



**H2020 - Research and Innovation Action**

**APPLICATE** 

Advanced Prediction in Polar regions and beyond: Modelling, observing system design and Linkages associated with a Changing Arctic climaTE

Grant Agreement No: 727862

Deliverable No. 7.7

Dissemination materials 3

## Submission of Deliverable

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	<input type="checkbox"/> 4 – UiB	<input type="checkbox"/> 5 – UNI Research	<input type="checkbox"/> 6 – MET Norway
	<input type="checkbox"/> 7 – Met Office	<input type="checkbox"/> 8 – UCL	<input type="checkbox"/> 9 - UREAD
	<input type="checkbox"/> 10 – SU	<input type="checkbox"/> 11 – CNRS-GAME	<input type="checkbox"/> 12 - CERFACS
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## EXECUTIVE SUMMARY

WP7: user engagement, dissemination and training, aims at increasing awareness of the impact of Arctic changes on weather and climate of the Northern Hemisphere by developing relevant forms of communication to spread the project results and maximise the impact and exposure of the science produced to end-users, policy makers and the public at large.

To achieve this objective, WP7 has from the start of the project, developed several outreach materials as per deliverables D7.5 and D7.6. The WP will continuously update and add as relevant outreach materials targeted at various specific audiences that will be disseminated by the projects outreach team and its communication channels such as the project website and social media channels, by project partners on the occasion of seminars, conferences and at appropriate public exhibitions.

Several dissemination materials have been developed as per deliverables D7.5 and D.7.6 and are maintained and available to stakeholders, the public and project partners to use through the project website and / or its internal document management system. These include: the project logo, the project website, social media channels (Facebook and Twitter), a project flyer/brochure, a rollup poster and an introductory presentation of the project, project poster, a newsletter and frostbytes videos.

New additions since deliverable D7.6 in November 2017 include:

- The project logo has been updated.
- The project website has been updated.
- Project publications library has been implemented.
- Project flyer has been updated with projects highlights to date.
- A project poster and template for use at conferences updated with project highlights to date.
- Further important additions to the the Year of Polar Prediction (YOPP) blog, as a result of the APPLICATE partnership.
- The third organised webinar in cooperation with the Association for Polar Early Career Scientists (APECS) was given in early January 2018 by Doug Smith who talked about atmosphere-ocean interactions (WP3).
- Form for collecting information on partners outreach activities has been initiated.
- First newsletter published, June 2018.
- You Tube channel with project related video material established
- Project promotional video produced, October 2018 and first view during the Arctic Circle event.
- Frostbite videos based on the summer training school produced and available on the project website and the project You Tube channel.

Further dissemination materials will continuously be developed as needed throughout the project lifetime, tailored to specific end-user groups to disseminate project results, inform and impact stakeholders and policymakers and engage with end-users.

Some foreseen materials are: a series of fact sheets, a series of policy briefs in cooperation with the EU project Blue-Action and the EU Arctic Cluster and an overview video.

## 1. INTRODUCTION

### 1.1. Background and objectives

One of the objectives of WP7: user engagement, dissemination and training, is to increase awareness of the impact of Arctic changes on weather and climate of the Northern Hemisphere by developing relevant forms of communication. The purpose is to increase cooperation and involvement in the project, not least from relevant external stakeholders, and spread the project results and maximise the impact and exposure of the science produced to stakeholders, policymakers, end-users and the public at large.

To achieve this objective, WP7 has and will develop several dissemination materials targeted at specific relevant audiences. These are and will be used by the projects dissemination team and the project partners, to increase and insure as possible the projects exposure and impact. Further, dissemination materials will be made available and targeted to the public during the project period.

The objective of this report is to summarise the project dissemination materials available as of January 2019 and to give an outlook on new material since deliverable D7.6 and further materials planned to be developed for dissemination during the project period.

### 1.2. Organisation of this report

This report is a follow-up to the reports for D7.5 and D7.6 which gave a summary of dissemination material available as of November 2017. In the next section a summary of the project dissemination materials available as of January 2019 is given.

Section 3 gives a preliminary outlook of further materials planned to be developed within the project.

The available dissemination materials are shown in the Annexes.

## 2. DISSEMINATION MATERIALS (as of January 2019)

Several dissemination materials have been developed and continuously updated since the start of the project. These are all available and accessible to partners, stakeholders and the public as relevant, to use through the internal page and the project website, [www.applycate.eu/outreach](http://www.applycate.eu/outreach).

In addition to the dissemination materials, all the project deliverables labelled as “Public” in the project Description of Action (DoA) are available on the website and through the European portal Community Research and Development Information Service (CORDIS) and can be used to showcase the project.

Table 1: Project dissemination materials for the public as of January 2019.

Dissemination material	Target audiences	Use
Project logo (updated)	General public, Project partners	The project logo contributes to defining the project identity and is used internally within the project for all written documents (e.g., deliverable reports, meeting summaries, etc.) as well as externally on all presentations and dissemination materials. On

Dissemination material	Target audiences	Use
		the occasion of the project review in September 2018, the project logo has been renewed and updated as it appears in this document. All the relevant publications and online portals now show the new logo.
Website (updated) <a href="http://www.applycate.eu">www.applycate.eu</a>	General public, Project partners, Scientific community	The project website is the primary source of information and reference for the project. It is designed to attract visitors interested in the Arctic and gives general as well as detailed information on the project, its structure and goals, news and events. There is an internal section, with restricted access to project partners, where the documentation on the project (including deliverables, agreements, protocols, etc.) is stored. As for the logo, the APPLICATE website has been updated with new features and contents in view of the review of September 2018. The website front-end and structure has been redesigned based on input from project partners and external users as well as the new project logo and a new interface introduced in August 2018. Further amendments have since been made as per the input of the project review.
Social media	General public, Project partners, Scientific community	Social media channels for the project include Twitter and Facebook. News and events related with the project are announced on social media in addition to the website. Social media is also used to interact with other projects and the rest of the Arctic community and to engage with end-users through dissemination of project results and products.
Flyer (updated)	General public, Stakeholders	The project flyer gives an overview of the project objectives, activities, highlights and partners involved. It is designed to attract interest for the project and includes the website address and primary contacts. A newly-styled flyer with project updates and information has been distributed at the AGU conference, ACI 13 th shipping conference and Korea Arctic Week in December 2018 and during the AMS Annual Meeting in January 2019.
Rollup poster	General public, Stakeholders	The project roll up poster has been designed to be used at exhibitions and events. The poster has a basic design with key information on the project and the address of the website.
Project overview presentation	Project partners, Scientific Community, Stakeholders	A 4-slide overview presentation of the project gives an introduction of the project objectives and the key benefits for society. It can be used as stand-alone or integrated by partners in their presentations at conferences. The presentation includes all the partners and the project website. Also available in widescreen format.
Project Poster (updated)	Project partners, Scientific	A poster template for displaying project material in an organized layout format to be used at various

Dissemination material	Target audiences	Use
	Community, Stakeholders	conferences and other outreach event has been created and made available for project partners. The latest version of the project overview poster with up-to-date project highlights – “Understanding Arctic’s connections to Weather and Climate Across the Northern Hemisphere” – was presented at AGU 2018 in Washington DC (December 2018) and at AMS 2019 (January 2019) in Phoenix.
Blog	General public, Stakeholders	Developed in close cooperation with the Year of Polar Prediction (YOPP) and the project Blue Action and hosted by the Helmholtz platform, the blog “Polar Prediction Matters” hosts articles for and by stakeholders on the scientific outputs of Arctic research and how these can be used/transferred to other societal sectors beyond academia. In 2018, 7 new blog posts featuring issues relevant for the project such as user engagement, scientific advancements carried out by partners and other informational contents have been added with the support of the Applicate team.
Webinars	Early Career Scientists, Project partners, Scientific Community, General public	Webinar series organised in cooperation with the Association of Polar Early Career Scientists (APECS) was begun in September 2017. Two webinars were carried during earlier reporting period (a general introduction to the project by Thomas Jung and a focus on WP2 science (enhancing weather and climate models) by Matthieu Chevallier). The third was held in January 2018 by Doug Smith who talked about atmosphere-ocean interactions (WP3). Further webinars may be organised later in the project as more results become available.
EU Arctic Cluster	General public, Stakeholders	Outreach activity in cooperation with EU-PolarNet, European Polar Board and 8 other large scale Arctic related Horizon 2020 projects to support and better coordinate Outreach activities, Stakeholder engagement, data management and training. Webpages on the EU-PolarNet website, Flyer and Booth developed by the Applicate WP7 team on behalf the entire consortium Joint activities (side events, joint attendance to specialized and non-specialized meetings, etc.) are and will continue being planned and attended actively by the Applicate team, including a side event held at the 2019 Arctic Frontiers. EU-Arctic Cluster website: <a href="http://www.eu-arcticcluster.eu">www.eu-arcticcluster.eu</a>
Frostbyte Videos	General public, Scientific Community, Stakeholders	A series of short videos made by the students of the APPLICATE Polar Prediction School in Abisko (April 2018) have been made available on the APPLICATE website among other outreach materials. The videos explain the research interests of these early career scientists and are

Dissemination material	Target audiences	Use
		featured on the website with the intention to provide further information on project-related studies carried out by young researchers.
Newsletter	General public, Project partners	A biannual newsletter is issued by the outreach team through the project website and direct communication to partners and relevant stakeholders. It summarises the main project activities and results, reports from events, news, upcoming meetings and deadlines, and vacancies within the project. The first newsletter was made available on the website among the outreach documents in June 2018, with information on the scientific progresses made in the framework of the project as well as the APPLICATE Polar Prediction School held in Abisko in April of 2018. The second newsletter will be published in February, directly following the upcoming project general assembly.
Article in PolarPredictNews	General public, stakeholders	<p>An article describing the importance of attending the Arctic Circle Assembly for APPLICATE and the Year of Polar Prediction (YOPP) was written by the partners in WP7. Entitled “Feeling the Arctic to better understand”, it describes the three busy days of dialogue, interactions and learning on priority issues affecting the lives and businesses of people from polar regions that experienced the attendants to the event: international government representatives, statesmen, organizations, corporations and universities, think tanks, indigenous communities and many other actors interested in the Arctic.</p> <p>The article was published in issue 4 of PolarPredictNews, a newsletter developed by the International Coordination Office (ICO) for Polar Prediction.</p>
<b>NEW-</b> Project promotional video	General public, Stakeholders	<p>An outreach video has been produced for project outreach purposes, first presented at the Arctic Circle conference in Iceland in October 2018. It will be used to introduced the project on the project website, at relevant events, including those of the EU Arctic Cluster, and EU relevant events - <a href="https://applicate.eu/outreach/promo-video">https://applicate.eu/outreach/promo-video</a>.</p> <p>The video will be updated as needed to include future important projects activities, highlights and results.</p>

### 3. OUTLOOK



Further dissemination materials will be developed throughout the project lifetime, tailored to specific user groups to disseminate project results, inform policies and engage with stakeholders.

Table 2: Further dissemination materials planned to be developed within the project.

Dissemination material	Target audiences	Use
Policy briefs	Stakeholders	Developed in collaboration with the EU and the EU project Blue-Action during the latter period of the project, with a focus on business and policy stakeholders, the envisioned 2 – 4 policy briefs will target policy makers and how the scientific results from the two projects (and Arctic research in general) can inform and support policy decisions.
Fact sheets	General public, Scientific Community, Stakeholders	A series of self-explaining 2-page documents covering a wide range of project relevant topics in Arctic research, polar prediction and how Arctic environmental changes affect mid-latitudes. Preliminary estimation is 4-6 issues.
YouTube Channel	General public, Scientific Community, Stakeholders	A collection of videos, interviews and animations relevant to the project, the project scientific results and activities.

## 4. REFERENCES

APPLICATE project website: [www.applycate.eu](http://www.applycate.eu)  
 (page for relevant dissemination materials: [www.applycate.eu/outreach](http://www.applycate.eu/outreach))

Blue Action project website: [www.blue-action.eu](http://www.blue-action.eu)

Year of Polar Prediction website: [www.polarprediction.net/yopp/](http://www.polarprediction.net/yopp/)

Blog Polar Prediction Matters: <https://blogs.helmholtz.de/polarpredictionmatters>

EU-Arctic Cluster project website: [www.eu-arcticcluster.eu](http://www.eu-arcticcluster.eu)

APECS-APPLICATE webinars: - <https://www.apecs.is/career-resources/webinars.html>

Article in the PolarPredictNews newsletter:  
<https://blogs.helmholtz.de/polarpredictionmatters/2018/01/sailing-frozen-oceans/>

## 5. ACRONYMS

CORDIS: Community Research and Development Information Service

DoA: Description of Action

YOPP: Year of Polar Prediction

AGU: American Geophysical Union

AMS: American Meteorological Society

## 6. ANNEXES

Dissemination Materials:

New project logo:

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

**APPLICATE** 

Updated project website front interface:



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




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### GOALS & OBJECTIVES


The goal of APPLICATE is to develop enhanced predictive capacity for weather and climate in the Arctic and beyond, and to determine the influence of Arctic climate change on Northern Hemisphere mid-latitudes, for the benefit of policy makers, businesses and society.

**Applycate on Twitter**

APPLICATE-EU Retweeted

**YOPP Polar Prediction**  
@polarprediction

Chapter on Role of #SeaIce in Sub-Seasonal #Predictability #PolarPrediction by @applycate\_eu scientists @ChetMatthieu @FMassonnet @Heige\_AWI Virginie Guemas @JungAWI in @ElsevierConnect book on Sub-Seasonal to Seasonal #S2S #Prediction polarprediction.net/news/



Nov 28, 2018

APPLICATE-EU  
@applycate\_eu

In the north, many people still live in annual rhythms, especially in communities that depend on traditional livelihoods.

### NEWS

#### NEWS

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Advanced prediction in polar regions and beyond

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**SIMIP Sea Ice Session at AMS Polar 2019**

A session on one of the SIMIP themes, "Reducing sea ice projection uncertainty through increased process-understanding", is soliciting Abstracts for the AMS 15<sup>th</sup> Conference on Polar Meteorology and Oceanography in Boulder, USA, 20-23 May 2019. If your work fits that description, please consider submitting an Abstract. The deadline is January 18<sup>th</sup> 2019. There are also other sea ice sessions proposed.

28 Nov 2018



#### NEWS

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**APPLICATE General Assembly 2019 and Early Career Event**

ECMWF | Reading | 26 January - 1 February 2019

27 Nov 2018

#### NEWS

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**WANTED! Researcher in Atmospheric Dynamics w/ Linkages between Arctic and Europe**

An open post is available for a researcher in the field of atmospheric dynamics with focus on linkages between the Arctic and Europe at the Finnish Meteorological Institute (FMI) based in Helsinki, Finland. Duration of the contract is from February 2019 to December 2020.

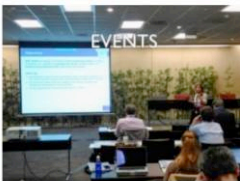
27 Nov 2018

More News

#### ABOUT THE PROJECT




#### EVENTS



#### OUTREACH & TRAINING



#### DATA PORTAL



#### USER ENGAGEMENT




#### CONTACT

APPLICATE.eu

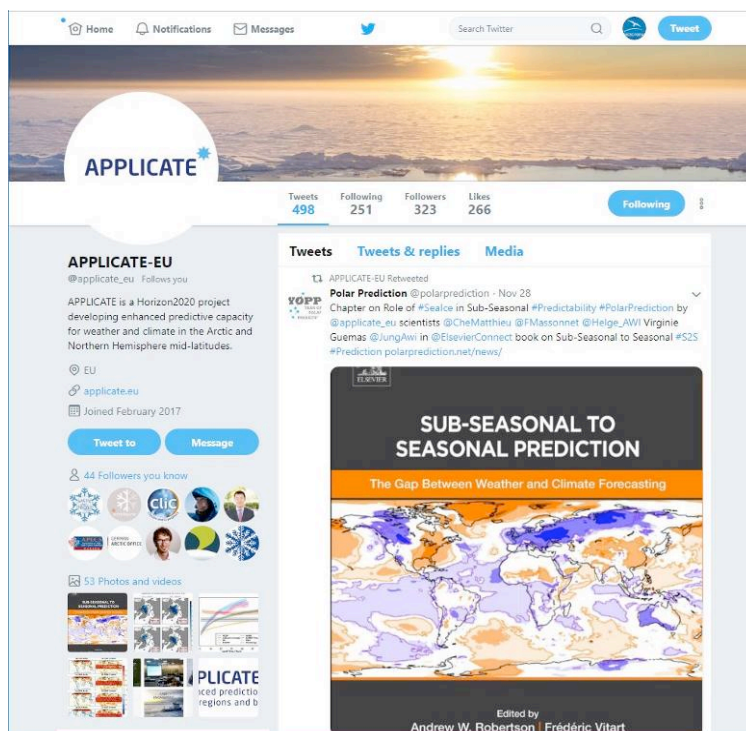
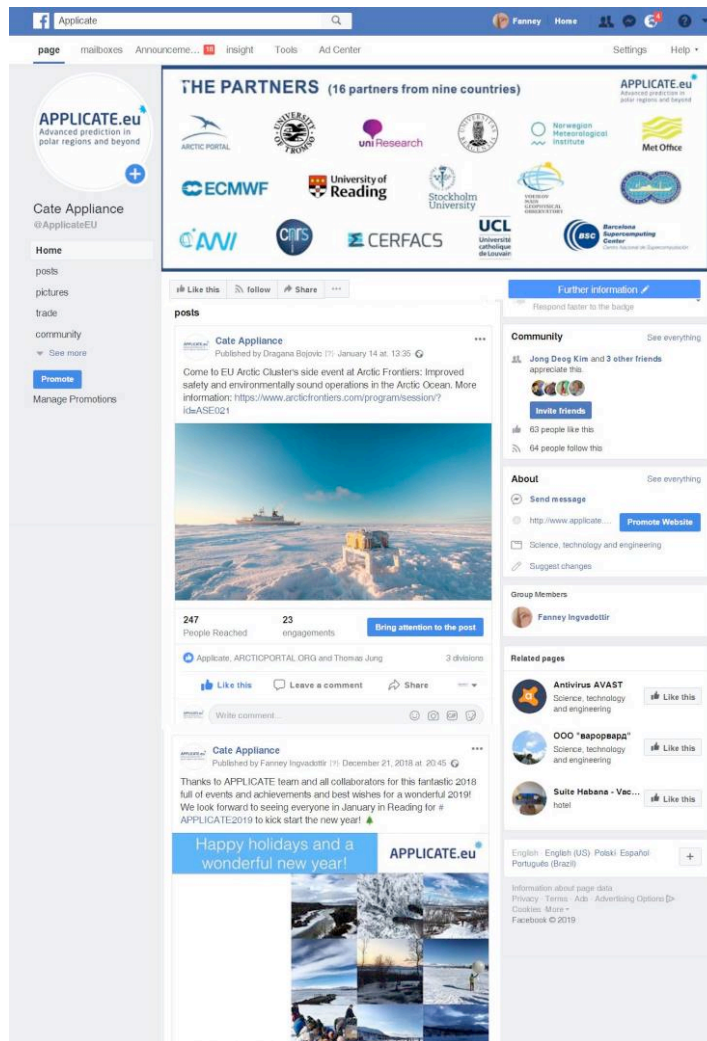
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<p><b>Home</b></p> <ul style="list-style-type: none"> <li>News</li> <li>Publications</li> <li>Events</li> <li>Training</li> <li>Intranet</li> </ul>	<p><b>About</b></p> <ul style="list-style-type: none"> <li>Goals &amp; Objectives</li> <li>Key Questions</li> <li>Strategy</li> <li>Partners</li> <li>Executive Board</li> <li>Scientific Advisory Board</li> <li>Work Packages</li> <li>Structure &amp; Governance</li> <li>Deliverables &amp; Milestones</li> <li>Clustering</li> <li>Privacy Policy</li> </ul>	<p><b>Data &amp; Outreach</b></p> <ul style="list-style-type: none"> <li>Data Strategy</li> <li>Data Portal</li> <li>ECMWF-Applycate YOPP</li> <li>Information Material</li> <li>Documents</li> <li>Videos</li> </ul>	<p><b>User</b></p> <ul style="list-style-type: none"> <li>Stakeholders</li> <li>YOPP Blog</li> <li>User Group</li> </ul> <div style="font-size: x-small; margin-top: 5px;">  <p>This project (APPLICATE) has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727862. The content of the website is the sole responsibility of the Consortium and it does not represent the opinion of the European Commission and the Commission is not responsible for any use that might be made of information contained.</p> </div>
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Designed & hosted by Arctic Portal

Project social media channels (Facebook and Twitter):



Updated project brochure:


### Highlights of the APPLICATE project include:

- Development of process-oriented and user-relevant metrics and diagnostics.
- Development of a coupled atmosphere-sea ice-ocean single-column model.
- Contribution to the development of the Polar Amplification Model Intercomparison Project (PAMIP).
- Testing of forcing fields for PAMIP.
- Evaluation of the importance of assimilating sea ice concentration and sea ice thickness for Arctic seasonal prediction.
- Investigation of the impact of atmospheric observations on medium range forecasts in polar and lower latitude regions.
- Finalization of baseline forecast experiments (Stream 1) on which the impact of APPLICATE developments will be tested (Stream 2).
- Establishment of a data management system and post processing environment.
- Production and dissemination of the ECMWF-YOPP Analysis and Forecast Dataset.
- Engagement with stakeholders through user-group and events.
- Organisation of a training school and numerous webinars.
- Determination of the present limits of predictability in the Arctic from daily to sub-seasonal time scales.



Figure – Geophysical Research Letters, Bright Prospects for Arctic Sea Ice Prediction on Subseasonal Time Scales.

### 16 PARTNERS FROM NINE COUNTRIES



# APPLICATE.eu

Advanced prediction in polar regions and beyond

## UNDERSTANDING THE ARCTIC'S CONNECTIONS TO WEATHER AND CLIMATE ACROSS THE NORTHERN HEMISPHERE



### What is APPLICATE?

A four-year project funded by the EU's Horizon 2020 Research and Innovation programme with a budget of €8 million

A consortium of 16 expert organisations from 9 different countries

### APPLICATE's objectives:

- Assess weather and climate prediction models using observations and provide guidance for model development
- Develop enhanced predictive capacity for weather and climate in the Arctic and beyond through improving weather and climate models
- Determine how Arctic climate change influences weather and climate in the mid-latitudes of the Northern Hemisphere through atmospheric and oceanic linkages
- Provide guidance for designing the future Arctic observing system
- Communicate knowledge generated by the project to stakeholders
- Train early career scientists in close collaboration with the Association of Polar Early Career Scientists (APECS)



Polar Prediction School, 2018

- Establish an effective dialogue with a network of key stakeholders in order to obtain feedback to help improve modelling and forecasting
- Widely disseminate the results of the project to those who can benefit from improved Arctic observations and enhanced weather and climate predictions
- Work in cooperation with European and international scientific partners
- Contribute to the Year of Polar Prediction and IPCC assessment reports
- Build a seamless community



**Cooperation as a key to success!**

### Those who benefit from the work of the APPLICATE project include:

- Climate scientists and modellers
- Operational forecasting centres
- Emergency services
- Any business sector that is vulnerable to climate and weather from the Arctic to the mid-latitudes (tourism, shipping, agriculture, insurance, etc.)
- Policymakers at local, regional and national levels relying on climate and weather predictions to make well-informed decisions

### We welcome stakeholder feedback!

Are you a climate scientist, modeller, weather forecaster, or a user of climate and weather services? Then you are an APPLICATE stakeholder!

The APPLICATE consortium welcomes feedback from all stakeholders from outside the project to contribute to its work to improve climate and weather forecasting in the Arctic and mid-latitudes.

You can get involved by joining our blog or by providing us feedback directly at:

Dr. Luisa Cristini at the Alfred Wegener Institute (AWI)  
 Email: [luisa.cristini@awi.de](mailto:luisa.cristini@awi.de)  
 Tel.: +49(0) 471 4831-1681

Halldór Jóhannsson at the Arctic Portal  
 Email: [halldor@arcticportal.org](mailto:halldor@arcticportal.org)  
 Tel.: +354 461 2800

PUBLICATIONS - [www.applycate.eu/publications](http://www.applycate.eu/publications)  
 DATA - [www.applycate.met.no](http://www.applycate.met.no)

You can find our Polar Prediction Matters blog at:  
<https://blogs.helmholtz.de/polarpredictionmatters/>

 [twitter.com/applycate\\_eu](https://twitter.com/applycate_eu)

 [facebook.com/ApplycateEU/](https://facebook.com/ApplycateEU/)



Realistic sea ice deformation features start to emerge in high-resolution simulations.

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



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

Updated project roll-up:



## Understanding Arctic's Connections to Weather and Climate Across the Northern Hemisphere

### APPLICATE's objectives:

Develop advanced predictive capacity for weather and climate in the Arctic and beyond, using:

- \* Enhanced models
- \* Advanced data stimulation
- \* Improved Arctic observing system

Determine the impact of Arctic climate change on mid-latitude weather and climate through:

- \* Coordinated modelling
- \* Predictability studies

Exchange knowledge with stakeholders and provide training of early career scientists through:

- \* User engagement
- \* Dissemination
- \* Training (with APECS)

**PARTNERS**



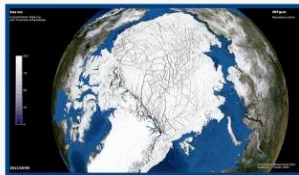
Updated project poster:

# Understanding Arctic's Connections to Weather and Climate Across the Northern Hemisphere

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## APPLICATE's objectives:

- ★ Develop advanced predictive capacity for weather and climate in the Arctic and beyond
- ★ Determine the impact of Arctic climate change on mid-latitude weather and climate
- ★ Exchange knowledge with stakeholders and provide training of early career scientists



## The highlights of the APPLICATE project include:

- ★ Common strategy for the assessment of weather and climate models, including framework, definitions and terminology.
- ★ New process-oriented and user-relevant metrics and diagnostics developed and implemented in ESMValTool software.
- ★ Coupled atmosphere-sea ice-ocean single-column model, which extends from the deep ocean, through sea ice to the top of the atmosphere developed.
- ★ Representation of individual components of the climate system in weather and climate models.
- ★ Numerical climate model experiments developed into the Polar Amplification Model Intercomparison Project (PAMIP), an endorsed contribution to the Sixth Coupled Model Intercomparison Project (CMIP6).
- ★ Forcing fields for PAMIP have been created and being tested.
- ★ The importance of assimilating sea ice concentration and sea ice thickness has been evaluated.
- ★ The impact of various types of atmospheric observations on the skill of operational medium range forecasts has been investigated in polar and lower latitudes regions.
- ★ All Stream 1 forecast experiments for daily and seasonal timescales have been finished, to be improved in Stream 2.
- ★ Analysis of the current predictive capacity for Numerical Weather Predictions in the Arctic.
- ★ Establishment of a working data management system and a post processing environment.
- ★ Production of the YOPP Analysis and Forecast Dataset.
- ★ User Group established and meetings with the group participants and other stakeholders successfully held.
- ★ Training school and webinar series organised.

**We welcome stakeholder feedback!**

## What is APPLICATE?

- ★ A four-year project started November 2016, funded by the EU's Horizon 2020 Research and Innovation programme with a budget of € 8M
- ★ A consortium of 16 expert organisations from 9 different countries

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**Our Polar Prediction Matters blog at:**  
[blogs.helmholtz.de/polarpredictionmatters/](https://blogs.helmholtz.de/polarpredictionmatters/)



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Project introduction presentation (ppt):

## UNDERSTANDING THE ARCTIC'S CONNECTION TO WEATHER AND CLIMATE ACROSS THE NORTHERN HEMISPHERE

A four-year project funded by the EU's Horizon 2020 Research and Innovation programme with a budget of € 8 million

A consortium of 16 expert organisations from 9 different countries!

Cooperation as a key to success!




APPLICATE participating partners' countries



















### APPLICATE's objectives:

- Develop advanced predictive capacity for weather and climate in the Arctic and beyond
- Determine the impact of Arctic climate change on mid-latitude weather and climate
- Effective knowledge transfer to stakeholders, including training of early career scientists
- Building a seamless polar prediction community

















### Those who benefit from the work of the APPLICATE project include:

- Climate scientists and modellers
- Operational forecasting centres
- Emergency services
- Any business sector that is vulnerable to climate and weather from the Arctic to the mid-latitudes (tourism, shipping, agriculture, insurance, etc.)
- Policymakers at local, regional and national levels relying on climate and weather predictions to make well-informed decisions

















### Get involved – Provide feedback – Join our blog





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

















Project frostbyte videos:



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### Frostbyte Videos

FrostBytes videos, short videos from the Applicate Summer School that explain what research participants are conducting.

<https://vimeo.com/apecs>

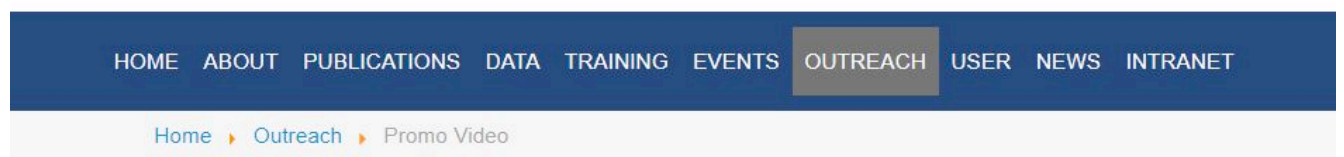
<p>Long-term behaviour of dynamical systems</p> <p>Alexander Lohse University of Bayreuth, Germany</p>	<p>Quantifying Arctic Storm Risk in a Changing Climate</p> <p>Alexander Vesey alex.vesey@reading.ac.uk University of Reading</p> <p>Supervisors: Kevin Hoggan (UK), Len Whalley (UK), James Day (USA), Tom Philip (UK)</p>
<p>The Polar Front limits winter sea ice</p> <p>Benjamin Barton Laboratoire d'Océanographie Physique et Spatiale, Brest, France</p>	<p>The Physics of Arctic Warm-air Intrusion</p> <p>Cheng-Yun Michael Tsai Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, Colorado</p>
<p>Investigating cold-air outbreak in the subpolar seas</p> <p>Chris Barrell University of East Anglia</p> <p>Keywords: Arctic, meteorology, cold-air outbreaks, polar observations, numerical weather prediction</p>	<p>How does Arctic sea-ice loss affect our weather?</p> <p>Christine McKenna UNIVERSITY OF CAMBRIDGE</p>
<p>Forecasting sea ice is becoming a big thing in a warming Arctic</p> <p>Clara Burgard Max Planck Institute for Meteorology, Hamburg, Germany</p>	<p>What's melting Larsen C?</p> <p>Ella Gilbert, Andrew Otto, Tom Lachlan-Cope, John King &amp; Ian Renfrew</p>
<p>The role of Arctic sea ice in climate feedbacks</p> <p>Evelien Dekkers Climate Research Centre, University of East Anglia Royal Dutch Meteorological Institute (KNMI)</p>	<p>Sea ice changes and Polar Amplification using Brazilian Earth System Model</p> <p>Ferdinand Engelbrecht, PhD Brazilian Earth System Model National Institute for Space Research (INPE)</p>

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Project introduction video:

Link to the video: <https://applycate.eu/outreach/promo-video>




### Promotional Video



Project newsletter, 2018:


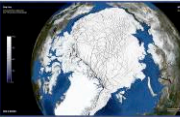

**Advanced prediction in the Arctic and beyond:  
Newsletter**










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

UNDERSTANDING ARCTIC'S CONNECTIONS TO WEATHER AND CLIMATE ACROSS THE NORTHERN HEMISPHERE

- Development of **process-based metrics and diagnostics** for the Arctic as well as for stakeholders and users. These include ocean and sea ice process-based metrics and diagnostics and diagnostics and metrics relevant for local communities, as well as for the shipping, energy, fishing and other sectors.
- Development of a **novel coupled Atmosphere Ocean Single Column Model (AOSCM)**, a vertical column out of a global climate model that extends from the deep ocean through the, possibly ice covered, ocean surface to the atmospheric column.
- Contribution to development of a **protocol for coordinated multi-model experiments called Polar Amplification Model Intercomparison Project (PAMIP)**, which has received endorsement for the Coupled Model Intercomparison Project phase 6 (CMIP6).
- A set of **Observing System Experiments** which consists in performing weather forecasts that, while not assimilating certain types of observations which are normally assimilated, have been designed and will be run for the Special Observing Periods of the Year of Polar Prediction.
- Establishment of a **reference data set for Arctic predictions** and an **atlas of prediction skill**, giving a comprehensive status of state-of-the-art prediction system capabilities. This includes Numerical Weather Prediction, seasonal forecasts and climate predictions.
- A **framework for connecting physically distributed data centres** into an integrated unit has been implemented and put in operation for APPLICATE. This provides mechanisms for documenting data, searching, accessing, transforming and visualising data. The APPLICATE Data Portal website (<https://applicate.met.no/>) also includes guidance material for data providers and data centres that want to connect.
- APPLICATE joined the **EU Arctic Cluster**, a network of nine Europe-funded projects, to bring the insights from our various areas of expertise together in order to provide one entry point to EU funded Arctic research and provide policy-relevant information and support the EU in implementing its integrated policy for the Arctic. APPLICATE also contributes to implementing the **Transatlantic Ocean Research Alliance** through strong collaboration with coordinating bodies and numerous individual collaborators from the US and Canada.

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The Polar Prediction School took place from 17-27 April 2018 at Abisko Scientific Research Station in northern Sweden.

The APPLICATE Polar Prediction School brought together 29 students from nine different countries at various career stages, from early PHD students through to post-docs. The programme was designed to provide a comprehensive overview of the main aspects related to polar weather and climate prediction through lectures and exercises covering various scientific aspects.



To introduce the students to various observational techniques they conducted practical exercises based on data obtained from a micrometeorology mast and by launching Radiosondes.




Daily weather briefings were made by the students to learn to interpret weather forecasts in complex polar mountain environments and to better understand how today's models perform in such regions.

Soft skills training was provided through a dedicated science communication programme. Topics covered included how to distill information, tailoring messages for specific audiences, using social media, and slide design.

The students made informative videos 'FrostBytes', now available on the APECS and APPLICATE websites.

A diverse course such as the Polar Prediction School, bringing together a wide set of students and lecturers, helps build and maintain the community needed to address the polar prediction challenge, which is inherently multi-disciplinary. Overall, the school was a great success and recommend as a model for future schools for early career researchers.





Stakeholder engagement

To produce usable and trustworthy predictive information for decision making, APPLICATE actively engages with users, including policy makers, businesses and society within and outside the EU. A User Group, composed of relevant international stakeholders, has been established and is regularly consulted.

APPLICATE uses different approaches to interact with relevant stakeholders, with the aim of engaging, informing and empowering them to adapt to Arctic changes and their far-reaching impacts on the environment and communities. In turn, stakeholders provide the project with an external perspective and feedback, ensuring that the products generated are tailored to user needs, and maximizing their relevance and usability. Applied approaches to stakeholder interaction are user group meetings, attendance to and presentations at relevant events and the Polar Prediction Matters blog.



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EU-Arctic Cluster partner diagram:

