

Atmospheric Model Parameterizations in the Polar Regions Workshop

First Circular

Workshop date and venue:

July 12, 2012

**National Center for Atmospheric Research
Boulder, Colorado, USA**

Organized by the International Commission on Polar Meteorology, the workshop will take place immediately following the 7th Antarctic Meteorological Observation, Modeling and Forecasting Workshop (AMOMFW, July 9-11, 2012), <http://www.mmm.ucar.edu/events/antarctic12/index.php>

Sponsored by the International Commission on Polar Meteorology (ICPM) and the National Center for Atmospheric Research (NCAR).

Organizing committee: Irina Gorodetskaya (Catholic University of Leuven, Belgium), Matthew Lazzara (University of Wisconsin-Madison, USA), Thomas Lachlan-Cope (British Antarctic Survey, UK), Maria Tsukernik (Brown University, USA), Jordan Powers (National Center for Atmospheric Research, USA), John Cassano (University of Colorado at Boulder, USA).

Goal: *Bridging the gap between observations and numerical modeling of the polar regions*

Scientific Motivation and Objectives:

When atmospheric models are used to study the sensitivity of surface mass and energy budgets of the polar regions to climatic changes, it is important that all components of the atmospheric hydrologic cycle, as well as turbulent and radiative fluxes are correctly represented. All global and regional weather and climate models without exception suffer from misrepresentation of processes like the aforementioned, with important consequences for the surface mass and energy budgets. E.g., most models are found incapable of sustaining high amounts of liquid water in polar clouds without producing precipitation with consequences for cloud and precipitation properties. Another example is the inability of most models to correctly represent the surface albedo and increased surface longwave warming induced by water vapor and changing cloud properties, all being important players in the Arctic sea ice melt.

In order to gain confidence in the model integrations for the present atmosphere and future climate, a detailed model evaluation is necessary. The new era of observations have started, including new generation space-borne active and passive remote sensing providing accurate information about water vapor, clouds, snowfall and radiation particularly in the polar regions (cloud and precipitation microphysical properties from CALIPSO and CloudSat, integrated water vapor from CHAMP/GPS and

NOAA-AMSU-B, radiative fluxes from MODIS, etc). Also new comprehensive ground-based in-situ and remote sensing, as well as air-borne measurements have been performed at various sites around Arctic and Antarctic. There is an increasing need for assimilating the new data sets into numerical weather prediction models and using them for improving parameterizations within the regional and global climate and weather models. This workshop will bring together the knowledge of recent and long-term observations and model representations of the Arctic and Antarctic atmospheric processes.

Workshop Specifics:

The one-day workshop will consist of presentations followed by topic-focused discussions. We aim at having an exchange of ideas of model validation, improvements of parameterizations and the need for targeted measurement campaigns useful for model improvement. Sample topics to be addressed during the workshop include (but are not limited to):

- Boundary layer and turbulent fluxes
- Meso-scale dynamics
- Hydrologic cycle including, water vapor, clouds and precipitation
- Radiation

Other topics are also most welcome and we look forward to participation of everyone interested in atmospheric model parameterizations in both Arctic and Antarctic!

For more information on the Workshop, please contact:

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Please check the AMOMFW website for future updates about the workshop (the link to the ICPM workshop webpage coming soon).