

The Implementation of the International Polar Year 2007-2008

DRAFT FOR COMMENT

(to jcel@bas.ac.uk by 14th August 2004 at latest)

1. Purpose of this Document

The purpose of this document is:

- to define the types of activity that will take place as part of the International Polar Year (IPY) 2007-2008
- to describe who will carry out those activities and how they will be funded
- to identify and analyse options for the planning, organisation, oversight and completion of the IPY activities
- to establish a set of principles to apply to the implementation of the IPY
- to propose a process for the formal identification of IPY activities
- to develop recommendations for ICSU and WMO on how to proceed once the ICSU IPY Planning Group completes its work

2. International Polar Year Concept

The concept of the International Polar Year 2007-2008 is of a time-limited international initiative comprising coordinated, interdisciplinary scientific research and observations in the Earth's polar regions. The purpose is to explore new scientific frontiers, to deepen our understanding of polar processes and their global linkages, to increase our ability to detect environmental and societal changes, to more fully involve Arctic residents with research activities, to attract and develop the next generation of polar scientists, engineers and logistics experts, and to capture the interest of schoolchildren, the public and decision-makers.

The official period of the IPY will be from 1st March 2007 until 1st March 2009 to allow observations during all seasons, and the possibility two summer field seasons, in each polar region. The geographic focus will extend over latitudes from approximately 60 ° to the pole, both North and South.

The rationale for holding an IPY is summarised in the IPY 2007-2008 Outline Science Plan (see www.ipy.org). Key considerations are:

- The need for an intensive burst of effort to accelerate advances in knowledge and understanding, and to leave a legacy of enhanced observing systems and organisational structures to support ongoing advances in the future
- The need for new and enhanced international co-operation and co-ordination to achieve the above

3. *IPY Activities*

The IPY will consist of a set of specific scientific activities addressing agreed Themes (see IPY 2007-2008 Outline Science Plan, www.ipy.org). Given the short timescale for the necessary preparations at a national and international level, and especially for the planning of polar logistics, the aim is to establish a manageable number of IPY Core Projects (say 5-8), within a much broader set of IPY Associated Projects. The distinction between the two will be drawn primarily on the basis of programme size, and complexity.

The activities will consist of:

- A synoptic set of multidisciplinary observations to establish the status of the polar environment in 2007-2008
- The acquisition of key data sets necessary to understand factors controlling change in the polar environment
- The establishment of a legacy of multidisciplinary observational networks
- The launch of internationally coordinated, multidisciplinary expeditions into new scientific frontiers
- The implementation of polar observatories to study important facets of Planet Earth and beyond

These major observational initiatives will be complemented by

- Outreach activities aimed at maximising the societal impacts and benefits of the IPY
- New technology and logistical developments necessary to support these efforts.

The IPY Planning Group considers that the mandatory and desirable characteristics of IPY research campaigns and observing network initiatives are as follows:

Mandatory:

- *High quality science, addressing an important question or issue capable of resulting in major advance*
- *Fit to IPY Scientific Themes and “Issues”*
- *Intensive, time-limited burst of activity during IPY timeframe*
- *Addresses one or both polar regions and their global interactions*
- *Contributes to international collaboration / coordination*
- *Logistically and technically feasible within IPY timeframe*
- *Avoids unnecessary duplication or disruption of established initiatives and plans*
- *Provides open and timely access to data*
- *Maximises effective utilisation of available logistical assets*
- *Explicitly addresses roles and tasks for young scientists, technical and logistics experts*
- *Includes specific outreach activities*

Desirable :

- *Leaves a legacy of observing sites, facilities and systems to support ongoing polar research and monitoring*
- *Builds on existing or planned activities – adding value*
- *Interdisciplinary or with potential for interdisciplinary synthesis*
- *Provides international access to field sites to support additional science and monitoring activities*
- *Catalyses a broader involvement of nations in polar research*
- *Addresses training / capacity building including opportunities for individuals to convert to polar science and monitoring*
- *Provides opportunities for regional scholarship within broader international activities*

4. Who will carry out the IPY activities and how will they be funded?

The IPY research activities will be carried out for the most part by scientists and support staff from national university research groups, national research institutes and research organisations, and national operational institutes and operational organisations. Additional contributions may be provided by staff from international bodies, such as the European Space Agency, WMO, or UN bodies.

IPY education and outreach activities will be carried out both by IPY scientists and their support teams, and by a central IPY expert group. The aim of both the national and international groups will be to target formal and informal educational venues in addition to national and international media outlets.

The research activities will mainly be approved and funded through national mechanisms. Exceptions include activities funded by international bodies such as the European Commission, or those identified above.

IPY National Committees will play an important role in achieving the coordination of activities within individual nations. Additional roles for the IPY National Committees are discussed later.

5. Role of the IPY Sponsors

The IPY sponsors, ICSU and WMO, do not have (and do not seek) authority over national or international programmes of polar research. Once the current IPY Planning Group (IPY-PG) completes its work (September 2004) they will establish an International Polar Year 2007-2008 Joint Committee (IPY-JC). The challenge for the IPY-JC will be to influence the actions of the national and international bodies through encouragement, persuasion and consensus building (except for IPY contributions from within the WMO approved and funded internal programmes, over which WMO can and will exert direct control).

To date, the IPY sponsors, through the efforts of the IPY-PG, have sought to identify scientific priorities for the IPY by:

- gathering, summarising and making widely available information on existing ideas for an IPY
- stimulating, encouraging and organising debate amongst a wide range of interested parties on the objectives and possible content of an IPY
- synthesising an Outline Science Plan to provide a framework for developing the IPY Core and Associated Projects

The next step will be to invite proposals for IPY Core and Associated Projects. It is the view of the IPY-PG that the call should be open to self-organising groups of researchers and their parent organisations, to existing bodies with a role in polar regions research and monitoring, and to consortia of such bodies.

The identification of an activity as a component of the IPY will be the prerogative of the IPY-JC. For proposals satisfying the criteria listed in Section 3 above, the committee will provide formal recognition, permitting the activity organisers to adopt the IPY imprimatur. The process by which activities are to be proposed to the IPY-JC is discussed in Section 9 of this document.

A key responsibility of the IPY-JC will be to ensure that arrangements are made for the effective international co-ordination, guidance and oversight of the IPY overall, and for each approved IPY activity. Addressing the latter, the activity proposers will be requested to offer the activity-specific organisational structure capable of carrying the project through to a successful conclusion. Given the limitations of funding and effort available to ICSU and WMO, the approach will necessarily rely on the resources, capabilities and influence of existing coordinating and implementation bodies.

6. The Context within which the IPY exists

A significant difference between the current IPY and its predecessors is the existence of a large number of bodies, both non-governmental and governmental, with established roles and legitimate interests in the international coordination of scientific activities carried out in the polar regions. The Antarctic Treaty Parties and Arctic Council are especially significant in this respect.

The most relevant scientific and operational bodies are:

- Scientific Committee on Antarctic Research (SCAR)
- International Arctic Science Committee (IASC)
- Committee of Managers of National Antarctic Programmes (COMNAP)
- Forum of Arctic Research Operators (FARO)
- National and International Space Agencies (e.g. NASA, ESA, CSA, JAXA)
- Arctic Ocean Sciences Board (AOSB)
- Climate and Cryosphere Programme (CliC – sponsored jointly by the World Climate Research Programme and SCAR))
- International Arctic Social Sciences Association (IASSA)
- International Oceanographic Commission (IOC)

All the above have reacted positively to the IPY initiative, and are in varying stages of developing their view on the role they wish to play in its implementation.

Other bodies with an interest in the IPY include:

- Scientific Committee on Ocean Research (SCOR)
- World Climate Research Programme (WCRP)
- International Geosphere-Biosphere Programme (IGBP)
- International Human Dimensions Programme (IHDP)
- DIVERSITAS
- Global X Observing System (GXOS)
- European Polar Board (EPB)

Additional IPY “stakeholders” include:

- IPY National Committees / National Points of Contact
- National Funding Agencies and Polar Logistics operators
- Other national bodies (Academy committees, interdepartmental / interagency coordinating bodies, etc.)
- The various meteorological and ocean operational agencies (NOAA, EUMETSAT, etc.)

Thus the potential exists for organisational arrangements to be established which imaginatively and cost-effectively draw upon the effort, funding and influence of existing bodies to implement the IPY, whilst at the same time satisfying their specific interests in an IPY involvement.

7. Principles for the Implementation of the IPY

It is proposed that the following key principles should be adopted to guide the implementation of the IPY:

- Maximise utilisation of existing relevant bodies
- Recognise that national programmes and international initiatives for the IPY period are already largely defined – hence the need for the IPY to adapt and link existing plans in imaginative manner
- Ensure the necessary communication amongst and influence of major stakeholders
- Maximise simplicity and minimise cost (financial and effort) of IPY-specific coordination and oversight
- Populate the IPY-specific organisational bodies with individuals of the highest possible international standing and track record of success in the organisation of international activities, with due consideration of disciplinary, national and gender balance, and of representation from bodies which can increase significantly the likelihood of success

8. Possible Organisational Structures for the IPY

The purpose of establishing an organisational structure for the IPY is to provide the enabling mechanism for the IPY activities to occur.

At a minimum the structure must provide:

- i. A means of providing oversight, guidance and decision making for the IPY overall, throughout its lifetime, including the identification of IPY activities
- ii. A means of seeking and facilitating the acquisition of the funds required to support both the activities and organisation of the IPY
- iii. A means of providing oversight, guidance and decision making for each individual IPY activity, throughout its lifetime, including coordination of the logistics necessary to make the activity a reality
- iv. A forum – for all stakeholders to express their views, influence the IPY development, and to be kept informed of all relevant issues; such a forum would encourage consensus decision making.
- v. A central point of contact for the IPY
- vi. A central source of authoritative information about the IPY
- vii. A means of promoting the IPY

To identify IPY activities and facilitate funding for IPY activities (functions i and ii), the approach adopted successfully by numerous international organisations has been to establish a senior body (in this case, the ICSU-WMO IPY-JC) responsible for developing the strategic science and implementation plans, and for the oversight and guidance of the programme until completion. The membership consists of leading proponents of the programme, representatives of the sponsoring bodies, “prime-mover” scientists leading each major component of the programme, and representatives of other bodies key to the programme’s success. A membership of no more than 20 is desirable (from considerations of manageability and cost), and an executive subgroup should be formed to deal with issues which arise intersessionally. Meetings should be at least twice per year, and more often if necessary. Specialist subgroups will be required to advise on detailed issues (such as Education and Outreach, and Data). The funding to support the activities of the body and its subgroups would be sought from the two sponsor organisations.

Project Steering Committees (PSC) provide a means of leading and managing individual projects within the programme (function iii above). In the case of the IPY, the participation of individuals with influence over implementation will be especially important. Thus in addition to the “Principal Investigators” from each nation involved, representatives of logistics coordination bodies, National Committees, intergovernmental bodies (such as the Arctic Council), or even funding agencies could be appropriate. The body would meet at least annually and would establish an executive subgroup for intersessional decision making. For large, complicated projects, it might be justified to establish subgroups to address major components. Funding for the individual PSCs and their subgroups will have to be provided or acquired by the participants.

An important issue is the voluntary status of the individuals drawn from the academic community and from the stakeholder bodies to populate the IPY groups and subgroups at all levels. This places a limit on the capacity of the groups to carry out the work necessary to ensure the success of the IPY. For this reason, it will be crucial to provide day-to-day operational support, certainly to the IPY joint coordinating group and arguably to each Core Project from a team of full-time staff housed in an IPY International Programme Office / Project Office (IPO).

The functions of the central IPO team will be to address (v)-(vii) above and:

- To support the activities of the organisational structure (plan, run, record meetings)
- To provide the “front line” central point of contact and liaison
- To maintain the central information archive
- To maintain the website, generate publications and proactively promote the IPY
- To acquire necessary funding for the IPO support activities and to seek to facilitate funding for the IPY more generally
- To handle internal administration

An Announcement of Opportunity was made on 22nd July 2004 inviting offers to host and fund the IPY IPO. The WMO will enhance the IPO by providing additional support from its Headquarters in Geneva.

Given the large numbers of IPY “stakeholders”, an advisory “Consultative Forum” or “Council” offers a means of addressing function (iv) above. The body would meet at yearly intervals, organised by the IPY IPO, in order to provide input and be informed of progress. The funding for the meetings, other than for the central support, would have to be provided by the participants.

Thus a simple structure for implementing the IPY, would be as shown in Figure 1:

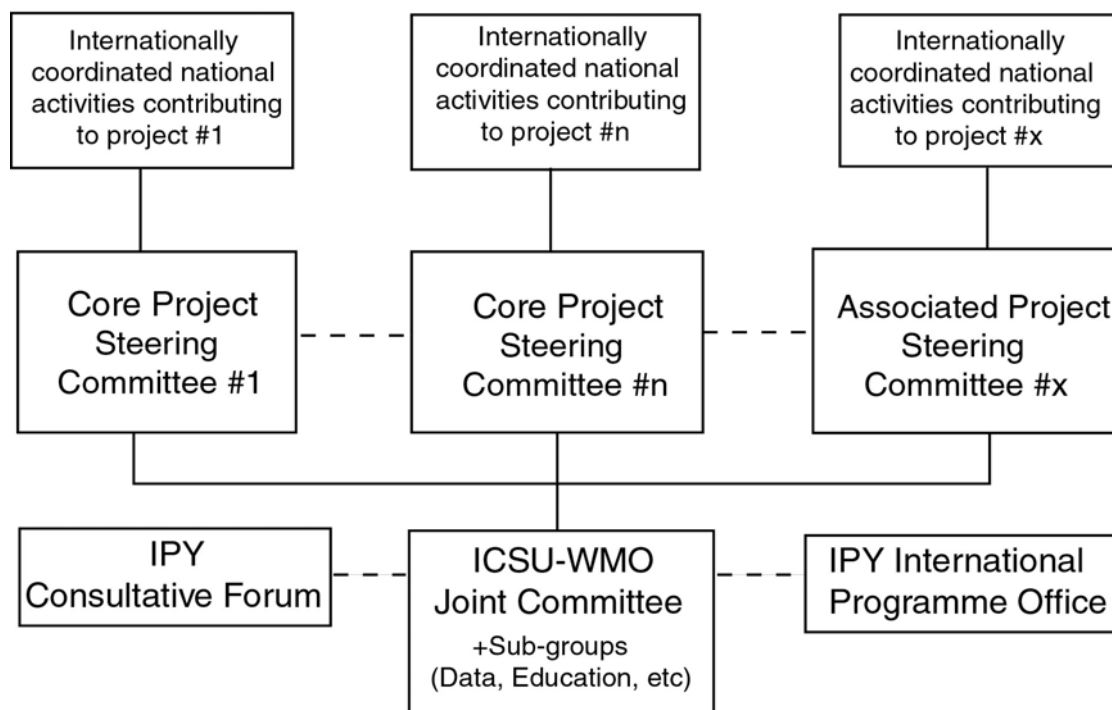


Figure 1: A possible organisational structure for the IPY in which the overall programme is addressed by a combination of a Consultative Forum and the ICSU-WMO IPY-JC, supported by the International Programme Office. Individual Core

Projects or Associated projects operate with a degree of autonomy under the direction of their Project Steering Committees. The connecting lines symbolise two-way communication pathways and (upwards) lines of decision-making (to be exercised as far as possible through consensus)

It has been suggested by some stakeholders that an additional “IPY Management Committee”, populated by representatives of bodies such as COMNAP, national funding agencies, and the European Polar Board, should be positioned in the structure between the ICSU-WMO joint coordinating body and the PSCs. This is an issue for further debate.

9. Process for Identifying the IPY content

To date, only the first phase of the process of identifying and agreeing the IPY Core and Associated science projects has been completed. This consisted of a “bottom up” consultation with the polar science community worldwide and a large number of bodies with a recognised and legitimate interest in the promotion, coordination, management or funding of polar research.

It has resulted in a compendium of over 350 “ideas” for the content of the IPY, and, following analysis and synthesis by the IPY Planning Group, the identification of 5 preliminary “Themes” and 22 possible “Issues”, providing a strategic framework from within which the specific IPY science activities may be drawn up. Depending on the outcome of discussions with the Arctic social science / human dimensions community, a fifth Theme and additional Issues may be added shortly.

The remainder of the process now needs to be defined.

A possible approach would be:

- October 2004: IPY JC issues call for proposals for IPY Core Projects and Associated Projects referencing the OSP and providing guidelines on criteria to be satisfied and on the format and content of the proposal – the latter to include a proposed project organisational structure and means of funding – deadline for submissions 1st January 2005
- February 2005: IPY-JC reviews proposals and identifies an initial (5?) Core Projects which satisfy the criteria and a number of Associated Projects. Letter sent out to successful teams. Advice provided to teams not successful at this stage.
- Subsequently: Open window of opportunity for additional submissions for Core and associated Projects not tied to a specific deadline but limited by the requirement that the activity proposed should be feasible within the official timeframe of the IPY

10. Recommendations to ICSU and WMO

(To be completed after the IPY presentations and discussions at the SCAR Open Science Conference).