

# Welcome to Live From IPY!

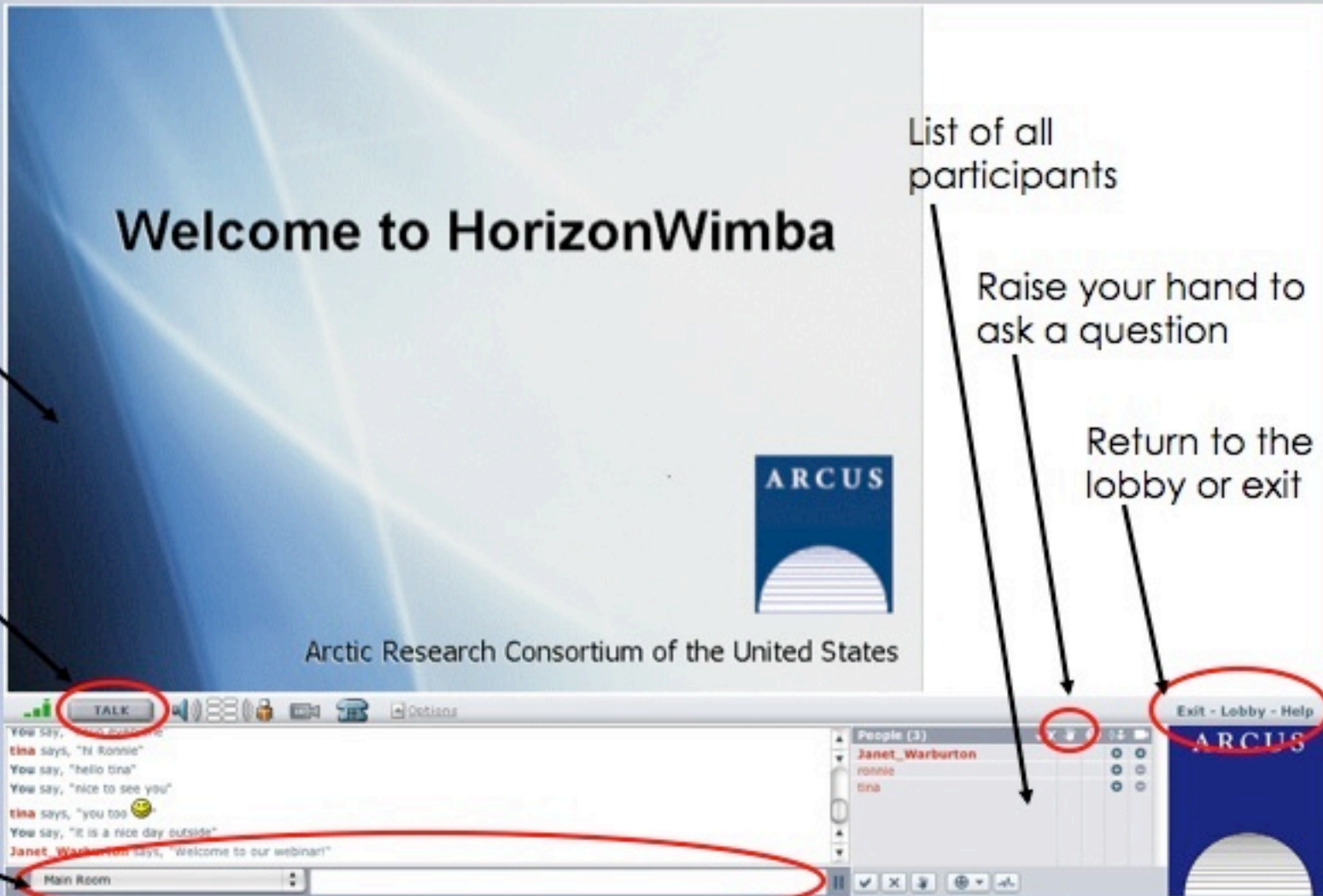


With **Elizabeth Eubanks and the Polar Science FIU Team** and special guests, live from the **Arctic Tundra Dynamics Expedition in Barrow, Alaska**

## July 10, 2008

7:00AM Alaska Daylight Time [5:00AM HDT, 8:00AM PDT, 9:00AM MDT, 10:00AM CDT, 11:00AM EDT]

Arctic Tundra Dynamics '08  
[www.polar trec.com](http://www.polar trec.com)



Slides will be shown here

If using VOIP, press here to talk

'Chat' with one person or the entire group

ARCUS

Arctic Research Consortium of the United States

TALK

People (3)  
Janet\_Warburton  
ronnie  
tina

Exit - Lobby - Help

List of all participants

Raise your hand to ask a question

Return to the lobby or exit

**Please note:** Today's event will be recorded and archived at [www.polartrec.com](http://www.polartrec.com).

# 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.polar-trec.com](http://www.polar-trec.com)**

# The PolarTREC Team



**Wendy Warnick**  
PolarTREC PI  
Executive Director



**Helen Wiggins**  
Program Coordinator



**Janet Warburton**  
PolarTREC  
Project Manager



**Kristin Timm**  
PolarTREC  
Project Manager



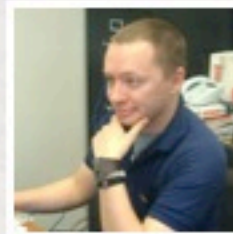
**Ronnie Owens**  
Web Developer



**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)**

# Meet the Team

**Paulo Olivas**



**Dr. Steve Oberbauer**



**Jose Luciani**

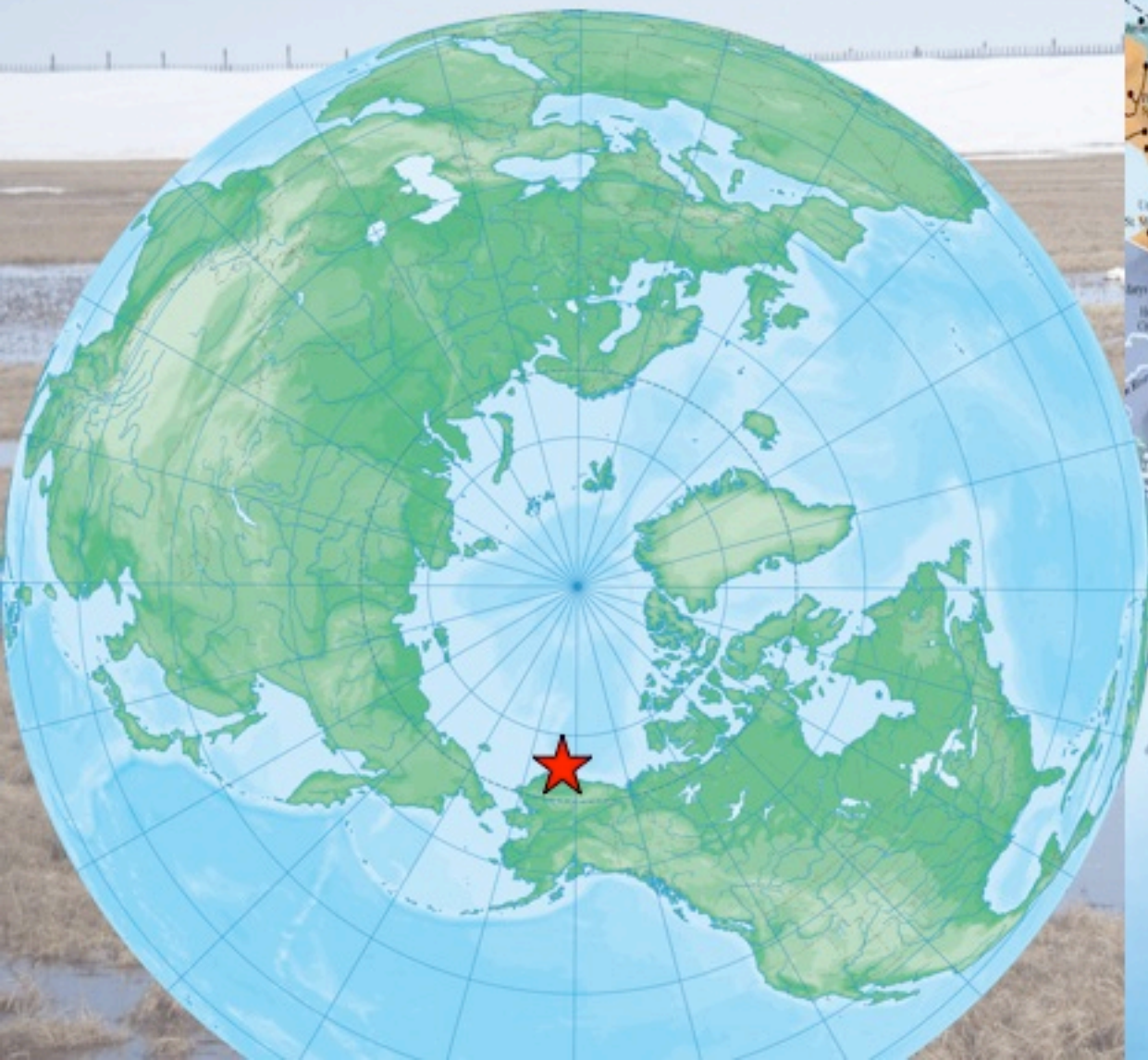




**PolarTREC Teacher  
Elizabeth Eubanks**

*St. Mark Catholic  
School  
Boynton Beach, FL*

# Where is Mrs. Eubanks & the Team?





**I went to the Arctic Ocean  
with things St. Mark Kids gave me**



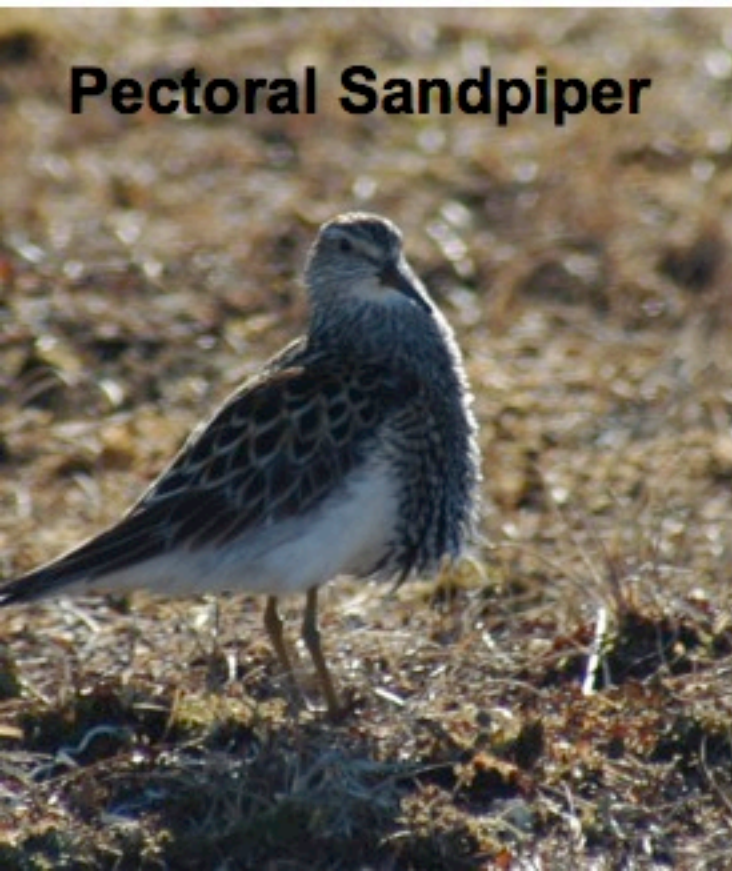
**Snow Bunting**



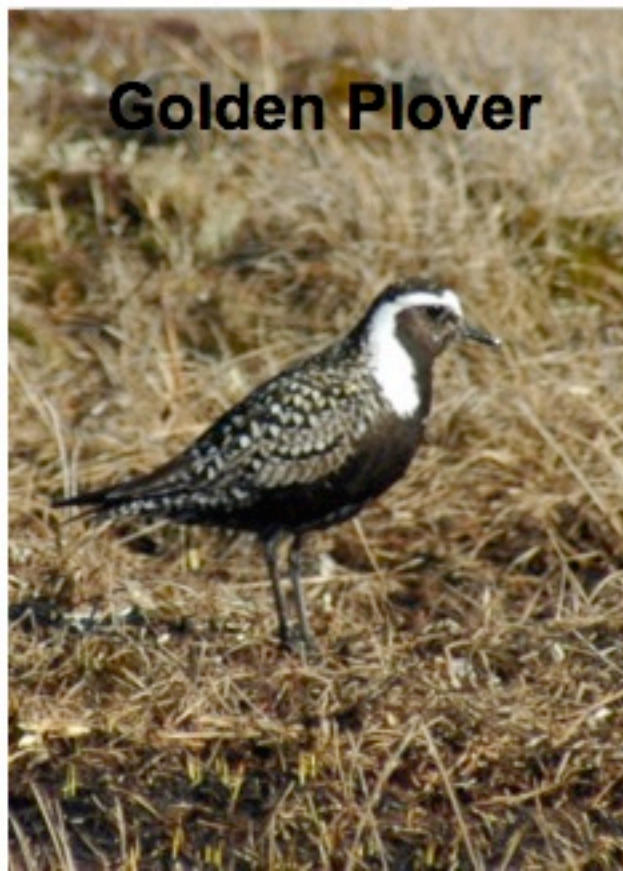
**Arctic Tern**



**Pectoral Sandpiper**



**Golden Plover**



**Steller's Eider**



# Meet the Germinators



**St. Mark Germinators**

*(Not pictured Hayley and Matthew Bigerton)*

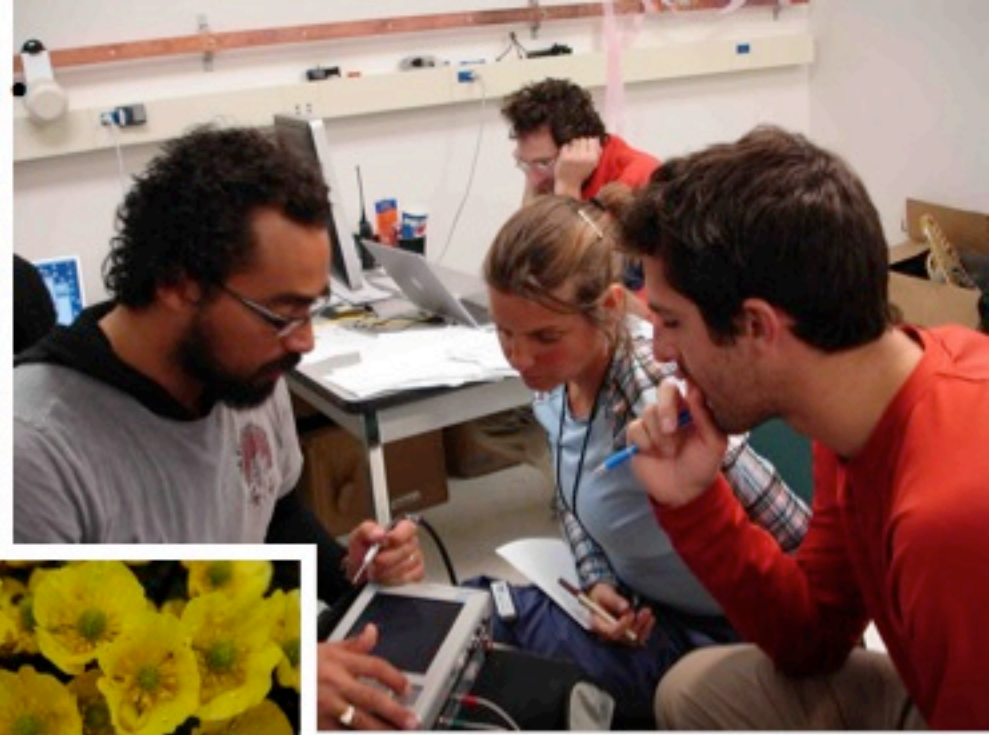


**Mine - grown in the light**  
Alaska Arctic Circle

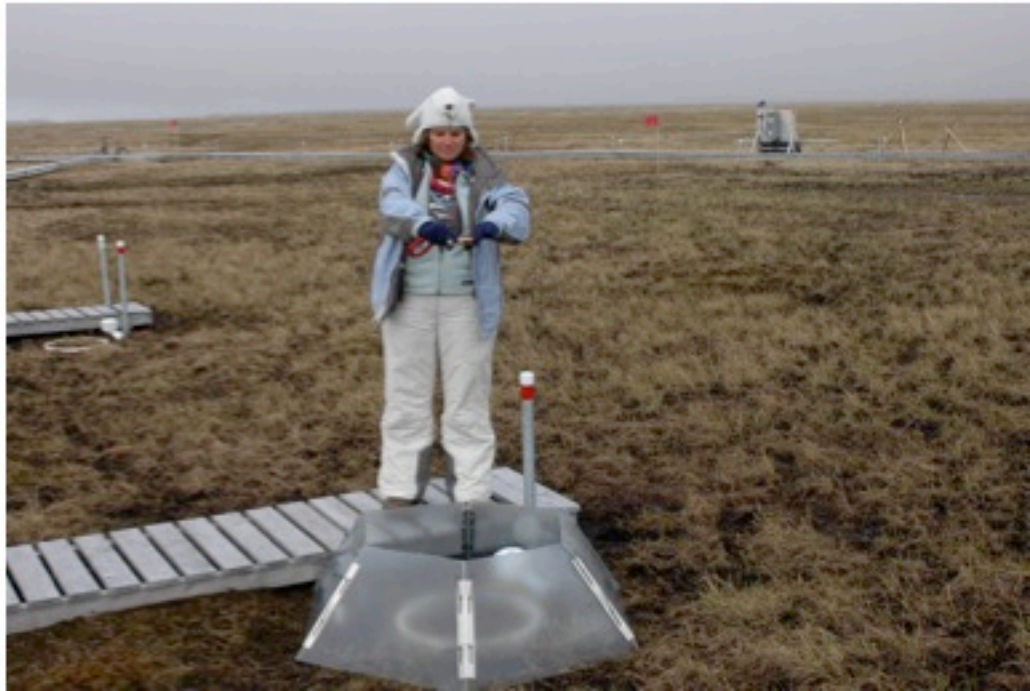
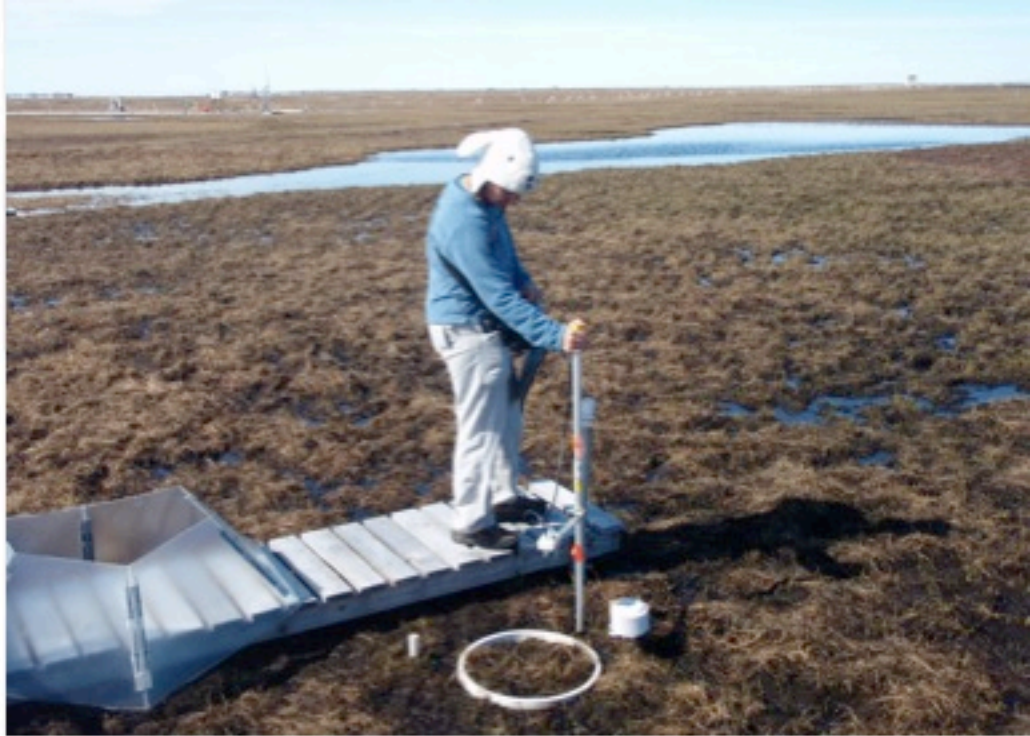


**Bigerton final photo**  
Florida

I have been learning...



# Working

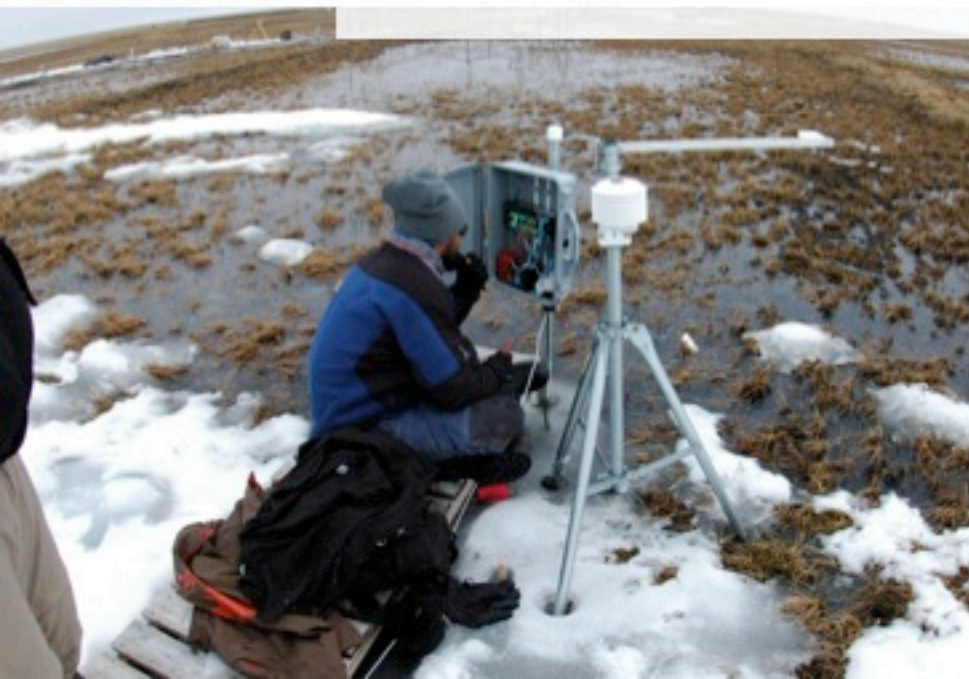


...And Celebrating - the Whale,  
4th of July and Kim & Rob's arrival!





**Paulo Olivas**  
FIU Doctoral Student





Paulo wants to know...How water and temperature affect the carbon balance in the Arctic Ecosystem.



# What is Carbon?



## 3 Pure Forms

- Graphite - used for writing+++
- Diamonds - a girls best friend
- Fullerines - has a unique molecular shape



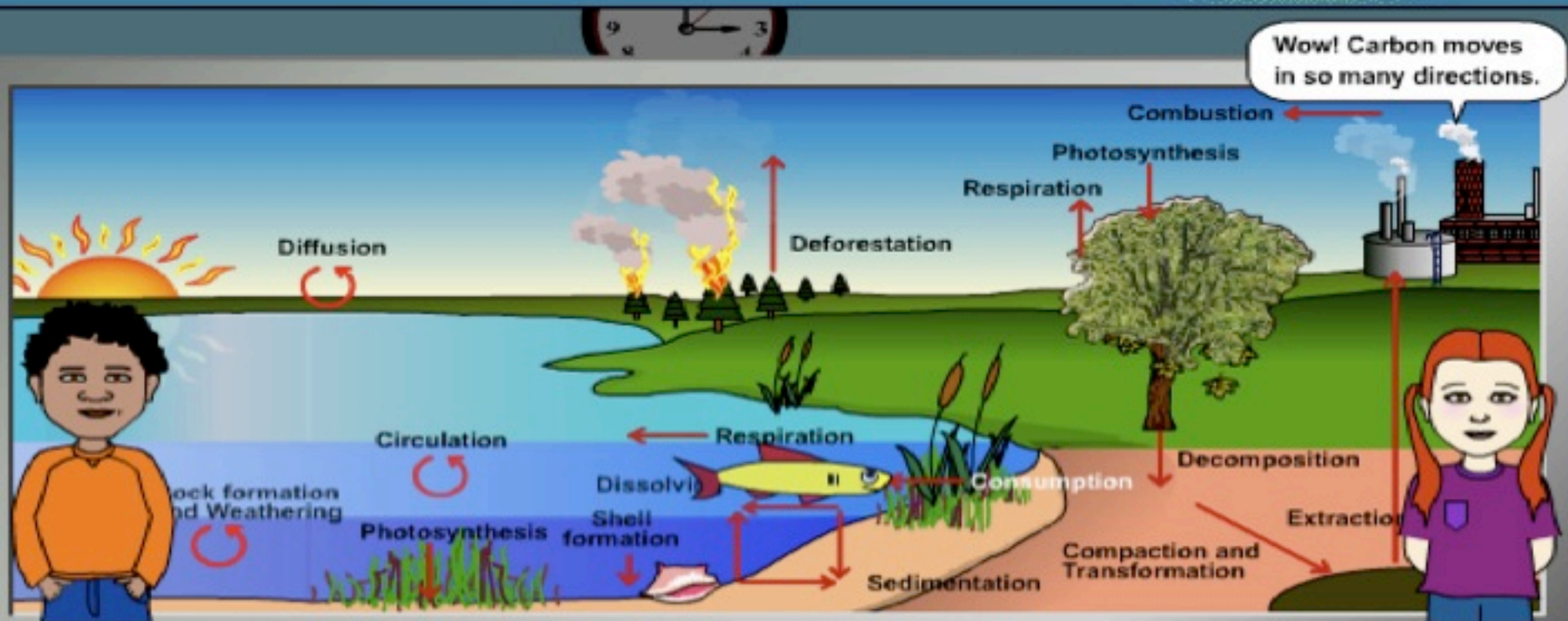
## It Combines with Other Elements

- There are close to 10million compounds
- many thousands deal with LIFE

**-Carbon dioxide CO<sub>2</sub>**  
**-Methane CH<sub>4</sub>**

**Carbon is in plants and animals and over time becomes fossil fuels**

# Carbon moves all over the earth

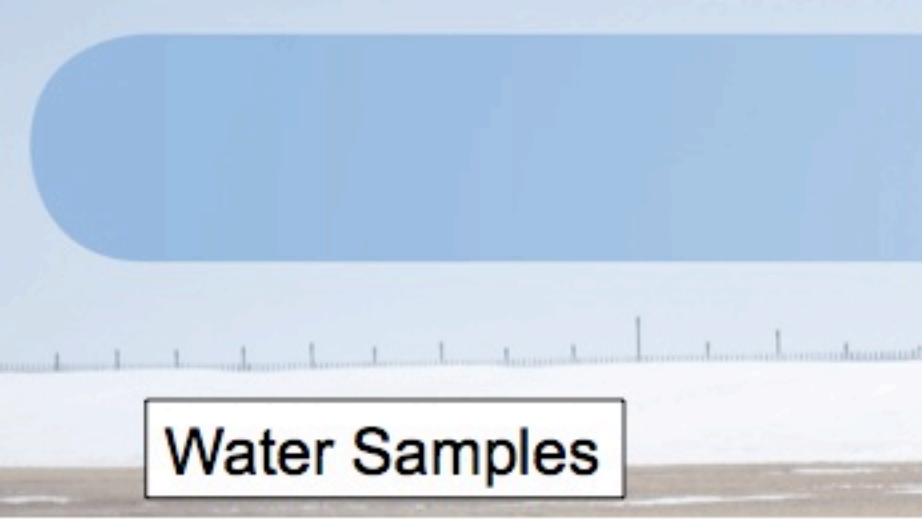


**How does water and temperature affect the movement?**

# Carbon Based Gas Samples



Methane CH<sub>4</sub> and Carbon Dioxide CO<sub>2</sub>



## Water Samples

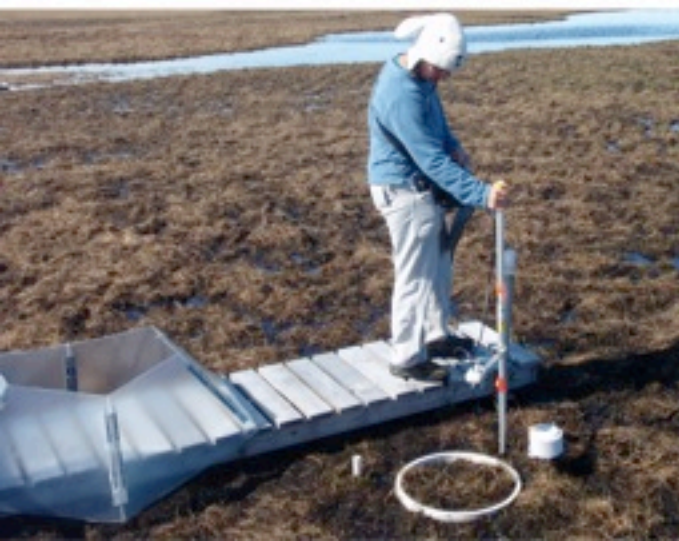
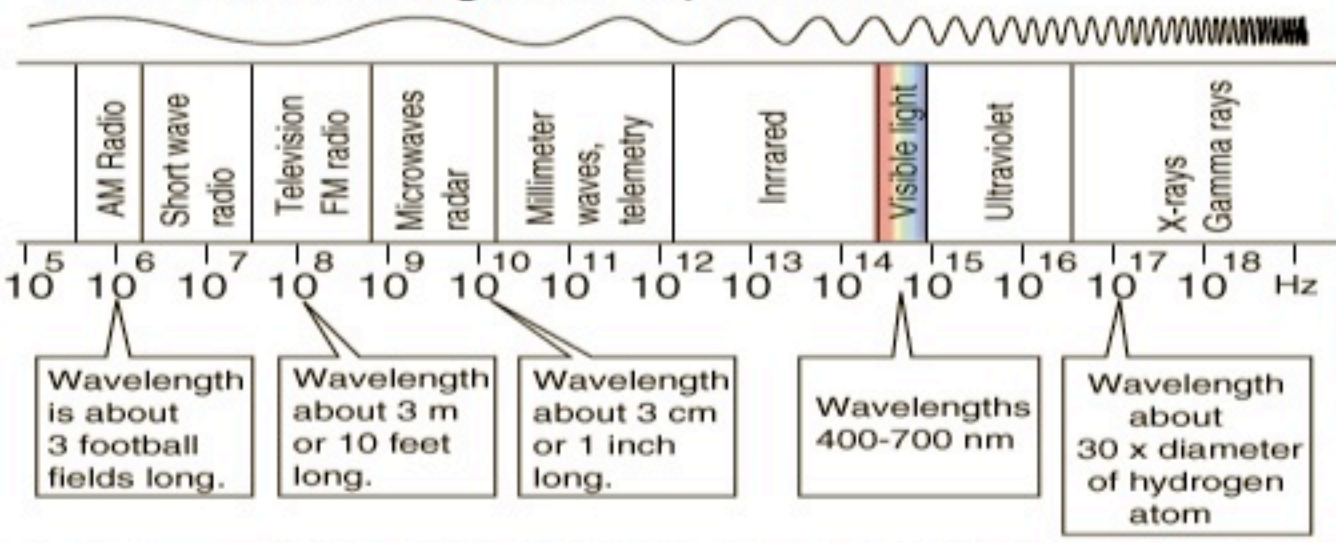


## Plant Samples

Arctic Tundra Dynamics '08  
[www.polarrec.com](http://www.polarrec.com)

# Reflectivity

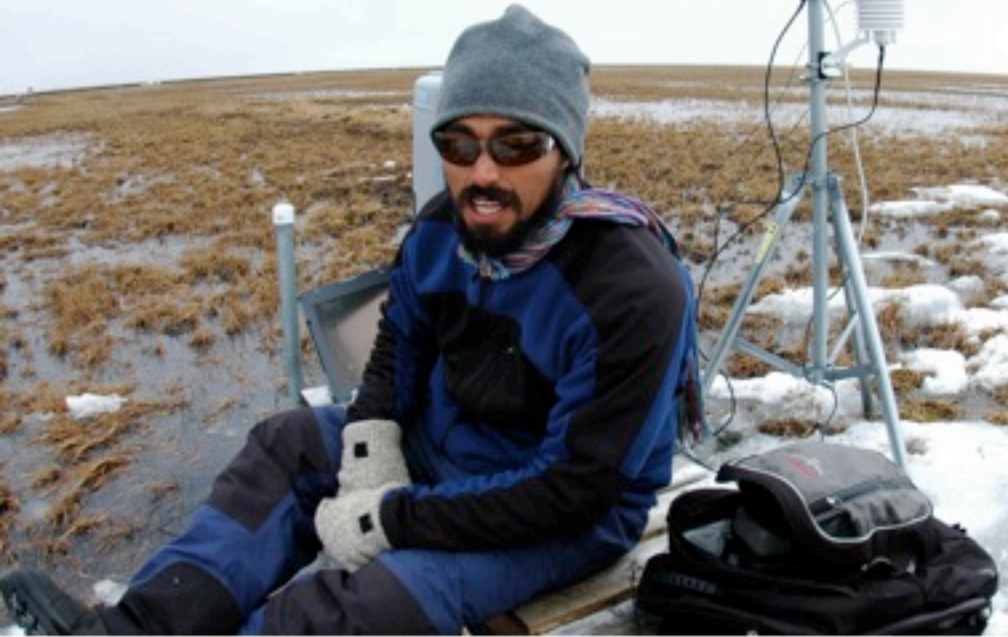
## The Electromagnetic Spectrum



Measuring reflectance of plants gives us the level **photosynthesis**

In other words the color of the plant gives an indication of photosynthesis.

# Weather / Temperature

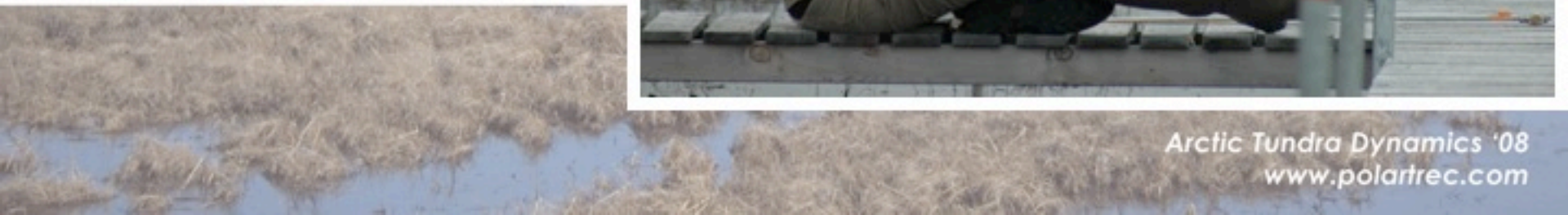


**Jose Luciani**  
FIU Undergraduate  
Student

Paulo's Right Hand Man



# Interactions between water table and thaw





# ***Arctic Polar Wetlands***

- Wetlands exist here because of the interaction between thaw and the water table.
- This allows shorebirds, water fowl, and insects to thrive in these wet conditions during the summer growing season.



# Thaw

- “Thaw” is the frozen ground that thaws in summer. This area is called the “active layer”.
- The frozen soil is made up of mostly of peat, which can be dead grass, animals, poop, dirt, and small amounts of water.
- Thaw plays an important role in water table.

# Water table

- As the summer continues, the frozen soil thaws due of to warmer temperatures and the water that is accumulated atop the surface from the winter's snow begins to descend into the soil.
- If there were no thaw, the water would sit and would leave through evaporation, runoff or drainage.



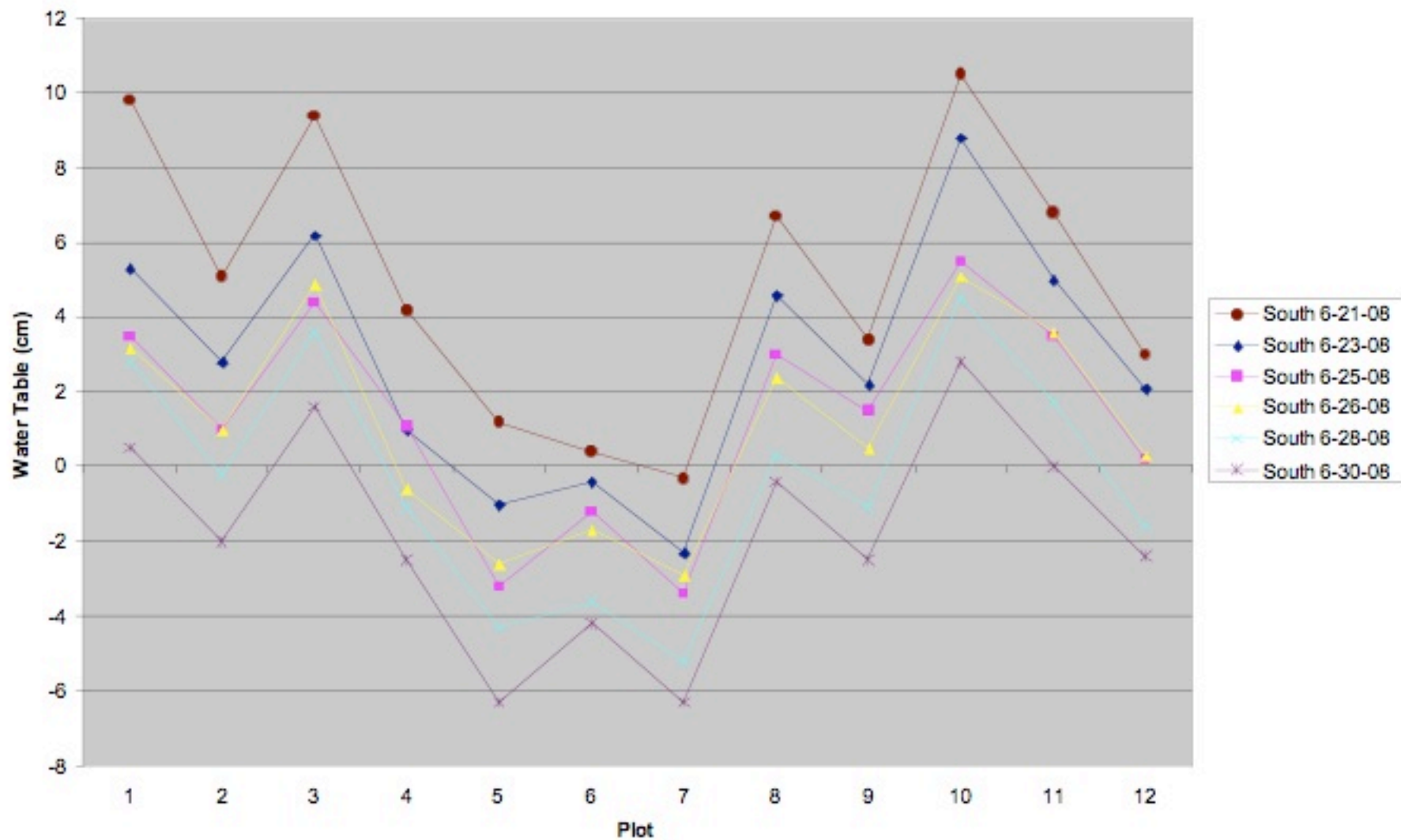
# Water table and vegetation composition

- Some parts have higher rates of thaw that lower the water table quicker because the soil isn't well insulated.
- Mosses insulate the soil and the thaw isn't as great in areas of high moss layers.
- However, in areas of sparse vegetation, the water table can lower significantly within weeks.

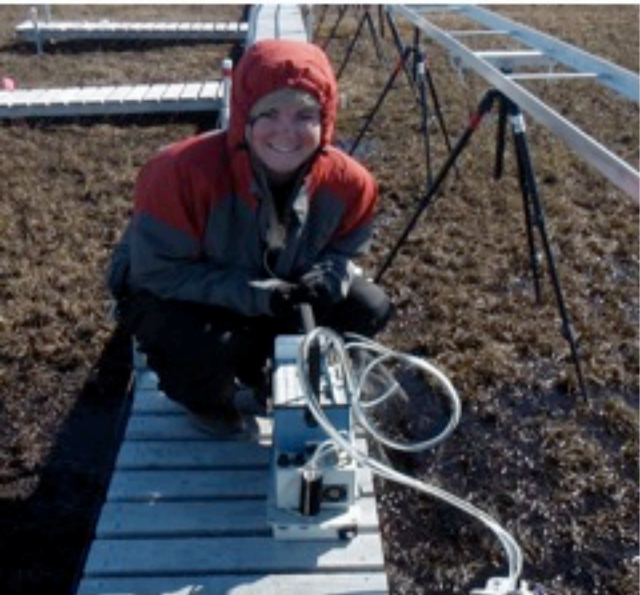


# Water Table

## South Boardwalk



# Research



**Bob**

**Jeremy**

**Jenny**

**Rob**

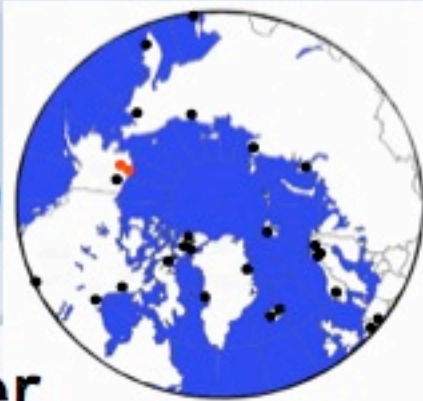
**Jean**





# ITEEX

(International Tundra Experiment)



- Examines vegetation change under experimental warming



**Plants marked by toothpicks**



**An Open Top Chamber (OTC) warming the tundra**



# Working

Jeremy point framing



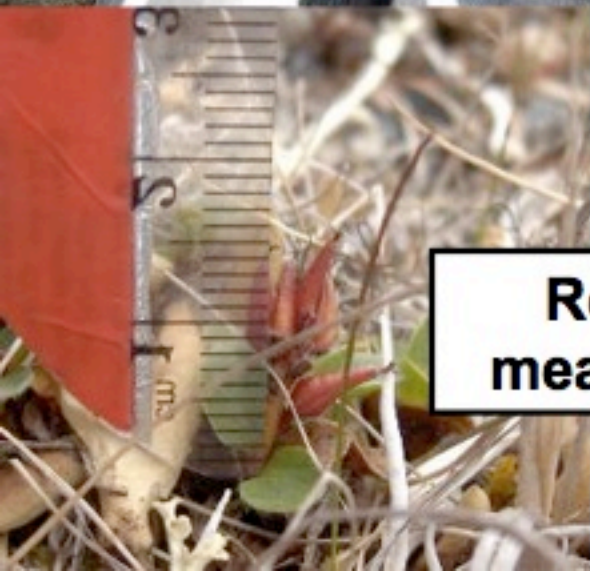
Jean doing phenology



Bob teaching Jenny



Rob taking measurements



# Some Favorite Plants



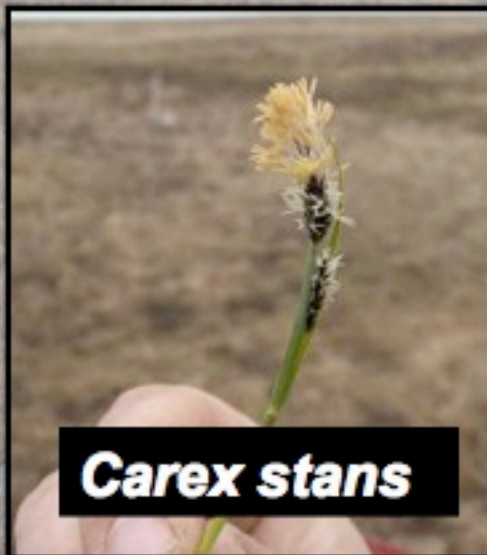
***Pedicularis  
kanei***



***Eriophorum  
russeolum***



***Salix rotundifolia***



***Carex stans***



***Cassiope tetragona***



***Stellaria laeta***

# Animals Around Our Site



**Snowy Owl**



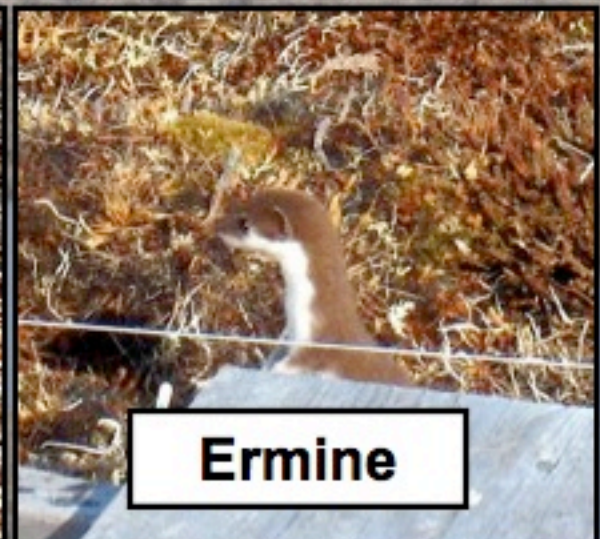
**Pomarine  
Jaeger**



**Lapland longspur**



**Brown Lemming**



**Ermine**

# Global OWL PROJECT

Denver Holt



## OWL RESEARCH INSTITUTE

NINEPIPES CENTER FOR WILDLIFE  
RESEARCH AND EDUCATION

### OUR MISSION

The Owl Research Institute mission is three-fold:

1. To understand the ecology of owls and their communities
2. To share our research with the scientific community, providing tools for wise stewardship
3. To teach the public about field research and conservation

# Recording Data





## Special Cases





**Owl Babies**



# Lemmings and snowy owls





**Owls, lemmings, pellets...**



**Gathering pellets for students**



## **Dr. Steve Oberbauer**

*Are you with us, from Miami?  
Any Comments???*





# Questions?

**Thank you!**

For more info log onto:  
[www.polarrec.com](http://www.polarrec.com)



# Check out and register for upcoming events!



**July 17 2008—Cathy Campbell at Toolik Station, Alaska**

*Register for these events and watch for others at  
[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)

