Workshop on Sea Ice Analysis and Forecasting
Anchorage, Alaska
September 19-21, 2011

Rationale, Objective, Organization

Early in her tenure as Under Secretary of Commerce for Oceans and Atmosphere, Dr. Jane Lubchenco initiated a NOAA-wide effort to determine how NOAA should best respond to the profound changes taking place in the Arctic. The result is the NOAA Arctic Vision and Strategy document [1] that contains six focused goals for near-term action. One of these is to "forecast sea ice", with the objective that "accurate, quantitative, daily forecasts to decadal predictions of sea ice are provided to support safe operations and ecosystem stewardship". This will be important because continued rapid loss of sea ice will be a major driver of large changes across the Arctic. The most recent projections show that the Arctic Ocean could be nearly ice-free in summer before mid-century, affecting marine access, regional weather, ecosystem structure and coastal communities. Improved sea ice forecasts at various scales are needed to reduce risk and improve social and economic decision-making. Improved forecasts will require regular observation of Arctic atmosphere and ocean states, circulation and sea ice characteristics; understanding of the interactions among clouds, radiation, and aerosols; and development of improved coupled atmosphere-ice-ocean models.

An initial workshop on sea ice forecasting was held in May 2010 and brought together several NOAA and external experts to review current activities focused on this topic. The major activity of this workshop was information exchange among the experts based on a series of presentations by each participant. This was very useful in identifying the key players and the state of forecasting capability. The focus of the second workshop went beyond information exchange to identification of the most critical next steps for improving the state of sea ice analysis and forecasting. The workshop organizers will use the outcomes of this workshop as the basis for an implementation plan that will identify the most useful actions that NOAA could take over the next few years to improve its internal sea ice forecasting capability.

Over 45 people registered and participated in this workshop, most for the entire two and one-half day period. The first day was devoted to reviewing the current forecast capabilities at three temporal scales: 1) the "weather" scale of 0 to 14 days; 2) the seasonal to interannual scale; and 3) the decadal scale. A relevant expert coordinated the presentations at each of these scales. During the second day, break out groups were formed to discuss four themes: 1) user and stakeholder needs; 2) current state of predictability at each scale; 3) current state of in situ observations and unmet needs; and 4) current state of satellite observations and improvements needed. After plenary review of these four thematic discussions, two plenary discussions were

[1] Available at http://www.arctic.noaa.gov/

held on requirements for model improvements and requirements for observational improvements.

On the final day, two breakout groups were formed to develop specific recommendations and priorities for improving sea ice forecasting at 1) the “weather” scale and 2) the seasonal scale.