

# Just launched: The Year of Polar Prediction (YOPP)

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**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale

# Background

- In the late 2000s several aspects came together
  - Discussion on the legacy of the International Polar Year (IPY, 2007–2008)
  - Discussion of the future of the World Weather Research Programme (WWRP)
  - Arctic climate was changing rapidly
- Polar prediction moved into the focus
- *Polar Prediction Project* (PPP) was established

# PPP Kick-off Meeting

## PPP mission statement:

*Promote cooperative  
international research  
enabling development of  
improved weather and  
environmental prediction  
services for the polar regions,  
on time scales from hourly to  
seasonal*



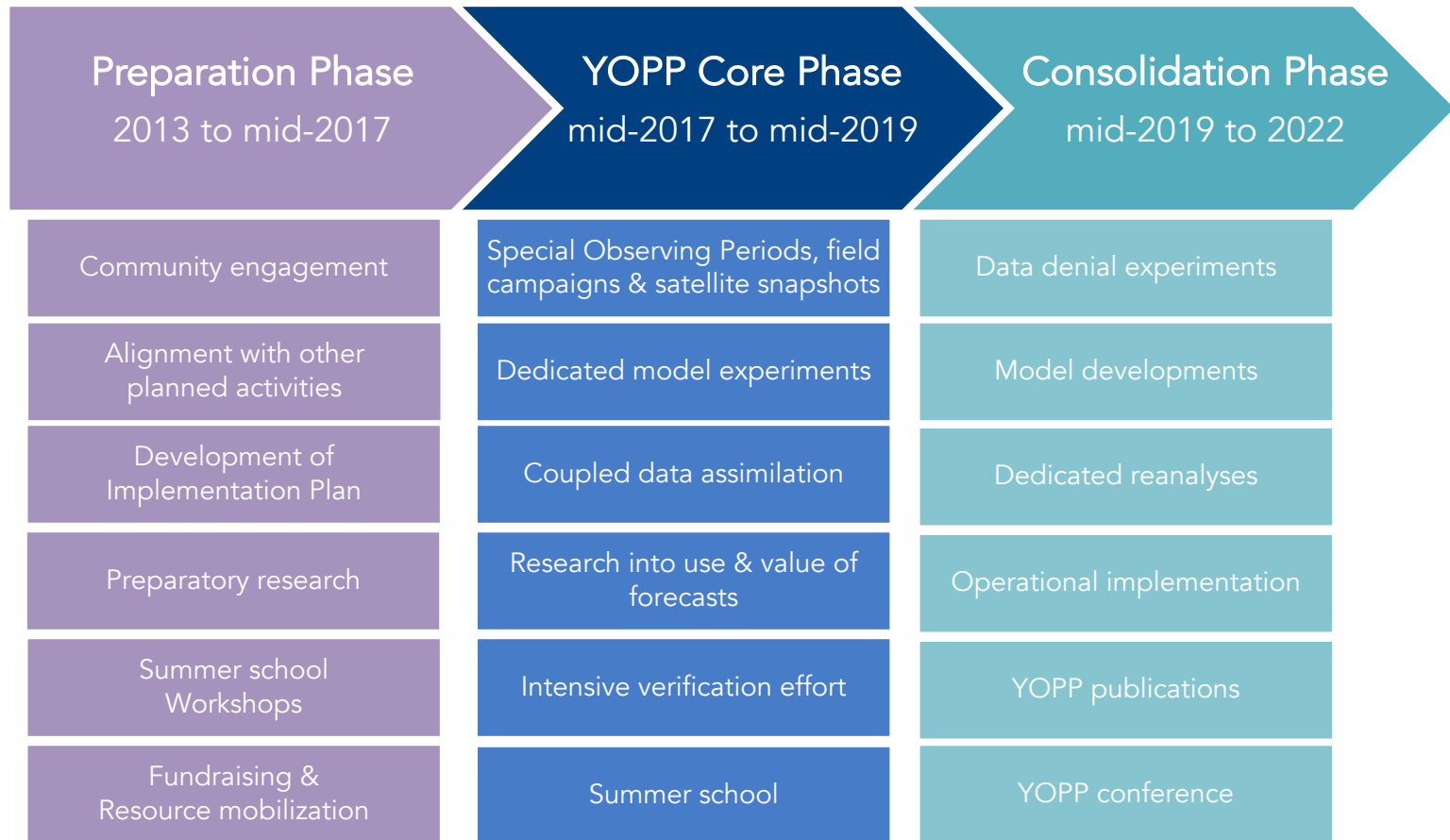
PPP Steering Group, WMO, Geneva, 2011

# Following PPP Steering Group Meeting

## **Year of Polar Prediction mission statement:**

*Enable a significant improvement in environmental prediction capabilities for the polar regions and beyond, by coordinating a period of intensive observing, modelling, prediction, verification, user-engagement and education activities*

# YOPP Time Line



Jung et al. (2016), *Bull. Amer. Meteor. Soc.*

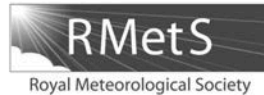
# Preparation Phase: Selected Highlights

## Community engagement – YOPP Summit



# Preparation Phase: Selected Highlights

## Preparatory research – Publications



### Editorial

#### Editorial for the Quarterly Journal's special issue on Polar Prediction

Peter Bauer<sup>a\*</sup> and Thomas Jung<sup>b</sup>

<sup>a</sup>ECMWF, Reading, UK

<sup>b</sup>AWI, Bremerhaven, Germany

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E-mail: peter.bauer@ecmwf.int  
DOI:10.1002/qj.2639

[www.nature.com/scientificreports](http://www.nature.com/scientificreports)

## SCIENTIFIC REPORTS

### OPEN Additional Arctic observations improve weather and sea-ice forecasts for the Northern Sea Route

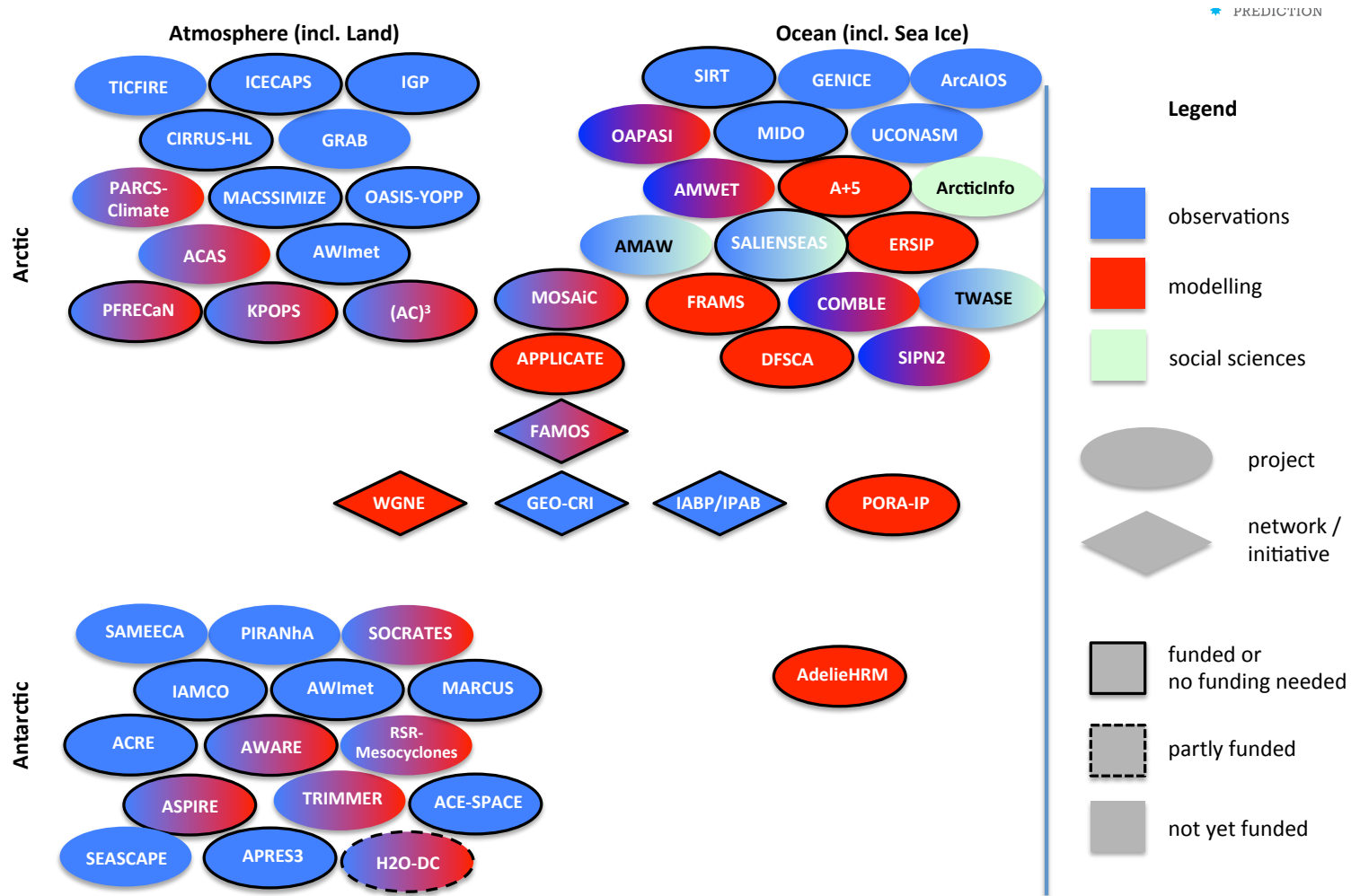
Received: 22 May 2015  
Accepted: 21 October 2015  
Published: 20 November 2015

Jun Inoue<sup>1,2,3</sup>, Akira Yamazaki<sup>2</sup>, Jun Ono<sup>2</sup>, Klaus Dethloff<sup>4</sup>, Marion Maturilli<sup>4</sup>, Roland Neuber<sup>4</sup>, Patti Edwards<sup>5</sup> & Hajime Yamaguchi<sup>6</sup>

During ice-free periods, the Northern Sea Route (NSR) could be an attractive shipping route. The decline in Arctic sea-ice extent, however, could be associated with an increase in the frequency of the causes of severe weather phenomena, and high wind-driven waves and the advection of sea ice could make ship navigation along the NSR difficult. Accurate forecasts of weather and sea ice are desirable for safe navigation, but large uncertainties exist in current forecasts, partly owing to the sparse observational network over the Arctic Ocean. Here, we show that the incorporation of additional Arctic observations improves the initial analysis and enhances the skill of weather and sea-ice forecasts, the application of which has socioeconomic benefits. Comparison of 63-member ensemble atmospheric forecasts, using different initial data sets, revealed that additional Arctic radiosonde observations were useful for predicting a persistent strong wind event. The sea-ice forecast, initialised by the wind fields that included the effects of the observations, skillfully predicted rapid wind-driven sea-ice advection along the NSR.

# Preparation Phase: Selected Highlights

## YOPP endorsement





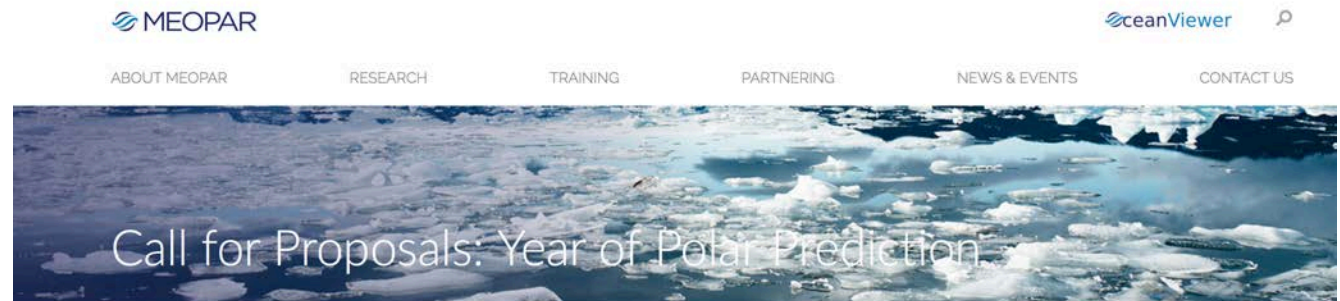
# Preparation Phase: Selected Highlights

## Research funding



### Arctic calls in 2016

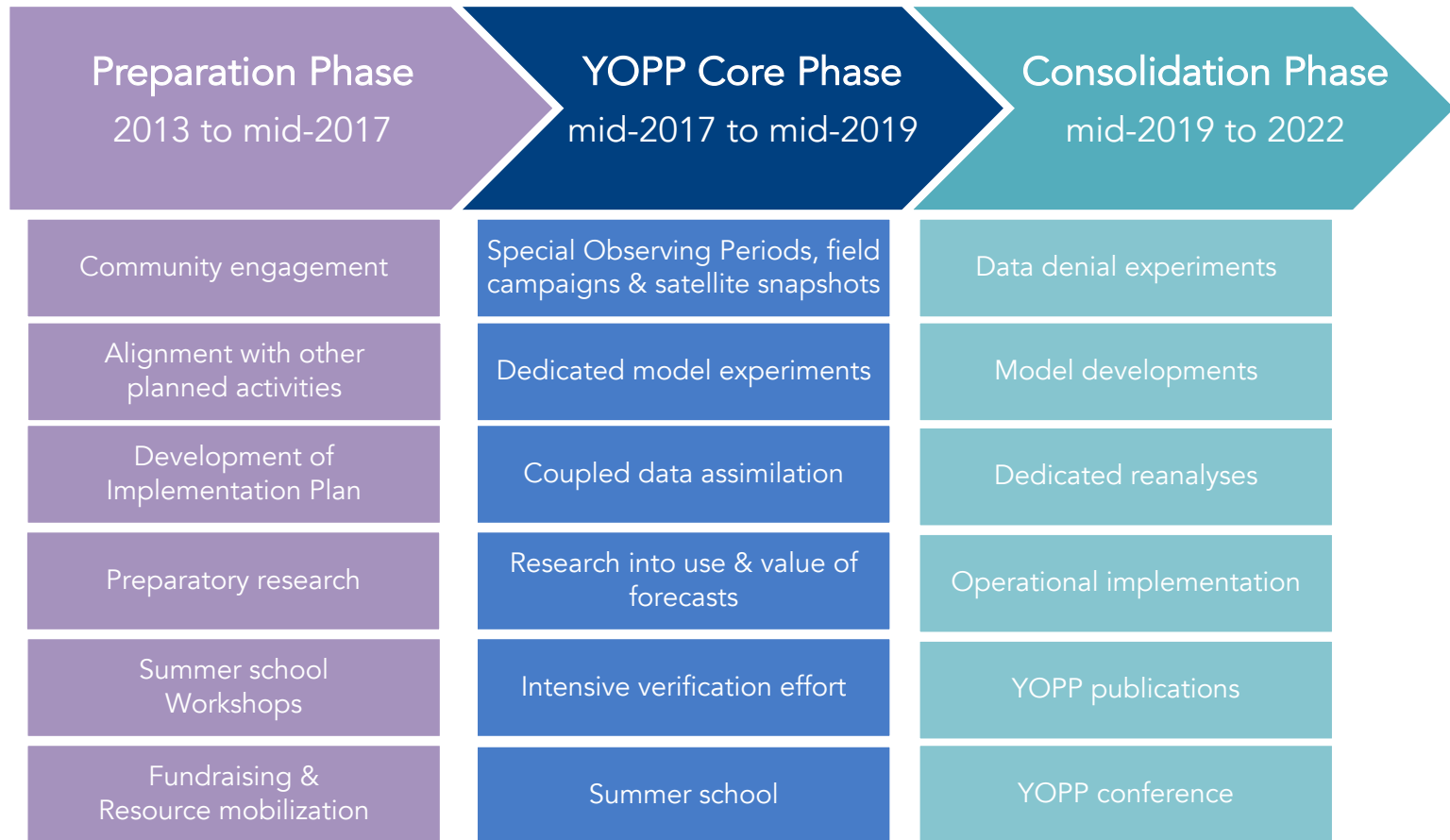
- 40 Mio Euro budget
- 2 calls explicitly mentioning YOPP
- INTAROS, Blue-Action and APPLICATE



NAVIGATION  
[Back to Research](#)

CALL FOR RESEARCH PROPOSALS:  
YEAR OF POLAR PREDICTION

# YOPP Time Line



# YOPP Launch

(May 15, 2017, WMO, Geneva, Switzerland)



## Panel discussion

Thomas Jung (Chair of the Polar Prediction Project Steering Group), Paolo Ruti (Chief of WMO-WWRP), David Grimes (President of WMO), Andrea Celeste Saulo (Director of Argentinian National Met Service), Petteri Taalas (WMO Secretary-General)

# YOPP Launch

- Media coverage in 25 countries and internationally



- Press releases, news articles, social media  
 @polarprediction



# YOPP Launch Video animation

 **World Meteorological Organization**  
Published by Comms Wmo [?] · May 16 at 9:50am · 🌐

We have launched the Year of Polar Prediction. Because what happens at the Poles doesn't stay at the Poles, but influences the rest of the globe.



74,872 people reached Boost Post

16K Views

👍 Like    💬 Comment    ➦ Share

 **UN Climate Action** ✓  
@UNFCCC Following ▾

“What happens at the poles doesn't stay at the poles, it affects the entire globe” say @WMO and @AWI\_Media, Launch year of @polarprediction



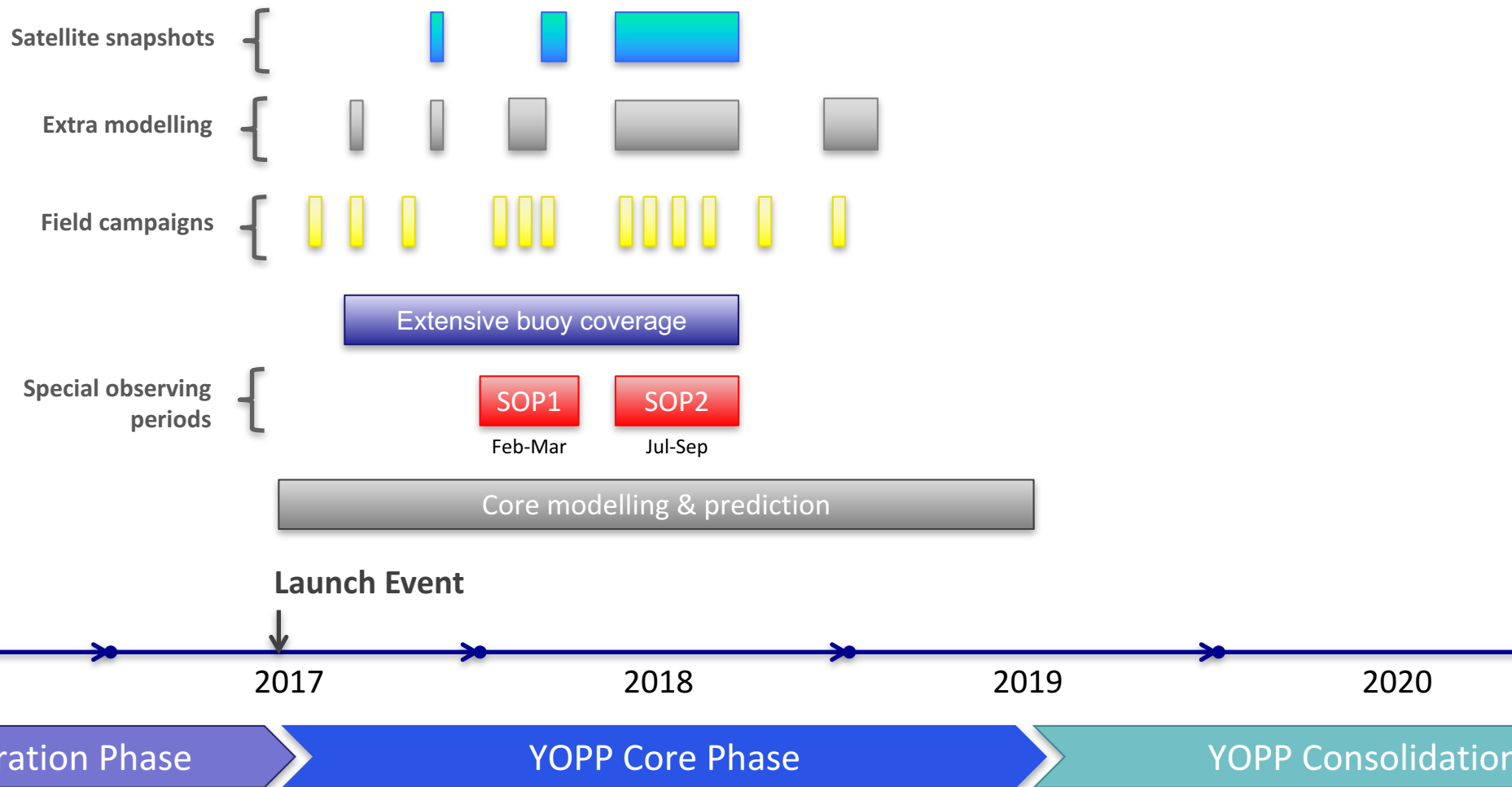
5:01

RETWEETS 208    LIKES 171

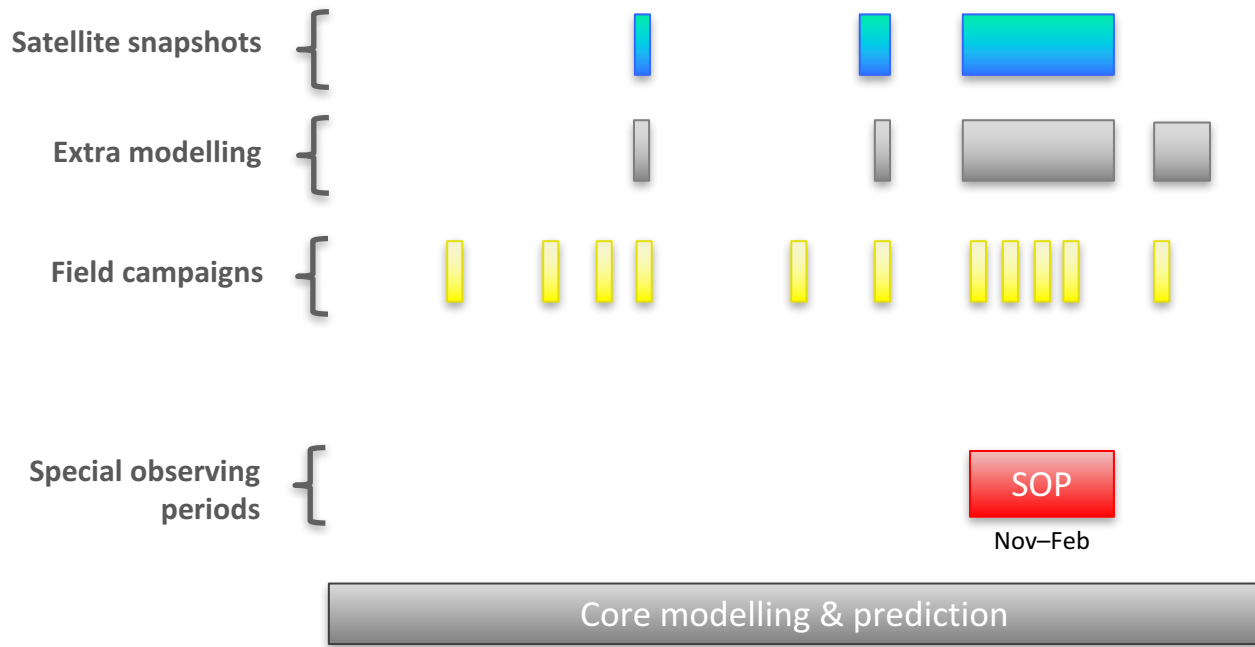
7:41 AM · 16 May 2017

↩️ 4    ♻️ 208    ❤️ 171    ✉️

# YOPP Core Phase in the Arctic



# YOPP Core Phase in Antarctica



Launch Event

2017

2018

2019

2020

Preparation Phase

YOPP Core Phase

YOPP Consolidation

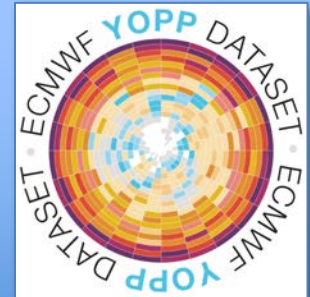


WMO OMM

# YOPP Modelling & Forecasting Datasets

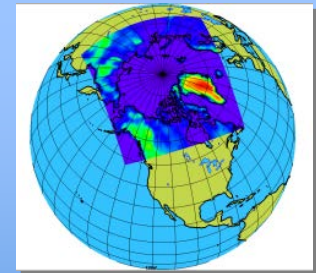
## ECMWF YOPP dataset

- EPS control forecasts (18 km)
- Coupled model from autumn (9 km)
- Process tendencies will be provided
- <http://apps.ecmwf.int/datasets/data/yopp/>



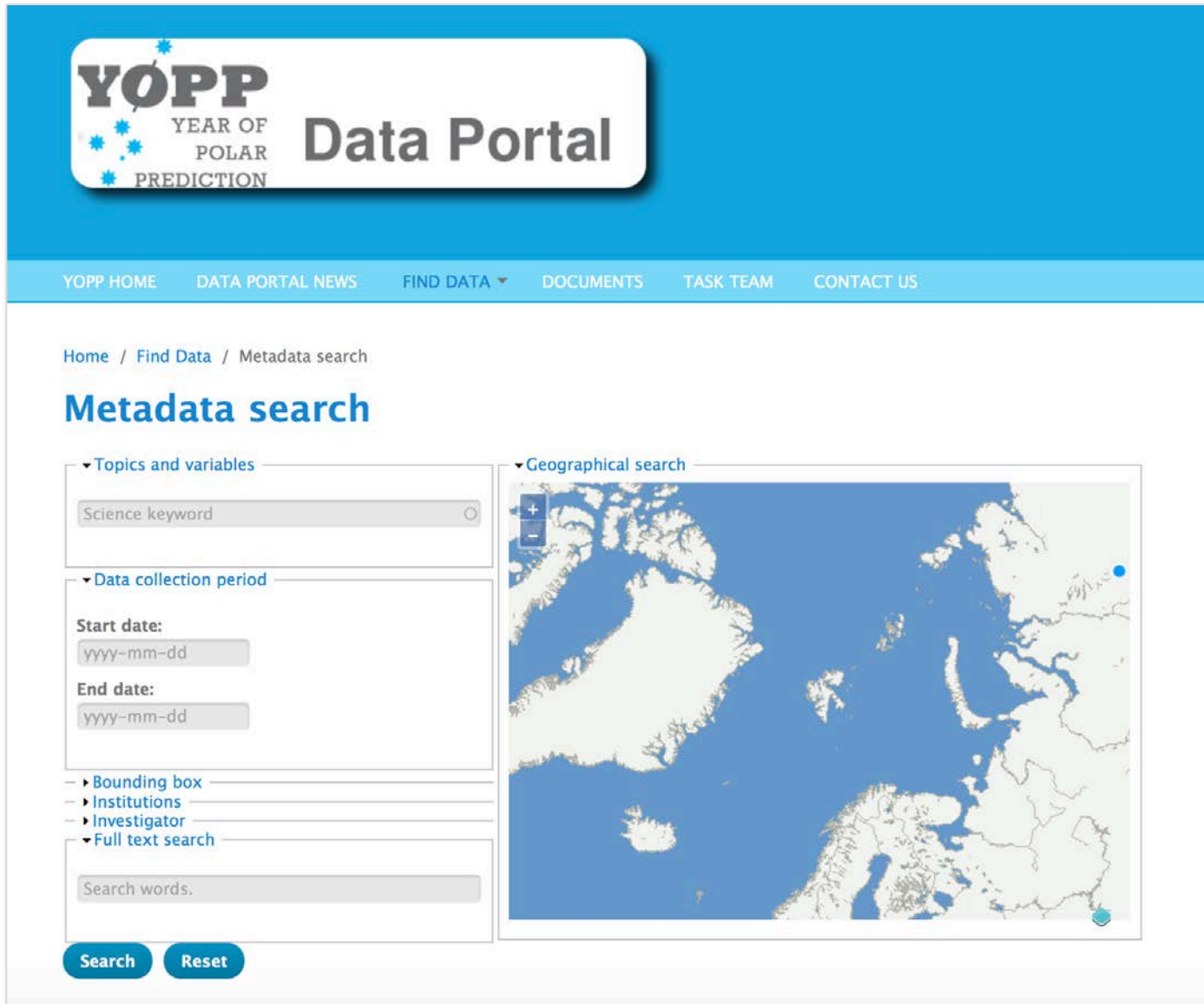
## ECCC YOPP datasets

- CAPS-RIOPS (A:2.5 km, IO: 3-8 km, 2 days)
- GDPS-GIOPS (A: 25km, IO: 1/4°, 10 days)
- GIOPS ensemble (32 days, 20 members)
- Seasonal predictions (1°, 20 members)
- Available through World Mapping Service (WMS)





# YOPP Data Portal



The screenshot displays the YOPP Data Portal interface. At the top, there is a blue header with the YOPP logo (Year of Polar Prediction) and the text "Data Portal". Below the header is a navigation bar with links: YOPP HOME, DATA PORTAL NEWS, FIND DATA (with a dropdown arrow), DOCUMENTS, TASK TEAM, and CONTACT US. The main content area shows a breadcrumb trail: Home / Find Data / Metadata search. The title "Metadata search" is prominently displayed. The search interface is divided into two main sections: "Topics and variables" and "Geographical search".

**Topics and variables**

- Science keyword:
- Data collection period:
  - Start date:
  - End date:
- Bounding box:
- Institutions:
- Investigator:
- Full text search:

**Geographical search**

A map of the Arctic region is shown, with a blue dot indicating a search location in the eastern Arctic. The map includes zoom controls (+ and -) and a location pin icon.

At the bottom of the search form are two buttons: "Search" and "Reset".

# YOPP SERA Scoping Document

## NAVIGATING WEATHER, WATER, ICE AND CLIMATE INFORMATION FOR SAFE POLAR MOBILITIES

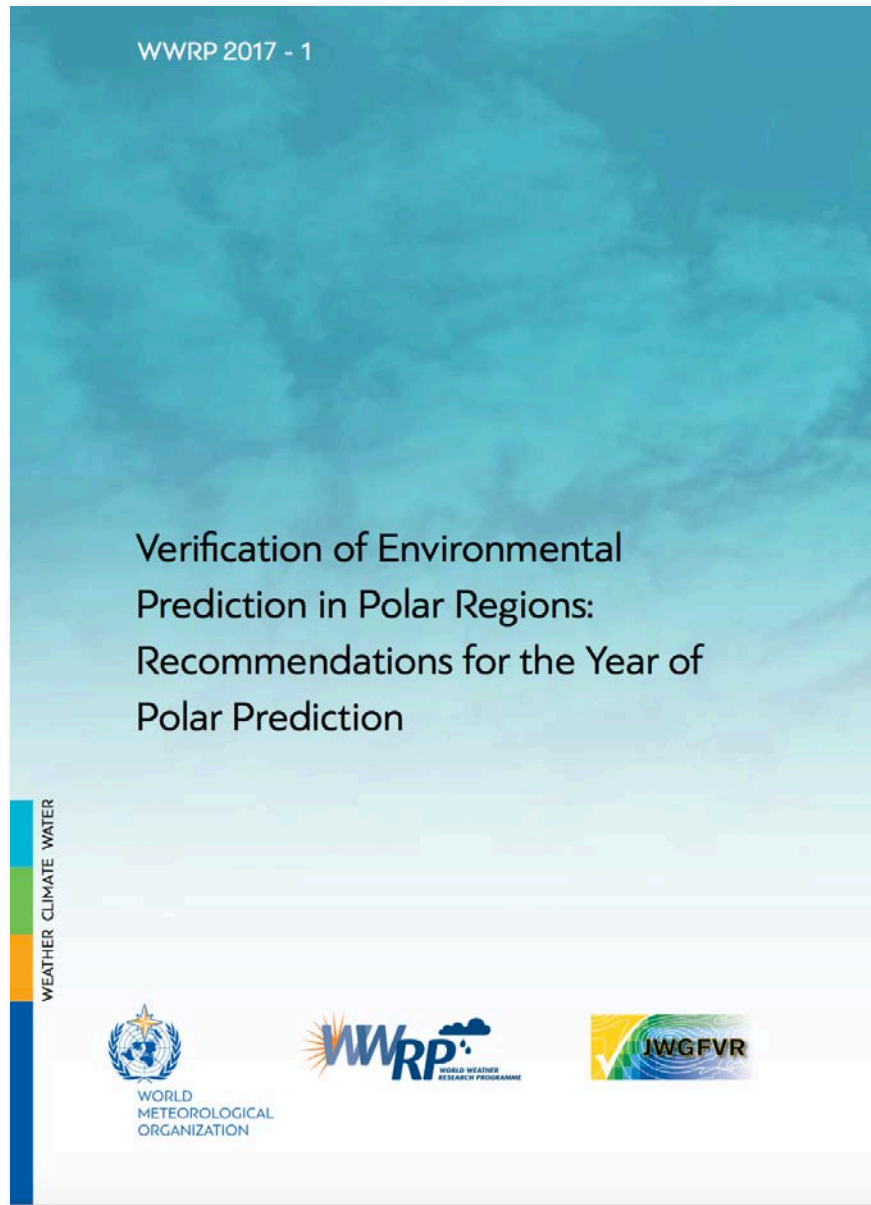
Report prepared by the Polar Prediction Project's  
Societal and Economic Research and Applications Working Group (PPP-SERA)  
of the World Meteorological Organization (WMO)



May 2017



# YOPP Verification



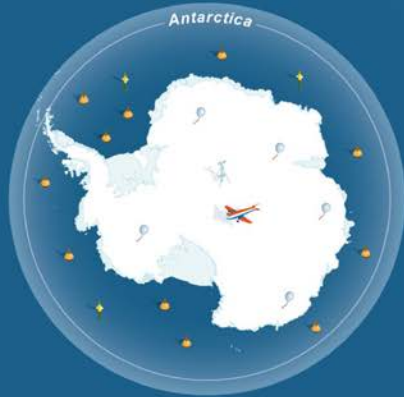
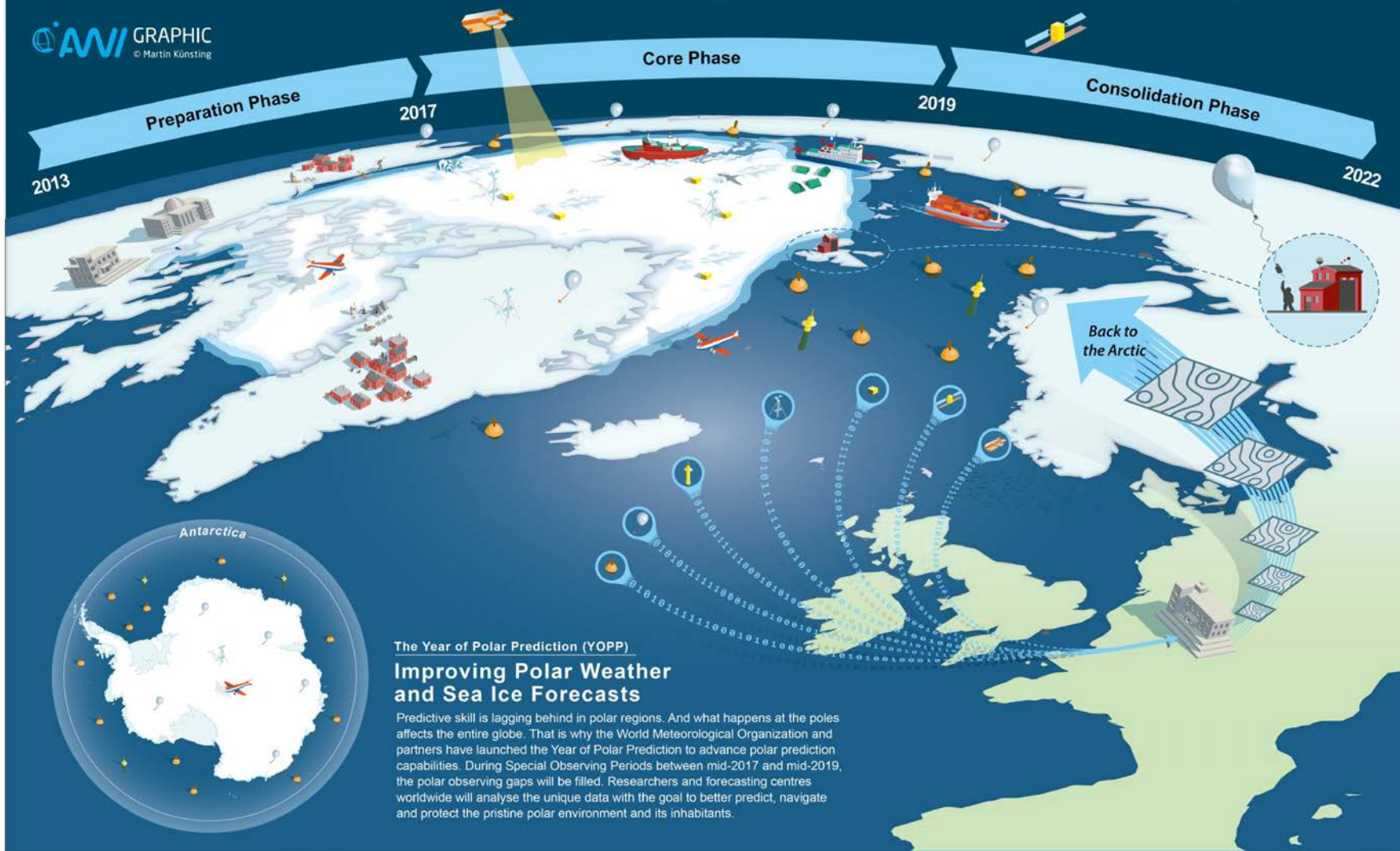
# Getting Engaged

- Contribute to YOPP activities
- Seek YOPP endorsement (institutional endorsement process soon to be launched)
- Contribute to the PPP Trust Fund

Further information: *[polarprediction.net](http://polarprediction.net)*

# Polar prediction video animation

<https://youtu.be/fMKo5zIzx9A>



**The Year of Polar Prediction (YOPP)**  
**Improving Polar Weather and Sea Ice Forecasts**

Predictive skill is lagging behind in polar regions. And what happens at the poles affects the entire globe. That is why the World Meteorological Organization and partners have launched the Year of Polar Prediction to advance polar prediction capabilities. During Special Observing Periods between mid-2017 and mid-2019, the polar observing gaps will be filled. Researchers and forecasting centres worldwide will analyse the unique data with the goal to better predict, navigate and protect the pristine polar environment and its inhabitants.

**Observing Platforms**



**Environmental Forecasting**

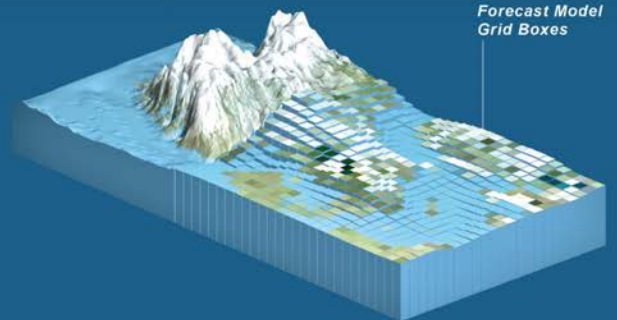


**Forecast Users**



**Weather and Sea Ice Modeling**

To predict weather and sea ice, scientists use weather and climate models – computer programs that divide the Earth's atmosphere, ice, land and oceans into a network of grid boxes. After being fed with actual meteorological and oceanographic observations, the models calculate how the physical state changes step by step into the future.



Forecast Model Grid Boxes

