

Welcome to *PolarConnect*



Phenology and Vegetation Change In The Warming Arctic

With PolarTREC Teacher Melissa Lau

& Team Researchers Dr. Jeremy May and Matthew Simon

June 20, 2018

Getting to Know Adobe Connect

Slides will be shown here

Exit presentation

Mute your speakers

Raise your hand

List of all participants

Follow the chat

Find out more about the presentation

Chat here



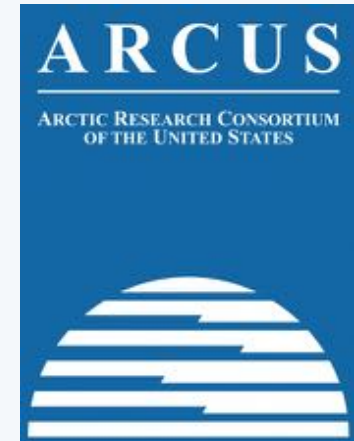
Participant Introductions

**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.



25 Years of Connecting Arctic Research
www.arcus.org

Questions

During the Presentation:

- Type your question in the text chat box

At the End of the Presentation, two options:

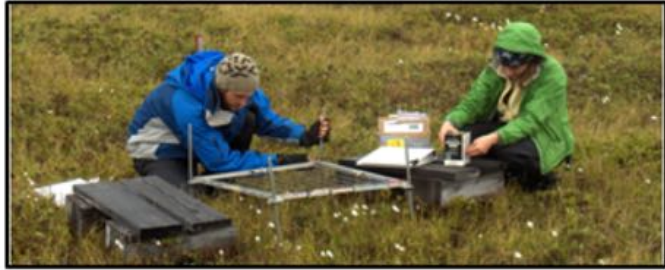
1. Type your question in the text chat box, or
 2. Raise your hand with the “hand button”.
- PolarTREC staff will call on you and activate your microphone.
 - Speak loud and clear, directly into the computer microphone or the phone to ask your question.

Dr. Jeremy May

- Understanding factors that affect plant community phenology
- Scaling up measurement methodologies in tundra systems
- The roles that cryptogams (moss and lichen) play in tundra systems

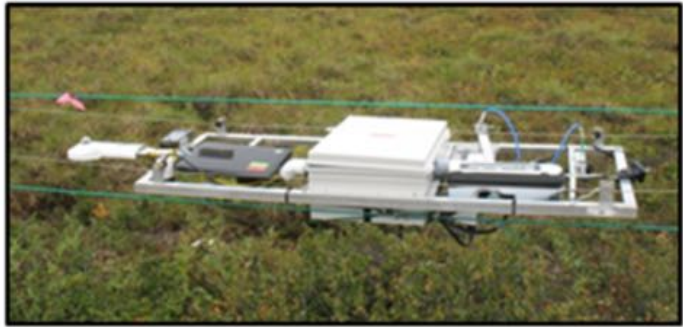






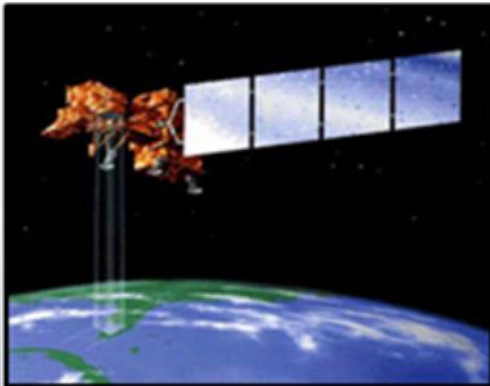
Plot scale vegetation assessment

- Highly precise
- Time and labor intensive



Mobile Instrumented Sensor Platform (MISP)

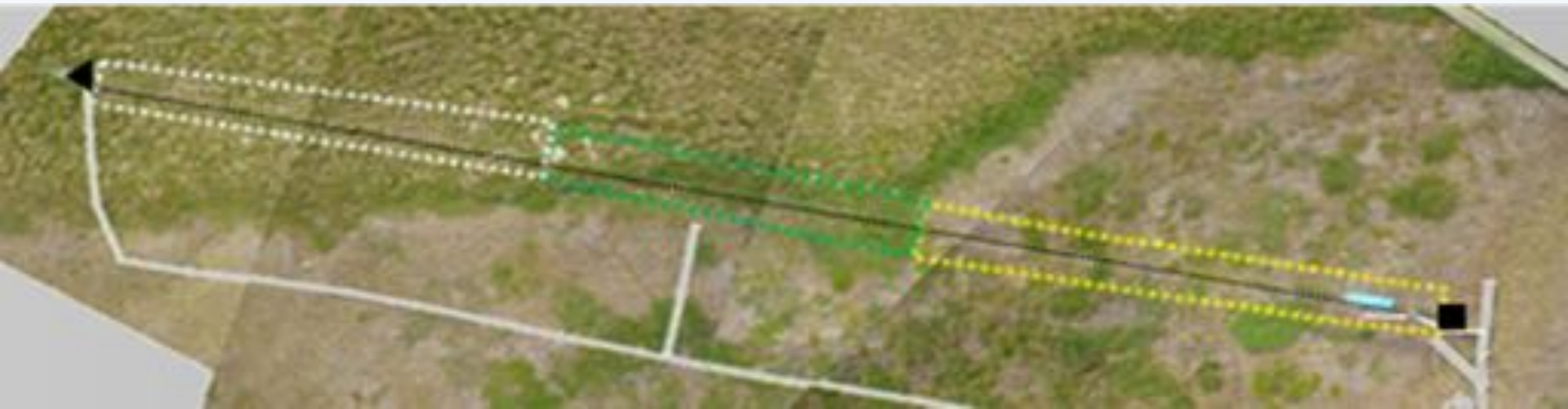
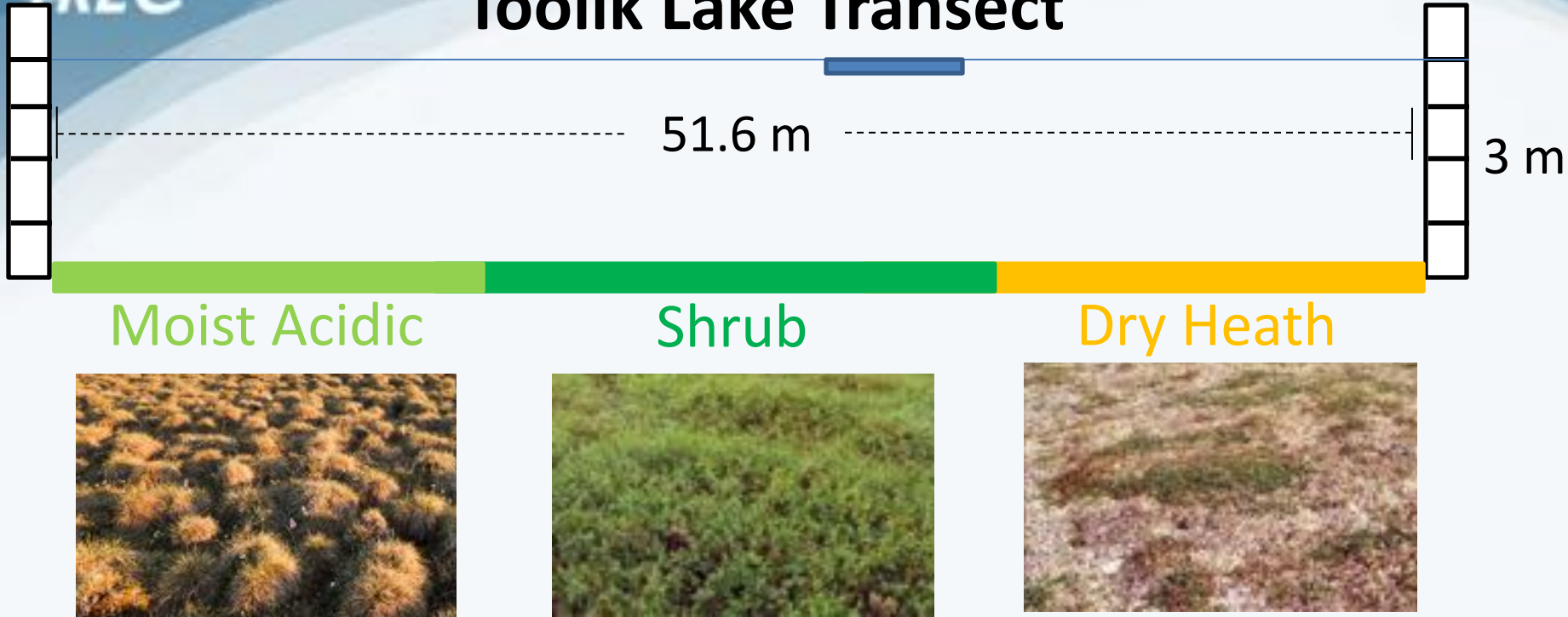
- Highly precise, less intensive
- Higher resolution than satellite



Satellites imagery

- Large scale monitoring
- Lower spatial and temporal resolution

Toolik Lake Transect



MISP Instrumentation



CNR4 Net Radiometer

FUJI 3D Camera

Sonic Distance Sensor

Jaz Spectrometer
(300-1100nm)



Apogee infrared
Temperature Sensor

GreenSeeker
NDVI Sensor

FLIR Thermal Camera

Matthew Simon

- Lab technician and recently graduated with undergrad
- 2nd year working in the arctic
- Experienced in recognizing several arctic plant species
- Proficient in the use of several scientific instruments measuring said arctic species





Where is Barrow and Toolik?



Barrow (Utqiagvik) Site

- BARC (Barrow Arctic Research Center)
- BEO (Barrow Experimental Observatory)



New Experiences!

- Snow machining!
- ATVs!
- Longspur wrangling!
- Inupiat culture!



Toolik Field Research Station

- A UAF facility
- Weatherport City
- Dining Hall
- Community Center
- Lab 4



Fauna





Flora





Weather

First two weeks...



Last couple of days...





ITEX-AON Project

- International Tundra Experiment
- Arctic Observing Networks (AON)
- Dr. Steve Oberbauer is lead PI of the Florida International University team.



What We Are Doing

- Using MISP (Mobile Instrumented Sensor Platforms) to collect data.
- Bridge between the eyes on the ground and the satellites in space.
- Data is shared in open source for synthesis.



Phenology

- The study of life cycle events and how they are influenced by biological and physical factors.



Climate Change and Phenology

- A warming planet can create changes in timing for phenological events.
 - Plants blooming earlier, senescing later, longer growing periods
 - Insect larva emerging sooner, birds time their clutches by the availability of larva for chicks

Join PolarTREC!

www.polartrac.com/about/join

Everyone can participate in different ways:

- **Follow Expeditions**
- **Participate in PolarConnect Events**
- **Join the Polar Education Email List**
- **Check out the great resources**
- **Become a PolarTREC Teacher or Researcher**
- **Become a member of ARCUS**

Thank You!

An archive of the event will be available shortly.

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



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