

Welcome 2007 GLOBE Annual Conference Participants!

Live from IPY!

with Peggy Foletta



Live from Southcentral Alaska!



2 August 2007



Welcome to Wimba!

Arctic Research Consortium of the United States



Raise your hand to ask a question

List of all participants

Return to the Lobby or Exit

Slides will be shown here

'Chat' with one person or the entire group

Connecting to server...
You have connected successfully!
You have entered the lobby.
You have entered 'Arctic Research Consortium of the United States (ARCUS)'.
Your media format is Third-party Conference Call.

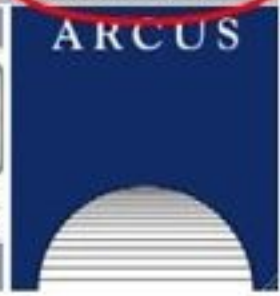
PO / ALL

Yes No ?

Name	J	X	?
Helen_Wiggins			

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Exit Lobby - Help





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.polartrec.com



The PolarTREC Team



Wendy Warnick
PolarTREC PI
Executive Director



Helen Wiggins
Program Coordinator



Janet Warburton
PolarTREC
Project Manager



Katie Breen
PolarTREC
Project Manager



Kristin Fischer
PolarTREC
Project Assistant



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



Who are we talking with today?



Teacher

Peggy Foletta

Kingsburg High School
California

& Robin the Viking!



Researcher

Caleb Schiff

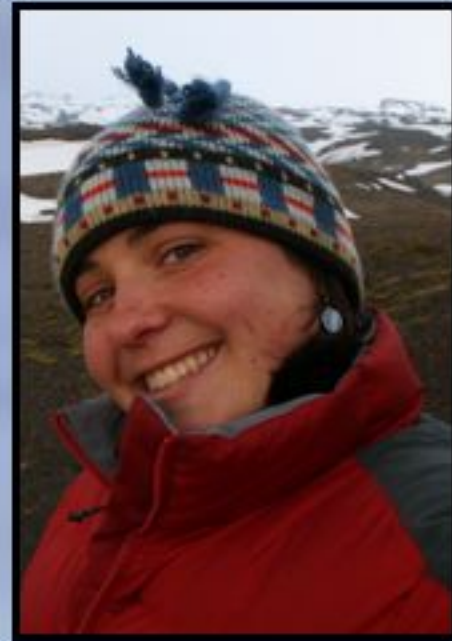
Northern Arizona University
Arizona



Researcher

Chris Kassel

Northern Arizona University
Arizona



Researcher

Heidi Roop

Northern Arizona University
Arizona



Long-term Climate Variation in Southcentral Alaska



Goal of the project:

Investigate climate variation over the past 10,000 years in southern Alaska based on information stored in lake sediments. The team will monitor limnological conditions and analyze recent lake sediment in order to reconstruct the paleoclimate of the region to understand modern warming in context of long-term climate variability.

Dates:

27 July - 16 August 2007

Location:

Various Lakes around the Southcentral Region of Alaska

Where is Ms. Foletta?

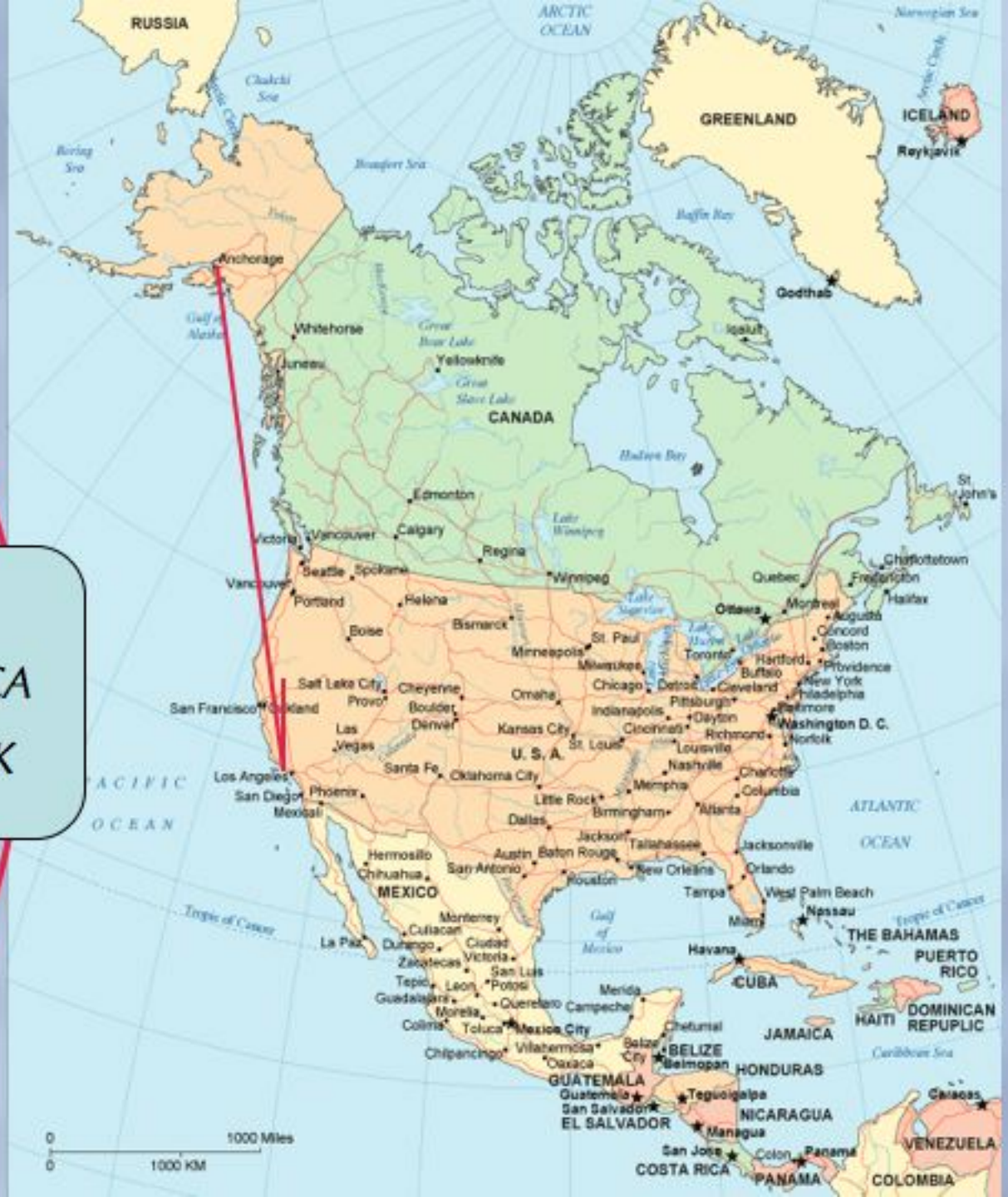
- Visiting 5 lakes within the region below.
- Limited or no road access to many sites.



Peggy's Trip to Alaska



Fresno, CA
Los Angeles, CA
Anchorage, AK



Travel to most field sites will be with a floatplane.



The Research



Alaska Lake Sediment Studies

Paleoclimate and Volcanic Records

Northern Arizona University

PI: Darrell Kaufman

Students: Eric Helfrich, Chris Kassel, Heidi Roop, Caleb Schiff



Cascade Lake, Ahklun Mountains, one of the study sites in the Bristol Bay region

Why study lakes?

Lakes accumulate sediment from the surrounding landscape and from within the lake. Lakes, therefore, incorporate changes that may occur due to changing climate or local and regional events.



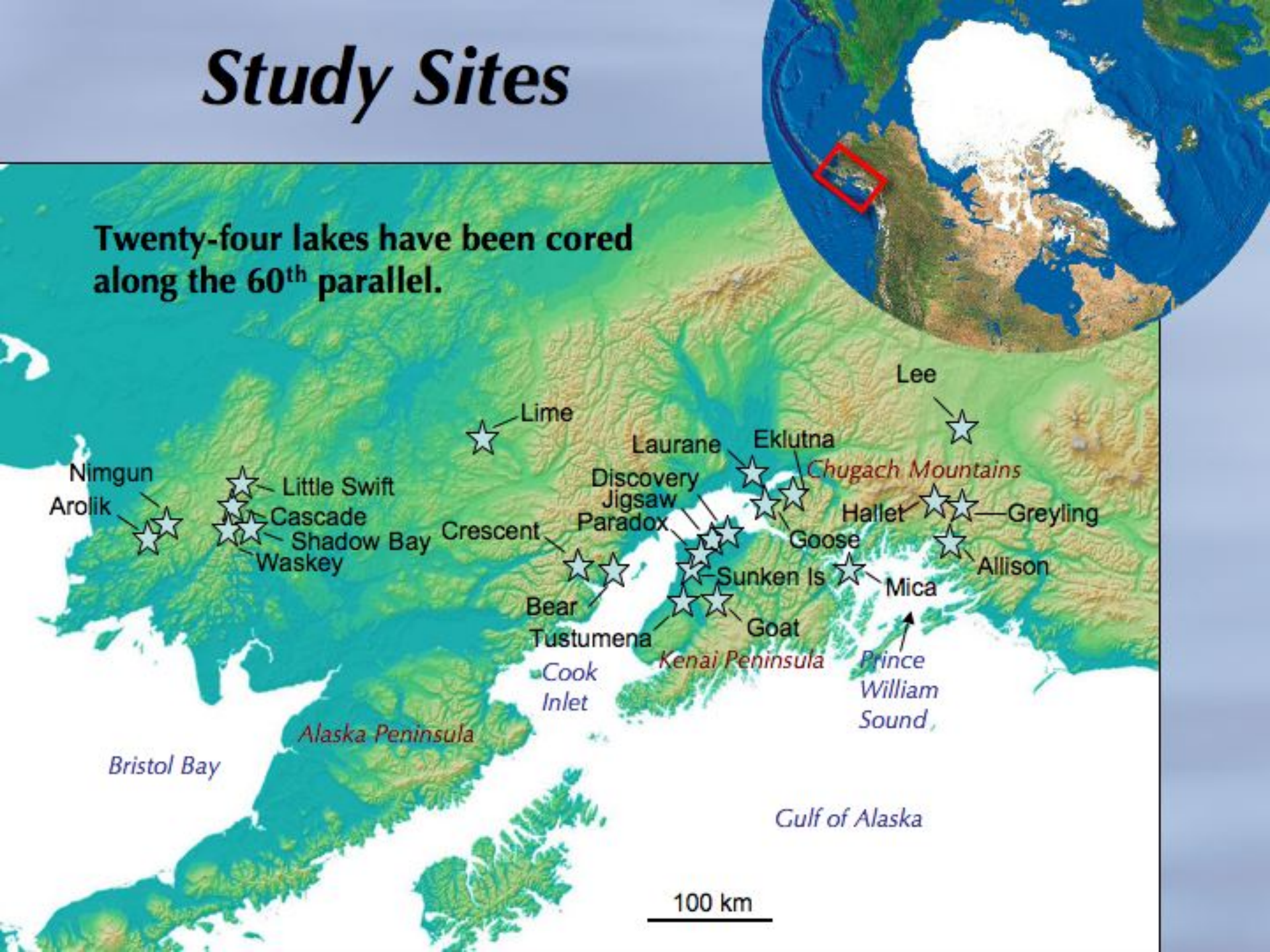
Fine-grained, glacial sediment delivered to Nellie Juan Lake gives the lake its aqua blue coloring.



Non-glacial, Milliard Lake has clear water allowing photosynthesis to occur. More sunshine and warmer conditions increase the amount of algal material that grows and eventually accumulates on the lake bottom.

Study Sites

Twenty-four lakes have been cored along the 60th parallel.



Different Objectives, Different Lakes



*Glacier fed lakes are good
for climate records*



*Lakes near volcanoes are good
for eruption records*

Field Work



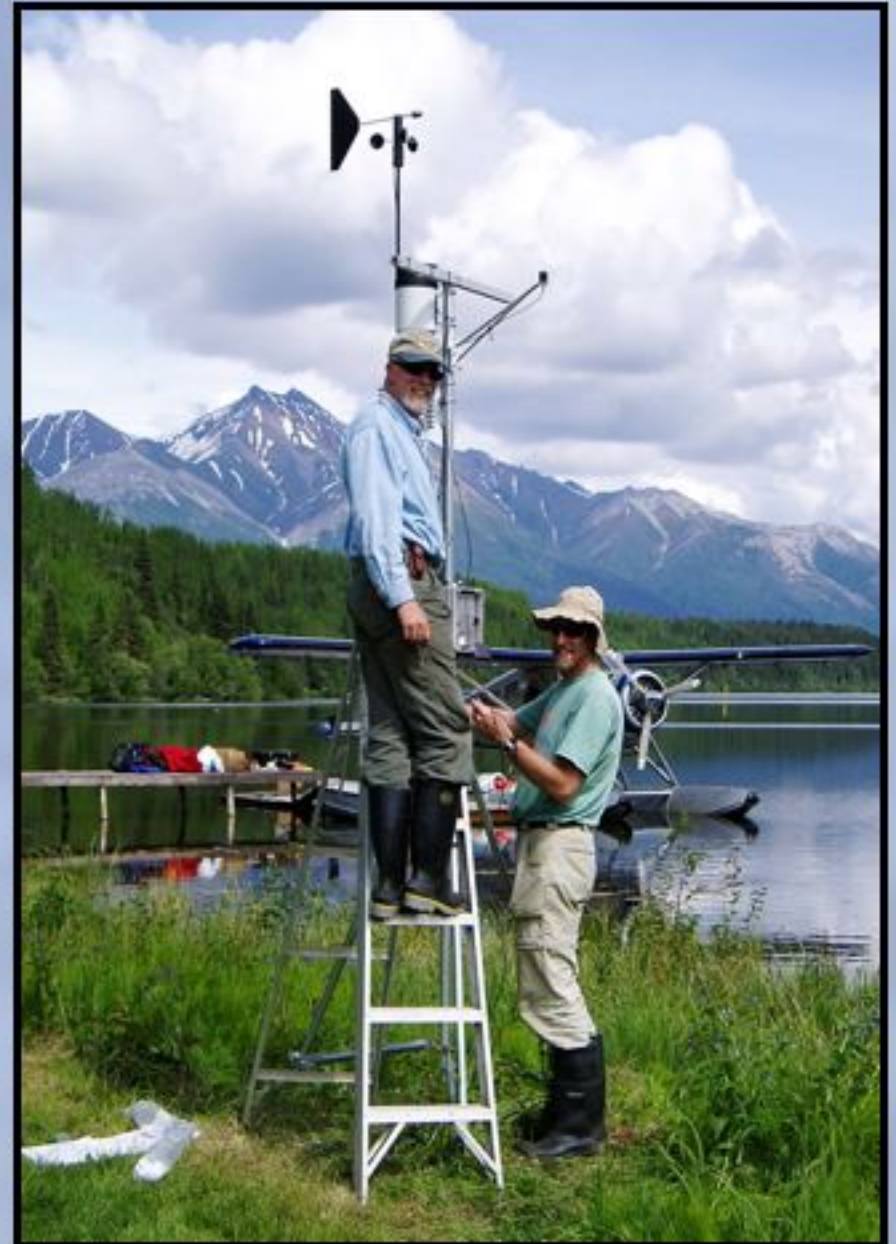
A floating platform with tripod is used to core the lakes. Cores up to 8 m long are recovered from water depths of 50 m or more using hand-operated hammers and ropes.



Shorter cores capture the sediment-water interface and are subsampled in the field to avoid disturbance during shipping

Field Work

Lakes are instrumented with sediment traps and temperature loggers, and weather stations are used to relate annual sedimentation patterns to meteorological conditions



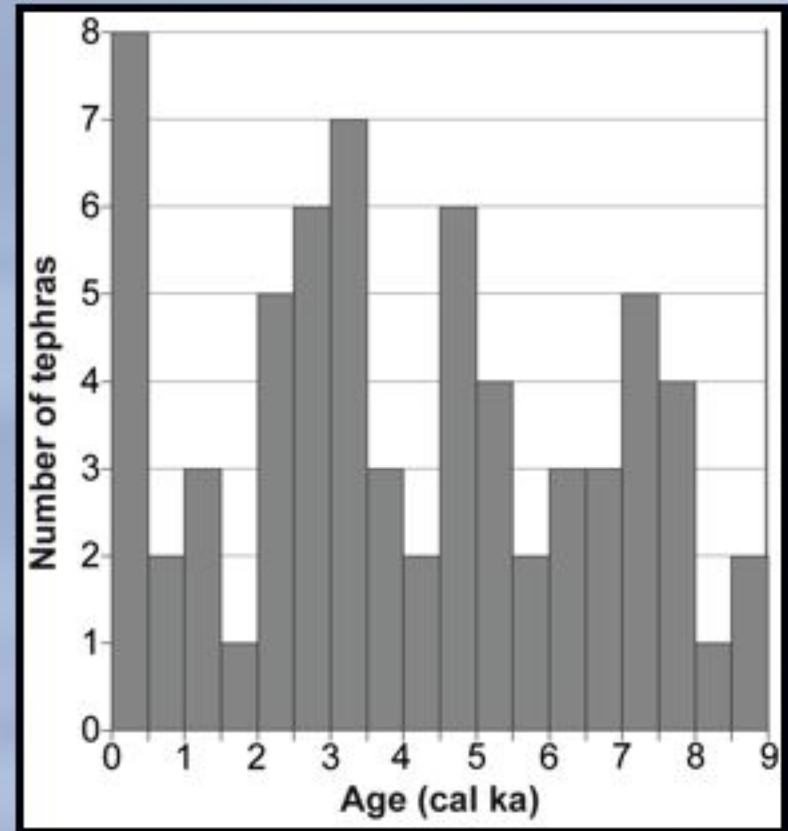
Field Work



Long cores are returned to the lab where they are split lengthwise and analyzed at centimeter scale for a variety of physical and biological properties.



Lab Work



This core from Bear Lake contains 67 tephra layers that were deposited during the last 9000 years. When combined with sediment ages, we can reconstruct the tephra-fall frequency at Bear Lake.

Aerial Photo



We are currently at Hallett Lake. The lake is located in the Chugach Mountains and is surrounded by many glaciers.

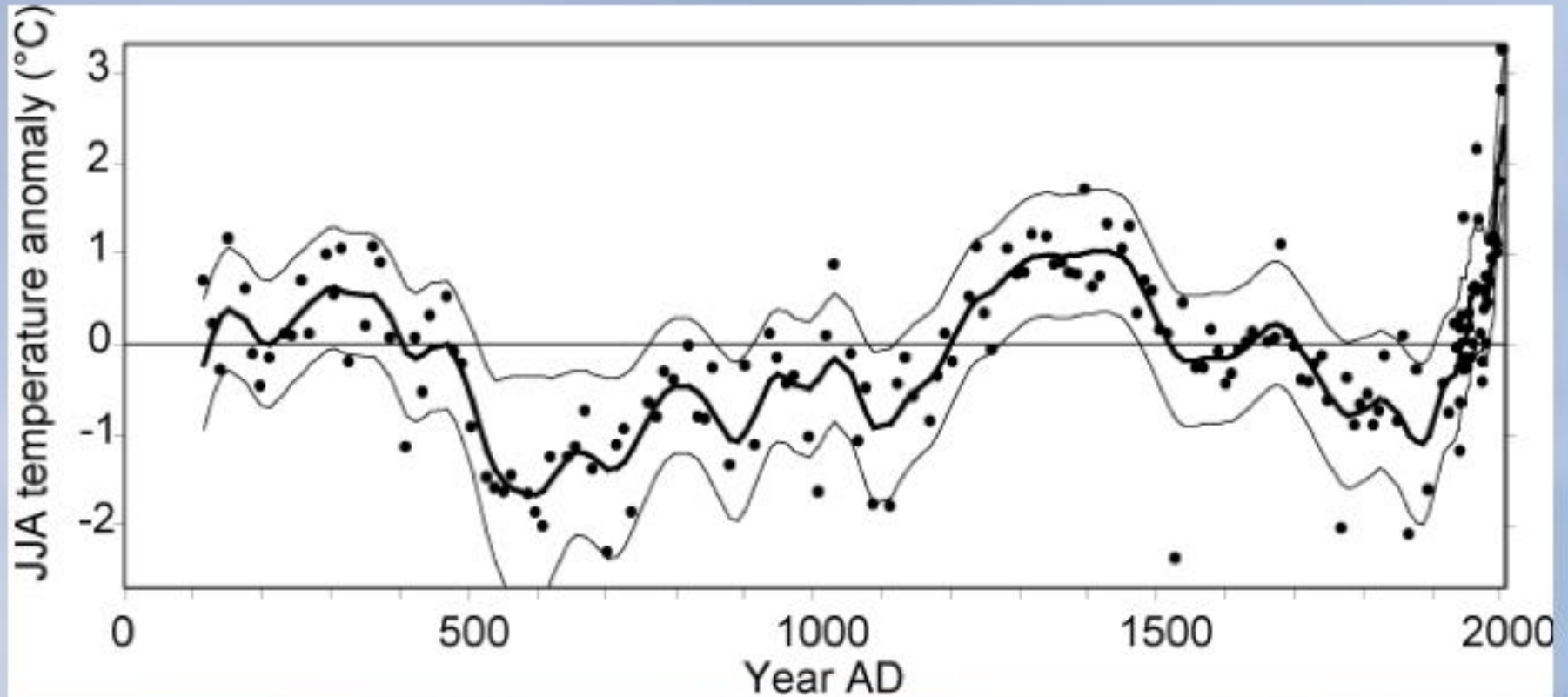
Hallett Lake

Ground Photo



At Hallett Lake, we are recovering temperature data and sediment traps which were deployed in 2006.

Hallet Lake Temperature Reconstruction



The algal record from Hallet Lake has been used to reconstruct summer temperature during the last 2000 years.

Aerial Photo



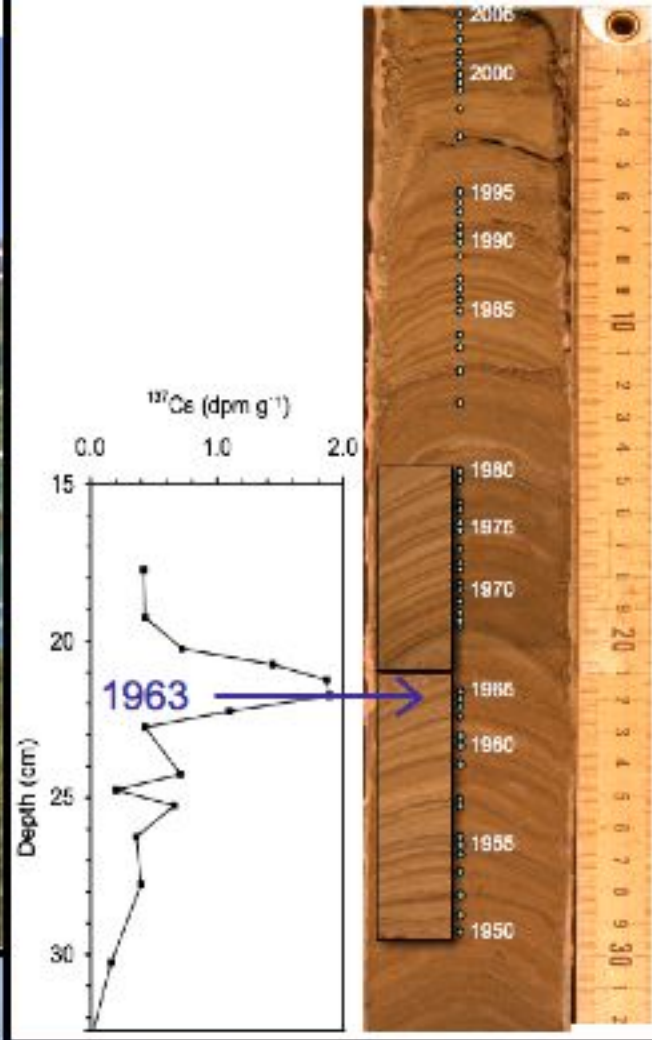
Allison Lake

Ground Photo



Next, we are headed to Allison Lake. The sedimentation at Allison Lake observes a regular pattern of coarse, summer sands followed by fine-grained, winter clays. Using this pattern, we can count layers in the sediment cores and know the exact year that the sediment was deposited.

The thickness of each layer is often related to the local summer conditions at the lake so we can use the thickness of these layers as a "proxy" for climate at Allison Lake.



Nuclear weapons testing in the 1950's and 60's released Cesium into the atmosphere, which was incorporated into the lake sediment and we can now measure to confirm the age of each layer.

In addition to completing all our field work, we also enjoy playing cards, telling jokes, and enjoying the beautiful surroundings of Alaska.

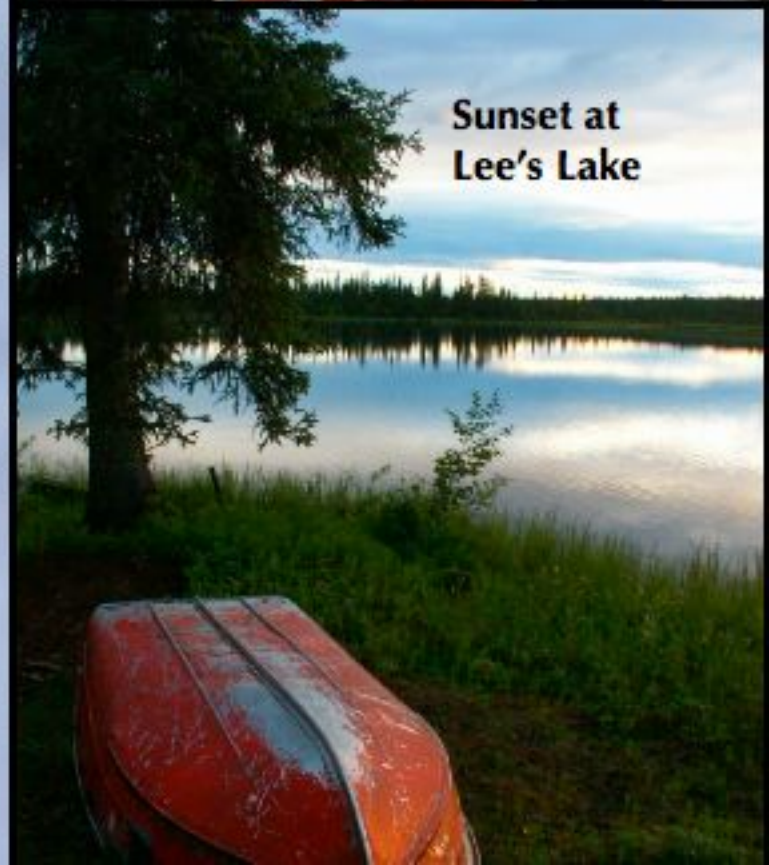


With future global warming, high latitude regions like Alaska are likely to undergo drastic changes. Melting glaciers and permafrost will affect humans and wildlife.

The objectives of our work are to better understand how climate in Alaska has changed in the past and what changes we should expect in the future.



Look at all the great ways to cut a pita!



Sunset at Lee's Lake

Questions?



*An arctic tern, the PolarTREC mascot,
flies above Peggy's field camp!*

Does this sound like fun?

*Apply to become a
PolarTREC teacher in
September at
www.polar-trec.com!*



Check out and register for upcoming events!



www.polarrec.com

*Thank
You!*

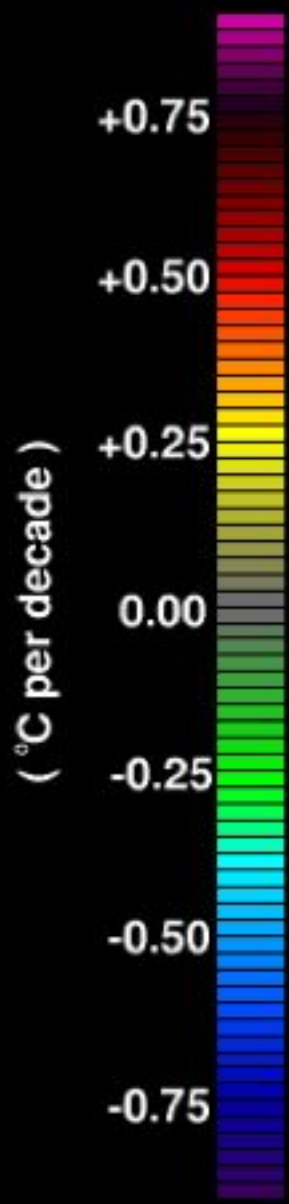
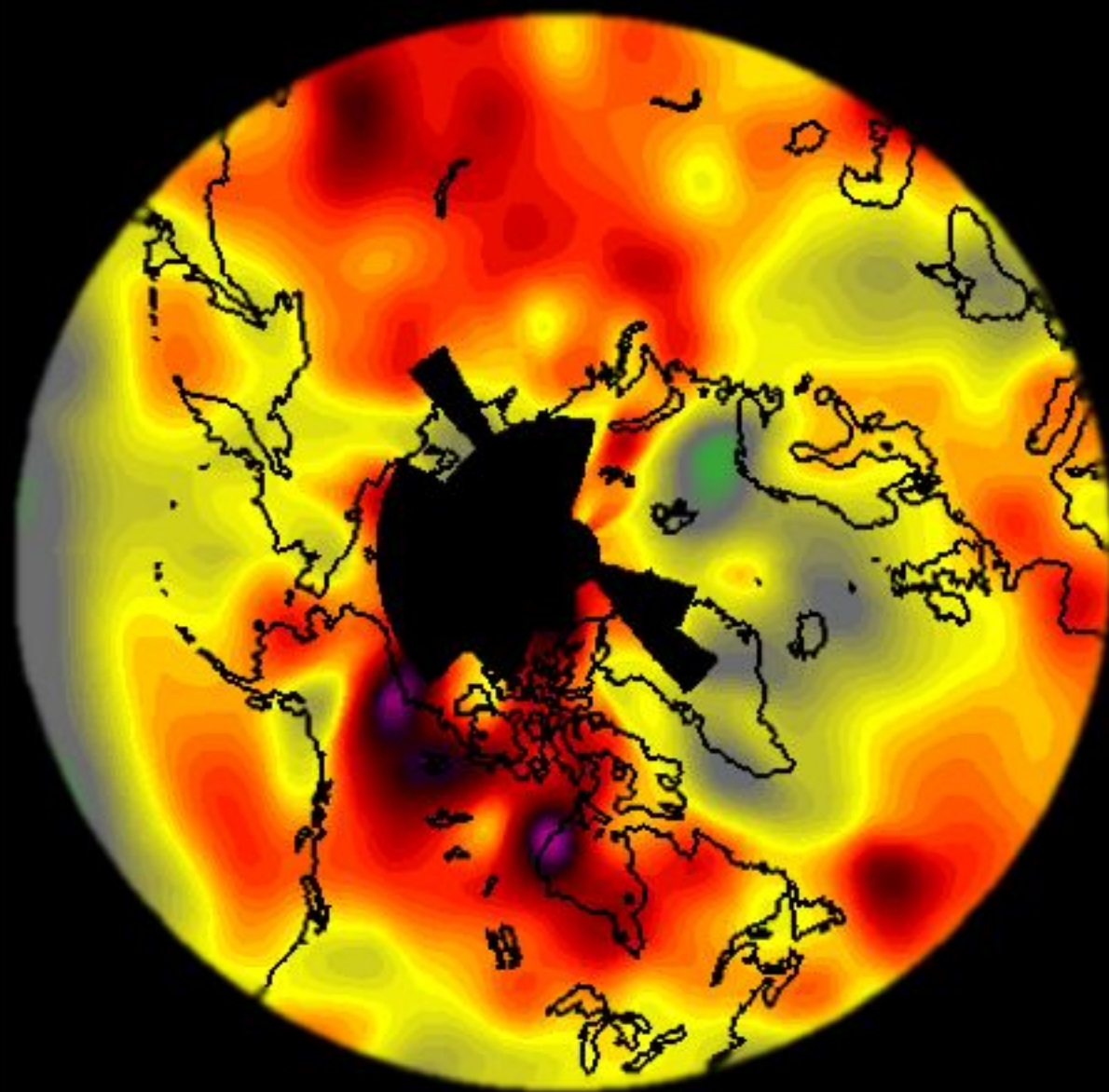


*If you have further
questions, please contact us
at info@polartrec.com or call
1-907-474-1600*

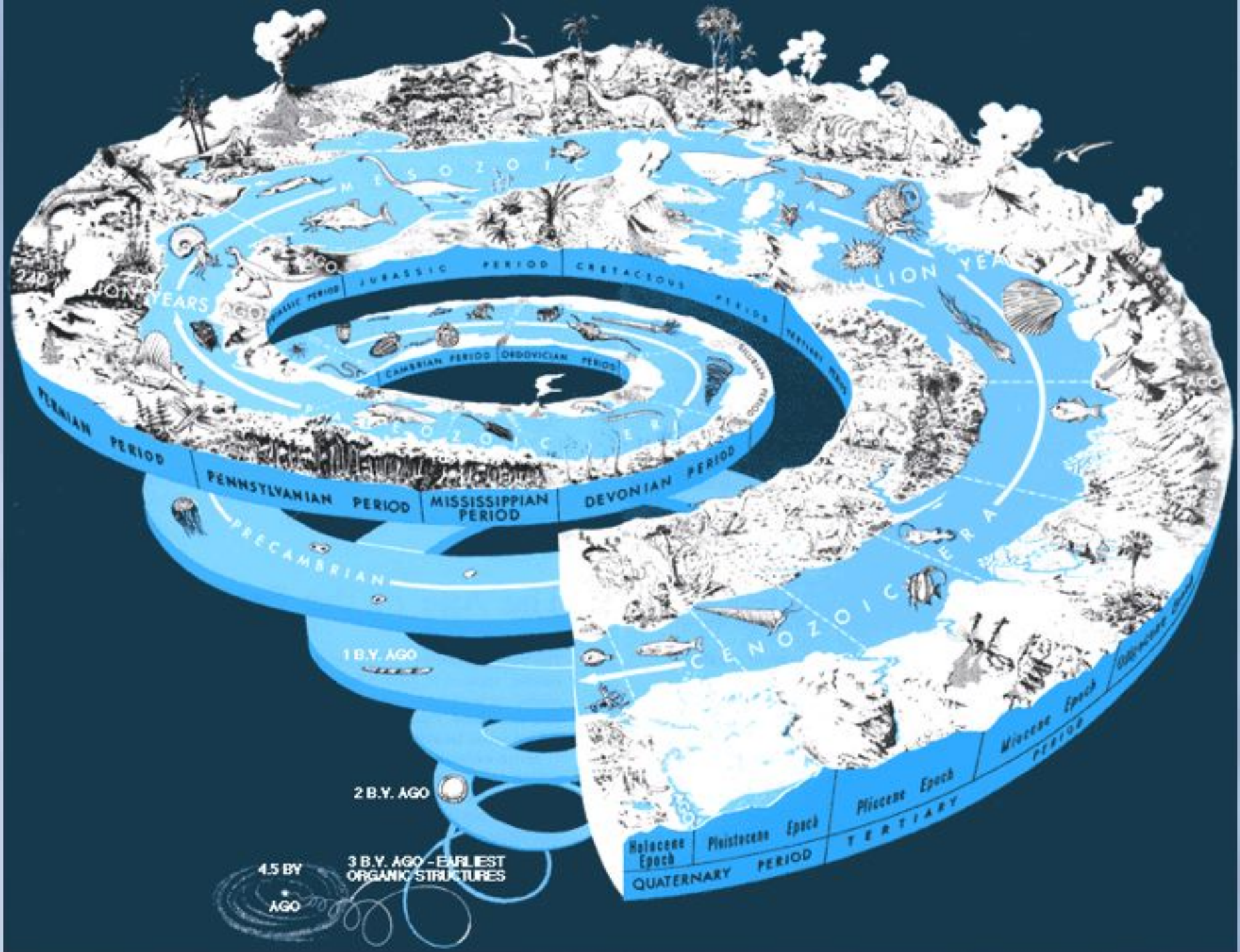


Arctic Temperature Trends

Annual : 1971 - 2000



<http://faldo.atmos.uiuc.edu/ARCTIC/>





USFWS



USFWS



USFWS



USFWS

