



# From Local to Global: European leadership in Arctic and Antarctic Observation

Dr Renuka BADHE, European Polar Board



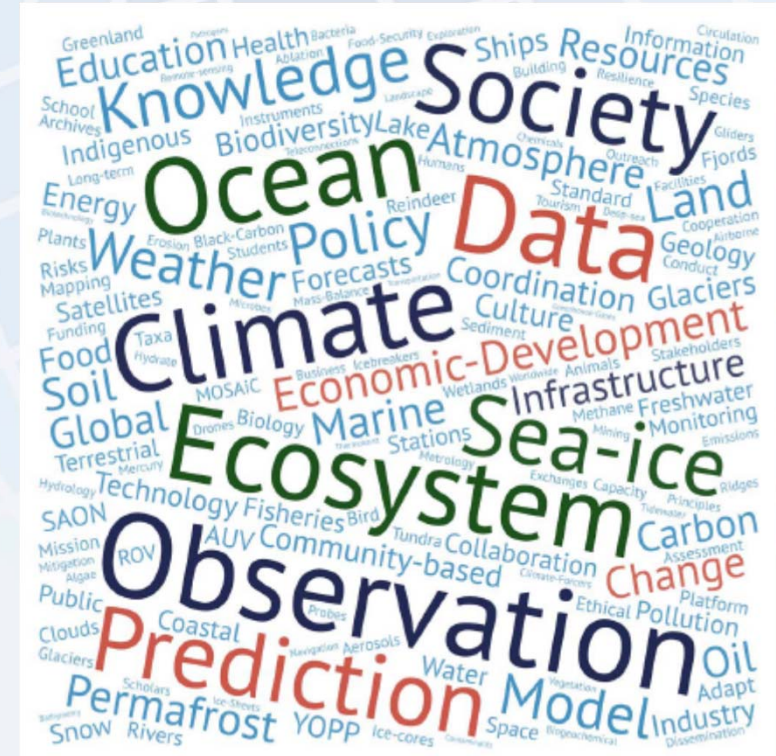
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EU-PolarNet 2 Kick-Off meeting,  
EU Polar Science Week 2020

# 2nd Arctic Science Ministerial: Co-operation in Arctic Science – Challenges and Joint Actions



Co-operation in Arctic Science – Challenges and Joint Actions



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# 2nd Arctic Science Ministerial: Co-operation in Arctic Science – Challenges and Joint Actions

2<sup>nd</sup> ARCTIC SCIENCE MINISTERIAL

Federal Ministry of Education and Research

European Commission

Ministry of Education and Culture

Co-funded by the European Union

Co-operation in Arctic Science – Challenges and Joint Actions

**2**

– 26 nations, 9 international and 6 Arctic indigenous peoples' organizations: The European Commission, the Republic of Finland and the Federal Republic of Germany co-hosted the 2nd Arctic Science Ministerial. Find out more about the conclusions.

→ read more

DAYS

Greenland, Education, Health, Bacteria, Food-Security, Exploration, Ships, Resources, Information, Circulation, Knowledge, Society, Species, Building, Resilience, Fjords, School, Archives, Indigenous, Biodiversity, Lake, Atmosphere, Land, Standard, Facilities, Long-term, Energy, Weather, Policy, Data, Geology, Conduct, Risks, Mapping, Satellites, Forecasts, Coordination, Glaciers, Funding, Taxa, Hydrate, Food, Soil, Global, Terrestrial, Technology, Fisheries, Bird, Tundra, Collaboration, Assessment, ROV, AUV, Community-based, Ethical, Pollution, Clouds, Coastal, Permafrost, YOPP, Snow, Rivers, Prediction, Model, Industry, Dissemination, Wetlands, Wounders, Animals, Stakeholders, Methane, Freshwater, Monitoring, Emissions, Exchanges, Capacity, Principles, Ridges, Tunnels, Vegetation, Adapt, Space, Dissemination, Navigation, Aerosols, Water, Vegetation, Adapt, Industry, Dissemination, Ethical, Pollution, Assessment, Form, Ethical, Pollution, Assessment, Form, Ethical, Pollution, Assessment, Form.



## From Local to Global: European leadership in Arctic and Antarctic Observation

AOS2020 Statement: Sustained observations that enable us to track, understand, and project this change are essential. They are necessary to guide adaptation and mitigation responses from local to global scales.

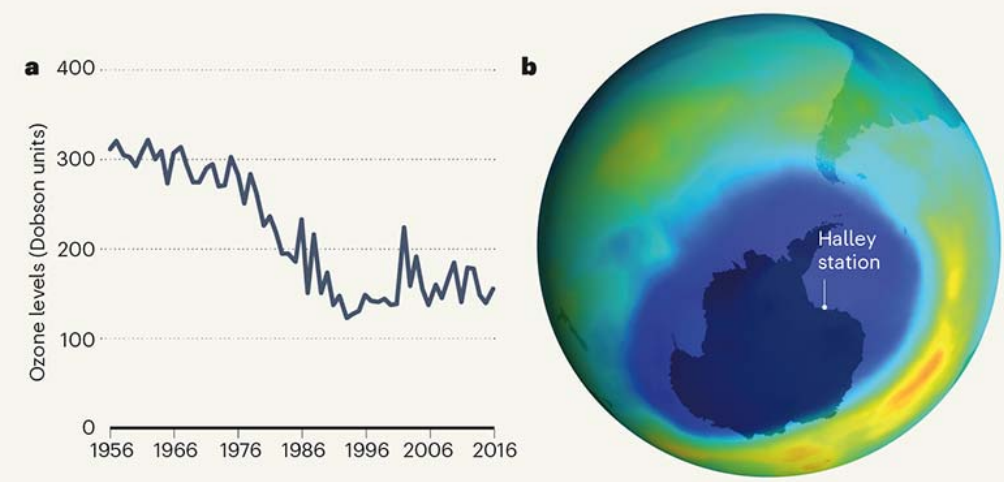
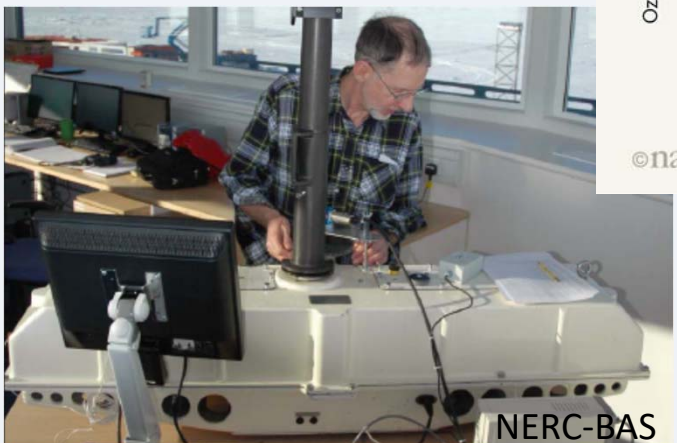
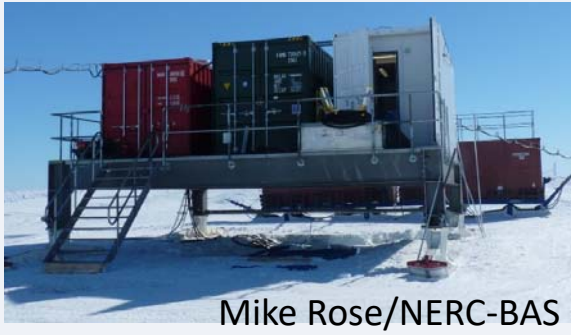
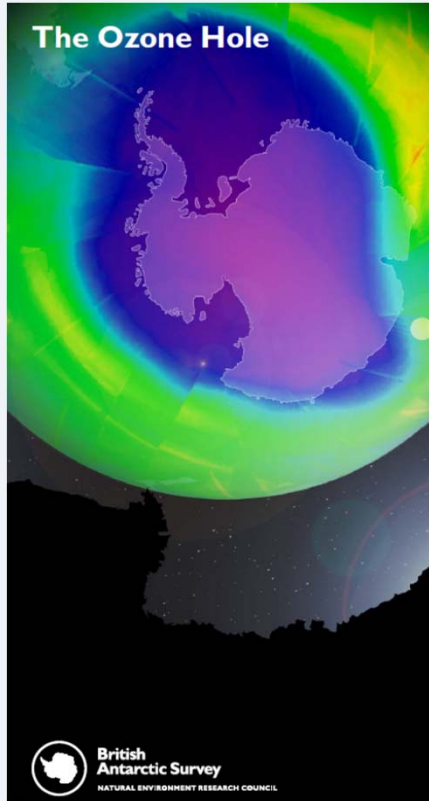


# From Local to Global: European leadership in Arctic and Antarctic Observation

## Local Levels

At a local scale, polar observations have led to discoveries and advancements in our understanding of climate and environmental change that impact the whole planet

# Halley Research Station



©nature Solomon S. The discovery of the Antarctic ozone hole. Nature, 2019, 575: 46-47

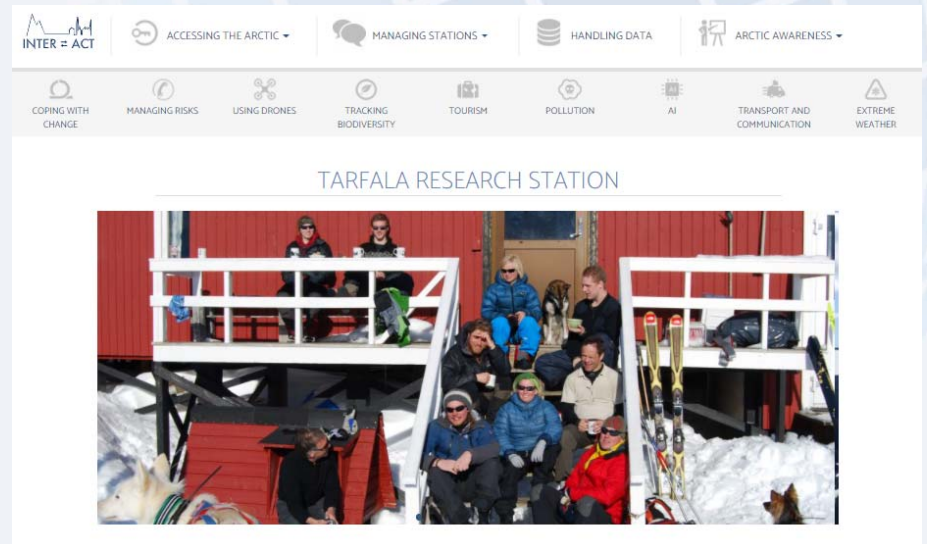
## Ozone observations at Halley ongoing since 1956

# Tarfala Research Station and Storglaciären mass balance record, Arctic Sweden



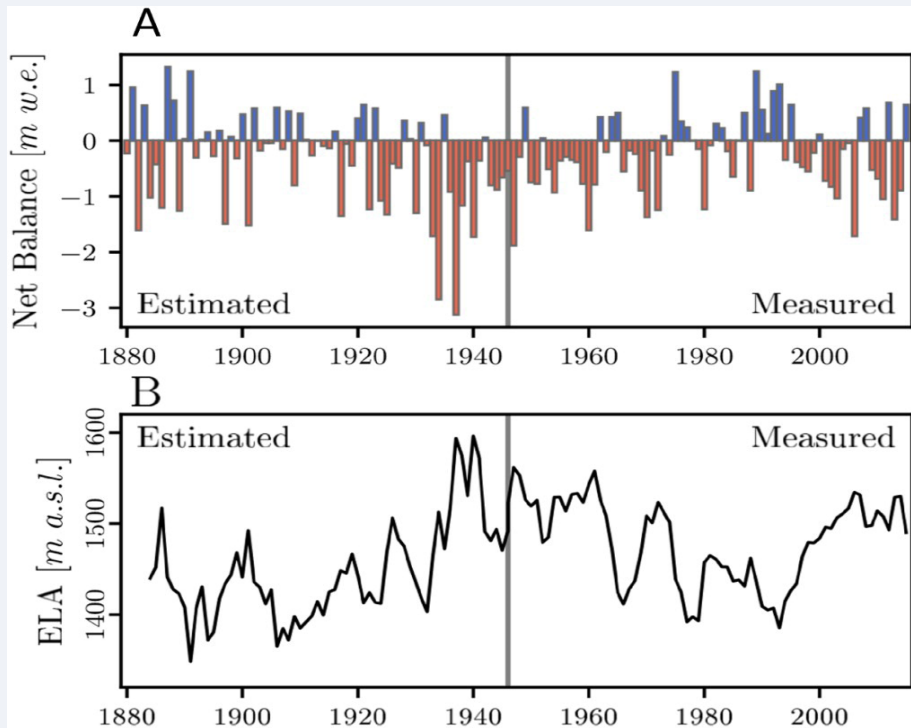
Photo: Per Holmlund

- World's longest continuous glacier mass balance record (since 1946), observations since 1880
- Advanced global understanding of the cryosphere, the changing climate and its impacts



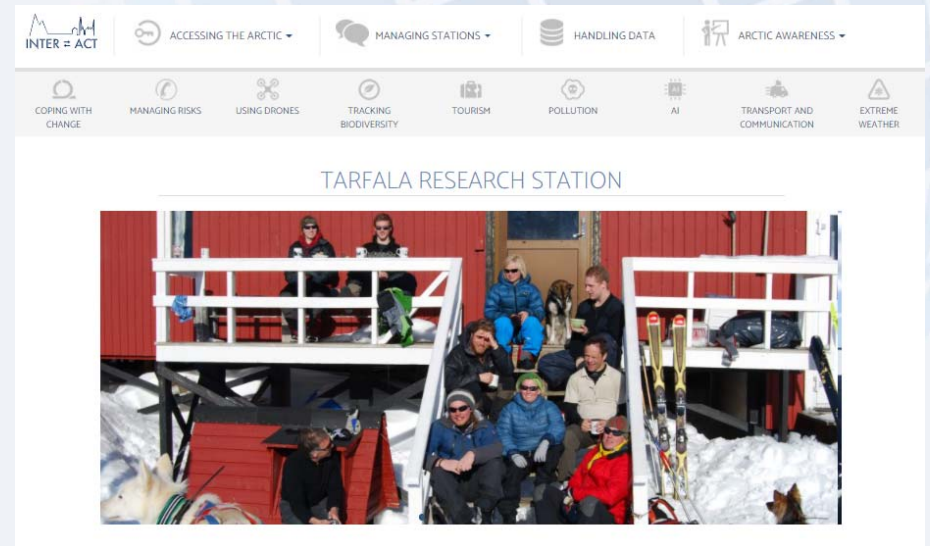


# Tarfala Research Station and Storglaciären mass balance record, Arctic Sweden



Holmlund & Holmlund (2018)

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- Advanced global understanding of the cryosphere, the changing climate and its impacts

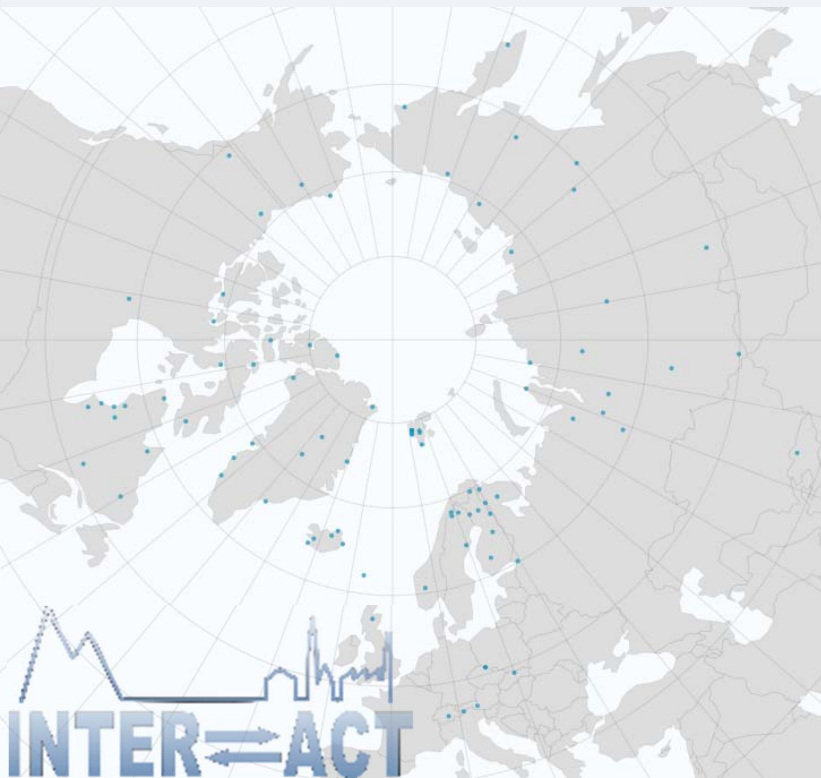


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## Regional Levels

At a regional level, collaborative European projects help build capacity to identify, understand, predict and respond to diverse environmental changes throughout the terrestrial and marine Arctic and Antarctic.

# INTERACT – International Network for Terrestrial Research and Monitoring in the Arctic



INTERACT (International Network for Terrestrial Research and Monitoring in the Arctic) seeks to build capacity for research and monitoring all over the Arctic, and is offering access to numerous research stations through the Transnational Access Program.

# ARICE



Making the Arctic  
accessible for  
excellent science



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# INTAROS

INTAROS works to coordinate the development of an integrated Pan-Arctic Observation System by extending, improving and unifying existing and evolving systems in the different regions of the Arctic



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## Global Level

At a global level, European initiatives like Copernicus are observing our planet and its environment for the benefit of all European citizens and offering services based on both Earth observing satellite and *in situ* data.



# Copernicus

## 6 Copernicus Services

### Added value:

- Guarantee of service, providing global spatial coverage
- Near-real time data provided to end users
- Integration of the data (space and in-situ) and analyses
- Global/pan-European approach to Earth monitoring





# From Local to Global: European leadership in Arctic and Antarctic Observation

## EU-PolarNet 2 Consortium

World's largest consortium of expertise and infrastructure for polar research

**25** partners

**All European member states**  
and associated countries with  
polar programmes



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# Advancing polar observations



## EU-PolarNet 2 Polar Observations Tool

*Polar Observations Tool:* EU-PolarNet 2 will develop a procedure for ongoing collection and collation of European Polar observing capacities and activities

- Special focus on European polar observing capacity optimisation
- Strengthened coordination of European polar observing capacity
- A key part of the modular European Polar Coordination Toolkit
- Allowing identification of gaps and avoidance of duplication.

Synergetic and optimal use of resources and better facilitation of the flow of information on polar observing systems from the local to the global.

# Working together - Utilising existing cooperation agreements: EPB – ESA Memorandum of Understanding



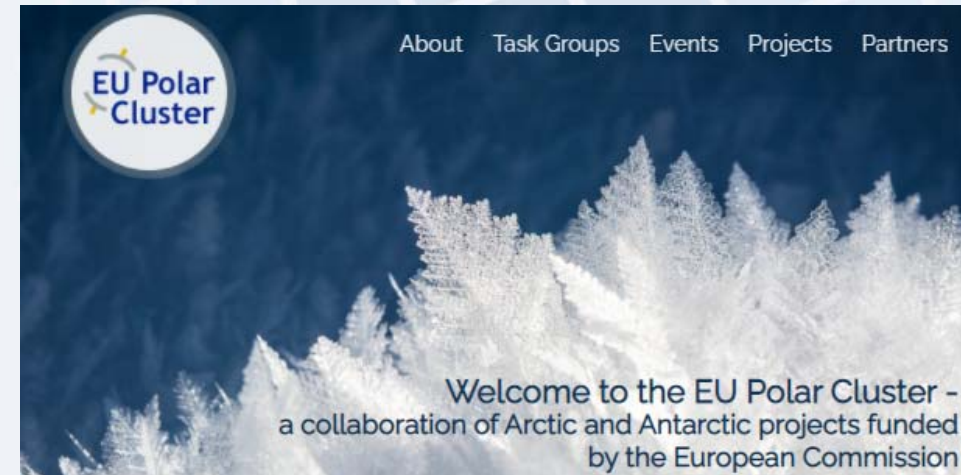
- Members**
- Arctic Centre
  - ARCUM
  - Bulgarian Antarctic Institute
  - BELSP0
  - CNR
  - CNRS
  - CSIC
  - DASTI
  - Estonian Academy of Sciences
  - FCT
  - FNRS
  - FWF
  - FWO
  - HGF/AWI
  - IMR
  - IPEV
  - MINECO
  - NERC/BAS
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# Working together – Polar Project Clusters



# Working together



## ESA Polar Science Cluster

a network of ESA funded projects aiming at promoting network

## 2020 European Polar Science Week

October 26 - October 30



About Task Groups Events Projects Partners

Welcome to the EU Polar Cluster -  
a collection of Arctic and Antarctic projects funded  
by the European Commission



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## From Local to Global: European leadership in Arctic and Antarctic Observation

### Increased coordination at all levels from Local to Global:

- Freely available information from Polar observing systems from the local to the global, allowing for open participation at all levels
- Increasing networking of national, regional and international Polar observing systems, networks and initiatives, allowing the identification of gaps and avoid duplications of effort
- Strengthened coordination of observation related activities leading to a unified European contribution to international Polar observing initiatives