

Sea Ice Outlook August 2009

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Extent projection

4.62 million km² based on the ensemble mean.

August set-up

The methodology of our approach is still the same as for our July Outlook which we describe in the July Outlook report¹. For the August Outlook we have updated the initial conditions of the ensemble by integrating the ocean/sea-ice model RCO until the end of July (29th), forcing the model with atmospheric data from ECMWF.

Ensemble results

The 20 different realizations of the total sea-ice extent for September 2009, with a 1.1 million km² bias removed, are shown in sorted order in Figure 1. The ensemble mean value is 4.62 million km² which is basically the same as for the July Outlook. The standard deviation has decreased somewhat from 0.54 to 0.39 million km².

The individual ranking between the 20 different years has also changed, as expected, but the anomalous atmospheric conditions of 2007 still clearly produces the lowest sea-ice extent prediction and all predictions are below the third lowest observed sea-ice extent, from the summer of 2005.

Assuming that the realizations belong to a Gaussian distribution we can state probabilities that the sea-ice extent will fall below a certain value by calculating percentiles.

The probability that the 2009 September mean total sea-ice extent will fall below,

2007 satellite derived all-time minimum (4.28 million km²) is 21 %

2008 second lowest satellite derived (4.67 million km²) is 56 %

2005 third satellite derived (5.57 million km²) is 99 %.

¹ http://www.arcus.org/search/seaiceoutlook/2009_outlook/july_report/downloads/pdf/panarctic/9_Pemberton_etal_JulyOutlook_JuneData.pdf

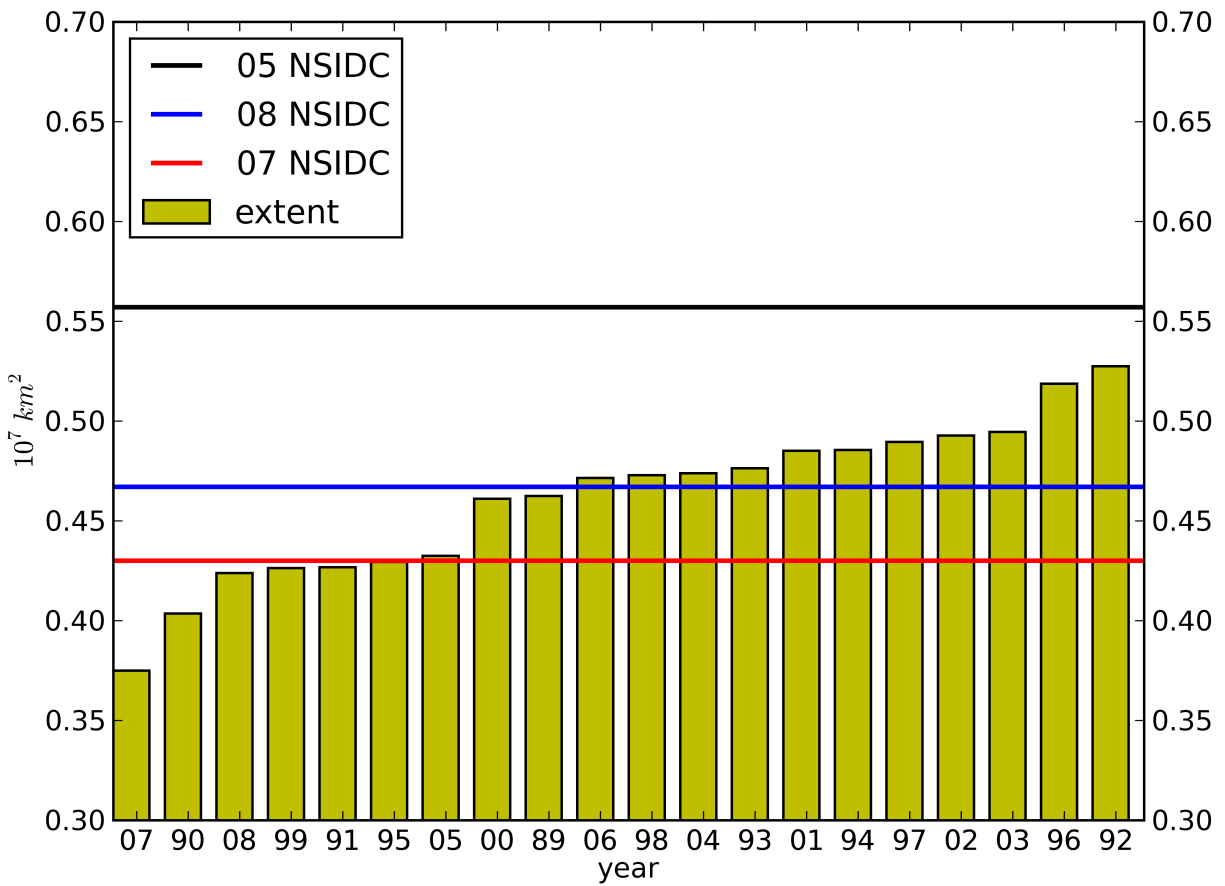


Figure 1. The 20 realizations of September 2009 mean sea-ice extent in sorted order. The horizontal lines show the minimum of 2005 (black), 2007 (red) and 2008 (blue) (data from www.nsidc.org).