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| **WORLD METEOROLOGICAL ORGANIZATION**  **COMMISSION FOR BASIC SYSTEMS OPAG on DPFS**  **IMPLEMENTATION COORDINATION TEAM**  Geneva, Switzerland, 12-16 February 2018 |  | CBS/ICT-DPFS/Doc. 5.5  (09.II.2018)  \_\_\_\_\_\_\_  Agenda item : 5.5  ENGLISH ONLY |

The polar prediction project

*(Submitted by T Jung and P Ruti)*

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| **SUMMARY AND PURPOSE OF DOCUMENT**  The document provides information on Polar Prediction Project (PPP) by the WMO World Weather Research Programme (WWRP), including Year of Polar Prediction (YOPP) and MOSAIC |

**ACTION PROPOSED**

The Meeting is invited to note the information contained in this document when discussing how it organises its work and formulates its decisions and recommendations.

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**DISCUSSION**

**INTRODUCTION**

The Polar Prediction Project has been initiated following the WMO's Executive Council meeting (EC-64) Resolution 17 (EC-64). The project shall serve growing demand for skilful and reliable predictions in polar regions and beyond. Major goals are to “improve the understanding of the requirements for, and evaluate the benefits of, enhanced prediction information and services in polar regions” and to “establish and apply verification methods appropriate for polar regions”.

Concerns about the amplified responses to anthropogenic climate change have prominently enhanced public awareness of polar regions during recent years. In particular, growing economic and transportation activities in polar regions call for the sustained availability of reliable immediate information on weather and sea ice conditions to timely support decision-making. However, due to a lack in environmental observation coverage, forecasting products in the polar regions are still deficient. There is thus a pronounced need for a mutual effort to advance prediction information and services in polar regions.

The Year of Polar Prediction (YOPP) is the key deliverable of the decade long Polar Prediction Project (PPP), which is one of three projects within the World Meteorological Organization’s World Weather Research Programme (WWRP). The core phase of YOPP covers two years from mid 2017 to mid 2019. By coordinating a period of intensive observing, modelling, verification, user engagement and education activities, YOPP will enable a significant improvement in environmental prediction capabilities for the polar regions and beyond. YOPP will contribute to the knowledge base needed to manage the opportunities and risks that come with polar climate change.

International and interdisciplinary collaboration within PPP and YOPP will be enhanced through the development of strong linkages with closely related initiatives and academia, research institutions and operational forecasting centres. PPP significantly promotes interactions and communication between research and stakeholders, and significantly fosters education and outreach.

**Achievements since 2013**

The main achievements of PPP are the establishment of YOPP and, given that the Core Phase has only just started, all the steps taken since 2013 that have paved the way for a successful YOPP during the Preparation Phase (2013—mid2017). Note that the largest part of actual improved understanding and prediction capacity – in polar regions and beyond – will be achieved only over the course of the whole YOPP including the Core and Consolidation Phases.

Many of the achievements can not easily be mapped to the societal challenges and associated action items comprising the WWRP Implementation Plan on a one-by-one basis. We therefore first provide a number of key highlights here in chronological order. Note that some of these highlights appear again below under the societal challenges, whereas some do not appear again because they can not be mapped. Numerous other achievements, such as the co-organisation of many relevant workshops and conference sessions, are not listed.

**2013**

Memorandum of Understanding with Alfred Wegener Institute about the International Coordination Office for Polar Prediction as AWI’s in-kind contribution to PPP

Development of idea to focus efforts on a Year of Polar Prediction (YOPP), and early planning of YOPP

PPP Implementation Plan (includes early plans for YOPP) and PPP Science Plan published.

**2014**

YOPP Implementation Plan (version 1) published Organisation of a major workshop on polar-lower latitudes linkages (Barcelona)

Successful interaction with funding agencies; in particular, contributions to YOPP were asked in two major EU-H2020 Calls, resulting in large consortium projects that now help to fill YOPP with life: APPLICATE, BlueAction, and INTAROS.

Establishment of effective communication tools including a website, a Twitter account, and a mailing list (2017 more than 500 subscribers)

**2015**

YOPP Summit held at WMO headquarters in Geneva, Switzerland from 13 to 15 July (ca 120 scientists, stakeholders as well as representatives from weather and climate prediction centres, international bodies and funding agencies) leading to strong engagement of a broad community. Outcomes published in a BAMS Meeting Report (Goessling et al. “Paving the Way for the Year of Polar Prediction”)

Publication of key paper: Jung et al. “Advancing Polar Prediction Capabilities on Daily to Seasonal Time Scales”

Establishment of YOPP endorsement for projects, programmes and initiatives that plan to contribute to the aims of YOPP; ongoing maintenance of the endorsement process, and usage of the collected information to coordinate activities

**2016**

Special Observing Periods (SOPs) in Arctic and Antarctic determined during which (routine) observations will be enhanced through broad international collaboration

-  1 Feb – 31 Mar 2018 in the Arctic;

-  1 Jul – 30 Sep 2018 in the Arctic;

-  16 Nov 2018 – 15 Feb 2019 in the Antarctic.;

-  Possibly 1 Feb – 31 Mar 2020 in the Arctic (aligned with MOSAiC)

First Polar Prediction School in April in Abisko Research Station, Northern Sweden

Formation of YOPP Task Teams to further particular activities during YOPP, with several dedicated workshops and various outcomes (not listed)

-  Arctic Observations (2016)

-  Modelling (2016)

-  Data Management (2016)

-  Southern Hemisphere (2016 & 2017)

-  Airborne Missions (2017)

-  Buoys & Floats (regular online meetings) Letters to WMO Permanent Representatives and key institutions asking for SOP  support, resulting in wide-spread commitments to contribute to YOPP  Newsletter PolarPredictNews established and issued for the first time

**2017**

Collaboration with EUMETNET resulting in funding for dedicated radiosonde launches and additional buoy deployments (coop. with AARI) for the Arctic SOPs

Key publication: Casati et al. “Verification of Environmental Prediction in Polar Regions: Recommendations for the Year of Polar Prediction”

Official launch of the Year of Polar Prediction on 15th May 2017

Extension of YOPP endorsement process to institutional endorsement

Development of a “YOPP Explorer” to provide an interactive overview of YOPP- endorsed projects

Development of a Google Earth layer to provide an interactive overview on what observational activities will take place during the Special Observing Periods

Finalisation of a YOPP Modelling Plan (version 1) that summarises planned activities, defines experimental settings and common model output, and provides recommendations

Initiation, development, and ongoing maintenance of the community effort “Sea Ice Drift Forecast Experiment” (SIDFEx; 2017-2020)

Finalisation of document “Navigating Weather, Water, Ice and Climate Information for Safe Polar Mobilities” by PPP-SERA Task Team, to be published soon

Development, launch, and maintenance of “Polar Prediction Matters” – an online format that fosters the dialogue between forecast users and forecast providers