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## **SCAR Executive Committee Meeting**

**Brno, Czech Republic  
28 July – 1 August 2017**



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# SCAR Executive Committee Meeting

## Brno, Czech Republic

### 28 July – 1 August 2017



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## Meeting Notes for EXCOM 2017 Brno

**Attendees:** Steven Chown (President), Jerónimo López-Martínez (Past-President), Jefferson Simões, Karin Lochte, Azizan Abu Samah, Terry Wilson (Vice-Presidents), Jesús Galindo-Zaldivar (Chief Officer, GeoSciences), Yan Ropert-Coudert (Chief Officer, Life Sciences), David Bromwich (Chief Officer, Physical Sciences), John Storey (prior Chief Officer AAA), Pete Convey (Chair, Development Council), Laura De Santis (Joint Chief Officer PAIS), Tom Bracegirdle (Chief Officer, AntClim21), Julian Gutt (Chief Officer, AnT-ERA), Jenny Baeseman (SCAR Executive Director), Eoghan Griffin (SCAR Executive Officer).

Anton Van de Putte (Chief Officer, SCADM) joined the meeting remotely.

**Apologies:** Aleks Terauds (Chief Officer, SCATS), Adrian Fox and Jean-Yves Pirlot (Joint Chief Officers, SCAGI), Huw Griffiths and Jan Strugnell (Joint Chief Officers, AntEco), Anna Moore (Chief Officer, AAA), Pippa Whitehouse and Matt King (Joint Chief Officers, SERCE)

### 1. Opening Business

#### 1.1. Welcome

The President welcomed the attendees, noted apologies and the meeting began with a round of introductions. Contributions from those unable to attend were noted and welcomed.

#### 1.2. Adoption of Agenda and Timetable

Adopted without amendment.

### 2. Science

#### 2.1. Progress and Plans for Science Groups, including Expert and Action Groups

##### 2.1.1. Humanities and Social Sciences: Progress toward Science Group Proposal

The importance of the Humanities within SCAR was noted, as well as the resonance with the upcoming merger between ICSU and ISSC. It was emphasized that the proposal should set out exactly what the initial activities of the Group would be. Concern was expressed at the budget implications of adding a new Science Group but it was pointed out that there was no requirement for the budget to match the existing Science Groups, and any new Action or Expert Groups would have to be justified in the same manner as for existing Science Groups. The requirement for National Representatives was also noted, but accepted that this may be limited initially until the new Group had greater visibility.

The papers submitted to the meeting were accepted and the meeting encouraged further development to include a compelling argument for the proposal, a budget projection and a membership list.

**Action:** Secretariat to inform Humanities leadership of encouragement to continue to develop proposal for new Science Group, to include a compelling argument, budget proposal and membership list.

### 2.1.2. Discussion on Reviewing group progress, budgets, what can be funded and group sunsets

#### Life Sciences Group

The meeting noted the report submitted for this agenda item from the Life Sciences Group, which included the following summary:

The major highlight of Life Science activities is yet to come for 2017 as the SCAR Biology Symposium will be held the week following the deadline for submitting this report, i.e. the 10-14 July 2017 in Leuven, Belgium. Life Sciences has helped in preparing this major event. In addition to this, Life Sciences, and its related AGs and EGs, has been active in producing reports to SCATS, attending meetings such as the Monaco Assessment phase II or in disseminating information to its community and beyond, as the LS and related AGs' and EGs' reports will demonstrate.

Yan Ropert-Coudert reported on the progress and recent meetings of the Life Sciences. The success of the recent set of meetings held in conjunction with the SCAR Biology symposium at Leuven was noted. Two new groups were in the process of being proposed, one looking at the issue of micro-plastics, the other focussed on krill.

Discussion on the proposed krill group identified some overlap with existing groups such as SO-CPR, AnT-ERA and AntEco but none with a specific focus on krill. How the proposed group would relate to CCAMLR was also not clear, e.g. would it be a joint group with CCAMLR? It was noted that CCAMLR would have highly relevant catch data, for instance, but that this was not publicly available by default.

For the proposed micro-plastics group, it was noted that this issue had resonance with similar concerns already discussed in the joint EXCOM meeting with COMNAP at Brno. It was also noted that interest and concern on the topic had been raised at the most recent ATCM meetings and that it may be possible to support some activity for the group before the formal proposal was presented to the SCAR Delegates in Davos, 2018. This would allow progress on the topic to be presented to the CEP at the ATCM in 2018.

The group applications from Life Sciences were encouraged on the basis of including specifics about their planned activities, who would be involved in the initial formation of the groups and details of budget and intended lifetime. The groups will use the newly developed procedure for proposing a group.

It was noted that the report on Southern Ocean Acidification had still to be finalised. At present a mature draft was in the final review stages and, as a SCAR product, it was important to ensure delivery, especially in the context of the ATCM. The associated group will terminate after the publication of the report and subsequent promotion activities.

The issues of using Group funding to pay for salaried work to be undertaken was discussed and it was decided that requests for projects of this type would be evaluated by the EXCOM on a case-by-case basis.

It was suggested that Group reporting by presentation at the Delegates Meeting should concentrate on the achievements of the Groups, and in language that didn't require technical knowledge of the subject area so as to be accessible to Delegates irrespective of their professional backgrounds.

The relationship between EG-ABI and SCADM was discussed to understand the separate issues of data management addressed by both. The budget request from ANTOS was noted in light of the feeling of some meeting participants that progress has been slow against the stated goals of the Group. The support committed from Korea to ANTOS was appreciated and underlined the importance of the group continuing its work.

The discussion of group sunsets raised a number of issues. By default, it was decided that if a group does not spend a significant fraction of its budget and also does not produce an acceptable report, it should be ended. It was noted that some groups use their SCAR funding to seed activities that then act as a catalyst to securing further funding. In some instances, this may mean that the original SCAR funding is not used. These circumstances should be made clear, preferably through the reporting process, to avoid this valuable leveraging of SCAR funds to cause issues for the relevant groups.

**Action:** Yan Ropert-Coudert to report back to proposers of the new Krill Group to prepare further details including the overall purpose of the group, who would be involved, whether it would be a joint group with for instance CCAMLR and perceived requirement for support.

**Action:** Yan Ropert-Coudert to report back to proposers of new Micro-plastics group to encourage them to detail their intended work plan, which would be positively received. While the group would only be formally approved in 2018 at the Delegates meeting some support could be provided in the interim to address the issue in time for a report to be brought to the CEP at the 2018 ATCM.

### **GeoSciences Group**

The meeting noted the report submitted for this agenda item from the GeoSciences Group, which included the following summary:

SG-Geosciences include six Expert and four Action Groups, two of them cross-disciplinary. These groups are active, have regular meetings (e.g. OSC, AGU meeting, URSI-GASS, IAGA) and promote new meetings (e.g. 1st International ANTPAS Workshop in Varese, Italy). Their activities include the production of maps (Bathymetry and Geological Setting of the Drake Passage; Antarctic Digital Magnetic Anomaly Map 2, in latest stages of preparation; International Bathymetric Chart of the Southern Ocean V2.0, initiated; Geological maps compilation and integration). Moreover, groups aim to identify long term datasets, continuing the database development, and developing technical manuals and field researches (like GNSS measurements, geophysical and geological observations). Publications of results are envisaged in high-profile international geo-scientific journals and special volumes. We also remark on the preparation of information papers (e.g. conservation strategies for Antarctic geological and geomorphological features, including fossils, with the aims that SCAR will delivery advice on this matter to CEP, ATS).

Jesús Galindo reported on the recent achievements from the Geosciences Group. The request from the GIANT and SERCE Groups for the retention of geodetic markers on bedrock as reference points was noted, along with the ambition from ANTPAS to promote its work and potential links to AnT-ERA, AntEco and ANTOS.

The meeting noted that the Geoheritage and Geoconservation AG would delay its paper to be presented to the ATCM from 2018 to 2019, which had been agreed with SCATS. A draft of the paper can then be discussed at the Polar2018 meetings and allow involvement of the wider Geoscience community in finalising the paper.

The meeting discussed the best option to address the expressed desire for a new group looking at ice core age depth profiles and related issues (AntArchitecture is the working title). It was agreed that the group be encouraged to develop their proposal in the context of an Action Group.

The differences between the SDLS and ADMAP data compilation activities was discussed, and more generally the differences between groups that facilitate the collection and aggregation of data. Their importance was recognised in the context of being examples of activities that would not take place without SCAR. The relationship between these activities and the release and maintenance of SCAR Products was discussed and it was noted that, where gaps in provision were identified within SCAR, it may be more relevant for national programmes, individually or in collaboration, to address and resource these requirements.

The meeting noted the desire from ANTPAS to engage with ANTOS, to which they had not received a reply. It was agreed that ANTOS should be required to respond to the request and any similar request, potentially through attendance at the ANTPAS workshop in October 2017.

**Action:** *Geoheritage and Geoconservation Action Group to postpone submission of their Code of Conduct paper to 2018 ATCM to allow discussion at Polar2018 meeting. Final paper will then be submitted to 2019 ATCM.*

**Action:** *Jesus Galindo to report back to proposers of new group on ice core age depths (AntArchitecture) to continue to develop proposal on the basis of being initiated as an Action Group.*

**Action:** *President to send a letter of thanks to IODP for the support of the Antarctic drilling legs, with input provided by Laura De Santis.*

### **Physical Sciences Group**

The meeting noted the report submitted for this agenda item from the Physical Sciences Group, which included the following summary:

GRAPE is preparing a Scientific Research Programme proposal to be presented in Hobart in 2020 called RESOURCE (Radio Sciences Research on AntarctiC AtmospherE).

PSG, OpMet, SORP, and SOOS are collaborating with the WMO's Polar Prediction Project to establish the Year of Polar Prediction in the Southern Hemisphere (YOPP-SH).

ASPeCt and FRISP organized major international meetings. IPICS and ISMASS had/have major publishing efforts.

David Bromwich noted some key recent and upcoming activities for the Physical Sciences Group including potential SRP proposals and the two-year Year of Polar Prediction initiative from 2017 to 2019, which has a Southern Ocean component (YOPP-SH) and has a special observing period from mid-November 2018 to mid-February 2019. The scope of the project covers both operational and research elements, given the critical role that the weather plays on the potential for the project. A meeting was held in Boulder, USA in June 2017 and they aim to ensure the active participation of the oceanography community.

It was clear there were a number of on-going and potential projects that the SG Chief Officers had not been aware of across the SGs and it was concluded that regular meetings to discuss their SGs in general would be beneficial.

**Action:** *Science Group Chief Officers to communicate on a regular basis, at least quarterly, via Skype or other appropriate means. Life Sciences CO to organise in*

*Biology Symposium years, Physical Sciences CO in OSC years and GeoSciences CO in ISAES years.*

As ANTOS had not communicated with the wider Physical Sciences Group, other than submitting its report, it was suggested that ANTOS participation at the upcoming PAIS meeting in September 2017 at Trieste would help explain the groups' relevance to Physical Sciences.

**Action:** EXCOM to write to ANTOS to ensure they communicate with ANTPAS and all other relevant groups. ANTOS to be encouraged to send representatives to upcoming SCAR PAIS and ANTPAS meetings.

Efforts to establish a new database of Antarctic Cloud observations were noted, and the intention of the ACCE Group to change or expand its membership to reflect the full range of potential contributions.

**Action:** David Bromwich to request more detail on proposed Antarctic Cloud Database with potential for it to be considered as a SCAR Product

Steven Chown reported on developments from the CEP relevant to ACCE, where a working group has been created to give effect to the Climate Change Response Work Programme (CCRWP). This is being led by Birgit Njaastad from Norway, who has already been in discussion with the SCAR ATCM Delegation, and it represents an opportunity for SCAR to identify important gaps in the existing knowledge base, which in turn could potentially provide a mechanism to have the required research funded.

The coordination of efforts in remote sensing was discussed, noting the work of the SCAR Remote Sensing group as it relates to the activities of SCATS, the SOOS Remote Sensing group and other projects such as MAPPPD (Mapping Application for Penguin Populations and Projected Dynamics). It was recommended that the SCAR Remote Sensing group communicate regularly with SCATS to clarify issues and avoid duplication of effort, along with a wider effort to coordinate the remote sensing activities of SCAR and SOOS in general by the relevant Science Group leaders.

**Action:** Yan Ropert-Coudert and David Bromwich to have Remote Sensing Action Group clarify their relationship to the SOOS Remote Sensing Group and other initiatives such as MAPPPD.

It was noted that the ACCE Report Wiki page should make it explicit that only the 2009 and 2013 update reports are to be taken as comprehensive reports on the state of knowledge across the scientific disciplines, and that the annual updates have a separate purpose which is to report on the latest research.

**Action:** David Bromwich to request John Turner clarifies on ACCE wiki site, and any other relevant communication, the difference between the synthesis reports, valid at specific dates, and the research perspectives represented by the annual updates.

The activities of the ASPeCt group and how it relates to other sea-ice groups (e.g. those under SCOR) was discussed. Tom Bracegirdle noted that the Co-Chair of the Group, Marilyn Raphael, was now also a member of AntClim21, and ASPeCt provided an important link to observations for that SRP.

**Action:** David Bromwich to request clarification from ASPeCt Group on their relationship with other sea-ice groups within other organisations.

A general discussion on the nature of reporting from groups at the Delegates meetings led to the suggestions that (i) groups should be clear as to what they intended to do in future, (ii) how they had made contributions to the highlights,

publications and products they include in their reports, and (iii) to compare their progress to the ambitions of the Strategic Plan.

**Action:** Secretariat to update guidance for groups to be provided with reporting templates to include (i) groups should be clear as to what they intended to do in future, (ii) how they had made contributions to the highlights, publications and products they include in their reports, and (iii) to compare their progress to the ambitions of the Strategic Plan.

### 2.1.3. Requests from SOOS

The meeting noted the report submitted for this agenda item from SOOS, which included the following summary:

From 2016-17, SOOS has delivered the Database of Upcoming Expeditions to the Southern Ocean (DueSouth); identified and made discoverable a network of over 600 current and historical moorings in the Southern Ocean; rescued 20 years of data from 63 international moorings; developed 4 regional networks to coordinate Southern Ocean observational efforts; published 8 peer-reviewed strategic and/or review publications; brokered an agreement with EMODnet and JCOMMOPS for delivery of interactive map of Southern Ocean observing platforms (SOOSMap); held 11 meetings/workshops with significant international sponsorship of these events; supported the development of the CCAMLR Marine Protected Area monitoring plan; and delivered the 5-Year Implementation Plan and 5-year Business Plan.

SOOS held its annual EXCOM and Scientific Steering Committee meetings in mid-June. Several key decisions from that meeting are reported here, noting that approval from the co-sponsors SCAR and SCOR is still required before they are confirmed.

The meeting also noted the potential changes to the funding of the SOOS Secretariat, and sought clarification on the future funding situation for the organisation. It was suggested that it would be helpful for SOOS to report directly to one of the SCAR Science Groups, an issue in common with SORP and ICED. The issue of gender balance on the SOOS Executive Committee was also noted, along with the continuing efforts being made to help address the issue.

All of the requests submitted in the report were agreed to.

**Action:** Secretariat to inform SOOS that all requests were agreed to.

**Action:** Secretariat to request an update on the status of funding of the SOOS office.

## 2.2. Progress and Plans for Scientific Research Programmes

### Antarctic Climate Change in the 21st Century (AntClim21)

The meeting noted the report submitted for this agenda item from the AntClim21 SRP, which included the following summary:

The main activities and changes this year have been:

The third AntClim21 workshop was held as a side meeting to SCAR2016 in Kuala Lumpur. The focus was on climate model evaluation for improved climate projections of 21<sup>st</sup> century Antarctic and Southern Ocean climate change.

The Steering Committee has been expanded to improve links with two key activities of World Climate Research Programme (WCRP), CliC and CORDEX, and to bring in expertise on sea ice. The former brings world-leading sea-ice

expertise, and the latter key links to the polar high-resolution climate modelling community (Polar CORDEX).

Tom Bracegirdle has taken over from Nancy Bertler as Chair of the Steering Committee.

A number of high impact papers have been published in the peer review literature.

Planning for the upcoming #GreatAntarcticClimateHack (#GACH) workshop.

Collaboration across different disciplines in the SCAR community.

Initial plans for “Antarctic climate indicators” for climate monitoring.

A session proposal for Polar2018 has been accepted.

Tom Bracegirdle reported that the highlights show AntClim21 had addressed the recommendations from the 2016 Delegates Meeting. The upcoming #GACH addresses the CMIP6 activity, which will feed into the IPCC AR6 report, providing diagnostic tools to allow users to access climate model data. AntClim21 provides the Southern Ocean and Antarctic element of the tools.

The categorisation of publications in the report by degree of SCAR influence was welcomed.

The interest in downscaling of climate models from across the community was noted, with an important opportunity for SCAR to provide the necessary linkages with an interdisciplinary approach. The new opportunities within the ATCM to suggest areas of interest in climate change research could represent an opportunity to encourage coordinated international funding for efforts in this area. It was suggested that a dedicated session at the Polar2018 meeting would be a good opportunity to contribute and discuss the topic.

### **Past Antarctic Ice Sheet Dynamics (PAIS)**

The meeting noted the report submitted for this agenda item from the PAIS SRP, which included the following summary:

Significant new papers on past Antarctic ice sheet reconstructions and climate modelling have made significant contributions relevant to the next phase of IPCC over the past year.

Rob DeConto (US) and Andrew Mackintosh (NZ) have been selected as Lead Authors on the IPCC special report on the cryosphere and the ocean.

Tim Naish and Rob DeConto were invited to the scoping meeting of the IPCC special report on the impacts and mitigation pathways for stabilisation of global warming at 1.5C.

Tim Naish delivered the SCAR Science Lecture at the 40th ATCM in Beijing in May on “*What the Paris Climate Agreement Means for Antarctica*”.

Laura De Santis has put major effort into organizing and hosting the PAIS Conference this September in Trieste. More than 200 abstracts have been accepted from more than 17 countries and including 130 students and early-career researchers. The conference will cover the latest scientific results in reconstructing Antarctic ice sheet response to warmer climates and model development for predicting future ice sheet contribution to sea-level rise. There is also a focus on interdisciplinarity and far field consequences of Antarctic climate and ice sheet change. On the last day we will host a science to policy session focusing on high-priority research areas for the future PAIS programme work plan. We have invited Valerie Masson-Delmotte (Co-Chair of IPCC Working Group 1 for AR6), Chuck Kennicutt (coordinator of SCAR PAIS 2016-

2017 Annual Report, cont. Horizon Scan), and Yeadong Kim (co-coordinator of the ARC road map) to identify key scientific questions and the resources and co-operation required to address them.

This has been a highly successful year for developing future plans for data acquisition on the Antarctic continental margin with several large drilling expeditions worth USD \$100M approved within the International Ocean Discovery Program (Ross Sea, Amundsen Sea, Wilkes Land margin, Scotia Sea).

Rob McKay (NZ) and Laura De Santis (Italy) have been appointed co-chief scientists on the IODP Ross Sea Expedition.

Karsten Gohl (Germany) is the lead proponent on the Amundsen Sea IODP Expedition and led a successful Amundsen Sea oceanographic and shallow sediment coring expedition on the RV Polarstern in 2017.

These IODP expeditions have been developed within the SCAR-PAIS Programme. PAIS has received praise from the IODP community for organising a clear strategic rationale for drilling on the Antarctic margin. These expeditions will provide much needed evidence of marine ice sheet instability and sensitivity under various past high CO<sub>2</sub> warmer worlds for different subglacial basins under the West and East Antarctic ice sheets.

Several cruises have been carried out by many nations with the aim of collecting site survey data for IODP expeditions 373, 374, 379 scheduled for 2018-2020, and for the other submitted-revised proposals for drilling the Antarctic margin post-2020.

PAIS provides grants to students and early-career scientists from countries developing their Antarctic programmes (Chile, Denmark, Ukraine) for attending the PAIS conference.

PAIS recruited Pamela Santibañez from Instituto Antártico Chileno (INACH, Chile), Mathieu Casado (LSCE and LIPhy, France) and Adam Campbell (Otago University, NZ) as APECS representatives on the PAIS steering committee.

Laura De Santis noted the focus in the forthcoming PAIS conference on interdisciplinary opportunities, reflected in the broad list of invited speakers. She also noted the opportunities arising from the forthcoming IODP drilling legs in Antarctica and the timing of the 50th anniversary of IODP drilling overall in 2018. It was agreed to send a letter of thanks to IODP and that plans for a PAIS training school could go ahead.

**Action:** *A letter of thanks to IODP to be drafted by PAIS leadership and sent from the President.*

### **State of the Antarctic Ecosystem (AntEco)**

The meeting noted the report submitted for this agenda item from the AntEco SRP, which included the following summary:

AntEco recognises the importance of the SCAR Biology Symposium as a major opportunity to bring together the community and facilitate workshops and collaborations. We have concentrated our limited funds on travel support for 35 participants (from 13 countries), with particular attention to less well-represented SCAR members and early-career researchers. We also part-sponsored an APECS meeting at SCAR Biology and Polar Gordon Research Conference and Gordon Research Seminar.

Pete Convey noted the focus for AntEco on the recent meetings in Leuven as part of the SCAR Biology Symposium, and the success of a number of fieldwork efforts

linked to AntEco over the last year. Future plans for a terrestrial expedition with significant AntEco contributions were highlighted. Feedback was requested on the definition of external science funding mentioned in the report, as this did not appear to refer to funds that were distributed by the SCAR Secretariat.

### **Antarctic Thresholds - Ecosystem Resilience and Adaptation (AnT-ERA)**

The meeting noted the report submitted for this agenda item from the AnT-ERA SRP, which included the following summary:

1. *Scientific output.* Two papers published/submitted as a unique product of AnT-ERA. More than 2000 additional papers fell into the scope of AnT-ERA.
2. *Capacity building.* (a) Mini-workshop during OSC, 2016; (b) multiple support of the OSC by many AnT-ERA SC members; (c) approx. 12 additional events co-chaired, e.g. ANTOS meetings.
3. *Dissemination/products.* Key "tool" is AnT-ERA webpage with ~100,000 hits since 2013. Approx. 520 mailing list members. AnT-ERA contributed to SCAR products, e.g. ACCE and SCAR strategy plan, and other international initiatives/stakeholders requests such as IPBES and UNFCCC.
4. *Support of early-career scientists.* 16 mini-grants awarded to applicants from approx. 10 countries. A summer school to be held 2018 in Argentina is in preparation.
5. *Research.* Expeditions and projects under the leadership of AnT-ERA scientists: J. Xavier (JR16003), A. Takahashi (JARE-AP0922). I. Hogg Antarctic Circumnavigation Expedition, AFBA-project, G. di Prisco, TEAM-fish (planned).

Julian Gutt highlighted the contributions that members of the AnT-ERA Steering Committee had made, including to external bodies such as the ATCM (through the ACCE group), participation at UNFCCC meetings in Paris and Morocco, and within IPBES. Discussions were held at the recent meetings in Leuven, in collaboration with the AntEco SRP, about the final products from the SRPs, which emphasised the need for these products to enhance the visibility of SCAR and the SRPs, and in particular those aspects that would not have been possible without the SRPs themselves. Expectations for the final products should be gathered from a wide range of stakeholders such as journalists and national programme managers, but also from the Life Sciences community themselves. Suggestions included producing a journal special issue containing synthesis papers, a panel discussion event which SCAR would be in a unique position to organise, or a multidisciplinary approach where products were planned as a collaboration between two or more of the SRPs.

Future plans for a Spring School in 2018, aimed at students and to be held in Buenos Aires, were noted, as well as plans to encourage participants from countries with less-developed national programmes, who were currently under-represented in the SRP.

The role of early-career researchers (ECR) in the SRP was discussed, which highlighted the need for a broader approach to ECR engagement across all SCAR SRPs and groups, and that consideration should be given to how working with SCAR groups actually benefitted the ECR. It was agreed that the involvement of the ECR should be structured in a way that allowed it to be clearly visible through CVs, etc. that they were adding useful skills and experience. It was pointed out that the involvement of ECR in the groups through the establishment of Junior Officers, based on a similar scheme operated by IASC, had previously been discussed and the proposals needed to be finalised.

How the ACE Expedition related to the work of AnT-ERA was discussed and pointed to the importance of ensuring that, where appropriate, SCAR logos and branding should be made prominent in relation to cruises and expeditions.

**Action:** *Secretariat in collaboration with CBET Committee to finalise proposals for Junior Officer programme.*

### **Astronomy and Astrophysics from Antarctica (AAA)**

The meeting noted the report submitted for this agenda item from the AAA SRP, which included the following summary:

The AAA SRP continues to satisfy the goals of the 2014-2018 operational plan. During the 2016-17 period, AAA convened and supported both a half-day science session and business meeting at the SCAR open science conference in Kuala Lumpur. Four members of the steering committee were rotated as previously presented to SCAR EXCOM. The steering committee unanimously endorsed the fourth AAA workshop to be hosted by the National Astronomical Research Institute of Thailand (NARIT) in Chiang Mai, Thailand on July 31-Aug 4, 2017. Approximately fifty participants will attend this meeting from all over the globe to present their work in Antarctic Astronomy at this international forum. There is significant participation from the astronomical community of Thailand and the south-east Asia region. The SCAR AAA website has been significantly updated during this period to produce a web portal for all astronomical researchers to access existing data.

John Storey noted that the new AAA Chief Officer, Anna Moore, was attending the concurrent AAA workshop in Chiang Mai, Thailand, which had been very well supported by the National Astronomical Research Institute of Thailand (NARIT), and showed how SRP seed funding could leverage significant external matching funds. He noted that AAA were considering in what form astronomy should be represented in SCAR after the nominal end of the AAA SRP in 2018. He felt the SRP had been very successful in supporting collaboration between national programmes and lowering the barrier to participation for less-developed programmes. It had also used its funds to seed activities such as meetings and workshops, leveraging other external funding and providing opportunities that otherwise would not have been available.

He suggested that the question of what follows AAA, to represent and support the Antarctic astronomy community, had to reflect the success of AAA in finding a place for all Antarctic astronomy activities. He found it difficult to imagine that a new SRP, focussed on a particular science question, would be the best way to reflect this, and that perhaps an Expert Group would be a better way to follow AAA.

The meeting noted the possibilities of astronomy being linked to other disciplines through, for instance, solar variability influence on climate, and extremophile research as it relates to the search for extra-terrestrial life. As the breadth of possibilities is only limited by the interest and enthusiasm of the community, it would be for AAA to propose the next step and could consider the full range of representation within SCAR from Science Groups, SRPs or Expert and Action Groups. AAA was encouraged to communicate their ideas with the wider SCAR community to identify connections with other groups and SRPs.

**Action:** *John Storey to report to AAA leadership and community that the form requested for future representation of Astronomy within SCAR should reflect the engagement and enthusiasm of the community, and is not restricted in format (e.g. Expert Group, Science Group etc.).*

### **Solid Earth Responses and influences on Cryospheric Evolution (SERCE)**

The meeting noted the report submitted for this agenda item from the SERCE SRP, which included the following summary:

Leadership of SERCE passed from Terry Wilson to Matt King and Pippa Whitehouse during SCAR 2016. Steering committee membership has been updated; it now comprises 17 members at a range of career stages, from 12 different countries.

A SCAR-hosted mailing list has been created for SERCE (195 subscribers), and the SERCE website has been updated to include statements in support of Antarctic infrastructure (geodetic and seismic), and open access data sharing.

SERCE-facing conference sessions have taken place at SCAR 2016 (including co-sponsorship of a mini-symposium), EGU 2016/17, AGU 2016/17, JpGU-AGU, and IAG-IASPEI.

A Glacial Seismology Training School was held in June 2017 (USA), and a workshop on Glacial Isostatic Adjustment (GIA) and Elastic Deformation will take place in September 2017 (Iceland). Both activities received significant funds from SERCE.

A data sub-group has been formed, and is working with Quantarctica developers to upload SERCE-facing data sets to this open source resource.

Terry Wilson noted the change in leadership, success of major training schools and establishment of a data sub-group. The SRP was happy to offer to share its expertise in running large training schools to other SCAR groups interested in similar types of events.

The issue of the retention of geodetic monuments was raised, and the recommendation to amend the Environmental Code of Conduct for Terrestrial Scientific Field Research in Antarctica was noted. It was agreed that these important markers should be retained where possible to allow equipment to be redeployed at identical locations, and that Delegates be encouraged to add all relevant data to the SCAR GIANT database and to support the retention of the physical markers at the sites in question.

**Action:** *SERCE leadership to draft letter to be sent to Delegates to encourage National Programmes to ensure fixed geodetic markers are not lost or removed.*

**Action:** *An Information Paper will be submitted to the 2018 ATCM explaining the scientific value of geodetic markers and that SCAR will consider geodetic markers to be part of a 'long term observing network', currently being established as ANTOS. This paper should include an appendix with a listing of the locations of all geodetic markers and a link to the GIANT database on monuments*

**Action:** *SERCE leadership to draft note to be sent to wider community asking for information on where geodetic markers are and what type they are (in conjunction with GIANT database work). The GIANT and ANTOS groups will liaise regarding long-term responsibility for the geodetic monuments.*

#### **2.2.1 Discussion to clarify desired outcomes from SRPs**

Steven Chown noted the need to provide guidance to SRP Chief Officers as they prepare final reports and final products from the SRPs, taking into account the need to ensure that Delegates would be able to understand the importance and relevance of the work the SRPs had undertaken.

The timetable for reporting was discussed and the intention for the SRPs to be showcased through the Hobart 2020 OSC symposia, with Delegates invited to attend

prior to the Delegates Meeting itself. The format for the presentation of SRP products was open at present. John Storey noted that AAA would end in 2018 and that it could be used as a test case with a mini-showcase at the Davos 2018 OSC, although it was also suggested that AAA may be continued in some form to 2020 to allow all current SRPs to be showcased together.

**Action:** EXCOM and Chief Officers to consider desirable elements of final reporting for SRPs and communicate to Secretariat for guidance to be formulated.

**Action:** EXCOM to decide on whether AAA continues to 2020, and in what form.

**Action:** SRP Chief Officers to include showcase event at Hobart OSC 2020 in planning for final outputs from SRPs.

### 2.2.2 Future of SRPs and planned end dates

The meeting reflected on the Structural Review findings that the SRPs were in general working well and no major changes were needed to the way in which they operated. It was expected, therefore, that a new group of SRPs would be approved at the 2020 meetings, following their expected development over the intervening years.

### 2.2.3 New SRPs being planned – information from SGs and others

**Action:** Secretariat to inform COMNAP of the plans for upcoming SRPs at the earliest opportunity, to make National Programmes aware of the plans so that related funding calls could be timed in a coordinated way.

### 2.2.4 Discussion on new SRPs needed to address Horizon Scan and Treaty processes

**Action:** VP Science to emphasise to potential SRPs that, in their proposal development, smaller national programmes are included in their plans.

## 2.3 What should SCAR's three key science facilitation priorities be over next four years?

The meeting discussed the way in which SCAR uses its promotional activities, beyond the news items and social media output it already generates. It was noted that national institutes are re-evaluating their efforts in these areas and that it may also be something that SCAR could explore.

The need to act in support of networks of observing systems was also discussed with specific opportunities already available through, for example, the Global Cryosphere Watch (GCW).

Coordination of international agencies around the timing of announcements of funding opportunities was noted as a long-term issue. Efforts to address this had been made in the past and it appeared no clear solutions were found to date. The meeting noted the need to bring down the barriers to international cooperation and coordination, and a number of potential ways to help were identified. One was to have a conversation with COMNAP about the need to meet these goals in the context of the Horizon Scan and Antarctic Roadmap Challenges recommendations. Another was to ask for greater openness on budgets from the National Programmes. Finally, for SCAR it would be important to look at the needs of the proposed new set of SRPs and identify what was required from their perspective to provide the opportunity to meet their objectives.

**Action:** Secretariat and EXCOM planning to include consideration of the coordination of international networks and the provision of more Press and Public Relations capacity through the Secretariat.

#### **2.4 What are three key interdisciplinary areas in science we should be looking at over next four years?**

The meeting was informed of several requests, including from IAATO and CCAMLR, for coordinated interdisciplinary studies of the Antarctic Peninsula and surrounding waters to include the possibility of separating out the effects of climate change from those of e.g. fishing and tourism.

This appeared to present an opportunity for the Antarctic Peninsula to act as a focus for a wide-ranging regional interdisciplinary project that, if well designed, could be almost fully externally funded. The expectation was that a holistic view of the whole of the Antarctic Peninsula region would be required and that SCAR was uniquely positioned to facilitate a project of this nature.

SCAR would be in a position to facilitate the project but would not be directly managing and employing researchers as a result.

It was noted that some aspects of such a project, for instance the regional downscaling of climate model projections, would be translatable across the continent, whereas other aspects, such as fishing and biosecurity, would be very specific to the Antarctic Peninsula.

Pete Convey described work underway to look at the possibility of developing a future SRP providing policy advice, and the science required for it, from the whole Antarctic region to the Antarctic Treaty System.

Two closely linked projects with potential overlap were discussed in relation to the impact of ice sheets. One was to look at how biology could be used to provide information for the Earth Sciences, looking at how ice sheets may have been constrained by the distribution of life on the continent. The second was to look at the identification of past sea level changes and bringing together all the relevant SCAR groups, such as PAIS, ISMASS and SERCE, with external partners to address the topic.

**Action:** Groups are encouraged to continue development of the concepts discussed as potential future SRPs and/or external projects.

#### **2.5 What are three major barriers to activity and its financial support (i.e. why are funds sometimes retained) over next four years?**

The issues around the use of funds by groups were discussed in the context of the need to have resources available to support new groups, within a finite budget. The unwelcome scenario of having a group with a large unspent balance at the end of a two-year funding cycle was noted, although in some instances this may be due to the success of the group in securing external funds that reduced their need to use the allocated budget. Any changes to governance would need to allow for similar situations, but there were also instances where there was little activity on either reporting or use of funds.

Retained funds also point to a lack of realistic budgeting at the beginning of the two-year cycle, which then results in contingency funds that require re-allocation. In some instances, the retained funds are committed to known future activities, but if these occur after the original two-year funding cycle then it still points to inadequate

budgeting considerations. Another issue is the potential difficulty in explaining the need for increases in membership contributions if the existing allocated budgets are not being used efficiently by groups.

It was agreed that if groups were not demonstrating effective activities by appropriate reporting and use of funds then by default those groups should be ended. Science Group Chief Officers would be tasked with oversight across their group budgets and have discretion on assessing acceptable explanation for perceived inactivity.

**Action:** *Groups that do not report appropriately or spend their budgets will be closed down by default, unless a suitable explanation is provided and presented by the relevant Chief Officer.*

**Action:** *Chief Officers to communicate requests to fund short-term employment as part of Group expenditure to the EXCOM for approval, and will be decided on a case-by-case basis.*

### 3. Data and Information: Highlights, Progress and Plans

#### 3.1. Standing Committee on Antarctic Data Management (SCADM)

Anton Van de Putte joined the meeting online and presented the SCADM report. One of the main goals of SCADM will be to continue working with countries to align data practices for input into the Antarctic Master Directory (AMD). SCADM also works with smaller developing programmes to help them set up data practices to feed into the AMD. The report summarized the development of their strategy for 2017-2022 in supporting data publication, providing data access through the AMD, and promoting a distributed, interoperable network of accredited polar data centres with a strong focus on interaction with Arctic counterparts. It also noted that in the past year SCADM's leadership has had major changes with the two deputy co-chairs stepping down. The positions remain vacant and need to be filled at the next meeting, which will be in September in Montreal. As part of the meeting, SCADM will join the Arctic Data Committee to facilitate discussions on best practices for Polar data, including harmonizing metadata standards. SCADM also plans to sign a memorandum of understanding with the Arctic Data Committee to show the commitment of both groups to continue working together in the long-term to support the full polar community. There are things that can be learned by both communities continuing to work together. While the Antarctic data community is much more coordinated and well developed, standards continually change and the Arctic community and its huge range of data formats can help to keep the Antarctic community up to date.

SCADM is also working with APECS to hold webinar training sessions on dealing with metadata and standards. They are also working closely with the Research Data Alliance and the World Data Centre to represent the Antarctic data community.

The formation of other groups within SCAR that are working on data and databases was also discussed, and some viewed this as an overlap with SCADM. The current way SCADM is set up is to have national representatives to tie together larger national data efforts and data centres. The action and expert groups that exist are working on specific data questions and needs on a topic-specific basis (i.e. EG-ABI and bioinformatics). In many cases, these groups form because there is limited opportunity to develop the tools they need through a national data centre, and working with an international team on a practical level facilitates more effective collaboration.

It was requested that SCADM should include more information in their reports on which countries are being helped through SCADM efforts, and more detail should be provided on the capacity development side of SCADM's work.

A question was raised asking which countries are most active within SCADM. Australia, UK (BAS), US, and China are very active, as is South Korea's growing programme. Following on from this was a discussion on what those countries without a data centre can do. The AMD is open to any researcher to add their metadata. It was suggested that SCADM could perhaps create some simple information that could be distributed to the community to encourage researchers without a national data centre to submit their metadata to the AMD.

**Action:** Secretariat to draft letter to be sent by EXCOM to National Antarctic Data Centres noting that support is required to assist Anton Van de Putte in his role leading SCADM.

### 3.2. Standing Committee on Antarctic Geographic Information (SCAGI)

The meeting noted the report submitted by SCAGI, which included the following summary:

Almost all work in Antarctica relies on accurate and reliable geographic information. Accurate, comprehensive and reliable geographic information is needed to support science, operations, environmental management and tourism.

The main roles of SCAR SCAGI are to 1) Coordinate maintaining and developing this geospatial framework for Antarctica through national agencies, and 2) Provide an arena for raising awareness of national programme activities through national reports, sharing of experience and best practice, and for highlighting opportunities for collaboration between agencies.

SCAGI continues to deliver a range of geographic information products through its various Products: Antarctic Digital Database (ADD); Air Operations Planning Maps; Composite Gazetteer of Antarctica (CGA) and SCAR MAP Catalogue. Usage statistics show that these SCAR Products are used and valued by the Antarctic Community. SCAGI seeks to continue to develop and improve the existing products and develop appropriate new ones to support evolving activities in Antarctica.

SCAGI asked the meeting to note:

- 1) Wider engagement by the Antarctic community would help SCAGI to continue to develop, and deliver effectively, reliable relevant Geographic Information Services to the Antarctic science and operations communities. Maintaining the position of SCAR as the source of Geographic Information Services, such as the ADD and CGA, supports the SCAR Strategic Plan objective of an international leadership role for SCAR. SCAR Delegates should ensure that they are familiar with the work that SCAGI does and encourage their national representatives to become involved with and contribute all new data to SCAGI products. Delegates should also ensure that retiring national representatives are replaced with a successor national representative, and that the SCAGI co-Chairs are informed of this change.
- 2) There are an increasing number of SCAR products and many of them are developing web-interfaces. This area would benefit from SCAR taking a strategic view of this area to ensure that the SCAR products work together effectively and coherently and to minimize duplication and cross-cutting between products.

- 3) SCAGI also requested that the SCAR Secretariat work with the SCAGI chairs to send letters to the Delegates and National Committee contacts for countries without active representatives.

Discussion revolved around the great progress SCAGI has made in recent years and thanks to the group was expressed. It was agreed to remind the Delegates of SCAGI's work and to encourage them to replace retiring national representatives.

The meeting requested that, if possible, it would be helpful to have the Air Operations Planning Maps overlaid on a layer of the biogeographic regions. This would be very useful for work on interregional transfer of species.

**Action:** *The requests made by SCAGI in their submitted paper were agreed. The SCAGI leadership is asked to clarify how GeoMap relates to the ADD, and also request whether it is possible to capture data on transfer between different biogeographic regions in Air Operation Planning Maps.*

### 3.3. SCAR Products

The meeting noted the presentation of the Products paper, which included the following summary:

SCAR has a number of database and mapping products and more are being developed – sometimes using a SCAR product as a base and other times independently. To help facilitate better coordination and avoid duplication, a workshop should be planned with product contact points, host institutes and other interested parties. The goal being to develop a strategic view of what SCAR wants in terms of its products.

A brief discussion on various SCAR products was had. This included queries on what makes something a SCAR-branded product and, more importantly, what is a SCAR product, with a suggested definition being 'a resource that needs ongoing maintenance'. This differentiates SCAR products from occasional publications such as the ACCE 2009 and 2013 reports. There is a need to know the status of all the products, who maintains them and how long that maintenance is planned. This would be helpful for planning purposes and should be included on the website summary of all SCAR products.

The meeting agreed that the proposed workshop to better coordinate SCAR products is needed and should be supported.

**Action:** *Budget and plans for Products workshop agreed, Secretariat to implement.*

## 4. SCAR and Policy Advice

### 4.1. Update from SCATS on 2017 ATCM outcome and workload for 2018 ATCM

The meeting noted the report from SCATS submitted for this agenda item, which included the following summary:

SCATS continued to focus on the provision of advice to the Antarctic Treaty System. SCAR was involved in 21 submissions to ATCM XL in Beijing, May 2017. Two of these submissions resulted in endorsement by means of Resolution. SCAR was congratulated for exploring new formats for presenting annual submissions, and was encouraged to continue to present submissions in a similarly accessible form at future meetings. The SCAR Lecture was a

resounding success, resulting in agreement by the ATCPs to move it on the Agenda to Day 1 of the meeting. SCAR agreed to several commitments for CEP XXI in 2018, and will prioritize the delivery of these through 2017-18. Through its members, SCATS continues to stay informed of emerging issues across the SCAR community that are of interest to the Antarctic Treaty System.

The meeting also noted the report for this agenda item submitted by SCATS on the 2017 ATCM and CEP, which included the following summary:

SCAR submitted five lead Working Papers (WPs), three co-sponsored WPs, six lead Information Papers (IPs), four co-sponsored IPs and two Background Papers (BPs) to ATCM XL. While most were focussed on the CEP, some were presented to both the CEP and the ATCM on areas of mutual interest, and five were only presented to Working Group 1 of the ATCM.

The research and policy advice contained in these submissions was very well received by the CEP and ATCM. SCAR's position as the primary body for the provision of independent, objective and evidence-based scientific advice to the ATS was reaffirmed on several occasions.

The SCAR Science lecture had a significant impact on attendees, and the value of this contribution to the ATCM was recognized by the decision to move the SCAR lecture to the opening Plenary Session.

Steven Chown reviewed the activity at the 2017 ATCM and CEP and noted SCAR had been encouraged to continue its work on the Strategic Plan for Biodiversity. The SCAR Lecture, delivered by Tim Naish, was very well received, and Deneb Karentz had joined the SCAR Delegation and presented several papers on SCAR's behalf. There had been concern expressed about the UN Biodiversity Beyond National Jurisdiction (BBNJ), relating to its potential impact on the Antarctic Treaty as the legal body responsible for Antarctica. It was important however to note that the Southern Ocean Acidification Report had yet to be delivered and had been promised by SCAR several years ago.

#### ***4.2. Update on committee membership and plans***

Steven Chown noted the upcoming changes to the SCATS leadership, with Aleks Terauds standing down as Chair, and Kevin Hughes also stepping away from his SCATS role as he will be taking on the position of Vice Chair of the CEP. While Aleks Terauds is expected to remain as the Chair of SCATS for the 2018 ATCM, the timing of that meeting may complicate matters as it will be very close to the 2018 SCAR Delegates meeting at which the new Chair of SCATS would be approved.

A number of candidates to take over as Chair of SCATS were discussed and it was decided that, in order to allow a timely decision, any further suggestions should be sent to Steven Chown, who would then investigate the candidates, followed by sending a report to EXCOM. If that led to an acceptable nomination, then Delegates could be asked to make an intersessional decision on the Chair of SCATS electronically, in advance of the 2018 Delegates meeting. This would allow a reasonable period of handover between the incoming and outgoing Chairs, which was acknowledged to be extremely valuable in ensuring a successful handover.

Further membership of the SCATS Committee, including the Deputy Chair position, were discussed, with note made of the need for balanced representation of disciplines, regions and gender. It was noted that any role within SCATS came with a high time commitment, which should be acknowledged by those willing to join the Committee.

**Action:** *New Chair of SCATS to be identified as soon as possible. Potential candidates to be nominated by August 12th. Steven Chown to suggest nominee to EXCOM following examination of list.*

#### **4.3. Discussion of marine noise modus operandi**

SCAR will need to bring a report on marine noise to the next Treaty meeting. It was noted that previous attempts to address the issue had been beset with problems of perceived bias between environmental and research groups as the drafts produced were viewed from either perspective. This experience pointed to the need for the report to be led by individuals or bodies external to the Antarctic context, in order to avoid these potential issues of perceived bias. The intent is for the report to review the state-of-the-art of current knowledge to allow the CEP to formulate guidelines. The meeting agreed to welcome the offer of support from AWI to provide funding for this report, which would be coordinated by the SCATS Group.

**Action:** *SCAR will produce a report on the current knowledge around marine noise, to be presented by SCATS at the 2018 Treaty Meeting, noting that funding has been offered and will be accepted from AWI to support the effort. The project will be reported to the CEP in 2018.*

#### **4.4. Discussion of membership of ACCE group**

The meeting welcomed the fact that John Turner would remain as the Chair of the ACCE Group, and underlined the need for groups to proactively inform the ACCE Group when articles or results of relevance were being published. It was also very helpful when these notifications could be accompanied by a short summary to aid the process of aggregation in the annual ACCE update. It was reiterated that the online versions of the original report from 2009, including the wiki, should make clear that they are specific to the report date, and that the annual updates are not intended to be as comprehensive but do present the current community perspective.

#### **4.5. SCAR and CCAMLR – future modes of work?**

The meeting noted the expressions of interest in working more closely with CCAMLR, and Steven Chown reported that progress had been made in discussions between Aleks Terauds and Mark Hindell with Mike Belcher, Chair of the Scientific Committee of CCAMLR. The discussions indicated the areas in which SCAR and CCAMLR could work together and explained the relevance of SCAR groups and activities, such as EGBAMM and RAATD.

#### **4.6. Antarctic Environments Portal and SCAR**

The meeting noted the decision of SCAR Delegates in 2016 to accept SCAR taking responsibility for the Antarctic Environments Portal (AEP), with the proviso that the cost of administering the AEP was met externally. Neil Gilbert informed the CEP meeting of the situation and the need for funding for the AEP to continue, which resulted in a direct offer of support from the Netherlands, followed informally by offers from Norway and New Zealand. The Tinker Foundation currently provides funding to the AEP and the details of the transfer arrangements, including the use of these funds, are being discussed with the current management board of the AEP with concrete proposals being sought to move the process along. Those Treaty parties

that committed support will be informed of the requirements once plans have been progressed.

It is intended that Neil Gilbert will remain as the manager of the AEP, with the editorial board led by David Walton also continuing, with the editor's contract running until June 2018. To date, some of the papers produced by the portal have been translated pro bono, so a more comprehensive approach to translation will need to be developed for the future.

As SCAR Products, the papers produced by the AEP provide a further opportunity for SCAR to present evidence-based advice to the CEP and ATCM. While some topics may be controversial, it further underlines the role SCAR plays as the main source of scientific advice to the CEP and ATCM.

**Action:** *SCAR is positively disposed to accepting the transfer of the Antarctic Environments Portal and will solicit the full proposals for the transition from the management board of AEP.*

#### **4.7. Climate Change Subsidiary Group of CEP and SCAR**

The meeting discussed the background to and nature of the request for SCAR to contribute to the Climate Change Subsidiary Group of CEP. It was clear that this would have to acknowledge the limited resources available to SCAR, but EXCOM would suggest that Aleks Terauds approaches Birgit Njaastad, who leads the Subsidiary Group, to determine what would be expected of SCAR in this context.

**Action:** *Aleks Terauds to approach CEP subsidiary group on climate change to seek clarification of expectations around SCAR's role.*

#### **4.8. What should SCAR's three key advice priorities be over next four years?**

The meeting noted the extensive programme of commitments currently in place for SCAR to deliver at the CEP and ATCM, which would require considerable work as it stands. The community was however encouraged to bring issues of relevance to the SCATS Committee, and it was noted that SCAR can address not just the CEP but also the ATCM itself. This represents an important opportunity for SCAR to identify areas where international support could provide a significant impact in making progress.

From the feedback received after the 2017 SCAR Lecture, it was felt that the topic of the 2018 SCAR Lecture at the ATCM should be on climate change and its biological consequences.

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

### **5.1. Increasing quality and diversity of applications for all CBET-related activities**

Karin Lochte presented the CBET report, which contained the following summary and recommendation for the meeting:

The CBET Committee has begun to work on the roles defined and approved at the 2016 Delegates meeting, with teams assigned to each role. The

Committee has reconstituted its membership, importantly including greater representation from Early-Career Scientists in collaboration with APECS.

In collaboration with the Development Council, extra funding was successfully solicited to support both the Fellowships and Visiting Professor schemes for 2017.

SCAR administration of the Tinker-Muse Prize has been renewed for one year, to complete the first 10 Prizes, and a 5-year renewal will be applied for in 2018.

The number and quality of applications for each of the capacity-building activities requires action to ensure depth and diversity are addressed. The Committee will work on the procedures for a new Medal to honour excellence in Capacity Building and Outreach, the first of which will be presented at Polar2018 in Davos.

The discussion pointed to the need for better-quality applications, and that work needs to be done to all the award schemes. The Fellowships are attracting a large number of applicants, and quality is improving. One question was raised as to the weight being put on the capacity-development element of the application, and whether that might discourage applications from early-career researchers in countries with developed programmes. The meeting felt that this might not be a concern at present, but could be something to keep watch over as the programme progresses. The funding from the Biodiversity Prize that supports an additional fellowship is almost fully used. It was suggested that the Prince Albert II Foundation be approached to see if there would be interest in extending this capacity-building effort.

There was particular concern with the Visiting Professor Scheme in that it is not clear that the programme is achieving its aim of building capacity in developing-programme countries. Applications are often focused on research exchanges and not capacity building. It was also suggested that SCAR could be more proactive in approaching countries with developing programmes to ask them what areas they would welcome visiting professors applications from, and then go to the corresponding SCAR Group to encourage their community to engage. It was recommended that SCAR conduct an internal review of the Visiting Professor programme with Karin Lochte to be assisted by Terry Wilson and Pete Convey. Someone from the Wikibomb effort should also be asked to join to help with the low number of female applicants.

The Junior Officer activity was also briefly discussed and, where it has been implemented, it seems to be working. SCAR needs to further develop this programme and to offer support to the Junior Officers so they effectively fill the role.

It was suggested that a 'Get Involved' section on the SCAR website would be helpful to encourage new people, both junior and senior, to join in SCAR activities. It was also suggested that a short 'What is SCAR?' video/animation could be useful.

**Action:** *CBET Committee to approach developing programmes to identify areas in which they would like to receive support from Visiting Professors.*

**Action:** *Yan Ropert-Coudert to provide feedback on experience of working with art student on current project as a possible precursor to developing a 5-minute cartoon overview of SCAR.*

**Action:** *An internal review of the Visiting Professor scheme will be undertaken, led by Karin Lochte and assisted by Terry Wilson, Pete Convey and one of the organisers of the Wikibomb event.*

## 6. Development Council: Progress and Plans

Pete Convey presented the Development Council report, which contained the following summary and recommendations:

This report provides a short update on matters relating to the Development Council since the previous report given in Kuala Lumpur. The major activity has been the composition and sending, to all SCAR Delegates and Group Leaders, of a letter setting out our view of their key role in identifying, and in many likely cases initially pursuing, possible avenues of funding or other support at their national level, for the benefit of SCAR activities. This generated a number of supportive responses, and three new funding contributions towards the Visiting Fellowship and Professorship programmes, from India, Norway and Switzerland.

The Executive Committee was asked to consider:

- 1) SCAR to record formal appreciation of the increased and/or new contributions of India, Norway and Switzerland towards the Visiting Fellowship and Visiting Professorship programmes.
- 2) DC recommends that EXCOM initiate a review of the Visiting Professor programme to date, in particular to identify the extent to which it is achieving the aims for which it was set up, and consider ways in which to develop the applicant field to further these aims. In particular, we ask EXCOM to consider if and how a more active role could be taken in identifying real value capacity-building contributions that the programme could make to newer and less-established programmes.
- 3) DC requests to maintain the current budget allocation for pamphlet preparation and creation of funding database once new website is sufficiently developed.

It was noted that the requests for additional capacity-building support were appreciated. It was also noted that a majority of the Delegates and National Committees did not respond to the letter and that more active engagement from Delegates would be appreciated. A follow-up should be sent with a more targeted and perhaps regional focus.

A follow-on discussion on how funding in various countries supports Antarctic researchers showed the need for SCAR to better understand national funding schemes.

The Development Council was encouraged to continue with plans to create a brochure for cruise ships, as well as a funding prospectus. They were also encouraged to ask the group leaders again for input into what types of funding opportunities they might know about that could be helpful for SCAR activities, to add to the funding database.

**Action:** *Another round of letters to be sent to National Committees with the aim of securing additional funds, but with a more targeted approach to establish those activities the recipients would be interested in and prepared to support.*

## 7. Partnerships: Highlights, Progress and Plans

### 7.1. *New partnership with IAATO on Peninsula Conservation Planning*

Discussions between IAATO and SCAR, about IAATO's need for evidence-based assistance with future planning for conservation and site closures, have been going on for years. During an IAATO-sponsored expedition to the Peninsula region in early 2016, these discussions became more defined and Steven Chown, participating as a scientific expert and SCAR Australian Delegate, was asked if SCAR would be in a position to take concrete action. After being elected as SCAR President, the discussions between IAATO and Steven Chown continued. He put together a proposal to IAATO, which was accepted, and IAATO has agreed to provide USD\$50,000 per year for two years to support this effort. Details still need to be worked out on transferring the money to SCAR, and then to Monash University where the work will be done. IAATO has suggested that a small oversight committee be established with SCAR scientists, IAATO stakeholders and others still to be defined. It was also suggested that the SCAR Delegates and National Committees should be informed of this development, and that any country that wanted to engage with the activity would be welcomed and included in the project.

In a subsequent discussion with IAATO, it was suggested that IAATO might assist SCAR through supporting a cruise aimed at members of identified philanthropic foundations and other philanthropic persons. Participants would be taken on an expedition to the Peninsula region where they would learn about climate change and the Antarctic, as well as the activities of SCAR. The goal would be to try to solicit additional funds to support SCAR's work. This was viewed as a good idea, but concern was expressed to ensure that the use of any resulting donations would be at the discretion of SCAR, with 'no strings attached', as outlined in SCAR's Fundraising and Donations Policy.

**Action:** SCATS and EXCOM to consult with Groups to consider the feasibility of a peninsula-focused interdisciplinary project to allow differentiation of climate change impacts from effects of fishing, tourism etc. on ecosystems.

### 7.2. *New partnership with Oceanites in the context of their ongoing work*

Oceanites is a non-profit, environmental, scientific and educational organization founded by Ron Naveen in 1987. One of its main activities is collecting penguin census data from the Antarctic Peninsula and it has been doing this for 30 years. There has been some concern about the quality of the data collected over the years and, to assist in assuring the quality of these data, SCAR has been asked to help form an oversight committee for their activities. The meeting agreed this would be a good idea and that the Life Sciences group would be the best group to provide assistance in setting up such a committee.

**Action:** SCAR agrees to proposal to collaborate with Oceanites and provide oversight through a Steering Committee, with representation nominated by EGBAMM.

### 7.3. *MAPPPD and SCAR*

Building on Oceanites' work, Heather Lynch has developed the MAPPPD project, which is funded by NASA. They have expressed a desire for closer integration with SCAR, and for SCAR to help provide oversight of their activities. The meeting

agreed this was a good initiative and that closer connection with SCAR would be a good idea. It was also agreed that EGBAMM should engage and help to provide a SCAR contact for the MAPPPD activity.

**Action:** EGBAMM to engage with and provide a SCAR contact for MAPPPD.

#### 7.4. Strengthening SCAR's connection to ICSU

SCAR is an interdisciplinary body of ICSU and close cooperation is important. As a result of the ICSU review of SCAR in 2016, it was suggested that relationships between SCAR and its ICSU Union members be strengthened. The following two agenda items show this progress.

##### 7.4.1. International Union on Biological Sciences (IUBS) and SCAR Workshop at Polar2018

Andres Barbosa is the SCAR representative for IUBS and has been working with the Executive Director to plan a SCAR/IUBS workshop as part of the business meetings before the Polar2018 Open Science Conference. The IUBS has endorsed this workshop and will be deciding on potential funding early in 2018. SCAR Life Sciences groups and SRPs are asked to be open to participating in this workshop.

##### 7.4.2. Invitation from the International Union of Geological Sciences (IUGS) for participation in the International Geological Congress

The SCAR President, Steven Chown, has received an invitation from the local organizers of the IUGS International Geological Congress, which will be held in India in 2020, for SCAR to participate. The meeting decided it would be a good idea for SCAR to engage and potentially coordinate a thematic symposium on Antarctic geology. Terry Wilson and Jesús Galindo to work with Steven Chown on a response to their letter.

**Action:** Terry Wilson and Jesús Galindo to solicit Geoscience members for suggestions on a thematic topic related to Antarctic geology for IUGS. Jesús, Terry and Steven Chown to respond to IUGS organizers with suggestions.

## 8. SCAR's 60th Anniversary

### 8.1. General Plans

The meeting noted the list of suggested activities for SCAR's 60th anniversary, both at the Polar2018 meetings in Davos and other external opportunities. A birthday event at the 2018 ATCM meetings would be appropriate and would likely be a more formal event than at Polar2018 as an evening or lunchtime function. SCATS could coordinate plans for the event, and possibilities for translating the event lecture or having it delivered in Spanish could be explored.

A coordinated release of information around the formal anniversary on February 3rd 2018 was discussed. A high profile publication could be promoted by the 43 National Committees simultaneously to add impact. Staff reporters and contacts at *Nature* and Springer could be approached on the idea of highlighting 60 years of SCAR, and it was suggested there could be some capacity at the British Antarctic Survey to support drafting relevant material. A press release would need to be prepared before

Christmas 2017 or in early 2018 to be sent under embargo to the National Committees.

To complement these activities, it was recommended to have the general “*What is SCAR?*” presentation, which has already been drafted, translated into several languages, as well as preparing a top-ten list of SCAR achievements in collaboration with the authors of the SCAR history book, “*Science in the Snow*”. Both elements should be ready by the Feb 3rd 2018 anniversary date.

**Action:** EXCOM and Secretariat to coordinate Anniversary-related activities, including production of video to complement 60th Birthday events, highlighting SCAR achievements. Budget to be proposed by Secretariat for approval by EXCOM. General presentation on SCAR to be translated into as many languages as possible.

## 8.2. Plans for Davos

The Executive Director informed the meeting that the first Monday night of the meetings at Polar2018 had deliberately been kept clear of social events to allow time for a specific anniversary event. She also noted that if a keynote lecture was planned then there would need to be an equivalent slot for an IASC speaker. The Wikibomb event at the Kuala Lumpur OSC was noted as a good example of a recent successful event that could act as a model for an anniversary event. The structure of having a panel discussion before providing a drinks reception gained support. The suggestion of having a video to show highlights from SCAR’s history was also supported. Suggestions for engaging panel discussion members can be sent to EXCOM or the Secretariat.

The Tinker Foundation will also be approached to suggest that celebrating 10 years of the Tinker-Muse Prize be included in the anniversary event at Polar2018, as an addition to the Award Ceremony and Lecture for the 10th Tinker-Muse Prize winner at the meetings.

**Action:** Panel discussion concept to be developed for 60th Birthday event at Polar2018 by EXCOM.

**Action:** EO to liaise with Tinker Foundation on nature, location and timing of Tinker-Muse Prize 10-year anniversary events, potentially in conjunction with SCAR anniversary events at Davos.

## 9. SCAR Strategic Plan: Progress and Plans

### 9.1. Key items to address in 2018 and 2019

The meeting welcomed the provision of a shared document to record progress against the ambitions of the Strategic Plan, and all of the SCAR leadership was encouraged to make use of the document and provide updates. One issue was the aim of holding another Horizon Scan exercise within five years of the original. However, the meeting noted that the existing Horizon Scan questions were being used widely as a framework to inform, for instance, the strategies of national programmes, so to repeat the exercise so soon would not be sensible. The exercise would be repeated at some point, but in part the generation of a new set of SRPs would include the influence of the Horizon Scan questions in their formulation.

**Action:** Secretariat to send a reminder to SCAR leadership community to ask progress against the Strategic Plan to be noted through the shared online Google document:

[https://docs.google.com/document/d/1ILPdzUFCLungH\\_TCoXdOaxG71fIPg3q5YgNOMoMDbY8/edit](https://docs.google.com/document/d/1ILPdzUFCLungH_TCoXdOaxG71fIPg3q5YgNOMoMDbY8/edit)

**Action:** Secretariat to prepare a paper presenting progress against the Strategic Plan to the 2018 SCAR Delegates meeting.

## 9.2. SCAR and the Sustainable Development Goals

The meeting noted the ambition of ICSU to track progress against the SDGs globally. It was also noted that there was sensitivity from the Treaty parties when UN initiatives impact Antarctica, but SCAR was in a position to bridge the gap between the Treaty and the UN to enable a discussion around the science evidence relevant to the SDGs in both venues.

In summary, SCAR should continue to interact with ICSU and other UN bodies to provide the evidence-based advice that is relevant to their areas, and continue to nominate representatives to the relevant bodies.

## 10. SCAR Meetings

### 10.1. Brief Update on recent and upcoming meetings

The meeting discussed the successful recent meetings around the SCAR Biology symposium in Leuven, Belgium. One issue identified was the use of acronyms across groups, providing a barrier to accessibility and inclusivity in some cases. The meeting noted the future programme of meetings for the year was very full and were well documented on the SCAR webpages.

Plans for the Polar2018 meeting were progressing and the call for abstracts would be sent out in early September. It was noted that the abstract fee being charged had already been seen as a barrier to participation. This had also been the case for some other recent meetings and it was agreed that, for future meetings, abstract fees should not be allowed.

### 10.2. Discussion on Archiving and Branding

The meeting was informed about the inappropriate use of OSC websites once the domain registrations had lapsed and been taken over by commercial organisations. The recommendations for SCAR to secure the domains for future meetings and explore shared provision of abstract systems, along with the others from the paper submitted for this agenda item, were all accepted.

Updating the guidelines provided to potential meeting organisers was also required and would include the note to specifically prohibit the use of abstract fees, as well as guidance on the use of social media.

**Action:** All recommendations of the paper on archiving and branding SCAR Meeting websites approved, including required increase in the website costs budget. Secretariat to implement.

## 11. SCAR Rules of Procedure: Decisions needed post-Delegates 2016

Terry Wilson reported on the updates to the SCAR establishing documents, for which the remaining outstanding action was to add a specific section on the CBET Committee. Otherwise, the revisions approved at the 2016 Delegates Meeting had been completed.

**Action:** *Changes to the Articles and Rules documents need to be finalized and then distributed to EXCOM for approval.*

## 12. SCAR Internal Business

### 12.1. Finance

Jefferson Simões introduced the Finance Report. He noted that EXCOM had conducted a review of Secretariat salaries and concluded that significant uplift was required to bring the salaries in line with comparable international organisations. The details of the increases would be communicated to the Secretariat and included in the updated Budgets published following the meeting, but the impact for 2017 would be an extra cost of approximately USD\$14,000 for the salary costs budget line.

The Secretariat would also be supported with a new Project Officer position (50% time) to be established for three years. It was envisaged that the position would start in 2018, with the costs included in the budget revisions published after the meeting.

Other significant changes since the 2016 Delegates meeting were the outsourcing of day-to-day finance operations, to allow the Executive Officer to allocate more time to other responsibilities, and the establishment of an Investment Portfolio, which had been selected based on the ethical standards expected of SCAR.

Steven Chown noted that the allocation of USD\$300,000 to the Investment Portfolio did not present a significant risk to the continuing operations of SCAR, due to the large balances that SCAR had operated for many years. Currency-rate fluctuations were still the major risk as the vast majority of SCAR balances were held in USD, and most National Contributions would continue to be paid in USD, while most Secretariat costs were incurred in GBP.

#### 12.1.1. 2016 Statement and Audit

The 2016 Statement was approved.

#### 12.1.2. Revised Budgets

The revised budgets for 2017, 2018 and 2019 were approved and would be updated based on the decisions on Secretariat salaries and the new Project Officer position.

**Action:** *2016 Statement and 2017, 2018 and 2019 Budgets were approved with detail changes to be applied when Secretariat staff receive updated salaries.*

### 12.2. Potential New Membership

Steven Chown informed the meeting that Belarus had expressed its enthusiasm for becoming a member of SCAR, to the extent that they had enquired about joining as a full member rather than an associate member.

Of the current associate members, Portugal had indicated they were prepared to move to full membership. Treaty parties that were not currently members of SCAR were Estonia, Hungary and Kazakhstan and could be approached to assess their interest in joining.

**Action:** Secretariat to send full information package to Belarus representatives to ensure membership application submitted in good time.

### 12.3. Office Reorganisation

Steven Chown reported that the Secretariat job descriptions were being updated, salaries increased and the new Project Officer role being added, which would complete the process of reorganisation.

### 12.4. Secretariat Report

The meeting noted the Secretariat Report, and the Executive Director highlighted the work done on communications, including the development of a new website, for which a specific budget allocation from the contingency fund had been made to formulate and implement a comprehensive Communications Strategy.

The Secretariat would appreciate greater feedback on the Quarterly Reports provided, which include forward priorities.

The meeting expressed its deep appreciation for the work of the Secretariat and the patience displayed as changes from the reorganisation were effected.

On communications, it was noted that the new website was a marked improvement on the current version. The Vice Presidents also confirmed their intention to provide linkage between the groups and the Secretariat, e.g. in helping to identify where centralised support could be provided.

The meeting was asked for comments on the document relating to the creation of Action and Expert Groups. A few minor changes were suggested and accepted, which will be included in the final document to be made available from the SCAR website.

**Action:** EXCOM expresses its deep appreciation for the work of the Secretariat and patience through the recent changes.

**Action:** Updates for the procedure for group creation to be communicated to the Secretariat, then published on the website.

## 13. Other Business

No other matters were suggested for further discussion.

## 14. Actions Arising

The Outstanding Combined Actions list was reviewed and updated.

## **15. Closure of Meeting**

The SCAR President, Steven Chown, closed the meeting.

**Action:** *Secretariat to send a note of thanks to the local hosts in Brno for the excellent organization, support and social events.*

*List of Acronyms*

AAA	Astronomy and Astrophysics from Antarctica
ABI	Antarctic Biodiversity Informatics
ACCE	Antarctic Climate Change and the Environment
ACE	Antarctic Circumnavigation Expedition
ADD	Antarctic Digital Database
ADMAP	Antarctic Digital Magnetic Anomaly Project
AEP	Antarctic Environments Portal
AFBA-project	A Functional Biogeography of the Antarctic
AG	Action Group
AGU	American Geophysical Union
AMD	Antarctic Master Directory
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
ANTOS	Antarctic Near-shore and Terrestrial Observing System (Expert Group)
ANTPAS	Antarctic and sub-Antarctic Permafrost, periglacial environments And Soils group
APECS	Association of Polar Early Career Scientists
AR6	Assessment Report Six (IPCC)
ARC	Antarctic Research Challenges project
ASPeCt	Antarctic Sea-Ice Processes and Climate (Expert Group)
ATCM	Antarctic Treaty Consultative Meeting
ATS	Antarctic Treaty System / Antarctic Treaty Secretariat
AWI	Alfred Wegener Institute, Germany
BAS	British Antarctic Survey
BBNJ	Biodiversity Beyond National Jurisdiction (UN initiative)
CBET	Capacity Building, Education and Training
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCRWP	Climate Change Response Work Programme
CEP	Committee for Environmental Protection (Antarctic Treaty)
CGA	Composite Gazetteer of Antarctica
CliC	Climate and Cryosphere Project (a project of the WCRP)
CMIP	Coupled Model Intercomparison Project
CO	Chief Officer
CO <sub>2</sub>	carbon dioxide
COMNAP	Council of Managers of National Antarctic Programs
COP	Conference of Parties (UNFCCC)
CORDEX	Coordinated Regional Climate Downscaling Experiment
CPR	Continuous Plankton Recorder
DC	Development Council
DueSouth	Database of Upcoming Expeditions to the Southern Ocean
ECR	Early-career researcher
ED	Executive Director
EG	Expert Group
e.g.	for example (from Latin: <i>exempli gratia</i> )

EG-ABI	Expert Group on Antarctic Biodiversity Informatics
EG-BAMM	Expert Group on Birds and Marine Mammals
EG-CPR	Expert Group on the Continuous Plankton Recorder
EGU	European Geosciences Union
EMODnet	European Marine Observation and Data Network
EO	Executive Officer
EXCOM	Executive Committee
FRISP	Forum for Research into Ice Shelf Processes (Expert Group)
GACH	Great Antarctic Climate Hack
GASS	General Assembly and Scientific Symposium of URSI
GCW	Global Cryosphere Watch
GeoMap	Geological Mapping Update of Antarctica (Action Group)
GIA	glacial isostatic adjustment
GIANT	Geodetic Infrastructure of Antarctica
GNSS	Global Navigation Satellite System
GRAPE	GNSS Research and Application for Polar Environment
GS	Geosciences
GSG	Geosciences Group
IAATO	International Association of Antarctica Tour Operators
IAG	International Association of Geodesy
IAG-IASPEI	Joint Scientific Assembly of the IAG and IASPEI
AGA	International Association of Geomagnetism and Aeronomy
IASC	International Arctic Science Committee
IASPEI	International Association of Seismology and Physics of the Earth's Interior
IBCSO	International Bathymetric Chart of the Southern Ocean
ICED	Integrating Climate and Ecosystem Dynamics
ICSU	International Council for Science
i.e.	that is (from Latin: id est)
IOC	Intergovernmental Oceanographic Commission
IODP	Integrated Ocean Drilling Program
IP	Information Paper
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPICS	International Partnership in Ice Core Sciences
ISAES	International Symposium on Antarctic Earth Sciences
ISMAS	Ice Sheet Mass Balance and Sea Level
IUBS	International Union of Biological Sciences
IUGS	International Union of Geological Sciences
JARE	Japanese Antarctic Research Expedition
JCOMMOPS	WMO-IOC Joint Technical Commission for Oceanography and Marine Meteorology in-situ Observing Programmes Support Centre
JpGU-AGU	Japan Geoscience Union Meeting
LS	Life Sciences
LSG	Life Sciences Group
MAPPPD	Mapping Application for Penguin Populations and Projected Dynamics
NARIT	National Astronomical Research Institute of Thailand

NASA	US National Aeronautics and Space Administration
OpMet	Operational Meteorology in the Antarctic
OSC	Open Science Conference
PAIS	Past Antarctic Ice Sheet dynamics
PS	Physical Sciences
PSG	Physical Sciences Group
RAATD	Retrospective Analysis of Antarctic Tracking Data
RESOURCE	Radio Sciences Research on AntarctiC AtmospherE
SCADM	Standing Committee on Antarctic Data Management
SCAGI	Standing Committee on Antarctic Geographic Information
SCATS	Standing Committee on the Antarctic Treaty System
SCAR	Scientific Committee on Antarctic Research
SCOR	Scientific Committee on Oceanic Research
SDG	Sustainable Development Goals
SDLS	Antarctic Seismic Data Library System for Cooperative Research
SERCE	Solid Earth Response and influence on Cryosphere Evolution
SO-CPR	Southern Ocean Continuous Plankton Recorder Database
SOOS	Southern Ocean Observing System
SORP	Southern Ocean Region Panel
SRP	Scientific Research Programme
UN	United Nations
UNFCCC	United National Framework Convention on Climate Change
URSI	Union Radio Scientifique International
URSI-GASS	URSI General Assembly and Scientific Symposium
VP	Vice President
WCRP	World Climate Research Programme
WMO	World Meteorological Organisation
WP	Working Paper
YOPP	Year of Polar Prediction
YOPP-SH	Year of Polar Prediction in the Southern Hemisphere