SEA ICE OUTLOOK AUGUST CONTRIBUTION

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Executive Summary

This method is a simple statistical method that uses previous years' daily rates of extent change to project the 2015 daily extent through the end of September. The monthly average is then calculated from the September daily extents. This year, the last ten years (2005 – 2014) are used for the projection. This method, initialized on 31 July, yields a September 2015 extent of 4.88 (±0.43) million sq km, which is lower and more constrained than the earlier submitted July contribution of 5.09 (±0.62) million sq km.

Type of Projection = statistical

September 2015 monthly average projection = 4.88 (±0.43) million sq km

Explanation of Method

This method is a simple statistical method that uses previous years' daily rates of extent change to project the 2015 daily extent through the end of September. The monthly average is then calculated from the September daily extents. This year, the last ten years (2005 – 2014) are used for the projection because these years are more representative of recent conditions than using all years in the 35-year time series.

This method yields a September 2015 extent of 4.88 (±0.43) million sq km. This is reduced with a lower standard deviation from the July submission 5.09 (±0.62) million sq km. It is not surprising that the range in values, calculated from the standard deviation of the ten years, is reduced as the shorter time span constrains the potential variability. However, the range is still fairly large, due to the limited number of years used and the still significant amount of variability in daily extent change rates between 1 August and 30 September. Using the standard 1981-2010 thirty-year climatology, the September extent is 5.08 million sq km. The lowest projected extent (from the last ten years), which is from the 2012 rates, is 4.10 million sq km, while the highest, from 2006 rates, is 5.39 million square kilometers. These are lower than the July contribution, most particularly the high end, which is 800,000 sq km lower than it was projecting from 1 July. The daily extent trajectories

for the two averages and the high and low years from the last decade are provided in the figure below.

The expected skill is greater than the projection from the beginning of July because the envelop of potential ice loss is more constrained with the shorter time period, though there is still a large range of extent loss rates through the end of September. The value in this method is that it provides a reasonable envelop of physically realistic September extents and as September approaches, the envelop of possible extents narrows and the method hones in on the final observed extent. An updated projection at the beginning of September, using 2015 data through 31 August, should provide a fairly narrow range of possible September extent values..

Week of Daily Minimum Extent

The date of the minimum extent of the 2005-2014 average is 19 September, with a range between 11 September and 22 September. The mode date is 17 September and the median date is 16 September. Thus, the expected minimum date is during the week of 12-18 September.