

# The Year of Polar Prediction

## Developments and Prospects through Three Special Observing Periods

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### About

The Year of Polar Prediction (YOPP) is the flagship activity of the Polar Prediction Project (PPP) initiated by the World Meteorological Organization's World Weather Research Programme, with the aim of enabling a **significant improvement in environmental prediction capabilities for the polar regions and beyond, by coordinating a period of intensive observing, modelling, verification, user-engagement and education activities.**

**Figure 1:** The Year of Polar Prediction is composed of three phases with the YOPP Core Phase taking place from May 2017 to June 2019. In July this year, YOPP will move into its Consolidation Phase.

Preparation Phase 2013 to mid-2017	Core Phase mid-2017 to mid-2019	Consolidation Phase mid-2019 to 2022
Community Engagement	Intensive Observing Periods & Satellite Snapshot	Consolidating YOPP Research
Alignment with other Planned Activities	Dedicated Model Experiments	From Research to Operations and Services
Development of Implementation Plan	Coupled Data Assimilation	YOPP Legacy
Preparatory Research	Research into Use & Value of Forecasts	Determining Success of YOPP
Summer School Workshops	Intensive Verification Effort	Outreach & Communication
Fundraising & Resource Mobilisation	Summer School & Workshops	Coordination

### Goals

Optimize the observing system; Improve observation uptake by models; Develop advanced models; Generate better understanding of stakeholder needs; Train the next generation of scientists

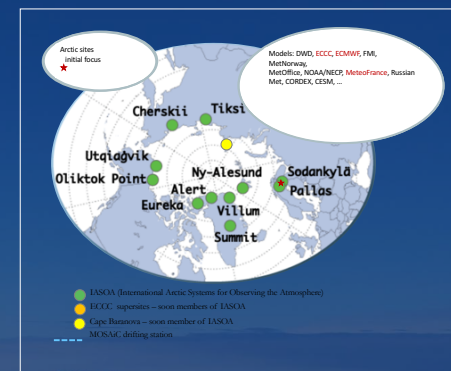
### Special Observing Periods

During three Special Observing Periods (SOPs), extensive extra observations were enhanced by the YOPP community at numerous Arctic and Antarctic stations. These observations help to shed light on the value of different kinds of measurements for environmental polar predictive capacity.

### Selected Activities

#### ECMWF Year of Polar Prediction Analysis and Forecast Dataset

- Aim:** data to use to further learn on physical and dynamical processes; investigate predictability in polar regions; explore the causes of forecast failures



#### YOPP SiteMIP

- Method:** develop standardized measurement procedures at Arctic supersites
- Aim:** comparison of instrumental observations with model data output (multimodel and multisite verification)

**Figure 2:** Arctic supersites and forecast centers contributing collocated model data

#### Polar Observing System Experiments

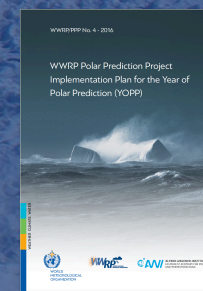
- Aim:** understand role of current observing systems and guide the design of future observing systems in polar regions
- Preliminary results:** systems have impacts in polar regions and mid latitudes

### Coming soon...

- YOPP Consolidation Phase (1 July 2019 to late 2022)**
- Updated YOPP Implementation Plan (3rd version)
  - Ensuring YOPP legacy (e.g., data, science, publications);
  - Promoting the wider use of YOPP data

#### Coordination with MOSAiC

- A YOPP Arctic Targeted Observing Period will be aligned with MOSAiC activities
- Focus on cold air outbreaks and warm air intrusions & air mass transformation
- YOPP-SIDFex delivers drift forecasts



**Arctic Winter SOP**  
(1 Feb – 31 Mar 2018)

**Arctic Summer SOP**  
(1 Jul – 30 Sep 2018)

**Antarctic SOP**  
(16 Nov 2018 – 15 Feb 2019)

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