Julienne Stroeve, Mark Serreze, Walt Meier, and Ted Scambos
July 2008 Sea Ice Outlook: Report Based on July Data

1. Julienne Stroeve, Mark Serreze, Walt Meier and Ted Scambos
2. Estimate of sea ice extent for the month of September 2008: Our estimate has been revised. Our previous estimate was based on survival rates of first year ice. The revised estimate is based on the assumption of climatological daily rates of decline throughout the remainder of the melt season. Assuming average rates of decline, the September 2008 ice extent would be 5.56 million sq-km, falling between the second lowest ice extent, which occurred in September 2005 (5.32) and the third lowest, which occurred in September 2002 (5.64). Assuming a rate of decline one standard deviation faster than normal, the September 2008 ice extent would be 4.56 million sq-km.
3. Principal Method used for Outlook: The estimate is based on using sea ice extent on July 31, 2008 as an initial value, then projecting extent forward using the average daily rate of decline throughout the rest of the melt season. The average daily rate of decline was calculated using data from 1979 through 2006.
4. To estimate the range of possibilities, use was also made of the +/- 1 standard deviation of decline rates through the remainder of the melt season (Figure 1). The lower dashed line shows extent based on decline rate one standard deviation faster than normal, the middle dashed line shows extent based on average decline rates, while the upper dashed line shows extent assuming decline rate one standard deviation slower than normal.

   Although the June 2008 ice extent was similar to that seen in 2007, the observed rate of decline slowed in July, resulting in a monthly averaged sea ice extent for July 2008 that was 0.90 million sq-km above 2007. If the sea ice continues to decline at the average daily rates of decline throughout the rest of the summer, the minimum extent will be between the second-lowest in the satellite record, which occurred in 2005, and the third-lowest, which occurred in 2002. Even at a rate one standard deviation faster than normal, the extent will not fall below last year's minimum value. Based on these estimates, it now appears unlikely that we will set a new record low.

   However, as of this writing, there has been a sudden drop in ice extent. A strong low pressure system in the Beaufort, first noted on 29 July 2008, has persisted through at least August 3. It appears that initially, the low pressure system slowed the drop in ice extent by promoting ice divergence. However, in the first few days of August, it now appears the cyclone is fostering ice loss through mechanical ice breakup and enhanced melt. A large area of reduced ice concentrations north of Alaska apparent in AMSR-E images composites is consistent with strong winds fostering wave action and large horizontal heat transports. NSIDC will be monitoring the situation closely. See http://nsidc.org/arcticseaicenews for updates.

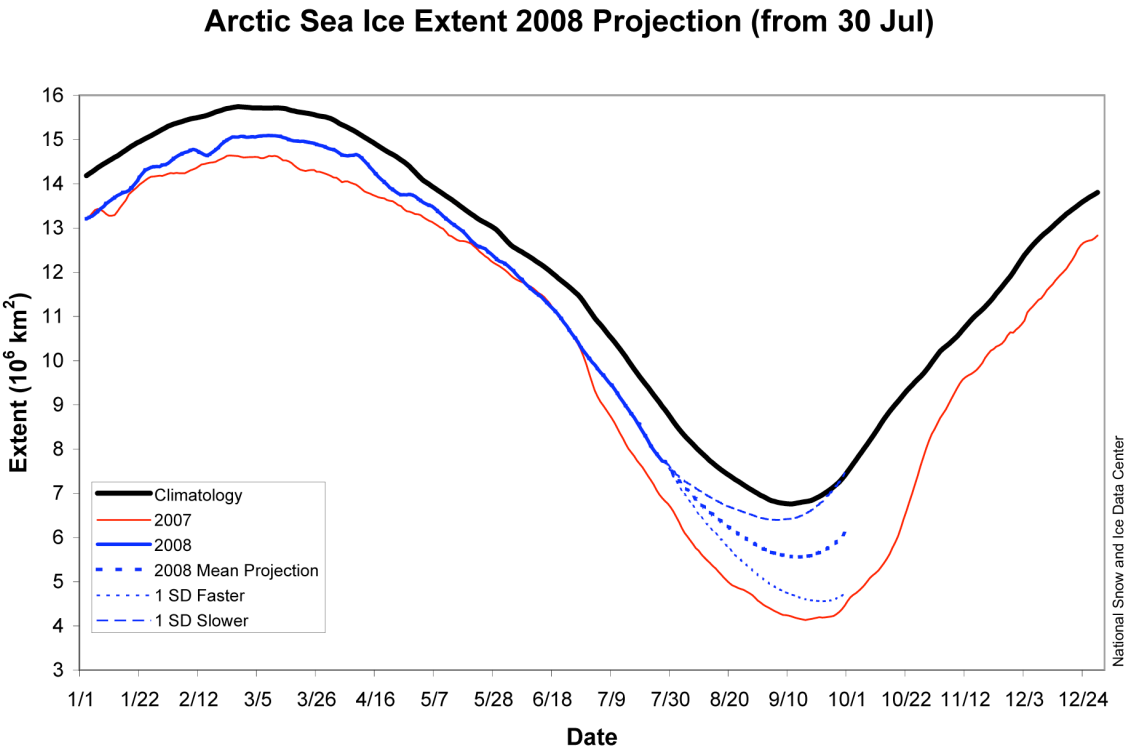

Figure 1. Range of Arctic sea ice extent through 30 September based on average decline rate and decline rates that are 1 standard deviation faster and slower.