



EXPRESSION OF INTENT FOR ACTIVITIES IN IPY 2007-2008.

Deadline for Submission - January 14, 2005

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1.0 PROPOSAL INFORMATION

1.1 Title of proposed activity

US Geological Survey participation in the International Polar Year

1.2 Acronym or short form title of proposed activity

USGS-IPY

1.3 Concise outline of proposed activity

The US Geological Survey serves the United States by providing reliable scientific information to

- * Describe and understand the Earth;
- * Minimize loss of life and property from natural disasters;
- * Manage water, biological, energy, and mineral resources; and
- * Enhance and protect our quality of life.

The USGS intends to participate in the IPY through extension and enhancement of programmatic activities in research, assessment, and monitoring in the polar regions that support the scientific mission of the organization and address the themes and goals of the IPY. These activities span the biologic, geologic, hydrologic, geographic, and information sciences and will include:

Theme 1 Status: Research and monitoring of status and distribution of fish, wildlife and vegetation; determination of species at risk; permafrost evaluation to include assessment of thermal regime, organic carbon characteristics, and distribution; evaluation of hydrologic inputs including the influence of large river deltas, snow and water-borne contaminants and freshwater inputs; and the evaluation of surficial and geochemical processes in understanding the changing polar environment.

Theme 2 Change: Integrated monitoring for assessing regional changes in carbon cycle of Arctic watersheds; extension of current ground and satellite-based monitoring of glaciers and icecaps for volumetric changes and monitoring of thermal changes in permafrost; reconstruction of past climate and evaluation of current changes from sediment and ice cores; monitoring and assessment of changes in rates of coastal erosion and surficial process; evaluation of changes in status and distribution of circum-polar vegetation, fish, and wildlife (including invasive species) and freshwater discharges in the Arctic.

Theme 3 Global Linkages: Evaluation of the nature of arctic/boreal hydrologic interactions and the relationships between climate and plant growth, productivity, permafrost depth, and resulting effects on nutrient availability and heat source/sinks; evaluation of potential for methane hydrate decomposition in a regime of arctic warming.

Theme 4 New Frontiers: Development of a micro-seismicity array in the Antarctic South Pole quiet sector for high-resolution studies of the Earth's interior; establishment of an absolute geomagnetic observatory at South Pole for long-term time series observations of variations in the Earth's magnetic field; extremophile interactions in polar geochemical and nutrient cycles.

Theme 5 Unique Vantage Point: Establishment or extension of permanent monitoring infrastructure for permafrost, global seismicity, and geomagnetic activity. Assessment of energy resources in the circum-arctic area including, oil, gas, coalbed methane and methane hydrates.

An additional element will include the production of geospatial data to include high-resolution mapping and digital aerial photography and the structuring of all data in a geospatially-referenced knowledge management system as an element of the USGS' Natural Science Network.

1.4 Which IPY 2007-2008 theme(s) will be addressed by the project (see Note 1)

Theme 1 – The current state of the polar environment	Y
Theme 2 - Change in the polar regions	Y
Theme 3 - Polar-global linkages and interaction	Y
Theme 4 - Investigating new frontiers	Y
Theme 5 -The polar regions as vantage points	Y
Theme 6 - Human societies in polar regions	Y

1.5 What is the major target of the proposed activity (specify one – see Note 1)

Natural or social science research	Y
Education/Outreach and Communication	Y
Data Management	Y
Legacy	Y
Other Targets	Y

1.6 What significant advance(s) in relation to the IPY themes and targets can be anticipated from this project?

We anticipate advances in all of the themes identified with the preponderance of work being performed contributing to IPY Themes 1, 2 and 5.

1.7 What international collaboration is involved in this project? (see Note 2)

International collaborations range from participation in joint projects on a PI-to-PI basis, to joint collaborations on an institution-to-institution basis. Individual project collaborations include personnel at the Department of Fisheries and Oceans, Canada; World Glacier Monitoring System; Univ. of Bergen, Norway; Univ. of Canturbury, New Zealand; NWT Centre for Remote Sensing, Canada; Water Survey of Canada; the State Oceanographic Institute, Russia; Univ. of Guelph, Canada, the Russian Telemetry Research Laboratory; and many more.

Organizational collaborations will include SCAR, IASC, NSF, ESF, other international entities and programs organized around specific topical areas of polar interest (e.g. AWI's Arctic Coastal Dynamics Program, GCOS), and other governmental and private entities with interests in the natural resources of the circum-polar regions (e.g. Geologic Surveys of Denmark, Greenland and Canada, Statoil, the Norwegian University of Science and Technology, British Petroleum, and the Russian Ministry of Natural Resources).

2.0 FIELD ACTIVITY DETAILS

2.1 Outline the geographical location(s) for the proposed field work (see Note 3)

Antarctica, Alaska, North Circum-polar region.

2.2 Define the approximate timeframe(s) for proposed field activities?

Arctic Fieldwork time frame(s)	Antarctic Fieldwork time frame(s)
5/05 – 9/08	10/05 – 2/08

2.3 What significant logistic support/facilities will be required for this project? Can these resources be usefully shared with other projects? (see Note 4)

Helicopter, fixed –wing, field camp support. Arctic logistics will be shared whenever possible or practical to do so. Antarctic logistics are shared through the coordination of the U.S. national operator.

2.4 Will the project leave a legacy of infrastructure? (see Note 1)

Infrastructure legacies will include the establishment of permanent 2- and 3-D seismic arrays at South Pole, expansion of current glacier and permafrost monitoring network sites in Alaska, establishment of ecological monitoring and coastal erosion monitoring sites on Federal lands in Alaska, and establishment of a polar gateway on the Natural Science Network (USGS) that will facilitate access to the knowledge management system for all information derived from IPY activities including all data and extensive new aerial and satellite imagery.

2.5 How is it envisaged that the required logistics will be secured? (one or more options can be identified)

Consortium of national polar operators	Y
Own national polar operator	Y
Another national polar operator	Y
National agency	Y
Military support	Y
Commercial operator	Y
Own support	Y
Other sources of support	Y

Antarctic logistical requirements will be coordinated through the U.S. national operator. Circum-arctic logistics will be acquired through the US national operator or through pre-existing agency-level logistical pathways.

2.6 Has the project been "endorsed" at national or international level (see Note 5)

Y	This expression of interest is in the process of being considered by the U.S. National Committee for IPY.
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3.0 PROJECT MANAGEMENT AND STRUCTURE

3.1 Is the project a component (established over the IPY 2007-2008 timeframe) of an existing plan, programme or initiative or is it a new autonomous proposal?

New Project ?	Component of an existing or planned activity Y
The proposed project work is either an extension of ongoing work currently supported by the Programs of the USGS, or new work proposed as an expansion or initiation of project work related to the programmatic goals of the USGS in the polar regions that address the themes and targets of the IPY.	

3.2 How will the project be organised and managed? (see Note 6)

Project work will be organized and managed through the pre-existing Program and regional management structures of the USGS. This structure supports biological, hydrological, geological, geographic, and information science through the identification of priority research areas led by the Associate Directors and Program Offices for each of these disciplines and interdisciplinary application of these sciences on the landscape through a Regional structure. An office for the coordination of IPY activities will be established within the current USGS International Office to provide oversight and assistance and to coordinate opportunities for international collaboration and outreach.

3.3 What are the initial plans of the project for addressing the education, outreach and communication issues outlined in the Framework document? (see Note 7)

The USGS currently maintains outreach and communication activities through its headquarters and regional Offices of Communications. Such activities utilize diverse communication strategies such as public lectures, open-house celebrations, press releases, congressional briefings, meeting participation, and website development. In addition, the USGS maintains an aggressive, discipline-focused student recruitment activity through our Student Temporary Employment Program (STEP), Student Career Employment Program (SCEP), student intern placement activities, and post-doctoral appointment programs. We anticipate that all of these resources will be utilized during our IPY activities.
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- 3.4 What are the initial plans of the project to address data management issues (as outlined in the Framework document)? (see Note 8)

Data and knowledge management in the USGS falls within the purview of the Office of Geospatial Information (GIO) and the National Geospatial Program Office (NGPO) and its regional representation. In addition, the multi-Agency Federal Geographic Data Committee (FGDC) is headquartered at USGS. USGS, through the GIO, NGPO, and FGDC proposes an Interactive Polar Information Gateway as part of our flagship Natural Science Network to support current and new polar datasets generated by our IPY activities. This activity would be coordinated with external entities, such as the World Data Centers, in order to ensure full compatibility and accessibility of data and data tools.

- 3.5 How is it proposed to fund the project? (see Note 9)

A portion of the proposed work will be funded within the current Program appropriation of the USGS. In addition, the USGS will seek additional funding for IPY activities through its normal appropriations process in FY07. Additional funding for cooperative activities may be sought through partnering entities where appropriate.

- 3.6 Is there additional information you wish to provide?

Individual sub-components of this effort may choose to submit separate, more detailed proposals that also contribute to this overall umbrella.

4.0 PROPOSER DETAILS

- 4.1 Lead Contact for the Expression of Intent

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4.2 List up to six other project members and their affiliation.

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Name 3 Nicholas Lancaster

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