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**Report of the XXXIII SCAR Delegates' Meeting  
Auckland, New Zealand  
1- 3 September 2014**



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## Report of the XXXIII SCAR Delegates' Meeting Auckland, New Zealand, 1- 3 September 2014

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## Report of the XXXIII SCAR Delegates' Meeting Auckland, New Zealand, 1- 3 September 2014

### **In Attendance:**

**Executive Committee:** *J. López-Martínez (President), M.C. Kennicutt II (Past President), Y.D. Kim (Vice President), K. Lochte (Vice President), B. Storey (Vice President), M. Sparrow (Executive Director).*

**Full Members:** *N. Coria (Argentina), V. Alder (Argentina), D. Bergstrom (Australia), T. van Ommen (Australia), F. Pattyn (Belgium), I. Gorodetskaya (Belgium), J. Simões (Brazil), E. Secchi (Brazil), C. Pimpirev (Bulgaria), D. Scott (Canada), M. Leppe (Chile), V. Vallejos (Chile), Wu J. (China), M. Poutanen (Finland), J.M. Rintala (Finland), R. Schlich (France), M. Raccurt (France), K. Lochte (Germany), G. Heinemann (Germany), S. Rajan (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. Mohd Nor (Malaysia), J. Stefels (Netherlands), M. van Leeuwe (Netherlands), B. Storey (New Zealand), G. Wilson (New Zealand), J.G. Winther (Norway), A. Gaździcki (Poland), I. Mokhov (Russia), M. Moskalevsky (Russia), I. Mieklejohn (South Africa), J. López-Martínez (Spain), J. Galindo-Zaldivar (Spain), M. Andersson (Sweden), K. Steffen (Switzerland), M. Schneebeili (Switzerland), J. Francis (UK), D. Hopkins (UK), T. Wilson (USA), D. Karentz (USA).*

**Union Members:** *J. Storey (IAU), N. Fomproix (IUBS), I. Allison (IUGG), C.A. Ricci (IUGS).*

**Associate Members:** *R. Forsberg (Denmark), C. Le Bohec (Monaco), P. Guerreiro (Portugal), F. Toparceanu (Romania), E. Sira (Venezuela).*

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

**Observers:** *G. Fugmann (APECS), A. Khan (APECS), V. Rachold (IASC), K. Schollän (IPA), P. Reid (YOPP/WMO), L. Newman (SOOS), S. Pendlebury (WMO), M. Barták (Czech Republic), P. Kapler (Czech Republic), V. Chegini (Iran), S.Z. Madani (Iran), A. Saleh (Iran), N. Gales (Australia), D. Sampaio (Brazil), M. Braun (Germany), A. Di Donato (Italy), R. Mohamed (Malaysia), J. Whittington (Monaco), M. Sidoroff (Romania), L. Geller (USA), C. Castellanos (Venezuela).*

**SCAR Subsidiary Groups:** *J. Galindo-Zaldivar (SSG-GS), G. Hosie (SSG-LS), D. Bromwich (SSG-PS), J. Storey (AAA), A. Terauds (AntEco and SC-ATS), J. Xavier (AnT-ERA), C. Escutia (PAIS), T. Wilson (SERCE)..*

**Explanatory Note:** *several names appear more than once in the attendees list as some people represent more than one body*

## **1. Opening Business**

### **1.1 Welcome**

J. López-Martínez, President of SCAR, opened the meeting at 08:45 and welcomed Delegates and Observers to the XXXIII SCAR Delegates' meeting. Sir Peter Gluckman, Science Advisor to the Prime Minister of New Zealand, welcomed Delegates to New Zealand.

### **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).

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

### **2.1 Applications of Czech Republic and Islamic Republic of Iran for Associate Membership of SCAR (WPs 5a, 5b)**

The papers for these applications were distributed in advance of the meeting and were available as WP5a and WP5b. The Observers from the Czech Republic and the Islamic Republic of Iran each presented their application for Associate Membership of SCAR. After due consideration, the Czech Republic and the Islamic Republic of Iran were welcomed as the thirty-eighth and thirty-ninth countries to join SCAR.

During discussions under this agenda item, some Members asked for clarification on the Rules of Procedure regarding the transition of members from Associate Member status to Full Member status. The Executive Director clarified that it is expected that Associate Members will eventually become Full Members, but there is no requirement that they do so. He further noted that applications for Full membership needed to have a detailed science outline, while applications for Associate membership simply needed to express an interest in undertaking Antarctic scientific research.

*Action: Secretariat to remind Associate Members that the SCAR Rules of Procedure state that Associate Members are encouraged to apply for Full Membership at some point (ED; by EXCOM 2015)*

### **2.2 SCAR Membership issues, including possible future members**

The Executive Director, M. Sparrow, noted discussions about membership with Austria, Colombia, Kazakhstan, Saudi Arabia, Thailand, Turkey and Belarus. He informed the Meeting that a number of membership applications could be expected for consideration at the 2016 and 2018 Meetings.

In response to an invitation for Delegates to suggest ways in which additional members may be recruited, Brazil and Malaysia noted that, apart from South Africa, SCAR lacked involvement of African countries.

*Action: SCAR to explore how to increase involvement of African Countries in SCAR Research (ED, EXCOM, SA Delegation; by 2016 Delegates' Meeting)*

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

The SCAR President, J López-Martínez, chaired this agenda item.

#### **3.1 Notification of elections of two Vice Presidents**

The President noted that the Offices of two Vice Presidents (S. Marensi and Y-D. Kim) would fall vacant at the end of the meeting, the incumbents having completed their appointed terms of office. The Executive Director briefly reviewed SCAR election procedures. Later in the meeting, T. Wilson (USA) and A. Samah (Malaysia) were elected as the two new Vice Presidents of SCAR.

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

The Delegates appointed two new full members of the Finance Committee (G. Heinemann, Germany, and M. Leppe, Chile) and two *ad hoc* members (D. Scott, Canada, and S. Imura, Japan).

A. Terauds was also endorsed by the SCAR Delegates as the new Chief Officer of SCATS.

### **4. Science (OPEN)**

#### **4.1 The SCAR Horizon Scan (WP 6)**

The SCAR Past President, M.C. Kennicutt II, presented the outcomes of the SCAR Science Horizon Scan, the final meeting of which was held in New Zealand in April. At this meeting, SCAR convened 75 scientists and policy-makers from 22 countries to agree on the priorities for Antarctic research for the next two decades and beyond. This was the first time the international Antarctic community had formulated a collective vision through discussions, debate and voting. The Horizon Scan narrowed a list of hundreds of scientific questions to the 80 most pressing ones. The outcomes have been published in both *Nature* and *Antarctic Science*:

- <http://www.nature.com/news/polar-research-six-priorities-for-antarctic-science-1.15658>
- <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=9352045&fulltextType=RA&fileId=S0954102014000674>

Many SCAR groups (in particular the SSGs) are analysing the outcomes of the scan with a view to influencing, for example, the need for forming new groups to answer particular challenges. Discussions are already underway with COMNAP and others to look into the technological aspects, i.e. what new technology may be needed in order to answer specific questions? The Delegates noted the support provided by the Tinker Foundation, NZARI, Antarctica New Zealand and others, which were crucial to this endeavour.

## 4.2 SCAR SSGs: Highlights, Progress and Plans

SCAR Vice President, Y-D. Kim chaired this item. He reminded Delegates of the importance of appointing up to four representatives to each SSG to ensure that SCAR can operate effectively and represent the interests of each Member.

### 4.2.1 Report of SSG Physical Sciences (WP 7)

The Chief Officer of SSG Physical Sciences, D. Bromwich, introduced this item and reported briefly on progress and plans.

D. Bromwich summarised activities with regard to subsidiary groups:

- The ICESTAR Expert Group (EG) should be disbanded because the group has been inactive for several years. A replacement Action Group (AG) SERAnt has been proposed.
- ASPeCt should become a SCAR Expert Group because it does not have a definite home within the SCAR structure at the moment. It has an expected long lifetime that fits with an Expert Group designation. An eight-year duration is recommended.
- The ICED Expert Group (joint with Life Sciences) should become a co-sponsored activity of SCAR.
- A new Action Group within SSG-PS called SERAnt (Sun Earth Relationships and Antarctica) is proposed to determine the Terms of Reference for an Expert Group on solar terrestrial physics to be proposed at Kuala Lumpur. This will replace ICESTAR.
- A new Action Group within SSG-PS called SnowAnt (Snow in Antarctica) is proposed to identify undisturbed snow areas in Antarctica and to characterize their properties. This may evolve into an EG.

The SCAR Delegates approved the above recommendations from SSG-PS with regard to its subsidiary groups. The following Actions were also agreed:

*Action: SSG-PS and LS to engage with leadership of ECA group to decide if continuation of the group is warranted. (SSG-PS and LS chairs; ASAP)*

*Action: SCAR President to draft a letter to national representatives to iterate that (1) SCAR requests that national programmes which operate shipping in the sea ice zone participate, where possible, in the underway sea ice data collection according to the ASPeCt protocols, (2) SCAR encourages national programmes to continue to make their meteorological data available in near real time to global weather forecast centres and to make observations from ships and aircraft where possible (President, ED, all NAPs; end 2014)*

### 4.2.2 Report of SSG Life Sciences (WP 8)

The Chief Officer of SSG Life Sciences, G. Hosie, introduced this item and reported briefly on progress and plans.

G. Hosie reminded Delegates of the main achievements of SSG-LS, in particular the publication of the Biogeographic Atlas of the Southern Ocean. The main objectives of the atlas were to provide a benchmark of the Southern Ocean biogeography knowledge, following CAML, and to fulfil the needs of biogeographic information for

science, conservation, monitoring and sustainable management of the Southern Ocean, in the context of environmental change and increasing human pressure. The original atlas is available for purchase through Amazon and an online version is being developed via [www.biodiversity.aq](http://www.biodiversity.aq).

G. Hosie commented on the success of the 2013 SCAR Biology Symposium held in Barcelona, Spain and informed the Delegates that the 2017 SCAR Biology Symposium will be held in Brussels, Belgium. Two new Action Groups were also approved:

- *ANTOS (Antarctic Nearshore Terrestrial Observing System)*  
Which will aim to establish an integrated and coordinated transcontinental and trans-regional environmental surveillance system to identify and track environmental variability and change at biologically relevant scales, and to use this information to inform biological, physical, and earth science studies.
- *ISSA (Integrated Science for the Sub-Antarctic)*  
The objectives of ISSA are to:
  - Provide a comprehensive overview of past and current sub-Antarctic science;
  - Identify pressing science questions for current and future work based on national priorities, strengths, and 1<sup>st</sup> SCAR Horizon Scan questions;
  - Identify key lessons for science, conservation, and policy across the region;
  - Develop a network of scientists across the region, including support for early career researchers.

The formation of the above groups, Terms of Reference and initial steering committees were approved. The following Actions were also agreed:

**Action:** SCAR to send a letter of commendation to Professor Claude De Broyer and Dr Philippe Koubbi congratulating them on producing the *Biogeographic Atlas of the Southern Ocean* and to Dr Claude Bachelard for his decades of service to Antarctic medical practice and research (SCAR President; ASAP)

**Action:** SCAR Secretariat to review the use of conference facility software for use by Secretariat, EXCOM and SCAR groups (EO; by EXCOM 2015)

**Action:** SCAR Secretariat to review timings of SCAR Business Meetings at future OSCs (ED; ASAP)

#### 4.2.3 Report of SSG Geosciences (WP 9)

The deputy Chief Officer of SSG Geosciences, J. Galindo-Zaldívar, introduced this item and reported briefly on progress and plans.

Three new groups were proposed:

- *Expert Group on Antarctic Volcanism*  
Aims:
  - To promote the study of Antarctic volcanism and disperse information;
  - To discuss protocols, methods, best practices;
  - To integrate and share geological information;
  - To facilitate regional correlations (e.g. tephrochronology);



- To compile, integrate and publish databases (e.g. outcrop maps, geochemistry);
  - To identify priorities, critical issues, future scientific directions;
  - To develop collaborations and international joint research projects;
  - To exchange data and ideas with other SCAR Scientific Programmes or Expert Groups;
  - To provide a clear route map for obtaining expert advice in case of volcanic crises, e.g. Deception Island, Mount Erebus, Mount Melbourne;
  - To develop productive links with related science disciplines (e.g. glaciology, biology, modelling).
- *Action Group on Geoheritage (and Geo-Conservation) in Antarctica*  
Aims to improve understanding of surface processes and landscape vulnerability and spatial issues with defining areas for special management. Identify geological “values”.
  - *Action Group on Geological Mapping Update of Antarctica*  
Aims to capture existing geological map data, update its spatial reliability, improve representation of glacial sequences and geomorphology, and enable data delivery via web-feature services.

**Action:** SCAR Secretariat to contact SSG-GS leadership about proposed new groups to ensure they have ToRs and proposed leadership and membership for approval by SCAR EXCOM. SSG-GS to send the information to the Secretariat. (ED, SSG-GS COs; ASAP)

As well as the formation of the above groups, SSG-GS recommended the discontinuation of the Action Group on Multibeam Data Acquisition. It also endorsed Dr Phil O’Brien as the SSG-GS representative to SCATS until 2016.

SSG-GS also requested endorsement by SCAR for the UN Resolution recommended by the Committee of Experts on Global Geospatial Information Management (UN-GGIM) regarding the importance of a Global Geodetic Reference Frame for Sustainable Development.

**Action:** SCAR President to send a letter of support for the UN-GGIM (Global Geospatial Information Management) resolution and SCAR to be involved in UN GGRF (Global Geodetic Reference Frame) WG activities (SCAR President, SSG-GS COs, ED; ASAP)

### **4.3 SCAR Scientific Research Programmes**

Y-D. Kim introduced this item. Delegates were reminded that these were the first Delegates’ Meeting reports for the new SRPs and that AAA had undergone an external review.

#### **4.3.1 Astronomy and Astrophysics from Antarctica (AAA), including external review (WP 10)**

The Chief Officer, J. Storey, presented progress and plans for the SRP Astronomy and Astrophysics from Antarctica (AAA), including the responses to the external review.

The external reviewers were extremely positive about the progress that AAA had made to date. The main points raised by the review were that AAA should:

- Formulate a clear vision, with informative advice, on what type of observations are needed and where;
- Encourage collaboration by all countries towards new accomplishments, not repetition of existing results;
- Extend the site-testing database to cover astronomical data, including consideration of joining the Astronomical Virtual Observatory;
- Increase education/outreach, especially to general public, colleges, high schools, museums;
- Build more capacity in countries with less developed Antarctic astronomy programmes.

As well as answering the reviewers' points, the main goals over the next period for AAA are to:

- Create an international Antarctic astronomical observatory (multi-site);
- Develop the searchable site-testing database into a data portal;
- Create materials and mechanisms for improved outreach.

The SCAR Delegates agreed to the continuation of AAA for a further four years.

*Action: AAA to take into account outcomes of external review and report on progress to SCAR EXCOM in 2015 (AAA CO; EXCOM 2015)*

#### **4.3.2 State of the Antarctic Ecosystem (AntEco) (WP 11)**

The Chief Officer, A. Terauds, reported on progress and plans for the SRP State of the Antarctic Ecosystem (AntEco), including the new leadership of AntEco as A. Terauds steps down as CO to become CO of SCATS. He will be replaced by two co-Chief Officers, Jan Strugnell and Huw Griffiths.

The overarching questions/objectives of AntEco are:

- Evolution and current status of Antarctic biodiversity;
- Diversity and distribution of Antarctic biodiversity;
- Inform and improve conservation planning.

Science highlights included:

- Conference Sessions (including non-Antarctic) e.g. Antarctic Symposium at the Ecological Society of Australia and New Zealand Conference in Auckland, August 2013;
- Cooperative management of large scale datasets e.g.
  - mARS (microbial Antarctic Resource System),
  - biodiversity.aq (the Antarctic biodiversity information system),
  - Southern Ocean Biogeographic Atlas;
- High impact scientific papers.

Over the next funding cycle (2015 and 2016), AntEco will continue to fund activities that facilitate collaboration, progress research priorities and engage young scientists.

AntEco proposes to support 2-3 workshops in 2015 (approximately \$7-10k allocated to each from the 2015 budget) and 1-2 in 2016 (approx. \$10k allocation from the 2016 budget). Funding will also be allocated to assist with travel costs associated with the SCAR Open Science Conference in Malaysia in 2016 (approx. \$10k allocation from the 2016 budget).

#### **4.3.3 Antarctic Thresholds – Ecosystem Resilience and Adaptation (AnT-ERA) (WP 12)**

Steering Committee member, J. Xavier, reported on progress and plans for the SRP Antarctic Thresholds – Ecosystem Resilience and Adaptation (AnT-ERA). AnT-ERA has had a focus on education and outreach, being involved in several workshops and providing 15 mini-grants for early career scientists. Strong linkages have been made with other SCAR activities such as AntClim<sup>21</sup>, AntEco and the SOOS, as well as with other organisations such as IASC and APECS.

#### **4.3.4 Antarctic Climate Change in the 21<sup>st</sup> Century (AntClim<sup>21</sup>) (WP 13)**

D.H. Bromwich reported on progress and plans for the SRP Antarctic Climate Change in the 21<sup>st</sup> Century (AntClim<sup>21</sup>). The next steps for this programme include to:

- Complete implementation plan (October 2014);
- Submit publication to PNAS (November 2014);
- AntClim<sup>21</sup> Webpage and Facebook to be updated (December 2014);
- Second AntClim<sup>21</sup> Workshop (December 2014);
- AntClim<sup>21</sup> Symposium (2016?).

#### **4.3.5 Past Antarctic Ice Sheet Dynamics (PAIS) (WP 14)**

The co-Chief Officer, C. Escutia, reported on progress and plans for the SRP Past Antarctic Ice Sheet Dynamics (PAIS). She reported on progress to date, including several workshops and meetings, as well as a number of scientific publications and support of early career scientists to attend summer schools and workshops. PAIS is now divided into six subcommittees (see below) and is considering adding a seventh subcommittee on bipolar issues:

- Palaeoclimate Records from the Antarctic Margin and Southern Ocean (PRAMSO);
- Palaeotopographic-Palaeobathymetric Reconstructions;
- Subglacial Geophysics;
- Ice Cores and Marine Core Synthesis;
- Recent Ice Sheet Reconstruction;
- Deep-Time Ice Sheet Reconstructions.

#### **4.3.6 Solid Earth Responses and Influences on Cryospheric Evolution (SERCE) (WP 15)**

The Chief Officer, T. Wilson, reported on progress and plans for the SRP Solid Earth Responses and Influences on Cryospheric Evolution (SERCE). Activities to date have focussed on a number of thematic workshops, training schools and on

facilitating data exchange. 2015-16 activities will follow this vein with a focus on the ISAES meeting as well as a number of training schools and other conferences.

#### **4.4 Other Science Topics:**

##### **4.4.1 The Social Sciences Action Group (WP 16)**

Y-D. Kim reported on progress with the Social Sciences Action Group (SSAG). The group's aims include understanding the range of human values associated with Antarctica, discussing the ways in which these values may have an impact on human activity in the Antarctic, and developing an open network of social scientists and humanities researchers interested in the intersection of society and polar activities.

In the future, the group aims to continue to raise the profile of SCAR in the public realm and in the social science and humanities research communities by demonstrating that SCAR supports multi-disciplinary research efforts outside the realm of the natural sciences. A range of academic publications resulting from this research effort will bolster SCAR's scholarly record in the social sciences and humanities.

The Delegates approved the request of the Social Sciences Action Group to become an Expert Group, initially to 2018.

##### **4.4.2 The History Expert Group (WP 17)**

Y-D. Kim reported on progress with the SCAR History Group. The History EG and the Social Sciences AG organized a first joint workshop on "*The past, present and future of human connections to the Antarctic*" at the British Antarctic Survey in Cambridge (UK) from 1-5 July 2013. 52 participants from 16 countries presented the results of their recent research in 39 oral papers. Next year (2015) the group are planning a major workshop on Antarctic Humanities.

##### **4.4.3 The Southern Ocean Observing System (SOOS) (WP 18)**

L. Newman, Executive Officer of SOOS, reported on progress with the Southern Ocean Observing System (SOOS). The SOOS is sponsored by SCAR and SCOR, and currently endorsed by POGO and the WCRP projects CLIVAR and CliC. The main aims of the SOOS are to:

- Design and implement a comprehensive and multi-disciplinary observing system for the Southern Ocean;
- Advocate and guide the development of new observations technologies;
- Unify current observation efforts and leverage further resources;
- Effectively integrate and coordinate national and international projects and programmes, across disciplinary boundaries and between nations;
- Facilitate and develop a data system that provides seamless access to essential data products for the Southern Ocean.

L. Newman outlined changes in the membership of the Scientific Steering Committee as well as plans for a new governance structure to improve implementation efforts. Other SOOS activities included:

- Identification of ecosystem Essential Ocean Variables (EOVs);
- A proposed West Antarctic Peninsula Working Group;
- A SOOS International Strategy for Under Ice Observations.

The 2015 SOOS Scientific Steering Committee meeting will be hosted by the Institute for Marine and Antarctic Studies at the University of Tasmania, Australia (IMAS-UTas) (likely to be April-May).

*Action: SOOS to investigate methods of improving national representation / contact within its structure (SOOS EO and SCAR ED; EXCOM 2015)*

#### **4.4.4 The Southern Ocean Acidification Report (WP19)**

M. Sparrow reported on the plans for publication and launch of the SCAR Ocean Acidification Report. The report itself was originally scheduled for publication (after review) in August 2014. However, although the majority of the report has already been drafted, because of the time commitments of various of the co-authors this has been delayed to 1st June 2015 to coincide with the next Antarctic Treaty Meeting. It is recognised that this report will have an impact beyond SCAR, in particular within the Antarctic Treaty System.

#### **4.4.5 Review of SCAR co-sponsored groups and activities (WP 20)**

Y-D. Kim reported on the review of SCAR co-sponsored groups and activities, including recommendations.

Noting that SCAR now co-sponsors groups and activities jointly with other organisations, the SCAR Executive decided to carry out an internal review of these co-sponsorships to:

- Ensure that such co-sponsorships are of benefit both to SCAR and to the groups/activities themselves and make recommendations on a case-by-case basis as to how such co-sponsorships could be improved;
- Come up with recommendations as to how such groups/activities are best handled within the current SCAR structure.

The full report can be accessed from <http://www.scar.org/meetings/33scar-papers>, but in conclusion, after discussions amongst the SSGs and the Delegates, the final recommendations were:

*1. The Southern Ocean Observing System (SOOS)*

*Recommendation:* SCAR continues to support this high-profile activity as a separate budgeted item. In line with all SCAR activities, support of the SOOS should be reviewed after a set time. Suggested time for review would be 2017, to report to the 2018 Delegates' Meeting.

*2. The Climate and Cryosphere project of WCRP (CliC)*

*Recommendation:* CliC to remain as a SCAR co-sponsorship to ensure connections with this activity of WCRP (noting that under the new MoU SCAR does not actually co-sponsor CliC, but rather partners with CliC on relevant activities). To be reviewed at the same time as the MoU with CliC comes up for renewal (2018).

*3. The Southern Ocean CLIVAR/CliC/SCAR implementation panel*

*Recommendation:* There is a need to ensure linkages are kept up-to-date with this activity. It should be ensured that funds used for this activity involve a SCAR-nominated person attending the meeting to ensure improved two-way communication. This should continue as a co-sponsored activity, though also be reviewed in the future, perhaps when the MoU with CliC comes up for renewal (2018).

4. *Integrating Climate and Ecosystem Dynamics (ICED)*

*Recommendation:* ICED should no longer be an EG of Life Sciences, but should continue as a co-sponsored activity. A time for this activity to be reviewed should be set (perhaps 2016, at the same time as the SOOS).

5. *International Partnership in Ice Core Sciences (IPICS)*

*Recommendation:* IPICS should continue as an EG under Physical Sciences. Once the lifetime of the EG comes to an end, a decision will need to be made as to whether it continues as a co-sponsorship.

6. *ASPeCt (Antarctic Sea-Ice Processes and Climate)*

*Recommendation:* ASPeCt should become a SCAR EG under Physical Sciences with a defined lifetime of eight years.

7. *ISMALSS (Ice Sheet Mass Balance and Sea Level)*

*Recommendation:* ISMALSS should continue as an EG of Physical Sciences until the end of its allotted lifetime.

8. *ITASE (International Trans Antarctic Scientific Expedition)*

*Recommendation:* SSG-PS to continue discussions with AntClim<sup>21</sup>, ITASE and EXCOM to discuss if ITASE should be an EG under SSG-PS or remain part of AntClim<sup>21</sup>.

9. *Antarctic and sub-Antarctic Permafrost, Soils and Periglacial Environments (ANTPAS)*

*Recommendation:* ANTPAS should continue as an EG of SSG-GS.

10. *SCAR / COMNAP Joint Expert Group on Human Biology and Medicine (JEGHBM)*

*Recommendation:* No further action required at this stage.

**Action:** *In light of the outcomes of the review of the SCAR co-sponsored groups and activities (a) Secretariat to ensure recommendations are carried out and affected groups are made aware of any changes and (b) SCAR Secretariat and EXCOM to ensure such groups are reviewed mid-way through their lifetimes. (SCAR EXCOM and ED; end 2014)*

#### 4.4.6 The International Polar Partnership Initiative (WP 21)

V. Rachold, the IASC Executive Secretary, reported on the International Polar Partnership Initiative (IPPI). The IPPI is envisioned as a platform to bring together organizations (national, international, intergovernmental, academic, industrial, etc.) with interests in the following goals:

- Bring together and coordinate those working on polar issues to identify synergies and effectively use existing resources to address important issues of common interest;

- Facilitate research to address interaction of human and biophysical systems on many timescales; and
- Develop a nuanced understanding of the human and natural processes in the poles that directly relate to the future of people around the world.

With these goals in mind, promising directions for the IPPI are those which advocate for further, nuanced knowledge of the poles, engage all stakeholders, are relevant to societal issues, and, most importantly, benefit from enhanced collaboration and coordination in polar activities, such as:

- Establishing and maintaining polar observing, assessment, prediction, and services systems;
- Promoting interdisciplinary/multiplatform data collection, exchange, and interoperability;
- Building capacity in communities of polar scientists and practitioners;
- Developing a common language and cooperative synergistic relations between local peoples, social and natural scientists, and practitioners.

The SCAR ED has represented SCAR on the concept note steering group and EXCOM have been kept informed of developments. An implementation plan is currently under development. The idea behind the IPPI is to secure the legacy and momentum of the IPY. A general comment made by several Delegates was the need to involve a more bottom-up approach to involve scientists directly and to ensure enthusiasm for the initiative. There were differing opinions on the initiative, but it was agreed that SCAR should remain involved in the concept stage.

#### **4.4.7 The Year of Polar Prediction 2017-2019**

P. Reid reported briefly on the WMO Year of Polar Prediction (see <http://polarprediction.net>). The Year of Polar Prediction (YOPP) focuses on observing, modelling, prediction, verification, user-engagement and education activities and is currently in the preparation phase. P. Reid noted the importance of engaging relevant SCAR groups such as AntClim<sup>21</sup>.

#### **4.4.8 Other WMO Activities (IP 13)**

The WMO Observer, S. Pendlebury, gave Delegates a brief overview of other WMO polar activities of relevance to SCAR, including the Polar Space Task Group and the Global Integrated Polar Prediction System.

It is a policy of the World Meteorological Organization (WMO) that meteorological (and related) services, such as Antarctic weather forecasting, should be underpinned by methodologies, which are based on “solid” research and development. It is appropriate, therefore, that WMO and SCAR work together to facilitate the delivery of effective Antarctic-focused meteorological and related services designed to mitigate “real-time” risks to human operations in the Antarctic, and to mitigate risks to the Antarctic environment resulting from human-induced climate change. SCAR’s role in this partnership would, of course, be based on its capacity for fostering and delivering excellent Antarctic-related science: WMO’s role is to guide and assist its relevant Member States in developing and delivering the services themselves in an effective and efficient manner. To this end, WMO has established its Executive

Council panel of experts on Polar Observations, Research and Services (EC-PORS) – SCAR has been a very welcome contributor to recent meetings of EC-PORS.

WMO, through EC-PORS (and others), is championing key initiatives aimed at supporting the above service delivery - these include: a Global Integrated Polar Prediction System (GIPPS) informed by, among other things, a Polar Prediction Project (PPP) and a Polar Climate Predictability Initiative (PCPI). Exceedingly important to each of these are meteorological (and related) observations, whether obtained through the Antarctic Observations Network (AntON), or via the Global Cryosphere Watch (GCW), or space-based.

#### **4.4.9 The ICSU Unions and SCAR**

J. López-Martínez reported on interactions with the ICSU Unions and gave those Unions present the opportunity to highlight any possible areas of future cooperation with SCAR. This included information on the International Union of Geodesy and Geophysics (IUGG) General Assembly in Prague next year; information from the International Union of Geological Sciences (IUGS) on drilling and volcanic activities; links between the SCAR SRP AAA and the International Astronomical Union (IAU) and the links between the International Union of Biological Sciences (IUBS) and the SCAR biology programmes.

Thanks to the fact that the ICSU and SCAR meetings were being held in the same venue, there was the opportunity for interactions between both organisations, including a joint EXCOM dinner.

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

SCAR Vice President Y-D. Kim led this item.

### ***5.1 The Standing Committee on Antarctic Data Management (SCADM) (WP 22)***

M. Sparrow reported on progress and plans with SCADM, using a presentation supplied by the SCADM Chief Officers.

The Chief Officer of SCADM is now Anton Van de Putte (Belgium) and deputy Chief Officers are Claudio Rafanelli (Italy) and Bob Arko (USA).

During SCADM's last meeting the SCAR Data and Information Strategy Implementation Plan was reviewed, which resulted in defining new projects:

- Project 1: Interoperable Data Repository Network;
- Project 2: Interact with various SCAR communities and improve the visibility and usability of their data outputs;
- Project 3: Liaise and coordinate on the development of best practices and standards with the arctic data management community.

A lack of engagement with many SCAR member countries is still an issue (only 14 countries sent representatives to the last meeting).



*Action: SCAR Delegates to provide national contacts for SCADM and SCAGI groups. There is a particular lack of engagement with Latin American countries (ED, SCAR Delegates; EXCOM 2015)*

*Action: EXCOM, with input from SCAGI and SCADM, to decide if the GIS package 'Quantarctica' should be officially endorsed as a SCAR Product (SCAGI and SCADM COs, ED; end 2014)*

## **5.2 The Standing Committee on Antarctic Geographic Information (SCAGI) (WP 23)**

M. Sparrow reported on progress and plans with SCAGI using a presentation supplied by the SCAGI Chief Officers. There were 19 delegates from 13 countries at the last meeting, with new members from Germany, Italy, Japan and Korea taking part.

During the SCAGI meeting, there were detailed discussions on the status and future progress of SCAR products, in particular:

- Antarctic Digital Database, Composite Gazetteer and Map Catalogue;
- Statistical evidence that products are used and valued by the community;
- Discussion about the addition of 1:1M scale Air Operations Planning maps from UK/Norway/Belgium/Australia/US as a SCAR product.

The 2015 SCAGI meeting will be held in Brussels, hosted by the Belgian National Mapping Agency (IGN). For relevant actions, see the above section (5.1).

## **5.3 SCAR Products (IP 1)**

M. Sparrow updated Delegates on progress with the SCAR Products. 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. biodiversity.aq) in a more easily usable format, or providing access to information on bathymetry in the Southern Ocean (IBCSO). Highlights since the last Delegates' Meeting include the production of IBCSO Version 1.0, publication of BEDMAP 2 and the amalgamation of SCAR-MarBIN and AntaBIF into biodiversity.aq.

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

The SCAR President, J. López-Martínez, chaired this item.

### **6.1 SCAR Partnerships (COMNAP, IASC, APECS, WCRP, etc.) (IP 2)**

M. Sparrow briefly discussed partnerships with other organisations. V. Rachold (IASC) highlighted the International Conferences on Arctic Research Planning (<http://icarp.arcticportal.org>) and its relation to the Horizon Scan activity.

The point was made that it is timely that both SCAR and IASC are looking forward, but we need make sure that processes that are addressing both poles are taken into

joint consideration. V. Rachold reminded the SCAR Delegates that SCAR and IASC have joint EXCOM meetings every year and that we are planning a joint workshop in the future to get together and connect on how we can best make use of the outcomes from the Horizon Scan and ICARP.

## **6.2 SCAR MoUs and other agreements (IP 3)**

M. Sparrow updated the SCAR Delegates on SCAR MoUs and other agreements. In 2013, several agreements were renewed during the IASC Council meeting in Poland and signed on behalf of SCAR by the SCAR President: (a) Renewal of the Letter of Agreement between SCAR, IASC and IACS; (b) Renewal of the Memorandum of Understanding between APECS, IASC and SCAR; (c) Renewal the Memorandum of Understanding between CliC, IASC and SCAR.

In 2014, again during the IASC Council Meeting (this time in Finland), a new Memorandum of Understanding between the European Polar Board (EPB), IASC and SCAR was signed (again by the President) and the Memorandum of Understanding between the International Permafrost Association (IPA), IASC and SCAR was renewed.

MoUs and other agreements can now be viewed from the new SCAR website at: <http://www.scar.org/partnerships/agreements>.

*Action: Secretariat to work with IASC and AFOPS to discuss if a trilateral MoU should be signed (ED, IASC ES, A. Samah; EXCOM 2015)*

## **7. SCAR and Policy Advice**

The SCAR President, J. López-Martínez, chaired this item.

### **7.1 Report of the Standing Committee on the ATS, including interactions with the Treaty, the Antarctic Conservation in the 21<sup>st</sup> Century Initiative and CCAMLR (WP 24)**

The incoming CO, A. Terauds, reported on progress with SCATS, interactions with the Treaty, and on the Antarctic Conservation in the 21<sup>st</sup> Century Initiative. The main updates were:

- Climate change updates:
  - Ongoing interest from ATS and CEP;
  - ACCE Group updates warmly anticipated.
- Progress with the Antarctic Environments Portal:
  - Now launched ([www.environments.aq](http://www.environments.aq));
  - Science information for policy makers;
  - SCAR key partner – ongoing commitment;
  - SCAR scientists welcome to contribute, via SCATS at present.
- The Antarctic Conservation Strategy:
  - Evidence-based approach on track;
  - COMNAP-SCAR symposium on the role of NAPs;

- Symposium to solicit broader discussion at this meeting;
- Draft chapters nearing completion;
- Expected release via Environments Portal in 2015.
- The issue of invasive alien species:
  - Pending SCAR/COMNAP checklists for intra-regional transfer;
  - Conclusions of Aliens in Antarctica work reported;
  - New information expected from AntEco and AnT-ERA;
  - Remains a key item on CEP work plan.
- SOOS:
  - Remains of considerable interest to ATS;
  - Value for climate-change-associated policy requirements recognized.

Ongoing work with the ATS includes:

- Horizon-scan outcomes;
- UAVs in Antarctica with COMNAP;
- Camping effects on wildlife;
- Identification of outstanding geological features and requirements for their protection;
- Ocean acidification report expected;
- ACCE report updates;
- Education and outreach collaborations

During the past two years, interactions with key partners covered:

- ATS and CEP:
  - SCAR has extremely high standing at these meetings;
  - Attributable to reliance on high-quality peer-reviewed evidence and advice.
- CCAMLR interactions:
  - Work ongoing to strengthen important interactions;
  - SSG-LS (EG-BAMM) is a key part of this relationship.
- COMNAP:
  - Professional and productive working relationship;
  - Aim to maintain and develop into the future.

***Action:** SCATS to work with Secretariat and EXCOM to include additional members in the group (SCATS CO, ED, EXCOM; ASAP)*

## **7.2 Advice to other bodies, such as the IPCC**

M. Sparrow commented briefly on interactions with other policy bodies such as the IPCC and UNFCCC. SCAR has observer status to the UNFCCC, and presented to this forum the outcomes of the ACCE book. SCAR also sometimes uses ICSU's Observer status to the IPCC (usually in cooperation with IASC) to ensure engagement with this body.

## **8. Capacity Building, Education and Training: Progress and Plans**

SCAR Vice President K. Lochte chaired this agenda item.

### **8.1 The SCAR Fellowship Programme (IP 4)**

The SCAR EO, R. Badhe, reported on the SCAR Fellowships. The SCAR Fellowships allow researchers from one SCAR/COMNAP member country to undertake short term visits to major international laboratories, field facilities, and/or research institutes of other SCAR/COMNAP member countries. Delegates approved the following Fellows for 2014/15: Jaimie Cleeland (Australia), Camila Negrão Signori (Brazil), Fiona Shanahun (New Zealand) and Manoj M.C. (India).

### **8.2 The Visiting Professor Scheme (IP 5)**

R. Badhe summarised the SCAR Visiting Professor Scheme, which allows senior researchers from one SCAR member country to undertake short term (2-4 weeks) visits to major international laboratories or home institutions of other SCAR member countries. She noted that the final selections had not yet been made.

*Action: SCAR EO to follow up on unused Visiting Professorship (EO; ASAP)*

### **8.3 The Martha T. Muse Prize (IP 6)**

R. Badhe reported on the Martha T. Muse Prize and interactions with the Tinker Foundation. The Tinker Foundation approved funding for 2014-18 (\$1 million+ over 5 years). It was also noted that 20% of the EO's and AA's time was paid from Tinker Foundation funds. There are around 15-18 high-quality nominations per year, though few from South America and Asia.

Delegates were encouraged to nominate suitable candidates for this prestigious prize.

### **8.4 Capacity Building, Education and Training including future plans (WP 25)**

SCAR Vice President K. Lochte reported on progress with SCAR CBET activities. In particular, she presented new draft Terms of Reference for the CBET Committee.

SCAR's CBET efforts are designed to help Members achieve the following objectives:

- to engage in high quality international scientific research in the Antarctic region, and on the role of the Antarctic region in the Earth system;
- to participate in, contribute to, and benefit from SCAR's main programmes and other activities;
- to award and promote high achievement in Antarctic science and policy at the international level;
- to promote CBET activities for potentially attracting funding from both external donors and from National Committees;
- to help Members to make best use of Antarctic examples to illustrate key scientific principles.

Delegates approved the new Terms of Reference.

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

K. Lochte chaired this agenda item.

### **9.1 The SCAR Website (IP7)**

M. Sparrow reported on progress with the new SCAR website ([www.scar.org](http://www.scar.org)). The website is now live and SCAR groups have their own workspace within the website. The SCAR AA, Rosemary Nash ([rn283@cam.ac.uk](mailto:rn283@cam.ac.uk)), can be contacted for queries.

*Action: Secretariat to check if important documents (e.g. SCAR Rules of Procedure for working groups) are available on the new SCAR website (ED, AA; ASAP)*

### **9.2 Other Communications activities (Climate Communications, Social Networking, Publications, SCAR Newsletter, etc.) (IP 7)**

M. Sparrow reported on other communication activities, including the SCAR Newsletter, social media and the climate communications initiative.

### **9.3 The role of SCAR National Committees**

J. López-Martínez chaired a discussion on the role of National Committees within SCAR. SCAR Delegates were asked to contact the Secretariat for more ideas of opportunities at the national level that are available to SCAR as an international organization. The President encouraged Delegates to make use of the new SCAR brochure, which is oriented to promote SCAR fund-raising efforts.

## **10. Major Meetings**

J. López-Martínez chaired this agenda item.

### **10.1 Plans for SCAR 2016 Meetings in Malaysia (IP 8)**

The Malaysian Delegate, A. Samah, reported on progress and plans for the 2016 SCAR meetings.

### **10.2 The SCAR 2018 Meetings (IP 9)**

J. López-Martínez led the discussions on bids to host the 2018 SCAR Meetings. After some debate, the Delegates invited Switzerland (Davos) to host the 2018 SCAR meetings.

### **10.3 Other major Meetings (IP 10)**

S. Rajan reported on progress with the next International Symposium on Antarctic Earth Sciences (ISAES 2015). The dates for the symposium have been finalized from 13<sup>th</sup> to 17<sup>th</sup> July 2015. The meeting will be held at the Goa Marriott Resort & Spa Hotel. The morning plenary sessions on each day will be followed by three concurrent sessions. A webpage ([http://isaes2015.ncaor.gov.in./](http://isaes2015.ncaor.gov.in/)) is functional where preliminary registrations can be made.

Several other meetings were highlighted, including ATCM 2015 (Sofia, Bulgaria); 2015 Latin American congress on Antarctic Science in Uruguay; 2015 IUGG General Assembly; 2016 Southern Connection Congress; and the 2016 ATCM in Chile.

## **11. SCAR Business (CLOSED to all Observers)**

J. López-Martínez chaired this agenda item.

### **11.1 SCAR Organisation: A possible review of the structure of SCAR (WP 26)**

J. López-Martínez led a discussion on a possible review of the SCAR structure. The current SCAR structure and Rules of Procedure are those approved following the major SCAR review in 2004. The restructuring has been a major success. However, in light of recent years' experience and considering the SCAR current context and perspectives, it is timely to evaluate if possible improvements can or should be made.

The President proposed the establishment of an *ad hoc* group to examine the SCAR structure and Rules of Procedure. The results would be presented to the SCAR Delegates for discussion/approval in August 2016 at the XXXIV SCAR Meeting. The *ad hoc* group would consist of the SCAR president, two Vice Presidents, the Executive Director, COs of the three SSGs, COs of two of the Standing Committees, COs of two of the SRPs.

To reduce travel and cost, most of the work of the *ad hoc* group would be done by email and teleconference. The discussion of this issue with EXCOM will be during the spring 2015 EXCOM Meeting, in which all the members of the *ad hoc* group will participate. Before the EXCOM meeting, there will be a teleconference meeting of the *ad hoc* group in which those members available (and having easier/cheaper journeys) will meet in Cambridge (this would have a cost to be considered).

If changes in the SCAR Rules of Procedure are proposed, according to Article 8.2 the proposal must be circulated to the National Committees six months in advance of the XXXIV SCAR Meeting in Malaysia (i.e. in February 2016).

Two delegations proposed that it would be useful to include an external (to SCAR) member in the *ad hoc* committee. The proposal was also made that the structure of the Delegates' Meeting should be examined – e.g. should there be more science presentations involved?

The SCAR Delegates approved the formation of an *ad hoc* committee to examine the SCAR structure.

***Action:** EXCOM to establish an ad hoc group to review the structure of SCAR, including e.g. the role of the SSGs and the Delegates' Meeting, its Rules of Procedure, etc. Group to meet in Tromsø in 2015 with a final report being presented to the Delegates in 2016. (T. Wilson to lead, EXCOM including ED; EXCOM 2015)*

### **11.2 The next SCAR Strategic Plan 2017-2022 (WP 27)**

J. López-Martínez led a discussion on the plans for the next SCAR Strategic Plan 2017-2022. The current SCAR Strategic Plan 2011-2016 ends in late 2016. The preparation of a new Strategic Plan for the period 2017-2022 should start in the coming months, to allow preparation and adequate discussion that culminates in a document to be presented to the SCAR Delegates in August 2016 at the XXXIV SCAR Delegates' Meeting in Malaysia, and finally with the new Strategic Plan in place by the end of 2016.

The general principles for preparing and discussing the new SCAR Strategic Plan 2017-2022 would follow those of the current SCAR Strategic Plan 2011-2016. That means there will be a consensus, an inclusive document prepared after an open and iterative process of consultation.

The participation in the process and the opinions of the SCAR community are of great importance. A broad participation will be promoted and inputs from SCAR National Committees and Delegates will be especially encouraged. It is proposed to establish a Strategic Plan Team (SPT), composed of all the EXCOM Members, all SSG, SC and SRP Chief Officers, and the SCAR Secretariat (including the ED and the EO).

The new document should be as concise as possible, avoiding going into unnecessary detail about SCAR by referencing other sources where necessary, in particular providing links to the SCAR website. In the preparation of the new Strategic Plan, efforts will be made to use online communications and to reduce travels and costs as much as possible.

The point was made that we should consider a longer-term Strategic Plan, perhaps ten years? The new Strategic Plan should also include a section on achievements from the previous plan, covering which aspects of that plan still remain to be done.

***Action:** SCAR to produce a new Strategic Plan 2017+, including re-looking at the time period covered by such a plan; what was achieved under the current plan and the outcomes of the various reviews (co-sponsorships, ICSU etc.), either carried out or underway. (SCAR President to lead, EXCOM including ED; EXCOM 2015)*

### **11.3 Secretariat and EXCOM Reports (IPs 11,12)**

J. López-Martínez commented briefly on the Secretariat and EXCOM reports. The Delegates passed a vote of thanks to the Secretariat for all their hard work. The Delegates also suggested that EXCOM review the Secretariat salary ranges to create a strategy that recognises the level of work of the Secretariat to match the salary ranges.

***Action:** EXCOM to carry out a review of the SCAR Secretariat salary ranges taking into account the level of work of the Secretariat, comparable posts in other international organisations and the financial capacity of SCAR itself. (SCAR EXCOM [excluding ED]; EXCOM 2015)*

*Action: Certificates of Appreciation to be prepared by Secretariat for outgoing COs e.g. SCATS (ED, AA; ASAP)*

## **12. Finance (CLOSED to all Observers)**

Vice President B. Storey chaired this agenda item and gave a quick update on finance matters (WP 28). In summary, the percentage of funds spent on science has increased significantly since 2010 (from an average of 33% to 40%), science advice has remained level, as has spending on capacity building. Salaries and associated costs have come down (34% to 30%). External fundraising is continuing to be successful and a Development Council has been formed. The Secretariat continues to explore ways in which to reduce costs.

R. Schlich also gave a short presentation on finance matters and was pleased to congratulate SCAR for keeping the expenditure of science in line with the 2012 increase in fees.

### **12.1 Financial Statements for 2012, 2013 (WP 29, 30)**

B. Storey presented these items with the assistance of R. Badhe, the SCAR Executive Officer. Delegates approved the 2012 and 2013 statements.

### **12.2 Revised Budget for 2014 (WP 31)**

B. Storey presented this item with the assistance of R. Badhe, the SCAR EO. Delegates approved the revisions to the 2014 budget.

### **12.3 Revised Budget for 2015 (WP 32)**

B. Storey presented this item with the assistance of R. Badhe, the SCAR EO. Delegates approved the revisions to the 2015 budget.

### **12.4 Budget for 2016 (WP 33)**

B. Storey presented this item with the assistance of R. Badhe, the SCAR EO. Delegates approved the 2016 budget.

### **12.5 The SCAR Development Council**

M. Sparrow presented progress with regard to the SCAR Development Council (DC) on behalf of the Chair, P. Convey.

The DC has a role in finding opportunities and then pointing appropriate SCAR groups to them. It is also encouraging SCAR groups to take the lead with finding funding opportunities; here the DC can have a role advising applicant coordinators, but also act as a clearing house to try and ensure that multiple conflicting bids are not directed at any one institution (i.e. help to maximise SCAR's overall chance of positive outcomes). It has to be recognised that most funding chances exist at



national scale and national Delegates are encouraged to investigate possibilities to support SCAR activities (e.g. Fellowships and Visiting Professorships).

### **12.6 Allocation of funds from the Prince Albert II of Monaco Foundation's Prix Biodiversité (WP 34)**

M. Sparrow presented the SCAR Delegates with a plan to allocate the €40,000 awarded to SCAR from the Prince Albert II of Monaco Foundation's Prix Biodiversité, based on feedback already received from the Delegates and the SCAR Chief Officers. Delegates approved the recommendation to award a Prince Albert II of Monaco Fellowship (in addition to the normal SCAR/COMNAP Fellowships) every year, while exploring mechanisms for continuing this scheme into the future.

*Action: SCAR Secretariat to set up an additional Prince Albert II of Monaco Fellowship using the funds awarded for the Prix Biodiversité (Secretariat; ASAP)*

### **12.7 Any other Finance Matters**

There were no additional finance matters.

## **13. Other Business**

### **13.1 Any other business**

J. Simões briefly presented Brazil's next Strategic Plan. The SCAR President, J. López-Martínez, awarded Certificates of Appreciation to the outgoing Vice Presidents and thanked New Zealand for being such excellent hosts. He then asked for a short meeting of the new Executive Committee.

## **14. Closure of the meeting**

The SCAR President, J. López-Martínez, closed the meeting.

### ***Appendix: List of Acronyms***

1:1M	1:1 million scale
AA	Administrative Assistant
AAA	Astronomy and Astrophysics from Antarctica
ACCE	Antarctic Climate Change and the Environment
AFOPS	Asian Forum on Polar Sciences
AG	Action Group
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
AntON	Antarctic Observations Network
ANTOS	Antarctic Near-shore and Terrestrial Observing System
ANTPAS	Antarctic and sub-Antarctic Permafrost, Soils and Periglacial Environments
APECS	Association of Polar Early Career Scientists
ASAP	as soon as possible
ASPeCt	Antarctic Sea-Ice Processes and Climate
ATCM	Antarctic Treaty Consultative Meeting
ATS	Antarctic Treaty System
BEDMAP	Antarctic Bedrock Mapping
CBET	Capacity Building, Education and Training
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CEP	Committee for Environmental Protection (Antarctic Treaty)
CLiC	Climate and Cryosphere Project (a project of the WCRP)
CLIVAR	Climate Variability and Predictability project (a project of the WCRP)
CO	Chief Officer
COMNAP	Council of Managers of National Antarctic Programs
DC	Development Council
ECA	Environmental Contamination in Antarctica
EC-PORS	Executive Council Panel of Experts on Polar Observations, Research and Services (a WMO group)
ED	Executive Director
EG	Expert Group
e.g.	for example (from Latin: <i>exempli gratia</i> )
EG-BAMM	Expert Group on Birds and Marine Mammals
EO	Executive Officer
EOV	Essential Ocean Variable
EPB	European Polar Board

ES	Executive Secretary
EXCOM	Executive Committee
EXCOM 2015	Executive Committee Meeting, August 2015
GCW	Global Cryosphere Watch
GGRF	United Nations' Global Geodetic Reference Frame
GIPPS	WMO's Global Integrated Polar Prediction System
GIS	Geographic Information System
GS	Geosciences
IACS	International Association of Cryospheric Sciences
IASC	International Arctic Science Committee
IAU	International Astronomical Union
IBCSO	International Bathymetric Chart of the Southern Ocean
ICARP	International Conferences on Arctic Research Planning
ICED	Integrating Climate and Ecosystem Dynamics
ICESTAR	Interhemispheric Conjugacy Effects in Solar Terrestrial and Aeronomy Research
ICSU	International Council for Science
i.e.	that is (from Latin: id est)
IMAS-UTas	Institute for Marine and Antarctic Studies, University of Tasmania
IP	Information Paper
IPA	International Permafrost Association
IPCC	Intergovernmental Panel on Climate Change
IPPI	International Polar Partnership Initiative
IPICS	International Partnership in Ice Core Science
IPY	International Polar Year
ISAES	International Symposium on Antarctic Earth Sciences
ISMSS	Ice Sheet Mass Balance and Sea Level
ISSA	Integrated Science for the Sub-Antarctic
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
JEGHBM	Joint Expert Group on Human Biology and Medicine (with COMNAP)
LoA	Letter of Agreement
LS	Life Sciences
MarBIN	Marine Biodiversity Information Network
mARS	Microbial Antarctic Resource System
Met-READER	Meteorological data from READER (REference Antarctic Data for Environmental Research)
MoU	Memorandum of Understanding
NAP	National Antarctic Programme
NZARI	New Zealand Antarctic Research Institute

OSC	Open Science Conference
PAIS	Past Antarctic Ice Sheet dynamics
PCPI	WMO's Polar Climate Predictability Initiative
PNAS	Proceedings of the National Academy of Sciences (USA)
POGO	Partnership for Observation of the Global Oceans
PPP	WMO's Polar Prediction Project
PRAMSO	Palaeoclimate Records from the Antarctic Margin and Southern Ocean
PS	Physical Sciences
READER	REference Antarctic Data for Environmental Research
SA	South Africa
SCADM	Standing Committee on Antarctic Data Management
SCAGI	Standing Committee on Antarctic Geographic Information
SCATS	Standing Committee on the Antarctic Treaty System
SC-Finance	Standing Committee on Finance
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
SERAnt	Sun Earth Relationships and Antarctica
SERCE	Solid Earth Response and influence on Cryosphere Evolution
SnowAnt	Snow in Antarctica
SOOS	Southern Ocean Observing System
SPT	Strategic Plan Team
SRP	Scientific Research Programme
SSAG	Social Sciences Action Group
SSC	Scientific Steering Committee
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
UAV	Unmanned Aerial Vehicle
UK	United Kingdom
UNFCCC	United National Framework Convention on Climate Change
UN-GGIM	United Nations Committee of Experts on Global Geospatial Information Management
USA	United States of America
VP	Vice President
WCRP	World Climate Research Programme
WG	Working Group
WMO	World Meteorological Organisation
WP	Working Paper
YOPP	Year of Polar Prediction