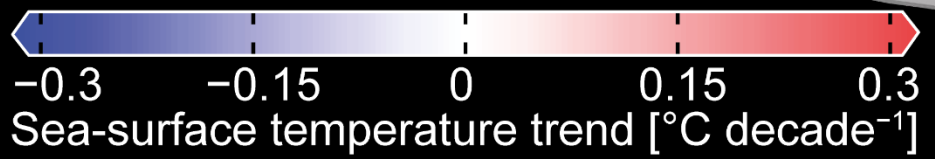
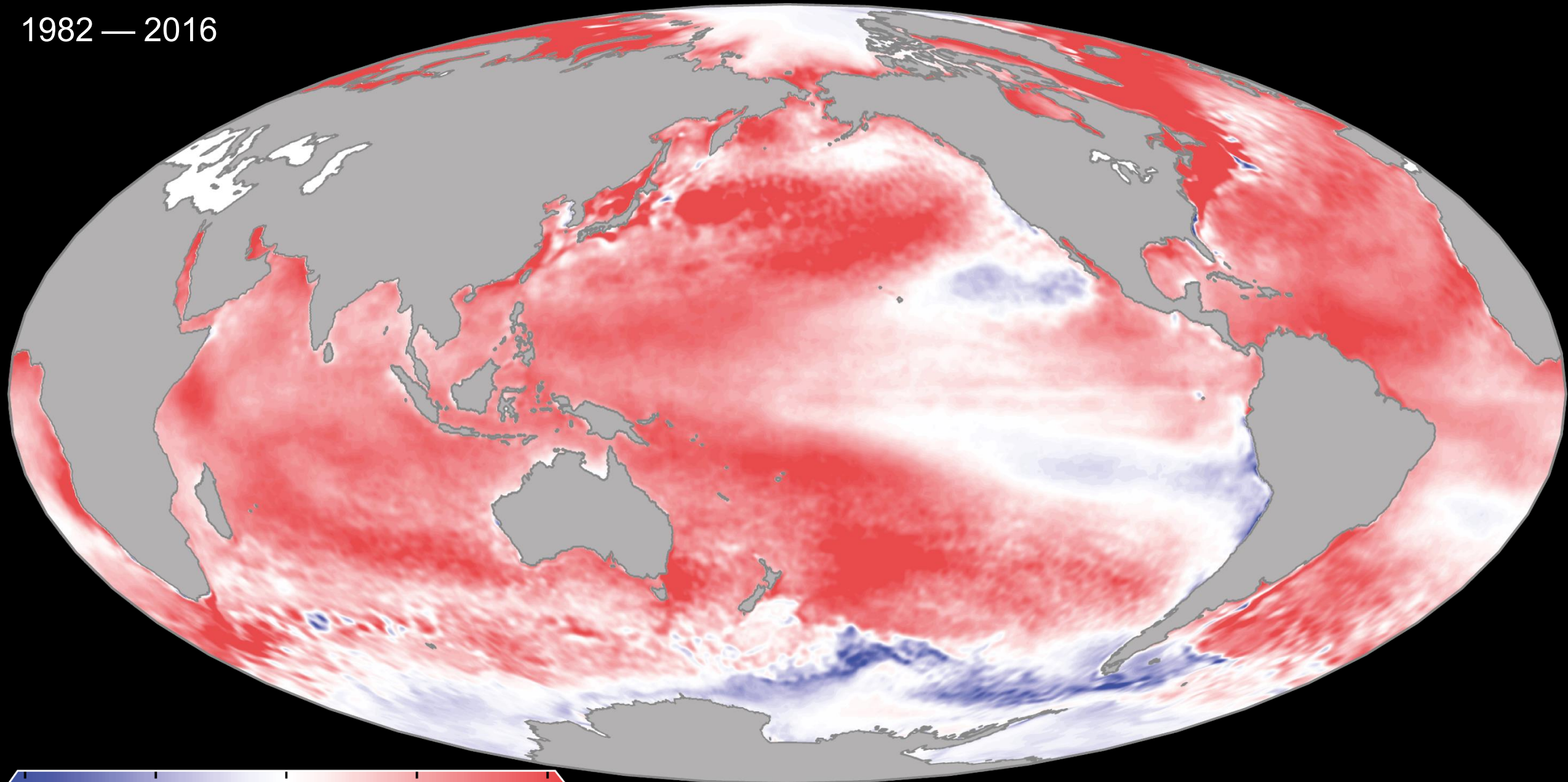
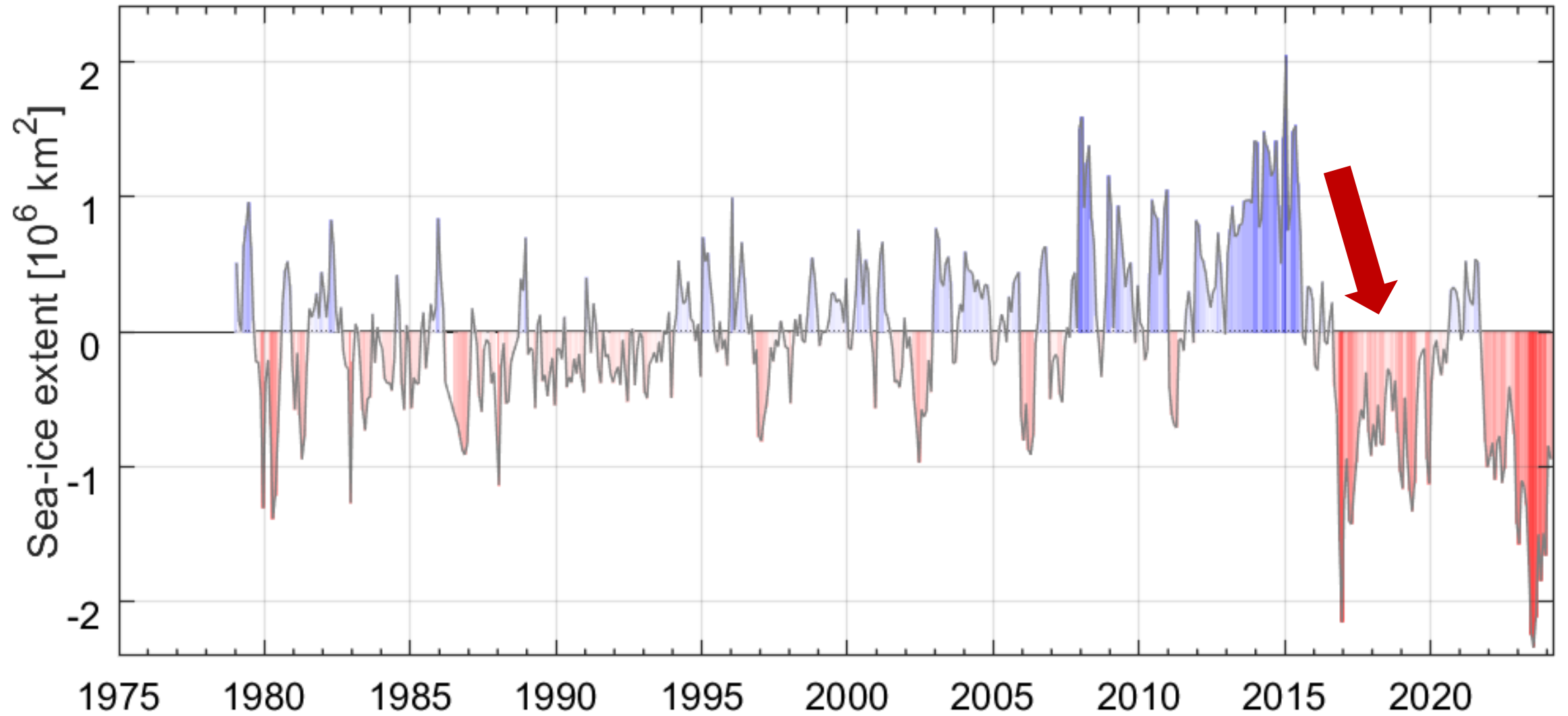


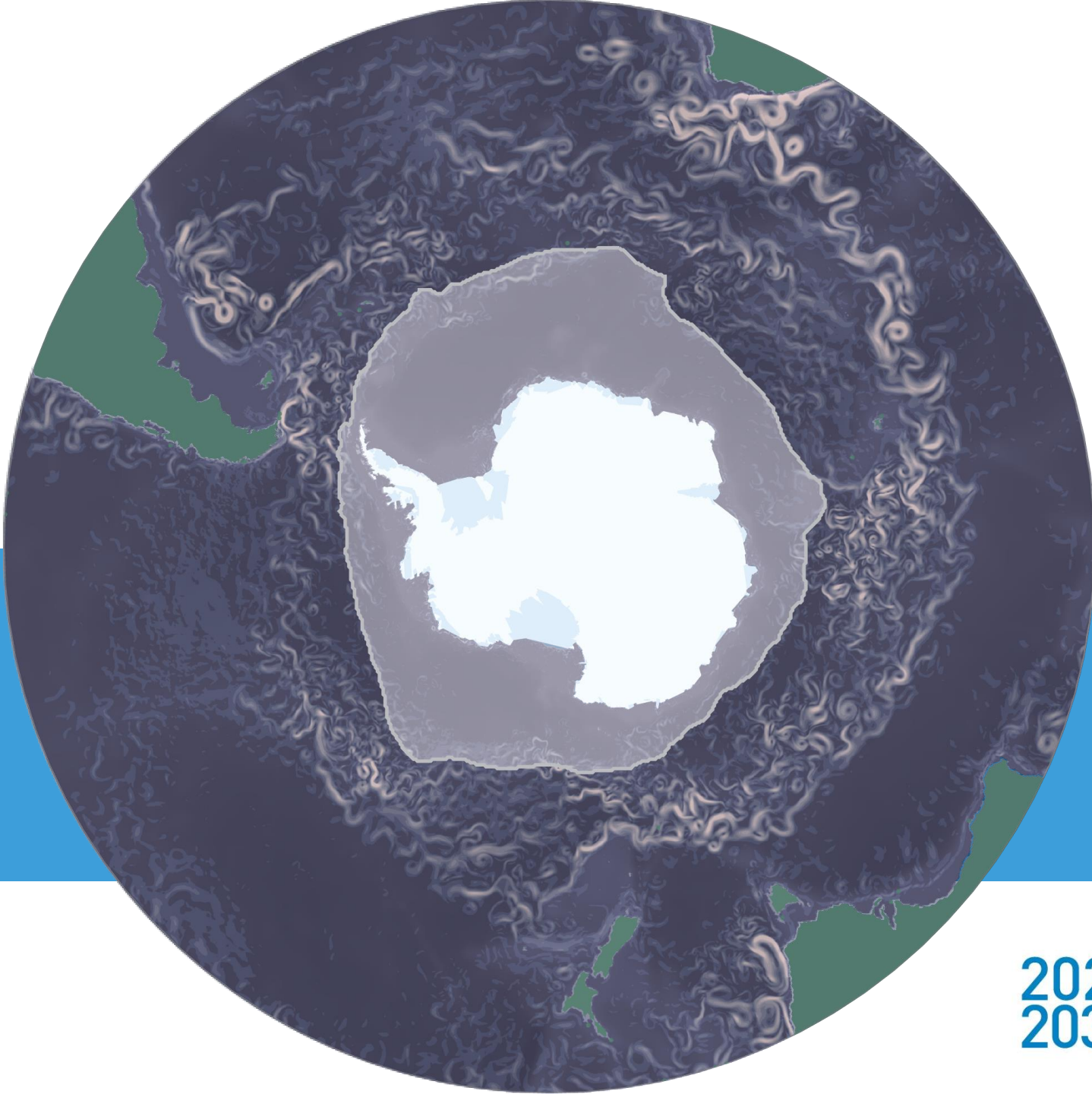
1982 — 2016



Datenquelle: AVHRR, Reynolds et al. (2007)

Sea ice anomalies in the Antarctic





ANTARCTICA INSYNC

International Science &
Infrastructure for
Synchronous Observation

An internationally coordinated, circumpolar,
and year-round mission

2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



Internationally coordinated observing system to tackle key Antarctic & Southern Ocean challenges

- Year-round & circumpolar observations, in particular in the seasonal ice-covered Southern Ocean & Antarctica
- Observing network: integration of ship-based, autonomous, and remote sensing
- Multidisciplinary observations
- Integration with modelling efforts
- Unified measurements in terms of variables, protocols, meta-data, data publishing





ANTARCTICA INSYNC

International Partnership
for Science and Society



Antarctica InSync international partnership 26 countries and growing



Instituto Antártico Argentino - **Argentina**



Australian Antarctic Division - **Australia**



Belgien Science Policy - **Belgium**



Brazilian Antarctic Program (PROANTAR) - **Brazil**



Bulgarian Antarctic Institute - **Bulgaria**



Chilean Antarctic Institute - **Chile**



Czech Antarctic Research Programme - **Czech Republic**



French Polar Institute Paul-Émile Victor - **France**



Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research - **Germany**



National Centre for Polar and Ocean Research - **India**



Institute of Polar Sciences - **Italy**



National Institute of Polar Research - **Japan**



Antarctica New Zealand - **New Zealand**



Norwegian Polar Institute - **Norway**



Polish Polar Consortium - **Poland**

Antarctica InSync international partnership 26 countries and growing



Portuguese Polar Program - **Portugal**



Korea Polar Research Institute – **Republic of Korea**



South Africa Environmental Observation Network – **South Africa**



Spanish Polar Committee - **Spain**



Swedish Polar Research Secretariat - **Sweden**

SWISS POLAR INSTITUTE

Swiss Polar Institute - **Switzerland**



The Netherlands Polar Programme (NPP) - **The Netherlands**



British Antarctic Survey - **UK**



Uruguayan Antarctic Institute - **Uruguay**



U.S. National Science Foundation - **USA**



Dirección de Asuntos Antárticos – Ministerio de Relaciones Exteriores del **Perú**

Partnerships



European Space Agency for remote sensing efforts
(Contact: Martin Wearing)



The proposal was accepted and **Antarctica InSync** is endorsed by **COMNAP** as a support program



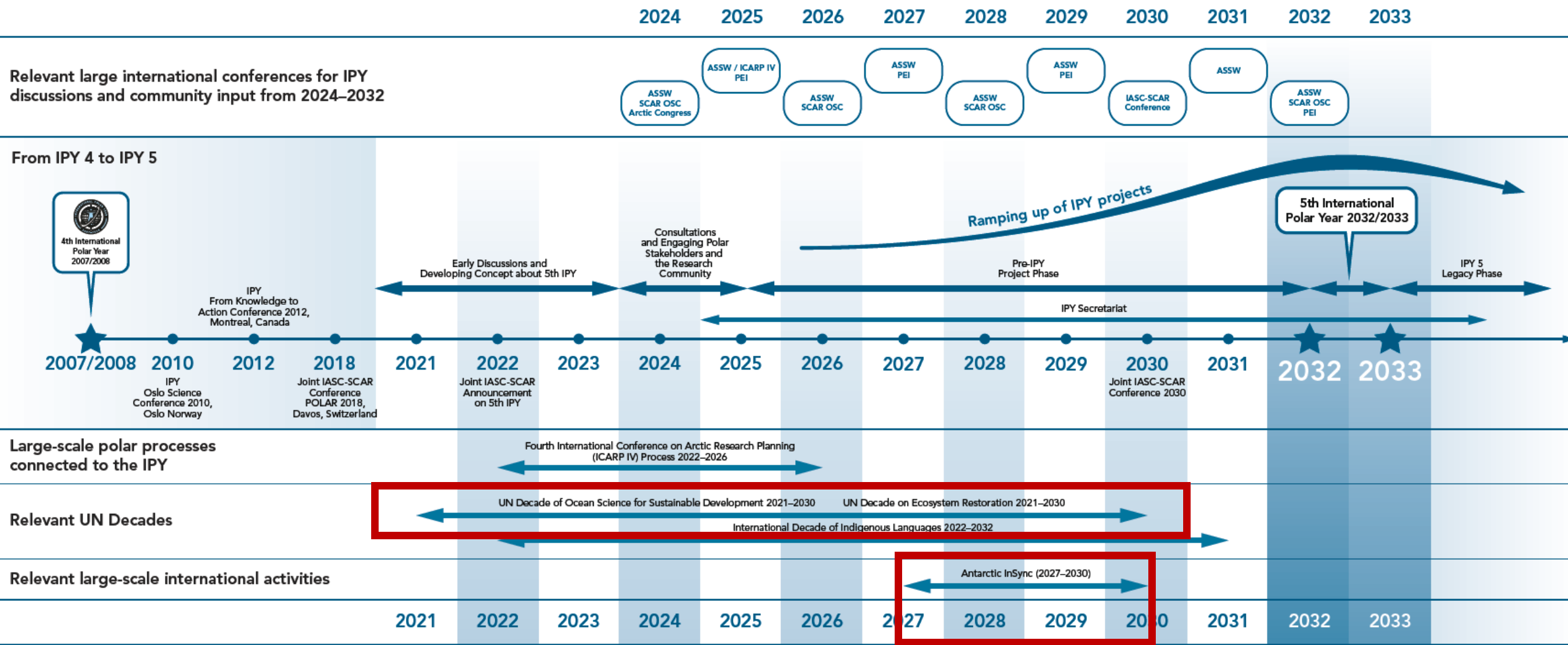
SOOS
SOUTHERN OCEAN
OBSERVING SYSTEM

SOOS is an official Antarctica InSync partner. SOOS & SCAR are forming an internationally distributed Data Task Team for **Antarctica InSync**, supported by national centers (Contact: Michaela Miller; data@soos.aq).



Proposal for a Antarctica InSync Action Group submitted. Support through the SCAR Equity, Diversity, and Inclusion (EDI) working group (Contact: Inga Beck).

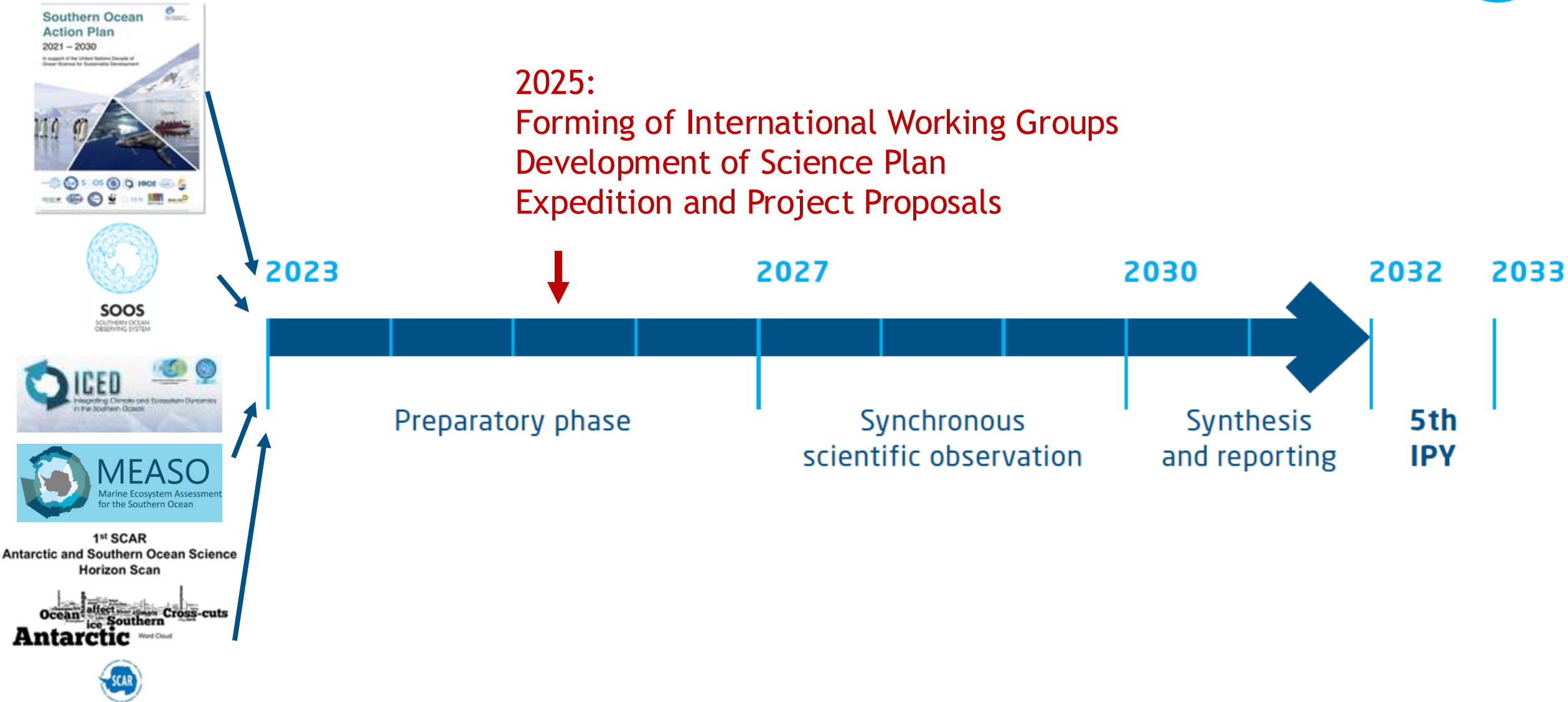
Long-term perspective Towards the 5th International Polar Year (IPY) 2032-33



Antarctica InSync | Timeline



2025:
Forming of International Working Groups
Development of Science Plan
Expedition and Project Proposals





ANTARCTICA INSYNC

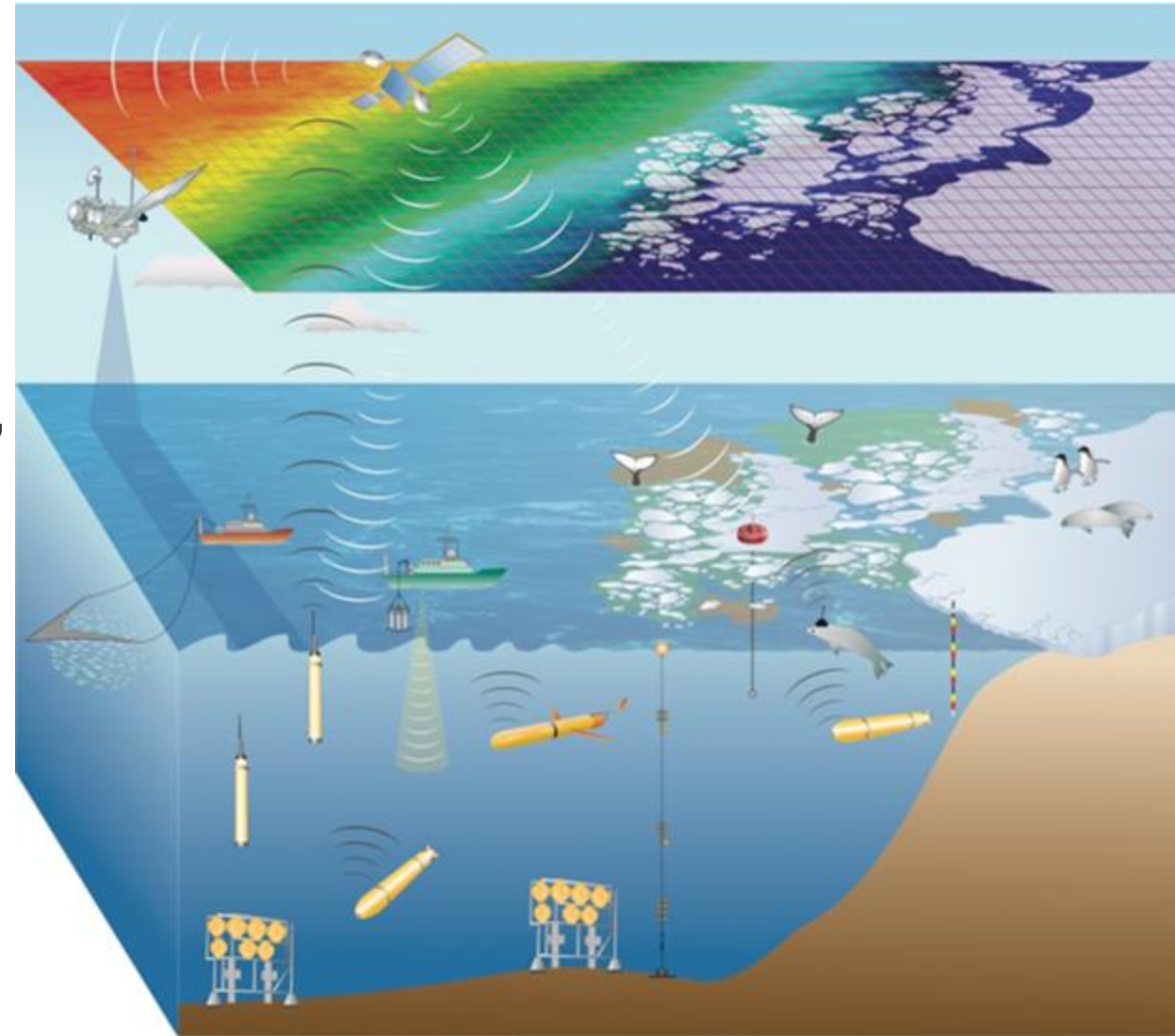
Infrastructure



Cyber-infrastructure & Observing Network



- Research Vessels
- Sailing Vessels
- Ships of Opportunity
- Research Stations
- Autonomous platforms (Argo, Glider, Drones, etc.)
- Instrumented Marine Mammals
- Moorings
- Buoys / Drifters / Ice-tethered platforms
- Airplanes
- Satellites



POLARIN- style facilitation

POLAR Research Infrastructure Network

Access integration to **64** research infrastructures and their services in **both poles**.



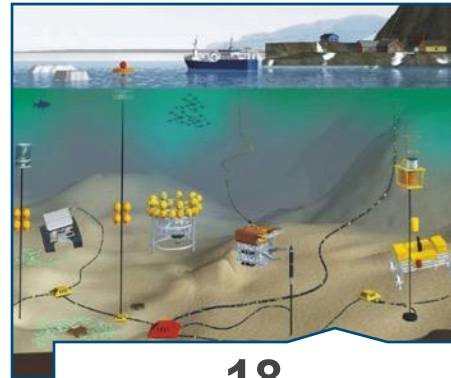
38

Research stations



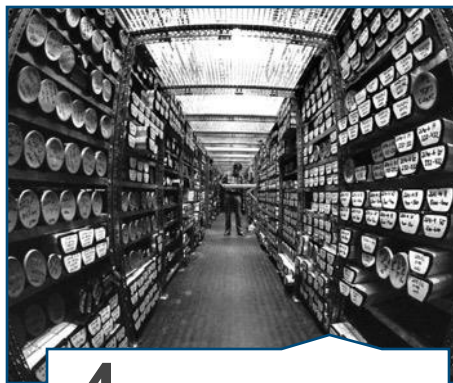
12

Polar vessels



18

Observatories



4

Ice and sediment
core repositories



7 Data

infrastructures

Consortium

16 European countries
6 non-European countries
50 consortium members

Coordinator



Duration

01.03.2024 – 30.02.2029

Funding

€14,588,114

Grant Agreement No.

101130949

Project coordinator

Nicole Biebow (AWI)



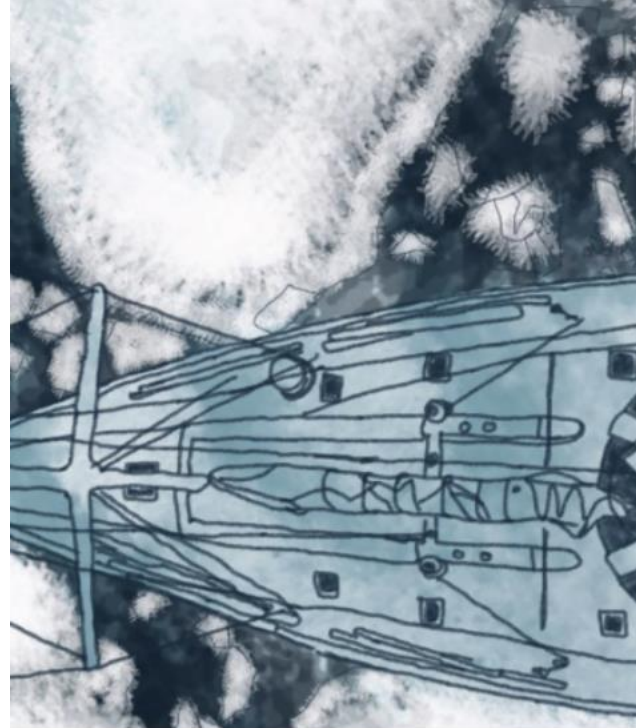
www.-----



Bringing in new Partners & Platforms

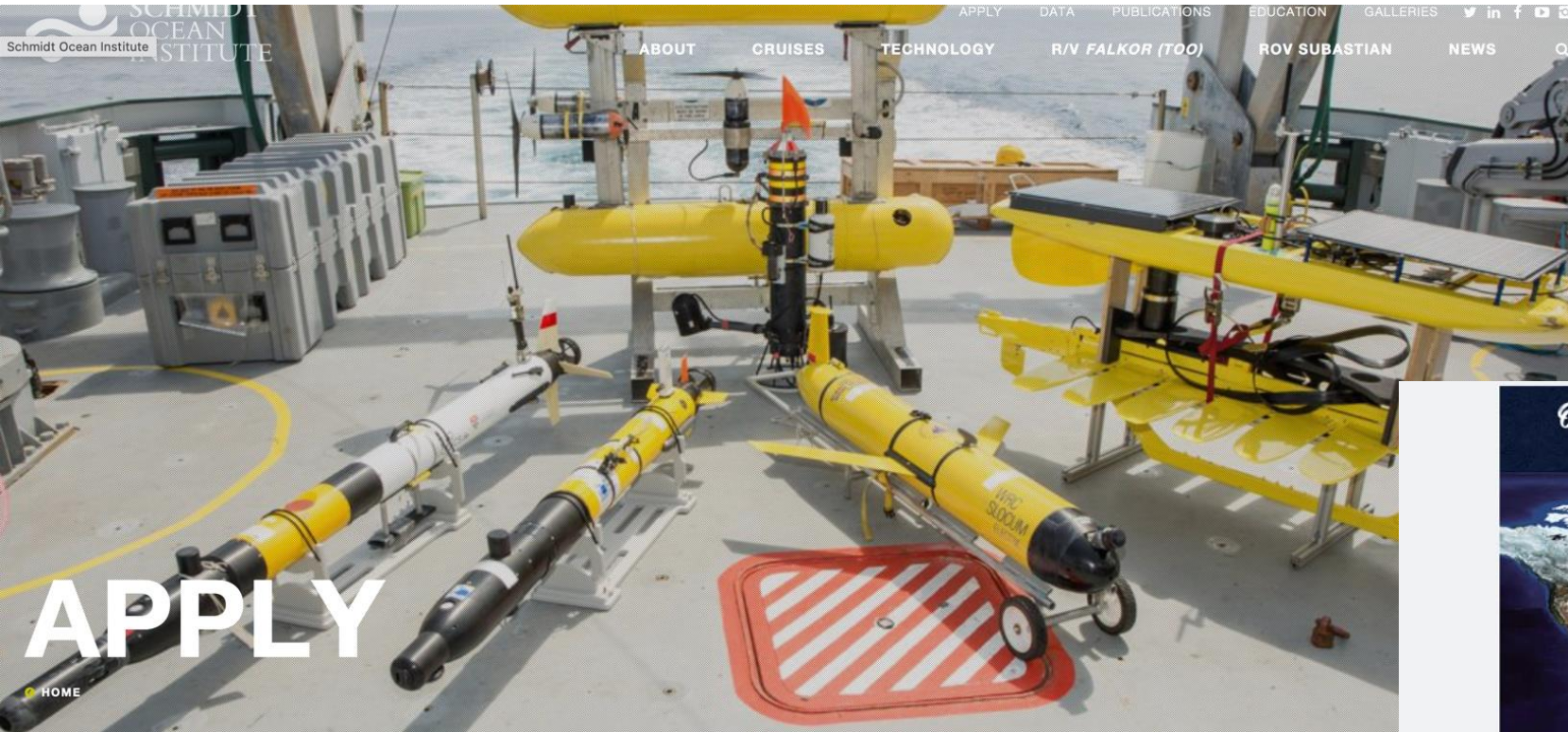
sailing & space science & philanthropy

- Tara Foundation
- Team Malizia/ Vendee globe
- REV Ocean
- Schmidt Ocean



Bringing in new Partners & Platforms

Schmidt Ocean



<https://schmidtocean.org/>
Cruise Plan 2028 and 2029

(<https://schmidtocean.org/expression-of-interest/>)



MAXIMIZING VESSEL UTILIZATION

RV Polarstern during Antarctica InSync (2027-2029)



6 expedition legs

- Fall 2027 | KrillBiss, Antarctic Peninsula
- Summer 2027/28 | HAFOS + Neumayer supply
- Fall 2028 | tbd
- Winter 2028 | tbd
- Spring 2028 | tbd
- Summer 2028/29 | tbd

→ shared infrastructure





ANTARCTICA INSYNC

International Scientific Working Groups



Organization of the Science Community



Themes

- Provide scientific framework
- Overarching major challenges
- Interdisciplinary approach

Research Areas

- Sea ice / Ocean / Atmosphere / Biology / Ice Sheet / Seafloor / etc.

National Committees

- Organization of national interests
- Information flow
- Balanced representation of research areas

Working Groups

- Existing / newly formed interest international group
- Contributing to the themes



National Committee Germany

General coord.

Steering committee
Coordination
Logistics/Coord.
International coop.
Science commun.
Data management
EDI

Maarten Boersma
Diego Filun
Julia Regnery
Nicole Biebow
Roland Koch
Janine Felden (AWI)
Inga Beck (SCAR/LMU)

Scientific coordination

Ocean

Alexander Haumann (AWI/LMU)
Hermann Bange (GEOMAR)

Sea ice

Stefanie Arndt (AWI/UHH)
Gunnar Spreen (University of Bremen)

Biology

Helena Herr (UHH)
Bettina Meyer (AWI)

Atmosphere

Markus Rex (AWI)
Andreas Macke (TROPOS)

Land/Ice sheet

Olaf Eisen (AWI)
Alexandra Zuhr (University of Tübingen)

Palaeo climate

Frank Lamy (AWI)

Anthropogenic footpr.

Ralf Ebinghaus (Hereon)

APECS representative

Lena Nicola (PIK)

Modelling

Torge Martin (GEOMAR) & Martin Werner (AWI)



ANTARCTICA INSYNC



2021 United Nations Decade
of Ocean Science
for Sustainable Development



COMNAP
Council of Managers
of National Antarctic Programs



Scientific vision of Antarctica InSync



Southern Ocean and Antarctic heat, freshwater, carbon and other elements cycles and their response to climate change



Rapid sea ice decline and its interdisciplinary consequences



Melting ice sheets and ice shelves and coastal impacts



Improving knowledge and protection of the unique Antarctic life: from land to ocean and into the deep sea



Anthropogenic signatures in Antarctica: the race against pollution and other pressures

New themes

- Aerosol-cloud interactions and radiative feedbacks
- Under development:
Climate variability: from extremes, to weather, long-term variability, and global teleconnections

How to contribute & get involved?

International Science teams – Actions to the program



- Register on the Antarctica InSync website (<https://www.antarctica-insync.org>) and follow updates



Antarctica InSync

Antarctica International Science &
Infrastructure for Synchronous Observation



Antarctica InSync is a global effort to synchronize research across Antarctica and the Southern Ocean, connecting ice, ocean, climate, and life to protect this vital region.

Wednesday
May 14th 2025



Antarctica InSync News



Newsletter #1

How to contribute & get involved?

International Science teams – Actions to the program



- Register on the Antarctica InSync website (<https://www.antarctica-insync.org>) and follow updates
- Bring forward contributions to “Infrastructure”
- Get in touch with funding agencies and write proposals
- Collect Ideas of working groups and shape them to science plans with some leaders in the field and some representatives of the “next generation”
- Propose to standing working groups, discuss, shape, write a short plan
- Bring plans forward to international steering committee for feedback
- Submit contributing Actions to the UN Ocean Decade