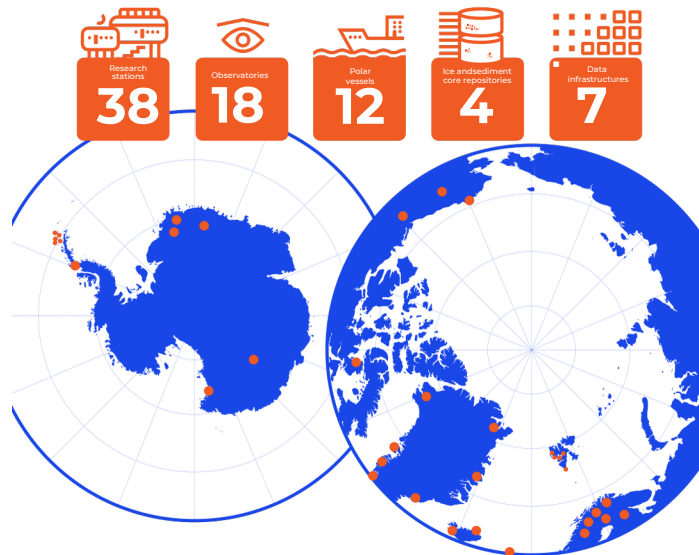




POLARIN GIS: A tool for finding the right polar research infrastructure for your science

The POLARIN GIS system is an interactive geospatial platform that enables researchers to explore polar research stations and vessels participating in the POLARIN Transnational Access (TA) Programme. By providing detailed information on available infrastructures, the platform helps users identify facilities best suited to their research objectives.

Anton Lindfors, Elmer Topp-Jørgensen,
3-5 minutes read

POLARIN HORIZON Europe project

The HORIZON Europe POLARIN project brings together a unique network of polar research infrastructures across the Arctic and Antarctic. These include research stations, vessels, icebreakers, observatories, and data services that support world-class science in some of the world's most remote and challenging environments.

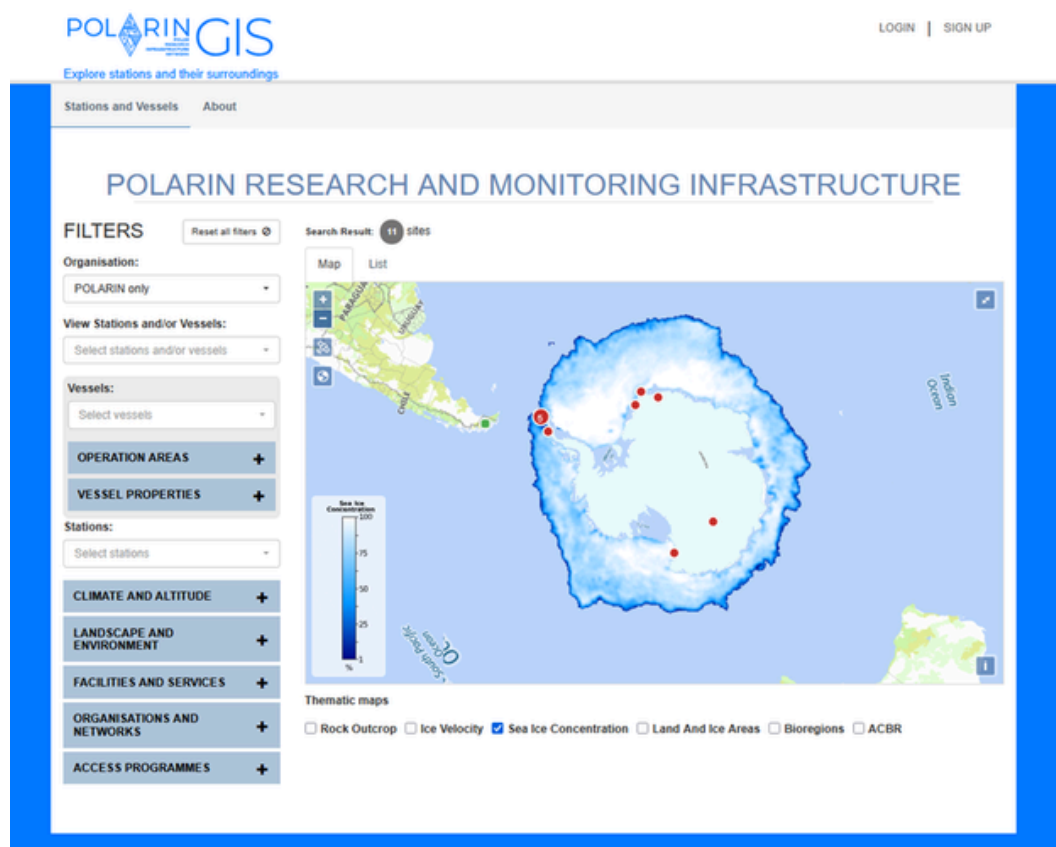
To facilitate access to this distributed infrastructure landscape, POLARIN has developed the **POLARIN GIS** system, a digital tool designed to support both infrastructure operators and researchers seeking access to facilities through the project's Transnational Access programme.



Discovering Polar research infrastructures through POLARIN GIS

Selecting the most appropriate research infrastructure is often one of the most challenging steps in planning a polar research project. Scientists must understand not only the available facilities but also their capabilities, locations, environmental settings, and logistical constraints.

The POLARIN GIS system addresses these challenges by providing a centralized, map-based platform where users can explore the full portfolio of POLARIN research infrastructures. Through intuitive search and filtering functions, scientists can quickly identify stations and vessels that best match their scientific objectives.



Researchers can see infrastructure locations, access thematic background maps and find detailed information about each infrastructure, including technical specifications, available facilities and operational capabilities.

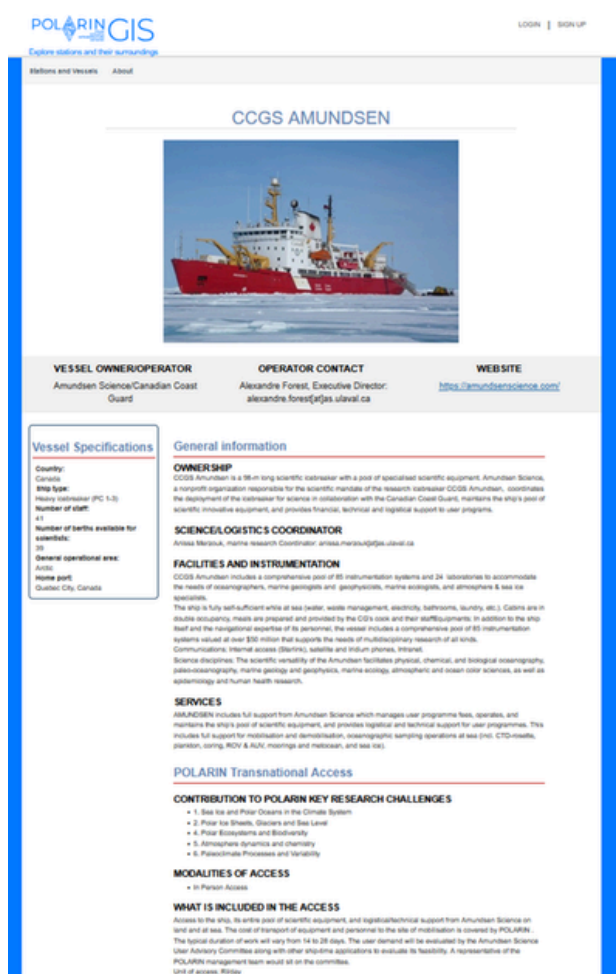
The system also provides contact points for infrastructure allowing scientists to reach out and discuss feasibility of a

proposed project before a Transnational Access application is submitted. Explore POLARIN GIS and find the infrastructure you need: www.polarin-gis.org

The system supplements the POLARIN Data Portal Hub ([Polarin Data Hub – Access to polar research data](#)) where scientists can explore data generated at POLARIN infrastructures.

Research stations

Research stations offer a platform for science and long-term monitoring in polar environments and often support multidisciplinary research providing essential insights into climate and ecosystem change and processes. POLARIN GIS provides a map-based view of the location of terrestrial infrastructures with information about facilities, local climate and surrounding environment that allow scientists to better understand the characteristics of the local research environment.



POLARIN GIS
Explore stations and their surroundings

Stations and Vessels About

CCGS AMUNDSEN



VESSEL OWNER/OPERATOR
Amundsen Science/Canadian Coast Guard

OPERATOR CONTACT
Alexandre Forest, Executive Director
alexandre.forest@scs.ulaval.ca

WEBSITE
<http://amundsen-science.com/>

Vessel Specifications

- Country: Canada
- Ship type: Heavy icebreaker (PC 1-3)
- Number of staff: 41
- Number of berths available for scientists: 30
- General operational area: Arctic
- Home port: Quebec City, Canada

General information

OWNERSHIP
CCGS Amundsen is a 18m long scientific icebreaker with a post of specialist scientific equipment. Amundsen Science, a nonprofit organization responsible for the scientific mandate of the research icebreaker CCGS Amundsen, coordinates the deployment of the icebreaker for science in collaboration with the Canadian Coast Guard, maintains the ship's post of scientific equipment, and provides financial, technical and logistical support to user programs.

SCIENCE/LOGISTICS COORDINATOR
Alexandre Forest, Marine research Coordinator: alexandre.forest@scs.ulaval.ca

FACILITIES AND INSTRUMENTATION
CCGS Amundsen includes a comprehensive post of 85 instrumentation systems and 24 laboratories to accommodate the needs of oceanographers, marine geologists and geophysicists, marine ecologists, and atmosphere & sea ice specialists. The ship is fully self-sufficient while at sea (water, waste management, electricity, bathroom, laundry, etc.). Cabins are in double occupancy, meals are prepared and provided by the CO's cook and their staff/caterers. In addition to the ship itself and the logistical expertise of its personnel, the vessel includes a comprehensive post of 85 instrumentation systems valued at over \$50 million that supports the needs of multidisciplinary research of all kinds. Communications, Internet access (Starlink), satellite and infrared phones, Internet. Science disciplines: The scientific versatility of the Amundsen facilitates physical, chemical, and biological oceanography, paleo-oceanography, marine geology and geophysics, marine ecology, atmospheric and ocean color sciences, as well as epidemiology and human health research.

SERVICES
AMUNDSEN includes full support from Amundsen Science which manages user programs fees, operates, and maintains the ship's post of scientific equipment, and provides logistical and technical support for user programs. This includes full support for mobilization and demobilization, oceanographic sampling operations of sea (net, CTD-rosette, plankton, coring, ROV & AUV, moorings and meteorological, and sea ice).

POLARIN Transnational Access

CONTRIBUTION TO POLARIN KEY RESEARCH CHALLENGES

- 1. Sea Ice and Polar Oceans in the Climate System
- 2. Polar Ice Sheets, Glaciers and Sea Level
- 3. Polar Ecosystems and Biodiversity
- 4. Polar Ecosystems and Biodiversity
- 5. Atmosphere dynamics and chemistry
- 6. Permafrost Processes and Variability

MODALITIES OF ACCESS

- In Person Access

WHAT IS INCLUDED IN THE ACCESS
Access to the ship, to entire post of scientific equipment, and logistical/technical support from Amundsen Science on land and at sea. The cost of transport of equipment and personnel to the site of mobilization is covered by POLARIN. The total duration of work will vary from 14 to 28 days. The user demand will be evaluated by the Amundsen Science User Advisory Committee along with other ship applications to evaluate its feasibility. A representative of the POLARIN management team would sit on the committee. The unit of access: 10 days.



POLARIN GIS
Explore stations and their surroundings

Stations and Vessels About

ZACKENBERG RESEARCH STATION



Apply for access

ADDRESS
Zackenberg Research Station
Department of Bioscience
Postboks 250
DK-6900 Roskilde
Denmark

STATION MANAGER
Morten Arntsen, Zackenberg Manager
m.arntsen@zackenberg.dk

CONTACT STATION
Phone: +45 71471021
zackenberg@zackenberg.dk
www.zackenberg.dk

STATION FEATURES
Opening year: 1988
Status: Open

OPERATION

LOCATION
Zackenberg Research Station is located in Young Sund - Tyndisfjord complex in Northeast Greenland. The station is situated in the southern part of the National Park of North and East Greenland, the largest national park in the world (approximately 1 million km²). The nearest settlement is the military outpost Godthåbsø with a marine research facility 25 km south of the station. The nearest town is Sisimiut, 430 km south of the station.

CLIMATE

LANDSCAPE AND ENVIRONMENT

STATION NAME AND OWNER
Zackenberg Research Station is owned by the Government of Greenland. Aarhus University (Denmark) is responsible for running the station.

LOCATION
Zackenberg Research Station is located in Young Sund - Tyndisfjord complex in Northeast Greenland. The station is situated in the southern part of the National Park of North and East Greenland, the largest national park in the world (approximately 1 million km²). The nearest settlement is the military outpost Godthåbsø with a marine research facility 25 km south of the station. The nearest town is Sisimiut, 430 km south of the station.

CLIMATE DATA
Only stations are 1980 Climate Normals including maximum and minimum values. Blue colours are individual years.

FACILITIES

HOUSING AND ACCOMMODATION

LOGISTICS

STAFF AND SERVICES

FIELD EQUIPMENT

LABORATORY

MEDICAL FACILITIES

COMMUNICATION AND IT

SCIENCE

SCIENTIFIC NETWORKS

PROJECTS

ACCESS PROGRAMMES

VESSELS

BIODIVERSITY AND NATURAL ENVIRONMENT
Zackenberg Research Station is situated in the high Arctic in an area with continuous permafrost. The study area comprises the drainage basin of the river Zackenberg, with a total area of c. 500 km². A great variety of tundra, bog ponds, heath, heath, wet heath and grasslands occur within the study area. Muskox, reindeer, Arctic fox, and Arctic hare are among the common mammals in the area, while polar bear and Arctic wolf are occasional visitors.

HISTORY AND FACILITIES

Vessels

Research vessels play a critical role in polar science, enabling observations and data collection in remote and often understudied marine environments. The POLARIN GIS system supports vessel-based infrastructure discovery by presenting planned operational routes and areas of activity where available. Combined with detailed vessel descriptions and capabilities, route visualization provides an important planning tool for scientists to help understand where vessels are expected to operate and assess their relevance for proposed scientific projects.

Supporting infrastructure operators

The POLARIN GIS system provides visibility for POLARIN infrastructure and allow operators to update and manage information about their facilities directly.

This ensures that descriptions, technical specifications, facilities, operational details, and geographic information remain accurate and up to date. As research infrastructures evolve and capabilities change, operators can efficiently maintain current information and supporting better-informed access applications.

Data governance and privacy by design

The POLARIN GIS system is supported by a comprehensive Data Management Plan that defines procedures for data stewardship, quality, accessibility, and long-term sustainability.

The platform is developed in accordance with European data protection principles and is aligned with the General Data Protection Regulation (GDPR). Appropriate measures are implemented to ensure responsible handling of information while maintaining transparency and usability for the research community.



Enabling better access to Polar infrastructure

The POLARIN GIS system simplifies the process of identifying and evaluating polar research infrastructures available through POLARIN Transnational Access.

By combining detailed infrastructure information, interactive geographic visualization, advanced filtering capabilities, and operator-managed updates within a single platform,

the system removes barriers that have traditionally made infrastructure discovery difficult.

In doing so, the POLARIN GIS system helps researchers find the most suitable facilities for their scientific objectives, supports efficient planning of field campaigns, and strengthens access to Europe's leading polar research infrastructures.



Anton Lindfors, System developer, ICT Services and System Development, Umeå University, Sweden



Elmer Topp-Jørgensen has an MSc in Biology and with extensive experience in international infrastructure and science cooperation. Employed by Aarhus University and INTERACT Non-Profit Association, he supports international initiatives that advance best practices in research infrastructure management, operations, and field-based science. He serves as a link between infrastructure organisations and international science initiatives like ICARP IV and IPY, and Arctic Council Working Groups like AMAP, CAFF and SAON/POAwg. Elmer also works for the Government of Greenlandic on issues related to biodiversity conservation and protected area development.

Authors:

Anton Lindfors, Umeå University

Elmer Topp-Jørgensen (Aarhus University and INTERACT Non-Profit Association)

Design and Editing: Maria Grigoratou (European Polar Board)