

The International Council for Science

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# XXVIII SCAR and COMNAP XVI Bremen, Germany, 25-31 July 2004

## A Brief Report of the Meeting

The first week of the XXVIII SCAR biennial meeting was held at the Congress Centre in Bremen, Germany. The centrepiece of the SCAR Science Week was the SCAR Open Science Conference on "Antarctica and the Southern Ocean in the Global System". The SCAR Standing Scientific Groups and their various sub-groups met around the Conference. The COMNAP XVII meeting was held in parallel with the SCAR meeting and included the SCALOP Symposium "Towards the International Polar Year and Beyond", a trade exhibition and an exhibition of polar aircraft at Luneort airport.

The whole SCAR and COMNAP meeting was attended by 1070 participants from 42 countries, including participants from 6 countries that are neither members of SCAR or COMNAP, nor signatory to the Antarctic Treaty (see Appendix 1). The Open Science Conference itself was attended by 890 participants of whom 35.5% were from Germany and 64.5% from overseas. 176 (19.8%) of the participants were described as "Young Scientists".

The Conference was formally opened on Monday, 26 July 2004. After the initial speeches of welcome, four of the five SCAR Prince of Asturias Fellows were interviewed about their research; the fifth was currently wintering in Antarctica.

The five Conference Keynote Presentations followed:

- Eric Wolff, British Antarctic Survey, United Kingdom. Understanding the past - climate history from Antarctica
- Erik Ivins, California Institute of Technology, United States. Continent-wide Glacio-isostasy in Antarctica: Current Status of Modelling
- Angelika Brandt, University of Hamburg, Germany. Evolution of the Antarctic biodiversity in the context of the past: the importance of the Southern Ocean deep sea
- Chris Rapley, British Antarctic Survey, United Kingdom. A new phase of exploration and understanding: planning for the International Polar Year - 2007/2008
- Karl Erb, Office of Polar Programs, United States. Antarctic research and COMNAP

On Tuesday the Symposium of the Standing Scientific Groups began with the following Keynote Presentations

- John Storey, University of New South Wales, Australia. Astronomy from Antarctica
- Lloyd Peck, British Antarctic Survey, United Kingdom. Prospects for survival in the Southern Ocean: extreme temperature sensitivity of benthic species
- Terry Wilson, The Ohio State University, United States. Integrated studies on Antarctic neotectonics

- Neotectonics for the International Polar Year
- Jay Zwally, National Aeronautical and Space Administration, United States. ICESat and ice sheet mass balance
- Diana Wall, Colorado State University, United States. Biodiversity and ecosystem functioning in terrestrial habitats of Antarctica
- Phil O'Brien, Geoscience Australia, Australia. Marine acoustic technology and the Antarctic environment

The Conference continued through Tuesday with 11 parallel sessions and Wednesday with 10 parallel sessions on the following 23 scientific themes:

Variability and change in the Antarctic biota: molecules to ecosystems

- Pelagic predators and the Southern Ocean System
- Structure and function of Southern Ocean Ecosystems
- Evolution and biodiversity of life in polar regions
- Ecology of the Antarctic sea-ice zone
- Human responses to the Antarctic environment
- Ocean-atmosphere-land interactions
- Climate history of the Antarctic from ice cores and meteorological reports
- Astronomy from the Antarctic
- Arctic-Antarctic conjugacy in solar terrestrial physics
- Evolution of the Antarctic and Southern Ocean climate and biota: the geological record
- Antarctic neotectonics and geodesy
- Growth of the Antarctic continent
- Antarctic permafrost
- Antarctic geospatial information, data management and information portals: management and application in science
- Ozone, aerosols and atmospheric composition
- Physical oceanography and sea ice
- Upper atmospheric physics and geospace
- Subglacial lakes exploration
- Bathymetry of the Southern Ocean
- ISMASS/ITASE, only poster
- Antarctic history, only poster
- International Polar Year

In total at the Conference there were 280 verbal presentations and 260 poster presentations in two sessions, one on Tuesday and one on Wednesday. By any standard the SCAR Open Science Conference in Bremen was a resounding success.

The SCAR Executive Committee met on Sunday 25 July and again on Friday 30 July with the Chief Officers

of the SSGs. The SCAR Executive Committee also met jointly with the COMNAP Executive Committee on Thursday 29 July.

There were two IPY discussion fora on Thursday and Friday led respectively by SCAR and COMNAP.

The rest of the Science Week, including the previous Sunday, was devoted to the meetings of the Standing Scientific Groups and their various sub-groups. Reports of these meetings were tabled for the XXVIII SCAR Delegates' Meeting in Bremerhaven, 3–8 October 2005.

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The changes to the officers in each group are noted here:

**Officers 2002–04**

**Officers 2004–06**

**SSG Geosciences**

Chief Officer	P E O'Brien (Australia)	A Capra (Italy)
Deputy Chief Officer	A Capra (Italy)	R D Powell (United States)
Secretary	B C Storey (New Zealand)	B C Storey (New Zealand)

**SSG Life Sciences**

Chief Officer	S L Chown (South Africa)	A H L Huiskes (Netherlands)
Deputy Chief Officer	L A Palinkas (United States)	L A Palinkas (United States)
Deputy Chief Officer	G di Prisco (Italy)	
Secretary	A H L Huiskes (Netherlands)	K Conlan (Canada)

**SSG Physical Sciences**

Chief Officer	J Turner (United Kingdom)	J Turner (United Kingdom)
Deputy Chief Officer	M Candidi (Italy)	M Candidi (Italy)
Secretary	T H Jacka (Australia)	T H Jacka (Australia)

**Appendix 1****XXVIII SCAR and COMNAP XVII Meetings**

	<i>country</i>	<i>number of participants</i>		<i>country</i>	<i>number of participants</i>
1	Argentina	9	22	Korea	7
2	Australia	44	23	Luxembourg <sup>1,2,3</sup>	1
3	Austria <sup>1,2</sup>	3	24	Malaysia <sup>2,3</sup>	9
4	Belgium	15	25	Monaco <sup>1,2,3</sup>	1
5	Brazil	16	26	Netherlands	14
6	Bulgaria	6	27	New Zealand	28
7	Canada	16	28	Nigeria <sup>1,2,3</sup>	2
8	Chile	22	29	Norway	16
9	China	14	30	Peru	2
10	Croatia <sup>1,2,3</sup>	1	31	Poland	12
11	Czech Republic <sup>1,2</sup>	6	32	Portugal <sup>1,2,3</sup>	2
12	Denmark <sup>1,2</sup>	1	33	Romania <sup>1,2</sup>	1
13	Ecuador	1	34	Russia	13
14	Estonia <sup>1,2</sup>	3	35	South Africa	20
15	Finland	10	36	Spain	17
16	France	39	37	Sweden	9
17	Germany	379	38	Switzerland <sup>2</sup>	2
18	India	4	39	Ukraine	6
19	Israel <sup>1,2,3</sup>	1	40	United Kingdom	60
20	Italy	100	41	United States	134
21	Japan	22	42	Uruguay	2

Total number of participants from 42 countries 1070

<sup>1</sup> Not a member of SCAR

<sup>2</sup> Not a member of COMNAP

<sup>3</sup> Not a signatory to the Antarctic Treaty

## TWENTY-EIGHTH MEETING OF SCAR

Bremerhaven, Germany, 4–8 October 2004

### REPORT OF THE DELEGATES' MEETING

*Executive Committee:* J Thiede (President); R H Rutford (Past President); R Schlich, C G Rapley, J López-Martínez, C Howard-Williams (Vice-Presidents); C P Summerhayes (Executive Director); P D Clarkson (Executive Secretary).

*Delegates:* S Marensi, (Argentina); I Allison, D M Stoddart (Australia); T van Autenboer (Belgium); A C Rocha-Campos, L Campos (Brazil); S C Bigras (Canada); J A Valencia (Chile); Z Zhang, W Qin, (China); M Poutanen (Finland); R Schlich (France); J Thiede, R Dietrich (Germany); P C Pandey, A Saxena (India); A Meloni, C A Ricci (Italy); H Shimamura, K Shiraishi (Japan); B-K Park, M Park (Korea); A H L Huiskes, (Netherlands); C Howard-Williams, F J Davey (New Zealand); O Orheim (Norway); A Gazdzicki (Poland); V M Kotlyakov, M Yu Moskalevsky (Russia); S L Chown, S Malinga (South Africa); J López-Martínez (Spain); C Schlüchter, E Gerber (Switzerland); C G Rapley, P G K Rodhouse (United Kingdom); M C Kennicutt II, T J Wilson (United States); B Grillo, J Troche (Uruguay).

*Union Members:* V M Kotlyakov (IGU); G A Knox (IUBS); R Schlich (IUGG); C A Ricci (IUGS).

*Associate Members:* A A Samah, M N Salleh (Malaysia); G P Milinevsky (Ukraine).

*Observers:* B Mlcoch, D Nyvlt (Czech Republic)

#### *SCAR Subsidiary Groups*

*Standing Scientific Groups:* A Capra, (Geosciences); A H L Huiskes (Life Sciences); J Turner, M Candidi (Physical Sciences).

*Standing Committees:* R Schlich (Finance); D W H Walton (Antarctic Treaty System).

*Advisors:* R Cervellati (Italy); G Kleinschmidt (Germany);

#### **Opening Ceremony**

The President, J Thiede, welcomed the Delegates and distinguished visitors to Bremerhaven and to the Alfred-Wegener-Institut für Polar- und Meeresforschung, explaining that the proceedings would open with an informal session on “The importance of International Collaboration in Polar Scientific Research”. The object of this session would be to engage Delegates more fully in the process of formulating SCAR’s future.

The Executive Director, C P Summerhayes, then welcomed the Delegates on behalf of SCAR. The meeting was charged with consolidating and approving the final details of an entirely new SCAR programme, comprising a new Constitution, new Rules of Procedure, a Strategic

Plan, a Finance Strategy, and an entirely new and focused science programme emphasizing interdisciplinary research and partnerships with global science organizations. All of these had been developed in response to the 2000 Review of SCAR. The changes will raise SCAR’s profile internationally. SCAR’s international profile had been raised recently through the success of SCAR’s first Open Science Conference, held in Bremen in July 2004, and by the launch of the new SCAR web site (<http://www.scar.org>), which has been receiving 30,000 hits per month (double the previous rate). Among the future challenges for SCAR is the intention to make a significant contribution to the proposed International Polar Year (IPY). Ideally the improvements being proposed to make SCAR more effective will take place not just on the international stage but also at the national level.

His Excellency Mr Rainier Imperti, Ambassador of the Principality of Monaco to Germany, gave a short presentation entitled “Monaco in High Latitudes”, highlighting the role of Monaco in early oceanographic expeditions into high latitudes.

Professor Walter Kroll, President of the Helmholtz Association of National German Research Centres, then gave a presentation entitled “The Importance of the Polar Sciences to Germany”, highlighting the significant role played by the Alfred Wegener Institute and its vessel *MV Polarstern*, which is operated as a European facility.

J Thiede then spoke of “The Role of SCAR in the Context of the Antarctic Treaty Consultative Meeting and the Committee for Environmental Protection”, asking what should be the proper relationship of SCAR to the ATCM in the future.

Finally C P Summerhayes explained what SCAR was doing to influence the developments of the IPY and to ensure that SCAR was fully engaged in the IPY process.

In the subsequent Open forum discussion session, Delegates raised the following points regarding their ambitions for the future of SCAR and the means whereby Delegates could become more involved in determining that future:

- SCAR is no longer the only organization dealing with the Polar Regions. We need to bring our regional expertise to bear on global science and on the behaviour of the whole Earth System.
- SCAR must bring to the attention of the Antarctic Treaty System (ATS) the relevance of science to policy matters such as the state of the Southern Ocean ecosystem, the status of ice shelves, and the impact of climate change on Antarctica.

- While there are encouraging signs that exciting interdisciplinary programmes are emerging, the Standing Scientific Groups (SSGs) should be encouraged to work more closely together in future.
- SCAR must communicate its activities more effectively to the outside world, including the public, other scientists and decision makers. Delegates can play a key role by ensuring that all stakeholders at the national level are engaged in SCAR developments. SCAR should become the first point of contact for questions about Antarctic research. SCAR should make presentations about its activities to meetings of major societies, such as AGU and EGU, and in their publications (such as EOS).
- The reorganization has helped SCAR to refocus on exciting and high quality science. Much will be gained by using the opportunity of the IPY for SCAR to become more engaged in bipolar research.
- SCAR should have a comprehensive approach to working with developing countries to help them enhance their capacities in Antarctic research. Improving access to data will aid developing countries.
- SCAR should be more involved in promoting the use of Antarctic science in education, so as to engage the attention of the next generation of potential polar scientists.
- SCAR serves as a point of reference to help its members orient their research at the national level.
- SCAR should promote active links with other ICSU bodies, especially at the national level.
- SCAR should take a higher profile in coordinating research in the Southern Ocean, which is a major defining feature of the Antarctic region.
- SCAR should improve the level of internal communication among all Members, taking into account difficulties in the use of English as the lingua franca of SCAR. Among other things, overhead projection of documents should be used routinely during all meetings.

In summary, Delegates noted that SCAR was developing some Grand Challenges through its new Scientific Research Programmes (SRPs), which addressed major scientific and societal issues, such as climate change and the effects of the sun on the Earth's atmosphere. SCAR's SRPs are taking a 'systems approach' recognizing that in analysing the Earth we are dealing with a complex system. SCAR has not forgotten the need for basic exploration, which is the focus of the programme on sub-glacial lakes. SCAR is ensuring the quality of its science by adopting a process of external peer review. And SCAR recognizes that no one organization can do everything – there is an increasing need for complex problems to be tackled through joint ventures with other partners. SCAR also recognizes the need to make significant improvements in capacity building, data and information management,

education and communication. We are on the right track, but we have a great deal still to do. Delegates can play a key role in ensuring success in the short term, by actively promoting involvement in SCAR activities at the national level.

### **Formal Opening of the Meeting**

J Thiede, President of SCAR, formally opened the meeting and expressed his great pleasure to welcome Delegates to Bremerhaven, the home of the Alfred-Wegener-Institut für Polarund Meeresforschung.

He then asked Delegates to stand in silence to remember Mario Zucchelli (Italy) and Gordon Robin (United Kingdom) who had died since XXVII SCAR.

Mario Zucchelli was the Manager of the Italian Antarctic Programme, the second Chairman of COMNAP and in recent years the Italian Alternate Delegate to SCAR. His expertise, energy and enthusiasm brought Italian Antarctic research to the position of high regard in which it is held today.

Gordon Robin was the United Kingdom representative on the Comité Scientifique pour l'Année Géophysique Internationale (CSAGI) that developed and coordinated the plan for the International Geophysical Year. Subsequently he became the United Kingdom Delegate to SCAR and was elected Secretary of SCAR. Later he was elected President and in due course was made an Honorary Member. As Director of the Scott Polar Research Institute in the University of Cambridge he had provided office space and facilities for the SCAR Secretariat within the Institute.

## **1. Opening Business**

### *1.1 Adoption of the Agenda*

Delegates adopted the draft agenda [Paper 01], the draft annotated agenda [Paper 02] and the draft timetable for the meeting [Paper 03] with the addition of items 1.4 and 8.4.

C Howard-Williams (New Zealand) agreed to chair the meetings of the Delegates Committee on Scientific Affairs and J López-Martínez agreed to chair the meetings of the Delegates Committee on Outreach and Administration; it was agreed that these two committees would meet in parallel session. The distribution of agenda items between the plenary meeting and the two Delegate Committees, shown in the draft timetable, is given in Appendix 1.

### *1.2 Swiss application for Full Membership*

The Delegate from Switzerland, C Schlüchter, presented the Swiss application for Full Membership of SCAR [Paper 04]. The Delegates discussed the application in closed session and agreed that Switzerland should be admitted to Full Membership. The President congratulated C Schlüchter and welcomed Switzerland as a Full Member of SCAR.

### 1.3 *Malaysian application for Associate Membership*

The Delegate from Malaysia, A A Samah, presented the Malaysian application for Associate Membership of SCAR [Paper 05]. The Delegates discussed the application in closed session and agreed that Malaysia should be admitted to Associate Membership. The President congratulated AA Samah and welcomed Malaysia as an Associate Member of SCAR.

### 1.4 *Potential membership of the Czech Republic*

A representative of the Czech Republic's polar science community, Mr Daniel Nyvlt, made a brief presentation on the interest of the Czech Republic in becoming an Associate Member of SCAR. The Delegates encouraged the submission of a case for consideration by the XXIX SCAR meeting, in Hobart, with a draft case being made available to the Executive Committee before its meeting in Sofia, Bulgaria, 13–15 July 2005.

## 2. Reports of SCAR Meetings

### 2.1 *Report of XXVII SCAR Meeting*

The Report of the XXVII SCAR Delegates Meeting (Shanghai, China, 22–26 July 2002) [Paper 06], published in SCAR Bulletin no 149, April 2003, was adopted.

### 2.2 *Report of Executive Committee Meeting*

The Report of the SCAR Executive Committee Meeting (Brest, France, 11–15 July 2004) together with the Report of a Joint Meeting of the SCAR and COMNAP Executive Committees (Brest, France, 11 July 2004) [Paper 07], published in SCAR Bulletin no 152, January 2004, was adopted. The report of an additional meeting of the SCAR Executive Committee (Bremerhaven, Germany, 21 January 2004) [Paper 08], published in SCAR Bulletin no 154, July 2004, was adopted.

The Report of the SCAR Executive Committee Meeting [Paper 09] held in Bremen, Germany, during the XXVIII SCAR Science Week, was tabled.

### 2.3 *Report of XXVIII SCAR Science Week, Bremen*

An informal discussion was held on the subject of the SCAR Science Week and the Open Science conference held in Bremen, Germany, 25–31 July 2004. This topic will eventually form a part of the complete report of the whole XXVIII SCAR Meeting.

Some Delegates noted that attendance at, or reports about, the Science meeting had stimulated keen interest at the national level amongst young scientists. It was suggested that short articles by young scientists about the impact that the meeting had had on them should be placed on the SCAR web site.

## 3. SCAR positions

### 3.1 *Election of two Vice-Presidents [Paper 11]*

C G Rapley and R Schlich completed their terms of Office.

M C Kennicutt II (United States) and Dr H Shimamura (Japan) were elected as Vice-Presidents of SCAR for the period 2004–08.

### 3.2 *Awards*

The President thanked the retiring Vice Presidents for their service to SCAR and presented “Certificates of Appreciation” to C G Rapley, R Schlich and R H Rutherford.

G A Knox proposed that Delegates elect R H Rutherford an Honorary Member of SCAR, citing his outstanding contribution to Antarctic science, to SCAR, and to polar science management especially within the United States. R H Rutherford had first become involved with SCAR in 1970 at the XI SCAR in Oslo, Norway. Since then he had served as United States Delegate, 1986–2002; Vice President, 1996–98, President, 1998–2002; and Past President from 2002 to the end of his term in 2004. As President he had guided SCAR successfully through most of the period of re-organization. The Delegates approved the proposal by acclamation and R H Rutherford graciously accepted the nomination.

### 3.3 *Appointment of Standing Finance Committee*

G Kleinschmidt and S-H Lee had resigned from the Standing Finance Committee and Delegates approved the appointments of R Dietrich (Germany) and T J Wilson (United States).

### 3.4 *Appointment of XXVIII SCAR Finance Committee*

The Standing Finance Committee was augmented by the appointment of J Valencia (Chile) and F J Davey (New Zealand) to complete the XXVIII SCAR Finance Committee.

## 4. Meetings of SCAR Subsidiary Groups, and COMNAP

The Delegates, having considered the reports of the SSGs, agreed that the following general points should be made to the Chief Officers for future reference. It was also suggested that these comments could be incorporated into a set of guidelines for Chief Officers that could be prepared by the SCAR Secretariat for the Executive Committee to consider.

1. As a general rule, all SSG reports should conclude with three summary sections:
  - i. An organizational chart of the SSG consisting of two separate parts – the old structure and proposed new structure;
  - ii. Budgets, which should indicate clearly for which Expert or Action Group each allocation is intended;
  - iii. Recommendations set out in final draft form, and which should distinguish clearly between recommendations internal to SCAR and those that are external to SCAR.
2. Approval of an SSG report should be taken to mean approval of the structure of the SSG and its general

business plan.

3. Recommendations should be to National Committees (internal) and to organizations with which SCAR has an interaction (external). Each recommendation should be drafted in plain English, making its intention clear. The Executive Secretary was asked to re-draft Recommendations in this way for Appendix 2 of this report.
4. Chief Officers should provide a section in their SSG reports indicating what measures are being taken to foster cross-disciplinary research, what cross-disciplinary research is being undertaken, and what cross-disciplinary research is being proposed for the future. Delegates supported the idea of arranging a workshop between the three SSGs to examine change and variability in the Antarctic region, what the future for the area might be, and what these predictions are likely to mean in terms of the biology of the area. Delegates supported the idea that the proposed workshop might also consider the role of biogeochemical research in the region. Delegates noted that SALE was explicitly interdisciplinary, having been proposed through more than one SSG.

#### 4.1 *Report of the SSG Geosciences*

The Chief Officer, A Capra, presented a summary of the report of the SSG on Geosciences [Paper 12]. There was considerable support for the excellent work done by the Outreach and Communication Group of the Geosciences, and Delegates agreed that this is a model that other SSGs might wish to emulate. C Howard-Williams requested a clear list of Expert and Action Groups set out as a separate section of the report, so as to make deliberation on these groups less complicated. Delegates agreed that an organizational chart would provide a succinct way of portraying the structure of the SSG. A chart produced by the Chief Officer was accepted by the Delegates. Delegates noted that there was a large difference between the budget proposed by the SSG on Geosciences and the budget proposed by SCAR and asked the Chief Officer to prioritize the budget requests and to indicate which budget item was associated with which Action or Expert Groups. A revised budget was produced by the Chief Officer and accepted by the Delegates. Delegates agreed that the Executive Director and Chief Officer should work together to identify initiatives within the SSG on Geosciences that could be supported by outside funding.

The Delegates accepted the report and approved the revised provisional budget.

#### *SSG on Geosciences Recommendations*

The SSG on Geosciences made three recommendations internal to SCAR on:

1. Endorsing the Antarctic Climate Evolution proposal as a SCAR Programme;
2. Endorsing the Subglacial Antarctic Lake Environments proposal as a SCAR Programme;

3. Identifying National Geoscience Correspondents for each new SCAR Programme;

The Delegates accepted these internal recommendations, the full texts of which may be found in the SSG on Geosciences Report to XXVIII SCAR [Paper 12].

The SSG on Geosciences proposed seven external SCAR recommendations on:

4. Place Names [Recommendation SCAR XXVII-1 revised]
5. Bathymetric Data [Recommendation SCAR XXVII-2 revised]
6. Geodetic and Geographic Information [Recommendation SCAR XXVII-3 revised]
7. Airborne Gravity Data for Geoid Computation [Recommendation SCAR XXVII-4]
8. Geodetic Observations at Remote Locations [Recommendation SCAR XXVII-5]
9. King George Island Geographic Information Systems [Recommendation SCAR XXVII-6]
10. Identifying National Geographic Information contact persons to ensure the coordination of geographic information across Antarctica.

The Delegates agreed to adopt these as XXVIII SCAR Recommendations (XXVIII-1 to 7) and these are given in full at Appendix 2 to this report.

#### 4.2 *Report of the SSG Life Sciences*

The Chief Officer, A H L Huiskes, presented a summary of the report of the SSG Life Sciences [Paper 13]. Delegates thanked the Chief Officer for the report and noted with appreciation the success of the EASIZ programme at its completion. Delegates requested an organizational chart of the structure of the SSG Life Sciences and a list of proposed IPY activities. The latter would be discussed by the Delegates and, if acceptable, would be forwarded to the IPY Programme Planning Group. The Chief Officer listed the following proposed IPY activities:

- The Circum-Antarctic Census of Marine Life incorporating the SCAR Marine Biodiversity Information Network (MarBIN);
- Surveys of biodiversity using both traditional and novel genomic techniques across a wide range of terrestrial and freshwater sites;
- Quantification of propagule transport by humans into the Antarctic region;
- Liaison with the International Tundra Experiment to foster bipolar activities;
- A comprehensive programme of human biology and medical research during the International Polar Year.

The Delegates accepted the report and approved the provisional budget.

#### *SSG on Life Sciences Recommendations*

The SSG on Life Sciences made seven recommendations internal to SCAR on:

1. the International Polar Year 2007–08.
2. the Evolution and Biodiversity in the Antarctic Scientific Research Programme
3. the Circum-Antarctic Census of Marine Life
4. the establishment within SCAR of a Marine Biodiversity Information Network
5. the Subglacial Antarctic Lake Exploration Scientific Research Programme
6. the Open Science Conference
7. the endorsement of three expert groups within the SSG on Life Sciences

The Delegates accepted these internal recommendations, the full texts of which may be found in the SSG on Life Sciences Report to XXVIII SCAR.

The SSG on Life Sciences proposed five external SCAR recommendations on:

8. the Amalgamation of EGHB&M and MEDINET.
9. the Agreement for the Conservation of Albatrosses and Petrels.
10. the Use of Flipper Bands on Penguins.
11. the Transport to and Threat of Alien Species in the Antarctic
12. Biological Prospecting [Recommendation SCAR XXVII–8]

The Delegates agreed to adopt these as XXVIII SCAR Recommendations (XXVIII–8 to 12) and these are given in full at Appendix 2 to this report.

#### 4.3 Report of the SSG Physical Sciences

The Chief Officer, J Turner, presented a summary of the report of the SSG Physical Sciences [Paper 14]. The Delegates noted the many successes of this SSG, complimented the Chief Officer on the Group's work, and thanked him for a stimulating and concise report.

#### SSG on Physical Sciences Recommendations

The SSG on Physical Sciences made three recommendations internal to SCAR on:

1. Proposing an Expert Group on Oceanography
2. Proposing an Action Group on King George Island science
3. Proposing an Expert Group on Ice Drilling Technologies

The Delegates agreed to the establishment of an Expert Group on Ice Drilling Technologies with the proviso that the Expert Group seeks interaction with drillers working outside Antarctica.

The Delegates accepted these internal recommendations, the full texts of which may be found in the SSG on Physical Sciences Report to XXVIII SCAR.

The SSG on Physical Sciences proposed eight external SCAR recommendations on:

4. Concerning site testing for astronomical observations

5. Concerning drifting buoys
6. Concerning continued support of existing geospace observatories
7. On the transmission of space weather data
8. Mesosphere-Stratosphere-Troposphere / Incoherent Scatter (MST/IS) Radar
9. On upper air meteorological data from the Antarctic Peninsula
10. Concerning drilling above Lake Vostok
11. Concerning meteorological reports from Dome C

The Delegates considered that the recommendation on the transmission of space weather data should be widened to apply to all data. After considerable discussion concerning the proposed recommendation on further drilling above Vostok Subglacial Lake, Delegates agreed that a further recommendation would not be appropriate at this time.

The Delegates agreed to adopt the other seven recommendations as XXVIII SCAR Recommendations (XXVIII–13 to 19) and these are given in full at Appendix 2 to this report.

#### 4.4 Reports of the Standing Committee on the Antarctic Treaty System (SC-ATS)

D W H Walton introduced the reports of the SCAR observers at XXV ATCM (Warsaw, September 2002) [Paper 15], XXVI ATCM (Madrid, June 2003) [Paper 16] and XXVII ATCM (Cape Town, May–June 2004) [Paper 17].

There was discussion on some specific points but Delegates' main concern was centred on the process that SCAR should adopt to deal with the preparation of papers for submission to the Antarctic Treaty Consultative Meeting (ATCM) and for participating in the activities of Intersessional Contact Groups (ICGs). The 3-member SC-ATS could not be expected to prepare all the necessary papers without expert advice from others in SCAR, especially the Standing Scientific Groups (SSGs). There is a need to canvas advice and comment from the wider community relatively quickly to ensure that National Committees and Delegates have the opportunity to comment on materials before they are submitted as papers to the ATCM or as comments to the ICGs in time to meet the specified deadlines.

As a result the following procedure was approved for the preparation of papers for the ATCM. There are two types of subject:

1. Topics identified by the ATCM to which SCAR should respond;
2. Topics identified by SCAR for bringing to the attention of the ATCM.
  - SC-ATS requests input from experts identified by each SSG;
  - Input from the experts to be collated into a draft paper by the SC-ATS and placed on the "Members Only" area of the SCAR website;

- Delegates and National Committees are notified by e-mail that the draft paper is on the website and that they have 20 days in which to comment;
- If comments received indicate a strong divergence of opinion, the SCAR Secretariat and the Executive Committee will resolve the problem before developing the final draft;
- A final draft, incorporating comments received to the website, will be sent to the SCAR Executive Committee for approval;
- This process should be completed within 60 days.

For ICGs the procedures must be developed on a case-by-case basis.

#### 4.5 *SCAR–COMNAP Joint Committee on Antarctic Data Management (JCADM)*

D Peterson (New Zealand) has resigned as Chairman and has been succeeded by T de Bruin (Netherlands). A report for 2002–03 [Paper 18a] was tabled together with a plan for actions to be taken during 2003–04 [Paper 18b]. Delegates noted that concern has been expressed that JCADM is not giving the scientific groups what was expected. Delegates therefore requested that the new Chairman should be encouraged to submit a formal report to both the SCAR and COMNAP Executive Committees as soon as possible so that the effectiveness of the group may be adequately assessed.

At the SCAR Executive Meeting and in the SCAR Executive's meeting with the COMNAP Executive Committee, both of which took place in Brest (July 2003), it had been agreed that the GCMD at NASA should be paid \$10,000 per year to continue populating the AMD with metadata; COMNAP will pay \$3,333, and SCAR will pay \$6,667. The Executive Secretary reported that quarterly reports and an annual invoice for the services performed by the staff of the GCMD had not been received. When the reports are received they should be forwarded to the Steering Committee for Antarctic Data Management (STADM) for advice on the effectiveness and extent of the work being undertaken with respect to the payment of an invoice.

The SCAR and COMNAP Executive Committees, meeting in Bremen in July 2004, jointly agreed that in the very near future they should review together the progress of JCADM in developing the AMD and associated facilities; should assess the benefit of JCADM and the AMD to the Antarctic scientific community; and should document the population and use of the AMD during the past 3 years.

Delegates agreed that there should be strong links between JCADM and the SSGs, that the SSGs should be involved in the review of JCADM, and that JCADM's future activities should be decided upon in the context of

- a. the review of its performance, and
- b. the development of a data and information management strategy for SCAR.

The Executive Director should be involved with the SSGs, the leaders of the SRPs, and JCADM in developing a strategy for data and information management and in reviewing JCADM's performance. It was noted that the next meeting planned by JCADM is scheduled to be held in Buenos Aires, Argentina, in 2005. The plans for the proposed meeting in Buenos Aires should be dependent on the outcome of the review and the development of the strategy. Delegates agreed that SCAR's data and information management provisions should be integrated fully with the IPY data and management provisions.

#### 4.6 *Report of Joint SCAR–COMNAP Executive Meeting*

R H Rufford introduced the report of the joint meeting of the SCAR and COMNAP Executive Committees that was held in Brest, France, July 2003 [Paper 07], noting that this had already been published in SCAR Bulletin no 152, January 2004. He also introduced the report of the joint meeting held in Bremen, Germany, 29 July 2004 during the SCAR Science Week [Paper 19]. The President commented on the cordial and constructive relations that now exist between SCAR and COMNAP.

The discussion of these reports focused largely on matters relating to JCADM that are reported at 4.5 above.

Delegates noted that the COMNAP Plenary Meeting in Bremen had decided not to proceed at this time with the proposal from the SCAR Expert Group on Human Biology and Medicine for a joint SCAR–COMNAP medical group, despite broad approval by the SCAR Executive Committee. COMNAP was concerned that in a single group the mix of government employees from the COMNAP side and independent scientists from the SCAR side might inhibit discussion of certain matters. However, the COMNAP Plenary did agree to continue discussions with SCAR on this matter, and to review progress at COMNAP XVII in July 2005.

#### 4.7 *Review of XXVII SCAR Recommendations*

Delegates reviewed the XXVII SCAR recommendations [Paper 20]. Some of the discussion focused on the principle of recommendations and their style. It was agreed that while some recommendations have been effective (such as the recommendation to the Antarctic Treaty to protect meteorites), some others that are basically motherhood statements have had little effect. Nevertheless, some Delegates indicated that some SCAR recommendations have been very helpful to their scientists when establishing new projects because they have been able to show SCAR support for particular kinds of activity.

Delegates agreed that the style of recommendations should be improved and the SCAR Secretariat was asked to review the format and to improve the style of the current recommendations of the SSGs as models to follow in the future.

#### 4.8 SSG Recommendations to XXVIII SCAR

Delegates considered the SSG recommendations to XXVIII SCAR [Paper 21] in conjunction with the reports of the SSGs and their decisions are reported above at 4.1, 4.2 and 4.3.

### 5. Scientific Research Programmes

Delegates who were asked to assess the quality of the science in the five Scientific Research Programmes to determine if the proposed programmes meet the criteria for a SCAR Scientific Research Programme. It was noted that the proposals had been posted on the SCAR website well in advance of the meeting and that external reviews were now available. Three external reviews were available for SALE, one for ACE, one for ICESTAR, one for EBA, and one for AGCS. The review criteria had been sent to Chief Officers and a tenth criterion, on how these programmes might contribute to the IPY, had been added. Delegates agreed that the most important criteria for the purposes of evaluation were:

- i. science quality and proposal quality;
- ii. science importance, relevance and timeliness;
- iii. "fit" to current SCAR strategy; and
- iv. operational and technical feasibility.

COMNAP had provided comments on this last requirement and had not seen any significant problems in any of the programme area. Delegates agreed to rate the proposals in one of the three following categories:

- A. Approve and proceed;
- B. Revise and re-present to the SCAR Executive Committee meeting in July 2005 for approval before proceeding;
- C. not approved, major revision required.

Delegates provided brief notes on each proposed programme for feedback to the SSGs.

#### 5.1 *Antarctic Climate Evolution*

The Chief Officer of the SSG Geosciences, A Capra, introduced the ACE proposal and T J Wilson presented a summary of the programme [Paper 22].

Delegates noted the excellent outreach component of this programme. A Capra pointed out that this programme will integrate findings from several large previous programmes. The extensive logistic support required for this programme was queried but T J Wilson noted that implementation plans will capitalize on the available infrastructure and existing facilities. Delegates welcomed the scope for involving a wide variety of nations. Missing information on palaeoclimate, and landscape and ice sheet evolution in the Transantarctic Mountains over the past six million years was noted and should be developed in the programme. Links with EBA should be developed and be included in the proposal.

The Delegates agreed that this was an excellent programme, and rated it Category "A" so that it should be supported and should proceed.

#### 5.2 *Antarctica and the Global Climate System*

The Chief Officer of the SSG Physical Sciences presented a summary of the AGCS proposal [Paper 23].

The Delegates strongly supported the programme. They recognized that placing a 15 page limit on the proposals led inevitably to less information being available than some Delegates or reviewers might have liked to see. Delegates noted that the published results would be useful to the deliberations of both the Intergovernmental Panel on Climate Change (IPCC) and to the Parties to the United Nations Framework Convention on Climate Change. In terms of improvements to the paper, Delegates would like to see addressed the issue of data availability and how to identify new sites for data collection. They noted that this programme addressed the question of feedback between the equatorial regions and the Antarctic, but felt that more emphasis should be given to developing links with the relevant scientific community. Linkages with EBA, ACE and ICESTAR should also be developed and be included in the proposal. The programme also offered the opportunity to develop substantial international collaboration, ties with those investigating Arctic ice caps and high altitude glaciers, and interactions with the SSG's Action and Expert Groups. Management of the programme must ensure that deadlines for deliverables are met.

The Delegates agreed that this programme was excellent and should be rated in Category "A" so that it should be supported and should proceed.

#### 5.3 *Evolution and Biodiversity in the Antarctic*

The Chief Officer of the SSG Life Sciences presented a summary of the EBA proposal [Paper 24].

The Delegates indicated their strong support for the programme. Linkages to other programmes need to be better documented and several editorial points need to be addressed. There needs to be a better indication of how data will be archived. Internal linkages and programme management require development. Better linkages to different programmes, such as AGCS and ACE, need to be developed. The SCAR-MarBIN concept needs to be included. The programme is broad and needs to be carefully managed to remain focused. Scientific milestones should be provided and the leaders of the major components identified. The steering committee needs to ensure that the programme remains accessible to all nations.

The Delegates agreed that this programme was excellent, and should be rated in Category "A" so that it should be supported and should proceed.

#### 5.4 *Interhemispheric Conjugacy Effects in Solar-Terrestrial and Aeronomy Research*

M Candidi, a member of the ICESTAR Scientific Programme Planning Group, presented a summary of the ICESTAR proposal [Paper 25].

Delegates were impressed by the proposal, particularly the interactions between the two polar regions. The reviewer's comments were generally positive. Some topics were not developed in sufficient detail, partly as a consequence of the page limits on proposal length that had been set by the SCAR Executive Committee. Delegates noted that groups such as CAWSES and IHY were already collaborating with ICESTAR, and that collaboration between these groups would continue. M Candidi pointed out that the use of GPS instrumentation for probing the ionosphere would be investigated. Delegates suggested that linkages between the upper and lower atmospheres might be explored with the AGCS programme and the relevant Action Group. Involvement of other nations should be actively sought. In particular, there is scope for such collaboration via the deployment of magnetometers, with the results being used for outreach via a consortium of schools. The proposed data portal and its relation to existing data facilities needs clearer articulation, as do the milestones within the programme. Delegates noted the current interest in solar activity and its effects on electrical and communications systems on Earth, and suggested that ICESTAR should work to attract funding from the insurance industries.

The Delegates agreed that this was an excellent programme, rated in Category "A" so that it should be supported and should proceed.

#### 5.5 Subglacial Antarctic Lake Environments

M C Kennicutt, a member of the SALE Scientific Programme Planning Group, presented a summary of the SALE proposal [Paper 26].

Questions raised, with M C Kennicutt's responses, included:

- How can smaller national programmes take part? – by working on samples retrieved and modelling studies.
- Can SCAR provide independent scientific advice to the ATCM if it is involved in the programme? – most of the research is routinely practised in Antarctica; lake penetration is the significant issue and advice could be provided by SCOPE and COSPAR on environmental issues.
- Could the programme incorporate a bi-polar component? – linkages to groups working in the Arctic on life in extreme environments could be made.

Delegates noted that the document addressed palaeoenvironments as well as modern ones. One Delegate suggested that some consideration might be given to the possibility that in the past there may have been outbreaks from breached subglacial lakes. Delegates noted the need for scientific milestones and timelines.

The Delegates agreed that this was an excellent, well-developed and exciting programme, rated in Category "A" so that it should be supported and should proceed.

#### 5.6 General Comments on all Proposals, and 'Next Steps'

The Delegates noted with pleasure that all of the programme proposals had received a large number of "A" ratings leading to each proposal being rated "A" overall. They agreed that the programme development and review process was an excellent one, that much was learned, and that the science proposals were of a uniformly high quality. The review comments received and Delegates' advice will be sent to the SSG Chief Officers and SRP leaders by 15 October 2004. In due course they must demonstrate that they have incorporated the comments and advice into the proposals in an appropriate manner. The SCAR Secretariat would then publish the revised documents on the SCAR web site, inviting involvement from all interested parties.

Delegates agreed that on the following next steps for the SRPs:

1. Chief Officers to get responses from SRP leaders to the critiques by the Delegates;
2. finalized copies of the SRP proposals to be sent to the Executive Committee for approval by mid-November 2004 if possible;
3. SRP leaders to provide the Executive with suggestions for the membership of a Steering Committee, bearing in mind the need for geographical, scientific and gender representation;
4. Executive Committee to advise on and approve the Steering Committees;
5. calls for expressions of interest in the SRPs to be sent to all National Committees;
6. programme implementation plans to be developed;
7. funding to begin in early 2005;
8. outline proposals based on aspects of each SRP to be submitted as IPY proposals by 10 January 2006, with attention being paid to the possibilities for making them part of bi-polar activities;
9. Executive Committee to review implementation plans at its meeting in Sofia, Bulgaria, during July 2005, noting that EBA will develop its plans immediately after that meeting;
10. first results to be reported to the Delegates in Hobart in 2006;
11. independent reviews of the SRPs to be carried out after 4 years and to be made available to the XXX SCAR Delegates' Meeting during 2008.

The Delegates also noted that SCAR currently lacks a performance review system for the SRPs. The SCAR Secretariat was asked to draft a system for the Executive Committee to approve. This would then be sent to the SRP leaders so that they would know what was expected of them.

## 6. Implementation of the new SCAR structure and organization

### 6.1 Activities of the SCAR Secretariat

A paper was tabled describing the activities of the SCAR Secretariat since XXVII SCAR [Paper 27], and outlining the proposed restructuring of the Secretariat staffing during 2005 consequent on the retirement of the Executive Secretary in June 2005. The latter would involve the appointment of an Executive Officer (at a lower cost than the Executive Secretary) from April 2005 to allow an adequate hand-over period. Delegates agreed in principle with the proposed restructuring but asked that the job descriptions in the paper be revised and that the revisions, together with the qualifications required by candidates for the Executive Officer post, should be agreed between the Executive Committee and the Executive Director.

The question of an annual appraisal procedure for Secretariat staff was raised. Delegates suggested that the Executive Director should conduct an annual appraisal of the Executive Officer and the Administrative Assistant guided by the procedure indicated in the SCAR strategy. An annual appraisal of the Executive Director should be undertaken by the President of SCAR.

### 6.2 Review of Progress against Implementation

The Executive Director introduced the paper reporting on progress with the implementation of the recommendations of the SCAR Review [Paper 28]. In summary, there has been very good progress with the implementation of the review recommendations, and the reorganisation process is now substantially complete. The Executive Director acknowledged the support given to the SCAR Administrative Assistant, A J Dalton, by the Department of Geography, University of Cambridge, for developing and launching the new SCAR website. He noted that the bulk of the papers for the meeting had been made available in good time on the web site, something that had been much appreciated by the Delegates, while accepting the criticism that some documents had not been available in a timely fashion.

Delegates were pleased to see the very considerable progress that had been made, and noted the plans for completion of the exercise. Delegates made known their sincere appreciation for the considerable efforts of the Review Group in drawing up the recommendations in the first place. It was agreed that the Executive Director should prepare a paper for EOS, to publicize the progress made. Some minor changes were recommended to finalize Paper 28 for publication on the SCAR web site. 096 In further discussion Delegates approved the creation of the proposed capacity building group and decided that it should not be ad hoc.

They also noted a need for the Scientific Research Programmes to address data accessibility and outreach, so as to facilitate capacity building.

### 6.3 SCAR Strategic Plan 2004–10 098

The Executive Director introduced the Draft SCAR Strategic Plan 2004–10 [Paper 29]. Several Delegates noted that the draft document had already proved useful to them in thinking about the design of their national programmes. Delegates accepted the notion that SCAR should pay more attention to, and develop strategies and plans for, data and information management, helping developing countries to enhance their scientific development, education, and communication. The Plan should be published, with the following provisos:

- i. the document should be shortened;
- ii. the recommendations should be phrased as action items that SCAR should address over the next 6 years;
- iii. some of the recommendations were redundant and should be dropped;
- iv. detail could go into a subsequent Implementation Plan

Delegates agreed that suggestions for improvements to the Plan from Members should be considered, provided that they are supplied to the Executive Director by 15 November 2004, so that a revised version could be completed by the end of November 2004 for publication before the end of the year. Delegates also agreed that a concise document of a few pages was also needed for publicity purposes. This could be made in the form of a brochure.

## 7. SCAR Functions

### 7.1 Internal

#### 7.1.1 Review of SSGs

This item was considered under item 4. above

#### 7.1.2 Review of SRPs

This item was considered at the end of item 5. above

#### 7.1.3 Action Group on the History of Antarctic Research

The Delegates agreed to establish an Action Group [Paper 30] that would report to the Delegate Committee on Outreach and Administration. It was expected that the Group would be chaired initially by C Lüdecke. The Group must have broad international membership as similar research is on-going or has been done in several nations. Interested SCAR Members were encouraged to nominate members to the Action Group. It was suggested that the annual budget for this Action Group should be no more than \$2,000.

#### 7.1.4 New SCAR Constitution

R H Rutford introduced the draft of the new SCAR Constitution [Paper 31]. The text was carefully examined and a number of changes were proposed that were incorporated into a revised version for the Plenary meeting [Paper 31 rev 1]. 104 Delegates agreed to adopt the revised version of the SCAR Constitution. The new Constitution

will be available on the SCAR web site.

#### 7.1.5 New SCAR Rules of Procedure

R H Rutford introduced the draft of the new SCAR Rules of Procedure [Paper 32]. Delegates agreed to adopt the revised version of the SCAR Rules of Procedure that will be available on the SCAR web site.

R H Rutford then introduced the draft of the new Rules of Procedure for SCAR Subsidiary Groups [Paper 33]. This document is a compilation of a series of documents derived from the report and recommendations of the Review Committee, the report of the Transition Group, and papers developed during XXVII SCAR in Shanghai. It was agreed that the Delegates and Chief Officers should provide comments to R H Rutford for compilation and revision of the initial draft. It was further agreed that the Annexes should be removed from the document and be made available separately to the SSGs as "Guidelines". Delegates agreed to allow the Executive Committee to approve the rules of procedure for subsidiary bodies.

The President expressed the thanks of the meeting to R H Rutford for all his work in preparing these documents.

#### 7.1.6 Review of National Reports to SCAR

A table was presented showing the status of annual reports held by the SCAR Secretariat in electronic and paper formats [Paper 34]. Several Delegates expressed concern that the table did not appear to be up-to-date. The Secretariat was asked to check the data in the table by checking paper and electronic submissions of reports and particularly to check websites of National Committees and national programmes to ensure that all reports displayed there have been copied to or linked to the SCAR website.

Delegates discussed the extents to which the reports are used and, hence, their value as information sources. There were widely differing opinions on both aspects. It was agreed that the reports, when complete, formed valuable information sources from an historical perspective but they were of less value as working documents because they were rarely produced in time. The earlier proposal was recalled that the various Antarctic annual reports should be coordinated and streamlined to increase efficiency. It was considered that now the Antarctic Treaty had a secretariat this may be facilitated at some time in the future. Meanwhile, the SCAR Secretariat should explore with the COMNAP Secretariat the possibility of amalgamating the Annual Reports to SCAR and the COMNAP Annual Advance Exchange of Information. Delegates agreed that the present system required too much information, and the request for information should be simplified. It was especially important for the purposes of coordination to learn of national plans in a timely fashion.

#### 7.1.7 SCAR Publications

The Executive Secretary reported that the SCAR Bulletin continues to be published quarterly and issues in the

SCAR Report series are published as required. The SCAR Bulletin is published as a separate for distribution to the SCAR community and also within Polar Record. Several Delegates suggested that SCAR should be moving towards electronic publication only, except for paper archival copies. This would not only be more effective for the dissemination of information but also be more cost effective; the cost saving would be significant. Some Delegates wanted paper publication to continue for the foreseeable future.

Delegates agreed that publication in *Polar Record* did not represent value for money and that this practice should cease.

After further discussion it was agreed that:

- SCAR *Bulletin* electronic publication on the website, with paper copies available on request to the Secretariat;
- SCAR *Report* electronic publication only;
- SCAR *Circulars* electronic distribution except in special circumstances (eg invoices for payment of national contributions);
- Occasional SCAR Executive Committee to decide on publication method in each individual case.

Concerning archival materials, it was recognized that archival paper and electronic copies should be maintained by the Secretariat in at least two geographically separated repositories. The SCAR Secretariat would be one such repository and there are several permanent polar libraries around the world that could participate in this practice. In this connection it was noted that the Secretariat was currently arranging for all electronic files to be backed up on a server in the Department of Geography in the University of Cambridge, remote from the Scott Polar Research Institute.

#### 7.1.8 Activities of the Executive Committee

The President introduced the report [Paper 36] outlining the activities of the members of the Executive Committee during the past two years since XXVII SCAR. It was noted that the Executive had held some additional meetings for specific purposes during the two years to prepare for XXVIII SCAR and to appoint the Executive Director.

### 7.2 External

#### 7.2.1 Antarctic Treaty System

Further to the discussion under item 4.4, it was proposed that SCAR should develop a closer relationship with the Scientific Committee of CCAMLR. For many years E S E Fanta has represented SCAR on CCAMLR and reported between SCAR, and the Scientific Committee and the Commission of CCAMLR while attending the CCAMLR meetings as a member of the Brazilian Delegation. Delegates agreed that if SCAR is to engage more closely with the Scientific Committee of CCAMLR then a SCAR representative should be nominated independent of a

national delegation, preferably at relatively low cost. The Secretariat was asked to arrange this new method of working and to thank E S E Fanta for her contributions.

#### 7.2.2 Other organizations

##### **ICSU**

The Executive Director presented the document [Paper 38] to the Delegates, noting how SCAR was addressing the issues raised by ICSU regarding the operation of its environmental committees (including SCAR). SCAR is already addressing the issues of data and information management, capacity building and communication. The most significant issue still to be addressed appeared to be the need for SCAR to enhance its activities in biogeochemical research (e.g. the carbon cycle). This matter has been addressed above in the introduction to agenda item 4. SCAR noted the call by ICSU for its bodies to consider how their research might be made relevant to the interests of government departments and private industry, and considered that much was already being done along these lines in relating SCAR's research to the interests of the Antarctic Treaty Parties. Delegates noted that ICSU had recently drafted a strategy paper on data and information management that would provide useful lessons for SCAR in developing its own data and information management strategy. Delegates also noted that ICSU was in the process of developing a strategy paper on capacity building that would also be useful to SCAR in taking forward developments in that area.

##### **WCRP**

In introducing this item, the Executive Director reminded Delegates that the Strategic Plan called for SCAR to form alliances with those global research organisations whose interests extended into the Antarctic region. In that context he was pleased to report that SCAR had recently reached agreement with the World Climate Research Programme (WCRP), and presented the Memorandum of Understanding signed by SCAR [Paper 39] that sets out SCAR's co-sponsorship with the WCRP of the Climate

##### **IGOS Partners**

The Executive Director noted that the Partnership of an Integrated Global Observing Strategy (IGOS) comprised the space agencies, the UN environmental agencies, and the major research agencies (ICSU, WCRP, and IGBP), who were working together to present to governments a unified view of the research and operational challenges in Earth observation. In that context the IGOS partners had recently been persuaded to focus on observations of the Cryosphere, in a process that would be led by SCAR and the WCRP. The details of the arrangement were spelled out in Paper 40. The Chief Officer of the SSG Physical Sciences indicated that the IGOS Cryosphere Theme proposals would be helpful to those working in this field. The Delegates welcomed the initiative and endorsed it.

##### **Other Bodies**

The Executive Director noted that SCAR is also in the process of forming partnerships with the Scientific Committee on Oceanic Research, for co-sponsorship of SCAR's new Expert Group on Oceanography, and with the Global Ocean Ecosystems Dynamics (GLOBEC) programme for co-sponsorship of GLOBEC's Southern Ocean programme (SO-GLOBEC). Delegates approved these new initiatives.

##### **SCOSTEP**

M Candidi made a short presentation on the possible interactions between SCAR and ICSU's Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) and its programme on the Climate and Weather of the Sun-Earth System (CAWSES). Delegates were pleased to see the linkages developing between SCAR, SCOSTEP and CAWSES. They noted that SCOSTEP had developed ideas on outreach and communication, which were areas where SCAR and SCOSTEP could interact. M Candidi was asked to send to the Secretariat examples of the SCOSTEP approach to outreach and communication.

##### **DROMLAN**

J Thiede tabled a brochure drawing attention to the recently formed Dronning Maud Land Air Network (DROMLAN). O Orheim explained that DROMLAN provides an air link from Cape Town to destinations within Dronning Maud Land. DROMLAN is open to any member country of COMNAP and SCAR in science related activities and logistics. A regular air link will improve the accessibility of the region and extend the time available for summer season activities.

K Shiraishi drew to Delegates' attention the fact that DROMLAN was a significant step towards the "Air Bus System" concept proposed more than 30 years ago to facilitate the movement of scientists within Antarctica. DROMLAN is for the benefit of all scientists, not just for the benefit of those nations having their stations in Dronning Maud Land. It is hoped that the existing air links in the Ross Sea and the Antarctic Peninsula, as well as the developing Australian air link, will cooperate closely with Dromlan, so as to make the greatest possible improvement in logistical support.

#### *7.3 International Polar Year 2007–09*

C G Rapley presented an overview of the current status of plans for the IPY, which would extend from 1 March 2007 to 1 March 2009. The Executive Director then presented Paper 41 on the SCAR approach to the IPY. There was some discussion on the SCAR paper and a small number of changes were requested. The Secretariat will make the necessary changes and the paper will then be placed on the SCAR website. Delegates approved the formation of the "SCAR Advisory Committee on the IPY". They recommended that SCAR should involve COMNAP, IASC

and FARO in its discussions on the development of the IPY. The Expert Group on Human Biology and Medicine should be invited to develop a programme for the IPY.

#### 7.4 Finance

##### 7.4.1 Report of the XXVIII SCAR Finance Committee

Delegates appointed R Dietrich (Germany) and T J Wilson (United States) to replace G Kleinschmidt and S-H Lee on the Standing Finance Committee. Delegates also approved the appointment of J Valencia and F J Davey to the XXVIII SCAR Finance Committee.

The Chairman of the Standing Finance Committee, R Schlich, advised the meeting that the formal report of the XXVIII SCAR Finance Committee [Paper 42] would be circulated to Delegates after the meeting.

##### 7.4.2 Financial statements for 2002 and 2003

R Schlich introduced the SCAR Financial statements for 2002 [Paper 43] and 2003 [Paper 44] which were approved by the Delegates.

##### 7.4.3 SCAR Financial strategy

There was extensive discussion of the SCAR Financial Strategy [Paper 45]. Delegates recognized that SCAR's restructuring would lead inevitably to a rapid depletion of the cash reserve. Delegates noted that the hiring of the Executive Director had tipped the formerly even balance between science and administration towards administration. They agreed that the balance should be maintained so as to provide adequate support to SCAR's new science programmes. To redress the balance, savings in administration costs should be made whenever possible, and new monies should go preferentially into science. The increases for science would offset the decline in value of the subscriptions caused by inflation since they were last raised in 1995.

R Schlich presented a number of different options for increasing SCAR's annual income. Delegates reached consensus that increasing the level of contribution by 30% in each category (apart from that of Associate Member – see below) would be the most appropriate option, not least because it would mean having to bring to the attention of funding agencies only once the topic of raising the subscription. Delegates agreed that in the interest of attracting new Associate Members it would be wise to maintain the present level of subscription (\$ 5,000 per year) for Associate Membership.

Several Delegates noted that they did not have the authority to agree to a decision to raise the subscription; this is a matter for their national organizations. Delegates agreed that the following table should be brought to the attention of national funding agencies.

Member categories	Contribution from 2006	Contribution 1995–2005
Category A:	23,500	18,000

Category B:	18,000	14,000
Category C:	14,500	11,000
Category D:	10,500	8,000
Category E:	5,000	5,000

The Secretariat was asked to prepare a short but comprehensive information paper explaining the rationale for the increase, as the basis for a letter to national committees. Financial statements for the past 2 years should accompany the information paper. Delegates agreed that the increase should start at the beginning of 2006.

The President brought to the attention of the Delegates, that on the basis of the satisfactory implementation of the reforms, and given the importance of SCAR being able to play a significant role in the forthcoming IPY, the United Kingdom had decided voluntarily to double its contribution to SCAR for a period of 3 years from 2005. He was pleased to announce that Germany had followed suite, and encouraged the Delegates to explore the possibility of their national agencies doing likewise.

##### 7.4.4 Revised Budget for 2004

R R Schlich presented a revised SCAR Budget for 2004 [Paper 46], which was approved by the Delegates.

##### 7.4.5 Budgets for 2005 and 2006

Schlich presented draft Budgets for 2005 [Paper 47] and 2006 [Paper 48]. Delegates approved the budgets in principle, recognizing that they would be adapted as appropriate by the Executive in response to changing circumstances.

## 8. Future Meetings

### 8.1 XXIX SCAR (Australia)

The Australian Delegate, I Allison, confirmed his National Committee's invitation to host the XXIX SCAR meeting in Australia during 2006.

#### 8.1.1 Arrangements for XXIX SCAR

I Allison reported that it was planned to hold the SCAR Science Week, including the 2nd Open Science Conference, and COMNAP XVIII, in Hobart, Tasmania, 9–15 July 2006. The meetings would be held in the Federation Conference Centre at the Hotel Grand Chancellor. The time and venue for the SCAR Delegates meeting had not been determined but it might be held in mainland Australia at a location with direct international air links, possibly Darwin or Sydney, for 4–5 days in mid-September to early October 2006.

Recognizing the high cost of travel to Australia, I Allison suggested that the Delegates Meeting could be held back-to-back with the Science Week in Hobart. In the particular circumstance of holding the meeting in Tasmania, this option will reduce the cost for the host, and it will significantly reduce travel costs. Delegates

were in favour of adopting this option, and left it up to the Executive Committee to consider the plans and determine the matter. Delegates agreed that we should move to a 3–4 day meeting in Hobart.

#### 8.1.2 Activities at XXIX SCAR

The theme for the Science Conference might be “SCAR Research for the IPY and Beyond: Developing a Legacy for Future Antarctic Science”. There would be fewer, but more multidisciplinary, parallel sessions. There would be keynote presentations on topical issues and an evening public lecture. A Science Organizing Committee will be established and a membership structure was proposed. Membership of the committee will include a representative of COMNAP.

#### 8.2 SCAR Executive Meeting

The COMNAP XVII meeting will be held in Sofia, Bulgaria, 11–15 July 2005., and the SCAR Executive Committee has been invited to meet in parallel. It is envisaged that the SCAR Executive Committee will meet for a maximum of 3 days, probably Wednesday to Friday, including a joint meeting with the COMNAP Executive Committee, probably on the Thursday. The SCAR Chief Officers will be invited to attend the meeting. The Executive Secretary will plan arrangements in concert with the COMNAP Executive Secretary and the Bulgarian hosts of the meeting. Chief Officers will meet in Sofia, immediately before the Executive Committee meeting, to discuss cross-SSG linkages and common issues.

#### 8.3 XXX SCAR

V M Kotlyakov (Russia) confirmed his National Committee’s invitation for the XXX SCAR Meeting to be held in Russia. The 3rd Open Science Conference hosted by the Arctic and Antarctic Research Institute, Roshydromet, will be held in St Petersburg during July 2008, where up to 1,000 participants could be accommodated. The SCAR Delegates Meeting will be hosted by the Russian Academy of Sciences in Moscow during October 2008 where an excellent cultural programme could be arranged.

In the Plenary discussion on this topic, the President drew attention to the fact that SCAR would celebrate its 50th anniversary in 2008, which would need to be taken into consideration in planning the programme.

#### 8.4 Future SCAR meetings

B Grillo, the Uruguayan Delegate, confirmed that his National Committee would like to host a future SCAR meeting. M Poutanen, the Finnish Delegate, regretted that, due to organizational changes in Finland, he was obliged to withdraw the provisional invitation to host a SCAR meeting that had been made during XXVII SCAR in Shanghai.

M C Kennicutt reported that the United States National Committee had already begun some preliminary groundwork with a view to hosting the XXXI SCAR Meeting in the United States during 2010.

The President thanked the Delegates and their National Committees for these offers to host future SCAR meetings.

### 9. Closure of the Meeting

Delegates gave approval in principle to a draft report of the meeting. The SCAR Secretariat would produce a revised version, incorporating the comments made, for distribution to Delegates in November 2004. Further comments should be made to the Secretariat within one month of receipt of the revised version, after which the final version would be placed on the SCAR website. The Secretariat would then distribute on CD-ROM to each National Committee a full set of reports and papers from the meeting.

The President thanked the Delegates for their participation, wished them safe journeys home and formally closed the meeting. The President then invited the new Executive Committee to a short meeting.

#### List of Appendices

- Appendix 1 Distribution of Agenda Items
- Appendix 2 Recommendations adopted by the XX-VIII SCAR Delegates’ Meeting
- Appendix 3 Acronyms and Abbreviations

**Appendix 1**

**XXVIII SCAR Delegates' Meeting**  
**Agenda Items**  
**PLENARY (chairman: J Thiede)**

**Formal Opening of XXVIII SCAR Delegates Meeting****1. Opening Business**

- 1.1 Adoption of the Agenda*
- 1.2 Swiss application for Full Membership*
- 1.3 Malaysian application for Associate Membership*
- 1.4 Potential membership of the Czech Republic*

**2. Reports of SCAR Meetings**

- 2.1 Report of XXVII SCAR Meeting*
- 2.2 Reports of Executive Committee Meetings*
- 2.3 Report of XXVIII SCAR Science Week, Bremen*

**3. SCAR positions**

- 3.1 Election of two Vice-Presidents*
- 3.2 Awards*
- 3.3 Appointment of Standing Finance Committee*
- 3.4 Appointment of XXVIII SCAR Finance Committee*

**4. Meetings of SCAR Subsidiary Groups, and COMNAP**

- 4.1 Report of SSG Geosciences*
- 4.2 Report of SSG Life Sciences*
- 4.3 Report of SSG Physical Sciences*
- 4.4 Reports of Standing Committees on ATS*
- 4.5 REPORT OF JCADM*
- 4.6 Reports of Joint SCAR-COMNAP Executive Meeting*
- 4.7 Review of XXVII SCAR Recommendations*
- 4.8 SSG Recommendations to XXVIII SCAR*

**5. SCAR Scientific Research Programmes**

- 5.1 ACE*
- 5.2 ACGS*
- 5.3 EBA*
- 5.4 ICESTAR*
- 5.5 SALE*
- 5.6 General Comments on all Proposals, and 'Next Steps'*

**6. Implementation of the new SCAR structure and organization**

- 6.1 Activities of the SCAR Secretariat*
- 6.2 Review of Progress against Implementation*
- 6.3 Draft SCAR long-term Strategic Plan*

**7. SCAR Functions**

- 7.1 Internal*
  - 7.1.1 Review of SCAR SSGs*
  - 7.1.2 Review of SCAR SRPs*
  - 7.1.3 Proposal for an Action Group on the History of Antarctic Research*
  - 7.1.4 Draft of new SCAR Constitution*
  - 7.1.5 Draft of new SCAR Rules of Procedure*
  - 7.1.6 Review of National Reports to SCAR*
  - 7.1.7 Publications*
  - 7.1.8 Activities of the Executive Committee*
- 7.2 External*
  - 7.2.1 Antarctic Treaty System ATCM, CCAMLR*
  - 7.2.2 Other Organizations ICSU, IGBP, WCRP, IGOS Partners, SCOSTEP, DROMLAN*
- 7.3 IPY*
- 7.4 Finance*
  - 7.4.1 Report of the XXVIII SCAR Finance Committee*
  - 7.4.2 Financial statements for 2002 and 2003*
  - 7.4.3 Financial strategy*
  - 7.4.4 Budget for 2004*
  - 7.4.5 Budgets for 2005 and 2006*

**8. Future Meetings**

- 8.1 XXIX SCAR (Australia)*
  - 8.1.1 Arrangements for XXIX SCAR*
  - 8.1.2 Activities at XXIX SCAR*
- 8.2 SCAR Executive Meeting*
- 8.3 XXX SCAR*
- 8.4 Future meetings*

**9. Closure of the meeting**

**DELEGATE COMMITTEE: SCIENTIFIC AFFAIRS**  
**(chairman: C Howard-Williams)**

**4. Meetings of SCAR Subsidiary Groups, and COMNAP**

- 4.1 Report of SSG Geosciences*
- 4.2 Report of SSG Life Sciences*
- 4.3 Report of SSG Physical Sciences*
- 4.7 Review of XXVII SCAR Recommendations*
- 4.8 SSG Recommendations to XXVIII SCAR*

**5. SCAR Scientific Research Programmes**

- 5.1 ACE*
- 5.2 ACGS*
- 5.3 EBA*

*5.4 ICESTAR*

*5.5 SALE*

*5.6 General Comments on all Proposals, and 'Next Steps'*

**7. SCAR Functions**

*7.1 Internal*

*7.1.1 Review of SCAR SSGs*

*7.1.2 Review of SCAR SRPs*

*7.2 External*

*7.2.2 Other Organizations*

*ICSU, IGBP, WCRP, IGOS Partners, SCOSTEP, DROMLAN*

**DELEGATE COMMITTEE: OUTREACH AND ADMINISTRATION**  
**(chairman: J López-Martínez)**

**4. Meetings of SCAR Subsidiary Groups, and COMNAP**

- 4.4 Reports of Standing Committees on ATS*
- 4.5 REPORT OF JCADM*
- 4.6 Reports of Joint SCAR-COMNAP Executive Meeting*

**6. Implementation of the new SCAR structure and organization**

- 6.1 Activities of the SCAR Secretariat*

**7. SCAR Functions**

*7.1 Internal*

- 7.1.3 Proposal for an Action Group on the History of Antarctic Research*
- 7.1.4 Draft of new SCAR Constitution*
- 7.1.5 Draft of new SCAR Rules of Procedure*
- 7.1.6 Review of National Reports to SCAR*
- 7.1.7 Publications*

*7.1.8 Activities of the Executive Committee*

*7.2 External*

*7.2.1 Antarctic Treaty System*

*ATCM, CCAMLR*

*7.4 Finance*

*7.4.1 Report of the XXVIII SCAR Finance Committee*

*7.4.2 Financial statements for 2002 and 2003*

*7.4.3 Financial strategy*

*7.4.4 Budget for 2004*

*7.4.5 Budgets for 2005 and 2006*

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*8.1 XXIX SCAR (Australia)*

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*8.1.2 Activities at XXIX SCAR*

*8.2 SCAR Executive Meeting*

*8.3 XXX SCAR*

*8.4 Future meetings*

## Appendix 2

### Recommendations adopted by the XXVIII SCAR Delegates' Meeting

Delegates adopted the following as formal XXVIII SCAR recommendations. Earlier SCAR recommendations are considered to have lapsed, as having achieved their objective, as being no longer relevant, or as being replaced by a revised text.

#### Recommendation SCAR XXVIII-1

*Concerning Antarctic place-names*

*Noting* that the SCAR Composite Gazetteer of Antarctica (CGA), comprising toponymic data from SCAR member countries, the International Hydrographic Organization (IHO) and the International Oceanographic Commission (IOC), contains around 34,165 entries for 17,097 features, with about 10% of features having two or more entirely different names

*Noting* also the need for greater accuracy of the coordinates and applying the principle of 'one name per feature' for both scientific clarity and operational safety

SCAR *recommends* that National Committees, directly or through their national Antarctic naming authority:

1. refer to the CGA in considering all proposals for new place names;
2. avoid adding new place names to features already named;
3. submit all new approved place names and their coordinates to the SCAR Expert Group on Geospatial Information for inclusion in the CGA;
4. ensure that all existing toponymic data are provided to the Expert Group on Geospatial Information for inclusion in the CGA.

#### Recommendation SCAR XXVIII-2

*Concerning bathymetric data*

*Noting* the lack of bathymetric information in large areas of the Southern Ocean and the initiative of the IHO and IOC to provide improved bathymetric chart of the World's oceans;

*Noting* further the need for precise bathymetric maps for scientific studies and the safety of navigation in Antarctic waters;

SCAR *recommends* that:

1. all vessels operating in Antarctic waters acquire echosounding data and deliver these to the IHO DCDB for further use in bathymetric mapping;
2. wherever possible, vessel should transit oceanic regions where few bathymetric data exist in order to gather additional bathymetric information.

#### Recommendation SCAR XXVIII-3

*Concerning geodetic and geographic information*

*Noting* the Antarctic Treaty Article III (1c) requirements regarding data exchange,

*Recognizing* that the information products produced by the SCAR Scientific Standing Group on Geosciences are all derived from the work of National Committees and Programmes:

SCAR *recommends* that National Committees request National Programmes to provide continuing access for all SCAR members to fundamental geodetic and geographic information, including:

- geodetic observations and databases;
- geodetic control point and tide gauge records;
- remotely sensed data (including satellite imagery and aerial photography)
- topographic and bathymetric data;
- and place names data.

#### Recommendation SCAR XXVIII-4

*Concerning airborne gravity data for geoid computation*

*Noting* that determination of a high resolution geoid in Antarctica benefits various research studies;

*Recognizing* that there is a major gap in satellite gravity data acquisition south of 82° South;

SCAR *recommends* that National Committees request National Programmes:

- to support a programme of airborne gravity determination to close gaps in Antarctic gravity data coverage; and
- to encourage coordination of Antarctic gravity data acquisition, in particular airborne gravity data, and to provide such data to the SCAR Scientific Standing Group on Geosciences for incorporation into a physical geodetic database of Antarctica.

#### Recommendation SCAR XXVIII-5

*Concerning geodetic observations at remote locations*

*Recognizing* that automated geophysical observatories can routinely collect and transmit data from remote locations;

SCAR *recommends* that National Committees, where possible, place long-term Global Positioning System (GPS) observatories on remote bedrock features,

as identified by the Expert Group on Antarctic Neotectonics (ANTEC), to provide information on the current tectonic motion of the Antarctic plate (see: [www.antec.scar.org/proposed\\_gps.htm](http://www.antec.scar.org/proposed_gps.htm)).

#### **Recommendation SCAR XXVIII–6**

*Concerning rationalization of scientific activities on King George Island*

Noting that a Geographic Information System is now available on the Internet

SCAR *recommends* that National Committees with activities on King George Island, through their National Programmes, should use this integrated system for coordinating science activity, environmental planning and logistic operations; and that they should continue to provide spatially referenced data to the GIS for the mutual benefit of relevant National Programmes.

#### **Recommendation SCAR XXVIII–7**

*Concerning Geographic Information contact officers*

Noting the Recommendation SCAR XXVIII-I on Antarctic place names and its emphasis on the importance of high quality spatial data to Antarctic science and operations;

SCAR *recommends* to National Committees and National Programmes that they identify a Geographic Information contact to provide the information required to ensure the greatest possible coordination of geographic information across the Antarctic.

#### **Recommendation SCAR XXVIII–8**

*Concerning the Amalgamation of EGHB&M and MEDINET.*

Noting that currently SCAR has an Expert Group on Human Biology and Medicine (EGHB&M) with an operational medicine subgroup and that COMNAP has a Medical Network (MEDINET) of medical officers to investigate common standards, guidelines and protocols;

*Recognizing* that:

- This incurs duplication of effort and the potential for conflicting advice.
- Most medical research is applied research related to operational requirements.
- There is also a need for research to inform COMNAP on medical matters.
- Wider membership would enhance research by increasing cooperation, increasing national involvement, and reducing organizational differences, as well as enhancing the support to COMNAP by facilitating standardised operational methods.

SCAR *recommends* to COMNAP that, as soon as practicable, the EGHB&M and MEDINET should

be amalgamated into a single group that would report to SCAR through the SSG on Life Sciences and to COMNAP through the Medical Coordinating Group.

#### **Recommendation SCAR XXVIII–9**

*Concerning the Agreement for the Conservation of Albatrosses and Petrels (ACAP)*

Noting the threats to Southern Ocean seabirds due to mortality in longline fisheries, and the entry into force of the Agreement on the Conservation of Albatrosses and Petrels in 2004,

SCAR *requests* relevant National Committees to contact the relevant adhering body within their country to ensure that they have produced their FAO National Plans of Action – Seabirds and/or ratified the Agreement on the Conservation of Albatrosses and Petrels.

#### **Recommendation SCAR XXVIII–10**

*Concerning the use of flipper bands on penguins*

Noting the substantial and increasing scientific evidence for adverse long-term impacts of flipper bands for external marking of penguins (Gauthier-Clerc et al, 2004; Jackson and Wilson, 2002) and that some flipper banding programmes are still in progress;

SCAR *recommends* National Committees and National Programmes to ensure that, when designing research programmes requiring the external marking of penguins, alternative methods to current designs of metal flipper bands should be adopted for demographic and other long-term studies.

#### **References:**

- GAUTHIER-CLERC, M, GENDNER, J P, RIBIC, B A, FRASER, W R, WOHLER, E J, DESCAMPS, S, GILLY, E, LE BOHEC, C and LE MAHO, Y. 2004. Long-term effects of flipper bands on penguins. *Proceedings of the Royal Society of London Supplement (Biology Letters)*. DOI 10.1098/rsbl.2004.0201.
- JACKSON, S and WILSON, R P. 2002. The potential costs of flipper bands to penguins. *Functional Ecology*, **16**, 141–48.

#### **Recommendation SCAR XXVIII–11**

*Concerning the transport to and threat of alien species in the Antarctic*

*Considering* the need for protection of the Antarctic environment, and in furtherance of the stated SCAR objectives of conservation,

*Noting* that recent scientific data and analysis has identified routes of transport of alien organisms through logistic activities of national programmes.

*Recognizing* the need to review and establish current best practices for conservation in the Antarctic in context

of transport of alien propagules through the logistic activities

SCAR *recommends* that COMNAP be aware of the current understanding and discuss with SCAR the possibilities of jointly developing best practice methodologies.

#### **Recommendation SCAR XXVIII–12**

*Concerning biological prospecting*

*Recognizing* that the Antarctic marine ecosystem has a high biodiversity and is rich in groups of interacting organisms that, elsewhere in the world, have proved of pharmaceutical value;

*Noting* the increasing international interest in the worldwide exploitation of biodiversity for chemical compounds of use to mankind, and

*Recognizing* that the international legislation for controlling access to genetic resources is based on sovereign rights which do not appear to be applicable in the Antarctic Treaty area south of latitude 60°S,

SCAR *recommends* that National Committees be aware of:

- the possible detrimental direct and indirect effects of any direct collection of Antarctic species for the identification and commercial exploitation of secondary metabolites, enzymes or other useful molecules
- the possibility of patenting of gene sequences from Antarctic organisms for commercial use
- the lack of any legislation under the Antarctic Treaty System specifically focused on these matters.

#### **Recommendation SCAR XXVIII–13**

*Concerning site testing for astronomical observations*

*Recognizing* the exceptional atmospheric conditions for astronomical observations on the Antarctic Plateau, especially at Dome C and the South Pole, and potentially at Dome A;

SCAR *encourages* responsible organizations and National Programmes to deploy the necessary instrumentation to high Antarctic Plateau sites to acquire the data needed to fully characterize them for potential future astronomical observing programmes.

#### **Recommendation SCAR XXVIII–14**

*Concerning drifting buoys*

*Recognizing* the importance to global weather prediction models and climate research of air pressure and temperature data from the sea ice zone and that the number of measuring platforms deployed is still far below the proposed network density;

SCAR *urges* National Committees to support the International Programme for Antarctic Buoys (IPAB) by providing platforms and deployment possibilities.

In particular, an enhanced observation period is needed as a contribution to the IPY 2007–08 to determine the present environmental status of the sea ice covered part of the Southern Ocean.

#### **Recommendation SCAR XXVIII–15**

*Concerning continued support of existing geospace observatories*

*Recognizing:*

- the great importance of the understanding of Geospace and the Space Weather Environment to technological systems in space and on the ground
- the uniqueness of the Polar Regions and especially Antarctica for multipoint observations of such environments
- the importance of synthesis of different types of data to obtain a complete picture of the Geospace environment

SCAR *recommends* to the operators of national polar programmes that, prior to the IPY observing period of 2007–08, they establish and maintain networks of HF radars, magnetometers, and auroral instruments over as wide and complete a spatial range as possible.

#### **Recommendation SCAR XXVIII–16a**

*On the transmission of weather data*

*Recognizing* the importance of transmitting space, upper atmosphere and surface weather data from Antarctic observing stations as quickly as possible for research and operational purposes,

SCAR *urges* National Operators of Antarctic programmes to place a high priority on the provision of broadband satellite communications facilities for the transmission of solar weather data in real time.

#### **Recommendation SCAR XXVIII–16b**

*On the transmission of space weather data*

*Recognizing* that:

- The understanding of space weather is crucially important to the operations of spacecraft on which much modern technology depends;
- Arrays of ground-based instruments in the polar regions produce very large quantities of data that are processed in real time from Northern Hemisphere stations; and
- Complementary data in real time from Antarctica are needed for better understanding of space weather;

SCAR *urges* National Operators of Antarctic programmes to place a high priority on the provision of broadband satellite communications facilities for the transmission of solar weather data in real time.

**Recommendation SCAR XXVIII-17**

*Mesosphere-Stratosphere-Troposphere / Incoherent Scatter (MST/IS) Radar*

*Recognizing* that Mesosphere-Stratosphere-Troposphere / Incoherent Scatter (MST/IS) radars are the only observational tools capable of quantitative evaluation of dynamics of the atmosphere from the troposphere to the ionosphere; and that inter-hemispheric differences in topography and hence waves sources, and different separation between the geographic and geomagnetic poles in each hemisphere means that the response to dynamical coupling from below and downward coupling from the magnetosphere will be different between hemispheres; and

*Recognizing* further that there are no MST/IS radar systems in the entire Antarctic region, thereby leaving a major gap in the global radar network,

SCAR *recommends* to National Programmes that MST/IS radars be established in the Antarctic at the earliest opportunity in order to fill this gap and, thereby, provide invaluable data for the international science community.

**Recommendation XXVIII-18**

*On upper air meteorological data from the Antarctic Peninsula*

*Recognizing* the importance of upper air observations for operational numerical weather prediction in the Antarctic Peninsula, a region of marked climatic change over recent decades,

SCAR *urges* National Operators of Antarctic Programmes based in the Antarctic Peninsula to re-activate routine radiosonde measurements.

**Recommendation SCAR XXVIII-19**

*Concerning meteorological reports from Dome C*

*Noting* that South Pole Station is the only source of upper air meteorological observations over the plateau of East Antarctica; and

*Recognizing* the importance of surface and upper air meteorological observations for numerical weather prediction and for many studies over the interior of the Antarctic during the IPY;

SCAR *recommends* that the relevant National Committees urge their National Programmes to institute 6-hourly surface and 12 hourly upper air observing programmes.

**Appendix 3****Acronyms and Abbreviations**

ACAP	Agreement on the Conservation of Albatrosses and Petrels	IGOS	Integrated Global Observing Strategy Partnership
ACE	Antarctic Climate Evolution	IGU	International Geographical Union
AGCS	Antarctica and the Global Climate System	IHO	International Hydrographic Organization
AGU	American Geophysical Union	IHY	International Heliophysical Year
AMD	Antarctic Master Directory	IOC	International Oceanographic Commission
ANTEC	Antarctic Neotectonics	IPAB	International Programme for Antarctic Buoys
ATCM	Antarctic Treaty Consultative Meeting	IPCC	Intergovernmental Panel on Climate Change
ATS	Antarctic Treaty System	IPY	International Polar Year
CAWSES	Climate and Weather of the Sun-Earth System	IUBS	International Union of Biological Sciences
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources	IUGG	International Union of Geodesy and Geophysics
CD-ROM	Compact Disc – Read Only Memory	IUGS	International Union of Geological Sciences
CGA	Composite Gazetteer of Antarctica	JCADM	Joint Committee on Antarctic Data Management
COMNAP	Council of Managers of National Antarctic Programmes	MarBIN	Marine Biodiversity Information Network
COSPAR	Committee on Space Research	MEDINET	Medical Network MST/IS Mesosphere-Stratosphere-Troposphere / Incoherent Scatter
CSAGI	Comité Scientifique pour l'Année Géophysique Internationale	NASA	National Aeronautical and Space Administration
DCDB	Data Center on Digital Bathymetry	SALE	Subglacial Antarctic Lake Environments
DROMLAN	Dronning Maud Land Air Network	SCAR	Scientific Committee on Antarctic Research
EASIZ	Ecology of the Antarctic Sea-Ice Zone	SC-ATS	Standing Committee for the Antarctic Treaty System
EBA	Evolution and Biodiversity in the Antarctic	SCOPE	Scientific Committee on Problems of the Environment
EGHB&M	Expert Group on Human Biology and Medicine	SCOSTEP	Scientific Committee on Solar-Terrestrial Physics
EGU	European Geophysical Union	SO-GLOBEC	Southern Ocean – GLOBEC
FAO	Food and Agriculture Organization of the United Nations	SPPG	Scientific Programme Planning Group
FARO	Forum of Arctic Research Operators	SRP	Scientific Research Programme
GCMD	Global Change Master Directory	SSG	Standing Scientific Groups
GLOBEC	Global Ocean Ecosystems Dynamics project	STADM	Steering Committee for Antarctic Data Management
GIS	Geographic Information Systems	WCRP	World Climate Research Programme
GPS	Global Positioning System		
HF	High Frequency		
IASC	International Arctic Science Committee		
ICESTAR	Inter-hemispheric Conjugacy Effects in Solar-Terrestrial & Aeronomy Research		
ICG	Intersessional Contact Groups		
ICSU	International Council for Science		
IGBP	International Geosphere-Biosphere Programme		

## XXVIII SCAR Delegates Meeting

**Bremerhaven, Germany, 4–8 October 2004**

### Report of the Finance Committee

#### *Participants*

Roland Schlich, Chairman (France), Fred J Davey (New Zealand), Reinhard Dietrich (Germany), José Valencia (Chile), Terry J Wilson (United States)

1. G Kleinschmidt (Germany) and S-H Lee (Korea) have resigned from the Standing Finance Committee. R Dietrich (Germany) and T J Wilson (United States) have been appointed as the new members of the Committee.
2. The Standing Finance Committee was augmented by the appointment of F J Davey and J. Valencia to form the XXVIII SCAR Finance Committee.
3. The Finance Committee met three times (Monday 3, Wednesday 4 and Thursday 7 October 2004) to review the 2002 and 2003 accounts, to adjust the 2004 budget, to discuss the SCAR financial strategy and to prepare the 2005 and 2006 budgets to be submitted to the Delegates.
4. The Finance Committee reviewed the statements of income and expenditure for the years ending 31 December 2002 (Annex 1a) and 2003 (Annex 1b) in relation to the approved budgets for 2002 (XXVIII SCAR paper 43a/43b) and 2003 (XXVIII SCAR paper 44a/44b) and found them to be in order. The 2002 budget was set at US \$ 331,000 which included US \$ 11,000 from the SCAR reserve. The initial budget was reviewed by the Executive at its meeting in Brest and raised to US \$ 333,500 mainly to accommodate additional expenses related to the Ross Sea meeting. The budget increase (US \$ 2,500) has been taken from the SCAR reserve. The expenditure of US \$ 268,522 is significantly below the revised budgets: funds allocated to several science programmes were not spent and some savings on salaries and office expenses were made. The income of US \$ 334,391, which includes the additional US \$ 48,630 of the Prince of Asturias Award, is less than expected: several national contributions were not collected and the paid arrears did not exceed US \$ 42,900. Finally the 2002 balance shows an excess of income over expenditure of US \$ 65,869. The 2003 budget was set at US \$ 330,000 which included US \$ 25,000 from the SCAR reserve. The initial budget was reviewed by the Executive Committee at its meeting in Brest and raised to US \$ 380,000 to accommodate the expenses related to the SCAR Fellowship Programme. The corresponding budget increase (US \$ 50,000) has been taken from the SCAR reserve. The expenditure of US \$ 336,278 is below the revised budget: funds allocated to several science programmes

were not spent and some programmes have been postponed for the following year. The income of US \$ 329,969 includes US \$ 96,363 paid as arrears by several member countries. Finally the 2003 balance shows an excess of expenditure over income of US \$ 6,309. For the two fiscal (calendar) years the total expenditure was US \$ 604,800 and the total income was US \$ 664,360, leaving an excess of income of US \$ 59,560 for this time period and an accumulated balance at 31 December 2003 of US \$ 382,628. The national contributions paid for 2002 and 2003 (US \$ 461,604), and the paid arrears during the same period (US \$ 139,263), total US \$ 600,867 which is slightly below the anticipated two year dues.

5. The initial 2004 budget was set at the XXVII SCAR Meeting in Shanghai at US \$ 350,000 which included US \$ 45,000 from the SCAR reserve. The budget was reviewed by the Executive Committee at its meeting in Brest (2003) and Bremerhaven (January 2004) and raised to US \$ 447,000 mainly to allow co-sponsorship for several symposia (Antarctic and Southern Ocean, SO-GLOBEC, SO-CLIVAR), to accommodate additional expenses generated by the recruitment of an Executive Director and additional travel expenses for Chief Officers attending Executive Committee meetings in relation to the preparation of the XXVIII SCAR 2004 Bremen Open Science Conference. The budget increase (US \$ 97,000) has been taken from the SCAR reserve (Annex 2 and XXVIII SCAR, paper 46).
6. The Finance Committee reviewed and amended the paper on SCAR Financial Strategy prepared by Roland Schlich and Colin Summerhayes (XXVIII SCAR, paper 45). The paper describes the present financial situation and shows the evolution over the 10 last years of the SCAR annual budget adopted by the Delegates and the SCAR yearly statements of income and expenditure. The analysis shows that science support was significantly increased after 1994 and that the ratio between Science and Administration progressively reaches a factor of one. It is intended that the budgets proposed for 2005 and 2006 should support at least the same level of spending on science as in the past. Given that SCAR is expected to play a leading role in the International Polar Year (2007–09), it would seem appropriate to ensure for the future that the SCAR Scientific Research Programmes are adequately funded and that additional funds could be raised for the other science programmes proposed

by the SCAR Action Groups and Expert Groups. In response to the 2000 Review of SCAR, the Delegates agreed that the management of SCAR needs to be improved by increasing the Secretariat staff to three positions including an Executive Director, an Executive Officer (replacing the Executive Secretary), and an Administrative Assistant (as at present). The costs associated with hiring an Executive Director will be offset by a reduction in annual staff costs of around US \$ 30,000 per year when the present Executive Secretary retires and is replaced by the new Executive Officer. The overall annual increase in staff costs from the beginning of 2006 onwards will be about US \$ 55,000. As agreed at previous SCAR Delegates meetings, this cost is being met for the time being by draining the cash reserve, which cannot be continued beyond 2007. At the end of 2003 the cash reserve was US \$ 382,628 and will be roughly US \$ 240,000 at the end of 2004 and down to about US \$ 150,000 at the end of 2005. In order to take into account the additional administrative expenses (US \$ 55,000) and to maintain the balance of expenditure between science and administration, which requires an additional US \$ 45,000 for science, an extra US \$ 100,000 per year is needed. It is highly unlikely that such an increase in basic organizational costs could be borne by external funding. The bulk of the funds required can only be found from an increase in the membership subscription (national contributions). This might be achieved in one of several different ways as indicated below and detailed in the SCAR Financial Strategy document (XXVIII SCAR, paper 45).

- Option 1: Spread the subscription increase over 6 years at about 5%/year starting in 2006.
- Option 2: Spread the subscription increase over 4 years at about 8%/year starting in 2006.
- Option 3: Spread the subscription increase over 2 years at about 15%/year starting in 2007.
- Option 4: Increase the subscription by 30% in 2006.
- Option 5: Revise the subscription level at the end of 2006.
- Option 6: Voluntary increase of the subscription.

The Delegates will have to choose between these different options. Fund applications for support of SCAR scientific activities were discussed and evaluated by the SCAR Standing Scientific Groups on Geosciences, Life Sciences and Physical Sciences. Priority was given to the five Scientific Research Programmes (SRPs) for which an amount of US \$ 75,000 was allocated. Therefore only limited additional funds were available to support the scientific programmes of the Action and Expert Groups. All approved applications were received by the SCAR Finance Committee and considered for the 2005 and 2006 budgets. Funding allocation for the Standing Committee on the Antarctic Treaty System to develop advice to the Antarctic Treaty Consultative Meetings and for Antarctic Data Management activities has also been considered by the Finance Committee and tabled in the Standing Committee section. Fund applications to support the SCAR Office in Cambridge have been submitted by the SCAR Executive Secretary and reviewed by the Finance Committee. The Finance Committee recommends an allocation of US \$ 251,000 for 2005 (US \$ 190,000 for salaries, US \$ 26,000 for secretariat costs, US \$ 25,000 for routine meetings, US \$ 10,000 for publications) and an allocation of US \$ 241,000 for 2006 (US \$ 170,000 for salaries, US \$ 26,000 for secretariat costs, US \$ 35,000 for routine meetings, US \$ 10,000 for publications).

8. Provisional balanced SCAR budgets for 2005 (US \$ 410,000) and 2006 (US \$ 410,000) are given in Annexes 3a and 3b.
9. The Finance Committee noted that some countries have not paid all their annual contributions. The SCAR Executive Committee should write to these countries to remind them of their obligations. It is also recalled that countries in arrears for 3 years should be expelled.

Roland Schlich  
Chairman of the Standing Finance Committee  
25 October 2004

**SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH**

**Statement of Income and Expenditure  
for the year ending 31 December 2002**

**INCOME**

National Contributions	233,707
National Contributions (Arrears)	42,900
Prince of Asturias Award	48,630
UNEP contract	7,000
Bank Interest and Gain on Exchange	1,486
Sales	119
Miscellaneous	549
	<hr/>

TOTAL INCOME	\$ 334,391
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**EXPENDITURE**

Scientific Activities	116,278
Routine Meetings	38,183
Publications	12,332
Administrative Expenses	101,729
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TOTAL EXPENDITURE	\$ 268,522
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Excess of Income over Expenditure	\$ 65,869
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Accumulated balance at 1 January 2002	\$ 323,068
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Accumulated balance at 31 December 2002	<hr/> <hr/> <u>\$ 388,937</u>
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**Annex 1b****SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH****Statement of Income and Expenditure  
for the year ending 31 December 2003****INCOME**

National Contributions	227,897
National Contributions (Arrears)	96,363
Bank Interest and Gain on Exchange	5,702
Miscellaneous	7
	<hr/>

TOTAL INCOME	\$ 329,969
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**EXPENDITURE**

Scientific Activities	160,899
Routine Meetings	36,668
Publications	14,422
Administrative Expenses	124,289
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TOTAL EXPENDITURE	\$ 336,278
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Excess of Income over Expenditure	-\$ 6,309
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Accumulated balance at 1 January 2003	\$ 388,937
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Accumulated balance at 31 December 2003	<hr/> <hr/> \$ 382,628
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## SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

## SCAR Budget 2004

## INCOME

• National Contributions	300,000
• Miscellaneous	5,000
• Reserve (45,000 + *97,000)	142,000

TOTAL INCOME

\$ 447,000

## EXPENDITURE

• SCAR support to Standing Scientific Groups:	145,400
• Geosciences (40,000)	
• Physical Sciences (37,000)	
• Life Sciences (36,000 + *11,200)	
• Subglacial Lake Exploration (15,000 – *6,500)	
• Antarctic Data Management (10,000 – *3,300)	
• Climate and Cryosphere (6,000)	
• SCAR Co-sponsoring Scientific Meeting:	7,000
• SCAR Ex. Director Attending Scientific Meetings:	6,600
• SCAR support to Standing Committees:	20,000
• Antarctic Treaty System (10,000 + *10,000)	
• SCAR annual needs:	268,000
• Salaries (83,000 + *78,000)	
• Secretariat costs (27,000 + *2,000)	
• Routine meetings (46,000 + *12,000)	
• Publications (20,000)	
• Contingencies:	0

TOTAL EXPENDITURE

\$ 447,000

\* Figures approved by the Executive Committee (Bremen, 2004)

**Annex 3a (revised)****SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH****SCAR Budget 2005****INCOME**

•	National Contributions	320,000
•	Miscellaneous	0
•	Reserve	90,000

TOTAL INCOME	\$ 410,000
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**EXPENDITURE**

•	SCAR support to Standing Scientific Groups:	123,000
•	Geosciences	(17,000)
•	Physical Sciences	(14,000)
•	Life Sciences	(14,000)
•	SCAR Scientific Research Programmes	(75,000)
•	Climate and Cryosphere, CliC	(3,000)
•	SCAR support to Stand. Committees:	19,000
•	Antarctic Treaty System	(10,000)
•	Antarctic Data Management	(7,000)
•	History of Antarctic Research	(2,000)
•	SCAR Other Science Support:	10,000
•	Co-sponsoring Scientific Meetings	(4,000)
•	Ex. Director attending Scientific Meetings	(6,000)
•	SCAR annual needs:	251,000
•	Salaries	(190,000)
•	Secretariat costs	(26,000)
•	Routine meetings	(25,000)
•	Publications	(10,000)
•	Contingencies (2% basic income):	7,000

TOTAL EXPENDITURE	\$ 410,000
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## SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

### SCAR Budget 2006

#### INCOME

•	National Contributions	320,000	
•	Miscellaneous	0	
•	Reserve	90,000	
TOTAL INCOME			\$ 410,000

#### EXPENDITURE

•	SCAR support to Standing Scientific Groups:	123,000	
•	Geosciences	(17,000)	
•	Physical Sciences	(14,000)	
•	Life Sciences	(14,000)	
•	SCAR Scientific Research Programmes	(75,000)	
•	Climate and Cryosphere, CliC	(3,000)	
•	SCAR support to Standing Committees:	19,000	
•	Antarctic Treaty System	(10,000)	
•	Antarctic Data Management	(7,000)	
•	History of Antarctic Research	(2,000)	
•	SCAR Other Science Support:	10,000	
•	Co-sponsoring Scientific Meetings	(4,000)	
•	Ex. Director attending Scientific Meetings	(6,000)	
•	SCAR annual needs:	241,000	
•	Salaries	(170,000)	
•	Secretariat costs	(26,000)	
•	Routine meetings	(35,000)	
•	Publications	(10,000)	
•	Contingencies (4% total income):	17,000	
TOTAL EXPENDITURE			\$ 410,000