

# ARICE

## Latest activities and achievements

24<sup>th</sup> ERVO (Bucharest, 2022)



[www.arice-h2020.eu](http://www.arice-h2020.eu)



Verónica Willmott and Nicole Biebow  
AWI



Grant agreement No 730965



Project Coordinator:



Type of Action: RIA Research and Innovation action

Topic : Integrating Activities for Starting Communities

Start date: 01.01.2018      End date: 31.12.2021

Budget ~6M€

EU Partners:



POLARFORSKNINGS SEKRETARIATET  
SWEDISH POLAR RESEARCH SECRETARIAT



British Antarctic Survey  
NATURAL ENVIRONMENT RESEARCH COUNCIL



[www.arice-h2020.eu](http://www.arice-h2020.eu)

Non-EU Partners:





# 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)

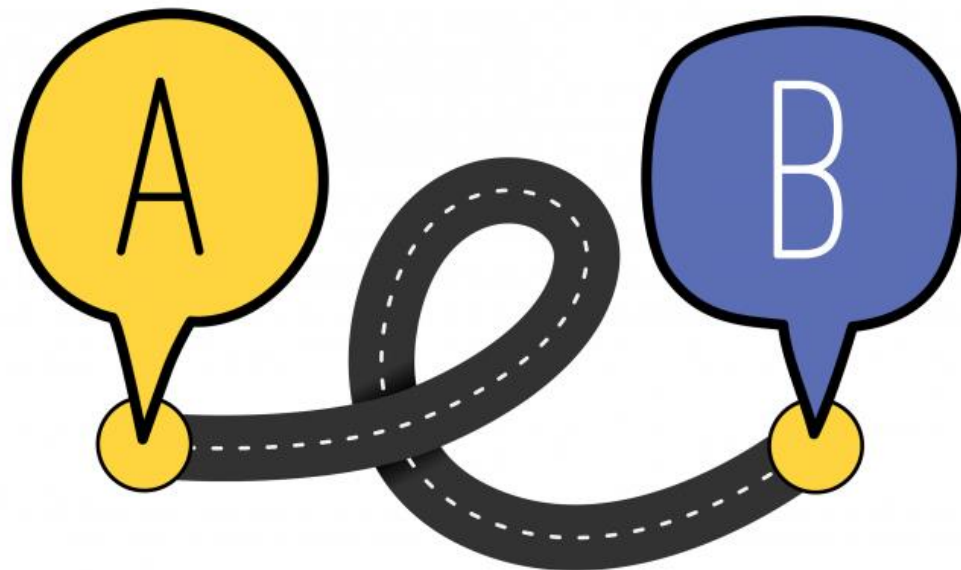
7

Enhance virtual and remote access to data

## Transnational Access

## Joint Research Activities

# Transnational Access: Achievements to date





# ARICE Icebreakers



European  
icebreakers

PRV Polarstern, DE



RV Kronprins Haakon, NO



IB Oden, SE



Non-European  
icebreakers

RV Sikuliaq, USA



CCGS Amundsen, CA



Industry  
icebreaker

MSV Fennica, FI



# Transnational Access in the High Arctic

**PECABEAU**  
(CCGS Amundsen)

**GO-WEST**  
(RV Sikuliaq)


**DEARice**  
(PRV Polarstern)

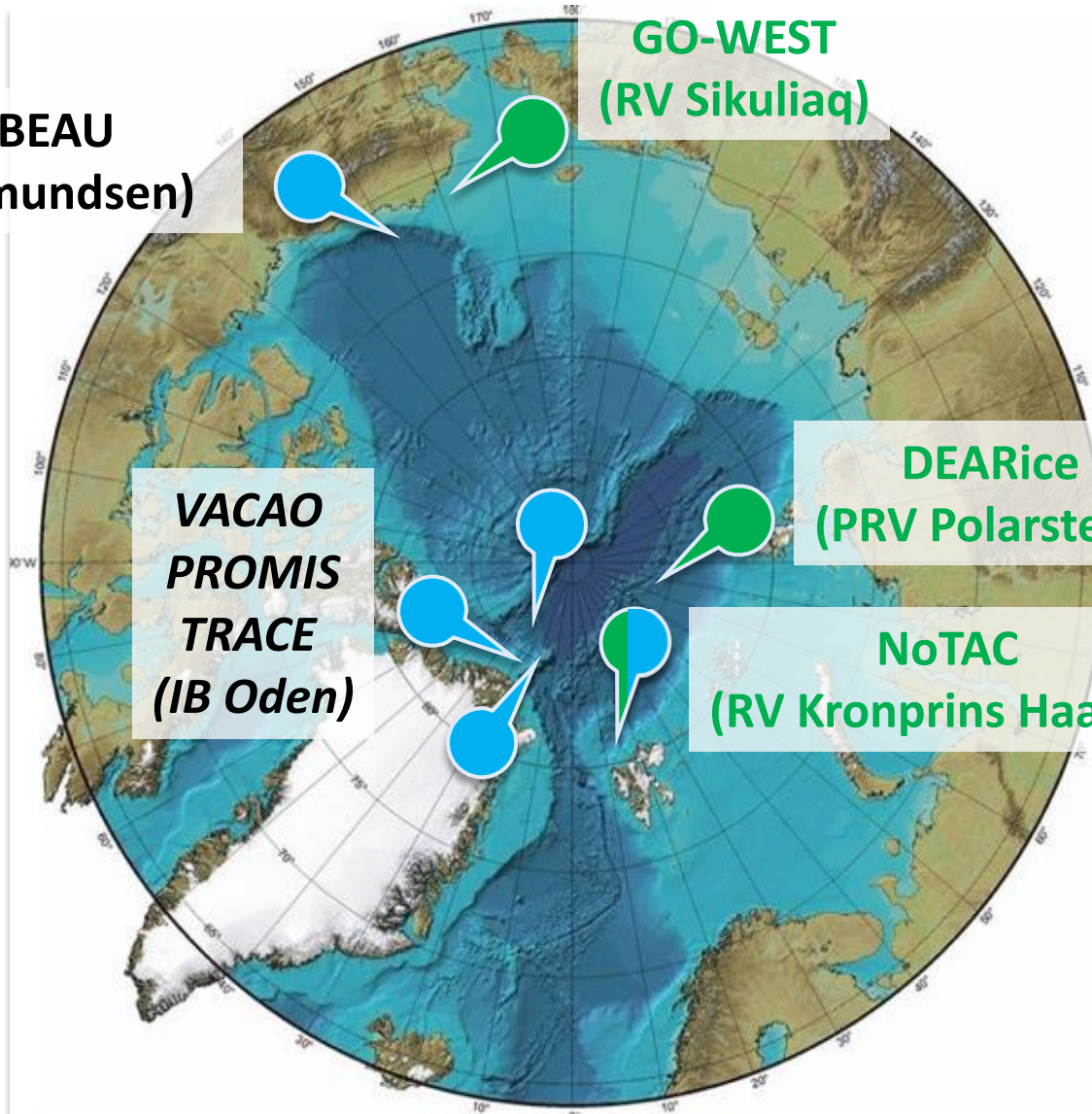
**NoTAC**  
(RV Kronprins Haakon)

**VACAO**  
**PROMIS**  
**TRACE**  
(IB Oden)

ARICE  
Transnational Access

 Implemented in  
2019-2020

 Implemented in  
2021





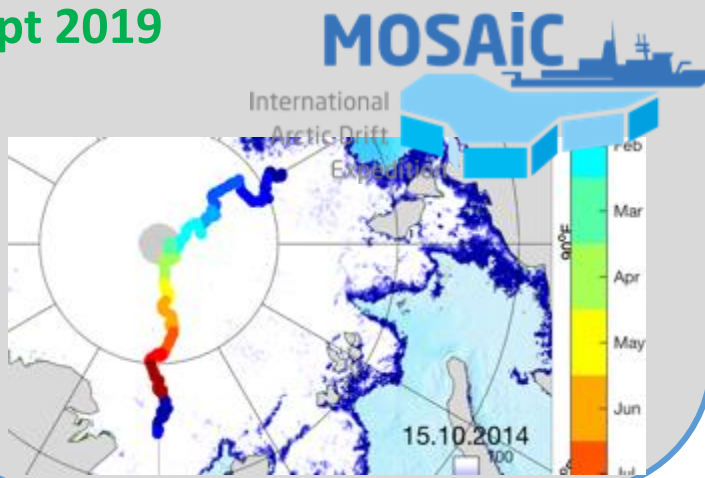
# Accomplished cruises



## MOSAiC-PRV Polarstern, DE DEARice

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

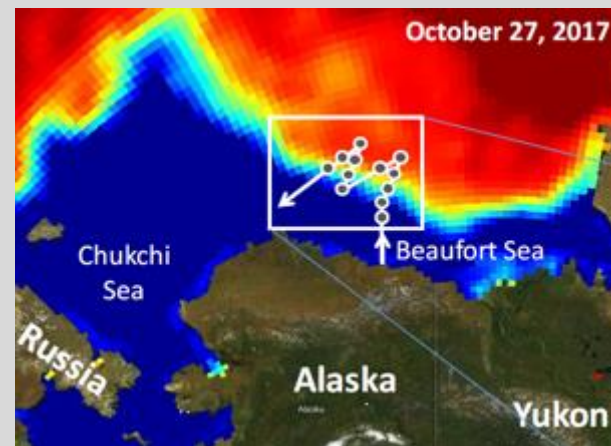
**PI: Dr. Martin Schneebeli**, WSL  
Institute, CH  
**5 participants in 4 MOSAIC legs**  
**Sept 2019**



## RV Sikuliaq, USA GO-WEST

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

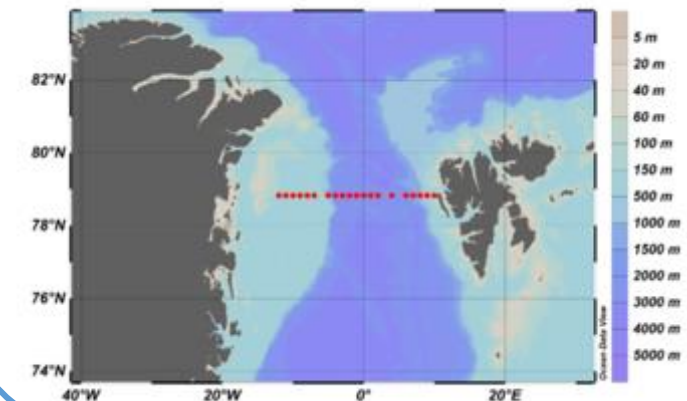
**PI: Dr. Hauke Flores**  
Alfred Wegener Institut, DE  
**10 participants/7 working days**  
**Nov 2019**



## RV Kronprins Haakon, NO NoTAC

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

**PI: Rafael Gonçalves-Araujo**  
DTU, Denmark  
**7 days in two seasons (2020-  
2021) (3,5 days and 5 berths per  
year) 2020 as remote access**  
**2021 in person**





# Accomplished cruises

CCGS Amundsen, CA

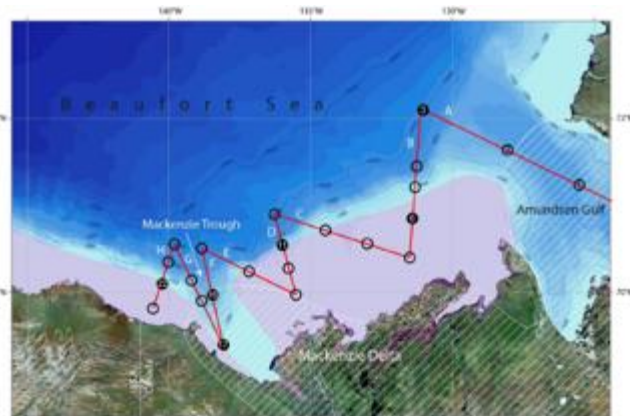
## PECABEAU

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



*Mob- Early June 2021*

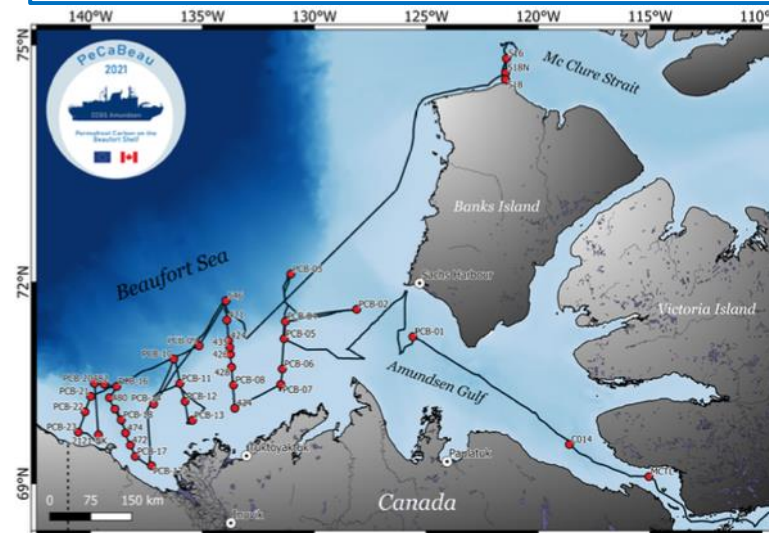
*Leg 4*

*Departure – Resolute Bay 9SEP*

*Arrival – Cambridge Bay 7OCT*

*28 days at sea*

*9 at sea + 2 remote participants*

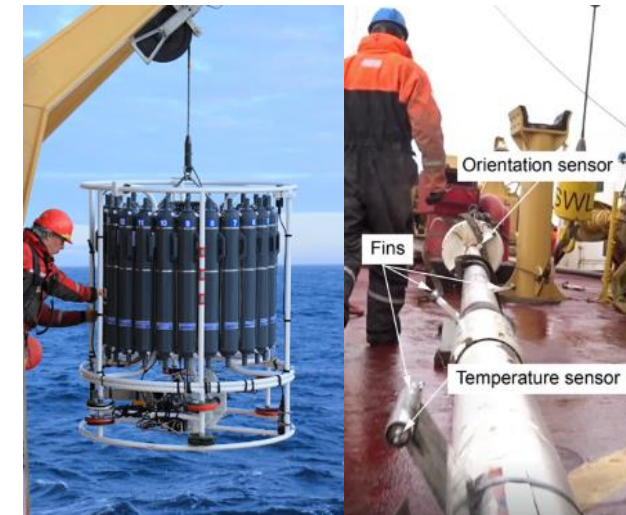


*Acoustics*

*CTD + water sampling*

*Radiometer*

*Coring – multicorer, gravity+temperature*



# Accomplished cruises



## IB Oden, SE

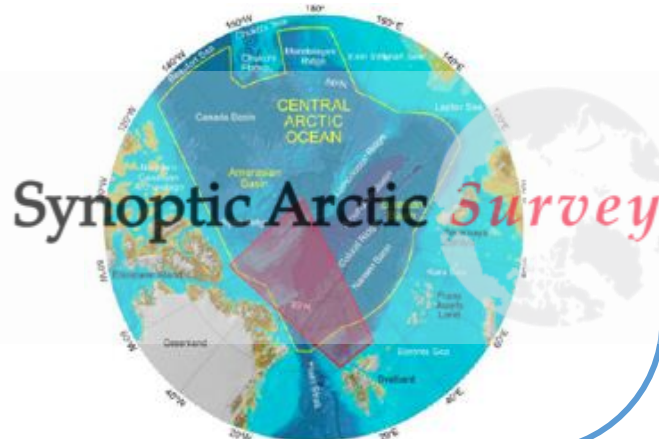
### VACAO

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

**PI: Dr. Tim Stöven**, Early Career Scientist, GEOMAR, DE

**2 berths**

**1 day (6 CTD)**



## IB Oden, SE

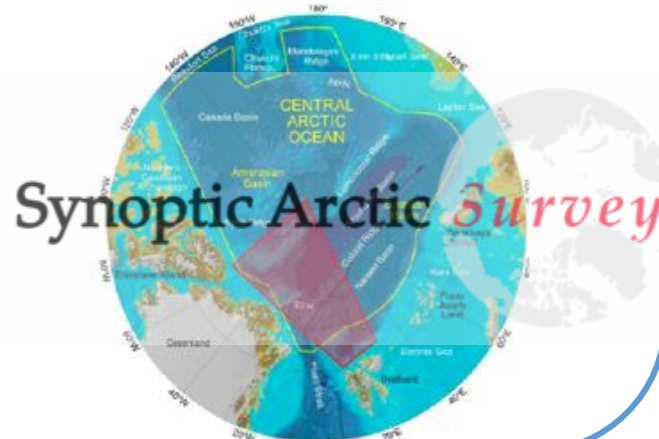
### TRACE

*TRace gAses ( $\text{N}_2\text{O}$ ,  $\text{CO}$ ) Cycling in the Arctic marine Ecosystem*

**PI: Damian L. Arévalo-Martínez**, Early Career Scientist, GEOMAR, DE

**2 berths in 2021**

**1 day**



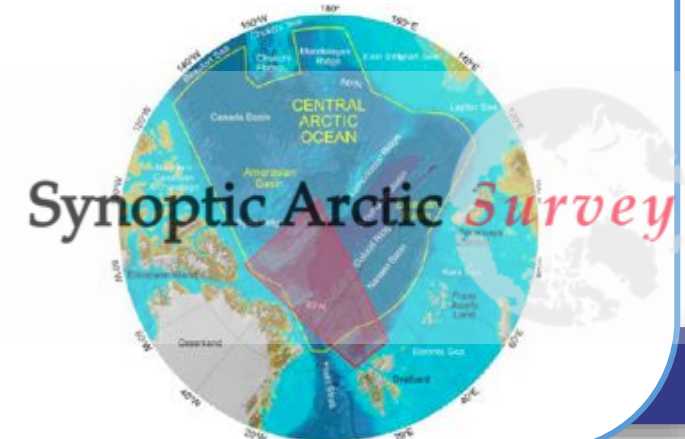
## IB Oden, SE

### 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**



# Joint Research Activities: Achievements to date





## Objective 6: Expanding the monitoring and observation capacities in the Arctic Ocean



Use the increase in marine traffic in the Arctic to:

- 1) implement a **“programme of ships and platforms of opportunity”** in the Arctic Ocean and
- 2) to **identify key technologies** that could lead to an improvement of ship-based and autonomous measurements in ice-covered seas.



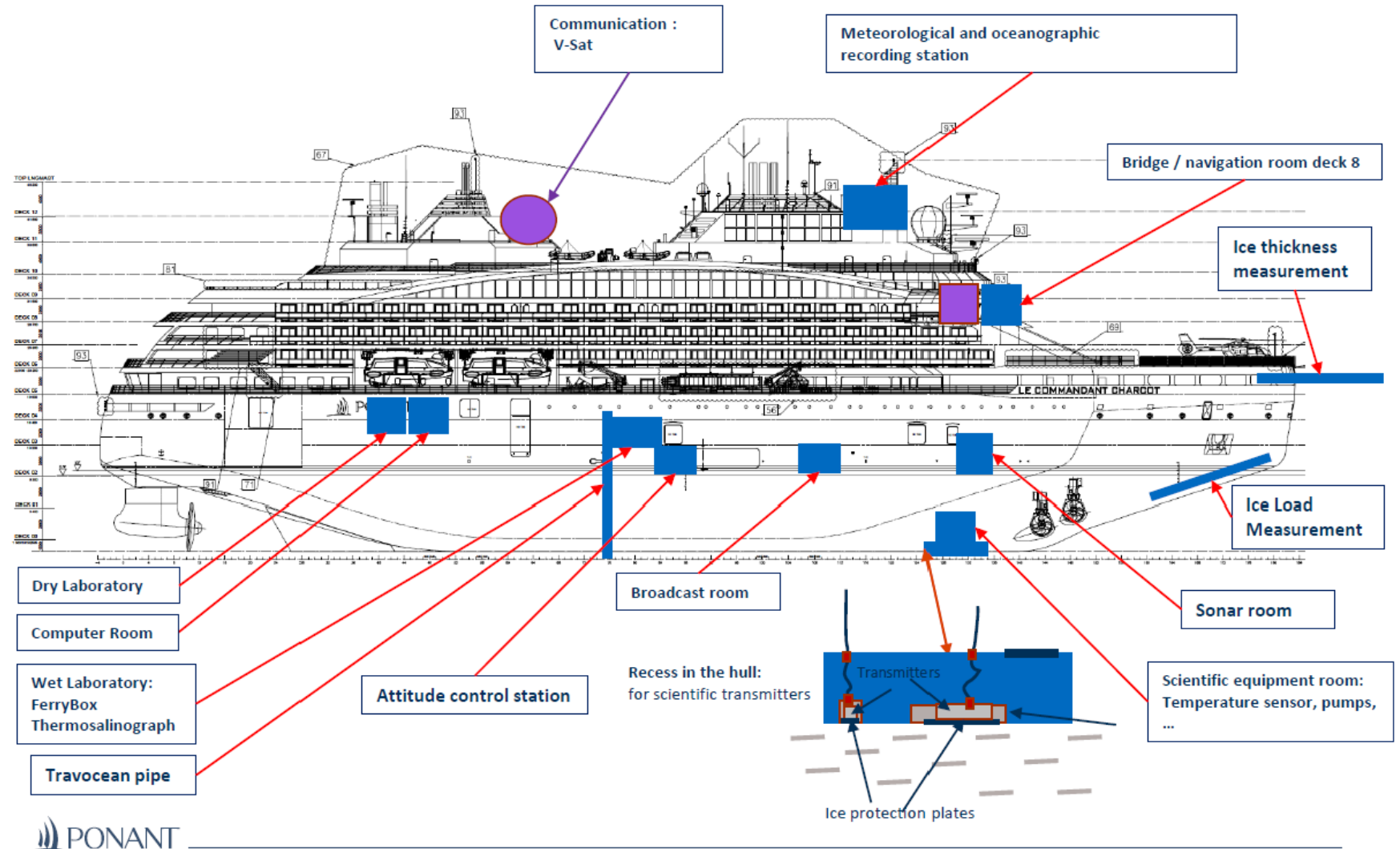
Lead partner: FMI



## Le Commandant Charcot



- Reducing environmental impact of cruises
- Expedition cruises / science focus
- Construction of icebreaker PC2 with research facilities



## ARICE-PONANT CALL FOR SHIP-TIME PROPOSALS

Access to the Arctic Ocean on board the Polar Expedition Ship "Le Commandant Charcot" (PONANT, France)



Arctic Season  
May – September 2022





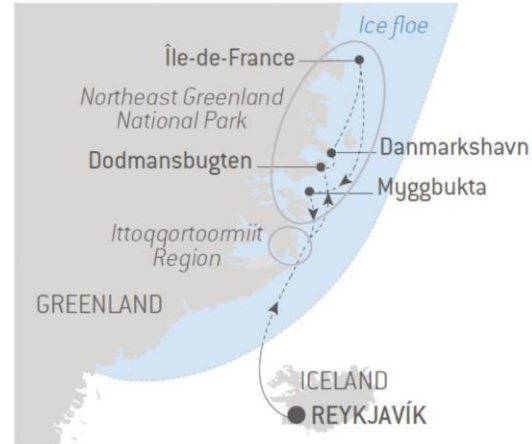
# Ships and platforms of opportunity



0300422 – April 30<sup>th</sup> - May 10<sup>th</sup>, 2022



O100522 – May 10<sup>th</sup> – May 22<sup>nd</sup>, 2022  
O220522 – May 22<sup>nd</sup> – June 3<sup>rd</sup>, 2022



O280622 – June 28<sup>th</sup> - July 8<sup>th</sup>, 2022



**Max 4  
researchers  
per leg**

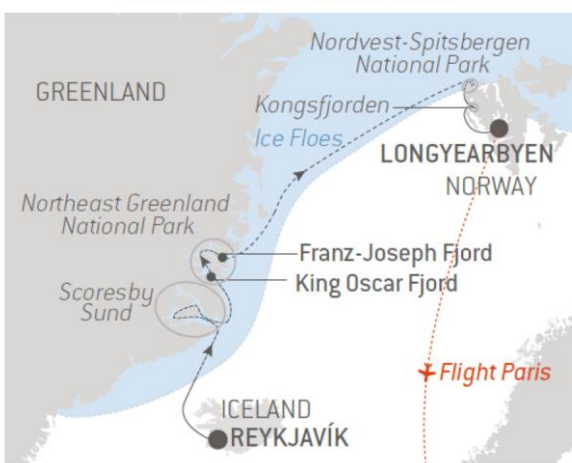
**9 legs**

**2 calls for  
proposals**

**1<sup>st</sup> call: 10  
proposals in  
implementation  
-2022 (12  
submitted)**

NT

0030622 – June 3<sup>rd</sup> – June 15<sup>th</sup>, 2022



O150622 – June 15<sup>th</sup> - June 23<sup>rd</sup>, 2022



O080722 – July 8<sup>th</sup> - July 23<sup>rd</sup>, 2022  
O230722 – July 23<sup>rd</sup> - August 7<sup>th</sup>, 2022  
O220822 – August 22<sup>nd</sup> - September 6<sup>th</sup>, 2022



# ARICE-PONANT implemented proposals - 2022



## PRIMARY PROPOSALS: PROPOSALS RECOMMENDED FOR IMPLEMENTATION WITH HIGH PRIORITY

PROPOSAL PI	LEAD INSTITUTION, COUNTRY CODE	TITLE
Dr Brent ELSE	University of Calgary, CA	Underway Measurements of Essential Marine Biogeochemical Variables in the Arctic
Dr Julien GIGAULT	Laval University, CA	NANOPLARCTIC
Prof Christian HAAS	AWI, DE	Arctic and Antarctic Sea Ice – Thickness variability and change, ice loads and navigability.
Dr Andreas OSCHLIES	GEOMAR, DE	GOOD-OARS-IMDOS

## SECONDARY PROPOSALS: PROPOSALS RECOMMENDED FOR IMPLEMENTATION WITH LOWER PRIORITY

PROPOSAL PI	LEAD INSTITUTION, COUNTRY CODE	TITLE
Dr Kelsey BISSON	Oregon State University, USA	Under-ice phytoplankton distribution and diversity across poles
Prof Nicolas CASSAR	Duke University, USA	NITRARC
Dr Sara FLEURY	LEGOS/OMP, FR	Drone Experiment for Sea Ice Retrieval (DESIR)
Dr Bernd KROCK	AWI, DE	Response of harmful dinoflagellates to climate change (ReHaDiCC)
Dr Vito VITALE	CNR, IT	Monitor Radiation and Clouds Characteristics over Arctic ocean (MoRaCCA)
Dr Ingrid WIEDMANN	UiT The Arctic University of Norway, NO	ECOTIP



# ARICE-PONANT proposals 2023

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**FOR IMPLEMENTATION IN 2023 AND BEYOND (UP TO 5 YEARS)**

**SUBMITTED: 17 PROPOSALS**

**Primary proposals: proposals recommended for implementation with high priority: 11**

**- Including marine based (7), terrestrial (2) and Social Sciences (2) proposals**

**Secondary proposals: proposals recommended for implementation with lower priority: 5 (all marine based)**

**Rejected proposals: 1 (social sciences)**





# Objective 7: Enhancing virtual and remote access to data

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Establish the project data management system and develop and adapt strategies and tools for efficient data access and data dissemination.

Development of a “novel” 3D icebreaker to visualize data and research equipment.

Lead partner: CNR

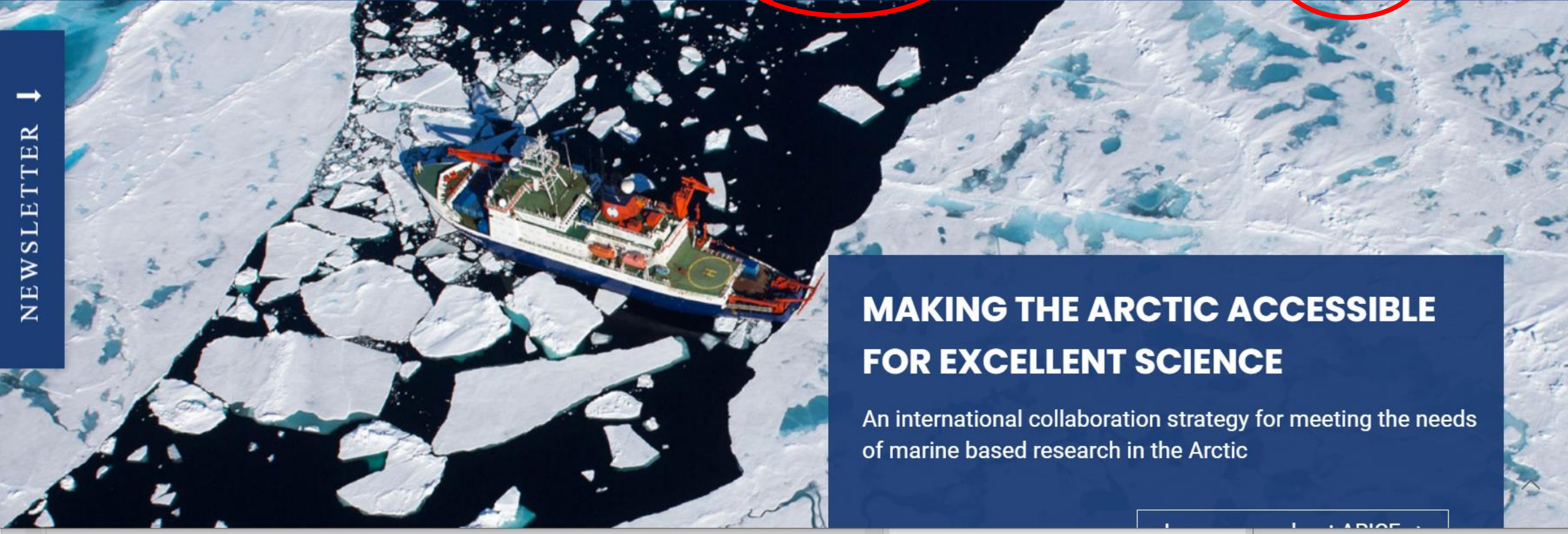
## Key outcomes to date

- Data tools
- 3D icebreaker





NEWSLETTER ↓



**MAKING THE ARCTIC ACCESSIBLE  
FOR EXCELLENT SCIENCE**

An international collaboration strategy for meeting the needs of marine based research in the Arctic

# ARICE Data Tools



**EMODnet**

European Marine  
Observation and  
Data Network





ARICE Metadata Catalogue

Search Map Sign in

Back to search Previous Next

### Continuous meteorological surface measurement during POLARSTERN cruise PS111 (ANT-XXXIII/2)

The meteorological observatory Polarstern continuously acquires meteorological parameters during times of ship operation. Measurements are taken on various locations on the vessel, instrument heights above sea level are given below. All data is quality controlled. Measurements are checked daily on board by the operator and again prior to publication. Knowingly affected or erroneous data is removed.

Completed

Download and links


<https://doi.pangaea.de/10.1594/PANGAEA.929241?format=textfile> Open link

#### About this resource

<b>Categories</b>	Pangaea Geoscientific information
<b>PANGAEA Project List</b>	<ul style="list-style-type: none"><li>AWI_Meteo</li><li>Meteorological Long-Term Observations @ AWI</li></ul>
<b>Language</b>	English
<b>Resource identifier</b>	<a href="https://doi.org/10.1594/PANGAEA.929241">https://doi.org/10.1594/PANGAEA.929241</a>
<b>Legal constraints</b>	CC-BY-4.0: Creative Commons Attribution 4.0 International
<b>Contact for the resource</b>	<ul style="list-style-type: none"><li>Principal investigator:</li></ul>

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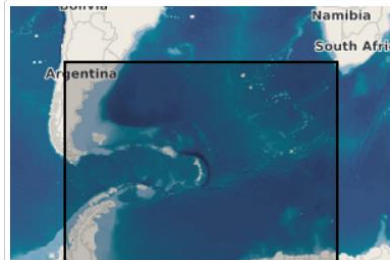
Overview



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Spatial extent



# 3D icebreaker



**ARICE** sail with us  
on the arctic routes



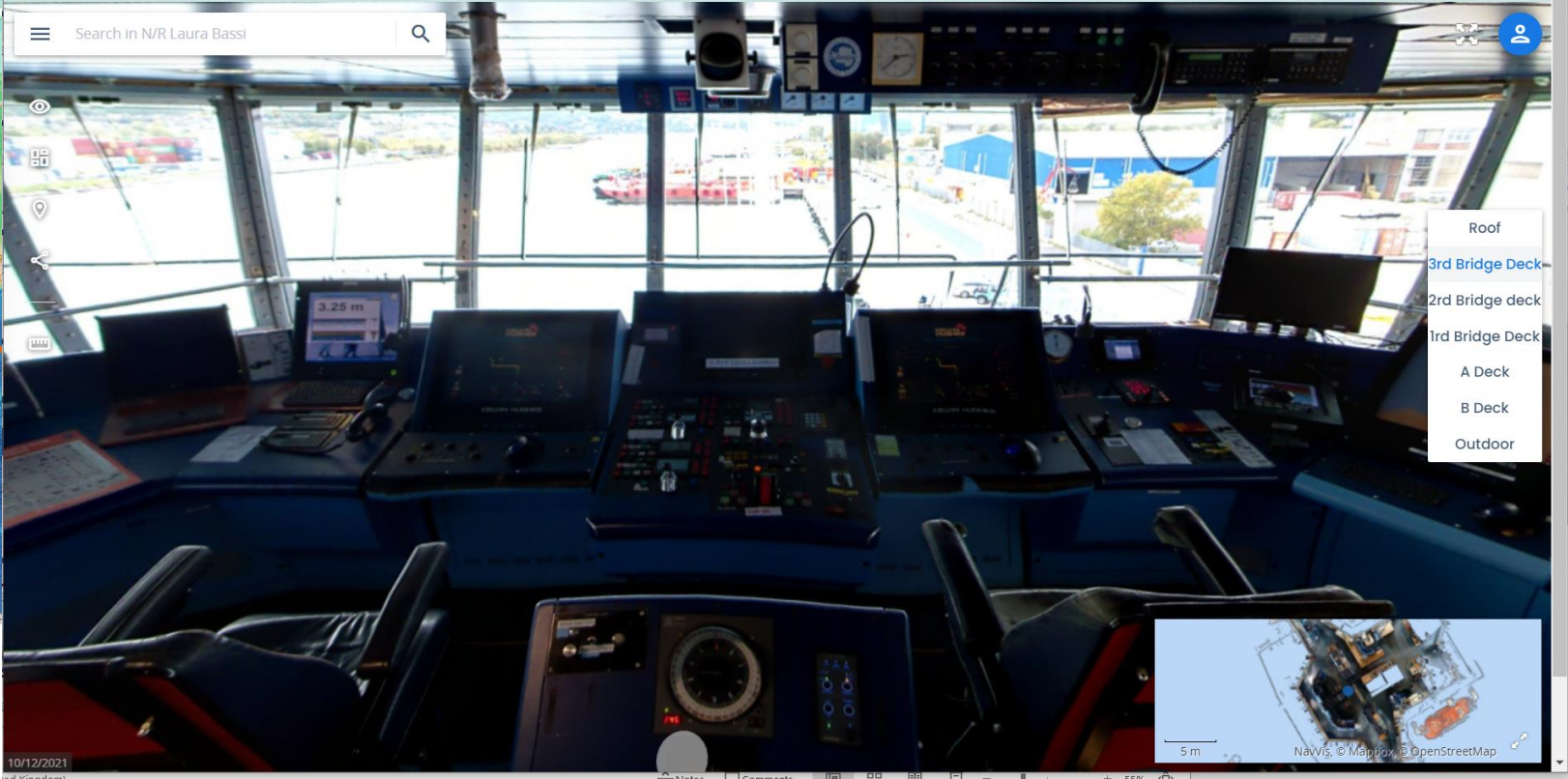
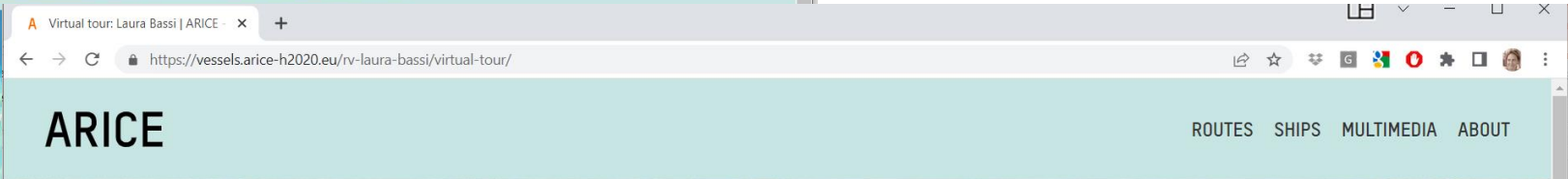
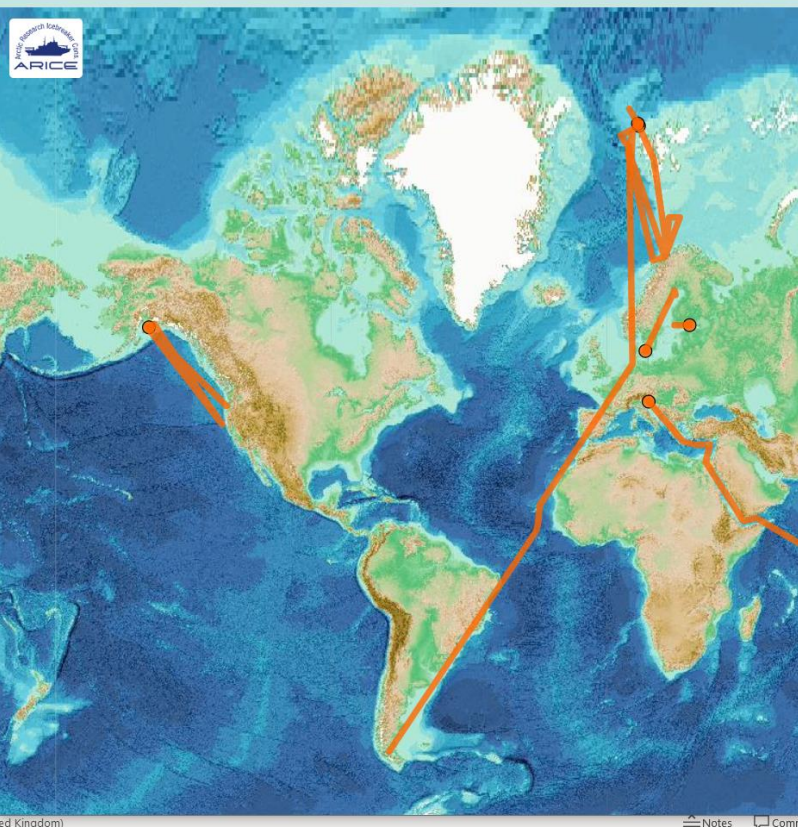
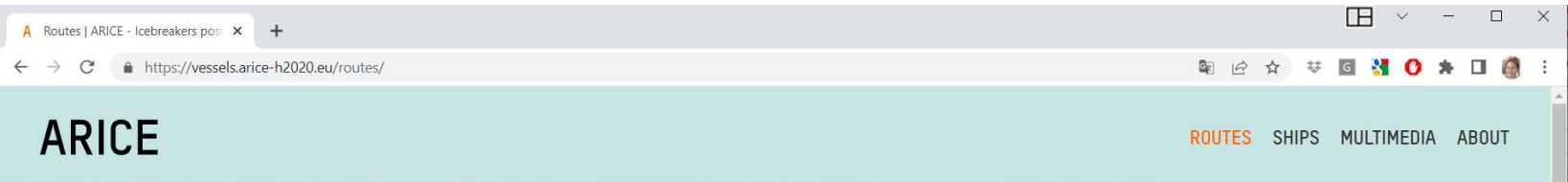
**EXPLORERS**

**FANS**





# 3D icebreaker





# The Future of Research Infrastructure in the Arctic

October 27, 2022 - 9am-7pm

Location: SQUARE Brussels Convention Centre

Program: Talks and Panel Discussion

Register at: <https://bit.ly/3NWFCvG>



During this one-day event, experts from science, policymaking, industry, and infrastructure organizations will come together to discuss key topics related to research infrastructure in the Arctic

Organized by:



Co-organised by FARO, ARICE, INTERACT and the EPB

Topics connected with research infrastructure in the Arctic to be addressed:

- Arctic research infrastructures in a global context
- Infrastructure responses to societal challenges
- Providing access to the Arctic
- New technology for new research
- Building infrastructure resilience to future challenges

These and further topics will be discussed in talks and panel discussions by experts from science, policymaking, industry and infrastructure organizations.

