

# Welcome to *PolarConnect*



## Climate Change and Pollinators in the Arctic 2016

With Principal Investigator Christine Urbanowicz  
& PolarTREC Teacher Anne Farley Schoeffler

**16 June 2016**

# Getting to Know Adobe Connect

Slides will be shown here

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List of all participants

Follow the chat

Find out more about the presentation

Chat here

PolarConnect Events - Adobe Connect

Meeting

Camera

Slide1.jpg

Attendees (3)

Active Speakers

Hosts (0)

Presenters (0)

Participants (1)

Joyce

Chat (Everyone)

ARCUS Staff: Hello!

Files 3

Name	Size

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TEACHERS AND RESEARCHERS  
EXPLORING AND COLLABORATING

**POLAR TREC**

## Welcome to *PolarConnect!*

Real-time events from teachers and scientists in the field directly to you.  
Join us for the best webinars from the polar regions!

If you need to join by phone:  
dial 1-800-766-1337  
enter 54366779#

Events hosted by the  
Arctic Research Consortium of the United States  
as part of the PolarTREC Program

www.polartrac.com

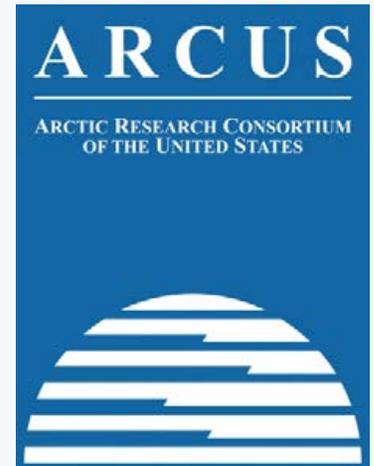
# Participant Introductions

**In the Chat box, please introduce yourself  
by typing in your:**

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

# What is PolarTREC?

- Since 2004, the Arctic Research Consortium of the United States (ARCUS), a non-profit organization, has been administering the PolarTREC Program.
- PolarTREC is professional development for K-12 teachers. They are paired with researchers for 2-6 week research experiences in the polar regions.
- Over 150 teachers from around the United States have joined 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 and activate your microphone.
- Speak loud and clear, directly into the computer microphone or the phone to ask your question.



# Climate Change and Pollinators in the Arctic 2016

Principal Investigator: Christine  
Urbanowicz

PolarTREC Teacher: Anne Farley Schoeffler

# Greenland

The world's largest island

80% covered by ice

20% covered by tundra



Kangerlussuaq



# Research Team

Principal Investigator: Christine Urbanowicz



Research Assistant: Amber

PolarTREC Teacher: Anne Farley Schoeffler



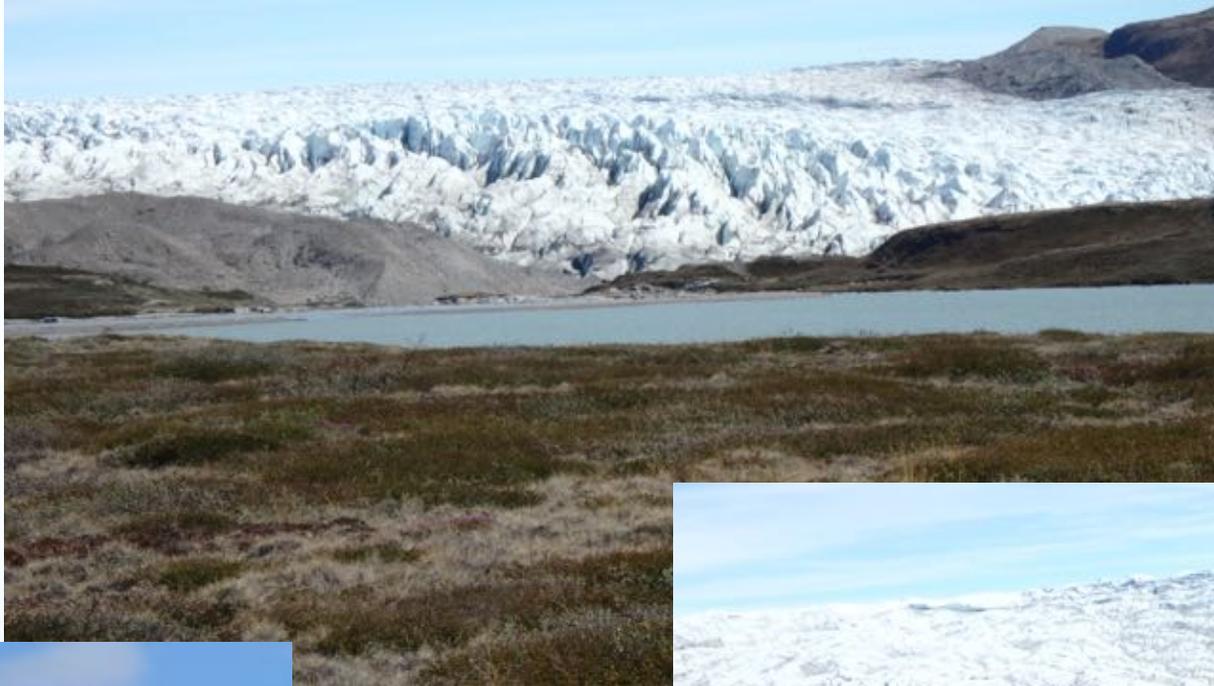
# Base Camp



# Glacier



# The Tundra Biome



# Blueberry Plant (*Vaccinium uliginosum*)





# Pollination

In Greenland:

- ✓ Mosquitoes
- ✓ Flies
- ✓ Bees

And by hand by



15 plants at each site are hand-pollinated; 15 plants at each site are the controls, so they are left alone.

# Fruit > Seeds



Tiny blueberries will ripen in August. All the seeds inside will be counted too.

# Near and Far

- 15 sites near camp/far from the glacier (20-24 miles)
  - These are the warmer weather sites.
- 15 sites near the glacier/far from camp (1-2 miles)
  - These are the colder weather sites.

This contrast represents the weather of western Greenland now and western Greenland of the future.

# So What Do We Learn?!

## Plants far from the ice sheet

- ✓ Air is 3 Celsius warmer.
- ✓ There is less wind.
- ✓ Soil is warmer.
- ✓ Flowers bloom earlier.

## Plants near the ice sheet

- ✓ Air is 3 Celsius cooler.
- ✓ There is more wind.
- ✓ Soil is colder.
- ✓ Flowers bloom later.

## QUESTIONS

- Are there more berries from warm or cold sites?
- Are there more berries from hand-pollinated plants?
- Are there more seeds in either condition?
- Were there more pollinators in either condition?
- Were the pollinators effective in doing their job?

# Weather vs. Climate

## Weather ...

- ... is what happens everyday.
- .... Is what is going on right outside your window.
- ... is very changeable.

## Climate ...

- ... is a pattern that occurs over a long time -- decades.
- ... is a pattern that occurs over a large area – a region or a very large island.
- ... is fairly stable.

So when we talk about **climate change**, we are talking about change in long-term, large area conditions.

# The Importance of Arctic Research

The temperature in Arctic regions is increasing twice as fast as in the rest of the world.

- ✓ This part of Greenland is predicted to warm 3 degrees Celsius in the next 70 years, so the temperature range tested here matches exactly the expected change in climate.
- ✓ If we understand what is happening in the Arctic, we can plan for changes that will likely occur in the rest of the world.

# For example:

- If some plants produce more fruit when warmer, then we will have more fruit.
- If some plants produce less fruit when warmer, then we will have less fruit.
- If some plants prefer a cooler climate, they might not survive.
- If some plants prefer a warm climate, they might thrive.
- If some pollinating insects prefer a cooler climate, they might not survive.
- If some food plants need pollinators, then we might not have pollinators to do the job.
- If plants bloom earlier, and insects emerge at a different time, they might not interact successfully.
- If some insects destroy plants in warmer conditions, the plants might not survive.

QUESTIONS?



# Questions

- ✓ Raise your hand with the “hand button”.
- ✓ PolarTREC staff will call on you and activate your microphone.
- ✓ Speak loud and clear, directly into the computer microphone or the phone to ask your question.



TEACHERS AND RESEARCHERS  
EXPLORING AND COLLABORATING

# Teachers: Join PolarTREC!

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

Every teacher can participate in different ways:

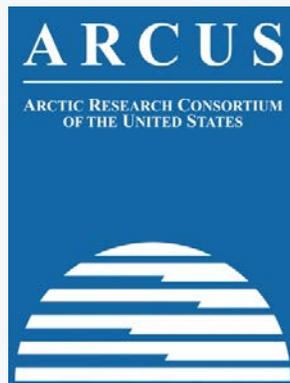
- **Following Expeditions**
- **Participate in PolarConnect Events**
- **Join the Polar Education Email List**
- **Become a PolarTREC Teacher!**



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# Thank You for Joining!

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



A special thank you to  
the National Science  
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Polar Program for  
their ongoing support  
of this program!

