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The Scientific Committee on Antarctic Research (SCAR) Annual Report 2014/15

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1. Background

The Scientific Committee on Antarctic Research (SCAR) is a non-governmental, Interdisciplinary Scientific Body of the International Council for Science (ICSU), and Observer to the Antarctic Treaty and the UNFCCC.

SCAR's Mission is (i) to be the leading, independent, non-governmental facilitator, coordinator, and advocate of excellence in Antarctic and Southern Ocean science and research and (ii) to provide independent, sound, scientifically-based advice to the Antarctic Treaty System and other policy makers including the use of science to identify emerging trends and bring these issues to the attention of policy makers.

2. Introduction

SCAR's scientific research adds value to national efforts by enabling researchers to collaborate on large-scale scientific programmes to accomplish objectives not easily obtainable by any single country. SCAR's Members currently include 39 countries and 9 ICSU Scientific Unions. During the SCAR Delegates' Meeting held in New Zealand in September 2014, the Czech Republic and the Islamic Republic of Iran joined SCAR.

SCAR's success depends on the quality and timeliness of its scientific outputs. Descriptions of SCAR's research programmes and scientific outputs are available at: www.scar.org. This paper should be read in conjunction with a separate Background Paper (BP 4) that highlights recent science papers published since the last Antarctic Treaty Meeting.

SCAR produces an electronic quarterly Newsletter highlighting relevant science and other SCAR related issues. Please email: info@scar.org if you wish to be added to the mailing list. SCAR is also available on social media such as Facebook, LinkedIn and Twitter.

3. SCAR Highlights (2014/15)

SCAR has a number of groups and programmes that focus on different science or science-related activities in the Antarctic region. Here we highlight updates to SCAR activities that we believe to be of particular interest to Treaty Parties.

The Standing Committee on the Antarctic Treaty System (SCATS)

(www.scar.org/antarctic-treaty-system/scats)

SCATS is the body tasked with developing SCAR's scientific advice to the Antarctic Treaty. In addition to providing and co-ordinating scientific advice for SCAR, SCATS members are also actively involved in research. During the last SCAR Delegates' meeting a new Chief Officer, Aleks Terauds, was appointed, as were several new members (see <http://www.scar.org/antarctic-treaty-system/scats>). SCATS is supporting the Antarctic Environments Portal where the SCATS Chief Officer sits on the editorial board, playing an important role in content development.

Southern Ocean Acidification (www.scar.org/ssg/physical-sciences/acidification)

SCAR has undertaken a synthesis of the scientific understanding of Southern Ocean acidification. This landmark report will be highlighted at the ATCM XXXVIII - CEP XVIII in Sofia, Bulgaria. This is also the topic of this year's Treaty Lecture (See BP 1). A pdf of the report will be made available from the SCAR website.

The Biogeographic Atlas of the Southern Ocean

The Biogeographic Atlas presents the distribution patterns and processes of a significant representation of Southern Ocean organisms, illustrated by more than 800 distribution maps and 200 pictures and graphs. The Atlas is a legacy of the [International Polar Year 2007-2008](#) and a contribution to the SCAR scientific research programmes [AntEco \(State of the Antarctic Ecosystem\)](#) and [AnT-ERA \(Antarctic Thresholds - Ecosystem Resilience and Adaptation\)](#). The Atlas was launched at the last SCAR Meeting and Open Science Conference (Auckland, New Zealand August 25-28th 2014).

The SCAR Science Horizon Scan (www.scar.org/horizonscanning/)

Following the crowdsourcing of over 850 unique scientific questions by the SCAR community, the 1st SCAR Antarctic and Southern Ocean Science Horizon Scan assembled more than 70 of the world's leading Antarctic scientists, policy makers and visionaries (including early career scientists) in Queenstown, New Zealand, in April 2014. Their remit was to identify the most important scientific questions that should, be addressed by research in and from the southern polar regions over the next two decades and beyond. The initial outcomes were published in the journals *Nature* (<http://www.nature.com/news/polar-research-six-priorities-for-antarctic-science-1.15658>) and *Antarctic Science* (<http://dx.doi.org/10.1017/S0954102014000674>). See IP 20.

Many national Antarctic programmes are now developing their own strategies on how they will deliver their science programmes in the future. Delivery of such a "roadmap" is not without its challenges. Therefore, with SCAR's assistance, COMNAP is leading a second stage in the process with the Antarctic Research Challenges (ARC) Project (www.comnap.aq) in order to assist national Antarctic programmes to understand, and develop ways to address the challenges, and share any innovation or access to such technology. The ARC project focuses on answering the question: "How will national Antarctic programmes meet the challenges of delivery of their Antarctic science in the next 20 to 30 years?"

Antarctic Conservation in the 21st Century (www.scar.org/antarctic-treaty-system/scats)

SCAR, in collaboration with several partners, continued its development of the 'Antarctic Conservation for the 21st Century' strategy. The activity has encouraged participation from all stakeholders in the region. The approach is also structured to align with both the Protocol on Environmental Protection to the Antarctic Treaty and the Five Year Work Plan of the Committee for Environmental Protection. It also links closely with the Antarctic Environments Portal (See WP 21 and IP 11). As part of this process, a symposium was held during the SCAR Open Science Conference in New Zealand in August 2014, which will feed into the final process.

SCAR Data and Products (www.scar.org/data-products)

SCAR promotes free and unrestricted access to Antarctic data and information through open and accessible archives, managed by its Standing Committees on Antarctic Data Management (SCADM) and Antarctic Geographic Information (SCAGI). SCAR also has several products of use to the Antarctic community, such as the recent Quantarctica (<http://www.scar.org/data-products/quantarctica>) and the Antarctic Map Catalogue (<http://www.scar.org/data-products/mapcat>).

New SCAR groups

Several new groups were approved in 2014 during the last SCAR Delegates' Meeting, including:

- ***SnowAnt (Snow in Antarctica) Action Group*** aims to identify undisturbed snow areas in Antarctica and to characterize their properties. www.scar.org/ssg/physical-sciences/snowant
- ***ANTOS (Antarctic Nearshore Terrestrial Observing System) Action Group*** aims to establish an integrated and coordinated trans-continental 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. www.scar.org/ssg/life-sciences/antos

- **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. www.scar.org/ssg/geosciences/geomap
- **Action Group on Antarctic Volcanism** will promote the study of Antarctic volcanism; discuss protocols, methods, best practices; and integrate and share geological information. <http://www.scar.org/ssg/geosciences/volcanism>
- **Action Group on Geoheritage and Geoconservation** was also approved during the last Delegates Meeting. Details are being finished and advances are expected during the meeting that will be held at the margins of the XII ISAES (13-17 July, Goa, India).

4. SCAR Fellowships and Prizes

In order to expand capacity in all its Members, SCAR runs several Fellowship and Prize Schemes (www.scar.org/awards):

- **SCAR/COMNAP Fellowships** are focused on early career scientists and engineers in Antarctic scientific research, to build new connections and further strengthen international capacity and cooperation in Antarctic research. The fellowships are being launched in tandem with the [CCAMLR Scholarships](#). In 2014 four fellowships were awarded. <http://www.scar.org/awards/fellowships>
- **SCAR Visiting Professor Scheme** provides mid- to late-career scientists the opportunity to undertake short-term visits to a facility in, or operated by, SCAR member countries, to provide training and mentoring. Three Visiting Professorships were awarded in 2014. <http://www.scar.org/awards/visitingprofs>
- **Martha T Muse Prize for Science and Policy in Antarctica**, sponsored by the Tinker Foundation, is a USD \$100,000 unrestricted award presented to an individual in the fields of Antarctic science or policy. Tim Naish was awarded the 2014 Muse Prize, for his outstanding research in understanding Antarctica's response to past and present climate change and the role of Antarctica's ice sheets in global sea-level change through time. www.museprize.org.
- **SCAR Medals** were awarded during the [SCAR Open Science Conference](#) in New Zealand, 2014. The SCAR Medal for Excellence in Antarctic Research went to Steven Chown (Australia) for his extensive contributions to Antarctic Science and policy and to SCAR; and the SCAR Medal for International Scientific Coordination was awarded jointly to Mahlon "Chuck" Kennicutt (USA) and Rasik Ravindra (India) for their collaborative and coordination roles in the science community.
- A new **Communications Award** has been instigated for the most innovative presentation of Antarctic research results in any discipline at the SCAR Open Science Conference. See <https://youtu.be/i8DzllRokTw> for the 2014 winner, Molly Zhongnan Jia.

5. Other News

During the SCAR Delegates' meeting, two new Vice Presidents were elected – Azizan Abu Samah (Malaysia) and Terry Wilson (USA). In December 2014, Eoghan Griffin was appointed as SCAR Executive Officer, replacing Renuka Badhe who became the new Executive Secretary of the European Polar Board. In May 2015, Mike Sparrow also left SCAR to take up a UN position with the Joint Planning Staff of the World Climate Research Programme.

6. Future major SCAR Meetings

There are several major SCAR Meetings coming up (www.scar.org/events/), including:

- **XII International Symposium on Antarctic Earth Sciences (ISAES) 2015**. 13-17th July 2015, Goa, India. <http://www.isaes2015goa.in>
- **XXXIV SCAR Meetings and Open Science Conference**. 19-31 August 2016, Kuala Lumpur, Malaysia. The SCAR Open Science Conference will be held on 25-29 August. See: <http://scar2016.com>

- *The XXXV SCAR Meetings and Open Science Conference in 2018* in Davos, Switzerland, will cover both polar regions, being organized jointly with the International Arctic Science Committee (IASC).