



Welcome to the Long-Term Ecological Research
(LTER) Program
Workshop for K-5 Educators





[Ask a Polar Scientist](#)

Curious about Arctic or Antarctic research? Ask our scientists your questions.



[Polar Data Stories](#)

Get your feet wet with polar data, via stories and some cool visualizations.



[Polar Scientist Projects](#)

What kind of cool research projects are happening in the Arctic and Antarctic regions?

Agenda

- Welcome & Introduction
- Meet Filipa Carvalho, Polar Scientist
- Hands-on Activities with
 - Nancy Fitzgerald, Jefferson Township MS
 - Joanna Chierici, Melvin H. Kreps MS
- Wrap up and Evaluation



- Introduce yourself to a neighbor
- What do you picture in your mind when you think of the polar regions?
- What do you think your students should know/do know about the poles?

Arctic and Antarctic Habitats

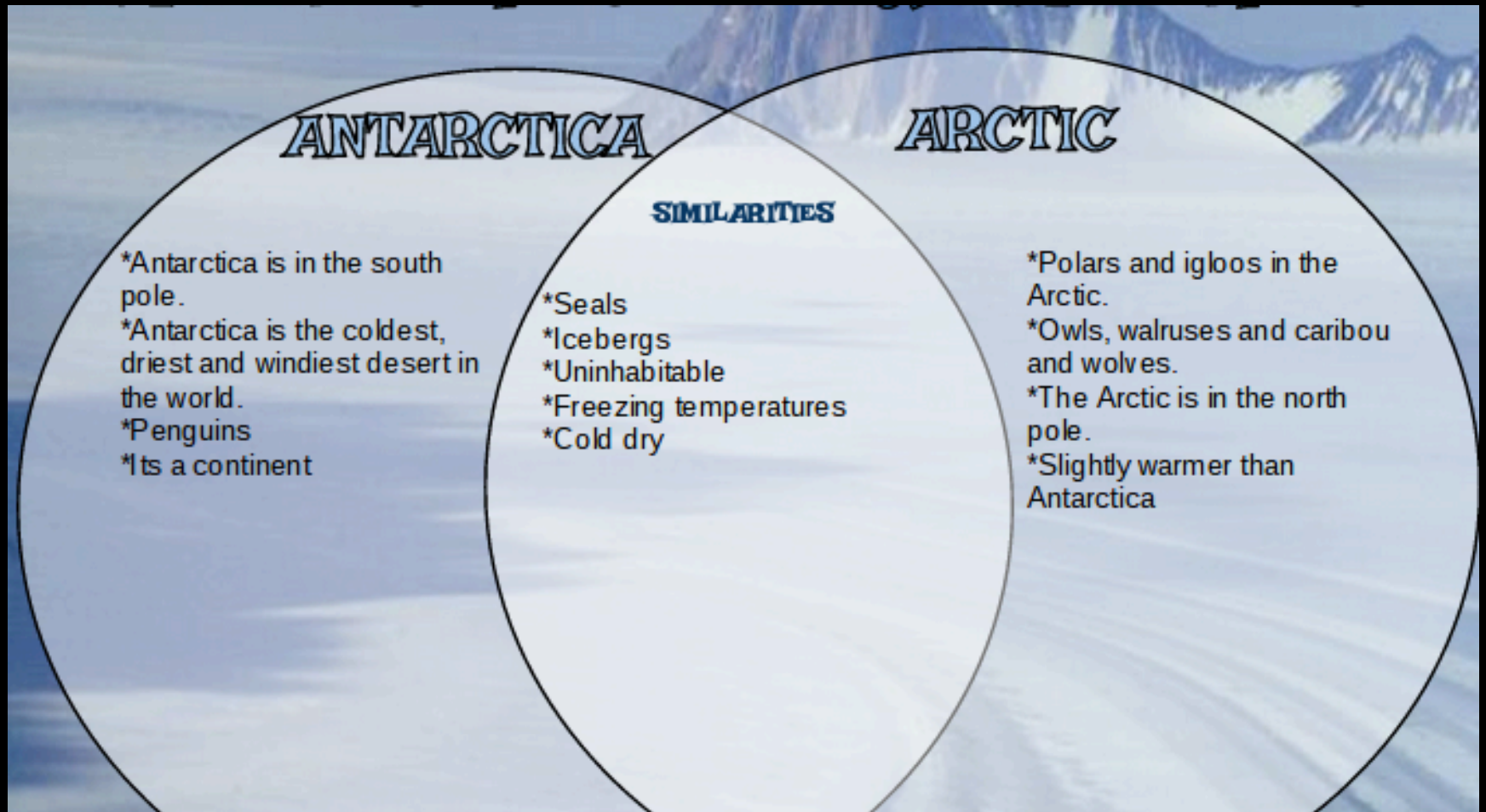
ARCTIC



ANTARCTIC



How do they compare?



Arctic vs. Antarctic



Temperature

Highest recorded temperature

20°C
14.6°C

Freezing point (0°C)



Lowest recorded temperature

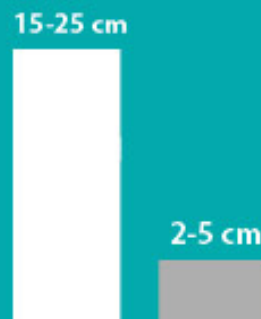
Fast facts

	Arctic	Antarctica
Size	11 million sq km	14 million sq km
Countries	8	0
% of land covered in ice	Variable	98%
Average depth of sea ice	2-3 m	1-2 m

Maximum height



Annual rainfall



Wildlife



- * Polar bears
- * Walruses
- * Beluga whales
- * Reindeer
- * Caribou
- * Arctic foxes
- * Porpoises



- * Emperor penguins
- * Albatrosses
- * Leopard seals
- * Fur seals
- * Blue whales
- * Killer whales
- * Dolphins

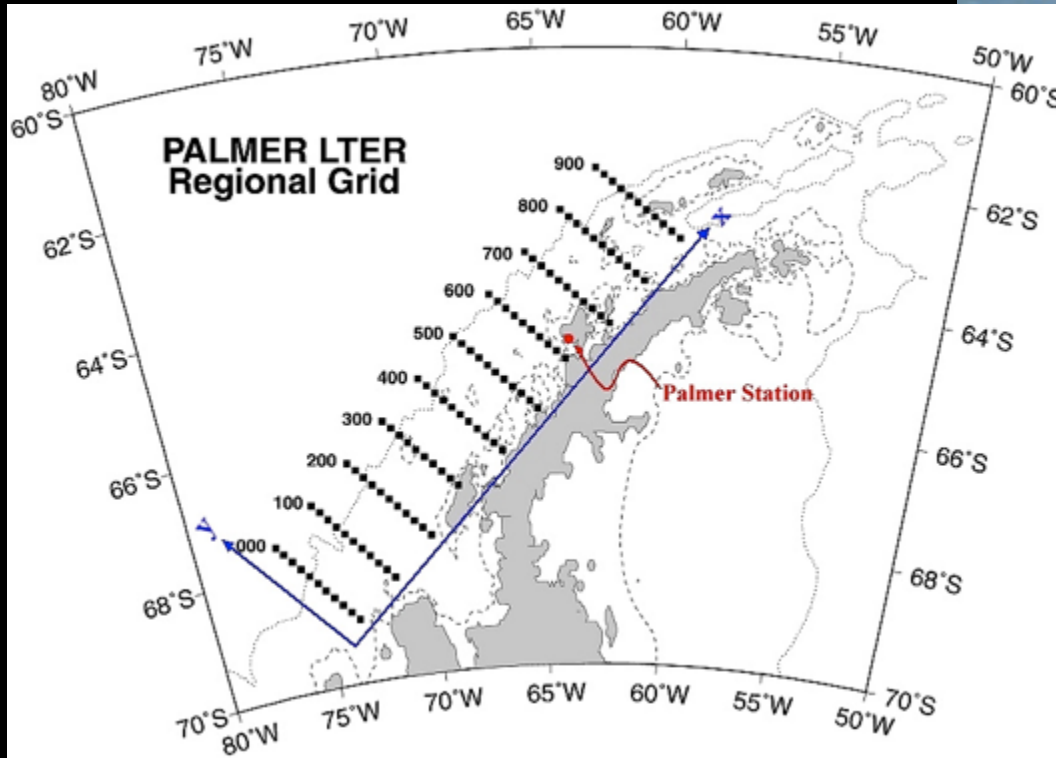


- Discuss with your partner why it is important to do research in Antarctica?
- What are some potential environmental issues (threats) you can think of to this remote ecosystem?

Zoom in on Antarctica



Long-Term Ecological Research



Palmer Station
Antarctica LTER



Meet Filipa Carvalho



Scientists are trying to expand the reach of polar science research into K-12 classrooms. Instead of bringing educators to the poles, how do we effectively bring the Polar Regions to classrooms and other audiences?



EDUCATORS

HOW TO WORK

with

POLAR-ICE

AND/OR

Develop
Classroom
Materials and
Lessons

STEP 1

Attend EARTH professional development workshop

STEP 2

Develop a lesson on cutting edge Polar STEM research with scientists

STEP 3

Teach a lesson in your classroom and share your lessons learned

AND/OR

Implement Polar
STEM Activities
in the Classroom

STEP 1

Attend Sci-I professional development workshop

STEP 2

Assist students in developing and conducting Polar STEM investigations

STEP 3

Attend Student Research Symposium with selected students

Implement Polar
Science Lessons in
the Classroom

Attend a one day professional development or webinar to learn how

Sci-I Project (Grades 6-9)

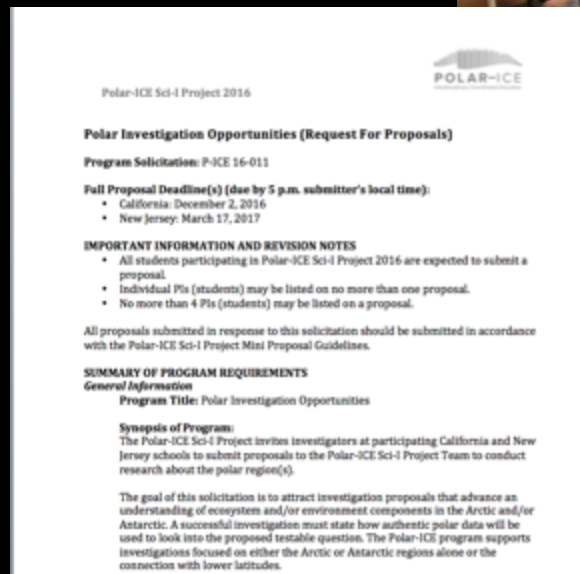
Attending a SRS with the top student teams to present student findings to polar scientists and learning about the process of science from scientists



A 4-day Summer Educator Workshop (attended with a partner science teacher from the same school)



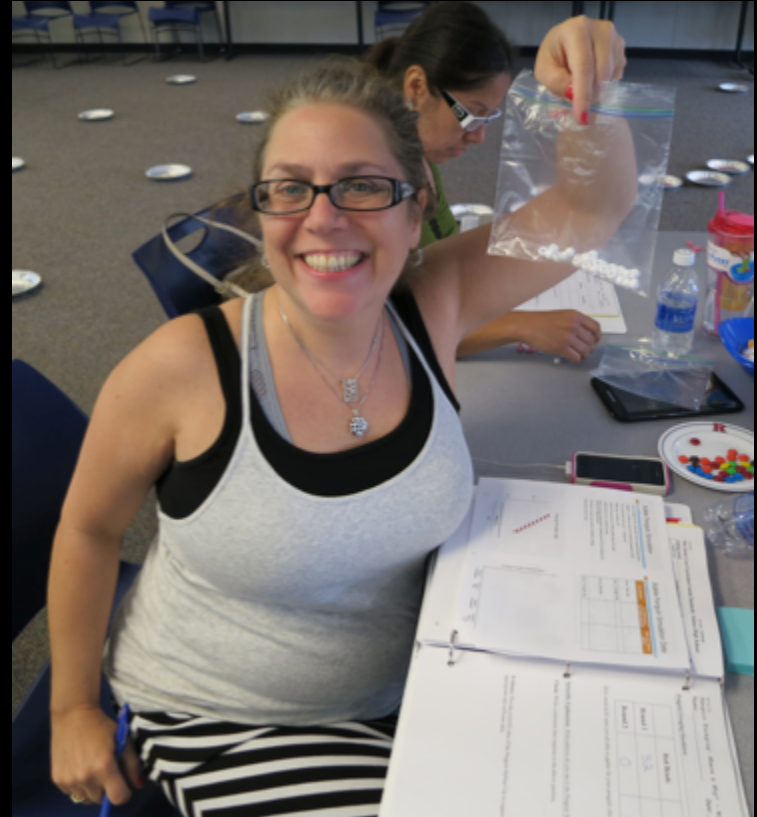
Assisting student teams in designing and conducting student-lead investigations using real polar data



What we are striving for...

For Teachers:

- Increase their connection to collaborative science & teamwork
- Help educators teach the actual process of science
- Increase virtual communication (blog, VTCs, Symposium)



What about the students?



Student Objectives:

- Working in teams and using /analyzing real data
- Designing their own way of answering their own questions
- Asking questions of /receiving feedback from scientists



Student Research Symposium

CA (February 2016) NJ (June 2017)



EARTH Workshop 2017



- Sponsored by MBARI and Polar ICE
- Focus on development on authentic data lessons that use polar resources

EARTH Objectives

- Educate, excite, and engage teachers with the concept of data in the classroom
- Develop curricula enabling teachers and students to utilize near-real-time data
- Increase scientific literacy in polar marine science
- Produce leaders in the next generation of polar oceanographers by providing state-of-the-art training



Video Teleconference (VTCs)

A screenshot of a Blackboard video teleconference interface. The interface is divided into several sections:

- AUDIO & VIDEO:** Shows a video feed of a person at Palmer Station. Below the video is a volume control slider.
- PARTICIPANTS:** Lists seven participants in the main room:
 - Kristin Hunter-Thoms... (Moderator)
 - Sage Lichtenwalner (Moderator)
 - BMS
 - Harpwell Coastal Acad...
 - Lincoln Middle School
 - Matthew Fichter
 - Palmer Station
- CHAT:** Displays a chat log with the following messages:
 - 10:04 PM) - Palmer Station joined the Main Room. (10:04 PM) -
 - Lincoln Middle School joined the Main Room. (10:04 PM) -
 - Kristin Hunter-Thomson 10:07 AM
 - Pat, can you turn on your webcam?

The main content area displays a slide titled "Palmer Station Antarctica LTER". The slide features the LTER logo, a photograph of a red research ship in icy waters, and two maps of the Antarctic Peninsula:

- Palmer Long-Term Ecological Research Program Map:** A map of the Antarctic Peninsula showing various islands and research sites. Key locations include Wylie Bay, Anvers Island, and Palmer Station. A legend indicates symbols for program entry, site entry, and other sites.
- Palmer LTER Regional Grid:** A map showing a grid of sampling locations along the coast of the Antarctic Peninsula, with Palmer Station marked as a red dot.

Thank you and Questions?

<http://coseenow.net/converge/>

<http://polar-ice.org/>



PROJECT CONVERGE INFO

MISSION BLOG

RESEARCH MISSION

PEOPLE

CLASSROOM PROGRAM

PUBLIC OUTREACH

RESOURCES

ASK A QUESTION



ABOUT US ▾

SCIENTIST RESOURCES ▾

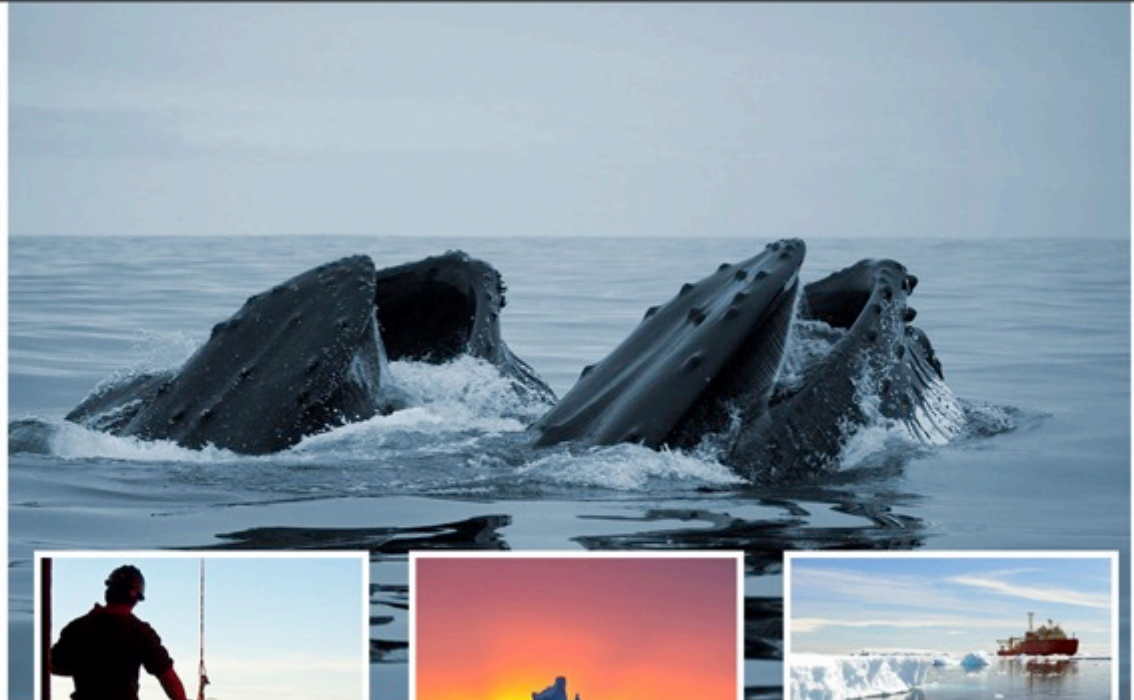
EDUCATOR RESOURCES ▾

FOCUS AREAS ▾

POLAR LANDSCAPE ▾

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