

September 2009 Sea Ice Outlook: July Report
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The predicted mean ice extent in September is 3.99 ± 0.30 million km^2 , a record low; it is based on the fractional area of ice and open water less than 0.4 m thick (G0.4) obtained from model retrospective simulations. This prediction is substantially lower than that from May data (4.98 ± 0.50 , based on G1.9). The anomalous thin ice in the Beaufort Sea is most influential in making the prediction, but widespread anomalies in this measure contribute, including an area in the Barents Sea.

The three maps in the attached figure show a) the correlation of the September mean ice extent with the G0.4 measure of the ice thickness for 1987-2008, b) the anomaly of the G0.4 measure in June 2009, and c) the product of a) and b). The integral of c) is used as the predictor to obtain the estimate of the September ice extent.

The mean ice thickness and the G1.0 measure give larger predictions but they have larger error bars (4.87 ± 0.46 and 4.53 ± 0.33 respectively). The spatial patterns of the region most influencing the prediction, thin ice in the Beaufort, are similar. The fact that the different predictors give quite different predictions lowers the reliability of the forecast. However, the fit to past observations (blue diamonds in the top panel) for the G0.4 measure is very good in the last three years.

The 1-sigma error bars are determined from the RMS error of the linear regression fit to past data. The errors are likely underestimated because of the changing statistical properties of the system.

Predictions for September 2009 from June

Observed and Predicted Ice Extent from the Sea Ice Index

