

The International Council for Science

SCAR **bulletin**

No. 161 DECEMBER 2006

Report on SCAR Science Week (8 - 14 July 2006) p 1

Report on the XXIX Meeting of the SCAR Delegates (17 - 19 July 2006) p 15



Published by the

SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

at the

Scott Polar Research Institute, Cambridge, United Kingdom

REPORT ON SCAR SCIENCE WEEK (8-14 JULY 2006) **(based on a report by Ian Allison)**

1. PLANNING AND PREPARATIONS FOR SCAR XXIX/COMNAP XVIII

At its XXVII meeting, in Shanghai, SCAR had decided that its biennial meetings would be divided into two, with the SCAR Science Week being held in July and the SCAR Delegates' Meeting being held at some later time. This plan was first put into effect in Germany for XXVIII SCAR. However, at that meeting Delegates agreed that, because of the long travel distances from most SCAR nations to Australia, consideration should be given to recombining the Science and Delegates meetings to minimise travel costs. The SCAR Executive Committee subsequently adopted this plan for the Hobart meeting.

To ensure that the Hobart meeting was planned efficiently and effectively, the hosts, the Australian Antarctic Division, appointed a Project Manager, Mrs Kate Kiefer, very early during the planning process. Kate attended the Bremen meeting to learn from the German experience and managed the Hobart project to its completion. Her continued involvement in the project provided vital continuity and leadership.

Once the Australian bid was accepted, a Local Organising Committee (LOC) was established. Membership of this evolved as preparations for the meeting developed and the final membership is given in Appendix A of this report. In May 2005, Leishman and Associates, a local Hobart company, was appointed as the professional conference organiser (PCO) for SCAR/COMNAP 2006. Ms Denise Hobman was Leishman's account manager for the duration of the SCAR project.

Requirements for SCAR conferences are documented in "Guidelines for Organisers of Biennial SCAR Meetings" (2005 revised version), which provided the local organisers with detailed requirements for organisational structure, meeting room requirements and technical requirements. The LOC also worked closely with the SCAR Secretariat (Colin Summerhayes and Marzena Kaczmarek in Cambridge, UK) and the COMNAP Secretariat (Antoine Guichard in Hobart).

Electronic communication (website and email) was primarily used to publicise the meetings, and the SCAR Open Science Conference in particular. Regular email notification was sent to all participants in the 2004 Bremen meetings, to SCAR National Committees, and to everyone who registered interest on the website or submitted an abstract.

The SCAR/COMNAP 2006 website was opened on 1 September 2005 and continued to develop and include additional information during the build-up to the meetings. The conference website was linked from both the SCAR and the COMNAP home pages, and from a number of national and international organisations.

As well as electronic communications, the following publications were also distributed: (i) Preliminary Notice (flyer): late July 2005; (ii) Conference Flyers: early November 2005, in two versions – one for the overall SCAR/COMNAP meeting, and one focussing on the Open Science Conference; (iii) Conference circular (44 pages), April 2006, mailed to all who registered interest; (iv) the SCAR/COMNAP 2006 Handbook and conference CD, containing

abstracts from the Open Science Conference; distributed at registration (a limited number of copies may be obtainable from the Australian Antarctic Division).

2. SCAR BUSINESS MEETINGS (8-11 JULY)

The core elements of the first part of SCAR's Science Week were the business meetings of SCAR's Standing Scientific Groups (SSGs) on Physical Sciences, the Life Sciences, and Geosciences. Around these were clustered meetings or workshops of various SCAR Action Groups, Expert Groups, Scientific Research Programmes, and SCAR-led projects for the International Polar Year (IPY), as detailed in Appendix B.

The SCAR Executive Committee met on 11 and 14 July, along with Chief Officers of the SSGs and of the Joint SCAR/COMNAP Committee on Antarctic Data Management (JCADM) and of the Standing Committee on the Antarctic Treaty System (SC-ATS). The SCAR Executive Committee also met with the Executive Committee of COMNAP, on 12 July.

Additional science and management meetings were held in Hobart during the same general period to capitalise on the fact that many SCAR scientists would be coming to Hobart in July.

- i. SCAR's Sea Ice Expert Group, ASPECT (now a sub-project of SCAR's Scientific Research Programme on Antarctica in the Global Climate System - AGCS), held a 2 day workshop on "Antarctic Sea Ice Thickness" from 5 to 7 July.
- ii. SCAR, together with the Partnership for Observations of the Global Ocean – POGO, and the Census of Marine Life – COML, organised a one day workshop on "Establishing a Coordinated Southern Ocean Observing System (SOOS)", which took place at the CSIRO Marine Laboratory's headquarters on 15 July.
- iii. On 8 July SCAR also hosted the first formal meeting of the International Antarctic Institute (IAI) of which SCAR is now an Associate Member.
- iv. An International Polar Year (IPY) Consultative Forum was held on 8 July.
- v. An International Forum on the Sub Antarctic was held on 6 - 8 July.
- vi. A Latitudinal, Gradient Project Workshop was held on 10 July.

3. SECOND SCAR OPEN SCIENCE CONFERENCE (12-14 JULY)

The SCAR Executive Committee and Chief Officers meeting in Sofia, Bulgaria, in July 2005 decided that the theme for the Open Science Conference should be "Antarctica in the Earth System". Organisation followed the model developed for the first conference (Bremen, 2004), with the SCAR and COMNAP meetings being held in parallel sessions, and the SCAR conference being divided more or less equally between oral and poster sessions, and with several parallel oral sessions. There were to be no pre-determined themes for the parallel sessions, which were to be organised into themes based on the abstracts received.

_*

Following the Executive Committee plan the three-day science conference was structured as follows:

Day 1 (Wednesday 12 July):

- i. The opening ceremony, including a brief opening session; the award of the SCAR medals; New Directions for ICSU, the International Council for Science; and Australian Science in Antarctica – a Look to the Future.
- ii. A series of keynote talks on science, given in plenary:
Polar Regions and the Global Climate and Environment;
Antarctica in the Global Climate System,
Antarctic Climate Evolution;
Evolution and Biodiversity in the Antarctic: the Response of Life to Change;
Subglacial Antarctic Lake Environments: from a Curiosity to a Focus of Scientific research;
Solar-Terrestrial and Aeronomy Research in Antarctica and in the Arctic: how Polar Regions Interconnect;
The COMNAP Family and its Work;
The IPY and its Probable Impacts on Polar Science and Global Education and Outreach;
History of Antarctic Research.

Day 2 (Thursday 13 July):

- i. Morning: three parallel sessions featuring keynote talks chosen by the SSGs/SRPs;
- ii. Afternoon: multiple (up to 13) parallel sessions of oral presentations on selected submitted papers

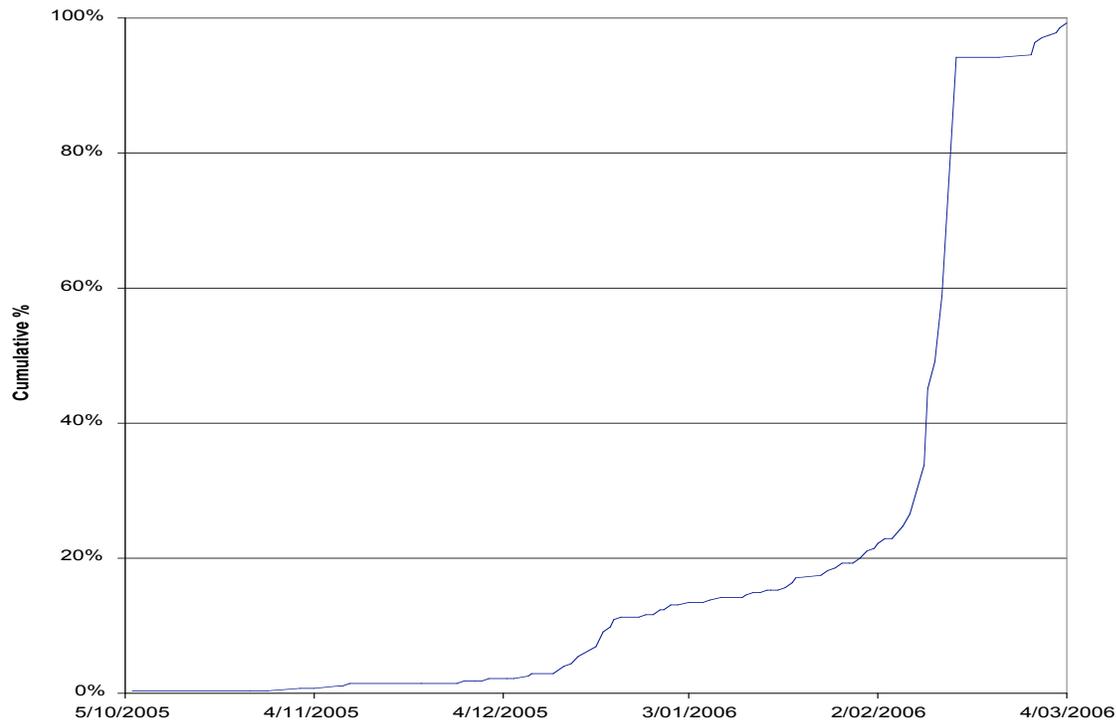
Day 3 (Friday 14 July)

Multiple (up to 13) parallel sessions of oral presentations of selected submitted papers.

4. OSC CALL FOR PAPERS AND ABSTRACT SUBMISSION

All OSC scientific abstracts were submitted electronically using a commercially available abstract service ("Oxford Abstracts") linked from the conference website. Abstract submission was opened in mid September 2005, and was originally planned to close on December 31 2005. After consultation with the SCAR Executive and secretariat, this deadline was extended to February 15 2006. A total of 750 abstracts were submitted for the OSC, and nearly 70% of these were submitted in the last week before closing (Fig. 1). A small number of abstracts were accepted after the final deadline where the authors had exceptional circumstances (Fig. 1).

Fig.1. Abstract submissions for 2nd SCAR OSC. Original submission deadline: 31 December 2005. Extended submission deadline: 15 February 2006.



An International Science Organising Committee (SOC) was appointed to vet the abstracts electronically using the “Oxford Abstracts” system, and to organise them into themes and oral or poster sessions (see list of names in Appendix A). The SOC reviewed and graded all abstract submissions electronically. The SOC rejected eight abstracts predominantly because they were not about Antarctica. Of the 742 accepted abstracts, 68 were subsequently formally withdrawn (22 oral; 46 poster), either because an author could not attend the meeting or because the work to be reported was not completed in time.

The Executive Committee and Chief Officers of the SSGs in consultation with the leaders of SCAR’s Scientific Research Programmes selected the topics and speakers for the keynote talks.

The SOC identified 45 session themes (Appendix C), and the SOC assigned each abstract to one of these. Authors were notified by e-mail by 1 April 2006 of the status of their abstract submission and the theme to which it was assigned. The themes and all accepted abstracts (except where authors refused permission to release their abstract on the web) were then made available on the conference web site. All abstracts were distributed to OSC delegates on the SCAR/COMNAP 2006 conference CD when they registered.

To help plan and implement the conference, the SOC invited nominated experts to take on the role of “Theme Leaders”. The Theme Leaders played an important role in structuring the Conference and ensuring its success. Their responsibilities included:

- ordering the oral and poster presentations within a theme to make a logical presentation structure

- chairing one of the oral sessions in the theme and, where the theme extended over several sessions, selecting and appointing additional chair persons
- liaising with leaders of related scientific themes to minimise conflict between parallel sessions.

Developing a timetable to minimize conflicts between the 45 parallel themes was a significant challenge not only to the organisers but also to the SCAR objective to stimulate interdisciplinary discussion. Factors affecting the timetable development included the physical separation of some of the venues (necessary to get enough rooms for multiple parallel sessions) and the length of presentation sessions (fixing oral sessions as blocks of an integral number of papers).

Around 50% of submitted papers were assigned to poster presentations. Poster spaces were assigned in a way that maintained the thematic order in Appendix C. All posters were displayed for the full 3-days of the OSC (and before where requested). There were two dedicated poster sessions each of one and a half hours (Thursday and Friday after lunch).

As well as formal withdrawals there were about 50 “no-shows” in the timetable (about 10 oral presentations and 40 posters). The “no-shows” left gaps in the actual timetable/presentation space. It is estimated that about 625 papers were actually presented at the 2nd SCAR OSC (i.e. around 85% of those submitted abstracts that were accepted).

5. PRACTICAL ASPECTS

Audio-visual and other technical facilities at most venues were provided under contract from a local supplier. All OSC oral presentations were submitted electronically in PC-compatible format to an in-house technician several hours in advance of the session in which they were to be presented. An “Internet Café” (with 18 terminals and 2 printers) was available for delegates. Access to the high-speed conference LAN was also available to delegates through wireless connection.

A meeting of Theme Leaders and session Chairs was held on the Tuesday evening before the OSC commenced, and “Notes for Chairs” were distributed. Both the meeting and notes emphasized the importance of maintaining strict time schedules for such a complex meeting.

6. MEETING ATTENDANCE

Registration for SCAR/COMNAP was handled electronically by the PCO. The online registration form, linked from the conference web site, allowed delegates to register for the many different meeting options, as well as to book accommodation and other services.

There were 719 registered attendees at the SCAR Open Science Conference (589 full registrations, 115 student registrations (16%) and 15 single-day registrations). 33% were from the host country (compared to 35% in Bremen in 2004). The OSC was the only event for which delegate registration fees were payable and these were set at:

Early-Bird (by 15 April)
Standard (by 30 June)

Full \$A450/ Student \$A 250
Full \$A525/ Student \$A 300

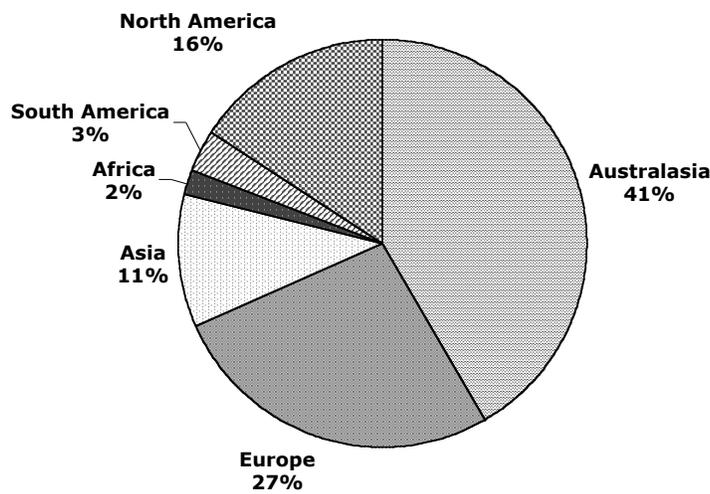
Late (after 30 June)
Single-day

Full \$A650/ Student \$A 650
\$A200

The total number of delegates who registered for SCAR/COMNAP 2006 (corrected for cancellations) was 893, from 32 different nations. The breakdown of registration types and national participation is shown in Appendix D and Fig. 2.

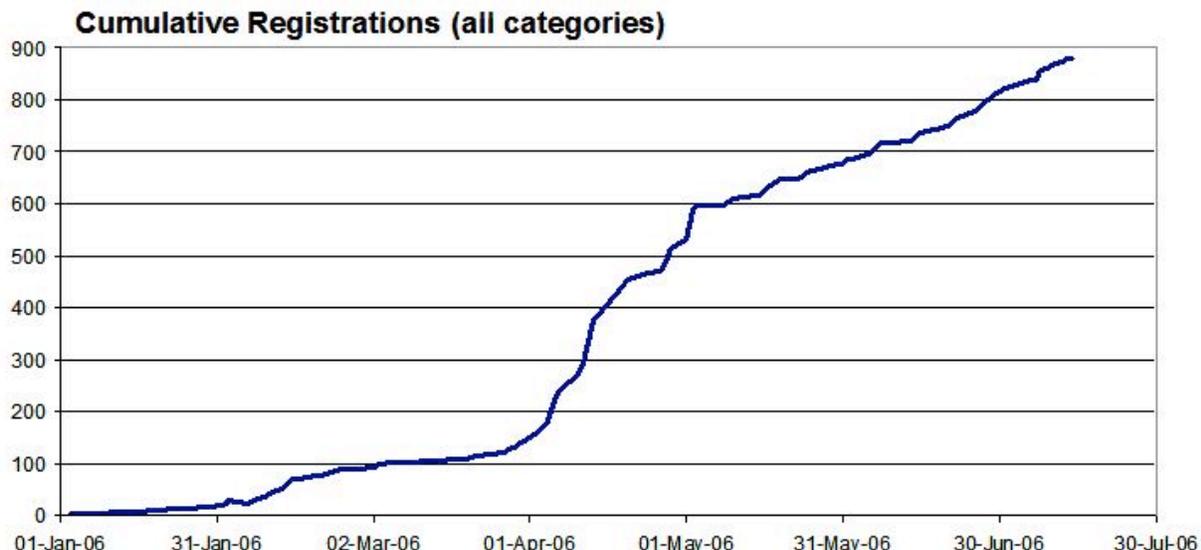
Fig. 2.

Participation in the XXIX SCAR meetings - by continents



Cumulative registration for all categories of delegates (including OSC attendees) is shown as a function of time in Fig. 3. Although 43 % registered as “early birds” before April 15, nearly 60% of them did so in the last two weeks before the cut-off. Offering delegates a financial incentive to register early provided valuable and timely information to help plan the conference facilities.

Fig.3. Registrations for SCAR/COMNAP 200. Early-bird registration before 15 April 2006. Late registration after 30 June 2006. Meetings commence 8 July 2006.



7. SPONSORS AND TRADE EXHIBITORS

Costs of holding SCAR/COMNAP meetings are the responsibility of the host and neither SCAR nor COMNAP contribute to the funding. While a registration fee was charged for the OSC (see above) fees are not charged to the participants in the SCAR or COMNAP Delegates meetings, the SCALOP Symposium or the SCAR science planning meetings. Gaining additional funding from sponsors and trade exhibitors to support these events is hence an important component of financing the meeting.

For SCAR/COMNAP 2006, one ‘gold’ sponsorship was secured early in the planning by negotiation. Additional sponsors and trade exhibitors were sought early in 2006. A copy of the booklet sent by e-mail to potential sponsors and exhibitors is available on the SCAR/COMNAP 2006 conference CD. The total external funding obtained for the meeting included:

Sponsors	\$A 62,000	(1 gold, 2 silver, 5 bronze sponsors)
Trade exhibitors	\$A 29,500	(13 trade booths additional to those for sponsors)
Advertising	\$A 3,500	(in Handbook and satchel inserts)

Additional “in kind” support was also received for promotion, meeting venues and social events.

Notwithstanding this external funding, the great bulk of the support for SCAR/COMNAP 2006 was provided by the host institute, the Australian Antarctic Division of the Australian Government department of the Environment and Heritage.

8. MEDIA COVERAGE

SCAR/COMNAP 2006 attracted considerable media attention to Antarctic science and logistics, mostly within Australia but also from some international agencies. Fourteen media releases and four e-mail bulletins were issued by the conference media centre, and 49 interviews were held with individuals attending the meetings. Nearly 100 individual stories (electronic and print) were identified as resulting from the meetings.

9. SOCIAL FUNCTIONS

The following SCAR social functions were organised during the meetings:

- The *Tasmanian Polar Network* Icebreaker - Sunday July 9th 6.30 pm at the Tasmanian Museum and Art Gallery,
- The SCAR Open Science Conference Welcome Reception – Tuesday July 11th 7.00pm to 9:00pm at the Hotel Grand Chancellor.
- The SCAR Open Science Conference Dinner – Thursday July 13th 6.30pm to 10.30pm at Wrest Point Hotel & Casino.
- SCAR Delegates Welcome Reception (invitation only) - Sunday July 16th at Government House.
- SCAR Delegates Banquet (invitation only) - Tuesday July 18th at Peppermint Bay restaurant, Woodbridge.

10. SUMMARY AND RECOMMENDATIONS

The total of nearly 900 registered attendees at SCAR/COMNAP 2006 was considerably greater than the local or scientific organising committees expected. Facilities were however adequate to support this number of delegates, and we are gratified that interest in Antarctica science and logistics was able to attract so many people to Hobart.

A comparison of attendees at SCAR/COMNAP 2006 with those at the 2004 meeting in Bremen shows:

	Total Attendees	OSC Attendees	Total papers presented	OSC	Oral papers	Poster papers
Hobart 2006	893	719	624		344	280
Bremen 2004	1070	890	540		280	260

Both meetings had a similar number (~180) of attendees who attended COMNAP meetings and the SCALOP Symposium, but not the SCAR Open Science Conference.

Most of the feedback and comments received have been very positive. Delegates found the meeting productive and generally well managed and supported, and they had an enjoyable experience. They considered the meeting to be a resounding success.

The Local Organising Committee (LOC) contributed significantly to that success. The conference was professionally organised and run, staff were always available at various venues to help if any problems arose.

The few criticisms that were received about the organisation of the Open Science Conference mostly concerned issues that were a result of the requirement to schedule around 720 contributed papers into one and a half days of poster and oral presentation time. These included:

- there were too many parallel sessions and hence inevitable timetable conflicts,
- the poster display space was too crowded,
- some meeting venues were too far apart.

There were also some criticisms of the cost of registration for the 3-day OSC.

There are some things that we cannot change – e.g. it is always likely that the bulk of the abstracts for the OSC will arrive within the last week before the last deadline. Similarly, in planning the sessions, 95% of the work is generated by 5% of the delegates.

The following recommendations are consistent with those from the discussion at the XXIX SCAR Delegates meeting (17-19 July 2006).

We should not change the opening format, the keynote talks, the focus on SCAR science themes, and the balance between oral and poster sessions.

In future:

- i. The themes should be decided in advance by the SSGs;
- ii. The cost of the meetings should be kept as low as possible, especially for young scientists;
- iii. SCAR should consider providing (or finding) some resources to subsidise the attendance of students (a proposal to do so in Hobart had unfortunately been rejected);
- iv. There should be fewer parallel sessions (possibly achieved by adding a day to the OSC);
- v. All sessions should be held in the same basic venue to avoid having to walk between buildings to attend different sessions;
- vi. More thought needs to be given to the way in which the poster sessions are organised in space and time, so as to get the best out of them;
- vii. It is better to have a printed abstract volume than a CD (even better to have both), because a printed volume is easier to scan when deciding which talk to attend next;
- viii. Presenters should be advised to rehearse their talks.

11. ACKNOWLEDGEMENTS

Many people contributed to make SCAR/COMNAP 2006 a success, including:

- many groups from within the Australian Antarctic Division (e.g. the SCAR/COMNAP project steering group, information technology, media, displays, stores, etc).
- almost 40 volunteer helpers from AAD and elsewhere who assisted delegates at the venue.
- the Local Organising Committee and those who supported its work.
- the International Science Organising Committee.
- the SCAR and COMNAP secretariats.
- the OSC theme leaders and session chairs.
- the Conference Organisers (Leishman Associates) and in particular the SCAR account manager.
- the production manager of the Trade Exhibition;
- staff at the Tasmanian Museum and Art Gallery and CCAMLR HQ.
- all local commercial suppliers, and the sponsors and trade exhibitors.
- not least the delegates to all events associated with SCAR/COMNAP 2006, who contributed their expertise, their enthusiasm, and the information that made the meeting such a valuable exchange on the very latest status of Antarctic science and logistics.
- above all, Kate Kiefer, whose tireless and cheerful efforts over more than two years as Project Manager, her attention to detail, and her commitment to getting tasks finished were primarily responsible for the success of the meeting.

Appendix 1: Membership of Organising Committees**Local Organising Committee (LOC)**

Ian Allison (Chair, AAD & ACE CRC)
 Kate Kiefer (Project Manager, AAD)
 Robert Vincent (U.Adelaide)
 Denise Hobman (Leishman Associates)
 Roger Knowles (AAD)
 Bruce Mapstone (ACE CRC)
 Richard Mulligan (AAD)
 Jo Jacka

International Scientific Organising Committee (SOC)

Clive Howard-Williams (Chair, NZ)
 Zhang Zhanhai (China)
 Jo Jacka (Australia)
 Mike Meredith (UK)
 Maurizio Candidi (Italy)
 Dana Bergstrom (Australia)
 Julian Gutt (Germany)
 Alessandro Capra (Italy)
 Rob Dunbar (USA)
 Chuck Kennicutt (USA)
 Ian Allison (representing LOC)
 Colin Summerhayes (SCAR)
 Marzena Kaczmarek (SCAR)

Appendix B: Business Meetings (July 8-11) (for acronyms see Annex 1)

1. Joint SCAR/COMNAP Committee on Antarctic Data Management (JCADM)
2. Expert Group on Geospatial and Geographic Information (EGGI)
3. Antarctic Permafrost and Soils (ANTPAS)
4. Evolution and Biodiversity in the Antarctic (EBA)[and on 12 July]
5. Antarctica in the Global Climate System (AGCS)
6. Antarctic Climate Evolution (ACE) [on 12 July]
7. Expert Group on Human Biology and Medicine (with and without MEDINET)
8. SCAR IPY Committee
9. Antarctic Seismic Data Library (SDLS)
10. ANDRILL
11. GIANT and POLENET
12. ICESTAR/STREPS/MADREP
13. SCAR/SCOR Expert Group on Oceanography
14. Antarctic Astronomy
15. International Trans-Antarctic Scientific Expedition (ITASE)
16. Interdisciplinary AGCS/ACE/EBA Workshop
17. Latitudinal Gradient Project Workshop
18. AGAP-IPY
19. International Program for Antarctic Buoys
20. Integrated Circumpolar Ecosystem Dynamics (ICED)[and on 12 July]
21. Seals
22. Census of Antarctic Marine Life (CAML)
23. Plates and Gates and BIPOMAC (IPY projects)
24. Operational Meteorology/WMO IPY
25. SASSI

Appendix C: Session Themes and papers accepted for Open Science Conference

This compilation excludes 68 accepted papers that were formally withdrawn before the start of the conference. It does not exclude papers withdrawn without notification – “no shows”. It is estimated that about 40 poster presentations, but only about 10 oral presentations, were “no shows”.

Session	Session title	Oral	Poster	Total
100	Plenary	11		11
111	Physical Sciences SSG sub-Plenary	6		6
112	Life Sciences SSG sub-Plenary	6		6
113	Geosciences SSG sub-Plenary	6		6
210	Evolution and structure of the Antarctic continent	6	5	11
211	Antarctic Tectonics and Siesmicity	16	14	30
221	Cenozoic Climate and the transition to the Icehouse	9	15	24
223	Pleistocene variability recorded in sediments and ice cores	7	11	18
224	Palaeoclimate of the Holocene and recent past	11	5	16
230	Permafrost and Soils in Antarctica		6	6
310	Subglacial lakes	4	2	6
311	Surface and bedrock topography and dynamics of the Antarctic ice sheet	4	8	12
312	Ice sheet and glacier mass balance and variability	13	8	21
313	Characteristics of ice shelves, ice tongues and icebergs, and their interaction with the ocean	11	12	23
320	Weather and climate of the Antarctic region	10	8	18
321	CO ₂ , Ozone and other atmospheric trace gases over the Antarctic	5	7	12
322	Aerosols	4	9	13
330	Sea ice and its interaction with Southern Ocean climate	9	5	14
331	The Southern Ocean and its role in the global climate system	6	7	13
332	Water masses, circulation and variability in the Southern Ocean	10	7	17
333	Biogeochemistry of the Southern Ocean		8	8
401	Integrated analyses of circumpolar Climate and Ecosystem Dynamics in the S. Ocean (ICED)	11	5	16
402	Response to environmental change in the marine ecosystem	11	2	13
403	Marine biodiversity and adaptation	10	5	15
404	Marine ecosystem function	9	4	13
405	Marine trophic interactions	5	3	8
410	Ecology of krill	9	2	11
411	Ecology of marine mammals	12	14	26
412	Near shore benthic ecosystems	3	4	7
413	Sea-ice zone ecosystems	2	4	6
414	Deep water pelagic ecosystems	10	4	14
415	Fish physiology, evolution and behaviour	6	3	9
420	Evolution and function of Antarctic microorganisms	3	7	10
421	Biodiversity of terrestrial and limnetic ecosystems	6	15	21
422	Terrestrial and limnetic ecosystems: environments and response to change	10	3	13
423	Terrestrial and limnetic ecosystems: life history strategies and performance	6	4	10
424	Variability in terrestrial and inland water ecosystems		9	9
430	Environmental impacts, protection and remediation	17	9	26

440	Human health and well-being	11	7	18
510	History, philosophy and education in Antarctic science	5	2	7
520	Strategies for Data Presentation and Management	8	7	15
521	International and National Data Centers: Coordination and Activities		13	13
530	Technology	5	7	12
531	GPS Applications and Techniques		11	11
610	Magnetosphere/ionosphere/mesosphere coupling	19	20	39
621	Fields and waves	6	4	10
622	Global electric circuit	4	3	7
630	Antarctic astronomy and cosmic ray research	12	9	21
700	Miscellaneous (un-assigned)		3	3
	Total	354	320	674

Appendix D. Attendance Statistics

Total SCAR/COMNAP 2006 Registrations **893**
Number of nations represented **32**

Category of Registration (categories overlap)
 SCAR 2nd Open Science Conference (excluding trade exhibitors and media) 719
 Meetings of SCAR Scientific Steering Groups 207
 SCAR XXIX Delegates 82
 12th SCALOP Symposium 106
 COMNAP XVIII Delegates and working groups 105

Nationality of registrants for SCAR Open Science Conference:

Nation	Full registration	Student registration
Argentina	2	
Australia	166	56
Belgium	5	2
Brazil	12	3
Bulgaria**		
Canada	6	2
Chile	5	
China	17	1
Denmark	1	
Finland	4	1
France	14	2
Germany	34	5
Hungary	1	
India	14	1
Italy	28	1

Nation	Full registration	Student registration
Norway	9	
Peru	1	
Poland	10	
Portugal	1	
Russian Federation	4	
Slovenia	1	
South Africa	12	2
Spain	8	
Sweden	1	
Ukraine	5	
United Kingdom	45	4
USA	97	21
Total	589	115
Single day reg. (Australia)	15	
Regular+ Student+Day	719	

Japan	20	
Republic of Korea	9	
Malaysia	13	
Netherlands	3	
New Zealand	41	14

Media registration	8	
Exhibitor registration	31	
Grand Total	758	

** represented at SCAR and COMNAP Delegates meetings, but not at the OSC

Registration type for SCAR Open Science Conference:

Regular early-bird	440	
standard	123	
late	18	
concession	8	589
Student early bird	88	
standard	26	
late	1	115
Single day	15	15
Total		719

REPORT OF THE XXIX MEETING OF THE SCAR DELEGATES (17-19 JULY 2006)

IN ATTENDANCE

Executive Committee: J.Thiede (President), C.Howard-Williams (Vice President); J.Lopez-Martinez (Vice President), C.Kennicutt (Vice President), Z.Zhang (Vice President), C.Summerhayes (Executive Director)

Delegates: S.Marensi (Argentina); V.Alder (Argentina); R.Vincent (Australia); M.Stoddart (Australia); H.Decler (Belgium); C.De Broyer (Belgium); A.Rocha-Campos (Brazil); J.Simões (Brazil); C.Pimpirev (Bulgaria), N.Chiphev (Bulgaria); S.Bigras (Canada); J.Retamales (Chile); M.Leppe (Chile); Z.Zhang (China); L.Chen (China); M.Poutanen (Finland); R.Schlich (France); Y. Le Maho (France); J.Thiede (Germany); R.Dietrich (Germany); R.Ravindra (India); A.Saxena (India); A.Meloni (Italy), C.Ricci (Italy); N.Sato (Japan); B.Park (Korea); M.Park (Korea); A.Huiskes (Netherlands); C.Howard-Williams (NZ); F.Davey (NZ); H.Loeng (Norway); A.Gazdzicki (Poland); K.Jazdzewski (Poland); V.Kotlyakov (Russia); M.Mosalevsky (Russia); S.Chown (S.Africa); S.Malinga (S.Africa); J.Lopez-Martinez (Spain); D.Gomis (Spain); M.Friberg (Sweden); C.Schluechter (Switzerland); V.Litvinov (Ukraine); V.Rusov (Ukraine); C.Rapley (UK); J.Dowdeswell (UK); C.Kennicutt (USA); T.Wilson (USA); B.Grillo (Uruguay); J.Abdala (Uruguay)

Union Members: D. Lugg (IUPS); G.Knox (IUBS); V.Kotlyakov (IGU); R.Schlich (IUGG); C.Ricci (IUGS);

Associate Members: A.Samah (Malaysia), H.Petersen (Denmark), A.Canario (Portugal)

Secretariat: M.Kaczmarska (Executive Officer)

Local Organising Committee: I.Allison (AAD); K.Kiefer (AAD)

Observers: M.N.Hasan (ICSU); J.Hall (SCOR); V.Lytle (Clic); S.Bigras (IASC); H.Oerter (Germany); R.Cervellati (Italy); K.Watanabe (Japan); K.Holmen (Norway); C.Levieux (S.Africa); K.Erb (USA); J.Retamales (COMNAP); Y. Moiseienko (Ukraine); G.Milinevsky (Ukraine) (apologies from E.Fanta – CCAMLR; N.Gilbert - CEP)

SCAR Subsidiary Groups:

SSG-GS: A. Capra (Italy); ACE: D.Gore (Australia); SALE: C.Kennicutt (USA);
SSG-PS: M.Candidi (Italy); AGCS: J. Turner (UK); ICESTAR: M. Candidi (Italy);
SSG-LS: A. Huiskes (Netherlands); EBA: A Huiskes (Netherlands);
SC-ATS: D. Walton (UK); G.Hosie (Australia); JCADM: T. De Bruin (Netherlands);
EGGI: H. Brolsma (Australia)

Explanatory Notes: (i) Papers for the meeting are available from the SCAR website: WP refers to Working Paper, IP to Information Paper. .

Appendices:

Appendix 1: The Welcome to XXIX SCAR and the Open Science Conference from the Minister for the Environment and Heritage, the Honourable Ian Campbell

Appendix 2: External Recommendations

Appendix 3: Internal Recommendations

Appendix 4: Acronyms

OPENING REMARKS

Jörn Thiede, President of SCAR, formally opened the meeting, welcomed Delegates and observers to Hobart, the home of the Australian Antarctic Division, and thanked the Division and the Local Organising Committee, particularly Ian Allison and Kate Kiefer of the Division, for their hard work in support of XXIX SCAR. He noted with thanks the welcome to XXIX SCAR and the Open Science Conference from the Minister for the Environment and Heritage, The Honourable Ian Campbell (Appendix 1). He presented apologies from Pakistan, Peru and Ecuador, and introduced the Delegates to the new SCAR Executive Officer, Marzena Kaczmarek.

The President reminded Delegates of the recent deaths of Tøre Gjelsvik, John Heap, and Sayed El-Sayed, and called for one minute's silence in honour of these past supporters of SCAR.

Kate Kiefer of the Local Organising Committee told Delegates about the plans for the Monday evening reception at Government House.

1. OPENING BUSINESS

1.1 Adoption of the Agenda (WP01, WPO2, WP03, WP04)

The Executive Director provided a revised annotated agenda (WP 02rev) and list of documents (WP 03rev), as well as reports of the meetings during XXIX SCAR of the SCAR Executive Committee (WP 10), of the Executive Committees of SCAR and the Council of Managers of National Antarctic Programmes (COMNAP) (WP 11), and of the Standing Scientific Groups (SSGs) on Geosciences (WP 13), Life Sciences (WP 14) and Physical Sciences (WP 15). Additional working papers relating to the Expert Group on Geographical Information (EGGI) (WP 16 A - addendum) and the Joint SCAR/COMNAP Committee on Antarctic Data Management (JCADM) (WP 16B and C) were also tabled.

Delegates adopted the revised agenda (WP 01rev), the revised draft annotated agenda (WP02rev), the revised list of documents (WP03rev), and the proposed timetable for the meeting (WP04), with the following additions and modifications:

- i. the move of the EGGI to become a Standing Committee on Geographic Information (WP 16A) to be discussed under a new agenda item 6.1.9;
- ii. a review of progress against the recommendations of the SCAR Review (IP 20) to take place under Any Other Business.
- iii. a presentation from the representative of the International Council for Science (ICSU) (agenda item 6.2.3.1) to be taken on Monday July 17th.
- iv. Item 7.2 on XXX SCAR to be taken in Plenary session.

Recognising that because the meeting was only 3 days long there was not as much time as usual allowed for the elections, Delegates agreed that the elections for both President and Vice-President would take place during Plenary sessions on both Tuesday July 18th and Wednesday July 19th.

Delegates approved the appointment of C Howard-Williams (New Zealand) to chair the meetings of the Delegates Committee on Scientific Affairs, and of J López-Martínez (Spain) to chair the meetings of the Delegates Committee on Administration and Outreach. These two committees met in parallel session as shown in the timetable (WP 04).

Delegates then turned to the applications for membership, papers for which had been distributed with SCAR Circular no 763. In accordance with the rules of procedure, Observers and Delegates of Associate Members left the Plenary meeting during the sessions on the admittance of new members

1.2 Application of Bulgaria for Full Membership (WPO5(i))

The Delegate from Bulgaria, C. Pimpirev, presented the application for Full Membership of SCAR. Delegates decided that Bulgaria should be admitted to Full Membership.

1.3 Application of Ukraine for Full Membership (WP05(ii))

The Delegate from Ukraine, V. Litvinov, presented the application for Full Membership of SCAR. Delegates decided that Ukraine should be admitted to Full Membership. V. Litvinov presented the President with a Ukraine polar medal.

1.4 Application of Denmark for Associate Membership (WP05(iii))

The Delegate from Denmark, Hanne Petersen, presented the application for Associate Membership. Delegates decided that Denmark should be admitted to Associate Membership.

1.5 Application of Portugal for Associate Membership (WPO5(iv))

The Delegate from Portugal, A. Canario, presented the application for Associate Membership. Delegates decided that Portugal should be admitted to Associate Membership.

1.6 Application of International Union for Quaternary Research (INQUA) for Union Membership (WP06(i))

The Executive Director presented the application from INQUA for Union Membership. Delegates welcomed the application of INQUA to Union Membership, considering it would be of mutual benefit for both SCAR and INQUA, and noting the potential for links to the SCAR research programmes on Antarctic Climate Evolution (ACE) and Evolution and Biodiversity in the Antarctic (EBA).

Action 1: Secretariat to communicate to Bulgaria, Ukraine, Denmark, Portugal and INQUA the decisions on Membership.

Action 2: Secretariat to (i) formally thank Korea and Spain for their increases in level of contributions, and (ii) determine from Bulgaria and Ukraine their preferred levels of contribution.

The Executive Director noted that the Czech Republic and Romania had also expressed an interest for the past 2 years in becoming Members of SCAR. It was noted that at the 29th ATCM in Edinburgh Belarus had acceded to the Treaty and might be interested in joining SCAR.

Action 3: Secretariat to approach Belarus about possible membership

Delegates expressed their pleasure at the increase in membership and warmly welcomed new Full and Associate Members.

2. REPORTS OF SCAR MEETINGS

The President reported that the Secretariat was functioning now in a more efficient and effective manner than previously, and recommended to the incoming Executive Committee that the contract of the Executive Director be extended. The Open Science Conference (OSC) had been particularly successful, with a larger number of attendees than expected. SCAR had provided more advice than usual to the recent Antarctic Treaty Consultative Meeting (ATCM) in Edinburgh, as well as giving an exciting and well-attended SCAR lecture on climate change. It was encouraging to see SCAR's profile increasing within both the ATCM and the Treaty Committee on Environmental Protection (CEP). The SCAR Executive Committee had continued its series of meetings with COMNAP, which provided an important link into the logistical side of Antarctic science activities. SCAR officers, including the Executive Director, had been much more involved in SCAR business during the year, each Vice President playing a key role at certain SCAR meetings, and in spreading the word about SCAR. The SCAR Fellowship Programme was in a healthy state with between 4 and 5 Fellows per year. SCAR needs a larger financial base to support a wider Fellowship programme, and Delegates were encouraged to contribute extra resources for this purpose.

Action 4: Incoming President to write to national committees urging them to provide additional financial support to the SCAR Fellowship programme.

2.1 Report of XXVIII SCAR Meeting (WP07)

Delegates adopted the Report of the XXVIII SCAR Delegates Meeting (Bremerhaven, Germany, 4-8 October 2004)

2.2 Reports of Executive Committee Meetings (WP08, WP09, WP10, WP11)

Delegates adopted the Report of the SCAR Executive Committee Meeting (Sofia, Bulgaria, 11-13 July 2005) (WP08), and noted and endorsed the draft report of the SCAR Executive Committee meeting on 11 July 2006 (WP10).

2.3 Report of Open Science Conference, Hobart (IP01)

An informal report of the SCAR Open Science Conference (Hobart, Australia, 12-14 July 2006) was tabled as the basis for a discussion on this issue. This will eventually form a part of the final report of the XXIX SCAR Meeting.

The Chairman of the Local Organising Committee, Ian Allison, updated Delegates on the details of the OSC and other arrangements for XXIX SCAR. Delegates were very much involved in the SSG meetings and the OSC. There were 836 registrants from 32 countries for the SCAR and COMNAP meetings. Among these, 347 were from Australasia, 223 from Europe, 132 from North America, 88 from Asia, 28 from South America, and 15 from Africa. Some 750 abstracts were submitted for the OSC. Most were accepted. Some were withdrawn due to the inability of people to travel to the meeting. 53% of the papers were oral and 47% posters. There were 13 parallel sessions, and 39 separate themes. 120 students attended, from 15 countries.

Delegates congratulated Ian Allison, Kate Kiefer, and the Australian Antarctic Division on the excellent organisation of XXIX SCAR, including the OSC, which had been a great success.

While pleased with the evident success of the meeting, Delegates identified some lessons that could be learned for XXX SCAR and subsequent meetings. These are listed under agenda item 7.2.

Some Delegates noted that the present meeting “broke the rule” agreed for separating the meetings of the science groups and the Delegates by some 3 months. Following discussion, it was agreed that there needs to be a careful analysis of the advantages and disadvantages of keeping the two meetings together (as in XXIX SCAR) or apart (as in XXVIII SCAR), as the basis for decisions about how future meetings should be planned.

Action 5: The Executive Committee should use information from the meetings in Germany and Australia to analyse the advantages and disadvantages of holding SCAR Science and Delegates meetings separately or together, as the basis for a discussion, at the XXX SCAR Delegates meeting, of what model of meeting should be preferred for the future.

Delegates thanked the Australian delegation and Ian Allison for the excellent work done in hosting what had turned out to be an outstanding meeting.

3. SCAR POSITIONS

The Secretariat provided a paper (WP12) describing the election timetable and procedure, along with nomination forms. Fred Davey (NZ), Terry Wilson (US), and George Knox (IUBS) volunteered to act as scrutineers during the election process.

3.1 Election of President

Delegates elected Chris Rapley (UK) as President for the period 2006-2010.

The outgoing President, Jörn Thiede, will serve on the Executive Committee as Past-President for a term of 2 years.

3.2 Election of three Vice-Presidents (WP12)

Delegates elected Zhanhai Zhang (China), Sergio Marensi (Argentina) and Antonio Meloni (Italy) as the three new Vice Presidents.

3.3 Appointment of Standing Committee on Finance

Sergio Marensi (Argentina) was appointed to replace Terry Wilson (USA) on the Standing Committee on Finance, alongside current members Chuck Kennicutt (USA)(current Chairman), and Reinhard Dietrich (Germany).

3.4 Appointment of XXIX SCAR Finance Committee

Two volunteers (Fred Davey (NZ) and Sandile Malinga (S. Africa)) were appointed to the Standing Committee on Finance for the duration of the meeting.

4. REPORTS, RECOMMENDATIONS AND REVIEWS OF SCAR SCIENCE GROUPS

Clive Howard-Williams chaired the Delegates Committee on Scientific Affairs and reported on its sessions to the Plenary meeting. Prior to the meeting (on Sunday July 16th) copies of the reports of the three Standing Scientific Groups that met between July 8 and 11 (WP 13, 14, 15), and of a report on

the performance of JCADM (WP 16B) were made available to the Delegates.

A number of generic points emerged from the discussion of these reports, which led to some actions for the future (see below).

Delegates noted that the quality of the written SSG reports was variable and suggested that in the interests of efficiency and effectiveness SSG Chief Officers should in future work to an annotated agenda that would then become the basis for the final report. Some Delegates expressed a wish to see more scientific content in the reports of the SSG meetings and less focus on administrative issues.

Action 6: Chief Officers to work with Secretariat to prepare an annotated agenda for SSG meetings, in advance, as the basis for the SSG report to Delegates.

Action 7: Chief Officers should provide more scientific content (outcomes) in the reports of the meetings and workshops held by SCAR science groups.

The SSG reports contain Recommendations that are classified as External, being to organisations that SCAR interacts with (Appendix 2), or Internal, being for SCAR or National Committees (Appendix 3).

Delegates asked that the Recommendations be adapted to a common format by the Secretariat, and that in future each SSG write its Recommendations to a common format.

Action 8: SCAR Secretariat to redraft the Recommendations for the report of XXIX SCAR, to ensure consistency with previous Recommendations.

Delegates expressed concern about the increasing number of Recommendations, and the utility of some kinds of Recommendations. In future, a few key Recommendations should be selected as a high priority.

Action 9: In the future Chief Officers should (i) provide Recommendations in the same format as used in the report of XXIX SCAR, to avoid confusion and to allow easy comparison of past and current Recommendations, and (ii) decide which Recommendations should be listed as the first priority.

Action 10: The issue of the increasing number of Recommendations should be discussed at the next Executive Committee meeting.

Delegates noted from general observations by each SSG and from an Internal Recommendation by SSG-LS (XXIX-SSG-LS-1; see Appendix 3) that some Members do not actively participate in the activities of the SSGs. Not all Members had appointed contact persons for each SSG, and few had appointed up to the 4 representatives required to ensure broad representation of the wide range of activities covered by each SSG. The lack of representation may be in part a function of lack of travel monies to send a large number of people to Hobart.

Action 11: Secretariat to remind National Committees and Delegates to appoint up to 4 representatives to each SSG.

4.1 Report of SSG Geosciences (SSG-GS) (WP13)

The Chief Officer, A Capra (Italy), presented a summary of the report of the SSG on Geosciences, as the basis for discussion. Highlights included:

- i. the Marine Acoustics Action Group produced a new report on the impacts of acoustic technologies on cetaceans, which was presented to and well received by the 29th ATCM meeting in Edinburgh (June 2006).
- ii. the Expert Group on Geographic Information (EGGI) updated the SCAR Composite Gazetteer, the SCAR Map Catalogue, the SCAR Antarctic Digital Database, and the SCAR King George Island GIS Database, and further developed AntSDI, the Antarctic Spatial Data Infrastructure.
- iii. the Expert Group on the Geodetic Infrastructure of Antarctica (GIANT) improved the database for an improved Antarctic geoid, and contributed to developing a major IPY proposal - POLENET.
- iv. the Expert Group on Permafrost and Periglacial Environments continued to make progress in developing soil maps, drafted a soil attributes manual, and contributed to a major IPY proposal – ANTPAS.
- v. the Expert Group on the Digital Magnetic Anomaly Map (ADMAM) developed a DVD of data up to 1999 for submission to the World Data Centers.
- vi. the Antarctic Neotectonics (ANTEC) Group contributed to POLENET and organised a symposium on short and long-term observations in the Polar Regions, for the European Geophysical Union meeting in April 2006.

The SSG-GS is currently planning the 10th International Symposium on Antarctic Earth Science (ISAES), which will take place in Santa Barbara, California, August 26 through September 1, 2007.

The SSG-GS eliminated former Action Groups on Communication and on Marine Survey, which had completed their tasks, and added a new Action Group – on Sub-Ice Geological Exploration (SIGE), which will look into ways of developing a collective SCAR-wide pan-Antarctic approach to drilling into the rocks beneath the ice to improve our understanding of Antarctica’s geological history.

Delegates noted and endorsed the four Internal Recommendations made by SSG-GS and listed in Appendix 3. With regard to the one concerning the repositioning of EGGI within the SCAR structure, the Delegates noted that this would be addressed in detail under agenda item 6.1.9. Delegates approved the move of the EGGI in principle, provided that any such move aimed to strengthen the links between EGGI and all of the Scientific Standing Groups, and that all SSGs should be involved in determining what kinds of products should be produced for the benefit of all by the EGGI. The EGGI objectives should be driven by science. Furthermore EGGI should have a stronger link with JCADM.

Delegates then discussed the External Recommendations from SSG-GS, and compared them with the existing Recommendations made by SSG-GS to XXVIII SCAR and published in Appendix 2 of both SCAR Bulletin 157 (2005) and XXIX SCAR document WP 07:

XXVIII SCAR (2004)

- XXVIII-1 concerning place names
- XXVIII-2 concerning bathymetric data
- XXVIII-3 concerning geographic and geodetic information
- XXVIII-4 concerning airborne gravity data
- XXVIII-5 concerning geodetic observations at remote locations
- XXVIII-6 concerning rationalisation of scientific activities at KGI
- XXVIII-7 concerning Geographic Information contact officers

XXIX SCAR (2006)

- STANDS
- STANDS
- STANDS
- STANDS
- LAPSES
- STANDS
- STANDS

Delegates agreed that Recommendation XXVIII-6 regarding rationalization of scientific activities on King George Island (KGI) should be discussed again in 2008. Delegates suggested that a cross-SSG King George Island group should be formed to address this issue.

Action 12: Chief Officers of SSGs will work together to develop a joint recommendation on the coordination of scientific activities on King George Island, for consideration at XXX SCAR (2008).

Delegates adopted two new External Recommendations from SSG-GS (Appendix 2). These are:
Recommendation XXIX-1: Concerning the Antarctic Digital Magnetic Anomaly project (ADMAP)
Recommendation XXIX-2: Concerning the Seismic Data Library System (SDLS)

Finally, Delegates discussed the proposed SSG-GS budget and approved it for the consideration of the Finance Committee.

4.2 Report of SSG Life Sciences (WP14)

The Chief Officer, A. Huiskes (Netherlands), presented a summary of the report of the SSG Life Sciences (WP14). Highlights included:

- i. SCAR is now an Observer to the Agreement on Albatrosses and Petrels (ACAP), to which it provides advice from the Expert Group on Birds;
- ii. The government of Belgium has generously funded the SCAR Marine Biodiversity Information Network (MarBIN);
- iii. Good progress is being made with the Census of Antarctic Marine Life (CAML), with the aid of funds from the Sloan Foundation (USA);
- iv. SCAR retains good links with CCAMLR. The new SCAR Observer to CCAMLR is Graham Hosie of the Australian Antarctic Division;
- v. SCAR's biologists made significant contributions to the Information and Working Papers submitted to the 29th ATCM and associated CEP meetings in Edinburgh (June 2006);
- vi. The 9th Biology Symposium, held in Curitiba, Brazil 25-29 July 2005, was a great success. It was the first such meeting in South America. The theme was EBA. There were 12 keynote speakers from nine countries, and more than 570 participants including 145 students. The 10 keynote and 14 invited papers will be published in a special issue of *Antarctic Science* in 2007.
- vii. The Scientific Programme Planning Group on Biological Monitoring held a workshop in Texas that had led to a report subsequently presented to the ATCM and CEP. The work was completed so the group was terminated.

Delegates noted the increasingly active interdisciplinary collaboration between SCAR and SCOR in relation to the Southern Ocean ecosystem; the completion of the former EVOLANTA and RISCC programmes, and the incorporation of their follow-on activities into the EBA programme; the formation of a new Action Group on the Continuous Plankton Recorder; and the suggestion that Expert Group on Birds and the Expert Group on Seals should be merged.

Action 13: The Expert Groups on Birds and Seals should work together to develop a plan for new leadership and a work plan for the next few years that might include a merger, for consideration by the new Executive Committee at its meeting in 2007.

In relation to the work of the Expert Groups on Birds and Seals, the SSG-LS had noted with concern that requests were being made to these groups, from outside SCAR, for the original data on which their work was based. Those data are in fact the property of the national originators, and a SCAR data policy is required to deal with such requests. This observation led to the development of an Internal Recommendation to SCAR (XXIX-SSG-LS-2; see Appendix 3), which the Delegates endorsed.

Delegates reviewed an updated draft version of the SCAR “Code of Conduct for the Use of Animals for Scientific Purposes in Antarctica”, which reflected changes in legislation since the original Code was adopted in 1988. Delegates felt that a clear statement on what constitutes ‘animals’ was needed in the document. The document will be circulated to all Delegates with a request to provide comments in time for the next SCAR Executive Committee Meeting in 2007. The final version of the amended code will be on the agenda for discussion at the XXX SCAR Delegates meeting. In the interim Delegates agreed that SCAR Members should voluntarily adopt the draft code as working practice whenever possible.

Action 14: The Secretariat (in consultation with David Walton) will circulate to all SCAR Members the amended version of SCAR Code of Conduct on the Use of Animals for Scientific Purposes, for comments by the 2007 Executive Committee meeting.

Action 15: SCAR Members should voluntarily adopt as working practice whenever possible the draft Code of Conduct on the Use of Animals for Scientific Purposes.

Delegates then discussed the External Recommendations from SSG-LS and compared them with the existing Recommendations made by SSG-LS to XXVIII SCAR and published in Appendix 2 of both SCAR Bulletin 157 (2005) and XXIX SCAR document WP 07:

<u>XXVIII SCAR (2004)</u>	<u>XXIX SCAR (2006)</u>
XXVIII-8 concerning amalgamation of medical groups	STANDS
XXVIII-9 concerning ACAP	REPLACED
XXVIII-10 concerning the use of flipper bands on penguins	STANDS
XXVIII-11 concerning alien species in Antarctica	STANDS
XXVIII-12 concerning biological prospecting	STANDS

Although the SSG-LS had suggested some changes to the text of Recommendation XXVIII-10, on flipper bands, Delegates considered that the wording of the previous version was stronger than the suggested replacement text, and should stand.

Delegates adopted two new External Recommendations from SSG-LS (see Appendix 2). These are:
Recommendation XXIX-3: Concerning the agreement for conservation of albatrosses and petrels (ACAP). As noted above, this replaces old Recommendation XXVIII-9. It contains a slight change of wording from the original, but the meaning remains the same.

Recommendation XXIX-4: Concerning the recording of confidential data from commercial activities.

Finally, Delegates discussed the proposed SSG-LS budget and approved it for the consideration of the Finance Committee.

4.3 Report of SSG Physical Sciences (WP15)(IP 19)

The Chief Officer, J. Turner (UK), presented a summary of the report of the SSG Physical Sciences, as the basis for discussion. Highlights included:

- i. The cross-SSG workshop in Amsterdam (November 2005), which had established links with the Life Sciences SSG for the provision of future climate scenarios for the assessment of possible environmental change during the next century.
- ii. A cross-SSG workshop on climatic, biological and cryospheric variability, which had been organised for SCAR XXIX (July 10, 2006).
- iii. The MOSAK workshop on the Antarctic wind field, which had produced an important report assessing our current understanding of the near-surface flow across the continent.
- iv. The PASTA Action Group’s demonstration that the Antarctic plateau is the best place on Earth for surface-based astronomy.
- v. The ISMASS Expert Group and the ITASE project have facilitated the publication of a major review of Antarctic mass balance through a special volume of Annals of Glaciology;
- vi. The development of strong links with various activities of the World Climate Research Programme.

Delegates noted and approved the completion and termination of the MOSAK and PASTA Action Groups; the addition of a new Action Group for a Pan-Antarctic Observations Network (PAntOS); the addition of a new Action Group on Contaminants (to map pollutants); the proposal for a new Scientific Programme Planning Group on Antarctic Astronomy and Astrophysics; the good progress being made by the joint SCAR/SCOR Oceanography Expert Group, and its proposal to develop plans for a Southern Ocean Observing System; the proposal to co-sponsor the International Partnership in Ice Core Science (IPICS); and a growing emphasis on understanding the biogeochemistry of the Southern Ocean.

Delegates considered that the Expert Group in Ice Drilling Technologies should be linked to the extent possible with other groups with interests in drilling technology (e.g. with IPICS and with the new SIGE Action Group in the SSG-GS).

Delegates endorsed two Internal Recommendations from SSG-PS (Appendix 3), one on the co-sponsorship of IPICS, and the other on the biogeochemistry of the Southern Ocean.

Delegates then discussed the External Recommendations from SSG-PS and compared them with the existing Recommendations made by SSG-PS to XXVIII SCAR and published in Appendix 2 of both SCAR Bulletin 157 (2005) and XXIX SCAR document WP07:

<u>XXVIII SCAR in 2004</u>	<u>XXIX SCAR in 2006</u>
XXVIII-13 Concerning site testing for astronomical observations	STANDS
XXVIII-14 Concerning drifting buoys	STANDS
XXVIII-15 Concerning continued support of geospace observatories	STANDS
XXVIII-16 Concerning the transmission of space weather data	STANDS
XXVIII-17 Concerning incoherent scatter (MST/IS) radar	STANDS
XXVIII-18 Concerning upper air meteorological data (Peninsula)	CHANGED
XXVIII-19 Concerning meteorological reports from Dome C	STANDS

Delegates noted that in the case of:

- i. XXVIII-13 (astronomy), some instrumentation has been deployed on the Antarctic Plateau to assess conditions for astronomy, but there is still a need for additional deployments;
- ii. XXVIII-14 (buoys), there have been a number of deployments over the last 2 years, but the geographical distribution is not optimal and there is a need for additional buoys to ensure good coverage during the IPY;
- iii. XXVIII-15 (geospace), networks of HF radars, magnetometers, and auroral instruments are being completed and extended;

- iv. XXVIII-16 (space weather data), broadband communications are increasingly being used to transmit scientific data from the Antarctic to some national operators;
- v. XXVIII-17 (radars), planning is still underway for the deployment of a MST/IS radar;
- vi. XXVIII-18 (radiosondes) Rothera is launching several radiosondes a week, but additional launches are needed from the tip of the peninsula;
- vii. XXVIII-19 (weather at Dome C), a surface and upper air meteorological programme has been established at Dome C; maintaining the time series of meteorological observations is an issue of great importance and the recommendation should be kept.

Delegates endorsed 6 new External Recommendations from SSG-PS, as listed in Appendix 2:

Recommendation XXIX-5: Concerning upper air meteorological data from the Antarctic Peninsula. As noted above, this replaces XXVIII-18 (see above).

Recommendation XXIX-6: Concerning upper air and ionospheric observations along the Antarctic Peninsula

Recommendation XXIX-7: Concerning monitoring of solar-terrestrial parameters during the IPY

Recommendation XXIX-8: Concerning sea ice observations

Recommendation XXIX-9: Concerning drifting buoys in the IPY (supplementary to XXVIII-14)

Recommendation XXIX-10: Concerning meteorological observations for weather forecasting and the IPY.

John Turner then described SCAR's efforts to prepare a report on Antarctic Climate Change and the Environment (originally listed as a climate "assessment" under agenda item 6.2.1 and in IP 19) that could eventually be delivered as a paper to the ATCM. In Sofia (July 2005), the Executive Committee requested the AGCS team to take the lead on this project. Plans for this Report (see Annex 3 in IP03), were developed at the Cross-SSG Linkages meeting in Amsterdam. However, the Executive Committee meeting in Hobart (July 11 & 14, 2006) had decided to focus the project on a scientific report on climate change and the environment rather than on a climate assessment. Analyses of climate change on different time scales will be a major part of this report. Delegates endorsed the idea of preparing this document but suggested that the work should proceed as fast as possible. This report could be a joint initiative of all SSGs and might require a separate budget allocation.

Action 16: AGCS to lead the preparation of a "SCAR Report on Antarctic Climate Change and Environment", and Chief Officers to consider this a joint project of all SSGs, for completion of a first draft for XXX SCAR

Finally, Delegates discussed the proposed SSG-PS budget and approved it for the consideration of the Finance Committee.

4.4 Report on JCADM (WP16)(WP16B; WP 16C)

The Chief Officer, T. de Bruin (Netherlands), presented a summary of the report of JCADM's activities and plans (WP16). Highlights included:

- i. JCADM has succeeded in creating more National Antarctic Data Centres (NADCs), in training NADC operators, and in increasing the population of the Antarctic Master Directory (AMD) with metadata.
- ii. the AMD is being accessed increasingly by the wider community.
- iii. JCADM has become much more engaged with the scientific community, through attending meetings of the Chief Officers of the SSGs, by adding a JCADM representative to the Steering Committee of each Scientific Research Project (SRP), and by making presentations to and listening to the requirements of the SSGs during their meetings in Hobart (8-11th July 2006).

- iv. JCADM is also engaged in developing the IPY scheme for data management.
- v. as a next step, JCADM will work with the Secretariat and the science community to develop a SCAR data and information strategy.

The Executive Director summarised the review of the performance of JCADM by the Standing Committee on Antarctic Data Management (STADM), which is a body of COMNAP that is jointly staffed by SCAR and COMNAP representatives (WP 16 B). The review was very favourable. JCADM is meeting the key recommendations of the external review of JCADM that was undertaken in March 2005.

The Chief Officer tabled the revised JCADM Terms of Reference as document WP16C. He went on to recommend that SCAR promote enhanced investment at the national level in NADCs, noting that many NADCs were under-resourced, therefore making them less effective than they could be in providing support for science and for the Treaty. Finally, he noted that discussions were being pursued with SSG-LS about the possibility of SCAR becoming an associate partner to the Global Biodiversity Information Facility (GBIF).

Delegates were satisfied with JCADM's progress, endorsed JCADM's plans, and approved the New Terms of Reference for JCADM.

Action 17: Secretariat to write to national committees to urge them to do what they can to implement the JCADM recommendation on investment in NADCs (with copy to COMNAP)

Action 18: SCAR to maintain its financial support for the Antarctic Master Directory in 2007 & 2008.

4.5 Interdisciplinary Linkages Between SSGs and with other SCAR Subsidiary Bodies (IP02, IP03)

The Executive Committee had encouraged Chief Officers of SSGs, SC-ATS and JCADM to meet to explore possible ways in which the SSGs and other subsidiary bodies could work together to encourage the development of interdisciplinary scientific activities across SCAR's structural boundaries. The first meeting of the Chief Officers took place on July 9-10, 2005, in Sofia, Bulgaria. The meeting report is available as IP02. The meeting was judged a success, and Chief Officers were asked to arrange to meet prior to each Executive Committee meeting in future.

As mentioned also in agenda item 4.3, a Cross-linkages Workshop was then held (Amsterdam, November 22-24, 2005) to bring together the Chief Officers and the leaders of those Scientific Research Programmes (SRPs) between which connections were likely to be most fruitful (ACE, AGCS, SALE and EBA). Several cross-disciplinary linkages were created. The meeting report is available as IP03. An additional cross linkages workshop took place in Hobart on Monday July 10th July 2006. The next Cross-Linkages workshop is planned for November 2006.

Delegates noted and strongly approved progress in creating interdisciplinary links between SSGs and other subsidiary bodies.

4.6 Progress Against XXVIII SCAR Recommendations

At the request of the Executive Committee, the Executive Director undertook a survey to find out how different National Committees had responded to the Recommendations made by XXVIII SCAR. Responses were obtained from 6 countries only (UK, USA, Norway, Canada, Argentina, the Netherlands). At its meeting in Sofia, the Executive Committee noted that some countries find the

Recommendations useful, while others find them less so. Clearly the needs of each country are different. Some national committees distributed the Recommendations to appropriate bodies, persons, organisations, or institutes for action. Others did not. The Executive Committee agreed (i) that there should be fewer and higher priority Recommendations, (ii) that they should be written in a less formalistic way; and (iii) that the Recommendations should be sent out separately to National Committees with a request that national agencies find appropriate ways to distribute the information on SCAR Recommendations to appropriate bodies, persons, organisations, or institutes etc., within their countries, so that appropriate actions could be taken.

In addition the Secretariat was asked to publish the Recommendations on the SCAR web site (in the past they have appeared embedded in the bodies of reports, not highlighted in any way, and thus may perhaps have been overlooked).

Action 19: (i) Delegates are urged to ensure that SCAR Recommendations are distributed, with appropriate requests, to agencies that have the ability to take action on them; (ii) Secretariat to publicise SCAR Recommendations on the SCAR website.

Action 20: Secretariat, Executive Committee and Chief Officers to review all past Recommendations as the basis for a paper to XXX SCAR on which Recommendations stand, and with what priority.

5. REPORTS ON AND REVIEWS OF SCIENTIFIC RESEARCH PROGRAMMES (SRPs)

The advice of the Delegates at XXVIII SCAR (see WP07) had been used to revise the proposals for the 5 SRPs, which were then approved by the Executive Committee and published on the SCAR web site in 2005. National Committees had been approached, along with the wider community via the web site, to solicit wide-ranging engagement in developing and implementing the SRPs.

Each SRP had developed an Implementation Plan and proposed a Steering Committee. Between July 2005 and January 2006, the Executive Committee reviewed and approved these plans and suggestions.

Efforts have been made to ensure that the Steering Committees contain a reasonable geographical balance; these efforts continue. The lack of response from individual National Committees to the calls for engagement by their communities in the SRPs has not significantly broadened the geographical base of the Steering Committees.

Proposals based on aspects of each SRP were submitted to and approved by the IPY Joint Committee (see 6.3, below).

In accordance with the procedures established at SCAR XXVIII, the 5 SRPs will be externally reviewed prior to SCAR XXX in 2008.

Delegates noted that not all SRPs and SSGs had provided highlights to illustrate their contributions to science and to make plain the outcomes of the research. Equally, there is a need to publicise the work of each SRP more, for example through the Antarctic Science Journal.

Action 21: In future the Leaders of all of the 5 SRPs will each provide 5 main highlights of the research in their reports to show how the work contributed to scientific understanding.

Action 22: The Leaders of each SRP should develop a short synopsis for the Antarctic Science Journal, based on the SRP's highlights and the contribution of each programme to science, in order to generate further interest (this should be added to the SRP's websites).

Following the reports given below, Delegates noted progress and approved plans for all 5 SRPs.

5.1 Report on ACE Antarctic Climate Evolution (WP17)

Damien Gore of the ACE Steering Committee summarised ACE progress and plans. Five of the six ACE sub-committees address issues arising from studying the following time periods: Glacial Maximum; Glacial Epoch (Pleistocene); Middle Miocene-Pliocene; Oligocene-Miocene; and Eocene-Oligocene (the greenhouse to icehouse transition). One further subgroup (ICECAP) uses airborne radio-echo sounding to measure ice sheet thickness, and maps depth to bedrock. It has £1 million in funding from NERC (UK).

A website has been created, and the group already has a strong publishing record in peer-reviewed journals (4 special issues published since 2003). ACE is developing new models, and encouraging modellers and field scientists to work together. Considerable effort has gone in to developing successful proposals for the IPY.

Delegates called for a closer links between ACE and EBA as well as with Action and Expert Groups within SSG-PS.

5.2 Report on AGCS Antarctica in the Global Climate System (WP18)

John Turner, the Leader of the AGCS Steering Committee, summarized AGCS progress and plans. AGCS has achieved all of the milestones presented in its implementation plan. There have been several workshops, on topics like the modeling of the katabatic wind field. AGCS has submitted 21 papers to peer-reviewed journals, and is establishing databases for meteorological (METEO-READER) and glaciological data (ICE-READER). A network of national contacts for AGCS has been established and there is balanced geographic participation in AGCS. The list of targets for 2007-08 (see WP18) includes some that are deliverables valuable to the wider community (e.g. READER data bases, deployment of buoys etc). Like ACE, AGCS is deeply involved in the IPY. An AGCS session is planned for the next EGU session, and involvement of AGCS in IUGG is planned.

Delegates noted that a recent paper to be published in Science shows little change in Antarctic precipitation. Nevertheless, Delegates recognized that because of the multiple variables involved we still lack a clear position statement on Antarctic ice sheet mass balance. AGCS works closely with other groups (such as CliC), which work with remote sensing data on changes in the ice sheet mass balance, and which also consider the effects of ice melt on changing sea-level. In that context SCAR had recently co-sponsored a WCRP workshop on "Understanding Sea Level Rise and Variability" (June 6-09, Paris, 2006), information about which is given at <http://copes.ipsl.jussieu.fr/Workshops/SeaLevel/index.html>.

Action 23: ISMASS should be tasked with providing a clear picture of Antarctic ice sheet mass balance.

Delegates stressed the need to combine the results of SALE with those of AGCS.

5.3 Report on EBA Evolution and Biodiversity in the Antarctic (WP19)

Ad Huiskes, a member of the EBA Steering Committee, summarised EBA progress and plans. EBA is organised into 5 work packages, each of which has a mini-steering committee:

- Evolutionary history of Antarctic organisms
- Evolutionary adaptation to the Antarctic Environment
- Patterns of gene flow within, into and out of the Antarctic, and consequences for population dynamics: isolation as a driving force
- Patterns and diversity of organisms, ecosystems and habitats in the Antarctic and controlling processes
- Impact of past, current and predicted future environmental change on biodiversity and ecosystem function

He presented some scientific results, and noted areas that require technological advances (e.g. satellite transmitters on elephant seals). EBA has a wide range of cross-disciplinary interactions with SCAR biology/geology/glaciology/climate modelling groups, as well as having international links (e.g. to the longitudinal ecosystem gradient projects covering the area from the Antarctic Peninsula to Victoria Land). Delegates recognised that problems were caused by the lack of taxonomists. Malaysia stated that it has a strong position in taxonomy and could contribute taxonomic assistance to EBA. Delegates recommended that thought be given to creating projects based on cross-linkages and interactions between EBA and glaciologists, sea ice scientists and climate scientists; this process might be stimulated by having EBA make presentations at EGU and AGU meetings.

Action 24: EBA should (i) propose a session (e.g. on evolutionary adaptation) to the AGU meeting in 2007, and (ii) work with Malaysia to find candidates (taxonomy experts) to appoint to EBA.

5.4 Report on ICESTAR Inter-hemispheric Conjugacy Effects in Solar-Terrestrial and Aeronomy Research (WP20).

Maurizio Candidi, a member of the ICESTAR Steering Committee, summarised ICESTAR progress and plans. ICESTAR aims at a comprehensive understanding of the solar-terrestrial system, and the Polar Regions are the best places on Earth to conduct this kind of research. ICESTAR submitted around 40 papers to the OSC in Hobart, it co-sponsored sessions during recent EGU and AGU meetings, and it is one of the core IPY programmes. The group has established links to several other scientific groups working on related topics. A study of conjugacy in aurorae that was carried out in both Polar Regions was presented as an example of why this research has to be undertaken in the Polar Regions.

Delegates suggested that ICESTAR should develop links to the new Standing Committee on Antarctic Geographic Information (SC-AGI). This issue will be discussed during the cross-SSG workshop in Nov 2006. Given that one of the ICESTAR deliverables is a data portal (see WP20), it was also suggested that ICESTAR should work more closely with JCADM and provide data and information to JCADM.

Some confusion regarding the Steering Committee for ICESTAR was resolved when it became clear that the "Board of Investigators" referred to in the report was in fact the Steering Committee.

Action 25: (i) ICESTAR representative to attend SSG Cross-linkages workshop in Nov 2006 to ensure increased collaboration with SSGs; (ii) ICESTAR Implementation Plan to change "Board of Investigators" into "Steering Committee"; (iii) SCAR Executive Committee to ensure that the ICESTAR Steering Committee is fully aware of its responsibilities in the leadership of this SCAR Programme

5.5 Report on SALE Subglacial Antarctic Lake Exploration (WP21A and B)

Chuck Kennicutt, Secretary of the SALE Steering Committee, summarised SALE progress and plans. Working Papers included the SALE Performance Report (WP21A) and the Table of SALE Milestones in 2005-2010 (WP21B). The number of participants in SALE has increased. Two Programme meetings and one workshop have been held (in Vienna in 2005 and in Grenoble in 2006) where progress on SALE scientific themes was discussed. SALE is evolving and faces new challenges, as samples from subglacial lakes will be taken in the near future. SALE will be actively involved in the IPY. Several meetings and workshops are planned for 2007-2009.

Among the latest scientific findings in sub-glacial lake exploration we now know that:

- Subglacial lakes are common features (145 lakes currently known);
- There is a broad spectrum of subglacial environments;
- There are subglacial hydrologic systems;
- Subglacial lakes and ice streams are linked;
- There is evidence for past outbursts of subglacial waters.

SALE is linked to other SCAR programmes, mostly via participants involved in linked groups (e.g. ACE, EBA). Currently SCAR is the only body in a position to provide international coordination of drilling into subglacial lakes. A comprehensive survey of the hydrological system at the interface with the bedrock under the ice sheet will be a grand challenge for the future, as ice sheet dynamics may be dependent on the behaviour of that system.

6. SCAR FUNCTIONS

6.1 Internal Business

Action 26: In future the Secretariat will make meeting documents and budgets available in WORD or EXCEL (as well as .PDF) to enable Delegates to annotate their copies electronically.

6.1.1 Draft of New SCAR Legal Arrangements (WP22, WP23, WP24, WP25)

ICSU requires all of its Interdisciplinary Bodies, including SCAR, to establish themselves as separate legal entities. To establish SCAR as a legal entity with charitable status in the UK requires that SCAR be transformed into a Company Limited by Guarantee, and approved by the Charity Commissioners. This requires that the Constitution and some of the Rules of Procedure be converted into a Memorandum of Association (WP22), and Articles of Association (WP23). Most of the Rules of Procedure (WP24), however, remain unchanged. WP25 comprises a set of explanatory notes provided by the legal firm.

Delegates did not have a problem in principle with the proposed change, but identified some specific points that need to be examined in relation to the status and powers of the Directors of the Limited Company. It was agreed that a small inter-sessional *ad hoc* working group should be formed to work with the Executive Director to examine the proposed Memorandum and Articles of Association and Rules of Procedure in relation to the present Constitution and Rules of Procedure, so as to identify topics for further discussion with SCAR's legal advisors. The *ad hoc* group should be provided with other examples of organisations (including those parented by ICSU, as well as an IUCN example) that had undergone similar transformations under UK law, to see what could be learned from them. The findings of the *ad hoc* group would be communicated initially to the Executive Committee meeting in July 2007 for consideration.

Action 27: An ad hoc working group comprising F. Davey (NZ), A. Rocha-Campos (Brazil), A. Samah (Malaysia), J. Dowdeswell (UK), one new Vice President, and the Executive Director will examine the draft legal arrangements and make recommendations to the Executive Committee at its meeting in July 2007.

Action 28: The Secretariat will (i) find out from ICSU what the deadline is for the establishment of a new legal status; (ii) provide examples of other transformations of the legal status of academic organisations in the UK; and (iii) provide "side-by-side" presentations of the present Constitution and Rules of Procedures with the new documents to make it easy to see what changes are suggested.

6.1.2 Progress in implementing the SCAR Strategic Plan (IP04)

Delegates at XXVIII SCAR had agreed that, as recommended in the Strategic Plan, SCAR should develop strategic plans for communications (outreach), for capacity building (education and training), and for data and information management.

6.1.2.1 Communications (IP05, IP 21) (WP26, WP27)

Delegates noted that the SCAR Communications Plan (IP05) has been published. It is designed to help the Secretariat and National Committees to improve the public's perception of the importance of scientific research in Antarctica, in the funding of that research and of SCAR's efforts to coordinate it internationally, and in SCAR's profile and image in the wider community.

As one element of the Plan, considerable effort has gone into improving and maintaining the SCAR website. To make the SCAR web site more uniform the Secretariat will take over maintaining and updating web pages for individual SSGs. Hits on and downloads from the SCAR web page continue to rise, from 16,700 in January 2004 to 121,100 in March 2006 (IP 21).

SCAR also communicates through formal publications, a list of which was given in IP 06. As agreed at XXVIII SCAR, the SCAR Bulletins and Reports are now published in electronic form only, to save costs. National Committees are encouraged to distribute the Bulletin and Reports nationally, and to appraise their national polar libraries of the availability of the Bulletins and Reports on-line.

SCAR is now publishing regular news items on the SCAR web page, producing a quarterly Newsletter, and contributing to the ATS Newsletter. The SCAR Newsletter also contains submissions from the SSGs.

Action 29: Delegates and National Committees to distribute the electronic SCAR Bulletins, Reports and Newsletters nationally, e.g. through their polar libraries.

Action 30: Secretariat and/or Chief Officers to arrange for contribution of articles to EGU news, and Union newsletters (such as IUBS News).

Delegates noted that SCAR had published the keynote papers from the Bremen OSC as a Special Issue of Antarctic Science, which was distributed to attendees at the OSC in Hobart. The Hobart keynotes were not considered appropriate for a similar issue. SCAR had also improved contacts with the media in 2005, with three articles published in EOS.

Action 31: Secretariat to write up a report on the OSC for publication in EOS.

Delegates noted that some countries are already applying the Communications Plan at the national level and already have SCAR web sites, for example Spain and the USA.

Action 32: Delegates to work with national committees to implement the Communications Plan widely at national level.

Delegates at SCAR XVIII called for the drafting of a brochure as a communications tool, and, as a first step, to produce a joint brochure with COMNAP (WP27).

Delegates noted that the draft brochure missed any statement of the origins of COMNAP and SCALOP from within the SCAR logistics group. They also noted the existence of a separate COMNAP brochure with a similar text, which had been circulated at the recent ATCM and in Hobart. It was suggested that while the text of the joint brochure should be retained on the web site, it should not be published as a brochure but used as the basis for the text of an eventual SCAR brochure or brochures that should be made with a target audience firmly in mind.

Action 33: Secretariat to draft a separate brochure on SCAR, for consideration by the Executive Committee at its meeting in July 2007.

6.1.2.2 Capacity Building and Education (WP 28)

One element of the strategy for capacity building, education and training is the Fellowship Programme (see agenda item 6.1.2.3). A new element is the link with the International Antarctic Institute (IAI). During the XXIX Hobart meeting SCAR became an Associate Member of the IAI, which is a “virtual” university comprising the Antarctic science courses of a number of universities and institutes around the world, operating under the lead of the University of Tasmania. Delegates agreed that the strategy (WP 28) should be published following some improvements to the text.

Action 34: Executive Director to work with Sergio Marensi to improve the wording of the capacity building strategy before it is published.

SCAR Delegates who were also members of COMNAP stated that they were sure that there was a strong interest within COMNAP for a joint initiative between SCAR and COMNAP in the area of education, training and outreach. It was decided therefore to retain the concept of a joint SCAR and COMNAP approach in the published strategy document.

Action 35: Delegates to encourage National Committees to work with their COMNAP counterparts to develop a common approach to education, training and outreach.

Delegates noted with approval the October 2005 visit of the Executive Director to the National Committees of Malaysia, China, Korea and Japan, to raise awareness of SCAR programmes, and encourage greater participation in them from national scientific communities. Delegates agreed that such regional visits were useful, and some dates for a possible visit to South America were suggested.

Action 36: Executive Director to consult appropriate delegations about the possibility of visiting National Committees in South America.

6.1.2.3 Fellowship Programme (WP29)

Delegates noted that 4 fellowships had been awarded for the 2005-6 season, and a further 5 for the 2006-7 season. Delegates discussed SCAR’s joint proposal with the International Polar Foundation (IPF) for a capacity building initiative for the IPY. The proposal (the 6th Continent Initiative), which had been approved by the IPY Joint Committee, would involve assigning some of the SCAR Fellowships to enable developing countries to undertake programmes involving limited fieldwork in the Antarctic. Delegates agreed that 2 fellowships per year could be allocated to the 6th Continent Initiative project for the 2007-8 and 2008-9 seasons as contributions to the IPY, provided that the proposals met the

rigorous criteria for the allocation of a SCAR Fellowship, and that the IPF found the financial support required to cover logistics. The fellowships will need to be advertised earlier than usual to take into account the advanced planning needed for fieldwork. In general, the call for fellowships should also request information on what national committees are prepared to provide in the way of additional support for each fellow.

Action 37: Secretariat to adapt the fellowship announcement for 2007-8 to take into account the requirements for fieldwork and advanced planning.

6.1.3 Action Group on the History of Antarctic Research (IP07)

Delegates would have preferred to see a more comprehensive plan indicating what the end product was going to be and how it was going to be attained. This group should produce a comprehensive final report on its deliberations in time for XXX SCAR in St Petersburg.

Action 38: Secretariat to encourage the History Group (i) to produce a more focused work plan and an indication of the nature of the final product expected in 2008, (ii) to liaise with those who are familiar with the geopolitics surrounding the IGY, and (iii) to correct the statistics in the current report.

6.1.4 National Reporting to SCAR

6.1.4.1 Reports and Relevant News from the National Committees

Delegates reported briefly on progress within their National Committees. Several delegations announced that they were bringing new young people onto their committees. Several delegations have developed national web sites advertising their activities. Some delegations are holding national conferences or workshops to show people what SCAR is, and how it works nationally and to engage their scientific communities. Several delegations reported on how they were promoting Antarctic research to government and funding agencies, using IPY as an opportunity to attract both attention and funding. South Africa is planning a workshop in November to advertise to other African countries the opportunities offered for Antarctic research by the SANAE-IV station.

6.1.4.2 Status of National Reporting to SCAR (WP 30)

The Executive Director pointed out that an update was needed to the graph in Working Paper 30 showing the current status of National Reports to SCAR, as many more reports had now been received for 2004-2005.

Action 39: Secretariat to (i) update the graph of national report submissions in WP 30; (ii) make it clear in calling for national reports that they are to cover the July-to-July period (e.g. for 2005-2006, rather than for 2005); (iii) provide web links on the SCAR web site to all national programme web sites.

6.1.4.3 New Template for Reporting (WP 31)

Delegates agreed that as the new template for use in national reporting focused exclusively on what countries were doing in the context of SCAR there was merit in continuing to gather this information, but that it should be done if possible in conjunction with the collection of reports by and for the SSGs, to avoid duplication. A new 'box' is needed on the template for "any other information", which could include among other things the URLs of the national programme web sites. The numbering system needs to be clarified. It would be useful if the Secretariat would provide an example of what a completed form should look like.

Action 40: Secretariat to work with SSG Chief Officers and Executive Committee to simplify and improve the national reporting template, and to provide an example of what a completed form should look like.

6.1.5 Activities of the Executive Committee, including Joint Meetings with COMNAP Executive

Notes on the activities of the members of the Executive Committee since XXVIII SCAR are given in the President's oral report, under agenda item 2.

Delegates noted that the SCAR and COMNAP Executive Committees had met jointly (i) in Sofia, Bulgaria, 13 July 2005 (WP09), and (ii) in Hobart, 13 July 2006 (WP11). At each meeting actions had been identified to take the collaboration forward during the inter-sessional period. As a result, SCAR and COMNAP were working closely and effectively together in areas of mutual interest – for example with the joint meeting of the SCAR and COMNAP medical groups in Hobart. COMNAP was formally represented at XXIX SCAR by Jose Retamales (Chile), the chairman-elect of COMNAP, acting as a COMNAP observer. For the future, SCAR needs to work with COMNAP to rearrange the schedule of the joint biennial meetings, so as to reduce the overlap between the currently parallel SCAR and COMNAP meetings.

Action 41: (i) links with COMNAP should appear as a discrete agenda item; (ii) COMNAP should be regularly invited as an observer to SCAR meetings; and (iii) the two secretariats should come up with an improved plan for the biennial meetings.

6.1.6 Activities of the SCAR Secretariat (IP08)

Delegates noted and endorsed recent developments in staffing the SCAR Secretariat, and expressed their gratitude to the Scott Polar Research Institute (SPRI) for hosting the Secretariat. Delegates applauded the idea that Members should consider seconding young scientists to the SCAR Office to gain experience of working in international scientific relations. A short-term posting of this kind would offer the advantage of access to the world-renowned SPRI library, facilities and lectures, as well as to Cambridge University library, to networking with researchers from SPRI and the British Antarctic Survey (BAS), and possibly also to working in addition within the IPY Project Office housed at BAS. Such young researchers could then act as SCAR ambassadors when they returned home. The Director of SPRI, Julian Dowdeswell, welcomed the prospect of hosting such researchers as part of the SCAR Secretariat at SPRI. Delegates noted that cost could be a stumbling block, and that secondments might need subsidies to recognise the costs of living in Cambridge. This needs to be considered by the Finance Committee as and when the need arises.

Action 42: Secretariat to (i) develop a flyer explaining the secondment programme and circulate it to National Committees to explain the mechanism; and (ii) discuss with the Director of the IPY International Project Office the possibility of sharing secondments from SCAR Members.

6.1.7 Awards (IP09)

Delegates noted and approved progress with the awards scheme, which had received much positive feedback. During the opening ceremony of the OSC, the President had awarded: the President's Medal to Peter Barrett (NZ); the SCAR Medal for Excellence in Antarctic Scientific Research to Paul Mayewski (USA); and the SCAR Medal for International Scientific Coordination to David Walton (UK). During the Executive Committee's meeting in Sofia (July 2005), the President had awarded Peter Clarkson, the former Executive Secretary of SCAR, a "Certificate of Appreciation" for outstanding service.

Action 43: Prior to XXX SCAR, Secretariat to formally request National Committees and Delegates to propose candidates for awards in 2008.

6.1.8 Document Repository

Delegates noted with thanks that the Norwegian Polar Institute had offered to house the second SCAR document repository in Tromsø, the primary repository being at SPRI in Cambridge.

6.1.9 Expert Group on Geographic Information (EGGI) (WP 16A and addendum)

H. Brolsma of the Australian Antarctic Division made a presentation on the proposal to change the EGGI into the Standing Committee on Antarctic Geographic Information and to move it out of the SSG-Geosciences to become a freestanding group under the aegis of the Delegates Committee on Administration and Outreach. EGGI is a support services group with a 'permanent' character, not a scientific research group with a limited life. Its links and contacts are largely outside the national scientific research structures. In effect it is a specialised group rather similar in kind to JCADM. Geographic information groups do exist as separate elements within individual national Antarctic institutions (like AAD).

Noting their earlier comments under agenda item 4.1, Delegates approved the new designation of the former EGGI as the Standing Committee on Antarctic Geographic Information (SCAGI), but wish to revisit this decision in 2 years to find out if the group functions as it should and if there should be even closer relation with JCADM. There also should be closer link to National Committees and people who work with place names.

Action 44: At XXX SCAR revisit the decision to make EGGI into the Standing Committee on Antarctic Geographical Information, on a provisional basis, with strong links to JCADM.

6.2 External

6.2.1 Report and Recommendations of Standing Committee on ATS (IP10,IP11,IP12,IP13,WP32)

David Walton (UK) introduced this item, noting that he will retire as chair SC-ATS at the end of this meeting, to be replaced by Steve Chown (S. Africa). The SC-ATS will then comprise S. Chown, C.Kennicutt (USA), S. Marensi (Argentina), G. Hosie (Australia) and H. Miller (Germany). In addition the work of the SC-ATS will continue to be supported by experts co-opted as appropriate from the SSGs.

Delegates noted and endorsed the reports of the SCAR Observers at XXVIII ATCM (Stockholm, June 2005)(IP 10), and XXIX ATCM (Edinburgh, 2006)(IP 11). They noted that SCAR's visibility in the Treaty system has measurably improved in recent years. More could be done, but we have been very successful of late, not least due to the efforts of David Walton, and the awareness of SCAR among Treaty Parties has been significantly raised. Amongst the issues raised was the noisiness of the acoustic environment in the Southern Ocean, which is an important consideration in evaluating the effects of noise on cetaceans in the Southern Ocean. The SCAR lecture is a very effective way of engaging the ATCM in what SCAR is doing. It would be useful to develop a SCAR poster to accompany the lecture.

Action 45: Secretariat to work with the SCAR Lecturer to develop a poster to go with the SCAR lecture to the 30th ATCM.

David Walton then introduced the paper on the future of the SC-ATS (WP32), noting some slight changes to the plans as listed in the document, for example the SCAR medical group will help to produce a paper on pathogens. Some Delegates expressed concern about the high volume of work that SCAR is doing for ATCM and CEP, and advised care in the selection of papers, which have to be ready 45 days ahead of time. David explained that we cannot and do not accept to work on all suggestions made at ATCM or CEP meetings, but only where we have unique information suitable as advice for policy makers and governments, where we believe that SCAR's interests are well served in providing scientific information on particular areas, and where we are specially requested to do something that we are better able to do than are other organisations. We have unique datasets not available to Treaty Parties, and the opportunity to provide data in an independent format in order to inform CEP about the science that needs to be understood before legislation is designed. David then explained the rationale for each item on the proposed work programme (WP 32).

Action 46: SC-ATS to ensure that its workload is manageable, and to be sure to submit documents on time.

Action 47: David Walton to adapt WP 32 to reflect the changes made to the work programme for 2007.

Delegates noted that given the need for even closer working relations between SCAR and the CEP, the new chairman of the CEP, Neil Gilbert (NZ), had been invited to attend the Delegates meeting in Hobart, but was unable to do so. There will be a standing invitation to the Chair of CEP in future to attend SCAR Delegates meetings as an observer.

Action 48: Secretariat to invite CEP Chair to future biennial meetings.

Delegates thanked David for his many contributions, thanked Michael Stoddart for his contribution to SC-ATS, and approved the plans for 2006-7.

6.2.2 Report of Interactions with CCAMLR, ACAP and IWC (IP14)

Delegates noted that because SCAR holds a unique database, SCAR has become an observer to the Advisory Committee to the agreement on the Conservation of Albatrosses and Petrels (ACAP). SCAR is also holding discussions with the International Whaling Commission (IWC) Secretariat about possible linkages. Both organisations have an interest in the effects of noise on cetaceans.

Delegates also noted that SCAR is closely linked to CCAMLR's work on krill, especially in the context of SCAR's CAML programme. Dr Siegel of CCAMLR has been invited to become a member of the CAML Steering Committee, and common sampling protocols have been developed. CCAMLR's IPY samples will contribute to CAML's survey. CCAMLR is very interested in SCAR's MarBIN project as something of potential usefulness to the management of the fisheries in the region. We need to develop closer links between CCAMLR and other SCAR programmes. SCAR has traditionally supplied CCAMLR with data on land-based predators. At this point in time CCAMLR is revising its requirements for these data, and in due course will let us know what they need. SCAR is invited to attend a CCAMLR workshop on this topic in 2007/8. CCAMLR is keen to work with SCAR and others to broaden its access to experts, and will be inviting SCAR experts to selected workshops in the future. SCAR should also invite CCAMLR experts to appropriate scientific meetings. SCAR will continue to work with CCAMLR on establishing requirements for Marine Protected Areas. To further strengthen links between SCAR and CCAMLR, the SCAR Executive Director will attend the CCAMLR meeting in Hobart in October 2006.

Delegates noted that CCAMLR's data policy makes data available on request via the CCAMLR Secretariat, provided this is acceptable to the national committee that holds the data.

Action 49: Secretariat to write to CCAMLR to ask if they can make the metadata about CCAMLR data available to CAML and SCAR MarBIN and JCADM.

Delegates noted that the Chair of the Scientific Committee of CCAMLR (Edith Fanta) had been invited to attend the Delegates meeting in Hobart, but was unable to do so.

Action 50: Secretariat to invite the Chair of the CCAMLR Scientific Committee to attend future Delegates meetings as an observer.

Delegates approved of the way in which links were developing with CCAMLR.

6.2.3 Partnerships with Other Organisations

6.2.3.1 ICSU, including ICSU Unions, SCOR, SCOSTEP, IGBP and WCRP (WP33) (IP15) (IP22)

On behalf of the President of ICSU, who had been unable to attend the meeting, Prof. M.N. Hasan (Director of ICSU's Regional Office for Asia and the Pacific) introduced Delegates to the new initiatives that ICSU is developing. ICSU is in the process of reviewing its major bodies – the International Geosphere Biosphere Programme (IGBP), the World Climate Research Programme (WCRP), and the International Human Dimensions Programme (IHDP), and will also review their interactions with ICSU's interdisciplinary Bodies such as SCAR. This should lead to stronger links between ICSU's global research bodies and SCAR.

The Executive Director had attended the 28th ICSU General Assembly in Suzhou, China (October 18-21, 2005), and made a brief presentation on developments in SCAR, with particular reference to SCAR's involvement with the International Polar Year and SCAR's reorganisation.

On behalf of the President of ICSU's Scientific Committee on Oceanic Research (SCOR), Julie Hall (Secretary of SCOR) discussed the work of SCOR and of the SCAR/SCOR Expert Group on Oceanography. A key objective of the joint group was to develop a plan for a Southern Ocean Observing System, which would be a legacy of the IPY. Delegates were pleased to see SCAR's growing involvement in Southern Ocean science, and especially the linkages with SCOR. With regard to the proposed SCOR/SCAR Working Group on Iron Fertilisation Experiments, SCAR is keen to be seen as a co-sponsor of the activity but does not immediately have funds available to offer in support of co-sponsorship of the proposed working group. SCAR is keen to collaborate with SCOR and the members of the proposed working group in fundraising towards realisation of financial co-sponsorship by both SCAR and SCOR.

Delegates noted that Maurizio Candidi (Chief Officer of SSG-PS) is the SCAR representative on ICSU's Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) Bureau, and provides a key link between SCOSTEP and SCAR programmes, such as, ICESTAR. The main SCOSTEP programme is on Climate and Weather in the Sun Earth System (CAWSES) which links to and is complementary to ICESTAR.

Delegates also noted that Chuck Kennicutt is working with SSG-LS and SC-ATS to encourage connections between SCAR's activities and those of ICSU's Scientific Committee on Problems of the Environment (SCOPE), as the basis for future joint projects.

Delegates appreciated that efforts were being made to strengthen the linkages between SCAR's science and that of SCAR's ICSU Union Members, and agreed with the suggestions proposed in document WP 33. Roland Schlich, the representative of the IUGG, noted that SCAR's SSGs need to give some thought as to what they expect from the liaison with the individual unions. He regularly reports to IUGG on SCAR activities. Maurizio Candidi suggested that the International Astronomical Union might be interested in becoming a union member. SSG-LS is proposing to write articles on SCAR for the IUBS newsletter. Delegates noted that several unions were involved in the development of the International Year of Planet Earth (IYPE).

Action 51: (i) SSG Chief Officers to decide what they want from the individual unions, in the context of the recommendations of WP 33; (ii) M. Candidi to explore with the International Astronomy Union the possibility of their joining SCAR

Action 52: SSG-GS to consider possible links between SCAR and IYPE.

Delegates noted that SCAR had formed strong links with the component programmes of ICSU's umbrella IGBP and WCRP programmes relating to global change research in the Antarctic region (IP15). As part of its Memorandum of Understanding with the WCRP, SCAR had become a co-sponsor of the WCRP's Climate and Cryosphere (CliC) programme. Vicky Lytle, Director of the CliC Project Office, reported on the activities of the CliC programme (IP 22).

Delegates noted with approval and endorsed SCAR's growing relationships with ICSU and its various bodies.

6.2.3.2 IGOS Partners and GEOSS (IP16)

Marzena Kaczmarek described SCAR's involvement in the production of a bipolar strategic plan for cryospheric observations, as a contribution to the work of the Integrated Global Observing Strategy (IGOS) Partnership, which includes ICSU, IGBP, WCRP, UNEP, WMO, FAO, IOC, UNESCO, and the space agencies (IP 16). SCAR's work on this document takes place under the aegis of ICSU, which is an IGOS Partner. The activity is led by SCAR (for ICSU) and WCRP's Climate and Cryosphere (CliC) programme. Implementation of the new Cryosphere observing strategy will improve the provision of cryospheric data for SCAR's science programmes.

Both the Southern Ocean Observing System (mentioned in 6.2.3.1) and the Cryosphere Observing System will contribute to the Global Earth Observing System of Systems (GEOSS), which is run by the international Group on Earth Observations (GEO) (<http://earthobservations.org/>) and endorsed by government ministers.

Delegates noted with approval and endorsed SCAR's involvement in the development of observing systems that contribute to the GEOSS.

6.2.3.3 IASC (WP34)

Delegates approved the proposal for a Letter of Agreement between SCAR and the International Arctic Science Committee (IASC), which had recently become affiliated to ICSU, and the idea that SCAR and IASC should work together on the development of a bipolar theme for the OSC in St. Petersburg. The IASC President was represented at the Delegates meeting by Steve Bigras (the Canadian SCAR Delegate), who welcomed the proposed linkage. The President duly signed the Letter of Agreement between SCAR and IASC.

Action 53: SCAR and IASC Secretariats to work together (i) on the plans for a joint SCAR-IASC Open Science Conference with a bipolar theme for XXX SCAR, and (ii) on implementing other provisions of the SCAR-IASC Letter of Agreement

6.2.3.4 IPICS (WP35)

As mentioned in agenda item 4.3, in accordance with Recommendation XXIX-SSG-PS-1 (Appendix 3), Delegates approved the proposal that SCAR should co-sponsor IPICS, the International Partnerships in Ice Core Science, a bipolar initiative that brings together the scientists planning the way ahead in ice core science for the next 15 years. There are strong real or potential links between IPICS and SCAR's AGCS (ITASE) and ACE programmes.

6.2.3.5 IPY (IP17)

Delegates noted with approval that SCAR is playing a considerable role in the design and implementation of the IPY (IP17). SCAR is either leading or involved in 70% of the Bipolar or Antarctic natural science projects approved by the IPY Joint Committee. SCAR's 5 scientific research programmes lead project clusters for the IPY, and the Chief Officer of JCADM has been appointed a co-chair of the IPY Data and Information Management Subcommittee. Principal Investigators are now applying to their national committees for funds.

6.3 Finance

Chuck Kennicutt, the Chairman of the Finance Committee, introduced these items.

In accordance with the rules of procedure, observers left the meeting during discussions on item 6.3.

6.3.1 Report of the XXIX SCAR Committee on Finance (WP36)

Among other things the Finance Committee had (i) examined the financial procedures proposed for the management of the accounts by the Secretariat; (ii) noted that a new template has been devised for reporting on budget and other financial issues; and (iii) noted that a procedure has been established for providing Chief Officers with quarterly reports to help them to manage their budgets.

Chuck Kennicutt summarised for Delegates the draft report of the XXIX Finance Committee (WP36), a final version of which will be circulated to Delegates after the meeting. Delegates endorsed the report in principle.

6.3.2 Financial Statements for 2004 (WP 37) and 2005 (WP 38)

Delegates endorsed the financial statements. They noted that SCAR has gained some flexibility from the voluntary extra contributions from the UK and Germany, and from receiving a management fee for handling the Sloan Foundation grant for the Census of Antarctic Marine Life (CAML) programme (US\$1.3 million over 4 years). This flexibility has allowed SCAR to continue the SCAR Fellowship Programme and to employ the Executive Officer as a replacement for Peter Clarkson, without substantially depleting the reserve. Funds are set aside for the travel of the Executive Committee only in inter-sessional years. Funds are also set-aside for the Chief Officers of the SSGs, SC-ATS and JCADM to join the Executive Committee at its inter-sessional meeting. The closing balance for 2005 was slightly higher than the opening balance, because of significant under spending by the science groups, which partly reflects the fact that the SRPs were in a start-up phase in 2005. Legal fees related to the legal status of SCAR in the UK increase administrative costs in 2005. The former emergency reserve is now called the Endowment Fund, with the interest supporting the Fellowship Programme. Higher interest on the endowment will accrue once SCAR becomes a Charity. Excluding the Sloan grant, about half of SCAR income supports science and half administration.

Some delegations expressed the view that the Sloan money should be categorized separately so that it doesn't distort the budget figures. Others considered that the Sloan money provided a good indication that SCAR was attracting external support for its science.

Some delegations suggested that in other similar organisations the ratio of science to administrative expenditure was slightly higher. However, Delegates noted that SCAR's mission to provide advice to the ATCM required funds that otherwise could support science.

Some delegations felt that the budgets were too detailed. Canada noted that the budgets were comprehensive and easy to understand. New Zealand very much appreciated the level of detail provided. It would be useful to have an abbreviated (one page) budget as well as the detailed one in future.

Some delegations considered that all of the travel expenses listed for the Secretariat staff belonged under administrative costs not under science. Others recognised that the present Secretariat officers carried a scientific as well as a purely administrative function.

Delegates noted with approval that the Secretariat now provides SSGs and SRPs with quarterly reports, allowing for more orderly expenditures.

Delegates agreed that carry forwards should be allowed for within the biennial budget cycle, but called for a policy to be established to place limits on carry forwards.

Action 54: For the future, Secretariat to (i) provide budgets in a condensed form as well as the detailed budgets; (ii) consider how to assign the scientific or administrative travel of the staff within the budget; and (iii) propose to the Executive Committee a mechanism/ policy for approving requests for carry-forward.

6.3.3 Revised Budget for 2006 (WP39)

Delegates noted that the revised budget for 2006 took into account the new levels of national contributions that took effect on January 1, 2006. The pattern of spending was much the same as in 2005. During the first half of the year the science groups were under-spending. Legal fees were high, but were unlikely to be high in the future. Delegates noted with pleasure the increase in category from D to C by the Republic of Korea, and approved the budget for 2006.

Action 55: Secretariat and Finance Committee to develop one page forms for (i) budget requests (using existing forms); and (ii) carry forward requests, for use by the SSGs and other groups.

Action 56: Secretariat and Finance Committee to develop a paper explaining the rationale behind funding different major activities (e.g. the block allocations to SSGs and to SRPs).

Action 57: Secretariat and Finance Committee to develop a mechanism for providing information on cash flow.

6.3.4 Budgets for 2007 and 2008 (WP40 and 41)

Chuck Kennicutt showed Delegates revised draft budgets for 2007 (WP40 rev) and 2008 (WP41 rev). Income had been increased to reflect changes in contribution levels and related factors. Expenditure had been increased (i) to include the agreed expenditure requests from SSGs; (ii) to provide for a yearly budget item (\$10,000) for future large conferences, which can be applied for by SSGs as needed; and (iii) to allocate funds for the new SC-AGI. Travel to scientific meetings by the Secretariat was reduced. Carry forwards will be returned to the SCAR general fund if still unspent in 2008.

For the future, Delegates wish to see the status of the underlying reserve listed separately from the unspent amounts carried forward.

Action 58: Finance Committee and Secretariat to consider ways of displaying the underlying reserve as separate from the carry forwards.

Delegates noted with pleasure the increase in category from D to B by Spain, and approved the budgets in principle, recognising that they will be adapted by the Executive Committee as appropriate in response to changing circumstances.

6.3.5 Financial Strategy (WP42)

The Executive Director introduced the Financial Strategy paper, which discussed the current and projected financial situation of SCAR, noting the effect of savings, the effect of increased national contributions in 2006, the possibilities for gaining additional Members, and the options for obtaining additional funds from external sources.

Delegates welcomed this look ahead at SCAR's potential funding profile, and agreed that SCAR needs to take a professional approach to fund-raising. They recognised that this is not a trivial task, and that there is likely to be a lot of competition for funds. They also recognised that many foundations have complex requirements – e.g. some foundations do not allow money to be spent outside of their home country.

Unfortunately there was insufficient time for a detailed examination of the Financial Strategy, and the critical issues that it raised. Delegates therefore approved the strategy in principle, while recommending that the issues that it raised be looked at further by the Secretariat and the Executive Committee with a view to developing an action plan for non-controversial issues, and to undertaking further consultation on issues of concern.

Action 59: Secretariat and Executive Committee to develop a plan for implementing the financial strategy, for the Executive Committee meeting in 2007.

Action 60: Secretariat to provide a table of annual contributions and categories at each Delegates meeting

7. FUTURE MEETINGS

7.1 SCAR Executive Meeting (Washington DC, USA July 2007)

The Delegate of the USA invited the SCAR Executive Committee to meet in parallel with the COMNAP XVIII meeting to be held in Washington DC, USA, during 8-13 July 2007. The Chief Officers of the SSGs and Standing Committees will be invited to participate in the Executive Meeting. A joint meeting of the SCAR and COMNAP Executive Committees will be held during this time.

Action 61: Secretariat to plan for the Washington meetings in 2007, with the Chief Officers, Executive Committee, COMNAP, and the US hosts.

7.2 XXX SCAR (Russia 2008)

The Russian Delegation described possible arrangements for XXX SCAR in July 2008, noting plans to hold the Science Week, including the Open Science Conference, in St Petersburg, and the Delegates Meeting immediately afterwards in Moscow, with the alternative of separating the two and holding the Delegates Meeting in October. The Open Science Conference will be hosted by the Arctic and Antarctic Research Institute, Rosshydromet. The Delegates Meeting will be hosted by the Russian Academy of Sciences.

Delegates approved the holding of XXX SCAR in Russia, and thanked Russia for its generous offer. Delegates discussed the model for the meeting, and agreed that it should be back-to-back in St Petersburg and Moscow in July 2008. The OSC should be extended by one day. The SSG meetings should take place before the OSC so as to allow Chief Officers time to prepare their reports for the Delegates Meeting. The lengthening of the OSC should be compensated by a decrease in the number of days for SSG business meetings so there is no net increase in duration.

Delegates agreed that XXX SCAR should have a bipolar theme on “Polar Research – Arctic and Antarctic Perspectives in the International Polar Year”, which would be jointly organised with IASC (see agenda item 6.2.3.3).

Arrangements for the meetings in Russia will be made using the recently revised “Guidelines for Hosting a SCAR Meeting” approved at XXVIII SCAR, and available on the Members page of the SCAR web site.

With advice from Ian Allison (local organiser of the Hobart meeting) Delegates discussed lessons learned from the organisation of XXIX SCAR. For instance we should not change the opening format, the keynote talks, the focus on SCAR science themes, and the balance between oral and poster sessions. It should also be recognised that there are some things that we cannot change – e.g. it is always likely that the bulk of the abstracts for the OSC will arrive within the last week before the last deadline.

Some changes would be necessary – e.g. in future:

- i. All sessions should be held in the same basic venue to avoid having to walk between buildings to attend different sessions;
- ii. There should be fewer parallel sessions;
- iii. The cost of the meetings should be kept as low as possible, especially for young scientists;
- iv. SCAR should consider providing (or finding) some resources to subsidise the attendance of students (a proposal to do so in Hobart had unfortunately been rejected);
- v. More thought needs to be given to the way in which the poster sessions are organised in space and time, so as to get the best out of them;
- vi. An extra day should be added to the OSC;
- vii. The themes should be decided in advance by the SSGs;
- viii. It is better to have a printed abstract volume than a CD (even better to have both), because a printed volume is easier to scan when deciding which talk to attend next.

The President reminded Delegates that SCAR celebrates its 50th anniversary in 2008, which will need to be taken into consideration in planning the programmes for XXX SCAR. Michael Stoddart (Australia) tabled a paper describing an idea for production of a commemorative volume to celebrate the 50th anniversary, celebrating what SCAR had done both in Antarctic science and in providing scientific advice in support of good governance. Past experience suggests that subscriptions can be raised in advance for such a book, to cover the costs. Delegates agreed that such a publication would help young scientists to learn about SCAR. Canada suggested that a photo exhibit could be

developed for XXX SCAR. The SCAR History Group should be encouraged to produce a special paper/report for XXX SCAR. SCAR should produce a special brochure dedicated to the 50th anniversary. Consideration should be given to highlighting the SCAR Fellows during the OSC, or publishing something about their experience, to highlight the programme for other young scientists. There could be a special plenary session on 50 years of SCAR science. A history session might include those who participated in Antarctic research in the IGY.

Action 62: Secretariat (i) to re-contact National Committees and the wider SCAR science community to ask for suggestions for celebrating SCAR's 50th anniversary, and (ii) to urge National Committees to arrange national celebrations of SCAR's 50th anniversary.

Action 63: Executive Committee to consider various plans for celebrating SCAR's 50th anniversary, and to consider providing a budget.

Action 64: Secretariat to work with Michael Stoddart and the Executive Committee to take forward the plan for a book celebrating SCAR's 50th anniversary, bearing in mind the need to learn lessons from the last time such a book was produced.

Action 65: Incoming President to consider awarding the next President's Medal during XXX SCAR rather than XXXI SCAR, as part of the celebration.

7.3 XXXI SCAR

An invitation to host XXXI SCAR in 2010 had been received from Argentina (May 22, 2006). Argentina has also offered to host the parallel session of COMNAP. In addition an invitation to host the SCAR meeting in 2010 was received from the USA (June 30, 2006). Delegates noted that ideally SCAR meetings should rotate between hemispheres, and accepted Argentina's gracious offer to host XXXI SCAR in 2010.

Volunteers are sought for hosting future SCAR meetings in 2012 and beyond. The USA has interests in hosting a future meeting but cannot yet commit to a date. Italy would be pleased to explore the possibility for 2014.

8. ACTIONS ARISING

8.1 Progress Against Actions from XXVIII SCAR (IP18 A, B, and C)

The Executive Director noted that 95% of the Actions of XXVIII SCAR had been completed.

During the final Plenary session Clive Howard-Williams and Jeronimo Lopez-Martinez had shown Delegates much of the draft text of the report for sections 4, 5, and 6, along with the key Recommendations and Actions from those sections, which Delegates had approved in principle pending circulation of the final draft of the report. The Executive Director had then gone through the list of all Action items, which Delegates had approved in principle. The Actions and Recommendations will form the basis for the work programme of the Secretariat and Executive Committee for the future.

8.2 Any Other Business

The Executive Director described the extensive progress made in meeting the recommendations of the SCAR Review of April 2000 (IP 20). Delegates were impressed with the considerable progress made. There were no significant outstanding actions left.

The Executive Director asked Delegates to review the SCAR Achievements document (WP26) and to provide him with feedback if gaps were recognized.

Action 66: Delegates to provide Secretariat with feedback on SCAR Achievements with reference to document WP 26, by end August.

Action 67: Secretariat to produce and circulate the draft report of the XXIX meeting within 4 weeks.

The President offered some concluding remarks, thanking Delegations and present and past members of the Executive Committee for their help over the years.

Delegates applauded the arrangements that had led to the meeting being condensed into 3 days.

The incoming President, Chris Rapley, thanked outgoing Vice Presidents Jeronimo Lopez-Martinez and Clive Howard-Williams for their efforts over the years. He observed that SCAR has undergone an 'unbelievable' transformation under Jörn Thiede's leadership, for which he is to be greatly congratulated.

Delegates showed their appreciation to the outgoing President for his efforts in taking SCAR to new heights, by electing him as an Honorary Member of SCAR by acclamation.

9. CLOSURE OF THE MEETING

The President formally closed the meeting at 1630, and invited the new Executive Committee to a short meeting.

Appendix 1: The Address to SCAR and COMNAP Delegates, delivered by the Director of the Australian Antarctic Division, Dr Tony Press, on July 12th 2006, on behalf of the Honourable Ian Campbell, Senator for Western Australia and Minister for the Environment and Heritage

Dear SCAR and COMNAP Delegates

It is with great pleasure that I welcome you to Hobart, Tasmania, for the SCAR XXIX and COMNAP XVIII meetings.

The Australian Government is a strong supporter of the Antarctic Treaty System and, as one of the 12 original parties to the Treaty, is committed to supporting the science and logistics required to investigate, understand and protect Antarctica. The Australian Government firmly believes that international collaboration and cooperation is the best way to achieve this and I am delighted to welcome so many leading scientific and logistic representatives to Hobart to further our joint understanding of the unique Antarctic environment.

Australia has long had a proud and productive record of Antarctic exploration and research. We were a founding member of SCAR when it was established in 1957 to further international scientific activity in Antarctica during the International Geophysical Year of 1957-58. Since that time, we have played an active role in the key SCAR activities of initiating, developing and coordinating high quality international scientific research in the Antarctic region. This is the fourth time Australia has hosted SCAR meetings, with previous meetings in Canberra in 1959 and 1972 and Hobart in 1988.

Australia was also a founding member of COMNAP, which was established in 1988 to ensure an exchange of practical, operational information between National Antarctic Programs and we are proud to host the COMNAP Secretariat in Hobart.

I understand that during SCAR/COMNAP 2006 many of you will also participate in the 2nd SCAR Open Science Conference, a meeting that will report the latest advances in Antarctic science and in particular the role of Antarctica in the total Earth system. With more than 700 delegates, this will be by far the largest conference on Antarctic science ever held in the Southern Hemisphere.

This level of discussion and collaboration is particularly important as we approach the start of the International Polar Year 2007-08. This substantial international cooperative program in both Polar Regions, will take place on the 50th anniversary of the International Geophysical Year, and aims to capitalise on the intellectual resources and science assets of nations worldwide to make major advances in polar knowledge and understanding.

I wish you every success during the discussions and planning meetings of both SCAR and COMNAP that will be held over the days ahead, and hope that the Open Science Conference provides further opportunities for international scientific collaboration.

Appendix 2: External Recommendations**Recommendation XXIX-1 - Concerning the Antarctic Digital Magnetic Anomaly Project (ADMAP)**

Recognising the considerable geological utility and growth of magnetic surveying in the Antarctic, and its importance for pan-Antarctic studies,

SCAR urges sponsors of magnetic surveys to archive the survey data in the digital database of the Antarctic Digital Magnetic Anomaly Project (ADMAP) for distribution to the World Data Centres and the international geoscience community.

Recommendation XXIX-2 - Concerning the Seismic Data Library System (SDLS)

Recognising the importance of making available for pan-Antarctic studies all multi-channel seismic (MCS) reflection data collected around Antarctica,

SCAR urges Delegates to work with their national Antarctic program managers and MCS data collectors to ensure that all multi-channel seismic reflection data collected by their country are submitted to the SDLS according to the timelines outlined in ATCM Recommendation XVI-12, and to ensure that all MCS data collected more than 4 years ago are received at the SDLS before the end of the IPY.

Recommendation XXIX-3 - Concerning the Agreement for the Conservation of Albatrosses and Petrels (ACAP) (replaces XXVIII-9)

Recollecting Recommendations SCAR XXVI-Biol 8, SCAR XXVII-Biol 1, SCAR XXVII-SSG-LS 13 and SCAR XXVIII-SSG-LS 3, covering threats to Southern Ocean seabirds due to mortality in long-line fisheries, and

Noting the entry into force of the Agreement on the Conservation of Albatrosses and Petrels in 2004,

SCAR urges 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 XXIX-4 - Concerning the Recording of Confidential Data from Commercial Activities

Recognising that valuable scientific data collected from Antarctica and the Southern Ocean through commercial activities such as bio-prospecting are not being released for scientific use, and that such commercial activities may not even be recorded anywhere at present,

SCAR urges National Committees to request that a metadata entry is made in the Antarctic Master Data Directory whenever possible to provide a record of all commercial activities such as bioprospecting. Such an entry should record if possible a statement about when full data disclosure could be expected.

Recommendation XXIX-5: Concerning Upper Air Meteorological Data from the Antarctic Peninsula. (replaces XXVIII-18 (see above).

Recognising 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, especially from the tip of the peninsula.

Recommendation XXIX-6: Concerning Upper Air and Ionospheric Observations Along the Antarctic Peninsula

Recognising that the Antarctic Peninsula is a unique topographic feature that may significantly interact with the tropospheric flow and thus may be a source of atmospheric gravity waves, which can propagate to **ionospheric heights**,

SCAR urges (i) countries making upper air and ionospheric observations along the Antarctic Peninsula to continue to do so regularly at least till the end of the IPY, and preferably beyond, and (ii) countries not making such measurements either to do so or to consider providing some financial support to those which do so.

Recommendation XXIX-7: Concerning Monitoring of Solar-Terrestrial Parameters During the IPY

Noting concern regarding planned closures of, and/or delays in the commissioning of, instruments such as the Antarctic SuperDARN radars, VLF receivers, magnetometers, and ionosondes, that will provide irreplaceable data during the IPY timeframe,

SCAR urges support by national funding agencies for continued operation of solar-terrestrial measuring devices, and advanced commissioning of new instrumentation to be ready for the International Polar Year (IPY).

Recommendation XXIX-8: Concerning Sea Ice Observations

Recognising the value of sea-ice observations to international climate studies,

Noting that the Antarctic Sea Ice and Climate Program (ASPECT) has developed a protocol for making standardised and quantified observations of sea ice properties from vessels operating in the Antarctic pack ice zone, and that the ASPECT data archive now comprises 83 voyages of data that provide an essential resource to the climate scientists and modellers,

SCAR requests COMNAP to urge national programmes to contribute sea ice observations made from their icebreaking research and supply vessels, and to arrange for the training of ship officers to conduct such observations.

Recommendation XXIX-9: Concerning Drifting Buoys in the IPY

Recognising the need to increase observations in the sea ice zone to meet the requirements of a range of projects approved for the IPY,

SCAR urges national committees to encourage countries to finance one or more data buoys to be deployed in time for the IPY under the aegis of the International Programme for Antarctic Buoys (IPAB).

Recommendation XXIX-10: Concerning Meteorological Observations for Weather Forecasting and the IPY

Recognising that real-time surface meteorological observations from both land and sea are critical for providing accurate weather forecasts as well as being vital for many science programmes and key data for studies of climate change,

SCAR:

- 1) *urges* all research and supply ships operating in Antarctic waters and traverse parties (using the MOBIL code) to contribute real-time meteorological observations to the WMO GTS.
- b) *urges* all land station operators to submitted climate data to GCOS via the WMO GTS shortly after the end of each month.
- c) *urges* COMNAP to construct a web page listing intended ship movements, so as to help the planning of instrument deployment opportunities.
- d) *urges* operators Antarctic and sub-Antarctic stations to put meteograms in the public domain.

Appendix 3: Internal Recommendations

A3.1 SSG-GS Internal Recommendations:

Recommendation XXIX-SSG-GS-1: Concerning National Representatives

Recognising the need to enhance communication within the Antarctic Geoscience Community,

SSG-GS recommends (i) that National Delegates control and maintain the list of National Representative(s) in SSG-GS; and (ii) that National Representative(s) to SSG-GS prepare a bi-annual report for each SSG meeting of national research activity related to the activities of the SSG.

Recommendation XXIX-SSG-GS-2: Concerning the Action Group on Marine Survey Planning

Noting that the Action Group on Marine Survey has identified a method for coordinating marine survey planning and therefore is no longer required.

SSG-GS recommends (i) that a form be set up on the SSG-GS web site for marine survey leaders to complete for posting on the SSG-GS web site; and (ii) that discussions be held with SCAR MARBIN to see if their survey database will be suitable for geosciences as well.

Recommendation XXIX-SSG-GS-3: Concerning the Constitution of a New Action Group (SIGE)

Recognising that to understand the geology and basal ice sheet processes beneath the Antarctic Ice sheets, requires coordination and development of multinational capabilities in geophysics and drilling to enable the community to address broad geoscience problems and to ensure that maximum multidisciplinary science benefit comes from drilling and geophysical exploration,

SSG-GS recommends establishing an Action Group on Sub-ice Geological Exploration (SIGE)

Recommendation XXIX-SSG-GS-4: Concerning the repositioning of EGGI within the SCAR structure.

Recognising the uniqueness of the Expert Group on Geographical Information (EGGI),

SSG-GS recommends that EGGI be repositioned as Standing Committee on Antarctic Geographic Information (SCAGI) under the Administration and Outreach wing of SCAR reporting like JCADM directly to the SCAR Executive Committee.

A3.2 SSG-LS Internal Recommendations:

Recommendation XXIX-SSG-LS-1: Concerning the Membership of SSG-LS Expert Groups.

Noting that there are currently vacancies in national representation on SSG-LS Expert Groups because either (i) several Members have not nominated representatives to the Expert Groups despite their active participation in science in the Antarctic; or (ii) several people who have recently retired from SSG-LS Expert Groups have not been replaced despite contact between the executive of SSG-LS Expert Groups and the national nominating body.

Considering that this (i) depletes the number of collaborators in research; (ii) reduces the scope of expertise available; (iii) limits the overall functionality of the SSG and its subsidiary bodies; (iv) tends to hamper effort to stimulate participation in research in the Antarctic.

SSG-LS recommends and requests that: SCAR strongly urges national appointing organisations to (i) nominate members for SSG-LS Expert Groups, (ii) support their attendance at meetings; and (iii) replace retiring members.

Recommendation XXIX-SSG-LS-2: Concerning the provision of data to third parties

Recognising that whilst under Article III of the Antarctic Treaty data and information must be freely exchanged between Parties, this exchange does not over-ride the intellectual property rights of ownership of the data, and knowing that SCAR groups hold a variety of data provided for specific purposes from individuals and institutions,

SCAR should develop a data policy which requires that SCAR only provide details of the data owner/manager to whom all such requests need to be directed, and that all requests for data held by SCAR is to be made through JCADM.

A3.3 SSG-PS Internal Recommendations:

Recommendation XXIX-SSG-PS-1: Concerning the International Partnerships in Ice Core Sciences (IPICS)

Recognising the value of the paleoclimate archive contained in ice cores, on a range of time scales spanning annual/decadal periods through to glacial cycles;

Noting that the International Partnerships in Ice Core Sciences (IPICS) is a group of specialists from 19 countries, who plan to focus the goals of the discipline over the next 10 to 15 years onto four themes that have been developed into White Papers:

- The oldest ice core: A 1.5 million year record of climate and greenhouse gases from Antarctica;
- The last interglacial and beyond: A northwest Greenland deep ice core drilling project;
- The IPICS 40,000 year network: a bipolar record of climate forcing and response;
- The IPICS 2kyr array: a network of ice core climate and climate forcing records for the last two millennia;

Noting the complementary nature of the research goals of IPICS with existing SCAR Science Programmes, particularly ACE and AGCS (including the ITASE project) and the reliance on the technical expertise of the SSG-PS Ice Drilling Expert Group;

Welcoming the establishment of an international network of scientists and engineers committed to drive forward ice core research into the future;

SSG-PS recommends that SCAR endorse and co-sponsor IPICS.

Recommendation XXIX-SSG-PS-2: Concerning the Biogeochemical State of the Southern Ocean

Recognising that the increasing concentration of CO₂ in the atmosphere may alter the biogeochemical status of the Southern Ocean, in particular its pH, with possible consequences for the Southern Ocean ecosystem,

SSP-PS recommends that SCAR should (i) support research being undertaken by IMBER and SOLAS in this area, (ii) encourage the EBA programme to consider and discuss this issue, and (iii) arrange a special session on this topic at the next Open Science Conference (2008).

Appendix 4: Acronyms

AAD	Australian Antarctic Division
ACAP	Advisory Committee on Albatrosses and Petrels
ACE	Antarctic Climate Evolution
ADMAP	Antarctic Digital Magnetic Anomaly Map
AGCS	Antarctica and the Global Climate System
AGU	American Geophysical Union
AMD	Antarctic Master Directory
ANTEC	Antarctic Neotectonics
ANTPAS	Antarctic Permafrost and Soils Project
AntSDI	Antarctic Spatial Data Initiative
ASPECT	Antarctic Sea Ice Processes and Climate
ATCM	Antarctic Treaty Consultative Meeting
ATS	Antarctic Treaty System
BAS	British Antarctic Survey
CAML	Census of Antarctic Marine Life
CAWSES	Climate and Weather of the Sun-Earth System
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CD	Compact Disc
CEP	Committee for Environmental Protection
ClC	Climate and Cryosphere programme
COMNAP	Council of Managers of National Antarctic Programmes
EBA	Evolution and Biodiversity in the Antarctic
EGGI	Expert Group on Geographical Information
EGU	European Geophysical Union
EVOLANTA	Evolutionary Biology of Antarctic Organisms
DARN	Dual Auroral Radar Network
FAO	Food and Agriculture Organisation
GBIF	Global Biodiversity Information Facility
GCOS	Global Climate Observing System
GEO	Group on Earth Observations
GEOSS	Global Earth Observing System of Systems
GS	Geosciences
GTS	Global Telecommunications System
IASC	International Arctic Science Committee
ICESTAR	Inter-hemispheric Conjugacy Effects in Solar-Terrestrial and Aeronomy Research
ICSU	International Council for Science
IGBP	International Geosphere–Biosphere Programme
IGOS	Integrated Global Observing Strategy Partnership
IGU	International Geographical Union
IGY	International Geophysical Year
IMBER	Integrated Marine Biogeochemistry and Ecosystem Research
INQUA	International Union for Quaternary Research
IOC	Intergovernmental Oceanographic Commission
IP	Information Paper
IPAB	International Programme for Antarctic Buoys
IPICS	International Partnerships in ice Core Science
IPY	International Polar Year
ISAES	International Symposium on Antarctic Earth Sciences

ISMASS	Ice Sheet Mass Balance and Sea Level
ITASE	International Trans-Antarctic Scientific Expedition
IUBS	International Union of Biological Sciences
IUGG	International Union of Geodesy and Geophysics
IUGS	International Union of Geological Sciences
IUPS	International Union of Physiological Sciences
IWC	International Whaling Commission
IYPE	International Year of Planet Earth
JCADM	Joint SCAR–COMNAP Committee on Antarctic Data Management
KGI	King George Island
LS	Life Sciences
MarBIN	Marine Biodiversity Information Network
MCS	Multi-Channel Seismics
MOSAK	Modelling and Observational Studies of Antarctic Katabatic Winds
MST/IS	Mesosphere-Stratosphere-Troposphere/Incoherent Scatter
NADC	National Antarctic Data Centre
OSC	Open Science Conference
PANTOS	Action Group on Pan-Antarctic Observations Network
PASTA	Plateau Astronomy Site Testing in Antarctica
POLENET	Polar Earth Observing Network
PS	Physical Sciences
READER	Reference Antarctic Data for Environmental Research
RISCC	Regional Sensitivity to Climate Change in Antarctic Terrestrial and Limnetic Ecosystems
SALE	Subglacial Antarctic Lake Exploration
SANAE	South African National Antarctic Expedition
SC-AGI	Standing Committee on Antarctic Geographic Information
SCALOP	Standing Committee on Antarctic Logistics and Operations
SCAR	Scientific Committee on Antarctic Research
SC-ATS	Standing Committee on Antarctic Treaty System
SCOPE	Scientific Committee on Problems of the Environment
SCOR	Scientific Committee on Oceanic Research
SCOSTEP	Scientific Committee on Solar Terrestrial Physics
SDLS	Seismic Data Library System
SIGE	Sub-Ice Geological Exploration
SOLAS	Surface Ocean Lower Atmosphere Study
SPRI	Scott Polar Research Institute
SRP	Scientific Research Programme
SSG	Standing Scientific Group
STADM	Steering Committee for Antarctic Data Management
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VLF	Very Low Frequency
WCRP	World Climate Research Programme
WMO	World Meteorological Organisation
WP	Working Paper