

Pan-arctic and regional (the Northwest Passage) outlook of 9/2011 sea ice from 8/1/2011

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Pan-arctic outlook: The predicted September 2011 ice extent is **4.6 +/- 0.6 million square kilometers**. This is based on numerical ensemble predictions starting on 8/1/2011 using the Pan-arctic Ice-Ocean Modeling and Assimilation System (PIOMAS). 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 2004 NCEP/NCAR forcing, member 2 uses 2005 forcing ..., and member 7 uses 2010 forcing. Each ensemble prediction starts with the same initial ice-ocean conditions on 8/1/2011. The initial ice-ocean conditions are obtained by a retrospective simulation that assimilates satellite ice concentration data and sea surface temperature. No data assimilation is performed during the predictions. More details about the prediction procedure can be found in Zhang et al. (2008)

http://psc.apl.washington.edu/zhang/Pubs/Zhang_etal2008GL033244.pdf. Additional information can be found in http://psc.apl.washington.edu/zhang/IDAO/seasonal_outlook.html.

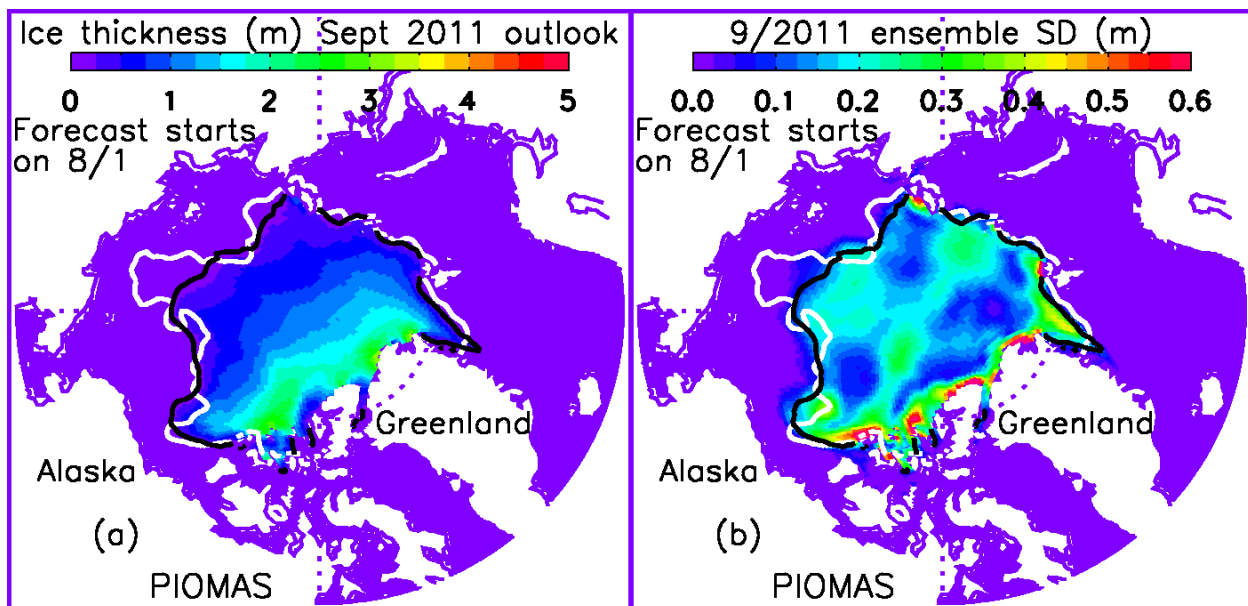


Figure 1. (a) Ensemble prediction of September 2011 sea ice thickness and (b) ensemble standard deviation (SD) of ice thickness which shows the uncertainty of the prediction. The white line represents satellite observed September 2010 ice edge defined as of 0.15 ice concentration, while the black line model predicted September 2011 ice edge.

Regional outlook (the Northwest Passage): The Northwest Passage (NWP) is again predicted to be completely open in September 2011 (Fig. 2a). Also, there is no significant uncertainty along most of the NWP as reflected in the standard deviation field (Fig. 2b). This suggests again that the probability of being ice free in most of the NWP region in September 2011 is quite high.

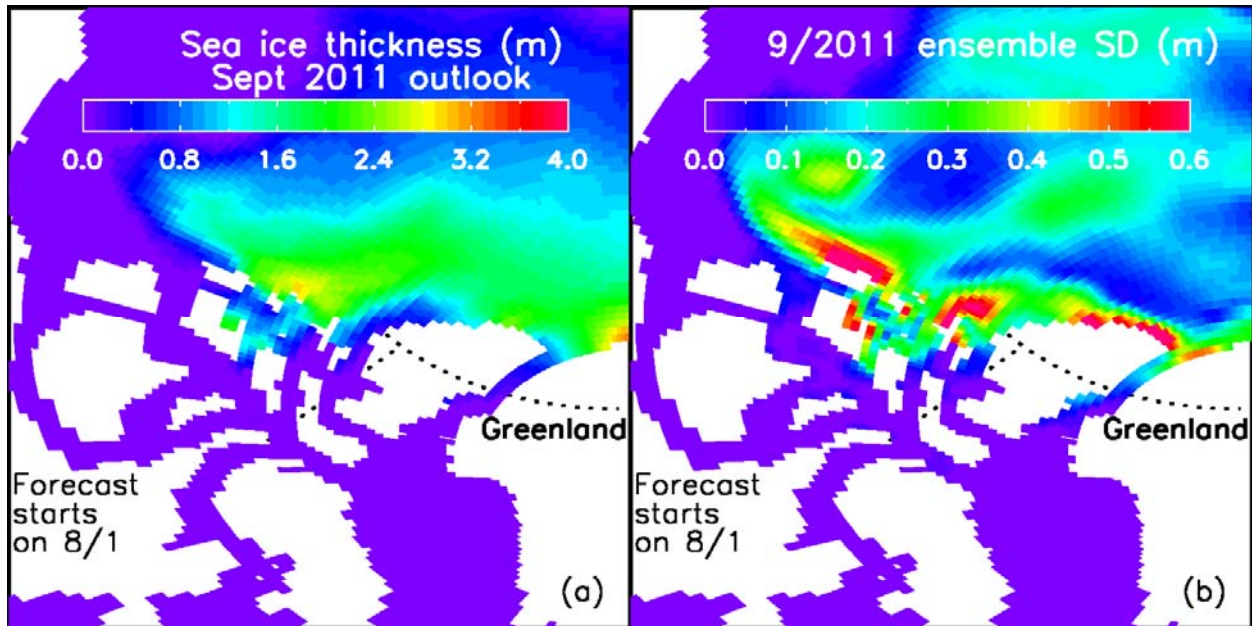


Figure 2. (a) Ensemble prediction of September 2011 sea ice thickness in the Northwest Passage region and (b) ensemble standard deviation (SD) of ice thickness which shows the uncertainty of the prediction.