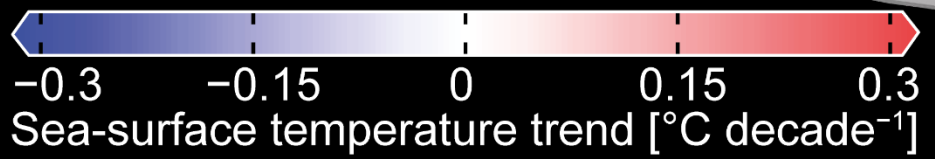
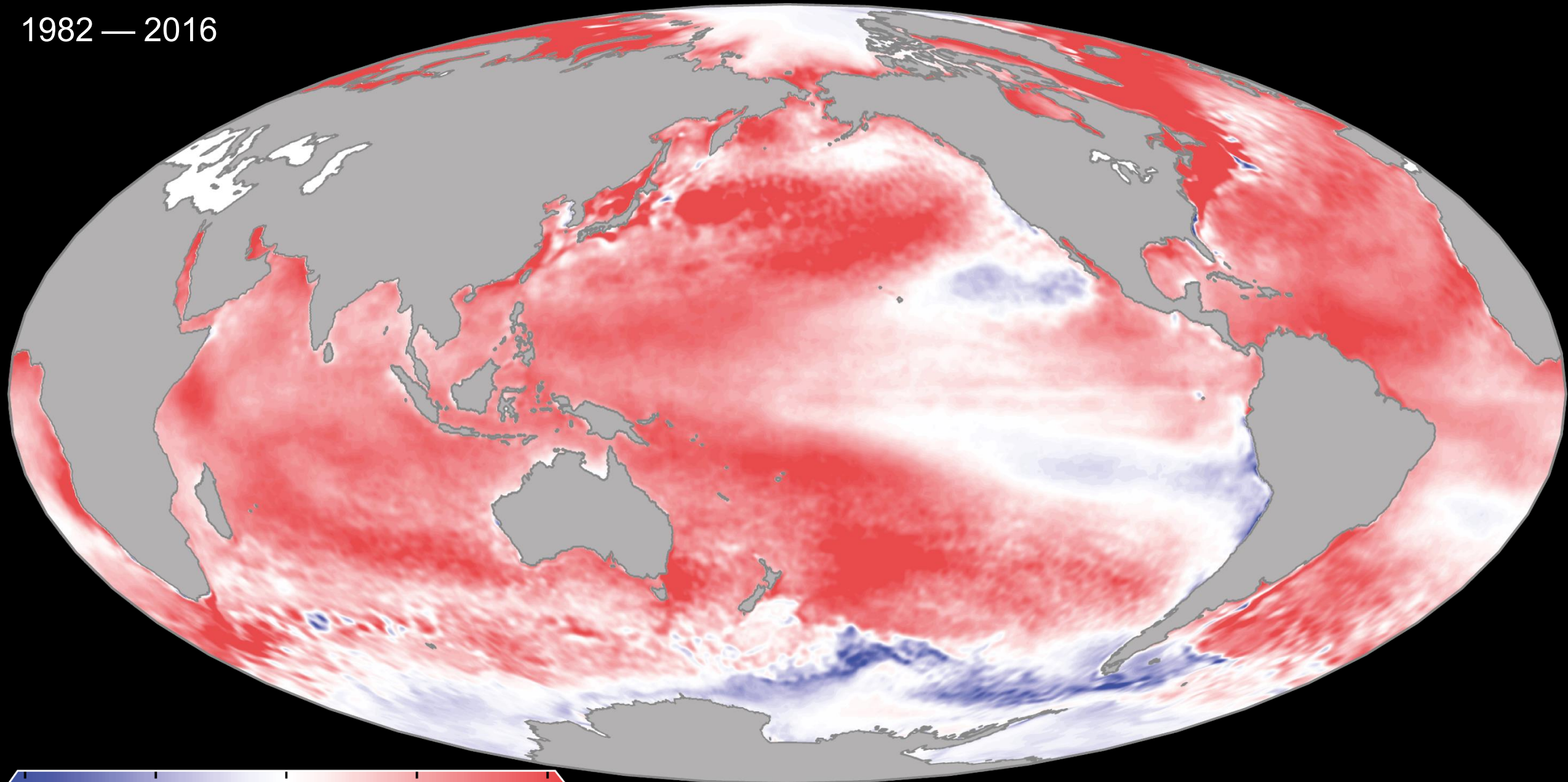
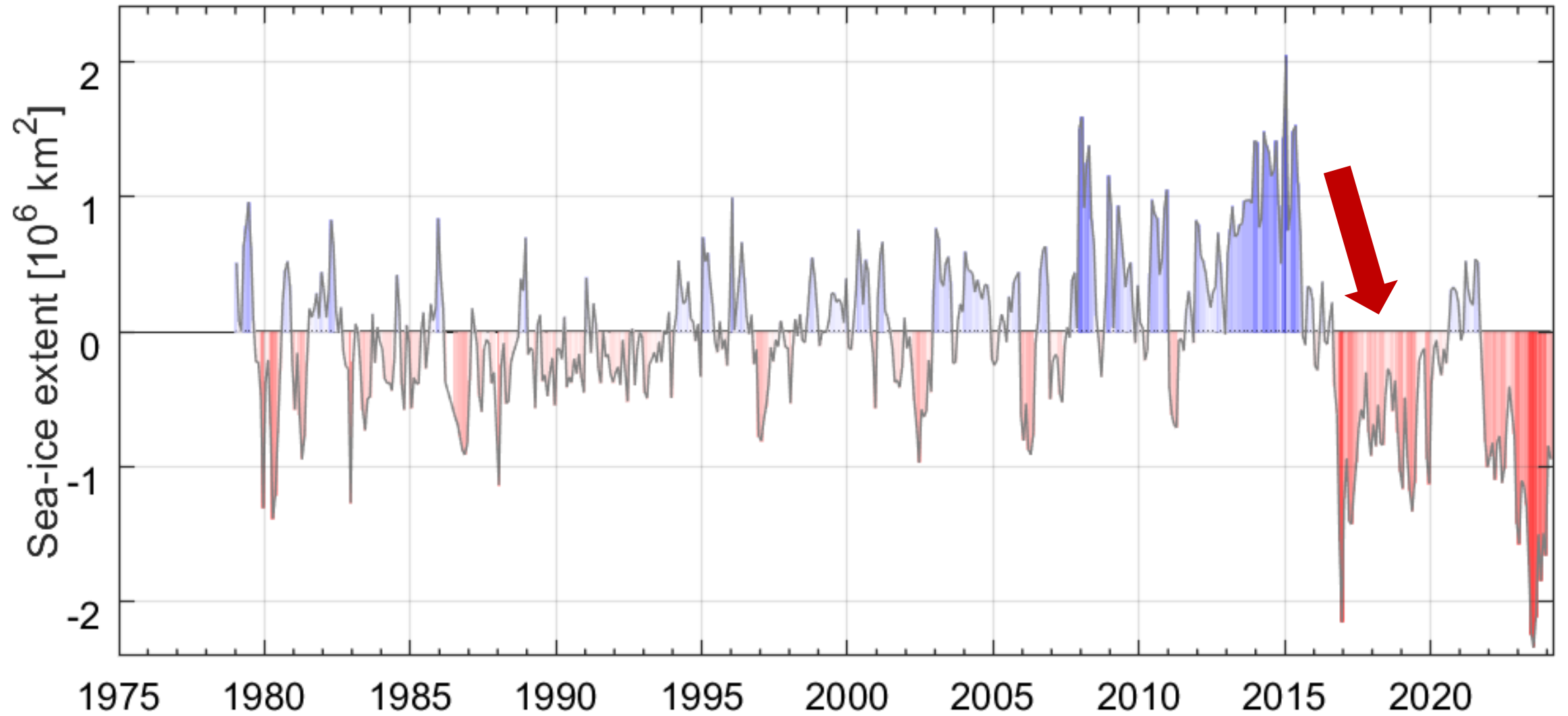


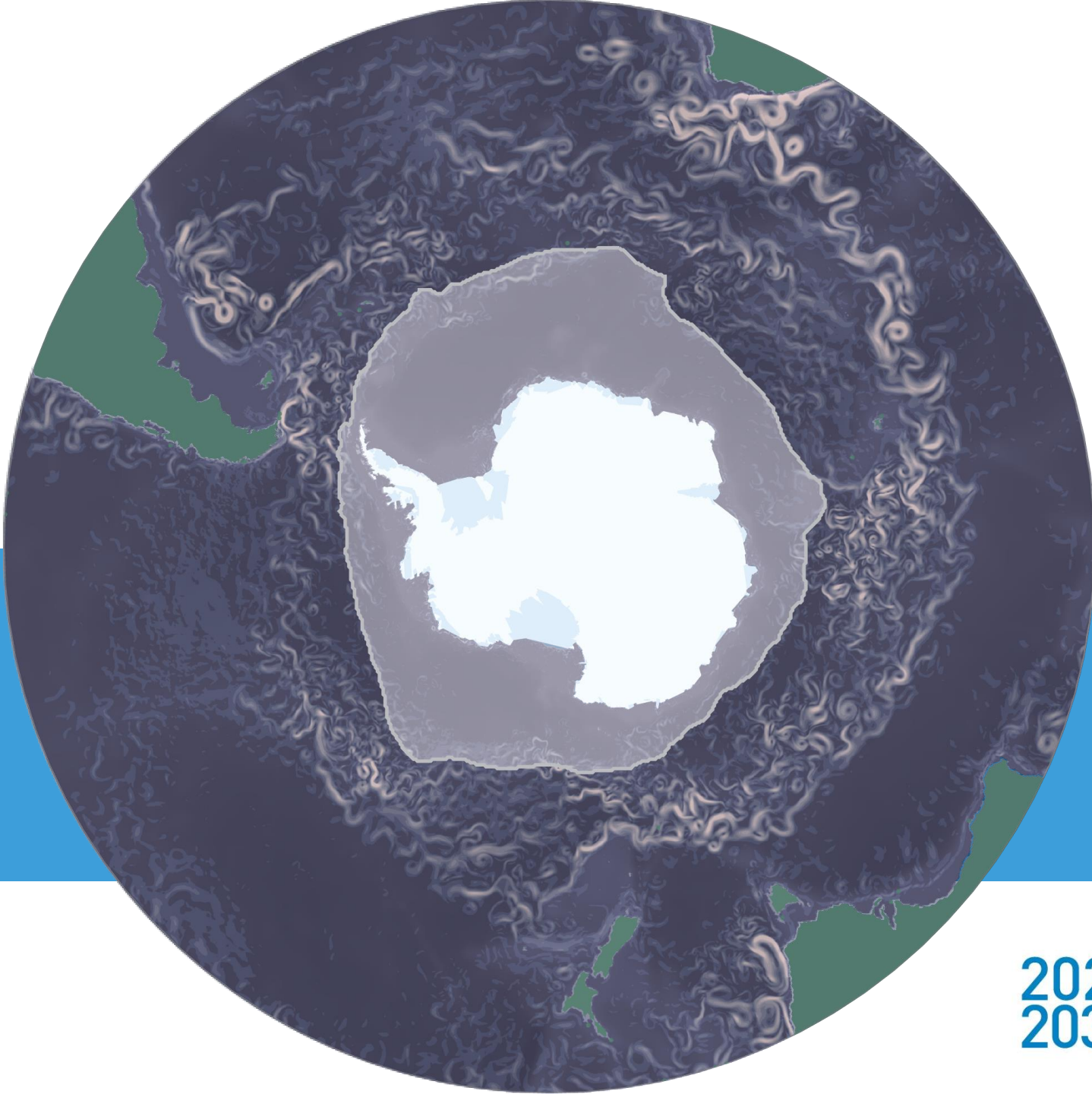
1982 — 2016



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: Marting Wearging)



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



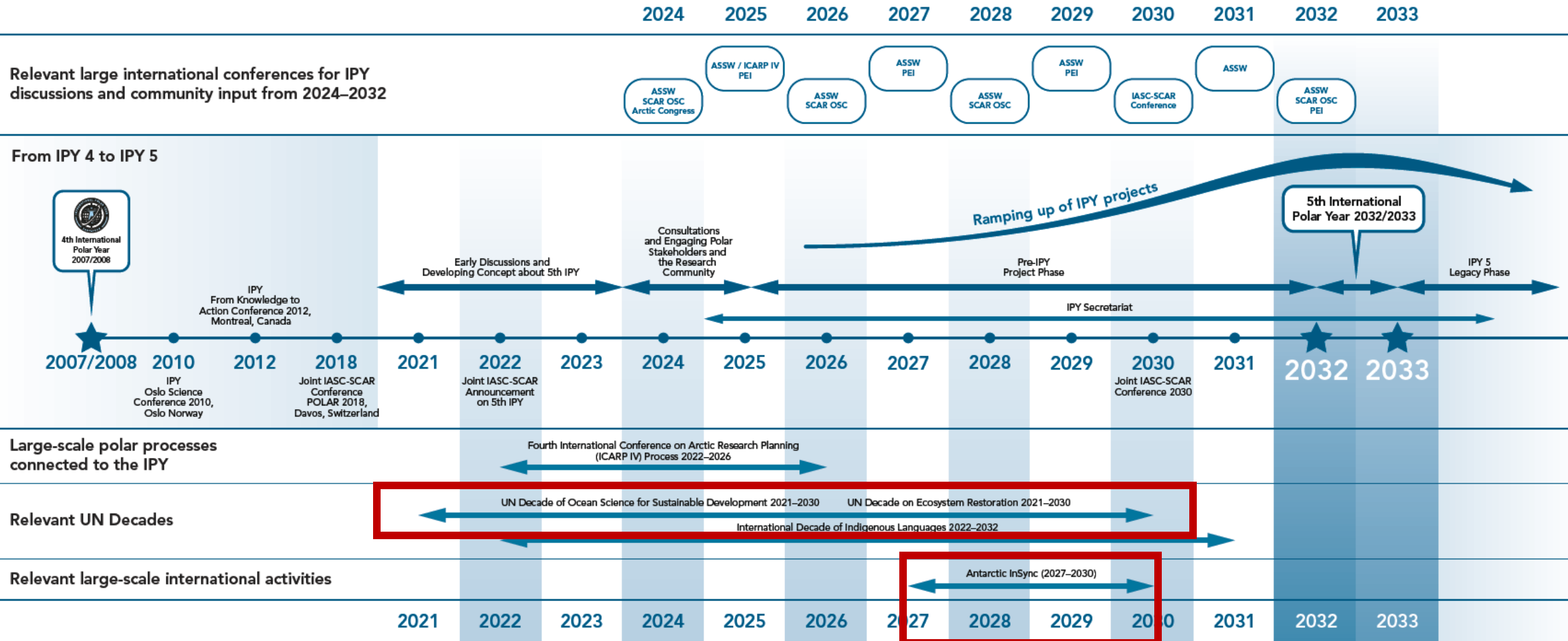
**SOOS**  
SOUTHERN OCEAN  
OBSERVING SYSTEM

**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).



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

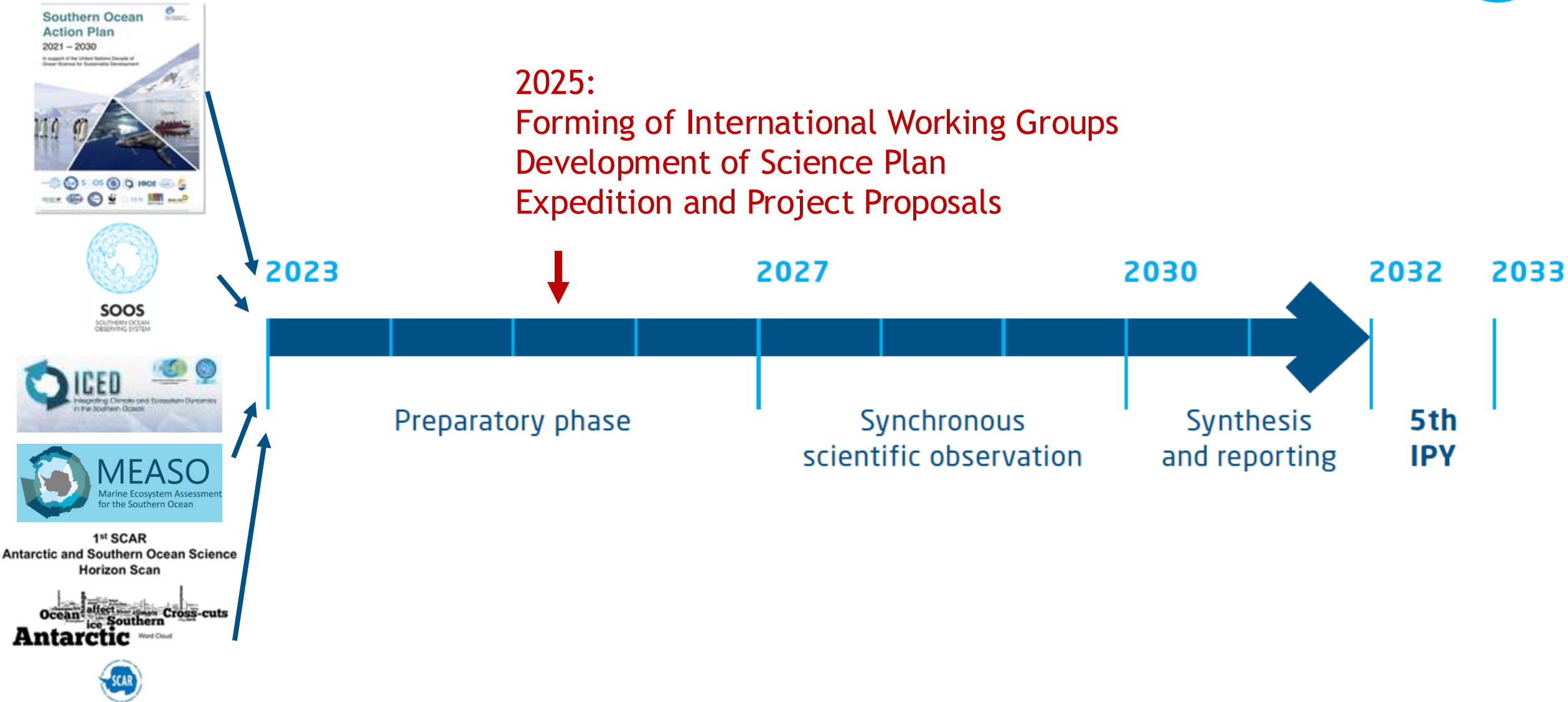
# Long-term perspective Towards the 5th International Polar Year (IPY) 2032-33



# Antarctica InSync | Timeline



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





# ANTARCTICA INSYNC

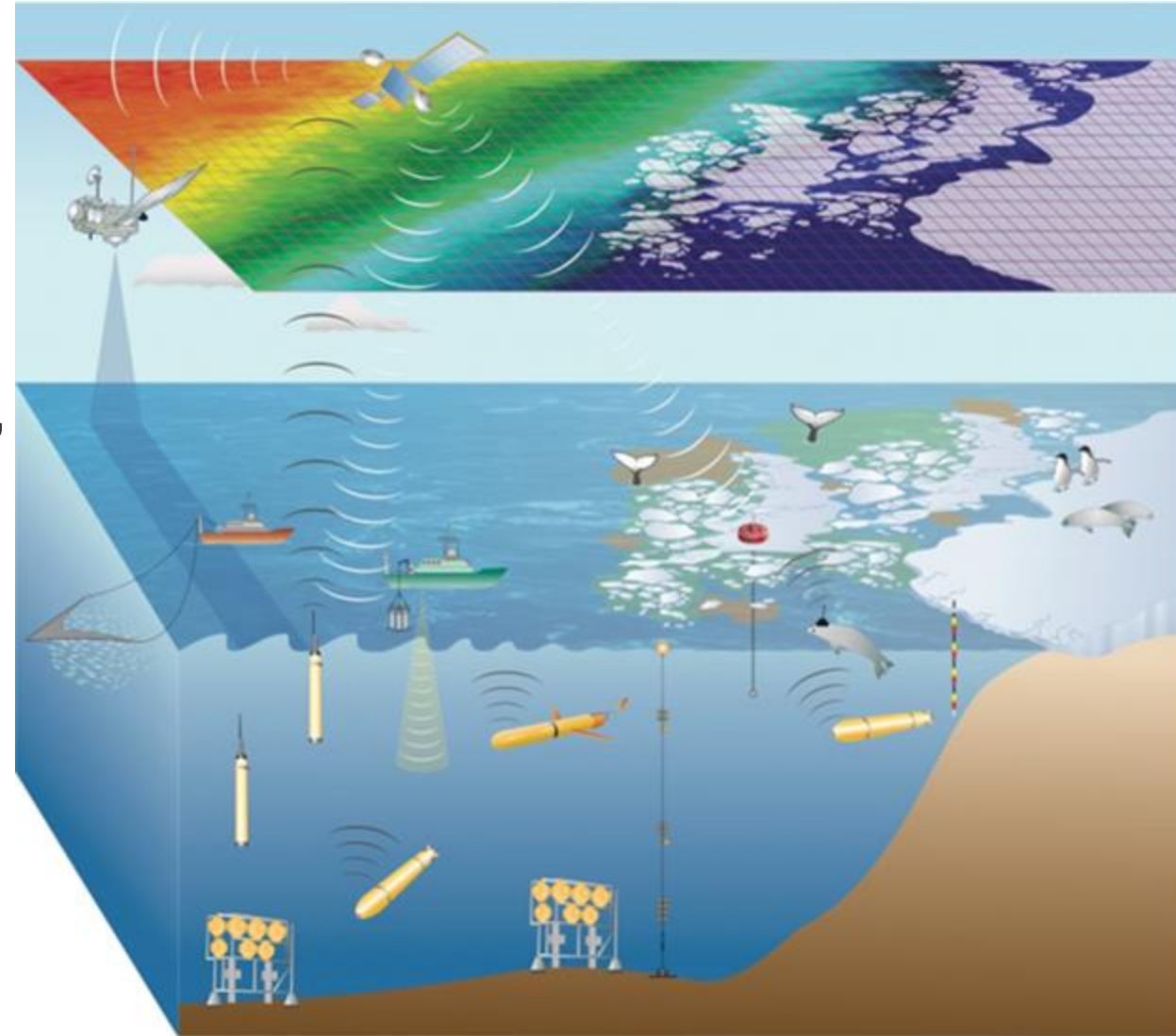
Infrastructure



# 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**.



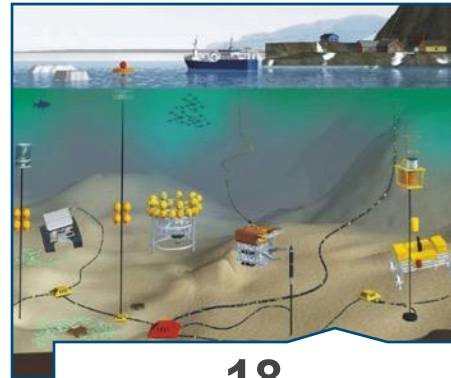
**38**

Research stations



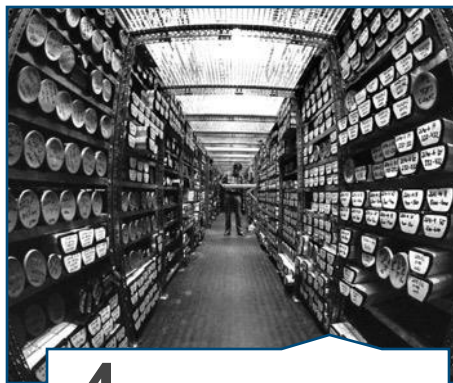
**12**

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)



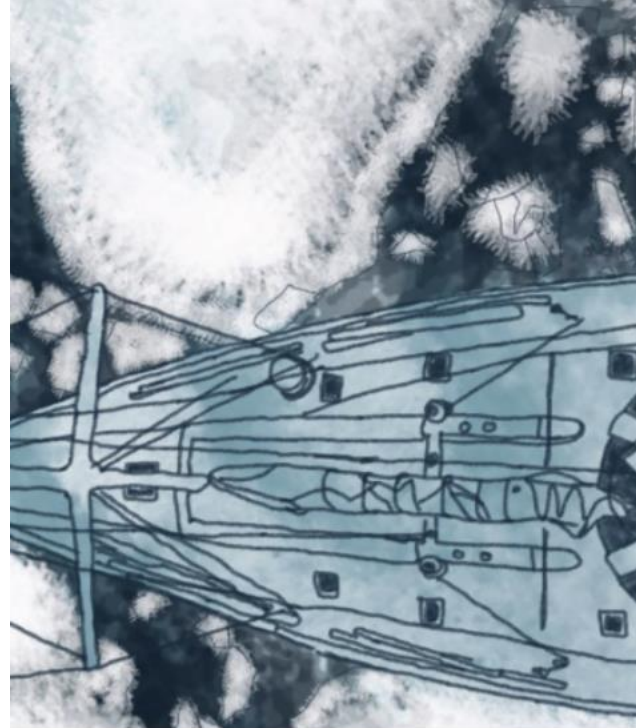
[www.polarin.eu](http://www.polarin.eu)

# Bringing in new Partners & Platforms

sailing & space science & philanthropy

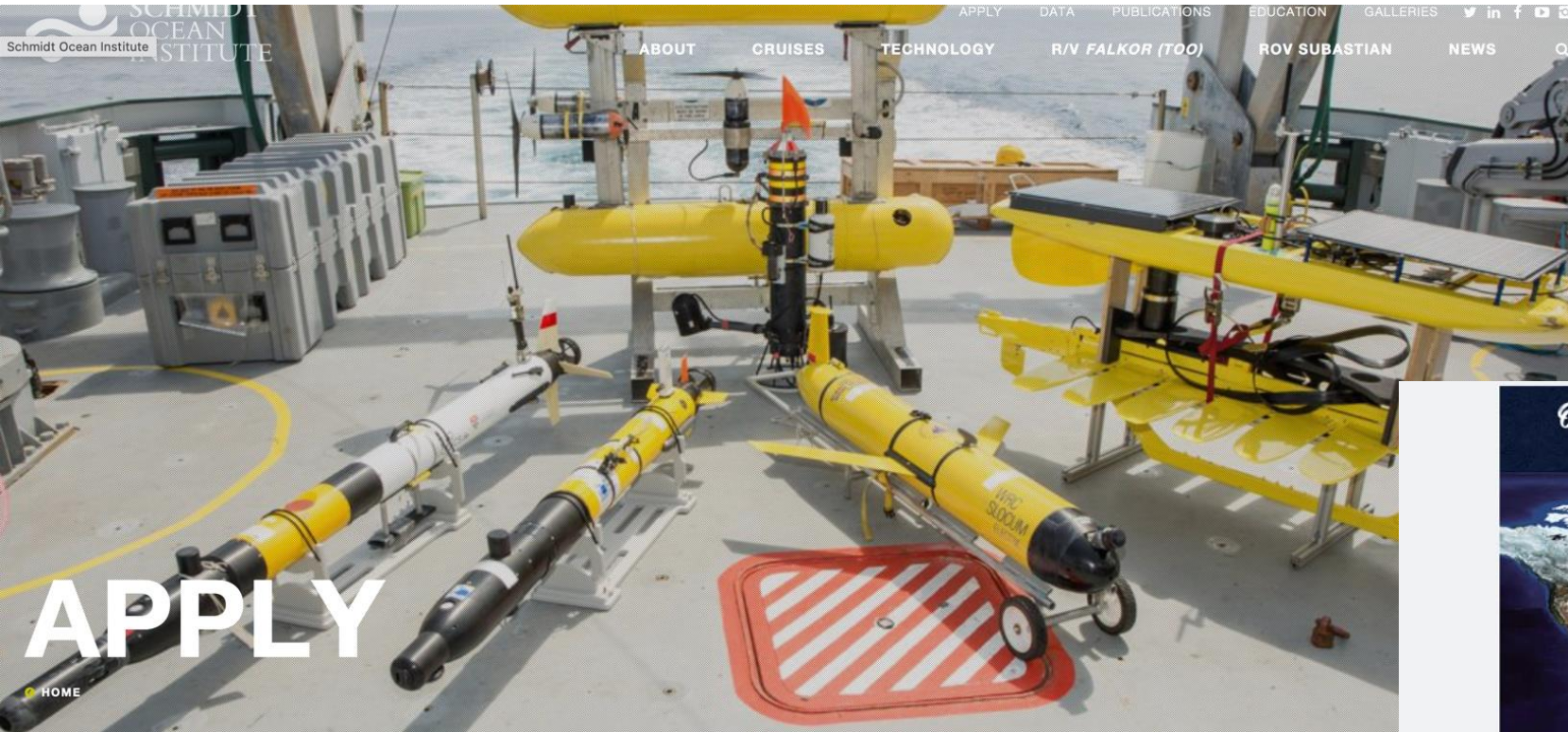


- Tara Foundation
- Team Malizia/ Vendee globe
- Ocean REV
- Schmidt Ocean



# 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 office  
Science commun.  
Data management  
EDI

Antje Boetius  
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)

Modelling

Torge Martin (GEOMAR)

APECS representative

Lena Nicola (PIK)



# ANTARCTICA INSYNC



2021 United Nations Decade  
of Ocean Science  
for Sustainable Development



COMNAP  
Council of Managers  
of National Antarctic Programs



INTERNATIONAL SCIENCE COUNCIL  
SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

# 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 14<sup>th</sup> 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

More on upcoming activities  
at the end of the Webinar:  
*What's next?*



# ANTARCTICA INSYNC



2021 United Nations Decade  
of Ocean Science  
2030 for Sustainable Development



COMNAP  
Council of Managers  
of National Antarctic Programs

