



## **Polar Resource Book: A Practical Celebration of Educational Engagement in the International Polar Year (IPY) 2007-8**

### **Summary**

The *Polar Resource Book* is the vision of a group of young, international, polar researchers with a shared commitment to outreach and education. It is a response to continual requests from teachers and scientists wishing to raise awareness about the importance of polar science. The vision quickly engaged the imagination of educators around the world who are part of the ever-growing IPY community. It has since gained the support of IPY sponsors, the World Meteorological Organization (WMO), as well as the University of the Arctic, the United Nations Environment Programme (UNEP), and the organizing committee for the flagship IPY Conference in Norway, 2010. This grassroots collaboration between young researchers, international educators, and polar institutions, is central to the project's development and philosophy. It ensures efforts catalyzed by IPY will continue to inspire educators, students, and emerging polar researchers into the next generation.

### **Background**

The International Polar Year (IPY) 2007–2008 is one of the most ambitious coordinated international science programmes ever attempted. Researchers from over sixty countries and a broad range of disciplines are involved in this two-year effort to study the Arctic and Antarctic and explore the strong links these regions have with the rest of the globe. The poles are recognized as sensitive barometers of environmental change, thus polar science is crucial to understanding the planet, and our impact on it.

IPY 2007-8 consists of over 160 large, international, cutting-edge research projects, each of which has made a commitment to education and outreach, and supporting the next generation of scientists. In addition, IPY 2007-8 has stimulated several communities of energetic and enthusiastic volunteers from around the world and established committees to raise public awareness and involvement in IPY, and ensure that the needs of youth and young scientists are represented.

The Association of Polar Early Career Scientists (APECS) and the IPY International Programme Office (IPO) with its Working Groups on Education, Outreach and Communication, have been extremely active, on regional, national, and international levels, in developing International Polar Days, educational resources, practical opportunities for teachers, and easily accessible activities and events for students. The *Polar Resource Book* has arisen out of these efforts, presenting stories and activities from around the world that have been stimulated by IPY. The collection will be both a celebration of engagement with IPY, and a practical handbook for how to make polar science accessible beyond the academic sphere.

## **Target Audience/Contributors**

The project draws on the experience and expertise of educators and young polar scientists who participated in the grassroots global collaboration for education and outreach during the IPY 2007-8. The book targets all who are interested in engaging students with polar issues beyond the IPY. It is particularly aimed at teachers, university students, young scientists, and polar researchers who wish to bring polar science into classrooms and other learning environments in a practical and accessible way.

### **Educators**

These are teachers and other professional educators and communicators with an interest in using polar science for educational purposes in the natural and social sciences, humanities, and the arts. The resources provide an overview of polar science in addition to classroom-ready, and teacher-tested activities.

### **Undergraduate Students and Emerging Polar Scientists**

This group primarily consists of University students researching topics related to polar environments or science education, and researchers at the beginning of their careers in the same areas. A practical section is included that is written specifically for young researchers and students with an interest in education and outreach, but with limited or no classroom experience.

### **Polar Researchers**

With an increased funding emphasis on public engagement, the *Polar Resource Book* will also appeal to scientific investigators and collaborators. The resources are written for a multidisciplinary audience including experts from the natural, physical and social sciences, the humanities, and the arts, who wish to present their work in the classroom or public arena.

### **Language**

The book will be written in English with multi-lingual versions available on-line. However, we ultimately hope to have several language versions of the book produced, as this is critical for access and use by classrooms and communities globally.

### **Current Status**

Members of the *Polar Resource Steering Group* have collected resources, images, and stories from around the world, and are currently compiling and editing content. The material gathered will form the content for a book, and supporting website, with the aim of publication in conjunction with the IPY Oslo Science Conference in June, 2010.

We are confident that the *Polar Resource Book* will be a great reference, celebration, and useful tool commemorating many of the value-added community activities that have occurred during IPY 2007-8. We are certain it will provide the fundamental practical basis for the next generation of teachers and researchers who will continue to expand the educational work started during the IPY. In many ways, it is the ultimate legacy product for IPY Education and Outreach!

## **Content**

The *Polar Resource Book* will have four core components:

### **1. Polar Science: What and Why?**

This chapter serves as a brief but comprehensive introduction to polar science. It will provide an introduction to the big-picture concepts as well as the “Why? What? How? and Who?” of current polar research and up-to-date examples from the field. Profiles of young and dynamic scientists engaged in related research will be presented throughout.

### **2. Personal Stories; Inspiring Ideas from Around the World: Practical Experience**

This main section of the book will include practical learning activities introduced by personal stories of the youth, teachers, and scientists who participated in or developed these projects. It will cover the range of education and outreach ideas that were created and put into practice during the IPY. These stories tell about how the IPY has been celebrated all over the world, the outreach projects that have been organized in the framework of IPY, and how these projects inspire people to continue similar activities in their own country, classroom, youth organization, and even at home.

Each Resource will include some basic features:

- (a) Personal “Story” related to the activity by associated teacher, student, or researcher
- (b) Activity description, practical requirements, and possible extension work
- (c) Links, resources, and images
- (d) Interviews with students, teachers, and scientists.

### **3. Polar Science in the Classroom; How?**

This chapter provides advice for polar scientists and University students visiting classrooms or other youth events. Resulting from a survey of educators and scientists involved in IPY, it summarizes their collective experience and suggests practical advice such as what to expect from different ages, and methods for engagement. This section stresses the interdisciplinary nature of polar science in a classroom environment. It goes beyond the activities presented in section two by identifying basic trends of polar education and outreach work that will render a researcher’s/scientist’s visit to the classroom memorable.

There are two main themes to this section:

- (a) On a general level, contextualising how polar science is transferred to the classroom.
- (b) More specifically, providing tips and tricks for engagement with school-age students.

### **4. Links and Resources**

This chapter will suggest further reading, resources, and organisations involved both with polar science and polar education as well as guidance on where to go for scientifically reliable information on polar science.

## Contact

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Please also visit the websites of the relevant project partners:

International Polar Year: [www.ipy.org/](http://www.ipy.org/)

Association of Polar Early Career Scientists: [www.arcticportal.org/apecs/](http://www.arcticportal.org/apecs/)

World Meteorological Organisation: [www.wmo.int/](http://www.wmo.int/)

United Nations Environment Programme: [www.unep.org/](http://www.unep.org/)

University of the Arctic: [www.uarctic.org/](http://www.uarctic.org/)

IPY Oslo Science Conference: [www.ipy-osc.no/](http://www.ipy-osc.no/)

The *Polar Resource Steering Group* consists of professional educators and early career polar scientists from around the world:

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