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NSIDC's outlook for the 2008 September sea ice minimum:

September minimum sea ice extent: 3.48 ± 0.62 million sq km (i.e., a low estimate of 2.86 and a high estimate of 4.10 million sq km). This compares to the record minimum of 4.13 million square km set in mid September of 2007 as determined from NSIDC's analysis.

This estimate is based on survival rates for ice of different age classes through the summer, as determined by the Maslanik et al. (2007) approach published in GRL. Specifically, the estimate is calculated by multiplying the average (for the period 1985-2007) amount of ice that does not survive the summer (between the March maximum and the September minimum) by this year's March extent, with the range in the estimates from the ± 1 standard deviation of the survival rates.

This is a purely statistical estimate and does not take into consideration initial conditions of the ice (other than the March extent). The survival rate is simply assessed from the March-September difference in ice extent for different age categories; thus it aggregates the effects of melt and dynamic contribution to the loss of ice. A cooler than normal summer and/or a circulation pattern that tends to keep ice in the Arctic and/or produce a less compact ice cover will allow a greater amount of ice to survive and the minimum to be on the high end of the range. A warm summer and/or circulation that cause ice loss and/or a more compact ice cover will yield a minimum extent on the low end of the range.

The range of estimates is based simply on the standard deviation and is assumed to be uniform above and below the average, but there are reasons to believe that may not be appropriate this year. First, the low end of the range may include the melt of thicker, older multiyear ice that may be less likely to disappear. Second, this year there is a significant amount of first-year ice at higher latitudes. Because this ice is so far north, it will tend to be less prone to melt than first-year ice in more typical southerly locations. Thus, a greater than normal amount of first-year ice may survive this summer, which also would tend to make the higher part of the range more likely than the lower part of the range.

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