



# Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration”

**Side Event alongside the All-Atlantic Ocean Research and  
Innovation Alliance (AAORIA) 2025 Forum:**

**From Enlightenment to Action**

Brussels, 24 September 2025



## Meeting report

### Executive Summary

The AAORIA 2025 Polar Side Event “*Polar Oceans and Climate: Advancing Synergies for Long-Term Global Collaboration*”, held on 24 September 2025 in Brussels, brought together leading scientists, policymakers, and representatives from international organisations to highlight the essential role of the polar regions in the Atlantic Ocean and global climate systems. The meeting showcased how polar science contributes to the AAORIA priorities and the All-Atlantic Declaration, reinforcing the need for joint research, innovation, and policy coordination across the Arctic, Antarctic, and Atlantic.

Throughout a day of engaging presentations and discussions, participants emphasised that advancing knowledge of the polar regions and their connection to the Atlantic Ocean is fundamental to anticipating climate change, protecting biodiversity, and sustaining the communities and economies that depend on a healthy ocean. The event concluded with a Call for Action affirming that investment in polar research is an investment in security, sustainability, and resilience for the Atlantic and the planet. Governments, research institutions, and funding agencies were urged to elevate polar science as a global priority, transforming knowledge from the world's coldest regions into collective action for a sustainable ocean and a resilient future.

*The event was organized by the European Polar Board (EPB) and Alfred Wegener Institute; Helmholtz Centre for Polar and Marine Research (AWI).*

*Reference: Maria Grigoratou, Lena Buth, Nicole Biebow, 2025. AAORIA Forum 2025 Polar Side Event: Polar Oceans and Climate – Advancing Synergies for Long-Term Global Collaboration, Meeting Report, Brussels, 2025. doi: 10.5281/zenodo.17486910*





## 2025 AAORIA Forum Side Event "Polar oceans and climate: Advancing synergies for long-term global collaboration", Meeting Report







## 2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration” , Meeting Report

### Setting the Scene: Linking the Poles to the Atlantic

Held alongside the 2025 All-Atlantic Ocean Research and Innovation Alliance (AAORIA) Forum, the “Polar oceans and climate: Advancing synergies for long-term global collaboration” side event placed the polar dimension at the centre of the Atlantic dialogue. Convened at the European Commission's Brussels offices, the meeting provided a platform for scientists, policymakers, and stakeholders to connect polar processes and global ocean health.

In her opening remarks, **Maria Grigoratou (European Polar Board)** reminded participants that *“we are gathered here today to highlight the relevance of the polar regions for the Atlantic Ocean and for our planet as a whole. What unfolds in the Arctic and Antarctic resonates far beyond their boundaries, shaping weather patterns, influencing sea levels, affecting biodiversity and ecosystem services. These regions are at once the most vulnerable and the most revealing. They serve as early warning systems for climate change and as vital indicators of the health of our ocean including the Atlantic.”*

**Nicole Biebow (Alfred Wegener Institute)** outlined the goals of the event to strengthen transatlantic cooperation, showcase leading polar research initiatives, and how transnational access to research infrastructures can enhance progress towards the objectives of the AAORIA Declaration.

### Polar Science and Planetary Connections

Discussions highlighted a shared understanding that polar science is central to comprehending the Atlantic and global climate system. Rather than being treated as a separate field, polar research connects regions, disciplines, and policies, offering planetary insights through the study of Earth's most sensitive environments. The event showcased how the polar regions' role in climate regulation, combined with advances in observation and data integration, national and international research coordination, and enhanced access to research infrastructures, contributes to a more connected, cooperative, and effective global polar research community.

### Understanding Climate Dynamics through Polar Science

The meeting reaffirmed that the Arctic and Antarctic are living laboratories for climate change, revealing how rapidly shifting ice, ocean, and ecosystem dynamics are transforming the planet. **Andrew Meijers (British Antarctic Survey)** presented findings from the Horizon Europe OCEAN:ICE project showing how Antarctic ice melt influences ocean circulation, heat transport, and global feedback systems. **Yevgeny Aksenov (National Oceanography Centre)** added insights from the Horizon Europe EPOC project and related UK programmes CANARI and BIPOLE, which together investigate Arctic–Atlantic connections, biogeochemical feedbacks, and the Atlantic Meridional Overturning Circulation (AMOC), a key element linking polar change with the global climate system. Both OCEAN:ICE and EPOC are associated projects to AAORIA.



## 2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration” , Meeting Report

**Mercedes Santos (Instituto Antártico Argentino)** presented the scientific and governance requirements for establishing Marine Protected Areas (MPAs) in Antarctica, identifying the data, cooperation, and ecosystem understanding needed to design and implement them effectively.

### From Space to the Poles: Building Observing Systems that Enable Polar Science

Sustained and integrated observation emerged as a central topic. **Alyce Hancock (Southern Ocean Observing System)** explained how SOOS acts as a long-term international framework for coordinating observations across national programmes, integrating physical, chemical, and biological data to understand and monitor the Southern Ocean.

The meeting also showed how technological advances are accelerating progress in polar science. **Martin Wearing (European Space Agency, ESA)** presented ESA's Polar Science Cluster, highlighting its contributions to polar process understanding and its links to the European Digital Twin Ocean (DTO). He illustrated how ESA satellite missions and modelling activities provide critical input to the DTO framework, improving monitoring of sea ice, ice sheets, and ocean dynamics. **Maria Berdahl (DG DEFIS, European Commission)** introduced Copernicus, underlining its full, free, and open access Earth observation data for Arctic monitoring, sustainable development, and policy implementation.

**Gaël Lymer (Royal Belgian Institute of Natural Sciences)** presented the EU-PolarNet-2 White Paper, which outlines a strategic framework for the future of European polar research. The document synthesises community input to provide actionable recommendations that strengthen coordination, guide funding priorities, and support long-term, sustainable collaboration between European and international partners.

**Arild Sundfjord (Norwegian Polar Institute)** outlined developments toward an Arctic Ocean Observing System, highlighting outcomes from the EU-funded Arctic PASSION project, the ArORA - a new global coordination initiative for enhanced pan-Arctic ocean observing, and Arctic Ocean 2050, a new Norwegian long-term research programme focused on future Arctic Ocean conditions.

**Joseph Nolan (EMODnet Secretariat)** described EMODnet as the *in-situ* data backbone of the European Digital Twin of the Ocean, enabling FAIR (Findable, Accessible, Interoperable, and Reusable) ocean data to connect Arctic and Atlantic research.

**Veronica Willmott (Alfred Wegener Institute)** highlighted the importance of transnational access to research infrastructures for advancing polar science. She presented POLARIN (2024–2029), an EU-funded project that facilitates researcher access to Arctic and Antarctic facilities and data resources. She underscored that enabling scientists to use research infrastructures across borders strengthens international collaboration, enhances knowledge production, and ensures that polar research remains open, interconnected, and globally relevant.





## 2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration” , Meeting Report

### Enhancing International Cooperation and Coordination

The importance of international cooperation and coordination was underscored throughout.

**Gerlis Fugmann (International Arctic Science Committee)** presented plans for the upcoming 5th International Polar Year (2032–33), envisioned as an inclusive, interdisciplinary, and globally coordinated initiative to catalyse a new era of polar research.

**Diego Filun (Alfred Wegener Institute)** introduced Antarctica InSync, a global initiative and an endorsed programme for the UN Decade of Ocean Science for Sustainable Development (2021-2030). One of the aims of Antarctica InSync is to synchronise Antarctic and Southern Ocean research efforts across nations, disciplines, and infrastructures, promoting a unified approach to data and observation.

**Bruno Delille (University of Liège)** described how the IASC Marine Working Group can support AAORIA goals by connecting Arctic and Atlantic observing systems, and **Jo Foden (International Council for the Exploration of the Sea)** explained how ICES contributes to integrated ecosystem assessments, sustainable fisheries, and collaboration with the Arctic Council and the Central Arctic Ocean Fisheries Agreement.

**Kylie Owen (European Polar Coordination Office)** introduced the office's role as a European hub to support coordination among EU-funded polar research projects, ensuring that the outcomes of EU polar research are effectively aligned, communicated, and translated into European policy and international dialogue.

### National Initiatives Advancing Polar Research

The meeting also showcased the variety of national initiatives driving polar science.

**Marcello Vichi (University of Cape Town)** demonstrated how South Africa's South African Polar Research Infrastructure (SAPRI) expands access to observation platforms and data, including the Digital Twin of the S.A. Agulhas II, which supports climate modelling.

**Gustavo Ferreyra (Centro Austral de Investigaciones Científicas, Consejo Nacional de Investigaciones Científicas y Técnicas)** presented examples of marine observation systems in Argentina and highlighted ongoing collaborations with Germany and Chile. He described how these joint efforts contribute to monitoring human pressures, contaminants, and invasive species in Subantarctic and Antarctic environments, emphasising the importance of coordinated observation and international partnerships to safeguard southern polar ecosystems.



## 2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration” , Meeting Report

**Guillaume St-Onge (University of Quebec at Rimouski)** highlighted Canada's Institut des Sciences de la Mer (ISMER) and its expanding Arctic and Subarctic research capacity, including the polar-certified R/V Coriolis II, plans for a new ice-capable research vessel, and an emerging marine robotics innovation centre.

**Piotr Kukliński (Institute of Oceanology, Polish Academy of Sciences)** shared results from over three decades of Arctic ecosystem monitoring from the R/V Oceania, producing extensive long-term environmental data.

**Christian Lindemann (Norwegian Institute for Water Research)** discussed efforts to restore kelp forests in Northern Norway, combining local engagement, ecosystem-based management, and policy alignment.

### From Dialogue to Action: A Call to AAORIA

The meeting concluded with the endorsement of a **Call for Action** addressed to the All-Atlantic Ocean Research and Innovation Alliance (AAORIA), reaffirming that the polar regions are integral to the Atlantic system and indispensable for understanding the climate–ocean–biodiversity nexus. Participants stressed that polar change affects all latitudes, shaping weather, sea levels, and ecosystems, and that sustained research and collaboration are vital to global resilience.

The statement emphasised the need for sustained investment in polar research, improved access to data and infrastructure, and stronger international coordination. It also acknowledged the importance of integrating Indigenous and local knowledge, supporting education and capacity building, and engaging young researchers. Examples such as Antarctica InSync, Arctic Ocean 2050, ArORA, and preparations for the 5th International Polar Year (2032–33) were highlighted as evidence of the collaborative efforts already underway to connect science and action.

The full Call to AAORIA is included in the following section of this report and can be found online here: <https://allatlanticocean.org/wp-content/uploads/2025/10/Call-for-Action-from-the-AAORIA-Polar-Side-Event.pdf>





**2025 AAORIA Forum Side Event “Polar oceans and climate:  
Advancing synergies for long-term global  
collaboration”, Call for Action**

## **Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration”**

**Side Event alongside the All-Atlantic Ocean Research and  
Innovation Alliance (AAORIA) 2025 Forum:**

**From Enlightenment to Action**

Brussels, 24 September 2025



## **Call for Action from the AAORIA Forum 2025 Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration”**

Brussels, 24 September 2025

As we conclude this gathering, we remind everyone that the polar regions are not remote frontiers but integral parts of the Atlantic system and our shared global ocean. The Atlantic lies between the Arctic and Antarctic, and its dynamics cannot be understood without considering both poles. The scientific consensus is clear: the poles are central to understanding the climate–ocean–biodiversity nexus. What happens in the polar regions affects all latitudes, shaping weather, sea levels, biodiversity, and the systems that sustain life, while their vulnerability makes them early warning systems for climate change and indicators of ocean health.

Polar research stands at the intersection of science, policy, society, and innovation. It provides essential knowledge to anticipate climate impacts, safeguard ecosystems, and support sustainable economies. Changes in the polar regions strongly affect Indigenous and local Arctic communities, as well as biodiversity, fisheries, shipping, energy systems, coastal infrastructure, and agriculture far beyond the Arctic and Antarctic. They are the fastest changing, yet still among the least understood, regions of the global ocean, demanding urgent attention. Investment in polar science is therefore a matter of global security and resilience.

The [AAORIA Declaration](#) commits member states to enhance access to infrastructure, data, and expertise, and to promote transparent, interoperable knowledge systems. These commitments are especially urgent in the polar regions, where logistical challenges are greatest and the stakes highest. Shared infrastructure, open data, and



## **2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration”, Call for Action**

international collaboration are essential to generate the knowledge needed for effective decision-making and to honor the commitments made under the Paris Agreement (COP21).

### **Polar research contributes significantly to AAORIA's priorities:**

#### **Relationship between the ocean and climate**

The poles are highly sensitive to climate change and control heat and carbon cycles. Glacier melt, sea-ice loss, permafrost thaw, and shifts in ocean circulation in the polar regions have consequences that extend across the Atlantic and the globe. Research on sea ice, atmosphere–ice–ocean interactions, and circulation patterns improves climate models and projections of sea level rise, directly supporting regional and global mitigation and adaptation.

#### **Monitoring, protecting, and restoring marine ecosystems and biodiversity**

Polar ecosystems, from plankton to whales, are critical for biodiversity, food webs, and carbon cycling. Studying their responses to warming, acidification, and human pressures informs conservation and marine protected area design. Polar insights guide resilience and restoration worldwide.

#### **Marine Pollution**

Despite their remoteness, polar regions accumulate plastics, mercury, and other pollutants. Increasing shipping raises the risk of spills. Research tracks pollutant transport, bioaccumulation, and impacts on ecosystems and human health, strengthening global regulation and prevention efforts.

#### **Sustainable Fisheries and Aquaculture**

Polar research provides key data on fish stocks and ecosystem dynamics in changing waters. It supports adaptive management and innovative monitoring for sustainable fisheries and aquaculture. In the Arctic, Indigenous communities rely on marine resources for food security, culture, and livelihoods, and their knowledge systems are equally essential to shaping sustainable management approaches alongside scientific research.

#### **Ocean Observing and Seabed Mapping**

Polar regions drive global ocean circulation. Advances in under-ice observing, autonomous technologies, and seabed mapping improve understanding of currents, ecosystems, and morphology. Building on this, the innovation dimension of AAORIA also invites exploration of advanced tools for in situ and remote observation, harnessing technological progress such as AI, autonomous systems, and big-data approaches to strengthen our understanding of polar regions and their role in the Atlantic system. Integrating these into Atlantic networks enhances predictive modeling and coordination.





## **2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration”, Call for Action**

**Circular, Sustainable and Inclusive Ocean Economies** Polar research deepens understanding of biogeochemical cycles and supports inclusive approaches involving Indigenous communities and diverse stakeholders. As human activity grows in the Atlantic and polar regions, knowledge is needed for circular and sustainable practices in shipping, fishing, and other sectors, to prevent biodiversity loss and ecosystem decline.

### **Ocean Literacy and Engagement**

Polar regions are key to understanding Earth's climate system and compelling subjects for public engagement. By involving citizens and young scientists, we foster stewardship and empower the next generation of ocean advocates. Polar change affects all nations, making engagement a universal responsibility.

### **Conclusion and Call to Action**

Polar research is indispensable for achieving AAORIA's vision of sustainable, resilient oceans. Large-scale initiatives such as Antarctica InSync, Arctic Pulse, Arctic Ocean 2050, ArORA, and the upcoming 5th International Polar Year (IPY-5) show the power of international cooperation, open science, and shared infrastructure. They also train and empower the next generation of scientists. While the Southern Ocean benefits from strong coordination under the Antarctic Treaty System, the Arctic remains more fragmented—highlighting the need for urgent, coordinated Atlantic-focused action.

For policymakers, the message is clear: supporting polar research strengthens risk anticipation, informs adaptation, and underpins ocean governance. For the scientific community, it is a call to build the open, outcome-oriented systems envisioned by AAORIA. For societies worldwide, it is a reminder that the poles are part of the Atlantic system and our shared future.

Let us leave this Forum with a common purpose: to elevate polar research as an EU and international priority, and to ensure that knowledge from the world's coldest regions guides decisions for a sustainable ocean and a resilient future.

**NOW IS THE TIME TO ACT.**



## 2025 AAORIA Forum Side Event "Polar oceans and climate: Advancing synergies for long-term global collaboration", Meeting Report



*Maria Grigoratou  
(European Polar Board)*



*Nicole Biebow  
(Alfred Wegener Institute)*



*Andrew Meijers  
(British Antarctic Survey)*



*Yevgeny Aksenov  
(National Oceanography  
Centre)*



*Mercedes Santos  
(Instituto Antártico  
Argentino)*



*Alyce Hancock  
(Southern Ocean  
Observing System)*



*Martin Wearing  
(European Space Agency)*



*Maria Berdahl  
(DG DEFIS, European  
Commission)*



*Gaël Lymer  
(Royal Belgian Institute of  
Natural Sciences)*





## 2025 AAORIA Forum Side Event "Polar oceans and climate: Advancing synergies for long-term global collaboration", Meeting Report



Arild Sundfjord  
(Norwegian Polar  
Institute)



Joseph Nolan  
(EMODnet Secretariat)



Veronica Willmott  
(Alfred Wegener  
Institute)



Gerlis Fugmann  
(International Arctic  
Science Committee)



Diego Filun  
(Alfred Wegener Institute)



Bruno Delille  
(University of Liège)



Jo Foden  
(International Council  
for the Exploration of  
the Sea)



Kylie Owen  
(European Polar  
Coordination Office)



Marcello Vichi  
(University of Cape  
Town)





## 2025 AAORIA Forum Side Event “Polar oceans and climate: Advancing synergies for long-term global collaboration”, Meeting Report



*Gustavo Ferreyra  
(Centro Austral de  
Investigaciones  
Científicas, Consejo  
Nacional de  
Investigaciones  
Científicas y Técnicas)*



*Guillaume St-Onge  
(University of Quebec  
at Rimouski)*



*Piotr Kukliński  
(Institute of Oceanology,  
Polish Academy of  
Sciences)*



*Christian Lindemann  
(Norwegian Institute  
for Water Research)*

