

ARCTIC MODELING WORKSHOP: Understanding and Prediction

March 14, 2017

[NSF, Arlington VA]

1. Focus on Modeling – Successes, weaknesses. Needs.
2. Scope: Seasonal to decadal variations/trends. Processes: chemistry, aerosols, clouds, radiation, sea-ice. Role of atmosphere and oceans. Subseasonal-to-seasonal predictions e.g., sea-ice extent, thickness. Arctic-midlatitude weather and circulation linkages. Detection and attribution. Gaps in modeling.
3. What are the Centers doing on this topic? Representation of Arctic physics, modeling of Arctic weather and climate, and model simulations.

8.00 Coffee etc.

8.30 Logistics and Introduction to the Workshop [Renu, Ram]

A. State of the Science, Understanding, Predictability, and Predictions

Moderators: Ram, J-F. Raps:

8.45 – 10.15: [4 talks, with each presentation being 20 minutes including 5 minutes Q&A]

Scope: Observed variations and changes. Seasonal prediction perspective – gaps, requirements. Decadal-scale perspective (variability and trends). Summertime Arctic ice features. Arctic reanalyses. Challenges in modeling the Arctic climate.

[Bruno Tremblay (McGill Univ). Cecilia Bitz (Univ. of Washington). Mark Serreze (NSIDC). David Bromwich (Ohio State)]

10.15 – 10.30: Break

B. Current Research and Modeling: Successes and Limitations, and Gaps

Moderators: Gavin, Hendrik. Raps:

10.30– 11.35: Modeling Centers' summaries regarding their work in the Arctic (10 min each including 5 min per Center for discussion, given by an expert from each Center). Scope: Gaps, limitations, 'low-hanging fruits'.

[Winton (GFDL), Ringler (DOE), Grumbine? (NWS), Cullather? (GMAO), X (GISS), Y (NCAR)]

11.40 – 12.40: [4 talks, each presentation being 15 minutes, with 5 minutes Q&A]

Scope: Arctic atmosphere warming. Role of oceans in Arctic climate and variability. Outcomes from recent Arctic meetings. Sea-ice Consortium.

[J. Perlwitz (NOAA/CIRES), R. Zhang (GFDL), M. Patterson (US CLIVAR), Elizabeth Hunke (DOE/LANL)]

12.45 – 1.45: Lunch

C. Future Research & Modeling: Forming strategies based on the identified gaps in knowledge

1.45 – 2.05: Setting the stage for the afternoon discussions [Steve Pawson, Ram]

2.10 – 3.30: Break up into 2 groups. Identifying and framing the key issues.

- Group A (Moderator?, Raps?)– Modeling the Arctic processes and the coupled global-Arctic system
- Group B (Moderator?, Raps?)– Improving the models vis-a-vis observations, and predictions

3.30 – 3.45: Break

3.45 – 5.30: Summaries from Groups A and B. Plenary discussions. Framing the Outcomes and Plans. [Panel: Pawson, Ram, Hendrik, Gavin, J-F., Bader]

Questions for “Outcomes and Plans”: What are the principal challenges for the models to address? How? What can the models accomplish in the next 3 years? What resources are needed? What additional observations may be required?