

# WCRP

World Climate Research Programme



ICSU

International Council for Science

## WCRP Workshop on Seasonal to Multi-Decadal Predictability of Polar Climate

Bergen, Norway  
25-29 October 2010

### Program



BERGEN KOMMUNE



## Monday 25<sup>th</sup>

8:00 Registration

9:00 Welcome (Sigmund Grønmo, Rector, U Bergen; Tony Busalacchi, Chair, WCRP JSC)  
Overview of Workshop (Ted Shepherd)

### ***SESSION 0 CONVENOR AND RAPPORTEUR: TED SHEPHERD***

9:30 Ben Kirtman: Seasonal to decadal prediction

10:00 George Boer: Aspects of polar decadal predictability

10:30 Discussion<sup>1</sup>

11:00 *Coffee*

### ***SESSION 1 CONVENORS: CECILIA BITZ & HUGUES GOOSSE***

11:30 Hugues Goosse: Observed and simulated sea ice variations over the last century

11:50 Ron Kwok: Ice export versus melt in the loss of multi-year sea ice

12:10 Discussion

12:30 Brief Advertisement of Posters<sup>2</sup>

13:00 *Lunch*

14:00 Poster Session<sup>2</sup> (*Sponsored by BKK*)

14:30 Cecilia Bitz: How early can we predict the sea-ice summer minimum?

14:50 Jim Overland: Hot Arctic/cold continents: hemispheric aspects of Arctic change

15:10 Marilyn Raphael: Antarctic climate and sea-ice variability

15:30 Discussion

16:00 *Coffee*

16:30 François Massonnet & Thierry Fichefet: Importance of physics, resolution and forcing in hindcast simulations of Arctic and Antarctic sea ice variability and trends

16:50 Katharine Giles: Role of ice thickness in Arctic sea-ice predictability

17:10 Discussion

17:30 Stock-taking Discussion for Session 1: Led by Cecilia Bitz  
(Rapporteur: Hugues Goosse)

18:00 End of day

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<sup>1</sup> Some of the discussion time may be used following individual presentations, if appropriate.

<sup>2</sup> Posters are listed on the last page. They will be included in the Stock-taking Discussion where they most appropriately fit. They will be displayed all week and can also be viewed during lunch and coffee breaks.

## Tuesday 26<sup>th</sup>

### **SESSION 2 CONVENORS: TORE FUREVIK & JOHN MARSHALL**

- 9:00 David Holland: Impacts and projections of ice-ocean interaction on sea-level change
- 9:20 Karen Heywood: Antarctic bottom water formation and variability of Antarctic water masses
- 9:40 Sarah Gille: Antarctic Circumpolar Current response to the Southern Annular Mode: changes in mixed-layer depth and jet position
- 10:00 John Marshall: Closing the meridional overturning circulation through Southern Ocean upwelling
- 10:20 Discussion
- 11:00 *Coffee*
- 11:30 Andrey Proshutinsky: Arctic Ocean processes and their predictability
- 11:50 Cecilie Mauritzen: Changes to ocean hydrography
- 12:10 Svein Østerhus & Tore Furevik: Poleward propagation of heat anomalies
- 12:30 Discussion
- 13:00 *Lunch*
- 14:00 Arnaud Czaja: A new mechanism of ocean-atmosphere coupling in the extra-tropics
- 14:20 Tor Eldevik & Helge Drange: On the persistence and possible prediction of the Arctic/Atlantic thermohaline circulation
- 14:40 Discussion
- 15:00 Stock-taking Discussion for Session 2: Led by Tore Furevik (Rapporteur: John Marshall)
- 15:30 *Coffee*

### **SESSION 3 CONVENORS: JULIE ARBLASTER & TED SHEPHERD**

- 16:00 Paul Kushner: Stratospheric influence on polar climate
- 16:20 Shigeo Yoden: Numerical studies on internal and external variations of the winter polar vortex with a mechanistic circulation model
- 16:40 Ted Shepherd: Long-memory processes in the stratosphere
- 17:00 Discussion (to 17:30)
- 19:00 *Reception in the historic Håkonshallen, Bergenhuss Festning (sponsored by the City of Bergen)*

## Wednesday 27<sup>th</sup>

- 9:00 Julie Arblaster: Climate signals from anthropogenic and natural external forcings
- 9:20 Judith Perlwitz: Effect of Antarctic ozone changes on the troposphere
- 9:40 Michael Sigmund: The ozone hole, the Southern Ocean, and Antarctic sea ice trends
- 10:00 Julie Jones: Twentieth Century behaviour of the Southern Annular Mode
- 10:20 Discussion
- 11:00 *Coffee*
- 11:30 Xiangdong Zhang: Recent rapid changes in Arctic climate
- 11:50 Hiroshi Tanaka: Arctic Oscillation or ice-albedo feedback: A discrepancy in the warming pattern of the IPCC model projections
- 12:10 Discussion
- 12:30 Stock-taking Discussion for Session 3: Led by Ted Shepherd  
(Rapporteur: Julie Arblaster)
- 13:00 *Lunch*

### **SESSION 4 CONVENORS: VLADIMIR KATSOV & JOHN WALSH**

- 14:00 Michael Karcher: On the connection of Atlantic inflow variability and the overflows via the Arctic Ocean loop
- 14:20 Koji Shimada: Influence of activations of sea ice motion and upper ocean circulation on recent Arctic climate change
- 14:40 Mark Serreze: Predictability of the Arctic air temperature field
- 15:00 Discussion
- 15:30 *Coffee*
- 16:00 David Lawrence: The terrestrial response to, and role in, Arctic climate and climate change
- 16:20 Hugh Morrison: Buffering and self-organization of the Arctic cloud-atmospheric boundary layer-surface system
- 16:40 Andrew Slater: Land data assimilation for seasonal prediction and beyond
- 17:00 Discussion (to 17:30)
- 19:00 *Workshop Dinner (sponsored by the Bjerknnes Centre and the University of Bergen)*

## Thursday 28<sup>th</sup>

- 9:00 Alex Hall: A strategy to improve projections of Arctic climate change
- 9:20 Jens Christensen: Arctic climate system modelling: on the role of systematic errors
- 9:40 Annette Rinke & Klaus Dethloff: The role of regional Arctic processes for predictability on seasonal to inter-annual time scales
- 10:00 Discussion
- 10:30 Stock-taking Discussion for Session 4: Led by John Walsh  
(Rapporteur: Vladimir Kattsov)
- 11:00 *Coffee*
- SESSION 5 CONVENORS: TORE FUREVIK & VLADIMIR RYABININ**
- 11:30 Mark Baldwin: Stratospheric impact on seasonal prediction
- 11:50 Yvan Orsolini: Seasonal predictability over the Arctic: exploring the role of boundary conditions
- 12:10 Judah Cohen: Impact of snow cover on seasonal prediction
- 12:30 Discussion
- 13:00 *Lunch*
- 14:00 Laurent Bertino & Francois Counillon: Ocean assimilation and forecasting
- 14:20 Frank Kauker: Seasonal ice forecasting and variational data assimilation with the coupled sea ice-ocean model NAOSIM
- 14:40 Johann Jungclaus: Decadal climate predictions: the North Atlantic and Nordic Seas
- 15:00 Doug Smith: Decadal prediction of the North Atlantic sub-polar gyre and associated climate
- 15:20 Discussion
- 16:00 *Coffee*
- 16:30 Ed Hawkins: Decadal predictability of the Arctic and Atlantic
- 16:50 John Walsh: A probabilistic framework for prediction of Arctic change
- 17:10 Discussion
- 17:30 Stock-taking Discussion for Session 5: Led by Vladimir Ryabinin  
(Rapporteur: Tore Furevik)
- 18:00 End of day

**Friday 29<sup>th</sup>**

***SESSION 6 CONVENOR: TED SHEPHERD***

- 9:00 Rapporteurs' Reports and Discussion: Shepherd, Goose, Marshall
- 10:20 *Coffee*
- 10:50 Rapporteurs' Reports and Discussion: Arblaster, Kattsov, Furevik
- 12:30 *Lunch*
- 14:00 Road Map Discussion: Led by Cecilia Bitz & John Walsh
- 15:30 *Coffee*
- 16:00 Discussion, continued
- 17:00 End of workshop

## POSTERS

| NR  | AUTHOR   | TITLE  |
|-----|--|--|
| 1.  | Laurent <b>Bertino</b>                           | TOPAZ: the MyOcean Arctic forecasting system   |
| 2.  | Cecilia <b>Bitz</b> &<br>Clark <b>Kirkman</b>    | Climate Response to Ozone Trends in an Eddy-Resolving Ocean Climate Model                                      |
| 3.  | Lin-Ling <b>Chen</b>                             | Accumulation over the Greenland Ice Sheet represented in reanalysis data and related atmospheric circulation   |
| 4.  | Igor <b>Esau</b>                                 | The planetary boundary layer feedbacks in polar latitudes  |
| 5.  | Ed <b>Hawkins</b>                                | The potential to narrow uncertainty in regional climate predictions  |
| 6.  | Natalia <b>Ivanova</b>                           | Arctic sea ice variability observed by satellite passive microwave sensors: A comparison of sea ice algorithms |
| 7.  | Kirill <b>Khvorostovsky</b>                      | Decadal elevation changes of the Greenland ice sheet   |
| 8.  | Vladimir <b>Kryjov</b>                           | DJF 09/10, a winter of extremely low Northern Hemisphere Annular Mode: Was it predictable?                     |
| 9.  | Victoria <b>Miles</b>                            | Helheim outlet glacier interaction with the Sermilik Fjord on the East Greenland Coast                         |
| 10. | Yvan <b>Orsolini</b>                             | Cooling of the wintertime Arctic stratosphere induced by the Western Pacific teleconnection pattern            |
| 11. | Svein <b>Østerhus</b> &<br>Tor <b>Gammelsrød</b> | Bipolar Atlantic Thermohaline Circulation (IPY-BIAC)   |
| 12. | Steffen <b>Tietsche</b>                          | Towards sea-ice initialization in coupled climate models   |