Scientific Committee on Antarctic Research (SCAR)

How can U.S. scientists participate?

Seeking U.S. science community input on future science directions for SCAR
Today’s Presenters

Terry Wilson
School of Earth Sciences
Ohio State University

Deneb Karentz
Biology & Environmental Science
University of San Francisco

David Bromwich
Polar Meteorology Group
Ohio State University

Laurie Geller
National Academies
Polar Research Board
Scientific Committee on Antarctic Research (SCAR)

• An Interdisciplinary Scientific Body of the International Science Council

• Currently 43 Member countries
SCAR’s Mission for 60 Years

- **Science Leadership** - initiate, develop and coordinate high quality international scientific research in the Antarctic and Southern Ocean region

- **Scientific advice** - provide objective and independent scientific advice to the Antarctic Treaty System (ATS) and other bodies, such as the IPCC
SCAR’s Strategic Vision is to be an engaged, active, forward-looking organization that promotes, facilitates, and delivers scientific excellence and evidence-based policy advice on globally significant issues that are relevant to Antarctica.

How Does SCAR Accomplish its Mission?

**SCAR Executive**
- President: Steven Chown, Australia (2016-2020)
- Past-president: Jeronimo Lopez-Martinez, Spain (2016)

**SCAR Secretariat**
- Executive Director: Dr. Chandrika Nath [from July 2018]
- Executive Officer: Dr. Eoghan Griffin
- Administrative Asst.: Rosemary Nash
How Does SCAR Accomplish its Mission?

National Representation

2 Delegates

Science Groups: national representatives

U.S. National committee = Polar Research Board

Scar.org - details on website
US SCAR TEAM

Delegates: Terry Wilson, Deneb Karentz

Representatives to the Science Groups

Geosciences: Berry Lyons, Samantha Hansen, Sridhar Anandakrishnan

Life Sciences: George Watters, Byron Adams, Chuck Amsler, Mark Shepanek

Physical Sciences: Allan Weatherwax, John Cassano, Erin Pettit, David Bromwich
How Does SCAR Accomplish its Mission?

Antarctic and Southern Ocean Science Horizon Scan

An effort to identify the highest priority scientific questions that researchers should aspire to answer in the next two decades and beyond.

A roadmap for Antarctic and Southern Ocean science for the next two decades and beyond

Six priorities for Antarctic science

https://www.scar.org/about-us/horizon-scan/overview/
SCAR Science

Science Groups: *incubators for new ‘grass roots’ groups*

Researchers propose new groups when they identify areas where current research is lacking or more coordination is needed.

Group membership is open to any interested researchers from SCAR member countries.
Types of subsidiary science groups:

**Action Groups**
- address one specific issue
- are short-term, usually 2-4 years

**Expert Groups**
- have a broader focus
- lifetime of ~6-8 years, option of renewal

**Scientific Research Programmes**
- Major research initiatives
- Lifetime ~8 years
SCAR Science

Action Groups

**GEOSCIENCES**
- Connecting Geophysics with Geology
- Geological Heritage and Geoconservation
- Geological Mapping Update of Antarctica

**LIFE SCIENCES**
- Biogeochemical Exchange Processes at the Sea-Ice Interfaces
- Integrated Science for the Sub-Antarctic
- Remote Sensing (Joint PS)
- Southern Ocean Acidification (Joint PS)

**PHYSICAL SCIENCES**
- Antarctic Clouds and Aerosols
- Polar Atmospheric Chemistry at the Tropopause
- Snow in Antarctica
- Sun Earth Relationships and Antarctica
- Tropical Antarctic Teleconnections

Scar.org - group websites
SCAR Science

Expert Groups

**GEOSCIENCES**
- Antarctic Digital Magnetic Anomaly Map Project
- Antarctic Permafrost, Soils and Periglacial Environments
- Antarctic Volcanism
- Geodetic Infrastructure of Antarctica
- International Bathymetric Chart of the Southern Ocean

**LIFE SCIENCES**
- Antarctic Near-shore and Terrestrial Observing System  [Joint GS, LS, PS]
- Expert Group on Antarctic Biodiversity Informatics
- Expert Group on Birds and Marine Mammals
- Expert Group on the Continuous Plankton Recorder
- Joint Expert Group on Human Biology and Medicine (Joint with COMNAP)
Expert Groups

PHYSICAL SCIENCES
- Antarctic Climate Change and the Environment
- Antarctic Sea-ice Processes and Climate
- Forum for Research into Ice Shelf Processes
- GNSS (Global Navigation Satellite System) Research and Application for Polar Environment – GRAPE [Joint GS]
- Ice Sheet Mass Balance and Sea Level (Joint with IASC and CliC)
- International Partnership in Ice Core Sciences (Joint with PAGES and IACS)
- Operational Meteorology in the Antarctic
- Southern Ocean Region Panel (CLIVAR/CliC/SCAR)
SCAR Science

Scientific research programmes: 1st generation

- Evolution and Biodiversity in the Antarctic
- Antarctica in the Global Climate System
- Interhemispheric Conjugacy Effects in Solar-Terrestrial and Aeronomy Research
- Antarctic Climate Evolution
- Subglacial Antarctic Lake Environments
Scientific research programmes: Current 6 terminate in 2020

Geoscience Scientific Research Programmes:

**Past Antarctic Ice Sheet Dynamics - PAIS**

This Scientific Research Programme aims to improve understanding of the sensitivity of East, West, and Antarctic Peninsula Ice Sheets to a broad range of climatic and oceanic conditions and to improve confidence in predictions of ice sheet and sea level response to future climate change and ocean warming.

**Solid Earth Responses and influences on Cryospheric Evolution - SERCE**

This Scientific Research Programme aims to advance understanding of the interactions between the solid earth and the cryosphere to better constrain ice mass balance, ice dynamics and sea level change in a warming world.
Scientific research programmes: Current 6 terminate in 2020

Physical Sciences Scientific Research Programmes:

**Astronomy and Astrophysics from Antarctica - AAA**

This Scientific Research Programme aims to coordinate astronomical activities in Antarctica in a way that ensures the best possible outcomes from international investment in Antarctic astronomy, and maximizes the opportunities for productive interaction with other disciplines.

**Antarctic Climate Change in the 21st Century - AntClim21**

This Scientific Research Programme aims to deliver improved regional projections of key elements of the Antarctic atmosphere, ocean and cryosphere for the next 20 to 200 years, and to understand the responses of the physical and biological systems (through multi-disciplinary collaboration) to natural and anthropogenic climate drivers.
Scientific research programmes: Current 6 terminate in 2020

Life Sciences Scientific Research Programmes:

**State of the Antarctic Ecosystem - AntEco**

This Scientific Research Programme aims to increase the scientific knowledge of biodiversity, from genes to ecosystems that, coupled with increased knowledge of species biology, can be used for the conservation and management of Antarctic ecosystems.

**Antarctic Thresholds - Ecosystem Resilience and Adaptation - AnT-ERA**

This Scientific Research Programme aims to provide a platform for the exchange of knowledge and for the support of research on biological processes at ecological time scales especially related to environmental change.
How do you get involved?

SCAR Action, Expert, Scientific Research Programmes are open!
• Join mailing lists
• Contact group leadership
• Participate in workshops, symposia, meeting thematic sessions

scar.org: page for each group

Funding?
• Apply for travel support to group [students, early career]
• Travel grants from NSF
• APECS – Association of Polar Early Career Scientists
POLAR2018 (Davos, June)
XXXV SCAR Biennial Meetings and SCAR/IASC Open Science Conference

June 18: Business meetings of the SCAR Science Groups (Physical sciences, Geosciences, Lifesciences)

See schedules for the numerous side meetings schedules at: https://www.polar2018.org/ [side meetings tab]. Before the OSC (June 15-18) and during the OSC (June 19-22)
POLAR2018 (Davos, June)
XXXV SCAR Biennial Meetings & SCAR/IASC Open Science Conference

June 19:
U.S. ‘SCAR 101’
12.30 – 2pm
Room A Sertig

June 19:
U.S. ‘Meet-and-Greet’
7:30 p.m. start
Mountain’s Akt Pub
Davos Platz
How do you get involved?

**APPLY / NOMINATE**

- SCAR/COMNAP Fellowships (up to $15,000)
- Visiting Professor Program

Applications are open until July 2018

- SCAR Medals (at biennial meetings)
  - Medal for Excellence in Antarctic Research
  - Medal for International Coordination
  - Medal for Education and Communication
SCAR Science – *Future*?

New ‘Science Groups’ under discussion in 2018:

Astronomy and Astrophysics

Humanities and Social Sciences

*Is there U.S. science community interest?*
Future Scientific Research Programmes:

*Propose ‘scientific programme planning group’: 2018, 2019*

*Full Proposal – reviewed for approval in 2020*
Future Scientific Research Programmes – under discussion:

Past and Future of the cryosphere and its interactions with oceans, atmosphere and life – interdisciplinary, large

Integrated Conservation Planning for Antarctica and the Southern Ocean

Is there U.S. science community interest?
Future Scientific Research Programmes – under discussion:

Antarctic Permafrost Soils and Periglacial Environments

Radio Sciences Research on Antarctic Atmosphere

Near-term climate variability and prediction of the Antarctic climate system

Is there U.S. science community interest?
Future Action/Expert Groups – under discussion:

- AntArchitecture: radar imaging ice sheet
- Input Pathways of persistent organic pollutants to Antarctica
- Plastics in Polar Environments
- Krill Action Group
- Earth Observation about Antarctica
- Antarctic Gravity Wave Instrument Network

*Is there U.S. science community interest?*
SCAR Science – *Future*

Future Action/Expert Groups – under discussion:

**Humanities & Social Sciences**

- Public Engagement with Antarctic Science
- Intrinsic Value in Antarctica
- Bipolar connections in the History of Environmental Management in the Arctic and Antarctic
- Human Dimensions of Environmental Change in the Antarctic
- Resilience and the Future of Science-based Decision-making for Antarctica

*Is there U.S. science community interest?*
SCAR Science – Future?

Seeking input......

Is there U.S. science community interest in the groups under discussion?

Are there other research groups the U.S. community would like to develop within SCAR?

Please respond to survey:
SCAR Science – Future?

contact a member of the U.S. SCAR Team

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SCAR Science – *Future?*

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SCAR Science – *Future?*

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