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EU-PolarNet2 and research coordination initiatives requiring large-scale coordinated implementation

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Consiglio Nazionale delle Ricerche

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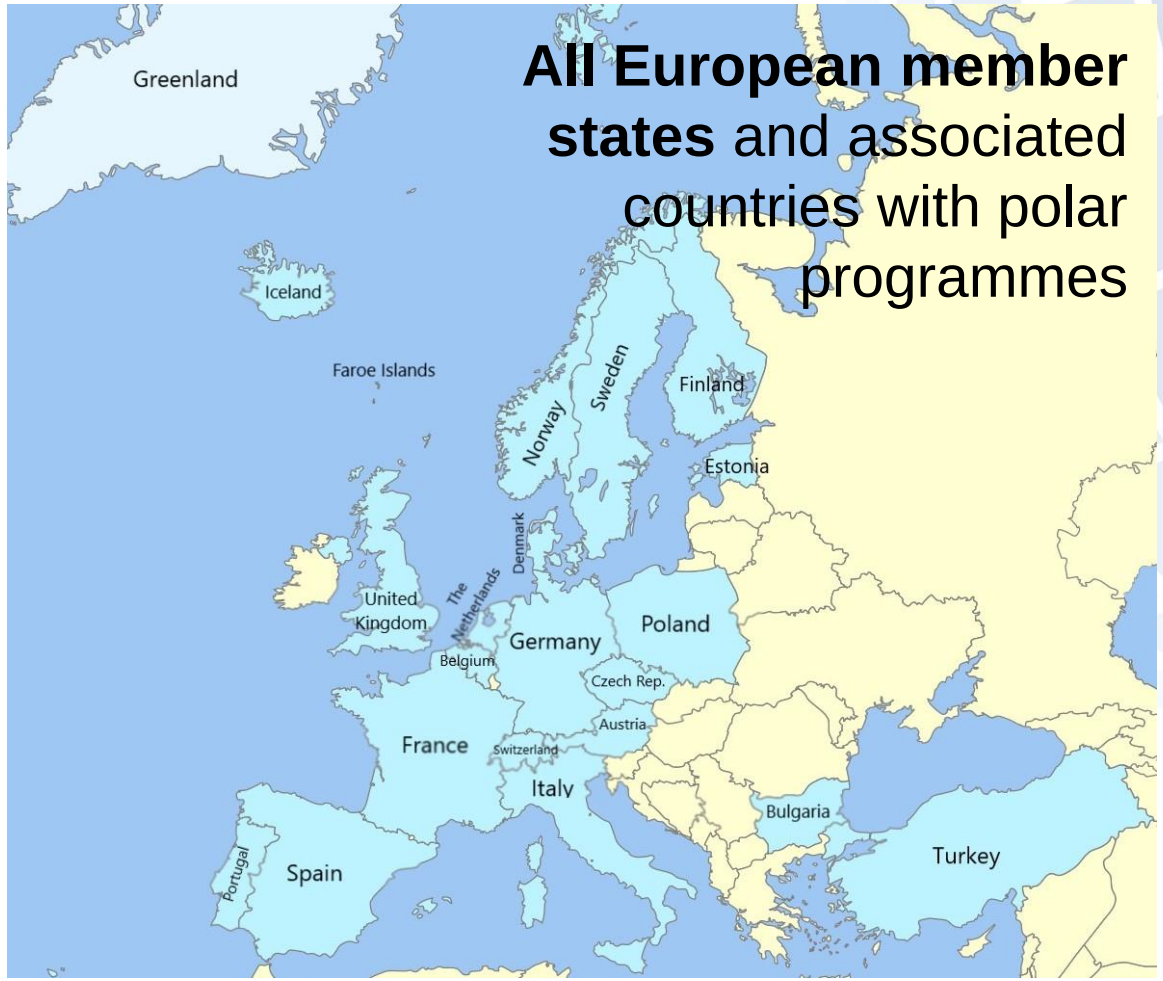
What is EU-PolarNet 2 ?

EU-PolarNet

World‘s **largest consortium** of expertise and infrastructure for polar research

Consortium

- 25 consortium members
- 21 European countries



Coordination and Support Action

Funding:
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Project Coordinator:
AWI (Nicole Biebow)

ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR- UND MEERESFORSCHUNG

www.eu-polarnet.eu

The ambition of EU-PolarNet 2

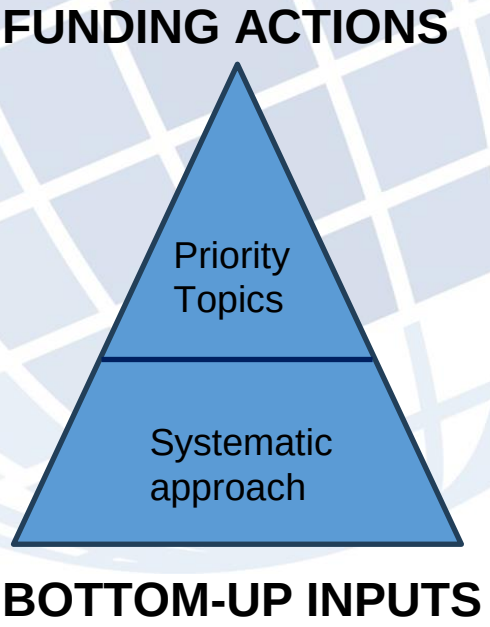
- To establish a sustainable and inclusive **platform to co-develop and advance European Polar research actions**
- To give evidence-based **advice to policymaking** processes
- To sustain the platform in a **European Polar Coordination Office (EPCO)** after EU-PolarNet 2 ends

What is a Research Prioritization Process?

A <u>Research Prioritization</u> is a process by which <u>research topics</u> are identified, evaluated and selected in terms of their priority

→ crucial to ensure that research efforts address the most pressing issues and knowledge gaps

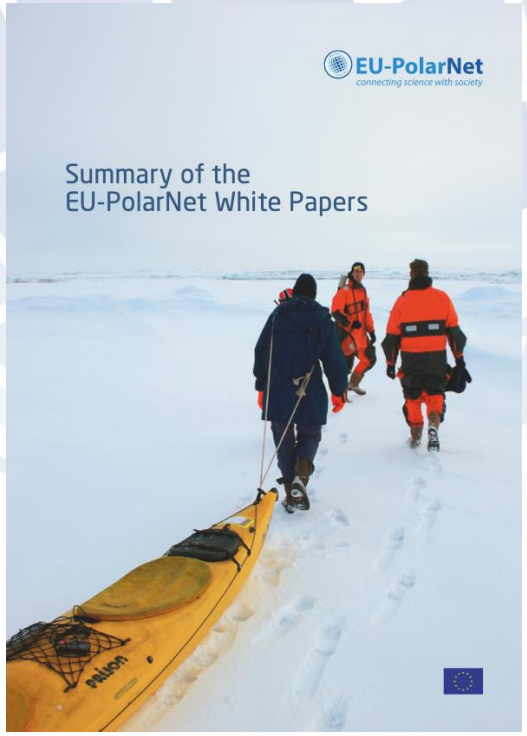
In terms of research management, this means **determining which themes/initiatives/topics** should be **implemented in future funding actions**.



Open, transparent and inclusive involvement process

The intent to create a **prioritisation process** as **open, transparent, and inclusive** as possible, in line with the process by which the White Papers and the Integrated European Polar Research Programme (EPRP) were produced during the previous EU-PolarNet project.

→ performed within the project consortium, within the Polar Expert Group, through the Polar Expert Group (PEG) chair and the co-chair, the ExPEG (Executive PEG) made of 29 members and the PEG larger group of experts (200 members) other scientific (EU Polar Cluster Members) and community stakeholders



A THREE STEPS METHODOLOGY

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STEP 1: collect INPUTS

1. EPRP (+ BACKGROUND DOCS UPDATES)
2. CALL FOR SERVICES PROJECTS
3. STAKEHOLDERS' WORKSHOPS & MEETINGS
4. SURVEY WITHIN THE EU POLAR CLUSTER
5. SURVEY WITHIN THE PEG FULL LIST

STEP 2: SYSTEMATIC ANALYSIS

Direct study and analysis of the main docs (in the Cat. Plat.)

in parallel

Topics analysis by text mining methodology (T-LAB software)

Research Needs → Key Questions →Topics

STEP 3: Polar Expert Group (PEG) retreat

PEG RETREAT (SAN SERVOLO, VENICE, JUNE 2023)

FINAL OUTPUT

PRIORITY LIST OF RESEARCH TOPICS and DESCRIPTION

RESEARCH PRIORITIZATION METHODOLOGY
3 main tasks/steps:

1) Consolidation of the topic lists (per Research Need→ Breakout group);
2) PICK chart analysis by online questionaries (google form on site);
3) Priority Topic description

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Priority Topics

Polar Climate System

- Ice sheets and interactions with ocean and atmosphere: unravelling instabilities, implications for future sea-level rise and climate scenarios
- Advancing Understanding of Polar Amplification and Climate Feedbacks: Addressing Key Uncertainties for Enhanced Knowledge of Future Climate and Weather
- Ocean-sea ice controls of polar climate variability, feedback mechanisms and impacts on global climate
- Land-coast-ocean continuum dynamics as a key component of freshwater and carbon fluxes
- Long-term carbon dioxide and biogeochemical cycle dynamics and their feedbacks in polar regions. Unravelling the climatic significance and future implications
- Polar climate extremes: Quantifying and projecting hazards, feedbacks, risks, and impacts for improved resilience

Polar Biodiversity and Socio-Economic Systems

- Changing species distributions in the polar seas
- Changing water cycle: effects on biodiversity, ecosystem productivity and human subsistence in the polar areas
- Cumulative impacts of climate change on biodiversity structure and function in polar ecosystems
- Revision of conservation measures for the polar ecosystems in the face of climate change, increasing human pressures and shifts in global geopolitics
- Development of an integrated biological-chemical-physical long-term observing system: a “Polar System of Systems”

Human impacts on polar system

- How to understand the cumulative impacts of human activities on the environment, biodiversity and ecosystem functioning in the polar regions in the frame of climate change, with special attention for polar tourism, renewable energies, transport, polar operations
- How to ensure economic growth in the Arctic takes place in a sustainable manner and within the framework of ecosystem-based management
- How to improve international and national law and governance systems and their implementation for improving and securing environmental protection and peaceful cooperation in the Arctic and the Antarctic
- How to develop indicators for assessing the state of the environment and for long term monitoring of observed change in the polar regions and impacts of polar operations

Prospering Communities in the Arctic

- Food and water security in the Arctic
- Permafrost thaw and One Health
- Indigenous societies, governance and rights
- Sustainable economic development and energy transition
- Demography and migration, equality

Research coordination initiatives requiring large-scale coordinated implementation

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Large Scale Initiatives

→ ideal opportunities to address **important, overarching, high impact topics** of polar research.

Through international cooperation → **efficient tool** to implement expertise and logistical support to achieve goals, which could not be achieved by individual research bodies or countries, while minimizing the costs through **resource optimization**.

- "Polar System of Systems": An integrated biological-chemical-physical long-term observing system
- Major northern Greenland polynyas: reevaluating their functioning after 30 years of climate change
- Long-term monitoring in Fram Strait: bridging the strait
- Linking fluxes at Arctic Ocean gateways to ocean ventilation and the Atlantic Meridional Overturning Circulation (AMOC)
- Arctic pollution: Enhancing observation to determine sources, composition and impacts in a changing Arctic climate
- Antarctica InSync: Synchronous observation of Antarctica and the Southern Ocean: a pan-Antarctic science initiative to engage polar research in the UNDOS
- Antarctic Ice Sheet mass balance and instabilities: Assessing current state and anticipating future sea level rise
- New developments in ice core science and better coordination of deep ice drilling operations for detailed understanding of past climate

Large-Scale Initiatives CRITERIA

The essential **criteria** for large-scale initiatives in the Polar Regions are:

1. Addressing key research priorities that engage a **wide community** and fill **major knowledge gaps**.
2. Having a **long-term vision** that ensures outcomes beyond the project's duration, like ongoing environmental monitoring.
3. Ensuring **international collaboration** with support from global organizations.
4. Securing **high-level funding** and resource pooling to ensure feasibility and optimize infrastructure and data use.

EXAMPLE OF LARGE-SCALE INITIATIVE

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Antarctica InSync: Synchronous observation of Antarctica and the Southern Ocean: a pan-Antarctic science initiative to engage polar research in the UNDOS

Collaborative and synergistic action for synchronous observations of Antarctica and its surrounding ocean, using similar approaches, common methods, and shared goals, while developing new capacities.

Thanks for your attention!

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