

# Government of Canada Program for International Polar Year 2007-2008

## *IPY Science and Research Projects*

### *Call for Proposals*

#### **PROGRAM DESCRIPTION**

The International Council for Science has joined with the World Meteorological Organisation to organize the upcoming International Polar Year (IPY). This IPY will drive an intensive burst of internationally coordinated and interdisciplinary scientific research and observations focused on the Earth's polar regions and seas. It aims to capitalize on and leverage intellectual resources and science assets of nations worldwide to make major advances in polar knowledge and understanding, while leaving a legacy of increased knowledge and expertise, as well as new or enhanced observational systems and facilities. The official observing period of IPY 2007-2008 is from March 1, 2007 until March 1, 2009, coinciding with the 125<sup>th</sup> anniversary of the first IPY, the 75th anniversary of the second IPY, and the 50th anniversary of the International Geophysical Year (IGY). For more information on the international IPY initiative see [www.ipy.org](http://www.ipy.org).

Canada is a polar nation with a significant proportion of its landmass and ecosystems, as well as resources and population, in the Northern polar region. Recognizing that Canada has a critical role to play in IPY as host, leader and participant, the Government of Canada has announced its intention to support an innovative and interdisciplinary Canadian program for IPY, which is framed in the international context.

Highlights of the Government of Canada Program for IPY include:

- **Targeted science and research**, which build on and support existing programs, networks and facilities, to focus on two important challenges for Canada's Northern regions<sup>1</sup>:
  - the science for climate change impacts and adaptation and
  - the health and well-being of Northern communities;
- **Capacity building and training**, to actively engage young scientists and Northern communities in Northern science and research activities;
- **Communications and outreach**, to raise awareness of Northern and polar regions and scientific issues, to ensure that IPY research is used by and benefits northern communities, and to celebrate Northern, Aboriginal and scientific achievements related to IPY.

For more information on the Government of Canada Program for IPY and future Calls for Proposals, please visit [www.ipy-api.gc.ca](http://www.ipy-api.gc.ca).

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<sup>1</sup> Canada's North is defined as the land- and ocean-based territory that lies north of the southern limit of discontinuous permafrost, from northern British Columbia to northern Labrador.

## ***Call for Proposals - General Information***

This is the primary Call for Proposals for science and research projects from the Government of Canada Program for IPY. Depending on the outcome of the review process, there may be more targeted opportunities through additional calls for proposals.

Proposed activities must:

- Address one or more IPY objectives outlined in the six international IPY research themes (Status; Change; Global Linkages; New Frontiers; Vantage Point; and Human Dimension), together with the six interdisciplinary observational strategies, provided in the framework for the global efforts on IPY. These are described in detail in *A Framework for the International Polar Year 2007-2008* available at: [www.ipy.org/development/framework/framework.pdf](http://www.ipy.org/development/framework/framework.pdf)
- Generate knowledge, data and information that is fundamental to support key areas of Northern science and policy development at all levels of Canadian government and society including Northern communities, and to inform international policy direction, in particular, by addressing needs identified in the 2004 *Arctic Human Development Report* (AHDR) (<http://www.svs.is/AHDR/AHDR%20chapters/Chapters%20PDF.htm>) and the Arctic Climate Impact Assessment (ACIA) report entitled *Impacts of a Warming Arctic* (<http://www.acia.uaf.edu/>);
- Integrate the physical, chemical, biological, health and social sciences along with traditional knowledge;
- Support extensive involvement of and foster research partnerships with Northerners in IPY activities;
- Promote Canada as an international leader in polar science;
- Leave a legacy of enhanced capacity for Northern science and research, especially in the Canadian North itself.

Proposals may request up to 5 years of funding for IPY science and research projects. Proposed projects can start before March 1, 2007 and end after March 1, 2009, but should cover one or both of the two IPY years. At least 80% of the funding request must be within the 2007/08 and 2008/09 fiscal years. The funding level requested must be clearly justified in the budget section of the proposal.

Proposed projects will need to be linked to an internationally endorsed IPY project full proposal. See [www.ipy.org](http://www.ipy.org) or contact the Canadian IPY Program Office - National Secretariat (Canadian IPY Secretariat) at [ipy@ualberta.ca](mailto:ipy@ualberta.ca) for information on how to obtain endorsement as an IPY project or link to an internationally endorsed project. It is expected that proposed projects will involve international collaborators. Collaborators from other countries must bring their own financing to the project. Funding decisions will take into account the status of all additional sources of funding for the IPY project and the level of funding from these sources.

## ***Role of Northern Peoples***

The Government of Canada Program for IPY recognizes the need, value and expertise of Northern communities in understanding the North, as does the IPY initiative at the broader national and international levels.

IPY 2007-2008 must strengthen the dialogue and links between Arctic residents and the research community, and must engage Arctic residents in the design and implementation of IPY science, education and outreach programmes... Materials developed should aim for a holistic approach, being sensitive to natural science, social science and traditional knowledge. It is particularly important to see the IPY 2007-2008 as a special opportunity to raise awareness and build connections between researchers and residents of the Arctic communities.

Sec. 3.3.3, "Arctic Communities", *Framework for the International Polar Year 2007-2008*

Northern peoples have a vital role to play in IPY research. There is wide recognition that research must be conceived and conducted in close cooperation with Northern communities.

The Government of Canada Program for IPY is strongly focused on producing research results for the long-term benefits of Canada's Northern population, including lasting collaborative research networks, sustained Northern research engagement, new skills and new ways of approaching Northern issues, and the encouragement of a new generation of Northern researchers, notably Aboriginal researchers.

The Government of Canada Program for IPY acknowledges that Elders and other knowledge-keepers trained within Inuvialuit, Inuinnaat, Inuit, Gwich'in, Dene, Métis, Cree, Innu, Naskapi, Northern Athapaskan, Tlingit and other Aboriginal intellectual traditions are in a position to make a crucial contribution to the design and management of Northern research.

## ***Science Priorities: 1) Science for Climate Change Impacts and Adaptation and 2) Health and Well-being of Northern Communities***

While the Government of Canada Program for IPY is clearly framed by the international context, the focus of this Call for Proposals is on (1) science for climate change impacts and adaptation and (2) health and well-being of Northern communities<sup>2</sup>.

As outlined in the ACIA and elsewhere, climate change is already evident in the Arctic, as documented by increases in average temperature that are almost double global increases in recent decades, widespread melting of glaciers, declining ice and snow cover, and warming of permafrost. These changes, in turn, are impacting the Northern environment, its ecosystems, infrastructure, community and economic sustainability.

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<sup>2</sup> Investigators with projects in areas outside of this call for proposals are encouraged to seek other sources of funding that may become available therefore investigators should remain in contact with the Canadian IPY Program Office - National Secretariat (Canadian IPY Secretariat) (ipy@ualberta.ca).

To provide decision-makers from the local to national to international level with an improved understanding of the risks and opportunities presented by climate change, it is thus of the utmost importance to improve our knowledge of the nature and rate at which change is occurring and our scientific knowledge of the likely impacts of climate change in both the Arctic and the rest of the world. This improved scientific understanding will provide important input to both domestic and international change adaptation policy development, as well as the formulation and implementation of adaptation measures, including engineering and technology solutions. This knowledge will be developed through co-ordinated research, observation, monitoring and modeling that integrates the natural, social and health sciences, and Aboriginal and local knowledge.

Improving the health outcomes and raising the health status of Canadians living in the North are national priorities and major public health objectives. While there is a general consensus<sup>3</sup> among researchers, Northern communities and governments on the health challenges and knowledge gaps facing Northern communities, identification of local health priorities and other processes are needed to materialize robust, sustained health and well-being among Northerners. Northerners want to and must become more directly involved in research that affects their communities.

The knowledge generated from the Government of Canada Program for IPY is intended to provide new knowledge and evidence allowing direct involvement of Northerners in research affecting their communities. This new knowledge is expected to empower Northerners to set their own policies and programs in the areas of health promotion, disease prevention and control, and overall community well-being, as well as inform the federal, provincial, territorial, Aboriginal and other levels of government in those areas.

The Government of Canada Program for IPY encourages multidisciplinary and interdisciplinary approaches, particularly where there are cross-cutting issues. The two science priority areas are described further within sub-themes (listed below). These sub-themes illustrate some of the questions that the Program is designed to address, but are not exhaustive. The first four sub-themes focus on science for climate change impacts and adaptation, while the subsequent three concentrate on the health and well-being of Northern communities. Despite this separation, applicants are encouraged to explore projects that cut across sub-themes and address both climate change impacts and adaptation and health and well-being of Northern communities.

### **Multidisciplinary Observations and Analysis of the Arctic Climate System**

To address climate change impacts and adaptation, multidisciplinary observations and analysis are needed. Long-term climate data and information are critical for assessing the overall status of the Arctic climate (e.g., cryosphere, freshwater flux into the ocean, ozone and UV radiation, contaminants, high impact weather) as well as biophysical indicators of climate change impacts (e.g., biological productivity, landscape stability). For example, both current and historic systematic observations from *in situ*, satellite and atmospheric, oceanic and terrestrial transects, paleoenvironmental data from a range of proxy sources including glacier, marine and lacustrine cores, and traditional knowledge are considered.

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<sup>3</sup> Arctic Human Development Report (<http://www.svs.is/AHDR/>); Whitehorse Report; Canadian Institutes of Health Research Northern Consultations; Aboriginal Blueprint ([http://www.hc-sc.gc.ca/hcs-sss/pubs/care-soins/2005-blueprint-plan-abor-auto/index\\_e.html](http://www.hc-sc.gc.ca/hcs-sss/pubs/care-soins/2005-blueprint-plan-abor-auto/index_e.html)); Joint Partnership Accords; Health Accords, Northern Strategy (<http://www.northernstrategy.gc.ca/>); Canada-Aboriginal Peoples Roundtable (<http://www.aboriginalroundtable.ca/>).

## **Process Studies and Impact Modeling Related to Climate, the Physical Environment and Society**

This sub-theme involves modeling, monitoring and process studies to enhance understanding of fundamental processes within the climate system and its variability and change over time and space, as well as the influence of climate on marine and terrestrial ecosystems and human systems. These include, for example, improved representation of Arctic processes (e.g., ocean-ice-atmosphere linkages, land surface processes such as permafrost-soil-vegetation-atmosphere interactions, and feedback processes) in climate, weather and hydrological models with improved spatial resolution; climate parameters that affect local communities and ecosystems directly, including weather variability, storm intensity, wind patterns, and extreme events; ecosystem and societal impact modeling linking climate models with other process models, in order to project plausible patterns and rates of change for plants and animals, ecosystem function, and human response.

## **Climate System Links Between Northern Regions and the Rest of the Globe**

This sub-theme includes studies of phenomena that have implications for human socio-economic environment and quality of life through links to the climate system within the circumpolar North or between the Northern regions and the rest of the globe, and of the processes controlling them. Such phenomena include ice mass contribution to sea level rise, accumulation of pollutants, multi-year climatic fluctuations, freshwater flux, ozone depletion, carbon fluxes in marine and terrestrial ecosystems, forcing of the Northern environment by low latitude phenomena (e.g., El-Nino) and vice versa.

## **Ecosystem and Community Vulnerability, Resilience and Adaptive Capacities**

This study area examines the risks and opportunities that climate change presents to Arctic ecosystems, communities and economies, including the capacity of systems to respond to those changes. It could also include the science behind planned and proactive adaptation approaches, as well as new engineering and technology solutions to assist people to adapt to those changes. These include, for example, social cohesion, institutional capacity and other determinants of adaptive capacity, change in determinants through time, acceptance of technological innovations, governance, culture, economics, resource management, and barriers to adaptation.

## **Reducing Health Disparities / Improving Health Outcomes and Well-being**

Some determinants of health in the North have been already identified using a population health approach. Examples include economic status, remoteness, access to and retention of health care professionals, and access to appropriate housing, education, safe water, food, electricity and fuel. Proposals addressing health disparities should focus on the linkages between determinants of health, health disparities and their underlying causes, and finding effective ways to reduce those disparities to improve the health status and well-being of Northerners. While health disparities between Northern/remote and southern/urban populations are well documented, little is known about how to effectively reduce and ultimately eliminate these disparities. Health disparities include higher rates of smoking, substance and alcohol use/abuse; Fetal Alcohol Spectrum Disorder; family violence; acute mental health conditions, including those that result in both intentional and unintentional injuries and suicide; and, morbidity and/or mortality from chronic and infectious disease such as diabetes, HIV and

tuberculosis. Gender disparities among Northerners typically follow a different pattern than gender disparities in Canada's South.

Proposals should also reflect the fact that health determinants must be considered within a completely different context in the North. That context includes a rapidly growing, largely Aboriginal population (including a large proportion of Aboriginal youth), and unique historical, social and cultural factors, particularly as they affect Aboriginal populations, that have a significant role to play in Northern health and well-being. Some Northern Canadians are also contending with the impacts of environmental contaminants and climate change which manifest themselves significantly and more immediately in the North than in Canada's southern regions.

### **Building and/or Sustaining Healthy, Resilient Communities**

Despite the health and environmental challenges associated with living in the North, some individuals and communities have demonstrated remarkable resiliency. They have adapted and even thrived in harsh environments and under difficult conditions.

Northern resiliency, which is often reinforced by traditional Northern/Aboriginal concepts of health and well-being, is far from being well understood by policy and program decision-makers. Science and research on the North have often meant applying western methodologies and scientific standards to analyzing and understanding Northern/Aboriginal peoples and communities. As a result, research questions and practices that have been framed from a southern perspective may have no immediate application or relevance to, or legitimacy for, Northern/Aboriginal communities.

While some progress has been made in understanding what makes one individual or community more healthy or resilient than another, much remains to be learned by policy and decision-makers. Proposals addressing resiliency should consider the Northern/Aboriginal way of life and traditions that have been excluded from health research in the past. They should focus on Northern/Aboriginal holistic concepts of health and well-being, and how they would positively impact on health promotion and disease prevention activities and inform the development of new/adaptive policies and programs.

### **Examining the Links Between Climate Change, Human Health, and Well-being**

Northern/Aboriginal health is directly and indirectly affected by climate change. For example, climate change (including the melting permafrost) is affecting the availability and quality of, and access to, the traditional Aboriginal food supply (land-based flora and fauna, and marine-based species) which raises questions about how Northern/Aboriginal communities can adapt to an endangered food supply, and whether there are healthy and affordable alternatives. In addition, the relationship between climate change and climate-sensitive diseases in the North (water, food- and vector-related, including zoonoses), as well as implications for chronic disease, is of growing concern. The impact of extreme weather and natural disasters on Northern/Aboriginal communities, including implications and solutions with respect to transportation (e.g., winter ice land bridges will be too soft) and infrastructure (such as buildings), melting permafrost, and injuries and mortality (i.e., from flooding, drowning, fires, etc.) also needs to be explored more fully.

In addition to the above, proposals specifically addressing the impacts of climate change on human health and well-being could focus on identifying appropriate community adaptation responses in the North, the generalization of local Northern adaptation responses to other

Northern communities, and/or the inclusion of traditional knowledge as part of an adaptive process. Other outstanding questions to consider are community based monitoring initiatives to build the knowledge of how people are being affected by climate change, and how climate change impacts are progressing and being addressed. Finally, projects should examine how climate change-related health information can be integrated into economic development projects (e.g. pipeline development) to reduce vulnerabilities in Northern/Aboriginal communities.

## ***Application Deadline and Procedures***

Applications must be submitted and received at the Canadian IPY Program Office – Federal Secretariat, by **March 10, 2006**.

Applications must be submitted in accordance to the Instructions for Applying ([link](#)). These procedures will also provide the applicant(s) with additional information to assist in the preparation of proposals, including eligible expenses and regulatory requirements.

## ***Eligibility and Relevance Criteria***

Each proposal must meet the following eligibility criteria in order to be considered:

- Each applicant and co-applicant must be employed by or be part of the organizational structure of a Canadian organization that: (1) is a recognized legal entity in Canada; (2) has acceptable accounting systems and financial controls in place to administer the funds as demonstrated by the annual conduction of financial audits; (3) supports the proposal as indicated by a signature from an authorized officer. Possible organizations include educational and academic institutions; government departments and agencies (federal, provincial, territorial, regional, municipal, Aboriginal); businesses and industries and their professional associations; not-for-profit, non-governmental organizations; community groups (Aboriginal communities or organizations, voluntary groups, community organizations, associations and institutions);
- Proposals must fall under the science priorities of 1) science for climate change impacts and adaptation and/or 2) health and well-being of Northern communities, as described above;
- Proposals must be endorsed by the International IPY Joint Committee, or linked with an internationally endorsed project full proposal, and involve international collaboration. Letters from the IPY Joint Committee and the Principal Investigator of an internationally endorsed project, confirming these endorsements, must be submitted by the applicants before a funding decision is made;
- Research must have a geographic focus on the Earth's polar regions, although studies in any region will be considered as long as the proposal addresses the objectives of this call for proposals and meets the criteria;
- Research must take place between April 1, 2006 - March 31, 2011 and include the IPY 2007-2008 time frame (March 1, 2007 - March 1, 2009);
- Applicants and co-applicants must be willing to adhere to ethical guidelines; traditional and community research protocols; and national, territorial, provincial and Aboriginal government regulations and policies, including licensing, as appropriate. Signature on

the application is considered an indication of this willingness. These requirements will need to be satisfied as part of the terms of support; and

- Proposals must involve cross-sectoral partnerships, for example, between federal departments, federal agencies, academia, other governments, Northern and/or Aboriginal organizations, communities, other countries, non-government organizations, and/or industry.

## ***Evaluation Criteria***

Each proposal will be evaluated using a set of criteria as described below which must be met and/or addressed in the proposal.

- **Scientifically defensible research that meets national/international standards**
  - Originality and potential impact of the proposed research within one or more internationally approved IPY 2007-2008 themes ([www.ipy.org/development/themes.htm](http://www.ipy.org/development/themes.htm));
  - Quality, clarity, scope, design and focus of the research proposal and methodology;
  - Potential to generate new knowledge and research results that will benefit Canada, and especially Canada's North, in addressing Canada's strategic Northern interests by demonstrating how the proposed project supports science for climate change impacts and adaptation, and/or the health and well-being of Northern communities;
  - Interdisciplinary nature of the proposal that contributes to international collaboration in a holistic way;
  - Nature and extent of the research collaborations, nationally and especially internationally; and
  - Integration, whenever appropriate, of diverse knowledge systems, epistemology and methodologies, including Aboriginal knowledge systems.
- **Competency of the principal investigator and team**
  - Research competence and experience of the applicant(s) and collaborator(s);
  - Expertise to conduct the proposed research program, and likelihood of achieving the project objectives;
  - Experience in training, or potential to train people, especially in the North;
  - Appropriate inclusion of Northerners, especially Aboriginal Northerners, on the research team (including Elders and other recognized Aboriginal knowledge-keepers as appropriate to the research);
  - Experience in conducting Northern research in collaboration with Northern peoples; and
  - Ability to collaborate and communicate with other researchers, nationally and internationally, with Northern agencies, Northern and Aboriginal community organizations, and with national and international policy and governmental organizations, as appropriate.

- **Community research participation**
  - Effective plans for consultation with and involvement of Northern communities and organizations, particularly Aboriginal ones, in the planning, conduct, and dissemination of the research, including progress achieved so far;
  - Relevance of the proposed research and training to the needs and priorities of Northerners, particularly Aboriginal Northerners;
  - Degree to which traditional knowledge is included in the proposal and the plans for inclusion of traditional knowledge in the research, as appropriate;
  - Appropriate communication of research plans and research results to Northern communities and organizations (in local languages as needed);
  - Demonstration that the current strengths and capacities of the Northern communities involved have been assessed and will be utilized and developed as part of the research project, if appropriate; and
  - Synergy between research objectives and Northern priorities.

It is understood that different kinds of research and varying practical circumstances may require different approaches to community research participation appropriate to the science and research proposed. Applicants should clearly explain in the proposal the reason for the level of community research participation proposed.

- **Legacy and training of people**
  - Plans and opportunities to train people, especially Northerners, and foster the next generation of polar researchers, including training plans that result, wherever possible, in formal recognition or accreditations of skills gained;
  - Long-term benefits and/or legacy outcomes, especially for the North (e.g. knowledge translation to communities, community capacity building, new processes, new programs, new collaborations, etc.); and
  - Long-term plans regarding equipment and improved facilities once IPY funding has ended.
- **Data management and communication**
  - Data management plan in accordance with the [IPY Data Policy](#);
  - A viable and appropriate plan or approach for education, outreach and communication activity, especially with Northern communities; the plan should take into account the need to communicate significant research findings to affected Northern communities before being released in the South;
  - Plans for promoting IPY activities and results;
  - Plans for translating and communicating the research results in a format appropriate for Northern communities;
  - Plans for communicating research results to other relevant national and international fora; and
  - Effective planning around any questions about ownership, storage and use of research materials, data (including personal health information), interviews, recordings or media productions.

An overall Data Management Plan for the Government of Canada Program for IPY will be developed early on in the Program. It is expected that researchers will be involved, as appropriate, in the development and implementation of the Plan.

- **Project and Financial Management**
  - Project management plan including an organizational structure, a detailed description of the activities, time frame and associated financial requirements;
  - Feasibility and practicability of the research, given the available facilities, services, and infrastructure support;
  - Funding required to conduct the activities and to cover the costs of personnel, travel, logistics, consultation, and communication requirements;
  - Nature and extent of support from partners or collaborators, demonstrating cost-sharing and leveraging of other funding sources;
  - A viable plan for securing appropriate logistical support;
  - Detailed plans for obtaining ethics, licensing and regulatory approvals, as appropriate;
  - The capacity and capability of the team and organization necessary to deliver the project; and
  - Integration of the proposal in an international cluster.

## ***Proposal Review***

Proposals will be peer reviewed based on how closely they meet the objectives of the program and the criteria. A multidisciplinary selection panel will review, rate, and rank the proposals, and make funding recommendations to the Assistant Deputy Ministers (ADM) Committee on IPY, which will make the final funding decisions. The multidisciplinary selection panel will supplement its review using external reviewers, disciplinary panels and Northern community input, as appropriate. National and international experts in the natural sciences, engineering, health and social sciences, and experts with experience in Northern and polar issues from public and/or private-sector organizations, including Northerners, will serve on the various panels.

It is expected that the multidisciplinary selection panel will meet in the late Spring of 2006 and that a decision will be made by the ADM Committee on IPY by Summer 2006, with funding starting to successful applicants as soon as possible thereafter. On-site reviews will not be conducted unless special circumstances dictate; applicants will be contacted in such cases.

## ***Reporting on Progress and Budget Expenditure***

Funds will be paid on an annual basis to the organization with the Principal Investigator having the responsibility for managing the funds. If the Principal Investigator is from an organization other than a federal department/agency and funds have been identified for the involvement in the project of federal departments or agencies, the Principal Investigator will receive and be accountable for only the management of that portion of funds not directed to federal departments or agencies. Recipients will be required to submit a mid-year financial report and an end-of-year annual report and statement of account. Unused funds are to be returned to the Canadian IPY Program Office - Federal Secretariat. The annual progress report will need to identify progress towards project goals, outputs and accomplishments, and, in the case of ongoing projects, must outline in detail any changes to the project and/or budget for the upcoming year. Future instalments will be contingent on satisfactory progress. If the project and/or budget is deemed to have changed significantly from the projections at the time of the initial project approval-in-principle, the project may be subject to another peer review. Recipients will also be required to submit a final report within three months of the end of funding. Details will be provided as part of the terms and conditions of funding agreements, as applicable.

***Proposals and questions should be directed to:***

International Polar Year Federal Program Office ☐☐

By phone: (819) 953-2007

By fax: (819) 934-0584

**By email (preferred method):** [API-IPY@ainc-inac.gc.ca](mailto:API-IPY@ainc-inac.gc.ca)

By mail:

Please mail or courier the IPY Funding Proposals to:

International Polar Year Federal Program Office ☐

Indian and Northern Affairs Canada

10 Wellington Street, Room 745

Gatineau, Quebec, Canada

K1A 0H4

Attention: Cathy Smith