The research icebreaker CCGS Amundsen: Canada's most successful model for science at sea

AMUNDSEN SCIENCE

IRSO Meeting
Vancouver
24 September 2024

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NGCC • CCGS

AMUNDSEN

Fisheries and Oceans Canada | Pêches et Océans Canada

Canadian Coast Guard | Garde côtière canadienne

INNOVATION.CA

CANADA FOUNDATION FOR INNOVATION | FONDATION CANADIENNE POUR L'INNOVATION

- Built in1979 (*Sir John Franklin*), retrofitted for science in 2003 and rechristened *Amundsen*.
- Canada's only dedicated research icebreaker, with a unique mandate towards academic research.
- Scientific mandate managed by Amundsen Science hosted at Université Laval, Québec.

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UNIVERSITÉ LAVAL

Roald Amundsen (1872-1928)

Norwegian Polar Explorer

in celebration of 100 years of Arctic Exploration

Gjøa 1903 – CCGS *Amundsen* 2003

and a renewed Canadian vision for understanding the unique and spectacular environments of the Arctic, all in a spirit of international collaboration

The *Gjoa* at King Point after completing the Northwest Passage Expedition 1903-1906

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The CCGS *Amundsen* is one of the 19 National Research Facilities supported by the Major Science Initiatives Fund of the Canada Foundation for Innovation (CFI)

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"To deliver outstanding, world-class science!"

Partnership between universities and the Canadian Coast Guard

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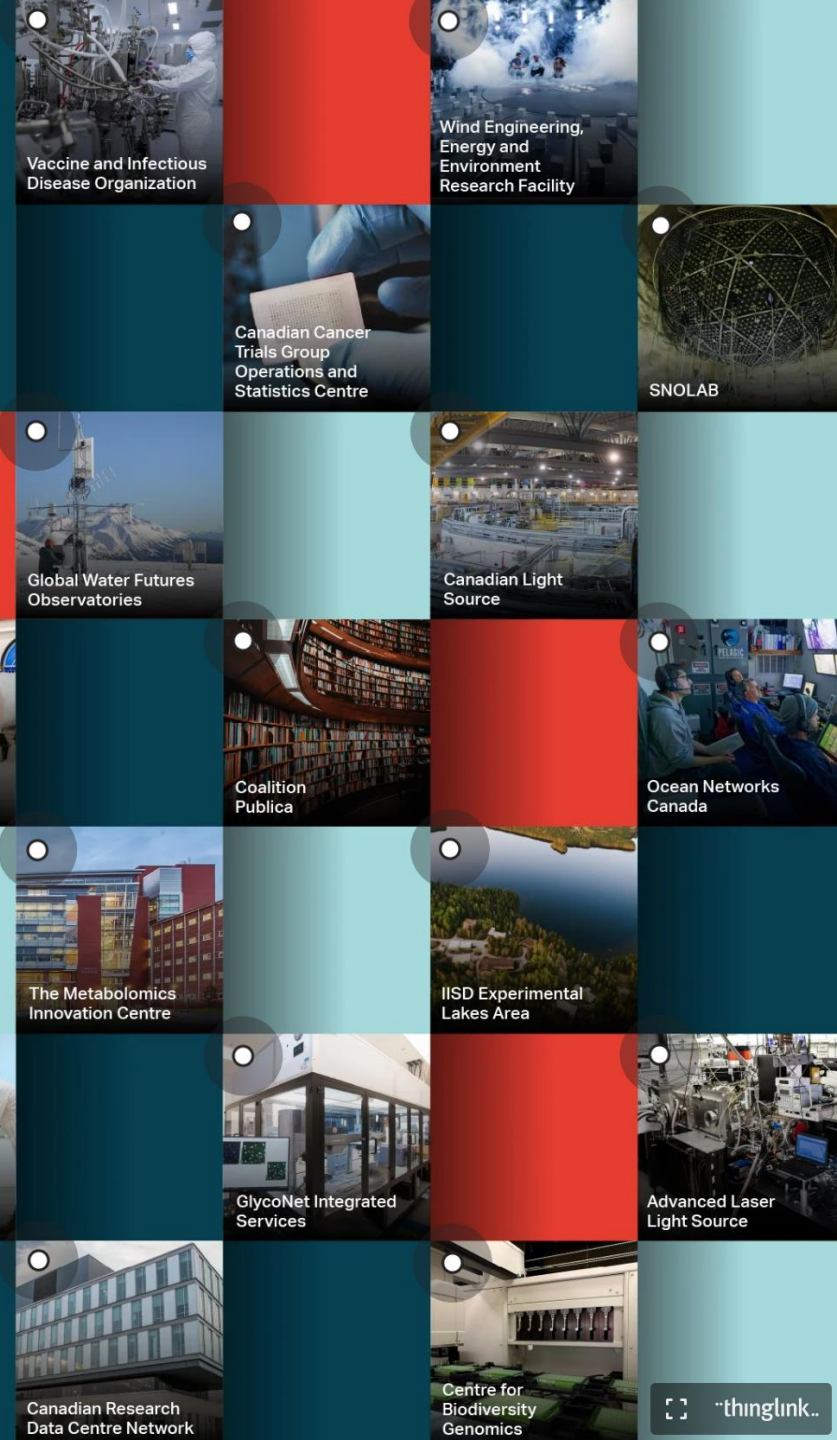
RESEARCH FACILITIES OF NATIONAL IMPORTANCE



Cost sharing agreement & dual management – key operational pillars

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Canadian Coast Guard
(Owner and operator)

Science Operations
Max 140 days (Jun-Oct)

Maintenance
112 days (was 72 before 2020)

Coast Guard Operations
113 days (Nov-May)

O&M Costs
(CFI-MSI funding & research programs)

Pro-rated

Government of Canada

Full cost recovery ($10M/yr)

- **Various user programs and collaborations**
- **Numerous and complex funding sources**

Examples:

- **Not-for-profit represents the consortium of users**
- **Review of ship-time applications**
- **Foster synergy among user programs**
- **Develop the science schedule**
- **Manage scientific equipment**
- **Provide technical and logistical support**

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- **Planning and implementation of the scientific expedition**
- **Liaise with Amundsen Science for any emerging issue**
- **Operate the vessel**

Single point of contact

Our comittment to Equity, Diversity and Inclusion

Amundsen Science is committed to develop and adopt comprehensive EDI practices. Some actions taken recently to broaden the scope of our user's community and help people feel safe on board:

- Form a **committee** to identify strategies to improve EDI practices;
- Adopt an Equity, Diversity and Inclusion **Action Plan**;
- Create a **Code of Conduct** for Expedition Participants.
- Identify **safe contact persons** onboard and onshore.
- Facilitating **Inuit participation** and supporting **Indigenous-led** research

Strengthening user engagement and diversifying our user community will contribute to the sustainability and growth of the facility.

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AMUNDSEN SCIENCE — Governance & Management Structure

Marlon Lewis, Emeritus Professor
Dalhousie University, Board of Directors' Chair

Marcel Babin, Professor
Université Laval/Amundsen Science, Scientific Leader

Anissa Merzouk,
Amundsen Science
Marine Research
Coordinator

Alexandre Forest
Amundsen Science
Executive Director

https://amundsenscience.com/

Amundsen Science Members

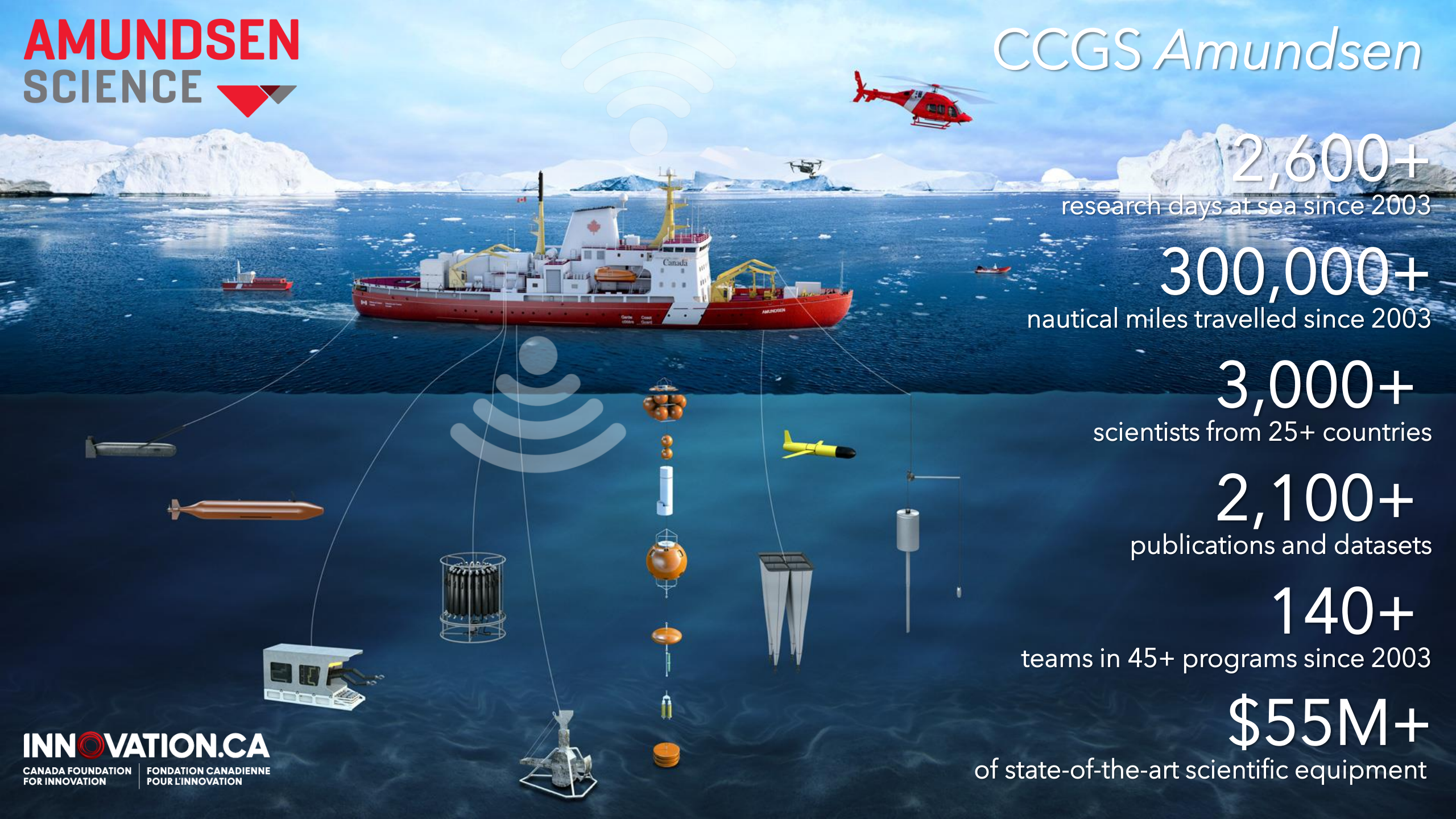
Université Laval
University of Manitoba
Memorial University of Newfoundland
University of British Colombia
University of Calgary
Carleton University
McGill University
Université du Québec à Rimouski
University of Toronto
University of Victoria
Dalhousie University
University of Ottawa
Nunavut Arctic College
Aurora College

Governance

Budget & Finance Commitee
Risk Review Committee
Governance & Nominating Committee
Board of Directors
Scientific Leader and CEO
User Advisory Committee
Infrastructure Development Committee
Equity, Diversity & Inclusion Committee

Management

Chief Finance Officer
Executive Director & COO
Marine Research Coordinator
Ship Equipment Manager
Communications Manager
Accounting & Human Ressources
Technical Services & Operations
Data Management & Cybersecurity
Communications & Public Relations
Administration & Logistics


AMUNDSEN
SCIENCE
CCGS Amundsen
2,600+
research days at sea since 2003
300,000+
nautical miles travelled since 2003
3,000+
scientists from 25+ countries
2,100+
publications and datasets
140+
teams in 45+ programs since 2003
$55M+
of state-of-the-art scientific equipment
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Our scientific equipment pool

CCGS *Amundsen*

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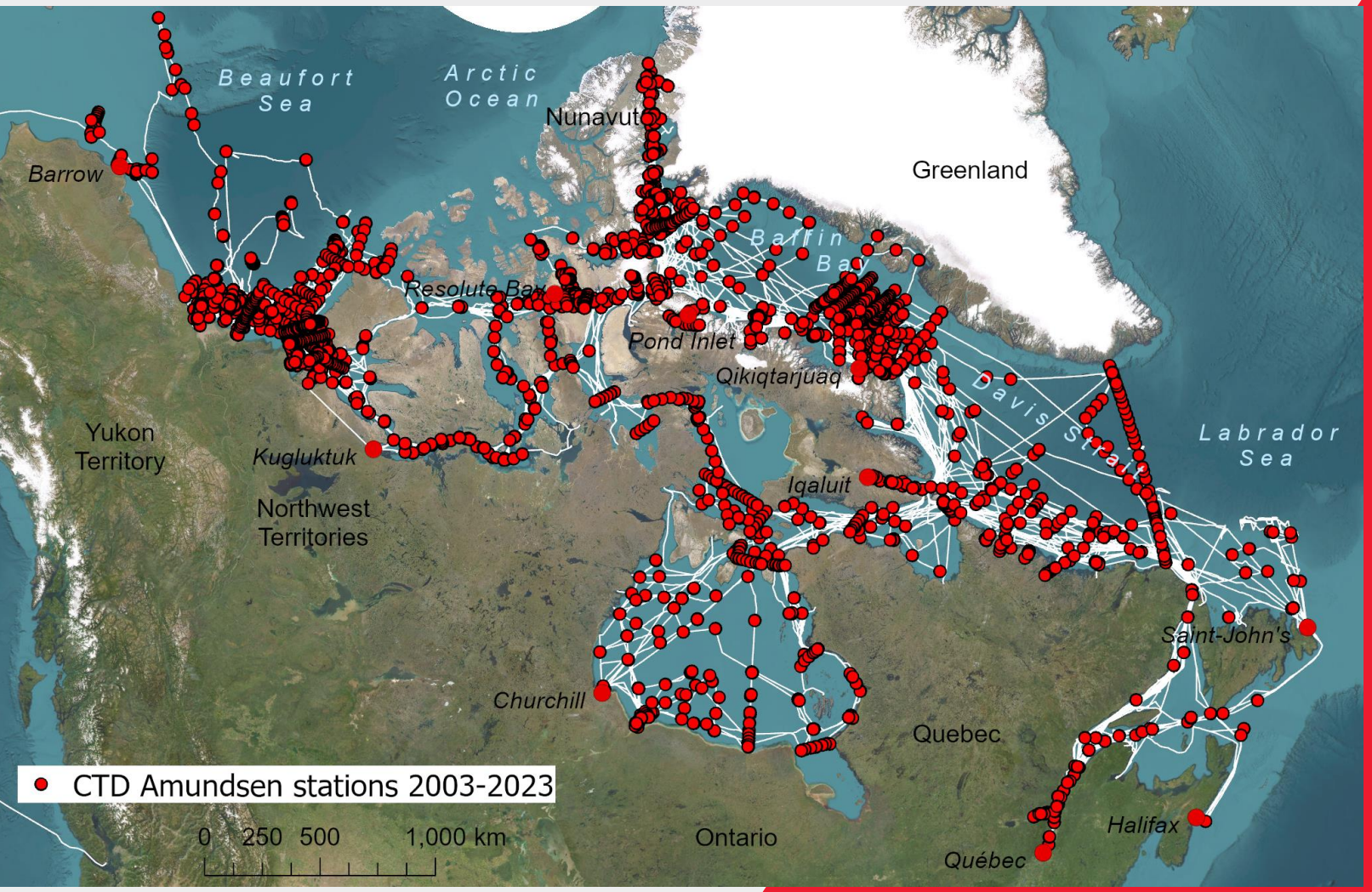
20+ years of cutting-edge science



2024 *Amundsen* Expedition

Expedition Plan Overview

5 Legs
14 June to 30 October

4 science Legs for 112 days at sea

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Ship-Time Application
https://amundsenscience.com/

Transforming climate action
An ocean-first approach

REFUGE ARCTIC

Arctic CORE

KEBAABB

Sentinelle Nord

Imappivut Marine Plan

The research programs supported in 2024 have a strong focus on the High Arctic and will study marine ecosystems through multidisciplinary research activities and integrated studies.

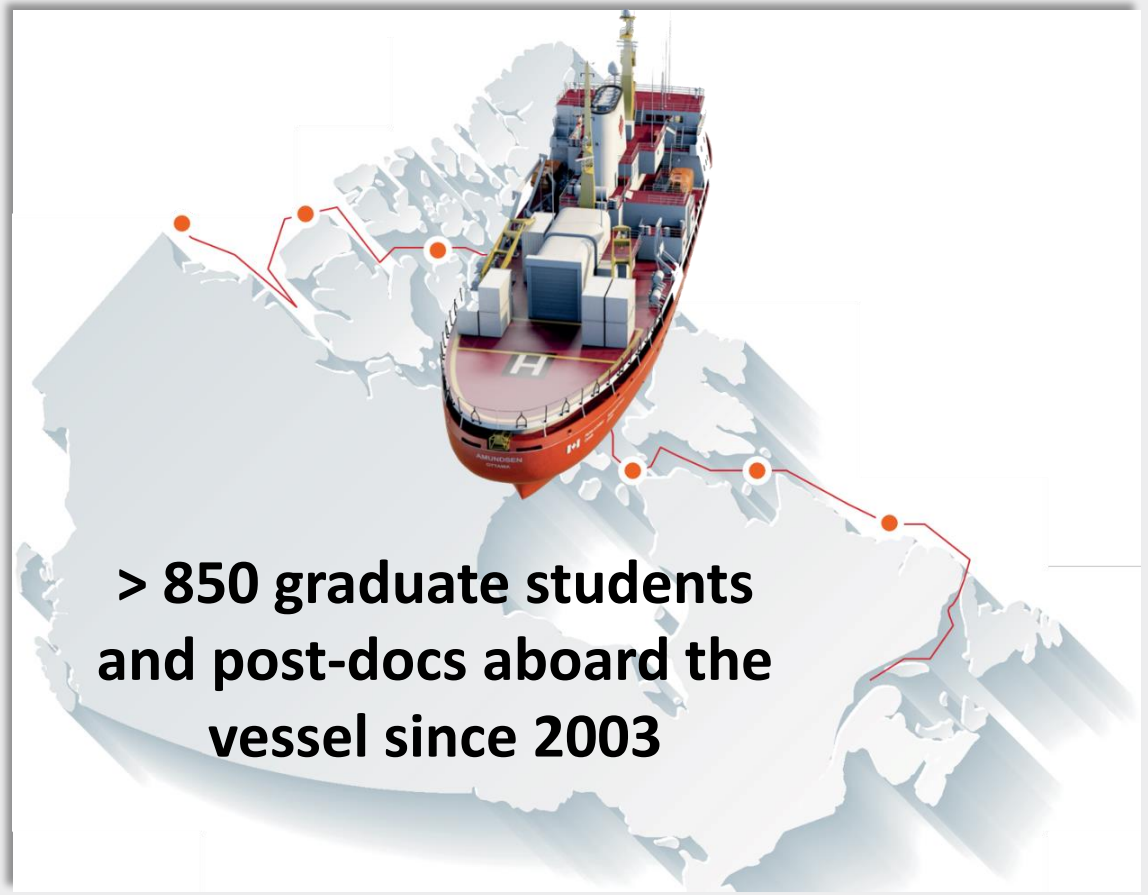
Quebec City
14 June & 30 October

National recognition

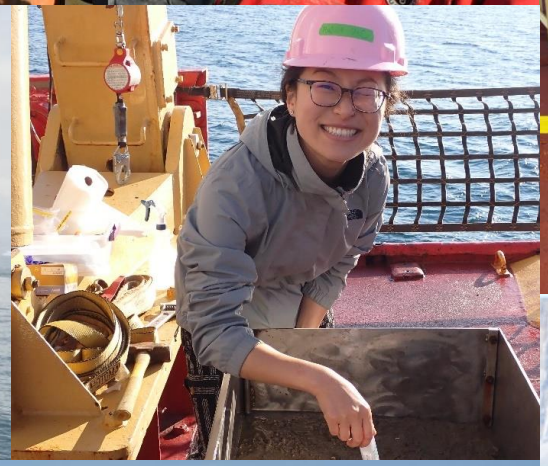
In 20+ years of operations, the CCGS *Amundsen* has become the most capable, well-equipped, accessible, and widely used oceanographic research vessel in Canada

A key achievement of the Amundsen was to provide unprecedented access to the Arctic to Canadian Universities for the training of students and post-docs

Université Laval
McGill University
Memorial University
UBC
Dalhousie University
University of Manitoba
Trent University
UQAR Université du Québec à Rimouski
University of Toronto
University of Victoria
York University
McGill University
University of Saskatchewan
UNB University of New Brunswick
MacEwan University
University of Alberta
Carleton University
University of Calgary
University of Windsor
UQÀM
UQAC Université du Québec à Chicoutimi
Mount Allison University
Concordia University
INRS Université de recherche
uOttawa
Western
Université de Montréal
Université de Sherbrooke

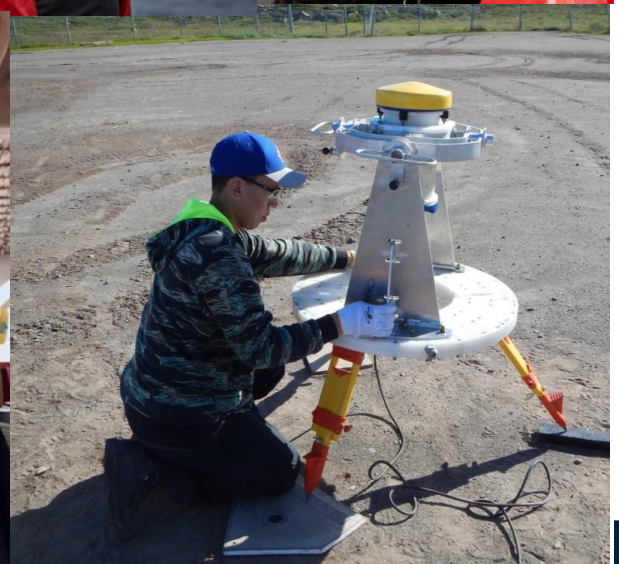


Training the next generation



Doing more for the North by the North

- **Supporting research programs led by Inuit**
- **Onboard training & community engagement**



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Got an idea or question for northern research? Let's chat!

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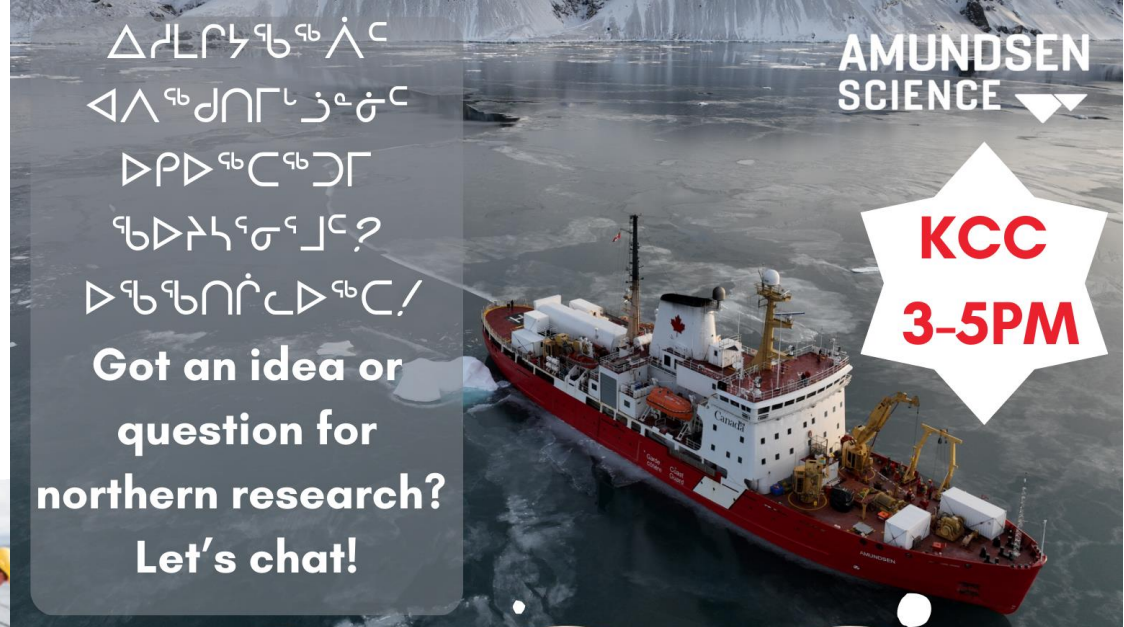
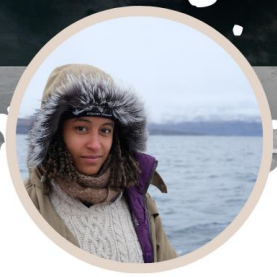
KCC 3-5PM





TYPES OF RESEARCH

- sea ice/ ↄᐸᖅ
- marine animals/ ᐃᒪᖏᐅᑕᐃᑦ ᓂᕐᔪᑎᑦ
- climate change/ ᓱᓕᐅᐸ ᐊᓯᔨᖅᐸᕐᓗᐊᓂᖏᑲ
- water quality/ ᐃᒥᐅᐸ ᐱᐅᓂᖏᑲ

OR CHAT ANY TIME

@AMUNDSENSCIENCE

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CELL: 514-772-6727
WWW.AMUNDSENSCIENCE.COM

TUEDAY, SEPTEMBER 24

My name is Myrah Graham, I am from Quebec and I work for Amundsen Science. We are a company that operates a large research vessel to study the Arctic Ocean. What science do you think should happen here?

ↄᑎ, ᓱᑎᐱᓗ 24

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The Future

Several countries are building (or renewing) state-of-the-art research icebreakers

RRS Sir David Attenborough
UK

RV Sikuliaq
USA

Kronprins Haakon
Norway

Japan's Research Icebreaker

RSV Nuyina
Australia

Xue Long II
China

Polarstern II
Germany

Polar icebreakers (2) (2030+)

- Length – 150 m
- *Ice Class – PC2*
- Range - 30,000 nm
- Max Speed – 18+ knots
- Accommodates 100
- **To increase Arctic presence year-round**
- **Enhanced science capacity, but still multi-purpose platform**

Program icebreakers (6) (2033 to 2042)

- Length – 100 - 110 m
- *Ice Class – PC3/4*
- Range – 20,000 nm
- Max speed – 16+ Knts
- Accommodates 75 - 80
- **To provide icebreaking services to the shipping industry**
- **Modular, with almost no science capacity**

- None of these vessels have been officially announced as the successor to the *Amundsen*
- The Canadian Coast Guard's vision is to not have anymore any dedicated research icebreaker, solely manage the access, and to disseminate science missions on multiple vessels
- The successful "*Amundsen Science Model*" may simply disappear, representing a large setback for universities and their partners…

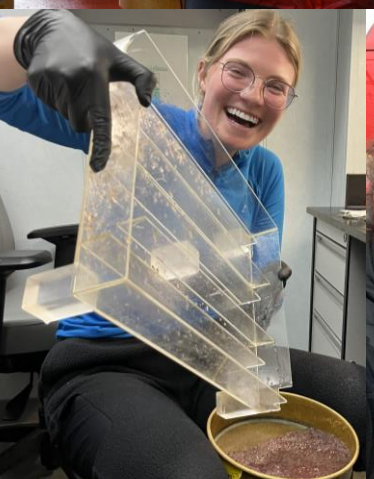



CFS ALERT



UNB

Thank you!
info@as.ulaval.ca



Garde Coast
côtière Guard


EXIT