Report of 2nd Meeting of the SCAR/IASC Bipolar Action Group (BipAG)

1200 October 15 to 1600 October 16, 2009,
Norwegian Research Council,
Stensberggata 26, Oslo, Norway

1. Participants

Heinz Miller (Chairman, GER)
Elena Andreeva (Member, RUS)
Fridtjof Mehlum (Member, NOR)
Chris Rapley (Guest, SCAR-EXCOM)
Masaki Kanao (Guest, JPN)
Colin Summerhayes (SCAR)
Volker Rachold (IASC)
Jenny Baeseman (APECS)

Unable to attend:
Sue Moore (Member, USA)
Nick Owens (Member, UK)
Wayne Pollard (Member, CAN)
Bryan Storey (Member, NZ)
Huigen Yang (Member, CHN)

2. Opening Remarks

The Chairman welcomed participants, presented apologies, introduced observers, and reminded participants of the BipAG Terms of Reference (ToRs), which in brief are to advise the Executive Committees of SCAR and IASC:

(a) on how SCAR and IASC can work together most effectively, e.g. through development of joint SCAR-IASC workshops, programs and networks addressing bipolar issues, and

(b) on the development of mechanisms to nurture the IPY legacy, with a focus on the roles of SCAR and IASC.

The Objectives of this 2nd meeting (the 1st having been in the margins of the 2008 Open Science Conference in St Petersburg in July 2008) were:

(i) to review progress against the work plan from the St Petersburg meeting;

(ii) to interact with the HAIS (Heads of Arctic and Antarctic IPY Secretariats) community (which would be meeting in parallel) to evaluate how SCAR and IASC may take up the challenge of implementing the IPY legacy.

(iii) to formulate further advice to the Executive Committees of SCAR and IASC on the BipAG ToRs, in particular on:

(A) the development of possible joint SCAR-IASC workshops, programs and networks to address bipolar issues; and

(B) the further development of mechanisms to nurture the IPY legacy with a focus on the roles of SCAR and IASC.

3. Review of Progress Against Recommendations

	Recommendation	**Progress**
1.1	include cetaceans in polar ecosystems research	Is being encouraged
1.2	include passive acoustics in polar ocean observatories	Is being encouraged
1.3	encourage integration of the commonly separated Arctic and Antarctic funding, management and logistics streams at the national level	Is being encouraged, but is beyond direct SCAR/IASC control
1.4	develop a series of international workshops to foster international partnerships and exchanges	These are ongoing (see examples below)

1.5	recommend that funding agencies from polar science countries work together to support international bipolar science	This is normal SCAR/IASC practice
1.6	encourage national programmes to develop bilateral or multilateral agreements to facilitate the sharing of resources and infrastructure needed to get polar science done	This is common SCAR/IASC practice
2.	Links should be established between SAON and PAntOS to ensure that they develop in a compatible way and learn from the best practice of each other	While individual observing systems are developing in SCAR, the mechanism of coordination and or integration between them is under review
3.	SCAR and IASC should consider applying for observer status with the IPCC	SCAR will be represented at IPCC meeting via the ICSU delegation; IASC will approach ICSU to see what is possible
4.	SCAR and IASC should prepare themselves as the existing polar coordination structures to take a prominent role in ensuring that IPY project data goes into national and international databases, to ensure the IPY Data Legacy	ICSU has developed the Polar Information Commons (PIC) project to take this forward. SCAR and IASC are involved. Data management is also developing under SAON (IASC) and SCADM (SCAR).
5.	JCADM should be charged with taking on the responsibility for liaising with bipolar or Antarctic IPY programmes and national IPY committees to ensure that IPY data goes into appropriate databases (e.g. NADCs) and that metadata end up in the AMD	JCADM is now SCADM, and has been so charged
6.	SCAR should keep IASC informed about the development of the SCAR data and information management strategy, with a view to the two adopting the same strategy so as to facilitate interoperability between the two hemispheres.	SCAR DIM strategy approved by SCAR EXCOM in August 2009, published as a SCAR Bulletin and provided to IASC
7.	IASC develop a data and information management committee to work with national Arctic data repositories and to follow a data and information management strategy (preferably building on the one being developed by SCAR, so as to facilitate interoperability)	Still under consideration pending operation of the new IASC structure

8.	All SCAR and IASC programmes should have a clearly specified data and information management plan that follows the IPY data policy of making all data eventually available to all	True of SCAR's 5 flagship research projects; IASC position unclear until new structure implemented
9.	SCAR and IASC should support the development of open access data journals	Openly promulgated
10.	All IASC and SCAR programmes should have a clearly specified education and outreach plan	True of SCAR's 5 flagship research projects; IASC position unclear until new structure implemented

4. Mechanisms to Implement Key Elements of the IPY legacy

BipAG commented on the following 5 key areas (in bold) identified by the IPY Joint Committee as critical for taking forward the IPY Legacy.

- **Development of observational networks.** IASC is working with the Arctic Council on the development and eventual implementation of SAON. SCAR developed the Cryosphere observing system (CryOS) with WCRP, which led to WMO's formation of the Cryosphere Watch programme. SCAR has almost completed (with partners) the design for a Southern Ocean Observing System (SOOS) for publication early 2010. As noted above, PAntOS needs re-thinking.
- **Mechanisms to encourage engagement of early career scientists**. SCAR and IASC now co-sponsor APECS, which has gone from strength to strength. It now has a Director and an Office (the Director is now an observer to BipAG);
- **Mechanisms to ensure IPY data are captured and made readily available**. As mentioned above, ICSU has developed the Polar Information Commons (as part of its CODATA Committee), and SCAR and IASC are contributing to its development; this will involve the World Data Centres. SCAR has charged its new SCADM with taking care of Antarctic IPY data;
- **Mechanisms to develop education and outreach programmes.** IASC has a substantial education and outreach programme and budget (e.g. to get students to meetings). SCAR is revamping its capacity building, education and training (CBET) activities and has added a budget for a visiting scholar programme to its ongoing fellowship programme. The Tinker Foundation has launched the Martha T Muse Award for mid-career scientists, as an IPY legacy; the award programme is being managed by SCAR.
- **Mechanisms for bringing together social and natural scientists.** These are already active for the Arctic, though more connections are desirable. SCAR has groups for (i) human biology and medicine; and (ii) history, and is considering establishing one for social sciences.

BipAG considered the question "What has come out of IPY for all the extra money that went into it?" This matter is being reviewed by the IPY-JC, and some of the answers will appear at the Oslo conference in 2010. But more is needed than just a set of conference papers. BipAG considered that it would be desirable to have a slim synthesis volume of key scientific results. Observers attending the Oslo conference could be charged with developing such a review, and also with identifying where the gaps remain.

Recommendation 1: that SCAR and IASC find a mechanism and budget to develop a slim synthesis volume of key results - "the 10 key scientific findings of the IPY; their relevance to society; and remaining gaps", in association with other relevant bodies (WMO, Arctic Council, APECS etc), with a view to publishing a volume in time for the 2012 IPY conference.

As a prelude, to raise the profile of SCAR and IASC as the agents responsible for implementing the IPY Legacy, BipAG developed the following additional recommendations:

Recommendation 2: that IASC and SCAR assist ICSU and WMO (financially) in launching in Oslo in 2010 the book being developed by the IPY-JC and reviewing the development of the IPY.

Recommendation 3: that SCAR and IASC take responsibility for populating the IPY web page with exciting IPY results after the demise of the IPY-IPO.

Recommendation 4: that a means be found to link IPY project highlights to the individual honeycombs on the IPY honeycomb diagram on the IPY web site.

5. Further Linkages Between SCAR and IASC

BipAG identified some critical areas for future bipolar research.

(i) Polar Ice Sheets And Sea Level

SCAR and IASC have had two joint activities (a) a workshop in St Petersburg, the results of which wee presented as a paper at the International Glaciological Conference in Newcastle, UK, in July 2009; and (b) a summer school on ice sheet modelling, in Portland, Oregon, in August 2009. These joint activities should continue.

Recommendation 5: a Joint SCAR/IASC ice sheet and sea level group should be implemented, and discussions on the mechanisms and ToRs should take place at the Obergurgl meeting of the IASC Working Group on Glaciology on 7-10 March 2010.

Recommendation 6: SCAR should publish reports of the past two ice sheet and sea level workshops, with the SCAR and IASC logos.

(ii) Continuity of Polar Satellite Missions

So that ice sheet measurements do not die away at the very moment that it appears that the ice sheets are diminishing faster and hence contributing more to sea level rise, BipAG recommended:

Recommendation 7: that SCAR and IASC should lobby jointly for support of new satellite systems such as IceSAT-II; CryoSAT; RADARSAT-II, TERRASAR-X and Tandem-X, etc.

(iii) A Bipolar Approach to Ocean-Atmosphere CO2 Exchange

Recommendation 8: that SCAR and IASC should encourage bipolar approaches to questions of the effects of changes in sea ice on the ocean-atmosphere CO2 exchange.

(iv) A Bipolar Approach to Ocean Acidification

Recommendation 9: that SCAR and IASC should develop a bipolar approach to addressing the impacts of ocean acidification in polar waters.

(v) A Bipolar Approach to Expending Baseline Knowledge of Marine Biodiversity.

Recommendation 10: that SCAR and IASC should encourage continuation of Arctic and Antarctic marine biodiversity studies (like those of the censuses of marine life) and the connections between biodiversity in the two regions, not least to establish the baselines against which to compare future change and to identify possible key indicator species.

(v) A Bipolar Approach to Microbiology and Molecular Biology.

Recommendation 11: that SCAR and IASC should encourage joint approaches to studies of microbiology and molecular biology (terrestrial and marine), including impacts on human health.

6. Other SCAR-IASC Links

BipAG hopes that the new IASC structure comes into being shortly; when it does, the science groups of IASC and SCAR should work together to identify gaps in bipolar research.

Recommendation 12: Once the new IASC structure is in place the standing scientific committees of both organisations should connect to explore possibilities for bipolar approaches.

Such gaps might include for example the need to develop upper atmosphere research in the Arctic, the need to examine the role of cetaceans in the

ecosystem, and the need to investigate the role of passive acoustics in cetacean detection.

BipAG noted that there had been several joint SCAR-IASC science meetings, including ones on high latitude climates, and on ice sheets. In addition SCAR and IASC had jointly organised the St Petersburg Open Science Conference (2008) and were actively engaged in helping to organise the 2nd IPY science conference (Oslo, June 2010).

Recommendation 13: that SCAR and IASC continue to develop joint bipolar meetings as appropriate.

SCAR and IASC are collaborating on a demonstration project for the 15th UNFCCC Conference of the Parties, in Copenhagen in December 2009, which will involve live connections to scientists in the field (jointly organised with BAS and AWI).

As members of the IPY-JC, SCAR and IASC have also collaborated with and are collaborating with other IPY-JC members on the production of IPY documents.

BipAG noted that much of what was going on between SCAR and IASC was not known to the wider SCAR and IASC science communities (apart from Executive Committees and Delegates).

Recommendation 14: that SCAR and IASC Secretariats send reports on joint SCAR-IASC activities to members of all SCAR and IASC scientific committees.

7. Implications of Documents on IPY Published by Arctic Council and Antarctic Treaty

It is pleasing to note that these documents are suitably supportive of investments in the science and in bipolar approaches, but they are too general to offer specific advice on directions in science.

8. Joint Meeting with HAIS (Heads of Arctic and Antarctic IPY Secretariats)

During the joint meeting HAIS and BipAG touched on:

(a) What bipolar activities need consideration: it was recognised that topics like astronomy would also be bipolar but would likely continue largely outside the SCAR-IASC frame. Similarly, the balance of social science will always be focused on the Arctic, where there is a substantial indigenous population as well as significant economic exploitation. In the south economic exploitation largely involves tourism (around 30,000 visitors per year), which is not an active area of SCAR's research, and fishing, which is the responsibility of CCAMLR.

(b) Early career scientists (APECS) should be involved in developing the proposed synthesis volume by 2012;

(c) The HAIS group is now reduced in scope because, at the end of the IPY, several nations ceased funding their national IPY committees. Nevertheless, HAIS still provides a link into national funding agencies that may be able help to develop the structures required to manage the IPY legacy effectively.

(d) While we may envisage possible ways in which SCAR and IASC could manage the IPY Legacy, a large unknown is the possible development by WMO of an International Polar Decade, which inevitably would require a structure that could be seen as taking over where the IPY-JC left off.

(e) It was agreed that it makes good sense for SCAR and IASC to start developing mechanisms to manage the IPY legacy from the end of the term of the IPY-JC (summer 2010). Such mechanisms will be needed whether or not an IPD develops.

(f) In effect the proposal for SCAR and IASC to manage the IPY Legacy process (apart from ICSU's investment in developing a Polar Information Commons) will represent a major part of the continuation of ICSU's involvement in polar science.

Recommendation 15: A mechanism will need to be found for SCAR and IASC to report on the implementation of the IPY legacy to the ICSU management structures.

(g) It will be useful to gather together national data on polar science outputs (research papers etc) annually to see to what extent the IPY was successful in raising and maintaining investment in polar science.

(h) To what extent might the organisers of the Canadian IPY meeting (2012) be persuaded to help to maintain the IPY web site (which is now on the Arctic Portal server in Iceland)? APECS offered to assist in the process as a major partner.

(i) There is an open question as to how to maintain the IPY EOC activity. Individual operators have their own national mechanisms for EOC and might be persuaded to operate in future in a connected way. COMNAP has its INFONET process linking national information officers. SCAR and IASC may be able to help to stimulate such interaction in association with COMNAP, FARO, AFOPS, national operators and national funding agencies. A proposal will be needed (by whom? by when? for what audience?). This needs discussion with the IPY-JC at is next meeting.

Recommendation 16: Discuss with IPY-JC the future of IPY EOC activities.

(j) Olav Orheim described progress in organising the 2010 IPY conference for Oslo (8-12 June 2010). The full programme description is on the web and the call for abstracts will shortly appear on the web site. Up to 3000-4000 people are expected. Canada is organising the 3rd IPY conference for 22-27 April 2012. The

meeting participants noted the potential overlaps with the SCAR Open Science Conferences in 2010 and 2012.

Recommendation 17: consideration should be given to having another joint SCAR-IASC Conference in 2014, by which time the cycle of IPY conferences will have been completed.

(k) WMO has formed a Panel of Experts on Polar Observations, Research and Services. There is an open question about where the activities of the IPY-JC's Space Task Group (STG) fit in relation to managing the IPY Legacy. The STG proposed that there should be a Polar Satellite Constellation as part of the IPY legacy. How this is to be organised remains to be seen. This needs discussion with the IPY-JC at its next meeting. One outstanding question is whether or not SCAR will be invited to join the new WMO Panel (IASC has been so invited).

Recommendation 18: Find out (a) if SCAR can be involved in the WMO Panel of Experts on Polar Observations, Research and Services, and (b) what the status of the Polar Satellite Constellation may be as part of the IPY Legacy, and what the roles of SCAR and IASC may be in implementing it.

(l) WMO has also formed a Global Cryosphere Watch, which will build on the IPY CryOS observing system developed by SCAR and WCRP. Discussions continue to see how SCAR and IASC may be involved in its implementation.

(m) National arrangements for implementing the IPY legacy tend to involve things like ensuring the storage of IPY data. Relations to SCAR and IASC tend not to have been considered, not least because at the national level there is in several countries a disconnect between the structures for IPY and those for SCAR and IASC. Individual nations will be much involved in storing IPY and polar data, especially using open access data channels.

9. The Future of BipAG

Summary Recommendation:

Bearing in mind that SCAR and IASC will have to inherit the management of the IPY Legacy from the IPY-JC and IPY-IPO when those bodies cease in June 2010, a more comprehensive body than BipAG will be needed to oversee the complex IPY legacy issues on behalf of SCAR and IASC, and indeed on behalf of the IPY parents ICSU and WMO. This joint body would inherit much of the role of the present ICSU/WMO IPY-JC. It would report to IASC and SCAR and either through them, or directly on their behalf, to ICSU and WMO, on IPY legacy issues. The new body, the **SCAR-IASC IPY Legacy Committee (SI-ILC)** - pronounced 'silk' - should begin at the end of the term of BipAG (summer 2010), and continue for 2 full SCAR cycles (to summer 2014), after which its continued existence should be reviewed.

Possible Terms of Reference for **SCAR-IASC IPY Legacy Committee** (SI-ILC):

- To oversee the development and implementation of mechanisms to nurture the IPY legacy.
- To summarise lessons learned (e.g. what worked, what didn't work).
- To report to SCAR, IASC, ICSU and WMO on progress in developing and implementing the IPY Legacy.
- To advise SCAR and IASC governing bodies on the development of possible joint workshops, programs and networks to address bipolar issues.

APPENDIX 1

BIPAG RECOMMENDATIONS

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