IPY 2007–08 and the Resurgence of Northern (& Polar) Research in Canada

by David S. Hik

The first International Polar Year (IPY) in 1882–83 was one of the earliest globally coordinated scientific efforts, and its success provided a model for subsequent programs of coordinated international research. The coming IPY in 2007–08 (actually extending to 2009) will be a major event that contributes to the advancement of polar knowledge, research and technology and establishes a new foundation and legacy for future decades of work. Canada has recognized that indigenous and non-indigenous residents of polar regions must participate directly in defining the IPY research programs.

CANADIAN CONTRIBUTIONS TO PREVIOUS INTERNATIONAL POLAR YEARS

The organization of the previous International Years followed a similar pattern: the initiative of a small number of individuals was adopted by international scientific agencies, which provided overall direction to national committees responsible for coordinating research programs and securing the necessary funding. Coordinating these large research efforts and securing adequate funding has always been a challenge, but each time Canada has participated in the International Years.

During the first Polar Year, Canadian scientific capacity was still in its infancy, and the expedition to Fort Rae, Northwest Territories, was organized and partially paid for by the Royal Society of London. At the request of the British government, the Canadian government (by an Order in Council dated 3 April 1882) provided $4000 towards the costs of establishing this observation station. Canada was able to provide substantially more technical and logistical support for the second IPY in 1932–33, despite the financial difficulties of the Depression. Planning for the second IPY was coordinated by the Meteorological Service of Canada, and three major stations were maintained, at Chesterfield Inlet (west coast of Hudson Bay), at Coppermine (Kugluktuk), and at Cape Hopes Advance in Quebec. Auroral and magnetic observations were also made at Meanook in north-central Alberta.

The proposal for a third Polar Year in the early 1950s soon expanded to include the entire planet—the International Geophysical Year (IGY) in 1957–58. In Canada, an IGY Organizing Committee was formed in 1953, with overall coordination and significant funding provided by the National Research Council. A commitment was made to significantly expand research efforts in established fields, particularly studies of the aurora and ionosphere, weather patterns, cosmic rays, and glaciology. More importantly, IGY left a legacy of trained scientists, research infrastructure, international cooperation, and heightened public awareness in Canada and around the world that sustained northern research for many years.

INTERNATIONAL AND CANADIAN CONTEXT FOR IPY 2007–08

Since the IGY 50 years ago, scientific interest in the polar regions has continued to grow and now includes all fields of scholarship. Priorities for further study have recently been reviewed by the Arctic Council. Two sobering reports released in November 2004, the Arctic Climate Impact Assessment (ACIA) and the Arctic Human Development Report (AHDR), identified specific concerns and offered recommendations for future action. The International Polar Year 2007–08 provides an opportunity to act on these recommendations in a coherent and organized way.

The government of Canada has recently signaled that science and research are an important part of its commitment to the North. For example, in his response to the Speech from the Throne at the opening of the 38th Parliament in October 2004, the prime minister noted that "the government of Canada is committed to supporting science and research in the North, both on our own and in collaboration with our circumpolar partners" (www.pm.gc.ca/eng/sft-ddt.asp). In December 2004, the prime minister and premiers of the Northwest Territories, Yukon, and Nunavut released a framework for the first-ever jointly developed Northern Strategy (www.northernstrategy.ca). The Northern Strategy will focus on a number of broad objectives associated with governance, economic development, the environment, community health and culture, and security and sovereignty. All of these objectives will be supported by investments in science, research, and knowledge. Enhancing our research capacity will ensure that Canada is a leader in northern science and technology, improve understanding of the North, and contribute to the social, economic and environmental well-being of Northerners and the country as a whole.

THE CANADIAN APPROACH FOR IPY PLANNING

The Canadian IPY research program will advance activities to monitor and understand change and its human dimensions, and will focus on social, economic, and cultural research, as well as physical and biological sciences. The research needs and agendas of northern communities will form an integral part of the IPY program.

Very briefly, the Canadian IPY program has evolved in several stages:

1. Initiation of a national and northern dialogue about IPY

The Canadian Polar Commission (CPC) initiated and has maintained an open dialogue about IPY for several years. During 2004, the CPC facilitated a number of consultative forums in northern communities and actively promoted IPY within the federal government. Numerous scientific societies have also engaged in discussions about IPY at national and international meetings. Canada was represented at the international planning group for IPY by Dr. Gérard Duhaime.

2. Creation of coordinating bodies

By mid-2004, a national IPY secretariat was established at the University of Alberta, and both a national steering committee and a federal IPY working group, with representatives from 21 departments and agencies, were appointed. Funding for this planning stage was provided by over a dozen federal ministries, agencies, and foundations and by the University of Alberta. Internationally, the International Council of Sciences (ICSU) and the World Meteorological Organization (WMO) provided the resources for international coordination by endorsing and supporting an International Program Office at Cambridge and an international Joint Committee to oversee IPY planning and coordination (www.ipy.org).

3. Self-identification of individual and group research interests in IPY

The process for building a Canadian IPY program has been open, transparent, and non-competitive to encourage as many individuals and groups as possible to submit concepts or pre-proposals (www.ipy-api.ca). In Canada, these pre-proposals will be further developed into a smaller number of collaborative networks in several areas, as diverse as terrestrial and marine ecology, variability and change in the Canadian crysophere, remote sensing, and healthy communities, among others. In all cases, collaboration between federal research labs, university scientists, and northern researchers is being encouraged and facilitated. For example, in the area of northern public health, pre-proposals were received from Health Canada, several university groups, and the Yukon Public Health Association.

4. Integration of Canadian and international interests and resources

The first call for pre-proposals in late 2004 was coordinated with the activities of the international Joint Committee. In Canada, these were reviewed by the national steering committee, and over 220 individual submissions were forwarded to the international Joint Committee. It is anticipated that the integration and coordination of regional, national, and international IPY planning will accelerate during the spring of 2005, with full proposals due in June.

5. Securing new funding for Canadian IPY research programs and polar research infrastructure

New funding is clearly required to support an ambitious IPY program, and by the time this article is published the 2005 federal budget will have been announced. Whatever the outcome of requests for IPY support in the budget, Canadian polar research interests will continue to develop as a result of the process already underway. However, IPY is a rare opportunity to lay the groundwork for a research program that will pay dividends over the long term by ensuring a legacy of trained people, modern infrastructure and logistics, and heightened public interest and awareness.

6. The next steps: Refining the IPY research networks and operational working groups

Over the coming months, working groups will be formed to fully develop each of the IPY research networks that have been identified. This process will be facilitated by the national Secretariat, with the objective of having full IPY proposals in hand by June 2005. Working groups will also be formed to address a number of over-arching themes, including (1) education, outreach, and public awareness; (2) infrastructure and logistics; and (3) data management and archiving. The data management and archiving aspect of IPY research programs is a particularly important area for development. One feature of the first IPY was the care taken after the event to publish and disseminate the results so that the wider scientific community would benefit from the findings. In fact, all of the International Polar Years since 1882 have contributed baseline data and new knowledge that is still useful today. Modern technology in information management will be adapted to ensure that the new knowledge and data from IPY 2007–08 will be accessible in perpetuity.

The upcoming IPY will continue to expand our understanding of polar regions, especially in the complex interactions between the physical, biological, and human dimensions. Canadian participation, planning, and support for these activities is still in the early stages, and there is much to do in preparation, but the legacy of the previous international years should provide the inspiration to make the most of this IPY—50 years is a long time to wait until the next one!

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