

WP 7 - User engagement, dissemination and training

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727862.

- 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



WP7 Objectives



Four cruise ships with about 12.000 tourists in Akureyri, Iceland,



The increasing interest in the Arctic region – how can we raise awareness, increase knowledge and benefit stakeholders?

1. Develop relevant forms of communication and maximizing exposure to the projects objectives and spread its results

- **Dissemination**

2. Contribute to servicing those socioeconomic sectors in the Northern Hemisphere that benefit from improved forecasting

- **End-user-engagement**

3. Improve the professional skills and competences for those working and being trained to work within this subject area

- **Training**



User engagement (AP, BSC)

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.

- The User Engagement Plan - activities, the set-up and meeting plans.

Engaging – Involving - Empowering

- The User Group was established, composed of relevant international stakeholders. Meetings regularly held, virtual and face-to-face.



User engagement (AP, BSC)

- Active participation in the Year of Polar Prediction - YOPP Blog

The screenshot displays the YOPP (Year of Polar Prediction) Blog homepage. At the top, there is a banner with the text "Polar Prediction Matters" and the YOPP logo. Below the banner, the main content area features three article previews:

- Polar Forecasts Against Impacts of Declining Bering Sea Ice on Alaska Coastal Communities - Part 1**
20. July 2018
by Polar Prediction Matters
Leave a Comment
About the authors: The authors work at the US National Weather Service where Richard Thoman is a Climate Science and Services Manager, Becki Heim is a Marine and Sea Ice Program Manager, and Gene Petrescu is a Regional Scientist. In this article, they describe how Alaska coastal communities are ... [Read more]
- Predictive Ice Images - An ESA-Kick Start Project**
6. July 2018
by Polar Prediction Matters
4 Comments
Authors: Lasse Rabenstein and Panagiotis Kountouris (Drift & Noise GmbH) About the Authors: Lasse Rabenstein is co-founder and managing director of the company Drift & Noise - Polar Services GmbH (DNPS). Lasse received his PhD in 2010 at the University Bremen, Germany, in ... [Read more]
- Looking North: Perspectives of European Arctic Users**
14. May 2018
by Polar Prediction Matters
Leave a Comment
PPP-SERA Open Session with the European Polar Board, The Hague, Netherlands, April 18, 2018 About the authors: Rick Thoman works as the Climate Science and Services Manager for the U.S. National Weather Service Alaska Region and is based in Fairbanks, Alaska. He works as a translator of subseasonal ... [Read more]

On the right side of the page, there are several sidebar widgets:

- Polar Prediction Matters**
+ Home
+ About Polar Prediction Matters
+ About the Authors
+ Imprint of this Blog
- Recent Comments**
Lasse Rabenstein (15.07.2018 um 10:28)
+ Predictive Ice Images - An ESA-Kick Start Project
María Terrado (15.07.2018 um 21:28)
+ Predictive Ice Images - An ESA-Kick Start Project
Lasse Rabenstein (09.07.2018 um 12:00)
+ Predictive Ice Images - An ESA-Kick Start Project
Laurent Bertino (09.07.2018 um 16:34)
+ Predictive Ice Images - An ESA-Kick Start Project
Uwe Pahl (25.02.2018 um 14:21)
+ Breaking the Ice
- Tags**
Antarctica Australia captain sea-ice-forecast icebreaker Iceland Iceland coast guard helicopter Joint Rescue Coordination Centre navigation polarbear sea ice chart Search and Rescue USERYOPP
- Partners**
APPLICATE.eu
Advanced prediction in polar regions and beyond

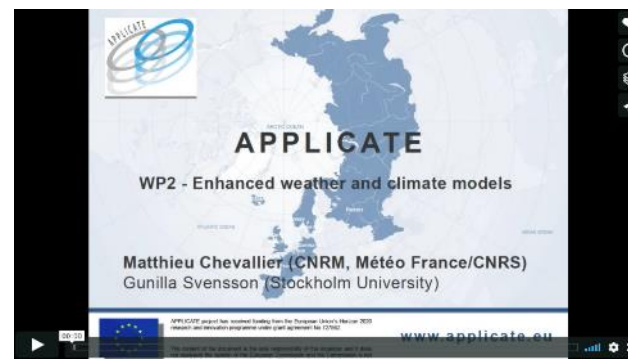
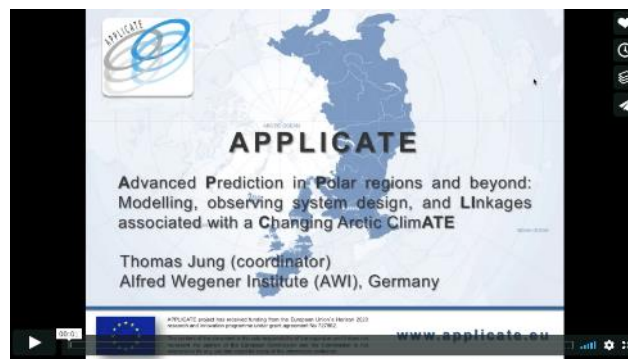


WP7 Highlights - Training

Training (UiT, AP, BSC)

APPLICATE – APECS Polar Prediction Webinar Series

- Advanced Prediction in Polar Regions and Beyond (Speaker: Thomas Jung)
- Improving Weather and Climate Models (Speaker: Matthieu Chevallier)
- Atmospheric-oceanic Linkages (Speaker: Doug Smith)



WP7 Highlights - Training

Polar Prediction School 2018 (17 – 27 April 2018, Abisko, Sweden)
- including creation of 29 FrostByte videos



Communication and dissemination (AP, BSC, UiT)

- Development of Outreach material, including project website and social media channels, a flyer, a rollup poster, press material, the project logo, overview presentation, newsletter and more.
- Participation in project related key events.
- Cooperation and Networking – EU Arctic Cluster and YOPP.



WP7 Outreach material

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New updated logo

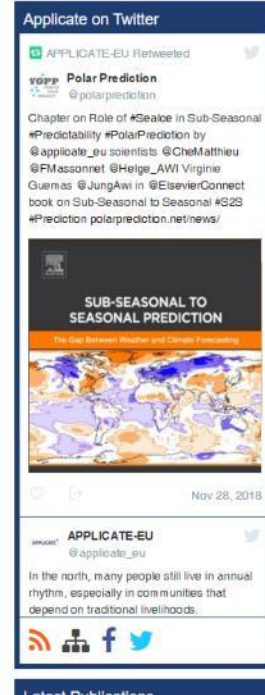
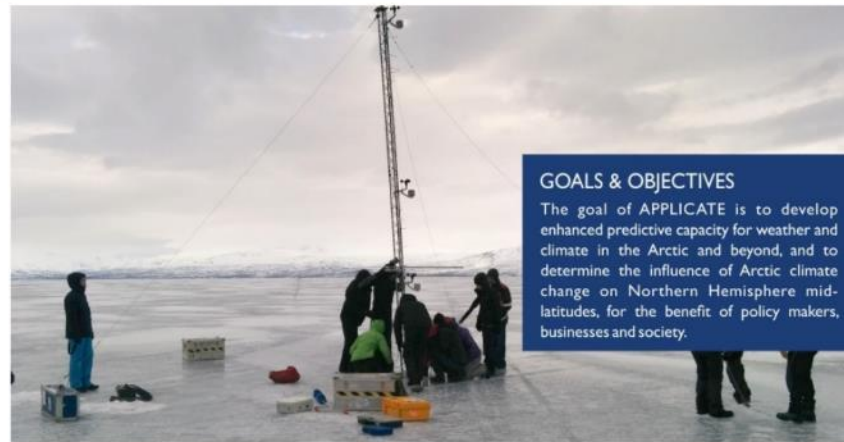
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APPLICATE



WP7 Outreach material

Updated webpage



WP7 Outreach material

Updated 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.
- Finalisation 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.

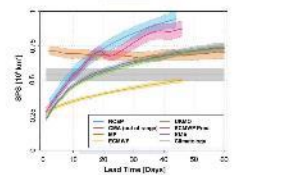


Figure - Sea Ice Thickness (SIT) in meters versus Lead Time (Days) for various models and observations.

16 PARTNERS FROM NINE COUNTRIES



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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)



- 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:

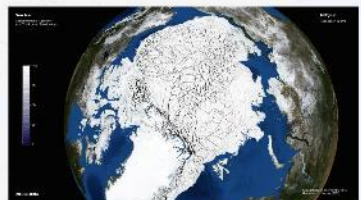
Dr. Luisa Cristini at the Alfred Wegener Institute (AWI)
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Halldor Johannsson at the Arctic Portal
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Tel.: +354 461 2800

PUBLICATIONS - www.applycate.eu/publications
DATA - www.applycate.met.no

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

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



WP7 Outreach material

Updated Roll-up & Poster

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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



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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.
- * 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.
- * New process-oriented and user-relevant metrics and diagnostics developed and implemented in ESMValTool software.
- * Analysis of the current predictive capacity for Numerical Weather Predictions in the Arctic.
- * Coupled atmosphere-sea Ice-ocean single-column model, which extends from the deep ocean, through sea ice to the top of the atmosphere developed.
- * Establishment of a working data management system and a post processing environment.
- * Representation of individual components of the climate system in weather and climate models.
- * Production of the YOPP Analysis and Forecast Dataset.
- * Numerical climate model experiments developed into the Polar Amplification Model Intercomparison Project (PAMIP), an endorsed contribution to the Sixth Coupled Model Intercomparison Project (CMIP6).
- * User Group established and meetings with the group participants and other stakeholders successfully held.
- * Forcing fields for PAMIP have been created and being tested.
- * Training school and webinar series organised.
- * The importance of assimilating sea ice concentration and sea ice thickness has been evaluated.

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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blogs.met.no/depolarpredictionmatters/



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WP7 Outreach material

Published newsletter

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.

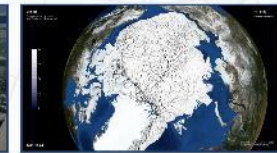
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Advanced prediction in the Arctic and beyond: Newsletter

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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://applycate.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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WP7 Outreach material

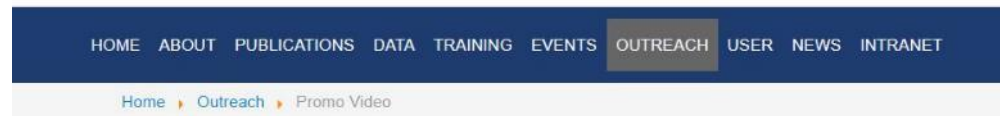
Social media:
Facebook
Twitter



WP7 Outreach material

Promo video

FrostByte videos
available on the
webpage



Promotional Video



WP7 Outreach material

Powerpoint
slides:
introduction to
the project

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

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Advanced prediction in polar regions and beyond

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

A consortium of 16 experts from 16 different countries!

Cooperation as

APPLICATE's objectives

- Develop advanced predictive capabilities
- Determine the impact of Arctic climate change on the Northern Hemisphere
- Effective knowledge transfer to end-users
- Building a seamless polar prediction system

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 change in the mid-latitudes (tourism, shipping, agriculture, etc.)
- Policymakers at local, regional and national levels who need accurate weather predictions to make well-informed decisions

Get involved – Provide feedback – Join our blog

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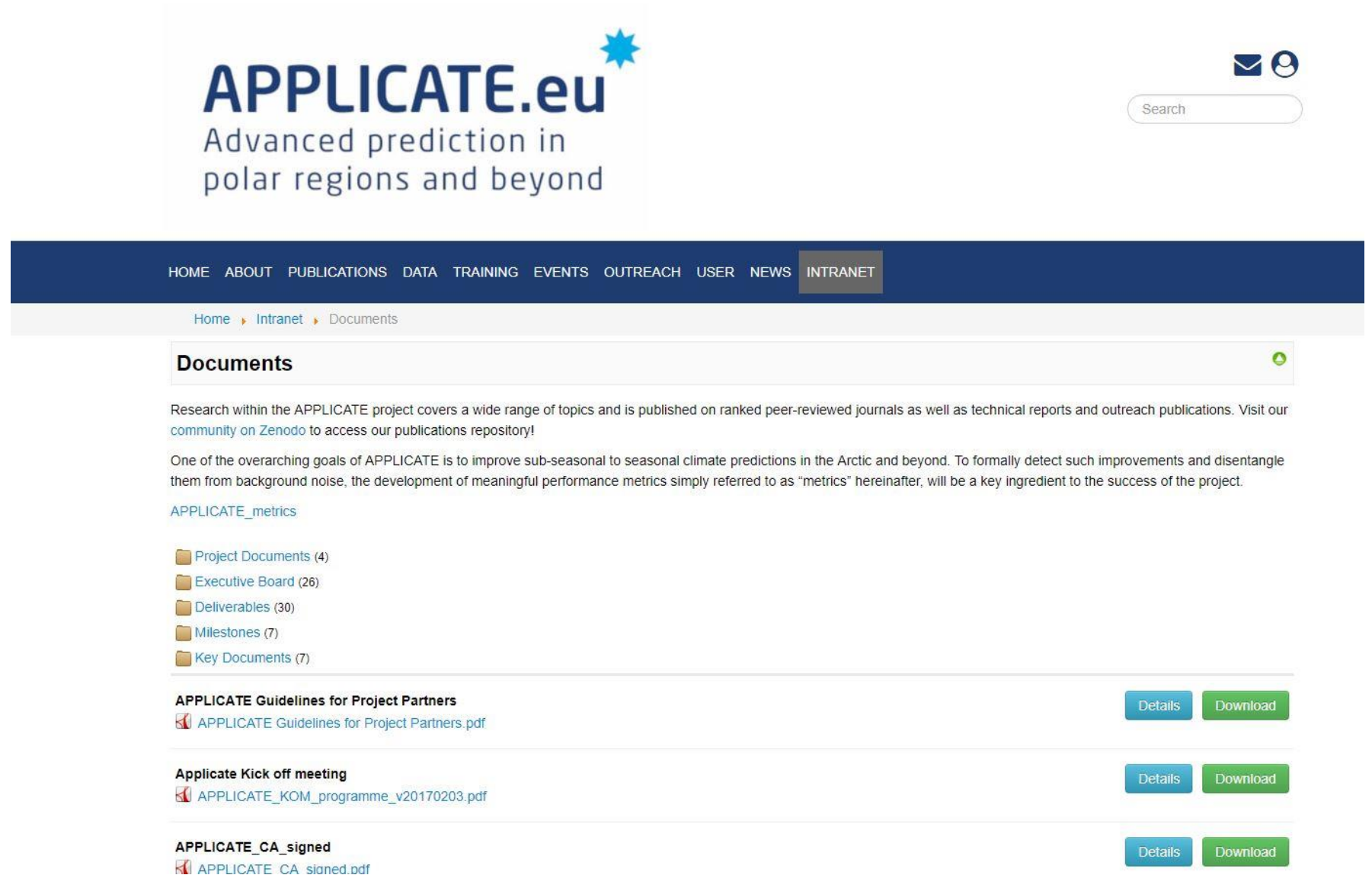
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Logos of partner organizations: CAVI, Arctic Portal, Met Office, ECMWF, etc.



WP7 Outreach material

Intranet for partners



The screenshot shows the APPLICATE.eu Intranet for partners page. At the top, there is a navigation bar with links for HOME, ABOUT, PUBLICATIONS, DATA, TRAINING, EVENTS, OUTREACH, USER, NEWS, and INTRANET. Below the navigation bar, there is a breadcrumb trail: Home > Intranet > Documents. The main content area is titled "Documents" and contains a paragraph of text: "Research within the APPLICATE project covers a wide range of topics and is published on ranked peer-reviewed journals as well as technical reports and outreach publications. Visit our community on Zenodo to access our publications repository!" followed by another paragraph: "One of the overarching goals of APPLICATE is to improve sub-seasonal to seasonal climate predictions in the Arctic and beyond. To formally detect such improvements and disentangle them from background noise, the development of meaningful performance metrics simply referred to as "metrics" hereinafter, will be a key ingredient to the success of the project." Below the text, there is a list of document categories: Project Documents (4), Executive Board (26), Deliverables (30), Milestones (7), and Key Documents (7). The page also features three document entries, each with a "Details" button and a "Download" button: "APPLICATE Guidelines for Project Partners" (APPLICATE Guidelines for Project Partners.pdf), "Applicate Kick off meeting" (APPLICATE_KOM_programme_v20170203.pdf), and "APPLICATE_CA_signed" (APPLICATE_CA_signed.pdf).

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Search

HOME ABOUT PUBLICATIONS DATA TRAINING EVENTS OUTREACH USER NEWS **INTRANET**

Home > Intranet > Documents

Documents

Research within the APPLICATE project covers a wide range of topics and is published on ranked peer-reviewed journals as well as technical reports and outreach publications. Visit our [community on Zenodo](#) to access our publications repository!

One of the overarching goals of APPLICATE is to improve sub-seasonal to seasonal climate predictions in the Arctic and beyond. To formally detect such improvements and disentangle them from background noise, the development of meaningful performance metrics simply referred to as "metrics" hereinafter, will be a key ingredient to the success of the project.

[APPLICATE_metrics](#)

- Project Documents (4)
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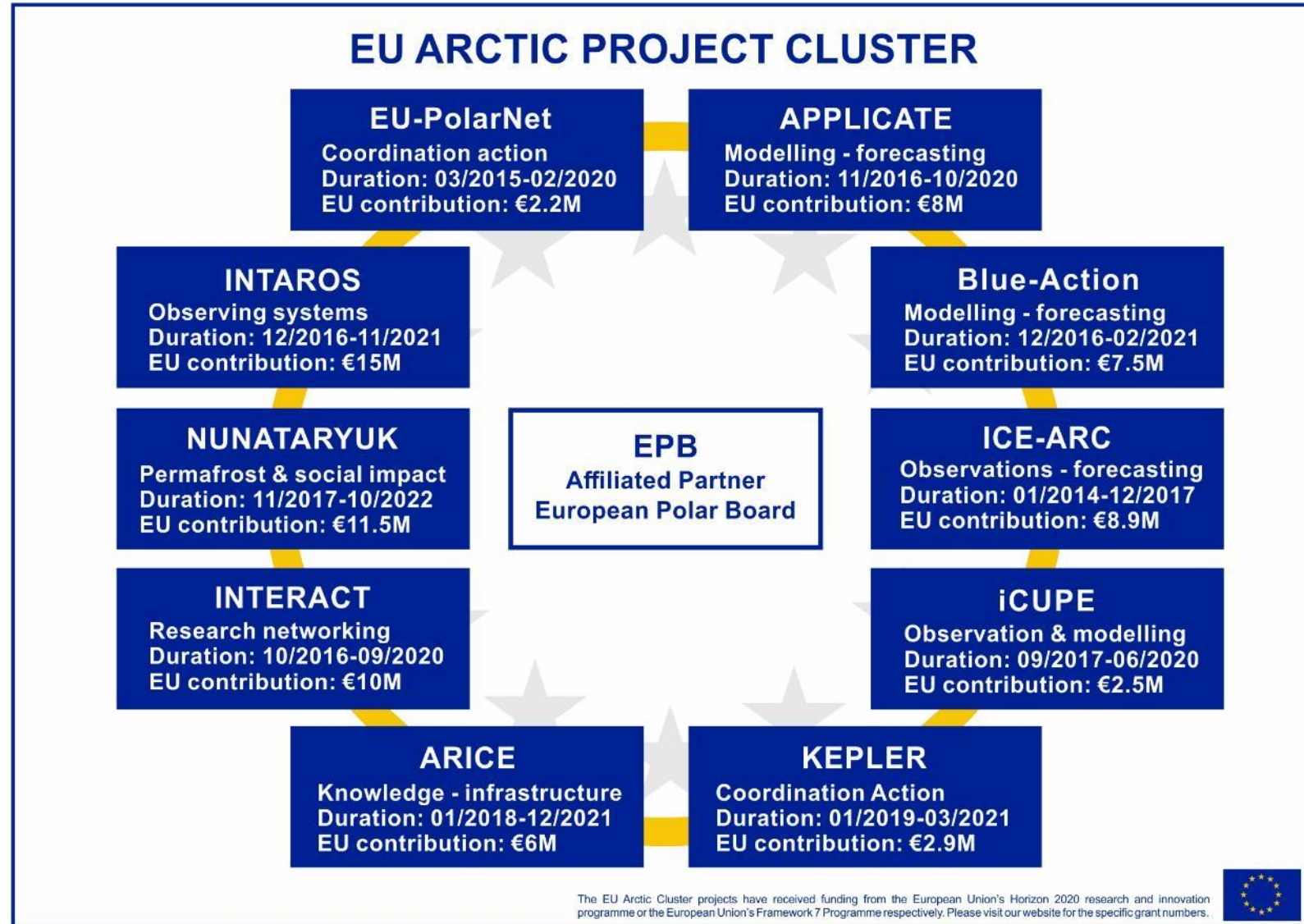
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WP7 Outreach material



WP7 Next key steps:

- publish newsletter nr. 2
- develop case studies
- participation in EU Arctic Cluster and events
- continues user engagement
- training

Report YOUR outreach activities!



- who are we to impact?
- how do we make an impact?
- how do we measure the impact?

