

**Ensemble Predictions of September 2008 Arctic Sea Ice Conditions (Summary)**

Recommended by an international workshop supported by the US SEARCH and the European DAMOCLES program, a community-wide Arctic Sea Ice Outlook for September 2008 was being initiated (<http://www.arcus.org/search/seaiceoutlook/>). We participated in this initiative by conducting ensemble seasonal predictions of arctic sea ice extent and spatial distribution of ice thickness and concentration. We have also set up a web page to support this activity ([http://psc.apl.washington.edu/zhang/IDAO/seasonal\\_outlook.html](http://psc.apl.washington.edu/zhang/IDAO/seasonal_outlook.html)). The ensemble predictions are based on a synthesis of a model, NCEP/NCAR reanalysis data, and satellite ice concentration data. The model is the Pan-arctic Ice-Ocean Modeling and Assimilation System (PIOMAS, Zhang et al., 2008), which is forced by NCEP/NCAR reanalysis data and assimilates satellite ice concentration data. The ensemble consists of seven members each of which uses a unique set of NCEP/NCAR atmospheric forcing fields from recent years, representing recent climate, such that ensemble member 1 uses 2001 NCEP/NCAR forcing, member 2 uses 2002 forcing, ..., and member 7 uses 2007 forcing. Each ensemble prediction starts with the same initial ice-ocean conditions at a given starting date of prediction before September 2008. The initial ice-ocean conditions are obtained by a retrospective simulation that assimilates satellite ice concentration data. More details about the prediction procedure can be found in Zhang et al. (2008).

**The September 2008 sea ice extent was predicted to be 4.5/4.6/5.1 million square km in May/June/July**, based on the ensemble median of the 7 ensemble members. The NSIDC reported that the minimum summer 2008 ice extent is **4.52** million square km. To illustrate the results, the September 2008 sea ice conditions predicted in June are presented, followed by a summary.