Workshop on Climate Prediction in the Atlantic-Arctic sector

Jointly organised by the Bjerknes Climate Prediction Unit and the EU Modelling Cluster
5-7th June 2019, Bergen, Norway

Agenda

Wed., 5th June 2019
Registration will be open starting at 8:00

8:35-08:50 Welcome by Noel Keenlyside	
08:50-09:00 Franz Immler, Head of Sector Climate Action at the EC	
Mechanisms giving rise to climate predictability	
09:00-09:30	Rong Zhang (GFDL, **keynote**) Mechanisms for decadal climate predictability in the Atlantic-Arctic sector
09:30-9:50	Nour-Eddine Omrani (UiB, BCPU) Understanding the multidecadal Northern Hemisphere climate variably from the perspective of damped Coupled stratosphere/troposphere/Ocean oscillation
09:50:10:10	Jennifer Mecking (University of Southampton, Blue-Action) Ocean versus Atmosphere in the Eastern North Atlantic Subpolar Gyre Ocean Heat Content
10:10-10:30	Pablo Ortega (BSC, APPLICATE) A multi-model comparison of the ocean contributions to multidecadal variability in the North Atlantic
10:30-11:00 BREAK	
11:00-11:20	Shuting Yang (DMI, Blue-Action, EUCP) On the climate variability and the recent abrupt cooling over Subpolar North Atlantic
11:20-11:40	Jeremy Grist (NOC, Blue-Action, PRIMAVERA) Re-emergence of North Atlantic subsurface ocean temperature anomalies in a seasonal forecast system
11:40-12:00	Hilla Gerstman (ETH Zurich, Blue-Action) Stratospheric influence on extreme weather events in the North Atlantic basin
12:00-12:20	Guillaume Gastineau (SU, Blue-Action) Atmospheric response to the observed sea-ice variability: role of continental snow cover and decadal SST variability
12:20-13:30 LUNCH at IMR canteen	
13:30-13:50	Johann Jungclaus (MPI, PRIMAVERA, **invited**) Detecting changes in North Atlantic variability under global warming
13:50-14:10	Marius Årthun (UiB, BCPU, Blue-Action) The role of Atlantic heat transport in future Arctic winter sea ice loss

14:10-14:30	Paul Kushner (University of Toronto) Competing Roles of Fast and Slow Climate Responses to Aerosol Forcing in Sahel Precipitation during the Late 20th Century
14:30-14:50 BREAK	
Challenges to developing climate services	
14:50-15:20	Francisco J. Doblas Reyes (BSC, EUCP, **keynote**) Transitioning climate prediction from research to operations and services
15:20-15:40	Erik Kolstad (NORCE, Blue-Action, **invited**)
15:40-16:00	Anne Britt Sandø (Institute of Marine Research, BCPU) Potential applications of climate predictions on different levels in the marine ecosystem
16:00-16:20	Mette Skern-Mauritzen (Institute of Marine Research) The use of climate predictions to inform fisheries and ecosystem management – an ICES perspective
16:20-16:30 BREAK	
16:30-17:30	Panel discussion ● Siri Kalvig, Executive Director at Nysnø Klimainvesteringer ● Franz Immler, Head of Sector Climate Action, EASME, European Commission ● Francisco J. Doblas Reyes, Director of Earth Sciences Department at BSC ● Erik Kolstad, senior researcher at Regional Climate & Climate Services group, NORCE, and adjunct professor at Centre for Climate and Energy Transformation, UiB ● Mette Skern-Mauritzen, Leader of the Ecosystem Processes research group at Havforskningsinstitutt ● Tor Eldevik*, Co-leader of the Bjerknes Climate Prediction Unit and Deputy director of the Bjerknes Centre for Climate Research * panel discussion facilitator

Thu., 6th June 2019

Mechanisms giving rise to predictability	
09:00-09:20	Elisa Manzini (MPI, Blue-Action) Nonlinear Response of the Stratosphere and the North Atlantic-European Climate to Global Warming
09:20-09:40	Pier Luigi Vidale (University of Reading, PRIMAVERA) Global Climate Modelling at High Resolution in PRIMAVERA/HighResMIP
09:40:10:00	Dmitry Sein (AWI, PRIMAVERA) Simulating the Arctic climate with the AWI climate models: From global to regional scales
Climate Predictability limits	
10:00-10:20	Jon Robson (University of Reading, **invited**) Recent multivariate changes in the North Atlantic climate system, with a focus on 2005–2016

10:20-10:50 BREAK	
10:50-11:10	Thomas Jung (AWI, APPLICATE) Advanced prediction in polar regions and beyond (APPLICATE): Recent progress
11:10-11:30	Iuliia Polkova (Universität Hamburg, Blue-Action) Preconditions for cold air outbreaks and prediction skill
11:30-11:50	Helene R. Langehaug (NERSC, BCPU, Blue-Action) Assessing poleward propagation of temperature anomalies in decadal hindcast experiments
11:50-12:10	Juliette Mignot (IPSL, Blue-Action, EUCP) IPSL-EPOC decadal prediction system: an update from the trenches
12:10-12:30	Daniela Matei (MPI, Blue-Action) Decadal-scale predictive skill of the North Atlantic upper-ocean salt content and its attribution to the initialization of the North Atlantic Ocean Circulation
12:30-13:40 LUNCH at IMR canteen	
13:40-14:00	Rosemary Eade (Met Office, **invited**) Decadal Variability and Trends with a focus on the North Atlantic Oscillation
14:00-14:20	Panos Athanasiadis (CMCC, Blue-Action, PRIMAVERA) Preliminary title: Decadal prediction of NA Blocking
14:20-14:40	Francois Counillon (NERSC, BCPU, Blue-Action) The role of model bias for prediction skill and methods to constrain it
14:40-15:00 BREAK	
15:00-17:00	Discussion (2-3 rooms; topics and facilitators to be announced soon)
18:30-20:00	Posters
20:00-	Dinner

Fri., 7th June 2019

Data assimilation for reanalysis and model initialization	
09:00-09:30	Eugenia Kalnay (UMD, **keynote**)
09:30-09:50	Steve Penny (University of Maryland, **invited**)
09:50:10:10	Benjamin Menetrier (IRIT, **invited**) Localization for ensemble DA: objective diagnostic and efficient application

10:10-10:30	Patrick Laloyaux (ECMWF, **invited**) Application of coupled data assimilation at ECMWF
10:30-11:00 BREAK	
11:00-11:20	Yiguo Wang (NERSC, BCPU, Blue-Action) Development of ensemble-based data assimilation techniques for climate prediction
11:20-11:40	Victor Estella Perez (LOCEAN, Blue-Action) Reconstructions of the AMOC in the historical period using surface data with the IPSL coupled model
11:40-12:00	Madlen Kimmritz (NERSC; BCPU, Blue-Action) The role of ocean and sea ice for seasonal prediction in the Arctic
12:00-12:20	Filippa Fransner (UiB, BCPU) Ocean biogeochemical predictions - the role of initial conditions and sources of potential predictability
12:20-13:30 LUNCH at IMR canteen / Bjerknes CPU leadership and advisory board meeting	
13:30-15:30	Discussion (2-3 rooms; topics and facilitators to be announced soon)
15:30 End of workshop	

Posters

Mechanisms

Martin King (NORCE, BCPU, Blue-Action) Uncertainty of ENSO teleconnection in the Northern Hemisphere. – withdrawn.

1. Ramon Fuentes-Franco (SMHI, PRIMAVERA, EUCP) Possible tropical sources of predictability for inter-annual variability of summer precipitation over Northern Sweden and Finland
2. Hjálmar Hátún (Faroe Marine Research Institute) An inflated subpolar gyre blows life towards the northeastern Atlantic
3. Valerio Lembo (University of Hamburg, Blue-Action) Prediction of the long-term climate response in a coupled climate model using response theory

Data assimilation

4. Sebastien Barthélemy (UiB, BCPU) Hybrid covariance and dual resolution assimilation for high resolution model
5. Ali Aydogdu (NERSC) Data assimilation using adaptive, non-conservative, moving mesh models
6. Avneet Singh (BCPU) Optimising cross-covariance update in strongly coupled data assimilation
7. Francine Schevenhoven (BCPU) Efficient algorithms to train supermodels
8. Julien Brajard (NERSC) Data assimilation as a machine learning tool or in combination with it to emulate a dynamical model from sparse and noisy observations.
9. Tian Tian (DMI, Blue-Action) The role of Arctic sea ice initialisation in decadal climate prediction: linking the Arctic sea ice loss and the mid-latitude climate

Predictability limits

10. Ingo Bethke (UiB, BCPU, Blue-Action) Improving statistical methods for assessing climate prediction skill
11. Torben Schmith (DMI, Blue-Action, EUCP) Semi-empirical improvement of seasonal forecasts of European winter temperatures
12.

13. Fei Li (NILU, BCPU) Subseasonal-to-Seasonal Forecasts with the Norwegian Climate Prediction Model
14. Bo Christiansen (DMI, Blue-Action, EUCP) The skill of dynamical decadal forecasts with focus on the North Atlantic region
15. Stefan Sobolowski (NORCE) Investigating drivers of midlatitude circulation biases in climate reanalysis ensembles
16. Leilane Passos (UiB, BCPU) Skill of NorCPM versions to predict thermohaline anomalies from North Atlantic to Arctic

Logistics

Venue of the event: at Havforskningsinstituttet Pynten (about 180m from Havforskningsinstitutt main building) for oral presentations and discussion sessions. At Nansen Environmental and Remote Sensing Center for posters & social dinner. At Havforskningsinstitutt main building for lunches and discussion sessions. **See map:** https://drive.google.com/open?id=1OjMhGU43-MfJFOFJ1nMm4cW8Tbc&usp=sharing

Accommodation in Bergen: June is quite busy in Bergen for tourism, book your hotel on time.

To and from airport: https://avinor.no/en/airport/bergen-airport/to-and-from-the-airport/bus-and-taxi/bus

Getting around Bergen:

- walking (check the forecast before and bring a raincoat or umbrella);
- public transport: https://www.skyss.no/en ;
    - for Pynten and Havforskningsinstitutt, bus 11 will get you closest but it might be quicker to walk
    - for NERSC (posters & dinner), the bus and lightrail stop “Florida” is closest.
- Getting across Vågen (e.g. from Hotel Thon Orion to Pynten): https://www.beffenfergen.no/english/

Presentations

All presentations will be made available in Zenodo after the workshop: https://www.zenodo.org/communities/blue-actionh2020

Acknowledgments

The Bjerknes Climate Prediction Unit receives funding from the Trond Mohn Foundation under the project number: BFS2018TMT01

The projects Blue-Action, APPLICATE, PRIMAVERA, CRESCENDO, EUCP have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 727852, 727862, 641727, 641816, 776613, respectively.

This is the second modelling workshop of the EU Modelling Cluster. The outcomes of this workshop provide the feed to the Blue-Action deliverable D6.2