

Workshop on polar-lower latitude linkages and their role in weather and climate prediction

Participation: Leading experts and selected early-career scientists, invitation only.

Date: 10-12 December 2014

Duration: 2 ½ days, starting on the 10th in the afternoon

Place: [Cosmocaixa](#), Barcelona, Spain

Science committee: Francisco Doblas-Reyes (co-chair, WGSIP and SPECS), Thomas Jung (co-chair, WWRP-PPP and Arctic ECRA), Frédéric Vitart (WWRP-S2S), Brian Mills (WWRP-SERA and WWRP-PPP), James Overland (IASC), Thomas Spengler (IAMAS-ICDP), David Bromwich (IAMAS-ICPM and WWRP-PPP), Cecilia Bitz (WCRP-PCPI), Hugues Goosse (WCRP-PCPI), Jonny Day (APECS), Claus Brüning (European Commission), Vladimir Ryabinin (WCRP), and Carlo Buontempo (EUPORIAS).

Organising committee: Virginie Guemas (IC3 and Météo-France), Neven Fuckar (IC3), Ramiro Saurral (CIMA and Univ. of Buenos Aires), Javier García-Serrano (IPSL), François Massonnet (UCL).

Invited speakers (to be expanded and confirmed): Brian Hoskins (teleconnections), Cecilia Bitz (sea-ice prediction), Jennifer Francis (connections between polar and Northern Hemisphere), Mark Baldwin (natural modes of atmospheric variability).

Summary: The Polar Regions attract increasing attention due to a most pronounced regional climate change and its various manifestations, for example in accelerated ice sheet melting and disappearance of the summer Arctic sea ice. Further important changes with global implications are anticipated in the coming decades. Implications of these regional changes have already been observed in the middle latitudes. As a consequence, it is possible that the quality of global weather and climate predictions, especially on subseasonal-to-interannual time scales, may benefit from the use of better information about polar processes. For example, there are indications that accounting for snow and sea ice provides additional skill on seasonal time scales. However, the complex interactions between polar and extra-polar processes are still poorly known. Numerical weather predictions also suffer from a lack of data in the Polar Regions and from insufficiently realistic representation of key high-latitude processes in models. Improving the polar components of the tools used for weather and climate prediction, including a better initialization, may lead to improved forecasts in the extra-polar regions. The aim of the workshop is to bring together leading experts

in the field to review our current knowledge of polar-lower latitude interactions, their role in weather and climate prediction and their influence in the occurrence of non-polar extremes. Linkages between the atmosphere, land surface and the ocean will be considered. The workshop will also identify existing gaps in knowledge, develop recommendations on ways to narrow them down and identify priorities for polar research of benefit to weather and climate prediction in lower latitudes. A number of early career scientists from both polar and non-polar countries will be invited to attend the workshop and some financial support will be offered to them.

Format: The workshop will start with invited presentations. A poster session will be held in the afternoon of day 1 and in the morning of day 2. Participants will work in breakout groups in the afternoon of day 2 and the morning of day 3 to discuss the initial questions raised. In the afternoon of day 3 the outcome of the breakout groups will be presented and discussed in a plenary session to produce a preliminary list of research opportunities. The preliminary breakout group topics are:

- atmospheric links, including processes and mechanisms
- role of the ocean and sea-ice
- implications for prediction

The recommendations of the workshop will be posted on the web sites of several international initiatives and will be submitted as a report to BAMS.

Social programme: Icebreaker on the first day and workshop dinner on day 2.

Funding: There will be no registration fee for workshop participants. Funding will be required to pay for the local organization, the venue (optional), coffee and lunch breaks, the icebreaker (e.g. sponsored by ECRA), the workshop dinner, financial support for invited speakers and early-career scientists (if required).

Existing pledges:

- WWRP-PPP: 10,000 euros
- WCRP (tentative): around 10,000 CHF
- Environment Canada grant to GFCS: 15,000 CHF
- SPECS: around 6,000 Euros
- ECRA: icebreaker
- A proposal for sponsoring submitted to EGU (5,000 euros requested) and AGU.
- JPI Climate and Belmont Forum contacted but not committing any funds yet.