



Scientific Committee
on Antarctic Research



SCAR

**The Scientific Committee
on Antarctic Research**

Frank PATTYN

Belgian delegate to SCAR



What is SCAR?

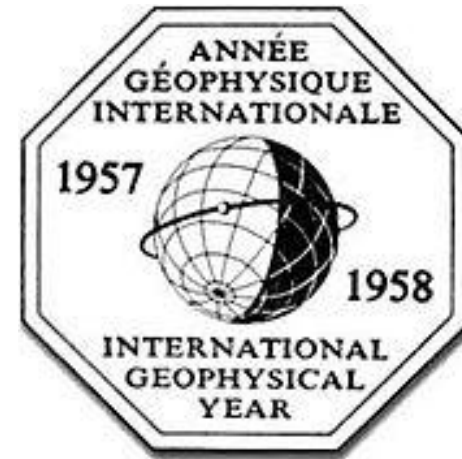
- Thematic organization of the **International Science Council (ISC)**.
- **Initiates, develops** and **coordinates** high quality international scientific **research** in the Antarctic region (including the Southern Ocean)
- **provides** objective and independent **scientific advice** to the Antarctic Treaty Consultative Meetings and other organizations such as the UNFCCC and IPCC on issues of science and conservation.



Scientific Committee
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History

- Following IGY 1957-58
- ICSU invited the twelve nations (including Belgium) actively engaged in Antarctic research to nominate a delegate each to a Special Committee on Antarctic Research (SCAR).
- Today: 45 member countries (comprising 34 full and 12 associate members)

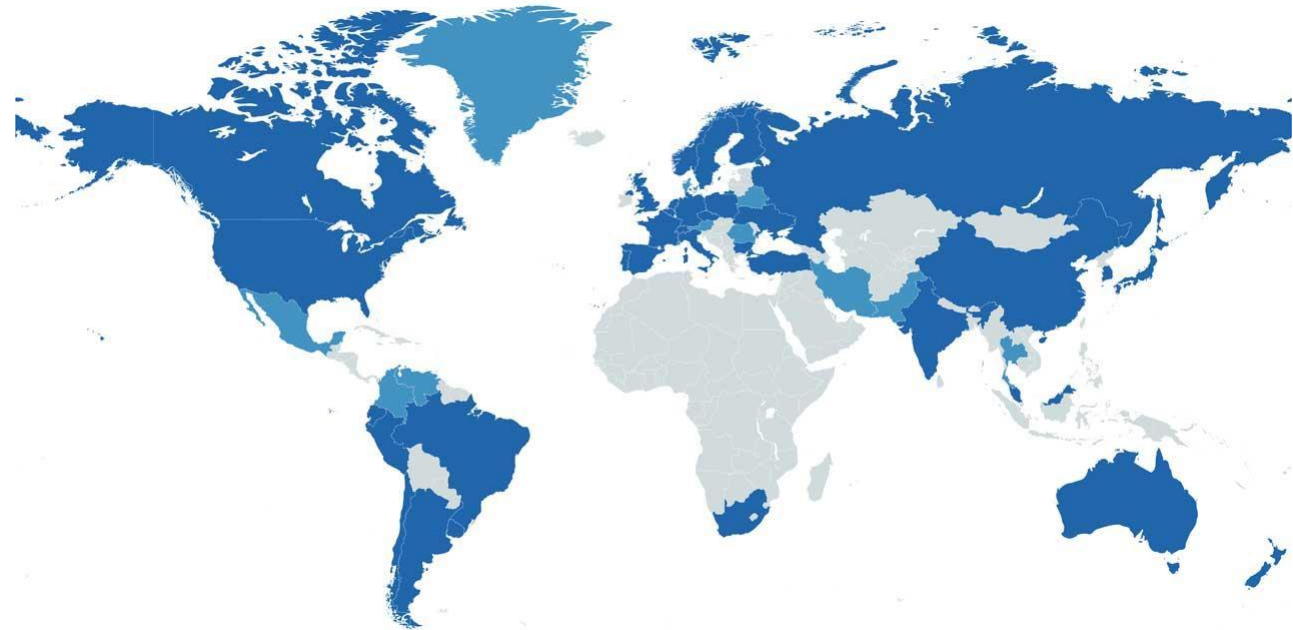




Scientific Committee on Antarctic Research

SCAR leadership

- The **SCAR Executive Committee** is responsible for working with the Secretariat and members of the community to execute decisions set forth by the SCAR Delegates.
- **SCAR Delegates** represent SCAR's member countries and ISC unions and are responsible for setting out the main direction of SCAR.
- **SCAR Group Leaders** put in countless hours to help drive activities, develop products and carry out much of the business of SCAR.



Created with mapchart.net

45 member countries (comprising 34 full and 12 associate members) and 9 ISC unions



Scientific Committee on Antarctic Research

Science and research

- Permanent science groups
 - Geosciences
 - Life sciences
 - Physical sciences
- Expert and action groups (EG, AG)
- Others
 - ICED: Integrating climate and ecosystem dynamics
 - SOOS: Southern Ocean Observing System
- Scientific Research Programmes (SRP)



Scientific Committee on Antarctic Research

Scientific Research Programmes (SRP)

- **INSTANT**

- INStabilities & Thresholds in ANTarctica: quantify the Antarctic ice sheet's contribution to past and future global sea-level change

- **AntClimNow**

- Near-term Variability and Prediction of the Antarctic Climate System

- **Ant-ICON**

- Integrated science to inform Antarctic and Southern Ocean Conservation (and Management)



INSTANT

INSTABILITIES & THRESHOLDS IN ANTARCTICA



Scientific Committee on Antarctic Research

Standing groups

- **Humanities and Social Sciences (SC-HASS)**
 - initiates, develops and coordinates rigorous and high quality international research on the Antarctic region within the Humanities and Social Sciences. Established in 2014.
- **Antarctic Data Management (SCADM)**
 - development and maintenance of an Antarctic Data Management System (ADMS). It facilitates the free and open exchange of Antarctic research data.
- **Antarctic Geographic Information (SCAGI)**
 - provides advice and information to SCAR relating to geographic information. It facilitates the free and open exchange of geographic data.
- **Antarctic Treaty System (SCATS)**
 - advice and information to SCAR in relation to the Antarctic Treaty System and other policy bodies such as CCAMLR.



Scientific Committee
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Horizon scan

- 80 important research questions
- 6 priorities for Antarctic science
 - Define the global reach of the Antarctic atmosphere and Southern Ocean.
 - Understand how, where and why ice sheets lose mass.
 - Reveal Antarctica's history.
 - Learn how Antarctic life evolved and survived.
 - Observe space and the Universe.
 - Recognize and mitigate human influences.



Policy

- Antarctic Treaty Consultative Meetings
- United Nations Framework Convention on Climate Change (UNFCCC)
- Intergovernmental Panel on Climate Change (IPCC)



What does the United Nations Paris Climate Agreement mean for Antarctica?



Presenter - Professor Tim Naish, Victoria University of Wellington, New Zealand
on behalf of SCAR

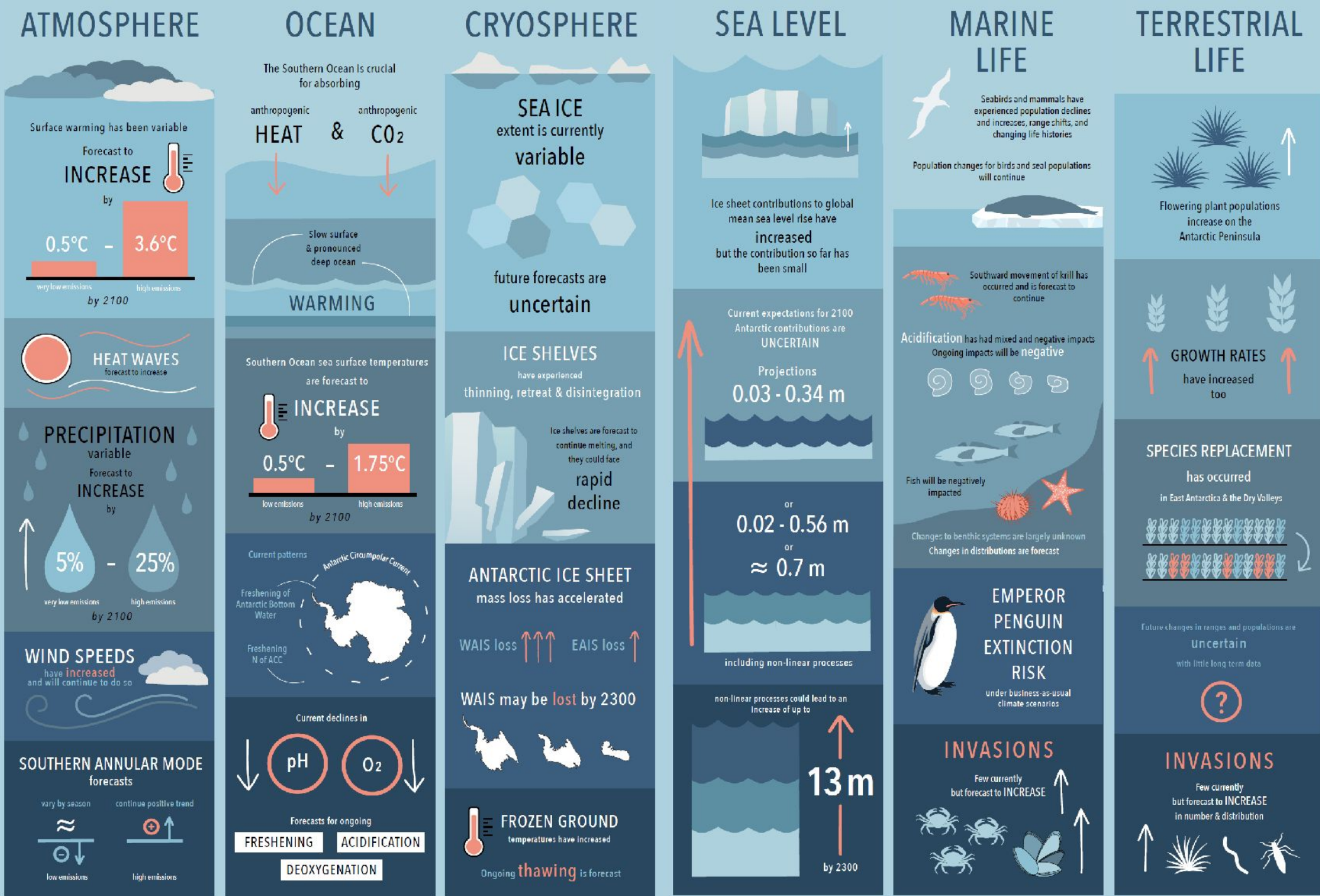


2017 SCAR Science Lecture, Beijing, China
VICTORIA
Antarctic Research Centre
In Chinese: 南极研究中心 (Antarctic Research Centre)



SCAR publications

Policy advice



Policy advice

- Field codes of conduct
- The Monaco Assessment
- The Antarctic Conservation Strategy
- Antarctic Environments Portal (<https://environments.aq>)



SCAR Environmental Code of Conduct for Geosciences Field Research Activities in Antarctica

elines

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Attachment: SCAR's Code of Conduct for the Exploration and Research of Subglacial Aquatic Environments

SCAR's Code of Conduct for the Exploration and Research of Subglacial Aquatic Environments

Background

1. This Scientific Committee on Antarctic Research (SCAR) Code of Conduct (CoC) provides guidance to the scientific community with interests in exploring and conducting research on and in Antarctic subglacial aquatic environments (SAE).
2. The CoC was original prepared by a SCAR Action Group¹ in consultation with SAE specialists from a wide range of disciplines including the Council of Managers of National Antarctic Programs (COMNAP).
3. The CoC was developed in recognition of the value of these environments, the need to exercise environmental stewardship, and the growing scientific interest in subglacial research.
4. The CoC draws on published literature with special attention paid to SCAR Subglacial Antarctic Lake Environments (SALE) Scientific Research Program reports (see <http://www.sale.scar.org/>) and the U.S. National Academies report on environmental stewardship of SAE².
5. The U.S. National Academies report on environmental stewardship of SAE was presented by the U.S. at ATCM XXXI/CEP XI as IPI 10.
6. This CoC was submitted as an Information Paper (IP33) by SCAR to CEP XIV in 2011. SCAR coordinated a review of this CoC in 2017 through experts and the broader SCAR community, and the revised version was submitted to CLIP XX. It will continue to be updated and refined as new scientific results and environmental impact reports become available from planned SAE exploration campaigns. Research developments in this field are summarized in two edited volumes^{3,4}.

Introduction

7. Grounded Antarctic ice is widely recognized as a key constituent of the Earth System driving ocean currents and global climate as well as strongly affecting global sea level.
8. Early models for ice flow from the interior of the continent to the ocean assumed considerable friction between the bottom of ice sheets and the underlying rock.
9. The discovery of subglacial Lake Vostok and subsequently more than 400 other lake-like features beneath the ice has changed our view of subglacial environments.
10. Drilling through ice to bedrock often encounters water at the rock/ice interface and changes in ice surface height over lakes suggest that water is actively flowing beneath the ice.
11. From these and other observations, it has been concluded that in most cases the ice/rock interface will have free water present, water will often collect in lakes within watersheds, and

ce when planning or undertaking geosciences Area.

AR Action Group on Geological Heritage and ogical Sampling Code of Conduct (GeoReach), and with input from the SCAR, geological through broad consultation, including with Programs (COMNAP).

r Terrestrial Scientific Research in Antarctic al measures to minimize impacts by scientists uments, generally applicable across all of for Activity within Terrestrial Geothermal guidance for scientists working in geothermal

for Geosciences Field Research Activities in a specific need for guidelines for scientific delines, since geological field researchers may rances where more specific and customized s of geological sites.

ted as new scientific results and environmental ocies research.

iversities, institutes, etc.) housing Antarctic is available at: <https://www.scar.org/scar-if-national-geosciences-repositories/file>

s, petrological, mineralogical, stratigraphical, palaeontological and meteoritic) features, urbanance, unpermitted collection, and may be

fossils and meteorites, are finite scientific he scientific value of geological sites and l and repositories to allow future geological

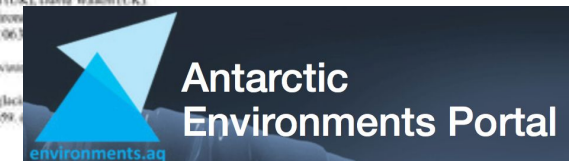
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¹ Members of the SCAR Action Group: Warwick Vincent (Chair - CAN), Iriya Alekhina (RUS), Peter Doran (USA), Takeshi Nagasawa (JPN), Guido di Prisco (ITA), Bryan Storey (NZ), Jenny Wadhwa (UK), David Walton (UK)

² National research Council, "Exploration of Antarctic Subglacial Aquatic Environments and Scientific Stewardship", National Academies Press ISBN :13: 978-0-309-1063

³ Siegert, M.J., Kaminian, M., Bindelbacher, R. (eds.), Antarctic Subglacial Aquatic Environments Monograph 192, 246 pp. (2011)

⁴ Siegert, M.J., Prisco, G., Alekhina, I., Wadhwa, J. and Lyons, B. (eds.) Antarctic Subglacial results and future plans. Transactions of the Royal Society of London, A, 374, Issue 2099.





Belgium and Antarctica

- **1897:** Belgica expedition to Antarctica (Adrien de Gerlache)
 - First winter expedition
 - First detailed observational measurements in meteorology and biology (A. Dobrowolski, H. Arctowski and E. Racovita)
- **1957:** IGY: King Baudouin station (Dronning Maud Land, Antarctica)
– until 1966
- **1959:** Belgium signs Antarctic Treaty (12 nations)
- **1982:** Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)
- **1985:** Multi-annual research programme – BELSPO
- **2008:** Princess Elisabeth station – Antarctica

Belgium and SCAR

- Belgian researchers are active in various SCAR expert and action groups.
- Belgium hosts the Antarctic Biodiversity portal
 - (initially SCAR-MarBIN) on marine and terrestrial Antarctic biodiversity data
- Biogeographic Atlas of the Southern Ocean
 - Record of +9000 species, ranging from microbes to whales
- Southern Ocean Action Plan (2021-2030)
- Through the financial support from BELSPO and strong international collaboration in the Antarctic, Belgian research manages to have a strong impact on the overall scientific activities in the Antarctic.

Southern Ocean Action Plan

2021 – 2030

In support of the United Nations Decade of Ocean Science for Sustainable Development



Belgian National Committee on Antarctic Research – BNCAR

- Established 1957
- Terms of reference
 - Participate in delegate meetings
 - Representation in standing scientific groups
 - Report to SCAR
 - Advice to ATCM, CEP, CCAMLR, CCAS, EPB
 - Promote polar science at international level
- Members: 15 effective – 25 associate
 - Belgian universities and federal institutions
 - APECS representation since 2019



<https://www.bncar.be/>

<https://www.rasab.be/>