.polartrec.com](http://www.polartrec.com)



What are we doing here?

# Plume Cam





Sediment plume



Temp.  
Logger

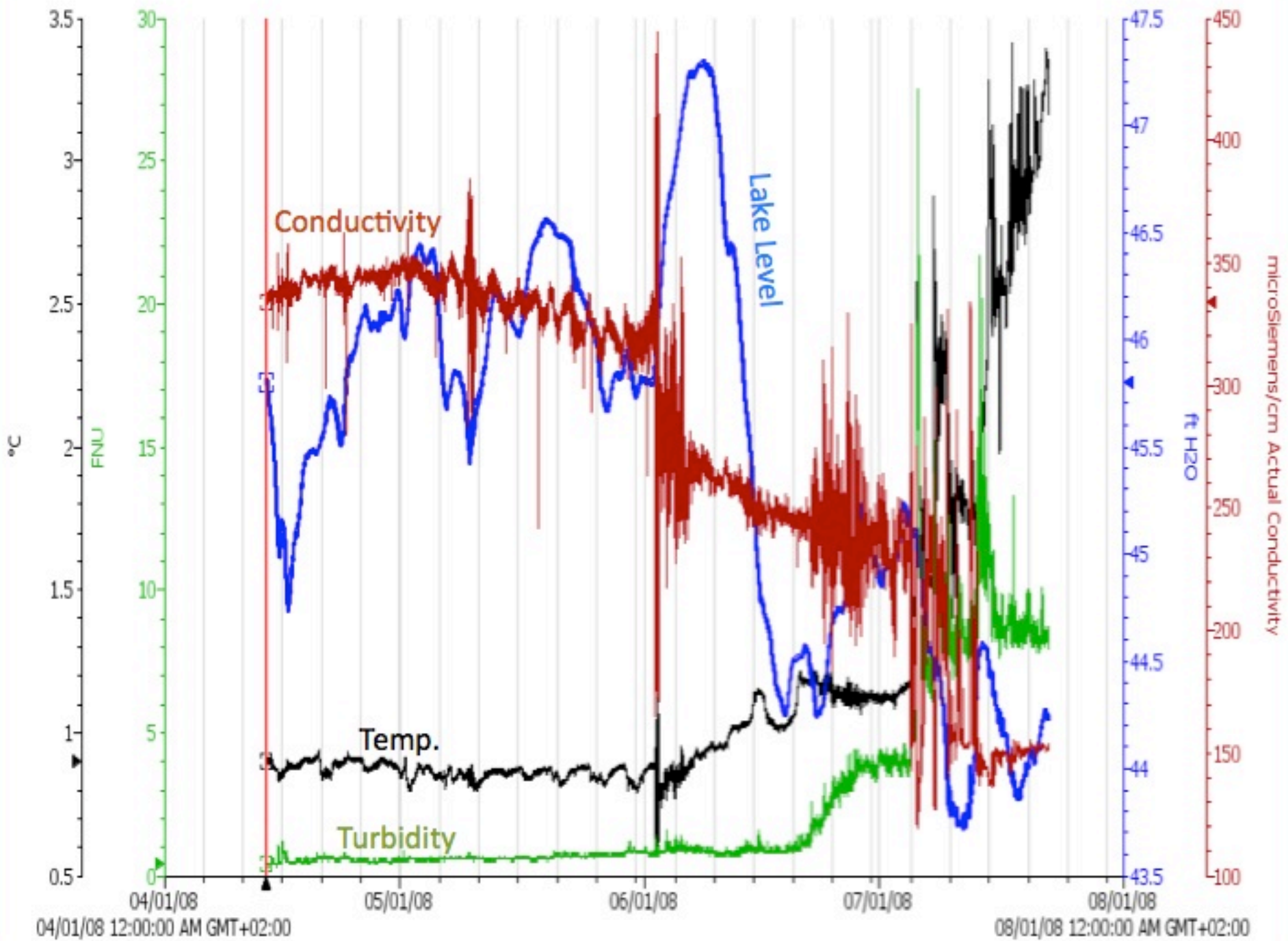


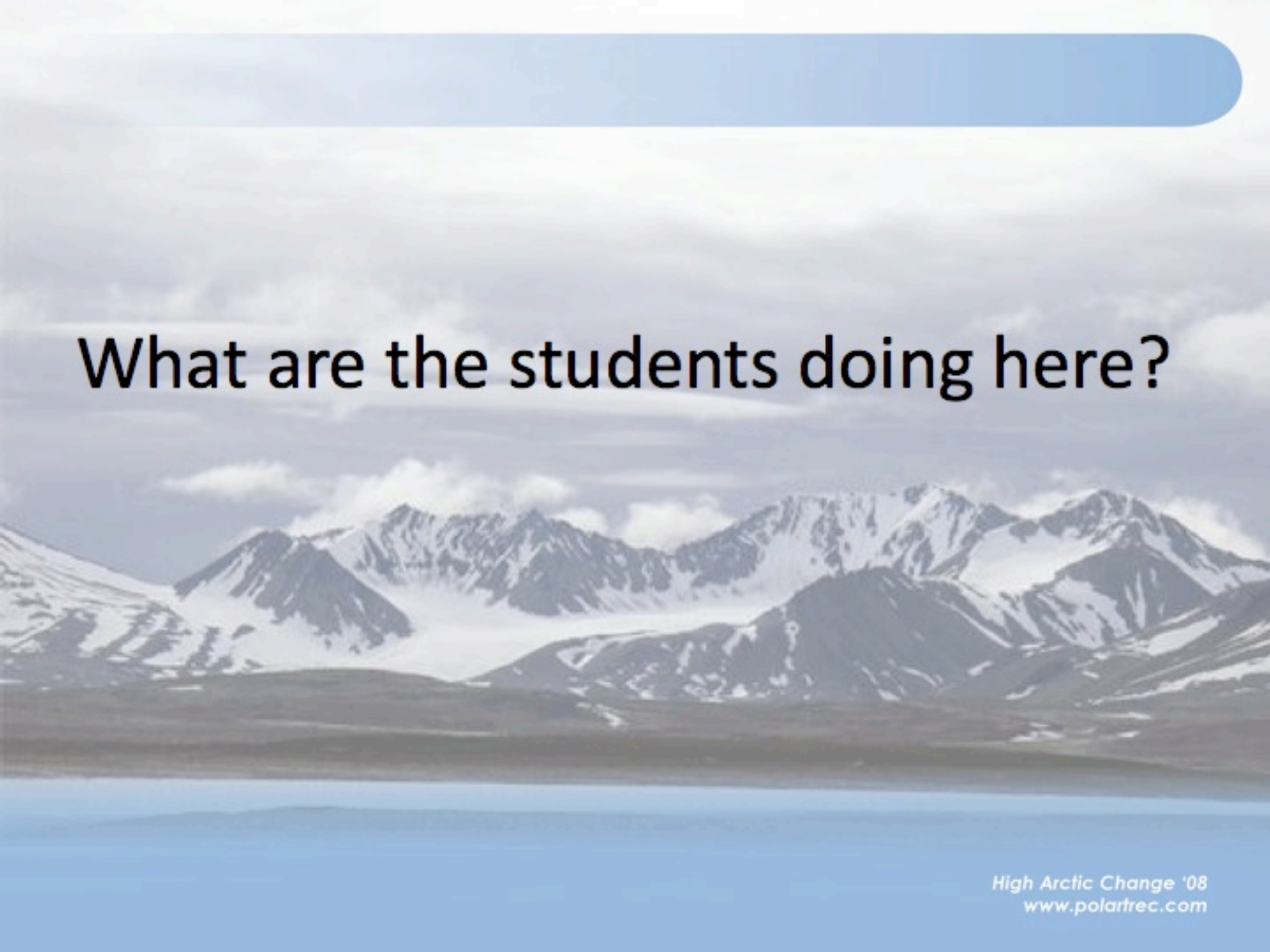
Troll

Sediment  
Trap









**What are the students doing here?**

# Emily Mortazavi

University of Arizona



## **Secular Variation and Environmental Magnetic Reconstruction of Linnèvatnt and Kongressvatnt**

Goal: To correlate cores  
between the two lake  
basins using their records  
of earth's magnetic field

# Jesse Burrows

Northern Arizona University

## **Stable isotope investigations of the Linne Glacier**

Goal: Create a timeline of  
stable isotopes of the  
glacial ice to provide the  
paleoclimatic history of  
the ice

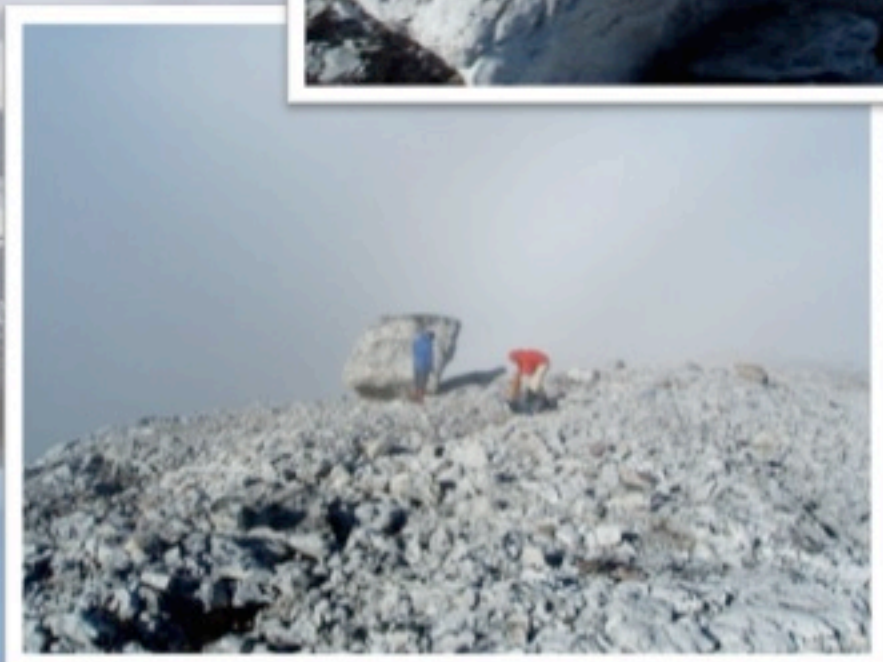


# Anthony Novak

Oregon State University

## Developing a $^{10}\text{Be}$ chronology for glacier fluctuations in Linnevatnet, Svalbard

My project goal is to better constrain the ages of older moraines in the valley, which mark deglaciation. Currently there are no ages for the older moraines, and hopefully my project will fix that. Which would show the first evidence (in the terrestrial realm) for possible glacial advances since the Last Glacial Maximum.



## **Influence of local weather in Linnédalen**

My goal is to collect and analyse data from the weather stations situated in Linnédalen to see if there is or not an influence from the local weather conditions on the mass balance of the glacier. The analysis is performed on a five years data (2003-2008) and is related to the following relationship:

- The winter net mass balance and precipitations
- The summer ablation and MDD (melting degree days) and solar radiation
- Influence of the variation of the Environmental Lapse Rate in Linnédalen

## **Antoine Cousot**

UNIS, Home Country: France




# Stephen Bate

UNIS, Home Country: England

## Reconstructing Equilibrium Line Altitudes in the Little Ice Age Glaciers of Linnédalen

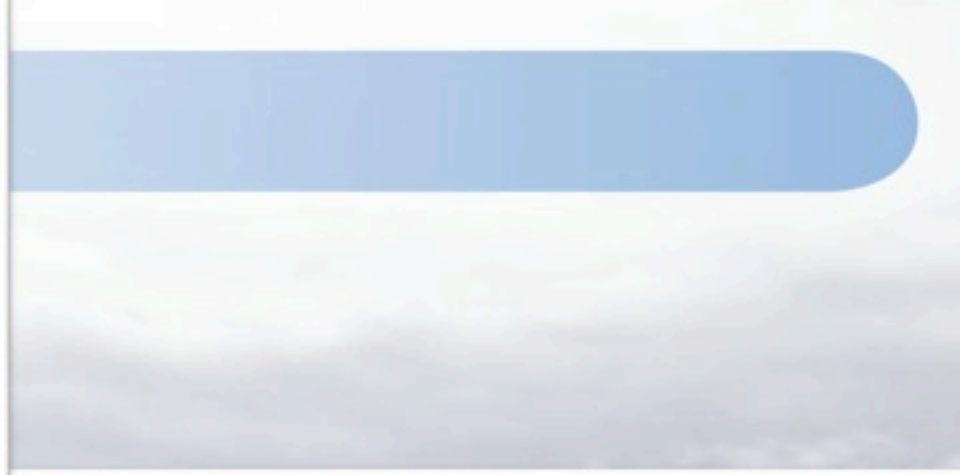
Reproduce what glaciers in Linnédalen may have looked like during the Little Ice Age. Help develop an understanding of past glacial mass balance to aid in future modelling exercises.



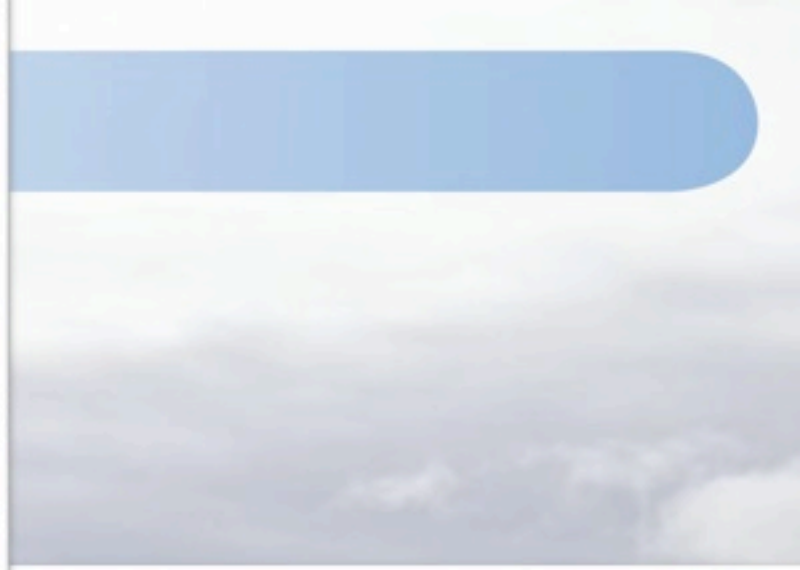
A scenic landscape photograph of a mountain range with snow-capped peaks and a calm lake in the foreground. The sky is filled with soft, white clouds. A blue decorative bar is at the top of the slide.

# What's it like working in the High Arctic?





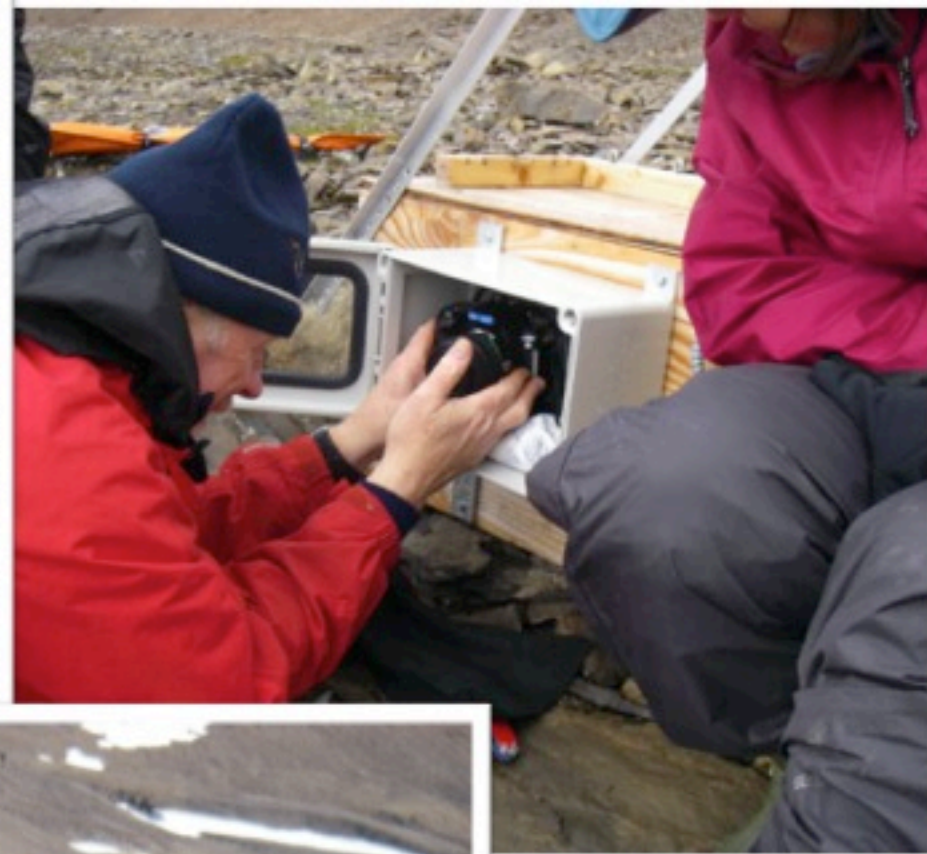










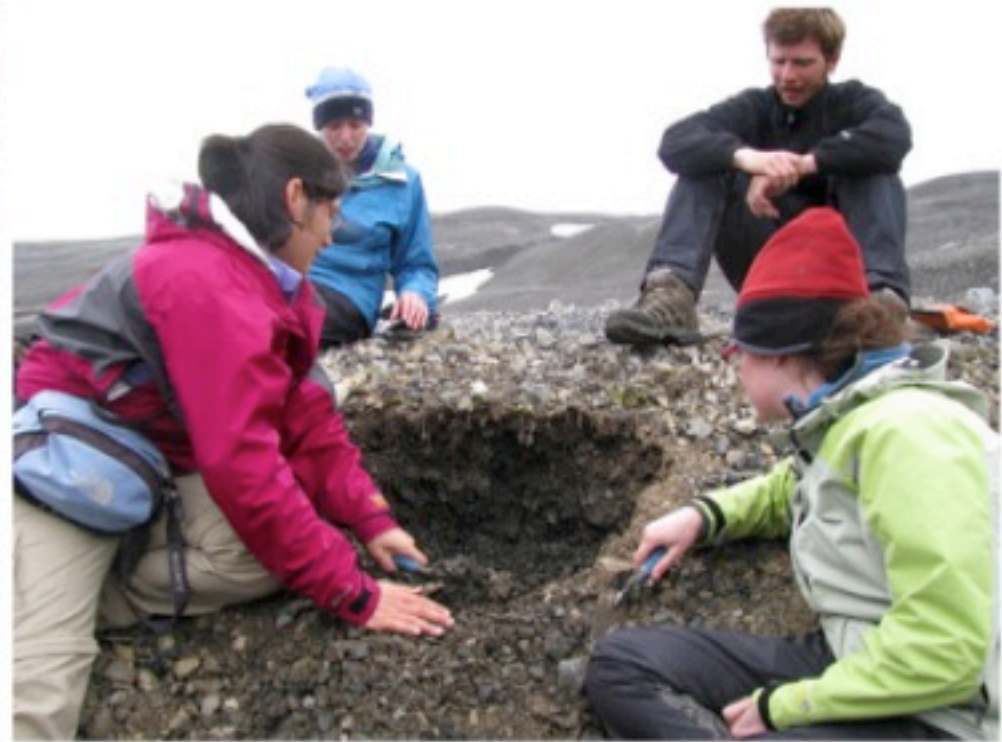












# Farewell from the High Arctic

## Questions?

Remember, you can also ask questions  
to Missy and the team at:  
[www.polartrec.com](http://www.polartrec.com)!



# Check out and register for upcoming events!



**5 August 2008—Frank Kelley and team in Barrow, Alaska**

**6 August 2008—Missy Holzer and team in Svalbard, Norway**

*Register for these events and watch for others at [www.polartrec.com](http://www.polartrec.com)!*



## *Sound Like Fun?*

- Follow the expeditions with your classroom this year!
- Participate in Live from IPY! Events
- Join the Polar Education List:  
<http://www.arcus.org/Education/educationlist/index.html>
- Become a PolarTREC Teacher: Applications will be accepted for the 2009-2010 Seasons, this fall!

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

# Thank You!



For more information, please  
visit [www.polartrec.com](http://www.polartrec.com)

Or Call 907-474-1600

Email: [infr@polartrec.com](mailto:infr@polartrec.com)

