

Welcome!

IPY NSF Education Projects eMeeting

20 November 2006



HorizonWimba Interface

The screenshot displays the HorizonWimba interface. At the top, a large slide reads "Welcome to HorizonWimba" with the ARCUS logo and "Arctic Research Consortium of the United States" below it. The bottom section contains a chat window on the left, a participant list in the center, and a control bar on the right. Annotations include: "Slides will be shown here" pointing to the slide area; "Raise your hand to ask a question" pointing to a hand icon in the participant list; "List of all participants" pointing to the participant list; "Return to the Lobby or Exit" pointing to the "Exit - Lobby - Help" menu; and "'Chat' with one person or the entire group" pointing to the chat input field.

Slides will be shown here

ARCUS
Arctic Research Consortium of the United States

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.

Yes No Hand ?

Name
Helen_Wiggins

Exit - Lobby - Help

'Chat' with one person or the entire group

Raise your hand to ask a question

List of all participants

Return to the Lobby or Exit

ANTARCTICA'S ICY SECRETS

NOVA



Join an adventurous
Antarctic investigation to
detect global climate change



Is global warming melting Antarctic ice at an unprecedented rate? Will it raise sea levels, flooding the world's coastlines? NET Television and NOVA take you behind-the-scenes as science teams from the United States, New Zealand, Germany and Italy embark on an ambitious International Polar Year (IPY) expedition called ANDRILL. NOVA will follow ANDRILL scientists as they use a state-of-the-art drilling rig to probe deep beneath glacial ice, extracting rock cores from the seabed to detect Antarctica's climate history. The documentary will examine how ANDRILL research will test two competing theories about how Antarctica's ice sheets have reacted to past episodes of global warming.

The answers ANDRILL finds could be crucial to understanding our planet's future. This NOVA program is funded by the IPY program of the National Science Foundation. For more information, contact NET Television: Michael Farrell at mfarrell@netnebraska.org or Gary Hochman at ghochman@netnebraska.org.

ANTARCTICA'S ICY SECRETS



FLEXHIBIT[™]

Join our innovative
community polar
science project

The "Flexhibit" is a digital package of high resolution images, multi-media files, and inquiry-based activities accessible via the Web. Flexhibit images feature ANDRILL scientists at work in Antarctica. It also includes audio files for podcasts that let polar scientists speak directly to youth about the joys and challenges of their work. Inquiry-based activities invite youth and their families experience ANDRILL science in a community setting, organized in partnership with 4-H youth groups from 22 states. This informal science education project is funded by the International Polar Year program of the National Science Foundation to increase public understanding of ANDRILL, the multi-national, NSF-funded Antarctic Drilling Project. For more information, contact Judy Diamond at jdiamond1@unl.edu or LuAnn Dahlman at luann_dahlman@terc.edu.

“Stories of a Changing Planet” National Tour



**Core cast of characters: GEOLOGIST,
BIOLOGIST, CLIMATE / OCEANS, ALASKAN
NATIVE, ENGINEER, “WILD CARD”**



Video clips, visualizations



“Props” - authentic artifacts



**New York, Philadelphia, DC, Raleigh, Richmond,
Tampa, Baton Rouge, Atlanta, Cleveland, Chicago, St.
Louis, Albuquerque, Las Vegas, Denver, Boise,
Norman (OK), Salt Lake City, San Diego, Los
Angeles, San Francisco, Anchorage, Fairbanks +
Kansas City?, Lincoln (NE)?, Wichita?**



PPZA

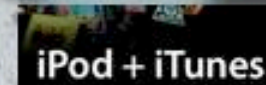
Hi-Def Video Capture Corps (HDvCC)

- using new, rugged, low-cost HD cameras & experienced, flexible 2-person crews
- multiple stories thru “critical path” logistics, amortizing travel & staff costs
- B-roll archive, for multiple PD uses, inc. agencies, science centers, universities, etc.



Podcasts, vodcasts & blogs

- multiple access points: aggregators like iTunes, Yahoo, Google, YouTube, plus US-IPY, NSF, NASA...
- local hosting by science centers: use in “Science Cafes”, Teacher Professional Development, etc. to complement events throughout 2007-2009





Project Goals

The polar regions are experiencing unprecedented environmental changes that have significant potential impacts on global climate, ecosystems, and society. Thousands of scientists from dozens of countries will focus their attention on the Arctic and Antarctic for two years beginning in March 2007 in an effort known as the International Polar Year (IPY). *Live from the Poles* will help heighten public awareness during IPY by bringing cutting-edge science to diverse, worldwide audiences of students, teachers, and the public. Our program is designed to share the excitement of polar exploration, communicate the importance of the Poles to the public, and invigorate the next generation of ocean scientists and engineers.

Methods

A communications team – a science writer and a photographer, supported by Web and graphics professionals at Woods Hole Oceanographic Institution (WHOI) – will convey the research goals, methods, and findings of four major polar expeditions. Using the interactive, educational *Polar Discovery* Website, they will provide daily highlights of the research as it progresses. The communications team will also facilitate satellite phone calls from the polar field sites to museum auditoriums across the United States, where audience members can converse with polar scientists in real time. Each presentation will feature a knowledgeable moderator – often a scientist – who will present a short summary about the research before the live question-and-answer sessions with scientists on the ice. In summary, *Live from the Poles* connects working scientists with an enormous public audience through a diverse group of outreach venues. The core components include:

- *Polar Discovery* Website will tell the story of science on ice using photo essays, daily dispatches, video clips, animations, and responses to e-mails from the public
- Satellite phone question-and-answer sessions at 6 to 8 natural history and science museums across the United States and broadcast partners NPR and CBS
- Photography and video archive on the WHOI online ImageSource database
- Teacher workshops for middle school science teachers
- Polar research exhibits at the Museum of Science, Boston, and the WHOI Ocean Science Exhibit Center

Expeditions

The four expeditions are expected to take place at the North Pole (April 2007), the eastern Arctic Ocean (summer 2007), Antarctica (January 2008), and the glaciers of western Greenland (summer 2008). The science projects focus on a range of topics from climate change and glaciers to Earth's geology, underwater biology, and ocean chemistry, circulation, and technology at the Poles. Engineers are also developing new tools for polar exploration, including autonomous and remotely operated vehicles. These expeditions—some operating from icebreaking research vessels, others based at polar ice camps, and another on a glacier—exemplify innovative science at work.

Contact: Chris Linder, clinder@whoi.edu, +1 508-289-2802

Online: Polar Discovery <http://polar.discovery.whoi.edu> (online January 1, 2007)



Live from the Poles gratefully acknowledges funding from the National Science Foundation and endorsement from the International Polar Year office.



Museum of Science, Boston

WHOI

Live from the Poles



- Museum-created programming
- Covering four polar field projects
- Presented at Museum and offered virtually

Gordon Current Science & Technology Center



- 24-month program schedule
- Live presentations and guest lecturers
- Web-based stories
- Podcasts
- Earth science touchscreen kiosk

IPY: Pole to Pole A Radio Collaboration

SOUNDPRINT



Partners Include

- The Soundprint Media Center (contact: moira@soundprint.org)
- Australian Broadcasting Corporation
- British Broadcasting Corporation
- Radio Deutsche-Welle
- Radio New Zealand

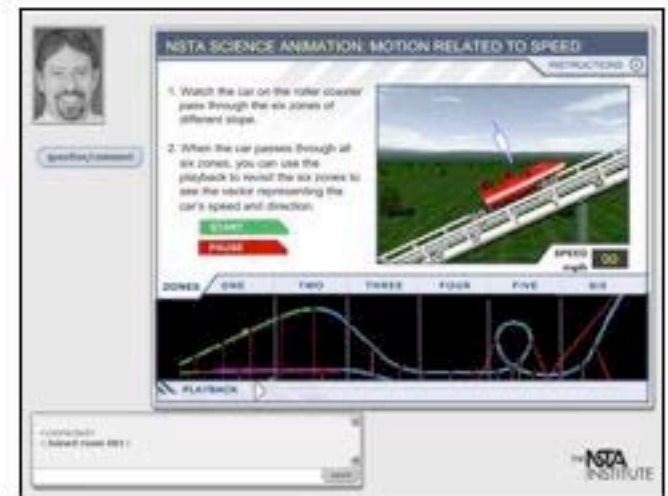
Supported by the NSF ISE
and Polar Research Office



NSTA SYMPOSIA

QUALITY LEARNING EXPERIENCES

- Features NASA, NOAA, FDA, & NSF Scientists and Ed Specialists
- Combines face-to-face workshop with online follow-up
- Template Driven: standards-based content updates & pedagogy with pre/post assessment & participant feedback surveys
- Utilizes hands-on and inquiry-based materials
- Includes Web Seminars and Discussion listserv



IPY/NSTA Symposium, Salt Lake City, UT, Dec. 2006:

Title: The Fragile Ice

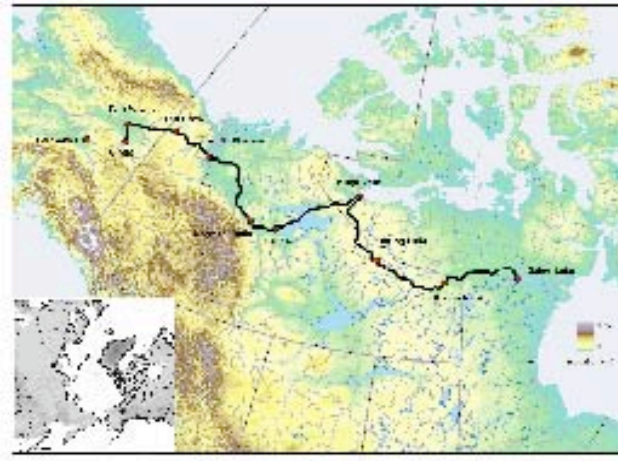
- Draft Agenda Completed
- Presenters: Abdalati, Albert, Campbell, Shutey
- 45 Participants Registered (50 maximum)

Three IPY/NSTA Symposia, St. Louis, MO, March 2007:

- Impact of Polar Climate Change on Living Systems
- Polar Climates, How Are They Changing?
- The Fragile Ice
- Twenty 1-hour presentations scheduled after symposia

Share the Journey!

The Alaska-Canada Barrenlands Traverse, Spring 2007



Arctic peoples, polar science, diamond mines, fascinating history—share our journey through the North American Arctic as we travel 3000 miles by snowmobile from Alaska across Canada. Here's how schools can join us:

Track our Trip: Want to follow our daily progress? We will send you a poster-sized map and markers to track our progress. Daily trail updates available on the web will include latitude/longitude, major landmarks, snow and weather conditions, and more. You can compare the conditions we experience with those in your community.

Tune in to Trail Tales: Want to learn more about the places we go? Our updates will include descriptions of the places we visit, the history of the regions, our science activities, and more. Suggestions for further reading will be available on the website. We will upload photos during the journey so you can see what we see.

Share School-to-School: Want to hear from students in the communities we will visit? Want to tell students there what your part of the North is like? We will be recruiting teachers and classrooms to participate in a poster exchange with other northern schools along our route. Make a poster about your school and community. We will make copies to take with us and give to the schools we visit. We will bring back posters, photos, and greetings in return.

For more details, to sign up, or if you have any questions, please contact:

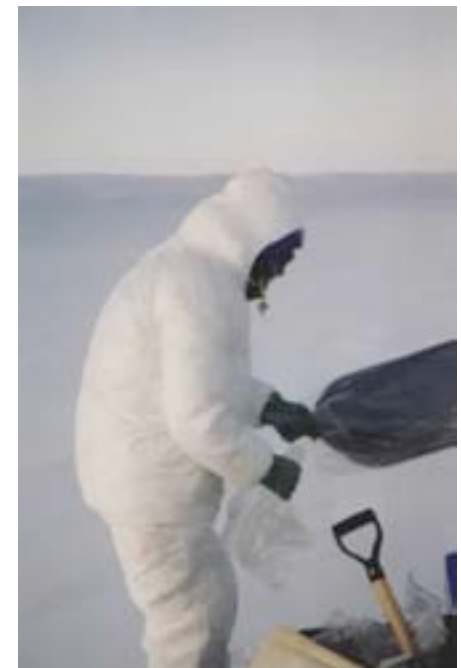
Matthew Sturm: 907-353-5183. msturm@crrel.usace.army.mil

Henry Huntington: 907-696-3564. hph@alaska.net

Dave Andersen: 907-378-0726. resnorth@eagle.ptialaska.net



Scenes from previous expeditions



Teaching Through Real-World Issues

Begin with real world issues



Scientific Topics	Cultural Topics	Public Policy Issues
Radioactivity Radioactive decay Half-life Radioactive decay series	Amchitka The land and the people The Aleuts Culture, history, spirituality, the significance of the land	Energy Past and present policies by the U.S. Federal Government Nuclear power for villages
The Uranium Industry Natural occurrence of ores Uranium mines and mills Ore purification	The Nuclear Sites Miners and the land on which they live	Environmental Protection Site clean-up and remediation Long term stewardship
Ionizing Radiation Units, Biological Effects Dose-response curves Physiological pathways Radiation and cancer Ecotoxicology Radioecology	Cancer and Its Effects on People and Communities The radium dial painters The uranium miners Health care options and evaluation of Alaska Native Health Corporation	Public Health Setting exposure standards in the workplace for radiation Occupation Health and Safety Identification of a workplace hazard, compensation of the workers, and prevention of future hazards
Nuclear Fission/Fusion Nuclear fuel cycle Enriched, depleted uranium A-bombs, H-bombs Weapons testing Nuclear "Earth-moving" tests	Indigenous People Who is an indigenous person? What issues concern indigenous people? Examples from around the North	Defense Policies relating to weapons testing National security needs of the Cold War Nuclear Test-ban Treaty



IPY - Research & education Opportunities in Antarctica for Minorities

IPYROAM.org

- **PI's:** C. Tweedie (Biol & Env Sci & Eng), V. Lougheed (Biol.), W. Robertson (Edu.), A. Velasco (Geol.).
- **Objectives:**
 1. Improve knowledge and awareness about polar regions.
 2. Increase representation of minorities in science.
- **Project is grounded on the rationale that...**
 1. Minorities are under represented in science and study abroad experiences.
 2. Hands on research experiences provide students and teachers with transformational life experiences.
 3. IPY provides a unique opportunity to educate and inform students and the public about the polar regions

Proposed Activities

IPYROAM.org

- Build on an existing **Antarctic System Science Course**.
- Web cast **lectures** during Fall 07.
- Excursion to **Washington DC** – discuss with experts Antarctic science, policy and tourism, and minority representation in US science.
- **Capstone field trip to Antarctica** via Patagonia. Project will utilize a tourist ship – lectures and hands on research spanning the Antarctic System.
- **Outreach** – live feeds to classrooms, blogs, radio interviews, documentary(?).
- **Evaluation and Publication.**
- **Collaboration and partnerships welcomed...!!!**

Fostering Collaborative, Interdisciplinary Relationships among the New Generation of Polar Researchers

Sue Weiler

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Sheldon Drobot

drobot@colorado.edu

Jenny Baeseman

jbaesema@kent.edu

NGPR Symposium

May 4 – 11, 2008

La Foret Conference Center, Colorado Springs

Eligibility:

PhD completed 2002 - 2008

Engaged in polar research during IPY

Application Deadline: October 15, 2007

<http://ccar.colorado.edu/ngpr>

NSF ARC 0632312 Whitman College
ARC 062312 University of Colorado

NGPR Symposium Objectives

- **Catalyze formation of a vibrant, international and interdisciplinary community of new polar researchers:**
 - share research plans;
 - interact with IGY and other veteran polar scientists;
 - expand their historical, scientific and professional outlook;
 - share ideas and techniques for educational outreach;
 - forge lifelong, interdisciplinary collegial relationships.
- **Oral histories will be taped and archived for public use**
<http://ccar.colorado.edu/ngpr>

International Early Career Polar Scientist Network

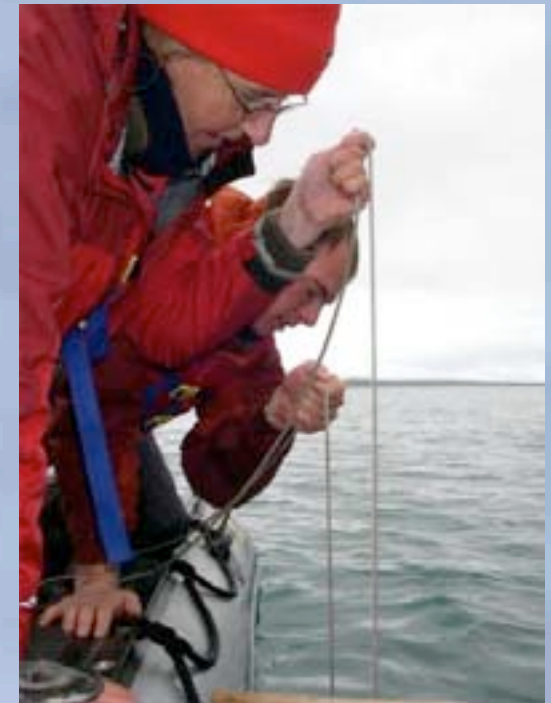
- **Forum for undergraduate students through recent PhDs**
 - electronic discussion groups;
 - clearing house for polar information & opportunities;
 - archive for NGPR project abstracts, symposium materials, oral histories.

<http://www.kent.edu/Polar>



Main Components of PolarTREC

- Arctic or Antarctic Field Research Experience (12 projects/year)
- Professional Development
- Classroom & Public Connections
- Sustained Community & Support



Outreach supported through the use of technology tools:
“Live from IPY” presentations from the field, online journals,
photo albums, podcasts, “Ask the Teacher or Researcher” forums etc.



Teachers' Domain Polar Sciences Collection

Teachers' Domain (www.teachersdomain.org)

- Pathways portal to the NSDL
- 100,000+ registered users, in over 1/3 of US K-12 schools
- Collections in Life, Physical, and Earth and Space Sciences
- Rich-media resources, with background essays, questions for discussion, standards correlation; lesson plans

Resource: **Earth System: Ice and Global Warming** Recommended for: Grades 6-12



Media Type: QuickTime Video
Length: 3m 04s
Size: 4.2 MB
[View](#)

Save to a folder

Scientific evidence strongly suggests that different regions on Earth do not respond equally to increased temperatures. Ice-covered regions appear to be particularly sensitive to even small changes in global temperature. This video segment adapted from NASA's Goddard Space Flight Center details how global warming may already be responsible for a significant reduction in glacial ice, which may in turn have significant consequences for the planet.

Background Essay | [Discussion Questions](#) | [Standards](#)

Ice covers 10 percent of Earth's land surface. One form of ice, found as glaciers, can form anywhere that snow and ice persist year-round. The two primary types of glaciers are valley glaciers, which are long, wedge-shaped masses that form in mountainous areas, and continental ice sheets, which are slightly dome-shaped and may cover millions of square kilometers. Non-glacial sea ice forms on the surface of seawater where it either persists year-round or melts and reforms seasonally.

Ice affects the entire Earth system in a variety of ways. In the ocean and at the land-sea boundary, ice prevents relatively warm ocean water from evaporating, transferring heat to the colder atmosphere, and thereby increasing global air temperature. Ice also reflects sunlight, thus preventing additional heat from being absorbed by water or land. However, the most significant role played by sea ice in the global climate system may be related to its role in ocean circulation. When sea ice forms, pure water

Topics Covered
[Earth System, Structure, and Processes](#)
[Water Cycle, Weather, and Climate](#)

Lesson Plans Using This Resource
[Global Climate Change: The Effects of Global Warming](#)

Source: NASA/Goddard Space Flight Center
Collection Developed for Teachers' Domain by:


Teachers' Domain Polar Sciences Collection

Plans for Prototype Collection

- ~20 new resources
- Production May-Sept 2007
- Materials from public television, ARCUS, other IPY or polar studies projects: Seeking video, audio narrative, photos, visualizations, interactives
- Student-oriented “guided exploration” based on experiences of teachers involved in polar research

Advisory Partners

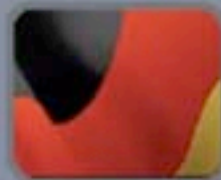
- ARCUS/TREC
- GLOBE
- Alaska Native Knowledge Network
- DLESE

Key Contacts

- Ted Sicker, PI (ted_sicker@wgbh.org)
- Chris Dietlin, Producer (chris_dietlin@wgbh.org)

ANDRILL

International education and public outreach



WWW.ANDRILL.ORG



arise

ANTARCTIC RESEARCH IMMERSION
FOR SCIENCE EDUCATORS

ANDRILL

Education and Outreach Team

MEET THE ARISE TEAM

ANDRILL RESEARCH IMMERSION FOR SCIENCE EDUCATORS

ANDRILL has established an immersion experience for science educators (ARISE) to facilitate development of materials to effectively connect ANDRILL with the public. The program engages science educators in authentic Antarctic geoscience and uses their expertise to develop innovative education and public outreach.



CLICK ON A NAME AND BEGIN THE JOURNEY!

LUANN JULIAN BETTY MATTEO VANESSA ALEXANDER

WWW.ANDRILL.ORG



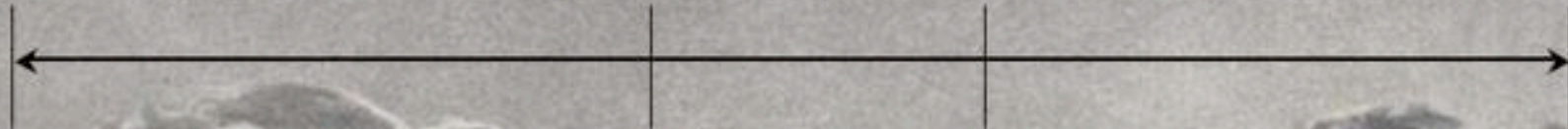
125 Year Legacy

IPY 1
1882-83

IPY 2
1932-33

IGY
1957-58

IPY
2007-08



IPY Timeline

The International Polar Year, IPY, is an unprecedented opportunity to demonstrate the scientific process... with an exciting, enormous, and diverse interdisciplinary scientific investigation.

IPY EOC Action Plan

Develop research, education and outreach programs that are truly international and link communities around the globe through common interests.

Bridging the Poles Workshop Recommendation



FOCUS ON: **ATMOSPHERE**
ICE
LAND
OCEANS
PEOPLE
SPACE

PARTNERS: **EDUCATORS**
PARTICIPANTS
PRESS



Eyes © 2007 Dow | [Enlarge Image](#) | [Go To Gallery](#)

WHAT IS IPY?

The International Polar Year 2007-8 is a huge, exciting scientific campaign focusing on the polar regions. It is also an unprecedented opportunity to demonstrate, follow, and get involved with, cutting edge science in real-time.

- » [More About IPY](#)
- » [Contact IPY](#)
- » [National IPY Committees](#)
- » [IPY Youth Site](#)
- » [Get Involved](#)

HIGHLIGHTS



Testing an image

Iam mortua erat adolescentia mea mala et nefanda, et ibam in inventum, quanto aetate maior, tanto varietate turpior, qui cogitare aliquid... [More...](#)



Early Career Scientist

Follow kids on their quest toward becoming future scientists. [More...](#)



Google Earth

Keep up on where IPY research is taking place around the world. [More...](#)

NEWS

- » [Now With Google Maps!](#)
- » [The Ice is Melting!!!](#)
- » [Billy Bob's Folly](#)
- » [News for all Categories](#)
- » [Badges for Imperial Russian & Soviet Polar Exploration and Research](#)

EVENTS

- » [Event #1](#)
by Michael Byrd

STORIES

- » [Testing an Image](#)
by Michael Byrd
- » [Living on the Land](#)
by Michael Byrd
- » [Vanilla Ice](#)
by Michael Byrd
- » [My First Story About Ice](#)
by Michael Byrd

Thank you!

An archive of today's presentation will be made available shortly.

