#### PART ONE

# Planning and Implementing IPY 2007–2008

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#### Introduction

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### Introduction

Igor Krupnik and Paul Cutler

he purpose of this opening section is to explore "what it takes" to launch an IPY. Its seven constituent chapters illuminate how the International Polar Year (IPY) 2007-2008 was built on the history of three earlier IPYs, how it has been conceptualized and developed by its champions, and how it was successfully implemented over the course of ten years from 2001 to 2010. Launched first in 1882–1883 and then every 50 years (or 25 years in the case of the International Geophysical Year 1957-1958), each of these four 'international polar years' has been a major milestone in the history of science. Each has served as a springboard for advances in scientific knowledge and in science methodology, technology, planning, international collaboration, and capacity building to its constituent disciplines. In addition, every 'polar year' has initiated an intensive public campaign to advance polar research and to inspire people's imagination about the Earth's polar regions. Such monumental enterprises usually required several years in planning and the efforts of many people and organizations in implementation.

It is, therefore, no accident that each successive initiative after the first International Polar Year (IPY-1)—the second International Polar Year 1932–1933 (IPY-2), the International Geophysical Year 1957–1958 (IGY, which was originally developed as IPY-3, but later became a global program with very strong polar component), and the recent International Polar Year 2007-2008—had advanced by invoking the memory of their predecessors. The IGY organizers, in particular, helped solidify that practice by producing extended historical overviews of both IPY-1 and IPY-2 (Heathcote and Armitage, 1959; Laursen, 1959) published in the first volume of their publication series, Annals of the International Geophysical Year. In a similar way, the drive for new IPY 2007-2008 started as the preparation for the "50th anniversary of IGY 1957-1958" or "IPY +50" (Chapter 1.2). It is also no accident that many champions of IPY 2007-2008 referred to their early memories or to the stories they heard from their mentors about the IGY era. Several major IPY

2007–2008 websites featured historical summaries of IPY-1, IPY-2, and IGY, often accompanied by early photographs and excerpts from old articles and books that, otherwise, are hardly cited in today's science publications (Fig. 1).<sup>1</sup>

Science history and legacy played such an important role in the development of IPY 2007-2008 because it helped generate grass-roots enthusiasm and marshal disciplinary and institutional resources. It also illuminated the specifics of modern science organization and planning. Several comparative overviews of three or even four International Polar Years were published as a result of IPY 2007-2008 (Andreev et al., 2007; Barr and Lüdecke, 2010; Behr et al., 2007; Elzinga 2009; Fleming and Seitchek 2009; Lüdecke, 2007b; Rae, 2003; Sörlin, 2007; Summerhayes, 2008). All shared valuable insights into the preparation of the earlier IPYs and explored how history can offer a successful playbook to today's science planners (Berkman, 2003; Korsmo, 2004, 2009; Korsmo and Sfraga, 2003; Lüdecke, 2004; Rae, 2003). That long-term historical view was on the minds of many champions and organizers of IPY 2007-2008 (Chapter 1.2) and it guided the approach to this opening section of the JC overview of IPY.

This first section starts with a synopsis of major steps in the origination and organization of three previous IPY initiatives: IPY-1, IPY-2, and IGY (Chapter 1.1). Since lengthy accounts of all earlier IPYs are available in many books and historical papers, the purpose of this chapter is rather practical, as it aims to introduce IPY 2007-2008 scientists and educators to certain approaches and strategies that emerged repeatedly over the past 125 years in the organization of all previous IPYs. Many of the same or similar strategies, like the active promotion of the proposal for a new IPY across professional fields and science organizations; seeking endorsement and support of the most respected international science bodies of the time; establishment of an effective international steering committee; focus on coordinated efforts, international dissemination of results, and publication, etc., were sought and successfully applied by early champions of this IPY. The planners of IPY 2007–2008 were also very effective in advocating certain basic principles such as multidisciplinarity, international cooperation, open communication, volunteer service, nurturing the next generation of scholars and students, and collegiality (that were also invoked by their predecessors), upon which modern science community functions and advances.

This comparative overview of the earlier IPY initiatives in *Chapter 1.1* leads to subsequent chapters that explore how the new IPY 2007–2008 originated in the late 1990s and early 2000s (Chapter 1.2) and gave rise to an organized planning process spearheaded by the IPY 'Planning Group' established by ICSU in 2003 (Chapter 1.3). The years 2003-2004 were a period of intensive communication, with many polar organizations contributing to the collaborative and grass-roots character of the new IPY initiative (Chapter 1.4). The main phase in the IPY 2007–2008 organization and implementation took place in 2005-2009 with leadership from the ICSU-WMO Joint Committee (Chapter 1.5), its subcommittees, and the International Programme Office (Chapter 1.6). These groups aimed, through a "light-touch" approach, to frame and add value to the work carried out by many national IPY committees (Chapter 1.7), funding agencies, and, most importantly, the individual teams that actually conducted IPY projects. While the narrative of this complex development of IPY 2007–2008 over almost a full decade (2001–2010) is still unfolding and remains to be thoroughly documented by our successors and future historians, this IPY Summary aims to seed this broader effort by capturing the main elements of the story.



Fig.1. Examples of websites featuring information about previous International Polar Years.





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#### Note

www.awi.de/en/news/press\_releases/detail/item/carl\_weyprecht\_1838\_1881\_and\_the\_international\_polar\_year/?cHash=acae34ba6d

See www.arctic.noaa.gov/aro/ipy-1/ www.ipy.org/about-ipy/ipy-history www.ipycanada.ca/web/guest/history/unfinished\_history



# 1.1 From IPY-1 to IGY: Early Lessons in Making Global Science

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his chapter is as a historical introduction to the main story of IPY 2007–2008; it provides short overviews of the origination and implementation of the three preceding International Polar Years in 1882–1883, 1932–1933 and 1957–1958. Such broad historical backdrop is essential to understand *why* the international science community was mobilized three times for large transdisciplinary initiatives in the Earth's polar regions prior to IPY 2007–2008 and, specifically, to elucidate the factors that were critical in their successful planning and implementation.

Each of the previous IPY initiatives generated massive historiography.1 Nevertheless, for the first time, research in the history of polar science was included as a bona fide component in IPY 2007-2008. It generated four international scholarly projects (IPY nos. 10, 27, 100, 135), two large conferences, five polar history workshops organized by the SCAR Action Group on the History of Antarctic Research (www.scar. org/about/history),2 numerous overview papers and several summary volumes (Andreev et al., 2007; Barr, 2008; Barr and Lüdecke, 2010; Headland, 2009; Launius et al., 2010). New studies unraveled many critical aspects of the early IPYs, including its driving forces, personal motives of individual players, scholarly achievements, geopolitical and diplomatic factors affecting national participation. They also revealed how the previous IPYs were the products of the science and global politics of the day.

The present chapter addresses the step-by-step logistics of the origination, endorsement, planning and implementation of three earlier IPYs. Despite many differences, a remarkably consistent set of practical actions was needed to move each successive

IPY from its first discussions to the drawing board to international endorsements to governmental-funded operations and, finally, to the processing of the data collected, and the publication of its results. These early lessons in 'making global science' thus contribute a crucial prologue to our understanding of how the fourth IPY 2007–2008 was born and what it has achieved.

#### First IPY: 1882 -1883

The canonical story of the origination of the First IPY (IPY-1) dates it to 1875 and ties it to a charismatic officer of the Austro-Hungarian Navy - Lieutenant Carl (Karl)<sup>3</sup> Weyprecht (1838–1881). But, the first person to propose the idea that the scientific exploration of polar regions should be based on international cooperation was Commander Matthew Fontaine Maury of the U.S. Navy (1806-1873), the director of the U.S. Naval Observatory in Washington, D.C. Maury had been the instigator and coordinator of a scientific network for the collection of wind and current data from ships, and the subsequent publication and interpretation of data that was adopted internationally in 1853 (Baker, 1982b; Rothenberg, 2009). A key element of his plan, prepared in 1860-1861 and later published in three languages (Maury, 1862), was that the data for Antarctica would be collected through such cooperative work and then studied at meteorological centers in Britain, France and the Netherlands (Baker, 1982b; Bulkeley, 2010). 4

Maury's idea of internationally coordinated polar research had been re-launched 15 years later by a new champion, Carl Weyprecht, this time focused primarily on the Arctic. In January 1875, Weyprecht unveiled his proposal for a coordinated international

program of polar research and observations, a remarkable departure from the then-typical unilateral efforts of individual nations to explore polar regions (Weyprecht, 1875a, 1875b; Fig. 1.1-1; Box 1).<sup>5</sup> In an era without telephone and airmail, Weyprecht advanced his idea with a remarkable speed. He published seven papers in 1875 and, with the help of his friends and his financial supporter Count Johann Wilczek, began disseminating offprints in German, French, English

and Italian to scientific institutions and scholars around the world (Tammiksaar et al., 2009).

Although Weyprecht's role in the origin of IPY-1 has acquired almost mythological standing (cf. Berger et al., 2008), no individual could have single-handedly launched an international venture of such magnitude. Nor was Weyprecht's host country of Austria-Hungary well suited to lead the effort. Weyprecht's plan was eventually promoted by other better-positioned

Fig. 1.1-1 Carl Weyprecht (1838–1881), the early champion of International Polar Year 1882– 1883 (www.awi. de/fileadmin/user\_ upload/News/Press\_ Releases/2006/1.\_ Quarter/carl2\_p.jpg)

#### Box 1 Fundamental Principles of Scientific Arctic Investigation

Excerpts from the Address delivered by Lieutenant Carl Weyprecht of the I.R. Austrian Navy before the 48th Meeting of German Naturalists and Physicians at Graz, 18 September 1875 (Weyprecht 1875b – English translation - www.scar.org/ipy/).

"[...] In view of the ever increasing interest in Arctic research and of the readiness with which governments and private individuals are continually furnishing the means for new expeditions, it is desirable to establish the principles on which they should be sent out, so that their utility to science may be in proportion to the great sacrifices made, and they be relieved of that adventurous character which does indeed charm the great public, but can only be prejudicial to science.

The following points meet the requirements set forth above:

- I. Arctic research is of the highest importance to the knowledge of Nature's laws.
- II. Geographical discovery in those regions has a higher value in so far only, as it opens the field to scientific research in the narrower sense of the term.
- III. Arctic topography in detail is but of secondary importance.
- IV. The geographic Pole has for science no greater significance than any other point in the higher latitudes.
- V. Stations of observation are without regard to their latitude the more favourable in proportion to the comparative intensity of the phenomena under investigation.
- VI. Independent series of observations have but secondary value.

These requirements may be met without spending those enormous sums, which almost all Polar expeditions hitherto have cost, and which have made it impossible for the less wealthy nations to take part in Arctic discovery. It is not necessary to extend our sphere of observations into the very highest latitudes in order to secure scientific results of the greatest importance.

For instance, stations at Nowja-Zemlya (76°), Spitzbergen (80°), East- or West-Greenland (76°-78°), North America East

of Berings Strait (70°), Siberia at the mouth of the Lena (70°) would give us a zone of observation quite around the Arctic regions. Greatly to be desired are stations near the centres of magnetic intensity. The observations there would be connected with our own through the



stations already established near the Polar circle, which only need to be strengthened. The means expended on any one of the more recent attempts to reach the highest latitude would be amply sufficient to sustain all these stations for a year.

The object of these expeditions would be: With instruments precisely alike, governed by precisely the same instructions, and for a period of one year at least, to record a series of the utmost possible synchronous observations.

Attention should be directed above all to the various branches of Physics and Meteorology as being of the highest degree of importance, then to Botany, Zoology and Geology, and lastly to geographical details as being of secondary interest.

Should it be possible to establish in connection with these Arctic stations of synchronous observations one or more in the Antarctic regions, we might expect results of inestimable value.

The expenses of these limited expeditions might, through the accessibility of the stations, be kept within such reasonable bounds as to be easily borne, if divided among several nations." scientists, like Georg Neumayer (1826–1909), director of the Deutsche Seewarte/German Maritime Observatory in Hamburg; Christophorus Buys Ballot (1817-1890), director of the Dutch Meteorological Institute in Utrecht; and Heinrich von Wild (1833-1902), director of the Central Physical Observatory in St. Petersburg, Russia. They moved it through a respected professional body, the International Meteorological Congress and its permanent committee chaired by Buys Ballot, on which Wild and Neumayer also served (Cannegieter 1963). The Committee approved the idea in principle in April 1876 (Lüdecke 2004) and referred it to the 2nd International Meteorological Congress scheduled for September 1877, at which Weyprecht was invited to present his proposal in person (Weyprecht and Wilczek, 1877).

Weyprecht's plan laid out in 1875 argued for coordinated polar expeditions to set off in the (boreal) autumn of 1877. Wild advised Weyprecht to move its implementation to 1878, so that it could secure international endorsement at the 2nd Meteorological Congress; but then the Congress was postponed for two years, due to the Russian-Turkish (Balkan) War of 1877–1878. Finally, in April 1879, the Congress adopted Weyprecht's proposal (Lüdecke, 2004). It also instituted the International Meteorological Committee, the executive body for international collaboration in meteorology that became the precursor of the International Meteorological Organization and the actual sponsor of IPY-1 (and, later, of IPY-2).

The Committee was entrusted to convene a special International Polar Conference for further planning of the polar year (Cannegieter, 1963). That nine-member conference, mostly of the directors of respective national observatories and high-level representatives of national academies (plus Weyprecht) took place in Hamburg in October 1879.<sup>6</sup> It constituted an International Polar Commission (IPC), first chaired by Neumayer and later by Wild, that became the official planning and governing body of IPY-1. Weyprecht was left to propagate his project as a private individual (Tammiksaar et al., 2010). On 29 March 1881, he died of tuberculosis, three months prior to the departure of the first IPY expedition to the field.

Altogether, the International Polar Commission held five 'conferences' following its first meeting in Hamburg in October 1879: IPC-2 in Bern in August 1880, of nine delegates; IPC-3 in St. Petersburg in August 1881, of 10 delegates; IPC-4 in Vienna in April 1884, of 20 members (see photo with names in: Heathcote and Armitage 1959) to honor Weyprecht's contribution; and IPC-5 in Munich in September 1891.

The observation period for IPY-1 originally established at IPC-1 in Hamburg in 1879 was to have been one year starting in boreal fall 1881; but it was postponed for one year at IPC-2. New dates, from 1 August 1882 until 31 August 1883, were formally approved at IPC-3 in 1881 (Sukhova and Tammiksaar, 2008), when two American IPY expeditions were already in the field. Most of the expeditions left in May-July 1882 and returned home in September-November 1883 (Baker, 1982a; Barr, 1985/2008; Barr et al., 2010; Corby, 1982; Heathcote and Armitage, 1959). The span of IPY-1 observations was ultimately almost three years, from (boreal) summer 1881 to summer 1884, when the last expedition, led by Adolphus W. Greely, was rescued.7 It is estimated that more than 700 people (all men?) took part in the work of twelve IPY-1 stations in the Arctic (Fig. 1.1-2) and two expeditions to the Southern Ocean (Fig. 1.1-3). The total at all locations, including several 'auxiliary' missions and over 40 participating observatories at lower latitudes was, probably, close to 1,000.8

The International Polar Commission was dissolved in 1891, eight years after the completion of IPY fieldwork. It produced seven Bulletins between 1882 and 1891 containing proceedings, minutes and short reports from the expeditions.9 Altogether, it comprised 112 numbered communications in German, French and English, a total of 363 pages. The Bulletins were published by the Russian Academy of Sciences in St. Petersburg and edited by Wild, the Commission's chair (Wild, 1882). Extensive guidelines on the publication of data and reports were drawn up at IPC-4 in Vienna in 1884, but no uniform template was established and no centralized IPY-1 publication series was envisioned. Instead, each nation published its observations independently to a vaguely standardized pattern of the 'expedition volume.' These volumes were printed in several languages, primarily English, French and German, but also in Dutch and Russian, often with a parallel text. Altogether, 22 IPY-1 expedition volumes appeared between 1885 and 1910 (Cronenwett, 2010; Fig. 1.1-5).10

#### Box 2 Programme of Work of an International Polar Expedition

By Le Comte Wilczek and Carl Weyprecht, 1877, Printed by W. Stein, Vienna, 8 pages.

[This programme was written in May 1877 for discussion by the International Meteorological Congress due to meet in Rome in September that year, and which political events caused to be adjourned to the following year.]\*

"The enterprise that we propose to achieve has for its goal to undertake scientific exploration and, contrary to what most expeditions have done before, to make geographic discovery a secondary goal; this will therefore be the first step towards a systematic study of the regions of the terrestrial poles and towards the detailed observation of the phenomena particular to these regions, phenomena of which serious investigation is of the highest importance from the perspective of a large number of problems concerning the physics of the globe.

The goal of the expedition is to make, in the Arctic and Antarctic, or around those regions, and at as many stations as it may be possible to establish, synchronous observations following a programme decided upon in concert, so as, on the one hand, on proceeding through comparison, to deduce from observations collected at different points, independent of the particularities that characterise the different years of observation, the general laws governing the phenomena under study, and on the other hand, to calculate what chance there may be of penetrating further into the interior of these unknown regions.

To that end, each of the States participating in the work is obliged to equip at its own expense and to send an expedition to one of the places designated at the end of this programme. It will be up to each of the interested parties to decide in what measure they wish to prolong their expedition, as well as to determine the questions to address aside from those that will be fixed.

The investigations made in concert will only address the phenomena of meteorology, terrestrial magnetism, the aurora borealis, and the realm of ice. At each station, observations must be continued throughout a whole year, commencing 1 September 18xx and finishing 31 August 18yy.

The meteorological observations must be made in conformity with the resolutions of the permanent International Committee, and will apply to atmospheric pressure, the temperature and humidity of the air, the direction and force of winds, the state of the sky and its degree of cloud cover, and to condensation.

[...] It is presumed that all the stations will be established close to a coast. As one of the main goals of the expedition is

to study the connection between the displacement of ice and the principal motors of that displacement, the winds and currents, it will be necessary to observe regularly the state and movement of the ice. There is reason to believe that the study of the distribution of ice in relation to the predominant winds and to periods of storms, if made at a large number of points as close as possible to the poles, will allow establishment of a theory of the movement of ice in Arctic regions, and thus enable us to find out more about the best ways of penetrating further poleward.

[...] The most favourable places for these various observations are listed below:

*In the northern hemisphere:* 

Spitzbergen, on the north coast; Nova Zemlya, on the north coast; Finmark, around North Cape;

Siberia, on the north coast near the mouth of the Lena; New Siberia:

Point Barrow, northeast of Bering Strait (occupied by Maguire, 1852-54);

Greenland's west coast, occupied by Denmark; Greenland's east coast around 75N latitude.

*In the southern hemisphere:* 

Around Cape Horn; Kerguelen or the Macdonald Islands; One of the groups south of the Auckland Islands.

Each of the interested countries is asked to establish a station at its own costs for at least a year at one of the points suggested above, and to conform strictly to the proposed programme [...]."

Vienna, 30 September 1877.

[Translated from the French version by Colin Summerhayes, October 2007. See full translation at www.scar.org/ipy. The German original was published in Weyprecht and Wilczek 1877]

\* Translators note: This is a verbatim translation of the note on the front page of the article; in fact the meeting was eventually held in Rome in April 1879. It is not entirely clear why, but at its end the manuscript is dated 30 September 1877; perhaps this reflects the fact that it was written in May for presentation at a September meeting.]





Fig. 1.1-2 (left) IPY-1 observation stations in the Arctic, 1881–1884. (from Neumayer 1901, courtesy Cornelia Lüdecke)

Fig. 1.1-3 (right) IPY-1 observation stations in the Southern Hemisphere, 1882–1884. (from Neumayer 1901, courtesy Cornelia Lüdecke)

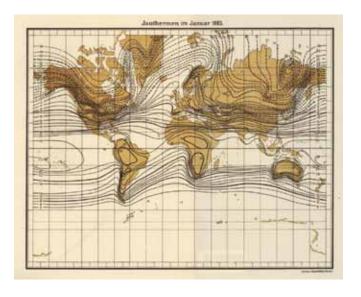
The IPY-1 expeditions were also featured in numerous scientific papers and journal articles published across the participating nations, but no overall IPY-1 bibliography was produced. The IPC had directed that 12 to 16 copies of all IPY publications and copies of the related observation records and manuscripts should be archived in a designated IPY depository at the Central Physical Observatory in St. Petersburg, Russia (Baker, 1982b; Sukhova and Tammiksaar, 2008). Unfortunately, that depository was cut off from most of the outside world during World War I and after the Russian revolution of 1917. As a result, the IPY-1 archive stayed closed to the international science community until the 1990s. The IPY expeditions were also reported in newspapers, lectures, popular books and other media aimed at general public; but there is no record that the IPC ever considered what we call today an 'outreach strategy.'

The heart of IPY-1 envisioned by Weyprecht was the coordinated program of year-long observations, on the basis of which fundamental issues in polar and global meteorology and geophysics could be addressed. The British Meteorological Office and the *Deutsche Seewarte* (German Maritime Observatory) used IPY-1 data for the production of daily synoptic charts (Baker, 1982a; Corby, 1982) and at least one German dissertation by Sebald Berhard Ehrhart was based upon IPY meteorological records (Lüdecke, 2004; 2009 – Fig. 1.1-4). Sidney Chapman, the leading figure in IGY 1957–1958 acknowledged that IPY-1 "...

made excellent contributions to the descriptive and statistical study of the aurora and to its connection with magnetic disturbance" (Chapman, 1959a); in another publication he made several references to their use (Chapman, 1959b). K.R. Birkeland, member of the Norwegian Aurora Polaris Expedition in 1902-1903, referred to his regular use of the observations made by 15 IPY-1 stations. But in general the data so painstakingly acquired by 14 expeditions and associated teams from 10 nations<sup>11</sup> (Baker, 1982b; Barr, 1985/2008; Heathcote and Armitage, 1959) were not fully utilized. Indeed, many of the IPY-1 data were not analyzed until the 1920s or even until recently (Baker, 1982a; Lüdecke, 2004; Wood and Overland, 2006; www.arctic.noaa.gov/aro/ipy-1).

The IPC dissolved itself in 1891, without producing a summary assessment of the IPY-1 program and its achievements. One such assessment was given some 40 years later by Henryk Arctowski<sup>12</sup> who observed: "It may be that if the publication, and above all the discussion of the observations had been left to a central office, possibly international, the scientific level of the work accomplished would have been better appreciated" (Arctowski, 1931). Due to the lack of such post-IPY-1 common body, financial constraints, or because powerful national institutions were not yet ready for long-term coordination, much of the potential scientific benefit from the synchronized observation program was missed. What remained was a collection of impressive but merely concomitant

Fig. 1.1-4 Global map of the January 1883 isotherms based upon processed data of IPY-1 meteorological observations. (from Ehrhart 1902, courtesy Cornelia Lüdecke)



regional datasets. The IPY-1 input has been, perhaps, more lasting in its otherwise marginal fields, such as anthropology (Baker, 1982b; Barr, 1985/2008; Burch, 2009; Krupnik et al., 2005; Murdoch, 1892/1988; Turner, 1894), natural history (Dunbar, 1983; Loring and Spiess, 2007) or the study of carbon dioxide concentration (Baker, 1982a; 2009). Several IPY expeditions also brought substantial botanical, zoological and ethnological collections to their respective national museums. In any case, IPY-1 left behind a crucial institutional memory across various disciplines and enough momentum to launch a string of subsequent polar expeditions in 1895-1918, several international conferences on polar explorations, the second Polar Commission of 1913, and eventually, the second IPY in 1932–1933 (Elzinga, 2010a; Lüdecke, 2010; Lüdecke and Lajus, 2010; Roberts, 1949; Summerhayes, 2008).

#### Second IPY: 1932-1933

Unlike its predecessor, IPY 1932–1933 (IPY-2) did not have an early charismatic champion. Even the date of its conception has been disputed. It was assumed for years that the proposal for the 'second polar year' originated with German meteorologist Johannes Georgi who introduced it at a meeting at the *Deutsche Seewarte* (German Maritime Observatory) in Hamburg in November 1927 (Laursen, 1951; 1959; 1982). Recently, the original date was pushed backward by a full year and the idea was attributed to

Leonid Breitfuss (Breitfuß), an émigré German-Russian scientist. Breitfuss, reportedly, spoke about the new 'polar year' at the first conference of the International Society for the Exploration of the Arctic by Means of Aircraft (AEROARCTIC), at which Georgi was also present (Lüdecke, 1995, 2003; Lajus, 2008; Lüdecke and Lajus, 2010). The original idea was then promoted by better-positioned Vice Admiral Hugo Dominik, director of the *Deutsche Seewarte*, who in December 1927 presented the proposal for a new polar program to the International Meteorological Committee (IMC), the executive body of IMO.<sup>13</sup>

Dominik and Dan la Cour, director of the Danish Meteorological Institute in Copenhagen lobbied for the new polar year via the International Meteorological Organization (IMO), the parent body of IPY-1 (Elzinga, 2009; Laursen, 1982; Lüdecke, 2008; Lüdecke and Lajus, 2010). A small meeting of IMO high-level officials in June 1928 appointed a subcommittee of five members<sup>14</sup> to prepare a formal proposal for the IMO Conference of Directors in Copenhagen in September 1929 (Laursen, 1959). The subcommittee met twice in 1929 and introduced its outline for IPY-2 at the Copenhagen conference attended by representatives from 34 countries. The conference endorsed a new program for collaborative observations to be made across both polar regions in 1932–1933, thus marking the 50th anniversary of IPY-1. It also appointed the Commission for the Polar Year 1932–33 (CPY), originally composed of seven members, under the chairmanship

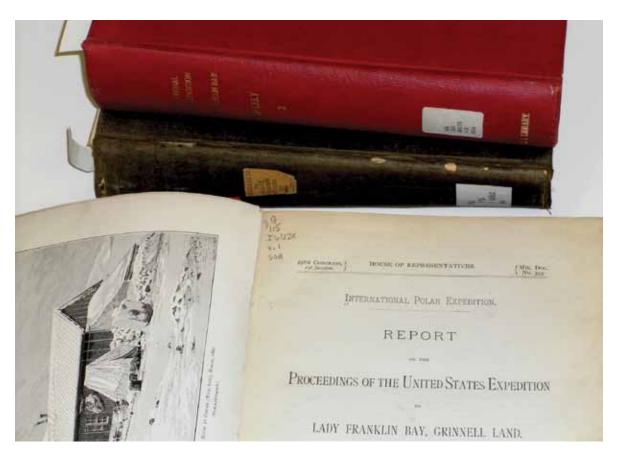


Fig. 1.1-5 Materials collected during IPY-1 were published in large-size 'Expedition report' volumes, like those for the U.S. IPY expeditions to Point Barrow, Alaska and Lady Franklin Bay, Elsmere Island, Canada.

(Photo: Igor Krupnik)

of la Cour; it was later expanded to 15 members.<sup>15</sup>

IPY-2 was formally announced in December 1929 and national committees were set up by several countries to organize national IPY efforts (Patton, 1933). Germany and, particularly, Russia (then Soviet Union) developed the most ambitious IPY programs.<sup>16</sup> Also, an important step was the IMO's invitation to the International Union of Geodesy and Geophysics (IUGG) and other outside bodies to join forces in the IPY-2 planning. The IUGG General Assembly endorsed the plan for IPY-2 and set up a small committee in August 1930 to manage that cooperation.<sup>17</sup> This brought financial resources of IUGG to the IPY-2 process. It also opened a new page in IPY history, as the same model of partnership among several organizations representing international scientific unions and governmental meteorological agencies would be later invoked in the preparation for IGY and IPY 2007–2008. Eventually, the International Scientific Radio Union (URSI), International Council for the Exploration of the Sea and three commissions of the IMO (Commission for

the Study of Clouds, Commission for Solar Radiation and the Commission for the Investigation of the Upper Air) joined the planning effort and promoted IPY-2 observations in their respective fields (Laursen, 1951, 1959).

By comparison with IPY-1, IPY-2 had a broader science program beyond meteorology, atmospheric electricity and aurora and geomagnetic observations, particularly in planetary geophysics. New fields included aerology, cosmic rays, radiation and radioelectricity, Earth currents, and ozone studies. More research was done from ships, particularly in the Russian Arctic, also on polar ice sheets and mountain glaciers in the temperate regions. At the same time, IPY-2 steered away from the IPY-1 'natural history' template that included botany, zoology, anthropology and museum collecting (Baker, 1982a). IPY-2 had little of that (Laursen, 1951) and whatever research beyond geophysics was conducted as individual team or even scientist's initiatives.

The CPY held three meetings: CPY-1 in August

1930 in Leningrad (St. Petersburg – Fig. 1.1-6), CPY-2 in September 1931 in Innsbruck and CPY-3 in Copenhagen in May 1933. At CPY-2 in 1931, it became clear that, owing to the world economic crisis, several nations would be unable to provide funds for their IPY efforts. The CPY considered postponing the start of IPY until a better time, but eventually resolved to proceed (Laursen, 1959).

IPY-2 officially lasted 13 months (same time-span as IPY-1): from 1 August 1932 until 1 September 1933. The operational dates for proposed Antarctic stations were set from January 1933 to February 1934 (Elzinga, 2009). Forty-four nations took part, four times the number of the IPY-1 participants, including several countries from the Southern hemisphere, such as Argentina, Australia, Chile, New Zealand and South Africa (Box 3).18 Sixteen countries formed their national IPY committees and 22 organized expeditions or established observational stations beyond their national borders (Laursen, 1951). Also, the IPY-2 worldwide observational network introduced many nations and then colonial states to global science efforts, including those located far away from the Poles, making it a true international program. More than 30 stations operated in the Arctic, including nine that had been active in IPY-1 (Barrow,

Bossekop, Cape Thordsen, Dikson, Fort Rae, Godhavn, Jan Mayen, Matochkin Shar and Sodankylä).<sup>19</sup> Despite much effort, no stations were established on the Antarctic continent; only three stations operated on sub-Antarctic islands and at the southernmost tip of South America.

Great attention was paid to the publication and management of the IPY-2 data. A special subcommittee for publications was established at CPY-1 in 1930. It prepared detailed instructions for future publication of data in meteorology, terrestrial magnetism, atmospheric electricity, aurora and aerology. Proceedings of three CPY meetings were published in French, English and German as subsequent issues of the Secretariat de l'Organisation Météorologique Internationale.20 Other reports, observational instructions and resolutions related to IPY-2 appeared in IMO publications between 1929 and 1938. The full set of documents pertaining to the preparation, implementation and results of IPY-2 was compiled after World War II by the former CPY secretary Bruun de Neergaard in a manuscript preserved at the Danish Meteorological Institute (Laursen, 1951)<sup>21</sup>; it was never published.

The most important international contribution of IPY-2 was the almost complete set of daily synoptic



Fig. 1.1-6 First meeting of the Commission for the Polar Year 1932-1933 (CPY-1), 26-30 August 1930, Leningrad Russia, Most of the Russian and foreign dignitaries are sitting in the front row. Hugo Dominik is the third person and Dan la Cour is the last person on the right (see Lajus 2008 for the full list of names).

Photo courtesy: Julia Lajus, with the permission from the Russian Academy of Sciences Archives, St. Petersburg, Russia charts for northern hemisphere for 1932–1933 produced by the *Deutsche Seewarte*<sup>22</sup> (Fig. 1.1-7) and the magnetic data published by the Royal Meteorological Institute on behalf of the participating nations. In July 1934, la Cour delivered an interim overview of the goals and preliminary results of IPY-2 in his address to the 2nd General Assembly of the International Council of Scientific Unions (ICSU) in Brussels, nine months after the completion of the IPY-2 observation period (la Cour, 1935; Laursen, 1959). No international event or conferences were held in the aftermath, and the

history, organization and the outcomes of IPY-2 were not reviewed again until after World War II (Laursen, 1951, 1959).

At CPY-3 in 1933, it was agreed that the Commission should continue in existence after the end of IPY-2 observation period, to ensure that all data would be organized and made available to the science community. A central Bureau (depository) for IPY-2 materials, including copies of magnetic and earth current registrations, was established at the Danish Meteorological Institute under la Cour's supervision. The CPY and the central Bureau were expected to receive copies of all publications generated by IPY-2 (Laursen, 1959). The Commission kept working with the same membership and leadership until September 1939, when World War II broke out and the international

scientific collaboration was suspended. La Cour died in 1942 and parts of the IPY-2 archive in Copenhagen were reportedly lost during World War II (Laursen, 1951).

The CPY was not formally terminated until 1946. Since the tasks of CPY had not been completed and some of its funds were still available, the IMO established a 'Temporary Commission on the Liquidation of the Polar Year 1932–1933' of six members, three of whom served on the original CPY (Fleming and Laursen, 1946). The 'Temporary Commission' had its office

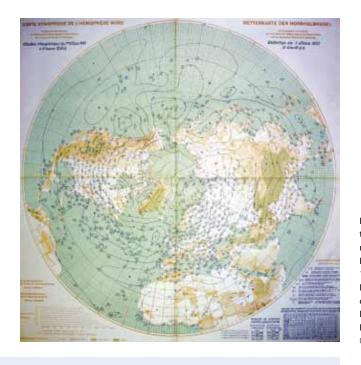


Fig. 1.1-7 Surface temperature map for Northern Hemisphere, 1 March 1933, based upon IPY-2 meteorological observations. Deutsche Seewarte, Hamburg. (Courtesy: Cornelia Lüdecke)

## Box 3 List of Nations Participating in the Second International Polar Year 1932 –1933

Algiers	Denmark	Japan	South Africa
Argentina	Egypt	Latvia	Spain
Australia	Finland	Madagascar	Sweden
Austria	France	Mexico	Switzerland
Belgium	Germany	Morocco	Syria
Brazil Bulgaria Canada Chile China Colombia Czechoslovakia	Great Britain Haiti Hungary Iceland India Indonesia Italy	Netherlands New Zealand Norway Peru Philippines Poland Portugal	Tunis Turkey U.S.A U.S.S.R. Yugoslavia

at the same Danish Meteorological Institute. It completed its service on 31 December 1950, 17 years after the end of IPY-2, by producing a Bibliography of some 2,000 IPY-2 publications, and brief overview of its organization and implementation (Laursen, 1951).

Despite the efforts of the CPY, neither a special series nor a uniform template for the IPY-2 publication was established and each participating nation presented the results of its program at will in English, German and/or in French, but also in Russian, Polish, Norwegian, Danish, Italian, Spanish, Finnish and Portuguese (Laursen, 1951; Elzinga, 2009, 2010b). Overall, IPY-2 is a story of great perseverance in the time of world economic depression and political uncertainty. It was completed thanks in large part to the generosity of a few outside donors, such as the International Association of Meteorology, International Association of Terrestrial Magnetism and Electricity, Carnegie Institution and the Rockefeller Foundation (Elzinga, 2009; Laursen, 1982), despite global economic crisis and the resulting lack of muchneeded funding in many nations like Canada, U.K. and the U.S.A.

For whatever reasons, the post-1933 process suffered from repeated delays in the processing and publication of the data collected. La Cour once estimated that it would take five years to ensure the legacy of IPY-2 (Elzinga, 2009). But six years went by without any international meeting or major presentation, until World War II broke out in 1939 and buried any further hopes. By the time the Liquidation Commission was established in 1946 to complete the unfinished tasks of IPY-2, it was too late to re-energize the polar science community. Perhaps, that feeling of unfinished mission contributed to a new drive for the 'third' IPY and to cutting the time between the two initiatives from 50 to 25 years. It also explained why the IGY planners were so keen in promoting the results of IPY-2 in publications related to their venture 25 years later (Bartels, 1959; Beynon, 1959; Brooks, 1959; Paton, 1959; Vestine and Nagata, 1959).

### International Geophysical Year/IGY: 1957–1958

Of all IPY initiatives, the third IPY, which eventually became the International Geophysical Year 1957-1958, due to its global geographic scope, has the bestdocumented chronology and the least controversial origination story. The idea of holding a new polar year in response to recent progress in polar science and technology was put forward on 5 April 1950 by Lloyd Berkner (1905-1967), ionospheric physicist and then executive secretary of the U.S. Research and Development Board.<sup>23</sup> He did so at a small dinner party that honored visiting British geophysicist Sydney Chapman (1888-1970) at James van Allen's private house near Washington, D.C. (Chapman, 1953; Good, 2010; Jones, 1959; Korsmo, 2007, 2009). In that first deliberation, Chapman observed that the years 1957-1958 would correspond with the maximum of solar activity; so, a date was chosen to mark a 25-year interval since IPY-2.

People who proposed the idea for a new polar year were well positioned in the science hierarchy<sup>24</sup>; many of them also shared personal memories of the IPY-2 era. Several other veterans of IPY-2 became soon active in the planning and implementation of IGY.25 The proposal for the 'third polar year' was advanced with a remarkable speed. A month later, in May 1950, the scientific aspects of the new initiative were discussed at a meeting at the Naval Rocket Station at Invokern, China Lake, in California (Nicolet, 1982; Korsmo, 2007) and in July 1950 it was endorsed by the international conference on the Physics of the Ionosphere held at the Pennsylvania State College (Penn State), also in the U.S. In September 1950, Berkner and Chapman formally brought their proposal for the new polar year to the Mixed Commission on the Ionosphere of ICSU, a body comprising representatives from the International Union for Scientific Radio (URSI), International Astronomical Union (IAU) and the International Union for Geodesy and Geophysics (IUGG). The Commission endorsed the idea and forwarded it to the respective Unions; all approved it.26 The proposal was then considered by the Bureau (officers) of ICSU in May 1951 and was referred to the ICSU Executive Board. A small 'preparatory committee' was charged to supervise the process. A large segment of the international science community was thus quickly made aware of the plans for a new polar year (Chapman, 1953).

Over the next two years, an organizational structure based on the ICSU Unions was put in place. Also, during the boreal summer of 1951, ICSU invited the World Meteorological Organization (WMO), the successor of IMO, to join the new initiative. WMO responded positively and urged that the observational program should be expanded to tropical and temperate regions, thus encompassing the whole planet. The shift to a new global vision was triggered by Danish meteorologist Johannes Egedal, who in his talk at the Assembly of the International Association of Terrestrial Magnetism and Electricity in Brussels (23 August 1951) argued vigorously that "observations . . . should be taken all over the earth", and especially at the tropical and southern non-polar regions. It was Egedal who suggested to Chapman that the global character of the program could best be shown by changing its name. Chapman, always a savvy planner, duly agreed. In October 1952, the ICSU General Assembly formally

endorsed the new initiative under the name 'International Geophysical Year (IGY/AGI)/Année Géophysique Internationale' (Chapman, 1953; Jones, 1959). It became a joint initiative of ICSU and WMO, with a larger role played by ICSU.

On 30 June 1953, four years prior to the official starting date of IGY, the short-term 'preparatory committee' was transformed into a full-size *Comité Special de l'Année Géophysique Internationale* (CSAGI) of 13 members, with Chapman as President, Berkner as Vice-President and Marcel Nicolet (1912–1996) as Secretary General.<sup>27</sup> It met that same day in Brussels for its first session. The composition of CSAGI reflected the new structure of IGY. Unlike the planning bodies for IPY-1 and IPY-2, whose members were national delegates, CSAGI comprised representatives of five international scientific unions of ICSU,<sup>28</sup> *ex officio* members from ICSU and WMO, and its three executive officers, Chapman, Berkner and Nicolet. CSAGI also designated its member scientists as 'world

# Box 4 List of Countries Participating in the International Geophysical Year (67 countries)

Argentina German Democratic Republic Panama Australia German Federal Republic Peru Austria Ghana Philippines Belgium Greece Poland Bolivia Guatemala Portugal Brazil Hungary Rhodesia, Southern

Bulgaria Iceland Rumania Burma India Spain Canada Indonesia Sweden Ceylon Iran Switzerland Chile Ireland Thailand China (Taipei) Israel Tunisia

Colombia Italy Union of South Africa

Cuba Japan U.S.S.R.

Czechoslovakia Korea, Democratic Republic United Kingdom
Denmark Malaya United States of America

Dominican Republic Mexico Uruguay
East Africa Mongolian Peoples Republic Venezuela

Ecuador Viet Nam, Democratic Republic

EgyptNetherlandsViet Nam, RepublicEthiopiaNew ZealandYugoslavia

Finland Norway
France Pakistan

Source: www7. nationalacademies. org/archives/igy\_ countries.html rapporteurs' for each discipline and made their respective unions responsible for specific components of the IGY science program. That decision doubled the size of the Committee.

The organization of IGY was a template for methodical planning and management (Chapman 1961). Nonetheless, it had its own 'bumps' and delays, particularly during 1952 and 1953. Also, the participation of the Russian (Soviet) scientists in IGY was not formally secured until 1954 (Bulkeley, 2008). That finally opened the door to the true international nature of IGY, in which scientists from 67 nations officially participated (Box 4). All major nations of both Northern and Southern Hemispheres (except the People's Republic of China) joined forces in IGY, as also did a large swath of countries from the tropical area, like the newly independent Ghana, Malaya, Morocco, Tunisia, and both North and South Vietnam.

The IGY program was designed in 1954 and was more or less determined by 1955, two years prior to its official launch date (Berkner, 1954; Kaplan, 1954). IGY was built on new partnerships between meteorology and a group of younger disciplines focused on solar-terrestrial interactions, such as geomagnetism and investigations of the ionosphere and cosmic rays. Specialists in the latter fields provided the bulk of the CSAGI members, including all of its officers. IGY science

was initially organized in nine designated areas: meteorology, latitude and longitude determinations, geomagnetism, the ionosphere, aurora and airglow, solar activity, cosmic rays, glaciology and oceanography. Eventually, five more 'areas' were added: rockets and satellites, seismology, gravimetry, world days and nuclear radiation<sup>29</sup> (Nicolet, 1982). As in IPY-2, IGY steered away from non-geophysical research, though some zoological, medical and psychological studies were carried out, particularly in Antarctica; the latter were focused exclusively on the personnel of IGY polar stations (Aronova et al., 2010). No research on social issues or polar indigenous people was conducted during IGY.

IGY was managed for more than six years (1953–1959) by the CSAGI 'Bureau' of five members (Chapman, Berkner, Nicolet, Coulomb and Russian geologist Vladimir Beloussov, who was added in 1955). It was run on a day-to-day basis by the 10-member secretariat in Brussels (Nicolet, 1982). However, besides the overall agreements on the timing and scope of synchronous observations, global IGY activities were carefully orchestrated so to not infringe on the national sovereignty. Each participating nation was encouraged to plan and implement its own program, according to its resources and interests. Collaboration was promoted but not required. There was neither central IGY pro-



Fig. 1.1-8 U.S. Navy and construction personnel unload cargo on the Antarctic shore-fast ice during the U.S. "Deep-Freeze I" mission, 1955–1956, in preparation for IGY 1957–1957. (Photo: Rocky Milano)



Fig. 1.1-9 The maleonly, military-style pattern of many IGY operations is clearly seen in this photo featuring Adm. Richard Byrd (1888–1957, in the middle), and the members of the U.S. 'Deep-Freeze' Mission in Antarctica. (Photo: FritzGoro, 1956, courtesy Tom Goreau)

gram management nor complex finances besides the national program budgets, and political sensitivities of the Cold War era were always on IGY organizers' mind (Good 2010; Olson Belanger 2010).

CSAGI held six general meetings or 'Assemblies' during the IGY planning and implementation phase: CSAGI-1 in July 1953 (Brussels), CSAGI-2 in October 1954 (Rome), CSAGI-3 in September 1955 (Brussels), CSAGI-4 in September 1956 (Barcelona), CSAGI-5 in July-August 1958 (Moscow) and CSAGI-6 in May 1959 (Paris). Except for the first and the last meeting, all Assemblies were organized as large conferences with parallel sessions and plenaries. CSAGI also organized four mediumsize conferences on Antarctic research in 1955, 1956 and 1957; one Arctic conference in 1956; five regional conferences for Western Hemisphere, Eastern Europe, Eurasia, Africa and Western Pacific; and meetings of four CSAGI Working Groups: on Oceanography (1957), Nuclear Radiation (1957), World Data Centers (1957) and Rockets and Satellites (1957-Nicolet, 1959).

Also, at CSAGI-2 in 1954, the delegates established a special body, the Advisory Council of IGY, composed of one delegate, not a CSAGI member, from each national IGY committee. The purpose of the Council, chaired by German geophysicist Julius Bartels, was to discuss and express views on general IGY matters besides the scientific program and to facilitate bilateral arrangements for mutual assistance (Chapman, 1960).

IGY officially lasted for 18 months, from 1 July 1957 to 31 December 1958. An estimated 60,000 people, of whom 10,000 were scientists, took part in its various activities (Elzinga, 2009).<sup>30</sup> Major preparatory and logistical steps were undertaken at least two years prior to the launch date, such as the construction of new science bases and airstrips across the polar regions (Fig.1.1-8). Most of the IGY field activities were all-men operations with a heavy portion of navy and air force personnel (Fig.1.1-9). Military and geopolitical factors of the Cold War era bore larger weight in IGY than in the previous IPY ventures and played decisive role in its funding and implementation, from the space satellite program to research on human physiology in extreme cold environment.

The 18-month IGY observation period was later extended by a full year (January-December 1959) under the title 'International Geophysical

Cooperation.' The decision to extend IGY for another year under a different name was taken by ICSU, which also established a successor body to CSAGI, the Special Committee for Inter-Union Cooperation in Geophysics (SCG), with essentially the same membership. The last meeting of CSAGI (CSAGI-6) and the first meeting of SCG were held concurrently in May 1959. At that joint meeting it was proposed to establish a representative successor group, *Comité Internationale de Géophysique* (CIG), to supervise the processing and publication of IGY-IGC data. Most of the CSAGI members were then transferred to CIG.<sup>31</sup> The CIG of 27 members (under

the leadership of W.J.G. Beynon) and its Secretariat operated for eight more years, until December 1967. Its tasks, primarily the publication of the IGY-IGC results, were then entrusted to a small CIG *Terminating Group* that worked until 1970, twelve years after the official completion of IGY in 1958.

CSAGI-5 Assembly in Moscow in 1958 attended by more than 400 delegates, 800 guests and 200 journalists from 67 nations (Bulkeley, 2008) was the largest gathering conveyed to represent the IGY science. Later meetings were much smaller in size, like the Antarctic scientific symposium in Buenos Aires in

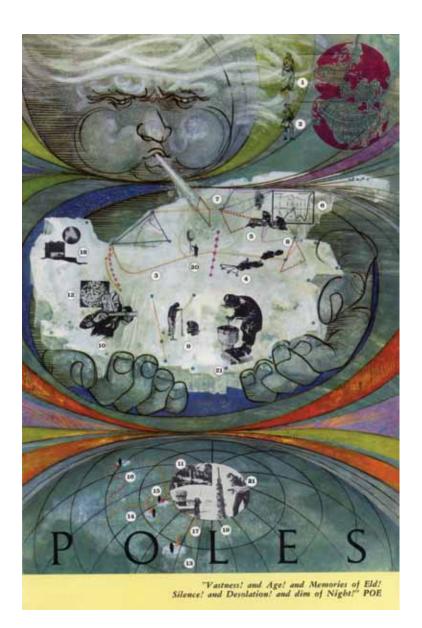


Fig. 1.1-10 One of six largesize IGY posters (Earth, Ocean, Space, Poles, Sun and Earth, Weather and Climate) produced by the U.S. IGY Committee for the IGY outreach program and published in its 44-page educational booklet, Planet Earth. (The Mystery with 100,000 Clues (1958) www7.nationalacademies.org/archives/ IGYPlanetEarthPosters.html)

1959 (Genest 2009) or the 1963 symposium 'Results of the IGY-IGC' in Los Angeles (Beynon, 1970). No major IGY summary conference was organized.

Wary of the failure of the IPY-2 team to publish the results of their venture, IGY planners designed an impressive publication program. The plans for a special IGY series, a full IGY bibliography and a final 'Coordinated Report' by CSAGI were first discussed at CSAGI-1 in 1953 and had been systematically reviewed at later meetings (Nicolet, 1958). The IGY publication series, the Annals of the International Geophysical Year, was started in 1957 under supervision by the IGY Editorial Committee of 19 members, with D.C. Martin as Chairman.<sup>32</sup> Altogether, 48 volumes of the Annals were printed between 1957 and 1970, many in several parts or issues that brought the total number of volumes to more than 70. The Annals also published extensive minutes of the CSAGI meetings and regional conferences (Nicolet, 1958, 1959), as well as reports from the national committees. The plans for a final summary report on IGY envisioned in 1953 never materialized, though several individual and national overviews and popular accounts of IGY were produced (Berkner, 1959; Chapman, 1959; Fraser, 1957; Odinshaw, 1958,1959; Silkin et al., 1962; Sullivan, 1961; Wilson, 1961). The full Bibliography of IGY publications eventually grew to more than 6,000 entries; it was published as the concluding volume of the Annals series with a 'cut-off' date of 1963 (Beynon 1970).<sup>33</sup>

Daily information on the IGY activities was disseminated via the IUGG Newsletter, WMO Bulletin, the internal IGY News Letter (published from 1956 to 1959) for the CSAGI members and national committees, and via monthly IGY Bulletin produced by the U.S. National Committee for IGY.34 Updates on IGY were regularly printed in major scientific journals and the first popular overview of IGY for lay audience was released already in 1957, the year the IGY was started (Fraser, 1957). Unlike in IPY-1 and IPY-2, the IGY organizers developed a special outreach and educational program that included popular articles, booklets, posters (Fig. 1.1-10), films, classroom and other instructional materials (Korsmo, 2004, 2009). Also, a special IGY logo, with an explicit link to the most advanced technology of the era, the Earth-orbiting satellite (Fig. 1.1-11) was designed and adopted in 1955 for the use in all IGY publications, instruments and public materials

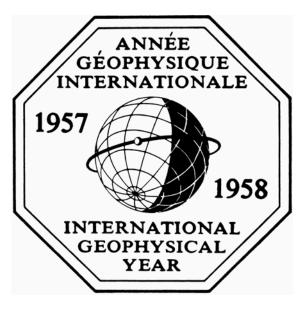


Fig. 1.1-11 IGY 1957–1958 logo. (Courtesy: National Air and Space Museum, Smithsonian Institution).

(Odinshaw, 1956).

Perhaps the most lasting innovation of IGY was the system of the World Data Centers. Over the course of the IGY planning, it became obvious that no single depository for all IGY materials would be feasible. At CSAGI-4 in 1956, it was decided to establish three 'World Data Centers' to host the originals or copies of the IGY records, observations and tabulations. The Centers were geographically and politically dispersed: one in the U.S.A., one in the Soviet Union and one subdivided between Europe and the Western Pacific. By 1964, 64 Centers were active at 33 locations; many were still in operation when IPY 2007–2008 began (Korsmo, 2010).

Extended documentary collections related to IGY have been preserved at several archives, the richest collections being held at the U.S. National Academies in Washington, D.C. (U.S. National IGY Committee) and University of Alaska Fairbanks (Sydney Chapman's personal collection).<sup>35</sup> Others are scattered around the world in the archives of the participating nations, scientific and international organizations, and research institutions.

Overall, IGY 1957–1958 was a remarkable success in globally coordinated research planning, implementation, data processing and publication. IGY clearly marked a new era: it encompassed more disciplines, nations and research sites than any of its predecessors. Its activities spanned two full

decades (1950–1970). It received the most sustained backing from its participant nations, international organizations and scientific bodies, including UNESCO. It also attracted an estimated USD 2 billion in overall funding (Bullis, 1973), equivalent to USD 14.3 billion in 2006 dollars.<sup>37</sup> IGY funding requests were eagerly matched by national governments, so that a substantial balance was carried forward for post-IGY programs and data-management.

The achievements of IGY, in science, new research techniques, international collaboration, public policy and outreach are hard to overestimate (Berguño and Elzinga, 2010; Bulkeley, 2008; Collis and Dodds, 2008; Dodds et al., 2010; Elzinga, 2009; Korsmo, 2010; Summerhayes, 2008). IGY raised the international organization and the status of polar research to a new level. The role of science in Antarctica, in particular, was transformed. New international regime for governance and collaborative research in Antarctica (Antarctic Treaty of 1959) was established as the direct result of IGY (*Chapter 1.4*). Three new special ('scientific') committees were created by ICSU to continue the international cooperation advanced by IGY, the Scientific Committee on Antarctic Research (SCAR, in 1958), Scientific Committee on Ocean Research (SCOR, in 1957) and Committee on Outer Space Research (COSPAR, in 1958). Furthermore, IGY triggered several subsequent international research programs, including the *Upper Mantle Programme* (1962–1968) and its successors; the International Year of the Quiet Sun (1964–1965); the Global Atmosphere Research Programme (1968–1979), which was succeeded by the World Climate Research Programme; and the International Biological Programme (1964–1974), which was succeeded by the International Geosphere-Biosphere Programme (Aronova et al., 2010; Baker, 1982a). By every possible measure, IGY would be a hard act to follow.

### Conclusion: What Did It Take to Launch an IPY?

It is obvious that none of the earlier IPY/IGYs had a smooth sailing and all of them, at one point or another, were plagued with delays, personal and national rivalries, and institutional competition. To launch a science program on the magnitude of an

international polar year several factors have to be in place. This includes, above all, successful coalition building and politicking, strong and savvy leaders, and a good sense of historical momentum (Korsmo, 2009; Needell, 2000). The original idea could be proposed by individual champions, like Weyprecht, Breitfuss or Georgi, but to become a reality it has to be pushed forward by people well-established in the international scholarly hierarchy, like Neumayer and Wild in IPY-1; Dominik and la Cour in IPY-2; Berkner and Chapman in IGY. Also, the proposal to launch a new initiative has to be advanced via the most respected professional organizations of the time. Specifically, IMO/WMO and ICSU, or their constituent bodies, acted as such channels. Ever since IPY-1, the idea of a globally coordinated science initiative at the Poles ('international polar year') was solidly rooted in the polar community's memory; but in order to move forward, it had to be re-energized via consistent and dedicated effort. An approaching major anniversary commonly triggered such process. A cadre of veterans with personal memory of the previous event may contribute a decisive force in 25 years (Chapman, Berkner, Vestine, Paton, and others in IGY); of course less so after 50 years.

The timely establishment of a special international body (committee, planning group) charged with the preparation, networking and advertising for a new IPY has always been the key factor in its successful implementation. Each venture also required canny managers, as well as skilled science 'diplomats,' that is, people capable of defusing or at least managing institutional rivalries and international conflicts, like Wild, la Cour, Chapman and Nicolet, to name but a few. In general, good diplomacy was always a prerequisite to the success of IPY, both internally, among competing science institutions, and externally - in the time of a major European War (IPY-1), global economic crisis (IPY-2) and Cold War confrontation (IGY). Last but not least, ALL major nations active in polar research have to be involved in the process, though the original champions for a new IPY might not necessarily come from the wealthiest or the most established nations, as happened in IPY-1 (Austria-Hungary) and IPY-2 (Germany and Russia).

A remarkably consistent time span—seven years in case of IPY-1 and IGY, six years in IPY-2—takes to move

the idea from the initial talks to the official launch date. In the science community as different as it had been in 1875, 1926 and 1950, planning for a science venture on the scale of IPY/IGY proceeded through the same general phases: origination (6-7 years prior to the launch); dissemination and endorsement (5-6 and 3-5 years, respectively); development of the program by a specially appointed team (2-3 years); marshaling resources and logistics (2-3 years)—with little if any variation (Table 1.1-1). Such consistency is startling, as the ways science operated and polar affairs mattered in national politics could not have been more different during IPY-1, IPY-2 and IGY.

In a similar way, a successful completion of a large and complex venture on the scale of IPY was conditioned on a fairly consistent set of factors. The presence of a dedicated and energetic core team and its continuity throughout the planning, implementation and completion phases (often lasting for several more years) were crucial to achieve success and secure the legacy. The team had to move swiftly to demonstrate tangible results and to establish a timetable for processing the data after the end of the observation period. A string of summary meetings or a final conference are the most common means to

present the results of a successful long-term program, as happened in IGY and partly in IPY-1, though not in IPY-2. Finally, systematically organized publications featuring data collected by several nations, a well-planned bibliography, and a cadre of scientists and their students bonded by shared experience produce the most durable legacy. That happened in all three ventures, most prominently in IGY. Data collected via national and international efforts are to be shared, safely deposited and substantially analyzed. Only IGY offered a good template, whereas IPY-1 and IPY-2 mostly failed in this regard.

History does matter to science, and both IGY and IPY-2 organizers tried to *learn* from the experience of their predecessors by studying their work and publishing their results. National or regional IPY historiographies emerged as important venues in strengthening institutional memories between the IPY ventures to allow international science community to quickly mobilize itself for the next IPY. The next chapters demonstrate how the organizers of IPY 2007–2008 used the playbook of the earlier IPY initiatives and aspired to build their collaborative venture upon the lessons of 125 years of international partnership in polar research.

IPY-1 IPY-2 IGY 1. First discussion (public presentation) of the idea 7 years <6 years 7 years (November 1926) (April 1950) (September 1875) 6.5 years 4.5 years <7 years 2. Endorsement by the first disciplinary science body (April 1876) (December 1928) (July 1950) 3. First detailed proposal for new venture 5 years 3 years 3.5 years (May/September 1877) (August 1929) (February 1954) 4. Endorsement by major sponsor/s 3.5 years <3 years <5 years (April 1879) (September 1929) (October 1952) 5. First meeting of a special team tasked with planning <2.5 years 2 years 4 years (October 1879) (August 1930) (June 1953) 4 3 2 6. Number of the planning team meetings prior to launch 7. First detailed outline unveiled 2 years 2 years 3 years (August 1880) (August 1930) (August 1954) 8. Specific science focus/ observational instructions approved <1 year <2 years 2 years (August 1881) (Winter 1930) (1955)9. Planning for resources and logistics 2.5 years 2 years 3 years (1930-1932) (1880 - 1882)(1954-1957)

Table 1-1. Comparative Timelines for the Preparation Phase of IPY-1, IPY-2, and IGY

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#### Notes

- <sup>1</sup> The key historical sources on IPY-1 include: Baker, 1982a; 1982b; Barr, 1983/2008; Corby, 1982; Elzinga, 2009; Heath and Armitage, 1958; Levere, 1993; Lüdecke, 2004; Sukhova and Tammiksaar, 2007/2008; Tammiksaar et al., 2009, 2010; on IPY-2 Laursen, 1951, 1952, 1982; Lüdecke and Lajus, 2010; Lajus, 2008; on IGY 1957–1958 Berkner, 1954; Bulkeley, 2008; Bullis, 1973; Chapman, 1953, 1954, 1959; Cochrane, 1978; Collis and Dodds, 2008; Fraser, 1957; Kondrat'ev, 1960; Korsmo, 2007, 2009; Needell, 2000; Nicolet, 1982, 1984; Odinshaw and Rothenberg, 1958.
- <sup>2</sup> The group was established in 2004 in preparation for IPY; the first two volumes of its proceedings are already published as contributions to IPY project no. 27 (Lüdecke, 2007a, 2009).
- <sup>3</sup> Weyprecht's given name in the registry was Karl, but in several of his German papers he was listed as 'Carl Weyprecht.' Later sources use both forms.
- <sup>4</sup> In 1860, Maury completed a revised version of his seminal work, *The Physical Geography of the Sea*, adding new chapters on the Southern Ocean and Antarctica. On 10 April 1861 he circulated his ideas on polar scientific cooperation to the Washington ambassadors of leading maritime countries (Maury, 1862). Unfortunately, with the start of the American Civil War in 1861, Maury resigned his commission. Even before copies of his circular began making their way to the foreign ministries of Europe, its return address was no longer valid.
- <sup>5</sup> Weyprecht, first referred to the need for synchronous observations in the Arctic in his talk at the Royal Geographical Society in London on 10 November, 1874. Nevertheless, he did not suggest a *multi-national* program of synchronous observations, which became the core of his proposal for IPY.
- <sup>6</sup> The delegates at IPC-1 represented eight nations: Austria-Hungary, Denmark, France, Germany, the Netherlands, Norway, Russia and Sweden
- <sup>7</sup> In addition, the Finnish IPY station in Sodankylä and the Russian expedition to Sagastyr (Lena River delta) continued their observations until summer 1884 (Heathcote and Armitage, 1959).
- Baker, 1982a; Barr, 1985/2008; Heathcote and Armitage, 1959. In addition, ships taking scientists to and from the IPY expeditions took regular observations. Merchant ships were also asked to make observations and some of these were later used in Germany and the U.K. for synoptic studies. This makes a total of more than 60 IPY-1 stations and, probably, more than 100 if ship-based observations are included.
- <sup>9</sup> Three issues in 1882, one in 1883, two in 1884 and one in 1891.
- <sup>10</sup> Most of these volumes were recently posted on the NOAA IPY Website as a result of the NOAA historical IPY documentation effort (www.arctic.noaa.gov/ipy-noaa.html).
- <sup>11</sup> Austria-Hungary, Denmark, France, Germany, the Netherlands, Norway, Russia, Sweden, United Kingdom/Canada and the United States. Many sources list 11 nations participating in IPY-1, though Finland was then officially part of Russia, Canada was the British dominion, and Norway was still formally part of Sweden. Austria-Hungary was, though, a 'dual' nation.
- <sup>12</sup> Henryk Arctowski (1871–1958), a Polish-born Antarctic explorer and oceanographer and member of the Belgian Antarctic Expedition (the *Belgica* Expedition) of 1897-1899.
- <sup>13</sup> Dominik's letter was sent to the IMC President, Prof. E. van Everdingen (Laursen, 1959). IMC was responsible for the issues related to international relations and it acted on behalf of the supreme body of IMO, the Conference of Directors. Thus, it corresponds to the WMO Executive Council of the present day (Laursen, 1982).
- <sup>14</sup> D. la Cour, E. Van Everdingen, H.U. Sverdrup, H. Hergessell, and P. Wherlé.
- <sup>15</sup> See list of CPY members in Laursen, 1959. Two more members were added in 1933. The CPY's only female participant, M. Bruun de Neergaard, acted as secretary to la Cour during the preparatory work, until she became the Commission's secretary and, finally, its full member.
- <sup>16</sup> The high-level support for IPY by the Russian (Soviet) Academy of Sciences was instrumental to the early preparation for IPY-2 and to la Cour's decision to have the first IPY planning meeting in Leningrad in August 1930 (Lajus, 2008).
- <sup>17</sup> C. Störmer (chair), S. Chapman, D. la Cour, C. Maurain, and P. Wherlé (Laursen, 1959). La Cour and Maurain also served on the IMO Commission for IPY.
- 18 IPY-2 bibliography lists 46 nations (Box 2) plus the Azores (part of Portugal) and 'British Colonies and Protectorates' (Laursen, 1951).
- <sup>19</sup> See the map and list of IPY-2 stations in Fleming 1933. The original IPY-2 outline aimed at establishing 43 stations in the Arctic and at least 5 stations in Antarctica (Fleming, 1931). In addition, more than 100 Russian (Soviet) weather stations conducted observations under the IPY-2 program; many were located in Siberia and the southern mountain regions (Andreev et al.,, 2007).
- <sup>20</sup> No.6, 1930; no. 10, 1932, no. 16, 1933.
- <sup>21</sup> Another important collection of records pertaining to the terrestrial magnetism studies during IPY-2 is hosted at the Carnegie Institution in Washington, D.C. (Neumann, 2009).
- <sup>22</sup> The records from the last 15 days of August 1933 were lost during World War II.

- <sup>23</sup> Berkner's life and career and his proposal to launch the 'third' Polar Year are covered in Needell, 2000.
- <sup>24</sup> Other people present at that dinner party were J. W. Joyce, future director of the National Science Foundation office for IGY, E. Vestine, the head of the Section on Theoretical Geophysics at the Carnegie Institution in Washington, and S.F. Singer, then young space physicist (Chapman, 1959; Korsmo, 1998, 2007).
- <sup>25</sup> Jean Coulomb (1904–1999), Takeshi Nagata (1913–1991), James Paton (1903–1973), Nikolay Pushkov (1903–1981) and James Stagg (1900–1975), to name but a few.
- <sup>26</sup> URSI and IAU in September 1950, and the IUGG, chaired by Chapman, in August 1951.
- <sup>27</sup> Eventually, CSAGI's membership grew up to 24 people. In 1955–1958, Berkner also served as the President of ICSU, which offered him the opportunity to contribute ICSU resources in support of IGY.
- <sup>28</sup> International Union for Astronomy, International Union for Geodesy and Geophysics, International Union for Scientific Radio, International Geographical Union and International Union of Pure and Applied Physics.
- <sup>29</sup> The inclusion of *nuclear radiation* to the IGY program was propelled by a number of concerned scientists who used the opportunity of IGY to monitor radioactive fallout from atomic bomb tests. In this sense the Cold War and the opposition to its real and prospective dangers were translated into an important scientific program (Aant Elzinga, personal communication).
- <sup>30</sup> Another estimate lists 20,000 to 30,000 scientists, engineers and technicians and almost 'as many volunteer observers' (Cochrane, 1978).
- <sup>31</sup> The first meeting of the CIG took place in November 1959; shortly after, the CSAGI Secretariat was closed (December 1959) and replaced with the CIG Secretariat in Paris.
- <sup>32</sup> First 11 volumes were published or prepared under the auspices of CSAGI, before its termination in 1959; after that the CIG/IGC took responsibility for the publication of the Annals.
- <sup>33</sup> In addition, several national, disciplinary, or transitional bibliographies of the IGY contributions were published between 1957 and 1963 (Beynon, 1970), including special bibliographic sections, *IGY Bibliographic Notes*, in many issues of the *IGY Bulletin*.
- <sup>34</sup> These were published as sections of the *Transactions of the American Geophysical Union* and in separate issues. The first issue appeared in July 1957, following the official opening of IGY and the last, no. 62, in August 1962.
- <sup>35</sup> www7.nationalacademies.org/archives/igyseries8.html (U.S. IPY Committee); www.aip.org/history/ead/19990060\_content.html (S. Chapman's collection).
- <sup>36</sup> In addition to funds allocated to ICSU for the implementation of IGY, UNESCO made available \$110,000 directly to CSAGI. It also produced an IGY exhibit that toured many countries, published a booklet on IGY, a special IGY issue of the *UNESCO Courier* in 1957, and made available fellowships to young scientists from developing countries to participate in IGY observations.
- <sup>37</sup> ICSU alone granted over \$700,000, and UNESCO subsidies covered almost half of the CSAGI budget (\$275,000). U.S. Congress appropriated more than \$43 million for the U.S. IGY operations, which in today's terms may be as high as \$350 million (http://en.wikipedia.org/wiki/NASA\_Budget).



### 1.2 How IPY 2007–2008 Was Born: 1997–2003

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#### Introduction

Unlike three previous International Polar (Geophysical) Years in 1882, 1932 and 1957, IPY 2007-2008 lacks an origination legend of its own. So far, it has not generated its iconic 'creation myths,' similar to the story of the dinner party at James Van Allen's house in April 1950 that gave rise to IGY or Carl Weyprecht's proposal of 1875 that opened the door to IPY-1 (Chapter 1.1). A few published historical accounts on the origination of IPY 2007–2008 are rather brief; they also commonly dwell on certain lines of its multifaceted history.1 The emerging history of IPY 2007-2008 is, actually, very complex and, in contrast to its predecessors, this IPY had numerous early advocates and independent origination sources over the course of several years. It also had a few false starts. Compared to the previous IPYs, it was much more a 'bottom-up' development with a far broader interdisciplinary appeal, as it engaged larger swaths of polar science community, beyond meteorology, oceanography, atmospheric and space studies that were instrumental to IPY-1, IPY-2 and IGY.

For over four years, from 2000 when the idea was put forward until spring 2004, many groups debated and advanced their proposals for a new IPY, until these independent, often competitive streams merged into a common planning process. Therefore, creating a shared origination narrative of IPY 2007–2008 remains a work in progress. It is also an urgent task while our memory is still fresh and most of the relevant sources are in hand. This chapter covers the period from the first discussions about launching the new IPY until summer 2003, when those efforts crystallized into a dedicated planning process spearheaded by the

ICSU Planning Group (*Chapter 1.3*). It relies upon the emerging archives of various sources, including documents, papers, letters, website postings and recorded (taped) narratives of several early IPY champions (see *Acknowledgements*). A more detailed summary will be left for future historians to explore.

# The IPY 2007–2008 Origination: Chronology and Narrative

#### 1982 –1983: 'Aborted' 25th Anniversary

Evidently, the first time people started talking about the 'fourth' IPY was in the late 1970s, as the 25th anniversary of IGY was approaching. In 1978, ICSU established within its framework an ad hoc Group (later Committee) to study the desirability of ICSU commemorating in 1982-83 the anniversaries of all three earlier IPYs (F.W.G. Baker, pers. comm., 19 January, 2010). The Group was chaired by Marcel Nicolet, the former Secretary General of CSAGI (Chapter 1.1) and it was composed of several remaining IGY veterans, Vladimir Beloussov, W.J. Granville Beynon, Jean Coulomb, Viggo Laursen, Alan Shapley, with F.W.G. (Mike) Baker as Secretary. The idea of a new IPY was discussed during the meeting at the ICSU Secretariat in April 1981, but as no agreement was reached, no proposal for actions was put to ICSU. Nevertheless the Committee suggested to ICSU that two lectures should be organized at the forthcoming ICSU 19th General Assembly in Cambridge in 1982 as part of the commemoration of the three IPYs (Fig. 1.2-1); these addresses were given at the Scott Polar Research Institute in Cambridge by Canadian geophysicist George D. Garland and Russian geologist Vladimir V. Beloussov (Garland, 1982; Beloussov 1982). Several other anniversary addresses were delivered at major conferences and special symposia during 1982-1984 (e.g. Beynon, 1983) and a great number of historical overviews of IPY-1, IPY-2 and IGY were published (Baker, 1982; Barr, 1985; Nicolet, 1984), including a special issue of the WMO Bulletin (Corby, 1982; Laursen, 1982; Nicolet, 1982), but no new research or public projects were launched.

At a small event that Nicolet organized in Brussels in 1987 to commemorate the anniversaries of the three IPYs, the idea of when, why and the possibility of another "IPY" was discussed among the former members of the IGY Secretariat, Nicolet, F.W.G. (Mike) Baker and Phil Mange, but none of the participants took any action since they thought it was still a bit

Hydrological Sciences - Bulletin - des Sciences Hydrologiques, 26, 1, 3/1981

#### CENTENARY OF FIRST INTERNATIONAL POLAR YEAR

1982-1983 is the lOOth anniversary of the first International Polar Year (IPY). This was the first organized international geophysical programme, but was mainly devoted to meteorological observations. An expanded second IPV was organized 50 years later. A proposal for a third IPV, 25 years after the second, was broadened in scope to become the very successful International Geophysical Year (IGV), embracing all geophysical disciplines. The success of the international cooperation in research developed by the IGY then led to other international scientific programmes of more specific focus, such as the International Bydrological Decade.

The President of IUGG, Dr George Garland, has informed the President of IGG, Dr George Garland, has informed the President for IGG, Dr George Garland, has informed the President for IGSD and will include public lectures to be held probably at the Scott Polar Research Institute in Cambridge. COSPAR will have a special symposium on achievements

Cambridge. COSPAR will have a special symposium on achievements since the first IPY in late May 1982. The Executive Committee of IUGG will also discuss plans during their meeting of July 1981 to celebrate the 100th anniversary of IPY at the 1983 Hamburg Genera

Fig. 1.2-1, Report on the forthcoming activities associated with the 'Centenary of the First International Polar Year (March (Courtesy Mike Baker)

premature (F.W.G. Baker, pers. comm., January 2010). Thus the momentum to use the 25th anniversary of IGY and the 100th anniversary of IPY-1 to launch the 'fourth' IPY slipped away.

### 1997-2000: IGY 50th Anniversary Is Approaching

The next calls for a new IPY came in the late 1990s when the 50th anniversary of IGY was on the horizon. In 1997 on the 40th anniversary of IGY, Chris Rapley, then Executive Director of the International Geosphere-Biosphere Programme (IGBP) in Stockholm, reportedly sent a letter to the ICSU Secretariat arguing for a major celebration event to be organized by the 50th anniversary of IGY in 2007. According to Rapley's account, he was informed that his idea was forwarded to several International Unions under ICSU but the proposal was considered a 'step too far.'2 Everybody was suffering from 'initiative fatigue' and there was no

> enthusiasm for another major venture within the ICSU system (Chris Rapley, interview, 3 March, 2008). The latter may be due to the successful proliferation of many large international programs in the 1980s and 1990s. including IGBP itself, so that many science groups and researchers felt that they needed a breather.

> Nonetheless, some unions were more open to the idea than others. At the 22nd General Assembly of the International Union of Geodesy and Geophysics (IUGG) 18-30 July, 1999, one of its constituent groups, the International Association of Geomagnetism and Aeronomy (IAGA) adopted a resolution recommending the preparation of 'collaborative programs [...] during the period 2003 to 2008 to mark the 50th anniversary of the IGY and to act as a spring board for future research' (IAGA 1999 - Fig. 1.2-2). Both IAGA and IUGG were active participants in IGY; evidently, their members had a strong feeling about its forthcoming 50th anniversary. The IAGA/IUGG nexus became a crucial link that eventually led to the International Heliophysical Year (IHY) planning a few years later (see below).

> Another line of correspondence related to the 'next' IPY emerged in the late 1990s at the IASC Secretariat in Oslo (Chapter 1.4). Leonard

Johnson, formerly with the U.S. Office of Naval Research, was one of the key advocates. Again IASC, like ICSU, was suffering from 'initiative fatigue' of its own and was not very forthcoming to the new IPY idea.

Several other leading bodies and groups active in polar research, such as the Scientific Committee on Antarctic Research (SCAR), European Polar Board (EPB) and U.S. Polar Research Board (PRB) were apparently enduring a similar burden of core programs coupled with the lack of innovative 'big ideas' to enthuse their members. This was a reason given by some early IPY champions in the explanation why an idea of the new IPY suddenly became appealing to many people barely a few years later. Perhaps it happened thanks to the new cohort of leaders that came to many polar organizations at that very time.<sup>3</sup> Remarkably, in 2000–2001 at least four groups of scientists independently came forward with proposals for a new 'international

polar year' to be launched in 2007. All based their arguments on the forthcoming anniversary of IGY and many also invoked the century-old legacy of the earlier Polar Years.

### Antarctic Scientists Argue for the Celebration of IGY: 2000–2001

Antarctic scientists, predominately a physical science community with a deep memory of IGY, started talking about the approaching anniversary of IGY at least in 1999-2000. At that time, the talks were primarily about the need to prepare for a big '50-year celebration' event in 2007 (Bell, 2008; Summerhayes, 2008). Some of these debates were first reflected in the minutes of the SCAR XXVI annual meeting in Tokyo, 17–21 July 2000, at which the delegates were briefed about such discussion at the XII COMNAP (Council of Managers of National Antarctic Programmes) meeting a week prior. Among several issues addressed by COMNAP was the recommendation 'to prepare for recognition of the 50th Anniversary of the International Geophysical Year in 2007–2008' (Chapter 1.4; SCAR, 2001). A year later, at the SCAR Executive Committee Meeting in Amsterdam 22–24 August 2001, the approaching 50th Anniversary was once again addressed among 'other items.' No plan was adopted, except checking with ICSU about 'what plans ICSU may have' and no special ideas were put forward (SCAR, 2002).

## Electronic Geophysical and International Heliophysical Years: 2000–2001

On 10 July 2000 the ICSU Secretariat received what may be justly called the first 'IGY+50' proposal from one of its constituent bodies, SCOSTEP (Scientific Committee on Solar-Terrestrial Physics). SCOSTEP was established by ICSU in 1972 out of several successor projects originating from IGY. In his letter Joe H. Allen, SCOSTEP's Scientific Secretary, asked for information about programs known to ICSU that were being planned around the 50th anniversary of IGY in 2007

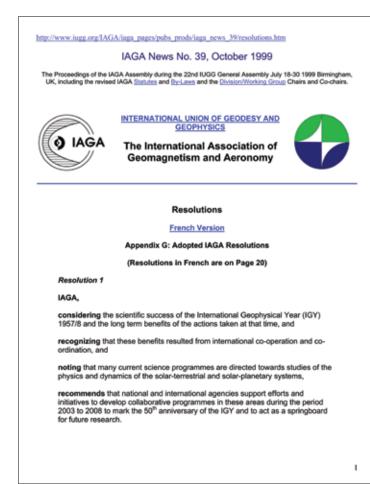


Fig. 1.2-2. First resolution by the International Association for Geomagnetism and Aeronomy arguing for "collaborative programmes during the period 2003 to 2008 to mark the 50th anniversary of the IGY and to act as a springboard for future research" (July 1999) www.iugg.org/ IAGA/iaga\_pages/ pubs\_prods/iaga\_ news\_39/resolutions. and referred to a proposal for 'IGY+50' by Dan Baker from the University of Colorado adopted by the SCOSTEP Bureau in 1999. The proposal put forward by SCOSTEP called to declare the period 2003 to 2008 'The IGY plus 50 years: new Perspectives for the Next Millennium,' with a worldwide program of research into the geophysics, geochemistry, biology and the dynamics of the solar-terrestrial and solar-planetary systems' (Allen, 2000). SCOSTEP appealed to several ICSU Unions to join forces in the preparation of a new program and pledged to take the lead in its Solar-Terrestrial Physics component.

The SCOSTEP proposal never referred specifically to the polar regions and had only passing references to the early 'international polar years.' It eventually evolved into what became the electronic Geophysical Year (eGY – www.egy.org/index.php), a parallel initiative that was implemented successfully and ended on 31 December, 2008.4 Nonetheless, SCOSTEP's pro-

posal almost certainly triggered a similar push for the 'International Heliophysical Year' (IHY) in 2007, also in commemoration of IGY. The IHY was launched by a group of astrophysicists at the Goddard Space Flight Center, U.S. National Aeronautics and Space Administration (NASA), Joseph Davila, Arthur Poland, Nat Gopalswamy and Barbara Thompson, who were aware of the SCOSTEP activities. The proposal for IHY was first unveiled in February 2001 (Davila et al., 2001 - Fig. 1.2-3); unlike the eGY, it was actively promoted as following in the footsteps of the IPY-1, IPY-2 and IGY. The first IHY website, under the title 'International Heliophysical Year' was launched in early 2002 at http://ihy.gsfc. nasa.gov.

#### Neumayer Symposium, June 2001: New 'IPY-4' Is Proposed

Arctic scientists had their chance to discuss the approaching anniversary of IGY at the Arctic Science

Summit Week (ASSW) in Igaluit, Canada in April 2001 (Chapter 1.4) at the meetings of the European Polar Board (EPB) and the Forum of Arctic Research Operators (FARO). Jörn Thiede, Director of the Alfred Wegener Institute (AWI) in Bremen and the Chair of EPB was among those who raised the issue as he was already familiar with the IGY+50 discussion at the SCAR meeting of 2000. No decision was made, yet another important polar science constituency became aware of the calling for a new IPY.

A more inspirational concept for a new 'IGY'like initiative was unveiled at the International Neumayer Symposium at Bad-Dürkheim, Germany 24-26 June 2001. The symposium held on the occasion of 175th anniversary of Georg von Neumayer, a native of southwestern Germany and a key figure in IPY-1 (Chapter 1.1), was organized jointly by AWI, the German Navigation and Hydrographic Service (BSH - Bundesanstalt für Seeschiffahrt und Hydrographie) in Hamburg and Rostock, the successor to the Deutsche Seewarte, of which Neumayer was once the Director, and Pollichia, the local Society for Natural Sciences. The life and career of Neumayer and the first IPY were featured prominently in the sessions. The symposium also awarded the Neumayer Medal to Leonard Johnson, former

#### International Heliophysical Year

A Program of Global Research Continuing the Tradition of Previous International

Richard Har Rutherford Appleton Laboratory

> February 12, 2001 ary 15, 2001

#### Overview

rch, inspired by the International Polar Years of 1882-83 and 1932-In 1937 a program of international research, inspired by the International Polar Years of 1882-83 and 1932-33, was organized as the International Goophysical Year (IGV) to study global phenoemen of the Earth and geospice. The IGV involved about 60,000 scientists from 166 nations, working at thousands of stations, from pole to pole to obtain simultaneous, global observations on Earth and in space. There had never been applying like it before. The fifther anservancy of the International Geophysical Year will receive in 2007. We propose to organize an international program of scientific collaboration for this time period called the International Heliophysical Vose (BIY), It will focus on the problem of solar variation effects on Earth.

#### 1. Introduction

October 4, 1957, three months after the International Geophysical Year (IGY) began, Sputnik was launched. This was the beginning of the space age. Sputnik I and III and Explorer I along with numerous suborbital rocket flights contributed to the tremendous success of the IGY. Space science has made tremendous strides in the last 50 years. We now routinely monitor the Sun, the nterplanetary medium, and the atmosphere of Earth from The IHY will provide a unique opportunity to coordinate observations from the current impressive fleet international space missions, with data from solar groun based observatories ground based auroral observatories, neutron monitor observations, magnetic field observatories, ionospheric, meteorological, and observatories. Unprecedented, simulti and other atmospheric with broad coverage of all associated solar, heliospheric, sena will be obtained. The resulting data will allow

pace, and atmospheric pheno hal studies of the complete Sun-Earth system.

online publication, the International Heliophysical Year. A Program of Global Research Continuing the Tradition of Previous International Years (Davila, Poland, and Harrison (http://ihy2007.org/ resources/resources shtml)

Fig. 1.2-3.First





Fig. 1.2-4. (left)
The Neumayer
Symposium at BadDürkheim, Germany,
June 2001: Leonard
Johnson, author of
the first outline for
IPY 2007–2008.

(Photo: Oliver Röller)

Fig. 1.2-5. (right)
The Neumayer
Symposium at BadDürkheim, Germany,
June 2001: Leonard
Johnson (left) and
Jörn Thiede.
(Photo: Oliver Röller)

division head at the U.S. Office of Naval Research (Figs. 1.2-4, 1.2-5). In his address, Johnson proposed that a 'new International Polar Year' be launched in 2007, the 125th anniversary of IPY-1 (Johnson, 2001a, 2002a). The symposium adopted a 'Neumayer Declaration' arguing for a new major science initiative in the polar regions in 2006–2007, with its focus on climate variability and the dynamics of the Earth crust and sedimentary cover (Box 1; Kremb and Kremb, 2002). Johnson volunteered to promote a concept for a 'new IGY/IPY' among the U.S. scientists, whereas Thiede and Heinz Miller, also from AWI, agreed to move it through SCAR and EPB.

The Neumayer symposium, with its more than 300 scientists from Germany, Denmark, Norway, Russia, U.K. and U.S., started the process and by the end of 2001, Johnson published the first short article in a major science journal, *Eos* on the issue of the new 'polar year' (Johnson 2001a – Fig. 1.2-6).

#### Russian Bid for 'IPY-3': October 2001

In October 2001, Russian polar oceanographer and high-level politician Arthur Chilingarov made a public call for a 'Third International Polar Year' in 2007 at the Joint EU-Russia-Canada-U.S. Workshop on collaborative technological research for Arctic

development in Brussels (25-27 October 20015). The workshop was attended by more than 120 participants from several countries. Chilingarov's push for 'the third IPY' was not very specific as it was listed in passing among several other Russian proposals for collaborative projects in the Arctic, including energy, transportation, human and environmental safety, and new technologies.6 On 20 December, 2001 Chilingarov reiterated his appeal for a package of such collaborative initiatives in the polar regions as a vehicle to the Russian-European partnership, including his reference to the 'Third International Polar Year' in a letter to the Director General Research office of the European Commission in Brussels.7 Again, a new IPY was merely one idea of many; even the choice of a particular year was left 'open to international discussion'.

Chilingarov's proposal for a new IPY was evidently a part of a general push by Russian scientists to get back to the international arena with major new ideas in Arctic research and collaboration, after a decade of economic and financial stagnation. It quickly gained high-level governmental support (see below), but was not implemented until early 2003.

## 2002: IPY Proposals Gain Spotlight and Substance

During 2002, these independent and often competing nexuses in promoting IPY crystallized and aspired to develop more specific outlines for their programs. The emerging visions quickly diverged from the original concept of 'IGY+50' celebration and

#### **Box 1** Neumayer Declaration

A 175th IGY Program:

Scientific Themes:

Using new technologies to determine:

- 1. Causes and effects of climatic variability (air-sea-ice interactions)
- Lithospheric dynamics (evolution and history of crust and sedimentary cover)

Bad Dürkheim, 26.06.2001

instead, pushed firmly towards the 'fourth' IPY. New electronic communication and website technologies helped disseminate the message and increased the speed of exchange across the international science community (Berkman, 2003).<sup>8</sup> In addition, those nexuses often included many of the same people wearing different 'hats' in different settings, so that the idea was talked through and vetted repeatedly in meetings, papers and resolutions.

PRB/AOSB/EPB nexus. On 9 April 2002, Leonard Johnson gave a talk at the 84th meeting of the Polar Research Board (PRB) of the U.S. National Academies titled Origins and Content of Proposal to Conduct International Polar Year, which was the development of the plan drafted at the Neumayer symposium of 2001. His talk was followed by substantial discussion, at which several players in the future U.S. IPY planning were present, such as Robin Bell and Chris Elfring (PRB), Karl Erb (NSF), John Calder NOAA) and Pat Webber (IASC). The shared feeling was that the PRB should put 'some energy' into it. Chris Elfring, the PRB Executive Director, recalled that feeling: "There should be one! There should be one!" (C. Elfring, interview, 11 April 2008). The PRB agreed to run a special session on IPY at its next meeting in November 2002.

A much broader audience was briefed on the new IPY concept at the ASSW annual meeting in Gröningen, the Netherlands 21–26 April 2002. Johnson delivered his paper on IPY at the meeting of the Arctic Ocean Sciences Board (AOSB) and referred to positive reviews of the new IPY proposal by IASC and SCAR (Fig. 1.2-7).

The AOSB response was measured and Johnson was encouraged 'to develop the IPY 2007 concept,' as further identification of costs and benefits for Arctic science was deemed necessary (AOSB, 2002:21). IPY was also discussed at the IASC Council meeting during ASSW (*Chapter 1.4*).

The IPY proposal received a more enthusiastic response at the 27th Meeting of SCAR Delegates in Shanghai, China 22-26 July 2002 (Chapter 1.4). The Delegates supported the motion for a new IPY program 'to celebrate the 50th anniversary of the IGY' and tasked a small group, chaired by Heinz Miller from AWI, to produce a report to the SCAR Executive Committee by its meeting in July 2003. It was also suggested that enquiries be made to ICSU and IUGG about their IPY plans. Chris Rapley, Vice-President of SCAR and Director of the British Antarctic Survey (BAS), agreed to act as a liaison to ICSU and IUGG.9 Though the decision was short of formal endorsement, many people instrumental to the future IPY planning attended that meeting (Rapley, Thiede, Miller, López-Martínez, Orheim, Kotlyakov, Eflring, Allison and Erb). A smaller Antarctic meeting, the 9th West Antarctic Ice Sheet (WAIS) workshop in Sterling, Virginia 18-21 September 2002 also endorsed the plan for a new International Polar Year following the presentation by Robert Bindschadler from NASA.

By far the most substantial deliberation on the new IPY took place at a special session of the U.S. PRB in Washington, DC on 25 November 2002 (Fig. 1.2-8). The full-day meeting titled "How Might the Polar Science Community Commemorate the Upcoming Anniversary of the International Polar Year" attended by more than 40 scientists and agency representatives and chaired by Robin Bell, new PRB Chair, featured several invited talks<sup>10</sup> and five discussion panels. It advocated joining forces with the European Polar Board (EPB) to bring the idea of a new IPY into the public domain and to marshal support from scientists and funding agencies. One of the workshop recommendations was to organize a scholarly session and a 'town-hall' meeting on the new IPY at the joint meeting of the AGU/ESF/ EGU in Nice, in early April 2003 to be prepared jointly by the PRB and EPB. A small ad hoc organizing group for that session was quickly formed made of Elfring, Bell, Johnson and Paul Egerton, the EPB Secretary (Elfring to Edgerton, 23 December 2002; Egerton to

#### Symposium Melds Past and Future Polar Research

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An international symposium, Perspectives of Modern Polar Research, was convened in Bad Durkeim, Germanylo celebrate the 175th anniversary of the birth of Georg von Neumayes, the noted polar explorer and lacilitator of German and international polar science. Neumayer, who lived from 1826 to 1909, began his career as a seaman in the merchant marine. Through his skill in geophysics and meteorology, he rose to become the founder and director of the Plagstall Observatory in Methourne, Australia, Pydrographer to the German Navy, and director of the Hamburg

Oceanic Observatory, He was instrumental ir organizing the first International Polar Year (IPY) in 1882–1883.

Symposium participants came from Denmark, Germarg Norwag Russia, the United Kingdom, and the United States Presentations covered a wide range of topics, including Arctic biomass calculations, effects of ice scouring on bestific communities, tectoric issues, the life of the Norse settlers in southwestern Greenland and the enigma of their disappearance.

Georg von Neumayer, chief of the Deutsche Securate in Hamburg, Photo courtesy of Politchia

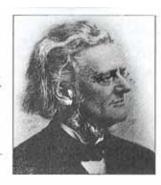


Fig. 1.2-6. First publication on new IPY and 'Neumayer Declaration' by Leonard Johnson (Eos Vol. 82, no.51, December 2001.

#### Eos, Vol. 82, No. 51, December 18, 2001

plus Arctic circulation and North Atlantic decadal variability.

Arising from the participant discussions was a strong consensus that a program should be formulated to commemorate the 128th anniversary of the initial IPY in 2007. After another IPY in 1932, the IPY evolved into the International Goophysical Year in 1957. Renewing the IPY concept would require applying to the International Council of Scientialic Unions or some other appropriate body for sponosoship, participants noted.

The program envisioned for 2007 would investigate the role of air/sea/fice interactions in climatic variability! It would also probe lithosphere dynamics, defined as the evolution and history of crust and sedimentary cover. This would require modern interdisciplinary!

international science using new technologies such as sea floor observatories and new platforms. The proposed European research ice breaker Amon Bowealts—with dust moon pools, dynamic positioning, and scientific drilling capability—is the prime example of such a platform. Participants made clear that science planning must start now and emphasize coordination with existing programs, such as Study of Arctic Europeantal Change (SEARCH), as necessary components, with joint platforms where possible, and development of automatic equipment. According to the Neumayer Declaration adopted at the meeting, the geographic focus of the program would be the Polar regions.

The symposium was sponsored by Pollichia, a scientific organization founded in 1840 to promote the study of natural sciences in the Rheinland-Pfalz region of Germany Currently, Pollichia has 3000 members and supports a multi-faceted research program. Additional support was provided by the Bundesamte fair Seeschiffahrt und Hydrographie and the Alfred-Wegener Institute für Polar und Meuresforschung, Proceedings will be published as a special edition by Pollichia in the spring of 2002.

Perspectives of Modern Polar Research was held June 24-26, 2001.

#### Author

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Thiede/Rapley/Jujie/Lopez/Orheim 7 January 2003).

WMO/WCRP nexus. One other strong push for a new IPY in 2002 came at the meeting of the World Climate Research Programme's (WCRP) joint Scientific Steering Group for the Arctic Climate System Study (ACSYS) and Climate and Cryosphere (CliC) Project in Beijing, China 21-25 October 2002 (Chapter 1.4).11 The original discussion was centred on the proposal for a future 'polar decade', but the concept of an International Polar Year (IPY) to mark the 50th anniversary of the IGY in 2007-2008 was quickly introduced as "being discussed in many fora". The group agreed that the cryosphere and climate should be important elements of the future IPY, but it was more sympathetic to the concept of an 'International Polar Decade' to be launched in 2007-2008 rather than of a single 'year' (WCRP, 2002:18). The group established a small team to explore the issue and agreed that if the concept seemed worthy it should be "promoted through a letter to ICSU and WMO" (WCRP, 2002).12 Several of the attendees of the 2002 meeting were later instrumental in IPY planning, including Mark Drinkwater, Barry Goodison, Jeff Key, Vladimir Ryabinin, Ian Allison, Vladimir Kotlyakov, Eberhard Fahrbach and Qin Dahe;

the four latter eventually became members of the Joint Committee for IPY 2007–2008 (*Chapter 1.5*).

IHY 2007 Proposal. The IHY team had its major planning session organized by Davila, Poland and R. Harrison at the World Space Congress in Houston, Texas 17 October 2002 (Davila et al., 2002 - Fig. 1.2-9). Davila, Poland, Harrison, Thompson and Gopalswamy also had a poster presentation on IHY at the fall AGU meeting in San Francisco in December 2002. The group's main effort was put into organizing a special IHY session at the joint AGU/EGS/EGU meeting in Nice, France in April 2003 (see below), made of several invited talks and posters (Davila and Gopalswamy 2003). During 2001 and 2002, there were attempts to bridge plans for the IHY and IPY 2007 involving Davila, Bindschadler and Johnson (Johnson and Davila, 2002), but the proposed partnership never materialized and IHY eventually became a separate initiative (Chapter 1.3).

**Russian IPY-3 Proposal.** The European Commission's Director-General Research Office responded favourably to Chilingarov's letter about the '3rd IPY' of December 2001 and in April 2002, Yuri Sychev, Executive Director of the Russian Polar Foundation (*Poliarnyi Fond*, on which Chilingarov serves as the President) and

Fig. 1.2-7. Fragment from the minutes of the 21st AOSB meeting in Gröningen, April 2002, dedicated to the discussion on IPY (www.aosb.org/mtgs. html).

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#### INTERNATIONAL POLAR YEAR 2007 (IPY 2007)

Dr. Leonard Johnson of the University of Alaska at Fairbanks, asked the AOSB to consider the concept of an International Polar Year in 2007. The idea for an IPY 2007 first arose in Bad Durkeim, Germany last year during the 175<sup>th</sup> anniversary of the birth of George von Neumayer at a symposium entitled "Perspectives of Modern Polar Research." The symposium resulted in the Neumayer Declaration which states:

A 125th year IPY program be initiated using new and present technologies to determine:

- Causes and effects of climate variability—air/sea/ice interactions, and
- Lithosphere dynamics/evolution and history of crust and sedimentary cover.

As currently envisage, there would be three components to an IPY in 2007.

- Paleo: Hook up with the European Joint Oceanographic Institutions Inc. (JEODI) program centered around the Aurora Borealis, which is still under consideration.
- Heliosphysical program.
- SEARCH.

A full description of the IPY 2007 proposal is included in the AOSB April 2002 newsletter, which is included in Appendix VIII.

Dr. Johnson noted that International Arctic Science Committee (IASC), Scientific Committee on Antarctic Research (SCAR) and other groups are looking into this concept and initial reviews have been positive. He stated that an international steering group would be needed to set the concept in motion and that AOSB endorsement would be helpful.

Action: The Board encouraged Dr. Johnson to develop the IPY 2007 concept further. Some interesting possibilities were presented, but further identification of costs and benefits for Arctic science is necessary.

#### MANAGEMENT ISSUES

Mr. Brown advised the Board that the next ASSW would be held in Kiruna, Sweden on March 30 through April 4. The AOSB will meet over the preceding weekend and in the first part of the week. He also stated that Iceland has offered to host the ASSW in 2004 in Akureyri, Iceland. Details regarding both meetings will be posted on the AOSB web site and mailed to members as they become available.

Vladimir Gruzinov visited the EC Joint Research Centre office in Brussels for discussions on the Russian IPY proposal. Russian scientists were also informed about the IHY activities at the World Space Congress in October 2002 (Electronic Bulletin, 2002) and about the IPY planning via their participation in the SCAR, AOSB and IASC sessions of 2002.

In November 2002, Nikolai Laverov, Vice President of the Russian Academy of Sciences, and Chilingarov sent a letter to the Government of the Russian Federation on behalf of the Russian Academy of Sciences and the State Duma with a request for Russia to put forward an initiative for 'International Polar Year' (Electronic Bulletin, 2003). A few weeks later, on 26 November 2002, the Council (Sovet) on the Issues of the Far North and the Arctic of the Russian Govern-

ment charged the Russian Ministry of Foreign Affairs and the Russian Federal Service on Hydrometeorology (Roshydromet) 'to study the organizational issues, related to the participation of the Russian Federation in the preparation and implementation of International Polar Year 2007–2008' (Spravka, http://ipyrus.aari.ru). Evidently, the decision on the Russian IPY program was made at very high political level (reportedly, by the then Russian Prime-Minister Mikhail Kasyanov) and it put the Russian government firmly behind the Russian IPY proposal.

On 5 December 2002, Sychev sent a letter to several high-level officials at the European Commission's Director-General (DG) office titled "Russia-EU Co-operation for the International Polar Year (IPY)". He informed the European officials that Chilingarov's proposal "for the Russian Federation to take a leading role in the realization of the IPY has been approved by the relevant committees of the Russian Government" and invited the EC delegation to visit Moscow on 22 January, 2003 for informal preparatory discussions on IPY (Copy in Chris Rapley's files).

### Russian Planning Goes Forward: January 2003

The next spike of activities associated with IPY took place in January 2003 and helped push its planning into high gear. On 22 January 2003, a small team of the EC Joint Research Centre (headed by Pieter van Nes) and EPB (Paul Egerton) visited Moscow where it had a joint meeting at the Polar Foundation (Polyarnyi Fond) with Chilingarov, Sychev and other Russian polar scientists and officials. Among the few outcomes of that meeting was the decision to establish a new 'international working group' on IPY that was scheduled to meet at the AGU/EGS/EGU meeting in Nice on 8 April 2003 (Electronic Bulletin, 2003). Evidently, the Russian Academy was already developing its own plan for IPY. The information on

the Russian effort was passed quickly to the EPB and PRB planners and forced them to fast-forward their actions.

## EPB-PRB Proposal Submitted to ICSU: February 2003

A small core group of the U.S. and European planners (Rapley, Bell, Elfring, Bindschadler, Johnson and Egerton) faced a target of their own, the proposal deadline (15 January 2003) for a special IPY session and town-hall meeting at the AGU/EGS/EGU in Nice. The session was to be chaired by Elfring and Egerton to represent the PRB and EPB support for a new IPY. By mid-January, Johnson had an outline with nine invited talks and 20 posters for a joint IPY/IHY session planned as an interdisciplinary forum, from space and solar physics to climate, polar history and education. The contours of new IPY and its cadres of advocates started to take shape, but it still lacked institutional backing and funding.

At the PRB, Bell and Elfring were anxiously trying to generate support for IPY via the U.S. National Academies, which was instrumental in the U.S. participation in IGY 1957–1958. On 10 January 2003, they sent a letter to the National Academies' members informing them on

the new IPY initiative and asking for their feedback. The eventual outcome of that impromptu survey was a proposal from Elfring to the Academies' Presidents' Committee (on 13 February 2003) with a request for U.S. \$200,000 in support for the U.S. planning for the IPY under PRB (that money was eventually granted several months later). The EPB in turn, met in January 2003 and nominated Chris Rapley as a point person in its planning for IPY.

On 6 February 2003, Rapley and Bell submitted a two-page document ("Proposal to Establish an ICSU Planning Group for an International Polar Year 2007/8" – Box 2) to the 86th ICSU Executive Board meeting scheduled on 8-9 February 2003. The proposal argued for an international committee of ten members tasked to 'formulate a concept and plan

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Polar Research Board

500 Fifth Street, NW Washington, DC 20001 Phone: 202 334 3479 Fax: 202 334 1477

Meeting Summary<sup>1</sup>
Polar Research Board, Special Planning Session
November 25, 2002

How Might the Polar Science Community

Commemorate the Upcoming Anniversary of the International Polar

Year?

#### PURPOSE OF THE PLANNING SESSION

The International Polar Year (1882-83) and the associated International Geophysical Year (1957-58) were major initiatives leading to significant new insights into global processes and ultimately to decades of valuable polar research. The year 2007 will mark the 125th anniversary of the International Polar Year (IPY) and the 50th anniversary of the International Geophysical Year (IGY). These historical milestones have the potential to give attention to the future of polar science – to spark exciting new research, to engage the next generation of scientists, and to publicly illustrate the benefits and challenges still inherent in polar exploration.

Polar science communities in the United States and internationally have begun discussions on how to celebrate the upcoming anniversary. Most suggest identifying a major scientific activity to garner wide community support and participation. To facilitate progress, the Polar Research Board (PRB) organized a one-day planning session on November 25, 2002, to discuss how the community might proceed in gathering ideas to commemorate IPY in 2007. The meeting was designed to facilitate open discussion of how a planning process might work, but not to advance any particular activity. Specifically, the planning session goals were to discuss:

- What processes can be used to generate wide discussion and enthusiasm for some kind of coordinated effort that would both commemorate past IPYs and, at the same time, advance cutting-edge polar science (both Arctic and Antarctic)?
   How do you ensure that the next generation of top researchers in polar science are
- 2) How do you ensure that the next generation of top researchers in polar science are involved in the development and the implementation of any planned activities?
- 3) How do you ensure that the diverse disciplines and communities of polar science are widely engaged? How do you involve both Arctic and Antarctic researchers?

1 Revised 1/30/2003

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for an IPY 2007/8 and to design the means of ICSU leading such a program' (Rapley and Bell, 2003). With strong support by Jane Lubchenko, ICSU President, and Thomas Rosswall, ICSU Executive Director, the ICSU Board endorsed the proposal and charged the new Planning Group to develop an outline for IPY by February 2004. That opened an intensive campaign of communication and lobbying, now firmly set under the ICSU umbrella and operated jointly by EPB and PRB.

#### ICSU Plan Collects Endorsements: March – April 2003

Following the approval of EPB-PRB proposal by ICSU, Rapley circulated a two-page letter called 'International Polar Year 2007–2008.' It was widely

Fig. 1.2-8. Cover page of the meeting summary of the PRB special planning session on IPY, 25 November 2002. (Courtesy, Chris Elfring)

#### Box 2 Proposal to Establish an ICSU Planning Group for an International Polar Year 2007/8

#### Background

The year 2007 will mark the 125th anniversary of the First International Polar Year (1882/3), the 75th anniversary of the Second Polar Year (1932/3) and the 50th anniversary of the International Geophysical Year (1957/8). The IPYs and IGY were major initiatives, which resulted in significant new insights into global processes, and laid the foundation for decades of invaluable polar research.

The Poles are one of the remaining unexplored frontiers on Earth, from unknown mountain ranges to remote and unique ecosystems. The Poles also continue to be considered major players in the global climate system whose role we do not understand well. An initiative in 2007 celebrating the historic events and recognizing the importance of polar science has the potential to act as a springboard for further major advances in polar science. A New International Polar Year has the potential to galvanize an intense program of new and exciting observations and research, to attract and develop the next generation of polar scientists, and to engage the public in perceiving and supporting the benefits and challenges inherent in polar exploration and Earth System science.

#### The Need for an ICSU IPY Planning Group

Polar science communities, organizations and institutes worldwide are alert to the opportunity and are already discussing how the anniversary might best be used to advance polar science. Ideas for major scientific activities are being formulated and support from the science community is being sought. The level of interest and activity is growing rapidly. Nevertheless, efforts are uncoordinated, with inevitable overlap and duplication, and even differing and divergent views on the fundamental objectives of an IPY.

Organizations such as the U.S. Polar Research Board and the European Polar Board have recognised the need to facilitate progress, to seek order, and to develop an internationally agreed strategy, framework and plan. The U.S.-PRB has already held one planning meeting and produced a valuable initial report.

Nevertheless, with powerful players such as national environmental research funding agencies, space agencies, major institutes and even government departments taking an active interest worldwide, the authority and influence of U.S.-PRB, EPB or even the international scientific bodies such as IASC and SCAR are unlikely to be sufficient to achieve the necessary degree of coordination and agreement.

Consequently, there is a strong case for ICSU to establish a Standing Committee for an IPY 2007/8.

The purpose would be to provide an authoritative means of developing, guiding and overseeing an agreed international program of science and related initiatives. The justification lies in ICSU's established role as the world's leading arbiter and coordinator of international scientific research, as well as its historic role in the development and coordination of the IGY.

#### The Proposed Way Forward

Since four-and-a-half years is already a rather short time to address such a challenge, it is proposed that ICSU establish an IPY Planning Group (IPY-PG) as a matter of urgency.

The role of the IPY-PG should be to formulate a concept for an IPY 2007/8 and to design the means of ICSU leading such a programme.

#### Suggested Terms of Reference are:

- To gather, summarize and make widely available information on existing ideas for an IPY serving as a clearinghouse for ideas,
- To stimulate, encourage and organize debate amongst a wide range of interested parties on the objectives and possible content of an IPY,
- (iii) To formulate a set of objectives for an IPY,
- (iv) To develop an initial high level Science Plan for an IPY which engages younger scientists throughout the planning process.
- To develop a specific set of objects targeted at formal and informal education as well as the general public in the next IPY.
- (vi) To develop a proposed mechanism for the design, development, guidance, and oversight of an IPY,
- (vii) To propose to the ICSU 28th General Assembly in 2004 the formation of an IPY 2007/8 Standing Committee, with a view to carrying forward the detailed design, development, guidance, and oversight of an IPY in 2007/8.

Chris Rapley, European Polar Board

Robin E. Bell, Chair, U.S. National Academies Polar Research Board

6th February 2003

disseminated through many professional networks, also via SCAR and EPB channels. The letter with an attached questionnaire described the plans for a new International Polar Year 2007–2008 developed in the United States (by the National Academy of Sciences), Russia (through the vice-chairman of the [Russian] Duma, i.e. Chilingarov), Europe (via EPB) and internationally (via ICSU and SCAR). It made direct references to the early IPYs and IGY, and asked for ideas on objectives, organizational principles and expected outcomes of the new IPY. The responses were expected by mid-March 2003 for the forthcoming session on IPY 2007–2008 at the Arctic Science Summit Week (ASSW) in Kiruna, Sweden 31 March 2003 and at the joint AGU/ EGS/EGU meeting in Nice 8 April 2003.

Another important action undertaken by Rapley was to commission a historical summary document on the IPY-1, IPY-2 and IGY prepared by Joanna Rae, an archivist with the British Antarctic Survey (Rae, 2003). It summarized major highlights of the three earlier 'polar years,' as well as their 'lessons learned' (i.e. challeng-

es, successes, planning difficulties, funding, etc.) that were relevant to the new IPY.

On 12-14 March 2003, a small EPB team (Rapley and Egerton) visited Washington, DC for a series of meetings with the U.S. IPY advocates (Elfring, Bell, Bindschadler, Johnson, Jezek and Poland) and agency representatives. It also made preparations for the next major public test for IPY at the ASSW in Kiruna 29 March-4 April 2003. At that meeting, Rapley and Elfring delivered a joint plenary presentation (Fig. 1.2-10) on the concept for a new IPY that was widely discussed at many sessions (Chapter 1.4). Crucial endorsements came from IASC and the AOSB; the latter established its own exploratory group (Robert Dickson, Tom Pyle, Leif Anderson and Sergey Priamikov) to support planning for IPY (Chapter 1.4) and produced its 'white paper' published in the special 'IPY issue' of the AOSB Newsletter in July 2003

(Fig. 1.2-11; Dickson et al., 2003). Another achievement from Kiruna was a link to the Arctic Council via Helena Ödmark, Swedish Senior Arctic Official (SAO), who introduced the plan for the new IPY to her colleagues on the Arctic Council (*Chapter 1.4*).

Yet another planned 'show of support' for IPY, a joint IPY/IHY session and town-hall meeting at the AGU/EGS/EGU in Nice, France 8 April 2003, did not materialize. Though Rapley and Bell delivered their talks on IPY, the IPY/IHY poster session failed to generate the anticipated crowd and the town-hall meeting was cancelled. Nonetheless, on 9 May 2003 the ICSU team submitted a full proposal to ICSU signed by Rapley, Bell and Elfring, called "Proposed Approach and Workplan: ICSU Planning Group for a Fourth International Polar Year (IPY4) 2007/8". The 17-page document outlined the emerging vision for IPY planning, including some preliminary ideas on its science content, the list of several new proposals for IPY studies in response to an earlier questionnaire from March 2003 and specific recommendations for



Fig. 1.2-9. IHY poster prepared for the World Space Congress, October 2002.

the IPY Planning Group including a preliminary list of its 'core members' from several nations.<sup>13</sup>

### Russian Proposal Advances Through WMO: April-June 2003

Meanwhile, the Russian plan for the 'third IPY' obtained its own traction within the Russian science community and relevant agencies. A special committee of the Russian Academy of Sciences and Roshydromet was put in place in March 2003 to develop a concept for a new IPY program (Kotlyakov to Rapley, March 2003). On 22 April 2003, a seven-page document "Concepts of Conducting the 3rd International Polar Year" was approved by the Academy's Scientific Council on Arctic and Antarctic Exploration. The main goals of the proposed '3rd IPY' were listed as the "determination of existing and (the) assessment of future climate and environmental conditions changes in the polar regions and determination of consequences of such changes for natural and socio-economic complexes."14 The outline, though advocating a broad international program, was written with Russia's economic interests in mind and argued for certain 'practical outcomes' of IPY, particularly for "marine transport systems; development and exploration of

oil-and-gas resources; development of bio-resources; environmental activities and ecological policy; and socio-economic problems." This was a very different concept from that developed by the ICSU/EPB/SCAR/IASC/AOSB nexus.

In two weeks, this proposal was approved by the Russian Academy; it was endorsed by the Russian Government and was taken to the 14th WMO World Meteorological Congress (supreme body of WMO) in Geneva 5-24 May 2003.15 It was submitted on behalf of the Russian Federation by Alexander I. Bedritsky, the head of the Roshydromet, who was elected the WMO President at the same Congress. On 21 May, 2003, the Congress approved the Resolution 33 calling for 'launching a third IPY in 2007–2008 under the auspices of WMO' (Box 3) and requested that a special ad hoc working body would be established under WMO to prepare a plan of action for the third IPY and coordinate its implementation' (WMO, 2003). The Congress also charged the WMO Executive Council to examine the preparation process at its 56th session in May 2004 and put it under the responsibility of the WMO Secretary-General. This was a stunning achievement for the Russian IPY proposal; Eduard Sarukhanian, then Director of the World Weather Watch-Applications

### **Exploring Earth's Icy Domains**

Planning for the Next International Polar Year (2007-2008)

Chris Rapley, European Polar Board Chris Elfring, US Polar Research Board

Fig. 1.2-10. Cover slide of the joint presentation by Chris Rapley and Chris Elfring (Exploring Earth's Icy Domains Planning for the Next International Polar Year, 2007–2008) at the ASSW in Kiruna, Sweden, March 2003.

Department at the WMO Secretariat and Bedritsky's election as the WMO President were instrumental to its sailing through the WMO system.<sup>16</sup> In July 2003, the office of the WMO Secretary-General issued a call to WMO Member governments for information regarding the planning and implementation of the new Polar Year to be delivered by 30 September 2003.

Though the original Russian submission listed as prospective partners several international organizations, such as the Arctic Council, Antarctic Treaty Consultative Meeting, Council of the Barents/Euro-Arctic Region, ICSU, IASC, SCAR and IOC, there was no explicit reference to the ICSU planning for IPY in the WMO resolution. The scene was thus set for two separate preparation processes under ICSU and WMO.

### ATCM and SCAR Move towards the ICSU Planning: June 2003

With their detailed outline document "Proposed Approach and Workplan for IPY" and a draft slate of Planning Group members, the ICSU planners were looking for an official

endorsement of their IPY team from ICSU, particularly since the 14th WMO Congress had just approved the WMO planning for IPY. That much-needed step came at the meeting of the ICSU Officers 8-9 June 2003, which approved the establishment of the ICSU Planning Group for IPY of nine members<sup>17</sup> representing a broad spectrum of polar disciplines (climate and sea ice studies, space and Earth geophysics, oceanography, glaciology, geology, biology and social sciences), with a few more to be added later. It also requested that the Group coordinate its planning with the ICSUmember Unions, including IUGG and IUGS, and work in close consultation with WMO, SCAR and IASC. Thus the collaborative, interdisciplinary and 'bipolar' nature of the future IPY was ensured by ICSU in the very composition of its planning team.

The PG was tasked with the preparation of a progress report for the ICSU Executive Board in February 2004 and of the final plan for IPY for the presentation to the ICSU 28th General Assembly in October 2005. It was initially given U.S. \$25,000 for its activities. It was agreed that the first meeting of the Group would be scheduled for July 2003 (*Chapter 1.3*),



Fig. 1.2-11. Cover page of the special 'IPY edition' of the AOSB Newsletter (July 2003) with an opening article by Chris Elfring and Chris Rapley.

barely six months after ICSU approved the initial EPB-PRB proposal in February 2003.

An early collision of the two planning processes for IPY set up by ICSU and WMO took place at the 26th ATC Meeting in Madrid 9-20 June 2003. At that meeting, the Russian Delegates submitted their proposal for the 'Third International Polar Year Initiative' citing its recent endorsement by WMO (XXVI ATCM, IP-123), whereas SCAR in its report to ATCM referred to the newly established 'Planning Group' at ICSU (Chapter 1.4). In the ensuing discussion, delegates from the U.K., Canada, Chile, France, the U.S., Norway, New Zealand and the Netherlands sided with the SCAR position. The final ATCM Resolution (Support of the ATCM for the International Polar Year 2007/8 - Chapter 1.4 Box 4), though noting 'the active commitment to an IPY of the World Meteorological Organization (and other international bodies),' recommended that SCAR and COMNAP 'work with ICSU to pursue actively the planning and implementation [...] of an International Polar Year to address priority polar science issues of global relevance.' Yet another critical endorsement came a month later at the SCAR Executive Committee

#### Box 3 Extract from the Proceedings of the XIVth World Meteorological Congress, 2003

### 9.1 Cooperation with the United Nations and other organizations (agenda item 9.1)

#### Initiative for a Third International Polar Year

9.1.27 Congress noted with satisfaction the proposal of the Russian Federation that WMO propose an initiative to hold a Third International Polar Year (IPY) in 2007–2008. It stressed that the First and Second IPYs, held in 1882-1883 and 1932-1933, had made a fundamental contribution to developing an understanding of hydrometeorological processes in the polar regions, had contributed to the development of the hydrometeorological observing system and to the conduct of work in high latitude regions of the planet.

9.1.28 Congress also noted the importance of developing research into processes governing environmental changes in the polar regions, and also elaborating monitoring and forecasting systems, taking account of the sensitivity of high latitude regions on our planet to global, natural and human impacts.

9.1.29 Congress noted that global climate change in the twenty-first century might have significant manifestations in the natural environment of polar regions that would be significant for certain kinds of activity carried out in Arctic areas and affect the lifestyles of indigenous peoples in the Arctic and their economic livelihoods. Those changes might affect the interests of many countries taking part in Arctic and Antarctic activities.

9.1.30 Congress expressed the opinion that the main international cooperation efforts under a Third IPY should be aimed at determining current and evaluating future climate change and the state of the polar environment. The observational data and scientific results obtained would ensure further development of monitoring and forecasting systems for hydrometeorological processes in the polar regions and would also form a basis for developing recommendations to government agencies and interested organizations conducting activities in the Arctic and Antarctic.

9.1.31 Congress stressed that the conduct of activities under a Third IPY initiative must combine the interests of all WMO Programs aimed at studying present and future environmental changes in polar regions and also, where possible, taking account of the Arctic and Antarctic programs carried out under the auspices of other international organizations such as the Arctic Council, the Consultative Conference on the Antarctic Treaty, SCAR, IOC and IASC (see also items 3.1.8 and 3.3.3).

9.1.32 Congress adopted Resolution 9.1/3 (Cg-XIV) - Holding of a Third International Polar Year in 2007–2008.

#### Draft resolution

### Res. 9.1/3 (Cg-XIV) — HOLDING OF A THIRD INTERNATIONAL POLAR YEAR IN 2007–2008

#### THE CONGRESS,

**CONSIDERING** the fundamental contribution of the First and Second IPYs, held in 1882-1883 and 1932-1933, to the understanding of hydrometeorological processes in the polar regions;

**NOTING** the sensitivity of high latitude regions of our planet to natural and human impacts at global and regional levels and the need in this connection to study processes governing environmental changes in polar areas;

**FURTHER NOTING** that the main efforts at international cooperation under a third IPY will be to determine present and evaluate future climate change and the state of the environment in the polar regions;

**CONSIDERING FURTHER** that the observational data and scientific research results obtained will form a basis for developing recommendations for national government agencies and bodies involved in activities in the Arctic and Antarctic;

**APPROVES** the idea of holding a third IPY in 2007–2008 under the auspices of WMO;

**REQUESTS** the Executive Council at its fifty-sixth session to examine the preparation and holding of a Third International Polar Year in 2007–2008 in collaboration with other international organizations such as the Arctic Council, the Consultative Conference on the Antarctic Treaty, SCAR, IOC and IASC and the establishment of an ad hoc working body to prepare a plan of action in preparation for a third IPY and to coordinate its implementation;

**REQUESTS** the Secretary-General to prepare the relevant program document for the above-mentioned Executive Council session.

meeting, in Brest 11-15 July 2003 (*Chapter 1.3*). By that time, the ICSU/PRB/EPB team was already preparing for its first meeting and was shaping its strategy for the IPY planning process based upon its "Workplan" document and a list of several new initiatives considered as prospective components for future IPY.

#### **Summary: IPY status in Summer 2003**

By mid-summer 2003, the 'origination' phase for IPY 2007–2008 was over. The idea was well-established across many sections of the polar science community (though not all of them) and it was vetted and supported at several high-profile meetings. It had moved from its original *celebratory* mode (IGY+50) into the *research-oriented* mode and was actively seeking ideas for new research programs. Two crucial powers, ICSU and WMO, both with the long history of supporting early IPY/IGY, had already endorsed it and

created their planning bodies for the new IPY. Both made explicit recognition of the need for 'close consultations' with other agencies and several critical international players, like SCAR, IASC, AC, ATCM and AOSB, were already on board. National planning efforts had been started by at least two leading polar nations, the U.S. and Russia. The information about the new IPY was widely disseminated, both nationally and internationally, via new channels like websites, electronic newsletters, transferable PowerPoint and poster presentations, online journals and fora, and the like.

The advance of IPY 2007–2008, though initially splintered into several competing streams, was greatly facilitated by the shared interest and interrelations among major scientific bodies, polar programs and disciplines. A small group of highly positioned scientists and agency executives (like Rapley, Thiede, Erb, Orheim, Miller, Kotlyakov, Priamikov, Elfring, Egerton and others) were attending many of the same meetings, often both for the Arctic and Antarctic, and they had numerous

opportunities to test their ideas in different audiences. That was one of the most obvious strengths of the ICSU/SCAR/IASC/EPB/PRB/AOSB nexus that relied upon regular high-profile cross-disciplinary meetings, such as the annual ASSW and SCAR events and AGU/EGU sessions, which brought together many hundred polar researchers. For more isolated 'streams,' there were always some people who attended other meetings and acted as liaisons. Such cross-networking was also common in the earlier IPY and IGY ventures, but never before was there an opportunity to advance IPY proposals to so many scientists, scientific groups and in so many professional settings at once.

Nonetheless, the IPY planners faced a challenging task of sorting and bringing together those different nexuses, the separate planning processes started at ICSU, WMO and those for the IHY and eGY. IPY had yet to gain high ground over a myriad of ongoing

23 June 2003

#### DRAFT DECISIONS

#### MEETING OF OFFICERS

8-9 June 2003 ICSU Secretariat

#### EXTRACT

#### 16. International Polar Year (IPY)

The EB at its last meeting discussed briefly a proposal to launch an International Polar Year in 2007/2008 and a comprehensive plan had subsequently been submitted to ICSU.

Discussions were ongoing with SCAR, IUGG and IUGS to ensure that the planned activities were complementary to the planned IGY+50 (IUGG) activities, as well as the planned International Year of Planet Earth (IUGS 2004).

#### Decisions taken:

to agree to the proposed membership of the Ad hoc Planning Group as follows: Chris Rapley (Chair, UK), Robin Bell (Vice-Chair, USA), Ian Allison (Australia), Robert Bindshadler (USA), Steve Chown (South Africa), Gerard Duhaime (Canada), Vladimir Kotlyakov (Russia), Olav Orheim (Norway), Zhanghai Zhan (China), an appropriate representative of India and of Latin America, nominees(one each) of IUGS and IUGG, and Science Programme Leaders as these are appointed (5-6 envisaged); attention needed to be paid to the balance between the Arctic and the Antarctic;

to request that the Group report on progress to the EB in February 2004;

to further request that the Planning Group coordinate its planning with IUGS and IUGG and that it work in close consultation with WMO. SCAR and IASC: and

to recommend to the EB at its meeting in September that it allocate  $25{,}000$  US\$ for this Group.

Fig. 1.2-12. Extract from the minutes of the ICSU Officers meeting, 8-9 June 2003, outlining ICSU support for the IPY Planning Group.

#### Box 4

Resolution 2 (2003)

### SUPPORT OF ATCM FOR THE INTERNATIONAL POLAR YEAR 2007/08

The representatives,

Aware that the polar regions are key components of the Earth System;

Considering the important role of the Polar Regions both in driving and responding to Global Climate Change;

Recognizing the opportunities afforded by new technological and logistical developments for polar research in the 21st century to develop an understanding of key global phenomena at the frontiers of discovery;

Acknowledging the important contribution to scientific knowledge resulting from international cooperation in scientific investigations in the Polar Regions;

Noting the opportunity offered by the 125th anniversary of the first International Polar Year (IPY), the 75th anniversary of the second IPY, and the 50th anniversary of the International Geophysical Year (IGY), to galvanize an intensive program of internationally coordinated research in the Polar Regions;

*Noting* the active commitment to an International Polar Year of the World Meteorological Organization (WMO) and the interest of other international bodies responsible for the coordination of research in the Arctic.

Noting the establishment by the International Council for Science (ICSU) of an overarching Planning Group to coordinate the planning for and the establishment of the IPY (2007/08) that will encompass a wide range of science issues of global interest;

Recommend that the parties:

- call upon SCAR and COMNAP to work with the International Council for Science (ICSU) to pursue actively the planning and implementation by all interested organizations of an International Polar Year (2007/09) to address priority polar science issues of global relevance;
- within the context of their national Antarctic research programs and capabilities to support science programs proposed for the IPY (2007/08) to achieve outcomes which would not otherwise be possible if undertaken by national programs along;
- make the support of the IPY (2007/08) a priority within their national research activities.

polar programs and initiatives, all with budgets and dedicated cadres of their own. Outside Russia, there was little governmental support of IPY across the national science agencies and offices. That came as little surprise. An outcome of a genuinely bottom-up process, the new IPY steered away from military, economic or strategic issues related to global politics, polar regions and outer space competition that were so dominant in IGY 1957-1958. It also envisioned a certain level of inclusion of biological and social sciences, in both ICSU and WMO proposals, and it appealed to the socio-economic issues relevant to polar residents, something that never occurred in the earlier IPYs. As a societal phenomenon, IPY 2007-2008 was indeed a product of the post-Cold War era and of modern science.19

#### Acknowledgement

This overview is based upon the collection of the early IPY 2007-2008 documentation stored at the IPO (Chris Rapley personal files), PRB, also accumulated by Amanda Graham and Igor Krupnik, and on the interviews with Chris Rapley (3 March, 2008), Peter Clarkson (6 March, 2007), Chris Elfring (11 April, 2008), Robert Bindschadler (19 May, 2008), Leonard Johnson (7 June, 2008), Jörn Thiede (23 September, 2008), Helena Ödmark (25 February, 2009), Eduard Sarukhanian (25 February, 2009) and Vladimir Kotlyakov (18 December, 2009) recorded by Igor Krupnik. Several early documents related to the IPY planning process were posted on the IPY interim website at http://classic.ipy. org/index.php, on the U.S. National Committee for International Polar Year at www.us-ipy.org/ downloads.shtml or may be searched online. We are grateful to many colleagues who generously shared their memories of the early phases of IPY and to Aant Elzinga for his helpful comments. This narrative on the origin of IPY 2007-2008 remains a work in progress, with several gaps yet to be filled through future research.

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#### Notes

- <sup>1</sup> Andreev et al., 2007; Bell, 2008; ICSU PG, 2004; IOC, 2004; Stirling, 2007; Summerhayes, 2008; Tsaturov et al., 2005.
- <sup>2</sup> Unfortunately, no traces of that correspondence have yet been recovered.
- <sup>3</sup> In their memoirs about 'early IPY years,' Robin Bell, Robert Bindschadler, Chris Elfring, Chris Rapley, Jörn Thiede independently alluded to the longing for a major innovative and unifying program in polar research that was common around 1998–2000.
- <sup>4</sup> Several people instrumental to the eGY, such as Paul Berkman, Mark Parsons, Alan Roger, were also active in IPY 2007–2008.
- <sup>5</sup> At that time, Chilingarov was the Deputy Chairman of the Russian State Duma (lower chamber of the Russian Parliament). Some Russian sources (Andreev et al., 2007:97; Khronika, 2007) erroneously cite 25 October 2002 as the date of Chilngarov's statement in Brussels.
- <sup>6</sup> Report on the Brussels workshop was published online by Stanley Morris, Director of the IPSC (Institute of the Protection and Security of the Citizen) under the European Commission's Joint Research Centre in Ispra, Italy. It was posted on the website of the Arctic Council, Senior Arctic Officials (http://arctic-council.npolar.no/Meetings/SAO/2001%20Es/11\_3sao.pdf). It also marked the first intervention of Stanley Morris and his Institute of the Protection and Security of the Citizen in the Russian IPY process. The IPSC has no stake in polar research, as its activities are focused primarily on external security, agriculture, maritime affairs and nuclear safeguards (http://ipsc.jrc.ec.europa.eu/activities.php?id=1).
- Chilingarov's letter was addressed to Barry McSweeney, Director-General, DG Joint Research Center; Guy Legras, Director-General, DG External Relations; Francois Lamoreux, Director-General, Transport and Energy; Jean-Froncois Verstrynge, DG Environment; and Achilleas Mitsos, Director-General, DG Research (copy in Russian, with English translation in Chris Rapley's files).
- <sup>8</sup> The first IPY-related website was launched by the IHY group at http://ipy.gsfc.nasa.gov and http://ihy.gsfc.nasa.gov in early 2002 and by early 2003 several other IPY-focused websites were running, such as www.nationalacademies.org/prb/ipy, www.eoss.org/igy.htm, www.polarcom.gc.ca/polaryear.htm, and a Russian IPY site at www.polarf.ru.
- <sup>9</sup> Later in 2002, Rapley was also tasked to be the liaison in the IPY planning for the European Polar Board (EPB) then chaired by Thiede. The idea was to have some key advocates representing several organizations participating in the same process, something that the IGY planners (e.g. Chapman, Berkner, and others) used very successfully in their early process.
- <sup>10</sup> Fae Korsmo, Robert Bindschadler, Phil Smith and Stephanie Pfirman.
- <sup>11</sup> The joint ACSYS-CliC Steering Group was established in 2000 "to formulate and guide the ACSYS observational and modeling programs for determining Arctic climate processes and realistic representation of the Arctic region in global climate models" see http://acsys.npolar.no/introduction/impplan/tor.php#SSG.
- <sup>12</sup> This was perhaps the earliest known reference to having two organizations, ICSU and WMO, as prospective supporters of the IPY. It came naturally from ACSYS/CliC, which is a joint venture launched by ICSU, WMO, and Intergovernmental Oceanographic Commission (IOC).
- <sup>13</sup> The original is in the ICSU Archives. A shorter version of the proposal was posted in September 2003 on SCAR website see: www. scar.org/ipy/approachworkplan.html.
- <sup>14</sup> See English copy: www.ipy-api.ca/english/documents/e\_int\_russian\_ipy\_concept.pdf.
- <sup>15</sup> In fact, the draft text for inclusion in the 14th WMO Congress agenda was submitted on 11 April 2003, that is two weeks prior to the official endorsement of the IPY proposal by the Russian Academy of Sciences.
- <sup>16</sup> In the next few weeks, the information on the WMO approval of the Russian proposal was systematically disseminated out of the IPSC office in Ispra to the polar scientists and agency officials worldwide. Various copies of the WMO documents were later posted on various websites, e.g. www.ipy-api.ca/english/documents/e\_int\_declaration\_from\_un.pdf.
- <sup>17</sup> Chris Rapley (Chair, U.K.), Robin Bell (Vice-Chair, U.S.A.), Ian Allison (Australia), Robert Bindshadler (U.S.A.), Steve Chown (South Africa), Gérard Duhaime (Canada), Vladimir Kotlyakov (Russia), Olav Orheim (Norway), Zhanghai Zhan (China), an appropriate representative of India and of Latin America, nominees (one each) of IUGS and IUGG, and Science Programme Leaders as these are appointed (5-6 envisaged).
- <sup>18</sup> It should be noted that SCAR is an Interdisciplinary body of ICSU and IASC is ICSU's Associate member. IUGG and IGUS are Members as is the U.S. National Academies (in this case represented by the PRB).
- <sup>19</sup> The idea of the truly 'modern' character of this IPY was raised in many early presentations (Berkman, 2003) and is specifically addressed in Elzinga (2009), Korsmo (2010), and Stirling (2007).



# 1.3 Early Planning for IPY: July 2003–December 2004

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he 'planning phase' for IPY 2007–2008 began in earnest in July–August 2003, in the midst of the boreal summer break and with many Arctic scientists gone to their field sites. That the IPY planners significantly advanced the fledging concept during that time is a tribute to their energy and dedication. Intense meetings and assignments completed in the wee hours of the night built momentum so that major events that required extensive preparation could be scheduled in a matter of weeks, not months. In 2003 and, again, in 2004, that strategy and effort paid off.

#### PG-1 Meeting: July 2003

The first meeting of the IPY Planning Group (PG-1) was held 31 July - 2 August, 2003 in Paris at the ICSU headquarters (see http://classic.ipy.org/international/ documents/). The group was small (ten participants only).<sup>1</sup> Nonetheless, the PG leaders, Chris Rapley and Robin Bell decided that an actual meeting, even if small, was sufficient to make an effective start to the formal planning for IPY and would lend muchneeded credibility. Holding the meeting at ICSU sent a message that IPY was intended as an international, science-focused effort. The convened members believed it essential to move as quickly as possible to demonstrate that a new planning body could provide leadership and vision, and bring many nations and participants together around the IPY idea (Box 1: PG Terms of Reference).

The aims of the meeting were to develop a shared vision of the goals of new IPY, develop selection criteria by which projects could be judged to see whether they were IPY relevant activities, identify and begin taking steps to ensure coordination with other relevant bodies and activities, and take steps to encourage nations to organize some group or point

of contact to facilitate IPY planning at the national level. The PG team worked to articulate clear answers to some fundamental questions about the nature of IPY 2007–2008 – Why polar? Why international? Why a year? There was easy consensus, encouraged by ICSU, on some of the key elements that would come to define IPY: that it would involve both poles, that it would be multi-disciplinary and that it would be truly international.

From the outset, the planners were influenced by many elements viewed as legacy of the previous International Geophysical Year (IGY) 1957–1958 (*Chapter 1.1*). Three key themes were identified as a starting point to gather community input: Exploring new frontiers, Understanding change at the poles and Decoding polar processes. Even at this first meeting, the importance of education and outreach in the new IPY was stressed by calling it a "remarkable opportunity" to train the next generation of polar scientists and engage the public in the excitement of polar science. Plans were made to start on a draft science plan to ICSU that would be needed before the ICSU Executive Board meeting in February 2004.

The group noted that there were other incipient efforts to celebrate the 50th anniversary of IGY, each with a different emphasis. It deliberated on the importance of coordinating with other bodies and activities (e.g. UNESCO's International Year of Planet Earth). There was significant debate on how to work with the WMO on its IPY initiative and how to coordinate with the International Heliophysical Year (IHY) if it turned into a separate activity. It was agreed that this IPY should be open and inclusive (and the phrase "let a thousand flowers bloom" was eagerly invoked).

The Planning Group knew that for implementation to happen, individual scientists, science societies and

nations needed to be engaged. Significant effort was devoted to outlining the contents of a letter designed to be distributed widely to arouse and engage potential participants and, especially, to encourage nations to set up national committees or some other mechanism to steer their national participation. Outlining the letter, in fact, helped the Planning Group articulate its vision concisely for the first time. The group also recognized the need for flexibility, given that different nations have different processes for decision making and funding.

The first PG meeting included the start of various discussions that would continue at its later sessions; about how IPY would be communicated and coordinated, on the future IPY logo, website, secretariat, data management, etc., and about creation of an IPY planning timeline. Planning Group members all committed to finding opportunities to talk about IPY in as many settings as possible, to build momentum and to confirm that IPY was real and going to happen. They made plans to hold a second meeting in December 2003.

In hindsight, the first meeting of the Planning Group was critical to IPY success (Fig. 1.3-1). It created a solid rationale for why IPY should occur, outlined enough detail about what it might accomplish to excite people with the vision and set a tone of openness so that a wide community could be engaged.

# First Attempts at Coordination: Rosswall Visits WMO Secretariat, September 2003

Unbeknownst to the PG members, Thomas Roswall, Executive Director of ICSU, and Michel Jarraud, WMO Secretary-General, met at the first Earth Observing Summit in Washington, DC during the days of the PG meeting (31 July – 1 August 2003).<sup>2</sup> The two parties agreed to share information about their respective work on the 'third' (WMO) and 'fourth' (ICSU) polar year.

In early September 2003, Rosswall paid a visit to the WMO Secretariat in Geneva. Prior to that meeting, ICSU expanded the size of the IPY Planning Group and made its membership public<sup>3</sup> (Box 2). It also posted a 5-page overview document about the vision, general principles and some key characteristics of IPY

#### Box 1 Terms of Reference of the ICSU IPY 2007-2008 Planning Group

The role of the IPY-PG should be to formulate a concept for an IPY 2007-8 and to design the means of ICSU leading such a program.

Specifically the Group's tasks are:

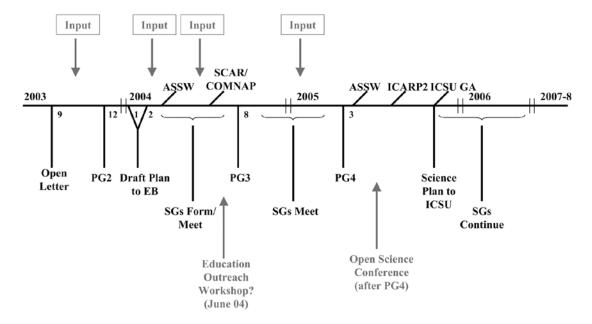
- (i) To gather, summarize and make widely available information on existing ideas for an IPY, serving as a clearinghouse for ideas,
- (ii) To stimulate, encourage and organize debate amongst a wide range of interested parties on the objectives and possible content of an IPY,
- (iii) To formulate a set of objectives for an IPY,
- (iv) To develop an initial high level Science Plan for an IPY, which engages younger scientists throughout the planning process,
- (v) To develop a specific set of objectives targeted at formal and informal education as well as the general public in the next IPY,
- (vi) To develop a proposed mechanism for the design, development, guidance and oversight of an IPY,
- (vii) To present a draft plan to the ICSU EB at their February 2004 meeting, and
- (vii) To report to the ICSU 28th General Assembly in 2005 a plan for an IPY in 2007–2008 for final endorsement.

(Approved February 2003)

**IPY Planning Timeline** 

Fig. 1.3-1. Draft timeline established at PG-1, August 2003.

Grey arrows indicate opportunities for ideas to come into the process. Small numbers indicate the approximate month that the PG meeting's activity should occur.



developed by PG-1 (3 September 2003). In addition, Rosswall sent a one-page memo on IPY to all ICSU National Members, Scientific Unions, Interdisciplinary Bodies, the European Polar Board and IASC (7 September 2003) making the ICSU support for IPY and the Rapley-Bell team known. A letter co-signed by Rapley and Bell was attached to Rosswall's memo describing the first Planning Group's meeting and requesting comments on the prospective IPY science themes and research activities to be submitted to PG by 15 December 2003 (ICSU PG, 2003b). This letter amounted to a second call to the scientific community inviting grass-roots input for the future IPY program; several more would follow in 2004–2006.

At the WMO Secretariat, Eduard Sarukhanian led the preparation of an extensive 'background' document, *Third International Polar Year (2007–2008)*, summarizing the WMO position (WMO, 2003). Besides outlining several prospective fields, in which WMO could make significant contribution to IPY (such as meteorological, hydrological and marine observations; polar stratosphere ozone; environmental pollution; weather forecasting and climate projection; polar oceanography), the document proposed "to hold the International Polar Year in 2007/08 as a *WMO and ICSU* 

joint initiative". The WMO also proposed to bring in the Intergovernmental Oceanographic Commission (IOC) of UNESCO as the third key partner in IPY (Chapter 1.4). If all three organizations were eager to join forces, the WMO recommended establishing a Joint Steering Body comprising representatives of WMO, ICSU and IOC to develop an IPY science program and implementation plan (WMO, 2003). Hence, the blueprint for a joint leadership in IPY and for building a unified team for its planning and implementation was put on the table in September 2003 by WMO.

At the first 'sharing' ICSU–WMO session, Rosswall briefed his WMO counterparts about the recent Planning Group meeting and its approach. He invited Sarukhanian to become a WMO 'liaison' to the ICSU Planning Group and to join it at its next gathering in Paris (PG-2).<sup>4</sup> To avoid any further misunderstanding with the numbering ('third' or 'fourth' IPY), the Executive Heads of ICSU and WMO agreed to call it officially 'IPY 2007–2008.' Rosswall also took the WMO proposal about joining forces in IPY to the ICSU planners, but practical steps in rapprochement from both sides did not take place until a few months later, in December 2003 or even in February 2004.

#### ICSU and WMO Processes Gain Steam: September-December 2003

During the short intermission between the ICSU-WMO meeting and the second gathering of the ICSU Planning Group in December 2003, both parties worked hard to build momentum for their respective planning processes. The Rapley-Bell letter of 3 September 2003 that was circulated by Rosswall generated a large number of responses: by December 2003, over 130 inputs had been received (ICSU PG, 2003c). Bell made a presentation on the new IPY at the 9th International Earth Sciences symposium in Potsdam, Germany (8-12 September 2003); she also spoke to a much larger constituency about the ICSU planning at the AGU meeting in San Francisco on 10 December 2003 (Bell et al., 2003). The AGU meeting featured two sessions on IPY with over a dozen invited papers<sup>5</sup>, a massive poster session and an IPY 'town-hall' meeting (in lieu of the one that did not materialize eight months earlier at the AGU/EGU gathering in Nice, France). Papers were also given on the IHY (by Davila and his team) and on the eGY (by D.N. Baker and the eGY team), but the three planning processes were presented to different audiences in different disciplinary fields.

In September 2003, the U.S. IPY planning team of 20 members under the National Academies started its work on the IPY science overview document (NRC, 2004). Connected through Bell, Bindschadler and Elfring to the ICSU Planning Group, the U.S. team became a strong ally and a valuable testing ground to many ideas developed by the ICSU planners. During the final months of 2003, several nations – Canada, Denmark, Germany and the U.K. – moved to form their national IPY committees in addition to those already present in the U.S. and Russia. By February 2004, 14 countries had established their national IPY committees or points of contact (*Chapter 1.6*).

Several key endorsements were also secured. On 14 October 2003, the UNESCO General Assembly referred to the "desirability of joint action in relation to the International Polar Year (2007–2008)" (http://unesdoc.unesco.org/images/0013/001320/132068e.pdf, p. 52). On 23–24 October 2003, the Arctic Council's Senior Arctic Officials (SAO) meeting in Svartsengi, Iceland discussed the IPY planning and decided to invite ICSU planners to give a presentation at the next meeting in May 2004 (see below). The IASC Executive Committee

held its own discussion about IPY in November 2003 (*Chapter 1.4*). Lastly, the Russian IPY team proposed in October 2003 to hold a meeting of the international group of 'experts' on IPY in January 2004. Leaders of the ICSU Planning Group (Rapley and Bell), as well as representatives of the WMO, Arctic Council, IASC, SCAR and other major polar agencies were invited to participate.

#### PG-2: December 2003

The second PG meeting took place on 17-19 December 2003, again, at the ICSU headquarters in Paris. It was the first gathering of the expanded Planning Group (with 17 people in attendance - see minutes at http://classic.ipy.org/international/documents/)6 and also the first since the Call for IPY Ideas had been issued in September 2003. Altogether, 135 'research ideas' for IPY activities had been submitted in about three months from 22 countries by individual scientists. research institutions, national and international groups, a clear demonstration of huge enthusiasm for IPY among the polar science community. Hence, the meeting primary aims were to review the submitted ideas and to assign tasks to prepare a report to ICSU by January 2004, in maintaining an aggressive timetable of necessary actions.

Initially, the PG considered a presentation on the WMO position on IPY made by Vladimir Ryabinin from the World Climate Research Programme (WCRP – Chapter 1.4). Ryabinin outlined the WMO interest in a joint WMO/ICSU initiative for IPY and also in inviting IOC participation. WMO suggested a strong joint proposal for IPY, to be prepared in collaboration with the PG that would recommend establishment of a Joint Steering Committee, supported by program offices at each of the organizations. That Joint Committee would then develop the Science Program and Implementation Plan for IPY to be presented to the WMO, IOC and ICSU Executive Committees for approval by June 2004.

After considerable debate the PG agreed (without complete consensus) to recommend to ICSU and WMO that they jointly co-sponsor IPY 2007–2008 and that WMO have minority representation on the Planning Group. Overall, the PG members welcomed the WMO approach, but they made it clear that the full spectrum of disciplines, in both physical and social sciences,

need to be included and that other organizations, beyond WMO, IOC and ICSU should be involved. It was recognized that the balance of governmental (WMO) and non-governmental (ICSU) organizations would be powerful and beneficial to the overall success of IPY, but it was felt that rules of procedure should be kept light and open. PG members pointed out that as a governmental organization, WMO would be able to contribute resources to support an IPY secretariat and that WMO co-sponsorship of IPY would assist active participation by nations such as China and most South American nations. In the end, the PG agreed to a modified version of the WMO proposal for cooperation and adopted a declaration that it was committed to develop relationships with organizations with defined interests in polar regions.

Updates were provided by representatives of two ICSU International Scientific Unions: the International Union of Geological Sciences (IUGS) regarding International Year of Planet Earth (IYPE) and the International Union of Geodesy and Geophysics (IUGG) on the Electronic Geophysical Year (eGY). The IYPE was to focus on capacity building and it was felt that IPY could build on the success of the IYPE by focusing on the role of the polar regions in the "planetary machinery". It was also recognized that there was scope to establish a Joint Observing Programme among the eGY, IHY and IPY and indeed both the e-GY and IHY eventually contributed to IPY 2007–2008 as cluster programs. In addition, it was felt that there were good grounds for closer links with SCAR and IASC as these ICSU-affiliated organizations could have specific roles in science steering groups or as science coordinators themselves. The need for IPY to leave a legacy of improved cooperation, data access and systems was highlighted, and the prospective IPY logo was discussed.

For the rest of the meeting, PG members divided into three groups to review some 135 'research ideas' submitted for future IPY projects from individual scientists, research institutions, national and international teams. It was agreed that the ideas be initially clustered using the overarching science themes (Change, Decode, Explore), the four geographic descriptors (Arctic, Antarctic, Bipolar, Global) and nine broad disciplinary classifications. The pool of over 130 'research ideas,' though with certain overlap, clearly indicated

research priorities of the polar science community, as the two strongest clusters were the role of polar processes in global climate and weather, and biodiversity and change in terrestrial and marine ecosystems. There proved to be insufficient time to complete the analysis of all of the submitted ideas, so the group decided to work by e-mail over the next several weeks to develop the guiding principles, management strategy and research themes to be summarized into a draft plan for consideration by the ICSU Executive Board in February 2004. The poor response from social sciences was noted as a special concern. Gérard Duhaime, social scientist on the PG, felt this was due to communicating with the wrong partners, i.e. associations and ICSU Scientific Unions (which were dominated by non social science disciplines), the need to better inform social scientists about the "new" inclusive nature of IPY 2007-2008 (Chapter 1.4) and to demonstrate that this Polar Year was genuinely interested in social sciences, social issues and polar residents, including indigenous peoples.

It was proposed that submission of further ideas for IPY activities be encouraged with a deadline of 12 March 2004, so that they might be considered at the next PG meeting. It was further decided that a draft Science Outline be developed by March 2004 based on those ideas for future IPY projects. That draft Science Outline should be presented to the community for comment at the Arctic Science Summit Week (ASSW, April 2004), at the 5th International Congress of Arctic Social Sciences (ICASS-5) of the International Arctic Social Sciences Association (May 2004) and at the SCAR open science conference (July 2004).

# ICSU and WMO Consider Closer Cooperation: January 2004

The key interaction between the ICSU, WMO and the Russian teams took place 22–23 January 2004 in St. Petersburg at the meeting titled "Cooperation for the International Polar Year 2007–2008"; it was hosted by *Roshydromet* and the Russian Academy of Sciences at the Russian Arctic and Antarctic Research Institute, AARI (ICSU PG, 2004b:23–25; *Electronnyi bulleten*, 2004). Over 40 scientists and polar agency representatives from ICSU, WMO, SCAR, IASC, Arctic Council and the European Commission (EC) participated, including Rapley and Bell for ICSU PG, Sarukhanian for WMO,

Thiede for SCAR, Rogne for IASC, Egerton for EPB and Morison for the U.S. *SEARCH* program. The Russian IPY team was represented by Chilingarov, Tsaturov, Kotlyakov, Frolov, Danilov, Klepikov, Priamikov, Gruzinov, Sychev and other experts.

The meeting started very cautiously as all parties were testing the waters by arguing for the 'possibilities' and 'challenges' of the new IPY. Key presentations by Rapley and Sarukhanian, and informal interactions helped bring the participants closer. A 'Joint Statement' was adopted at the end of the meeting recommending to ICSU, WMO and other interested organizations to nominate IPY 2007-2008 as a program of high priority. The concluding paragraphs of that statement stressed the need for 'jointly-coordinated' efforts of WMO and ICSU and recommended that WMO and ICSU develop a plan for IPY "based on a wide range of inputs ...and in close cooperation with IASC, SCAR and the EC." The Meeting also voiced support to a member-country or a group of countries addressing the UN General Assembly with a proposal to approve a UN Resolution on holding IPY 2007–2008. That proposal never materialized.

Upon returning from the St. Petersburg meeting, the ICSU PG issued a call (on 28 January 2004) for additional input from the national IPY committees, ICSU Scientific Unions and broad science community for research 'ideas' to be considered for the IPY science program. The deadline for new submissions was set to 15 March 2004, two weeks prior to the next Planning Group meeting.

#### PG Reports to ICSU and WMO: February 2004

Following on their previous arrangements, ICSU and WMO continued on the path towards merging their planning processes for IPY. On 11 February 2004, Rapley and Bell presented on behalf of the Planning Group a 25-page 'progress report' to the 88th Meeting of the ICSU Executive Board in Paris (ICSU PG, 2004a). A day prior (10 February) Rapley gave another IPY-focused presentation to the representatives of the ICSU Scientific Unions at the French Academy of Sciences. Besides providing a detailed summary of its activities since February 2003, the PG team dwelled extensively on the emerging ICSU-WMO relationship and stressed its wish "to avoid the possibility of the development of (two) separate initiatives". It also advocated its aim

"to incorporate as far as possible the interests of all relevant scientific bodies, and those of developing initiatives, such as the proposed International Heliophysical Year (IHY)." It vowed to develop an outline for the IPY science plan by late April 2004, so that it would be open for community evaluation at several forthcoming meetings in April–July 2004 (see below). The PG Report recommended that the ICSU Executive Board make an official announcement of the ICSU support to IPY 2007–2008 and recommended that the Board consider joint sponsorship of IPY with other interested bodies, primarily the WMO.

The outcomes of the meeting could not have been more positive to the PG planners as the ICSU Board supported them on all counts. The team was commended on its successful efforts and was charged to present the finished report by 1 October 2004. The ICSU Board made an announcement "to establish an International Polar Year 2007–2008, subsequent to confirmation by the 28th ICSU General Assembly (in 2005) and recommended the establishment of the IPY secretariat (at least by 1 October 2004)". By far the most important decision was to propose to WMO that "the two organizations should jointly sponsor IPY 2007-2008 and appoint a Committee to plan and coordinate IPY activities." With that, the proposal for joint sponsorship of IPY was officially on the table. It was now the WMO's turn to respond and practical steps were indeed soon undertaken.

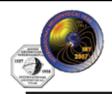
On 9 March 2004, Rapley was invited to WMO Secretariat in Geneva for yet another discussion on the joint ICSU-WMO efforts with Jarraud, Sarukhanian and Elena Manaenkova, Director of the Secretary-General's Office and External Relations. He also gave a presentation on the ICSU Planning Group activities to the group of Directors of WMO Departments. The response at WMO was cordial and enthusiastic. Shortly after, Sarukhanian started working on a set of IPY-related documents for the forthcoming WMO Executive Council meeting (scheduled for June 2004), including a resolution endorsing future 'Joint Organizing Committee' for IPY to be established by ICSU and WMO. In addition, WMO decided to create a special internal body (called 'Inter-commission Task Group on IPY') to coordinate the IPY activities among the WMO Technical Commissions for the fields in which WMO was supposed to take the lead, such as meteorological observations, weather forecasting, climate modeling, oceanographic studies and others.<sup>7</sup> The path for merging the ICSU and WMO planning processes was thus wide open.

#### **IHY Team Branches Off**

The PG report to ICSU in February 2004 referred to its continuous interactions with the International Heliophysical Year (IHY) as well as two other similar initiatives, the eGY and the International Year of Planet Earth, IYPE, under UNESCO. Nevertheless, with each passing month, the planning for IPY and IHY became more detached. Both initiatives continued to claim their origins to the same line of succession from IPY-1 to IPY-2 to IGY and they often used the same photos of Carl Weyprecht and IGY rockets in their respective documents (Fig. 1.3-2), but with less and less knowledge of each other's work, they were looking increasingly like distant kin. Their last joint action had been planning for the AGU/EGU session in April

2003. Since July 2003 onward, no member of the IHY planning group attended any important IPY meeting; similarly, the first issue of the *IHY Newsletter* (July 2003) contained no reference to IPY.

The separation became official in April 2004 as the IHY team gathered for its first planning meeting in April 2004 at the National Solar Observatory in Sac Peak, New Mexico, U.S.A. The meeting press release (Scientists to plan International Heliophysical Year) as well as several preparatory and subsequent documents (i.e. Davila, 2004; Davila et al., 2004) lacked any reference to the activities related to IPY 2007–2008. In 2005, IHY became a recognized initiative under the UN Office for Outer Space Affairs in Vienna with its own logo, Organizing Committee and Secretariat, a Newsletter and website (www.ihy2007.org/), and, finally, its own publications.8 Eventually, all four initiatives—IHY, IPY, eGY and the International Year of Planet Earth—became fully independent programs that charted their separate courses.9



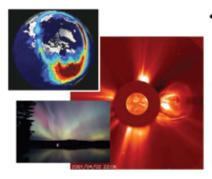
### **Why IHY? Historical Perspective**

#### First International Polar Year

- January 1875, at the Academy of Sciences in Vienna, Carl Weyprecht suggested a coordinated study of the north polar region
- Polar meteorological and magnetic observations commenced on Aug 1, 1882, and concluded Sep 1, 1883

#### Second International Polar Year

- Scientific activities were significantly limited by the world-wide economic depression
- Polar meteorological and magnetic observations to be made in 1932-1933, fifty years after the first IPY



International Geophysical Year

- In 1957 the IGY involved about 60,000 scientists from 66 nations
- To obtain simultaneous, global observations on Earth and in space

The logical next step is to extend global studies into the Heliosphere to incorporate the drivers of Geophysical change into the global system-The IHY.

IHY (http://ihy.gsfc.nasa.gov)

2

Fig. 1.3-2.'Shared genealogies,' separate tracks.
Presentation on the plans for International Heliophysical Year 2007 by Joseph Davila (March 2, 2004), with no references to the planning for IPY 2007 –2008

### PG-3, First Discussion Forum and New Endorsements: March-April 2004

The first IPY Discussion Forum was brought together at relatively short notice and held at Reid Hall<sup>10</sup> in Paris on 31 March 2004, immediately before the third PG meeting. It was attended by representatives of six IPY National Committees (Belgium, France, Germany, Italy, Japan and U.K.), the Spanish National Point of Contact and seven international organizations as well as an IHY representative.<sup>11</sup> The forum emphasized that the establishment of criteria for the overall program, content and research activities was important and that there should not be more than ten (ideally fewer) science themes identified. There was some concern about lack of certain nations on the membership of PG, but it was made clear that the PG membership was not based on national representation. Transparency, good communications and outreach were identified as critical for the IPY planning process to keep the community informed and involved. These views reflected the uncertainty still present in the community about how IPY would develop, with the ownership of the evolving program now firmly residing with the PG. The Discussion Forums (and later Open Consultative Forums) subsequently went from strength to strength and proved invaluable in bringing the PG (and later the Joint Committee - Chapter 1.5) together with the community, as forum participants saw their views reflected in the PG documents.

The third PG meeting (PG-3) was also held in Reid Hall, Paris immediately after the Discussion Forum (1–3 April 2004; http://classic.ipy.org/international/ documents/).12 The primary objectives of the meeting were to prepare a draft Outline Science Plan and develop further the IPY concept as well as reviewing the IPY ideas submitted to date (Fig. 1.3-3). The PG clarified a set of umbrella (later mandatory) criteria to identify acceptable IPY proposals and then proceeded to cluster the ideas for future IPY projects (now having grown from 130 to over 350) into what were initially seven major themes that would be further developed and refined after the meeting for inclusion in the IPY Science Plan. The group also discussed the exact dates for IPY 2007-2008. The PG decided that the official period of IPY would be from 1 March 2007 until 1 March 2009 to allow observations during all seasons, and the possibility of two summer field seasons, in

each polar region. It was anticipated that the core activity would take place in 2007–2008.

Much of PG-3 was taken up with developing the basic structure and contents of the IPY 'Outline Science Plan' (Figs. 1.3-4 to 1.3-6). Riding the energy generated by the PG-3 discussion, the planning team aimed to complete the first draft of the Plan by 15 April 2004 so that it could be presented at several highprofile meetings during the following months. The 40page document, International Polar Year 2007-2008: Initial Outline Science Plan (ICSU PG 2004b - Fig. 1.3-7), was eventually posted online on 20 April 2004. It unveiled for the first time the full list of the IPY science objectives and five major science themes proposed for the new IPY ("The Pulse of the Polar Regions," "Understanding Change," "Global Teleconnections," "Investigate the Unknowns" and "Unique Vantage Point of the Polar Regions"). It also included a 15-page Appendix introducing the more than 350 submitted 'science ideas' organized by themes and by nations or major science organizations. This was an impressive display of the enthusiastic response from the polar science community. Nonetheless, the stakes were high and the meetings soon to follow revealed rifts and tensions among certain key constituencies, particularly with regard to the role of social sciences and polar residents in the IPY 2007-2008 activities. The ensuing debates helped formulate substantial changes in the IPY overall design in the next few months.

The first of these tests to the IPY planners were at two back-to-back IPY 'forum' sessions at the Arctic Science Summit Week (ASSW) in Reykjavik, 25 April 2004 (chaired by Rapley – Fig. 1.3-8)13 and at the European Geosciences Union (EGU) Assembly at Nice, France, 29 April 2004 (chaired by Sarukhanian).14 Both demonstrated a lot of enthusiasm in the ranks and the overall support for the proposed IPY science outline, primarily among physical scientists. Things became more unsettled at the Arctic Council' Senior Arctic Officials meeting in Selfoss, Iceland, 4-5 May 2004, where Rapley gave a presentation similar to the one he delivered at ASSW ten days prior. This time, the response was quite different, particularly by the representatives of Arctic indigenous organizations. Participants confirmed strong interest in IPY from the Council, but they guestioned a passing reference to the



Fig. 1.3-3. Eduard Sarukhanian presents the WMO position at PG-3 meeting in Paris, April 2004. (Photo: Chris Rapley)







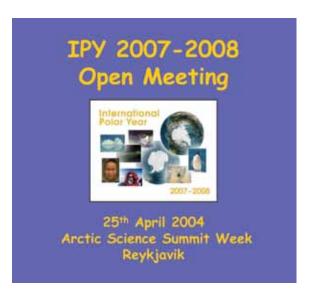
Fig. 1.3-4 (middle). Planning group members (left to right): Gino Casassa, Chris Elfring, Werner Janochek (International Union of Geological Sciences, IUGS, reporter on the International Year of Planet Earth), Ed Sarukhanian, Michael Kuhn (International Union of Geodesy and Geophysics, IUGG). Olav Orheim, lan Allison, and Prem Pandey in the background. April 2004.

(Photo: Chris Rapley)

Fig. 1.3-5 (bottom left). Planning group members (left to right): Olav Orheim, lan Allison and Prem Pandey, April 2004. (Photo: Chris Rapley)

Fig. 1.3-6 (bottom right). Planning group members (front group, left to right): Hanne Petersen, Vladimir Kotlyakov, Robert Bindschadler, Gérard Duhaime and Robin Bell, April 2004. (Photo: Chris Rapley) Fig. 1.3-7 (right). Cover page of the 'Initial Outline Science Plan' for IPY prepared by the Planning Group (20 April 2004).

Fig. 1.3-8 (left). Cover slide of Chris Rapley's presentation on PG activities at the 'open science' plenary meeting in Reykjavik, 25 April 2004.





#### INTERNATIONAL POLAR YEAR 2007-2008

INITIAL OUTLINE SCIENCE PLAN 20<sup>TH</sup> APRIL 2004

The ICSU IPY 2007-2008 Planning Group www.ipy.org

## Box 2 Membership of the ICSU IPY 2007–2008 Planning Group (2003 –2004)

Chris Rapley, Chair British Antarctic Survey United Kingdom

Robin Bell, Vice-Chair Lamont-Doherty Earth Observatory Columbia University U.S.A.

Ian Allison Australian Antarctic Division & ACE CRC Australia

Robert Bindschadler Oceans and Ice Branch NASA Goddard Space Flight Center U.S.A.

Gino Casassa Centro de Estudios Científicos Chile

Steve Chown Department of Zoology University of Stellenbosch South Africa Gérard Duhaime Université Laval Canada

Vladimir Kotlyakov Glaciological Association Institute of Geography, Russia

Michael Kuhn
(ex officio, IUGG liaison)
Institute of Meteorology and
Geophysics
Austria

Olav Orheim Norsk Polarinstitutt Norway

Prem Chand Pandey
National Centre for Antarctic &
Ocean Research
Department of Ocean Development

India.

Hanne Kathrine Petersen Danish Polar Center Denmark

Henk Schalke
(ex officio, IUGS liaison)
IUGS-UNESCO Division of Earth
Sciences Joint Programme Project
The Netherlands

Werner Janoschek (*ex officio*, IUGS liaison) Geologische Bundesanstalt Austria

Eduard Sarukhanian (WMO liaison) World Meteorological Organization Switzerland

Zhanhai Zhang Polar Research Institute of China China 'human dimension' in the science outline and called it inadequate. They stressed the need to generate substantive input by social and human sciences, engage indigenous and other local communities in IPY research, and to develop mechanisms for sharing IPY science results and other outcomes with polar residents (*Chapter 1.4*). As far as the Arctic Council members were concerned, the IPY planners still had homework to do.

An even more heated debate about the status of social science and polar residents in IPY took place two weeks later, at the 5th International Congress of Arctic Social Sciences (ICASS-5) in Fairbanks, U.S.A., 19-23 May 2004 (Chapter 1.4). At a special IPY panel and at the Congress plenary session, Arctic social researchers argued for more input from social scientists, Arctic indigenous organizations and polar communities regarding the objectives, themes and issues in IPY. They asked for more active engagement of those three constituencies in the IPY planning process and on equal terms with physical and natural scientists (IASSA, 2004a). Though they eventually offered their help and voted unanimously in support of IPY, it was obvious that the issues of polar residents' participation and of the social themes in broader sense (including social sciences, humanities, human health and community well-being) would require a radical revision of the existing IPY documents. A solution had to be found within a few months remaining until September 2004, the official end of the PG-led planning process.

### June-September 2004: Planning for JC and the Social Science Theme

Boreal summer months (June-August) of 2004 witnessed several new developments crucial to the success of the early preparation phase for IPY. Firstly, the merger of the two planning processes for IPY started by ICSU and WMO in early 2003 became official. Following the ICSU Executive Board meeting in February 2004, Thomas Rosswall sent an official letter to WMO and later met with Michel Jarraud to discuss the co-sponsorship of IPY by the two organizations. The two sides agreed on all issues. On 1-2 June 2004, the ICSU Officers meeting formally approved the merger of the two processes and on 14 June 2004 the WMO Executive Council in Geneva similarly endorsed the joint co-sponsorship of IPY with

ICSU and the establishment of the 'Joint Organizing Committee' (later renamed to *Joint Committee*) for further planning and coordination of IPY activities. The WMO Secretary-General was tasked to define Terms of Reference, composition and funding for the new joint team to replace the Planning Group in coordination with ICSU and other interested organizations, such as SCAR, IASC, IOC and others.

On 26 June 2006, Rapley gave a presentation on the preparation for IPY 2007–2008 at the 37th session of the Executing Council of Intergovernmental Oceanographic Commission (IOC). The Council agreed to contribute to IPY through several existing programs co-sponsored by IOC and expressed its interest in having IOC represented on the proposed IPY Joint Committee (*Chapter 1.4*).

Another critical milestone was the SCAR Open Science Conference in Bremen, Germany 25–31 July 2004 that was run parallel to the 16th meeting of COMNAP. The joint event attended by about 1,000 participants featured two IPY sessions, four keynote IPY presentations (by Bell, Rapley, Karsten Gohl and Terry Wilson) and two IPY 'discussion forums' led respectively by Ian Allison for SCAR and Anders Karlqvist for COMNAP (*Chapter 1.4*).<sup>15</sup> Outside of the meetings, Rapley, Sarukhanian and Leah Goldfarb (for ICSU) held intensive discussions about the composition of the future Joint Committee for IPY.

Thirdly, social scientists associated with IASSA (International Arctic Social Sciences Association – *Chapter 1.4*) had been working closely with Rapley and Bell to provide input to the IPY Outline Science Plan. In fact, they were revising and editing the Outline sections relevant to the social issues and polar residents. By mid-August 2004, the IASSA team submitted its proposal to the PG arguing for *additional* sixth theme and a new observational initiative in the IPY Science Plan to cover social science research and to encourage the participation of polar Indigenous peoples and their organizations, with their specific research themes and agendas. This proposal was formally approved at the last PG meeting in September 2004 (see below).

On 5-6 August 2004, Rosswall visited the WMO Secretariat to discuss with Jarraud, Sarukhanian and Manaenkova the proposed Terms of Reference and the composition of the future IPY Joint Committee. It was agreed that the new 'Joint Committee' be

established by 1 October 2004 of two Co-Chairs,17 ten regular members to be appointed jointly by ICSU and WMO and five ex officio members from ICSU, WMO, IASC, SCAR and IOC, with preferably equal number of experts on the Arctic and Antarctic. On 16 August 2004, Rosswall issued a call for nominations for the members of the Joint Committee to run IPY for the next five years, 2005-2009. Regarding the scientific disciplines to be covered by the future JC members, the letter cited Social Sciences (two experts, including Economy), Meteorology, Climatology, Oceanography, Remote-sensing, Glaciology, Biology and Geosciences (in that order). Rosswall's letter was addressed to ICSU National Members, Scientific Unions, Interdisciplinary Bodies, and IPY National Committees and contact points. A few days later (20 August 2004), Jarraud sent a similar call on behalf of WMO to the WMO Executive Council members.

Amid these various events, the PG team worked frantically throughout July and August 2004 trying to complete the Outline Science Plan for the forthcoming PG meeting and the preceding deliberations at the IPY 'Discussion Forum', scheduled for September 2004.

# PG-4, Second Discussion Forum and the Framework Document: September 2004

The second IPY 'Discussion Forum' was held, again, at Reid Hall in Paris on 13-14 September 2004. It was attended by over 60 people, including representatives of 13 National Committees, major funding agencies and 20 international organizations, as well as 15 members of the PG and staff of the ICSU secretariat. The meeting was used to introduce the revised Outline Science Plan in which the new sixth theme and the inclusion of social sciences, as well as interweaving of social issues with the other themes was outlined. The Discussion Forum gave a strong message of support for the inclusion of social sciences as the IPY "sixth theme." There were also extensive discussions on implementation issues, including appropriate mechanisms for the proposal submission process and defining the roles of the Joint Committee, the International Programme Office and the National Committees. The Forum participants were not supportive of the previously suggested concept of "core" and "associated" projects in IPY and they argued that the focus should instead be on identifying ideas. It became clear that the idea of the "IPY flagship projects" was not liked by most of IPY scientists though the funding agency representatives saw some merit.





Two other main topics raised were how to involve young scientists and establish a legacy of the next generation of polar researchers, and whether there were opportunities to involve commercial organizations in IPY.

The fourth and final meeting of the IPY Planning Group (PG-4) was held at ICSU headquarters in Paris on 15–16 September 2004<sup>18</sup> (Fig. 1.3-9). Rapley reported on the search for the members of the ICSU/WMO Joint Committee (JC) and on defining the criteria for its membership (including the selection of the two Co-Chairs)<sup>19</sup>. Invitations for the hosting of an International Programme Office (IPO) in 2005-2009 had been distributed and three proposals were received from U.K., Finland and India, though only U.K. and Finland were eventually considered. It was agreed for ICSU and WMO to announce a new call for "Expressions of Intent" (EoI) for future IPY projects on 1 October 2004, using the text provided by the PG (Chapter 1.5). These were supposed to replace the largely informal submission of ideas for IPY activities that had occurred up till now with a standard pro-forma and a follow-up evaluation.

Data Management and Education and Outreach policies for IPY were discussed as a part of the overall organizational framework to move IPY forward to implementation. The inclusion of the AC and ATCM in the JC was considered and, while there were some concerns about "politicizing" IPY, the consensus was that both entities should be involved. It was also reported at the meeting that the UN Resolution on IPY was on track to be presented at the October 2004 meeting of the UN General Assembly, promoted by China, though eventually it did not happen.

In relation to the Expressions of Intent, it was agreed that neither the PG nor the future JC should be viewed as peer review 'vetting' bodies, and that the scientific quality of the IPY proposals should be assessed through already established evaluation procedures at each funding agency. Instead, the JC would match proposals against IPY-specific criteria. Specifically, the future JC would be expected to develop a standard template and a set of mandatory criteria that each IPY project must demonstrate (e.g. it should be international, occur during the Polar Year, have plans for project management and data management, etc.). It was agreed that as the PG would cease to exist by October 2004, the IPO would oversee the

Eol submission process during the transitional period between PG and JC. A process and timetable was developed by which proposals should be submitted and selected for endorsement as part of IPY. Initial Eols would be required by 14 January 2005.

The remainder of the PG meeting was devoted to working through the draft 'IPY Framework' document (the expanded version of the Outline Science Plan) that was substantially revised in two intensive days before PG-4 concluded. A number of issues were identified that could not be addressed by the PG and so were set aside for later consideration by the JC in 2005. These included management topics such as establishment of the IPY Subcommittees on Data, Observations, and Education and Outreach, issues such as the IPY logo (Box 3) and IPY commemorative stamps.

#### PG Completes Its Work: October 2004

The ICSU Planning Group completed its task in October 2004 by producing a major document summarizing its vision of the future Polar Year and the results of the planning process.<sup>20</sup> It was posted online by 1 November 2004 and soon became available as a slim volume of 38 pages published by ICSU (Rapley, et al., 2004). Entitled "A Framework for the International Polar Year 2007-2008" (Fig. 1.3-21), the document outlined the PG's Science and Implementation recommendations. It also included recommendations for addressing the important education, outreach and communication issues, and considered the critical issue of data management in IPY projects. The document, which had been developed in close consultation with the international polar science community, provided a definitive statement of how the IPY planning process had progressed and where it then stood. The document also outlined the PG's vision of how that process should proceed now that responsibility was being passed to the JC.

On 20 November 2004, the ICSU Executive Board at its meeting in Trieste, Italy approved the IPY Framework Document and expressed its deep appreciation to the members of the PG. Rapley gave the final overview of the PG activities to the ICSU Board (Fig. 1.3-22) that responded with a round of applause. The ICSU Board viewed the IPY planning process and the PG report as a benchmark of good practice.

With the Outline Science Plan for IPY now

#### Box 3 The development of an IPY 2007–2008 Logo

Robert Bindschadler

IPY-1 in 1882–1883 and IPY-2 in 1932–1933 had no logos or special letterheads of their own, but IGY 1957–1958 had its iconic logo of the planet with the orbiting satellite (Fig. 1.3-10) that was featured on its many publications, posters and public materials, and even instruments used during the IGY observational period (Odinshaw, 1956). So the need for IPY 2007–2008 to have a special logo was considered since the very early days of the planning process (Chapter 1.2).

The first concepts I recall were offered by Chris Elfring and were produced at the U.S. National Academy of Sciences (Fig. 1.3-11). The proposed graphics showed two hemispheres in a couple of different views and arrangements, but basically the same (Fig. 1.3-12). The reaction was "Nice," but no "wow, that's it!", rather "(pause) these are a good beginning". I commented that people (or a person) needed to be somehow incorporated into the logo, otherwise it could just as well be IPY of some other planet.

I think it was at that meeting when we were given ICSU commemorative mugs. As we struggled with the idea how to match the human component and the concept of both poles, Robin Bell grabbed the marker and sketched a rough human figure on her mug (Fig. 1.3-13) and coloured in the poles. It was after that sketch that Chris Rapley began to talk about the Vitruvian Man sketch by Da Vinci projected over the globe.

At that meeting, I was charged with developing ideas for the IPY logo and to take the task to the NASA graphic artists at the Goddard Space Center. Back at Goddard, I met with two artists, James O'Leary and Katy Gammage. I showed them the Academy's samples (Fig. 1.3-11) and said we wanted people included. Their initial concepts were varied, but fell

into two primary categories: one that tried to show the field activities of polar research (people in parkas, snowmobiles, tents, etc. Fig. 1.3-14) in a single complex scene and another, using a collage of images of the Arctic (Fig. 1.3-15). A second suite of concepts was more polished and I shared these with the PG members, but the response was mute and hardly anything came back until the next PG meeting.

At PG-3 in April 2004, we discussed logos only quickly at the end of the meeting. The field scene versions had no support. The collage version was more popular, but I remember Rapley's comment that it was too complex to work as a simple graphic. He wanted a simpler design with fewer shades of gray so that it would work on the letterhead and could be "faxed well." Nonetheless, the 'collage' image was put on the cover of the IPY 'Outline Science Plan' produced later that month with the assistance of Ralph Percival, local graphic person at the British Antarctic Survey (Fig. 1.3-16) and also onto various IPY PowerPoint presentations later in 2004, though with white background. I also used it in my briefings about IPY since spring 2004 and I discovered that the face of the Inuit child in the logo usually elicited audience connection. The quality to hold attention and prompt questions about IPY was a remarkable and very compelling characteristic of this design.

After that, most of the iterations of the logo design revolved around the collage. Some new images were added and the pictures were rearranged; positioned in a wide strip for a banner or more square for a slide background (Fig. 1.3-16), but there was no more substantive discussion of the logo in the PG. The idea of a logo competition wherein entries would be received was popular, but we needed a logo right away and recognized that the time would not allow a competitive process.



Fig. 1.3-10. IGY 1957–1958 logo, the ultimate source of imagination for IPY 2007–2008 planners.



Fig. 1.3-11. Early version of the IPY 2007–2008 logo produced at the U.S. National Academy of Sciences (NAS, September– November 2003).



Fig. 1.3-12. NAS 'two hemisphere' design discussed at the PG-2 meeting (December 2003).



Fig. 1.3-13. Sketch of human figure over the globe backdrop produced by Robin Bell (December 2003).



Fig. 1.3-14. NASA draft logo based upon the 'field activities' concept (winter 2004).



Fig. 1.3-15. 'Collage' version of the IPY imagery developed by the NASA graphic artists in winter 2004.

By the last PG meeting in September 2004, the collage logo was the closest we had come to, but it was not granted any official status yet. When Cynan Ellis-Evans set up the interim IPY Programme Office, he employed the collage logo in the design of the web page with a blue background. This worked very well (Fig. 1.3-16). In the meantime Odd Rogne suggested a logo (I first saw it at the IPY session at EGU in April 2004) that had as a central element a "stepped line" - flat, then steeply up, finishing with a gradually upward incline and an arrow-tip (Fig. 1.3-17) intended to signify the rapid increase in knowledge (and funding?) that we hoped would characterize IPY. It never made it past the sketch stage, but it certainly introduced the idea of a diagonal element with an arrow tip. The other design is what Chris Rapley had advocated since 2003: a symbolic human figure imposed over the globe. In a stretch of desperation and drawing on the example of the IGY logo, he added an arrow (the 'Swoosh') to replace the orbiting satellite track of IGY and to indicate the energy of IPY and its global scope, teleconnections, etc. (Fig. 1.3-18). It soon became the de-facto official logo, particularly after Chris used it in several of his high-level presentations on IPY towards the end of 2004.

The "happy" in the ending to this story came from Cynan. In October or November 2004, he made the best of any residual logo competition by merging the two logos in a variety of ways including a montage that even restored the twin polar hemispheres of the original NAS design and a very attractive header/footer strip (Fig. 1.3-19). Its strongest side was that it showed both polar regions (whereas the IGY logo only featured one). Eventually, we left the final selection up to the incoming Joint Committee; a number of individual projects and other IPY organizations took different versions (and portions) of the

logo and manipulated it further, as they saw fit. Considering the mountain of other very important business through which the IPY planning in 2003–2004 had to plow, the somewhat rocky path to the IPY logo is an interesting lesson in group dynamics, namely, how we can accomplish big things while disagreeing over what seem like a minor detail.

At its first meeting in March 2005, the Joint Committee reviewed various versions of the logo and approved the globe with a human figure and a 'swoosh' version with a white font on black cover (Fig. 1.3-20) as the official logo of IPY 2007–2008. Various combinations of the original logo and banner design in colour, black-and-white and web format continued to be used throughout IPY by certain projects, organizations and national committees (see http://classic.ipy.org; www.us-ipy.org/, http://ipyrus.aari.ru/; www.international-polar-year.de/Startseite. 4+M52087573ab0.0.html; http://international.usgs.gov/ipy/default.shtml).



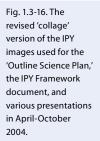




Fig. 1.3-17. Sketch with a diagonal arrow developed by Odd Rogne (April 2004).



Fig. 1.3-18. Combined version of IPY imagery used by Chris Rapley in his presentation to the ICSU Board (November 2004).



Fig. 1.3-19.
Combination of the 'globe' logo and a blue banner strip develop by Cynan Ellis-Evans for the initial IPY website (http://classic.ipy.org).



Fig. 1.3-20. Final IPY 2007–2008 approved by the Joint Committee (March 2005).

published, the PG fulfilled its Terms of Reference and was terminated. It was replaced by the JC whose first planned meeting was in early 2005 (Chapter 1.5). The 19-member JC was to be led by two Co-Chairs, lan Allison (Australia) and Michel Béland (Canada). A number of former PG members were appointed (Allison, Bell, Rapley, Kotlyakov, Sarukhanian and Goldfarb), but overall, this was a new group that needed to develop its own methods for continuing IPY planning. Cynan Ellis-Evans, the former secretary of the PG, agreed to serve as the Interim Director of the IPY Programme Office, to be hosted at the British Antarctic Survey in Cambridge, U.K. (where it eventually stayed for the rest of IPY 2007-2008). All these transitions became official and were advertised to the polar science community in November 2004 (http://classic. ipy.org/news/story.php?id=118), together with the new call for EoIs issued on 5 November 2004 by Rosswall and Jarraud in six languages (English, French, Spanish, Russian, Arabic and Chinese - Fig. 1.3-23) on behalf of two sponsoring organizations and addressed to ICSU International Scientific Unions and National Members, Permanent Representatives of WMO Members, IPY National Committees and Contact Points.

#### From PG to JC: October 2004–January 2005

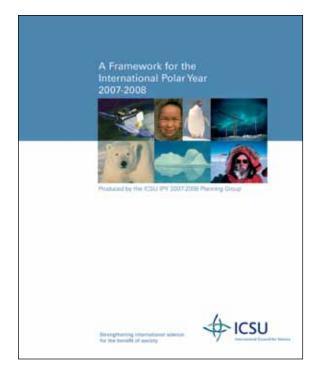


Fig. 1.3-21 (left). Cover page of the IPY 'Framework' Document (November 2004).

Fig. 1.3-22 (right).
Cover slide of Rapley's final presentation to the ICSU Executive
Board in Trieste (20
November 2004) featuring the new logo and graphics of IPY 2007 –2008.

With the Planning Group disbanded after PG-4 and the newly established Joint Committee not scheduled to meet until early 2005, the momentum of the IPY process was potentially threatened. Ellis-Evans (as the Interim Director of the IPY Programme Office) had taken a lead in coordinating the international calls for IPY ideas, establishing an accessible ideas database, and building and maintaining the first IPY website. Rapley and Ellis-Evans had also prepared the successful bids to ICSU/WMO for U.K. to host the IPO and to U.K. Natural Environment Research Council (NERC) for five years of funding to support the IPO at the British Antarctic Survey. The NERC funding was not available until January 2005; consequently, IPO activities were almost entirely provided from BAS resources until then. It is worth noting that during late 2004 there was still little secured financial support to IPY from national funding organizations (with the notable exception of the commitment in November 2004 of £5M by NERC), though within a few months several other nations subsequently announced their support.

The publication of the *Framework* document engendered widespread enthusiasm, but also raised a number of practical questions as the community began to develop potential activities for IPY within the broad structure proposed by the PG. Within the limitations of a skeleton IPO and in the absence of an authoritative body to represent the IPY science until the JC began its work, the major priorities for the "interregnum" phase were to keep the IPY community informed, maintain the international profile of IPY wherever possible through interactions with international and national organizations, and



to coordinate the submission of the EoIs that would provide the foundations for the eventual IPY science and education/outreach program.

During this transitional period of late 2004, the Interim Director and, to a lesser extent, former PG members and the new JC Co-Chairs, were actively promoting IPY at international events. These events included the EGU and AGU meetings and, importantly, the Arctic Climate Impact Assessment (ACIA) Conference and Arctic Council Ministerial Meeting, both held in Iceland in November 2004. At those meetings, IPY was promoted in several presentations and panel discussions, against a background of publication of the ACIA report and the Reykjavik Declaration in which Arctic Ministers recognized IPY as a unique opportunity to stimulate Arctic activities and raise awareness and visibility of the Arctic region (*Chapter 1.4*).

### Summary: Putting IPY 2007–2008 Structure in Place

By November 2004, the IPY structure, which would shape its operation for the next five years, had started to solidify. The new steering body—the Joint Committee of 19 members with two Co-Chairs—was established, an official call for 'Expressions of Intent' (preproposals) was issued with the deadline of 14 January 2005 and a new hub in the form of the International Programme Office (with an active IPY website) was up and running. Many IPY National Committees were also established and were coordinating with the International Programme Office as the emerging lynch pin in the international IPY network. Last but not least, IPY already had a dedicated constituency and a pool of more than 350 research 'ideas' submitted by scientists from many nations and covering all fields of prospective IPY research: from geosciences and space studies to life sciences, social sciences and the humanities. In the next few months, the number of such research proposals would increase to more than 800 (Chapter 1.5) demonstrating the strong support for IPY across broad swath of the polar research community.

By all accounts, the first planning phase for IPY was remarkably successful. In barely 15 months, between July 2003 and October 2004, competitive and sometimes contentious ground percolating

with many conflicting ideas was transformed into a fairly orderly field, with common goals, a clearly articulated program and a dedicated mobilized constituency of many hundred if not a few thousand activists: scientists, agency people, science managers, educators and interested media specialists. Several strategic decisions had been made, including the smooth merger of the ICSU and WMO planning for IPY and the organization of the IPY program along trans-disciplinary science themes ('Status,' 'Change,' 'Global Linkages,' 'New Frontiers,' 'Vantage Points' and 'Human Connection') rather than filling a matrix of projects along the established 'disciplines'.

Another early achievement was the abandonment of the 'flagships' project concept which gave a clear advantage to large and established research programs often dependent upon multi-year governmental funding. The latter decision, in particular, helped democratize the IPY submission process and made it open to science ventures and teams of any size and from every nation. This was reflected in the submission of over a thousand Expressions of Intent for future IPY activities by January 2005 (*Chapter 1.5*). The early IPY planners also navigated successfully through the

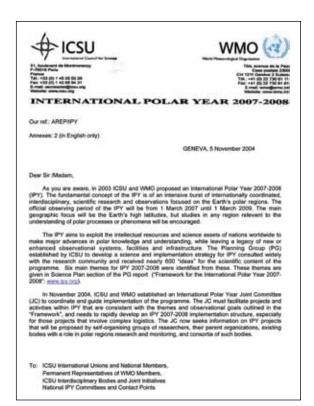


Fig. 1.3-23. Call for IPY 'Expressions of Intent' by Thomas Rosswall and Michel Jarraud, 5 November 2004 (English version).

differences in the ICSU (non-governmental scientific bodies) and WMO (governmental organizations) management processes. They recognized that the balance of two approaches would be powerful and beneficial to the success of IPY, but they insisted that rules of procedure should be kept light and open to a broad community at its many professional meetings. They also argued that the full spectrum of disciplines, both in physical and social sciences, needed to be included and that many more organizations, beyond WMO, IOC and ICSU should be actively involved (Chapter 1.4). At the end, the PG and both of the sponsoring organizations, ICSU and WMO, succeeded in building a viable system that endured through the following years of the preparation and implementation of IPY (Chapter 1.5). Future IPY historians will definitely unravel a more complex narrative on how that has been achieved.

Last but not least, the PG team successfully negotiated the entry of social scientists and indigenous organizations into IPY by creating an explicit 'theme' to accommodate their highly specialized research.

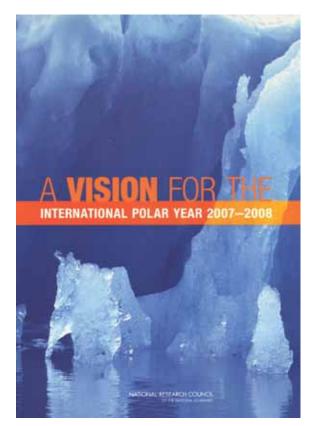


Fig. 1.3-24. "A Vision for the International Polar Year 2007–2008" Report by the U.S. National Committee (July 2004).

That latter development was particularly welcomed in the timely endorsement of IPY by the Arctic Council Meeting of Foreign Ministers in Reykjavik in October 2004 (*Chapter 1.4*), which became the first expression of support for the IPY made at the high political level.

Nonetheless, certain shortcomings in the system created during the early planning of IPY 2007–2008 were also obvious, particularly in comparison to the similar structures in IGY and in earlier polar years (Chapter 1.1). Both the ICSU PG and its most active national partners, like the U.S. National Committee for IPY that released its own major document, A Vision for the International Polar Year 2007-2008 in August 2004 (NRC, 2004 - Fig. 1.3-24), were teams with a limited lifespan and a strictly defined mission, namely to develop a scholarly justification and a preliminary outline for IPY. Both the ICSU PG and the original U.S. IPY Committee were discontinued in late 2004 and were replaced by successor groups, with but a limited overlap in membership and expertise with their predecessors. In each case, there was an obvious gap in the accumulated momentum that did not happen in earlier ventures, in which the same steering bodies, like CSAGI in IGY, the International Polar Commission in IPY-1, and the Commission for the Polar Year in IPY-2, served continuously for the duration of the planning and implementation process and even for years after its completion (Chapter 1.1). Also, with its limited lifespan, the PG was never expected to generate funding or to lobby the relevant international or national groups and agencies in support of IPY, which was, again, an important task performed by similar teams in the previous polar years and what CSAGI did so successfully on behalf of IGY (Chapter 1.1). As a result, the early planning phase under PG neither yielded any funds to be used for further IPY operations (as happened in IGY 1957-1958) nor created any working funding mechanism for its successor. The financial support for IPY and for many activities to be performed by the JC and several associated bodies thus remained one of the thorniest issues for ICSU and WMO throughout the IPY implementation phase of 2005-2009.

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#### Notes

- <sup>1</sup> PG Chair and Vice Chair Chris Rapley and Robin Bell; members Bob Bindschadler, Vladimir Kotlyakov, Olav Orheim and Hanne Peterson; and organizational liaisons Michael Kuhn (IUGG), Henk Schalke (IUGS) and Carthage Smith (ICSU). Chris Elfring provided coordination support.
- <sup>2</sup> The Earth Observation Summit (31 July–1 August 2003) was organized by the U.S. State Department and the National Oceanic and Atmospheric Administration (NOAA) to promote a new U.S.-led initiative in global environmental observation. The Summit endorsed the Declaration on Global Observations and established an intergovernmental Group on Earth Observations (GEO) to coordinate and prepare a 10-year implementation plan for what became known as the Global Earth Observation System of Systems (GEOSS) www. climatescience.gov/Library/observation-summit2003.htm.

- <sup>3</sup> To the nine members nominated in June 2003 (Rapley, Bell, Allison, Bindshadler, Chown, Duhaime, Kotlyakov, Orheim, and Zhang), five more were added in September 2003: Gino Casassa, Prem Chand Pandey, Hanne K. Petersen, Michael Kuhn and Henk Schalke Box 2. The two latter provided liaison to IUGG and IUGS, respectively.
- <sup>4</sup> Following that meeting, Sarukhanian was appointed WMO Secretary-General 'special advisor' on IPY, in charge of the WMO planning. He held this key position for almost seven years ensuring continuity in WMO support to IPY.
- <sup>5</sup> By Mary Albert, Karl Erb, Ghassam Asrat, John Calder, John Behrendt, Fae Krosmo, Kendrick Taylor, Miles McPhee, Paul Mayewski, Joseph Davila, James Morison, Bernard Coakley and others.
- <sup>6</sup> Chris Rapley (PG Chair), Robin Bell (Vice-Chair), Ian Allison, Robert Bindschadler, Gino Casassa, Gérard Duhaime, Vladimir Kotlyakov, Olav Orheim, Hanne Petersen, Zhanhai Zhang, Michael Kuhn (IUGG), Vladimir Ryabinin (WCRP), Thomas Rosswall (ICSU), Leah Goldfarb (ICSU), Daniel Rodary (ICSU), Tim Moffat (Secretary) and Wolfgang Eder (UNESCO) standing in for Henk Schalke for IUGS item. Apologies: Steven Chown, Prem Pandey, Ed Sarukhanian (WMO) and Henk Schalke (IUGS).
- Qin Dahe, Director of the Chinese Meteorological Administration, was proposed to chair the group made of several disciplinary experts associated with WMO (Barry Goodison, Oystein Hov, Arni Snorrason, Stephen Pendlebury, Ivan Frolov, Geerd Hoffman, Alex Sterin and others).
- See Davila et al., 2006; 2009; Thompson et al., 2009. The full chronology of IHY, from 2002 till 2009, and the IHY Newsletter archive (2003–2009) are available at http://ihy2007.org/newsroom/newsroom.shtml. See most recent updates on the IHY at www.ihy2007. org/.
- <sup>9</sup> In September 2005, the representatives of four 'international science years' scheduled to take place during the period 2007–2008—the IHY (J. Davila), IPY (D. Carlson), eGY (D. Baker) and IYPE (E. de Mulder)—signed a formal declaration pledging "vigorous and open communication, as well as joint activities in areas of common scientific interest, as well as in education, outreach and capacity building" (Putting the "I" in IHY, 2006).
- <sup>10</sup> Reid Hall (4 Rue de Chevreuse, Paris, France) is a complex of academic facilities owned and operated by Columbia University (U.S.A.) that is located in the St. Germain des Prés district of Paris. It houses the Columbia University Institute for Scholars at Reid Hall in addition to various graduate and undergraduate divisions of over a dozen American universities. For over a century, Reid Hall has served as a link between the French and American academic communities.
- 11 See minutes at http://classic.ipy.org/international/documents/.
- Participants: Chris Rapley, Robin Bell, Ian Allison, Robert Bindschadler, Gino Casassa, Gérard Duhaime, Chris Elfring, Vladimir Kotlyakov, Olav Orheim, Prem Pandey, Hanne Petersen, Michael Kuhn (IUGG), Werner Janoschek (IUGS), Ed Sarukhanian (WMO), Leah Goldfarb (ICSU), Elisabeth Merle (ICSU), Cynan Ellis-Evans (BAS) and Tim Moffat (BAS, Secretary).
- <sup>13</sup> Presentations by Chris Rapley on the IPY Outline Science Plan; Vladimir Ryabinin (WCRP), Patrick Webber (IASC), Jerry Brown (IPA), Robert Dickson (ASOB), Mary Albert (U.S. IPY activities), and Jacek Jania (Polish preparations for IPY). Most of these presentations can be accessed at <a href="http://classic.ipy.org/international/presentations">http://classic.ipy.org/international/presentations</a> (as of February 25, 2010).
- 14 Presentations by Robin Bell on the IPY Science Plan; Ed Sarukhanian on WMO and IPY; Odd Rogne on IASC and IPY; Roland Schlich on SCAR and IPY; Heinz Miller on IPY and Cryospheric studies, Stephanie Pfirman on Education and Outreach in IPY; Alan Rodger on eGY; and Andy Breen on IHY, see http://classic.ipy.org/international/presentations.
- <sup>15</sup> The IPY presentations were delivered by Chris Rapley, Robin Bell, Ed Sarukhanian, Colin Summerhayes (on SCAR and IPY), Louwrens Hacquebord (IASC and IPY), Hanne Petersen (Education and Outreach in IPY) and Michael Kuhn (IGY+50), see http://classic.ipy.org/international/presentations.
- <sup>16</sup> This effort to put social sciences on the IPY program was also strengthened by passionate calls from Louwrens Hacquebord and Aant Elzinga, from IASC and SCAR's Action Group on history of Antarctic research, respectively, at the SCAR meeting in Bremen, who argued that IPY 2007–2008 should be called the 'Year of the Human Dimension' (Chapter 1.4).
- <sup>17</sup> Originally ICSU-WMO considered one person as the leader of the future IPY Joint Committee. Ian Allison was approached during the SCAR Open Science Conference (July 2004) and asked if he would be prepared to chair the JC. In the following discussion, the idea of two Co-Chairs, one appointed by WMO and one by ICSU was proposed. It was enthusiastically supported by both organizations.
- <sup>18</sup> C. Rapley, R. Bell, I. Allison, R. Bindschadler, G. Casassa, V. Kotlyakov, O. Orheim, H. Petersen, V. Ryabanin, L. Goldfarb, P. Pandey, E. Sarukhanian, D. Rodary, T. Moffatt (Secretary), J-P. Cadet (representing IUGS), C. Ellis-Evans (BAS) and C. Elfring (NAS). Apologies from Chown, Kuhn, Zhang, Janoschek and Schalke (IUGS).
- <sup>19</sup> The selection of the future JC members, in fact, was going quietly on the sidelines of the PG-4 meeting, by a small group made of Rosswall, Rapley, Bell, Goldfarb and Sarukhanian in charge of the process.
- <sup>20</sup> The document was finalized by Cynan Ellis-Evans (on behalf of the PG) and by Leah Goldfarb (for ICSU) before submission for publication at the end of October 2004.



### 1.4. Planning for IPY: A Collaborative Venture

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he purpose of this section is to demonstrate and capture the broader scope of community involvement in the initiation and early planning for IPY 2007–2008 in the years prior to the beginning of the 'operational' phase of IPY and the establishment of the IPY Joint Committee in 2005 (Chapter 1.5). The short sections below provide a more granular look at the truly bottom-up development of IPY that can be captured in Chapters 1.2 and 1.3. It offers perspectives on the contribution of ten major international polar agencies and organizations to the IPY process, in addition to ICSU and WMO. The role of each organization in IPY initiation and planning is described up to late 2004-early 2005; the information relevant to the later period is presented in other sections. Also, we decided to concentrate only on the role of international organizations, since the stories of many national groups and agencies involved in IPY 2007-2008 are to be covered in the respective national IPY reports that are currently under preparation.

Ten sections below are placed according to a rough chronological order of each organization's entry in the IPY process, starting with eight science organizations and followed by two major inter-governmental bodies, the Arctic Council and the Antarctic Treaty Consultative Meeting. This account of the early IPY 2007–2008 history is far from being complete, as many more agencies and groups were instrumental in the preparation of IPY. We hope that the short summaries of the activities of the lead international champions of IPY presented here will encourage other organizations to develop the accounts of their respective contributions to IPY for subsequent publications.

# International Arctic Science Committee (IASC)

Volker Rachold and Odd Rogne

The first informal e-mail correspondence about a possibility of the new 'International Polar Year' between Odd Rogne (then Executive Secretary of IASC) and a few individual early champions started in the late 1990s. A key correspondent was Leonard Johnson (former division head at the U.S. Office of Naval Research – Chapter 1.2). During those early exchanges, Rogne argued that any initiative for a new IPY had to be taken by international organizations and required a forward-looking science vision. The IASC Executive Committee was made aware of the correspondence, but did not decide to take any further actions.

The possibility of a new IPY was briefly discussed during the Arctic Science Summit Week (ASSW) in April 2001 by the European Polar Board (EPB) and by the Forum of Arctic Research Operators (FARO). The IASC Executive Committee did not decide on any actions related to IPY, but had agreed to test the idea within FARO. Overall, a new IPY was seen as a major logistical challenge that would require complex and, perhaps, painful re-allocation of funding. Nonetheless, IPY was also viewed as a tremendous opportunity, for which a compelling science vision had to be developed.

An important step towards IPY planning was taken at the Symposium, *Perspectives of Modern Polar Research* in Bad Dürkheim (Germany), 24-26 June, 2001 (*Chapter 1.2*), on which IASC was informed. In November 2001, the IASC Executive Committee discussed the development of ideas for IPY and noted that a major project in the Arctic Ocean as a prospective theme for IPY had been suggested (Johnson, 2001). Nonetheless, it was again agreed that a new IPY should be major

multi-disciplinary initiative and that the push for a new venture should come from many fields; hence no actions were taken.

Throughout 2001–2002, major IASC activities were focused on the development of the *Arctic Climate Impact Assessment* report (ACIA, 2005) and on the planning for the second International Conference on Arctic Research Planning (ICARP II) scheduled for 2005. At that stage, it was unlikely that a new IPY would become a reality. The IPY concept was discussed by the IASC Executive Committee during ASSW in April 2002, but, again, IASC did not take any steps. Nonetheless, several developments in the ACIA and ICARP II process in 2001–2002, such as broadening the disciplinary scope of the two ventures and more active engagement of Arctic indigenous people and social scientists, were later instrumental to the IPY planning process.

At its February 2003 meeting, the IASC Executive Committee was informed that a special meeting of the U.S. Polar Research Board in October 2002 had been devoted to the concept of a new IPY 2007–2008 and that several other related activities were taking place (*Chapter 1.2*). The Executive Committee agreed that there was a need for inspiring ideas along the lines of "grand scientific challenges". IASC Council and Regional Board members were encouraged to put forward such ideas or proposals for IPY for further consideration by IASC.

In April 2003, Chris Rapley gave a presentation on the IPY planning by ICSU at the ASSW in Kiruna, Sweden. This time, the attitude turned 180 degrees and the debate revealed rising enthusiasm among the IASC members and strong support from the IASC Council. The IASC Executive Committee was tasked to consider the role that IASC could play in further development of IPY and certain seed funding was set aside to stimulate IPY planning. It was noted that the ICARP II multi-disciplinary approach in developing long-term science plans would be beneficial to IPY. Consequently, some elements of ICARP II Science Plans were directly translated into IPY Projects. Chris Elfring, Director of the U.S. Polar Research Board, was nominated to serve as the IASC point of contact for ICSU and its IPY Planning Group.

As SCAR had succeeded in promoting IPY to the Antarctic Treaty Consultative Meeting in June 2003

(Chapter 1.2 and below), it was logical for IASC to approach the Arctic Council for the similar high-level governmental support. The proposal sent to the ATCM was slightly changed for the Arctic by adding "people living in the Arctic" and "next generation of polar scientists". At its meeting in September 2003, the Arctic Council Senior Arctic Officials had agreed to support IPY (see below). The IASC Executive Committee had a considerable discussion about IPY at its November 2003 meeting and agreed that a clear supportive statement should be sent to the ICSU Planning Group, together with information about actions taken by IASC. The Committee also summarized some of IASC's concerns related to IPY, namely that the Planning Group had to clarify its coordinating role in the process and that some of the ideas for IPY currently in circulation were merely upgrades of ongoing research. According to the Committee, the emerging vision for IPY was somewhat restricted to traditional science thinking. "Create history – not repeat it" should be the slogan for IPY 2007-2008 planning, very much in line with the previous IPYs that were propelled by innovative thinking (IASC, 2003). Odd Rogne and Patrick Webber (then President of IASC) were mandated to take actions to expand the IASC role in IPY.

By early 2004, IPY became one of the key issues on IASC's agenda. The IASC Council, at its meeting during the ASSW 2004 in Reykjavik in April 2004 reviewed the initial Outline Science Plan for IPY prepared by the ICSU Planning Group (Chapter 1.3). It noted that the 'Human Dimension' component of the proposed science plan needed considerable improvement. Themes adopted for ICARP II were recommended as possible input. Also, the Council argued for a better balance in IPY between the two polar regions, since the composition of the Planning Group was tilted towards Antarctica. Political support for IPY was growing at both international (AC, ATCM) and national level, thus it was important to expand this political base for IPY 2007–2008. Opening the Arctic for Science was a prospective vision for the IPY mission advanced by the IASC Council. Lastly, as national IPY Committees had been established by that time in several countries, the role of IASC and other similar international organizations in IPY implementation should eventually increase (IASC, 2004).

At the IASC Executive Committee Meeting in

November 2004, it was agreed that the standing IASC Executive Secretary should represent IASC on the IPY Joint Committee. Subsequently, IASC representatives took active part in all meetings of the Joint Committee and in the implementation of IPY during 2005–2010.

# **Scientific Committee on Antarctic Research (SCAR)**

Colin Summerhayes

The Scientific Committee on Antarctic Research (SCAR) was formed by ICSU in 1958 to continue the work on coordinating Antarctic research that had begun during the International Geophysical Year of 1957–1958. SCAR's mission is "to be the leading independent organization for facilitating and coordinating Antarctic research, and for identifying issues emerging from greater scientific understanding of the region that should be brought to the attention of policy makers". The membership of SCAR comprises the National Committees or research councils of 36 nations that are active in Antarctic research, and nine ICSU Scientific Unions.

The earliest record of SCAR involvement with IPY

2007–2008 is from the report of the SCAR meeting in Tokyo, 17-21 July, 2000, where Karl Erb (U.S.A.) told Delegates that the COMNAP XII Meeting held during the previous week had agreed "to prepare for recognition of the 50th Anniversary of the International Geophysical Year in 2007–2008". The following year (22 August, 2001), at the joint meeting of the SCAR and COMNAP Executive Committees in Amsterdam, there was a discussion on the prospective activities to celebrate the 50th Anniversary of the International Geophysical Year in 2007–2008 (Chapter 1.2).

At the 27th SCAR meeting, in Shanghai, on 22-26 July, 2002 (Fig.1.4-1), delegates were reminded that the year 2007–2008 would be the 50th Anniversary of IGY, and so was also an important anniversary for SCAR, which had been formed in 1958. Delegates were asked to consider what plans SCAR had to celebrate or commemorate this anniversary. Heinz Miller (AWI) gave a presentation on a proposal to investigate the Ice Divide of Eastern Antarctica (IDEA), which would involve a surface traverse of Eastern Antarctica over a four-year period (2007–2011), with a series of glaciological, geological, geophysical and climatological



Fig. 1.4-1. A group of the participants of the XXVII SCAR meeting (Shanghai, 22-26 July 2002) including several people who were later instrumental in the IPY development: first row - Chris Rapley (PG Chair, JC member and SCAR Vice President 2000-2004, later President, 2006-2008, fourth from left), Roland Schlich (SCAR Vice President 2000-2004, fifth from left), Bob Rutford (outgoing SCAR President, eighth from left); second row - Jerónimo López-Martínez (JC Co-Chair and SCAR Vice President 2002-2006, second from left), Prem Pandey (PG Member, sixth from left), Jörn Thiede (SCAR President 2002-2006 and EPB Chair, seventh from left), Olav Orheim (PG Member and organizer of the 2010 Oslo IPY Conference, eighth from left), Chris Elfring (Director, U.S. Polar Research Board, ninth from left); third row - Michael Stoddart (Leader of the CAML IPY Project, third from left); fourth row - Vladimir Kotlyakov (PG and JC Member, fifth from left), Ian Allison (PG Member and JC Co-Chair, seventh from left), Chuck Kennicutt (JC Member, and SCAR President 2008 onwards, eleventh from left), Heinz Miller (one of the first proposers of an IPY science project, fifteenth from left). Many other key members of the SCAR and IPY communities are also in the photograph.

(Photo: SCAR archives, courtesy Colin Summerhayes)

studies. There was general support for the proposal and a small group was established (under the leadership of Heinz Miller) to consider how the plans could be best elaborated and advanced, and to prepare a report to the SCAR Executive Committee at its meeting in July 2003. Delegates supported the proposal for an IPY program to celebrate the 50th anniversary of IGY and it was suggested that enquiries should be made to ICSU and IUGG. Chris Rapley agreed to follow up this proposal.

Following SCAR's well-received presentation at the ATCM meeting in June 2003, the SCAR Executive Committee met in Brest, France on 11-15 July, 2003 (Fig.1.4-2). By that time, the ICSU Planning Group was already established, with Rapley as a Chair (Chapter 1.3). The Executive Committee welcomed this news, but noted that the lead time was short for such a major initiative and that much work needed to be done. The Committee recognized that IPY would also coincide with the 50th Anniversary of SCAR and agreed that the proposed role of SCAR in IPY should be emphasized. As part of SCAR participation in IPY, it was recommended that SCAR inform the ICSU PG and National Antarctic Committees that it recommends that research on subglacial environment should be a major component of the 'scientific frontiers' theme in IPY 2007-2008. Also,

on 11 July, 2003 the SCAR and COMNAP Executive Committees met in Brest and discussed the current state of preparation for IPY.

At the SCAR meeting in Bremerhaven, Germany (21 January, 2004), following an update presentation by C. Rapley, the SCAR Executive Committee (EXCOM) strongly endorsed the active involvement of SCAR in the IPY planning process. By that time, there were ten members on the ICSU IPY Planning Group (PG), who were active in SCAR - C. Rapley, R. Bell, I. Allison, R. Bindschadler, G. Cassassa, S. Chown, V. Kotlyakov, O. Orheim, P. Pandey and Z. Zhang (in June 2004, Allison agreed to be the official SCAR representative on the PG). EXCOM tasked the new SCAR Executive Director (Colin Summerhayes) with representing SCAR interests in the IPY planning to maximize SCAR's role in implementing Antarctic components of IPY. As a first step, an IPY web page was created on the SCAR web site (Fig. 1.4-3); this was eventually linked to the main IPY website. Summerhayes attended the IPY Open Forum in Paris on 31 March, 2004 and made a presentation that explored the role that SCAR and its programs might play in making IPY a success. SCAR saw itself as a vehicle for enhancing achievement of the goals of IPY through providing ready access to Antarctic Treaty Parties and to the extensive network

Fig. 1.4-2. SCAR **Executive Committee** meeting in Brest, France, 11-15 July 2003. EX COM members (left to right): Bob Rutford. Roland Schlich, Chris Rapley, Peter Clarkson (SCAR Executive Director), Jörn Thiede, SCAR President. (Howard-Williams is not visible and Jerónimo López-Martínez is taking the photograph) with the heads of SCAR subsidiary bodies, Chuck Kennicutt, Alessandro Capra, and John Turner. (Photo, Jerónimo López Martínez)





Fig. 1.4-3. SCAR IPY web page - www.scar. org/ipy/news/

of SCAR scientists, and through encouraging its program scientists to make their projects IPY activities. A presentation on the prospective role of SCAR in IPY was made at the EGU meeting in Nice, France in April 2004 by SCAR Vice President Roland Schlich.

Leaders of the five main SCAR science programs were asked in May 2004 to adapt the texts of their final program plans to indicate the extent to which these would make contributions to IPY. In May and June 2004, the SCAR Secretariat was engaged in planning IPY sessions for the forthcoming SCAR Open Science Conference (Bremen, 26-28 July, 2004). At that conference, C. Rapley gave a keynote address on "A New phase of exploration and understanding: planning for the IPY 2007/2008"; two more IPY-related keynotes followed (by K. Gohl and T. Wilson - Chapter 1.2.). A four-hour IPY Open Forum was held on 28 July, with talks from C. Rapley, R. Bell, E. Sarukhanian, C. Summerhayes, L. Haquebord, M. Kuhn, W. Janoschek and H. Petersen. There were also two open discussion sessions on the IPY, one chaired by SCAR (Allison) and one by COMNAP (Karlqvist).

In June 2004, in response to a paper drafted by Summerhayes, "Ideas for SCAR Involvement in the IPY," the EXCOM decided to form an *ad hoc* SCAR Advisory Committee on IPY, chaired by the Executive Director, with the tasks to monitor the IPY process as it unfolds and to advise SCAR how its contributions to IPY should develop; to work with COMNAP to realize IPY objectives for the Southern Hemisphere; and to ensure that IPY is represented in the SCAR Scientific Research Programs. The group met on 30 July, 2004

in Bremen and reviewed the draft IPY Implementation Plan. EXCOM tasked the Executive Director to prepare a paper on SCAR and IPY for the October 2004 Delegates meeting, and to represent SCAR at the IPY Open Meeting in Paris on 13-14 September, 2004. In parallel with SCAR's formation of an internal IPY group, in June 2004 COMNAP formed its own Coordinating Group for IPY preparations (the IPY CG), chaired by Karlqvist.

On 25 August 2004, SCAR presented two documents for consideration by the IPY Planning Group at its PG-4 meeting in September in Paris, "SCAR Comments on the IPY 2007-2008" and "Recommendations on data management for the International Polar Year 2007–2008" (prepared by the Joint SCAR-COMNAP Committee on Antarctic Data Management, JCADM). The JCADM paper advised ICSU to establish an IPY Data Advisory Group (IPY-DAG) to organize and oversee IPY data management. The SCAR Executive Director represented SCAR at the next Open Forum in Paris on 13-14 September, 2004, and made presentations on both the SCAR and JCADM proposals. The SCAR paper to the IPY Planning Group was subsequently modified into recommendations on SCAR's involvement in IPY, for consideration by the XXVIII SCAR Delegates meeting in Bremerhaven on 4-8 October, 2004 (SCAR XXVIII Working Paper 41). That report, which was approved by the Delegates, included several specific recommendations, such as, to focus attention on the subglacial highlands of the Gamburtsev Mountains (Chapter 2.8) and subglacial Antarctic lake environments (Chapter 2.6); develop an integrated Southern Ocean Observing System (SOOS) to understand the role of Antarctica in the Global Climate System (*Chapter 3.4*); make SCAR's Circum-Antarctic Census of Marine Life (CAML) a component to IPY (*Chapter 2.3*); support the Cryosphere Theme being developed by SCAR and WCRP to improve coordination and coverage of cryospheric observations (*Chapter 3.7*); and make a comprehensive data and information management strategy an integral and essential part of the IPY legacy (*Chapter 3.11*).

When the call for expressions of intent in IPY activities was distributed by ICSU and WMO in November 2004, SCAR ensured that all of its science groups considered submitting proposals for IPY activities. Independently, SCAR directly stimulated the development of two IPY programs – CASO (Climate of Antarctic and the Southern Ocean) and SASSI (Synoptic Antarctic Shelf-Slope Interactions Study). In addition, SCAR developed a design plan for a SOOS. SCAR also encouraged the cryosphere science community and WCRP to submit an expression of interest focused on the bipolar Cryosphere plan being developed jointly by SCAR, CliC and WCRP. This duly emerged as another IPY program.

Following ICSU invitation (8 August, 2004) to nominate an *ex officio* representative to the IPY Joint Committee, SCAR Executive Director (C. Summerhayes) attended all of the Joint Committee and Open Forum meetings during 2005–2010. SCAR's representation also provided an avenue through which COMNAP could communicate its ideas to the JC.

## **European Polar Board (EPB)**

Jerónimo López-Martínez, Paul Egerton, Gérard Jugie, Chris Rapley and Jörn Thiede

The European Polar Board (EPB) was established in 1995 as the European Science Foundation's (ESF) expert committee on the polar research. The organization has expanded to the point that current EPB member countries manage and operate 25 Antarctic research stations, 22 Arctic research stations, 31 research vessels and 26 aircraft engaged in supporting science in both polar regions. More than two dozen European nations took part in IPY 2007–2008, between them investing around € 200 million in most of IPY 228 endorsed international projects (Egerton and Allen, 2007).

The EPB played an important catalytic role in the

early stages of planning for IPY 2007–2008, first in conjunction with the approaching 50th anniversary of IGY 1957–1958. A series of EPB meetings in the early 2000s was instrumental to the development of IPY and its scientific program. A proposal to ICSU arguing for the launch of IPY in 2007 was sent on 6 February, 2003 on behalf of the EPB and the U.S. Polar Research Board in a letter signed by Chris Rapley (then EPB vice Chair) and Robin Bell (then U.S. Polar Research Board Chair).

The EPB promotion of IPY 2007–2008 in those early years was facilitated by the involvement of several key people, who were active among its membership and especially in the EPB executive committee. Those early champions of IPY had a vision and an influential position to promote IPY through the leading European polar research institutions, national and international polar organizations (e.g. G. Jugie, A. Karlqvist, O. Orheim, C. Rapley, C.A. Ricci and J. Thiede, among others).

The forthcoming celebration of the IGY anniversary was first included as a "long-term issue" in the minutes of the EPB Executive Committee meeting held in Paris on 15-16 December, 2000. It was decided to review the issue at the next EPB plenary meeting and to report on the plans for automatic measurements, Antarctic grand traverse, and other key challenging scientific ideas. The planning for the anniversary of IGY was also on the agenda of the EPB Plenary meeting held in Iqaluit, Nunavut, Canada on 25 April, 2001.

In April 2002, some general ideas about IPY were discussed once again at the EPB plenary meeting during the Arctic Science Summit Week (ASSW) in Groningen, The Netherlands. In late 2002, the U.S. Polar Research Board (PRB) agreed to join forces with the EPB in preparation for IPY. In January 2003, both organizations made plans for a joint IPY session and a town-hall meeting at the April 2003 EGU meeting in Nice (Chapter 1.2). Also, on 30 January, 2003, at the EPB Executive Committee meeting in Meudon Bellevue, Paris, Chris Rapley was asked to act as the EPB 'lead' on IPY and to collaborate with ICSU towards its realization. In March 2003, Rapley and Paul Egerton (EPB Executive Director) visited Washington, D.C. on a mission to discuss IPY organization with the U.S. partners (Chris Elfring and Robin Bell at PRB, Karl Erb at NSF, Ghassem Asrar at NASA, Lou Brown and Sara Bowden at AOSB, and others).

During late 2002 and early 2003, Paul Egerton in-

tensified connections through the European Union (EU) offices with Russian polar scientists about prospective IPY collaboration. He attended a dedicated mission to Moscow in January 2003, with several EU officials, including S. Morris from the JRC and A. Ghazi, Director General Head of Unit Environment, to meet with Arthur Chilingarov and other Russian IPY planners (*Chapter 1.2*).

The EPB meeting during the ASSW in Kiruna, Sweden in April 2003 featured extensive discussion about IPY following the presentation by C. Rapley and C. Elfring at the ASSW Integrated Project Session on 31

March, 2003. The EPB members also contributed to the dissemination of information about the preparation for IPY via other polar organizations, such as the Council of Managers of National Antarctic Programs (COMNAP) and SCAR (e.g. at the COMNAP and SCAR-EXCOM meetings in Brest in July 2003).

EPB viewed IPY 2007–2008 as an important opportunity to reinforce the European participation in polar research. In early 2004, it produced a special roadmap document outlining the prospective 'European component' of IPY, including its logistical, coordinating and funding scenarios (Jugie and Egerton, 2004). The



Fig. 1.4-4. EPB
members discuss
IPY during the
SCAR Open science
meeting in Bremen,
Germany (26-28
July 2004). Left to
right: Jan Stel, Hanne
Petersen, Anders
Karlqvist, Olav
Orheim, Chris Rapley,
Jörn Thiede, Gérard
Jugie.
(Photo: Jerónimo LópezMartínez)



Fig. 1.4-5. EPB
Executive Committee
meeting in Stockholm
at the Swedish
Academy of Sciences,
14 April 2004. Left
to right: Jan Stel,
Gérard Jugie, Anders
Karlqvist, Jörn Thiede,
Jerónimo LópezMartínez, and Chris
Rapley.
(Photo: Paul Egerton)

Fig. 1.4-6. Front page of the AOSB science proposal for IPY 2007-2008 (AOSB Newsletter, 2003, July, pp. 3-11)

ciences Board (AOSB) to the planning of an Inte Polar Year in 2007-08

ngly endorses the plans for a fourth Inter

- A multi-platform Intensive Observing Period to focus on the Arctic Ocean itself, its physics, biogeochemistry, variability and the climatic drivers of that variability. An intensitive circum-arctic assessment of the physical, bioseochemical, ecological and socio-economic

ities are of very different scale, ranging from the regional scale required for the intensive syst Occan, increasing to include much of the Arctic subarctic scass in the integrative study of Arc o cover the exchanges of water to and from these shelves including associated flust, s, and finally increasing to the global scale on which the Earth's Water and Carbon Cycles op

nale; the case for a new IPY is commended by the following facts

Rationale: the case for a new IPV is commended by the following facts:

() The Arctic Coura Is likely to be very different in 100% 5-from that revocked in our past observational exceed. There seems little doubt that the Earth is surming, Including 2002, all ten of the warmest years since records began in 1861 have covered since 1902 (does and Moberg, 2003), the 4 surmons years since records began in 1861 have covered since 1902 (does and Moberg, 2003), the 4 surmons years of all being prouped in the last is (1998, 2002, 2001 and 1997 in descending order). Because of those recent extremes, the pace at which saverage global temperatures have been rising, which amounted to \*-66.5° Cover the past century (RPCC, 2001), accelerated in the past two decades to a rate of \*-62.5° Cover the Third Assessment Report of the IPCC (IPCC TRCC TRAE, Impaces, Adaptation and Videorability), Section 5.7° p. 59) "Climate change in the polar region is expected to be among the greatest of Jan region on Earth. Twentieth century data for the Arctic show a warming trend of as make as 5° Cover extensive land area." and en 60%. The Arctic is texterely vulnerable to climate change and major physical, ecological and economic impacts are expected to appear rispidly. "Freliminary reports from the Arctic Cimate Impace Assessment (CRC), reported in the relief that, March 2003, p. 101—"angger that means that the second proper in the part in much of the Arctic by 2010-2020". These facts in themselves commend the further intensive study of the Arctic system in IPVA. This is reinforced by the fact that the recent amplification of the NAO—the dominant recurrent atmospheric forcing mode in the Arctic sector—may be unique in 600 years (Jenes 2003).

e in the Arcites it takey to naive grootse crimanic impaces. Two main examples or groots scale aims importants of first, it has long been recognized that the Atlantic Meridional Overturning Circulation (MCC) is sensitive to greenhouse gas- and other climate forcing, and that changes in the MCC have the potential rurut climate change. Most Ost not all projections of greenhouse asis induced climate change articinate

preparation of IPY was also taken into account in the EPB process of developing a European Polar Consortium through the use of the FP6 ERA NET (6th European Framework Program), with the aim of coordinating and funding a network for European Polar activities during the IPY era and beyond.

EPB participated in the IPY Open Forum in Paris on 31 March, 2004, represented by Gérard Jugie, Chair, and Paul Egerton, Executive Director. All EPB Chairs and vice-Chairs during the early planning period for IPY were actively engaged in the IPY process either as members of the ICSU Planning Group (Chris Rapley, Olav Orheim, Hanne Petersen), ICSU-WMO Joint Committee (Chris Rapley and Jerónimo López-Martínez) or via their respective national IPY committees (Jörn Thiede, Gérard Jugie, Anders Karlqvist, Carlo Alberto Ricci, Jan Stel and Olav Orheim, among others – Fig. 1.4-5).

EPB members reviewed the progress in the preparation of IPY science program at the plenary meeting in Reykjavik, Iceland during the 2004 ASSW (23 April, 2004) and at the SCAR Open science meeting in Bremen, Germany (26-28 July, 2004). The EPB continued promoting the coordination of the European participation in IPY and in polar research,

in general, after the establishment of the IPY Joint Committee and the IPO in 2004.

### **Arctic Ocean Studies Board (AOSB)**

Sara Bowden

The Arctic Ocean Sciences Board, during its April 2002 meeting in Groningen, The Netherlands, received a report from Leonard Johnson of the University of Alaska Fairbanks with the concept of an 'International Polar Year' beginning in 2007 (Chapter 1.2). The Board expressed its great interest to the new IPY proposal, which was acknowledged in the AOSB 2002 meeting report along with an article that appeared in the 2002 AOSB Newsletter (Johnson, 2002).

Between the 2002 and 2003 meetings of the AOSB, the IPY concept began to take hold, with several member countries considering possible IPY projects. Prior to the 2003 AOSB meeting in March 2003, Chris Rapley and Paul Egerton from the European Polar Board visited the AOSB secretariat at the U.S. National Science Foundation in Washington, D.C. to discuss the scope, timing and organization of IPY 2007-2008 and the role of Arctic Ocean studies in IPY. At the same time, the International Arctic Science Committee (IASC) asked the AOSB to participate in the Second International Conference on Arctic Research Planning (ICARP II) process, so that at the March 2003 AOSB meeting in Kiruna, Sweden, both the ICARP II and IPY proposals were on the table for discussion.

At the 2003 meeting, Rapley informed the AOSB on the establishment of IPY Planning Group by ICSU and that a deadline for a first detailed proposal for IPY was due to ICSU by 12 May, 2003. This time, the idea of an IPY was enthusiastically supported by the AOSB members, resulting in a full Board endorsement of the IPY process. The minutes of the Board's discussion reveal that the members believed that the role of the Arctic Ocean in the climate system should be one of the central themes in the new IPY. The Board selected an ad hoc drafting group (made of Robert Dickson, Leif Anderson, Sergei Priamikov and Thomas Pyle) to develop a white paper with specific suggestions from member countries and to provide those suggestions to the IPY planners by 1 June, 2003.

From March until early June 2003, the drafting group developed three major AOSB initiatives for IPY. The July 2003 AOSB Newsletter details the three initiatives: (1) multi-platform Intensive Observing Period to focus on the Arctic Ocean, its physics, biogeochemistry, variability and the climatic drivers of that variability; (2) integrative circum-arctic assessment of the physical, biogeochemical, ecological and socio-economic importance of the Arctic shelves; and (3) study of the role of the High-latitude Oceans in the Global Water Cycle. The rationale for the three suggested proposals was based upon the fact that the Arctic Ocean was likely to be very different in 2007-2008 from that revealed in the past observational records and that the forthcoming change in the Arctic would likely have global impacts. The full text of the white paper was published in a special 'IPY issue' of the AOSB Newsletter (July 2003 - Fig.1.4-6) that opened up with a short overview of IPY by Chris Elfring and Chris Rapley (AOSB, 2003).

By the time of the next AOSB meeting in April 2004 in Reykjavik, Iceland, the ICSU process had developed into a full-fledged planning group. Naja Mikkelsen of the AOSB attended the IPY Open Forum in Paris in March 2004, from which the five main science themes for IPY 2007-2008 were developed. During the following AOSB meeting, it was agreed that the three AOSB proposals developed in 2003 tracked nicely with the proposed IPY themes. Knowing that the ICSU Planning Group would meet again in September 2004, the Board appointed Robert Dickson to produce an initial draft of a feasibility study, which would serve to integrate all three AOSB proposals. It was agreed that time did not permit the full integration of all ideas related to the Arctic Ocean studies submitted to the IPY Planning Group, but rather to focus on the three developed by the AOSB (integration of most of the physical oceanographic IPY proposals was completed at a later date). Dickson visited key players in the AOSB planning and developed an overarching AOSB draft proposal that was vetted by the drafting group in Copenhagen in June 2004. The integrated plan, which was renamed the 'integrated Arctic Ocean Observing System' (iAOOS), was endorsed as an AOSB observing plan for the Arctic Ocean and submitted to the IPY PG in September 2004. It was eventually approved by the IPY Joint Committee as a 'core project' in 2005; the Science Plan for iAOOS, approved by both the AOSB and CliC Boards, was fully developed and published in 2006 (Dickson, 2006; Chapter 3.3).

# The World Climate Research Programme (WCRP)

Barry Goodison and Vladimir Ryabinin

The World Climate Research Programme (WCRP) was founded in 1980 by WMO and ICSU. In 1993 the Intergovernmental Oceanographic Commission (IOC) of UNESCO became the third sponsor of WCRP. WCRP plays a key role in stimulating, coordinating and facilitating climate research and has made major contributions to IPCC and Ozone Assessments as well as to the development of climate prediction. The WCRP research over the past decade was clearly indicating the likelihood of massive changes in the Polar Regions and their high importance for the rest of the globe. This awareness helped set the stage for the climate component of IPY 2007-2008 and served as an essential justification for a new IPY.

In 2000, WCRP initiated the core project "Climate and Cryosphere" (CliC), a global initiative, which would continue beyond the end of the Arctic Climate System Study (ACSYS). In October 2002, the ACSYS/CliC Scientific Steering Group discussed the idea of a new IPY in detail for the first time within WCRP. Chad Dick, Director of the ACSYS/CliC IPO (IACPO), who had been involved in early discussions with other groups, presented the concept of an International Polar Year (IPY) in 2007–2008 to mark the 50th anniversary of the International Geophysical Year (IGY). The SSG had a positive discussion on the status of the concept and possible projects that CliC and WCRP might like to consider supporting under the IPY framework (*Chapter 1.2*).

To move the discussion forward, lan Allison, Roger Barry, Chad Dick, Vladimir Kotlyakov and Jay Zwally formed an *ad hoc* committee, which agreed that cryosphere and climate should be an important element of the IPY program and that synchronous observations of snow cover, sea-ice, permafrost, mountain glaciers and ice sheets should be made in both hemispheres. They also recommended that a concept paper should be developed to justify the initiation of an International Polar Decade (IPD) in 2007–2008 rather than just a "Polar Year," which was deemed to be too short for climate studies (*Chapter 1.2*).

This discussion continued at the next session of the Joint Scientific Committee (JSC) for the WCRP in March 2003 and resulted in JSC supporting the involvement of WCRP in the activities associated with a proposed

International Polar Year, *if* it would focus on global change. It asked CliC to organize preparations within WCRP, taking into account the interests of all relevant projects and working groups, and represent WCRP in corresponding discussions. WCRP- and CliC-affiliated specialists took an active role in the discussions of the IPY concept and agenda, both at national and international arenas, and within ICSU and WMO circles. A discussion paper on WCRP's contribution to IPY was prepared and submitted to the ICSU IPY Planning Group and two scientists associated with WCRP, Ian Allison and Vladimir Kotlyakov were invited to serve on the IPY Planning Group in 2003–2004.

In 2004, WCRP projects and working groups were asked by the JSC to consider how their activities might benefit from WCRP participation in IPY 2007–2008. The 25th Session of the WCRP JSC (Moscow, March 2004) noted the leading role played by the CliC project, on behalf of WCRP, in the development of plans for IPY and requested CliC to continue playing this role for WCRP, keeping all other relevant parts of WCRP informed.

The main ideas expressed by WCRP/CliC representatives at the time were focused on creating a dataset of multidisciplinary and multi-scale observations in the polar atmosphere, ocean, cryosphere and land that would be instrumental for diagnostics of the state of the polar climate system and would enable its comprehensive modeling and prediction. The abilities to scale observations up and down and provide a coherent description of the climate system were deemed important. The WCRP/GEWEX CEOP (Coordinated Enhanced Observing Period) project was seen at that time as a model for such combined observing and modeling activity. In the early WCRP statements on IPY 2007-2008, a strong requirement was also expressed on the need to have a comprehensive data management system. The ACSYS Data and Information Service (ADIS), which at the time was being reviewed with an intention to propose a Data and Information Service for CliC (DISC) was offered as a prototype. The input from the WCRP community, such as ideas expressed at several Open IPY Forums, was taken into account in the IPY Framework document (Rapley et al., 2004) produced by the IPY Planning Group, including its data management part. Four scientists associated with WCRP, Ian Allison, Eberhard Fahrbach, Vladimir Kotlyakov and Qin Dahe,

were invited to serve on the IPY Joint Committee (JC), and Ian Allison became one of its Co-Chairs.

Responding to the IPY JC call for the proposals for IPY 2007-2008 ('Expressions of Intent' - Eol) in November 2004, WCRP issued its internal call for ideas for IPY projects. Approximately 100 ideas associated with WCRP activities were put forward, and among them approximately twenty major "preproposals" were submitted to the IPY JC. In May 2005, the Integrated Global Observing Strategy (IGOS) Partnership endorsed the IGOS Cryosphere Theme Report prepared by WCRP and SCAR, which proposed a community-consensus based approach to the development of cryospheric observations. The work on this report resulted in the proposal of the Global Interagency IPY Polar Snapshot Year (GIIPSY) proposal, which subsequently led to the establishment of the IPY Space Task Group.

WCRP and its projects became a leading international agency of 23 major IPY 2007–2008 projects. Twelve other projects were related to WCRP or one of its projects. Almost all of the WCRP- and project-related proposals were endorsed by the IPY JC. It is clear that climate research strongly shaped the IPY science agenda.

# International Arctic Social Science Association (IASSA)

Igor Krupnik and Yvon Csonka

IASSA (established in 1990) was among the last major professional polar organizations to endorse IPY 2007–2008 and to join its planning process in springsummer 2004. The 300-to-400-strong association of scientists in the fields of arctic human and social sciences (anthropology, history, sociology, economy, archaeology, linguistics) was not a member of the ICSU-WMO network, though it had established relations with IASC and the Arctic Council, in its capacity as permanent observer and via its collaboration in Arctic Human Development Report (2002-2004), ICARP-2 and other cross-disciplinary polar programs. IASSA's entry was, nonetheless, a significant event, as it finally shaped the broad integrative nature of the new IPY, and its openness to the human and socio-cultural themes.

Several early IPY planning documents generated by

both ICSU and WMO in 2003 referred to the need to include 'human dimensions' in IPY 2007-2008 (Chapter 2.10) and many early IPY champions considered expanding the new IPY program into the social/ human field (Chapter 1.2). To ensure its contribution, in July 2003, two IASSA members, Gérard Duhaime, past President (1998-2001), and Igor Krupnik, were invited to join the ICSU Planning Group (PG) and the U.S. National IPY Committee, respectively.1 Later, other social scientists were placed on national IPY committees in 11 other countries.2 Two national IPY programs, in Canada and Greenland, advocated a strong focus on societal issues and Arctic residents since their inception in early 2004. Also, since 2003, IASSA regularly published information on the IPY planning in its semi-annual newsletter 'Northern Notes' (Krupnik, 2003).

Nonetheless, five main science themes proposed for new IPY by the ICSU Planning Group ('frontiers,'

'change,' "snapshots,' 'teleconnections' and 'vantage points' – Chapter 1.3) were not very conducive to socio-cultural and human research. The share of proposals for social/human studies in IPY 2007–2008 submitted by early 2004 was minuscule, the fact acknowledged by the IPY planners (ICSU PG, 2004b) and at the Arctic Council's meetings in April and October 2003, and May 2004 (Chapter 1.3).

At the special session dedicated to IPY at the 5th IASSA Congress in May 2004 (International Polar Year 2007–2008: Opportunities for Northern Communities and Social Sciences – see Krupnik, 2004; www.icass.gl; www.iassa.gl/icass5/ program.htm) G. Duhaime advocated for the increased role of IASSA and the more active presence of Arctic residents in IPY. Two resolutions related to IPY and drafted by Duhaime and Krupnik were adopted by IASSA's General Assembly on 23 May, 2004 (IASSA, 2004; Fig. 1.4-7). Another critical step was the establishment of a special IASSA 'IPY task-group' of scientists from 10 nations, (www.iassa.gl/ ipy/alaska/ipy\_taskgroup.htm), including IASSA current and all past Presidents. It

was charged to 'facilitate cooperation between IASSA and ICSU PG' (Peter Schweitzer to C. Rapley, 15 June, 2004).

Following Duhaime's suggestion, the IASSA-IPY team offered its expertise to PG to expand the sections of the 'Framework' document (Rapley et al., 2004) focused on social issues and polar residents. The proposal developed by the IASSA team<sup>3</sup> in summer 2004 eventually became the sixth science theme and additional 'observation initiative' in the ICSU PG 'Framework' plan (Rapley et al., 2004; *Chapter 1.3*). Two scientists nominated by IASSA, Grete Hovelsrud (Norway) and Igor Krupnik (U.S.A.), were invited to serve on the ICSU-WMO Joint Committee (JC) and to represent the field of social/human studies (*Chapter 1.5*).

In late 2004, IASSA launched its 'IPY Facilitation Initiative' to encourage researchers in social sciences and the humanities to become involved with the IPY science program. IASSA offered a pool of social science

### IPY RESOLUTIONS ADOPTED BY THE IASSA GENERAL ASSEMBLY

### ON MAY 23, 2004, IN FAIRBANKS, ALASKA

#### Resolution 1

#### Whereas

The decision has been taken by the ICSU to launch an International Polar Year initiative in 2007-2008 (IPY 2007-2008);

Recognizing the clear desire, expressed by ICSU itself, to develop a truly interdisciplinary IPY 2007-08 agenda that will fully cover the socio-cultural dimensions of polar research and a broader education and outreach component throughout that agenda of benefit to polar communities, especially, to Arctic indigenous peoples;

Recognizing the difficulties that have been experienced thus far in consulting with the social sciences and Arctic communities during the preparation of the IPY 2007–2008 science plan.

#### Acknowledging:

That the current draft version of the Outline Science Plan (OSP) under consultation includes very few suggestions by the social sciences and Arctic communities;

#### And whereas:

The final version of the OSP has to be tabled to ICSU this fall

#### The IASSA General Assembly then resolved:

To strongly encourage the ICSU to include the research priorities and suggestions generated by the social sciences, Arctic indigenous organizations, and polar communities concerning the objectives, themes and issues of IPY 2007–2008 into the final version of its Science Plan.

#### Resolution 2

#### Whereas

The IPY 2007–2008 Planning Group (IPY–PG) in charge of the preparation of the final version of the science plan to be tabled to ICSU this fall does not adequately incorporate the social sciences and Arctic communities' perspectives, due to its current composition;

The existing IPY-PG will be dissolved in the fall of 2004, after its report is tabled to ICSU;

The IPY 2007–2008 will then be coordinated by a new Implementation Committee to be appointed by ICSU this fall;

Such a new implementation committee with a more representative membership of the physical, natural, and social sciences, Arctic indigenous organizations, and polar communities will lead the IPY2007–2008 towards a truly interdisciplinary plan;

The IASSA General Assembly then resolved:

To strongly encourage ICSU to appoint an Implementation Committee for the IPY 2007–2008 based upon a balanced representation of physical, natural, and social scientists, Arctic indigenous organizations, and polar communities.

Fig. 1.4-7. Two resolutions in support of IPY adopted by the IASSA General Assembly, 23 May 2004.

experts who attended numerous IPY-related events, advocated on behalf of the social/human themes, and joined a number of IPY-associated committees, including the JC subcommittees on observation, data management and education (Birger Poppel, Joan Nymand Larsen, Lene Kielsen Holm, Lawrence Hamilton). IAS-SA's actions and the creation of a special socio-cultural theme resulted in an increased flow of proposals in social and human studies (*Chapters 2.10, 2.11*). IASSA's active participation in IPY 2007–2008 proved very beneficial to the association's status in polar science, as it helped strengthen IASSA's relations with IASC, the Arctic Council, and other international organizations.

# International Permafrost Association (IPA)

Jerry Brown

The International Permafrost Association (IPA), governed by a 26-member Council, was founded in 1983 with its initial objectives to convene international conferences and facilitate the international exchange of scientific information among permafrost scientists and engineers. In 1989, the IPA became an Affiliated Organization of the International Union of Geological Sciences (IUGS). Joint Commissions, working groups and agreements were developed with SCAR, the International Geographical Union, the International Union of Soil Sciences, the WCRP Climate and Cryosphere (CLiC) project, among other international organizations.

The formal IPA participation in the IPY planning started with the IPA Council recommendation in July 2003 at its meeting in Zurich, Switzerland. By November 2003 a multi-authored draft plan was prepared and circulated for comment ("The Thermal State of Permafrost: A Contribution to the International Polar Year"). The IPA-IPY plans were further developed in several meetings in 2004, including the Arctic Science Summit Week in Reykjavik (April 2004), the SCAR Open Science conference in Bremen (July 2004), the Russian permafrost conference in Tyumen, Siberia and the IPA Antarctic workshop in Madison, Wisconsin (Brown, 2010).

The concept of a carbon-permafrost project for IPY 2007–2008 ("Carbon Pools in Permafrost" – CAPP, IPY no. 373) was first proposed at the CLiC meeting, 20–25 October, 2004 in Hobart, Australia as a joint

CLiC, IPA and Global Carbon Project. By the end of 2004, the plans for proposed IPA-IPY "Thermal State of Permafrost" (TSP, IPY no. 90) study were well formulated (Brown, 2004; *Chapter 2.7*), with a planning and implementation proposal submitted to the International Union of Geological Sciences (IUGS). Planning of these IPY activities was largely accomplished under the coordination of the IPA and its working groups and with initial financial support from the IUGS. This grant enabled a later comprehensive planning session in November 2005 in Copenhagen following the ICARP II conference. The Copenhagen workshop, organized by the IPA Secretariat, was attended by some 60 participants representing four permafrost projects advanced in IPY (*Chapter 2.7*).

# Intergovernmental Oceanographic Commission (IOC)

Keith Alverson

Established in 1960, the Intergovernmental Oceanographic Commission of UNESCO promotes international cooperation and coordinates programs in marine research, services, observation systems, hazard mitigation and capacity development in order to learn more about and better manage the nature and resources of the ocean and coastal areas. Through the application of this knowledge the commission aims to improve management practices and the decisionmaking process of its 136 Member States, foster sustainable development and protect the marine environment.

The Member States of the IOC first considered participation in IPY 2007–2008 at their 37th Executive Council in June 2004. Following a presentation by Chris Rapley, Chair of ICSU-IPY Planning Group, the Executive Council agreed that the IOC should contribute to IPY through: (1) filling polar gaps in the Global Ocean Observing System (GOOS) by enhancing surface-buoy and neutrally buoyant float deployments, installing and upgrading tide gauges, and carrying out coordinated hydrographic surveys, including carbon and biological measurements; (2) promoting research in the framework of the IOC-WMO-ICSU cosponsored World Climate Research Program; (3) developing mechanisms within its International Ocean Data and Information Exchange (IODE) to recover and pro-

vide access to past and present polar ocean data; (4) generating comprehensive and integrated ocean data sets for polar regions; and (5) participating in IPY research experiments. In light of these agreed potential contributions, the Executive Council resolved (Resolution EC-XXXVII-3), to inform ICSU and WMO of IOC's interest in joining the proposed ICSU–WMO Joint Committee and to develop a plan for IOC's participation in the science initiatives of IPY.

Following these decisions, the IOC began its engagement in the IPY planning and implementation process by hosting the IPY 'Open Forum' at IOC/UNES-CO headquarters in Paris in September 2004 (*Chapter 1.3*). Keith Alverson, the secretariat's head of section for ocean observations and services, was nominated to serve on the Joint Committee as an *ex officio* member to ensure the IOC participation in the IPY implementation throughout 2005–2010.

### **Arctic Council (AC)**

Helena Ödmark

The Arctic Council (AC) was established in 1996 as an intergovernmental forum for regional cooperation among the eight Arctic States (Canada, Denmark/Greenland/Faroe Islands, Iceland, Norway, Russian Federation, Sweden and United States) and six organizations of indigenous peoples: Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Conference, Russian Association of Indigenous Peoples of the North, Siberia and the Far East (RAIPON) and Saami Council. The AC deals with environmental protection and sustainable development, and concentrates on northern circumpolar issues of common interest and concern. Between the bi-annual AC Meetings of Foreign Ministers, work is conducted in six working groups and is managed by the Senior Arctic Officials (SAOs).

The first recorded actions by the AC related to IPY 2007–2008, took place in March–April 2003, following the Arctic Science Summit Week (ASSW) in Kiruna, Sweden. Having attended a presentation by C. Elfring and C. Rapley on the initial planning for IPY 2007–2008 (*Chapter 1.2*), Helena Ödmark, Swedish Senior Arctic Official, informed the Icelandic SAO Chair, Gunnar Palssòn, and her colleagues at the SAO meeting in

Reykjavik in April 2003, that a new "International Polar Year" was being planned. There was great interest for IPY among the AC members. One of the priorities for the AC under the Icelandic chairmanship (2002–2004) was to strengthen cooperation in Arctic research. At this time, the Council was also supporting the preparation of the Arctic Climate Impact Assessment report (ACIA 2004) and of the Arctic Human Development Report (AHDR, 2004); the latter would rely on data from social and human sciences. Both were subsequently published in late 2004. It was hard to envision a successful IPY 2007–2008 without an active participation of the AC, when the scientific community was making plans for an "International Polar Year", not an "International Polar Research Year."

The SAO meeting in Svartsengi, Iceland in October 2003 decided to invite the IPY planners to its subsequent meeting in Selfoss in May 2004 (Chapter 1.3). The 2003 SAO meeting also launched a public diplomacy effort to emphasize the importance of including the "human dimension" in IPY. Chris Rapley presented the emerging outline for the IPY science program in Selfoss in May 2004. The reaction confirmed the strong interest from the AC member states, permanent participants and observers in the IPY planning process. In particular, the meeting stressed the necessity to translate the originally brief reference to "human dimension" into substantive input by social and human sciences, as well as to give full attention to the needs and interests of the Arctic residents. The IPY planners were encouraged to involve indigenous and other local communities in IPY research activities, to appreciate the value of traditional knowledge, and to share the results of their work with Arctic residents. The meeting also adopted a special statement to express AC commitment to IPY 2007-2008.

The SAO Chair attended the IPY Discussion Forum in Paris in March 2004 and, again, in September 2004 in Paris to provide the AC input to the planning process and to emphasize, in particular, the importance of including the human dimension theme in IPY. The AC also stressed the importance of studying the ongoing polar climate change in the context of IPY.

The Declaration adopted at the fourth AC Meeting of Foreign Ministers in Reykjavik in October 2004, welcomed "the continuing contribution of indigenous and traditional knowledge to research in the Arctic"

and recognized IPY 2007–2008 as a unique opportunity to stimulate cooperation and coordination on Arctic research. It underlined the role of the AC as a high-level intergovernmental forum in providing political support for IPY in the Arctic region. That was notable, as it was the first expression of support for IPY 2007–2008 made at high political level.

In the Reykjavik Declaration of October 2004, the Foreign Ministers also decided that the AC would support the development of research proposals to the IPY Joint Committee. That decision was further elaborated in the accompanying "Report from SAOs to Ministers at the Fourth AC Ministerial Meeting" where SAOs recommend to Ministers to "endorse the development of proposals based on the work of the AC, as core projects of the IPY." It also welcomed in that context an offer from Sweden to host an organizing session on monitoring and an offer from the United States to host an organizing session on the Arctic Human Health study. Subsequently, the proposals for the "Arctic Human Health Initiative" (AHHI, IPY no. 167) and for "Coordination of Observation and Monitoring in Arctic Research" (COMAAR, IPY no. 305) were endorsed by the IPY JC and became the core projects of IPY.

The SAO report to the Reykjavik Ministerial Meeting also recommended to seek AC membership on the IPY Joint Committee established by ICSU and WMO. That eventually resulted in the AC, as well as the ATCM representatives being offered seats as observers on the JC. The AC representative first attended the JC-2 meeting in November 2005; it instituted the AC formal presence in IPY implementation throughout 2005–2010 (*Part 5*).

# Antarctic Treaty Consultative Meeting (ATCM)

Manfred Reinke and Johannes Huber

Antarctic Treaty Consultative Meetings bring together the Parties to the Antarctic Treaty of 1959. The meetings are held annually and rotate between the Consultative Parties in English alphabetical order. There are at present 48 Parties to the Antarctic Treaty, 28 Consultative and 20 Non-Consultative Parties. The original Signatories to the Treaty are the 12 countries that were active in Antarctica during International

Geophysical Year of 1957–1958 and then accepted the invitation of the U.S. Government to participate in the diplomatic conference at which the Treaty was negotiated and adopted. Since 1959, 36 other countries have acceeded to the Treaty. According to Art. IX.2, they are entitled to participate in the ATCMs during such times as they demonstrate their interest in Antarctica by "conducting substantial research activity there."

The Antarctic Treaty is forever linked to the International Polar Years through the words of its Article II: "Freedom of scientific investigation in Antarctica and cooperation toward that end, as applied during the International Geophysical Year, shall continue, subject to the provisions of the present Treaty." Consequently, the preparation for IPY 2007–2008 was an important matter of discussion at the ATCM annual meetings since 2003.

The first discussion about the upcoming IPY 2007-2008 took place at the ATCM XXVI in Madrid on 9-20 June, 2003. At that meeting, SCAR (supported by Information Paper IP-120) informed the participants that ICSU had established a planning group for its "International Polar Year 2007-2008" initiative. The Russian Federation's representative referred to a similar initiative adopted by the XIV WMO Congress that approved the idea of holding the 'third IPY in 2007–2008", under the auspices of the World Meteorological Organization (WMO) (ATCM, 2003a; Chapter 1.2). The proposal for IPY 2007–2008 attracted significant support from the ATCM. Ten countries and COMNAP intervened to provide verbal support, and the U.K. and SCAR provided a draft for the plenary, which was approved unanimously as Resolution 2 (2003) "Support of the ATCM for the International Polar Year 2007/08" (Fig. 1.4-8) calling on SCAR and COMNAP to work with ICSU to pursue actively the planning and implementation by all interested organizations of an International Polar Year to address priority polar science issues of global relevance. The Resolution called additionally upon the Treaty Parties to make the support of the IPY a priority within their national research activities (ATCM, 2003b).

The ATCM XXVII met in Cape Town on 24 May–4 June, 2004 and had extensive discussion on the preparation for IPY (ATCM, 2004). On behalf of its parent body ICSU, SCAR presented an Information Paper (IP-74) outlining the current state of program

planning for IPY. The paper was prepared by the IPY Planning Group. Interventions on IPY from the floor were made by Germany, Norway, Chile, Finland, Bulgaria, Sweden, Russia, China, Australia, Argentina, U.K., Korea, SCAR and COMNAP. SCAR noted that data management would be a key element of the new IPY proposals and reminded Parties of the established network of Antarctic data centers coordinated through SCAR and COMNAP pointed to the relevance of the development of multinational partnerships to support logistics underlying major IPY research projects. In addition, the Meeting noted that there was an increasing focus on bipolar research and that the topics of education and outreach for the legacy of

IPY would be key elements of the new IPY proposals. The Meeting endorsed the approach of SCAR and asserted that it would continue to give support for the IPY initiative (ATCM, 2004).

The ATCM continued its support for, and overview of the IPY planning and implementation process at each of its subsequent annual meetings during 2005–2009 (ATCM XXVIII, 6-17 June, 2005, Stockholm; ATCM XXIX, 12–23 June, 2006, Edinburgh; ATCM XXX, 30 April–11 May, 2007, New Delhi; ATCM XXXI, 2–13 June, 2008, Kyiv; ATCM XXXI, 6–17 April 2009, Baltimore – *Chapter 1.5; Part 5*). The ATCM representative was invited to serve on the IPY Joint Committee as an observer since 2006.

Final Report of XXVI ATCM

#### Resolution 2 (2003)

#### SUPPORT OF THE ATCM FOR THE INTERNATIONAL POLAR YEAR 2007/8

The representatives,

Aware that the Polar Regions are key components of the Earth System;

 ${\it Considering} \ {\it the important role of the Polar Regions both in driving and responding to Global Climate Change;}$ 

Recognising the opportunities afforded by new technological and logistical developments for polar research in the 21st century to develop an understanding of key global phenomena at the frontiers of discovery;

Acknowledging the important contribution to scientific knowledge resulting from international cooperation in scientific investigations in the Polar Regions;

Noting the opportunity offered by the 125th anniversary of the first International Polar Year (IPY), the 75th anniversary of the second IPY, and the 50th anniversary of the International Geophysical Year (IGY), to galvanise an intensive programme of internationally coordinated research in the Polar Regions;

Noting the active commitment to an International Polar Year of the World Meteorological Organisation (WMO) and the interest of other international bodies responsible for the coordination of research in the Arctic.

Noting the establishment by the International Council for Science (ICSU) of an overarching Planning Group to coordinate the planning for and the establishment of the IPY (2007/08) that will encompass a wide range of science issues of global interest;

#### Recommend that the parties:

- call upon SCAR and COMNAP to work with International Council for Science (ICSU) to pursue actively the planning and implementation by all interested organizations of an International Polar Year (2007/9) to address priority polar science issues of global relevance;
- within the context of their national Anctartic research programmes and capabilities to support science programmes proposed for the IPY (2007/8) to achieve outcomes which would not otherwise be possible if undertaken by national programmes alone;
- make the support of the IPY (2007/8) a priority within their national research activities.

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#### Notes

<sup>&</sup>lt;sup>1</sup> The only social scientist with a substantial intellectual input during the early planning stage for IPY (2001–2003) was Fae Korsmo (Korsmo 2001; 2004; Korsmo and Sfraga 2003). Three social scientists, Korsmo, Carole Seyfrit and archaeologist Glenn Sheehan, participated in the IPY 'planning session' of the U.S. Polar Research Board in November 2002 (*Chapter 1.2*).

<sup>&</sup>lt;sup>2</sup> Bulgaria, Canada, Germany, Denmark, Greenland, Iceland, Norway, the Netherlands, Russia, Sweden, U.K. and the U.S.A.

<sup>&</sup>lt;sup>3</sup> The group included Michael Bravo (U.K.), Yvon Csonka (Greenland), Igor Krupnik (U.S.A., Chair), Ludger Müller-Wille (Canada), Peter Schweitzer (U.S.A.), Frank Sejersen (Denmark), and Sverker Sörlin (Sweden).



# 1.5 Organization and Implementation of IPY: 2005–2009

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y early 2005, following the publication of the *Framework* document (Rapley et al., 2004) and the call for the 'Expressions of Intent' (EoI) for IPY projects (*Chapter 1.3*), a significant transition was apparent in the IPY process. An identifiable IPY community was emerging and becoming active in the evolving IPY network. At the same time, national committees and international organizations began to interact with the emerging IPY structure to ensure their role in the planning process.

Though the core elements of IPY 2007-2008 were nominally in place since October-November 2004 the Joint Committee, the International Programme Office, the Subcommittees of Data Management and Education, and the network of science teams behind emerging IPY projects — few were yet functioning. Many members of the newly appointed Joint Committee did not know each other and their regular communication with each other and with the Programme Office only started in January-February 2005. Their first face-to-face meeting did not take place until March 2005. During that 'interregnum' phase, the embryonic Programme Office, with Cynan Ellis-Evans serving as Interim Director, was inundated with enquiries from the science community, indicative of the early interest and enthusiasm associated with IPY.

As IPY 2007–2008 unfolded, the elements of this emerging structure started functioning. The Joint Committee (JC) with its three Subcommittees on Observations, Data Management, and Education, Outreach and Communication; the International Programme Office (IPO); the national IPY Committees and their umbrella body called Heads of the Arctic and Antarctic Secretariats (HAIS – Chapter 1.7); numerous organizations and national funding agencies that advanced the IPY; and 230+ endorsed international

projects augmented by dozens of "national" IPY initiatives – all of these eventually became active. Some have already produced reports on their activities during the IPY era, like the IPO (*Chapter 1.6*), the Subcommittee on Data Management (Parsons et al., 2010 – *Chapter 3.11*), the Subcommittee on Observations (Mohr et al., 2010 – *Part 3, Introduction*), the Subcommittee on Education and Outreach (Kaiser, 2010; *Chapter 4.1*).

This chapter presents the story of IPY 2007–2008 from the perspective of the Joint Committee. It addresses the role of JC in the planning, implementation and completion of IPY, primarily covering the JC meetings and other major activities during 2005–2009.

# **Composition and role of the Joint Committee**

In selecting the membership for the JC, originally of 14 scientists and five ex officio members (Appendix 1),1 ICSU and WMO planners consciously deviated from the pattern that was typical for similar supervisory bodies in IPY-1, IPY-2 and IGY (Chapter 1.1). Few JC members held senior administrative positions (Rapley, Kotlyakov, Béland, Qin) and there were no official representatives of the Scientific Unions, unlike in IGY 1957-1958, which was organized by a mixture of senior science managers and scientific unions. Though balance in national representation of scientists on the JC was sought (Australia, Brazil, Canada, China, Germany, Japan, Norway, Russia, Spain, Sweden, U.K., and U.S.A), no member of the JC was officially considered his/her nation's spokesperson. Rather, the sponsors, ICSU and WMO, selected the JC membership from a large list of candidates nominated by the national committees and scientific organizations to bring the best expertise from a spread of science fields.

The disciplinary balance among scientists on the Joint Committee (including the *ex officio* members) embraced Glaciology (Allison, Fujii, Kotlyakov, Qin), Oceanography (Alverson, Fahrbach, Summerhayes), Meteorology (Béland, Sarukhanian, Yamanouchi), Geology (López-Martínez), Geochemistry (Rachold), Geophysics (Bell), Remote sensing (Rapley, Mohr), Biology/ecology (Danell, Fanta), Environmental Science (Goldfarb) and Social Sciences (Hovelsrud, Krupnik), reflecting the new integrated environmental and societal priorities of modern polar science. The JC included four women—Bell, Fanta, Hovelsrud and Goldfarb (ICSU representative in 2005–2007)—which spoke much about the changing face of polar research. Many JC members were involved directly in IPY field

research and spent months on ships, in camps and at stations and villages around the Poles; a few were leaders or national coordinators of major international projects during IPY.<sup>2</sup>

The 19 men and women on the Joint Committee (Fig.1.5-1, Box 1), whose numbers eventually grew to 21,3 were required to navigate the organization and implementation of IPY 2007–2008 in close cooperation with other partners: the IPO, Subcommittees, IPY co-sponsors and other supporting organizations, over 30 national IPY committees and a myriad of individual science teams. Some of those links worked better than others; a more detailed assessment of this collaboration is presented in the final section of this volume.



Fig. 1.5-1. JC-1 attendees on the staircase at the ICSU Secretariat (Hotel de Noailles). Back row: Kjell Danell, Cynan Ellis-Evans (IPO), Tim Moffat (BAS), Yoshiiyuki Fujii; Second row: Jerónimo López-Martínez, Grete Hovelsrud, Colin Summerhayes, Vladimir Kotlyakov, Keith Alverson, Tillmann Mohr, Odd Rogne; Third row: Chen Zhenlin (guest), Edith Fanta, Eduard Sarukhanian, Leah Goldfarb; Front row: Robin Bell, Michel Béland, Ian Allison, Qin Dahe, Chris Rapley, Igor Krupnik.

(Photo: ICSU Secretariat)

### Box 1 Tribute to Edith Fanta (1944 –2008)

It was with great sadness that we learned about the untimely death of one of the JC members, Dr. Edith (Edith Susana Elisabeth) Fanta on 7 May 2008 (Fig. 1.5-2). We knew that Edith's health had been deteriorating for some years and had forced her to skip some of the JC meetings in 2007, but it did not prevent her from being very active in various functions, among others as Chair of the Scientific Committee of the Commission on Conservation of Antarctic Marine Living Resources (CCAMLR). Edith was the principal organizer of the 9th SCAR International Biology Symposium in 2005 on her home turf at the Universidade Federal do Paraná in



Fig. 1.5-2. Edith Fanta at the JC-4 meeting in Svalbard, September 2006. (Photo: Cynan Ellis-Evans) Curitiba, Brazil, the first in South America. She was also a member of the Brazilian team on the SCAR Standing Scientific Group on Life Sciences and a member of the IPY project on Evolution and Biodiversity in the Antarctic (EBA, IPY no. 137) providing Brazilian input to this IPY venture.

Edith was strongly involved in the protection of the Antarctic environment, in research on international treaties for environmental protection and in building research capacity in the region, particularly by and for scientists from the South American nations. She stimulated many colleagues to devote time to Antarctica as she did for over 25 years. Edith deeply cared about science education and about bringing younger scholars, particularly women, to polar research.

Edith was a delightful person – always friendly and good-humored, always trying to solve disputes in a harmonious way, but never allowing herself to be pushed aside in a discussion. She leaves behind an empty space, not least because of the enthusiasm with which she undertook her scientific and management activities. She will not be easily replaced.

Edith was more than just a colleague: she was our friend. She was also a mighty presence at the JC meetings – hard-working, focused and with a strong sense of responsibility for the region and the field of science she represented. Edith was the only member of the JC who did not live to see IPY 2007–2008 completed, but her place in its history is solidly secured.

#### More on Edith Fanta

Edith Fanta. Obituary. *Polar Record* 2009 45(234):288 www.ats.aq/devPH/noticia\_completa.aspx?IdNews=13&lang=e http://classic.ipy.org/international/joint-committee/fanta.pdf www.ipy.org/news-a-announcements/item/1615-edith-fanta

# Setting the IPY Program: Evaluating 'Expressions of Intent': January-March 2005

The rising IPY momentum in early 2005 saw a flood of online (and offline) submissions of 'Expressions of Intent' (EoI) for IPY projects. Unlike the two previous calls for IPY "ideas" in September 2003 and March 2004 (Chapter 1.3), EoI submissions were requested against a standard template. It was also made clear that EoIs were only the first stage in the IPY endorsement process and that successful applicants would need to submit a full proposal by June 2005. Between 5

November 2004 and 14 January 2005, almost 900 Eol proposals were submitted to the IPY Programme Office in Cambridge. Of those, 869 were eventually evaluated by the JC members and their assessment was finalized in March 2005 (see below).

At the IPO, the Interim Director Cynan Ellis-Evans undertook to compile all the EoIs onto a searchable online database (http://classic.ipy.org/development/eoi/index.htm) to provide the research community, national IPY committees and funding agencies with a full range of IPY proposals. This accessible and transparent approach encouraged more submissions.

The EoI database was to stay open throughout the IPY period and eventually grew to include more than 1,100 submissions (http://classic.ipy.org/development/eoi/), though later proposals were not reviewed by the JC.

In late January 2005, the IPO sorted the EoIs into seven thematic groups; in early February, the grouped submissions were forwarded to the members of the JC, according to their disciplinary expertise.<sup>4</sup> A template of 10 evaluation criteria, from the *Framework*, was assembled by the IPO<sup>5</sup> (*Appendix 4*) and, during February 2005, seven small teams of JC members each reviewed over 120 EoIs against them. This open process was not undertaken in the earlier IPY/IGYs and it again illustrated the bottom-up nature of the IPY 2007–2008. The assessment was completed by 1 March 2005, demonstrating that the JC and the IPO had built the capacity to lead the community in developing IPY 2007–2008.

# Selection of a Director for the IPY International Programme Office

A well-staffed, centralised project office to coordinate IPY had been seen as essential by the ICSU Planning Group. In response to an international call from ICSU and WMO (*Chapter 1.3*), the U.K. Natural and Environmental Research Council (NERC) generously offered €1.8 M over 5-6 years, plus in-kind facilities at the British Antarctic Survey in Cambridge to support the International Programme Office (IPO) for IPY 2007–2008. That provided funding for three full-time core positions: a Director, an Office Administrator and a Project Officer (*Chapter 1.6*).

Selecting the right person as Director was paramount to ensuring the success of the IPO and hence of IPY itself. An announcement for this position was made jointly by WMO and ICSU on 17 November 2004. A total of 20 applications were received and were evaluated by a five-person selection panel<sup>6</sup>. The top four applicants were interviewed at BAS in Cambridge on 4 March 2005. The panel's recommendation was subsequently approved by the Executive Director of ICSU (Thomas Rosswall) and the Secretary-General of WMO (Michel Jarraud) and the position of IPO Director was offered to David Carlson, who took the job on 9 May 2005 (*Chapter 1.6*).<sup>7</sup>

# JC-1 Meeting and First Open Consultative Forum: March 2005

The first meeting of the JC was held on 7-9 March 2005 at the ICSU Secretariat in Paris, and was attended by all but one of the 19 members (Appendix 3, Fig. 1.5-1). Thomas Rosswall (Executive Director, ICSU) and Hong Yan (Deputy Secretary-General, WMO, representing Michel Jarraud) were present at the opening and both welcomed, on behalf of sponsors, the creation of the JC and outlined the significance of IPY. Following a review of its Terms of Reference provided by ICSU and WMO (Box 2) the committee determined its main tasks over the next few years would be to define the projects comprising IPY; to encourage maximum participation, particularly from non-polar nations; to promote data management and education/outreach/ communication as important components; to advocate funding for the IPY activities; and to provide guidance and direction to the IPO.

JC members had reviewed and assessed 869 submitted Expressions of Intent online before the meeting. Those assessments were formally approved at JC-1. Many EoIs contained overlapping ideas and a substantial number constituted small national proposals or ideas advanced by individual scientists. It was essential for IPY implementation to try and consolidate many of these into a smaller number of international projects. At JC-1, the members grouped EoIs by science objectives and discipline, also identifying the cross-cutting themes and legacy projects. Almost 50 large science topics were identified from among the EoIs and these were related back to the six IPY themes in the Framework document (Rapley et al., 2004). The JC also noted a number of critical gaps in EoI submissions, like the involvement of space agencies.

IPY data management was discussed and a decision was made to form a sub-group of JC members to define an IPY data policy, which would closely follow ICSU and WMO policies, and to establish a separate ad hoc task group to define an IPY data management strategy. Another ad hoc task group was recommended to develop an education and communication plan, prior to setting up a full IPY Subcommittee on Education and Outreach. It was also agreed that it would be valuable to have an Observing Systems Subcommittee. The third ad hoc group was established and

# Box 2 International Polar Year Joint Committee (IPY JC) Terms of Reference (TOR)

(Approved by ICSU and WMO, 20 November 2004)

The International Polar Year Joint Committee is appointed by the International Council for Science (ICSU) and the World Meteorological Organization (WMO) for a period until the end of 2009. The IPY JC consists of two Co-Chairs and no more than 12 additional members appointed by ICSU and WMO. In addition, SCAR, IASC and IOC have been invited to nominate *ex officio* representatives. The Executive Heads of ICSU and WMO each appointed an *ex officio* member of the Committee. The Co-Chairs can invite additional persons to attend sessions for specific agenda items as necessary.

The Joint Committee shall be responsible for scientific planning, coordination, guidance and oversight of the IPY. In performing its functions, it will be supported by an International Programme Office. It should work closely with all relevant organizations and National IPY Committees/contact persons. The IPY JC shall meet at least twice a year.

The specific tasks of the IPY JC are:

- To define Core Projects based on the IPY Science Plan and submissions received.
- 2) To develop and keep under continuous review an implementation plan for the IPY in close consultation with National Polar Programs and other appropriate bodies and to ensure that the plan develops in such a way as to make optimal use of available resources.
- 3) To establish a mechanism for the design, guidance, development and oversight of the IPY projects, including for example, Project Steering Committees for Core Projects and Subcommittees for Data Policy and Management, and for Education, Outreach and Communication.

- To provide leadership in developing IPY data policy and data management protocols.
- 5) To promote the IPY goal and objectives, its deliberations and achievements through development of education and outreach programs in order to attract new generation of polar scientists and technologists, and to capture the interest of the general public and decision-makers in polar regions.
- 6) To encourage the active participation of other relevant organizations in the IPY.
- 7) To convene sessions of an IPY Open Consultative Forum to which all stakeholders will be invited. The Forum will serve as a consultative process for expressions of views on the IPY development, as a platform for dialogue among the various stakeholders and as a venue for exchange of information on IPY development. The Forum should be convened at least once per year.
- 8) To raise additional funds for the planning and coordination activities, including activities of subcommittees that the IPY JC may wish to set up and to assist in convincing national and international funding bodies to fully support the Core Project of the IPY.
- To provide oversight and guidance to the activities of the IPY International Programme Office.
- 10) To report to ICSU and WMO Executive Bodies on the IPY organization and implementation after each meeting of the IPY JC.

 $http://classic.ipy.org/international/joint-committee/\\ terms.htm$ 

tasked to formulate the Terms of Reference for that subcommittee and report back to the JC.

The JC agreed that engaging the political and governmental communities, including the Antarctic Treaty Parties and Arctic Council (AC) was important, but concerns were raised about politicizing a science-driven committee. Following the JC-1 meeting (on 24 March 2005), Vitaly Churkin, then Chairman of Senior Arctic Officials (SAO) of the Arctic Council, wrote to Thomas Rosswall (ICSU) and Michel Jarraud (WMO), requesting AC representation on the JC. In May 2005,

the ICSU Executive Board, having weighed the JC views and the request from the AC, decided to invite the AC and the Antarctic Treaty Parties to appoint one Observer each to the JC, pending WMO approval, which was subsequently given. The AC nominated the Chair of SAO, Vitaly Churkin, as its representative. The Antarctic Treaty Parties appointed the Head of the Antarctic Treaty Secretariat, Johannes Huber, as their representative.<sup>8</sup>

Also considered was a proposal for a "Eurasian IPY Project Office" based in St. Petersburg with financial

support from Norway, Sweden and the U.S.A. The concept of regional IPY project offices to enable access to certain polar areas and to address logistical and infrastructure issues was supported in principle by the JC, but a decision on the Eurasian Regional Office was deferred until the next JC meeting pending additional information, including its proposed relationship with the IPO.

After reviewing a number of different designs, the JC approved an IPY logo developed by its predecessor, the IPY Planning Group (*Chapter 1.3*). A new IPY website was launched shortly afterwards bearing this logo (www.ipy.org/ipy-v2).9

At the end of the JC-1 meeting, the overall scope of IPY was taking a clear shape. The likely large-scale and internationally-based core scientific activities had been defined from the EoIs and efforts had commenced to integrate the many EoIs into these core projects.<sup>10</sup>

On 10 March, immediately after JC-1, the first IPY 2007–2008 Open Consultative Forum (OCF) was held at the UNESCO Headquarters in Paris (Fig. 1.5-3). More than 60 participants attended, including 15 members of the JC and representatives of 18 National IPY committees.<sup>11</sup> Participants were given a brief overview of the IPY planning process, an explanation of how Eols were assessed, information on the process for full

proposal submission and a report on the outcomes fromJC-1. One major issue for stakeholders was that 30 June 2005 should not be the only deadline for submission of full proposals, but that there also be subsequent submission opportunities. The JC also undertook to arrange a meeting between IPY representatives and funding agencies and to compile a list of potential IPY logistic requirements for the Council of Managers of National Antarctic Programs (COMNAP) and the Forum of Arctic Research Operators (FARO). Representatives of a number of National Committees, international polar organisations and programs gave presentations on their IPY preparations. Overall, the support from stakeholders for the evolving IPY process was high, with appreciation that the program was developing with appropriate community consultation.

# **Building the IPY Science Program: March 2005–February 2006**

Following the assessment of Eols, letters co-signed by JC Co-Chairs Ian Allison and Michel Béland were sent to all Eol proposers in late March 2005.<sup>12</sup> Three submission deadlines were eventually established to give IPY participants time to develop international links: 30 June 2005, 30 September 2005 and 31 January 2006.

Altogether 422 'full proposals' were eventually



Fig. 1.5-3. First Open Consultative Forum, 10 March 2005. Ian Allison, Michel Béland, Tillmann Mohr, and Edith Fanta represented the Joint Committee and chaired the session.

(Photo: Jerónimo López-Martínez)

received, with 337 being scientific or data management proposals and 85 being for education and outreach activities. The number of proposals received in each round was 109, 92 and 209 respectively, and 12 later submissions were also accepted. Each was independently reviewed by three to four JC members and assessed against 15 IPY criteria.<sup>13</sup> (After the second round, education and outreach submissions were reviewed by the EOC Subcommittee rather than the JC.) Proposals that were assessed as meeting the criteria became 'endorsed IPY projects' and were added to the emerging IPY 2007–2008 project chart developed by the IPO Director, David Carlson (Fig. 1.5-4). This eventually became known as the IPY 'honeycomb chart' (Appendix 6). All submitted 'full proposals' were made openly accessible on the IPO website (http:// classic.ipy.org/development/eoi/proposals.php). Both the EoI and the 'full proposal' databases remained accessible throughout and beyond IPY 2007-2008, showing both the openness of the IPY processes and the breadth of its science.

By the time IPY 2007–2008 formally commenced in March 2007, a total of 228 'full proposals' had been endorsed<sup>14</sup> – 170 in scientific research; 57 in Education, Outreach and Science dissemination; and one in Data Management. Although not all were eventually funded,<sup>15</sup> that network of endorsed international projects (often known by their acronyms and 'IPY

number') became the core of IPY 2007–2008 program. The build-up of IPY through an open and crossnational process overseen by the JC strengthened its image as inclusive and grass-roots initiative (Stirling, 2007). No similar process existed in the previous IPY/IGYs, in which activities, though internationally coordinated, were always planned and implemented by nations under their own national IPY plans. Most of the funding for the international IPY 2007–2008 projects was, nonetheless, allocated by national funding agencies. Some nations like Canada, China, Russia, Sweden and U.S.A. also funded a large number of 'national' IPY initiatives not necessarily related to the JC-endorsed proposals.<sup>16</sup>

# JC-2 Meeting and Second Open Consultative Forum: November 2005

The second JC meeting (JC-2) was held on 15-17 November 2005 at the headquarters of WMO in Geneva, Switzerland (*Appendix 3*). It came on the heels of the official declaration of IPY 2007–2008 by the 28th ICSU General Assembly (Box 3) that was attended by lan Allison, David Carlson and Colin Summerhayes of the JC. The JC-2 meeting also had a powerful 'prelude' in the form of a series of meetings attached to the International Conference on Arctic Research Planning (ICARP-2, 10-12 November 2005) in Copenhagen, Denmark, including a meeting of funding and mission

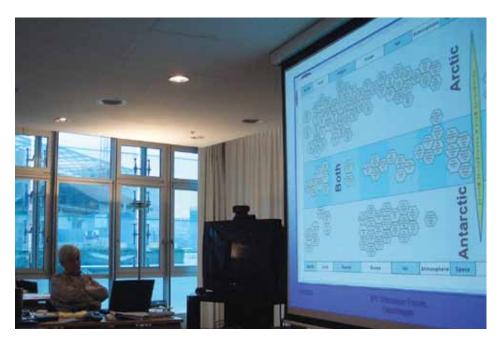


Fig. 1.5-4. Early version of the IPY project chart presented at JC-2.

(Photo: Chris Rapley)

### Box 3 Formal establishment of IPY 2007–2008 by the 28th ICSU General Assembly

The 28th ICSU General Assembly was held from October 18-21 2005 in Suzhou, China and was attended by more than 200 scientists. They represented 111 national ICSU Members, 42 International Scientific Unions and 15 ICSU Interdisciplinary Bodies and Scientific Associates.

The main business item of the Assembly, which meets every three years, was to adopt a new ICSU Strategic Plan for 2006-2011. This plan—ICSU's first—had been developed through extensive review, planning and consultation during the previous three years, and the IPY 2007–2008 was to be one of the major activities. Although the ICSU Executive Board had approved establishment of the IPY in February 2004, it had to be ratified by the full Assembly.

Ian Allison and Dave Carlson attended the Assembly on behalf of IPY and Allison presented IPY program to delegates on 19 October. The delegates subsequently accepted by acclamation the resolution "to establish the International Polar Year 2007–2008....". Many delegates commented that IPY was the sort of project that ICSU needed to raise its profile.

An ICSU press conference was held on October 21 and attended by nearly 40 representatives of the international science press as well as Chinese national television, newspapers and journals. Many of the questions at this conference related to an ICSU press release (19 October) on the establishment of IPY.

agencies organized by the European Polar Board and focused on the implementation of IPY, and the second IPY Open Consultative Forum (13 November; Fig. 1.5-5). These events gave IPY a boost in visibility across the broad spectrum of scientists, policy makers, and organizations. The ICARP-2 had over 450 participants and the 'Forum' was attended by 150 people.

Participants at JC-2 were informed of the activities of the WMO Inter-commission Task group on IPY, which, in collaboration with WMO technical commissions, had developed a number of constructive actions towards IPY implementation. These were focused primarily on further development and extension of observing networks in polar regions, standardization of the observations and instrument traceability, and access to

data to be obtained during IPY. The JC also considered the progress of the nascent IPY Subcommittees on Observations; Data Policy and Management; and Education, Outreach and Communication. Terms of Reference were developed for these subcommittees. Reports were given on behalf of bodies interested in the support and promotion of IPY, including the Arctic Council, the Antarctic Treaty Consultative Meeting (ATCM), World Climate Research Programme (WCRP), SCAR and IASC.

Three breakout groups discussed and reported back on the key issues of building the IPY science program through the ongoing assessment of full proposals, links with logistical organizations and IPY fund-raising. (Figs. 1.5-6) The proposal to establish a special Eurasian IPY 'sub-office' in St. Petersburg, Russia to facilitate IPY activities in the Russian Arctic, which had been deferred from JC-1, was endorsed.

### JC-3 Meeting: April 2006

The JC-3 meeting took place on 20-22 April 2006 at British Antarctic Survey headquarters in Cambridge, U.K. (Appendix 3, Fig. 1.5-7). By this time, all elements of the IPY structure were firmly in place. The JC reviewed the activities of the IPO and reports from the three Subcommittees on Education, Outreach and Communication; Observations; and Data Policy and Management. A proposed IPY 'Data Policy' was formally introduced for the first time. Another 'first' was the introduction of the IPY 'Youth Steering Committee' (by David Carlson), a new group that would take prominence during the later phases of the IPY. The JC was briefed on the status of IPY funding by several participating nations.

The JC-3 also finalized the review of 'full proposals' submitted as IPY projects. The IPY 'honeycomb' project chart was revised and would keep its same general shape for the duration of IPY with minor modifications (Appendix 6).

A special session, chaired by Robin Bell, was devoted to the integration of individual project clusters within the emerging science program and across IPY themes. A Task Group (led by Ian Allison) was established to develop an integrated 'IPY Science Plan' by the next JC meeting; this eventually resulted in the document *Scope of Science for IPY 2007–2008* (Allison,



Fig. 1.5-5. Second Open Consultative Forum, Copenhagen November 2005. Left to right: Ian Allison, Michel Béland, David Carlson, Cynan Ellis-Evans and Mark Parsons.

(Photo: Chris Rapley)



Fig. 1.5-6. JC-2 session in Geneva. Left to right: Michel Béland, David Carlson, Leah Goldfarb, Tillmann Mohr and Jerónimo López-Martínez. (Photo: Chris Rapley)

Fig. 1.5-7. JC Co-Chairs, Michel Béland and Ian Allison, outside the IPO at the British Antarctic Survey, Cambridge, U.K. during JC-3, April 2006.

(Photo: David Carlson)



et al., 2007) (Box 6).

A notable development for a meeting a year *prior* to the opening of IPY was its focus on the impact of the IPY after its completion in March 2009. For the first time, the JC addressed what later became known as 'IPY legacies'. JC members identified a list of successes that they hoped would emerge from IPY 2007–2008: (1) a new regime for research access to the Arctic; (2) integration of local communities and social sciences; (3) new observing systems in the Polar Regions; (4) changing the data management and data centre culture; and (5) new understanding of the operation of polar climate (*Part 5, Introduction*).

The JC also discussed the issue of Ethical Principles for IPY projects and expressed its reservation regarding any commercial partnerships within IPY activities. It reviewed the preparations for IPY 'launch activities', scheduled for early 2007, and agreed to explore the options for an 'IPY Summary Conference' to take place in either 2009 or 2010. A "statement of requirements" for such meetings was to be drafted for the next JC session in September 2006.

Actions from JC-3 and IPY implementation were subsequently discussed at various meetings, including the 3rd IPY Open Forum during the SCAR Open Science Conference in Hobart, Australia in July 2006 (Box 4). Over the course of IPY, the JC Members and the staff of International Programme Office gave numer-

ous presentations on IPY to many scientific and public audiences worldwide (Box 5, *Chapter 1.6*).

### **JC-4 Meeting: September 2006**

The JC-4 meeting was held on 26-28 September 2006 at the University Center of Svalbard (UNIS) in Longyearbyen (78°N) on the Arctic island of Svalbard (Appendix 3, Fig. 1.5-9). As part of its regular agenda, the JC reviewed reports on the activities of the IPO, the three Subcommittees (on Data Management; Observations; Education, Outreach and Communication), the Youth Steering Committee and on the status of IPY funding. The JC agreed on the establishment of the IPY Space Task Group as a sub-group of the Subcommittee on Observations in order to help meet the requirements on satellite data of individual IPY projects by the space agencies. The JC also welcomed a new group of heads of the national IPY secretariats (HAIS) that was preparing for its first meeting in Washington, D.C. in October 2006 (Chapter 1.7).

At JC-4, members broke into small teams to advance completion of the "science plan" in time for the IPY opening in March 2007 (Box 6, Fig. 1.5-10).

The JC reviewed planning for the main 'IPY launch event' on 1 March 2007 (Box 7) and of the several related national launch events. Two national IPY committees submitted reports on their activities for

# Box 4 Third Open Consultative Forum: Hobart, July 2006

This OCF was held in Hobart, Australia on 8 July 2006 in conjunction with the XXIX biennial SCAR meeting and the second SCAR Open Science Conference. This collection of Antarctic meetings (8-19 July) had about 900 participants from 32 countries and provided an excellent opportunity to disseminate IPY information. It also allowed participants in many SCAR-led IPY projects to discuss and coordinate their activities.

The OCF was attended by over 70 people including nine representatives from the JC and the IPO. It included an update on IPY implementation (Rapley and Allison), a report of IPO activities (Carlson) and a presentation about Antarctic research within IPY and the role of SCAR (Summerhayes). There was broad discussion from the floor on issues of data management, IPY observations, young researchers and EO&C. The state of national funding for IPY projects was a concern for many.

IPY was well promoted at the opening of the SCAR Open Science Conference. Dave Carlson gave a Plenary Keynote on IPY and the other eight keynote presentations also referred to the IPY. An Information Paper (IP 17) reporting IPY developments and SCAR participation on IPY projects was tabled at the XXIX SCAR Delegates Meeting on 18 July.

the JC evaluation; that practice was repeated at several further JC meetings.<sup>17</sup> The JC also held a short joint session with the hosting Norwegian IPY committee.

The JC approved a 'mid-program' IPY science meeting in Russia in 2008 and a full IPY 'science conference' in 2010. The SCAR open science conference, scheduled for July 2008 in St. Petersburg, Russia (and for the first time to be organized as a joint event with IASC) was suggested as a suitable high-profile bipolar forum for the first IPY conference. In response to a solicitation by the IPO (August 2006), the Norwegian and Canadian national IPY committees expressed their interest in hosting the 2010 IPY conference. At JC-4, the Norwegian IPY Committee presented a formal proposal for an IPY Science Conference to be held in Oslo in 2010, with a prospective attendance of between 2000 and 3000 scientists. Thus the trajectory of IPY activities was advanced to 2010, more than a year after completion of the observational period in March 2009.

### Box 5 Eco Polar Ushuaia 2006: an initiative to promote IPY in South America

From 26 to 28 May 2006, a series of activities to disseminate information about IPY were held in Ushuaia, the southernmost city of the world and the capital of Tierra del Fuego Province, Argentina. Named *Eco Polar Ushuaia 2006*, this event attracted primarily participants from South American countries, with the great majority coming from Argentina (Fig. 1.5-8).

The residents of Tierra del Fuego and its authorities have strong polar interests. Ushuaia is less than 1,000 km from the Antarctic Peninsula and a key access point to Antarctica. *Eco Polar Ushuaia 2006* was hence supported by many national and local organizations. Among the key objectives of *Eco Polar Ushuaia* were bringing IPY objectives to local people and spreading the message of the importance of polar regions to issues like climate change, especially to the southernmost regions of South America. The activities also included a focus on IPY education, outreach and communication to the many tourists using this gateway to Antarctica.

Over 1,200 participants attended lectures, workshops and exhibitions during the event. They included the main Argentinean Antarctic representatives and the Executive Secretary of the Antarctic Treaty Secretariat in Buenos Aires (Jan Huber, an observer on JC). David Carlson, Rhian Salmon and Jerónimo López-Martínez were invited to share the objectives and scope of IPY 2007–2008 from the perspectives of JC and IPO. They gave public lectures, met with several groups of teachers and joined other activities open to the public. The three were named *Honor Guests of Tierra del Fuego* and received a certificate from the Governor.



Fig. 1.5-8. Logo of the Usuhuaia meeting.

Fig. 1.5-9. Fahrbach, Sarukhanian, Béland and Carlson against a polar backdrop at JC-4, Longyearbyen. (Photo: Ian Allison)



# JC-5 Meeting and the Launch of IPY: February – March 2007

The JC-5 meeting (Appendix 3) was held at the ICSU Secretariat in Paris, in conjunction with the formal launch of IPY on 1 March 2007 (Box 7). The JC members also attended the 'IPY Launch event' at Palais de la Découverte and the Opening French IPY ceremony at the building of the French Senate, Palais de Luxembourg (Figs. 1.5-12, 13, 14 and 15).

The 79-page Scope of IPY Science (Allison et al., 2007) had been released online and copies had been printed by WMO for distribution at the time of the launch and immediately afterwards. In addition, many endorsed IPY projects were moving towards implementation. With IPY entering the field phase, the role of the JC was changing from one of planning to one of maintaining the momentum and visibility of IPY activities and forging interdisciplinary links between constituent projects. These issues were discussed in two "brainstorming" sessions during JC-5.

The JC again considered the issue of 'legacy' that would result from IPY 2007–2008. This was broadly categorized as the legacy from new scientific data and knowledge, from expanded observational networks and techniques and from improved ways of collaboration. HAIS assisted in stimulating IPY legacies beyond the project level (*Chapter 1.7*). The JC also

agreed to work with SCAR and IASC to identify and capture the IPY legacy.

JC-5 confirmed that the first dedicated IPY science conference would be the joint SCAR/IASC meeting in St Petersburg in July 2008 and also accepted the offer from Norway to host the second in Oslo in 2010.

Activities of the Subcommittees on Data Policy and Management, Observations (including its sub-group, the Space Task Group), and Education, Outreach and Communication were reviewed. The offer of appointment of a data coordinator for IPY operational data by the Norwegian Meteorological Institute, with support from Canada and Germany, was welcomed. The JC also reviewed reports from several national IPY committees on their ongoing activities.

Because of delays in funding of a number of national IPY programs, requests had been received for IPY to be extended for an additional 6 to 12 months. The JC resolved that the formal IPY period remain 1 March 2007 to 1 March 2009, but that any requirement to extend IPY projects should be reviewed as part of ongoing assessment of the overall program.

### **JC-6 Meeting: October 2007**

The sixth meeting of the IPY Joint Committee (JC-6) was held in Quebec City, Canada on 25-26 October

### Box 6 'The Scope of Science for IPY 2007-2008' (2007)

The *Framework* document produced in 2004 (Rapley et al., 2004 – *Chapter 1.3*) was a 'Preliminary Plan' for IPY. It defined the concept and rationale for IPY, its organizational structure and the scientific themes the program would address. But it was not a 'science plan' in the sense that it did not provide detail of the scientific objectives and design of many component projects that would become a large, multi-disciplinary international program.

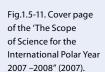
Following the bottom-up development process established for IPY 2007–2008, its Science Plan could be assembled from the ideas and proposals submitted from scientists around the world. By January 2006, more than 400 proposals had been submitted and, after rigorous assessment, the JC had endorsed 228 of them. At the JC-3 meeting (April 2006), JC Task Group (Allison, Béland, Bell, Krupnik, Danell, Fanta and Sarukhanian) commenced drafting a 'science plan' to define the overall scope of IPY research and to explore how those projects would integrate to address the six IPY science themes. A major objective of this exercise was to produce a clear statement of what IPY would be from the perspective of its research agenda and to enhance the public understanding of the goals of IPY.

Also, in early 2006, Carlson and Bell compiled a short internal document that defined the breadth of IPY science. Using it as a basis, the Task Group went through all of the endorsed projects to determine which themes they addressed, how they contributed to these and how the individual projects fitted together. A number of obvious 'project clusters' emerged that identified big science questions that IPY would address and which eventually provided a structure for the IPY science plan. A skeleton of the plan was developed from this preliminary analysis and was distributed to JC members prior to JC-4 in September 2006.

At three sessions during JC-4, the JC members broke into

small expert groups (Fig. 1.5-10) that prepared outline drafts against each of about 20 major topics within the six IPY 'science' themes. Following JC-4, Ian Allison summarized these initial contributions into a full draft of the science plan that later became known as 'The Scope of Science for the IPY 2007–2008' document (Fig. 1.5-11). Over the next few months, the JC members worked by email, contributing text, editing and corrections. The IPO, and particularly Cynan Ellis-Evans, provided the major support for the publication (layout, illustrations, etc.).

The 79-page document was finalized and posted on the IPY website (www.ipy.org) on 12 February 2007, just prior to the launch of IPY in March 2007. WMO had 3000 copies printed, some of which were distributed during the launch and the rest mailed to IPY stakeholders in the following months. The document provided an overview of the wide scope of IPY science based on the research plans and objectives of the 228 endorsed projects. It described the broad-scale science objectives rather than individual projects, although a list of all endorsed projects was appended. It also very much focused on the science, although brief overviews of the IPY structure and organization, data management, observational networks, and education and outreach were also included (see www.ipy.org/about-ipy; www.icsu.org/Gestion/ img/ICSU\_DOC\_DOWNLOAD/1155\_DD\_FILE\_IPY\_ Science\_Plan.pdf)



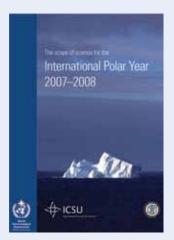




Fig. 1.5-10. JC 'biology' team of Edith Fanta, Cynan Ellis-Evans, and Kjell Danell works on its section for the Scope of Science Document at JC-4 in Svalbard.

(Photo: Jerónimo López-Martínez)

#### Box 7 Global launch of IPY 2007-2008: March 2007

ICSU and WMO officially launched IPY 2007–2008 on 1 March 2007 in a morning ceremony at the Palais de la découverte in Paris, France that was webcast around the world. The ceremony aimed to reflect and appreciate the broad set of people and organizations that had contributed to the initiation and planning of IPY and conveyed the excitement of the 220 IPY projects and the sheer scale of the IPY program.

Marie-Lise Chanin of the French Academy of Sciences chaired the opening session (Fig. 1.5-12), which included speeches from T. Rosswall, M. Jarraud, D. Carlson, I. Allison, M. Béland and Jack Guichard from the Palais.



Fig. 1.5-12. Opening of IPY 2007–2008 at the Palais de Découverte, 1 March 2007. Left to right: Marie-Lise Chanin (the French Academy of Sciences), David Carlson (IPO), Thomas Rosswall (ICSU), Michel Jarraud (WMO), Ian Allison (JC) and Michel Béland (JC).

(Photo: Jerónimo López-Martínez)



Fig. 1.5-13. V. Kotlyakov (JC member and IGY veteran) and Adrienne Smith, (graduate student at Lamont Doherty Earth Observatory of Columbia University) cutting the "iceberg" cake for the IPY Opening.

(Photo: Igor Krupnik)

This session was crowned with a joint symbolic cakecutting by early career scientist Adrienne Smith, graduate student at Lamont Doherty Earth Observatory of Columbia University<sup>1</sup> and Vladimir Kotlyakov, the most senior JC member and a participant in IGY 1957– 1958 fifty years ago (Fig. 1.5-13). HSH Prince Albert II of Monaco gave an opening address to the audience of IPY activists, journalists, educators and representatives of science organizations (Fig. 1.5-14).

Rhian Salmon from the IPO then moderated a press conference. Following this, the ~200 attendees, including more than 70 members of the Press, browsed small exhibits featuring individual IPY projects from various fields, such as Plates and Gates (no. 77), Polar Snapshot from Space (GIIPSY, no. 91), Antarctic Ice Accumulation and Discharge (ASAID, no. 88), Arctic Modelling and Observing (DAMOCLES, no. 40), Marine Mammal Explorations (MEOP, no. 153), and Reindeer Herding and Climate Change (EALAT, no. 399). The participants had a chance to discuss IPY in personal interactions with the team leaders, JC members, JC subcommittee chairs and representatives from IPY education, art, youth and early career polar scientists.

Prince Albert II marked the official start of IPY by launching a global network of science centres and conducting a live, video-linked demonstration of a loaded wire pressure melting its way through a block of ice.



Fig. 1.5-14. HSH Prince Albert II of Monaco addressing the IPY Opening Ceremony, 1 March 2007.

(Photo: Igor Krupnik)

<sup>&</sup>lt;sup>1</sup> As part of her IPY work, Adrienne Smith traveled to both the Greenland ice sheet and Antarctica with the AGAP project. She is working on the study of subglacial lakes in Antarctica and on the grounding line of the Jacobhaven Fjord in Greenland.



Fig. 1.5-15. JC Members at the JC-5 meeting on the stairs of the ICSU Secretariat in Paris. March 2007, Left to right: Igor Krupnik, Chen Zhenlin (guest), Cynan Ellis-Evans (IPO), Tom Gross (IOC, for Keith Alverson). Volker Rachold, Kjell Danell, Michel Béland, Jan Huber, Grete Hovelsrud. David Carlson (IPO). Robin Bell, Ian Allison, Qin Dahe, Eduard Sarukhanian, Chris Rapley, Odd Rogne (IPO), Tillmann Mohr, Eberhard Fahrbach, Colin Summerhayes, Carthage Smith (ICSU), Missing: Edith Fanta, Jerónimo López-Martínez. Nicola Munro (IPO). (Photo: ICSU)

2007 (Appendix 3). It was the only North American meeting of the Joint Committee. The meeting included a joint session with the Canadian National IPY Committee and JC members participated in the Canadian IPY event *Meet the Press: Canadian IPY Celebration* organized by the Université Laval.

With IPY field activities already in their eighth month and on the eve of the first IPY Antarctic field season, there was a lot of new information on the project efforts, funding and status. Reports from ten national IPY committees were tabled and short overviews from major supporting organizations were also presented.<sup>18</sup>

The JC noted with concern that, according to the survey by its Subcommittee on Data Policy and Management, 40% of substantially funded 'full proposals' had not provided information regarding their data management plans (based upon responses from 80 projects). A small JC breakout group addressed this and subsequently advised JC-6 that the data plan should aim to identify all IPY metadata by June 2009, ensure all data were available by March 2010 and have all data in secure archives by March 2012 (*Chapter 3.11*).

The Education, Outreach and Communication

Subcommittee reported on the first IPY 'Polar Day', held on 21 September 2007 and focused on sea ice. This was the first of seven planned major outreach and educational events (*Chapter 4.1*). Also in September 2007, the former IPY 'Youth Steering Committee' became the Association of Polar Early Career Scientists (APECS)—an important and active new body emerging out of the IPY (*Chapter 4.3*).

The JC-6 meeting again addressed the issue of IPY legacies (Part 5: Introduction) on the basis of a discussion paper written by David Carlson and an external review on IPY 2007-2008 planning prepared for the OECD Global Science Forum (Stirling, 2007). Carlson's paper highlighted four prospective IPY legacies: observations, data, future researchers and infrastructure. Another emerging legacy was the strengthening of bipolar (Arctic-Antarctic) science planning and coordination, and the growing partnership between two major international polar science organizations—IASC and SCAR (Chapter 5.5). At JC-6, these two organizations agreed to extend the IPY momentum by establishing a joint Bipolar Action Group to define a strategy for post-IPY collaboration. Another development in the post-IPY process was the offer from the Canadian IPY Committee to host a major post-IPY science and policy conference in 2012. This offer was accepted. For the first time, the JC also considered the role of its members after the end of the JC term in 2009, as well as the fate of the JC-IPO records, website postings and publications.

JC-6 established crucial milestones in planning for the completion of IPY and for securing its legacy. Following JC-6, negotiations commenced to find a secure repository for the IPY archival files, including the voluminous IPO electronic and online records. Eventually, Scott Polar Research Institute in Cambridge, U.K. agreed to host the IPY 2007–2008 archives and memorabilia through an agreement with the IPO (Chapter 4.2). The Arctic Portal (IPY no. 388) took responsibility for maintaining IPY electronic records. In spring 2008, Igor Krupnik began recording narratives of the early IPY champions on the origination and planning for IPY in 2000–2003 for future IPY historical records (Chapters 1.2 and 1.3).

# JC-7 Meeting and Fourth Open Consultative Forum: July 2008

With IPY field activities now past their mid-point, and with limited remaining financial support available

from the sponsors, it was decided to hold only one JC meeting in 2008 (JC-7) and to hold a final meeting of the committee (JC-8) in conjunction with the official IPY 'closing' ceremony in March 2009.

JC-7 was held in St. Petersburg, Russia, 4-5 July 2008 at the Arctic and Antarctic Research Institute (Appendix 3, Fig. 1.5-16) prior to the joint SCAR/IASC IPY Open Science Conference<sup>19</sup> (Chapter 5.5; Klepikov, 2008). The conference was the first major meeting for presentation of results from IPY 2007-2008. The IPY observational phase had now been running for more than one year and many endorsed scientific projects were well underway. This JC meeting was, again, concerned largely with the issues related to the legacy of IPY. Ensuring appropriate identification and access to all IPY data and their long-term preservation, continued to be a major challenge. National data coordinators, or data "points of contact", were to be sought to help with meta-data registration, but for certain data, particularly from the social sciences and some life sciences, there were no guaranteed long-term archives.

The JC prepared an outline of a statement on IPY activities and ongoing polar challenges to be released near the end of the IPY observational period in early 2009, and prior to the 50th anniversary of the Antarctic Treaty (*Chapter 5.5*). Preliminary arrangements for the



Fig.1.5-16. JC-8
Meeting in St.
Petersburg, July 2008.
Left to right: Rhian
Salmon (IPO), Odd
Rogne (IPO), Nicola
Munro (IPO), Olav
Orheim (Norwegian
IPY Secretariat,
standing), lan Allison,
Keith Alverson,
Vladimir Kotlyakov.
(Photo: Jerónimo López-

Martínez)

IPY science conferences in June 2010 (Oslo, Norway) and in 2012 (Montréal, Canada) were confirmed. Nevertheless, the JC itself was to be disbanded at the end of 2009 and the IPO was funded only until September 2009. The JC hence agreed to seek an extension of its own term and to seek supplementary funding for the IPO so that both could be continued until the Oslo meeting in order to ensure a smooth transition from the IPY 2007–2008 to IPY legacy phase.

JC-7 also addressed a paper prepared by David Carlson on legacy - *IPY IPO Planning Document – 2008 and Beyond.* This gave a thorough analysis of various impacts to be left by IPY 2007–2008 and the necessary strategies to secure their life after IPY 2007–2008. A possibility of an *IPY Legacy* publication series of several volumes was introduced. In addition, it was agreed that a small task group of the JC should prepare a short outline for a synthesis paper that would document the planning and implementation of IPY 2007–2008. This would be discussed further at the JC-8.

The 4th IPY Open Consultative Forum (OCF) was held at the Pribaltyiskaya Hotel, St. Petersburg, on 7 July 2008, after JC-7. The OCF followed an APECS workshop and many of the attendees were early career scientists. With IPY now fully underway, this forum served largely as an information session and reports were given on the status of IPY activities (Carlson) and data issues (Mark Parsons). Discussion from the floor included the role of IPY in encouraging interest in polar science in non-polar countries, with IPY activities in Portugal given as an example. The issue of an historical analysis of this IPY was also raised, with a plea for preservation of materials documenting IPY planning and implementation.

## **JC-8 Meeting: February 2009**

JC-8 was held at the headquarters of WMO in Geneva, on 23-24 February 2009 (*Appendix 3*, Fig. 1.5-18) in conjunction with the 'IPY ceremony' organized jointly by WMO, ICSU and the IPO to celebrate the completion of the IPY observation period on 1 March 2009 and the release of the JC Statement "The State of Polar Research" (Allison et al., 2009). The meeting focused on an orderly transfer of tasks from the fixed-term international support structures that were put in place in 2005–2006 to implement IPY.

Reports on plans for 2009-2010 activities were tabled by the IPO and JC subcommittees, as well as from many partner bodies focused on their future efforts to promote the IPY legacy. WMO, ICSU and the Arctic Council presented their respective roadmaps to ensure sustainability of several IPY activities beyond IPY, such as WMO's concept for an International Polar Decade (*Chapter 5.6*), the Snow, Water, Ice and Permafrost in the Arctic (SWIPA) project of the Arctic Council (*Chapter 5.2*), and the Sustaining Arctic Observing Network (SAON) initiative (*Chapter 3.8*). In addition, the JC acknowledged an Arctic Council initiative to independently assess the IPY legacy in a message that was subsequently sent to the Arctic Council and the Antarctic Treaty Consultative Meeting:

"The Joint Committee for the International Polar Year would welcome the support of the Arctic Council and Antarctic Treaty System in promoting and facilitating the legacy of IPY 2007–2008, particularly in maintaining collaborative research and observations between nations".

The JC also adopted "The State of Polar Research" document (Box 8), as a preliminary account of the results from the IPY 2007–2008 and the future challenges in polar science.

Furthermore, it approved the format of the 'Certificate of Appreciation' to be sent to IPY participants including prominent researchers, project coordinators, chairs of IPY national committees and members of IPY international bodies. Altogether, 920 IPY participants were awarded Certificates signed by Thomas Rosswall for ICSU and Michel Jarraud for WMO.

Much of the JC discussion was on activities in 2009–2010 and beyond. Olav Orheim, head of the Norwegian Secretariat for the Oslo Science Conference (OSC) in June 2010, presented the organizers' vision for making the OSC the largest-ever gathering of polar scientists, with 3000 participants expected (www.ipy-osc.com/). Patrick Borbey, Assistant Deputy Minister, Canadian Ministry of Indian and Northern Affairs, briefed the JC on the Canadian preparations for the IPY conference 'From Knowledge to Action' to be held in April 2012 in Montréal. The organizers were also expecting up to 3000 participants, with a strong presence of Northern residents and a focus on human aspects of polar research (*Chapter 5.6*).

### Box 8 "The State of Polar Research" (2009)

By the time of JC-6 (Quebec City, October 2007) the IPY field phase was barely 6-months old, but the JC already turned its attention to assessment of the effectiveness of the overall program. In this, the JC aimed for a very preliminary and brief assessment of whether IPY had achieved a level of research, which would not have existed without such an internationally collaborative effort. Other criteria to be included in the assessment were whether IPY addressed the key research issues identified in the Framework document (Rapley et al., 2004); whether international collaboration had been enhanced; whether IPY had significantly increased funding available for polar research; and how IPY had progressed against its Education, Outreach and Communication "legacy" objectives. Allison, Béland and Carlson were tasked with drafting a paper on this for comment and feedback from JC members by the end of 2007.

This brief "assessment" was eventually submitted as a paper and published as a mid-term review of IPY (Allison et al., 2008). It was realised, however, that it was too early for a complete and impartial assessment of IPY activities and that the JC should aim for another report on the status of IPY. The IPY sponsors (ICSU and WMO) advocated for a modest-size overview that could be presented at the conclusion of the IPY field program in spring 2009 and

which would highlight IPY cooperation, major advances and the most important issues for the polar regions.

At JC-7 (St Petersburg, July 2008), Allison presented a draft outline of such a status report and JC members reviewed examples of major broad-scale advances in polar science from the new results presented at the SCAR/IASC Open Science Conference. The status report (called "The State of Polar Research"), which evolved with the considerable input from David Carlson and IPO, included these scientific highlights and the new observational networks advanced by IPY cooperation. The report stressed the continuing urgency for polar research and recommended enhanced and ongoing support and funding for polar research, sustained multidisciplinary observational systems, and a system for long-term IPY data preservation.

The "State of Polar Research" (Allison et al., 2009 – Fig. 1.5-17) was released online for the IPY Ceremony on 25 February 2009 and printed copies were distributed by WMO in English, French, Spanish and Russian. This brief (16-page) document highlighted main IPY achievements by early 2009, but it was broadly acknowledged that it would be over-shadowed by the scientific advances that would eventually come from the program in the next few years.

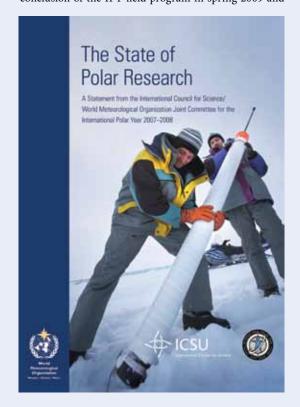


Fig. 1.5.17. Cover page of the 'State of Polar Research' document ( Allison et al., 2009).

# Box 9 Celebration of the International Polar Year 2007-2008: February 2009

Celebration of IPY was organized by WMO, ICSU and IPO 25 February, 2009, to mark the formal completion of the IPY observation period (1 March, 2009) and to present to the scientific community, public, and media a statement "The State of Polar Research" prepared by the IPY Joint Committee.

The main event took place on 25 February at the WMO headquarters in Geneva. Three hundred participants, including 150 IPY researchers, representatives of diplomatic missions in Geneva, and journalists attended the Ceremony. They were welcomed by M. Jarraud, C. Brechignac, President of ICSU, and D. Hasse, President of APECS. The message from H.R.H. Crown Princess Victoria of Sweden was presented by H.E. Mr. H. Dahlgren, Permanent Representative of Sweden to the United Nation Office and other international organizations in Geneva. Three presentations made by David Carlson, Ian Allison and Michel Béland on behalf of the JC team outlined the main IPY achievements. In recognition of the successful work carried out during the IPY years, the Certificates of Appreciation were presented by C. Brechignac and M. Jarraud to Prof. Vladimir Kotlyakov, former participant

of IGY and the JC member, and Mélanie Raymond, one of the youngest participants of IPY (Fig. 1.5-18) Altogether, 918 IPY participants from 60 nations received their award Certificates after the ceremony or later via mail.

The Ceremony was accompanied by musical interlude of traditional and modern Canadian Inuit dancing and singing performance by a group of students enrolled in Nunavut Sivuniksavut College, Ottawa, Canada.

On the previous day, 24 February 2009, the JC members and more than 100 guests gathered for the IPY 'celebration' attended a reception at the Palais des Nations (Geneva) for the opening of "Our Polar Heritage" photo exhibit by French photographer Christian Morel. The exhibit created a unique photographic testimony of scientists of all disciplines working in the Arctic during the IPY years. Participants were welcomed by Mrs. S. Ordzhonikidze, Director-General of the UN Office in Geneva, M. Jarraud, WMO Secretary-General, and H.E. M. Grinius, Permanent Representative of Canada to the UN Office and other international organizations in Geneva who supported the exhibition.



Fig. 1.5-18. At the 'IPY Ceremony' in Geneva, Vladimir Kotlyakov, the most senior  ${\sf JC}$ Member and former participant of IGY 1957-1958, and Mélanie Raymond, one of the youngest participants of IPY receive the Certificate of Appreciation by Catherine Bréchignac and Michel Jarraud on behalf of ICSU and WMO, 25 February,

(Photo: WMO)

A somewhat contentious issue, debated over the two days, was the production of a report summarizing IPY planning and activities from the perspective of the JC and stakeholders. Several alternative visions of this document were discussed, including a major summary volume, a shorter technical report and an IPY science overview paper for major scholarly journals. Eventually the JC agreed upon working on two final products: an 'IPY overview' (this volume) and a short synthesis paper on the key IPY science achievements for a journal, such as Science. The overview volume would be accomplished by the entire JC under the leadership of a five-member Editorial Board of Allison, Béland, Bell, Carlson and Krupnik. The structure of the IPY 'summary' and a schedule to produce a full draft for the Oslo Conference, with final release in early 2011, were approved. The short synthesis paper on the key IPY science achievements and impacts was tasked to a team of Allison, Béland and Carlson.

The last day of the JC-8 was uplifted by an 'IPY Celebration' organized at the WMO Headquarters and an international press conference and photographic exhibition at the UN Palais de Nations (Box 9). It was agreed that JC communication would be maintained by e-mail and that the members would use the Oslo conference in 2010 to publicize the outcomes of IPY to the broad polar community and beyond.

#### JC activities in 2009

In June 2009, ICSU and WMO had agreed to extend the JC term by six months beyond the end of 2009, the original term in the JC ToR. The Committee would work primarily by correspondence up to June 2010. It was also agreed that a last one-day meeting (JC-9) would be held during the IPY Science Conference in Oslo in June 2010. In the intervening period, the JC worked with its various bodies and other groups to ensure the consolidation of the progress that had been made in international polar cooperation and the advancement of polar science. This included preparation for the Oslo Science Conference (OSC) in 2010. Five members of the JC (Cutler, López-Martínez, Rachold, Sarukhanian and Summerhayes) served on the OSC Steering Committee, together with the IPO Director (Carlson) and a member of the EOC Subcommittee (Pauls). Other JC Members also served on several science subcommittees for the Oslo Conference (Allison, Béland, Bell, Fahrbach, Hovelsrud, Kennicutt, Krupnik).

JC members were active at numerous meetings during 2009 promoting the IPY legacy and, together with the IPO staff and members of Subcommittees, contributed to several reports on IPY activities (Jezek and Drinkwater, 2010; Kotlyakov et al., 2010).

In May 2009, Ian Allison stepped down as a Co-Chair of the JC, but remained on the committee. ICSU and WMO appointed Jerónimo López-Martínez to replace him as Co-Chair, working with Michel Béland for the remainder of the JC term.

In late 2009 and early 2010, most JC members participated (as authors, reviewers and liaisons to external contributors) in the production of the IPY 'JC Summary' (this volume). Igor Krupnik and David Hik, former head of the Canadian IPY Secretariat, were nominated by the JC Co-Chairs to lead this process, supported by a seven-member JC editorial board of Allison, Bell, Cutler, López-Martínez, Rachold, Sarukhanian and Summerhayes.

### JC-9 Meeting: June 2010

The ninth and final JC meeting was held at the Research Council of Norway in Oslo, Norway on 7 June 2010 (*Appendix 3*; Fig. 1.5-19). It took place one day prior to the opening of the IPY Oslo Science Conference (Box 10). The JC-9 meeting, although brief, was crucial to the orderly completion of the JC work and to setting the agenda for the follow-up activities after the termination of the JC past the Oslo Conference.

The meeting started with a brainstorming session led by Robin Bell to identify major achievements of IPY in the fields of scientific organization, general science knowledge about the polar regions and advancement along the six IPY scientific themes (Status, Change, Global Connections, Frontiers, Vantage Points, and Human Dimensions). Responses from JC members were summarized to frame a common vision of the results of IPY (*Chapter 5.1*). At this preliminary stage, the JC identified the following major advances of IPY 2007–2008:

- (1) Global-polar linkages biological, physical (oceans/atmosphere), other;
- (2) Development of new observing systems to provide data for forecasts, interdisciplinary studies, global

connections;

- (3) Ice sheets large-scale change, dynamics, subglacial hydrology;
- (4) New integrative power integration at various scales, multiple perspectives (disciplinary, local, and indigenous knowledge), societal needs for integrative approaches;
- (5) Change in the polar regions multiple evidence of rapid change from various fields and disciplines;
- (6) New vision of biodiversity in the polar regions, both marine and terrestrial.

The main business of JC-9 was the assessment of the status and of further steps needed to complete the JC 'summary', Understanding Earth' Polar Challenge. The Report co-editors, Igor Krupnik and David Hik, presented a 7-page update. As of 7 June 2010, the Report already comprised 38 chapters in five parts, with 7 appendices and over 200 illustrations. Copies of the preliminary Report were distributed and endorsed by the JC. The JC expressed its sincere appreciation for the amount of work and dedication by the editorial team in bringing the report this far. The JC agreed to commit all needed support from its members so that the project would be completed according to the schedule, i.e., by early 2011. Recognizing that the JC would have ceased to exist by this time, this support would be provided on a voluntary basis,

under the leadership of the present editorial team (Igor Krupnik, David Hik, Ian Allison, Robin Bell, Paul Cutler, Jerónimo López-Martínez, Volker Rachold, Eduard Sarukhanian and Colin Summerhayes) and the four Report sponsors – ICSU, WMO, SCAR and IASC. Upon completion, the IPY summary, submitted on behalf of the JC to the sponsor organizations should be published as a printed volume and also made available as a downloadable PDF file.

Olav Orheim, the Chair of the Oslo IPY Conference steering committee reviewed the upcoming conference events and the final closing ceremony of IPY 2007-2008 scheduled for 12 June, 2010. Kathleen Fischer, Executive Director of the Canadian Federal IPY Program Office, shared the plans of the Canadian organizers for the next post-IPY conference, From Knowledge to Action, scheduled for 22-27 April 2012 in Montreal, Canada. The conference is expected to attract a large group of science, policy and political delegates from around the world and to serve as the wrap-up event for IPY 2007-2008. This meeting will consider the policy implications of the IPY contribution to polar research, education, public status of science, and international collaboration in the polar regions (Chapter 5.6; www. ainc-inac.gc.ca/ai/mr/nr/s-d2009/23301-eng.asp; www. ipy2012montreal.ca/index.html).

On behalf of WMO, Eduard Sarukhanian introduced



Fig.1.5-19 JC-9 Meeting at the Research Council of Norway, Oslo, Norway. Left to right: Manfred Reinke, Tillmann Mohr, Olav Orheim, Michel Béland, Jerónimo López-Martínez, Robin Bell, Odd Rogne, Ian Allison, Eduard Sarukhanian. Takashi Yamanouchi, Helena Ödmark, Grete Hovelsrud, David Carlson, Deliang Chen (ICSU Executive Director), Paul Cutler, Vladimir Kotlyakov, and Chuck Kennicutt. (Photo: Igor Krupnik)

another major polar initiative under consideration called *The International Polar Decade* (IPD). The concept of IPD has been already reviewed at the meeting of the WMO Executive Council Panel of Experts on Polar Observations, Research, and Services (13-15 October, 2009) and it was also considered by several organizations, including IASC, Arctic Council, UNESCO and others (*Chapter 5.6*; ftp://ftp.wmo.int/Documents/

SESSIONS/EC-PORS-1/Doc.7.4(1).pdf). The main goal of IPD is to launch a process of coordinated research and observations in the polar regions to meet the requirements of the long-term climate change studies and prediction to benefit societal needs. The IPD is viewed by many of its champions as a natural outcome of IPY 2007–2008. The meeting agreed to consider IPD as a part of IPY legacy that addresses

### Box 10 Oslo Science Conference and Closing of IPY 2007–2008

The five-day IPY Science Conference, Polar Science -Global Impact (8-12 June, 2010) held at the Lillestrøm Conference Center outside Oslo became the concluding event for IPY 2007-2008. The Oslo conference, in planning since 2006, emerged as the largest ever gathering of polar researchers, educators, science managers and public officials (Chapter 5.6). It engaged more than 2300 participants from 49 nations and featured more than 2000 presentations (1050 oral talks and over 1000 posters - http://ipy-osc.no/section/news). Each conference day included plenary talks and concurrent sessions organized along six themes: (1) Linkages between Polar Regions and global systems; (2) Past, Present and Future Changes; (3) Polar Ecosystems and Biodiversity; (4) Health, Society and Resources; (5) New Frontiers, Data Practices and Directions; and (6) Polar Science Education, Outreach and Communication. It also featured daily poster sessions, discussions and roundtables, exhibits, screening of the documentaries and movies related to the polar regions, and numerous public events (http://ipy-osc.no/

osc\_programme).

IPY 2007-2008 was officially closed on the last day of the Oslo Conference at its plenary morning session (http:// ipy-osc.no/article/2010/1276298669.27) chaired by Gerlis Fugmann, President of the Association of Polar Early Career Scientists (APECS). It began with an opening address by Jerónimo López-Martínez, the JC Co-Chair. In his presentation on behalf of the IPY Joint Committee, López-Martínez reviewed major steps in the preparation and implementation of IPY 2007-2008 and declared the overall success of the IPY program, including its science, education and outreach efforts. He also briefed the broad IPY community about the JC work on the preparation of the IPY summary report (Fig.1.5-20). In conclusion, he thanked the IPY sponsors, ICSU and WMO, many other international organizations, national agencies and IPY committees, members of the IPY subcommittees, secretariats and projects, the staff of the International Programme Office, and many thousands of IPY participants for their contribution to IPY 2007-2008.

López-Martínez's address was followed by short presentations from David Carlson, Director of IPO; Volker Rachold, Executive Secretary of IASC; Michael Sparrow, Executive Director of SCAR, and Jenny Baeseman, Director of APECS (Fig. 1.5-22). Concluding remarks were delivered by Deliang Chen, ICSU Executive Director, and Elena Manaenkova, WMO Assistant Secretary General. They both praised the thousands of IPY participants for their energy and dedication during the more than seven years that took the international community to plan and implement this coordinated polar program, the largest ever undertaken.

On behalf of ICSU and WMO, Elena Manaenkova declared the fourth IPY officially closed. As a symbol of transition, Dr. López-Martínez handed over the IPY 2007–2008 flag to Gerlis Fugmann (Fig.1.5-21). This act indicated that the next generation of polar researchers would continue the momentum generated by IPY and would now be in charge of preserving its legacy.



Fig.1.5-20 Jerónimo López-Martínez. JC Co-Chair delivers his plenary address on behalf of the Joint Committee at the IPY closing ceremony on 12 June 2010. Gerlis Fugmann, APECS President, is on the right.

(Photo: Igor Krupnik)

issues critical to improving long-term international cooperation in polar research and observation. Nevertheless, it stressed the need to formulate the goals and timeframe of the initiative more clearly. The JC urged WMO to continue working with potential stakeholders and to run a series of pilot workshops to identify scientific objectives of IPD and design its framework that would be appealing to the science community and funding agencies.

The JC members reviewed short concluding reports from the Subcommittees on Observations; Data Policy and Management; Education, Outreach and Communication and also from major partners in the IPY implementation process (IASC, SCAR, Antarctic Treaty Conference, Arctic Council). Unfinished business of the JC at the completion of its tenure and the closing of IPY 2007-2008 was addressed, following a short presentation by Igor Krupnik. Some of those unfinished tasks include: archiving the JC and IPO documentation; making the minutes of the JC meetings available to interested researchers; supporting national IPY committees working on their national IPY reports; assisting in IPY overview publications and bibliography; and others. The JC members agreed to include the list of such 'unfinished IPY tasks' in the JC Summary (see Epilogue).

The meeting concluded with the final statements by JC Co-Chairs Michel Béland and Jerónimo López-Martínez (who also invited comments from Ian Allison as former JC Co-Chair), David Carlson (on behalf of IPO), Dr. Deliang Chen, Executive Director of ICSU (on behalf of ICSU), and Eduard Sarukhanian (on behalf of WMO). The speakers thanked the JC members for their service to the IPY process, from November 2004 till June 2010, and expressed their hope that new partnerships built during IPY would be instrumental to its legacy in the years ahead.

The ICSU/WMO Joint Committee for IPY 2007–2008 was officially terminated on 30 June 2010.

# Conclusions: The Functions and Legacies of the Joint Committee for IPY 2007–2008

It is obvious from this account that the JC played various roles and had different levels of activity during its term (January 2005–June 2010). That term may be divided into three phases: 1) *planning* for IPY,

from 2005 to March 2007; 2) the IPY observational (research) period, from March 2007 to February 2009<sup>20</sup>; and 3) assessing and securing the legacy of IPY, March 2009 to June 2010. The JC leadership role during the planning phase in 2005-2007 was epitomized in the 79-page document, The Scope of Science for the International Polar Year 2007-2008 (Allison et al., 2007). During the observational period, IPY implementation was advanced mainly through the efforts of individual project teams, of the funding agencies and of the IPO through its many outreach venues, while the JC increasingly turned its attention to resource mobilization, in particular for support of operational data management activity and for securing the IPY legacies. The invigorated role of the JC during that latter phase culminated in this current volume prepared by almost 300 contributors.

The JC held nine meetings between March 2005 and June 2010, which is more than that for the equivalent steering bodies in earlier IPYs (five meetings for IPY-1, three for IPY-2, and six for IGY – Chapter 1.1). These 2-3-day semi-annual sessions provided thorough updates and overviews of IPY activities. The JC was the most disciplinarily balanced body within the IPY structure and hence best able to represent the diversity of the IPY 2007–2008 and to provide equal voice and role to each of the constituent science fields ("Earth", "Land", "Ocean", "People", "Ice", "Atmosphere" and "Space").

The role of the JC as the recognized leadership body and the ultimate authority in IPY was firmly backed by the IPY sponsors, ICSU and WMO. The primary role of the JC was to encourage and build multidisciplinary international polar research under the IPY umbrella and to assess submitted proposals against the IPY criteria. Additionally, the JC approved and authorized the membership and Terms of Reference for its subcommittees; the establishment of the Eurasian sub-Office in St. Petersburg, Russia; the Ethical Principles for the IPY (www.ipy.org/about-ipy, Appendix 8); and the selection of venues for major IPY conferences. The JC considered many contentious issues, often in heated debates and with disagreement among members,<sup>21</sup> however, decisions were always eventually reached by consensus. Fortunately, the JC was spared any serious political issues that plaqued its predecessor, CSAGI, in IGY 1957-1958, during an era of political rivalries and confrontation (Bulkeley, 2008; 2009).

The JC also served as a forum for new ideas for change in the IPY process. Every JC meeting had agenda items for discussion of such 'new ideas.' Some, like the idea of the 'IPY Publication series' introduced at JC-7, were only implemented to a limited extent, if at all. Others, like the establishment of the IPY archives (JC-6) or the endorsement of the Association of the Early Career Scientists (APECS–Chapter 4.3), were eventually picked up by more appropriate players. The role of the JC as the key IPY 'vetting body' was recognized widely by independent observers (Stirling, 2007).

The JC will most certainly be remembered for its three major achievements: 1) definition of the core IPY science based on 228 international projects reviewed and endorsed by the JC in 2005 and 2006; 2) initiation of a series of three consecutive major IPY conferences in 2008, 2010 and 2012 with their specific messages; and 3) being the main advocate of the IPY 2007–2008 legacy based on JC recommendations for a way forward (*Part 5*). While the analogous bodies for the IPY-1, IPY-2 and IGY also aspired to similar achievements, none succeeded in completing all three.

In fulfilling its role in IPY as defined by ICSU and WMO in 2004, the JC never acted alone. Many other

players helped steer the large IPY flagship to its destination: the IPO, national committees, lead IPY sponsors, and numerous supporting agencies and organizations. The activities of the IPY subcommittees were particularly noteworthy in: identifying and filling observational gaps within IPY observing components (*Part 3*) that eventually led to the creation of the IPY Space Task Group; developing IPY data management strategy (*Chapter 3.11*); and enhancing public and media interest and participation in IPY (*Part 4*).

Assessing the IPY implementation in 2007–2009, the 61st session of WMO Executive Council (June, 2009) "... noted with satisfaction the remarkable progress in the implementation of IPY and highly appreciated the work of the WMO/ICSU Joint Committee (JC) for IPY, its Subcommittees, IPY International Programme Office, and over 50,000 participants of the IPY projects from more than 60 countries. The Council was pleased to note that during the IPY period the researchers made fundamental scientific discoveries, developed new methods and tools, advanced interdisciplinary and international links in polar science and, most importantly, gained new understanding of the role of the Polar Regions in the total Earth system. The Council recognized that the success of IPY had inspired many

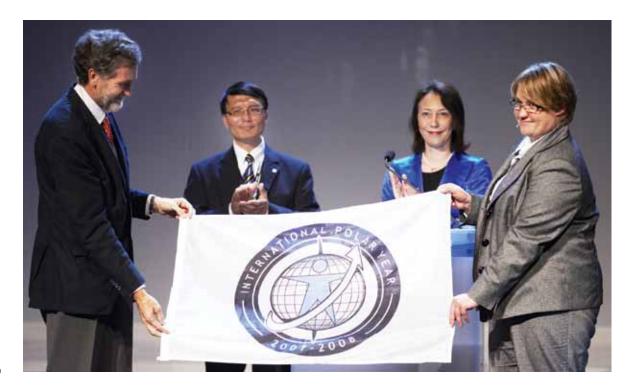


Fig.1.5-21 IPY 2007-2008 was officially closed on 12 June 2010, with the symbolic passing of the IPY flag from Jerónimo López-Martinéz, JC Co-Chair, to Gerlis Fugmann, APECS President, as Deliang Chen, ICSU Executive Director, and Elena Manaenkova, WMO **Assistant Secretary** General, applaud. (Photo: Jon-Petter Reinertsen)



Fig.1.5-22 Closing of IPY 2007-2008 at the conclusion of the Oslo Science Conference, 12 June 2010. Left to right: Elena Manaenkova (Assistant Secretary General, WMO). Michael Sparrow (SCAR), Jenny Baeseman (APECS), Volker Rachold (IASC), David Carlson (IPO), Jerónimo López-Martínez (JC), Deliang Chen (Executive Director, ICSU, standing at the podium). (Photo: Igor Krupnik)

nations to continue IPY projects beyond the IPY..." (WMO, 2009). This message echoed the sentiments from the October 2008 ICSU General Assembly at which IPY was described as "a resounding success" and its implementation was lauded as an effective model from which to draw lessons. ICSU members agreed "to extend deep appreciation to the members of the IPY Joint Committee, its subsidiary groups, and the International Programme Office for their tireless work in making the IPY a major success ..."

The JC indeed fulfilled most of its tasks as stipulated in its Terms of References, established by ICSU and WMO in November 2004. It developed an overall implementation plan for IPY 2007–2008 as a network of 'core' projects in research, data management, education and outreach. It worked hard to encourage and support its subcommittees to develop IPY data policy and strategies to stimulate interest in polar research and polar regions among students, educators, general public and decision-makers. It

organized several 'open meetings' (Open Consultative Forums) for the participating IPY scientists and science planners, and it reached out to many organizations and groups of stakeholders to encourage their participation in IPY (*Chapters 5.3, 5.4*). On the other hand, the JC was not very successful in raising additional funds for IPY planning and coordination, and for keeping a close supervision of its more than 200 constituent international projects and many other events.

It is difficult to compare the role of the JC in IPY 2007–2008 to that of CSAGI in IGY during the 1953–1958 period. The two guiding committees had radically different levels of available resources, administrative and governmental support, and the number of powerful personalities involved (*Chapter 1.1*). Future historians may discover JC shortcomings, but also as yet unseen successes. The unfinished tasks of the JC and of the entire IPY 2007–2008 process will be addressed in more detail in the *Epilogue*.

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#### Notes

- <sup>1</sup> The original composition of the Joint Committee of 14 'science' members, with their respective country and field of expertise and of five *ex officio* members was announced in November 2004 (*Chapter 1.3*).
- <sup>2</sup> I. Allison (nos. 105, 141,313), R. Bell (no. 67), K. Danell (no. 305), E. Fanta (no. 137), E. Fahrbach (nos. 8,35,379), G. Hovelsrud (nos. 157, Pl), I. Krupnik (nos. 166, Pl), J. López-Martínez (no. 77), T. Yamanouchi (nos. 9,99).
- <sup>3</sup> Prior to JC-2, representatives of the Arctic Council and of the Antarctic Treaty System were officially invited to serve on the Joint Committee as observers. The composition of the JC underwent changes over five years: Paul Cutler replaced Leah Goldfarb as the ICSU representative (from 2007); Mahlon (Chuck) Kennicutt II, SCAR President from 2008, became the SCAR *ex officio* member instead of Colin Summerhayes (from 1 April, 2010); Helena Ödmark succeeded Vitaly Churkin as the AC observer (from 2007); and Manfred Reinke replaced Jan Huber as ATCM observer (from November 2009). Yoshiiyuki Fujii was replaced by Takashi Yamanouchi in 2007. Lastly, Edith Fanta passed away in May 2008 (Box 1). Her position on the JC was eventually offered to Colin Summerhayes, after his retirement from SCAR in early 2010.
- <sup>4</sup> Meteorology and climate (Béland, Sarukhanian, and Allison); Oceanography (Fahrbach, Alverson, Carlson and Summerhayes); Glaciology (Kotlyakov, Qin, Fujii); Geology (Bell, López-Martínez); Geochemistry (Rachold), Biology (Danell, Fanta, Ellis-Evans); Sociology/Education and Outreach (Krupnik, Hovelsrud, Rogne); Space/Data/Legacy (Rapley, Mohr).
- <sup>5</sup> There were four primary evaluation criteria for Eols (significant advance within a theme or to EO&C; undertaken within a polar region and within the IPY timeframe; involves international collaboration; and includes preliminary plans for management, funding and logistic support) and six additional criteria (involves nations new to polar research; provides a legacy; builds on existing programmes or initiatives; links to other Eols; is interdisciplinary; and is endorsed by an IPY National Committee).
- <sup>6</sup> The selection panel for the Executive Director of IPO consisted of the Co-Chairs of the JC (Michel Béland and Ian Allison also chair of the panel), representatives of ICSU (Leah Goldfarb) and WMO (Ed Sarukhanian) and a representative of the funding agency, BAS/ NERC (Chris Rapley).
- <sup>7</sup> David Carlson, the IPO Director, has degrees in biology and oceanography and a professional background in research management, including as Director of the International Project Office for TOGA COARE, a multi-year climate research program involving atmospheric and oceanic scientists from 12 nations. He was passionate and enthusiastic about the objectives of the IPY and came to be seen as the "face of IPY" to many of the project scientists and the general public. He was relentless in his efforts to communicate IPY ideals and achievements to the wider community.
- The nominated observers, Jan Huber (ATCM) and initially Vitaly Churkin and then Helena Ödmark (AC), were to join subsequent JC meetings and to provide very productive input to the work of the committee.
- 9 That website later transformed into a permanent main IPY website www.ipy.org that was maintained out of IPO from 2006 till 2010.
- <sup>10</sup> The full set of almost 900 Eol's submitted by March 1, 2005 was also copied onto CDs, given to all JC members and made available to the national IPY committees.
- <sup>11</sup> National Committees represented at the first OCF were Belgium, Canada, Chile, Denmark, Finland, France, Germany, Iceland, India, Italy, Japan, Malaysia, Norway, Poland, Portugal, Russia, Spain and U.S.A.
- As a result of the JC review, all Eols were divided in three categories. The Eols assessed as "Category 1" were encouraged to advance with the full proposal. Applications in "Category 2" were recommended to look for additional options in coordination with other proposals and improvement, in adherence to IPY criteria. Most of the "Category 2" proposals were essentially applications from a single nation, which could become valuable IPY contributions if they were combined with other similar proposals. "Category 3" applications were advised to re-submit. All Education and Outreach proposals were encouraged to proceed.
- <sup>13</sup> JC Review template for 'full proposals' included six 'primary' criteria (significant contribution; address of IPY themes; targets IPY geographical areas; targets IPY timeframe; evidence of international collaboration; and clear plans for project management) plus nine 'additional' criteria (provides essential infrastructure or other support; non-polar nations involvement; evidence of legacy; builds on existing initiatives, where appropriate; evidence of links to other clusters; evidence of interdisciplinarity; clear plans for data management; contribution to the development of the next generation (of scholars); and plan for Education and Outreach) (Appendix 4).
- <sup>14</sup> The total number of endorsed proposal eventually grew to 231 171 in research; 59 in education, outreach and science dissemination; and one in data management, though three proposals were later withdrawn.
- <sup>15</sup> The IPO received information on 172 'funded' international proposals and three were officially 'withdrawn' due to the lack of funds. The remaining 56 proposals did not report to the IPO on their funding status; evidently, many of them did not materialize. Nonetheless, several of those 56 proposals were actually implemented with funding from national sources or from individual researchers' grants.
- 16 See, for example, www.ipy-api.gc.ca/intl/index\_e.html for the Canadian IPY awards; www.ipyrus.aari.ru/scientific\_program.html for Russian national IPY awards not related to international projects; www.nsf.gov/od/opp/ipy/ipy\_awards\_list.jsp for the list of U.S. NSF IPY awards; www.umea-congress.se/polar\_final porgramme.pdf for Swedish activities, etc.
- <sup>17</sup> National committees' reports from Sweden and the Netherlands were reviewed at JC-4 (September 2006); from Austria, Canada,

- Portugal, Russia, Spain, and U.K. at JC-5 (March 2007); from India, Japan, New Zealand, Poland, Spain, Ukraine, U.K., Sweden, U.S.A. and Portugal at JC-6 (October 2007).
- <sup>18</sup> Reports from major supporting organizations, such as ICSU, WMO, the Arctic Council, ATCM, SCAR, IASC, IOC, etc. were presented at almost every JC meeting by the respective *ex officio* JC members from these organizations.
- <sup>19</sup> The theme of the SCAR/IASC Open Science Conference (8-11 July) was "Polar Research Arctic and Antarctic Perspectives in the International Polar Year".
- <sup>20</sup> While recognizing that some IPY-related research began prior to March 2007 and some continued beyond March 2009, the 'end' of the IPY observational period.
- <sup>21</sup> Historians will be certainly looking for those 'debates and disagreements' as the clues to the dynamics within the JC and among its members. Among some of the most controversial and heated issues debated were: the level of representation of the intergovernmental bodies, such as Arctic Council and ATCM (at JC-1); the role of the Eurasian 'sub-office' (JC-2); the demand for IPY 'ethical principles' and the role of private sponsorship (JC-3); the prospective role of IASC and SCAR as caretakers of the legacy of IPY (JC-6); the low compliance of IPY projects with the established Data Policy (JC-6, JC-7, and JC-8); and of course, the type and the focus of the final summary report to be produced by the JC at the end of its term (JC-8).



# 1.6 International Programme Office (IPO): 2005–2010

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#### Introduction

It was recognized early in the planning process that an activity as large and complex as IPY 2007–2008 would require daily, full-time staff support, and that an International Programme Office (IPO) would be a crucial element of IPY implementation (Rapley et al., 2004). Such an office would be necessary to provide the day-to-day administrative support to the Joint Committee and its subcommittees, which would consist of volunteer members drawn from the academic community and from the stakeholder bodies.

Accordingly, in September 2004, ICSU and WMO solicited proposals from nations or organizations prepared to support and fund an International Programme Office that would serve as the central point of contact for IPY participants and stakeholders. The offer from the U.K. Natural Environment Research Council (NERC) to fund an IPY office for five years was accepted by WMO and ICSU in late 2004 (*Chapter 1.3*), and the International Programme Office for the International Polar Year 2007–2008 was established at the British Antarctic Survey (BAS) in Cambridge, U.K.

During the planning and implementation of IPY, the Programme Office and its enthusiastic and responsive staff became the key point of contact for IPY participants, and members of the public. In many ways the IPO became the "face of IPY", promoting the full and impressive extent of the program and making it more accessible and more inclusive to many people. At the conclusion of IPY, the achievements of the IPO can be broadly summarized as helping to enable major advances in polar knowledge and understanding; eliciting keen interest and participation from polar residents, schoolchildren, the general public and decision-makers worldwide; stimulating and supporting a community of engaged and enthusiastic

volunteers; inspiring a new generation of polar scientists and engineers; and promoting new and enhanced approaches to data and information access and sharing.

### The functions of the IPO

The functions of the International Programme Office were originally defined in the IPY Framework document (Rapley et al., 2004). In supporting the Joint Committee in its role of providing central planning and guidance of IPY, the Programme Office was required to serve as the secretariat for meetings and activities of the Joint Committee. This included the central handling of correspondence, archiving of key documentation, maintaining an IPY 2007–2008 activities database, tracking action items and assisting in the production of reports and synthesis documents.

As the "front office" for IPY, the IPO was the central point of contact for National IPY Committees, related international programs and all participating or interested organizations and individual researchers. The IPO supported and maintained the IPY 2007-2008 website (www.ipy.org) which, along with 37 short (2-4-page) monthly activity reports from the IPO ("IPY Reports")1, became the main media for disseminating information and publicity on the program, including early notice of research outputs. The IPO promoted IPY 2007-2008 internationally and played the major role in development of IPY 2007-2008 outreach and education programs. It organized and coordinated international meetings and workshops concerned with the Polar Year, and led efforts to obtain additional funding to sustain IPY 2007-2008 coordination and oversight functions, although the latter met with limited success.

Although not specifically mentioned in its Terms of Reference, the IPO also played major roles in engaging volunteers to support IPY activities (predominantly education and outreach), and in promoting and supporting IPY meta-data and data sharing and archiving. Finally, the IPO provided the core promotion and support during the early stages of the development of the Association of Polar Early Career Scientists (APECS), a new international and interdisciplinary organization for undergraduate and graduate students, postdoctoral researchers, early faculty members, educators and others with interests in Polar Regions that was formed as one of the outcomes of IPY 2007–2008 (*Chapter 4.3*).

The NERC funding of €1.8 M for IPO was adequate to provide a core staff of only three people over the fouryear period from 2005 to 2009, a very small resource considering the diversity and range of functions that the IPO had to undertake, and the enormous size to which IPY 2007-2008 eventually grew. To cover other IPO activities (missions, website maintenance, partial support to JC subcommittees meetings, etc.) an additional amount of USD 300K was provided to IPO during the period 2007-2009 from the ICSU/WMO IPY Trust Fund<sup>2</sup>. This had been established according to an MoU signed by ICSU and WMO in April 2006. Part of this amount (USD 67K) was used as a salary for an IPY operational data coordinator working in the Norwegian Meteorological Institute. Expenditure on the nine meetings of the IPY Joint Committee, shared evenly by ICSU and WMO in accordance with their MoU on IPY 2007-2008, totalled around USD 400 K. Over the lifetime of the IPO, some additional, but limited funding support was obtained from other national funding organizations and important additional capability was provided by part time advisors and seconded staff.

The effectiveness of the contributions of the IPO to the larger program and its overall achievements were also due in a large part to the enthusiasm of the staff to the objectives of IPY, and their dedication, commitment and hard work.

In 2006, an IPY Eurasian Arctic Sub-Office (IPY EASO) was established in St. Petersburg, Russia, hosted by the Arctic and Antarctic Research Institute (AARI) of Roshydromet<sup>3</sup>. It worked in close collaboration with

the IPO in Cambridge, U.K., but with the specific responsibility of supporting the planning and implementation of IPY projects in the Eurasian Arctic, including the Russian area. EASO functions included improving cooperation and coordination in Eurasian polar research, undertaking pre-project studies focused on the expected environmental and climatic conditions and their impact on Eurasian IPY research and logistics, and collecting and distributing metadata on infrastructure facilities, logistics and observation programs in the region.

# **Development and staffing of the IPO**

The British Antarctic Survey made resources available to maintain momentum for IPY development during the period between the disbandment of the ICSU Planning Group at the end of 2004 and the commencement of NERC funding for the formal IPY International Programme Office, and the first meeting of the ICSU/WMO Joint Committee, in early 2005. This transitional work was undertaken by Cynan Ellis-Evans, assisted by his administrator Kathy Salisbury, both BAS employees at the time. Ellis-Evans coordinated the international calls for IPY ideas, established a browser accessible database and devised the first IPY website (Chapter 1.5). He prepared the successful proposal that resulted in NERC funding the International Programme Office from the beginning of 2005 and further helped persuade NERC to be the first national agency to commit funding to IPY research.

An international search for the key position of an IPY Director was launched in November 2004. The IPO Director's responsibilities were to manage and support IPO staff and to supervise all aspects of the IPO functions, including integration, coordination and communication for the IPY, supporting the JC and various subcommittees, seeking additional funding to sustain and develop IPY management and providing a point of contact for researchers and stakeholders. Applications for this position closed on 20 January 2005, and the selection process was completed in early March 2005 (Chapter 1.5). The fulltime position of IPO Director was offered to Dr. David Carlson from Boulder, Colorado (U.S.A.), who took up his duties on 9 May 2005. Carlson had a scientific background in oceanography and prior international project management experience as Director of the TOGA COARE (Tropical Ocean Global Atmosphere - Coupled Ocean Atmosphere Response Experiment) International Project Office. Carlson remained with IPO until its final closure on 30 September 2010, providing inspiration and enthusiasm in particular for the public profile of IPY throughout his tenure.

Somewhat earlier, in February 2005, Nicola Munro had been appointed as the IPO administrator and commenced the job in April. In this position, she assisted the director in daily operations and provided administrative support for IPO. Munro remained with IPO until 31 March 2010, with a short break for an assignment with the British Antarctic Survey at Halley, Antarctica between November 2007 and February 2008 during which Kathy Salisbury (BAS) provided cover. Melissa Deets took over as administrator between July 2009 and January 2010, and remained with the Office until it closed in September 2010.

The third full-time position in IPO was that of the EOC Coordinator. This position was the primary contact for IPY Education, Outreach and Communication activities, including managing and maintaining IPY presence on the web. Rhian Salmon, an Antarctic atmospheric scientist, served in this position from April 2006 until March 2009. Karen Edwards, who had been Coordinator of the Canadian IPY Secretariat, took over as EOC coordinator in June 2009 when the Canadian Secretariat closed, and remained with IPO until December 2009.

The three full-time IPO staff members were supported by several part-time advisors seconded from other organizations. Cynan Ellis-Evans, who had been involved in development of the IPY program since 2003, continued as a partner and BAS-supported senior advisor with IPO throughout. Similarly Odd Rogne, who had been an ex officio member of the Joint Committee in his role as the Executive Secretary of IASC until 2006, became a part-time IPO senior advisor, supported by the Norwegian Research Council, from when he left the JC until the end of 2009. Also, Camilla Hansen who was national IPY coordinator for Sweden was seconded to IPO by the Swedish Research Council to provide event support between May 2006 and September 2007. Both Rogne and Hansen worked mostly from within their home institutions (Fig.1.6-1).

The IPO staff worked closely together, in many

ways more as a family than an office group, providing mutual support and covering each other's roles as necessary.

The original NERC funding for IPO was provided to cover the period from the beginning of 2005 until about March 2009. Nevertheless, by mid-2008, with IPY more than half way through its field period, it became apparent that to preserve the IPY legacy and to gather maximum benefit from the program, maintenance of some of the functions of IPO would be required for another 18 months (until September 2010). The major tasks to be completed during this extended period would include working to ensure access to and reliable preservation of IPY data, starting with acquisition of complete IPY metadata; preserving the education and outreach partnerships and networks established during IPY with scientific, educational, media and political organizations; and supporting assessments and evaluations of the program. In addition, support would be needed to sustain support for future researchers and to preserve the mountain of IPY documents and materials.

Hence, in September 2008, the Joint Committee sought further funding internationally to continue support for some IPO functions. Response was slow in coming, but additional funding of about €530K was eventually confirmed in June 2009. This funding came 1/3 from the U.K. National Environment Research Council, 1/3 from the U.S National Science Foundation, and 1/3 from essential contributions by Canada, Netherlands, Norway, Spain, Sweden and the U.S. National Academy⁴. This funding enabled continuation of IPO until September 2010, albeit at a reduced level of activity.

In St Petersburg, the IPY Eurasian Arctic Sub-Office was led by Dr Sergey Priamikov, and additional EASO staff included Elena Berezina (support), Roman Vlasenkov (data base) and Oleg Golovanov (mapping and news).

# IPO support for the planning, coordination and implementation of the IPY 2007–2008

(i) Building the program: early 2005 to February 2007

The November 2004 call for "Expressions of Intent" for IPY projects saw nearly 900 submissions by 14 January, 2005 and 1232 submissions in total. These

Fig. 1.6-1. IPO staff members during the days of the JC-4 meeting on Svalbard, September 2006. Left to right: Cynan Ellis-Evans, Rhian Salmon, Nicola Munro, David Carlson and Odd Rogne.

(Photo courtesy: David. Carlson)



were compiled into a searchable web-based database and assembled against seven themes by the IPO and evaluated by the Joint Committee members prior to and at their first meeting in March 2005 (*Chapter 1.5*). Over the next nine months the IPO (now with full-time Director David Carlson), working with the Joint Committee, coordinated the entire process to ensure continuity and confidence, encouraged links and collaborations between the proponents of these many Eols. That effort resulted in 422 full project proposals submitted in three batches between spring 2005 and winter 2006. The IPO undertook an enormous amount of information processing, coordination, promotion and solicitation in developing consensus and building project teams.

The IPO also played a major role in helping to develop many of the full proposals and in establishing the overall IPY science program through a fair, open and accessible international endorsement process. IPO staff interacted personally with the project coordinators (usually two coordinators per project), assisted in the application process, advised on improvements and revisions, helped identify and negotiate partnerships, and ensured a prompt review process for the submitted proposals by the JC members. The final 231 endorsed projects (170 with eventual funding – *Appendix 2*) were each represented

on what became the iconic IPY honeycomb chart (which was itself an innovation of IPO Director Carlson – *Appendix 6*).

During this period the IPO also broadly promoted IPY internationally and developed partnerships with key bodies and organizations. Among many invited and keynote speaking requests, IPO staff presented the concept and plans for IPY to the Foreign, Environment, and Research Ministers, and Prime Ministers of several countries; Arctic, EU, Nordic, and Saami Parliamentarians; the Executive Boards and General Assemblies of ICSU, WMO, and the Intergovernmental Oceanographic Commission (IOC); Presidents of International Scientific Unions; and to Global Climate Funding Agencies. They presented widely to IPY National Committees and at a wide range of relevant scientific conferences, symposia and workshops. They were particularly active promoting and explaining IPY at meetings of polar scientific and political bodies (e.g. European Polar Board, Arctic Science Summit Week, Arctic Council Senior Arctic Officials meetings, Antarctic Treaty Consultative Meetings, etc.) and at fora concerned with climate and climate change (e.g. UNFCCC Negotiations, WMO Commission on Atmospheric Sciences, etc.). The IPO Director David Carlson was particularly energetic and enthusiastic in his travel and advocacy in support of IPY (Box 1; Fig.1.6-2).

## (ii) The IPY field period: March 2007 to February 2009

The IPO remained the prime point of contact for projects and National Committees during the implementation phase, and the main source of publicity concerning the many exciting IPY activities for the broader public. The IPO played a key role in raising the profile of IPY to a level that encouraged many countries to develop substantial programs and contributions from existing funds and in helping to stimulate specific new national IPY investments in several countries. The IPO also identified a core group of national IPY Secretaries and Directors and facilitated meetings of the heads of national IPY Secretariats and partners, which became established as the Heads of Arctic and Antarctic IPY Secretariats (HAIS) group (Chapter 1.7).

The IPO Director David Carlson continued a busy travel schedule supporting and promoting IPY over this period (Box 2).

#### (iii) Developing the legacy: March 2009 to late 2010

The IPY Oslo Science Conference (OSC) in June 2010 was the largest ever gathering of polar scientists (Chapter 5.6). The IPO was closely involved with the OSC Steering Committee and Local Organizing Committee in planning this meeting designed to celebrate the accomplishments of IPY 2007-2008, to display and explore the richness of IPY data, and to chart future directions for polar and global science. The IPO director David Carlson was a member of the steering committee of the conference. In particular, the IPO took the lead role in organizing a workshop associated with the OSC on 'Bringing Polar Science into the Classroom'. This was attended by 114 teachers from around the world (out of more than 400 who applied). More than 600 early career scientists submitted abstracts (almost 25% of the total abstracts) to the OSC and competed for 400 travel support stipends.

During this period, the IPO continued to advocate for the proper cataloguing and archiving of all IPY data, and for support from long-term polar science organizations and from global observation programs in developing IPY observational legacies: the evolving Sustaining Arctic Observing Networks (SAON) and the nascent Pan-Antarctic Observing System (PAntOS). The IPO Director attended a number of meetings dealing with legacy issues (Box 3).

# IPO support for Education, Outreach and Communication

A key factor in the success of IPY communication was an active and engaged community of about 750 people from more than 30 countries connected and interacting via Google Groups. This community, which was initiated and supported by the IPO, included teachers, media officers, early career scientists, IPY national contacts and project coordinators, as well as more than 150 international journalists. They were regularly updated on IPY activities by direct email from the IPO and, in many cases, served as hubs for further propagation across their own local and national networks. The IPY focus on communication provided opportunities and mechanisms to build connections among individuals, many of whom worked in isolation prior to IPY. The IPO fostered expansion of the polar community by preparing materials and instructions in multiple languages, and by responding to any global partner willing to work with them to produce short, often quick-turnaround, translations.

Between September 2007 and March 2010 the IPO conducted a series of eight Polar Days (eventually extending to Polar Weeks to incorporate multiple events and time zones) focusing on "Sea Ice", "Ice Sheets", "Changing Earth, Past and Present", "Land and Life", "People", "Above the Poles", "Polar Oceans and Marine Life" and "What Happens at the Poles Affects Us All" (Chapter 4.1). These engaged more than 500 individual and institutional partners from 50 countries in easy and fun polar activities. The Polar Days/Weeks included nearly all the funded IPY Projects within one or more focus areas.

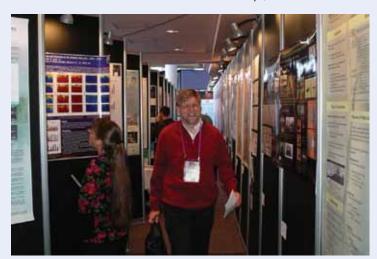
The IPO also ran a number of successful teachers' workshops, summer schools, polar science weekends and student expeditions in both hemispheres. Other prominent international media events included the IPY launch (March 2007) and IPY celebration (February 2009). The 2007 launch catalyzed more than 20 national events that attracted the attention of local, national, and international media (Rueth et al., 2008). Press clipping and media monitoring efforts by national and international organizations demonstrated the substantial global impact of both events.

The polar resource book, *Polar Science and Global Climate: An International Resource for Education and Outreach* (Kaiser, 2010), was edited, reviewed and pub-

# Box 1 Meetings and conferences attended by the Director of IPO during the period when the IPY program was being built: June 2005 to February 2007.

- Jun 2005 XXVIII Antarctic Treaty Consultative Meeting (ATCM), Stockholm.
- Jul 2005 IPY EOC Conference, Boulder.
- Sep 2005 eGY, IHY, IPY and IYPE joint meeting, Rome.
- Oct 2005 Arctic Council (AC) Senior Arctic Officials (SAO), Khanty-Mansyisk, Russia; ICSU General Assembly, Suzhou, China; Polar Research Institute of China, Shanghai.
- Nov 2005 European Polar Board Coordination meeting, Copenhagen; ICARP-II, Copenhagen; IPY OCF, Copenhagen; JC-2, Geneva.
- Dec 2005 Arctic Leaders Summit, Hay River, Canada; American Geophysical Union (AGU), San Francisco.
- Jan 2006 EOC Subcommittee leadership meeting, Paris.
- Feb 2006 Polar art exhibition, Stockholm; Swedish National IPY Committee, Stockholm; Natural History Museum exhibit planning, London; Russian IPY National Committee, Moscow.
- Mar 2006 IPY Data Management meeting, Cambridge; American Association of Geographers, Chicago; U.K. IPY Countdown, London; European EOC meeting, Brussels; Arctic Science Summit Week, Potsdam; Polar Microbiology meeting, Innsbruck.
- Apr 2006 European Geophysical Union (EGU), Vienna; EGU Geosciences Information for Teachers, Vienna; SCAR/CliC/ICPM Workshop on High Latitude Reanalyses, Cambridge; JC-3, Cambridge; AC SAO, Syktyvkar, Russia.
- May 2006 U.K. SCAR National Committee, Cambridge; IPY events at the University Centre (UNIS), Svalbard; AGU, Baltimore; U.S. National Committee, Washington DC; Eco Polar, Ushuaia, Argentina.
- Jun 2006 Science and Technology Conference,
  Tromsø Norway; European network of
  science centres and museums, Brussels;
  XXIX ATCM, Edinburgh; Presentation
  to IOC, Paris.
  - Fig. 1.6-2. David Carlson, IPO Director, during the SCAR Open Science Conference in Hobart, Australia, July 2006. (Photo: Jerónimo López-Martínez)

- Jul 2006 ICSU 75th Symposium, Paris; SCAR Open Science Conference, Hobart, Australia; presentation to BAS, Cambridge.
- Aug 2006 Nordic Council of Ministers and Arctic Parliamentarians, Kiruna, Sweden; EOC planning meeting,
   Maine; IPY presentation, Bigelow Laboratory for Ocean Sciences, Maine.
- Sep 2006 British Council, Cambridge; Spanish Polar Research Conference, Granada; JC-4, Svalbard; presentation to U.K. Antarctic Funding Initiative, Cambridge.
- Oct 2006 American Association for the Advancement of Science, Arctic Division, Fairbanks; Heads of Arctic and Antarctic IPY Secretariats (HAIS), Washington DC; IPY EOC Subcommittee, Bremerhaven; ICSU Executive Board, Paris; Montana State University.
- Nov 2006 Michigan State University; Ohio teachers conference; Arctic Portal meeting, London; Netherlands National IPY Committee, The Hague; British Foreign and Commonwealth Journalists, Cambridge; ICARP-II Implementation meeting, Potsdam.
- Dec 2006 DAMOCLES Assembly, Bremen; British Geological Society, London; OECD Global Science Forum, London; AGU, GIIPSY project Data Management, U.S. briefing, San Francisco; IPY presentations at National Parks Service, San Francisco; Monterey Bay Aquarium Research Institute, Monterey; Google, San Francisco.
- Feb 2007 HAIS, Copenhagen; IPY Indigenous People's launch, Kautokeino Norway; JC-5, Paris.



# Box 2 Meetings and conferences attended by the Director of IPO during the IPY field period: March 2007 to February 2009.

- Mar 2007 IPY launch, Paris; European Commission Polar Symposium, Brussels; Netherlands Launch Event; Arctic Science Summit Week (including meetings of U Arctic, Sustaining Arctic Observing Networks (SAON), HAIS) , Dartmouth, NH; Malaysian Antarctic Symposium, Kuala Lumpur; IPY teachers, Chicago.
- Apr 2007 AC SAO, Tromsø; U.K. IPY Launch, London;
   EGU, Vienna; ICSU Unions, Rome; American
   Polar Society, Ohio.
- May 2007 XXX ATCM, New Delhi; Midwest Geographers, Illinois; Royal Aeronautical Society, London; Natural History Museum Exhibit, London.
- Jun 2007 World Environment Day, Tromsø; EOC Subcommittee, Cambridge; SAON planning meeting, Stockholm; New Zealand National Committee, Wellington.
- Jul 2007 U.K. International Programme Offices meeting London; OECD Global Science Forum, London.
- Aug 2007 Science FOO Camp at Google, San Francisco.
- Sep 2007 U.K. Antarctic Funding Initiative, Cambridge; International Symposium on Cold Regions Development, Tampere, Finland; APECS startup, Stockholm; Southern Ocean Observing System (SOOS), Bremen, Germany.
- Oct 2007 SAON planning, Bremen; Spanish IPY events, Barcelona; JC-6, Quebec City, Canada; International Group of Funding Agencies for Global Change Research (IGFA), Vienna.
- Nov 2007 International Ocean Institute, Malta; European Polar Board (EPB) Polar Summit, Rome; SAON workshop, Stockholm; DAMOCLES, Oslo; Euro Boat Show, London.
- Dec 2007 AGU (including IPY Press Conference, AGU IPY exhibit), San Francisco.
- Jan 2008 U.K. Association for Science Education,
   Liverpool; Tara project interviews, Paris; ICSU,
   Paris; IASC planning, Stockholm; SAON
   planning, Stockholm.
- Feb 2008 AAAS, Boston; U.S. NAS, Washington DC; U.S. NSF, Washington DC; Teachers Conference, Illinois.

- Mar 2008 APECS, Iceland; Circumpolar Biodiversity
  Monitoring Programme, Washington DC;
  U.S. CLIVAR High-Latitude Flux WG; EOC
  Subcommittee, Strasbourg.
- Apr 2008 IPY Open Science Conference (OSC) planning, Oslo; SAO Svolvaer, Norway.
- May 2008 NSIDC, Boulder; New Generation of Polar Researchers, Colorado; Arctic Charter, Brussels; OSC planning meeting, Oslo; ICSU, Paris; Polar events, Portugal.
- Jun 2008 Report to IOC, Paris; Report to WMO, Geneva; Royal Meteorological Society, Southampton, U.K.; The Ny-Ålesund Symposium, Svalbard.
- Jul 2008 SCAR/IASC Open Science Conference, St
   Petersburg; JC-7, St Petersburg; EuroScience
   Open Forum 2008, Barcelona; City & Urban planning, Iqaluit, Canada.
- Sep 2008 Nordic Council of Ministers EU ministers, Ilulissat, Greenland; Media coordination for closing event, ICSU, Paris.
- Oct 2008 Society for the Advancement of Chicanos and Native Americans, Salt Lake City, U.S.A.; ICSU General Assembly, Mozambique.
- Nov 2008 OSC planning, Oslo; IGY Symposium, Japan; City of Science, Paris; Tara Press conference, Paris.
- Dec 2008 Geoscience Symposium, Copenhagen; Arctic Change, Quebec; AGU (multiple sessions and events, Geophysical Information for Teachers Workshop, AGU - IPY Exhibit), San Francisco.
- Jan 2009 Arctic Frontiers, Tromsø; HAIS, Cambridge.
- Feb 2009 IPY Space Task Group, Geneva; JC-8, Geneva; IPY celebration, Geneva.

lished under IPO auspices, and launched at the IPY Oslo Science Conference in June 2010. It was created to ensure that efforts catalyzed by IPY will continue to inspire educators, students and emerging polar researchers into the next generation. It received support from wide ranging parts of the IPY community. The book includes 29 reviewed and tested classroom activities, produced from hundreds of international contributions.

# IPO stimulation and support of an IPY volunteer community

IPY 2007–2008 depended to a large extent on volunteer efforts, by busy people working additionally to their regular professional careers. Volunteers included most members of the Joint Committee, members of the IPY Data Management and EOC Subcommittees, all IPY project coordinators (a few of them received administrative support from their IPY National Committees), all the planners and translators for the Polar Day events, all the young scientists committing time to APECS, and the contributors to

many other IPY activities. The effectiveness of many of these activities, particularly education and outreach, was sustained by IPO efforts to recruit and support a volunteer community. IPO endeavoured to cover practical communication costs, to find funding for critical face-to-face meetings, to keep the groups activities and accomplishments visible and prominent within IPY, and to provide mentorship. Effort by IPO in fostering and supporting an active, engaged and enthusiastic volunteer workforce serving as both project coordinators and science communicators was a key element in the success of IPY 2007–2008.

IPO made wide use of modern, affordable and accessible communication tools to connect and support the international volunteer workforce and to reach the public. With partners, they tested and evaluated state-of-the-art audio-conferencing, video-conferencing, web-conferencing, web portals, on-line discussions, streamed video and internet radio. They used Google Earth, YouTube, Google Groups and Documents, Gmail, Skype and Facebook. The ipy.org web site used a flexible content management system

# Box 3 Meetings and conferences attended by the Director of IPO in developing the IPY legacy: March 2009 to July 2010

- Mar 2009 Nordic Council of Ministers, Prime Ministers, Iceland; Gordon Conference on Polar Oceans, Barga, Italy; France-Germany Science Forum, Paris; Institute of Electrical and Electronics Engineers (IEEE)
   Data Engineering, Shanghai.
- Apr 2009 XXXII ATCM, Baltimore (including IPY data, Joint ATCM & AC Polar Information Commons meeting; EGU, Vienna.
- May 2009 U.S. Senate Arctic Hearing, Washington DC; PRB production meetings, London
- Jun 2009 UN Framework Convention on Climate Change (FCCC), Bonn; IPY OSC planning, Oslo; IOC, Paris; IPY/APECS summer school, Svalbard.
- Jul 2009 UNEP, London.
- Sep 2009 World Climate Conference, Geneva; IPY Data Management, Ottawa.
- Oct 2009 Association of Canadian Universities for Northern Studies (ACUNS), Whitehorse, Yukon, Canada; Presentations to public and schools, Yukon, Canada; WMO EC Panel of Experts on Polar Obser-

- vations, Research and Services (PORS), meeting, Ottawa, Canada; IPY EOC meeting, Edmonton, Canada.
- Nov 2009 DAMOCLES General Assembly, Brussels; WMO Commission for Atmospheric Sciences, Korea.
- Dec 2009 APECS Workshop, Victoria, Canada; Arctic Net Conference, Victoria, Canada; AGU (multiple events and sessions including AGU - IPY exhibit), San Francisco
- Jan 2010 Arctic Monitoring and Assessment Programme (AMAP) review, Oslo; IPY OSC planning, Oslo.
- Feb 2010 Preliminary planning for 2012 IPY science meeting, Ottawa; Canadian Early IPY Results Conference, Ottawa.
- May 2010 Canadian National Research Council, Ottawa; American Polar Society, Boulder.
- Jun 2010 UN FCCC, Bonn; Teachers workshop, Oslo; APECS workshop, Oslo; JC-9, Oslo; IPY OSC, Oslo.
- Jul 2010 IPY/APECS summer school, Svalbard; EuroScience Open Forum 2010, Italy.

that allowed quick development of new features and allowed partners to easily contribute news and blog content. These services all had a focus on reliability, accessibility and minimum (toll-free) costs for international partners. This moved IPY science information systems much closer to information systems already in use by the global public.

Well-planned and advertised international events provided focus and a sense of progress and accomplishment to the volunteer networks. 'Live' events, connecting researchers directly to classrooms through radio, video, or web conferencing, proved a popular and effective community-building tool. Making IPY events truly international and accessible, during the school day in every time zone, often required arranging a minimum of three events in a 24-hour period. Free and easy access for participants, materials in local languages, spontaneous conversations between students and researchers and advance preparations with audiences and presenters contributed directly to the successful efforts of the IPO to build and maintain enthusiastic science communication networks.

# **IPO support for data management**

IPO supported the IPY Data Management Subcommittee in all of its activities. IPO funds allowed the two Co-Chairs of that Subcommittee to attend the IPY Joint Committee meetings and supported occasional advocacy and travel activities by them. The IPO Director spoke constantly and vigorously in support of IPY's free and open data access policy and served as an external reference and supporter for several U.S. and European proposals submitted during IPY for new data services, none successful as it turned out. IPO took a leading and supportive role in the successful nomination of Data Subcommittee Co-Chair Mark Parsons for the 2009 AGU Charles S. Falkenberg award. This is awarded to an individual scientist under 45 years of age who has contributed to the quality of life, economic opportunities and stewardship of the planet through the use of Earth science information and to the public awareness of the importance of understanding our planet.

IPO stimulated and supported several data initiatives that have the potential to substantially change the ways in which polar scientists, and other

data users, access and share data. The Polar Information Commons (PIC), led by the ICSU Committee on Data for Science and Technology (CODATA), is an initiative that grew out of IPY and which IPO helped to instigate (Chapter 3.11). The PIC draws inspiration from the Antarctic Treaty approach that established the Antarctic as a global commons, used only for peaceful purposes and greater scientific understanding. IPO promoted PIC as a shared virtual resource mirroring the geographic commons and serving the common interests of humanity.

# IPO support for the next generation of polar researchers

The IPO provided stimulus, support, guidance, and for many months the initial financial resources for the Association of Polar Early Career Scientists (APECS). Today, APECS (*Chapter 4.3*) is an active network of over 1800 students and early career researchers engaged in polar studies. It provides internationally-coordinated support for career development, science communication and interdisciplinary research. In the U.K., IPO provided core support to the U.K. Polar Network, one of the national components of APECS.

# Three months in the life of IPO: a case study

The scope and diversity of support tasks handled by IPO is illustrated here by the typical work undertaken during an approximate 3-month period from May 2007 to mid-August 2007, just after the IPY field phase commenced. The IPO had three full-time staff during that period, David Carlson (DC), Nicola Munro (NM) and Rhian Salmon (RS) (Fig. 1.6-3), with part-time support from Cynan Ellis-Evans (CEE) and Camilla Hansen (CH).

The primary foci during this period were: developing teacher networks and materials for teachers; working with IPY project coordinators to improve data compliance and to integrate across IPY endorsed projects; and science communication and public outreach, particularly to develop the profile of projects outside the Northern Hemisphere and beyond traditional geophysical disciplines. The office also undertook planning for the post-IPY legacy (CEE) and support for the newly-established APECS (DC, RS).

Fig.1.6-3. IPO staff members Nicola Munro (left) and Rhian Salmon (right) with JC member Jerónimo López-Martínez at the IPY Open Science Conference in St. Petersburg, July 2008. (Photo: Jerónimo López-Martínez)



IPO staff interacted with and provided high-level support to the Joint Committee (DC, CEE, NM), Project Coordinators (DC, NM), National Committees (DC, NM, CEE, RS), IPY Subcommittees (DC, RS) and external stakeholders (DC, NM, CEE). Routine administrative tasks included responding to about 140 emails/day that required some kind of action (ALL); responding to media requests (ALL); tracking national and project funding (DC); fortnightly reports to JC and National Committee contacts (DC) and May and July Newsletters to a much wider community (NM); writing science outreach articles (DC) and revising IPY leaflets in several different languages (DC, NM); work with the Media Working Group and the Education Working Group and teachers (RS, NM); and archiving IPY IPO materials at the Scott Polar Research Institute (RS, NM).

The www.ipy.org website was regularly maintained (under oversight from RS). This included continually adding and updating blogs, news, events and educational resource content (RS, DC, NM, CH); improving press, education and participants sections; developing a Google Earth component; and providing more materials and presentations for download.

IPO staff also participated in a number of international meetings during this period. In May, these included ATCM in New Delhi (DC) and a Royal Geographical Society Ice-EDGE Competition in

London (CEE). In June there was an International Conference on Digital Earth at the University of California, Berkley and in July the International Science Summer School, in Sydney and World Science Teachers Conference in Perth (all attended by RS). In August, IPO was represented at the Societé Internationale de Limnologie Symposium in Montreal (CEE).

# **Overview of IPO accomplishments**

IPO was much more than an administrative support centre for IPY 2007–2008. It provided a tangible focus of action and momentum, and established a vital link among researchers in different countries with common interests. It gave evidence that IPY was a substantial international research effort rather than a "science promotion year" and served as an easily identifiable information source and effective contact point for IPY. IPO provided effective advocacy for IPY through the numerous presentations given at scientific meetings and to international organizations through the global networks it initiated and coordinated, through the special events such as Polar Days, and its website. This advocacy championed the broad multidisciplinary objectives and international collaboration of IPY and provided important validation of the status and vitality of national scientific programs to their home funding and support agencies.

The IPO also contributed the many administrative and organizational functions necessary for the smooth running of such a large multi-disciplinary international initiative. IPO staff served as planning and steering committee members of numerous international events and conferences, and as organizers of workshops and sessions at many science conferences. IPO arranged and maintained regular contact with representatives of the JC and was an interface between the international stakeholders WMO, ICSU, IASC, SCAR, AC, ATS, IOC, and between National IPY Committees, Project Coordinators and Subcommittees.

While IPO was never large, it was staffed by an energetic and effective team with a genuine enthusiasm

for the objectives of IPY. IPO staff members with their unique viewpoint from the centre of the program, were able to provide unbiased and substantial advice for consideration by the Joint Committee, project coordinators and National Committees.

IPO closed on 30 September 2010, three and a half months after the official closure of IPY at the Oslo Conference on 12 June 2010 (Fig. 1.6-4). IPO documentation and files have been deposited at the Scott Polar Research Institute (SPRI) in Cambridge, U.K. following the agreement between IPO and SPRI signed in 2008, and the IPO/IPY website was migrated to Arctic Portal (http://arcticportal.org/about) in mid-2009.



Fig.1.6-4. Melissa Deets, IPO administrator, at the IPO booth during the Oslo IPY Science Conference, June 2010.

(Photo: Igor Krupnik)

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# Notes

- <sup>1</sup> Altogether 37 monthly reports were produced between May 2007 and May 2010.
- <sup>2</sup> The main contributors to IPY Trust Fund were Canada, the Netherlands and U.S.A.
- <sup>3</sup> Financial support for EASO was provided by Russia, Norway, Sweden and U.S.A.
- <sup>4</sup> These contributions included €178,000 from the U.K. National Environment Research Council, €178,000 from the U.S. National Science Foundation, €50,000 from Norway, €30,000 from Spain, €30,000 from Sweden and approximately €31,000 for two workshops from Canada.



# 1.7 National IPY Secretariats

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he initial planning for IPY 2007-2008 was undertaken by the IPY Planning Group (*Chapter 1.4*), and the oversight and coordination roles were taken on by the IPY Joint Committee (*Chapter 1.5*) and the International Program Office (*Chapter 1.6*). However, responsibility for the implementation of IPY was largely delegated to the IPY National IPY Committees (*Appendix 7*), national funding bodies and polar programs, and their various Secretariats and program coordinators. The role and responsibilities of National Committees were defined early in the IPY planning process (Rapley et al., 2004) and established the linkages between the National Committees and the Joint Committee necessary for the success of IPY (Box 1).

The activities of IPY National Committees and Secretariats were comprehensive and diverse, and were well documented on their various websites during the operational period of IPY 2007-2008. However most of this information is unfortunately no longer available, and this loss occurred very rapidly after March 2009. However, many IPY National Committees and Secretariats have reported on their activities to the national bodies that mandated and funded their activities. Copies of these final reports will eventually be available through the IPY Publications Database and various other IPY Archives (*Chapter 4.2*).

In the years leading up to IPY 2007-2008, most countries developed implementation strategies at national level that consisted of several core activities including promotion, funding and support for logistics in polar research.

#### **Promotion**

Promotion activities included selling the idea of an International Polar Year at a political level, to funding

agencies, to the science community and to the general public. In the Arctic countries, efforts were also undertaken to promote IPY among northern residents and in the Indigenous communities. This promotion of IPY 2007–2008 was an important initial task, undertaken by many individuals and national polar organizations. Similarly, the ongoing communication of IPY activities required a coordinated effort involving many national and international partners (*Chapter 4.1*). Many national programs also developed their own IPY logos and outreach materials to promote IPY within their national networks (*Appendix 10*).

### **Funding**

Funding solutions varied from country to country. In some countries, national bodies succeeded in securing additional new money for implementing IPY both for research projects and logistics. In other countries, IPY projects had to compete for regular research funding. Many national committees established a procedure for encouraging the submission of IPY proposals to the Joint Committee, and then subsequently to determine funding from various national programs.

Since the implementation of IPY activities depended on international cooperation among scientists from several countries as members of an international project team, high priority was placed upon coordination of funding and logistics. The coordination of funding opportunities and logistics was a difficult puzzle to solve and was not entirely successful, mainly because some scientists did not succeed with their national funding while others did. Several efforts were made by IPY organizers to raise awareness about the need to find ways to align national funding opportunities, but in many cases there was

not sufficient time or proper mechanisms to develop accessible transnational funding opportunities.

# Logistics

Logistics and Infrastructure requirements had to be identified during the planning stages, which meant that owners of specific platforms (research stations, research vessels, aircraft, satellites, etc.) needed to become fully involved with researchers and funders. In Antarctica, logistics are operated by national Antarctic programs who are members of COMNAP (Council of Managers of National Antarctic Programs, www.comnap.aq). COMNAP was established in 1988 and is an organization with experience in consulting and coordinating international logistics. Its Arctic counterpart, the Forum of Arctic Research Operators (FARO, www. faro-arctic.org) was created in 1998 to play a similar role. However, Arctic logistics and opportunities are quite different because transport solutions and infrastructure are generally more accessible and can include 'self-service' solutions including commercial airline transport and renting of local transport. Enhanced national funding for logistics and access to infrastructure was essential for the success of many IPY programs.

# Two examples of efforts to facilitate coordination of national IPY activities

Building the Framework for Global Cooperation: A meeting of Funding and Mission Agencies towards implementation and Coordination during the International Polar Year 2007-2008. The European Polar Consortium (EPC) and the European Polar Board (EPB) invited national funding and mission agencies to a meeting in Copenhagen prior to the ICARP II conference in November 2005 to discuss opportunities and improve cooperation. Sessions at the meeting addressed aspects of coordination and communication between funding and mission agencies; funding (national and supranational); public and political visibility of IPY; IPY legacy; and contributions to building a framework for international cooperation and partnership.

EASO: The IPY Eurasian Sub-Office By special arrangement (Chapter 1.6), the IPY Eurasian Sub-Office (EASO) was created at the Arctic and Antarctic Research Institute in St. Petersburg, Russia. The EASO

office and the web site (http://www.ipyeaso.aari.ru/) was very valuable for IPY scientists working in the Russian Arctic by providing information about Russian IPY activities and assisting with admission procedures for conducting research in Russia.

# Heads of Arctic and Antarctic IPY Secretariats (HAIS)

Recognizing that better communication was required among the operational agencies of IPY, the Heads of Arctic and Antarctic IPY Secretariats (HAIS) group was established in 2006. HAIS members were the national representatives active in the planning and implementation of IPY programs within their own nation. All IPY National Committees and Secretariats were invited to join. Northern hemisphere countries were most active in the HAIS group, but most of these countries supported both Arctic and Antarctic activities during IPY. Several international organisations including AOSB (Arctic Ocean Sciences Board), EPB (European Polar Board), FARO (Forum of Arctic Research Operators), IASC (International Arctic Science Committee), SCAR (Scientific Committee on Antarctic Research) and IASSA (International Arctic Social Sciences Association) were invited as observers.

Between 2006 to 2009, seven HAIS meetings were held. A final meeting was held at the IPY Oslo Science Conference in June 2010. All HAIS agendas, meeting papers and minutes have been archived at: http://classic.ipy.org/national

The objectives of HAIS were to establish a working platform that would provide support and enhance capacity amongst national Secretariats, develop and facilitate collaboration among IPY countries, discuss common/practical challenges with the view to achieving and facilitating resolution, develop advice for consideration and implementation by the IPY International Program Office and Joint Committee, share information about international, national, and regional IPY programs and initiatives and assist each other in meeting common objectives. In the first year members of HAIS used the forum primarily to discuss issues related to the implementation of IPY activities. Later, issues related to IPY legacies and international cooperation, including access to transnational funding opportunities, were high on the agenda.

### HAIS-1 (October 2006)

The first HAIS meeting was held 5-6 October 2006 at the National Academies of Science, Washington DC, USA. Participants from all countries with established IPY offices and National Committees were invited to participate, and the following individuals were able to attend (Box 2). The meeting was hosted and chaired by Chris Elfring (U.S. Polar Research Board).

This first meeting of the HAIS group focused on sharing information about various national IPY activities. There was also considerable discussion about opportunities to improve communication between international and national IPY organizations, related to communications and outreach, and the work of the IPY subcommittees. The HAIS members also discussed funding, data management, the potential legacies of IPY, and the program for the planned official launch of IPY by WMO and ICSU in March 2007.

# HAIS-2 (February 2007)

HAIS-2 was held at the Danish Polar Center in Copenhagen, Denmark, 1-2 February 2007. The meeting was attended by David Hik, Scott Tomlinson (Canada);

Henning Thing, Hanne Petersen (Denmark, chair and hosts); Paul Egerton (European Science Foundation); Paula Kankaanpää, Kari Laine, Riku Lavia (Finland); Tom Greiffenberg (Greenland); Odd Rogne, David Carlson (IPY IPO); Volker Rachold (IASC); Ragnar Baldursson (Iceland); Ito Hajime (Japan); Odd Rogne (IPY IPO); Marianne Walgreen (Netherlands); Olav Orheim (Norway); Alexander Guterch (Poland); Sergey Priamikov (Russia); Anders Clarhäll, Lars Nilsson (Sweden).

The main activities of HAIS discussed were the exchange of information about collaborative opportunities (including bilateral side meetings for solving IPY implementation issues), direct communication with IPO and other IPY Secretariats, and a general discussion about IPY legacies beyond the project level. Preliminary discussions about the new Sustaining Arctic Observing Networks (SAON) initiative (*Chapter 3.8*) were also discussed. Other topics included promotion and implementation of the IPY data policy, including how to react if project leaders did not comply, and some preliminary consideration of ideas for an IPY closing ceremony in March 2009. HAIS members also discussed the possibility of extending

# Box 1 Role of IPY 2007-2008 National Committees

(Rapley et al., 2004)

The functional responsibilities of IPY 2007-2008 National Committees will vary between countries. In some countries, National Committees may be involved in funding processes. In all countries, these Committees are expected to work under the following general terms of reference:

- 1. To act as an information conduit from the Joint Committee to the national scientific community and National Meteorological Services to promote awareness of and interest in IPY 2007-2008;
- 2. To provide national input to the Joint Committee for the formulation of the IPY programme of activities;
- 3. To facilitate the planning and implementation of national activities contributing to IPY 2007-2008, including, where appropriate, the endorsement of IPY expressions of intent and/or proposals;
- 4. To ensure that nationally-collected IPY data are available to the international research community in

accordance with protocols developed for data exchange within IPY 2007-2008;

- 5. To take a lead role on issues of outreach education and communication at the national level;
- 6. To encourage and facilitate the provision of necessary national funds, logistical support, and other support for the implementation of national activities contributing to the IPY 2007-2008 objectives;
- 7. To encourage and facilitate national contributions to the cost of the international scientific coordination and integration of IPY 2007-2008;
- 8. To assist the Joint Committee in the planning, implementation, data management, and delivery of IPY 2007-2008;
- 9. To host regional or international IPY 2007-2008 meetings.

the IPY Observing period beyond 2009, but concluded that there shouldn't be any change in the formal name (IPY 2007-2008).

# HAIS-3 (March 2007)

The meeting was held 15 March 2007 in Hanover, New Hampshire, U.S.A. as a side meeting to the Arctic Science Summit Week. Participants included: David Hik (chair), Karen Edwards, Kathleen Fischer (Canada); Henning Thing (Denmark); Paul Egerton (EPB); Paula Kankaanpää, Kari Laine (Finland); Volker Rachold (IASC); David Carlson, Odd Rogne (IPY IPO); Louwrens Hacquebord (Netherlands); Olav Orheim, Fridtjof Mehlum (Norway); Alexander Guterch, Piotr Glowacki (Poland); Sergey Priamikov (Russia); Colin

Summerhayes (SCAR); Sverker Sørlin (Sweden); Cynan Ellis-Evans (U.K.); Chris Elfring (U.S.A).

One of the main topics for discussion at HAIS-3 concerned various Observing Systems initiatives. HAIS was supported initiation of the Sustaining Arctic Observing Networks (SAON) initiative and SCAR informed that a similar initiative to SAON had been taken by SCAR with an Antarctic terrestrial observing system and a Southern Ocean observing system. The European Polar Board summarized possible multi-national funding approaches being discussed in Europe.

### HAIS-4 (November 2007)

The meeting was held 5-6 November 2007 at the Arctic and Antarctic Research Institute (AARI) in St.

# Box 2 Individuals attending the inaugural Heads of Arctic and Antarctic Secretariats (HAIS) meeting in October 2006

#### Canada:

David Hik, Executive Director, Canadian IPY Secretariat

Karen Edwards, Coordinator, Canadian IPY Secretariat

### Denmark/Greenland:

Henning Thing, Danish IPY Secretariat, Danish Polar Center

Tom Greiffenberg, Research Coordinator, Greenland Home Rule Government

#### Iceland:

Ragnar Baldursson, Chair of the Icelandic National IPY Committee, Ministry of Foreign Affairs, Iceland

#### Italy

Harry Beine, National Research Council of Italy, Institute of Atmospheric Pollution

#### Netherlands:

Marianne Walgreen, Coordinator of the Dutch IPY Programme, NWO (Netherlands Organisation for Scientific Research)

#### Norway:

Olav Orheim, Head of the Norwegian IPY Secretariat, Norwegian Research Council

# Poland:

Alexander Guterch, Chair of the Polish National IPY Committee, Institute of Geophysics, PAS

#### Russia:

Valeriy Martyshenko, Head, Russian IPY Organising Committee Secretariat Sergey Priamikov, Head of the International Science Cooperation Department, Arctic and Antarctic Research Institute (AARI)

#### Sweden:

Lars M. Nilsson, Executive Secretary, Swedish IPY Committee, Swedish

### **United Kingdom:**

J Cynan Ellis-Evans, Head of the Secretariat, National IPY Committee of the UK, British Antarctic Survey

#### U.S.A.

Chris Elfring, Director of the Polar Research Board, National Academy of Science (NAS), and US National Committee for IPY

Maria Uhle, IPY Study Director, NAS

Rachel Shiflett, logistics for the Washington DC meeting

# **IPY International Program Office:**

David Carlson, Director, IPO

Odd Rogne, Senior Advisor, IPO

#### **HAIS Partners:**

Paul Egerton, Executive Director, European Polar Consortium-European Polar Board

Sara Bowden, Executive Secretary, Arctic Ocean Sciences Board (AOSB)

Simon Stephenson, Chair, FARO (Forum of Arctic Research Operators), and National Science Foundation Petersburg, Russian Federation. Participants included Kari Laine (Finland); Volker Rachold (IASC); Ragnar Baldursson (Iceland); Odd Rogne (IPY IPO); Hajime Ito (Japan); Jacek Jania (Poland); Sergey Priamikov (Russia, chair and host).

This meeting provided an opportunity to visit the EASO: the Eurasian IPY Sub-office. HAIS members reviewed national status of IPY activities and Sergey Priamikov presented what he saw as three vital problems:

- 1. Access to data and exchange of information;
- 2. Development of a technical policy and strategy as to marine investigations;
- 3. Determine which study/observing sites should be given priority.

Other HAIS members reported their continuing interest in IPY legacy, for example Finnish activities related to education and young people; long-term observations and monitoring, and policy legacies, especially the Northern Dimension of EU. HAIS members also discussed the proposed IPY Policy Conference 2012 to be hosted by Canada and suggested that Arctic Council and the ATCM should be heavily involved in such a policy conference since they were considered the logical choice for advancing IPY legacies in the policy arena.

# HAIS-5 (May 2008)

The meeting was held 26-27 May, 2008 at the Jagellonian University, Rectorate in Krakow, Poland. Participants included Kari Laine (Finland); Ragnar Baldursson (Iceland); Odd Rogne (IPY IPO); Hajime Ito (Japan); Olav Orheim (Norway); Jacek Jania, Alexander Guterch, Piotr Glowacki, Wieslaw Ziaja (Poland, hosts); Sergey Priamikov (Russia); Anders Clarhäll (Sweden); Colin Summerhayes (SCAR).

At HAIS-5 there was considerable discussion about how polar research is organized in various countries. For example, Poland was considering centralizing logistics and coordination by linking all 23 university and academy groups together in the form of a Polish Polar Research Network. Sweden had undertaken an 'International Evaluation of the Swedish Polar Research Organisation'. Iceland reported that all national research institutes are to a large degree engaged in polar research using the traditional research organizations, and a group is working on 'Icelandic

Arctic Policy', which also will include research. Japan reported that changes to a rather complicated polar research organization were being discussed. Finland reported good coordination between the National Committee on Polar Research, which is a coordinating body which also includes activities in IASC, SCAR and IPY, and the main Arctic institutes at the University of Oulu and University of Lapland. Russia was undergoing a reorganization and the outcome was not yet known.

There was also discussion about IPY legacies included a review of the Norwegian proposal on 'Maximising the Legacy of IPY', which would focus on issues of potential interest to the policy community, such as societal use of research results; observations and data; accessibility; and circum-Arctic scientific cooperation including coordinated funding. HAIS members also requested IASC and SCAR to consider ways in which multinational, bipolar research funding could be obtained. They also urged compliance with the IPY Data Policy to all IPY funded projects, and noted the positive activities of the Association of Polar Early Carrier Scientists (APECS).

### **HAIS-6 (January 2009)**

The meeting was held 26 January 2009 at the British Antarctic Survey, Cambridge, U.K. Participants included David Hik (Canada); Kari Laine (Finland); Volker Rachold (IASC); David Carlson, Odd Rogne, Nicola Munro, Rhian Salmon (IPY IPO); Hajime Ito (Japan); Martijn Los (Nethelands); Olav Orheim (Norway); Anders Clarhäll (Sweden); Colin Summerhayesj (SCAR); Cynan Ellis-Evans (U.K., chair and host).

HAIS members discussed efforts to secure funds to continue the IPY IPO until the 2010 IPY conference in Oslo, and supported the requests that had been sent to the international polar science community. Olav Orheim gave a status report about the Oslo Conference and preliminary ideas about the 2012 IPY Conference in Canada were discussed. HAIS members also discussed opportunities to participate in the IPY celebrations planned for February 2009. With respect to IPY legacy issues, HAIS determined that the IPY International Program Office was the logical body to secure more documentation about IPY legacies, so historians will know what was achieved during this IPY; that IASC and SCAR should clarify which legacies they are interested in, including science programs, observation programs,

and data management; and that other IPY legacies will have to have defined and find a home before the IPY come to an end. There was a need for clarifying which potential IPY legacies exists, and who will take on the responsibility for carrying them forward. Creating and maintaining a simple IPY Legacy Inventory was the basic requirement.

### HAIS-7 (October 2009)

The meeting was held 16 October 2009 at the Norwegian Research Council in Oslo, Norway. Participants included Odd Rogne (IPY IPO); Masaki Kanao (Japan); Olav Orheim (Norway, chair and host); Alexander Guterch (Poland); Sergey Priamikov (Russia); Anders Clarhäll (Sweden).

The meeting was held in conjunction with the IASC/SCAR Bipolar Action Group (*Chapter 5.5*). Much of HAIS discussion addressed aspects of IPY legacies and the future of HAIS. It was clear that participation in HAIS was declining, but not in all countries. While the Russian IPY Organizing Committee, Secretariat and website would continue, many other HAIS members would be leaving their IPY offices and duties in the next few months. The group discussed the need for HAIS after IPY, and concluded that while HAIS had been a useful forum for the IPY period, the long-term responsibilities for IPY legacies should rest with IASC and SCAR.

#### HAIS-8 (June 2010)

The meeting was held 10 June 2010 on the margins of the IPY Olso Science Conference in Oslo, Norway. Participants included David Hik (Canada); Odd Rogne (IPY IPO); Olav Orheim (Norway, chair and host); Jacek Jania (Poland); Chris Elfring (U.S.A.).

The meeting was brief and formally concluded the activities of the HAIS.

# **Summary**

Members of HAIS believed that they made a valuable contribution to the planning and implementation of IPY 2007-2008. The personal contacts that were made at the national level among individuals involved in the day-to-day operation of IPY activities were an invaluable asset. Although it was not possible to include all countries in HAIS, the discussions were widely circulated and facilitated the necessary sharing of information, ideas and problems. Although HAIS existed informally within the organizational structure of IPY 2007-2008, it managed to facilitate a degree of coordination and understanding among national programs that would not have been possible without it.

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