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## Report of the XXXII SCAR Delegates' Meeting

Portland, US, 23-25 July 2012



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at the

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## Report of the XXXII SCAR Delegates' Meeting

Portland, US, 23-25 July 2012

### **In Attendance:**

**Executive Committee:** M. C. Kennicutt II (President), A. Huiskes (Vice President), Y-D. Kim (Vice President), S. Marensi (Vice President), R. Ravindra (Vice President), M. Sparrow (Executive Director)

**Full Members:** S. Marensi (Argentina), V. Alder (Argentina), D. Bergstrom (Australia), T. van Ommen (Australia), F. Pattyn (Belgium), A. Wilmotte (Belgium), J. Simões (Brazil), V.H. Pellizari (Brazil), C. Pimpirev (Bulgaria), D. Scott (Canada), S. Ommanney (Canada), M. Leppe (Chile), V. Vallejos (Chile), Li Y. (China), Wu J. (China), D. Galarza (Ecuador), M. Poutanen (Finland), R. Schlich (France), Y. Le Maho (France), K. Lochte (Germany), G. Heinemann (Germany), R. Ravindra (India), R.K. Sharma (India), A. Meloni (Italy), C.A. Ricci (Italy), K. Shiraishi (Japan), S. Imura (Japan), B-K. Park (Korea), Y-D. Kim (Korea), A. Samah (Malaysia), S. Aishah Alias (Malaysia), A. Huiskes (Netherlands), T. de Bruin (Netherlands), B. Storey (New Zealand), R. Villanueva (Peru), A. Gazdzicki (Poland), W. Majewski (Poland), A. Shmakin (Russia), M. Moskalevsky (Russia), P. Cilliers (South Africa), S. Swart (South Africa), J. López-Martínez (Spain), L. García-Sancho (Spain), M. Friberg (Sweden), C. Schlüchter (Switzerland), J. Francis (UK), P. Convey (UK), M.C. Kennicutt (USA), T. Wilson (USA), B. Grillo (Uruguay), J. Abdala (Uruguay); (Apologies from J. Olmedo Morán (Ecuador), K. Strand (Finland), J-G. Winther (Norway), B. Andersen (Norway), R. Wieler (Switzerland), J. Beer (Switzerland), V. Lytvynov (Ukraine), O. Kuzko (Ukraine))

**Union Members:** J. Storey (IAU), A. Ashworth (INQUA), A. Pierrot-Bults (IUBS), I. Allison (IUGG), C.A. Ricci (IUGS), Y. Le Maho (IUPS); (Apologies from IGU, URSI)

**Associate Members:** R. Forsberg (Denmark), C. Le Bohec (Monaco), A. Canario (Portugal); (Apologies from P. van Klaveren (Monaco), D. Iftimescu (Romania))

**Secretariat:** M. Sparrow (Executive Director), R. Badhe (Executive Officer)

**Observers:** E. Costa (APECS), A. Pavlov (APECS), V. Vallejos (CEP), R. Ravindra (COMNAP), I. Allison (IACS), V. Rachold (IASC), J. Xavier (Portugal), L. Pibernat Morales (Venezuela), Jin B. (China), H.K. Lee (Korea), H.C. Shin (Korea), D. Karentz (USA), L. Geller (USA); (Apologies from Keith Reid (CCAMLR), J. Baesemann (CliC), M. Rogan-Finnemore (COMNAP), S. Wilson (ICSU), I. May (IPA), E. Urban (SCOR))

**SCAR Subsidiary Groups:** A. Capra (SSG-GS), K. Conlan (SSG-LS, AntEco, AnT-ERA), M. Candidi (SSG-PS, AGCS), J. Storey (AAA), C. Escutia (ACE, PAIS), P. Convey (EBA), T. de Bruin (SC-ADM), S. Chown (SC-ATS), N. Bertler (AntClim<sup>21</sup>), T. Wilson (SERCE), J. Xavier (SC-Finance), M. Sparrow (SC-AGI, SOOS),

**Explanatory Notes:** (i) Note that several names appear more than once in the attendees list as some people represent more than one body;

(ii) Papers for the meeting are available from the SCAR website:

<http://www.scar.org/members/scarmeetingreports/xxxiiportland12/>

(iii) WP refers to Working Paper, IP to Information Paper.

## **1. Opening Business**

### **1.1 Welcome**

M.C. Kennicutt II, President of SCAR, opened the meeting at 0900 and welcomed Delegates and Observers to the XXXII SCAR Delegates' meeting. The President of Portland State University, Dr Wim Wiewel, welcomed everyone on behalf of the local hosts.

### **1.2 Adoption of the Agenda and Timetable [WPs 1,2,3,4]**

Delegates adopted the agenda [WP 01], the annotated agenda [WP02], the list of documents [WP03], and the timetable for the meeting [WP04], with minor adjustments as proposed by the Executive Director, M. Sparrow.

## **2. Membership (CLOSED to Observers and Associate Members)**

### **2.1 Application of Venezuela for Associate Membership [WP 5]**

The papers for this application were distributed with SCAR Circular Letter 790. The Observer from Venezuela, Captain L Pibernat Morales, presented the application for Associate Membership of SCAR [WP 5]. After due consideration, Venezuela was welcomed as the thirty-seventh country to join SCAR.

### **2.2 Possible future applications for SCAR Membership [IP 1]**

The Executive Director noted discussions about membership with Austria, Belarus, the Czech Republic, Colombia and recently Turkey and Iran. The suggestion was made that other Arabic countries should be contacted about membership of SCAR.

**Action: Secretariat to work with Delegates from Malaysia to contact Arabic countries about membership of SCAR (A.A. Samah, ED; EXCOM 2013)**

M. Sparrow noted that membership arrears are minimal and that discussions are being held with those countries with payments still to make.

## **3. SCAR Officers (CLOSED to Observers)**

### **3.1 Notification of elections of President and two Vice-Presidents [IPs 2, 3]**

The Offices of President (M.C. Kennicutt II) and two Vice-Presidents (R. Ravindra and A. Huiskes) fell vacant at the end of the meeting, the incumbents having completed their elected terms of Office. The Executive Director reviewed the SCAR election procedures.

### **3.2 Appointment of Standing Finance Committee**

The Standing Committee on Finance comprised A. Huiskes (Chair, Netherlands), J. Xavier (Portugal) and L. Bravo (Chile). L. Bravo was unable to attend the Delegates' Meeting, but had interacted with the Finance committee by email prior to the meeting.

A. Huiskes asked for two *ad hoc* volunteers to the Finance Committee. M. Friberg (Sweden) and G. Heinemann (Germany) volunteered for the 2012 Finance Committee.

## **4. Finance – session 1 (CLOSED to Observers)**

### **4.1 Discussion of Membership fee increase [WP 6, IPs 4, 5]**

The SCAR President, M.C. Kennicutt II, led this item. Delegates were asked to consider the case for an increase in SCAR Membership fees based on a Business Case [WP6, IPs 4, 5] following the 2010 Resolution:

**"Delegates agree the need for an increase in contributions of up to 20% in 2013 based on a business case that SCAR will provide for Delegates to take to their funding agencies."**

The proposed annual fee increases were: \$0 (Category E), \$1900 (Category D), \$2,600 (Category C), \$3,200 (Category B), \$4,000 (Category A).

M. Kennicutt summarized the reasoning for the need for an increase in fees, including the above resolution based on the Business Case [IP 4]. He iterated that National Antarctic Programmes are under considerable budgetary stress and that difficult decisions are being made. However, regular increases in membership fees are inevitable unless organizational activities are reduced. The proposed increase had been delayed for several years and the incremental increase proposed for individual nations is modest. The pooling of resources to accomplish common goals is highly cost effective and allows National Programmes to benefit from the collective efforts of the community. SCAR's vision, mission and goals will only be accomplished if its members provide the necessary resources. SCAR is unwaveringly committed to balancing budgets each year and if fees are not increased the reductions in SCAR budgets since 2008 will continue and accelerate as the value of financial resources erodes. If there is no increase in fees, most activities will be reduced. No increase in the SCAR fees will result in a substantial reduction in the budget of all major activities of SCAR, and some facets of SCAR's mission may be suspended for the foreseeable future (e.g., the popular Fellowship Programme).

The French Delegation presented concerns about the proposed increase [IP 5]. R. Schlich emphasised the need to control and reduce administrative expenses as much as possible and to search for alternative sources of funding. He called Delegates' attention to past practice where funds were to be allocated 50% to science and 50% to other costs such as administration and that recent budgets had not attained this goal at the expense of science. It was further suggested that the involvement of the four Vice-Presidents could be increased to reduce the workload on the Secretariat. The issue of managing the SCAR Open Science Conferences to generate surplus funds was also raised again. Other Delegations countered that other objectives such as

access (low fees), participation (inclusion), networking and scientific excellence were the primary goals of the OSC and should not be compromised by efforts to raise funds. It was also noted by M. Kennicutt that the current model for the biennial meetings is working and that these meetings are heavily subsidized by the local host (up to 50% of the cost). A surplus generating model infers SCAR would assume the financial risk associated with these meetings and that it was likely the subsidies would have to borne by participants not the host. The majority opinion endorsed the findings of the Action Group on SCAR Meetings and Related Activities (see Section 11.1) that the current model for the biennial meetings, including the OSC, be continued for the present time. It was recognized that this model only works if SCAR members continue to volunteer to host and subsidize the biennial meetings. If this changes in the future, alternative models will have to be considered.

SCAR should always explore ways in which to reduce administrative expenses. The efforts made to keep such costs at a minimum were commended. SCAR is exploring alternative sources of funding, for instance the Executive Director noted the grants received from the Sloan Foundation, the Total Foundation, Memorial University, the Tinker Foundation, the Global Biodiversity Information Facility, the UK and Norwegian foreign offices and ICSU over the last few years. Although these grants often come with a management fee and in some cases (e.g. the Tinker Foundation grant) cover part of the Secretariat salary, grant money cannot usually be used to cover the core of SCAR activities. A Development Council has also been formed (see Section 13.1) to lead future efforts in this regard.

The overwhelming majority of countries spoke in favour of the fee increase. Some of the points made by the Members were that:

- SCAR is now a much more vital and relevant organisation than in the past;
- Although science is at the core of SCAR's activities, capacity building and advice to policy makers are important contributions that need to be fully supported;
- The fee increase would allow SCAR to meet its future objectives and goals and allow it to do more;
- SCAR's success in obtaining external grants should be recognised;
- The fee increase was necessary but SCAR should continually explore ways to reduce administrative costs and increase expenditure on science;
- SCAR makes a significant and important contribution to Antarctic Science considering the relatively low cost of the membership fees;
- SCAR makes good use of its funds and should use these to increase its visibility, its science and its capacity building activities.

In summary, almost all countries agreed that a fee increase was necessary and that this reflected the increased vitality of SCAR. It was also agreed that although many countries were in a difficult financial situation, the proposed increase was relatively small. However, it was generally acknowledged that SCAR needed to continue to work to keep administrative costs low and to attract external funding, the latter being led through the new SCAR Development Council.

After substantial discussion the President called for a vote. Of the 29 Full Members present who were eligible to vote, four members abstained (France, South Africa, Spain and the Netherlands) and the remainder voted “Yes”.

The Increase in Membership Fees was agreed. From 2013 the new SCAR Membership levels will be:

Category	No. Members	Membership Contribution 2013
A	2	\$ 27,500
B	10	\$ 21,200
C	6	\$ 17,100
D	13	\$ 12,400
E	5	\$ 5,000

**Action:** Secretariat to ensure countries are officially notified of new fee levels and SCAR website etc. is updated as appropriate (EO, AA; ASAP)

## 5. Science (OPEN)

### 5.1 The Next Generation of SCAR Research Programmes:

Discussion of the next generation of SCAR Scientific Research Programmes was held in plenary and led by M. Kennicutt.

#### 5.1.1 Introduction

M. Kennicutt introduced the next generation of SCAR Scientific Research Programmes (SRPs). SRPs are SCAR’s highest level of investment in science. SRPs advance scientific questions that are expected to require sustained efforts by international teams of scientists and researchers for six to eight years. SRPs are developed and proposed by Programme Planning Groups (PPGs) fostered by one or more Standing Scientific Groups (SSGs). A PPG develops a proposal for an SRP based on wide consultation with the community.

SCAR can financially support a limited number of SRPs. All SRP proposals are subject to an extensive and rigorous evaluation and selection processes to ensure the highest quality (see <http://www.scar.org/members/scarmeetingreports/xxxiiportland12/meetingpapers.html> for the SRP reports, reviewers’ comments and the responses to the reviews).

#### 5.1.2 State of the Antarctic Ecosystem (AntEco) [WP 7]

K. Conlan presented the SRP proposal *State of the Antarctic Ecosystem (AntEco)*, focusing on the responses to the reviewers’ comments.



*Summary of AntEco:*

Biological diversity is the sum of all those organisms that determine how ecosystems function, and underpins the life-support system of our planet. The AntEco programme has been designed to focus on past and present patterns of biodiversity across terrestrial, limnological, glacial and marine environments within the Antarctic, sub-Antarctic and Southern Ocean regions; to provide the scientific knowledge on biodiversity, including genetic diversity, species diversity and ecosystem diversity that, coupled with increased knowledge of species biology, can be used for the conservation and management of Antarctic ecosystems. Under the framework of EBA, initiatives such as Census of Antarctic Marine Life (CAML), SCAR Marine Biodiversity Information Network (SCAR-MarBIN) and Antarctic Biodiversity Information Facility (AntaBIF) have demonstrated how internationally coordinated research and standardized techniques can rapidly advance knowledge of the state of Antarctic ecosystems. These have improved our understanding of key elements of Antarctic biodiversity, its linkage with global biodiversity and aspects of its phylogenetic and biogeographic history, and have further highlighted the importance of cross-disciplinary links with the oceanographic, glaciological and climate communities in particular. The new challenges are to further the knowledge on current biodiversity and patterns therein, to distinguish the impact of present processes from historical signals, and use this knowledge to develop scenarios of its future state through interdisciplinary approaches. To do so we will promote the use of both established and innovative technologies, on scales from the latest molecular analyses to remote sensing, that will provide the means for synthesis and integration across the entire region over physical and temporal scales and at resolutions that until now have not been possible.

The Delegate from IUBS asked about the inclusion of pelagic systems. The response was that this was not a gap in the programme, but that because of the word restriction of the proposals themselves, not all areas were described.

M. Kennicutt re-iterated that all these programmes need to be open to participation from all countries.

**5.1.3 Antarctic Thresholds – Ecosystem Resilience and Adaptation (AnT-ERA) [WP 8]**

K Conlan presented the SRP proposal *Antarctic Thresholds – Ecosystem Resilience and Adaptation (AnT-ERA)*, focusing on the responses to the reviewers' comments.

*Summary of Ant-ERA:*

Stresses on Antarctic ecosystems result from global climate change, including extreme climatic events, and from other human impacts. Consequently, Antarctic ecosystems are changing, some at a rapid pace while others are relatively stable. A cascade of responses from molecular through organismic to the community level are expected as a result of these stresses during the ongoing era of climate change.

The differences in biological complexity and evolutionary histories between the polar regions and the rest of the planet suggest that stresses on polar ecosystem function may have fundamentally different outcomes from those at lower latitudes. Polar ecosystem processes are therefore key to informing wider ecological debate about the nature of stability and potential changes across the biosphere.

The main goal of AnT-ERA is to define and facilitate the science required to examine changes in biological processes, from the molecular to the ecosystem level, in Antarctic marine, freshwater and terrestrial ecosystems. Tolerance limits as well as thresholds, resistance and resilience to environmental change will be determined.

Three key questions have been identified.

- (1) How are Antarctic organisms adapted to current and future environmental conditions and what is the genetic basis for their life history, organism plasticity and physiology?
- (2) How does environmental change affect population performance and species interactions; e.g., how do species traits impact community stability, key ecosystem processes, and the identities of ecological winners and losers?
- (3) What are the likely consequences of a changing environment for key ecosystem functions and services?

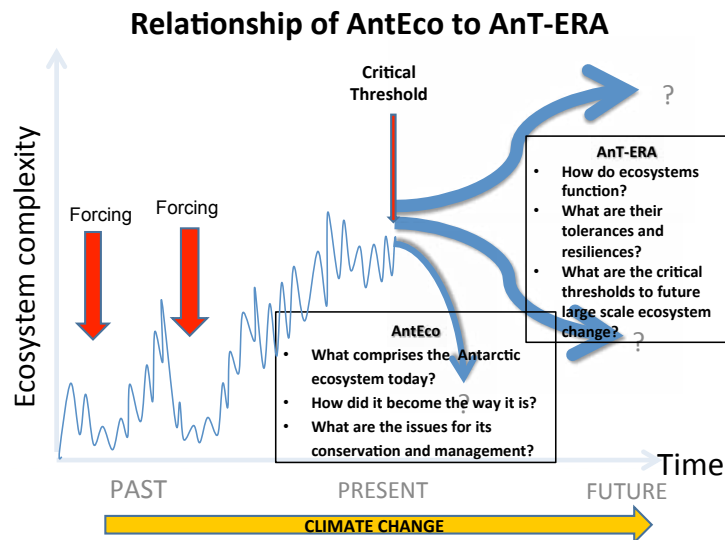
AnT-ERA will combine cutting edge bottom-up and top-down approaches *in situ*, in the laboratory (e.g. via ‘omics’) and *in silico* (e.g. modelling and database mining).

The Delegates asked AnT-ERA to consider the following point:

- (1) To clarify the role of experimental ecology in the programme.

The IAU Delegate asked how AntEco and AnT-ERA will interact together. The response was that there is an oversight committee that would include members of both programmes. Also they will hold some workshops together e.g. at the SCAR Biology Symposium in 2013.

There was some discussion about the differences and similarities between the two biology programmes. It was emphasised that these two programmes represent different groups within life sciences – see below figure.



### 5.1.4 Antarctic Climate Change in the 21<sup>st</sup> Century (AntClim<sup>21</sup>) [WP 9]

N. Bertler presented the SRP proposal *Antarctic Climate Change in the 21<sup>st</sup> Century (AntClim<sup>21</sup>)*, focusing on the responses to the reviewers' comments.

*Summary of AntClim<sup>21</sup>:*

The overarching question of this proposal is: How will the Antarctic and Southern Ocean environment change over the 21st Century? This is an important issue both within the Antarctic region and globally. To achieve this goal, AntClim<sup>21</sup> will focus on three themes of research:

- Theme 1. Quantification of Antarctic climate variability;
- Theme 2. Climate model verification for the Antarctic region;
- Theme 3. Antarctic climate projections to 2100 AD.

The Antarctic region has already experienced substantial changes with impacts on global sea level and ocean carbon uptake. To understand the significance of recent trends in the context of natural variability, it is important to consider change on a multi-century time scale. This proposal will focus on the past 2,000 years. In addition, we will take advantage of data and model outputs from earlier key time periods as they become available, such as the mid-Holocene, glacial terminations, warm interglacials, and the mid-Pliocene. Moreover, attribution of the causes of environmental change is a high priority. Assessment of how realistically climate models capture key forcings to help constrain climate model projections of future change. The overall aim is to provide improved projections of the magnitude and patterns of change to Antarctica's physical environment as a result of global change over the next 100+ years. The assessment will be based on Intergovernmental Panel on Climate Change (IPCC) Assessment Report Five (AR5) Representative Concentration Pathways (RCP) and updated scenarios as they become available.

In general the Delegates felt this was an excellent proposal with strong links to the other proposed SRPs. The following issues were highlighted for consideration by the SRP:

- (1) Consideration of the export of climate signals between the tropics and the poles;
- (2) The inclusion of ice-sheet modellers in the steering committee;
- (3) Importance of establishing links to groups such as ISMASS and ASPeCt.

M. Kennicutt also reminded Delegates of the ACCE report (<http://www.scar.org/publications/occasionals/acce.html>), which had a major impact on e.g. the Antarctic Treaty. AntClim<sup>21</sup> has the potential to have a similar impact in the policy as well as the science arenas.

### 5.1.5 Past Antarctic Ice Sheet dynamics (PAIS) [WP 10]

C. Escutia presented the SRP proposal *Past Antarctic Ice Sheet dynamics (PAIS)*, focusing on the responses to the reviewers' comments.

*Summary of PAIS:*

The proposed SCAR Scientific Research Programme PAIS (Past Antarctic Ice Sheet dynamics) aims to improve understanding of the sensitivity of East, West and

Antarctic Peninsula Ice Sheets to a broad range of climatic and oceanic conditions. PAIS builds on the success of SCAR-ACE (Antarctic Climate Evolution), but with a new focus on the ice sheet rather than palaeoclimate reconstructions. Study intervals span a range of timescales, including past “greenhouse” climates warmer than today, and times of more recent warming and ice sheet retreat during glacial terminations. The PAIS research philosophy is based on data-data and data-model integration and inter-comparison, and the development of “ice-to-abyss” data transects, extending from the ice sheet interior to the deep sea. The data transect concept will link ice core, ice sheet-proximal, offshore, and far-field records of past ice sheet behaviour and sea level, yielding an unprecedented view of past changes in ice sheet geometry, volume, and ice sheet-ocean interactions. These integrated data sets will enable robust testing of a new generation of coupled Glacial Isostatic Adjustment-Ice Sheet-Atmosphere-Ocean models that include new reconstructions of past and present ice bed topography and bathymetry. PAIS will accomplish its objectives by: 1) facilitating the planning of new data-acquisition missions using emerging technologies; 2) encouraging data sharing and integration of spatially targeted transect data with modelling studies; and 3) initiating/expanding cross linkages among Antarctic research communities. The overarching goal of PAIS is to improve confidence in predictions of ice sheet and sea level response to future climate change and ocean warming.

The Delegates asked PAIS to consider the following question:

1. To consider potential synergies with AntEco, in particular with e.g. refugia, niches etc.

#### **5.1.6 Solid Earth Response and influence on Cryospheric Evolution (SERCE) [WP 11]**

T. Wilson presented the SRP proposal *Solid Earth Response and influence on Cryospheric Evolution (SERCE)*, focusing on the responses to the reviewers' comments.

##### *Summary of SERCE:*

The Solid Earth Response and influence on Cryospheric Evolution (SERCE) scientific research programme aims to advance understanding of the interactions between the solid earth and the cryosphere to better constrain ice mass balance, ice dynamics and sea level change in a warming world. This objective will be accomplished through integrated analysis and incorporation of geological, geodetic and geophysical measurements into models of glacial isostatic adjustment (GIA) and ice sheet dynamics. The programme is designed to synthesize and integrate the extensive new geological and geophysical data sets obtained during and subsequent to the International Polar Year with modelling studies, in a timeframe to contribute to IPCC AR6. SERCE will provide the international collaborative framework and scientific leadership to investigate systems-scale solid earth – ice sheet interactions across Antarctica and relate these results to global earth system and geodynamic processes. A series of expert workshops will produce synthetic science products based on extensive new geophysical data sets for Antarctica as well as improved data-modelling integration. Thematic science symposia and workshops, and ensuing published thematic journal issues, will propel the science of solid earth – cryosphere interactions beyond the current state of knowledge and contribute a body of new knowledge to the IPCC AR6 assessment. The SERCE programme will conduct major

efforts in capacity building, training and public outreach using complementary strategies to achieve technical capacity via information exchange, analytical capacity via training schools, engagement of new polar researchers via thematic science sessions, and public outreach via the worldwide web.

The Delegates asked SERCE to consider the following questions:

1. To clarify the synergies/differences between PAIS and SERCE;
2. To consider inclusion of a bipolar element.

### **5.1.7 General Discussion on proposed SRPs**

M. Kennicutt led a discussion on the proposed next generation of SCAR SRPs. He emphasized that the proponents had worked hard to ensure interactions were strong between the five proposed programmes and AAA.

The Delegates agreed that the all five new proposed SRPs should be approved, with the proviso that the proposed SRPs need to ensure that all reviewers' and Delegates' comments have been answered. Demonstration of explicit response to review comments should be a substantive part of the first internal 2-year performance review of new SRPs.

The comment was made that all new SRPs need to make a concerted effort to ensure that countries with less well developed Antarctic Programmes are able to participate.

S. Chown, commented that programmes in the past have not only carried out excellent science but have been instrumental in providing input to scientific advice to the Treaty and the CEP.

**Action: Proponents of next generation of SRPs to be informed that their proposals have been successful, conditional on responding to all queries raised by reviews and by SCAR Delegates. (ED; ASAP)**

## **5.2 SCAR SSGs: Highlights, Progress and Plans:**

Y-D. Kim introduced this item. Delegates were reminded to appoint up to four representatives to each SSG to ensure that SCAR can operate effectively and represent the interests of each member. Details of the SSG reports can be found in <http://www.scar.org/members/scarmeetingreports/xxxiiportland12/meetingpapers.html>.

### **5.2.1 Report of SSG Geosciences [WP 14]**

The outgoing Chief Officer of SSG Geosciences (SSG-GS), A. Capra, introduced this item and reported on progress and plans within SSG-GS.

There was support for propagating stronger linkages from GS with the biological and physical sciences communities. There was a strong crossover of interest with palaeontology, and it was clarified that steps are being taken to include more palaeontologists within the SSG-GS groups. Palaeontologists were invited to create sessions for the next ISAES conference. Links between SSG-GS and other groups such as ISMASS were being improved. A. Capra also remarked that the Geodetic Summer School has some funding from GIANT for 2014, for supporting early career scientists, but they were looking at other sources of funding. Linkages within the three SSGs, and the new SRPs were strongly supported.

*The Delegates approved of the new leadership as elected by SSG-GS:*

Chief Officer: William Berry Lyons, Ohio State University, USA

Deputy Chief Officer: Jesús Galindo-Zaldívar, University of Granada, Spain

Secretary: Naresh C. Pant, University of Delhi, India

Delegates approved the formation of the following Action and Expert Groups (AG/EGs):

- Action Group on Geological Heritage and Conservation;
- Action Group on connecting geophysics with geology: key areas for understanding the building stones of Antarctica;
- Joint LS/PS/GS AG on the impacts of marine acoustic technology on the Antarctic environment.

Delegates approved the continuation of the joint GS/LS/PS ATHENA AG for an additional year.

Delegates approved the conversion of the AG GPS for Weather and Space Weather Forecasting (GWSWF) to EG GNSS Research and Application for Polar Environment and Weather and Space Weather Forecast (GRAPE/WSWF) for four years (2012-2015).

**Action: SSG-GS to provide geological input for codes of conduct and management regimes for geothermal areas (CO SSG-GS, SC-ATS; March 2013)**

**Action: Palaeontologists to be invited to propose sessions for the ISAES conference being held in 2015 (ISAES Coordinator, Secretariat; EXCOM 2013)**

### 5.2.2 Report of SSG Life Sciences [WP 13]

The outgoing Chief Officer of SSG Life Sciences, K. Conlan, introduced this item and reported briefly on progress and further plans.

Delegates asked for, and were given, clarification regarding connections between AntaBIF, GBIF and OBIS. Belgium requested that AntaBIF be made a priority programme and be endorsed by National members of SCAR, and requested National Delegates to consider voluntary contributions towards AntaBIF, as well as soliciting international funding.

Delegates requested that the Terms of Reference of the Environmental Contamination in Antarctica (ECA) group be broadened to capture the range of existing contamination issues. Delegates requested further information on biodiversity data feeding into the Committee on Environmental Protection (CEP) at the Antarctic Treaty Consultative Meeting (ATCM). Bioregions data from AntaBIF were used for proposed protected areas at the CEP/ATCM.

*The Delegates approved of the new leadership as elected by SSG-LS:*

Chief Officer: Graham Hosie, Australian Antarctic Division, Australia

Deputy Chief Officer: Marc Shepanek, NASA Headquarters, USA

Secretary: Yan Ropert-Coudert, University of Strasbourg, France

Delegates approved the nomination of Anne Hicks of the United Kingdom as the SCAR representative to the International Union of Circumpolar Health (IUCH).

Delegates approved the merger of Action Group on Antarctic Fuel Spills (AGAFS) with the action group on Environmental Contamination in Antarctica (ECA) (jointly with PS).

Delegates approved the conversion of AG AntaBIF to the Expert Group on Antarctic Biodiversity Informatics (EG-ABI).

Delegates approved the formation of a new joint AG (with PS) to coordinate the development and adaptation of remote sensing methodology to promote new avenues of research.

**Action: The ToRs of the new group that comes out of the merger of AGAFS and ECA needs to be broad to capture as broad a spectrum of contamination as possible (CO SSG-LS, SSG-PS, and CO of new AG; EXCOM 2013)**

**Action: Letter to be sent out from SCAR President to all National Delegates to consider voluntary contributions towards AntaBIF (all national programmes, President, Secretariat; end 2012)**

### 5.2.3 Report of SSG Physical Sciences [WP 12]

The acting Chief Officer of SSG Physical Sciences, M. Candidi, introduced this item and reported briefly on progress and plans.

*The Delegates approved of the new leadership as elected by SSG-PS:*

Chair: David Bromwich, Byrd Polar Research Center, USA

Deputy Chief Officer: Maurizio Candidi, Istituto Nazionale di AstroFisica, Italy

Secretary: Steve Colwell, British Antarctic Survey, UK

Delegates approved the merger of Action Group Prediction of Changes in the Physical and Biological Environment of Antarctica (PCPBEA) with the Antarctic Climate Change and the Environment (ACCE) group, to form a single group that is responsible for advising on Antarctic climate matters and possible impact on the environment.

**Action: SSG-PS, PAIS and SERCE to engage with providers of glacial morphological data available from the continental shelf (COs of SSG-PS, PAIS and SERCE; EXCOM 2013)**

**Action: SSG-PS to further develop cross-linkages between PAIS and ISMASS (COs of SSG-PS, PAIS and ISMASS; ASAP)**

**Action: AntClim<sup>21</sup> to include expertise in upper atmospheric physics (COs of SSG-PS, AntClim<sup>21</sup>; ASAP)**

### 5.2.4 Interdisciplinary Linkages Between SSGs [IP 7]

M. Sparrow briefly reported on outcomes from the last cross-SSG meeting in 2011 and the cross-PPG meeting held in January of 2012. These meetings had a major focus on the next generation of SRPs. He noted that future cross-SSG meetings will be held prior to EXCOM meetings in order to save travel costs and reduce SCAR's carbon footprint.

**Action: Allocated requests for funding from cross-SSG groups should be coordinated, and funding should be allocated based solely on the work of the groups (SSG COs; ongoing)**

**Action: SCAR to consider how SSGs report on jointly sponsored groups (Secretariat, EXCOM; EXCOM 2013)**

### **5.3 SCAR Scientific Research Programmes:**

Vice President for Science, Y-D. Kim, chaired this session.

#### **5.3.1 Final Report of the SRP Antarctic Climate Evolution (ACE) [WP 15]**

C. Escutia gave the final report of ACE, with a focus on the legacy of the programme.

The SCAR Antarctic Climate Evolution (ACE) Programme has represented the interests of a large land and marine geoscience research community focusing on deciphering the record of the onset and the response of the Antarctic ice sheets to past climate changes across a range of timescales. ACE has coordinated the integration between geophysical and geological records of past ice sheet behaviour and coupled climate, ocean, and ice sheet models. The Programme will finish early in 2013, with the last tranche of funding in 2012.

The present Antarctic ice sheet has existed for approximately 34 million years. Understanding the response of the Antarctic ice sheet to climatic forcing is essential because changes in the ice sheet can have major impacts on global sea level and can impact the entire climate system through a wide range of physical and chemical feedbacks. Since ACE's last Report to Delegates during the SCAR OSC 2010, ACE has continued to be very active in its primary coordination role, promoting interactions amongst geologists, geophysicists, modellers and other polar scientists from the climate, ocean and ice coring communities. ACE continues to promote work within its subcommittees to address gaps in our knowledge about the role of Antarctic ice sheets in the global climate system. ACE subcommittees synthesize the state of the art of our knowledge and define the future questions and challenges that are critical for providing science-based advice to major scientific programmes (i.e., IODP, ERICON-AB) and policy makers (i.e., IPCC). To address some of these outstanding questions, ACE has been active in guiding the community and is sponsoring a workshop on Antarctic Drilling during the SCAR OSC 2012 for the coordinated submission of a series of drilling proposals (ANDRILL, IODP, and subglacial sampling) in key areas around Antarctica and the Southern Ocean. In these last two years of the programme, ACE has also played an active and central role in the development of a proposal to SCAR for the new SRP Past Antarctic Ice Sheet dynamics (PAIS) to succeed ACE. In addition, and as it has done in the past, ACE has continued to be active in proposing dedicated sessions and workshops in all international meetings, including AGU, EGU, ISAES and the 2012 SCAR OSC, and in the publishing of its results in high impact journals.

#### **5.3.2 Final Report of the SRP Antarctica and the Global Climate System (AGCS) [WP 16]**

On behalf of the Chief Officer, A. Naveira, M. Candidi presented the final report of AGCS, with a focus on the legacy of the programme.

AGCS has been a cross-disciplinary science programme that has focused on the atmospheric, oceanic and cryospheric linkages between the Antarctic and the rest of the Earth system. It has used a wide range of observations from the Antarctic continent and the Southern Ocean to investigate natural climate variability and



possible anthropogenic signatures of change. The *in situ* meteorological and oceanic observations provide high quality data for recent decades, but these are supplemented with proxy data from deep and shallow ice cores that extend the records back into the pre-instrumental period. The programme has also used a range of satellite data and the output of climate and numerical weather prediction models to investigate the mechanisms of change and how climate signals are transferred to and from mid-latitudes and the tropics to the Antarctic. The focus has been on climate change over roughly the last 10,000 years, but with strong linkages to the ACE programme, which has looked deeper into the past.

AGCS has produced several important scientific highlights in the last two years, ranging from major advances in the understanding of Antarctic clouds to significant new insights into how turbulent flows shape the climatically key Southern Ocean overturning circulation. AGCS has produced regular annual updates to the ACCE report (<http://www.scar.org/publications/occasionals/acce.html>). In June 2011, AGCS organized a three-day symposium in Melbourne to review our current state of understanding of the Antarctic and Southern Ocean climate system, to identify the major gaps in present knowledge, and to lay out the scientific issues that a future climate-focused SRP must address to maximize scientific progress and societal impact. AGCS has continued to strongly support symposia and data management activities focused on Antarctic climate science.

### **5.3.3 Report of SRP Evolution and Biodiversity in the Antarctic (EBA), including plans for finalising the programme [WP 17]**

P. Convey gave the final report of EBA, with a focus on plans to finalise the programme.

EBA has been the only SCAR SRP representing the interests of the very large and diverse biological sciences research community with interests in Antarctica. The programme has a planned lifetime of 2005-2013. EBA does not request funding for 2013, but it does wish to extend the time period for use of its existing 2012 funds to the next SCAR Biology Symposium (Barcelona, July 2013), as a timely and high profile ‘wind up’ event for the programme.

Work under the auspices of EBA is divided into five ‘work packages’, each working in both the marine and terrestrial environments of Antarctica.

Since the programme’s last report to Delegates, it has continued to be very active in its primary coordination role, and in particular recently contributing to the development of robust scientific advice central to informing the CEP, and hence ATCM, on issues relating to human impacts on the ecosystems of Antarctica, and conservation planning and governance issues. EBA is now in its final year of operation. Major delivery aims in this period are (i) the programme leaders delivered a themed mini-symposium documenting the ‘state of the art’ and major future challenges in the programme’s science fields at the 2012 SCAR OSC, where overview presentations of progress under each work package, and for the programme overall, were given, ideally to be accompanied by appropriate publication outputs; (ii) to complete the delivery of planned research workshops or meetings in the remainder of 2012; (iii) to play an active and central role in the transition to successor SCAR biological and cross-disciplinary research programmes.

The Delegates approved continuation of EBA into 2013 until the SCAR Biology Symposium in July (but with no 2013 budget allocation).

### **5.3.4 Report on Astronomy and Astrophysics from Antarctica (AAA), including internal review [WP 18]**

J. Storey gave an update report on AAA, including responses to the internal review.

Astrophysical observations require minimum interference from the Earth's atmosphere: low thermal background, low absorption, and high angular resolution. The moderate "launch costs" for Antarctic plateau observatories make them an extremely attractive alternative to space.

Astronomy and Astrophysics from Antarctica aims to facilitate international astronomical programmes in Antarctica. These programmes are aimed at understanding the overarching ecological processes in the Universe, from the birth of stars and of planetary systems around other stars, to the return of heavy-element enriched materials to the interstellar medium, and the formation of new molecular clouds.

Astronomy and Astrophysics from Antarctica adds value by fostering international collaboration in order to permit goals to be achieved that are beyond those of single national programmes.

The SCAR AAA SRP Planning Group was proposed at the Hobart XXIX SCAR in 2006. Creation of the AAA SRP was approved at the Moscow XXX SCAR Delegates meeting in 2008. AAA held its first formal meeting as a Scientific Research Programme in August 2010 in Buenos Aires, followed by a kick-off meeting in Sydney in June 2011. AAA underwent an internal review. The few comments received were supportive of the programme.

Delegates approved all the SRP reports, noting that all had been very successful.

## **5.4 Other Science Topics:**

### **5.4.1 The Southern Ocean Observing System (SOOS) [WP 19]**

The Southern Ocean is a fundamental part of the Earth system. It forms a vital connection between the major ocean basins and the upper and lower layers of the global ocean. The Southern Ocean strongly influences global climate, biogeochemical cycles and the functioning of the ecosystem.

M. Sparrow reported on progress with the Southern Ocean Observing System (SOOS), including hosting of an International Project Office (IPO) by Australia (with additional funding by Antarctica New Zealand); publication of an Initial Science and Implementation Strategy; formation of a SOOS Steering Committee (jointly supported by SCAR and SCOR) and the launch of the SOOS website ([www.soos.aq](http://www.soos.aq)). The SOOS is sponsored by SCAR and SCOR and currently endorsed by POGO and the WCRP projects CLIVAR and CliC.

**Action: SCAR to explore connections between IUBS and SOOS (ED, SOOS EO, IUBS; ASAP)**

### **5.4.2 The Ice Sheet Mass Balance and Sea Level Group (ISMAL) [IP 8]**

The mass balance of a glacier or ice sheet is the net balance between the mass gained by snow deposition, and the loss of mass by melting (either at the glacier surface or under the floating ice shelves or ice tongues) and calving (production of icebergs). A

negative mass balance means that a glacier is losing mass, and, for grounded glaciers and ice sheets, this mass loss directly contributes to sea level rise. This is the major reason why it is important to have accurate estimates of the mass balance of glaciers and ice sheets.

The Ice Sheet Mass Balance and Sea Level (ISMASS) Expert Group is now a joint group of SCAR and IASC. M. Sparrow reported on progress with the ISMASS group, including outcomes of a workshop on the subject held on the 14<sup>th</sup> of July sponsored by ICSU, SCAR, WCRP, IASC, IACS and IGS. During this major workshop, discussions were held on the future of the group. The consensus opinion was that ISMASS should continue as an Expert Group, with a focus on the Polar Ice Sheets, but with strong links with groups with a focus on mountain glaciers. There was an interest in extending ISMASS to include WCRP and/or their sub-programme CliC.

A new Steering Committee would be formed of one chair and six members, the latter representing the following specialties: Ice Sheet modelling, remote sensing, Glacial Isostatic Adjustment, *in situ* observations, climate modelling, and interactions with oceans.

**Action: The revitalised ISMASS EG is to provide ToRs and potential membership for approval (F Navarro, ED; EXCOM 2013)**

#### 5.4.3 The Social Sciences Action Group [WP 20]

Y-D. Kim reported on progress with the Social Sciences Action Group (SSAG).

The costs of human activities in Antarctica, not merely from an economic perspective but also from environmental, social and cultural points of view, are increasingly acknowledged. In light of the coverage (in the media and in policy discussions) of the many aspects of human endeavour in the Antarctic, policy-makers, educators, scientists and the wider public are asked to weigh multiple costs and benefits (that is to say, values) against one another. Understanding the extent and nature of the values that human beings place on Antarctica has large-scale and very serious implications for human engagement with and activity in the Antarctic in the future.

Social scientists and humanities researchers have the expertise and tools to lead an academic assessment of Antarctic values. The Social Sciences AG was established to carry out research targeted at understanding and cataloguing the range of values underpinning human engagement with the Antarctic. This research effort has progressed considerably. At the same time, it has become clear that a thorough exploration of human values associated with Antarctica is a complex task that requires more time and continued efforts. However, this research project promises considerable benefits in the long run, especially with regard to understanding decision-making in an Antarctic context and developing alternative strategies for environmental management.

The Delegates made the point that the sessions during the OSC that dealt with this topic were well attended and that the work of this group was important to the CEP and Treaty, with regard to wilderness values etc.

**Action: Secretariat to inform the SCAR Social Sciences Group that continuation has been approved to 2014 and that continuation after this date is conditional on submitting a proposal to become an Expert Group (ED; ASAP)**

#### **5.4.4 The History Expert Group [WP 21]**

Y-D. Kim reported on progress with the SCAR History Expert Group.

The History Expert Group was founded in 2004, with 24 individuals present at the first meeting in Germany in 2005. Since then the Group has flourished and membership of the Expert Group has steadily increased, as has the geographical and disciplinary diversity of the participants. The Group's meetings continue to serve as a valuable discussion space for junior and senior members alike. Meetings have been held across four continents, permitting the core group of academic historians to be joined by local researchers who would likely not otherwise have joined the Group. The SCAR Expert Group provides a unique and irreplaceable site for scholars to exchange ideas and develop historical research related to the Antarctic, rather than just passively sharing their findings, evidenced by collaborative research projects undertaken by group members.

Previously rare early published sources are becoming globally available, and members of the Expert Group are contributing to their publication through forums such as the South African National Antarctic Programme's online database; more and more documents held in restricted archives are being released, including in the former Soviet Union, but also from national archives elsewhere; new methods of social and archaeological investigation are being developed and resources created; and opportunities for collaboration between historians and scientists are increasing.

Several of the Delegates commented on how this group has produced significant publications. IUBS and others also highlighted how one of the main sources of baseline biological information has been from old historical collections.

#### **5.4.5 The ICSU Unions and SCAR**

M. Kennicutt reported on interactions with the ICSU Union Members and how these have steadily improved over the last few years. The Unions present were also given the opportunity to highlight any possible areas of future cooperation with SCAR. IUGG, IAU, INQUA, IUBS and IUPS all highlighted areas of mutual cooperation.

The SCAR Delegates reiterated the need to work on improving SCAR's interactions with its Union Members.

## **6. Data and Information: Highlights, Progress and Plans**

### **6.1 Report on Standing Committee on Antarctic Data Management (SC-ADM) [WP 22]**

T. de Bruin, acting CO of SC-ADM, reported on progress and plans with SC-ADM. The focus of recent SC-ADM meetings has been on implementation of the SCAR Data and Information Management Strategy (DIMS) and development of the Antarctic Master Directory. The Antarctic Data Management System consists of a network of National Antarctic Data Centres (NADCs) and the Antarctic Master Directory (AMD), coordinated by SC-ADM. It is the world's largest repository of Antarctic data set descriptions and is hosted by NASA's GCMD.

The SCAR Data and Information Strategy Implementation Plan builds on the Antarctic Data Management System of a central AMD and a linked repository network of NADCs. It consists of three projects:

- Project 1: Interoperable Data Repository Network
- Project 2: Improving the Relevance and Utility of SCAR Products
- Project 3: Polar Information Commons

During the intersessional period, Kim Finney stepped down as Chief Officer. Bruno Danis and Taco de Bruin agreed to be co-deputy Chief Officers.

**Action: Whenever possible, SCAR countries to provide a national data contact for SC-ADM; President/ED to send a letter reminding people of this (SCAR Members, President, ED; end of 2012)**

## **6.2 Report on Standing Committee on Antarctic Geographic Information (SC-AGI) [WP 23]**

On behalf of the co-chief officers of SC-AGI (A. Fox and J-Y. Pirlot), M. Sparrow reported on progress and plans for SC-AGI.

All work in Antarctica relies on a consistent geographic framework, and the main function of the Standing Committee on Antarctic Geographic Information (SC-AGI) is to manage and improve the geographic framework not only for Antarctic scientific research but also for other activities including operations, environmental management and tourism. SC-AGI continues to deliver, and actively develop, a range of Geographic Information products through its various projects. These products include: the SCAR Composite Gazetteer of Antarctica (CGA), the SCAR Antarctic Digital Database (ADD), the SCAR Map Catalogue and SCAR Feature Catalogue. SC-AGI integrates topographic and names information received from national Antarctic programmes into the SCAR ADD and SCAR CGA. In keeping with Article III.1.c of the Treaty that Scientific observations and results from Antarctica shall be exchanged and made freely available, SC-AGI promotes an open standards approach to support free and unrestricted data access and develops the respective specifications.

To ensure maximum effectiveness for SCAR, SC-AGI is focusing its limited resources on delivering the three main SCAR-SCAGI products: the Composite Gazetteer of Antarctica (CGA), the Antarctic Digital Database (ADD), and the SCAR Map Catalogue (MapCat).

The SCAR products can only be as good as the data that are in them. It is critical for the continued relevance and utility of the SCAR-SCAGI products that SCAR members contribute all new maps, topographic data, and place-names information to the ADD, MapCat and CGA in a timely manner.

Geographic Information and place-names in Antarctica sit within a range of organisational settings in different countries, including National Mapping, military, research centres and university agencies. Some of these organisational settings do not have strong links to SCAR, and it would be extremely helpful to gain commitment from National Delegates from all the countries in SCAR to encourage engagement with SCAR-SCAGI by their relevant agency.

**Action: SCAR Members to provide copies of new maps to Antarctic Map Catalogue as outlined in previous resolutions on the subject (SCAR Members; ongoing)**

**Action: SC-AGI to co-ordinate with all SSGs with regard to obtaining high-resolution satellite images; SCAGI to investigate connections with new AG on Remote Sensing (SC-AGI and SSG COs, AG Remote Sensing CO; EXCOM 2013)**

### **6.3 SCAR Products [IP 9]**

M. Sparrow updated Delegates on progress with the SCAR Products, including the outcomes of an internal review.

For the benefit of SCAR scientists and the wider community (including the Committee for Environmental Protection), SCAR provides several products that support the work of SCAR scientists but are also made widely available to others. These products provide scientific information in a form that is useful to scientists and others, for example providing meteorological data (Met-READER) or biodiversity data (e.g. AntaBIF) in a more easily usable format or providing access to information on bathymetry in the Southern Ocean (IBCSO).

An internal review of the SCAR Products was carried out last year in light of concerns that many of the products were not being regularly updated. Many of the products have been modified to take into account the recommendations (led by the Executive Director with input from both SC-ADM and SC-AGI). A paper was produced for the Committee on Environmental Protection (CEP), who had requested information on SCAR products that would be useful for the deliberations of this body. The information on the SCAR website has also been updated in light of this – see <http://www.scar.org/researchgroups/productsandservices/>.

## **7. Partnerships: Highlights, Progress and Plans**

S. Marensi, VP for Outreach and Administration, chaired this session.

### **7.1 The Bipolar Action Group (BiPAG II) and relationship with IASC [WP 24]**

M. Sparrow briefed Delegates on progress with the Bipolar Action Group.

The Executive Committees of SCAR and IASC created a SCAR-IASC Bipolar Action Group (BiPAG) that operated for two years (2008-2010), followed by a second BiPAG (BiPAG II) for 2011 to 2012. The existence of a BiPAG ensures that there is a group looking at opportunities for bipolar science, with the purpose of providing annual reports to the SCAR and IASC Executive Committees and recommending which bipolar activities should be adopted by the organisations. The recommendations include not only science ideas but also opportunities for developing the next generation of polar scientists, suggestions for more effective science coordination and data management and ideas for better communicating the

importance of the Polar Regions for Planet Earth. The BiPAG reports are published on both the SCAR and IASC websites.

With regard to the future of the SCAR/IASC Bipolar Action Group, the group itself recommended that it continues but in a more advisory role, with no more than one face-to-face meeting every other year and utilising teleconferencing and email in between to facilitate communication.

The following new recommendations were adopted as Actions:

**Action:** SCAR should request that IASC consider forming a History of Science in the Arctic group and both IASC and SCAR should look into establishing bipolar activity in this area (ED, IASC ES, SCAR History Group CO and IASC equivalent; EXCOM 2013)

**Action:** SCAR to investigate connections with AMAP on contaminants issues (ECA chairs; end 2012)

**Action:** SCAR, IASC and APECS should make initial contact with those in charge of polar genomics databases and let them know the needs of the Antarctic community (AntEco/ AnT-ERA COs, ED, IASC ES, APECS ED; EXCOM 2013)

**Action:** SCAR to invite representatives from IASC observing systems to attend SCAR observing workshops and vice versa – for example, an invitation for SOOS to attend the Arctic Observing Summit would be useful to encourage collaborations (ED, IASC ES; ongoing)

**Action:** SCAR to ask the drafting committee for the International Polar Initiative (IPI) to consider (i) actively engaging COMNAP and FARO, (ii) that the draft document needs to be more focused and (iii) to include greater emphasis on Education and Outreach goals (IASC ES, ED, V Ryabinin; ASAP)

**Action:** SCAR and IASC should advertise the Cool Speakers Database (list of speakers with first hand Polar Regions experience and expertise) in their Newsletters etc. to increase use of the database (EO, IASC EO, APECS ED; EXCOM 2013)

**Action:** SCAR and IASC should discuss the renewal of their MoU with APECS (ED, IASC ES, APECS ED; EXCOM 2013)

**Action:** SCAR and IASC should consider a joint bipolar Conference in 2016, but that these events should not happen at less than six-year intervals (SCAR and IASC EXCOMs; ASAP)

**Action:** SCAR and IASC should opportunistically attend each other's Working Groups (WG) or SSG meetings and report on bipolar interactions (SSG COs, IASC WG COs; ongoing)

**Action:** SCAR/IASC/APECS should revisit the IPY Education and Outreach report and consider recommendations therein (APECS ED, SCAR EO, IASC EO; EXCOM 2013)

**Action:** SCAR and IASC to consider support of Polar Weeks in future, with the goals:

- To expand the IPY global networks of motivated and enthused educators;
- To raise the visibility of polar issues and polar organizations;
- To enhance the development of polar science educational materials; and

- To develop long-term education and outreach partnerships for polar science.

(SCAR and IASC EOs, SCAR CBET, SCAR and IASC EXCOMs; EXCOM 2013)

**Action:** SCAR and IASC to further engage with the IPY Communications Officers' network (ED, IASC ES; ASAP)

**Action:** SCAR and IASC to explore further engagement with the Polar Educators Network (e.g. utilise town hall meetings at AGU/EGU) (ED, EO, IASC ES and EO; EXCOM 2013)

**Action:** SCAR and IASC to better coordinate on issues regarding Polar Predictability (e.g. WMO's Global Integrated Polar Prediction System, GIPPS) (AntClim<sup>21</sup> and ACCE COs, ED; EXCOM 2013)

**Action:** SCAR and IASC to send a joint letter to ICSU expressing interest in becoming more involved in ICSU's Future Earth programme (ED, IASC ES; ASAP)

The comment was made that it would be useful to include a member of the SCAR CBET group in the BiPAG group.

**Action:** BiPAG to include a member of the SCAR CBET Committee (BiPAG Chair, ED, IASC ES; EXCOM 2013)

Delegates approved continuation of the SCAR/IASC Bipolar Action Group but in a more advisory role, with no more than one face-to-face meeting every other year and utilizing teleconferencing and email in between to facilitate communication.

## **7.2 Other SCAR Partnerships (COMNAP, WCRP, WMO etc.) [IP 10]**

S. Marensi summarized the major SCAR partnerships. In pursuit of its vision and mission, SCAR often forms partnerships as an efficient means to achieve its goals and objectives. SCAR's partners include other ICSU bodies, entities of the Antarctic Treaty System, organizations with a polar focus, and organizations with a polar interest. The types of partnerships SCAR forms vary considerably since each is tailored to best accomplish the shared objectives. In some instances, formal co-sponsorship of an activity is warranted entailing shared responsibility for programme management and resourcing. SCAR is always open to, and looking for, ways to strengthen existing partnerships and establish new ones.

There was some discussion about the partnership with COMNAP, which was felt to be very strong. The SCAR Delegates felt that it would be best if the Delegates meetings of both organisations were in the same venue if at all possible. The point was also made that it would be advantageous if members of COMNAP were able to attend the SSG meetings where much of the important science is discussed.

**Action:** Prepare an MoU between local organisers of SCAR OSC (2014 and 2016), SCAR and COMNAP to ensure all parties understand each other's requirements, expectations, and limitations regarding these joint meetings (ED, COMNAP ES, LOCs; October 2012)

The relationship with ICSU was also felt to have improved considerably over the last few years. Jointly with IASC, SCAR has been able to highlight the importance of the



poles in Earth System Science. SCAR and IASC have also been successful in obtaining ICSU grants for various science initiatives. The SCAR ED also gave a presentation with IASC and APECS at the last ICSU General Assembly.

**Action: SCAR to consider ways to interact with ICSU during 2014 Meetings in New Zealand and optimize the benefits of the co-location of meetings (EXCOM, 2014 LOC; EXCOM 2013)**

M. Sparrow highlighted the close collaboration with IASC, which has been fruitful. He also informed the Delegates of the various MoUs that SCAR has with other organisations that are due to be reviewed and renewed if deemed useful.

**Action: SCAR to review all MoUs and Letter of Agreements (LoAs) that are coming up for renewal and renew/revise them as appropriate (EXCOM lead ED; EXCOM 2013)**

The formation of a CCAMLR AG was also welcomed to improve our interactions with this important Treaty body.

**Action: SCAR to form a SCAR/CCAMLR AG and approve membership and ToR in consultation with CCAMLR. The AG is expected to meet in 2012.**

### **7.3 The International Polar Initiative (IPI) [IP 11]**

M. Sparrow introduced the concept of an International Polar Initiative (IPI). Initial discussions (including a detailed response by the SCAR Executive Committee) on the concept of an International Polar Decade concluded that if the scientific community and funding agencies were going to support a follow-on to the International Polar Year, then the concept would need to be rethought and redrafted. In order to facilitate this, a Concept Note Steering Group was formed from representatives of AMAP, APECS, EPB-ESF, IASC, IASSA, ICSU, IOC, SCAR, WMO, UoA and UNEP. The International Polar Decade was thus renamed the International Polar Initiative to more accurately reflect its aim and purpose. The Executive Director represented SCAR, but included the rest of the Executive Committee in the discussions.

**Action: SCAR to include an article on the International Polar Initiative (IPI) in its Newsletter (in coordination with IASC to highlight the IPI concept) (Secretariat; end 2012)**

## **8. SCAR and Policy Advice**

### **8.1 Report of the Standing Committee on the ATS, including the Antarctic Conservation in the 21<sup>st</sup> Century Initiative [WP 25, IP25]**

S. Chown, CO of SC-ATS, reported on interactions with the Treaty, and on the Antarctic Conservation in the 21<sup>st</sup> Century Initiative.

The XXXV Antarctic Treaty Consultative Meeting (ATCM) and XV Meeting of the Committee for Environmental Protection (CEP) took place in Hobart, Australia, from June 10-20th 2012. SCAR provided five Working Papers (WPs), seven Information Papers (IPs) and one Background Paper (BP) on subjects such as: Outcomes from the Aliens in Antarctica Project (also the subject of the SCAR lecture by Aleks Terauds),

Tsunami risks, Antarctic Conservation Biogeographic Regions, Anthropogenic sound in the Southern Ocean, the SCAR Products, the Southern Ocean Observing System, an ACCE update and a paper on communicating climate change. Many were submitted jointly with other Parties, Observers and Experts. See <http://www.scar.org/treaty/atcmxxxv/> for all papers.

Recognizing the need for an integrated, comprehensive and dynamic plan for the conservation of Antarctica and associated and dependent ecosystems, initial steps have also been taken by SCAR, New Zealand and the International Union for Conservation of Nature (IUCN) to formulate a strategy for the future based on the latest developments in conservation science and practice. IP25 describes developments to date and proposes a methodical way forward in the development of what is collectively referred to as the Antarctic Conservation Strategy (ACS). A draft preliminary list of the issues to be included in the ACS is appended in the paper. The ACS will only be as useful as the extent to which it is a dynamic strategy supported by all stakeholders and broadly implemented. Further activities will seek the assistance and advice of all of those with an interest and stake in Antarctic conservation.

S. Chown reiterated the point that the Social Sciences Group (e.g. the concept of Wilderness values) and the History Group (e.g. gaining historical knowledge as to whether certain areas are truly inviolate) can play an important role from a Treaty perspective. The Delegates commented that it might be worth considering including a member of the Social Sciences AG in SC-ATS.

**Action: SC-ATS to consider inclusion of a member of the Social Sciences AG in SC-ATS (SC-ATS CO; end of the year)**

S. Chown iterated the importance of the SSGs highlighting activities of relevance to the Treaty.

**Action: SSG COs to highlight activities to SC-ATS they feel would be of interest to the CEP and Antarctic Treaty (SSG COs, SCATS CO; ongoing)**

The CEP Observer, V. Vallejos, congratulated SCAR on all the work that has been done in support of the CEP over the years. The support given by SCAR was seen as critical to the deliberations of the CEP.

## **8.2 Advice to other bodies, such as the IPCC [IP 12]**

M. Sparrow commented on SCAR interactions with other policy bodies. SCAR has a dual mission of science coordination and policy advice. With regard to the latter the focus is very much on providing independent, objective advice to the Antarctic Treaty. However, SCAR also provides advice to other bodies, in particular with regard to the issue of climate change. For example, SCAR is an Observer to the United Nations Framework Convention on Climate Change (UNFCCC) and sometimes uses ICSU's observer status to the IPCC to attend relevant workshops or meetings, mainly to provide advice on ice sheet mass balance and sea level. SCAR also contributes to the literature relevant to the IPCC process through individual publications by SCAR scientists and overarching programmes such as AGCS and the proposed SRP AntClim<sup>21</sup>.

At the last Treaty meeting, Norway asked if SCAR would be willing to attend the UNFCCC meetings in order to highlight relevant Antarctic and Southern Ocean Science.

**Action: SCAR to consider Norway's offer at CEP Meeting to fund SCAR attendance to the UNFCCC (ED; prior to ATCM 2013)**

## 9. Capacity Building, Education and Training: Progress and Plans

### 9.1 The SCAR Fellowship Programme [IP 13]

SCAR Vice President, R. Ravindra, reported on the SCAR/COMNAP Fellowship programme. The Fellowship programme is a key capacity building activity that SCAR undertakes. Since 2011, this has been a joint effort with COMNAP. Out of 18 valid applications, three SCAR Fellowships, one Joint SCAR-COMNAP Fellowship, and one COMNAP Fellowship were awarded (total five). The selection committee consisted of EXCOM members, SSG/SRP Officers (or their representatives), members of the CBET group, representative of COMNAP, and representative of APECS.

2012 Fellowships were awarded to:

Applicant's Name	Fellowship from:	Country of Birth / Citizenship	Home Country	Host Country	Relevance	Amount requested (USD)
Elizabeth Shadwick	SCAR	Canada	Australia	USA	PS, LS & AntEco	US\$ 8020
Bethan Davies	SCAR	UK	UK	New Zealand	ACE & PAIS	US\$ 11612
Megumu Tsujimoto	SCAR	Japan	Japan	UK	EBA, AntEco, AnT-ERA	US\$ 7000
Ursula Rack	COMNAP	New Zealand	New Zealand	SPRI, UK	Social Science	US\$ 12000
Jenson V. George	SCAR-COMNAP combined fellowship	India	India	Germany	Climate change	US\$ 9200

**Action: Further partnership to be explored with CCAMLR for joint advertising of each organisation's Fellowships programmes (EO, Joint SCAR/CCAMLR AG; end 2012)**

**Action:** Delegates to consider making additional voluntary contributions to the SCAR Fellowship Scheme and ways to more widely advertise the programme (SCAR President, Delegates, Secretariat; EXCOM 2013).

**Action:** SCAR to explore further avenues of advertising the Fellowship programme (Secretariat; ongoing)

**Action:** SCAR to consider ways to raise the profiles of past/current SCAR fellows throughout the OSC (e.g. AGU Wall of Honour) to further communicate the programme to early career scientists (EO; end 2013)

### **9.2 The Martha T. Muse Prize [IP 14]**

R. Badhe reported on the Martha T. Muse Prize and interactions with the Tinker Foundation. Established in 2009, the Muse Prize gained global recognition both within the Antarctic and the general science community. Prize recipients have had international representation with winners from South Africa (2009), the USA (2010), Portugal (2011), and Australia (2012). The Tinker Foundation has provided an initial five years of funds for the Martha T. Muse Prize.

**Actions:** Further discussions to be held with the Tinker Foundation about the next five years of funding for the Muse Prize (2014-2018), and a colloquium/workshop for the first five years of the Prize to be held in 2014 in NZ (Secretariat, Development Council; EXCOM 2013)

### **9.3 The Visiting Professor Scheme [IP 15]**

R. Ravindra presented a draft visiting professor scheme, which had been started up with a voluntary contribution from India. The scheme provides mid- to late-career stage scientists and academics the opportunity to contribute to SCAR's objectives and become actively involved in Antarctic research.

**Action:** Secretariat to implement the Visiting Professor Programme (Secretariat; ASAP)

**Action:** Delegates to consider making voluntary contributions to the SCAR Visiting Professor Programme and to widely advertise the programme through letters from the Secretariat/President (SCAR President, Delegates, Secretariat; EXCOM 2013)

### **9.4 Relationship with APECS [IP 16]**

R. Badhe reported on SCAR interactions with APECS, which has proven to be highly beneficial to both organizations. In the past biennium, SCAR worked closely with APECS to involve early career scientists in all of its activities including, but not limited to, conferences, meetings, symposia, business meetings and scientific subsidiary bodies and programmes.

Since 2010, SCAR has supported several workshops, the APECS virtual poster session and has been successful in receiving ICSU grants jointly with APECS and other partners, the latest being to support the Ice Sheet Mass Balance and Sea Level (ISMSS) workshop in Portland.

### **9.5 Capacity Building, Education and Training including Future Plans [WP 26]**

R. Ravindra reported on SCAR CBET activities [WP 26]. The CBET committee has been assisting the Secretariat in managing the SCAR Capacity Building activities. Its main activities are assisting with the evaluation of the SCAR fellowship programme and the SCAR Medals, setting up the Visiting Professor scheme, and interactions with APECS, amongst other one-off SCAR capacity building activities like workshops.

**Action: The SCAR Development Council to focus on finding external funding contributions both from member countries and external agencies for capacity building activities (SCAR Development Council, Secretariat; ongoing)**

## **10. Communications: Progress and Plans**

### **10.1 The SCAR Website [IP 17]**

R. Badhe reported on progress with development of the next generation SCAR website, which had been carried out in consultation with SCAR groups and other external organisations. The new website will have a separate space (using a content management system) for each SCAR group, thus presenting a similar format and look for all SCAR groups. This will facilitate the ease of usage and clearly identify all SCAR groups, as well as interaction with the general public/educators/journalists/funding bodies.

**Action: The new SCAR website to provide a clear link to National SCAR Committees, where these exist, or national contact point (Secretariat, National Committees; EXCOM 2013)**

### **10.2 SCAR Communications and Climate Change [IP 18]**

R. Badhe reported on progress with Communications and Climate Change, and ways in which SCAR Climate Change communications could be further improved. Delegates noted Norway and the UK's funding (through their foreign offices) as well as that of the Antarctic and Southern Ocean Coalition to this initiative.

### **10.3 Other Communications activities (Social Networking, publications, SCAR Newsletter etc.) [IP 19]**

R. Badhe reported on other SCAR communication activities, including social media, news lists and newsletters. Delegates were asked to comment on the draft Social Media Policy, which provides guidance on the usage of social media for official purposes.

**Action: Secretariat to finalise and publish the Social Media Policy for SCAR (EO; EXCOM 2013)**

#### **10.4 SCAR Communications: Future Plans (Oral Report)**

Delegates agreed that the SCAR Communications plan should be revised by the CBET committee in the first instance and subsequently by EXCOM, in accordance with the agenda items 10.1-10.3, and actions therein.

**Action:** A revised plan to be submitted to the EXCOM Meeting in July 2013 (Secretariat, CBET Committee, EXCOM; EXCOM 2013)

### **11. Major Meetings**

#### **11.1 Report from Action Group on SCAR Meetings and Related Activities [WP 28]**

M. Kennicutt reported on the outcomes of the Action Group on SCAR Meetings and Related Activities, including the formation of a ten-year plan for meetings. SCAR supports, manages, and participates in a wide range of meetings and related activities that serve various scientific, administrative, and advisory purposes. This complex array of meetings and the activities necessary to plan and support them can create conflicts in scheduling and challenges for participation.

The following recommendations were adopted as Actions:

**Action:** CALENDARS - Once instituted, a set of online Calendars should be widely circulated using social media, emailing, and the website to promote and advertise SCAR's portfolio of scientific meetings (Secretariat; EXCOM 2013)

**Action:** Ensure recognition of SCAR's participation and support in all SCAR-supported meeting advertising and websites (Secretariat; ongoing)

**Action:** SCAR workshops and symposia should be scheduled (via the SCAR Calendars) to ensure optimal impact and communication so outcomes are presented at SCAR Symposia and/or the OSC and this should be a part of its Terms of Reference (Secretariat, Symposia/OSC LOC; ongoing)

**Action:** SCAR symposia outcomes should be a highlight of the OSC via Keynote lectures (Secretariat; ongoing)

**Action:** SCAR/IASC - SCAR and IASC should plan for a joint Arctic and Antarctic meeting every four to six years; SCAR should utilize BiPAG to facilitate and plan these events; The SCAR/IASC Executive Committees should continue joint meetings of opportunity (Please also see Agenda item 7.1) (SCAR and IASC EXCOMs and Secretariats; ongoing)

**Action:** APECS members should be included in all phases of SCAR's meetings (Secretariat and APECS ED; ongoing)

**Action:** SCAR should explore new and innovative ways to incorporate students and early career scientists into all of its meetings as a mentoring and capacity building opportunity (Please see Agenda item 9.4) (Secretariat, CBET Committee and APECS Secretariat; ongoing)

**Action:** Registration fee schedules should be optimized to increase income to the host; Revenue streams based on surcharges to fund activities that support

**SCAR's mission and increase access to the meetings should be continued (Secretariat, with LOC; ongoing)**

**Action: Opportunities for people to make charitable donations to SCAR should be developed and implemented (Please see agenda item 13.1) (Secretariat with Development Council; ongoing)**

### **11.2 The SCAR 2016 Meetings**

M. Kennicutt led discussions on bids to host the 2016 SCAR Meetings [see IPs 27a and 27b]. Malaysia was selected to host the 2016 meetings.

### **11.3 Plans for a Horizon Scanning Workshop [WP 28b]**

M. Kennicutt reported on plans for an Action Group to derive a strategy towards holding a Horizon Scanning Workshop, possibly in conjunction with the 2014 SCAR meetings. Delegates agreed to the formation of an Action Group to begin planning and fundraising for a "Horizon Scanning" Activity. The Delegates were of the opinion that the group needs to be inclusive but kept relatively small in number as it is only a planning group and not the group that will conduct the activity.

**Action: Form an Action Group to begin planning and fundraising for a "Horizon Scanning" Activity (Secretariat and EXCOM; ASAP, for meeting before December 2012)**

### **11.4: in agenda item 14.2**

## **12. SCAR Business**

### **12.1 Secretariat and EXCOM Reports [IP 21, 22, 23]**

S. Marensi summarised the Secretariat and EXCOM reports to the Delegates. It was noted that decisions on hiring a temporary Project Officer to assist in managing the biennial meetings in 2014 would be taken by EXCOM in 2013.

### **12.2 Progress against previous Actions [IP 24]**

S. Marensi highlighted progress with previous Actions. There was a suggestion from Delegates that the formation of the Finance Committee (especially the volunteers) should take place well in advance of the two-month time limit for the production of Finance papers for the 2014 Delegates.

### **12.3 SCAR Organisation: Advisory Groups [WP 29]**

S. Marensi introduced the concept of "Advisory Groups" to take into account current (and possible future) groups with an advisory (to the SCAR Delegates) role that do not fit well under the current structure. Delegates agreed the recommendation for the creation of SCAR Advisory Groups and also approved updating the Rules of

Procedure for Subsidiary Groups to ensure those groups that do not fit under the current structure are redefined so they do so.

Delegates raised a concern about the budgetary implications of creating more groups outside of the current SSG and SC structure. M. Sparrow answered that Advisory groups do not have an annual budget and that if funds for a meeting were required then EXCOM or the Delegates would approve this in advance.

**Action: Secretariat to (i) create an “Advisory Group” structure within the SCAR organisation plan, and to populate it with groups whose terms of reference include an advisory role and (ii) update the Rules of Procedure to take these new groups into account (Secretariat, COs of affected groups; EXCOM 2013)**

### **13. Finance – session 2 (CLOSED to all Observers)**

#### **13.1 The SCAR Development Council [WP 30]**

M. Kennicutt reported on progress with the formation of a SCAR Development Council (SDC) to assist the Secretariat and EXCOM in identifying potential sources of income.

The SCAR Strategic Plan 2011-2016 calls for the formation of a committee to identify sources of external funds and develop a strategy to diversify SCAR’s financial resources beyond membership fees, the SDC. The Terms of reference of the SDC are to:

- Consider various organizational models for development councils or groups for organizations like SCAR with similar goals and evaluate their applicability to SCAR.
- Identify the types of promotional materials that are needed to represent SCAR to external organizations and recommend development of advertising materials.
- Identify those aspects of SCAR’s mission that have the highest likelihood of resonating with external funders (capacity building, training, education and outreach, early career, etc.).
- Build a library of potential organizational targets for solicitation of funds with profiles.
- Identify the advantages of partnering with other organizations in fund-raising efforts and identify those partners that bring the greatest added value to the efforts.
- Consider the membership of the group and how it might be adjusted to greatest impact with regard to the organisational model recommend from item 1.
- Choose a few high probability targets and develop solicitations for funds for the above.



The initial SDC had a regional representation, and focused on investigating its ToRs etc., but the final structure will be up to Council itself. M. Kennicutt also announced his intention to step down as chair of the SDC.

**Action: With regard to the SCAR Development Council (SDC), EXCOM to:**

- **Recruit and appoint a new Chair to the SDC;**
- **Further consider the model for SDC membership;**
- **Identify a limited number of high priority SCAR activities and develop the types of promotional material needed for fundraising for these activities over the next biennium (EXCOM; ASAP)**

The point was made that promotional material should be translated into as many languages as possible.

### **13.2 Financial Statements for 2010, 2011 [WPs 31, 32]**

A. Huiskes, VP for Finance, presented the financial statements for 2010 and 2011.

Delegates approved the 2010 and 2011 statements.

### **13.3 Revised Budget for 2012 [WP 34]**

A. Huiskes presented the revised 2012 budget.

Delegates approved the 2012 budget; France abstained.

### **13.4 Budget for 2013 [WP 35]**

A. Huiskes presented the budget for 2013.

Delegates approved the 2013 budget; France abstained.

### **13.5 Budget for 2014 [WP 36]**

A. Huiskes presented the budget for 2014.

Delegates approved the 2014 budget; France abstained.

M. Friberg (Sweden), G. Heinemann (Germany) and J. Xavier (Portugal) were thanked by the Delegates for serving on the 2012 Finance committee.

### **13.6 Other Finance Matters (e.g. applications for major meeting funds)**

A. Huiskes led the discussion on allocation of the SCAR Major Meetings fund. The final decision was to award the \$10,000 to the SCAR Biology Symposium, but to encourage relevant SCAR groups to support the Gordon Symposium application for funds.

**Action: SCAR ED to write to leaders of proposals for SCAR Major Meeting funds for 2013 informing them of the Delegates' decision and to write to AGCS and SSG-PS encouraging them to support the unsuccessful Gordon Conference request (ED; ASAP)**

## 14. Actions Arising

### 14.1 Summary of Actions from 2012 Delegates' Meeting

The Delegates agreed that the Secretariat should send the draft Actions for comment and approval after the meeting by email.

### 14.2 Other Business, including plans for New Zealand 2014

B. Storey reported on plans for NZ 2014. The dates for the Open Science Conference have been confirmed as the 25-29<sup>th</sup> of August 2014.

The SCAR Delegates agreed the following statement on Russian activities at Vostok Station:

*“SCAR notes that Russian scientists have successfully penetrated Subglacial Lake Vostok paving the way for the first ever sampling of subglacial lake waters. This is an exciting event and the Russian Federation is congratulated on this monumental technological achievement. Little is known about these unique subglacial environments and a new era is beginning where sub-ice environments will be accessed across the Antarctic continent. SCAR further recognizes that Russia’s success at Lake Vostok is an important milestone in furthering our understanding of how Antarctica works as a system that influences global processes and change.”*

## 15. Elections

Elections for President and for two Vice Presidents were held.

J. López-Martínez from Spain was elected as the new SCAR President. K. Lochte from Germany and B. Storey from New Zealand were elected as the two new Vice Presidents. They will join Y-D. Kim (Korea) and S. Marensi (Argentina) as well as M. Kennicutt, who will remain on the Executive Committee for two years as Past President.

A. Huiskes and R. Ravindra were thanked by the Delegates for their many years of service to SCAR.

M. Kennicutt thanked all candidates for considering service in these important positions in SCAR.

## 16. Closure of the meeting

The SCAR President, M.C. Kennicutt II officially closed the meeting and recognized the new SCAR President, J. López-Martínez.

J. López-Martínez thanked M. Kennicutt for his service as SCAR President. Many Delegates and meeting attendees expressed their gratitude to M. Kennicutt for his four

years of service as President, which has been an extremely productive and active period for SCAR under his leadership.

M.C. Kennicutt II was awarded Honorary Membership of SCAR by unanimous agreement of the Delegates. Honorary memberships were also awarded to Phil Smith and Vladimir Kotlyakov for their many years of service to SCAR.

**Meeting End**

## Appendix – List of Acronyms

AA	Administrative Assistant
AAA	Astronomy & Astrophysics from Antarctica
ACCE	Antarctic Climate Change and the Environment
ACE	Antarctic Climate Evolution
ACS	Antarctic Conservation Strategy
ADD	Antarctic Digital Database
AG	Action Group
AGAFS	Action Group on Antarctic Fuel Spills
AGCS	Antarctica and the Global Climate System
AGU	American Geophysical Union
AMAP	Arctic Monitoring and Assessment Programme
AMD	Antarctic Master Directory
ANDRILL	Antarctic Geological Drilling
AntaBIF	Antarctic Biodiversity Information Facility
AntClim <sup>21</sup>	Antarctic Climate Change in the 21st Century
AntEco	State of the Antarctic Ecosystem
AnT-ERA	Antarctic Thresholds - Ecosystem Resilience and Adaptation
APECS	Association of Polar Early Career Scientists
AR5	Assessment Report Five (IPCC)
AR6	Assessment Report Six (IPCC)
ASAP	as soon as possible
ASPeCt	Antarctic Sea-Ice Processes and Climate
ATHENA	Advancing TecHnological and ENvironmental stewardship for subglacial exploration in Antarctica
BiPAG II	BiPolar Action Group
CAML	Census of Antarctic Marine Life
CBET	Capacity Building, Education and Training
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CEP	Committee for Environmental Protection (Antarctic Treaty)
CGA	Composite Gazetteer of Antarctica
CliC	Climate and Cryosphere
CLIVAR	Climate Variability and Predictability project
CO	Chief Officer
COMNAP	Council of Managers of National Antarctic Programs
DIMS	Data and Information Management Strategy
EBA	Evolution and Biodiversity in the Antarctic
ECA	Environmental Contamination in Antarctica
ED	Executive Director
EG	Expert Group
EG-ABI	Expert Group on Antarctic Biodiversity Informatics
EGU	European Geosciences Union
EO	Executive Officer
EPB-ESF	European Polar Board of the European Science Foundation
ERICON	European Polar Research Icebreaker Consortium
ERICON-AB	ERICON's Icebreaker Aurora Borealis
ES	Executive Secretary

EXCOM	Executive Committee
FARO	Forum of Arctic Research Operators
GBIF	Global Biodiversity Information Facility
GCMD	NASA's Global Change Master Directory
GIA	glacial isostatic adjustment
GIANT	Geodetic Infrastructure of Antarctica
GIPPS	WMO's Global Integrated Polar Prediction System
GRAPE	GNSS Research and Application for Polar Environment
GWSWF	GPS for Weather and Space Weather Forecasting Action Group
IACS	International Association of Cryospheric Sciences
IASC	International Arctic Science Committee
IASSA	International Arctic Social Sciences Association
IAU	International Astronomical Union
IBCSO	International Bathymetric Chart of the Southern Ocean
ICSU	International Council for Science
IGS	International Glaciological Society
IGU	International Geographical Union
INQUA	International Union for Quaternary Research
IOC	Intergovernmental Oceanographic Commission
IODP	Integrated Ocean Drilling Program
IP	Information Paper
IPCC	Intergovernmental Panel on Climate Change
IPI	International Polar Initiative
IPO	International Project Office
ISAES	International Symposium on Antarctic Earth Sciences
ISMASS	Ice Sheet Mass Balance and Sea Level
IUBS	International Union of Biological Sciences
IUCH	International Union of Circumpolar Health
IUCN	International Union for Conservation of Nature
IUGG	International Union of Geodesy and Geophysics
IUGS	International Union of Geological Sciences
IUPS	International Union of Physiological Sciences
LoAs	Letters of Agreement
LOC	Local Organising Committee
MapCat	SCAR Map Catalogue
MarBIN	Marine Biodiversity Information Network
MoU	Memorandum of Understanding
NADC	National Antarctic Data Centres
NASA	US National Aeronautics and Space Administration
OBIS	Ocean Biogeographic Information System
OSC	Open Science Conference
PAIS	Past Antarctic Ice Sheet dynamics
PCPBEA	Prediction of Changes in the Physical and Biological Environment of the Antarctic AG
POGO	Partnership for Observation of the Global Oceans
PPG	Programme Planning Group
RCP	Representative Concentration Pathways (adopted for IPCC's AR5)
SC-ADM	Standing Committee on Antarctic Data Management
SC-AGI	Standing Committee on Antarctic Geographic Information
SC-ATS	Standing Committee on the Antarctic Treaty System

SC-Finance	Standing Committee on Finance
SCOR	Scientific Committee on Oceanic Research
SDC	SCAR Development Council
SERCE	Solid Earth Response and influence on Cryosphere Evolution
SOOS	Southern Ocean Observing System
SRP	Scientific Research Programme
SSAG	Social Sciences Action Group
SSG	Standing Scientific Group
SSG-GS	Standing Scientific Group on GeoSciences
SSG-LS	Standing Scientific Group on Life Sciences
SSG-PS	Standing Scientific Group on Physical Sciences
ToRs	Terms of Reference
UoA	University of the Arctic
UNEP	United Nations Environment Programme
UNFCCC	United National Framework Convention on Climate Change
URSI	Union Radio Scientifique International
VP	Vice President
WCRP	World Climate Research Programme
WMO	World Meteorological Organisation
WP	Working Paper