

Secrets of the “Frozen” World: Science and Communication of Criosphere



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PEI Workshop Italy



Love at first sight for Antarctica





CHRYOSPHERE

Places where water is in its solid form, where low temperatures freeze water and turn it into ice.

- **Glaciers and Ice Sheets**
- **Ice shelves and Icebergs**
- **Sea Ice**
- **Permafrost**
- **Snow**

WHY THIS TOPIC?

- ***Nowdays concerns about climate change;***
- ***Topic linking all the Sciences (cfr. Integrated Sciences);***
- ***Topic particularly suitable for an inquiry approach;***
- ***Little attention to this topic in textbooks***

**UNDERSTANDING CLIMATE
CHANGE**



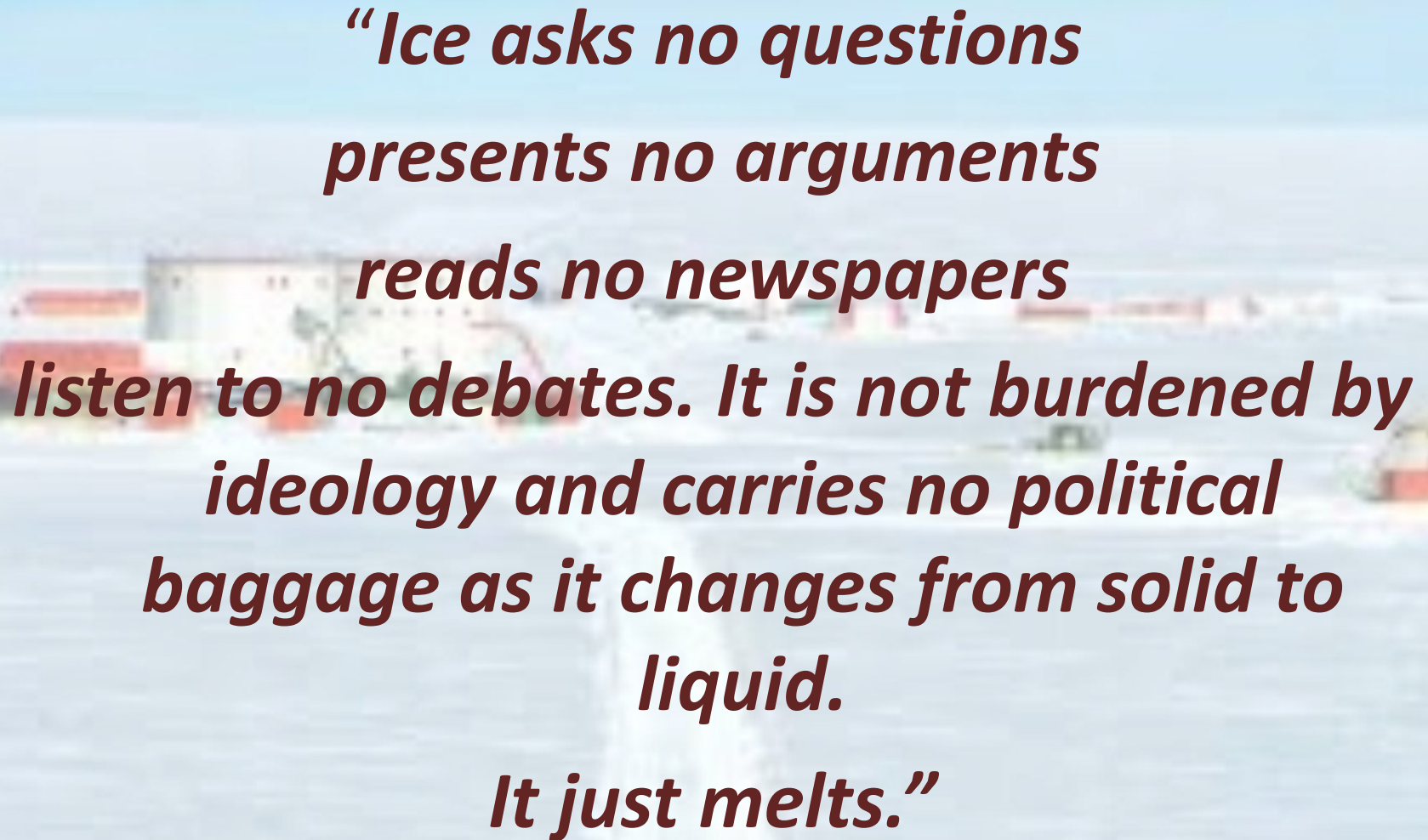
**RECONSTRUCTING EARTH'S
CLIMATE HISTORY**



PALEOCLIMATOLOGY

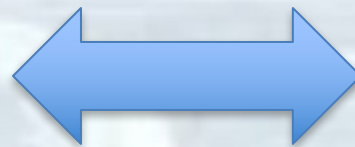
ARCHIVES AND PROXIES

ARCHIVE	PROXIES	CLIMATE PARAMETER
ICE SHEETS AND GLACIERS	Stable isotopes; Trace elements; dust and other particulate; atmospheric gas concentrations	Temperature; precipitation; wind/atmospheric circulation; atmospheric chemistry; volcanic activity; biomass burning



***“Ice asks no questions
presents no arguments
reads no newspapers
listen to no debates. It is not burdened by
ideology and carries no political
baggage as it changes from solid to
liquid.
It just melts.”***

From «A World Without Ice» of Henry Pollack, 2009



BYRD POLAR AND CLIMATE RESEARCH CENTER



THE OHIO STATE
UNIVERSITY

ABOUT

RESEARCH GROUPS

EVENTS

PEOPLE

OPPORTUNITIES

OUTREACH

FOR EDUCATORS

MEDIA GALLERY



Our Mission

BPCRC's mission is to conduct multi-disciplinary research, offer enhanced educational opportunities, and provide outreach activities with the goal of promoting understanding of the ever-evolving Earth System.

AIMS OF THIS EXPERIENCE

RESEARCH

- Background reading on the project
- Literature review on a given topic
- Preparation of materials in the laboratory
- Data collection in the laboratory
- Data analysis with the computer



Teachers meeting researchers

EDUCATION AND OUTREACH

- Joining the education and outreach group of BPRC
- Developing teacher resources and educational activities about paleoclimatology, Polar Science and Climatic Change

BYRD POLAR RESEARCH CENTER, OHIO SEA GRANT AND STONE LABORATORY AND 4-H present

Climate Explorations SERIES

SEPTEMBER 13, 2014 | 5-9 pm
GLACIERS, MOUNTAINS & PEOPLE

Join us for an evening of family-friendly activities and a screening of the film *Glacial Balance* on September 13, 2014. We will explore the mountains, glaciers, people, and changing climate conditions along the spine of the Andes Mountains! This will be a Spanish language program.

This event is part of the Climate Explorations series of events held during fall 2014 and spring 2015 to communicate the science of climate change and its impacts on the Central Ohio community.


WHERE CAN YOU FIND GLACIERS IN THE TROPICS?

HOW ARE THE PEOPLE OF SOUTH AMERICA BEING IMPACTED BY CLIMATE CHANGE?

HOW DO SCIENTISTS LEARN ABOUT EARTH?

SEPTEMBER 13, 2014
5-7 pm Hands-on Activities
7-9 pm Film screening *Glacial Balance* and Question Session with Scientists

**Battelle Darby Creek
Metro Park Nature Center**
1415 Darby Creek Drive



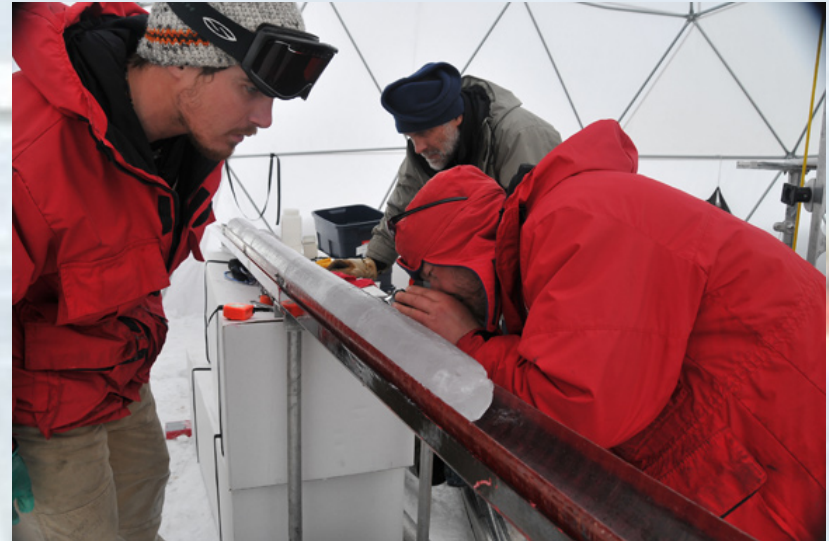
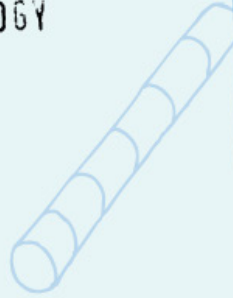
EDUCATION AND OUTREACH

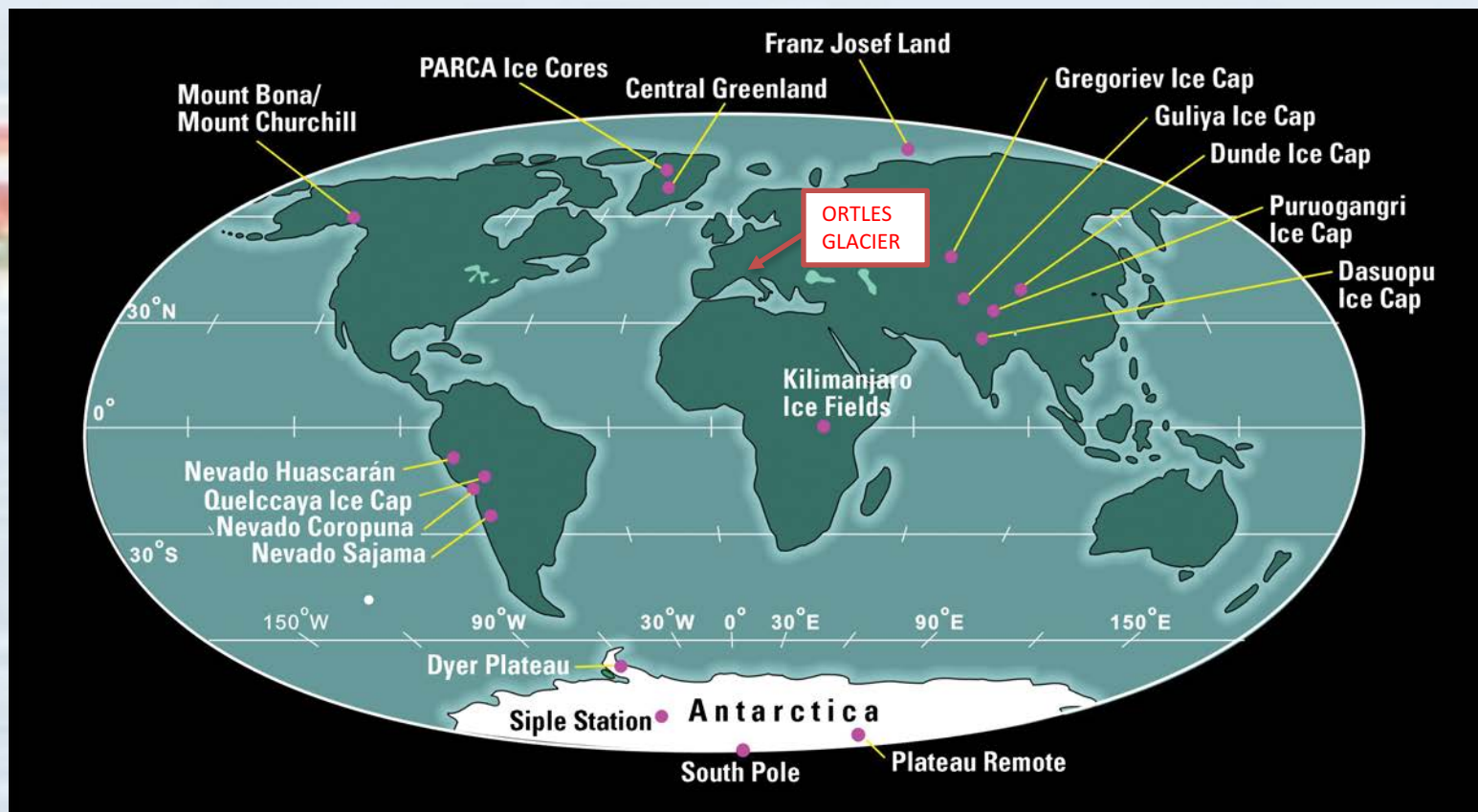


RESEARCH

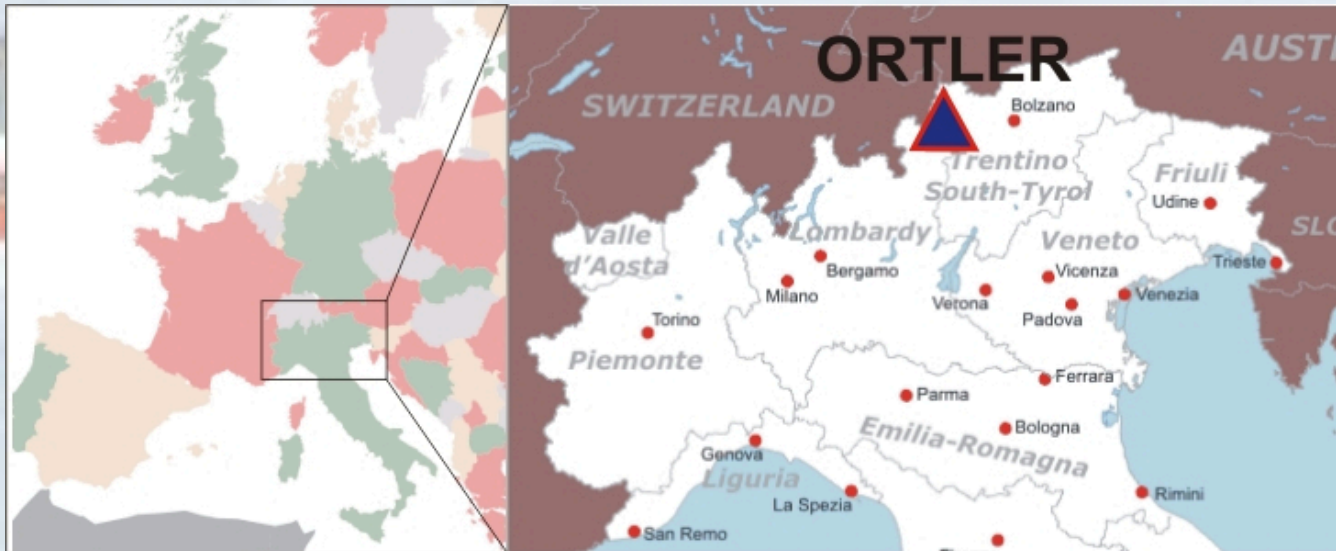
ICE CORE PALEOCLIMATOLOGY

This group studies Earth's history through examination of ice cores that have been drilled from glaciers all around the world. Ice cores are good records of past climate because the water and the air in the ice contain evidence of atmospheric conditions over hundreds of thousands of years.





ORTLES PROJECT



- extracting and analyzing ice cores
- monitoring changes in the summit glacier
- analyzing conditions of permafrost.

Glaciology Camp



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Project
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THANKS FOR YOUR ATTENTION

