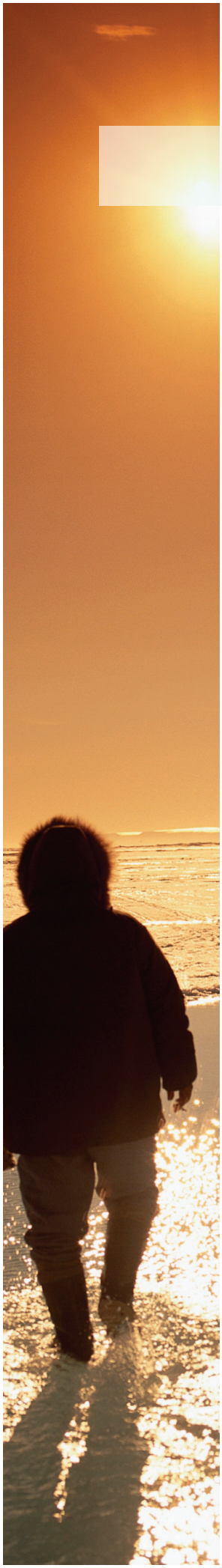

INTERNATIONAL
POLAR YEAR

What Happens at the Poles Affects Us All

Weather and Climate

Our climate represents a balance between heat gained in the tropics and heat lost at the poles. The equator-to-pole gradients of temperature determine atmospheric patterns of wind and moisture. Ocean currents carry vast amounts of heat toward the poles, and ice on land and oceans plays a crucial role in planetary cooling. Cold water formed at the poles drives deep ocean circulation. As our planet warms, changes in these systems will affect agriculture, forestry, industry, transportation and recreation.

Ice and Sea Level

Signs of global warming appear where sea ice, ice sheets, mountain glaciers, and permafrost meet warming air or ocean. Mountain glaciers have receded and lost mass; in many locations these changes portend disruptions to water supplies. Sea ice heated from above or below quickly disappears, exposing a darker ocean that reflects less sunlight and absorbs more heat. Permafrost exposed to warmer air thaws from the surface downward; thawing permafrost beneath the Arctic Ocean may release potent greenhouse gases. The enormous ice sheets of Greenland and Antarctica already lose mass and raise global sea level.

Polar Biodiversity

Polar life includes polar bears and penguins, but also exquisite tundra plants, marvelous ocean crustaceans, and migratory populations that breed in polar regions. These biological systems, remarkably adapted to cold temperatures, ice, and long periods of darkness, will retreat as their preferred habitat disappears. The disappearance of ice-adapted species will represent a biodiversity failure as serious as that of rainforests or coral reefs.

Polar Communities

Humans in the Arctic confront environmental, social and political changes. Polar natural resources, including fish, forests, and wilderness, face increasing pressure as their value to the rest of the world increases. Arctic residents use traditional knowledge, education, technology, and their global neighbors to help answer difficult questions. Can Arctic communities sustain local economies in the face of imported goods and services? How can polar residents work with local and national governments to establish appropriate patterns of development? How can traditional cultures adapt to economic and social pressures? Who should shape the values and protections for Arctic ecosystems?

Learn more about IPY at www.ipy.org

International Polar Week

Although most of us will never encounter sea ice or permafrost, see mountain glaciers, or meet a free-living penguin, we can recognize the impacts of polar changes on our global systems, on our weather and climate, and on our neighbors in many parts of the world. This Polar Week will provide you with the opportunity to explore the many changes in polar regions.

Activities for the International Polar Week

5 to 9 October 2009

Pick one or try them all!

- Contribute to a worldwide **public lecture series**: Show your polar enthusiasm by organizing a presentation about polar environments for your local Rotary, 4-H, Boy Scout/ Girl Scout troop, church group, school association, city council, university, or wherever your community gathers!
- Learn about the **linkages in polar ecosystems**: Discover how polar organisms depend on each other. What happens to these food webs when one or several organisms disappear?
- Explore polar changes through the IPY **Polar Books collection**: Access a virtual library full of books, book excerpts, posters, photos, artwork, teachers' guides and activity sheets. Take your class on an adventure as you explore changes in the polar regions.
- Join a debate on the **future of the Arctic**: Understand and act the roles of experts, advocates, and decision-makers in a discussion of the benefits and costs of commercial resource extraction versus natural resource protection for Arctic regions.
- Investigate the physical and biological **complexity of sea ice**: What properties of sea ice, diferent from freshwater ice, allow it to support surprising ecosystems?

Please join us as we explore many connections to polar regions. Find links to all of these activities, and more, on the Polar Week pages of www.ipy.org.

Produced by the IPY International Programme Office, www.ipy.org.
Images: this side - E. Calvert, NOAA; other side - Norwegian Research Council.