

XXVIII SCAR Recommendations

Recommendations Internal to SCAR

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1. Endorsement of the ACE programme
2. Endorsement of the SALE programme
3. Identification of National Correspondents to SCAR Research Programmes

SSG – Life Sciences

1. Concerning the Amalgamation of EGHB&M and MEDINET
2. Concerning the International Polar Year 2007-8
5. On the Evolution and Biodiversity in the Antarctic Scientific Research Programme
6. On the CircumAntarctic Census of Marine Life
7. Concerning the establishment within SCAR of a “Marine Biodiversity Information Network”
8. Concerning the transport to and threat of alien species in the Antarctic
9. On the Subglacial Antarctic Lake Exploration Scientific Research Programme
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11. On the endorsement of three expert groups within the LSSSG

SSG – Physical Sciences

1. Proposing an Expert Group on Oceanography
2. Proposing an Action Group on King George Island science
3. Proposing an Expert Group on Ice Drilling Technologies

Recommendations External to SCAR

SSG – Geosciences

- Concerning Geographic Information contact officers
- Concerning bathymetric data
- Concerning geodetic and geographic information
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- 5. Concerning geodetic observations at remote locations
- 6. Concerning rationalization of scientific activities on King George Island

SSG – Life Sciences

3. Concerning the Agreement for the Conservation of Albatrosses and Petrels (ACAP)
4. Concerning the use of flipper bands on penguins

SSG – Physical Sciences

- Concerning site testing for astronomical observations
- Concerning drifting buoys
- Concerning continued support of existing geospace observatories
- On the transmission of space weather data
- Mesosphere-Stratosphere-Troposphere / Incoherent Scatter (MST/IS) Radar
- On upper air meteorological data from the Antarctic Peninsula
- Concerning drilling above Lake Vostok
- Concerning meteorological reports from Dome C

Recommendations Internal to SCAR

SSG – Geosciences

Recommendation SSG–G 1

Concerning the Antarctic Climate Evolution proposal

The SCAR Geoscience Standing Science Group recommends that the SCAR Delegates Meeting endorse the Antarctic Climate Evolution proposal as a SCAR Program.

Recommendation SSG–G 2

Concerning the Subglacial Antarctic Lake Environments proposal

The SCAR Geoscience Standing Science Group recommends that the SCAR Delegates Meeting endorse the Subglacial Antarctic Lake Environments proposal as a SCAR Program.

Recommendation SSG–G 3

Concerning National Correspondents for SCAR Programmes

The Geoscience Standing Science Group recommends that National Geoscience Representatives identify National Correspondents for each new SCAR Program.

SSG – Life Sciences

Recommendation XXVIII-LSSSG-1 (Internal)

Concerning the Amalgamation of EGHB&M and MEDINET.

Noting that there are currently 2 medical groups:

- The Expert Group on Human Biology & Medicine (EGHB&M) that reports to and advises SCAR through the Life Sciences Standing Scientific Group, has an operational medicine subgroup.
- MEDINET which reports to and advises COMNAP through COMED, shares some common membership with the LSSSG, and has been tasked by COMNAP to investigate common standards, guidelines and protocols.

Considering that:

- This incurs duplication of effort and the potential for conflicting advice.
- Most medical research is applied research.
- There is common ground for work with other groups within LSSSG, which would also encourage synergy, intellectual stimulation, and provide a framework for meetings.
- There is also a need for research to inform COMNAP on medical matters.
- Wider membership would enhance research by increasing cooperation, increasing national involvement, and reducing organizational differences, as well as enhancing the support to COMNAP by facilitating standardised operational methods.

The LSSSG *recommends* that:

- amalgamation of EGHB&M and MEDINET into a single group should take place as soon as practicable.
- The new group should continue to report to SCAR through LSSSG and to COMNAP through COMED.

Recommendation XXVIII-LSSSG-2 (Internal)

Concerning the International Polar Year 2007-8

Noting that:

- The International Polar year provides opportunities for multidisciplinary research to provide an epidemiological snapshot of human health and interaction with the environment of polar regions.
- International Polar Year projects may provide the facility of opportunistic research in human biology

Considering that:

- This provides increased opportunities for international, interdisciplinary research, and comparisons between Antarctic and Arctic communities
- The excellent opportunity to establish an observatory on humankind's interaction with the Antarctic environment will not be repeated for many years

The LSSSG recommends that SCAR supports the development of a comprehensive scientific programme of human biology and medical research during the International Polar Year.

Recommendation XVIII-LSSSG -5 (internal)

On the Evolution and Biodiversity in the Antarctic Scientific Research Programme

Recognizing the importance to global science of an integrated approach to understanding the evolution and future of biodiversity in the Antarctic;

Noting that the science outlined in the Draft Scientific Research Programme Science and Implementation Plan is topical, exciting and conforms to the required scientific standards;

The Life Sciences Standing Scientific Group endorses and strongly supports the Evolution and Biodiversity in the Antarctic Scientific Research Programme.

Recommendation XVIII-LSSSG -6 (internal)

On the CircumAntarctic Census of Marine Life

Recognizing the opportunity for a multinational, time-limited programme that can leave a legacy of biodiversity information, so conforming with International Polar Year project requirements;

Noting the existence and relevance of the International Census of Marine Life to achieving such a programme in the Antarctic;

The Life Sciences Standing Scientific Group recommends the establishment of an Action Group for the Census of Marine Life, which will act as the scientific steering committee for this collaborative activity in accordance with the requirements of the International Census of Marine Life .

Recommendation XXVIII-LSSSG-7 (internal)

Concerning the establishment within SCAR of a “Marine Biodiversity Information Network”

Recognizing the needs for optimizing the compilation, integration and dissemination of Antarctic marine biodiversity data for scientific, management, conservation and monitoring purposes,

Considering the advantages to present a coordinated SCAR contribution to the relevant global biodiversity information initiatives such as GBIF and OBIS,

Considering the potential requirements for biodiversity information from the Antarctic Treaty System,

Recognizing the interest of integrated information as an efficient tool for the accurate assessment of the marine biodiversity knowledge,

The Life Sciences Standing Scientific Group recommends that SCAR support the establishment of the Marine Biodiversity Information Network (SCAR-MarBIN).

Recommendation XXVIII-LSSSG-8 (internal)

Concerning the transport to and threat of alien species in the Antarctic

Considering the need for protection of the Antarctic environment and in furtherance of the stated SCAR objectives of conservation, the Life Sciences Standing Scientific Group *advises* that recent scientific data and analysis has identified routes of transport of alien organisms through logistic activities of national programmes.

Recognizing the need to review and establish current best practises for conservation in the Antarctic in context of transport of alien propagules through the logistic activities

The Life Sciences Standing Scientific Group recommends that SCAR inform COMNAP of the current understanding and discuss possibilities of jointly developing best practice methodologies.

Recommendation XVIII-LSSSG-9 (internal)

On the Subglacial Antarctic Lake Exploration Scientific Research Programme

Recognizing the opportunity and value of adopting an integrated and interdisciplinary approach to understanding the subglacial lake environment;

Noting that the science outlined in the Draft Scientific Research Programme Science and Implementation Plan conforms to the required scientific standards;

The Life Sciences Standing Scientific Group endorses and strongly supports the Subglacial Antarctic Lake Exploration Scientific Research Programme.

Recommendation XVIII-LSSSG-10 (internal)

On the Open Science Conference

Recognizing the great success of the First SCAR Open Science Conference;

Noting the importance of providing a forum for further enabling interdisciplinary insight and interaction;

The Life Sciences Standing Scientific Group recommends that the organizers of the next SCAR Open Science Conference include one session of a few keynote presentations

Recommendation XXVIII-LSSSG-11

On the endorsement of three expert groups within the LSSSG

Recognizing that the Life Sciences Standing Scientific Group has subgroups with ongoing, specialized research development and reporting requirements;

Noting the value of these groups for generating scientific activities and advice;

the Life Sciences Standing Scientific Group recommends that SCAR extends the mandate of the Expert Group on Birds (E. Woehler, Chief Officer), the Expert Group on Seals (A. Blix, Chief Officer), the Expert Group on Human Biology and Medicine (I. Grant, Chief Officer), the Scientific Programme Planning Group on Evolution and Biodiversity in the Antarctic (G. di Prisco, Chief Officer), which will become a Scientific Programme Group after adoption of the programme by the Delegates Meeting, and the Action Group on Biological Monitoring (D. Walton, Chief Officer) within the Life Sciences Standing Scientific Group, with membership and terms of reference set out in the report on the meeting of the Life Sciences Standing Scientific Group during the SCAR XXVII meeting until 2006.

SSG – Physical Sciences

Recommendation SCAR XXVIII – 1

Concerning an Expert Group on Oceanography

Recognizing the importance of oceanography to many areas of SCAR science;

Recognizing the greater need for liaison with external organisations over oceanography now that SCAR is a co-sponsor of the CLIVAR-CliC/SCAR Southern Ocean Panel;

The SSG on Physical Sciences

Recommends that SCAR establishes an Expert Group on Oceanography.

Recommendation SCAR XXVIII – 2

Concerning a new Action Group on King George Island science

Recognizing the importance of King George Island to many areas of science;

Noting the large number of research stations that are located on the island;

Recognising the benefits of co-ordinating many of the scientific activities carried out on the island;

The SSG on Physical Sciences

Recommends that SCAR establishes a cross-SSG Action Group on King George Island.

Recommendation SCAR XXVIII – 3

Concerning a new Expert Group on Ice Drilling Technologies

Recognising the advances in ice drilling and borehole technologies over the past 15 years; but

Noting the serious technological challenges that have been experienced in drilling the deep ice cores in Antarctica;

Recognising the major scientific advances that have come from ice core data;

The SSG on Physical Sciences

Recommends that SCAR establishes an Expert Group on Ice Drilling Technologies.

Recommendations External to SCAR

SSG – Geosciences

Recommendation SSG–G 4

Concerning Geographic Information contact officers

Noting the SCAR XXVII-I Recommendation concerning Antarctic place names;

Recognising the importance of high quality spatial data to Antarctic science and operations;

Mindful that data integrity discrepancies can occur between data sets collected by different programs;

SCAR *recommends* to National Committees and Programs that they identify a Geographic Information contact person who is able to provide the information required to ensure the greatest possible coordination of geographic information across the Antarctic.

Recommendation SSG–G 5 [Recommendation SCAR XXVII–1]

Concerning Antarctic place-names

Noting that the SCAR Composite Gazetteer of Antarctica (CGA):

- has been published in March 1998 by the SCAR Working Group on Geodesy and Geographic Information (WG-GGI);
- contains names data from twenty-two SCAR member countries and the International Hydrographic Organization (IHO) / International Oceanographic Commission (IOC);
- comprises around 34,165 entries for 17,097 features, with about 10% of features having two or more entirely different names.

Also noting the increasing importance being placed on names for operational and research purposes there is a requirement for a greater accuracy of the coordinates

Considering that, in the interests of both scientific clarity and operational safety, the general principle of ‘one name per feature’ should apply for all new feature names;

The Expert Group on Geospatial Information (GIG) *recommends* to SCAR that:

National Committees, directly or through their national Antarctic naming authority:

1. refer to the CGA in considering all proposals for new place names;
2. avoid adding new place names to features already named;
3. submit all new approved place names to GIG for inclusion in the CGA;
4. provide existing data to the GIG for inclusion in the CGA.

Recommendation SSG–G 6 [Recommendation SCAR XXVII–2]*Concerning bathymetric data*

Noting that the lack of bathymetric information in large areas of the Southern Ocean is a limiting factor in bathymetric mapping and nautical charting;

Noting the initiative from the IHO for an improved International Bathymetric Chart for the Southern Ocean (IBCSO)

Further noting the key role of the IHO Data Center on Digital Bathymetry (DCDB) located at the US National Geophysical Data Center (NGDC) in Boulder, CO, and the efforts of the IOC/IHO organizations for updating and maintaining the General Bathymetric Chart of the Ocean (GEBCO);

Considering the need for bathymetric maps for the morphological interpretation of the sea-floor structure and general oceanographic studies, the geo-location of scientific data, and the general requirements for precise nautical charts to ensure the safety of navigation in Antarctic waters;

The GIG *recommends* that:

1. SCAR supports the acquisition of echo-sounding data on all vessels operating in Antarctic waters and the delivery of the gathered measurements to the IHO DCDB for further use in bathymetric mapping;
2. wherever possible, vessel transits should be planned through oceanic regions where few bathymetric data exist in order to gather additional bathymetric information.

Recommendation SSG–G 7 [Recommendation SCAR XXVII–3]*Concerning geodetic and geographic information*

Noting the Antarctic Treaty Article III (1c) requirements regarding data exchange,

Recognising that the information products produced by the SCAR Geoscience Standing Scientific Group are all derived from the work of National Committees and Programmes:

SCAR *recommends* that National Committees request National Programmes to provide continuing access for all SCAR members to fundamental geodetic and geographic information, including:

- geodetic observations and databases;
- geodetic control point and tide gauge records;
- remotely sensed data (including satellite imagery and aerial photography)
- topographic and bathymetric data;
- and place names data.

Recommendation SSG–G 8 [Recommendation SCAR XXVII–4]*Concerning airborne gravity data for geoid computation*

Noting that determination of a high resolution geoid in Antarctica benefits research of the ice density of the Antarctic ice sheet, determination of surface elevation relative to mean sea level, and the calibration and validation of satellite missions;

Recognising that there is a major gap in gravity data required for the computation of a high resolution geoid in Antarctica;

Considering the current lack of gravity data, the need to acquire gravity data at close intervals (optimally spaced between 10 and 50 km), that new satellite gravity missions will leave a

gap from 82 to 90 degrees south, and that airborne gravity observation is considered the most cost effective and reliable method for collecting data;

SCAR *recommends* that National Committees request National Programmes:

- support a scientific programme of airborne gravity to cover gaps in Antarctica gravity data; and
- encourage all researchers to coordinate their efforts in Antarctic gravity data acquisition, in particular airborne gravity data, and to provide such data to the SCAR Geoscience Standing Scientific Group for incorporation into a physical geodetic database of Antarctica.

Recommendation SSG–G 9 [Recommendation SCAR XXVII–5]

Concerning geodetic observations at remote locations

Recognising the technological advances being made in low power operation, data storage capacity and data communication at remote Antarctic sites

The Expert Group on Geospatial Information:

Recommends that National Committees, where possible, place long-term GPS observatories on remote bedrock features (as identified by the SCAR ANTEC group – www.antec.scar.org/proposed_gps.htm) to provide information on the current tectonic motion of the Antarctic plate.

Recommendation SSG–G 10 [Recommendation SCAR XXVII–6]

Concerning rationalization of scientific activities on King George Island

Noting the SCAR recommendation XXVI-6 concerning rationalization of scientific activities on King George Island the Geospatial Information Group of Experts

Recognising that a Geographic Information System for the whole island has been produced and is now available on the internet

Recommends that countries with program activities on King George Island should make use of this integrated system for science activity, environmental planning and logistic operations; and

Further recommends that National Committees, through their National Programmes, continue providing spatially referenced data to the GIS for the mutual benefit of all National Programmes with activities on the island.

SSG – Life Sciences

Recommendation XVIII-LSSSG -3(External)

Concerning the Agreement for the Conservation of Albatrosses and Petrels (ACAP)

Recollecting Recommendations SCAR XXVI-Biol 8, SCAR XXVII-Biol 1 and SCAR XXVII-LSSSG 13, covering threats to Southern Ocean seabirds due to mortality in longline fisheries, and

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

SCAR requests relevant National Committees to contact the relevant adhering body within their country to ensure that they have produced their FAO National Plans of Action – Seabirds and/or ratified the Agreement on the Conservation of Albatrosses and Petrels.

Recommendation XVIII-LSSSG -4 (external)

Concerning the use of flipper bands on penguins

Recollecting Recommendations SCAR XXVII-Biol 2 and SCAR XXVII-8, discouraging the use of flipper bands for external marking of penguins,

Noting the substantial and increasing scientific evidence for adverse long-term impacts of these bands,

Recognizing that banding studies are still underway within some national programmes;

SCAR recommends that caution should be taken when designing research programmes that require the external marking of penguins, especially when using current designs of metal flipper bands for demographic and other long-term studies, and to implement alternative methods of marking penguins immediately.

SSG – Physical Sciences

Recommendation SCAR XXVIII – 4

Concerning site testing for astronomical observations

Recognizing the advantage to astronomy of the unique observing conditions on the Antarctic Plateau;

Recognizing the exceptional atmospheric conditions measured at Dome C and the South Pole;

Noting that potentially the best observing site on the planet, Dome A, remains uncharacterized;

Noting that comprehensive data on the site conditions are an essential pre-requisite to the establishment of new observatories;

SCAR encourages responsible organizations and National Programmes to deploy the necessary instrumentation to high Antarctic Plateau sites to acquire the data needed to fully characterize them for potential future astronomical observing programs.

Recommendation SCAR XXVIII – 5

Concerning drifting buoys

Recognizing the importance of air pressure and temperature data from the sea ice zone to global weather prediction models and climate research and the fact that the number of deployed measuring platforms are still far below the need of the envisaged network density;

SCAR urges National Committees to support the International Programme for Antarctic Buoys (IPAB) by provision of platforms and deployment possibilities. In particular in the view of the IPY 2007/2008 an enhanced observation period is needed as a contribution to

determine the present environmental status of the sea ice covered part of the Southern Ocean.

Recommendation SCAR XXVIII-6 –

Concerning continued support of existing geospace observatories

Recognising:

- the great importance of the understanding of Geospace and the Space Weather Environment to technological systems in space and on the ground
- the uniqueness of the polar regions and especially Antarctica for multipoint observations of such environment
- the importance of synthesis of different types of data to obtain a complete picture of the Geospace environment

Noting the imminence of the International Polar Year

SCAR recommends to the operators of national polar programs that, in time for the IPY, they establish and maintain networks of HF radars, magnetometers, and auroral instruments over as wide and complete a spatial range as possible.

Recommendation SCAR XXVIII – 7

On the transmission of space weather data

Noting that

- The understanding of space weather is crucially important to the operations of spacecraft on which much modern technology depends
- Arrays of instruments in the polar regions, producing very large quantities of data, are key ground-based facilities for understanding space weather
- The provision of processed data products in real time from northern hemisphere stations has become a very important tool for space weather understanding
- Complementary data in real time from Antarctica is needed for better understanding of the mechanisms controlling space weather

SCAR urges National Operators of Antarctic programmes to place a high priority on the provision of broad band satellite communications facilities for the transmission of solar weather data in real time.

Recommendation SCAR XXVIII – 8

Mesosphere-Stratosphere-Troposphere / Incoherent Scatter (MST/IS) Radar

Noting that

- the planetary waves, gravity waves and atmospheric tides are of crucial importance on the various dynamical processes in the polar middle atmosphere, including the formation and termination of Antarctic ozone hole and coupling between the lower and upper atmospheres; and
- planetary-scale katabatic winds that are unique phenomena generated on the extremely cold surface of Antarctic continent affect significantly the tropospheric circulation in the Southern Hemisphere; and

- our limited knowledge of the physics of clouds that appear only in the polar stratosphere and mesosphere which are important for monitoring natural and anthropogenic effects on climate; and
- Mesosphere-Stratosphere-Troposphere / Incoherent Scatter (MST/IS) radars are the only observational tools capable of quantitative evaluation of dynamics of the atmosphere from the troposphere to the ionosphere; and that inter-hemispheric differences in topography and hence waves sources, and different separation between the geographic and geomagnetic poles in each hemisphere means that the response to dynamical coupling from below and downward coupling from the magnetosphere will be different between hemispheres; and that there are no MST/IS radar systems in the entire Antarctic region, which leaves a major gap in the global radar network,

SCAR recommends to National Programmes that MST/IS radars be established at the earliest opportunity in the Antarctic in order to fill this gap, and thereby provide invaluable data for the international science community.

Recommendation XXVIII – 9

On upper air meteorological data from the Antarctic Peninsula

Noting the limited amount of radiosonde data that are available from the Antarctic Peninsula region and

Noting the importance of this area as a region of marked climatic change over recent decades and

Noting the importance of upper air observations for operational numerical weather prediction;

SCAR urges National Operators of Antarctic Programmes based in the Antarctic Peninsula to re-activate routine radiosonde measurements.

Recommendation SCAR XXVIII-10

Concerning drilling above Lake Vostok

Being aware that the proposal to drill a further 50 m in the existing borehole at Vostok Station to extract additional accretion ice, as a proxy for sampling the lake water, has significant scientific value;

Noting that there is uncertainty about possible lake contamination during further drilling;

Noting also that the intention of all interested parties is to ensure proper stewardship of subglacial lake environments;

SCAR recommends continued study of environmental and other factors before further drilling towards Lake Vostok is undertaken in the existing borehole.

Recommendation SCAR XXVIII – 11

Concerning meteorological reports from Dome C

Recognizing the importance of surface and upper air meteorological observations over the plateau of East Antarctica for numerical weather prediction;

Noting the loss of upper air data from Vostok Station and the fact that South Pole Station is the only source of such data from the interior of the continent;

Noting the importance of upper air meteorological data for many studies over the interior of the Antarctic during the IPY;

SCAR recommends that the Italian and French National Committees urge their National Programmes to institute 6 hourly surface and 12 hourly upper air observing programmes.