



**HORIZON 2020 - Coordination and Support Action**

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**Co-ordinating and Co-designing the European Polar  
Research Area**

Deliverable No. 1.6

First progress report on activities and achievements of  
the EU Polar Cluster

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Author	E. Ford
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# 1 Introduction

This deliverable has two parts:

- ongoing dissemination and integration activities
- organisation and delivery of the EU Polar Cluster meeting

We have worked on many tools to facilitate collaboration, internally with a document sharing and discussion site, newsletters, and externally with the website and social media and webinars etc. A summary of recent work done on these is included in sections 2 to 5.

The EU Polar Cluster meeting in Brussels in June 2022 (section 6) is the first time the EU Polar Cluster have met in person. The previous meeting of the group was the EU Arctic Cluster meeting in June 2019, where we agreed to extend the scope of the Cluster to the Antarctic EU funded projects, as well as Arctic projects.

The EU Polar Cluster was included in the European Polar Science Week, which was organised by ESA, EU-PolarNet and the EC, through the ESA Polar Science Cluster. This was held online in October 2020.

In addition to these large scale meetings, the Cluster has met online, initially during covid lockdown as informal “Cluster Coffees” which were then made into more formal roughly monthly zoom meetings.

These meetings that involved all Task Group representatives were also supplemented by meetings of each of the five Task Groups. These have been held roughly every two to three months, as applicable for the Task Group and upcoming activities.

The Cluster meetings, the subject of these deliverables, have also been backed up by a large range of other work, for example on the Cluster website [www.polarcluster.eu](http://www.polarcluster.eu), social media, newsletters, webinars.

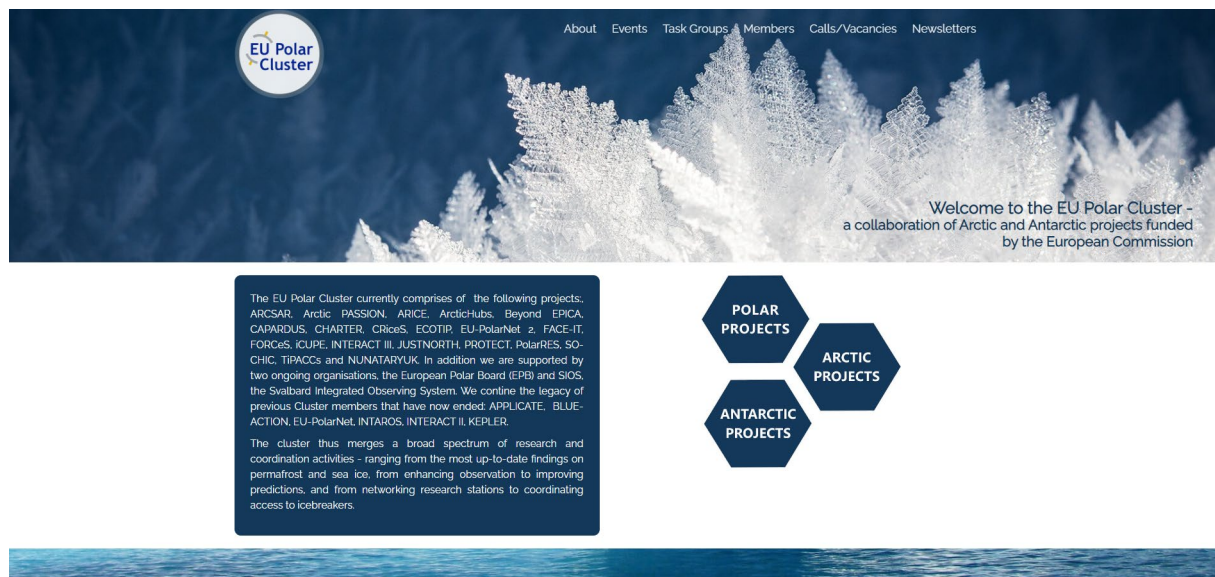
This deliverable concentrates on the in-person EU Polar Cluster meeting held in Brussels, kindly hosted by the European Commission, through the project officers of EU-PolarNet 2. It was held on the 21st and 22nd June 2022. The initial plan was to hold it in March 2022, however the Omicron variant of Covid-19 put a delay on this, and hence the submission of the deliverable.

This report consists of the agenda, the participants lists, and key outputs from the meeting. These are summaries of the presentations given, and highlights of the discussion sessions. It should be noted that a key purpose and outcome of the meeting has been networking and collaboration building, which is not something easy to document. We provided opportunities at the round table discussions, tea/coffee breaks and over dinner. We have seen a lovely mix of original projects and new members, so this has been a valuable setting for all which will hopefully bring benefits in the future.

## 2 Website and social media

### 2.2 Website

We have significantly developed the website [www.polarcluster.eu](http://www.polarcluster.eu) over the last couple of years – we have new hosting for it, through EPB, and it was designed by Arctic Portal, and is updated and maintained by BAS. (This is in collaboration with Arctic PASSION and EU-PolarNet 2 and all projects input.)



In particular over the last year we have:

- Added in new projects
- Added contact points for all projects
- Updated Member pages with fuller descriptions of activities including key results
- Created tags and categories, so users can see which projects are working in their field
- Added events pages, with listings of previous and upcoming events
- Calendar added – google calendar that can be downloaded and integrated to google or Outlook etc calendars

### 2.3 Social media

We continue to post on Facebook and Twitter. More projects are engaging with these, though it is still very variable. We hope from this meeting to gather more people, perhaps ECRs, who can contribute. All projects are reminded to tag the Cluster in their posts.

Social media accounts are:

- Twitter: [@EUPolarCluster](https://twitter.com/EUPolarCluster)
- Facebook <https://www.facebook.com/groups/eupolarcluster>

From August 2021, we have increased EU Polar Cluster activity on Twitter and Facebook, and we have integrated this activity with the website. When events, calls, publications, webinars or podcasts from EU Polar Cluster members are announced, we make sure to capture these to post on the website, retweet or make a new Tweet as well as share on Facebook. Our Tweets have overall increased, with

our top Tweet reaching 1,670 users with 48 Engagements on 21 April 2022 promoting a Saami Council Workshop in Kautokeino. We currently have 446 followers to the EU Polar Cluster Twitter account and provide continuous content, tweeting 3-4 times a week.

Our Facebook group has 133 members. Similarly, to Twitter, posts are typically focused on EU Polar Cluster member events and calls. We provide between 2 and 4 posts per week and have seen increased activity in recent months from colleagues advertising events, publications and calls for papers and employment. The group is public but requires administrative approval to participate.

The social media accounts for the EU Polar Cluster serve to promote EU Polar Cluster activity and has experienced increased activity, not only from designated BAS and European Polar Board members, but from other EU Polar Cluster project members. Many events have had increased success due to promotion via social media, the BLUEACTION Climate Coffees. Monitoring EU Polar Cluster members activity has also helped capture a wider range of events and calls for the EU Polar Cluster website and has allowed us to better connect projects with shared objectives and increased collaboration. For example, via social media, we were able to identify several EU Polar Cluster projects that were involved with the IPCC Reports and suggested that they come together to produce a webinar. The FACE-IT and ECOTIP projects will produce an upcoming webinar on 21st September 2022.

## 2.4 MS Team site

The Cluster Teams site has the document sharing repository for the Cluster – general documents such as for meetings, logos, etc, and folders for the Task Groups.

There is the facility for discussion threads, with people assigned to groups for the Task Groups. This has not been well engaged with, however. AWI have created the Catalyst platform for EU-PolarNet 2 as discussed below, which will be used in conjunction with this.

## 3 Cluster and Task Group meetings

In addition to the main in-person Cluster meeting as described in detail below, the Cluster have also met in smaller groups. These include Cluster wide meetings, where all project Coordinators, Project Managers, and Task Group members are encouraged to join, but the meetings are open to all.

These were initially designed as “Cluster Coffee” sessions, a more informal way of getting project members together. We then made them more formal on the EC’s request. These have however become a burden to members and attendance has decreased, so we decided at the beginning of 2022 to hold them less frequently. We were going to hold the in-person meeting in March 2022, however this had to be delayed until June due to the Omicron variant wave that was preventing travel in the early part of 2022. We are looking at alternative ways of collaborating between the annual in person meetings for 2023 onwards.

Cluster wide meetings were held (since the beginning of EU-PolarNet 2 in October 2020) on:

- 27<sup>th</sup> October 2020
- 27<sup>th</sup> November 2020
- 15<sup>th</sup> January 2021 (Covid impacts workshop)
- 19<sup>th</sup> January 2021
- 17<sup>th</sup> February 2021
- 15<sup>th</sup> March 2021
- 15<sup>th</sup> September 2021

- 19<sup>th</sup> October 2021
- 6<sup>th</sup> December 2021
- 6<sup>th</sup> May 2022 (Russia invasion workshop)
- 21<sup>st</sup> June 2022 (in-person meeting in Brussels)

The individual Task Groups have also met, roughly bi-monthly, as suitable for each group. These are working meetings, where each project is encouraged to set a representative, as applicable. These have been held as follows.

Date	Task group
14/01/2021	Communication & Dissemination Task Group Meeting
10/03/2021	Policy Advice Task Group Meeting
21/04/2021	Stakeholder Engagement Task Group Meeting
10/05/2021	Communication & Dissemination Task Group Meeting
07/07/2021	Policy Advice Task Group Meeting
26/07/2021	Communication & Dissemination Task Group Meeting
26/10/2021	Training & Education Task Group Meeting
08/11/2021	Communication & Dissemination Task Group Meeting
09/11/2021	Stakeholder Engagement Task Group Meeting
09/11/2021	Data Management Task Group Meeting
06/12/2021	Training & Education Task Group Meeting
08/12/2021	Stakeholder Engagement Task Group Meeting
31/01/2022	Communication & Dissemination Task Group Meeting
28/01/2022	Data Management Task Group Meeting
03/02/2022	Stakeholder Engagement Task Group Meeting
12/04/2022	Stakeholder Engagement Task Group Meeting
08/03/2022	Training & Education Task Group Meeting
18/05/2022	Communication & Dissemination Task Group Meeting

We proposed to end the Task Group structure in April 2022, so no meetings have been held since. New Working and Action group meetings will be held as applicable towards the end of 2022.

Finally, the coordination team have been meeting. These are set up by AWI and include the EU-PolarNet 2 project officers from the EC, and the coordination team. The coordination team (prior to changes in September 2021) are:

Name	Role	Institute
Elaina Ford	EU Polar Cluster Coordinator	British Antarctic Survey
Nicole Biebow	EU-PolarNet 2 Coordinator	Alfred Wegener Institute
Anneli Strobel	EU-PolarNet Project Manager	Alfred Wegener Institute
Renuka Badhe	EPB Executive Secretary	European Polar Board
Pjotr Elshout (previously Joseph Nolan)	EPB Project Officer	European Polar Board
Lily Green	BAS project administrator	British Antarctic Survey

Coordination team meetings were held on:

- 21<sup>st</sup> January 2021
- 26<sup>th</sup> February 2021



- 29<sup>th</sup> March 2021
- 6<sup>th</sup> May 2021 (with ESA Polar Science Cluster)
- 16<sup>th</sup> September 2021
- 11<sup>th</sup> October 2021
- 15<sup>th</sup> December 2021
- 2<sup>nd</sup> February 2022
- 2<sup>nd</sup> March 2022
- 22<sup>nd</sup> March 2022
- 19<sup>th</sup> April 2022
- 25<sup>th</sup> April 2022
- 8<sup>th</sup> June 2022
- 8<sup>th</sup> July 2022
- 25<sup>th</sup> August 2022

## 4 Newsletters

BAS have created and disseminated periodic newsletters since summer 2021. The format of the newsletters is

- overview/welcome from Coordinator
- updates from each of the Task Groups
- reports on recent collaborative events
- advertisements of upcoming events
- a “project focus” where we are covering three of the projects in more detail

We are working our way through all of the Members in due course. We focussed on the recently started and ending first. These are available on the website.

The newsletters are available on the Cluster website:

<https://www.polarcluster.eu/newsletters>

- [Summer 2021](#)
- [Winter 2021](#)
- [Spring 2022](#)
- Summer 2022 to be sent out shortly

## 5 Horizon Results Booster

The Horizon Results Booster is an initiative of the European Commission which aims to bring a continual stream of innovation to the market and maximise the impact of public funded research within the EU. It steers research towards strong societal impact, concretising the value of R&I activity for societal challenges. See <https://www.horizonresultsbooster.eu/> for full details of the scheme. The EU Polar Cluster participated in the Horizon Results Booster through EU-PolarNet 2. We have worked with them to create a flyer for the Cluster, and are working towards other options.



**European Polar Research in action**

@EUPolarCluster EU Polar Cluster

## POLAR PROJECTS

### Why are the Polar Regions so important for our planet?

Now more than ever the Polar Regions are facing rapid changes and it is important for the research community to monitor these areas in order to better understand the future of our planet.

The increasing level of interest and financial investment now being made across Europe is a clear demonstration of how crucial Polar research study results and outcomes are. They inform policy objectives, including those relating to climate change, energy security, global food security, innovation and economic growth.

### What is the EU Polar Cluster?

The EU Polar Cluster is a network of collaborative Polar projects funded by the European Commission, and three permanent members, the EPB, SIOS and APECS.

It merges a broad spectrum of research and coordination activities – ranging from the most up-to-date findings on permafrost and sea ice, from enhancing observation to improving predictions, and from networking research stations to coordinating access to icebreakers.

It provides guidance and policy-relevant information, responding to the impacts of climate change on the Arctic and Antarctic's fragile environments.

### Objectives

- ◆ Creating synergies between the EU Polar Cluster members to maximise impact and visibility of European Polar research.
- ◆ Create joint activities, including related to communication, policy advice, stakeholder engagement, data management and education.
- ◆ Increase sharing of knowledge among the Polar research community.
- ◆ Promoting sustainable development by cooperating with policy makers, indigenous peoples and local communities, business and NGO representatives and other societal actors.

 The EU Polar Cluster is a network of EU-funded Polar projects. It is coordinated by EU-PolarNet 2, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003766.

Capture QRcode or follow this URL   
<https://www.polarcluster.eu>



# European Polar Research in action

 @EUPolarCluster
  EU Polar Cluster

## Challenges

- ◆ **SCIENTIFIC & TECHNOLOGICAL:**
  - Prioritise and specify the relevant Polar research themes by including all relevant stakeholders.
  - Increase observations of the Polar Regions as well as providing projections of future change.
  - Addressing global key and new challenges through Polar research on the climate and environment including land and oceans, biodiversity, permafrost, etc.
  - Optimise and facilitate the use and access to Polar research infrastructure.
- ◆ **STAKEHOLDER ENGAGEMENT:**
  - Inform and engage with stakeholders and produce usable and trustworthy predictive information for decision making.
  - Fostering international cooperation, in communicating on the impacts of climate change on the fragile environment of the Polar Regions.
  - Promoting sustainable development through cooperation with policy makers, indigenous peoples and local communities, business and NGO representatives.
- ◆ **SOCIETAL:**
  - Provide advice on climate action, environmental change, and resource efficiency.
  - Food security, sustainable agriculture and forestry and water research, together with the bioeconomy aspect.
  - Support of communication, engagement, and co-creation of knowledge with Arctic indigenous and local communities.

## POLAR PROJECTS



## Who benefits?

  
 Research & Academia

  
 Civil Society, NGO, Citizens

  
 Infrastructure, logistics, data and observing system managers

  
 Policy makers

## The EU Polar Cluster Members

**Active projects**

**Permanent members**



**Legacy projects**



The EU Polar Cluster is a network of EU-funded Polar projects. It is coordinated by EU-PolarNet 2, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003766.

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<https://www.polarcluster.eu>



## 6 Collaborative events

The number of collaborative sessions and events has been reduced due to the pandemic, but are still continuing online, especially with training courses/workshops. Other recent events include at Arctic Science Summit Week. By collaborative, we mean more than one Cluster member was involved in organising

A list is available on the website at <https://www.polarcluster.eu/events>

These include (see website for descriptions and links to more information):

- Copernicus Polar Workshop - 19 & 20 September 2022 14:00-17:00, online
- MIND THE GAP - How EU Science on Arctic Marine Biodiversity Addresses Knowledge Gaps Identified in the IPCC Process and Supports Adaptation - Webinar organised by ECOTIP and FACE-IT - 21 September 2022 13:00-14:30 CEST
- The 4th Public Participation and Deliberative Democracy Festival - 20-21st October 2022
- The Future of Research Infrastructure in the Arctic - 27 October 2022 9:00-19:00 - SQUARE Brussels Convention Centre - Organized by ARICE, INTERACT, European Polar Board and FARO
- SMM 2022 - Driving the Maritime Transition - 6-9 September 2022, Hamburg, Germany
- EU-SÁMI WEEK BRUSSELS 20-22. JUNE 2022
- WEBINAR: Remote Sensing of the Cryosphere - hosted by SIOS Knowledge Centre with speakers from KEPLER, INTAROS, & Arctic PASSION - 10th June 10:00-12:00 CEST Online
- DATA INTEROPERABILITY WORKSHOP - 31 MAY 2022 14:00-15:30 CEST - Hosted by Arctic PASSION, SIOS Knowledge Centre & Interact online
- Discussion paper "Working towards ethical guidelines for research involving the Sámi" Workshop 23-24.05.2022 in Kautokeino
- EU Polar Cluster at ASSW 2022 26 March - 1st April Tromsø, Norway - Multiple Groups organised sessions, workshops and posters
- EU-PolarNet 2/EPB/Cluster Webinar "New Arctic Policy: The New EU Arctic Policy and Research and Innovation" 24th November 2021, 10:00am CET.
- EU Arctic Forum and Indigenous Peoples' Dialogue - 10-11 November 2021 Brussels, Belgium and Livestream.
- #COP26 EU Pavilion side event: "Polar Warming, Global Warming." 3 November 2021, online and in Brussels.
- ASSW - Arctic Science Summit Week, March 2021, online.
- Report Meeting on the Impact of COVID-19 on members of the EU Polar Cluster 15 January 2021, online.
- The 2020 EU Polar Cluster meeting was held as part of the European Polar Science Week on the 27th October 2020, online, in collaboration with ESA
- ASSW (Arctic Science Summit Week) 28 March - 30 March 2020

## 7 Fact sheets

BAS have created a one page per project fact sheet, covering all current and legacy members. These have been well received, and the EC and the participants of the meeting have found them useful. They are also available to

This will be continually updated as projects join and end. Please see **Appendix 4 – Factsheets**.

## 8 Cluster Meeting

### 8.2 Agenda

#### 8.2.1 Overview

Date: 21<sup>st</sup> & 22<sup>nd</sup> June 2022

Address: CDMA Brussels: rue Champ de Mars no 21, Brussels,  
Nearest Metro: Porte de Namur.

Room: SR1&2

Attendees: Representatives from each Cluster (active) project, approximately 3 each. European Commission representatives, JRC, ESA, and Sami representatives.

#### 8.2.2 Aims of the meeting

- To engage projects with the EU Polar Cluster
- To build ownership of the Cluster by members
- Networking of Cluster member participants
- To determine future structure, post Task Groups
- Revise the Terms of Reference
- Determine events, opportunities, topics, themes for future collaborations
- Determine what webinars/online workshops that should be held over the next year
- Consider methods of communication (Cluster MS Teams site – proposed change to “Catalyst”, website, social media, newsletters)

#### 8.2.3 Attendees

See **Appendix 1 – meeting attendees** for a full list of participants at the meeting. This is the group photo.



8.2.4 Tuesday 21<sup>st</sup> June

Start	Presentation/Discussion topic	Chair
13:00	<b>Welcome from the EC; value of the Cluster</b> <ul style="list-style-type: none"> <li>- <b>Szilvia Nemeth</b> – Healthy Oceans DG Research and Innovation</li> <li>- <b>Paul Webb</b>, Head of Department Green Europe, REA</li> <li>- <b>Miguel Roncero</b> DG MARE policy officer</li> </ul>	Ana-Maria Stan Gaëlle Le Boulter
13:20	<b>Establishment of Cluster and joint activities</b>	Nicole Biebow
13:40	<b>Welcome from Cluster, year's updates</b>	Elaina Ford
13:50	<b>Aims of meeting</b> <ul style="list-style-type: none"> <li>- Future structure</li> <li>- Involvement</li> <li>- Collaborations</li> </ul>	Elaina Ford
14:00 – 15:30	<b>Team building/ world café,</b> <ul style="list-style-type: none"> <li>- rotating ~10 minutes each table</li> <li>- tables 6 on questions below</li> <li>- introductions to those in each group</li> </ul> <b>Question for each table (one per table) (everyone rotating around them randomly):</b> <ul style="list-style-type: none"> <li>- what are projects doing</li> <li>- how can projects benefit from collaborations</li> <li>- what stakeholders are projects engaged with</li> <li>- where do projects need support</li> <li>- how can projects contribute to science planning</li> <li>- how we collaborate – ideas on new ways of working/structure</li> </ul>	People rotate tables randomly, with coordination team as rapporteur at each – Elaina, Nicole, Anneli, Renuka, Joseph, Piotr, Lily
15:30	<b>Tea/coffee</b>	
16:00	<b>Summaries from tables</b>	Table leads
17:00	<b>Discussion on future collaboration, Cluster structure</b>	
18:00	<b>End</b>	
19:00	<b>Dinner – Kamilou</b>	

8.2.5 Wednesday 22<sup>nd</sup> June

09:00	JRC – Joint Research Centre “Arts-based methods in knowledge co-creation in policy relevant Arctic research projects”	Kotryna Markeviciute
09:15	Sami Council	Elle Marete Omma
09:30	Catalyst tool	Anneli Strobel
09:45	Breakout discussion – themes of cooperation – where/how to collaborate <ul style="list-style-type: none"> <li>- science themes – review categories</li> <li>- legacy – what to do with old/ended projects</li> <li>- strategic initiatives – protocol for determining input</li> <li>- how the catalyst can work/teams/emails, technical solutions</li> </ul>	
10:45	Tea/coffee	
11:00	Workshops – Updates on past meetings (Covid, Russia)	Pjotr Elshout
11:15	Breakouts - Future joint activities <ul style="list-style-type: none"> <li>- <b>conferences</b>: e.g. Arctic Circle, ASSW, EGU, SCAR, SMM</li> <li>- <b>webinars</b> – what do you want webinars on?</li> <li>- <b>training activities</b> – on what subjects?</li> <li>- <b>Workshops</b> – interactive discussions needed?</li> </ul>	
12:00	Lunch	
12:45	EU Polar Science Conference 2023	Nicole
13:00	ECR engagement, networking	Elaina
13:00	Legacy – what to do with old/ended projects	
13:15	Membership, contact points – one person or spread the load?	Elaina Ford
13:30	Terms of Reference review	
	EU Polar Cluster meeting 2023 – June? Brussels?	
14:00	End	
14:00	Informal meeting: co-creation with indigenous rights holders	New projects - Annette



## 8.3 Summary Day 1

### 8.3.1 Initial presentations

We were pleased to have some keynote presentations from various representatives as described below. Session chaired by Elaina Ford, EU Polar Cluster Coordinator.

### 8.3.2 Szilvia Nemeth

#### **Healthy Oceans - DG Research and Innovation**

Szilvia Nemeth opened the meeting, noting how it was good we were finally able to meet in Brussels, as research is stronger in-person. She gave an overview of the EU Arctic Policy and the polar context, and noted how the contribution of polar research is well recognised within the European Commission, which is progress over the last few years.

She highlighted international collaboration is one of the strengths of European research. . This includes opportunities of the Antarctic and Arctic “Lighthouses” collaboration opportunities, and of integration with organisations such as the All-Atlantic Ocean Research Alliance, which will have a new declaration at the upcoming meeting in Washington, and provides international context of the EC’s “missions”.

### 8.3.3 Paul Webb

#### **Head of Department Green Europe, REA (Research Executive Agency)**

The REA are the organisation within the EC that implement projects such as the ones present at this meeting. Paul was invited by the EU-PolarNet 2 project officer Gaelle Le-Bouler.

Paul noted the extraordinary range of projects that were represented at this meeting, which he noted was great to see. The challenge of EC funding process is on how to keep the momentum in research and networks going beyond the project lifetime, and noted that this Cluster was a good example for progressing legacy projects. The Coordinating and Support Action (CSA) that EU-PolarNet 2 provides on the organising side (through AWI and BAS). Areas to strengthen in future include citizen science (e.g. with Sami) and collaborations with ESA (European Space Agency) and JRC (EC’s Joint Research Council), to increase Earth Observation (EO) integration.

Paul noted that further engagement of and between the various REA project officers for all the projects in the Cluster would be beneficial to the Cluster activities and to the EC. Gaelle agreed to look into taking this forward in future.

### 8.3.4 Miguel Roncero

#### **DG MARE Policy Officer**

Miguel noted three objectives’ areas to the EU Arctic Policy

- Geopolitics
- Climate change action
- Peace and stability

He highlighted the aim of developing indigenous peoples and placing the Arctic and Arctic research in the world context. This is to be achieved through knowledge of and in the Arctic. He noted the difficulties in coordination of this, but that we collectively are moving in the direction we should be going in.

Miguel thanked the EU Polar Cluster for our role in this. He noted the EC really need the work that we're all doing, to provide the evidence to back up the decisions that are made.

### 8.3.5 Cluster introductions

#### 8.3.6 Nicole Biebow

##### **EU-PolarNet 2 Coordinator**

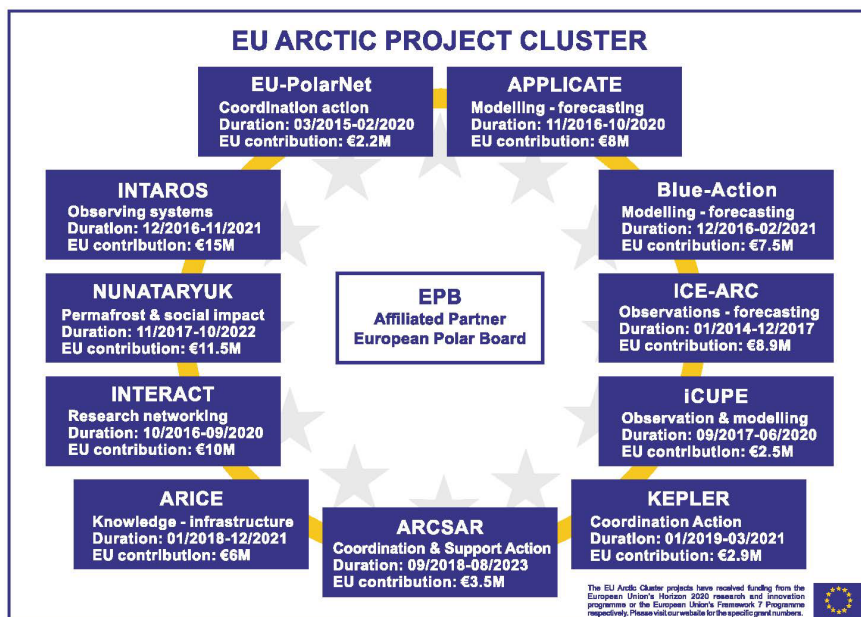
Nicole explained the background of the EU Polar Cluster, in particular for the benefit of newly joined projects. It formed from the 2006 original Arctic Policy, which prompted the EC to increase funding collaborative Arctic projects. The EU Arctic Cluster formed, in a 'bottom-up' way from a collaboration of projects (EU-PolarNet 1, ICE-ARC, and the European Polar Board, EPB) working together out of requirement, necessity, and mutual benefit, primarily on presentations at events. The EPB have been a supportive affiliate from the beginning, adding some long term continuity, whilst the projects have finite duration.



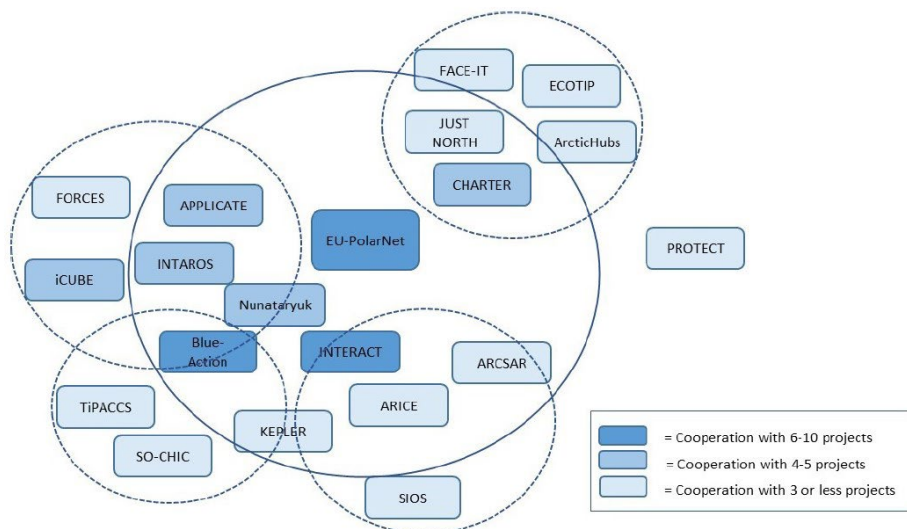
The projects worked together, creating synergies between already planned activities. This allowed us to pool resources, and maximise impact. Some of these activities include the UNFCCC Conference of Parties, such as COP23, COP24, and COP25. We have also held booths at the Arctic Circle Assembly in 2017 and 2018, as well as hosting breakout sessions e.g. "Climate change, science, and safeguarding the Arctic environment" and "Science as catalyst for international cooperation".

##### **Objectives of the EU Arctic Cluster**

- Creating synergies between already planned activities to maximise impact and visibility of European polar research.
- Pooling resources (human, financial, in kind...) to upscale efforts.
- Increase knowledge sharing and maintaining legacy of finished projects.
- Joint activities related to communication, stakeholder management, data management and education.



These objectives have been achieved through Task Groups, initially the four as listed in the objective above. In addition to the collaborative outreach events and sessions, and activities such as the website and training courses, the benefit of working together has been apparent in the identification and engagement of stakeholders. This led to the EU-PolarNet 2 deliverable D2.2 “Mapping all stakeholder activities from relevant Polar projects including EU Polar Cluster projects”.



### 8.3.7 Elaina Ford

#### EU Polar Cluster Coordinator

The role of the EU Polar Cluster has been able to expand and progress, thanks to funding and a clear role through projects – this includes inclusion in the call text to be part of the Cluster, and funding for specific activities. This includes e.g. outreach and observational collaboration through Arctic PASSION and key here a funded coordination role in EU-PolarNet 2. This is led by Nicole Biebow at AWI, and has specific tasks on Clustering coordination.

This includes the following activities

- Task 1.1 (Elaina Ford, British Antarctic Survey (BAS) and Renuka Badhe, European Polar Board, EPB)
  - Setting up annual Cluster meetings
    - 2020 - D1.1 (European Polar Science Week, October 2020, online)
    - 2022 - D1.6 – this deliverable, June 2022
    - 2023 - D1.10 scheduled for April 2023 but will be held around June (see below)
  - Definition of the vision and mission of the EU Polar Cluster
    - Including the Terms of Reference (EPB, see website [www.polarcluster.eu](http://www.polarcluster.eu))
- Task 5.2 (Gonçalo Vieira (U.Lisbon))
  - Communicating and advertising EU Polar Cluster activities
  - Engaging partners in the Cluster
  - Promoting EU-PolarNet 2 through the Cluster projects and their institutes.

Whilst we have not been able to meet in person due to the pandemic or do many of the collaborative activities (e.g. COP, Arctic Circle), we have still been busy.

We have developed a vision statement:

**Vision** of the EU Polar Cluster: *A strong, well-connected ecosystem of European Polar projects and organisations operating together to substantially increase their combined impact and legacy.*

The **Mission** of the EU Polar Cluster is:

- To **connect** EU Polar Cluster Members, further developing the European polar research, observation, and infrastructure, and modelling **community network**.
- To organise **joint activities** by Cluster Members for greater impact than possible individually, while minimising duplication, sharing workload, and avoiding stakeholder fatigue.
- To support the sustainability and accessibility of large-scale EU-funded Polar projects' selected **legacy** outputs after their official end.
- To share **advice and best practices** among EU Polar Cluster Members.
- To **promote** the European polar research community, especially the strength, excellence, integration and best practices of EU-funded polar research.
- To provide a single **contact point** to all EU Polar Cluster Members for external partners.

This EU Polar Cluster has developed from the initial EU Arctic Cluster as described above to include the below projects



## Collaborative resources

We have worked on many tools to facilitate collaboration, internally with a document sharing and discussion site, newsletters, and externally with the website and social media and webinars etc. A brief summary of recent work done on these:

- **Website** To bring these together, we have significantly developed the website [www.polarcluster.eu](http://www.polarcluster.eu) – we have new hosting for it, through EPB, and it was designed by Arctic Portal, and is updated and maintained by BAS. (This is in collaboration with Arctic PASSION and EU-PolarNet and all projects input.)
- **Social media** – We continue to post on Facebook and Twitter. More projects are engaging with these, though it is still very variable. We hope from this meeting to gather more people, perhaps ECRs, who can contribute. All projects are reminded to tag the Cluster in their posts.
- **MS Team site** – This has the document sharing repository for the Cluster – general documents such as for meetings, logos, etc, and folders for the Task Groups. There is the facility for discussion threads, with people assigned to groups for the Task Groups. This has not been well engaged with however. AWI have created the Catalyst platform for EU-PolarNet 2 as discussed below, which will be used in conjunction with this.
- **Sharing information – calls, webinars, events** – We publicise all the activities that we are informed about through the mechanisms listed here, the website, social media, newsletters.
- **Collaborative events, sessions, and workshops** – The number of collaborative sessions and events has been reduced due to the pandemic, but are still continuing online, especially with training courses/workshops. Other recent events include at Arctic Science Summit Week. A list is available on the website.
- **Newsletters** – BAS have created and disseminated periodic newsletters since summer 2021, these include updates from each of the Task Groups, reports on recent collaborative events, and advertisements of upcoming events. In addition we have a “project focus” where we are covering three of the projects in more detail, working our way through all of them in due

course. We focussed on the recently started and ending first. These are available on the website.

- **Fact sheets** – BAS have created a one page per project fact sheet, covering all current and legacy members. This will be continually updated as projects join and end. Please see **Appendix 4 – Factsheets**.

### 8.3.8 Team building/world café/round table discussions

**See Appendix 2 for notes from each of the Round Table Discussions.** The key outcomes are summarised in section 6 below.

What is not evident from the lists of points in this appendix, is the less tangible benefits of these round tables. Whilst this section is short, these were hugely valuable discussions to those in attendance. This meeting was the first time the Cluster had come together in three years – the last meeting in person was when we were the EU Arctic Cluster, at our meeting in May 2019 – the meeting we discussed and agreed to extend to include Antarctic and Southern Ocean projects, and those looking into both Polar Regions. Unfortunately, the global covid-19 pandemic prevented us from meeting. We have held numerous online meetings, of the whole Cluster, and of the Task Groups.

But there is nothing quite the same as getting in a room together and talking. In addition to the points raised in the Appendix, people also built connections, learnt more about the other projects and the people in them, and built enthusiasm for collaboration that is hard to replicate online. This was, as feedback provided, a well needed opportunity, and this point should not be lost.

## 8.4 Summary Day 2

The second day was opened by presentations from key collaborators, followed by further wider discussions on what we should focus on in the coming year.

### 4.1.1 Joint Research Council – Kotryna Markeviciute

#### *Arts-based methods in knowledge co-creation in policy relevant Arctic research projects*

Kotryna gave a presentation inspired by the workshop JRC organised in April. It was a hybrid event where we focused on participatory approaches, story-telling and social learning processes between Indigenous and non-Indigenous Arctic researchers, artists and policy makers.

### 4.1.2 Sami Council – Elle Merete Omma

Elle Merete is the Head of the EU unit of the Saami Council, who were having their meeting, the EU Sámi week, in Brussels at the same time as the EU Polar Cluster meeting.



## Filling the EU-Sápmi knowledge gaps



### Steering Committee



Themengruppentagung – 24 February 2022

Elle Merete presented the Sápmi-EU, and the Co-Create Consortium. This is interdisciplinary and transdisciplinary and both a dialogue and engagement mechanism. It's aims are towards institutionalising the collaborative research approach through cooperation with Indigenous organisations, and organisations such as EU-PolarNet, IASSA, IASC, and UArctic. They are achieving this through awareness creation with the EU Commission, specifically the Horizon Europe programme, as well as other funding institutions. They encourage all to participate in their growing group.

### 4.1.3 Catalyst Platform – Anneli Strobel

The current document sharing and collaboration platform on MS Teams has not had much engagement. This was decided as the option that was best to use, after the RedMine previous platform was also not used. Other sites such as Slack were also suggested, but Teams was the platform that most can access. There have been a few problems with updating software and people with more than one account. This site will still run for continuity and cloud storage.

The Catalyst platform has been developed through EU-PolarNet 2, and it would be beneficial for the EU Polar Cluster community to also use it. Anneli Strobel therefore presented the platform, which launched the following week. The EU-PolarNet 2 Catalyst platform is “A social media platform addressing researchers, managers and stakeholders with polar interests”.

[polarcatalyst.eu](http://polarcatalyst.eu)

**Resources:**  
Content with metadata and abstract, searchable by users

**Tags:**  
Key topic / subject area tags used to categorise resources

Anneli gave a tour of the platform features, including the resources and search functions, items on the database such as infrastructures and member profiles, news, events, job adverts, etc.

There are discussion sections for collaboration for signed in users – both private and public discussions. Any user can add a group, and it was suggested these could be used for example for task groups, for organising joint session at conferences, or webinars or workshops, and for thematic discussions for example around a field season or modelling technique used across projects. All were encouraged to engage.

The other use for the Catalyst platform for the Cluster is for publication of the main products of projects, for example inventories, catalogues, white papers, key deliverables, outputs of legacy projects. It is also useful for news, publication of joint events or new collaborations or calls.

#### 4.1.4 Discussions

The final section of the meeting was another session of round table/world café discussions, on thematic areas for cross collaboration. These included workshop ideas, webinar series, training activities, and other aspects.

Please see **Appendix 3** for a full list of points raised.



## 8.5 Analysis – summary of discussion points

There were many discussions and points raised on the two days of world café/round table discussions. The ideas and suggestions discussed are detailed in Appendix 2 and 3 for the two days respectively. In this section we draw together some of the themes and ideas, and list some of the action points to take forward.

### 8.5.1 Cluster integration activities

Some examples of activities to help bring people together

- Welcome pack for new projects – Action: Lily Green
- Archive of past webinars in Catalyst – Action: Anneli Strobel
- Terms of Reference review – Action: Elaina Ford, Pjotr Elshout
- Cluster meeting 2023 – Action – coordination team. June 2023, Brussels (D1.10)

### 8.5.2 Workshops

Workshops are a dialogue to discuss specific problems within the Cluster. Whereas a webinar is a dissemination of information from the speaker(s) to the audience, and conference sessions are reaching a wider stakeholder group, the definition here and point of workshops are **working meetings** to discuss cross-project issues and ideas. They are **internal** to the Cluster Members, and **focussed** around specific events.

We need to ensure we have the right people in the workshops, from the projects and sometimes key external representatives (e.g., Indigenous communities, EC representatives/project officers, etc).

Suggestions for possible future workshops

- Follow-up workshops on the covid response, and on the Russian invasion of Ukraine
- Best practices for remote working
- Horizon 2020 Europe (with Ana-Maria Stan)
- Policy briefings
- Legacy projects – how to maximise ended projects within the Cluster

### 8.5.3 Webinars

Webinars have been a very successful example of the Cluster collaboration and outputs over the last couple of years. They often straddle over the Task group structure, for example they are about communicating outputs to stakeholders, often involve training people, and have been on policy advice. We will therefore continue these as Cluster wide activities (see next section).

#### 8.5.3.1 General considerations

Key points to remember when setting up these webinars that were highlighted are:

- 1-hour sharp messages – not too detailed
- Co-creation
- What are the requests from the EC?
- Archive of past webinars in Catalyst
- Learning from two years of remote/digital working
  - Best practices

- What worked and what didn't
- Make sure to record and save all for newcomers
- Target audiences – make sure it is clear who they are e.g.:
  - Other Cluster members
  - EU Commission

#### 8.5.3.2 Suggested webinar themes

- Scientific topics
  - Observations
  - Southern Ocean
- Policy-focused webinars with short discussions
- Existing project webinars
- Inventory of webinar metadata
- ECR groups?
- Modelling activities
- EU Polar Cluster marketing
- Communications how-to - from the Commission
- IPCC webinar FACE-IT and ECOTIP Wednesday 21<sup>st</sup> September 2022

#### 8.5.4 Training activities

There are many areas where people from across the projects would benefit in training. There is a chance that some projects may already be running these, in which case the Cluster's role is in promoting them to the wider audience of Cluster members. This is particularly true of APECS, SIOS, and EPB, who all run such events, which we publicise on social media.

Examples of ideas or requirements from some members:

- Science to policy/research to policy
- Side events with APECS
- Policy-briefing training (HRB)
- For ECRs: Proposal writing, moving to work, remote working
- Publication ethics
- Data management
- Recognition for additional work
- Humanitarian sector
- Ethics in research - guidance and standardization

## 9 The Cluster going forwards

We discussed how the Cluster should work over the coming year and beyond, and taking into account the final discussions of the meeting as well as points raised, this is what we propose.

The primary rationale behind the changes, primarily moving away from the Task Group structure, which served us well initially, are due to the increased size of the Cluster over the last couple of years, and the over commitment on individual's time. The hope is with this structure we will give roles to different people, which will mean

- we will be able to spread the load across a wider range of people rather than putting all the work on a few
- we will engage more people in the projects in the Cluster, increasing collaborations and sharing of opportunities.

### 9.1 Working groups

These are **ongoing activities** applicable to selected Cluster members. Rather than with the Task Groups, with all members involved, these will only include people from relevant projects. They will have a smaller group with a few people responsible – “**Cluster Curators**”. In setting these up, we need to consider who does what for how long. The aim is that these will be more focussed, and will have different people.

Expected initial groups (with representatives as applicable) will be

- Data management
- Stakeholders – Indigenous
- Stakeholders – Industry
- Stakeholders – Policy advisors
- Website
- Social media
- Catalyst Platform
- Artificial Intelligence
- Remote Sensing

### 9.2 Action groups

#### 9.2.1 Description

These are science planning groups – projects coming together based on a topic. These will be **short lived** – they will not last more than a few months, and will have clear goals, deliverables, and outcomes. They will have **deadlines**, and will end after a period.

The groups will be based on activities – see below for some examples for this next year.

The Coordination team will enable collaboration through setting a grouping up (on the Catalyst platform). Anyone can join and participate. This does not need to be the coordinator, and all are encouraged to participate, as is suitable for their project.

#### 9.2.2 Suggestions for 2022-2023

##### Online:

- Webinars – see section 7.5.3.2 for a list.
- Workshops
  - o Ethics and stakeholders
  - o Bridging natural & social sciences
  - o Policy briefings for scientists – how to communicate science to policymakers
  - o Sharing best practices
  - o Legacy – how to save data and results
  - o Infrastructure access
  - o Follow-up to Russia workshop (2023)
- Training
  - o Data management, sharing and standardisation across projects
  - o Ethics
- Greater engagement and integration for new projects
- Science planning
  - o AI
  - o Remote sensing
  - o Changes in technology
- FACE-IT and ECOTIP Webinar on IPCC 22<sup>nd</sup> September 2022

### In-person/conferences

- All-Atlantic Ministerial 2022 Polar side event in Washington
- Arctic Circle 2022 booth? – Reykjavik – October 2022
- Arctic Circle 2023 booth/sessions
- COP28 side event 2023
- EU Arctic Forum sessions 2023
- AGU 2022 booth
- ASSW 2023
- European Polar Science Week September 2023
- EU Polar Cluster General Assemblies
  - o Arctic PASSION General Assembly – Helsingor, Denmark
    - 28-30<sup>th</sup> June 2022
  - o EU PolarNet 2 General Assembly & Retreat– Sofia, Bulgaria
    - 13 September 2022 – Public Day
    - 14-15 September 2022 – Internal meeting
  - o ArcticHubs Annual Meeting – Egersund, Norway
    - 21-23 September 2022
  - o INTERACT General Assembly - Reykjanesbær, Iceland
    - 26-30 September 2022
  - o CHARTER General Assembly – Hamburg, Germany
    - 4-7 October 2022
  - o FACE-IT Annual Meeting – Bremen, Germany
    - 29 November – 1 December 2022
  - o PROTECT Fall meeting – Grenoble - France
    - 4<sup>th</sup> - 6<sup>th</sup> October 2022
  - o PolarRES General Assembly – Bergen, Norway
    - 26-27<sup>th</sup> September 2022
  - o SO-CHIC General Assembly – Paris, France
    - 7<sup>th</sup>- 9<sup>th</sup> November 2022
  - o OCEAN:ICE kick-off meeting – Paris, France
    - 9<sup>th</sup>-11<sup>th</sup> November 2022

## 9.3 Activities to continue – by Coordination Team

There are many other ongoing activities, primarily currently covered through the Communications Task Group, that will be managed by the Coordination Team (at AWI, BAS, EPB). We will ask other projects for input as needed, but don't intend to discuss these at regular meetings – these are more ongoing activities. These include the following activities, which are described in more detail elsewhere.

- Website updates
- Social media posts, shares, retweets, etc.
- Fact sheets – updating as new projects join or end.
- Annual Cluster Meetings - organisation
- Newsletters – seasonal/quarterly newsletters to send to projects and stakeholders

## 9.4 Other points and changes

### 9.4.1 Cluster representation at Member meetings

This is something that was started at the beginning of 2022 but is mentioned here as it is an important way of engaging more people from across the projects in the Cluster. The coordination team have been, and will continue, to attend each of the member's General Assembly (annual project meetings). We will present the Cluster to all members of the project.

It is felt that although the coordinator, Task Group leaders, and some Work Package Leaders are aware of the Cluster and our activities, this often isn't filtered down as hoped to the rest of the project members.

By presenting directly to them, we hope to engage more people and increase awareness. In particular we hope more people will sign up to the newsletters so continue to get updates, and engage in the website and social media for instance.

### 9.4.2 Invitation of APECS

The Coordinator suggested inviting APECS to become a third permanent member of the Cluster. APECS have accepted and are being added in. See 10.1.4 for more details on ECR engagement ideas.

### 9.4.3 Coordination change

The Coordinator Elaina Ford is on maternity leave from October 2022. The succession was discussed in the coordination team, and it was agreed Anneli Strobel, EU-PolarNet 2 project manager at AWI, would take over, from the end of August 2022.

### 9.4.4 2023 Cluster meeting

The Cluster would meet again next summer, likely around June 2023 in Brussels again, ideally hosted by the European Commission if that is possible.

It was discussed whether this should be part of the European Polar Science Week, but some felt this would be too much to add on to an otherwise busy schedule, and we would be better off focussing better through a targeted Cluster meeting. It was agreed (see 10.1.4) around 3 people per active project should be invited – the coordinator, a project manager or communications, data, stakeholder manager etc., and ideally an early career representative.

## 10 Appendix 1 – Cluster annual meeting attendees

Member/Organisation	Name
<b>European Commission</b>	Elisabetta Balzi
	Ana-Marie Stan
	Gaelle Le-Bouler
	Julien Lebel
	Paul Webb
	Szilvia Nemeth
	Miguel Roncero
<b>Joint Research Council</b>	Attilio Gambardella
<b>Sami Council</b>	Kotryna Markeviciute
	Elle Merete Omma
<b>Cluster Members</b>	
<b>APPLICATE</b>	Øystein Godøy
<b>ARCOS</b>	Lars Rosendahl
	Massimo Sernicola
	Yannick Arnaud
<b>ARCSAR</b>	Tore Wangsfjord
	Mikel Dominguez Cainzos
<b>Arctic PASSION</b>	Michael Karcher
	Elaina Ford
	Ilkka Matero
	Øystein Godøy
	Vito Vitale
	Sabrina Heerema
<b>ArcticHubs</b>	Ari Nikula
	Leena Suopajarvi
	Jonathan Karkut
<b>ARICE</b>	Franziska Pausch
	Nicole Biebow
	Vito Vitale
<b>BeyondEPICA</b>	Chiara Venier
<b>CHARTER</b>	Bruce Forbes
	Sirpa Rasmus
	Markku Heikkila
<b>CRICES</b>	Astrid Arnslett
	Risto Makkonen
	Jennie Thomas
<b>ECOTIP</b>	Marja Koski
	Marcin Wichorow
	Sabrina Heerema
<b>EPB</b>	Pjotr Elshout

	Joseph Nolan
	Renuka Badhe
<b>EU-PolarNet2</b>	Anneli Strobel
	Nicole Biebow
	Annette Scheepstra
	Joana Baptista
	Elaina Ford
	Kirsi Latola
	Lily Green
<b>FACE-IT</b>	Kai Bischof
<b>INTERACT</b>	Katharina Beckmann
	Margareta Johansson
<b>JUSTNORTH</b>	Gustav Sigeman
	Corine Wood-Donnely
<b>KEPLER</b>	Elaina Ford
<b>NUNATARYUK</b>	Leena Viitanen
<b>PolarRES</b>	Priscilla Mooney
	Hannah Hayes
	Ryan Weber
<b>PROTECT</b>	Anne Chapuis
	Gael Durand
<b>SIOS</b>	Heikki Lihavainen
	Øystein Godøy
	Ilkka Matero
<b>SO-CHIC</b>	Joseph Nolan
	Renuka Badhe
<b>TiPACCs</b>	Petra Langebroek
	Svein Østerhus
	Cyrille Mosbeux

## 11 Appendix 2 – Cluster meeting Day 1 - Round table discussion points.

Table: A Q: What are projects doing?

### General ideas and feedback from all participants

- Stakeholder map from Annette should be on the website
- Procedure to welcome new projects is missing
- Collaboration should be more focussed, specific themes should be identified
- ESA: ocean and ice, icesheets. they do not include the atmosphere
- What is a stakeholder – definition unclear
- Difference between EU-PolarNet 2 & Cluster & EPB
- Collaboration in science should be stronger, when new calls are opened new collaborations could be formed by communication within the Cluster members. Proposing joint sessions for conferences. Concrete session e.g. every ½ year on concrete topics.
- For Antarctic collaboration works very well
- To help the Cluster with policy advice, bringing their science to the politics (face it). To put the report on the right desk.
- We should harmonise the data sharing

### Clustered activities/ overlapping themes of all projects

- Stakeholder engagement, to avoid stakeholder fatigue, workshop in Kautokeino, tourist industry, **citizen sciences**, local people (Charter, Arctic Hubs, JustNORTH), Arctic communities. **Bridge natural and social sciences (Face It, ECOTIP, Charter)**
- **Atmosphere – ocean – sea ice interaction, climate change projections, Arctic & Antarctic.** Antarctic icesheets, Antarctic climate modelling, Sea level rise (TIPACCS, CRICES, PolarRES, SOCHIC)
- Arctic observation, earth observation
- Infrastructures (Interact, ARICE)

### Round 1/Group 1

- Annette Scheepstra: stakeholder engagement, stakeholder task group, EU-PolarNet 2
- Anne Chapuis: Protect: land-based ice. Work with TIPACCS, So-Chic in the Antarctic
- Astrid & Risto: CRICES – modelling effort, both poles, observations – existing campaigns into models, ocean, sea, ice, aerosols. Selected tasks for stakeholder engagement and clustering. Cooperation with
- Bruce Forbes: Charter – changes in terrestrial biodiversity, indigenous communities
- Ari Nikula: Arctic Hubs, effect of global industry on local industries, what are the effect of industries on local people
- ArcticHubs – Charter cooperating

### Round 2/Group 2



- Gael Durand: Protect – projecting mass balance of ice sheets, glaciers Arctic & Antarctic, sea level rise project,
- Cooperate with TiPACCs in terms of ice sheets
- Jonathan Karkut Arctic Hubs communication, JustNORTH and Charter, communication among institutes
- Heikki: Charter communication, expert Advisory Board, communication climate change, land use, Arctic communities, with Arctic Hubs and Just north, Institute cooperation
- Michael Karcher: Arctic Passion – carrying on what INTAROS started, improve Arctic Observing system, cryosphere, atmosphere, improving the data system/making data more accessible, relevant policy component (Arctic Council, EC, sub-national level), with INTAROS & CRICES, maybe with land ice
- Risto: bi-polar ocean-ice interaction

### Round 3/Group 3

- Heikki: SIOS – earth system data, observation, providing data management and logistic access, coordinate observation in the Arctic, ArcticPASSION, SAEON
- Franziska Pausch: ARICE – coordination of EU research fleets, infrastructures, with Interact, maritime industry
- Joana Baptista: partner EU-PolarNet, communication of projects
- Lars Rosendahl, ARCOS: remote sensing, satellites, earth observation, where are the changes in land use, monitoring changes e.g. in ship movements or strange happenings automatically. Open data and commercially free data, making data open?
- Sirpa Rasmus, Charter, Arctic biodiversity, collaborating with Arctic Hubs, JustNORTH, local & indigenous communities, think of citizen sciences
- Priscilla Mooney, PolarRES: Atmosphere – ocean – sea ice interaction, climate change projections, Arctic & Antarctic

### Round 4/Group 4

- ARCOS, Massimo Semicola: early warning system. Future categorization could help exchange between projects also at scientific level. They have an Advisory Board
- Petra Langebroek, coordinator in TiPACCs, Antarctic Icesheets, cooperate with Protect and SOCHIC, funded in Tipping point call (project started in 2019)
- Jennie Thomas. CRICES, climate modelling, same call as PolarRES, modelling efforts between the sister projects
- Cooperation at institutional level
- Stakeholders CRICES: is ab bipolar, researchers that need modelling data, but IPCC, AMAP, in Canada local communities. Cooperate with ESA
- TiPACCs also pure modelling, no real stakeholders, have a regional focused stakeholder event in northern Germany
- Hanna Hayes, PolarRES, communication, not integrating stakeholders so far

### Round 5/Group 5

- ARCOS, Yannick Arnoud, aims to bring suggestions in the Copernicus service, early warning system, critical infrastructure warning
- Oystein Godoy, data manager, SIOS, Arctic Passion, Applicate. Further development of the arctic observing system, coordinating data management, also Copernicus

- Vito Vitale, Arctic Passion, ARICE. Develop pilot services for permafrost, wildfires, sea ice
- Svein Osterhus, coordinating TiPACCs, also WP lead So-Chic, tipping points in Antarctica, climate models, ice sheet models, combined effect tipping point in the ocean and in the ice. Sea level rise in Antarctica.
- Kirsi Latola, EUPN2, INTERACT TA watchdog, prioritizing research programme, stakeholder workshops
- Marja Koski, ECOTIP, purely marine, biodiversity loss, physical tipping points effect on marine biodiversity, ecosystem tipping point, FACE-IT cooperation, would profit from cooperation with observation systems or projects looking at the physical system
- Sabrina Heerema, Arctic Passion & ECOTIP, GRID Arundel communication of both projects

### Round 6/Group 6

- Chiara Venier, Beyond Epica: oldest ice core, greenhouse gases, logistics. Lot of communication about the field campaign
- Kai Bischof, FACE-IT: ecology orientated, impact of cryosphere loss on fjord systems, effect on biodiversity. Comparing 7 fjord systems in the Arctic. Ecology projects, social sciences, stakeholder workshops, bridge natural and social sciences
- Wirchorow, Sios (facilitate logistics for conducting research & data management) & ECOTIP.
- Ilkka Matero, SIOS. Data management, earth system data, to harmonise in one database/portal,
- ARCSAR, Mikel Cainzos. Network of stakeholder who have interest in the Arctic, search and rescue and oil spill fighting. To build relations to be there when something is happening. Looking for gaps to closing them, policy advice

### Flip chart notes

- Scientific Themes/Clusters within the Cluster
  - Developed from the bottom up, based on the needs of projects
  - Coordinators ask for project needs in defined timelines, but also actively proposed by projects
  - Topics need a timeline, deadlines, “milestones”
  - Taxonomy/tags should be used to find other members/users for collaboration/working on the same topic
    - Two levels of tags?
      - Project level
      - Individual level

### Summary (Anneli Strobel)

- Group introduced projects, referred to Fact Sheets
- Slideshow currently on YouTube showing a short summary
- Looking for ways to cluster task groups differently
  - Avoiding overlap/reuse - such as for Stakeholder TG
- Good Antarctic collaborations are happening
- Many projects working on observations
  - Observations has been discussed as a new task group
- Stakeholder map shows what projects collaborate
  - This would be helpful to make visible on the website

- Need for a procedure on how to integrate new projects
- Help with policy advice
  - Main task of EU PolarNet
  - Want to support projects interested in this

#### 4.1.5 Table: B Q: How can projects benefit from collaborations

From flipchart:

- Need to know each other
  - Map from white paper
  - Visibility for members within the Cluster
- Avoid stakeholder fatigue
- Research/policy interface
  - Communication
  - Translation
  - Dissemination
  - Common voice
  - Combining projects based on theme
- Research on polar tourism
  - Different levels of experience, sharing knowledge
  - Citizen science
  - Shared knowledge
  - Where is tourism happening?
- Research/education interface
  - Making polar science available and understandable to future policymakers and scientists
- Data collaboration
  - Harmonizing
  - Unifying standards
  - Joint experiments/frameworks
  - GIS mapping/modelling
    - More communication
    - Newsletters
  - What can data from projects contribute to other projects?
  - Data standardization
  - Polar synergies, how to handle data
- Planned fieldwork/efficiency
- Working together to push for more resources
  - Identify gaps
  - Brainstorm sessions for future
  - Handover knowledge to policymakers
    - Open, broader communities
- Access to infrastructure
  - Both poles
- Include early career researchers and individual scientists
- Identify impacts
  - Stakeholder needs, especially for overarching projects
- Sharing and exchanging contacts – complement each other
- International continuity
- Combine projects for policy briefs

- Watch out for workshop fatigue
- Best practices fact sheets
- How to promote scientific findings to policy makers
- Linking new projects to older projects
  - Access to previous projects' findings
  - White papers
- Designate a person to contact
- Highlighting engagement opportunities
- Plan a Cluster meeting before large conference
  - Which project goes to which events
  - Communicating for efficiency
- Collaboration on training
  - Can be difficult for specific sessions
  - Data management/FAIR principles
  - Addressing common challenges
- Internal exchange between the projects
  - Harmonisation interface
- Facilitate communication between projects and the EC

#### Summary (Pjotr Elshout)

- How can we collaborate when we don't know each other?
- How do we move forward after the COVID-19 pandemic?
- Key topics
  - Data sharing
    - Need to identify gaps
    - Standardization of data
  - Legacies – what happens after a project is completed?
  - Stakeholders – avoiding fatigue, and identifying key stakeholders
  - Training – combine efforts when possible
  - Fieldwork planning – where and when? Would be useful to coordinate
  - Polar Synergy
  - Polar science interface
    - Would like workshop on policy briefings
  - More meet ups before/during big conferences
  - Newsletters are good

#### 4.1.6 Table: C Q: What stakeholders are projects engaged with

##### Summary (Nicole Biebow)

- Amazed by number of topics and wide range of stakeholders
- Several projects disseminate
  - Projects actively co-designing with stakeholders
  - Mostly projects relating to the social sciences – modelling especially
- Main stakeholders
  - Scientific community
  - Indigenous communities
  - Business & industry
  - Decision makers at all levels (local, national, international)
- Direct involvement and dissemination

Comment: We are always happy to present the Cluster at your projects' General Assemblies.

## 4.1.7 Table: D Q: Where do projects need support

Flipchart notes:

- How to get science/knowledge into policy advise
  - How to build a bridge between science and policy
  - More effective briefings
  - Policy advice best practices from EU
  - Better communication for policy visuals
  - Two-way policy communication
  - Explain basic concepts to policy
  - Platform for all projects to participate in policy collectively
    - Collective Cluster events/briefings
  - Understanding how to communicate to policy makers
    - Who to approach?
  - Central contact point for policy priorities
- Internal protocols for projects to collaborate
  - Short notice requests
- Different stakeholders, different methods
- Evaluating social benefits/impacts of project activities
- Mapping common/complimentary activities between projects
- Getting to know other projects better
- Reaching broader audiences/dissemination
- Not all projects have polar-specific knowledge
  - Sharing strategic information
- Cluster groups by knowledge/expertise
  - Best practices
  - Create communities of expertise
  - Projects have different approaches/ways of working (not only different topics)
  - Easy to find information on specific expertise/topics
    - Filtering on website needs to be developed better
  - Fact sheets on specific topics
  - Glossary – ensure we are all talking about the same thing
- Coordinate effort on data management
  - Link to existing requirements/frameworks
  - E.g., training on standardization
  - Cluster data catalogue
  - Common Cluster data platforms
- Common strategy on stakeholder engagement
- New/future projects in the proposal stage
- Coordinate PhD courses
  - Catalogue of all education activities from Cluster projects
  - Sharing education materials
- Systematic approach to everything
- Trainings on ethics
- Better communication between projects
  - Common workshops, webinars, etc.
  - Facilitate communications
  - Information on activities, expertise results
  - Commonalities between projects
  - Smaller thematic groups within the Cluster

- Project webinars under the Cluster umbrella
- Information on what other projects are doing
- Calendar of events – not only comms activities
- Develop keyword search
- Need to know what all the projects are about
- Routine and dependable newsletter/communication about projects and activities
- New projects can find it difficult
- Develop Fact Sheets further
  - More scientific information that is useful for collaborations
  - Knowledge of existing agreements projects have e.g., shipping and radar
- Improve taxonomy of projects
- Attending in-person meetings
- Online meetings need better focus
- Diagram of collaboration – add in stakeholders
- Understanding information needs in Brussels
  - Who, how, what information?
  - At which desk do I leave my report?
  - EU PolarNet in communication with the EC – all projects could benefit
- Find opportunities in projects that others could use
  - E.g., approaches to test technology
  - COVID-push to new technologies
- Information for new projects – information pack
- Information sharing on available funding
  - Funding from EU, EU PolarNet 2 Service calls
  - Funding for indigenous and local participants – paying for their knowledge
  - Cluster to be the place where the whole system view is taken – funding needed
- Identify communications themes topics
  - Using a tool for collaboration
- How to integrate knowledge
  - System thinking
  - Develop connection between focal points
- Strategic themes and more specific research themes

#### Summary (Joseph Nolan)

- Main issue is to know what each project is doing
- Better filtering developed keywords (tags) on website
  - Starting point
  - Internal protocols
- Sharing expertise
  - Especially regarding policy advice
    - Practical in how to prepare a brief
    - Who is the best to talk to
    - 2-way communication
- Effective and dependable communications
  - Newsletters are good, but could be better
  - Improve information sharing
    - Funding calls
  - New projects need better info during the proposal stage
    - Info pack on the Cluster would be useful

- System based view
  - Wider view of issues
    - Biodiversity, climate change, etc
  - Funding
- Webinars and trainings
  - Data management and standardization across projects
    - Help with legacy after projects end
  - Ethics trainings would be useful
  - Previous workshops (COVID-19, Impact of Russian Aggression) were useful, more would be good in the future
- Calendar of activities
  - Useful to get idea of other activities
    - Especially project field seasons
- In-person meetings are valuable – need at least one per year

#### 4.1.8 Table: E Q: How can projects contribute to science planning

From flipcharts:

- AI/Drones – POCAR observing system
- Remote Sensing
- Implement/COPERNICUS services
- Tipping points
- Data, metadata, archive, improves data quality
- Individual organization as well as projects for a broader perspective
- Science diplomacy
- Model quality from the polar systems for better impact assessment
- Co-production of knowledge
- Skill transfer to the next generation – engagement
- Project legacy – ensure important products are retained
- Early signs of tipping – link to short term data
- Inclusion of all relevant stakeholders in science planning
- Bottom-up scientific priorities from researchers and other stakeholders
- Ease of access for the best guidance/best use
- Access to knowledge around models e.g., limitations
- Developing further virtual access
  - To infrastructure, research, ships, etc.
- Important stakeholders
  - Producers of next generation sentinel
  - Focus on polar
- Social benefits
- Merging of social and natural sciences
  - Are we asking the right questions for society?
  - Priorities
- Improve predictions using real past data
  - Study the past to know the future
- Look at other examples of data management
- Gaps in Knowledge?
  - Share with other projects
  - Also data gaps
- Inclusion of local and indigenous knowledge

- How to best include social, economic constraints and variables in polar models
- Reuse data!!
- Science priorities
  - Gap analysis
  - AI and drones
  - Changing technology
  - Remote sensing
  - Tipping points – global and local
  - Ecosystem perspective
    - ECOTIP Work Package and storylines
  - Data and metadata standards
    - Improve data quality
    - Archive and access
    - Reuse of data
    - Access to models and limitations of these models
  - Include all stakeholders
    - Local, regional and international
    - Language needs to be relevant for individual stakeholders
- Topical groups would be good in the Cluster
  - Ecosystem based
  - Observation
  - Sea-level rise
  - Activity based around ASSW conferences or policy briefings
  - Work with organization for longer than term aspects
    - Legacy
    - Planning beyond project priorities
- Infrastructure
  - Ease of access
  - Virtual access
- Planning and knowledge of plans for fieldwork to reduce duplication
- Existing science knowledge needs to be shared
  - Language used to communicate science priorities
    - For different stakeholders
    - For reporting
  - Participation as important as co-creation
    - Gaps in participants of gender/community/youth
  - Ensure science priorities and results are fed back to communities
  - Longer term science needs – particularly reported to cryo & SCR
  - Different language within reports
  - Institutions have better access to science prioritisation than projects
    - Time scales – breaking beyond project cycles
- SLR versus melting service for shipping
  - Melting Cryo
- Changing technology
  - Communicate on impacts of both project and science
- Utilise current existing science planning and prioritisation processes led by international organizations (CARP, SCAR)
- Overview needed of existing organizations that do science planning
  - National, EU and international
- Duplication and redundancy in some processes and competition
- Development of research infrastructure – bottom-up approaches



- Availability of knowledge and future plans for fieldwork
  - CHARTER, ECOTIP, JUSTNORTH
- Use Cluster for getting input of productive development (e.g., shared Arctic variables)
- Planned shared sessions and conferences
  - More hybrid meetings
    - Better participation, but less networking
- Conduits of knowledge and needs form projects to organizations that implement

#### Summary (Renuka Badhe)

- Within the Cluster there are projects that get together on base don topic
    - Good to get together if there are related needs
  - Suggestion of groups created based on activities
    - e.g. ASSW
  - Science priorities
    - AI – big need
    - Drones and remote sensing
    - Tipping points
    - How rapidly technology is changing
      - Tech can become obsolete during the lifetime of a project
    - Data/metadata standards
      - Quality and storage
      - Legacy, knowledge
      - Ensuring data is reused
    - Modelling
      - Access to models
      - Understanding limits to models
  - Stakeholders to produce good science
    - Understand and modulate language for stakeholders
      - Language needs to be relevant
    - Best practices need to be passed on
  - Infrastructure access
  - Planning future fieldwork needs to be well known to avoid dysfunction
  - Work with relevant organizations that may go beyond project timelines
    - Avoid duplication in privatization
  - Clear overview of existing structures that do science privatization
    - National, regional and international levels
    - Clear indication of activities needed
  - Cluster thought of best place to get feedback from things that are deadlocked
- Question – Do we need task groups (Nicole Biebow)?

- Can we work totally informally?
  - Perhaps a combination of formal/informal groups would be best (Elaina Ford)
- Groups should be focused with a limited time (Michael Karcher)
  - Some issues need continuous support and are not time limited
- Specific activities would be good (Renuka Badhe)
  - Short term small groupings – 3-4 projects come together for a specific goal
  - Move targets to outcome
    - Many projects need motivation
    - Define outcomes
- How do we group things – events, policy, etc?

- Categories on website e.g. AI
- Long running things should have revived (Joseph Nolan)
  - Need for a protocol for groups
- Coordination in task groups worked well in groups with joint events and outcomes (Nicole Biebow)
  - Stakeholder work
  - Doubtful to make action groups on scientific topics
    - Groups are already working together
  - Think where your project benefits it when works with other projects
  - YOU are the ones that shape the Cluster
  - Policy work is better with multiple projects
  - We are always stronger together
- Find the right balance in stability and ability (Gaelle Le-Bouler)
  - HOW
  - What are the tools you need to make this a reality
  - Knowledge sharing through same platform
    - One single entity point for everyone
    - Onboarding for every project
- Be careful with tools (Elaina Ford)
  - Issues with Teams
  - Must be accessible in many different ways – such as website
- Support for Cluster is EU PolarNet 2 (Vito Vitale)
  - Proper need to find way to support research activities
  - Should not be the job of a single project
  - Who will manage the Cluster after EU PolarNet 2?
    - Part of the Arctic PASSION deliverables (Elaina Ford)
- Strategic initiatives (Ryan Webb)
  - Clear targets with specific lifetimes
    - Policy interactions
    - Collaboration on international events
  - Stakeholder engagements
  - We all have deliverables
    - Streamline activities in collaboration
    - Not all projects but aligned projects
    - Save time increase efficiency
  - Strategic priorities
  - Tangible initiatives
  - Ownership – need a buy-in from people on specific areas (Elaina Ford)
- HR Issue – needs its own program office (Bruce Forbes)
  - Something bigger and more complex
  - Not good to lose institutional knowledge every few years
  - EU PolarNet spends a lot (Nicole Biebow)
    - Task of sustaining Cluster includes continuous, long-term coordination
    - Should be money to support in the projects
- Pragmatic approach (Gaël Durand)
  - If things work, then don't change – change things when they don't work
  - Money not attributed at the right place – projects have obligatory membership in the Cluster
    - Not sure how to spend money for Cluster activities
    - Money should be to EU PolarNet
- Needs a concrete structure – how to use support (Vito Vitale)

- Top-down approach
- Something not related to a specific project but something continuous
- What will remain in 10 years?
- EU PolarNet person should attend General Assemblies (Gaelle Le-Bouler)
  - How to address
  - Needs better liaising with policy officer
  - Identify who to communicate with on a wider level (Elaina Ford)
  - Come to the ArcticHubs general assembly in September! (Jonathan Karkut)
- Projects breathe life into the Cluster (Jennie Thomas)
  - Sometimes activities are not in the tasks
  - Existing structures to fit the people into challenge how to engage with the Cluster
- Clicking today in this discussion that WE are the Cluster (Sabrina Heerema)
- Too many meetings/Zoom fatigue (Elaina Ford)
  - We cannot help you if you do not contact us
- Newsletters – who is sending our newsletters to their projects (Elaina Ford)
  - No hands
  - We need to get the right information to the right people

4.1.9 Table: F      Q: How we collaborate – ideas on new ways of working/structure

#### 4.1.10 Joining the Cluster

- Many groups new to the Cluster wonder what the Cluster does for you – what is the benefit to participating? (Petra Langebroek).
- There is a lot of confusion about the Cluster when groups first join (Michael Karcher)
- Projects need to know the benefit of task groups and the Cluster at large when joining
  - Need to know the added value of participation (Jennie Thomas)
- Show the benefits including membership in a network of new projects (Ari Nikula)

#### Meeting fatigue

- Most people are already swamped with meetings
- Coordination/collaboration needs to be focussed, and are dedicated to a narrow goal
  - What are the messages we want to convey?
  - Groups have limited time spa and are focused
- Need for clearly defined, goal oriented, time limited groups
- Task groups need narrower scope (Jennie Thomas)
  - Subgroup of stakeholder group would be useful
  - 6-7 people maximum
  - Specific tasks for completion
- Not easy to keep momentum with new groups (Kirsi Latola)
  - Need a structure strong enough to keep people interested (Vito Vitale)
- Information overwhelm a problem
- How to activate individual researchers?

#### Ongoing activities

- Some activities are not time limited (Øystein Godoy)
  - Ensure some memory curation/process
  - Build a system that can be passed on – especially in terms of data management and stakeholder engagement

- What happens in plan effects
- Changing format of groups – rotating participation (Yannick Arnaud)
  - Work on more useful tools
- Maintain a repository of results
- Long term activities, responsibilities and actions
  - More top-down approach
- Need dedicated people to manage (Chiara Venier)
- Centralization of information would be helpful
- Expert database
- Avoiding information overwhelm
- Feedback on areas of activity
- Need a catalogue

**Both are needed – collaboration on training issues, smaller, focused groups plus some ongoing issues**

- Bite-sized, tangible objectives reviewed on a periodic basis
  - Can be aligned with bigger events

**Clarity**

- Need clearer definition of activities with respect to other groups – e.g. SAON (Michael Karcher)
  - Need clear guidance from European Commission
- Task groups are good, but need concrete aims (Marja Koski)
- Specific goals of outputs e.g. publications, policies, etc.

**Questions**

- Coordination is important but how?
- Did task groups exist before COVID?
- How to see yourself within the Cluster?
- How to motivate participation?

**Cross communication**

- Overlap exists between some groups – comms-education-stakeholders (Lars Rosendahl Appelquist)
  - For example, could merge communications and education groups
  - Becomes complicated
- Pinpoint issues that cross task groups – e.g. training webinars (comms/education)
- More defined tags for website
- Keeping updated with calendar – more opportunities to meet in person (Kai Bischof)
  - Informal – can be tacked on to other big meetings
- Sharing best practices
- Communications booster with set objectives/deadlines
- Insuring rapid and easy communication within the Cluster

**Clusters within the cluster (Astrid Arnslett)**

- How to ask other groups for help
- “Mini clusters” - targeted groups
  - Find communications

- To know other projects and communicate across projects
- Thematic approaches have enormous potential (Ari Nikula)

**Building bridges across natural sciences, stakeholders and social scientists**

- Show us the interlinks

**Bridging science & policy (Kai Bischof)**

- Need a group to better explain
- Joint-interim policy statement would be good (Jonathan Karkut and Sirpa Rasmus)

## 12 Appendix 3 – Cluster meeting Day 2 - Thematic collaboration discussions

### 4.1.11 Workshops

- Discuss specific problems
  - Legacy
- Help finding right people to join workshops (e.g., Indigenous communities, etc)
- Follow-up meetings
- Best practices for remote working
- Horizon 2020 Europe with Ana-Maria Stan
- Policy briefings

### 4.1.12 Webinars

- Scientific topics
  - Observations
  - Southern Ocean
  - Other Cluster members
  - EU Commission
  - Target audiences?
- 1-hour sharp messages – not too detailed
- Co-creation
- What are the requests from the EC?
- Policy-focused webinars with short discussions
- Existing project webinars
- Archive of past webinars in Catalyst
- Inventory of webinar metadata
- ECR groups?
- Learning from two years of remote/digital working
  - Best practices
  - What worked and what didn't
- Modelling activities
- EU Polar Cluster marketing
- Comms how-to from Commission
- Make sure to record and save all for newcomers

### 4.1.13 Training activities

- Science to policy/research to policy
- Side events with APECs
- Policy-briefing training (HRB)
- For ECRs: Proposal writing, moving to work, remote working
- Publication ethics
- Data management
- Recognition for additional work
- Humanitarian sector
- Ethics

- Guidance and standardization
- Policy briefings

#### 4.1.14 Other suggestions/ points

- Conferences
  - Arctic Circle
  - FRISP (Antarctic)
  - Arctic Spirit
  - COP26
    - Joint sessions/booths?
    - Cluster side event?
  - Does not need to be attended by all projects
  - European Space Week September-October 2022 in Prague
    - ARCOS
  - 2023 Geo-Plenary – attend as a Cluster?
  - EGU
    - Add-on informal, short Cluster meetings to bigger events
- Boosters – funding expert speakers?
- Mandatory meeting – EU Polar Science Conference 2023 (Nicole Biebow)
  - EU Commission & ESA
  - EU PolarNet 2 coordinating
  - 3 days of science with scientific advisory
  - 1 policy day
  - 1 day for stakeholders
  - Currently looking for venue
- ECR Engagement (Elaina Ford)
  - Creating a community
  - Avoid duplication with APECS
  - Project steering committees for ECRs
  - Informal networking with senior scholars
  - Every project should budget for an ECR to attend Cluster meetings (Joseph Nolan)
  - We can learn a lot from ECRs (Kirsi Latola)
  - Good to have an ECR representative on steering committees (Elaina Ford)
    - We have one that serves for a year (Petra Langebroek)
      - Similar for KEPLER and ICE-ARC
  - Could projects find an ECR point of contact to discuss what they want out of the CLUSTER?
  - CRICES has an ECR newsletter (Jennie Thomas)
    - Need a briefing document about why and what the Cluster can do for them
  - ARICE has a project officer to APECS (Franziska Pausch)
    - Google doc for events and announcements – happy to share with the group
  - EU PolarNet 2 does not have an ECR on the steering committee (Nicole Biebow)
    - Full of higher-ranked, older career researchers
    - Working with ECRs as not official
  - Good to be mindful that ECRs have a high level of career precarity (Renuka Badhe)
    - What we ask must have value for them
- Legacy of ended projects (Elaina Ford)
  - Projects stay in Cluster for two years after ending
  - Currently unstructured
  - Do ended projects continue to contribute? (Kirsi Latola)

- EU PolarNet 2 and European Polar Board (EPB) catalogue of infrastructure maintained for Europe online (Renuka Badhe)
  - PolarDex
  - Making a deliverable more and more useful
- ArcticPASSION analysis on what deliverables are produced and usefulness of legacy
  - PLACARD project
  - Prioritise deliverables with maximum legacy value
    - Good starting point
- Post data needs to be available after projects are completed (Marja Koski)
- Have one page on website for each ended project with links to report (Petra Langebroek)
  - This already exists (Elaina)
- When do we end the partners end? (Nicole Biebow)
  - TOR states two years
  - No ended projects attended the meeting and are not attending webinars/task group meetings
  - Two years may be too long, better to limit to six months
- Two issues (Gaël Durand)
  - First, [continuing] to be part of the Cluster
  - Archiving what the Cluster has done
- Should ask projects to help secure and archive materials (Vito Vitale)
- When a project ends, when do we stop communicating? (Elaina Ford)
  - Joseph – two years is a long time, but TOR says “up” to two years
    - Inactive projects can be out
    - No need to change TOR
      - Rephrasing with different focus could be good (Elaina Ford)
- Membership and contact points
  - Which projects passed on newsletter to their projects? (Elaina Ford)
    - No one raised their hand – reflects engagement problem
    - ACTION – Forward newsletter to project mailing list or relevant communications person
  - Format suggestion (Gaël Durand)
    - Last newsletter was very long
    - PROTECT format:
      - Title and two/three sentences with key information and a link
      - Option to click link for more information if interested
      - Do you have analytics on extra links? (Elaina Ford)
    - Would be good to have more frequent and shorter newsletters
  - Resending newsletter is too much information (Jennie Thomas)
    - Forwarding onto groups is not the right solution
    - Could put content targeted in internal newsletter
    - Relies on people to forward information on
- EPB – Terms of Reference Review
  - Let us know if you want changes
  - Concrete task form – a small group to focus – could be a rest run of the restructure (Joseph Nolan)
  - TOR is there to operate Cluster in the best way (Renuka Badhe)
    - Ask us to change it if does not make sense
    - Road map for working
    - Can be changed
- EU Polar Cluster Meeting – June 2023 Brussels



- Who and how many to bring from each project?
  - 3 people per project is perfect (Gaël Durand)
  - Coordinator/manager and communications people
    - Mandate one ECR
  - Projects that are still running – not ended projects
- More science (Petra Langebroek)
  - Presentation and poster session?
  - Would need an extra have day to accommodate science
    - Could just highlight new projects (Pjotr Elshout)
  - Value of the Cluster is connections (Jennie Thomas)
    - Without science content we can't articulate – must be included
  - Science discussions would be useful (Sirpa Rasmus)
  - Helpful as a new project to hear about ongoing projects (Ryan Weber)
    - Activities discussed held at meeting
      - Trainings, webinars, etc
- Hybrid meetings more widely available (Elaina Ford)
  - Posters? Presentations?
    - Combined presentation of similar focused projects (Renuka Badhe)
  - Need for discussions (Astrid Arnslett)
  - Having a longer session would get more engagement (Mikel Dominguez Cainzos)
  - Something longer – 2 nights/1.5 days
  - Need specific points of contact from work packages (Jennie Thomas)
    - High level specifics
    - Posters not enough
    - Need to get the right people talking
    - Takes more time
  - Posters are useful for the EU Commission (Joseph Nolan)
    - Nice way to engage with more people
    - Need designated time and dedicated sessions (Bruce Forbes)

## 13 Appendix 4 – Factsheets

Attached are the one-page factsheets of the projects and members.

These were sent to the participants prior to the meeting, to facilitate knowledge exchange on the overviews of the projects.

They are also available on the Cluster website [www.polarcluster.eu](http://www.polarcluster.eu) where they will be updated and maintained as appropriate.

# EU Polar Cluster



## Welcome to the EU Polar Cluster – a collaboration of Arctic and Antarctic projects funded by the European Commission

The EU Polar Cluster is a network of collaborative polar [projects](#) funded by the European Commission, and two permanent members, the EPB and SIOS. We have a range of [Arctic](#), [Antarctic and Southern Ocean](#), and [Polar](#) projects. [Projects that have ended](#) still provide input to the Cluster, and we include them here to support the legacy of these projects.

The Cluster thus merges a broad spectrum of research and coordination activities – ranging from the most up-to-date findings on permafrost and sea ice, from enhancing observation to improving predictions, and from networking research stations to coordinating access to icebreakers.

Our objective is to bring the insights from our various areas of expertise together in order to provide one entry point to EU funded Polar research. Jointly we are aiming at providing policy-relevant information and supporting the EU in implementing its integrated policy for the Arctic.

How do we do this? In fostering international cooperation, in reporting on the impacts of climate change on the Arctic's fragile environment, in promoting sustainable development and in cooperating with policy makers, indigenous peoples and local communities, business and NGO representatives and other societal actors.

More information:

[www.polarcluster.eu](http://www.polarcluster.eu)

[@EUPolarCluster](https://twitter.com/EUPolarCluster)

[www.facebook.com/groups/eupolarcluster](https://www.facebook.com/groups/eupolarcluster)



[www.polarcluster.eu](http://www.polarcluster.eu)

## Mission of the EU Polar Cluster

- To connect EU Polar Cluster Members, further developing the European polar research, observation, infrastructure and/or modelling community network.
- To organise joint activities by Cluster Members for greater impact than possible individually, while minimising duplication, sharing workload, and avoiding stakeholder fatigue.
- To support the sustainability and accessibility of large-scale EU-funded Polar projects' selected legacy outputs after their official end.
- To share advice and best practices among EU Polar Cluster Members.
- To promote the European polar research community, especially the strength, excellence, integration and best practices of EU-funded polar research.
- To provide a single contact point to all EU Polar Cluster Members for external partners and stakeholders, including Indigenous and local communities.

## Added value of clustering activities

- Higher impacts than single project's outputs
- Upscale collective projects' efforts
- Increased knowledge sharing
- Less but better engagement with stakeholders
- Greater visibility
- Better use of citizen's money



## Current Members

The EU Polar Cluster consists of **two permanent organisations**, the European Polar Board (EPB), the Svalbard Integrated Observing System (SIOS), and European Commission funded polar collaborative projects. There are currently **20 current projects**, and **6 previous projects** that are now completed are included to maintain legacy and access to the results and outcomes from this work.

Arctic	Polar
ARCOS	CRiceS
ARCSAR	EU-PolarNet 2
Arctic PASSION	FORCeS
ArcticHubs	PolarRES
ARICE	PROTECT
CARPARDUS	Permanent Members
CHARTER	EPB
ECOTIP	SIOS
FACE-IT	Ended projects
INTERACT	ICE-ARC
JUSTNORTH	KEPLER
Nunataryuk	Blue Action
Antarctic	APPLICATE
Beyond EPICA	INTAROS
SO-CHIC	iCUPE
TiPACCs	

## ARCOS: ARCtic Observatory for Copernicus SEA Security Service

The goal of the ARCOS project is to design and implement an early-warning system named ARCOS (Arctic Observatory for Copernicus SEA Service) providing continuous monitoring of the Arctic region.

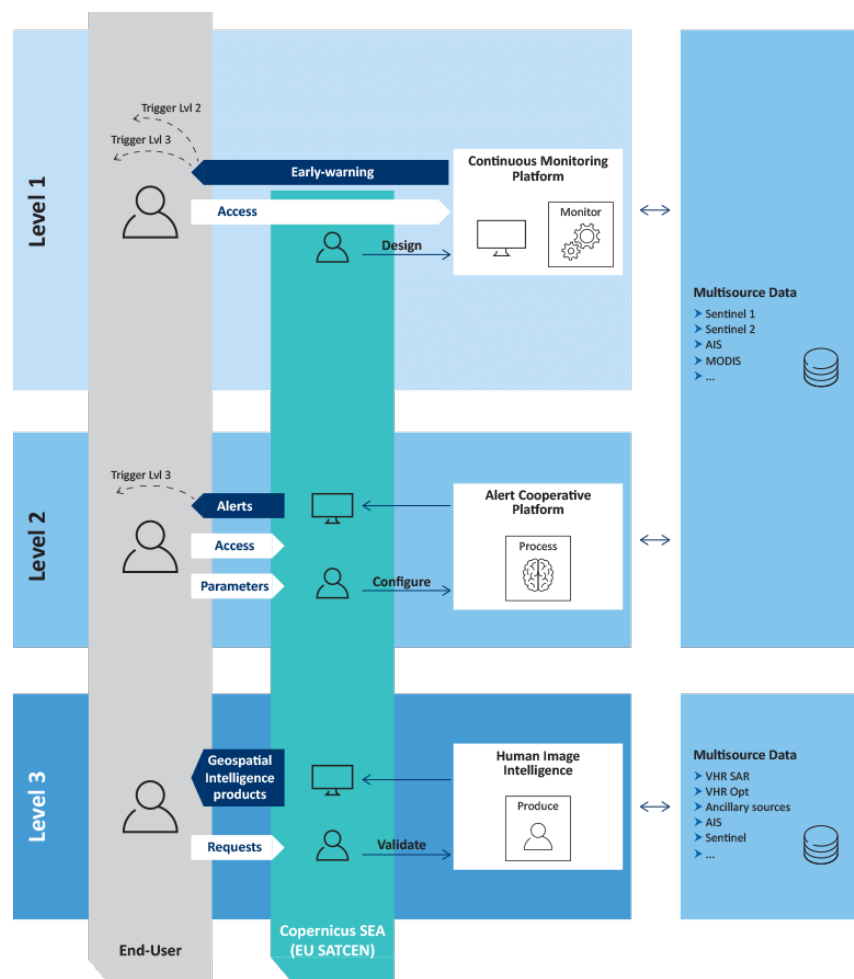


Designed to generate actionable products in the security domain by processing and fusing multi-sensor data, the ARCOS system integrates available information from space, non-space sources and products available from Copernicus Services such as the Copernicus Marine Environment Monitoring Service (CMEMS) and the Copernicus Climate Change Service (C3S).

### Objectives/Mission

The specific objectives of the project are to:

1. Develop a mechanism for proactive intelligence generation based on an early warning system
2. Resolve the main technological challenges resulting from the large amount of data processed
3. Resolve and exploit the challenges and opportunities due to the Arctic extreme latitude
4. Develop an operational and scalable prototype of a web mapping platform
5. Demonstrate the operational use of EO based intelligence relevant to the Arctic region
6. Produce a roadmap for its transition into operations of the Copernicus SEA Service



### Key facts

<b>Start</b>	01/12/2020	<b>Project Coordinator</b>	Massimo Sernicola
<b>End</b>	31/05/2023	<b>Project Manager</b>	Marco Corsi
<b>EU Contribution</b>	€1,498,061	<b>Coordinating Organisation</b>	e-GEOS
<b>Grant No:</b>	101004372	<b>Consortium</b>	7 Partners

### Website:

[www.arcos-project.eu/](http://www.arcos-project.eu/)

### Social media:

[@ArcosH2020](https://twitter.com/ArcosH2020) <https://www.linkedin.com/groups/9014222/>

## ARCSAR: Arctic and North Atlantic Security & Emergency Preparedness Network

Innovation platforms for Arctic and North Atlantic security: The provision of new research and innovation programmes contribute substantially to successful interactions between security and emergency response institutions in the Arctic and the North Atlantic (ANA). In this context, the EU-funded ARCSAR project aims to establish international best practice and propose innovation platforms within safety and security in the focus region.



The project will advise on their integration and promote the industrialisation of results. The project will map innovations that could address capability issues and other gaps in order to improve performance, and designate priorities as regards common capabilities demanding additional standardisation. ARCSAR will study whether more measures are needed to respond to composite challenges, including proper situational awareness, emergency response capability in search and rescue (SAR), environmental protection, and other security threats.

### Objectives/Mission

The ARCSAR project aims to establish international best practice and propose innovation platforms for the professional security and emergency response institutions in the Arctic and the North-Atlantic. The focus is on cross-border cooperation and increased interaction between various networks of emergency preparedness and response authorities, industry groups, academia, innovators, high-level forums, voluntary organizations, and local communities. The overarching goal is to increase safety in the ANA region and develop competence of the practitioners and professional security and emergency response institutions through workshops, joint exercises, innovative platforms, and stakeholder events.

The ARCSAR project will monitor research and innovation projects, map the prevailing challenges for search and rescue (SAR), environmental protection, and security in the ANA region, express common requirements as regards innovations that could fill in capability and other gaps, recommend uptake of results, and indicate priorities for targeted topics requiring more standardization or policy.

### Key facts

<b>Start</b>	01/09/2018	<b>Project Coordinator</b>	Tore Wangsfjord
<b>End</b>	29/02/2024	<b>Project Manager</b>	Emmi Ikonen
<b>EU Contribution</b>	€3,492,021	<b>Coordinating Organisation</b>	Joint Rescue Coordination Centre North Norway
<b>Grant No:</b>	786571	<b>Consortium</b>	21 Partners

### Website:

[www.arcsar.eu/](http://www.arcsar.eu/)

### Social media:

[@ARCSARNETWORK](https://twitter.com/ARCSARNETWORK) [f arcsarnetwork](https://facebook.com/arcsarnetwork)

# Arctic PASSION



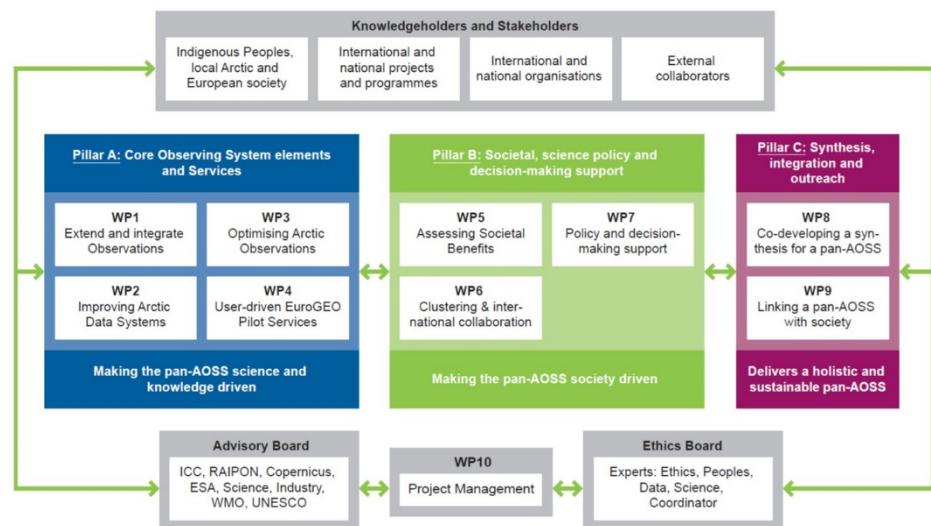
## Arctic PASSION: Pan-Arctic Observing System of Systems

The Arctic is more affected by climate warming than any other region. To monitor the ongoing changes, to predict the evolution of the climate system and to develop mitigation measures, we need a coherent system of Earth Observation.



### Objectives/Mission

Innovative pan-Arctic observation: The key motivation for the EU-funded Arctic PASSION project is the co-creation and implementation of a coherent, integrated Arctic observing system: the Pan-Arctic Observing System of Systems - pan-AOSS. It aims to overcome shortcomings in the present observing system by refining its operability, improving and extending pan-Arctic scientific and community-based monitoring and the integration with indigenous and local knowledge. The project will streamline the access and interoperability of Arctic data systems and services, improve the economic viability and sustainability of the observing system, while working with the Sustaining Arctic Observing Networks (SAON), Copernicus, GEO and other international programmes. Arctic PASSION will also co-create eight new EuroGEO pilot services serving Arctic rights holders and stakeholders, science, and policy.



### Key facts

<b>Start</b>	July 2021	<b>Project Coordinator</b>	Michael Karcher
<b>End</b>	June 2025	<b>Project Manager</b>	Luisa Cristini
<b>EU Contribution</b>	€14 998 301	<b>Coordinating Organisation</b>	Alfred Wegener Institute
<b>Grant No:</b>	101003472	<b>Consortium</b>	33 Partners

### Website:

[www.arcticpassion.eu/](http://www.arcticpassion.eu/)

### Social media:

[@arctic\\_passion](https://twitter.com/arctic_passion) [f arcticpassion](https://facebook.com/arcticpassion) [@arctic\\_passion](https://instagram.com/arctic_passion)

[www.polarcluster.eu](http://www.polarcluster.eu)



## Global drives, local consequences: Tools for global change adaptation & sustainable development of industrial and cultural Arctic “hubs”

The Arctic today faces extraordinary pressures, with globalisation and climate change combining to drive change at an unprecedented rate. The opening up of new economic sectors, including mining and mass tourism, alongside the industrialisation of many traditional livelihoods, such as fishing and forestry, are driving land use conflicts between competing sectors, and producing profound transformations on lives and communities at the economic, socio-cultural, political and environmental levels.



The ArcticHubs Project is an ambitious, multi-disciplinary international collaboration that aims to develop research-led, practice-based solutions to the urgent challenges faced in the Arctic.

### Objectives/Mission

At the heart of the project's pioneering approach are the 22 'hubs' – representative locations across the Arctic, where participatory and collaborative methodologies will be employed to observe the impacts of economic activities, and to build solution-orientated tools for reconciling new economic opportunities with traditional livelihoods and solving land-use conflicts between different sectors.

The ArcticHubs project will work with local, national, regional and global stakeholders, including Arctic communities, industrial stakeholders, policy makers and others, to make a major contribution to the long-term sustainability and resilience of the region – its environment, communities, and new and existing industries and livelihoods.

Key outputs of the project will include tools for building collaborative and consensual approaches to land and resource use. Tools such as public participatory geographical information systems, guidelines for 'social licence to operate', and the building of future scenarios for the Arctic, will be trialled and implemented in collaboration with stakeholders in the 22 hubs. In addition to 'fish farming', 'forestry', 'tourism', 'mining' and 'indigenous' hubs inside the Arctic, four external 'learning' hubs, located in Canada, Austria and Italy, will provide points for comparison and control with the Arctic cases.

### Key facts

<b>Start</b>	01/08/2020	<b>Project Coordinator</b>	Pasi Rautio
<b>End</b>	31/07/2024	<b>Project Manager</b>	
<b>EU Contribution</b>	€5,956,083	<b>Coordinating Organisation</b>	Natural Resources Institute Finland
<b>Grant No:</b>	869580	<b>Consortium</b>	22 Partners

### Website:

<https://projects.luke.fi/arctichubs/>

### Social media:

[@ArcticHubs](#)

## ARICE – Arctic Research Icebreaker Consortium: A strategy for meeting the needs for marine-based research in the Arctic

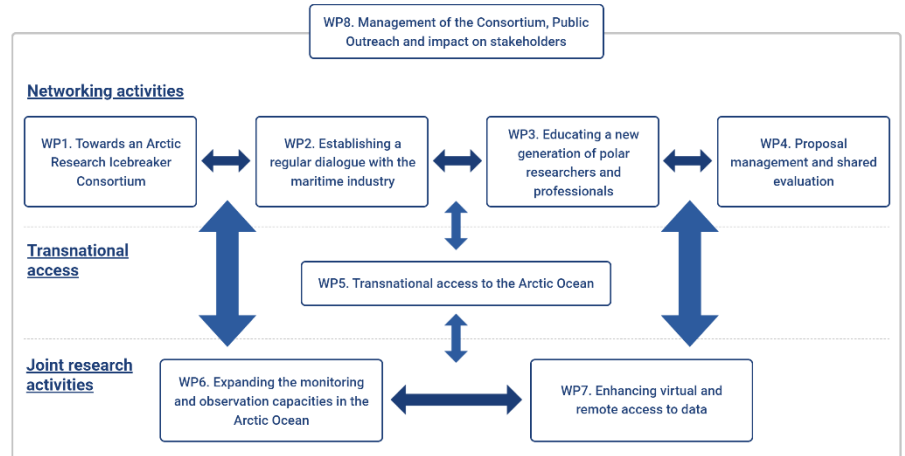
ARICE is a project financed by the EU HORIZON2020 RIA Research and Innovation action on the topic “Integrating Activities for Starting Communities”. ARICE is an international cooperation strategy aiming at providing Europe with better capacities for marine-based research in the ice-covered Arctic Ocean.



### Objectives/Mission

The recent changes of the Arctic and the increased economic activity in the region have triggered a demand for accurate sea-ice and weather predictions, for information on the status of the Arctic Ocean, and for complex predictions of future scenarios. To address these issues of particular environmental and societal concern and to develop policy recommendations for a sustainable usage of the Arctic Ocean and its resources, the Arctic science community needs world-class research icebreakers (RIs) to access the ice-covered Arctic Ocean. The current shortage of availability of RIs and a not optimally coordinated polar research fleet impedes Europe's capacity to investigate this region. There is thus an urgent need for providing European researchers with better RI capacities for the Arctic. ARICE aims at reaching this goal with the existing polar fleet by:

1. Networking: ARICE will develop strategies to ensure the optimal use of the existing polar research vessels at a European and international level, working towards an International Arctic Research Icebreaker Consortium which will share and jointly fund operational ship time on the available RIs.
2. Trans-national access (TNA):: PRV Polarstern, Germany; IB Oden, Sweden; RV Kronprins Haakon, Norway; MSV Fennica, Finland; CCGS Amundsen, Canada; RV Sikuliaq, United States of America
3. Joint research activities: ARICE will improve the RIs' services by partnering with maritime industry on a “ships and platforms of opportunity” programme and by exploring into new technologies that will lead to an improvement of ship-based and autonomous measurements in the Arctic Ocean.



### Key facts

<b>Start</b>	01/01/2018	<b>Project Coordinator</b>	Nicole Biebow
<b>End</b>	31/12/2022	<b>Project Manager</b>	Veronica Willmott
<b>EU Contribution</b>	€ 5,996,565	<b>Coordinating Organisation</b>	Alfred Wegener Institute
<b>Grant No:</b>	730965	<b>Consortium</b>	15 Partners

### Website:

[www.arice-H2020.edu](http://www.arice-H2020.edu)

### Social media:

[@Arice\\_Eu](https://twitter.com/Arice_Eu) [f AriceEu](https://www.facebook.com/AriceEu)

[www.polarcluster.eu](http://www.polarcluster.eu)

## Beyond EPICA Oldest Ice Core: 1,5 Myr of greenhouse gas – climate feedbacks

Using ice-core information of the past to face climate change of the present and the future. To design effective mitigation and adaptation strategies to the current man-made climate change and improve our ability to predict future climate changes, we need to carefully study the past. The Antarctic ice sheet contains a unique record of the Earth's climate history. The air bubbles embedded in the ice preserve a record of the Earth's atmosphere through time.



### Objectives/Mission

Beyond EPICA project set up a camp at Little Dome C in East Antarctica, with the aim to obtain quantitative, high-resolution ice-core information on climate and environmental changes over the last 1.5 million years. This includes a major transition in the rhythm and intensity of the ice age cycles. Its investigation is vital to understand the processes governing our climate system.

Only ice cores contain direct and quantitative information about past climate forcing and atmospheric responses. However, the longest (EPICA) ice core record available to date covers only the last 800 kyr. The RIA Topic LC-CLA-08-2018 empowers the European ice core community to perform such an oldest ice core drilling and the project 'Beyond EPICA' is taking on this unique challenge and opportunity. The overarching scientific objective driving 'Beyond EPICA' is to obtain quantitative, high-resolution ice-core information on climate and environmental changes over the last 1.5 Myr. The cause-and-effect relationship that led to the enigmatic MPT change in the climate system is not understood yet, as important information on global changes in the climate system is still missing.

Most of this information, including the phasing of these changes in the Earth System can only be derived from a continuous ice core from Antarctica covering the last 1.5 Myr. This proposal uses the planning derived during the recent BE-OI CSA, and offers an excellent team (the only team globally that could at present accept the challenge of the call), underpinned by excellent infrastructure and capacity, and is currently ensuring it has an excellent location for the core.



This project has received funding from the European Union Horizon 2020 research and innovation programme under grant agreement No 815384

**Beyond EPICA - Oldest Ice Core**  
1,5 Myr of greenhouse gas  
climate feedbacks

Follow us:  
[www.beyondepica.eu](http://www.beyondepica.eu)

**The oldest ice: 1.5 million years ago**

The EPICA project collected ice from 800 000 years ago. Beyond EPICA's main goal is to obtain quantitative, high-resolution ice-core information on climate and environmental changes over the last 1.5 million years in Antarctica.

Antarctica, Little Dome C  10 999 942.00 €

1 June 2019 - 31 May 2026 H2020 - Research and Innovation Action

**The Antarctic ice sheet contains a unique record of the Earth's climate history.**

Direct information about past climate forcing and atmospheric responses are important to better constrain climate model projections of the long-term response of Earth's climate system to continuing greenhouse gas emissions. Studying the causes of the Mid-Pleistocene transition (900 thousand years ago to 1.2 million years ago), when the alternation of the cycle of glacial and interglacial periods changed from 40 thousand years to 100 thousand years, will be crucial to understanding cause-effect relationships in climate systems.

**Air bubbles from the ancient atmosphere**

This ice core will be very precious. Little Dome C has very low snowfall. The snow accumulates slowly trapping the air bubbles, that are fundamental to finding the atmospheric composition of the past of our planet.

### Key facts

<b>Start</b>	01/06/2019	<b>Project Coordinator</b>	Carlo Barbante
<b>End</b>	31/05/2026	<b>Project Manager</b>	Chiara Venier
<b>EU Contribution</b>	€ 10,999,942	<b>Coordinating Organisation</b>	The National Research Council (Italy)
<b>Grant No:</b>	815384	<b>Consortium</b>	12 Partners

### Website:

[www.beyondepica.eu/en/](http://www.beyondepica.eu/en/)

### Social media:

[@OldestIce](https://twitter.com/OldestIce) [f OldestIce](https://facebook.com/OldestIce) [@ beyondepica\\_oldestice](https://instagram.com/beyondepica_oldestice)  
[Youtube: BeyondEPICA](https://youtube.com/BeyondEPICA)

## CAPARDUS: Capacity-building in Arctic standardisation development

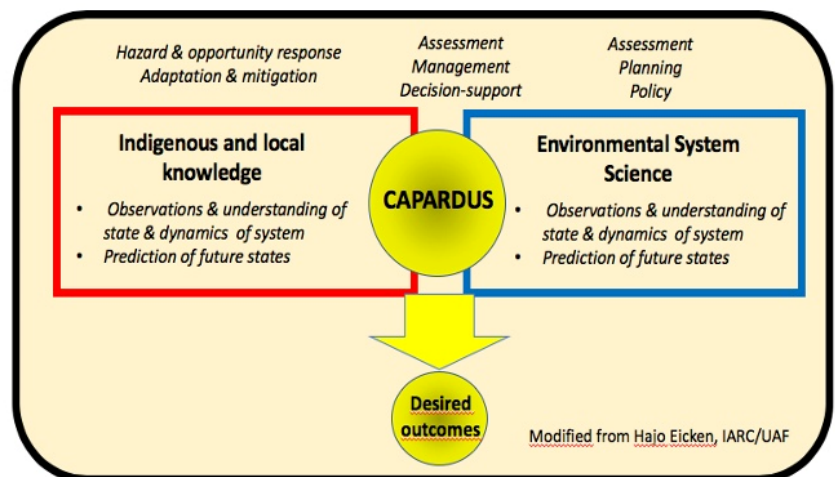
The focus of the project is to support the development of standards, guidelines and practices for environmental protection, economic development, and other activities in the Arctic. There is growing human presence and footprint in the Arctic combined with a dramatic change in the climate and environment.



### Objectives/Mission

This requires rules, regulations, guidelines, etc. which need to be adapted to local and regional conditions. There is no “standard Arctic”, only a variety of highly diverse regions and communities. At present there is no framework for integrating ongoing work on standardization among Indigenous and local communities, commercial operators, and governance bodies. People living and working in the Arctic need to operate according to ethics, norms, informal agreements, conventions, guidelines, common practices, best practice, international standard, etc. These are elements of the “standardisation continuum” which need to evolve in the various Arctic regions to support the sustainable economic development, safe activities, emergency prevention and response, and improved understanding and conservation of the environment. The overall objective of the project is to establish a comprehensive framework for development, understanding and implementation of Arctic standards used by people who operate in the Arctic.

*Changing Social-Environmental Systems*



### Key facts

**Start** 01/12/2019  
**End** 30/11/2022  
**EU Contribution** €2,003,009

**Project Coordinator**  
**Project Manager**  
**Coordinating Organisation**

Stein Sandven  
 Hanne Sagen  
 Nansen Environmental &  
 Remote Sensing Center  
 (NERSC)  
 9 Partners

**Grant No:** 869673

**Consortium**

### Website:

[www.capardus.nersc.no](http://www.capardus.nersc.no)

### Social media:

## CHARTER Drivers and Feedbacks of Changes in Arctic TERrestrial Biodiversity

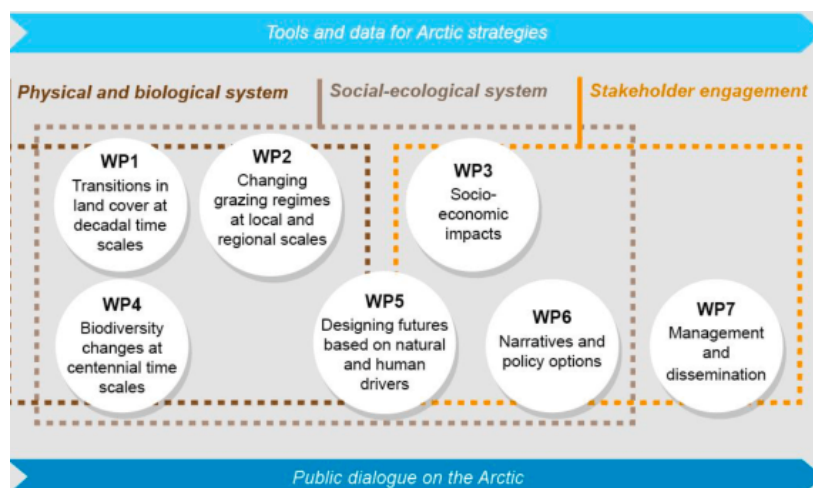
CHARTER grew out of a desire to better understand the processes that have been driving rapid climate and land use changes in the Arctic. The name comes from the project title: Drivers and Feedbacks of Changes in Arctic Terrestrial Biodiversity. The project started in August 2020 and will run for 4 years. CHARTER involves 21 research institutions across 9 countries. CHARTER is coordinated by the Arctic Centre, University of Lapland.



### Objectives/Mission

CHARTER works mainly in northern Europe and Northwest Russia. Changes in climate and land use affect Arctic biodiversity, as well as snow cover, sea ice and permafrost. Changes in these, in turn, have other consequences and feedbacks to Arctic regional climate.

These changes are not merely of academic interest. They are especially felt by those working on the land, such as reindeer herders. This is perhaps best demonstrated by the 2013/4 severe icing event on the world's most productive reindeer herding region of Yamal, Northwest Russia, where it is estimated that Nenets reindeer herders lost at least 61,000 reindeer, perhaps as many as one fifth of all reindeer in that region. Some herding families lost all their reindeer and have reverted to fishing in order to remain in the tundra while they attempt to rebuild their herds before another such catastrophe may strike. Poor winter grazing conditions in winter 2019/20 led to the death of as many as 15,000 reindeer in Finland, which had large financial consequences for herders along with a substantially increased workload.



### Key facts

<b>Start</b>	01/08/2020	<b>Project Coordinator</b>	Bruce Forbes
<b>End</b>	31/07/2024	<b>Project Manager</b>	Sirpa Rasmus
<b>EU Contribution</b>	€5,900,000	<b>Coordinating Organisation</b>	University of Lapland
<b>Grant No:</b>	869471	<b>Consortium</b>	21 Partners

### Website:

[www.charter-arctic.org/](http://www.charter-arctic.org/)

### Social media:

[@CharterArctic](https://twitter.com/CharterArctic) [f arcticcentre](https://www.facebook.com/arcticcentre)

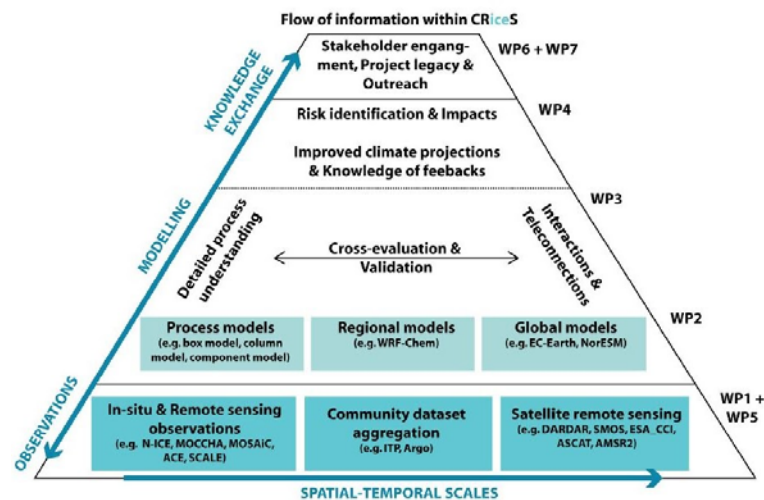
## CRiceS: Climate Relevant interactions and feedbacks: the key role of sea ice and Snow in the polar and global climate system



Sea ice is an integral, changing part of the global Earth system. The polar climate system affects lives and livelihoods across the world by regulating climate and weather; providing ecosystem services; and regulating the ability of humans to operate (hunting, shipping, and resource extraction).

### Objectives/Mission

The overarching objective of CRiceS is to deliver improved understanding of the physical, chemical, and biogeochemical interactions within the OIA system, new knowledge of polar and global climate, and enhanced ability of society to respond to climate change. The unique and broad interdisciplinary expertise within CRiceS allows us to quantify the characteristics and functioning of the OIA system in the past, present and future (across diverse timescales) and its role from regional to global spatial scales. Knowledge at these scales is essential for developing improved understanding of how OIA physical and chemical processes control polar and global climate.



### Key facts

<b>Start</b>	01/09/2021	<b>Project Coordinator</b>	Risto Makkonen (Science Coordinator: Jennie Thomas)
<b>End</b>	31/08/2025	<b>Project Manager</b>	Åsa Stam
<b>EU Contribution</b>	€7,999,267	<b>Coordinating Organisation</b>	Finnish Meteorological Institute
<b>Grant No:</b>	101003826	<b>Consortium</b>	21 Partners

**Website:**

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

**Social media:**

@CRiceS\_H2020 LinkedIn

## ECOTIP: Investigating Ecological Tipping Cascades in the Arctic Seas

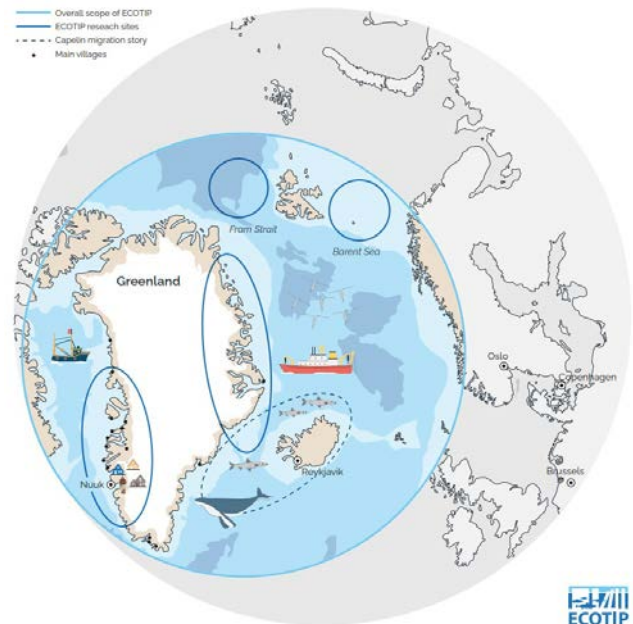


ECOTIP is a flagship Horizon 2020 research project focusing on understanding and predicting changes in Arctic marine biodiversity and implications for two vitally important marine ecosystem services: fisheries production and carbon sequestration.

The project combines state-of-the-art field and laboratory studies, analysis of historical and paleo-oceanographic data and trait-based modelling to predict the potential tipping points of key biological ecosystem functions in Arctic seas in the face of climate change and other pressures. ECOTIP works closely with fishing communities in Greenland and other stakeholders to understand the effects of biodiversity and ecosystem changes on society, and how best to reduce, mitigate and adapt to the changes.

### Objectives/Mission

- Understand how marine biodiversity in the Arctic is responding to pressure from multiple sources, including temperature, salinity, invasive species, pollution and fishing – or combinations of these.
- Improve our description of marine biodiversity and ecosystems.
- Predict the consequences of changes in plankton community composition for carbon sequestration and fisheries.
- Investigate the socio-economic consequences of biodiversity change such as distributions of key commercially important species in Greenland and evaluate adaptation options.
- Provide recommendations for developing adaptation strategies in relation to changes in Arctic ecosystems.



### Key facts

<b>Start</b>	01/06/2020	<b>Project Coordinator</b>	Marja Koski
<b>End</b>	31/05/2024	<b>Project Manager</b>	Ole Henrik Haslund
<b>EU Contribution</b>	€6,361,536	<b>Coordinating Organisation</b>	Technical University of Denmark
<b>Grant No:</b>	869383	<b>Consortium</b>	15 Partners

### Website:

[www.ecotip-arctic.eu/](http://www.ecotip-arctic.eu/)

### Social media:

- EcoTipArctic @ecotiparctic
- For Twitter and Instagram please use #EcoTipArctic

## EU-PolarNet 2 – Coordinating and co-designing the European Polar Research Area

EU-PolarNet 2 is the world's largest consortium of expertise and infrastructure for Polar Research. It brings together the expertise and knowledge of 25 partners from all 21 European and Associated Countries with substantial Polar activities. EU-PolarNet 2 – “Coordinating and co-designing the European Polar Research Area” will build on EU-PolarNet 1's achievements. It will go several steps further to develop and work towards the implementation of a European Polar Research Area.

### Objectives/Mission

EU-PolarNet 2 will provide a platform to further develop the coordination of Polar research actions in Europe and with overseas partners.

By involving all relevant stake- and right holders it will support the development of transdisciplinary and transnational Polar research actions of high societal relevance. To ensure that such an important platform is sustained after the four years of project duration, the project will work towards creating a permanent European Polar Coordination Office as a legacy of EU-PolarNet 2.

### Key facts

**Start** 01/10/2020  
**End** 30/09/2024  
**EU Contribution** €3,299,234

**Project Coordinator**  
**Project Manager**  
**Coordinating Organisation**

Nicole Biebow  
Anneli Strobel  
*Alfred Wegener Institute  
Helmholtz Centre for Polar  
and Marine Research*  
25 Partners

**Grant No:** 101003766 **Consortium**

### Website:

[www.eu-polar.net](http://www.eu-polar.net)

### Social media:

 @EUPolarNet  EU-PolarNet

 EU-PolarNet  eupolar.net  EU-PolarNet



### Thematic activities

- Research Coordination** EU-PolarNet 2 will strengthen the European Polar Research Area by establishing tools and services to sustain a durable Intra- European and International cooperation in Polar Research. EU-PolarNet 2 coordinates the EU Polar Cluster, a growing network of EU-funded Arctic and Antarctic research projects and as such a pre-existing example for improved cooperation.
- Stakeholder Involvement** EU-PolarNet 2 develops procedures to ensure the co-design of Polar research actions with all relevant stake- and rightsolders. It collects best practises, creates processes and provides strategies for capacity building and continued meaningful stake- and rightsolder involvement and makes these publicly available in an online repository.
- Research Prioritisation** EU-PolarNet 2 develops strategies to advance European Polar research in an international dimension through stakeholder involvement and co-designing of future research plans. It will further identify and develop globally significant large-scale polar research initiatives.
- Research Optimisation** EU-PolarNet 2 provides an overview and better understanding of the landscape of Polar research funding in Europe and of the diversity and coordination potential of European Polar research programmes. It stimulates better alignment of the Polar research funding programmes by bringing national operators and funders of Polar research closer together.
- Policy Advice, Dissemination, Communication** EU-PolarNet 2 provides evidence-based advice to questions related to the Polar Regions from other decision makers at European, national and regional levels. It's Policy Advisory Board, a representative group of European experts on Polar issues, guarantees rapid response and evidence-based advice on pressing Polar scientific and socio-economic issues.
- European Polar Coordination Office (EPCO)** EU-PolarNet 2 will accelerate the development of a fully integrated Polar observing system by facilitating better coordination of the European Polar observing community and it's capacities. Furthermore, it will perform the preparatory work for the implementation of the European Polar Coordination Office as a legacy of EU-PolarNet 2.



## European Polar Board, EPB



The EPB is an independent organisation that focuses on major European strategic priorities in both the Arctic and the Antarctic regions. Current EPB membership includes research institutes, funding agencies, scientific academies and polar operators from across Europe.

The EPB envisions a Europe with a strong and cohesive polar research community and wherein decisions affecting or affected by the Polar Regions are informed by independent, accurate, and timely advice.

### Objectives/Mission

The EPB has a mission to improve European coordination of Arctic and Antarctic research, by optimising the use of European polar research infrastructures. We promote multilateral collaborations between our Members and provide a single contact point for the global polar community. We advance the collective knowledge of polar issues, particularly in the context of European societal relevance.

### Key facts

<b>Start</b>	1995	<b>Project Coordinator</b>	Renuka Badhe
<b>End</b>	n/a	<b>Project Manager</b>	Joseph Nolan
<b>EU Contribution</b>	€	<b>Coordinating Organisation</b>	EPB
<b>Grant No:</b>	n/a	<b>Consortium</b>	n/a

### Website:

[www.europeanpolarboard.org](http://www.europeanpolarboard.org)

### Social media:



[@EUPolarBoard](https://twitter.com/EUPolarBoard)



[EuropeanPolarBoard](https://www.facebook.com/EuropeanPolarBoard)

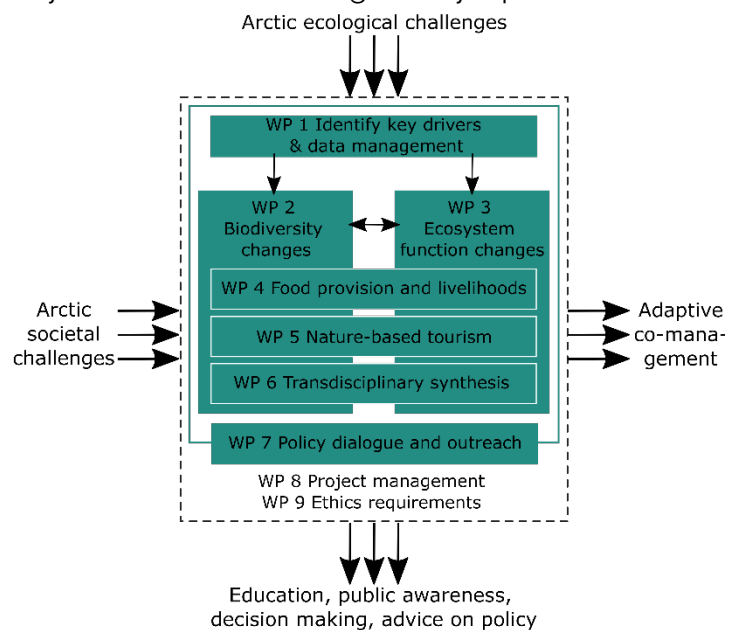
## FACE-IT The future of Arctic coastal ecosystems - Identifying transitions in fjord systems and adjacent coastal areas



The Arctic plays a crucial role in regulating the earth's climate. Hence, the impact of climate change on the Arctic has serious consequences to high latitude ecosystems and societies. The EU-funded FACE-IT project hypothesises that the biodiversity of Arctic coastal zones is changing in line with the rates of cryosphere changes. It also theorises that these changes impact local communities, food production, livelihoods & other ecosystem services.

### Objectives/Mission

The overarching objective of FACE-IT is to enable adaptive co-management of social-ecological fjord systems in the Arctic in the face of rapid cryosphere and biodiversity changes. The project will identify ways to manage the impacts of climate change on the cryosphere and marine biodiversity, and the interaction with other drivers of change. FACE-IT will contribute to IPCC assessments as well as key Sustainable Development Goals. The concept of FACE-IT rests on a comparison of selected Arctic fjord systems at different stage of cryosphere loss in Greenland, Svalbard and Finnmark, Northern Norway. The underlying two-pronged hypothesis is that the biodiversity of Arctic coastal zones is changing in accordance with the rates of cryosphere changes, and that these changes affect local communities, food production, livelihoods and other ecosystem services. FACE-IT approaches European Arctic fjords as local social-ecological systems. It gathers a strong interdisciplinary team of internationally recognised experts from both natural and social sciences.



### Key facts

<b>Start</b>	01/11/2020	<b>Project Coordinator</b>	Kai Bischof
<b>End</b>	31/10/2024	<b>Project Manager</b>	Simon Jungblut
<b>EU Contribution</b>	€6,399,273	<b>Coordinating Organisation</b>	University of Bremen
<b>Grant No:</b>	869154	<b>Consortium</b>	11 Partners

### Website:

[www.face-it-project.eu/](http://www.face-it-project.eu/)

### Social media:

@FACEITArctic
 FACEITArctic

Instagram (@face\_it\_arctic) LinkedIn (@The FACE-IT Project).

## FORCeS - Constrained aerosol forcing for improved climate projections

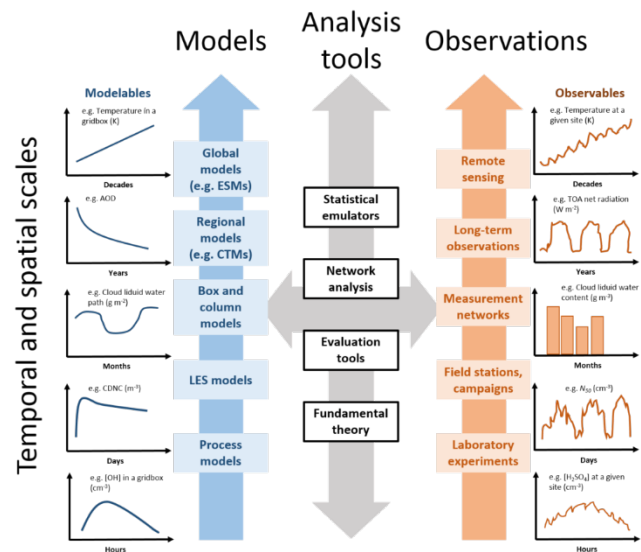
# FORCeS

European scientists will come together to study the magnitude of aerosol radiative forcing caused by anthropogenic emissions. Understanding the role of aerosols and aerosol-cloud reciprocal action is instrumental for policymakers involved in the Paris Agreement. There is currently a level of uncertainty that needs to be cleared up as there is a comprehension gap between processes and pattern implementation on the climate scale. The EU-funded FORCeS project aims to detect essential processes that influence aerosol radiative forcing and study data related to aerosols and clouds' impacts on climate during recent decades.

### Objectives/Mission

The overall objective of FORCeS is to understand and reduce the long-standing uncertainty in anthropogenic aerosol radiative forcing, which is crucial in order to increase confidence in climate projections. These projections are highly relevant for decision makers, as they provide key information on emission pathways that will facilitate the targets of the Paris Agreement to be achieved. FORCeS will identify key processes governing aerosol radiative forcing, as well as climate feedbacks related to aerosols and clouds, and improve the knowledge about these processes by bringing together leading European scientists with trans-disciplinary expertise to:

1. exploit the wealth of in-situ and remote sensing data that have emerged during the recent decades;
2. perform dedicated laboratory and field experiments;
3. utilize a range of state-of-the-art computational models;
4. apply novel theoretical methods including machine learning techniques.



### Key facts

**Start** 01/10/2019  
**End** 30/09/2023  
**EU Contribution** €8,026,287  
**Grant No:** 821205

**Project Coordinator**  
**Project Manager**  
**Coordinating Organisation**  
**Consortium**

Ilona Riipinen  
 Ana Cordeiro  
 Stockholm University  
 ## Partners

### Website:

[www.forces-project.eu/](http://www.forces-project.eu/)

### Social media:

@FORCeS\_H2020

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



Climate change affects the Arctic more than twice as much as any other region on Earth. Moreover, the impact of climate change in the Arctic is not geographically limited but causes hazardous events worldwide. Understanding and predicting potential events requires international research and monitoring. The EU-funded INTERACT project is based on an especially successful transnational access programme aiming to achieve best practices for lucrative research, monitoring, education, and outreach to address societal challenges caused by the rapid climate change in the Arctic.

INTERACT coordinates 64 partners and 88 research stations hosting more than 5000 researchers per year in 16 northern countries improving new collaborations, using innovative science and science diplomacy, and establishing a fully integrated infrastructure that will make data and acquired knowledge globally available.

### Objectives/Mission

INTERACT III provides comprehensive coordination of 64 partners and 86 research stations. The station managers design best practices to ensure excellent research, monitoring, education and outreach. INTERACT III builds on an extremely successful transnational access program that has already populated the Arctic with 900 researchers to further provide excellent science while reducing the environmental footprints of researchers through improving remote and virtual access. The access transnationality ensures new collaborations, innovative science and science diplomacy at a time of heightened geopolitical tensions. Station managers, transnational access and joint research activities cooperate to address major societal challenges in a fully integrated infrastructure while their data and understanding are made globally available through exceptional outreach and education and policy briefings to decision makers.



### Key facts

<b>Start</b>	01/01/2020	<b>Project Coordinator</b>	Margareta Johansson
<b>End</b>	31/12/2023	<b>Project Manager</b>	Katharina Beckmann
<b>EU Contribution</b>	€10,000,000	<b>Coordinating Organisation</b>	Lund University
<b>Grant No:</b>	871120	<b>Consortium</b>	64 Partners

### Website:

[www.eu-interact.org/](http://www.eu-interact.org/)

### Social media:

 [@INTERACT66](https://twitter.com/INTERACT66)  [interactofficial](https://www.facebook.com/interactofficial)

[www.polarcluster.eu](http://www.polarcluster.eu)

## JUSTNORTH -Towards Just, Ethical and Sustainable Arctic Economies, Environments and Societies



Rapid and significant Arctic climate change has sparked a new wave of economic speculation. Global investors are pinning their hopes on new resources and transportation corridors. Yet local communities, already dealing with the effects of climate change, are concerned that such projects could simply repeat past cycles of northern extraction. Historically, resources and revenues have flowed south while residents have received little in return save for polluted lands and abandoned infrastructure.

If done right, however, there is a chance for Arctic development to be sustainable and equitable. At present, decisions on economic development tend to be made according to utilitarian ethical principles. Profit and technical feasibility determine a project rather than its ethical implications and impacts on local residents.

JUSTNORTH seeks to build a framework for sustainable development in the Arctic. Researchers are exploring the multiple value systems that converge when specific development projects are proposed in order to identify common core values that can create linkages rather than barriers between competing ethical and value systems.

Bringing together 17 partners with expertise across the social sciences, the project is evaluating 18 case studies using innovative research methodology based on interviews, comparisons and correlations. The project will draw from its findings to develop a framework that can help determine whether the viability of economic activities in the Arctic is in line with Sustainable Development Goals. It will promote the insights and views tabled by Indigenous stakeholders, local businesses, state officials and NGOs.

### Objectives/Mission

The project will merge justice theories with sustainable development goals to enable EU policy coherence toward just transitions. This will be integrated with an investigation of the empirical realities of existing Arctic economic activities in 18 case studies using innovative research methodology, through conceptual, comparative, descriptive, correlation, policy, legal and interview-based analysis techniques. Through this, JUSTNORTH will offer policy, legal and regulatory pathway recommendations, by developing a framework from the reconciliation of the various ethics and value systems present in the Arctic, which can serve as a cornerstone for determining the viability of economic activities in the Arctic in line with the goals of sustainable development.

### Key facts

<b>Start</b>	01/06/2020	<b>Project Coordinator</b>	Corine Wood-Donnelly
<b>End</b>	30/11/2023	<b>Project Manager</b>	Gustav Sigeman
<b>EU Contribution</b>	€6,156,494	<b>Coordinating Organisation</b>	Uppsala University
<b>Grant No:</b>	869327	<b>Consortium</b>	17 Partners

### Website:

[www.justnorth.eu/](http://www.justnorth.eu/)

### Social media:

 [@JUSTNORTH\\_EU](https://twitter.com/JUSTNORTH_EU)  [JUSTNORTHEU](https://www.facebook.com/JUSTNORTHEU)

[www.polarcluster.eu](http://www.polarcluster.eu)

**Nunataryuk: Permafrost thaw and the changing arctic coast: science for socio-economic adaptation**

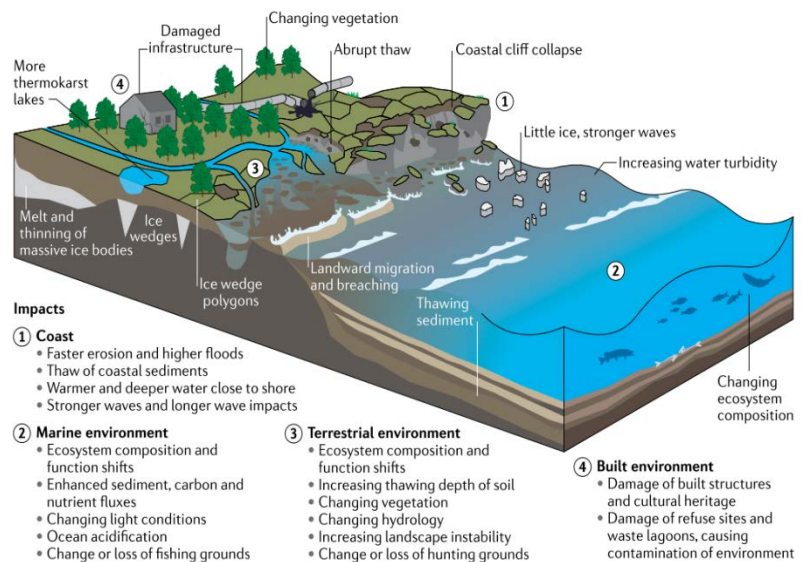


Most human activity in the Arctic takes place along permafrost coasts, making them a key interface. They have become one of the most dynamic ecosystems on Earth because permafrost thaw is now exposing these coasts to rapid change: change that threatens the rich biodiversity, puts pressure on communities that live there and contributes to the vulnerability of the global climate system. NUNATARYUK will determine the impacts of thawing coastal and subsea permafrost on the global climate, and will develop targeted and co-designed adaptation and mitigation strategies for the Arctic coastal population.

**Objectives/Mission**

NUNATARYUK brings together world-leading specialists in natural science and socio-economics to:

1. develop quantitative understanding of the fluxes and fates of organic matter released from thawing coastal and subsea permafrost;
2. assess what risks are posed by thawing coastal permafrost, to infrastructure, indigenous and local communities and people's health, and from pollution;
3. use this understanding to estimate the long-term impacts of permafrost thaw on global climate and the economy



NUNATARYUK will be guided by a Stakeholders' Forum of representatives from Arctic coastal communities and indigenous societies, creating a legacy of collaborative community involvement and a mechanism for developing and applying innovative evidence-based interventions to enable the sustainable development of the Arctic.

**Key facts**

<b>Start</b>	01/11/2017	<b>Project Coordinator</b>	Hugues Lantuit
<b>End</b>	31/10/2023	<b>Project Manager</b>	Leena Viitanen
<b>EU Contribution</b>	€11,500,000	<b>Coordinating Organisation</b>	Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research
<b>Grant No:</b>	773421	<b>Consortium</b>	26 Partners

**Website:**

[www.nunataryuk.org/](http://www.nunataryuk.org/)

**Social media:**

[@nunataryuk](https://twitter.com/nunataryuk) [f H2020Research](https://www.facebook.com/H2020Research)

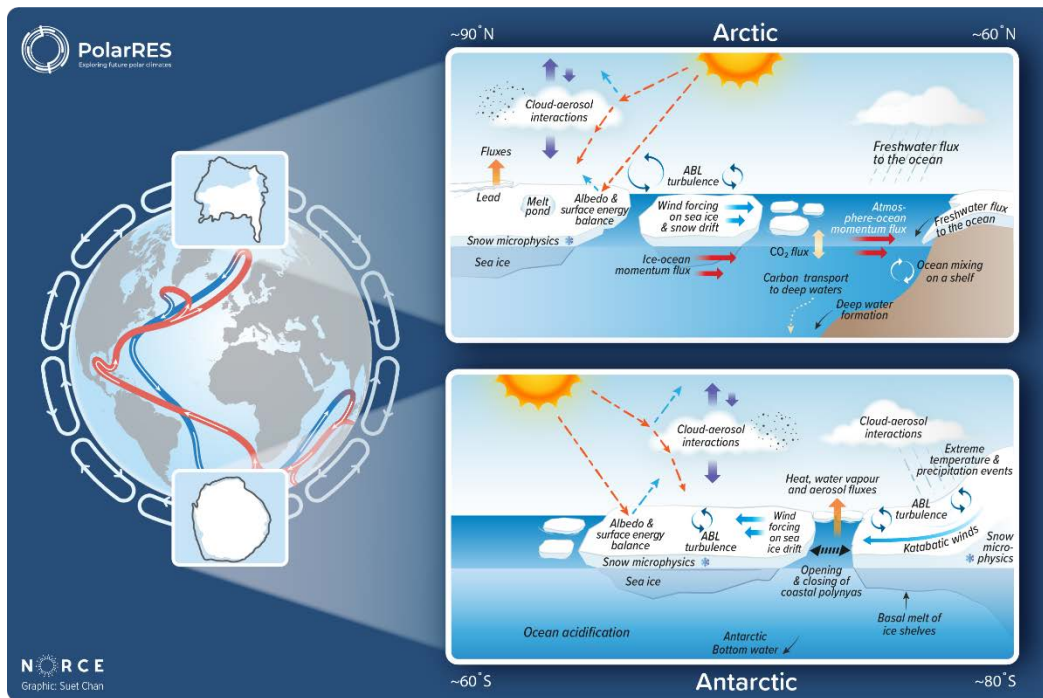
## PolarRES (Polar Regions in the Earth System)

The Polar regions play a crucial role in balancing the global climate system – with the poles heating up much faster than the rest of the world. Yet, climate projections for the Polar regions still have significant uncertainties. This is hampering efforts to curb climate change and deal with the effects we already see at play - not only within the Polar regions, but also in Europe and the rest of the world. PolarRES will advance our understanding of how the climate of the Arctic and Antarctic will respond to future changes in the global circulation. PolarRES will also deliver new insights into how physical and chemical processes, crucial for atmosphere-ocean-ice interactions, can shape the global climate system.



## Objectives/Mission

A key outcome from the PolarRES project will be more confident climate change projections for the Polar regions. This will enable better mitigation and adaptation actions in the polar regions.



## Key facts

<b>Start</b>	01/09/2021	<b>Project Coordinator</b>	Priscilla Mooney
<b>End</b>	31/08/2025	<b>Project Manager</b>	Ryan Weber
<b>EU Contribution</b>	€8,000,000	<b>Coordinating Organisation</b>	NORCe
<b>Grant No:</b>	101003590	<b>Consortium</b>	17 Partners

**Website:**  
[www.polarres.eu/](http://www.polarres.eu/)

**Social media:**  
[@PolarRES\\_eu](https://twitter.com/PolarRES_eu)

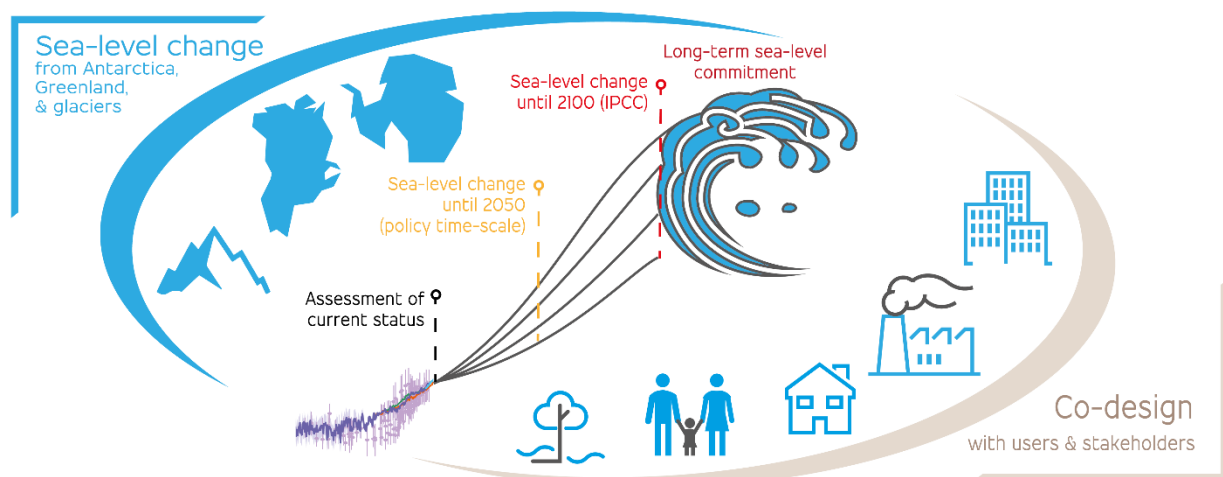
## PROTECT cryosphere & sea level

A closer look at the interactions between atmosphere, ocean and ice sheets: Sea level rise (SLR) due to climate change is a serious global threat that can result in land ice loss and ocean thermal expansion. It also results in catastrophic consequences for the future of coastal regions. As land ice contribution is increasing, policymakers are concerned about the threats ice sheet change represents. The EU-funded PROTECT project will drive SLR projections beyond the state of the art and provide a long-standing scientific and social contribution.



### Objectives/Mission

PROTECT will significantly improve our understanding and model representation of ice sheet processes and offer a new approach in modelling the interactions between atmosphere, ocean and ice sheets. PROTECT will also improve the strength of the resulting SLR projections, envision the future social impact of SLR and train the next generation of sea-level scientists.



### Key facts

<b>Start</b>	01/09/2020	<b>Project Coordinator</b>	Gael Durand
<b>End</b>	31/08/2024	<b>Project Manager</b>	Amélie Bataille
<b>EU Contribution</b>	€10,000,000	<b>Coordinating Organisation</b>	CNRS
<b>Grant No:</b>	869304	<b>Consortium</b>	26 Partners

### Website:

[www.protect-slr.eu](http://www.protect-slr.eu)

### Social media:

 [@ProtectSlr](https://twitter.com/ProtectSlr)  [@Protect](https://facebook.com/Protect)



## Svalbard Integrated Arctic Earth Observing System

Svalbard Integrated Arctic Earth Observing System (SIOS) is an international consortium of research institutions with research interest and infrastructure in and around the Arctic Archipelago of Svalbard. Within SIOS researchers collaborate by sharing data, and research infrastructure to build an efficient observing system that focuses on long-term monitoring of parameters that are important to understand the Arctic in the context of global environmental change.

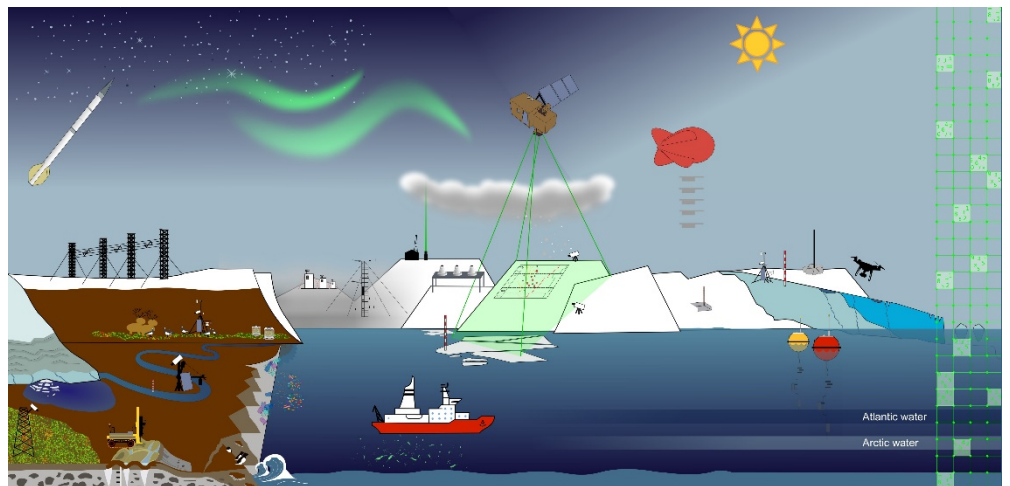


### Objectives/Mission

SIOS is a regional observing system that integrates the extensive observation capacity and diverse world-class research infrastructure provided by many institutions already established in Svalbard. This includes a substantial capability for utilising remote sensing resources to complement ground-based observations.

SIOS focuses on processes and their interactions between the different spheres, i.e., biosphere, geosphere, atmosphere, cryosphere, and hydrosphere. The core observational programme of SIOS provides the research community with systematic observations that are sustained over time. To use the observing system more efficiently, SIOS offers a range of services, including a distributed data management system, remote sensing services, logistical support and advice, webinars, and training courses. It publishes the annual State of Environmental Science in Svalbard (SESS) report.

SIOS is an international research infrastructure, hosted by Norway. Its central node is the SIOS Knowledge Centre located in Longyearbyen, Norway. It coordinates joint activities and coordinates the services provided by the SIOS community.



### Key facts

<b>Start</b>	2018	<b>Director</b>	Heikki Lihavainen
<b>End</b>	n/a	<b>Information Officer</b>	Christiane Hübner
<b>EU Contribution</b>	n/a	<b>Coordinating Organisation</b>	SIOS
<b>Grant No:</b>	n/a	<b>Consortium</b>	28 Partners

### Website:

[www.sios-svalbard.org/](http://www.sios-svalbard.org/)

### Social media:

 @SIOS\_KC
  SIOSKnowledgeCentre

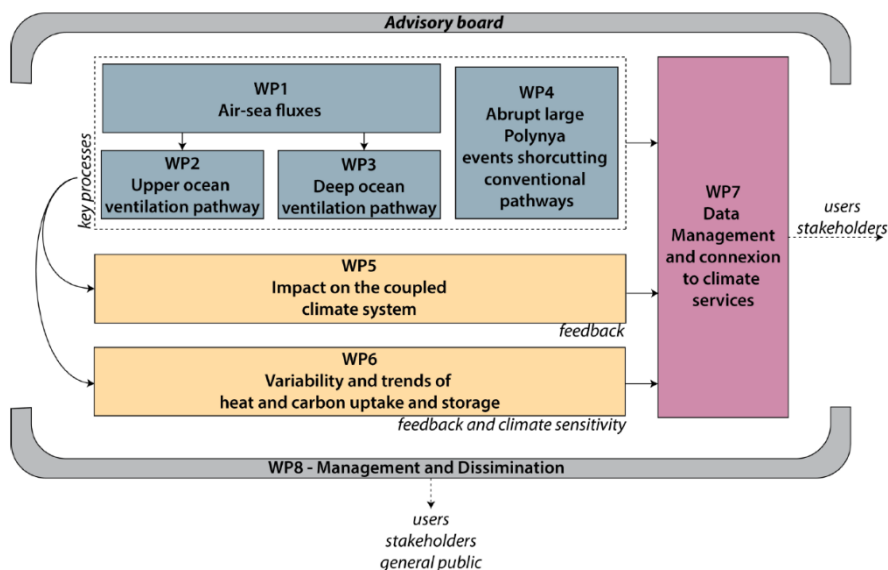
## SO-CHIC (Southern Ocean Carbon and Heat Impact on Climate)



The Southern Ocean regulates the global climate by controlling heat and carbon exchanges between the atmosphere and the ocean. It is responsible for about 60-90% of the excess heat (i.e. associated with anthropogenic climate change) absorbed by the World Oceans each year, and is also recognised to largely control decadal scale variability of Earth carbon budget, with key implications for decision makers and regular global stocktake agreed as part of the Paris agreement. Despite such pivotal climate importance, its representation in global climate model represents one of the main weaknesses of climate simulation and projection because too little is known about the underlying processes. Limitations come both from the lack of observations in this extreme environment and its inherent sensitivity to intermittent small-scale processes that are not captured in current Earth system models.

### Objectives/Mission

To contribute to reducing uncertainties in climate change predictions, the EU-funded SO-CHIC project will quantify variability of heat and carbon budgets in the Southern Ocean through an investigation of the key processes controlling exchanges between the atmosphere, ocean and sea ice using a combination of observational and modelling approaches. It will combine observation with existing decades-long time series and state-of-the-art modelling.



### Key facts

<b>Start</b>	01/11/2019	<b>Project Coordinator</b>	Jean-Baptiste-Sallée
<b>End</b>	31/10/2024	<b>Project Manager</b>	Amélie Lecornec
<b>EU Contribution</b>	€7,989,925	<b>Coordinating Organisation</b>	Sorbonne University
<b>Grant No:</b>	821001	<b>Consortium</b>	16 Partners

### Website:

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

### Social media:

[@SO\\_CHIC\\_EU](https://twitter.com/SO_CHIC_EU)

## TiPACCS – Tipping Points in Antarctic Climate Components

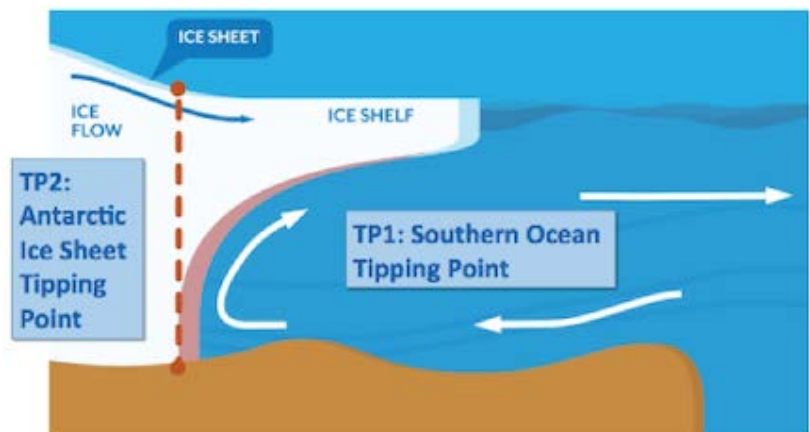


Tipping Points in Antarctic Climate Components

TiPACCS is investigating the possibility of sudden and large changes in Antarctic Climate Components. Recently, researchers found relatively warm waters below Antarctic ice shelves, indicating that the Antarctic continental shelf seas can tip from a 'cold' to a 'warm' state. Concurrently, recent research indicates that ice sheets, especially the parts of the ice sheet that rest on a bed below sea level, are prone to an unstable and irreversible retreat. The change in these two components (cold-to-warm ocean, and stability regime of the Antarctic Ice Sheet) are linked through to the impact that ice shelves can have on the upstream ice sheet and on the ocean below. If irreversible changes occur in the Antarctic components, and so-called tipping points are crossed, the ice sheet will likely quickly retreat, causing a dramatic increase in global mean sea level.

### Objectives/Mission

- Determine the changes in surface forcing required to switch the Antarctic continental shelf seas from cold to warm state (Ocean Tipping Point), and to quantify the resulting changes in ocean-induced ice-shelf basal melting.
- Determine the stability regime of the grounding lines of the Antarctic Ice Sheet and the existence of tipping points with respect to ice-shelf melting (Ice Sheet Tipping Point).
- Determine the impacts that a switch in the ocean state from cold to warm has on the stability regime of the grounding lines and the resulting implications for global sea level.
- Provide a list of early warning indicators for the Tipping Points in the Antarctic Climate Components, and disseminate our improved understanding of the processes and impact of the tipping points to general public, policy makers and governmental panels



### Key facts

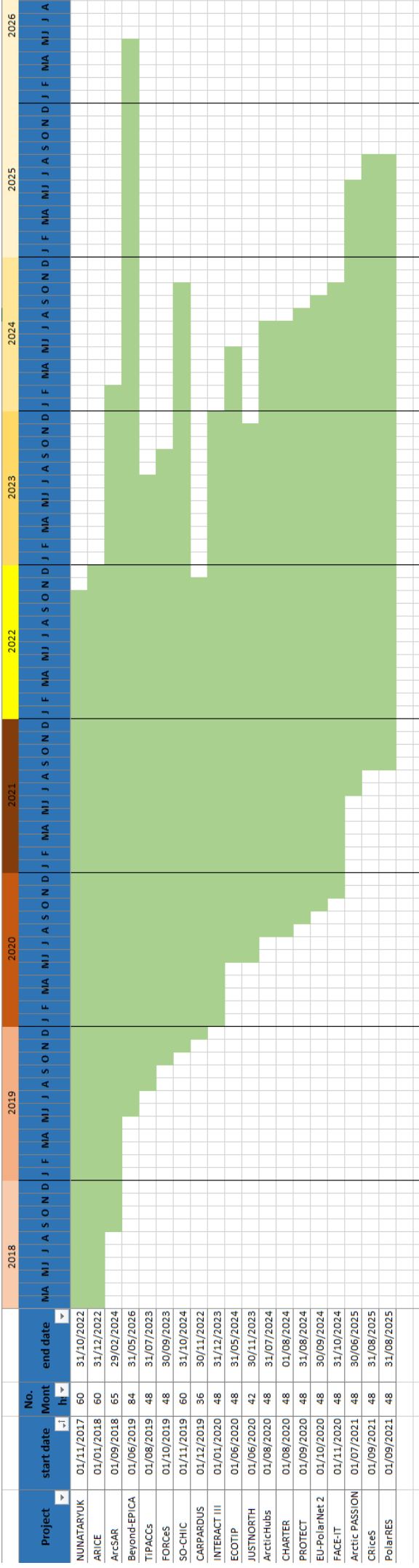
<b>Start</b>	01/08/2019	<b>Project Coordinator</b>	Petra Langebroek & Svein Østerhus
<b>End</b>	31/07/2023	<b>Project Manager</b>	Kate Dy
<b>EU Contribution</b>	€4,600,000	<b>Coordinating Organisation</b>	NORCE
<b>Grant No:</b>		<b>Consortium</b>	5 Partners

### Website:

[www.tipaccs.eu/](http://www.tipaccs.eu/)

### Social media:

[@TiPACCS\\_EU](https://twitter.com/@TiPACCS_EU) [@TiPACCS](https://www.facebook.com/@TiPACCS)



**The following projects have ended, but are included here for information. One of the Cluster objectives is to maintain the legacy of the projects after they finish, to allow**

## **Next Section – Ended Projects**

**The following fact sheets are for all projects ended as of May 2022**

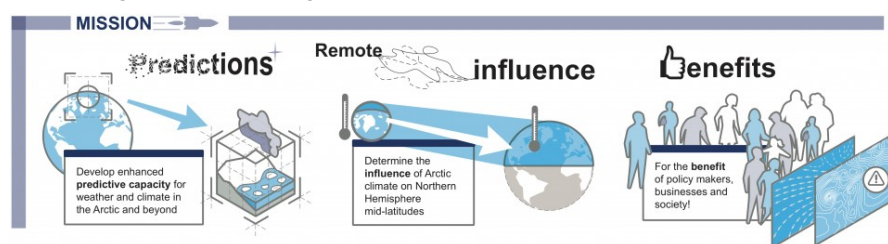
## APPLICATE: Advanced Prediction in Polar regions & beyond: modelling, observing system design and Linkages associated with a Changing Arctic climate

**APPLICATE.eu**  
Advanced prediction in  
polar regions and beyond

As the Arctic region is undergoing some of the most dramatic changes in centuries, the impact of these transformations on other regions of the world is still somewhat unknown. The APPLICATE project was developed with this goal: to shed some light on the processes that connect phenomena like sea ice loss in the Arctic to weather and climate changes in Europe and North America, as well as to advance predictive capacity for weather and climate in the Arctic and midlatitudes. To tackle the challenge from multiple perspectives, the project coalesced European excellence by bringing together experts from the weather and climate research communities, with the aim to join forces and investigate processes and changes in the Arctic region and beyond.. Coordinated by an AWI team, led by Thomas Jung since November 2016, the APPLICATE project reached the finish line on April 30<sup>th</sup>, 2021.

### Objectives/Mission

During the project's duration, important milestones have been achieved to advance knowledge in understanding how the Arctic and lower latitudes may be linked. APPLICATE was instrumental in developing and promoting international collaborations like the polar amplification model intercomparison projects (PAMIP), while advancing innovative approaches and datasets using numerical weather prediction and climate models. The project's many contributions include the coordination of model intercomparison experiments (e.g., PAMIP, SIMIP) provision of novel datasets (e.g., YOPP and ECMWF datasets), the development of evaluation software with a clear polar focus (e.g., ESMvalTool), all highlighting the high profile of APPLICATE's work and representing a steppingstone in improving knowledge about climate change in support of the Intergovernmental Panel on Climate Change. Many efforts carried out in APPLICATE have led to influential papers such as *The Polar Amplification Model Intercomparison Project (PAMIP) contribution to CMIP6* by Doug Smith and colleagues and *Improving Met Office seasonal predictions of Arctic sea ice using assimilation of CryoSat-2 thickness* by Blockley and Peterson, demonstrating not only the high quality of APPLICATE's scientific endeavours, but also the dedication of the people involved in the project in disseminating results through a clear and open approach



### Key facts

<b>Start</b>	01/11/2016	<b>Project Coordinator</b>	Thomas Jung
<b>End</b>	30/04/2021	<b>Project Manager</b>	Luisa Cristini
<b>EU Contribution</b>	€ 799591,25	<b>Coordinating Organisation</b>	Alfred Wegener Institute
<b>Grant No:</b>	727862	<b>Consortium</b>	15 Partners

### Website:

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

### Social media:

[@applycate\\_eu](https://twitter.com/applycate_eu) [f ApplycateEU](https://www.facebook.com/ApplycateEU)

[www.polarcluster.eu](http://www.polarcluster.eu)

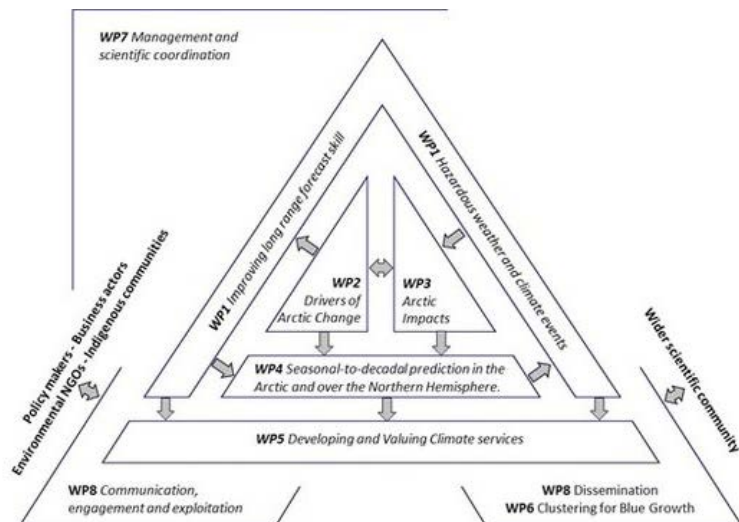
## Blue-Action: Arctic Impact on Weather and Climate is a Research and Innovation action.



The overall objective of Blue-Action was to actively improve our ability to describe, model, and predict Arctic climate change and its impact on Northern Hemisphere climate, weather and their extremes, and to deliver valued climate services of societal benefit. In its 5 years of activities (2016-2021), Blue-Action has provided fundamental and empirically-grounded, executable science that can quantify and explain the role of a changing Arctic in increasing the predictive capability of weather and climate of the Northern Hemisphere.

### Objectives/Mission

To achieve this objective, Blue-Action has taken a transdisciplinary approach, bridging scientific understanding within Arctic climate, weather and risk management research with key stakeholder knowledge of the impacts of climatic weather extremes and hazardous events, leading to the co-design of better services. This bridge has built on innovative statistical and dynamical approaches to predict weather and climate extremes. In a co-design and co-creation dialogue with users, Blue-Action has taken stock in existing knowledge about cross-sectoral impacts and vulnerabilities with respect to the occurrence of these events and their prediction. Modelling and prediction capabilities have been enhanced by targeting firstly, lower latitude oceanic and atmospheric drivers of regional Arctic changes and secondly, Arctic impacts on Northern Hemisphere climate and weather extremes. Coordinated multi-model experiments have been key to test new higher resolution model configurations, innovative methods to reduce forecast error, and advanced methods to improve uptake of new Earth observations' assets have been developed and implemented.



### Key facts

**Start** 01/12/2016  
**End** 30/09/2021  
**EU Contribution** €7,500,000

**Project Coordinator**  
**Project Manager**  
**Coordinating Organisation**

Steffen Olsen  
Chiara Bearzotti  
Danish Meteorological  
Institute  
## Partners

**Grant No:** 727852

**Consortium**

**Website:**

[www.blue-action.eu](http://www.blue-action.eu)

**Social media:**

 [@BG10Blueaction](https://twitter.com/BG10Blueaction)

## ICE-ARC – Ice, Climate, Economics – Arctic Research on Change

### *Directly assessing the social and economic impact of Arctic sea-ice loss*

ICE-ARC looked into the current and future changes in Arctic sea ice – both from changing atmospheric and oceanic conditions. The project also investigated the consequences of these changes both on the economics of the area and globally, and social aspects such as on indigenous peoples.

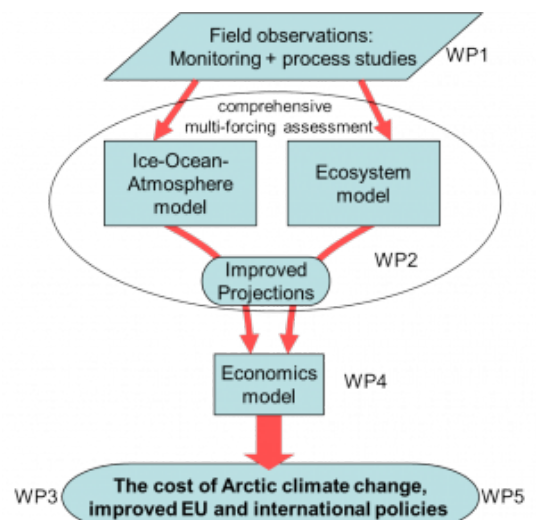


Particular focus was on the rapid retreat and collapse of Arctic sea-ice cover. The most spectacular retreat is occurring in summer, and the complete loss of summer sea ice may occur in a very short period of time – years to decades. There is also a significant reduction in sea ice extent in all seasons, which, if continued, will result seasonal ice cover and a widening annual window of the ice-free season.

### Objectives/Mission

Understanding the full extent of changes underway in the Arctic requires a great volume of highly diverse information. ICE-ARC responded to this need with a multidisciplinary research program that blends together technology, observations, and models. ICE-ARC engineers have developed innovative sensors that advance polar technologies and propel polar research into the future. ICE-ARC researchers have deployed nearly 50 robotic platforms from numerous expeditions across the Arctic Ocean. We have collected data that encompass the marine environment; from cloud thickness, solar radiation and air temperature through to sea-ice thickness, ocean salinity, zooplankton species and abundance, and beyond.

ICE-ARC collected data from satellite and airborne sensors as well as systems deployed on the ice, on the sea surface, and underwater. These together improve our understanding about the workings of the changing Arctic system. Remoteness and extreme weather conditions represent significant challenges for carrying out research in the Arctic; hence, datasets are sparse. Partnerships with local communities, as well as advanced autonomous technology and techniques make year-round real-time monitoring and data capture a reality.



### Key facts

<b>Start</b>	01/01/2014	<b>Project Coordinator</b>	Jeremy Wilkinson
<b>End</b>	31/12/2018	<b>Project Manager</b>	Elaina Ford
<b>EU Contribution</b>	€11,500,000	<b>Coordinating Organisation</b>	British Antarctic Survey
<b>Grant No:</b>	603887	<b>Consortium</b>	24 Partners

### Website:

[www.ice-arc.eu](http://www.ice-arc.eu)

### Social media:

[@ICE-ARCEU](https://twitter.com/ICE-ARCEU)



## iCUPE – Integrative and Comprehensive Understanding on Polar Environments

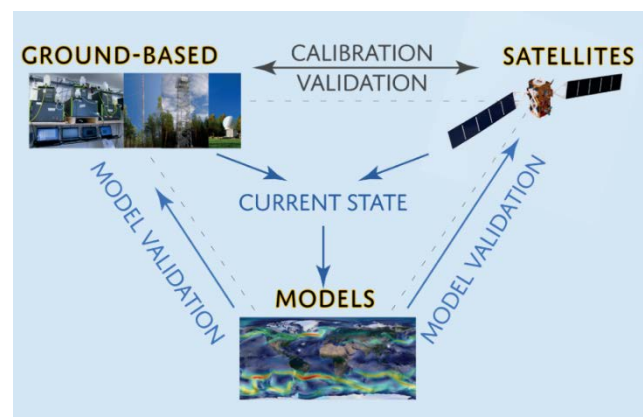
iCUPE answers to ERA-PLANET (European network for observing our changing planet) thematic strand 4 (Polar areas and natural resources). The project is motivated by the fact that the role of polar regions will increase in terms of megatrends such as globalization, new transport routes, demography and use of natural resources. These megatrends have environmental effects and will drastically affect e.g. regional and transported pollutant concentrations. As a consequence, the polar areas face interconnected grand challenges.



The vision driving iCUPE activities is that we need to establish and maintain long-term, coherent and coordinated observations and research activities on environmental quality and natural resources in polar areas. The core idea of iCUPE is the development of novel, integrated, quality-controlled and harmonized in-situ observations and satellite data in the polar areas, as well as data products to the end users. iCUPE combines integrated in-situ and satellite Earth Observation with a modelling platform. By doing this it 1) synthesizes data from comprehensive long-term measurements, intensive campaigns and satellites, collected during the project or provided by on-going international initiatives 2) relates the observed parameters to impacts, and 3) delivers novel data products, metrics and indicators to the stakeholders concerning the environmental status, availability and extraction of natural resources in the polar areas. These data, metrics and indicators will be targeted to identified stakeholders. They will be useful for policy development and for improving and clearly communicating our multidisciplinary understanding of status of the polar environment and pollution dynamics in the future. The knowledge generated is relevant to the general population, policy makers and scientists.

### Objectives/Mission

The ambition in iCUPE will make significant advances towards a better integration between existing in-situ observational networks for polar measurement data on short-lived air pollutants including both aerosols and trace gases, as well as contaminants. The focus is on the availability of long-time data series and on the facilitation of intensive campaigns as well as on piloting near real-time data. Quality control, data flows and data streams will be harmonized within iCUPE.



### Key facts

<b>Start</b>	01/02/2016	<b>Project Coordinator</b>	Tuuka Petäjä
<b>End</b>	31/01/2022	<b>Project Manager</b>	Ella-Maria Duplissy
<b>EU Contribution</b>	€10,962,256	<b>Coordinating Organisation</b>	Helsinki University
<b>Grant No:</b>	689443	<b>Consortium</b>	14 Partners

### Website:

[www.atm.helsinki.fi/icupe/](http://www.atm.helsinki.fi/icupe/)

### Social media:

 [@iCUPE\\_PO](https://twitter.com/iCUPE_PO)

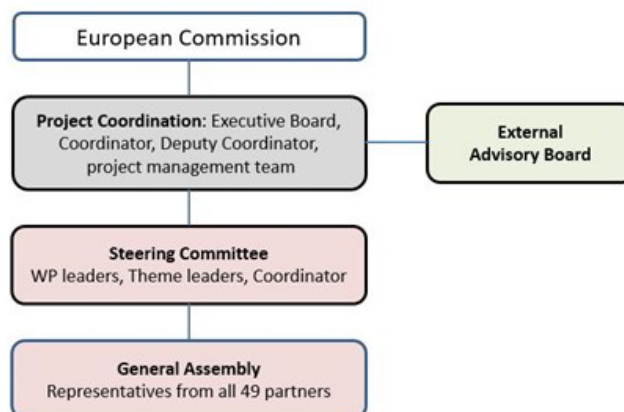
## INTAROS

INTAROS aimed to develop an integrated Arctic Observation System (iAOS) by extending, improving and unifying existing systems in the different regions of the Arctic. INTAROS has a strong multidisciplinary focus, with tools for integration of data from atmosphere, ocean, cryosphere and terrestrial sciences, provided by institutions in Europe, North America and Asia. INTAROS is assessing strengths and weaknesses of existing observing systems – both satellite and in-situ – and contributes with innovative solutions to fill some of the critical gaps in the in situ observing network.



### Objectives/Mission

INTAROS is developing a platform, iAOS, to search for and access data from distributed databases. INTAROS includes development of community-based observing systems, where local knowledge is merged with scientific data. An integrated, sustainable and long-term Arctic Observation System will enable better-informed decisions and better-documented processes within key sectors (e.g. local communities, shipping, tourism, fishing), in order to strengthen the societal and economic role of the Arctic region and support the EU strategy for the Arctic and related maritime and environmental policies.



### Key facts

<b>Start</b>	01/12/2016	<b>Project Coordinator</b>	Stein Sandven
<b>End</b>	28/02/2022	<b>Project Manager</b>	Kjetil Lygre
<b>EU Contribution</b>	€15,490,067	<b>Coordinating Organisation</b>	Nansen Environmental and Remote Sensing Center
<b>Grant No:</b>	727890	<b>Consortium</b>	49 Partners

### Website:

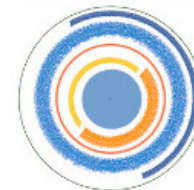
[www.intaros.eu](http://www.intaros.eu)

### Social media:

 [@IntarosProject](https://twitter.com/IntarosProject)
 [facebook.com/intaros](https://facebook.com/intaros)

## KEPLER – Key Environmental monitoring for Polar Latitudes and European Readiness

**KEPLER**



KEPLER was a multi-partner initiative, built around the operational European Ice Services and Copernicus information providers, to prepare a roadmap for Copernicus to deliver an improved European capacity for monitoring and forecasting the Polar Regions.

Our motivation was to put the public and stakeholders at the centre of Copernicus. This follows the recommendations of the 'Copernicus User Uptake' review, and its 6 themes of:

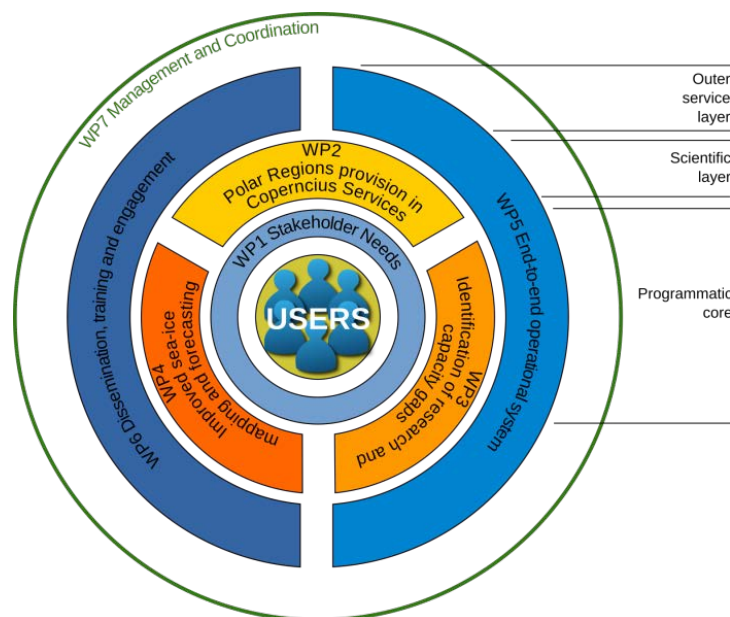
1. Raising awareness for the Copernicus programme,
2. Informing and educating Copernicus users,
3. Engaging Copernicus users in public and private sector, and
4. Enabling access to Copernicus data and information.
5. Identification of research gaps regarding integration/assimilation, and
5. Improved sea-ice mapping and forecasting.

### Objectives/Mission

KEPLER aimed to release the full potential of Polar Regions Earth Observation, including from ESA and EUMETSAT, by identifying and eliminating the barriers that impede the use of the tremendous resource that is Copernicus. This combines two key elements of the call:

- bringing together key European stakeholders and competent entities,
- growing the Copernicus brand and user-base through providing enhanced scientific and technical support.

Our objective was to provide a mechanism that enables the broad range of Polar Regions stakeholders to be equipped with the most accurate and relevant environmental information so that they can seize the many benefits that Copernicus products generate for society and economy.



### Key facts

<b>Start</b>	01/01/2019	<b>Project Coordinator</b>	Nick Hughes
<b>End</b>	30/06/2021	<b>Project Manager</b>	Elaina Ford
<b>EU Contribution</b>	€2,899,157	<b>Coordinating Organisation</b>	Met Norway
<b>Grant No:</b>	821984	<b>Consortium</b>	15 Partners

### Website:

[www.kepler-polar.eu](http://www.kepler-polar.eu)

<https://map.kepler-polar.eu/>

### Social media:

[@KeplerEU](https://twitter.com/KeplerEU) [KeplerEU](https://www.facebook.com/KeplerEU)

# EU Polar Cluster



[www.polarcluster.eu](http://www.polarcluster.eu)

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