



YOPP

FINAL SUMMIT
MONTREAL
2022

The Centre Mont-Royal
Montréal, Québec, Canada
29 August - 1 September, 2022

PROGRAM



WORLD
METEOROLOGICAL
ORGANIZATION



YOPP
YEAR OF
POLAR
PREDICTION

Schedule at a Glance

	Monday 29 August	Tuesday 30 August	Wednesday 31 August	Thursday 1 September
8:30	Plenary Session Opening	Plenary Session Processes and YOPPsiteMIP	Plenary Session MOSAIC and Navigation in Polar Waters	Plenary Session Observing Systems and Sea Ice
10:00	Refreshment Break (Poster & Exhibit Area)	Refreshment Break (Poster & Exhibit Area)	Refreshment Break (Poster & Exhibit Area)	Refreshment Break (Poster & Exhibit Area)
10:30	Plenary Session Advancements in Polar Prediction	Plenary Session Polar Predictions and Societal Implications - Canada	Plenary Session Southern Hemisphere	Plenary Session Polar Prediction and Services - Europe
11:30		Societal and Economic Implications: Canada	Societal and Economic Implications: Antarctica	Science to Services: Europe
12:00	Lunch Break (non-catered)	Lunch Break (non-catered)	Lunch Break (non-catered)	Lunch Break (non-catered)
13:30	Parallel Sessions	Parallel Sessions	Parallel Sessions	Panel: YOPP Accomplishments
14:30				Report on Future Polar Research and Services Priorities
15:00	Refreshment Break (Poster & Exhibit Area)	Refreshment Break (Poster & Exhibit Area)	Refreshment Break (Poster & Exhibit Area)	Refreshment Break (Poster & Exhibit Area)
16:00	Parallel Sessions	Parallel Sessions	Parallel Sessions	Panel: Future Polar Research and Services Priorities
17:00				YOPP Final Summit Official Closure
17:30	Brainstorming on Future Polar Research and Services Priorities	Brainstorming on Future Polar Research and Services Priorities	Brainstorming on Future Polar Research and Services Priorities	
18:00	Ice-Breaker Reception	18:30 – 22:00 Science Slam Thompson House, McGill University		
19:00			Reception, Dinner and Panel Discussion	
21:00				

PHOTOS: L TO R: GIUSEPPE CAMPOREALE, RODRIGO LOPEZ, LAUREN FARMER, RILEY SANFORD, BACKGROUND: RODRIGO LOPEZ

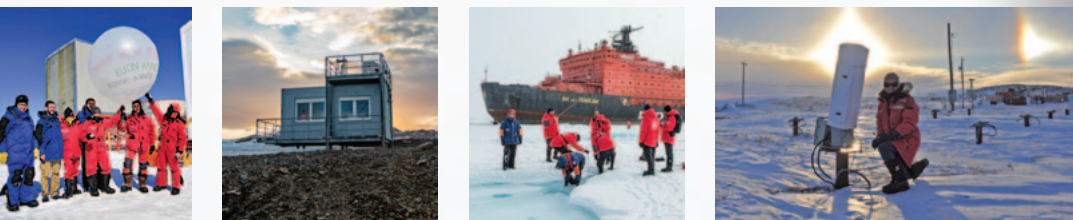


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Welcome message from **Thomas Jung**

Welcome to the YOPP Final Summit, which will focus upon the research results and findings from the Year of Polar Prediction (YOPP)—a flagship activity of the Polar Prediction Project (PPP).

PPP and YOPP were initiated by the World Weather Research Programme (WWRP) of the World Meteorological Organization (WMO) and carried out by a broad range of National Meteorological and Hydrological Services (NMHSs), operational prediction centres, research institutions and universities.

The Final Summit will address a number of exciting themes, including (i) advancements in polar prediction during YOPP and their operationalizations, (ii) representation of polar processes in numerical models, with focus on coupling of the atmosphere, ocean and sea ice, (iii) observing system experiments and reanalyses in polar regions, (iv) teleconnections linking polar weather to mid-latitudes predictability, (v) science to services, tailoring polar forecasting products and services to meet user needs, and (vi) societal and economic application of accessible, relevant, and useable forecasts. The Summit will also be critical for further building international cooperation in polar prediction, and developing a long-term YOPP legacy.

I very much look forward to seeing your research results and hearing your perspectives on PPP and YOPP. The Final Summit will also celebrate the successes of PPP and YOPP; acknowledge the contributions of those involved in launching and supporting PPP; and, discuss future challenges in polar prediction. A key part of the YOPP Final Summit is the focus upon the work of Early Career Researchers (ECR) through a YOPP Final Summit Fellowship Program and an ECR day prior to the Final Summit itself.

I look forward to meeting you—in person or online—to discuss and celebrate scientific advances and the legacy of the Polar Prediction Project.

In closing I wish to thank the World Meteorological Organisation and the many supporters and sponsors who have made this possible, in particular Barbara Casati and the YOPP Final Summit Planning Committee for their tireless effort in putting together this conference despite the challenges of the global pandemic.



Welcome message from **WWRP**

It is with pleasure that the World Meteorological Organization's World Weather Research Programme (WWRP) welcomes you to the Year of Polar Prediction Final Summit in Montréal, Canada. This week will showcase the successes and achievements of the Polar Prediction Project (PPP)—a 10-year research activity of WWRP that has enabled 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.

We would like to thank the organizers as well as all contributors to this exciting event and especially Professor Thomas Jung, Chair of the Polar Prediction Project, for all his work in directing this programme of research and in shaping this final conference in celebration of the contributions of all who have worked towards this project.

It is timely, at the end of this project, for the community to come together at this Summit to discuss and reflect on the achievements made in weather and environmental prediction in both the Arctic and Antarctic. We look forward to the vibrant talks and discussions of participants and speakers to this conference and in reflecting on how this might shape the future of polar research. We wish you a pleasant and fruitful summit.

Chris Davis

Chair of the World Weather Research Programme
Scientific Steering Committee



Welcome message from **CMOS**

On behalf of the Canadian Meteorological and Oceanographic Society (CMOS), we would like to welcome participants to the Year of Polar Prediction (YOPP) Final Summit. CMOS has embraced the opportunity to assist in the planning of this important meeting.

Recognizing the importance of Canada's North, CMOS has established a special interest group (SIG) on the Arctic. This year, we have put an emphasis on "bridging knowledge systems", with several special talks from scientists of Inuit descent working with indigenous communities in the North. The Arctic SIG is organizing a scientific session at the ArcticNet Annual Science Conference in December, "A Changing Arctic: Science and Policy Studies". Abstracts are due by 14 September. Our annual Congress will be returning to St. John's Newfoundland & Labrador in late May 2023. Special sessions related to the Arctic will be an important component of our exciting return to an in-person meeting.

We are also pleased that *Atmosphere-Ocean*, the principal scientific journal of the CMOS, is accepting submissions for a special issue dedicated to Polar Predictions. The special issue is a collection of manuscripts documenting observational and modeling studies on the variability of polar atmosphere and sea ice, interactions with the stratosphere and middle and low latitudes, and the predictability and prediction on time scales from days to decades. Manuscript submissions are being accepted through to 31 October 2022.



CMOS would like to thank the World Meteorological Organization, Environment and Climate Change Canada, and other partners and sponsors who are enabling the YOPP Final Summit to take place. In particular, it has been a pleasure to work with the organizing committee under the leadership of Thomas Jung and Barbara Casati. We would also like to thank Lynn Buckley and Agenda Managers for their hard work.

Finally, congratulations to the researchers, early career scientists, and their organizations for the impressive work that will be shared at the YOPP Summit.

Welcome to Montréal.

Jim Abraham
CMOS President

Gordon Griffith
CMOS Executive-Director

Thank you to our **Committees**

Executive Committee

Barbara Casati
Clare Eayrs
Gordon Griffith
Thomas Jung
Gregory Smith
Jeff Wilson
Lorraine Youds

Task Team

Jim Abraham
Barbara Casati
Dany Dumont
Clare Eayrs
Gwenaëlle Gremoin
Gordon Griffith
Thomas Jung
Jorn Kristiansen
Gita Ljubicic
Gregory Smith
Jeff Wilson
Lorraine Youds

Members of the Polar Prediction Project Steering Group:

url2.ca/YOPP-P3SG



Special Thanks to:

Nadine Hillenbrand
Kirstin Werner

PHOTO: TOURISME QUÉBEC - STEPHAN POUJON

Year of Polar Prediction **Mission**

The Year of Polar Prediction (YOPP) is a flagship activity of Polar Prediction Project (PPP) and has its genesis in the initial planning of the PPP—a ten year project of the World Meteorological Organisation's World Weather Research Programme, which began in 2013 with the mission to “Promote cooperative international research enabling development of improved weather and environmental prediction services for the polar regions, on time scales from hours to seasonal.”

The YOPP mission or goal was to 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. The overarching goal was necessarily formulated rather broadly. To add more focus and make the vision more tangible, 10 specific objectives were defined. They were formulated in such a way as to guide activities and allow an assessment of the success, or lack thereof, at the end of the YOPP. YOPP's goals can be abbreviated to:

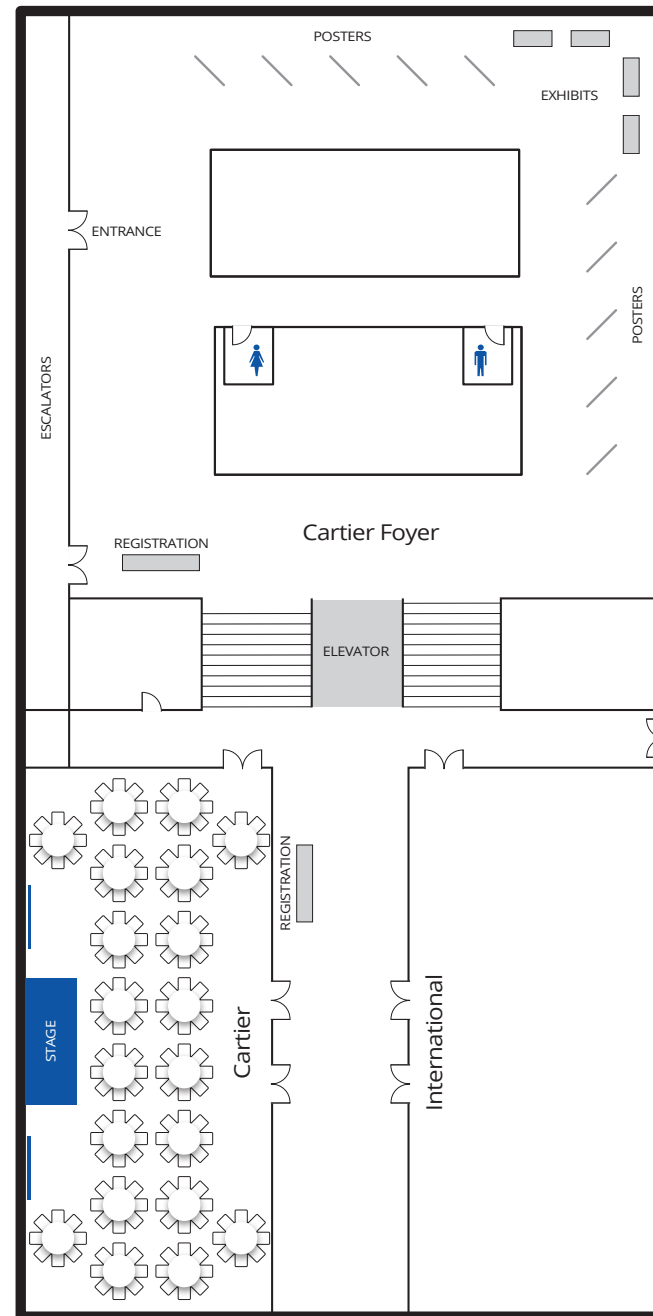
1. Improve the existing polar observing system.
2. Gather additional observations through field programmes.
3. Develop improved representation of key polar processes for prediction.
4. Develop improved (coupled) data assimilation systems.
5. Explore the predictability of the atmosphere-cryosphere-ocean system, with a focus on sea ice.
6. Improve understanding of linkages between polar regions and lower latitudes.
7. Improve verification of polar weather and environmental predictions.
8. Identify various stakeholders and establish their decision-making needs.
9. Assess the costs and benefits of using predictive information for a spectrum of users and services.
10. Provide training opportunities on polar prediction related issues.

This Summit brings together many of the leading research institutions and researchers to share and discuss their findings from YOPP and contribute to the identification of the new challenges in polar prediction.



PHOTOS T TO B: SAWGONG PARK; VERA LUND; RIGEL KVI; VERA LUND; BACKGROUND: IMI RENFREW

Centre Mont-Royal **3rd Floor Plan**



PHOTOS T TO B: VERA LUND; FRANCESCO SUDATI; NICOLAS DETLING; LAUREN FARMER



General Information

Registration & Information Desk

The YOPP Final Summit registration and information desk is located on the third level of the Centre Mont-Royal, outside the Cartier Ballroom. We encourage you to use the resources of our registration & information team. We will do our best to ensure your experience at the Summit is meaningful and memorable.

Registration/Information Desk Hours

Sunday, 28 August 15:00 –18:00
Monday, 29 August. 7:30 –17:00
Tuesday, 30 August 8:00 –17:00
Wednesday, 31 August 8:00 –17:00
Thursday, 1 September 8:00 –16:00

Name Badges

Summit registrants must wear name badges to gain access to all Summit activities. Should you misplace your name badge, please get a replacement from the registration/information desk.

Speaker Ready Room

The Summit speaker ready room is located in the **Mansfield Room**, first floor, and is equipped with PC laptops for minor adjustments to presentations, if required.

If you make edits to your presentation please deliver your USB stick with your revised presentation to a volunteer at the Summit registration/information desk. Please name your file with the first presenter's last name and presentation title and add the extension V2.

Revised presentations must be submitted at the Summit registration/information desk and we will update your presentation on the meeting room laptop. If you are presenting in the morning, presentations must be received by 17:00 the day before your presentation. If you are presenting in the afternoon, presentations must be received by 9:00 the morning of your presentation.

Internet Access

Free WiFi is available throughout the venue.
Network YOPPFINALSUMMIT
Access Code YOPP2022

Photographer and Photo Release

There is a photographer on-site. Please note that the YOPP Final Summit is considered a public venue and your image may be included in Summit material, website, future promotions and related collateral. If you do not wish to have your image used, please kindly let the photographer know or remove yourself from the shot.

Mobile Devices

Out of courtesy to speakers and participants, please turn your device to silent or off during all presentations.

Social Media

Use the hashtag **#YOPPFinalSummit** to share your experience on social media. Find us on **twitter.com/polarprediction** and **instagram.com/polarprediction**.

Currency, Banking and Methods of Payment

Canada's currency is based on the decimal system—100 cents to the dollar. You can exchange your currency for Canadian dollars at authorized currency exchange counters found at the airport and various financial institutions near the Centre Mont-Royal. Most banks are open 10:00 to 17:00 Monday to Friday and some are open Saturdays. Automated banking machines and debit services are widely available.

Local Hospital and Emergency Services

Canada has a single emergency telephone number that allows a caller to contact local emergency services for assistance. In case of emergency, dial **911**. The use of this number is reserved for emergency circumstances only and to use it for any other purpose (including non-emergency problems) is a crime. The nearest emergency room is the Montréal General Hospital Emergency Department.

Smoking Policy

All public venues in Québec are non-smoking facilities, including all symposium venues. There is no smoking in the in the Centre Mont-Royal. Smoking outdoors is permitted.

Keynote Speakers



MONDAY, 29 AUGUST · 9:00

WMO and Polar Prediction
Petteri Taalas
 WMO



MONDAY, 29 AUGUST · 11:00

Digital Twins
Peter Bauer
 ECMWF



MONDAY, 29 AUGUST · 10:30

The Year of Polar Prediction
Thomas Jung
 Alfred Wegener Institute



MONDAY, 29 AUGUST · 9:15

The Year of Polar Prediction
Gilbert Brunet
 BoM



MONDAY, 29 AUGUST · 11:30

The Potential of Numerical Prediction Systems to Support the Design of Observing Systems
François Massonnet
 Université Catholique de Louvain (France)



TUESDAY, 30 AUGUST · 11:00

Societal and Economic Research and Applications to YOPP
Jackie Dawson
 University of Ottawa



TUESDAY, 30 AUGUST · 8:30

Enhanced Multi-variate Observations for Evaluating Process Representation in Numerical Models
Gunilla Svensson
 Stockholm University



WEDNESDAY, 31 AUGUST · 8:30

The Multidisciplinary drifting Observatory for the Study of the Arctic Climate (MOSAIC)
Matthew Shupe
 NOAA



TUESDAY, 30 AUGUST · 10:30

Canadian Contributions to Improved Coupled Environmental Predictions for YOPP
Gregory Smith
 ECCC



WEDNESDAY, 31 AUGUST · 9:30

The Relevance of Environmental Prediction for Polar Tourism and Marine Transport
Karin Strand
 Hurtigruten

Final Summit Program

Monday | 29 August

8:30 – 10:00

CARTIER ROOM

Plenary Session: Opening

Chairs: **Jeff Wilson**, AWI Consultant; **Jørn Kristiansen**, Met Norway

8:30

Land Acknowledgement | Welcome & Opening Remarks

Dr. Kenneth Deer, Mohawk Nation; **Thomas Jung**, Alfred Wegener Institute (AWI), PPP SG; **Estelle de Coning**, Head of World Weather Research Programme, WMO and **Chris Davis**, NCAR, WMO; **Jim Abraham**, CMOS; **Gita Ljubicic**, McMaster University; **Diane Campbell** and **Barbara Casati**, ECCC

9:00

WMO and Polar Prediction

Petteri Taalas, WMO

9:15

PPP and YOPP: How it All Happened

Gilbert Brunet, BoM

9:30

Polar Prediction in the Future WWRP Implementation Plan

Chris Davis, NCAR, WMO

9:45

ECR YOPP Fellowship Awards

Clare Eayrs, Center for Global Sea Level Change NYU Abu Dhabi;
Thomas Jung, Alfred Wegener Institute (AWI)

10:00 – 10:30

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

10:30 – 12:00

CARTIER ROOM

Plenary Session: Advancements in Polar Prediction

Chairs: **Chris Davis**, NOAA; **David Bromwich**, Byrd Polar Research Centre

10:30

The Year of Polar Prediction

Thomas Jung, Alfred Wegener Institute (AWI)

11:00

Invited Keynote:

Digital Twins

Peter Bauer, ECMWF

11:30

Invited Keynote:

The Potential of Numerical Prediction Systems to Support the Design of Observing Systems

François Massonnet¹, Irina Sandu², Guillian van Achter¹, Juan Acosta³, Gabriele Arduini², Peter Bauer², Ed Blockley⁴, Niels Bormann², Matthieu Chevallier⁵, Jonathan Day², Mohamed Dahoui², Thierry Fichet¹, Daniela Flocco⁶, Thomas Jung⁷, Ed Hawkins⁶, Stephane Laroche⁸, Heather Lawrence², Jørn Kristiansen⁹, Eduardo Moreno³, Pablo Ortega³, Emmanuel Poan⁸, Leandro Ponsoni¹, Roger Randriamampianina⁹

¹UCLouvain, Belgium; ²ECMWF, UK; ³BSC, Spain; ⁴Met Office, UK; ⁵Meteo-France, France; ⁶U. Reading, UK; ⁷AWI, Germany; ⁸Environment and Climate Change, Canada; ⁹Met Norway, Norway

12:00

Group Photo

12:00 – 13:30

Lunch Break (non-catered)

13:30 – 15:00

CARTIER I

Parallel Session

Modeling Advancements, OSE and Satellite

Chairs: **Jørn Kristiansen**, Met Norway; **Eric Bazile**, Meteo France

13:30

Arctic Observing Mission: A Potential Source of Data for Future Polar Prediction

Konstantin Baibakov¹, Ray Nassar², Alec Casey², Matt Arkett², Joel Bedard², Shannon Kaya², Christopher Sioris², Chris McLinden², Ralph Girard¹, Fauve Strachan¹, Shen-En Qian¹, Isabelle Jean¹, Alexander Trichtchenko³

¹Canadian Space Agency, Canada; ²Environment and Climate Change Canada, Canada; ³Natural Resources Canada, Canada

13:45

Improving the Use of Satellite Data Over Land, Snow and Sea Ice in the HARMONIE-AROME Forecast System

Stephanie Guedj¹, Yurii Batrak¹, Roger Randriamampianina¹, Roel Stappers¹

¹MET Norway, Norway

14:00

The Relative Impact of Mid-latitude and Arctic Observations on the AROME-Artic Model

Roger Randriamampianina¹, Niels Bormann², Heather Lawrence³, Irina Sandu², Zheng Qi Wang¹, Morten A Ø Køltzow¹

¹MET Norway, Norway; ²ECMWF, UK; ³MetOffice, UK

14:15

Advanced Satellite Data Assimilation in an Arctic Mesoscale Model Using a Footprint Operator

Máté Mile¹, Roger Randriamampianina¹, Gert-Jan Marseille²

¹Norwegian Meteorological Institute, Norway; ²Royal Netherlands Meteorological Institute, The Netherlands

14:30

Use of In-situ Observations on Vertical Profiles from the Arctic and Antarctic in Data Assimilation and Model and Reanalysis Evaluation

Timo Vihma¹, Marius Jonassen², Tuomas Naakka¹, Qizhen Sun³, Tiina Nygård¹, Irene Suomi¹, Michael Tjernström⁴, Roberta Pirazzini¹, Ilona Välisuo¹, Ian Brooks⁵, Petteri Uotila⁶, Alexander Makshtas⁷

¹Finnish Meteorological Institute, Finland; ²The University Centre in Svalbard, Norway; ³National Marine Environment Forecasting Center, China; ⁴Stockholm University, Sweden; ⁵University of Leeds, UK; ⁶University of Helsinki, Finland; ⁷Arctic and Antarctic Research Institute, Russia

14:45

COSMO-CLM Russian Arctic hindcast 1980 – 2016: Experimental Design, First Evaluations and Future Applications

Vladimir Platonov¹, Mikhail Varentsov², Anna Shestakova³, Aksinia Boiko¹, Sergey Duntsev¹

¹Lomonosov Moscow State University, Faculty of Geography, Department of Meteorology and Climatology, Russian Federation; ²Lomonosov Moscow State University, Research Computing Center, Russian Federation; ³A.M. Obukhov Institute of Atmospheric Physics RAS, Air-Sea Interaction Laboratory, Russian Federation

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

13:30 – 15:00

CARTIER II

Parallel Session

Polar Processes

Chairs: **Gunilla Svensson**, Stockholm University; **Ian Renfrew**, University of East Anglia

13:30

On the Representation of High-Latitude Boundary Layers in Climate Models: Issues and Progresses

Felix Pithan¹

¹AWI, Germany

13:45

Potential of Accumulated AROME-Arctic Parameterisation Tendency for Stochastic Parameterisation Perturbation Patterns

Harald Sodemann¹, Marvin Kähnert¹, Teresa Maaria Valkonen², Petter Ekrem², Rafael Grote², Andrew Singleton², Inger-Lise Frogner²

¹Geophysical Institute, University of Bergen and Bjerknes Centre for Climate Research, Norway ²Meteorologisk Institutt, Norway

14:00

Adjustment of Wind Induced Solid Precipitation Undercatch in Operational Verification Practice

Barbara Casati¹, Eva Mekis², Morten Køltzow³

¹Meteorological Research Division, ECCC, Canada; ²Climate Research Division, ECCC, Canada; ³Norwegian Meteorological Institute, Norway

14:15

Observing and Modeling Snowfall at Dumont d'Urville station, Antarctica, During YOPP Special Observing Campaign: A 3D Approach

Marie Laure Roussel¹

¹Laboratoire de Météorologie Dynamique, France

14:30

Blizzard Conditions in the Canadian Arctic: Observations and Automated Products for Forecasting

William Burrows¹, Curtis Mooney²

¹ECCC/ASTD/MRD/OBRS, Canada ²ECCC/MSC, Canada

14:45

A Machine Learning Correction for the Warm Bias over Arctic Sea Ice in Atmospheric Reanalyses

Lorenzo Zampieri¹, Marika Holland¹

¹National Center for Atmospheric Research, United States

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)



ARCTIC PASSION

Arctic PASSION is contributing to improving the network of observing systems that monitor environmental changes in the Arctic

www.arcticpassion.eu

- 140 Team Members
- 33 Partner Organizations
- 6 Indigenous Communities
- 4 Years
- 17 Countries
- 15 Million Euros
- 8 Pilot Services

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101003472

16:00 – 17:30

CARTIER I

Parallel Session

Modeling Advancements, OSE and Satellite

Chairs: **Peter Bauer**, ECMWF; **Eric Bazile**, Meteo France

16:00

Benefits and Challenges of Dynamic Sea Ice Coupling for Weather Forecasts

Jonathan Day¹, Sarah Keeley¹, Steffen Tietsche², Irina Sandu¹, Gabriele Arduini¹, Linus Magnusson¹

¹ECMWF, UK; ²ECMWF, Germany

16:15

On Operationalisation of New Developments in AROME-Arctic During the YOPP Period and Beyond

Eivind Støylen¹

¹MET Norway, Norway

16:30

Improving Arctic Weather Forecasts with Increased Spatial Resolution

Teresa Valkonen¹, Yurii Batrak¹, Marius Jonassen², Jørn Kristiansen¹, Morten Køltzow¹, Eirik Samuelsen¹

¹Norwegian Meteorological Institute, Norway; ²University Centre in Svalbard, Norway

16:45

Atmosphere, Wave, Sea Ice Coupling in an Arctic NWP System

Rafael Grote¹, Erin Thomas¹, Malte Müller¹, Jørn Kristiansen¹

¹Norwegian Meteorological Institute, Norway

17:00

A Regional Coupled Modeling System for Arctic Sea Ice and Climate Simulation and Prediction

Jiping Liu¹, Chaoyuan Yang²

¹University at Albany, SUNY, USA; ²Sun Yat-sen University, China

17:15

AEMET Contributions in the Year of Polar Prediction and Future Pathway

Sergi Gonzalez¹, Jose Vicente Albero¹, Raul Alvarez¹, Juan Marcial Bueno¹, José Luis Collado¹, Ana María Díaz¹, Benito Elvira¹, Jaime Fernández¹, Victor Ayala¹, Ignacio González¹, Juan Ignacio Pérez¹, Salvador Ponce¹, Jesús Riesco¹, Francisco Javier Sanz¹, Carlos Luís Trenchs¹, Francisco Vasallo¹, Samuel Buisan¹

¹AEMET, Spain



16:00 – 17:30

CARTIER II

Parallel Session

Polar Oceans

Chairs: **Gregory Smith**, ECCC; **Dany Dumont**, University of Québec at Rimouski

16:00

Extension of YOPP Network of Drifting Buoys to Eurasian Arctic – Lessons, Statistics and Future

Vasily Smolyanitsky¹, Sergey Motyzhev², Tomash Petrovsky¹, Konstantin Smirnov¹

¹Arctic and Antarctic Research Institute (AARI), Russian Federation; ²Marlin-Yug, Russian Federation

16:15

Dynamics of Wave Processes in the Drifting Ice of the Arctic Ocean in the MOSAIC Expedition

Igor Sheikin¹, **Nikolai Kolabutin**¹, Victor Smirnov¹, Maxim Znamensky¹

¹Arctic and Antarctic Research Institute, Russia

16:30

Freshwater Forcing Experiments Around Greenland with Two Climate Models Over the Last Decades

Marion Devilliers¹, Steffen Olsen¹, Shuting Yang¹, Didier Swingedouw², Juliette Mignot³

¹Danish Meteorological Institute, Copenhagen, Denmark, Denmark; ²UMR CNRS 5805 EPOC, University of Bordeaux, France; ³UMR CNRS IRD MNHN 7159 LOCEAN, Sorbonne University, France

16:45

Ventilation of Pacific Waters in the Canada Basin and Impact on the Sea Ice Mass Balance in a 1.5D Ice-ocean Model

Noemie Planat¹, Bruno Tremblay¹, Carolina Dufour¹

¹McGill University, Canada

17:00

Decadal Simulations of Ocean Currents, Temperature and Salinity in Eastern Arctic Ocean

Zhenxia Long¹, Will Perrie¹, Minghong Zhang¹

¹Bedford Institute of Oceanography, Canada

17:15

Predictability of the Southern Ocean Dynamics Through Ensemble Simulation Hindcasts

Davide Zanchettin¹, Stefano Pierini², Stefano Aliani³, Angelo Rubino¹, Enrico Zambianchi², Paola de Ruggiero²

¹Università Ca' Foscari di Venezia, Italy; ²Università Napoli Parthenope, Italy; ³Consiglio Nazionale delle Ricerche - Istituto di Scienze Marine, Italy

17:30 – 18:00

CARTIER I & CARTIER II

Two Brainstorming Sessions on Future Polar Research & Services Priorities

Moderators: ① **Peter Bauer**, ECMWF; **François Massonnet**, Université Catholique de Louvain; ② **Ian Renfrew**, University of East Anglia;

Gregory Smith, ECCC

18:00 – 21:00

CARTIER FOYER



PHOTO: EMILIE

8:30 – 10:00

CARTIER ROOM

Plenary Session: Processes and YOPPSiteMIP

Chairs: **Taneil Uttal**, NOAA; **Eric Bazile**, Meteo France

8:30

Invited Keynote:

Enhanced Multi-variate Observations for Evaluating Process Representation in Numerical Models

Gunilla Svensson, Stockholm University

9:00

Coupled Observations of a Cold-air Outbreak and its Impact on the Iceland Sea

Ian Renfrew¹, Chris Barrell¹, Annick Terpstra¹, Andrew Elvidge¹, Jie Huang², Robert Pickart², Stefanie Semper², Anna-Marie Strehl³, Kjetil Vage³, Thomas Spengler³, Alexandra Weiss⁴

¹UEA, UK; ²WHOI, USA; ³U. Bergen, Norway ⁴BAS, UK

9:15

YOPPSiteMIP: The YOPP Site Model Inter-comparison Project

Jonathan Day¹, Gunilla Svensson², Taneil Uttal³, Siri-Jodha Kalsa⁴, Barbara Casati⁵, Eric Bazile⁶, Mikhail Tolstykh⁷, Teresa Valkonen⁸, Elena Akish³, Leslie Hartten³, Helmut Frank⁹, Roberta Pirazzini¹⁰, Ewan O'Connor¹⁰

¹ECMWF, UK; ²University of Stockholm, Sweden; ³NOAA, USA; ⁴NSIDC, USA; ⁵ECCC, Canada; ⁶Meteo France, France; ⁷Hydrometcentre of Russia, Russia; ⁸Met Norway, Norway; ⁹DWD, Germany; ¹⁰FMI, Finland

9:30

An Overview of Environment and Climate Change Canada's Enhanced Observations and NWP Comparisons during YOPP

Zen Mariani¹, Shannon Hicks-Jalali¹, Robert Crawford¹, Barbara Casati¹, Francois Lemay¹, Gregory Smith¹, Jean-Francois Lemieux¹, William Burrows¹

¹Environment and Climate Change Canada, Canada

10:00 – 10:30

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

10:30 – 11:30

CARTIER ROOM

Plenary Session: Polar Predictions and Societal Implications – Canada

Chairs: **Evelyn Hornbeck**, MEOPAR; **Daniela Ligget**, University of Canterbury, NZ

10:30

Invited Keynote:

Canadian Contributions to Improved Coupled Environmental Predictions for YOPP

Gregory Smith¹, K. Andrew Peterson¹, Jean-Francois Lemieux¹, François Roy¹, Barbara Casati¹, Jason Milbrandt¹, Frederic Dupont², William Merryfield³, Arlan Dirkson¹, Alex Komarov¹, Mark Buehner¹, Alain Caya¹

¹Meteorological Research Division, ECCC; ²Meteorological Service of Canada, ECCC; ³Climate Research Division, ECCC

11:00

Invited Keynote:

Societal and Economic Research and Applications to YOPP

Jackie Dawson, University of Ottawa

11:30 – 12:00

CARTIER ROOM

Societal and Economic Implications: Canada

Sila Qanuippa? (How's the Weather?): Integrating Inuit Qaujimajatuqangit and Environmental Monitoring and Forecasting Products to Support Travel Safety around Mittimatalik (Pond Inlet, Nunavut, Canada)

Lead: **Gita Ljubicic**, McMaster University; Invited guests: **Natasha Simonee**, Mittimatalik; **Natalie Carter**, McMaster University; **Andrew Arreak**, SmartICE; **Katherine Wilson**, SmartICE

12:00 – 13:30

Lunch Break (non-catered)

13:30 – 15:00

CARTIER I

Parallel Session

Polar Processes

Chairs: **Ian Renfrew**, University of East Anglia; **Lorenzo Zampieri**, NCAR

13:30

Representation of Land Surface in the AROME-Arctic Modeling Suite

Åsmund Bakketun¹, Jostein Blyverket¹, Trygve Aspelien¹

¹Norwegian Meteorological Institute, Norway

13:45

Surface Heat and Moisture Exchange Over Sea Ice: Observations and a New Parameterization Scheme for Weather and Climate Models

Andrew Elvidge¹, Ian Renfrew¹, Ian Brooks², Piyush Srivastava³

¹University of East Anglia, United Kingdom; ²University of Leeds, UK; ³Indian Institute of Technology Roorkee, India

14:00

The Role of Boundary Layer Processes in Two Contrasting Summer-time Arctic Cyclone Case Studies

Hannah Croad¹, John Methven¹, Ben Harvey¹, Sarah Keeley²

¹University of Reading, UK ²ECMWF, UK

14:15

Case Study of a Polar Low Simulated with the Convection-permitting Canadian Regional Climate Model: Verification and Analysis of Development Mechanisms

Marta Moreno Ibáñez¹, René Laprise², Philippe Gachon³

¹University of Québec in Montréal (UQAM), Centre ESCER (Étude et Simulation du Climat à l'Échelle Régionale), Department of Earth and Atmospheric Sciences, Canada; ²University of Québec in Montréal (UQAM), Centre ESCER, Department of Earth and Atmospheric Sciences, Canada; ³University of Québec in Montréal (UQAM), Centre ESCER, Department of Geography, Canada

14:30

Impacts of Arctic Climate Change on Synoptic Cyclones and Beaufort High

Minghong Zhang¹, William Perrie¹, Zhenxia Long¹

¹Bedford institute of Oceanography, Canada

14:45

Evaluating the Performance of Lagrangian Dispersion Model Simulations Based on Operational High-resolution Weather Forecasts for Arctic Weather Systems

Aina Johannessen¹, Alena Dekhtyareva¹, Andrew Seidl¹, Bert Verreyken², Jerome Brioude², Harald Sodemann¹

¹Geophysical Institute/University of Bergen, Norway; ²University of Réunion Island, France

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

13:30 – 15:00

CARTIER II

Parallel Session

Societal and Economical Implications

Chairs: **Machiel Lamers**, Wageningen University; **Vicki Heinrich**, Australian Bureau of Meteorology (Aust. BoM)

13:30

Determining what Weather, Water, Ice, and Climate (WWIC) Information Users need for Safe Navigation through Canadian Arctic Waters

Jean Holloway¹, Jackie Dawson¹, Jelmer Jeuring², Machiel Lamers³, Brent Else⁴

¹University of Ottawa, Canada; ²Norwegian Meteorological Institute, Norway; ³Wageningen University, The Netherlands; ⁴University of Calgary, Canada

13:45

Inuit Uses and Needs for Weather, Water, Ice and Climate Information and Services in Nunavut, Canada

Gita Ljubicic¹, Natalie Ann Carter¹, Jason Carpenter², Shirley Tagalik³, Natasha Simonee⁴, Aupaa Irkok³, Andrew Arreak⁵, Ivan Koonoo⁴, William Aglukkaq⁶, Andrew Muckpah³, Peter Aliktiluk³, Julia Mickiyuk⁷, Emmelie Paquette², Trevor Bell⁸, Jackie Dawson⁹

¹McMaster University, Canada; ²Carleton University, Canada; ³Aqqiumavik Society, Canada; ⁴Independent Researcher (Pond Inlet, NU), Canada; ⁵SmartICE (Pond Inlet, NU), Canada; ⁶SmartICE (Gjoa Haven, NU), Canada; ⁷Arctic Eider Society, Canada; ⁸Memorial University of Newfoundland, Canada; ⁹University of Ottawa, Canada

14:00

Consensus-building surrounding Inuit Uses and Needs for Weather, Water, Ice and Climate Information in Nunavut: Messages for Polar Service Providers

Natalie Carter¹, Shirley Tagalik², Kukik Baker², Joe Karetak², Jason Carpenter³, Gita Ljubicic¹, Natasha Simonee⁴, Aupaa Irkok², Andrew Arreak⁵, Ivan Koonoo⁴, William Aglukkaq⁵, Andrew Muckpah², Peter Aliktiluk², Julia Mickiyuk⁶, Emmelie Paquette³, Trevor Bell⁷, Jackie Dawson⁸

¹McMaster University, Canada; ²Aqqiumavik Society, Canada; ³Carleton University, Canada; ⁴Independent Researcher Pond Inlet, Nunavut, Canada; ⁵SmartICE, Canada; ⁶Arctic Eider Society, Canada; ⁷Memorial University of Newfoundland, Canada; ⁸University of Ottawa, Canada

14:15

How Iqalungmiut use Weather, Water, Ice and Climate Information and Services to Inform Safe Travel Decision-making

Jason Carpenter¹, Natalie Ann Carter², Gita Ljubicic², Trevor Bell³

¹Carleton University, Canada; ²McMaster University, Canada; ³Memorial University of Newfoundland, Canada

14:30

The Canadian Centre for Climate Services: Connecting Canadians with Climate Information

Emilia Diaconescu¹, Silvie Harder¹, Lindsay Matthews¹

¹CCCS/ECCC, Canada

14:45

A Review of current UK Met Office Arctic Modelling Capability with a Focus on Developments Required for User Application

Rose Webster¹, Helen Rance², Martin Veasey²

¹Met Office, United Kingdom; ²Met Office, UK

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

16:00 – 17:30

CARTIER I

Parallel Session

YOPPsiteMIP

Chairs: **Jonathan Day**, ECMWF; **Gunilla Svensson**, Stockholm University

16:00

Signatures of Aerosol-cloud Interaction over the Arctic (SACIA and SACIA-2 projects): Overview of PEARL (Eureka) Ground and Satellite-based Results

Norm O'Neill¹, Yasmin Aboelfetouh¹, Jean-Pierre Blanchet², Rachel Chang³, Patrick Hayes⁴, Liviu Ivanescu¹, Maud Leriche⁵, Emily McCullough⁶, Robin Stevens⁴, Keyvan Ranjbar¹, Housseyni Sankaré²

¹Université de Sherbrooke, Canada; ²Université du Québec à Montréal (UQAM), Canada; ³Dalhousie University, Canada; ⁴Université de Montréal, Canada; ⁵Observatoire de Physique du Globe de Clermont-Ferrand (OPGC), France; ⁶The University of Western Ontario's Purple Crow Lidar, Canada

16:15

Nocturnal stability regimes in AROME-Arctic - A Sodankylä case study

Marvin Kähnert¹, Harald Sodemann¹, Igor Ezau², Teresa Valkonen³, Carl Fortelius⁴

¹University of Bergen, Norway; ²University of Tromsø, Norway; ³Norwegian Meteorological Institute, Norway; ⁴Finnish Meteorological Institute, Finland

16:30

Achieving Comparability of Model and Observatory Datasets in YOPPsiteMIP: Challenges and Solutions

Leslie M. Hartten¹, Siri Jodha S. Khalsa², Jareth I. Holt³, Laura X. Huang⁴

¹Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado Boulder and NOAA/ESRL/PSD, US; ²National Snow and Ice Data Center (NSIDC), CIRES, University of Colorado Boulder, USA; ³Department of Meteorology, Stockholm University (MISU), Sweden; ⁴Environment and Climate Change Canada, Canada

16:45

Merged Observatory Data File (MODF) of Sodankylä Supersite: How to Deal with a Complex, Heterogeneous Environment

Roberta Pirazzini¹, Ewan O'Connor¹, Anna Kontu¹, Rigel Kivi¹, Timo Vihma¹

¹Finnish Meteorological Institute, Finland

17:00

Resolving Diurnal Water Vapour Cycles at Iqaluit in ERA5, the ECCO NWP Model, and Ground-based Measurements

Shannon Hicks-Jalali¹, Zen Mariani¹, Barbara Casati¹, Sylvie Leroyer¹, Francois Lemay¹, Robert Crawford¹

¹Environment and Climate Change Canada, Canada

17:15

Exploring the YOPPsiteMIP dataset with the YOPPsiteMIP visualization tools

Johanna Tjernström¹

¹Linköping University, Sweden

16:00 – 17:30

CARTIER II

Parallel Session

Sea Ice

Chairs: **Clare Eayrs**, NYU Abu Dhabi; **Bruno Tremblay**, McGill University

16:00

Sea Ice Prediction Network South (SIPN-South)

François Massonnet¹, Irina Sandu², Guillian van Achter¹, Juan Acosta³, Gabriele Arduini², Peter Bauer², Ed Blockley⁴, Niels Bormann², Jonathan Day², Matthieu Chevallier⁵, Mohamed Dahoui², Thierry Fichefet¹, Daniela Flocco⁶, Thomas Jung⁷, Ed Hawkins⁶, Stephane Laroche⁸, Heather Lawrence², Jorn Kristiansen⁹, Eduardo Moreno³, Pablo Ortega³, Emmanuel Poan⁸, Leandro Ponsoni¹, Roger Randriamampianina⁹

¹UCLouvain, Belgium; ²ECMWF, UK; ³BSC, Spain; ⁴Met Office, UK; ⁵Meteo-France, France; ⁶U. Reading, UK; ⁷AWI, Germany; ⁸Environment and Climate Change, Canada; ⁹Met Norway, Norway

16:15

The Impact of the Yield Curve on Sea Ice Drift, Deformations and Landfast Ice

Jean-Francois Lemieux¹, Amélie Bouchat², Frédéric Dupont¹, Mathieu Plante¹, Francois Roy¹, Gregory Smith¹, Bruno Tremblat²

¹ECCC, Canada; ²McGill, Canada

16:30

Non-Elliptical Yield Curves for Viscous-Plastic Sea Ice Models

Damien Ringeise¹, Martin Losch², Bruno Tremblay¹

¹McGill University, Canada; ²AWI, Germany

16:45

Understanding Sources of Uncertainty and Forecast Error in a Medium-Range Coupled Ensemble Sea Ice Prediction System

K. Andrew Peterson¹, Gregory C Smith¹, Jean-Francois Lemieux¹, Francois Roy¹, Mark Buehner¹, Alain Caya¹, Pieter Houtekamer¹, Hai Lin¹, Ryan Muncaster¹, Xingxiu Deng¹, Frederic Dupont¹, Normand Gagnon¹, Yukie Hata¹, Yosvany Martinez¹, Juan Sebastian Fontecilla¹, Dorina Surcel-Colan¹

¹Environment and Climate Change Canada, Canada

17:00

Progress on Nudging Approaches with the AWI-CM-3 System for Polar Predictions

Marylou Athanase¹, Jan Streffing², Miguel Andres-Martinez¹, Thomas Jung³, Svetlana Loza¹, Helge Goessling¹

¹Alfred Wegener Institute (AWI), Helmholtz Centre for Polar and Marine Research, Germany; ²Jacobs University Bremen, Bremen / and / Alfred Wegener Institute (AWI), Helmholtz Centre for Polar and Marine Research, Germany; ³Alfred Wegener Institute (AWI), Helmholtz Centre for Polar and Marine Research / and / Department of Physics and Electrical Engineering, University of Bremen, Bremen, Germany

17:15

Including Sea Ice Effects in a Global Operational Forecast Model for Total Water Level

Pengcheng Wang¹, Natacha Bernier¹, Keith Thompson²

¹Environment and Climate Change Canada, Canada; ²Dalhousie University, Canada

17:30 – 18:00

CARTIER I & CARTIER II

Two Brainstorming Sessions on Future Polar Research & Services Priorities

Moderators: **1** Gunilla Svensson, Stockholm University; **Jonathan Day**, ECMWF; **2** Bruno Tremblay, McGill University; **Gita Ljubicic**, McMaster University

18:30 – 22:00

THOMSON HOUSE, POST-GRADUATE STUDENTS' SOCIETY MCGILL UNIVERSITY

Science Slam

A fun evening of science communication competition and networking. Light snacks + cash bar.

8:30 – 10:00

CARTIER ROOM

Plenary Session: MOSAiC and Navigation in Polar Waters

Chairs: **Amy Solomon**, NOAA; **Gregory Smith**, ECCC

8:30

Invited Keynote:

The Multidisciplinary drifting Observatory for the Study of the Arctic Climate (MOSAIC)

Matthew Shupe, CIRES, University of Colorado and NOAA

9:00

Sea Ice in focus – The Year of Polar Prediction Sea Ice Drift Forecast Experiment (SIDFEx)

Helge Goessling, Alfred Wegener Institute

SIDFEx Team¹

¹Community Effort, Global

9:30

Invited Keynote:

The Relevance of Environmental Prediction for Polar Tourism and Marine Transport

Karin Strand, Hurtigruten

10:00 – 10:30

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

10:30 – 11:30

CARTIER ROOM

Plenary Session: Southern Hemisphere

Chairs: **Neil Gordon**, MetService NZ; **Irina Gorodetskaya**, University of Aveiro

10:30

An Overview of the Year of Polar Prediction in the Southern Hemisphere (YOPP-SH): Achievements and Future Plans

David Bromwich¹

¹Byrd Polar & Climate Research Center, Ohio State University, USA

11:00

ARPEGE-4DVar during YOPP: Coupling with a 1D Sea Ice Model and OSE During the YOPP-SH

Eric Bazile¹, Adrien Napoly¹, Vincent Guidard¹, Niramson Azouz¹, Nadia Fourrié¹, Hervé Bénichou²

¹CNRM, Université de Toulouse, Météo-France, CNRS, Toulouse France, France;

²Météo-France, Toulouse, France

11:30 – 12:00

CARTIER ROOM

Societal and Economic Implications: Antarctica Environmental Forecasting for Antarctic Operations: Risks, Challenges and Practical Solutions

Leads: **Daniela Liggett**, Canterbury University; **Emma Stewart**, Lincoln University; Invited guests: **Vicki Heinrich**, University of Tasmania; **Lisa Kelley**, International Association of Antarctica Tour Operators (IAATO)

12:00 – 13:30

Lunch Break (non-catered)

13:30 – 15:00

CARTIER I

Parallel Session

Sea Ice

Chairs: **Jean-Francois Lemieux**, ECCO; **Clare Eayrs**, NYU Abu Dhabi

13:30

Improving the Optimal Interpolation Scheme for a Seamless Sea Ice Motion Dataset

Charles Brunette¹, Bruno Tremblay¹, Robert Newton²

¹McGill University, Canada; ²Lamont-Doherty Earth Observatory, Columbia University, USA

13:45

Improving Sea Ice Thickness Estimates by Assimilating CryoSat-2 Radar Freeboard Data

Aliette Chenal¹, Charles-Emmanuel Testut¹, Florent Garnier², Laurent Parent¹, Gilles Garric¹

¹Mercator Océan International, France; ²LEGOS, France

14:00

The Challenge of Arctic Sea Ice Thickness Prediction on Subseasonal Time Scales

Yongwu Xiu¹, Hao Luo¹, Qinghua Yang¹, Steffen Tietsche², Jonathan Day²

¹Sun Yat-sen University, China; ²European Centre for Medium-Range Weather Forecasts, the United Kingdom

14:15

Evaluation of Sea Ice Thickness from Four Reanalyses in the Antarctic Weddell Sea

Qian Shi¹, Qinghua Yang¹, Longjiang Mu², Jinfei Wang¹, François Massonnet³, Matthew Mazloff⁴

¹Sun Yat-sen University, China; ²Southern Marine Science and Engineering Guangdong Laboratory (Zhuhai), China; ³Georges Lemaître Centre for Earth and Climate Research, Earth and Life Institute, Université catholique de Louvain, Belgium; ⁴Scripps Institution of Oceanography, University of California, The USA

14:30

Inter-comparison of Ice Presence between Different Satellite-based Observational Datasets and Initial Model Forecasts

Bimochan Niraula¹, Helge Goessling¹

¹Alfred Wegener Institute, Germany

14:45

Interannual Variability and Precursors to Sea Ice Conditions at the Start of MOSAiC Expedition in 2019 - 2021

Vasily Smolyanitsky¹, Anna Danshina¹, Anna Timofeeva¹, Anastasiya Revina¹

¹Arctic and Antarctic Research Institute (AARI), Russian Federation

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

13:30 – 15:00

CARTIER II

Parallel Session

Polar Mid-latitude Linkages

Chairs: **David Bromwich**, Byrd Polar Research Centre; **Thomas Jung**, AWI

13:30

Atmospheric Rivers Bringing Heat and Rain to the Antarctic Peninsula: From YOPP-SH Enhanced Observations

Irina Gorodetskaya¹, Penny Rowe², Anastassia Chyhareva³, Claudio Durán-Alarcón¹, Negar Ekrami⁴, Sang-Jong Park⁵, Heike Kalesse⁶, Martin Radenz⁷, Patric Seifert⁷, Svitlana Krakovska³, Raul Cordero⁸

¹CESAM - Centre for Environmental and Marine Studies, Department of Physics, University of Aveiro, Portugal; ²NorthWest Research Associates, USA; ³Ukrainian Hydrometeorological Institute and National Antarctic Scientific Center of Ukraine, Ukraine; ⁴Department of Physics, University of Aveiro, Portugal; Department of Engineering and Natural Sciences, University of Iceland, Iceland; ⁵Korea Polar Research Institute, South Korea; ⁶Institute for Meteorology, University of Leipzig, Germany; ⁷Leibniz Institute for Tropospheric Research (TROPOS), Germany; ⁸University of Santiago, Chile

13:45

The Impacts of Combined ENSO and SAM on the Antarctic Sea Ice Budget

Jinfei Wang¹, Qinghua Yang¹

¹School of Atmospheric Sciences, Sun Yat-sen University, China

14:00

Direct Observations of Arctic-Midlatitude Teleconnections: Barents 2016 and Bering 2017

James Overland¹, Baek-Min Kim², Yoshihiro Tachibana³

¹NOAA Pacific Marine Environmental Laboratory, United States; ²Pukyong National University, Republic of Korea; ³Mie University, Japan

14:15

Contribution of the Decline in Chukchi and Bering Sea Ice to Cold East Asian Winter

Yoshihiro Tachibana¹, Yuta Ando²

¹Mie University, Japan; ²Niigata University, Japan

14:30

West Antarctic Surface Melt: Energy Budget, Meteorological Drivers and Large-Scale Climate Forcing

Ryan Scott¹, **Dan Lubin**²

¹NASA Langley Research Center, USA; ²Scripps Institution of Oceanography, USA

14:45

Interannual Variability of the Warm Arctic-cold North American Pattern

Bin Yu¹, Hai Lin¹

¹Environment and Climate Change Canada, Canada

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

16:00 – 17:30

CARTIER I

Parallel Session

Observation Campaigns and MOSAiC

Chairs: **Matthew Shupe**, NOAA; **Zen Mariani**, ECCC

16:00

SynopSys - Synoptic Events During MOSAiC and their Forecast Reliability in the Troposphere-Stratosphere System

Ralf Jaiser¹, Mark Weber², Alexey Rozanov², Alexander Cress³, Annette Rinke¹, Dörthe Handorf¹, Zoi Paschalidi³, Falco Monsees², Marion Maturilli¹

¹Alfred-Wegener-Institut, Germany; ²Universität Bremen, Germany; ³Deutscher Wetterdienst, Germany

16:15

First Simulation of a MOSAiC Warm Air Intrusion Case Using the AOSCM

Michail Karalis¹, Gunilla Svensson¹, Matthew Shupe²

¹Department of Meteorology and the Bolin Centre of Climate Research, Stockholm University, Sweden; ²National Oceanic and Atmospheric Administration, USA

16:30

The Multidisciplinary Ice-based Distributed Observatory: MIDO

Benjamin Rabe¹, Mario Hoppmann¹, Marcel Nicolaus¹, Christian Katlein¹

¹Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung, Germany

16:45

Improving Short-term Forecasts of the Arctic Ocean-Sea Ice-Atmosphere Coupled System Using Wintertime Statistics from the MOSAiC Campaign

Amy Solomon¹, MOSAiC Model Intercomparison Team²

¹CIRES/NOAA-PSL, USA; ²CIRES/NOAA-PSL, International

17:00

Aerosol, Clouds and Dynamics Observations over a Southern-Hemisphere Mid-latitude Site and Implications for Antarctic Follow-up Studies

Martin Radenz¹, Patric Seifert¹, Johannes Bühl¹, Holger Baars¹, Ronny Engelmann¹, Boris Barja², Albert Ansmann¹

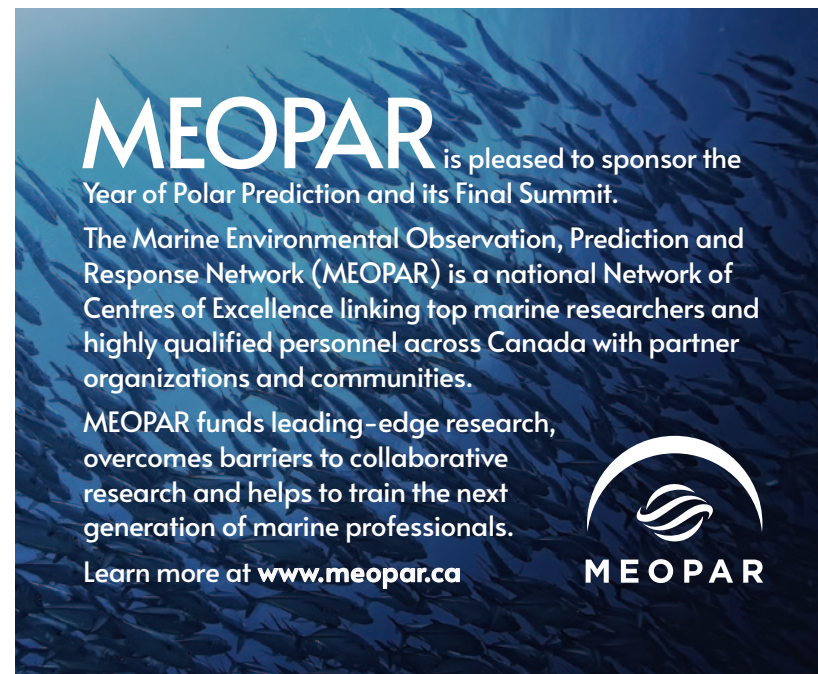
¹TROPOS, Germany; ²Universidad de Magallanes, Punta Arenas, Chile

17:15

Siple Dome 2019: A Field Program for Improving Climate Model Performance in West Antarctica

Madison Ghiz¹, **Dan Lubin**²

¹DNV Energy Systems, USA; ²Scripps Institution of Oceanography, USA




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16:00 – 17:30 CARTIER II

Parallel Session

Science to Services

Chairs: **Jørn Kristiansen**, Met Norway; **Daniela Liggett**, University of Canterbury, NZ

16:00

Bridging the Last Mile in the Delivery of Salient Sea Ice Services in the European Arctic

Machiel Lamers¹, Berill Blair¹, Jelmer Jeuring²

¹Wageningen University, Netherlands; ²Norwegian Meteorological Institute, Norway

16:15

Arctic Climate Forums as a Platform for User-producer Interactions on Seasonal Forecasts: Lessons Learned in the Demonstration Phase of ArcRCC-N

Jelmer Jeuring¹, Vasily Smolyanitsky², Roxanne Vingarzan³, Helge Tangen⁴

¹Norwegian Meteorological Institute / ArcRCC-N Nordic Node, Norway; ²Arctic and Antarctic Research Institute / ArcRCC-N North Eurasian Node, Russia; ³Environment Canada / ArcRCC-N North American Node, Canada; ⁴Norwegian Meteorological Institute / ArcRCC-N Coordinator, Norway

16:30

Who's Going Where and How? What Can They Do There? Towards an Integrated Database for Polar Logistics and Infrastructures: Polardex

Joseph Nolan¹, **Griffith Couser**¹, Miguel Ojeda², Renuka Badhe¹

¹European Polar Board, Netherlands; ²Unidad de Tecnología Marina - CSIC, Spain

16:45

A Wander Down South: The Trials, Tribulations, and Rewards of Weather Service Integration with an Antarctic Operational Program

Michelle Hollister¹, Victoria Heinrich²

¹Australian Bureau of Meteorology, Australia; ²University of Tasmania, Australia

17:00

Expedition Cruise Ships as Platforms of Opportunity: Powerful Tools to Collect Valuable Polar Data and Increase Nature Awareness Among Travellers

Verena Meraldi¹, Tudor Morgan², Ylva Grams³, Amanda Lynnes⁴

¹Hurtigruten Expeditions, Switzerland; ²Hurtigruten Expeditions, United Kingdom; ³Hurtigruten Expeditions, Netherlands; ⁴IAATO, United Kingdom

17:15

Is it Cold? Is it Windy? Is it Dangerous? Exploring People's Weather Information and Decision-making Needs in Extreme Environments

Victoria Heinrich¹, Kimberley Norris¹

¹University of Tasmania, Australia

17:30 – 18:00 CARTIER I & CARTIER II

Two Brainstorming Sessions on Future Polar Research & Services Priorities

Moderators: ❶ **Matthew Shupe**, NOAA; **Clare Eyars**, NYU Abu Dhabi; ❷ **David Bromwich**, Byrd Polar Research Centre; **Machiel Lamers**, Wageningen University

19:00 – 21:30 CARTIER ROOM



Inuit Cultural Performance

Jimmy Uqittuq, drum dancing; **Lydia Etok** and **Nina Segalowitz**, throat singing

Panel Discussion:

Rick Thoman, Alaska Centre for Climate Assessment and Policy; **Karin Strand**, Hurtigruten Group; **Pascale Bourbonnais**, FedNav

8:30 – 10:00 CARTIER ROOM

Plenary Session: Observing Systems and Sea Ice

Chairs: **Bruno Tremblay**, McGill University; **Matthew Shupe**, NOAA

8:30

The Thin Ice Clouds and Far IR Emissions (TICFIRE) YOPP Project: a Canadian Contribution to NASA AOS Mission

Jean-Pierre Blanchet¹, Yann Blanchard², Pierre Gauthier¹, Ludovick Pelletier¹, Laurence Coursol¹, Quentin Libois³, Yi Huang⁴, Adam Bourassa⁵, Doug Degenstein⁵, Kaley Walker⁶, Kim Strong⁶, Zen Mariani⁷

¹Université du Québec à Montréal, Canada; ²ESCCER Center, UQAM, Canada; ³Météo-France, France; ⁴McGill University, Canada; ⁵University of Saskatchewan, Canada; ⁶University of Toronto, Canada; ⁷Environment and Climate Change Canada, Canada

9:00

The Sea Ice Outlook: Past, Present and Future

Edward Blanchard-Wrigglesworth¹

¹University of Washington, United States

9:30

High Resolution NEMO Modelling for Northern Canadian Waters

Paul Myers¹, Xianmin Hu², Laura Castro de la Guardia¹, Ruijian Gou³, Juliana Marson⁴, Clark Pennelly¹, Ran Tao⁵

¹University of Alberta, Canada; ²Dalhousie University, Canada; ³Ocean University of China, China; ⁴University of Manitoba, Canada; ⁵Alfred Wegener Institute, Germany

10:00 – 10:30 CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

10:30 – 11:30 CARTIER ROOM

Plenary Session: Polar Prediction and Services – Europe

Chairs: **Gita Ljubicic**, McMaster University; **Jonathan Day**, ECMWF

10:30

How the YOPP Data Portal can contribute to the legacy

Øystein Godøy¹, Lara Ferrighi¹, Magnar Martinsen¹, Massimo Di Stefano¹

¹Norwegian Meteorological Institute, Norway

11:00

Science for services in weather forecasting in the European Arctic

Jørn Kristiansen¹, Øystein Hov¹

¹MET Norway, Norway

11:30 – 12:00 CARTIER ROOM

Science to Services: Europe

Barriers and opportunities for optimizing WICC information value chains in the European Arctic Ocean

Leads: **Machiel Lamers**, Wageningen University; **Jelmer Jeuring**, MET Norway; Invited guests: **Thomas Bøggild**, DanPilot; **Jørn Kristiansen**, MET Norway

12:00 – 13:30

Lunch Break (non-catered)

13:30 – 14:30

CARTIER ROOM

Panel: YOPP Accomplishments

Moderator: **David Grimes**, ECCC, WMO, retired; Panelists: **Machiel Lamers**, Wageningen University; **Neil Gordon**, New Zealand Meteorological Service, Retired; **Taneil Uttal**, NOAA; **Jonathan Day**, ECMWF; **Vicki Heinrich**, University of Tasmania

14:30 – 15:00

CARTIER ROOM

Report from Break-Out Groups on Future Polar Research and Services Priorities

PPP SG members and brainstorm session moderators

Chairs: **Barbara Casati**, ECCC; **Machiel Lamers**, Wageningen University

15:00 – 16:00

CARTIER FOYER

Refreshment Break (Poster and Exhibit Area)

16:00 – 17:00

CARTIER ROOM

Panel: Future Polar Research and Services Priorities

Moderator: **Gilbert Brunet**, BoM; Panelists: **Daniela Liggett**, University of Canterbury; **Jørn Kristiansen**, MET Norway; **David Bromwich**, The Ohio State University Byrd Polar and Climate Research Center; **Gunilla Svensson**, Stockholm University; **Lorenzo Zampieri**, NCAR; **Diane Campbell**, ECCC

17:00 – 17:30

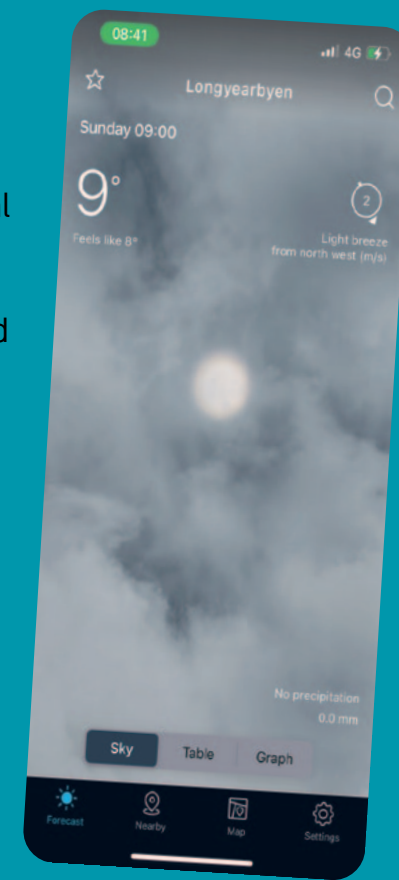
CARTIER ROOM

Official YOPP Final Summit Closure

We are dedicated to the Arctic and the cryosphere

Our ambition is to develop reliable and accurate Arctic weather forecasts and warnings for the benefit of maritime operations, business and society.

We are an active partner in international and national programmes, projects and organisations, and utilize the results in our operational services.



Final Summit Posters

Posters are on display in the Cartier Foyer and their presenters will be on-hand daily between 15:00–16:00.

THEME

Ocean and Sea Ice Modelling and Services

Subseasonal to seasonal Arctic Sea ice predictions in a UFS-based System

Yanyun Liu¹, Wanqiu Wang², Jieshun Zhu², Weiyu Yang¹, Arun Kumar², David DeWitt²

¹NOAA/NWS/NCEP/Climate Prediction Center and Innovim LLC, United States;

²NOAA/NWS/NCEP/Climate Prediction Center, United States

The emerging Arctic shipping corridors

Chao Min¹, **Qinghua Yang**¹

¹Sun Yat-sen University, China

Arctic sea ice volume export through the Fram Strait and Davis Strait

Chao Min¹, Qinghua Yang¹, Longjiang Mu², Robert Ricker³, Frank Kauker⁴

¹Sun Yat-sen University, China; ²Qingdao Pilot National Laboratory for Marine Science and Technology, China; ³Norwegian Research Centre, Norway; ⁴Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Germany

Improved performance of a sea ice forecast model

Till Andreas Soya Rasmussen¹, Mads Ribergaard², Jacob Weismann Poulsen², Stefan Rethmeier²

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Using in-situ observations to improve the land-fast ice thermodynamics in RIOPS

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Verification of sea-ice prediction of operational dynamical models using distance metrics

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The Sensitivities of Parameterization Schemes in Thermodynamically Modeling the Landfast Sea-Ice in Prydz Bay, East Antarctica

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Smoothed Particle Hydrodynamics Implementation of the Standard Viscous-Plastic Sea-Ice Model and Validation in Simple Idealized Experiments

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The effect of including damage on the scaling properties of the standard viscous plastic sea-ice model

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Ekman Transport Dynamics in The Beaufort Gyre

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Ocean and Sea Ice Modelling and Services *continued*

A likely mechanism for a “first-time” ice-free Arctic

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Seasonal predictability of the minimum sea ice extent in the Arctic Ocean in GCMs

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Sea ice forecasts in the AWI Seamless Sea Ice Prediction System v2.0

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THEME

Polar Observation Campaigns and MOSAIC

Arctic Summertime Cyclones project and field campaign

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Local strength of second-year sea ice on MOSAiC Expedition

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Observations and simulations of aerosol and fog microphysical parameters at Tuktoyaktuk, Canada during summer 2018

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Cloud supercooled liquid water content in-situ measurements near the Antarctic coast

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Record-breaking rain falls at Greenland summit controlled by warm moist air intrusion

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THEME

Representation of Polar Processes in Numerical Models

Improved simulation of the polar atmospheric boundary layer by accounting for aerodynamic roughness in the parameterisation of surface scalar exchange over sea ice

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Representation of Polar Processes in Numerical Models *continued*

An evaluation of surface meteorology over the Iceland and Greenland Seas in ERA5 reanalysis: the impact of sea ice distribution

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Arctic spring and summertime aerosol optical depth baseline from long-term observations and model reanalyses with implications for biomass burning processes

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Advances in polar prediction at ECMWF during YOPP

Jonathan Day¹, Gabriele Arduini¹, Sarah Keeley¹, Linus Magnusson¹, Heather Lawrence¹, Neils Bormann¹, Peter Bauer¹

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All-sky radiance assimilation in Harmonie-Arome

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Performance of the Canadian Arctic Prediction System during the YOPP Special Observing Periods

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Verification of Solid Precipitation Forecasts from Numerical Weather Prediction Models

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THEME

Polar-midlatitude Linkages and Teleconnections

Response of winter Eurasian temperature to Barents–Kara sea ice conditions: Evaluation by multi-model seasonal predictions

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Contribution of potential vorticity merging for the persistence of Arctic cyclones in summer

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Precipitation associated with Atmospheric Rivers and weather systems in the Arctic

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THEME

Science to Services

Perceptions of impact-based warning information for ice-throw risk in wind farms: A Norwegian survey

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Blue-Action: Arctic impact on weather and climate

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THEME

Building International Cooperation

Enhancing the capacity of the IPCC through Early Career Researcher networks: a case study of international collaboration

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