

INSTITUTE OF MARINE RESEARCH  
UNIVERSITY OF COIMBRA

Anfiteatro da Zoologia, Colégio de Jesus, COIMBRA  
GPS: N 40° 12' 28,15'' , W 8° 25' 33,71''

INTERNATIONAL WORKSHOP  
**EDUCATION  
MEETS SCIENCE**  
BRINGING POLAR RESEARCH  
INTO THE CLASSROOMS

26th to 28th March 2013



ORGANIZATION



ENDORSED



ORGANIZING COMMITTEE CONTACTS: JOSÉ XAVIER [jccx@cantab-net](mailto:jccx@cantab-net) | INGA MAY [inga.may@awi.de](mailto:inga.may@awi.de)

# **INTERNATIONAL WORKSHOP**

## **EDUCATION MEETS SCIENCE: BRINGING POLAR RESEARCH INTO THE CLASSROOMS**

Tuesday 26th - Thursday 28th March 2013

Institute of Marine Research

University of Coimbra (Portugal)



<http://www.facebook.com/groups/445032592244427/>

Organizers: José Xavier and Inga May

Coordination committee: José Xavier, Inga May, Louise Huffman, Filipa Oliveira, David Walton, Sílvia Lourenço, Alexandre Trindade, Patricia Azinhaga, Filipe Ceia, José Seco, Vitor Paiva, Jaime Ramos and João Carlos Marques

Organizations: IMAR-CMA (University of Coimbra), Alfred Wegener Institute (AWI), British Antarctic Survey, Ciência Viva, Museum of Science (University of Coimbra)

Endorsed by: Tinker Foundation, Association of Polar Early Career Scientists (APECS), Scientific Committee for Antarctic Research (SCAR), International Arctic Science Council (IASC), Polar Educators International (PEI), Portuguese Polar Programme (PROPOLAR), International Council for Science (ICSU), European Science Foundation (ESF)

## Introduction

Bem-vindos a Coimbra! It is a real pleasure to welcome you to Coimbra. The International workshop “EDUCATION MEETS SCIENCE: BRINGING POLAR RESEARCH INTO THE CLASSROOMS”, organized by the Institute of Marine Research of the University of Coimbra (Portugal) and the Alfred Wegener Institute (Germany), with the Museum of Science of the University of Coimbra, is an initiative, following the success of the teachers/educators workshop at the International Polar Year (IPY) 2012 Conference in Montreal. It is the first workshop that brings polar scientists, teachers and educators together after Montreal. It will focus on providing access to tools for teachers and facilitating working together with polar scientists.

The workshop will take place in Portugal, as after the IPY, Portugal continued to be very active in polar science and education, being an ideal sunny country with good developed infrastructures to hold such an event. As an example of a non-polar country, it is crucial that the Portugal polar community keeps the established momentum going by continuing to engage teachers/educators, along with their schools, students and the general public, in polar education and in understanding the importance of the polar regions to our planet.

This eagerly awaited international workshop will focus on providing tools for teachers, facilitating working together with polar scientists, and define a strategy for education and outreach about the Polar Regions. We are truly happy to welcome more than 30 polar scientists, educators and teachers from more than 10 countries from Europe and North America.

Bem vindos a Coimbra!!!!

José Xavier and Inga May



**Location of workshop: Science Museum of the University of Coimbra (Museu da Ciência)**

## **Overview**

**Day one (26<sup>th</sup> March): Cryosphere and Hydrosphere (Inga May and Alexandre Trindade)**

**Day two (27<sup>th</sup> March): Marine Science and Biosphere (José Xavier and Sílvia Lourenço)**

**Day three (28<sup>th</sup> March): Social, Economical and Atmospheric Sciences (David Walton)**

**Educational sessions (Louise Huffman with Patricia Azinhaga, Janet Nadeau, Sandra Van Hove and Wim Van Buggenhout, Matteo Cattadori and Elena Sparrow)**

## **Detailed Programme**

### **Day 1 - Cryosphere & Hydrophere**

8.30-9.00      Registration

[Morning \(9-12:40\) - Lectures \(theory\)/Afternoon \(2:00-5:30\) Education Activities and Resources](#)

9-9.30      Opening ceremony

9.30-10.30      Introduction to workshop (José Xavier, Inga May and Louise Huffman) - participants & facilitators introduce themselves

10.30-11.00      Break

11.00-12.30      (Inga May and Alexandre Trindade) Lecture

12:30-12:40      (Sandra) Introduction of PEI and invitation to take part in discussions during lunch each day

12:40-2:00      Lunch break and PEI meeting

2:00-3:15      (Louise) Earth systems approach to climate change—Biosphere, Atmosphere, Geosphere, Hydro/Cryosphere & Energy— ELF & CLEAN collections of resources  
                    --Set-up “How Does Melting Ice Affect Sea Level?”—activity  
                    --Great Ocean Conveyor Belt—activity  
                    (Louise) Carbon Journey--activity

	(Wim) Carbon Eaters-demo (Louise) Revisit Melting Ice
3:15-3:30	Break
3:30-4:00	(Janet) Methane Hydrate Molecules--activity
4:00-4:30	(Matteo & Wim) Historical Exploration--activity
4:30-4:50	(Louise) Summarizer: Polar Science Acronym
4:50-5:00	Break
5.00-5.30	(Jose, Inga, Janet, Louise, Sandra and David) Panel discussion on teacher issues including how to incorporate polar science into classrooms and curriculum

## Day 2 - Marine Science and Biosphere

Morning (9-12:30) - Lectures (theory)/Afternoon (2:00-5:00) Education Activities and Resources

9-10.30	(José Xavier and Sílvia Lourenço) Lecture
10.30-11.00	Break
11.00-12.00	(Louise, Sandra, Matteo, Elena, Maureen) Presentations from educational projects
12.00-12.30	(Elena) Why Do We Have Protocols?—activity
12:30-2:00	Lunch break and PEI meeting
2:00-2:45	(Patricia) Weddell Breath Holding—activity --Get Ice Cream—activity
2:45-3:30	(Louise) Blubber Gloves—activity --Plates and Gates—demo—related to Weddell Seals Adaptations activity
3:30-3:45	Break
3:45-4:00	(Jose) Jenga Food Web—activity
4:00-4:20	(Louise) Summarizer: Great Thoughts
4.20- 4:30	Break

4.30-5.00 (Jose, Inga, Janet, Louise, Sandra and David) Panel discussion on teachers' issues (interacting with scientists)

### **Day 3 - Social/Economic/Atmosphere**

Morning (9-12:30) - Lectures (theory)/Afternoon (2:00-5:30) Education Activities and Resources

9-10.30 (David Walton) Lecture

10.30-11.00 Break

11.00-12.30 (Wim, Paula, Patrícia/Sílvia, Janet, Iglika, Javier and Antony) Presentations from international/national educational projects

12:30-2:00 Lunch break and PEI meeting

2:00-2:50 (Sandra & Matteo) Albedo—activity

2:50-3:10 (Louise) Earth's Albedo—activity

3:10-4:00 (Sandra & Matteo) Sun Shadows—demo

4:00-4:15 Break

4:15-5:00 (Participants) Planning and preparing a presentation for colleagues and students

5:00-5:30 (Jose, Inga, Janet, Louise, Sandra and David) Panel discussion on what teachers are taking home

5:30 – 6:00 Closing ceremony

**EMERGENCY CONTACT (José Xavier): 00351 936728419**

**Participants:**

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2. Inga May <inga.may@awi.de> (GER)
3. Patricia Azinhaga <pat.azinhaga@gmail.com> (PT)
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10. Wim van Buggenhout <wim.vanbuggenhout@skynet.be> (BEL)
11. Paula Elliot <paulaandseanelliott@googlemail.com> (UK)
12. Kolbrún Svala Hjaltadóttir <kollahjalta@gmail.com> (IL)
13. Louise Huffman <lhuffman@andrill.org> (USA)
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31. Ana Quartin <Ana.Quartin@fct.pt> (PT)
32. Sónia Silva <Sonia.Silva@fct.pt> (PT)
33. Vitor Paiva <vitorpaiva@gmail.com> (PT)
34. Jaime Ramos <jramos@ci.uc.pt> (PT)
35. Margarida Suarez <asuarez@cienciaviva.pt> (PT)
36. Special guests

**Details on organizers:****José Xavier** (jccx@cantab.net)

José Xavier has taken his PhD at the University of Cambridge in 2003, and presently is based at the Institute of Marine Research of the University of Coimbra (Portugal) and at the British Antarctic Survey (UK), focusing his research on predator-prey interactions in the Southern Ocean in relation to climate change. He played a key role in co-establishing an IPY Portuguese Polar Research Programme PROPOLAR and produced and co-organized the Portuguese education and outreach programme LATITUDE60! José is highly engaged in international and interdisciplinary research organizations and science programs (e.g. ICED, APECS, SCAR-CBET, SCAR-EBA) and has been awarded the prestigious Marta T. Muse Award for his substantial contribution to Antarctic science and policy.

**Inga May** (Inga.May@awi.de)

Inga finished her PhD in 2011 at the University of Munich and her thesis is embedded in the ArcticNet program. She studied to which extent it is feasible to detect changes in the state of permafrost by means of remote sensing techniques. The study was done within a strong collaboration with researchers from INRS (Quebec; Canada) and the Laval University (Quebec). Now she is working at the Alfred-Wegener Institute for polar and marine research in Potsdam, Germany as the new Executive Director of the International permafrost Association.





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**STUDENTS ON ICE**

**10 YEARS OF POLAR EDUCATION**

