

SIO 2011: July Outlook for September Arctic Sea Ice Extent Minimum

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Projected Minimum Extent, July Outlook: 4.33 million km² on September 7, 2011

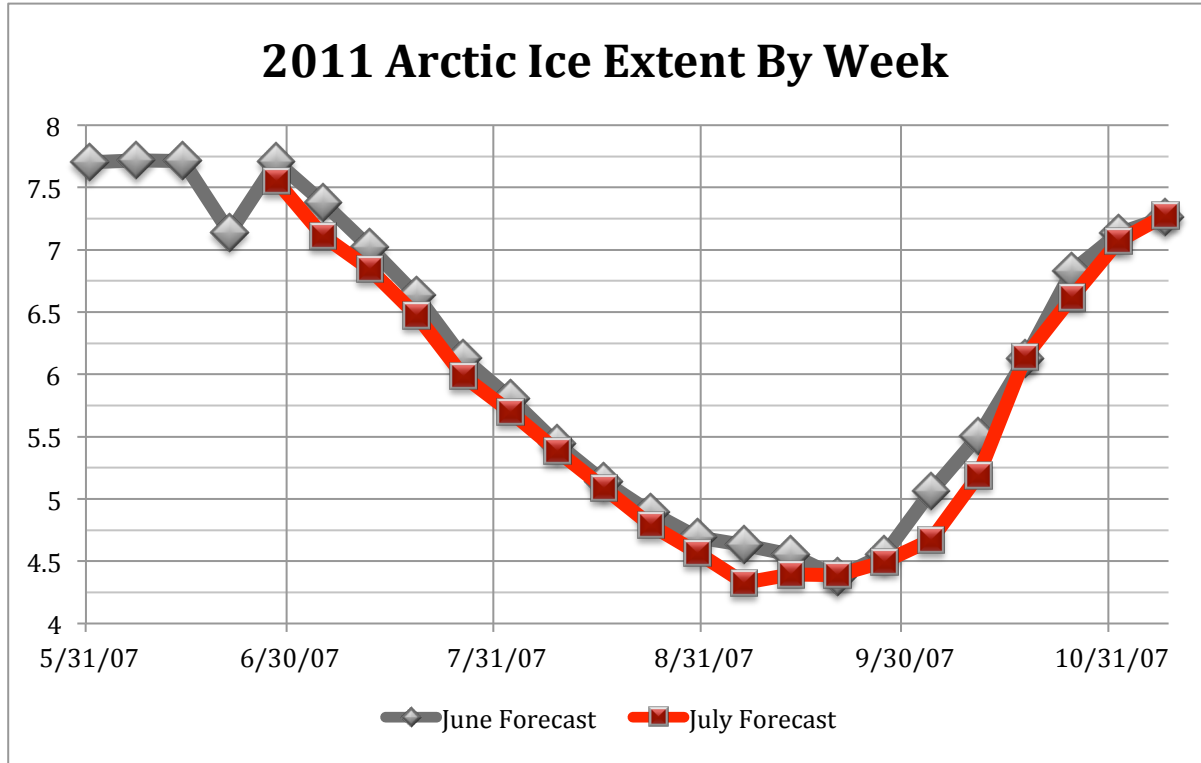
Projected Minimum Extent, June Outlook: 4.33 million km² on September 20, 2011

Method: Statistical Forecast Model (NIC Arctic Regional Ice Forecast System)

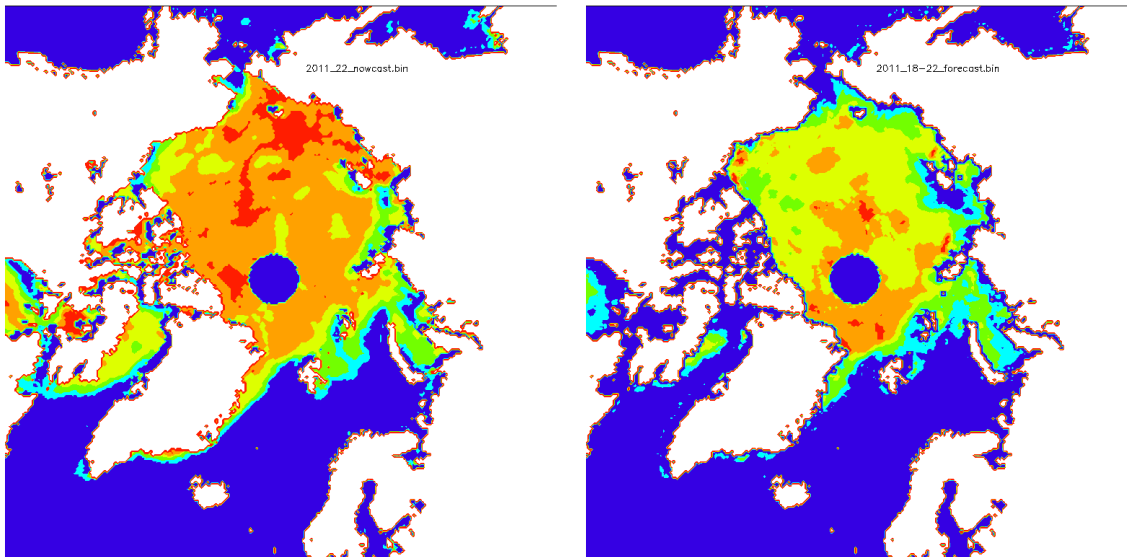
In the July update, using sea ice conditions from the end of May (June used end of April) as well as air temperatures and sea level pressures, the timing of the minimum is moved forward two weeks, although the value remains the same as before. This is because the update predicts slightly lower ice extent through July and August which does not decelerate until the second week of September, rather than the first as in the June Outlook.

The minimum forecast value may be constrained by observations. That is, since the projection is based on the previous 10 years' observations, the value can be no higher than the highest ice amount and no lower than the lowest ice amount in the past 10 years. The forecasts so far are robust in predicting close to near-record minimums. It must also be noted that the Outlook does not project conditions in the Canadian Archipelago; it has not been determined how much lower the ice extent is because of this.

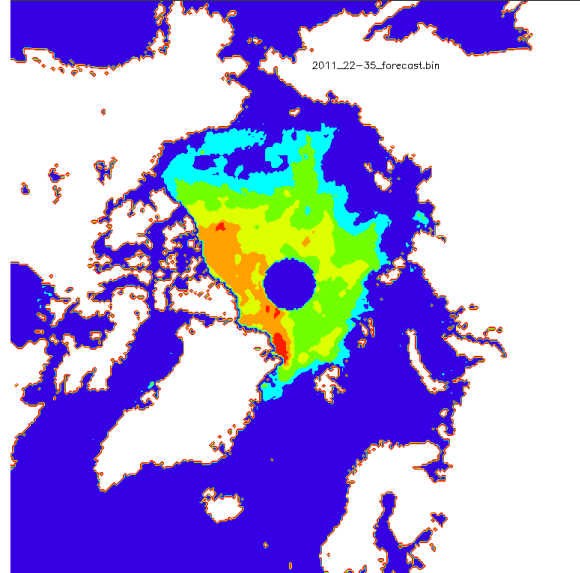
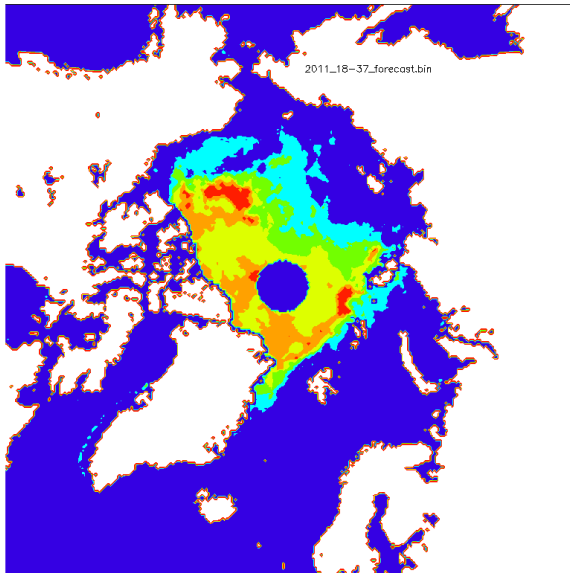
Since the July Outlook also suggests a delayed refreezing of the ice compared to June, the possibility exists that a record low could be seen. In 2010, the July Outlook was the lowest projected value and too low compared to the actual value. A thorough re-examination of ARIFS over the past 10 years could better characterize error in the model.



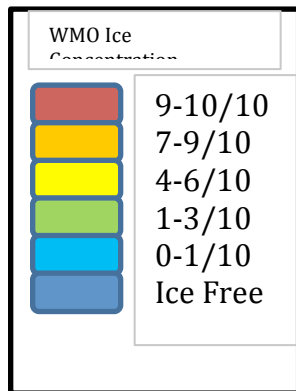
Projected sea ice extent by week, in millions of square kilometers.



Sea ice extent and concentration for 6/1/2011 from SSM/I (left) and projected from 5/1/2011 conditions in the June Outlook (right). The ARIFS model shows a bias toward lower ice concentration resulting in lower ice extent than observed.



Projected sea ice extent and ice concentration minimums from the June Outlook (21 Sep, left) and July Outlook (7 Sep, right).



WMO Sea Ice Color codes for Ice Concentration.

(CAVEAT: This is not a forecast and should not be interpreted as rules for navigation. Only ice-capable ships with experienced ice pilots should attempt navigation in the Arctic.)