

ARICE

Arctic Research Icebreaker Consortium

23rd ERVO Annual Meeting, 2021



Verónica Willmott, AWI

www.arice.eu



Grant agreement No 730965



Type of Action: RIA Research and Innovation action

Topic : Integrating Activities for Starting Communities

Start date: 01.01.2018 End date: 31.12.2022

Budget ~6M€

Project Coordinator:



Project Partners:



www.arice.eu



ARICE project – Mission



To provide Europe with better capacities for marine-based research in the ice-covered Arctic Ocean by:

- ✓ better coordinating the existing polar research fleet,
- ✓ offering transnational access to a set of international High Arctic research icebreakers,
- ✓ collaborating with maritime industry in a “programme of ships and platforms of opportunity”.

Networking activities

1

Harmonisation of the European Arctic research fleet

2

Develop an International Arctic Research Icebreaker Consortium

3

Establish a regular dialogue with the maritime industry

4

Educate a new generation of polar researchers and professionals

5

Provide access to European and international research icebreakers in the Arctic Ocean

6

Expand the monitoring and observation capacities in the Arctic Ocean (SOP programme)

7

Enhance virtual and remote access to data

Transnational Access

Joint Research Activities

Strategic policies for research infrastructures and international cooperation



“The EU should promote and facilitate **effective international scientific cooperation through supporting transnational access to research infrastructure** and open data resources to improve political and economic links and maintain good relations with key countries in the region”.



“Horizon Europe will endow Europe with world-class sustainable **research infrastructures which are open and accessible to the best researchers from Europe and beyond**”.



“Near-term:

- Encourage multinational participation in field station and ship-based research such as the Forum of Arctic Research Operators (FARO), Pacific Arctic Group (PAG), Svalbard Integrated Arctic Earth Observing System (SIOS), International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT) and **Arctic Research Icebreaker Consortium (ARICE)**”.





**All-Atlantic
2021** Connecting,
Acting,
Cooperating
2-4 June
Porto Delgado, Azores, Portugal

**All-Atlantic R&I
for a Sustainable Ocean**
Ministerial High-Level
& Stakeholders Conference
Under the Portuguese Presidency of the
Council of the European Union

  **2021PORTUGAL.EU** | European Commission

#AllAtlantic2021 #EU2021PT #AtlanticAll

All-Atlantic R&I for a Sustainable Ocean: Ministerial High-level & Stakeholders Conference.
With a focus on strengthening cooperation.

Side event:

Networking from Pole to Pole: Facilitating Access for Research and Infrastructure”

Towards an Arctic Research Icebreaker Consortium



Lead partner: SPRS

Overall objectives



The harmonisation of the European Arctic Research fleet

Improve the coordination of the available heavy icebreakers, the ice-strengthened RVs and the ice-classified RVs across Europe.



The development of an International Research Icebreaker Consortium

Multi-national collaboration on the planning and implementation of Arctic research cruises with heavy icebreakers.

An International Consortium able to fund and implement cruises in the High Arctic.



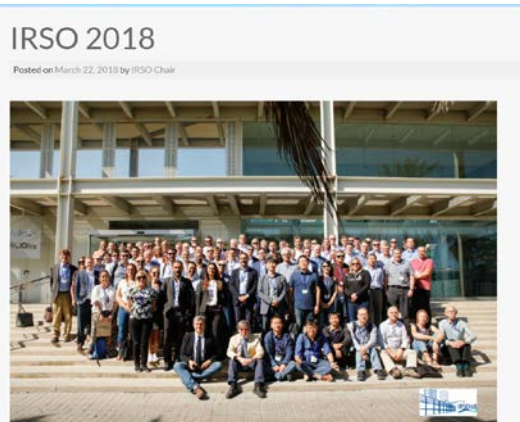
Towards an Arctic Research Icebreaker Consortium



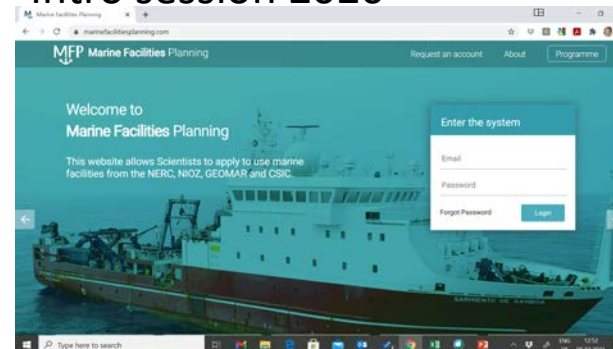
Key outcomes to date

Lead partner: SPRS

1. **Obstacles and possibilities** for transnational access to PRVs (D1.2.)
2. **Identification** of beneficiaries of a better coordinated European PRV fleet (D1.3.)
3. **Report on European research priorities** in the Arctic Ocean and how the coordination of PRVs would contribute to fulfilling them (D1.4.)
4. **Report on present and future investments** in Arctic icebreaker capacity for research (D1.5)
5. **Report on modalities of ship-time collaborations** and exchanges (D1.6)



Marine Facilities Planning Intro session 2020



ASSW 2021



Towards an Arctic Research Icebreaker Consortium



Multi-national collaboration on the planning and implementation of Arctic research cruises with heavy icebreakers

Lead partner: SPRS

A European Consortium able to fund and implement cruises in the High Arctic



• MoU or similar among nations

• Barter system

• National contributions through a similar IODP quota system (*in cash* or *in kind* contributions)

• ESFRI



Transnational Access in the High Arctic

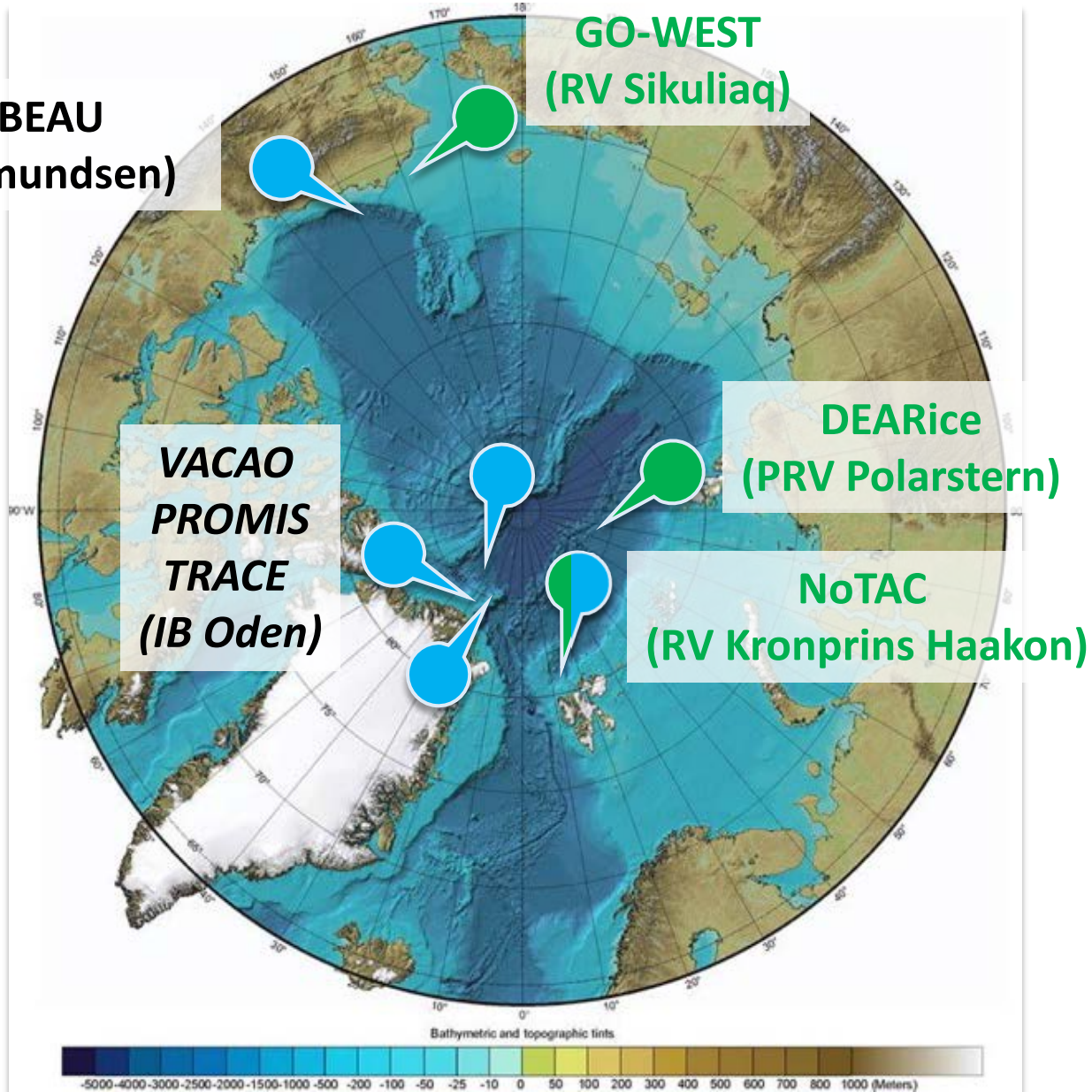
PECABEAU
(CCGS Amundsen)

GO-WEST
(RV Sikuliaq)

ARICE
Transnational Access

 Implemented

 Planned in 2021



Implemented proposals

RV Sikuliaq, USA GO-WEST

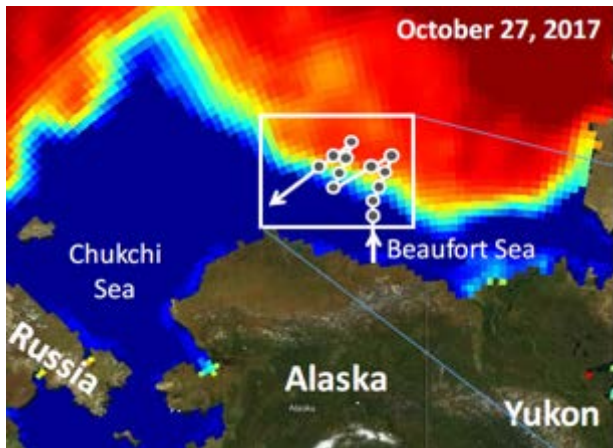
Sea-ice association of polar cod and its prey in the western Arctic Ocean

PI: Dr. Hauke Flores

Alfred Wegener Institut, DE

10 participants/7 working days

Nov 2019



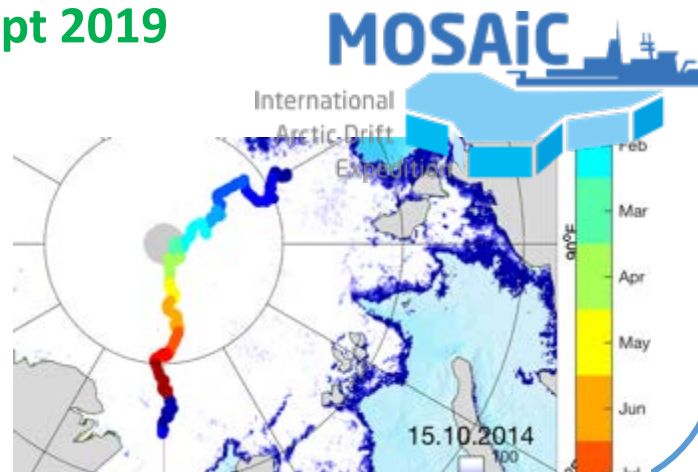
MOSAiC-PRV Polarstern, DE DEARice

Development of snow/ice/
Ecosystem models using winter-
to-summer ARctic observations of
coupled snow, ice, and ecosystem
processes

PI: Dr. Martin Schneebeli, WSL
Institute, CH

5 participants in 4 MOSAic legs

Sept 2019



RV Kronprins Haakon, NO NoTAC

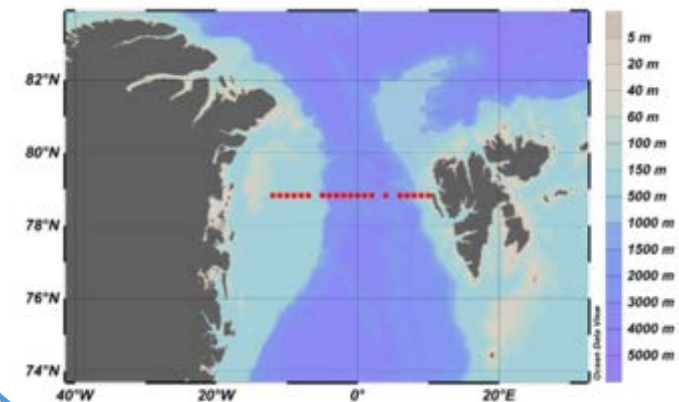
“Novel Tracers of Arctic Carbon
and water exchange in the Fram
Strait “ *Season 1*

Accomplished as remote access

PI: Rafael Gonçalves-Araujo

DTU, Denmark

**7 days in two seasons (2020-
2021) (3,5 days and 5 berths per
year)**



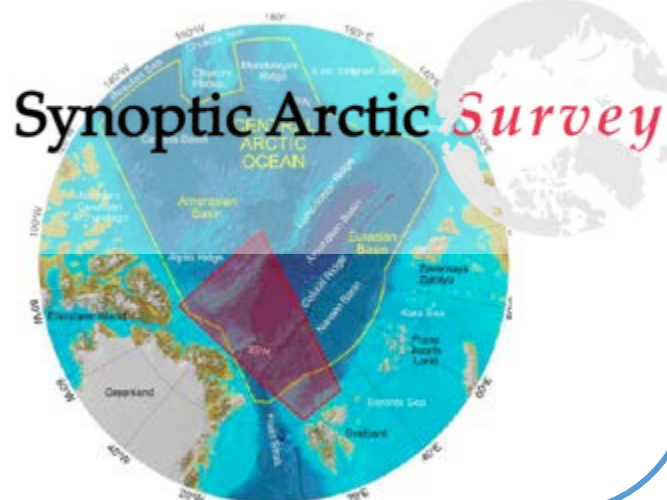
Proposals selected for funding – Implementation confirmed



IB Oden, SE **VACAO**

Ventilation and Anthropogenic Carbon in the Arctic Ocean- Supporting measurements of noble gases and ^{39}Ar in the Central Arctic Ocean

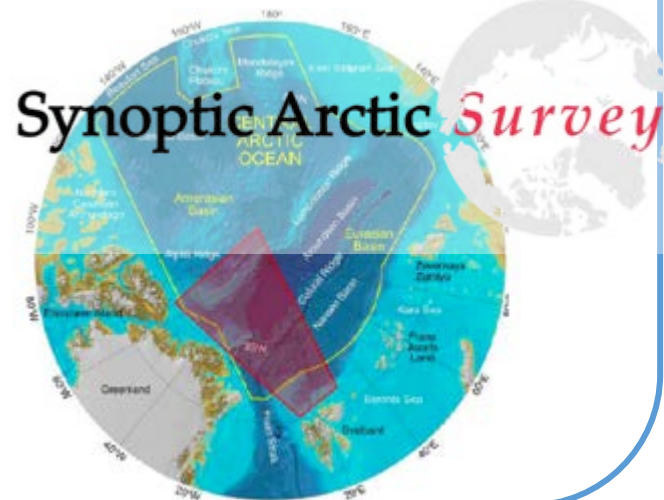
PI: Dr. Tim Stöven, Early Career Scientist, GEOMAR, DE
2 berths in 2021



IB Oden, SE **TRACE**

TRace gAses (N_2O , CO) Cycling in the Arctic marine Ecosystem

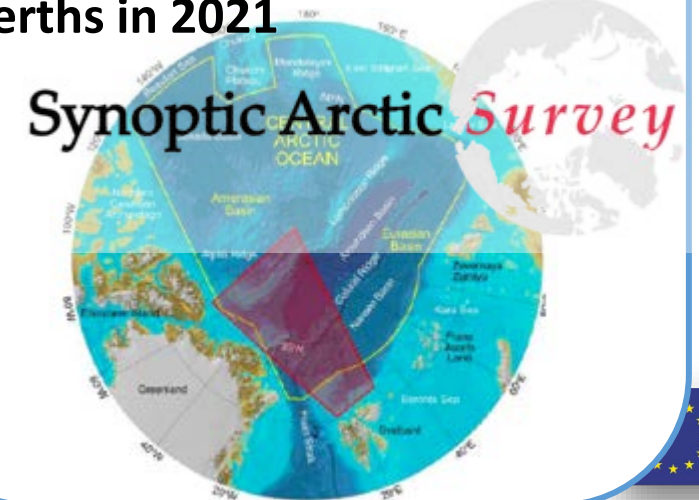
PI: Damian L. Arévalo-Martínez, Early Career Scientist, GEOMAR, DE
2 berths in 2021



IB Oden, SE **PROMIS**

Production and export of phytoplankton-derived organic matter in the changing Arctic Ocean – Role of parasites, saprotrophs and mineral ballasting

PI: Birthe Zaenker, Early Career Scientist, The Marine Biological Association of the UK, UK
2 berths in 2021



Cruises selected for funding – Implementation confirmed

CCGS Amundsen, CA

PECABEAU

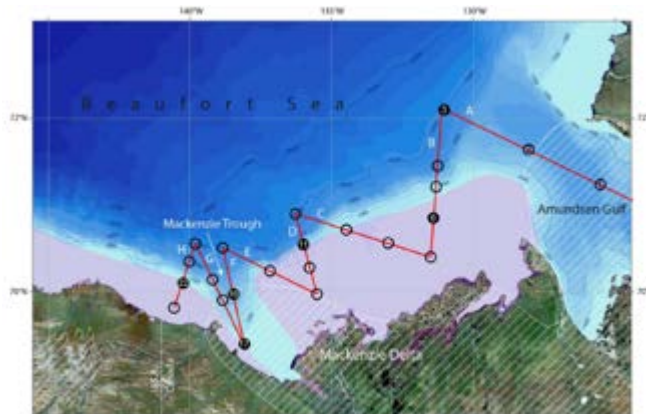
How coastal erosion, fluvial export and submarine permafrost degradation impact the carbon budget on the Canadian Beaufort Shelf

PI: Dr. Jorien Vonk

Vrije Universiteit Amsterdam, **NL**

10 participants/7 working days

2021



In evaluation

Educating a new generation of polar researchers and professionals



Key outcomes to date

1. In person/on-site training courses



MOSAiC School - 20 international M.Sc./PhD students selected from ~250 applications

6-week training on board of of RV Akademik Fedorov during 1st leg of MOSAIC expedition (+multiple training material, videos, ...)



2. Online Training & resources for multiple audiences

Webinars:

- Pre-cruise preparation
- Ship-time proposal writing
- Webinar data management
- GO-West expedition
- Opportunities for educators
- Soft skills (manuscript preparation)

ARICE Online Technical training

-March/April 2021



- How to Build a Deep Sea Robot
- Polar Marine Robotics
- Mooring Operations in Polar Waters
- Atmospheric Measurements Aboard Research Ships: Needs, Opportunities and Challenges
- Technical Science Support at the British Antarctic Survey





**Making the Arctic
 accessible for
 excellent science**



Thank you for your attention!

