

September 2009 Sea Ice Outlook: August Report
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Sunny weather was seen over the Arctic Ocean in the former half of July. It seems to have promoted sea-ice melting to some extent. The sea level pressure pattern during the June–July period also seems to be similar to that in 2007 when the historic sea-ice reduction occurred. However, a lot of sea-ice still remains in the East Siberian Sea this year. Considering the smallest fraction of multi-year ice this spring, the annual minimum extent of sea-ice this year could be larger than that of 2007 (4.3 million square kilometers) and similar to or a little bit smaller than that of last year (4.7 million square kilometers).

1. Extent Projection

4.6 million square kilometers

2. Methods/Techniques

A diagnosis based on the analysis of remote sensing (AMSR-E and MODIS) data.

3. Rationale

Cloudiness over the whole arctic region was estimated from MODIS data. Also, AMSR-E sea-ice concentration was used for estimating sea-ice extent which is available at <http://www.ijis.iarc.uaf.edu/cgi-bin/seaice-monitor.cgi?lang=e>.

High pressure pattern and thus low cloudiness condition persisted over the Alaskan and Canadian sectors of the Arctic Ocean. Thus, downward shortwave radiation in this June to July seems to be large. The AMSR-E derived sea-ice extent now became smaller than the average of the recent 6 years (2003-2008).

http://www.ijis.iarc.uaf.edu/en/home/seaice_extent.htm

4. Supplemental images

Attached are the images on which the diagnosis is based.

Figures 1A, 1B, and 1C. Two-month (June–July) averaged cloudiness anomalies in the Arctic of the past three years (a) 2007, (b) 2008, and (c) 2009 derived from MODIS data. The anomalies are deviations from the 10-year average (2000-2009). Contour lines indicate the spatial pattern of sea level pressure taken from the NCEP/NCAR Reanalysis data set.

Figure 2. Seasonal variations of the arctic sea ice extent during the last 7 years.

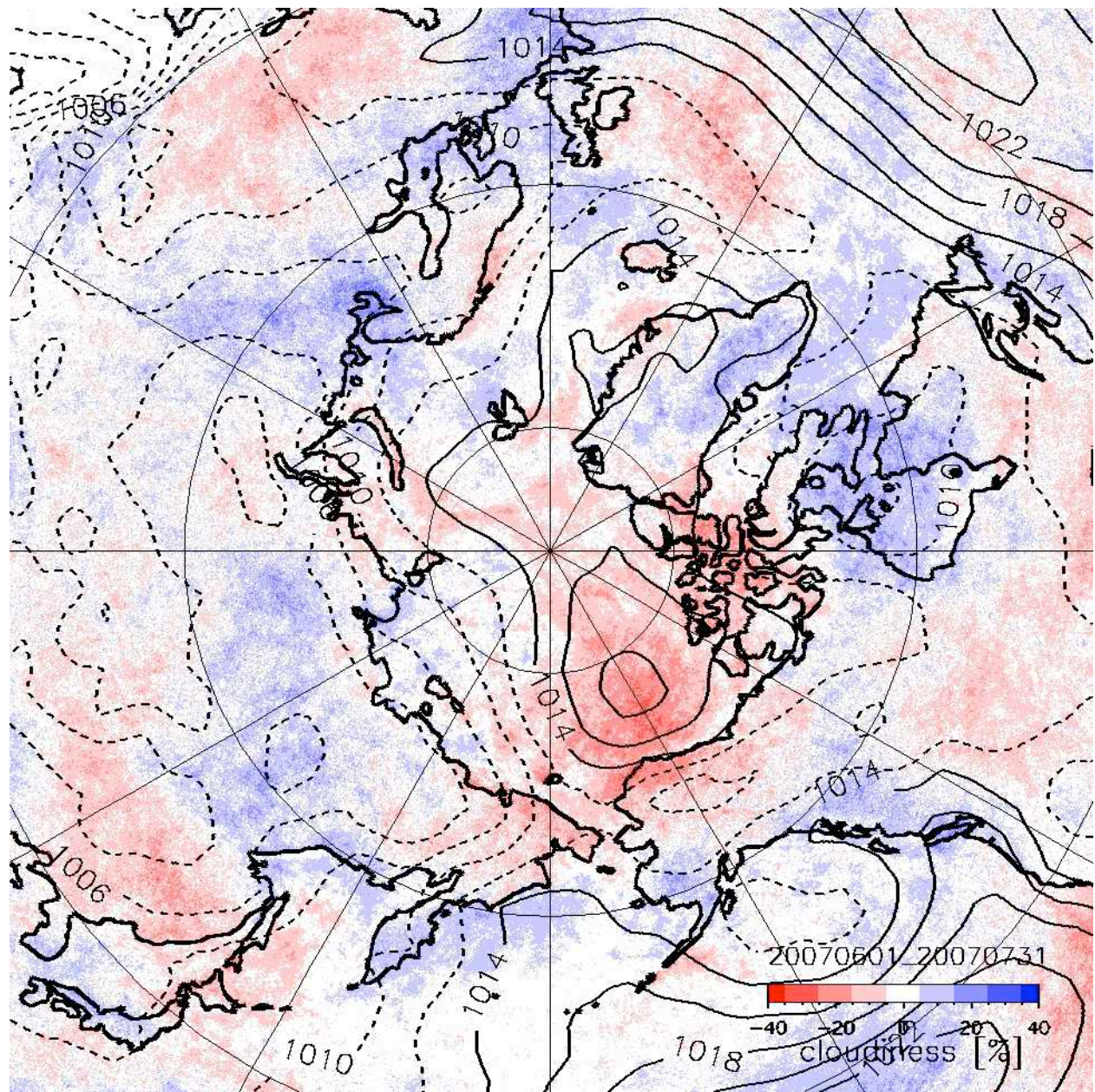


Figure 1A. Two-month (June–July) averaged cloudiness anomalies in the Arctic of 2007 derived from MODIS data. The anomalies are deviations from the 10-year average (2000–2009). Contour lines indicate the spatial pattern of sea level pressure taken from the NCEP/NCAR Reanalysis data set.

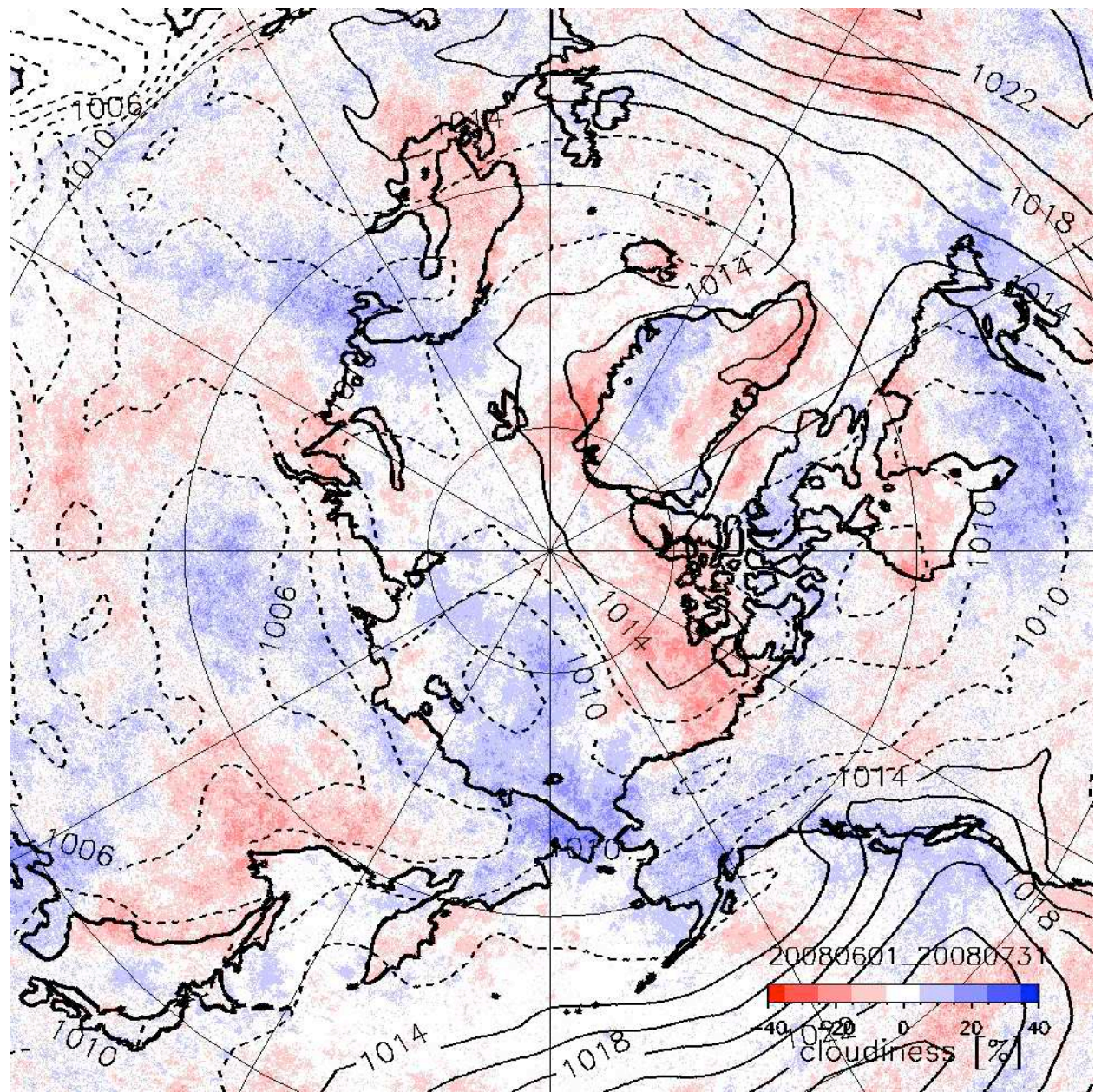


Figure 1B. Two-month (June–July) averaged cloudiness anomalies in the Arctic of 2008 derived from MODIS data. The anomalies are deviations from the 10-year average (2000–2009). Contour lines indicate the spatial pattern of sea level pressure taken from the NCEP/NCAR Reanalysis data set.

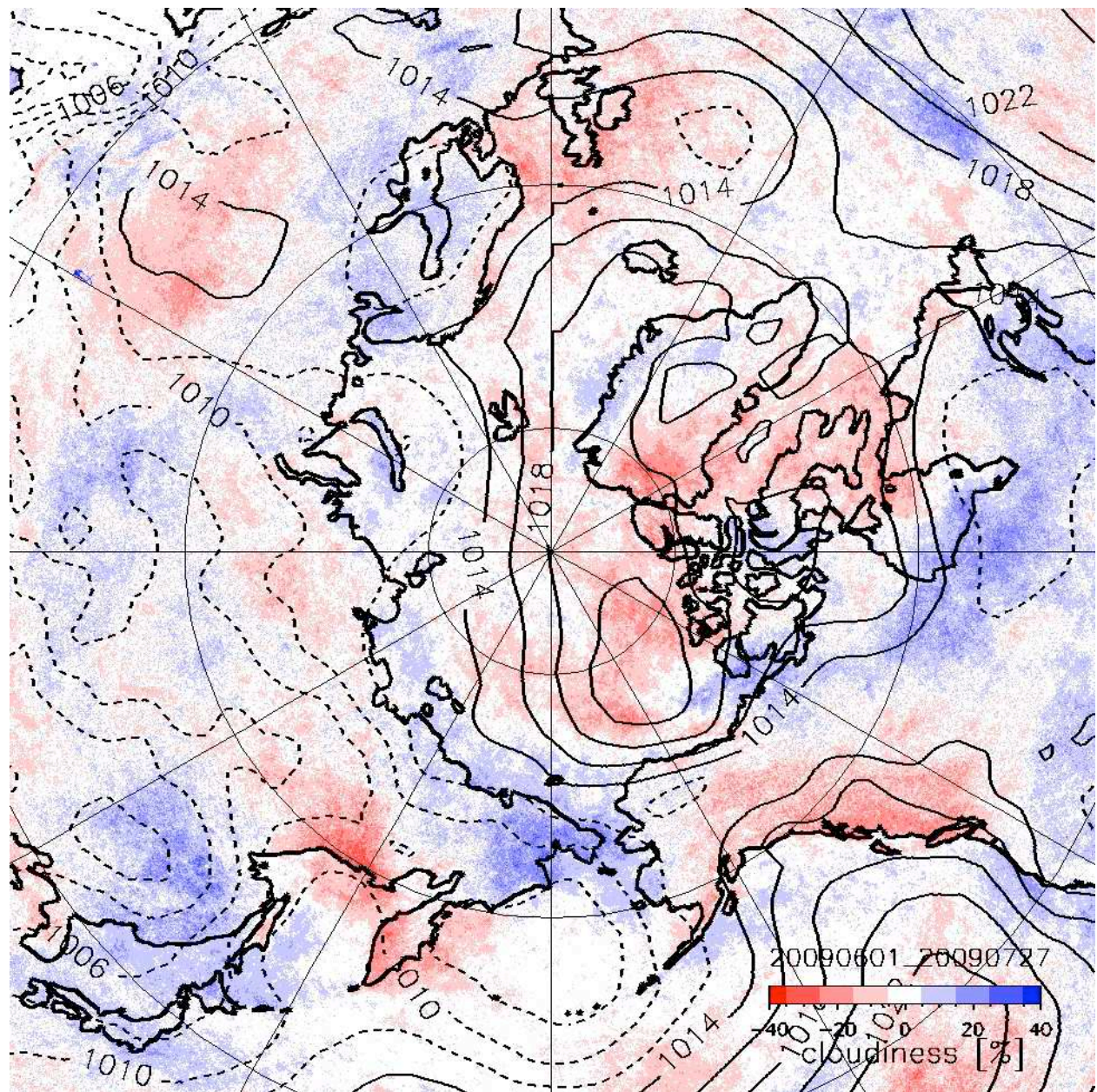


Figure 1C. Two-month (June–July) averaged cloudiness anomalies in the Arctic of 2009 derived from MODIS data. The anomalies are deviations from the 10-year average (2000–2009). Contour lines indicate the spatial pattern of sea level pressure taken from the NCEP/NCAR Reanalysis data set.

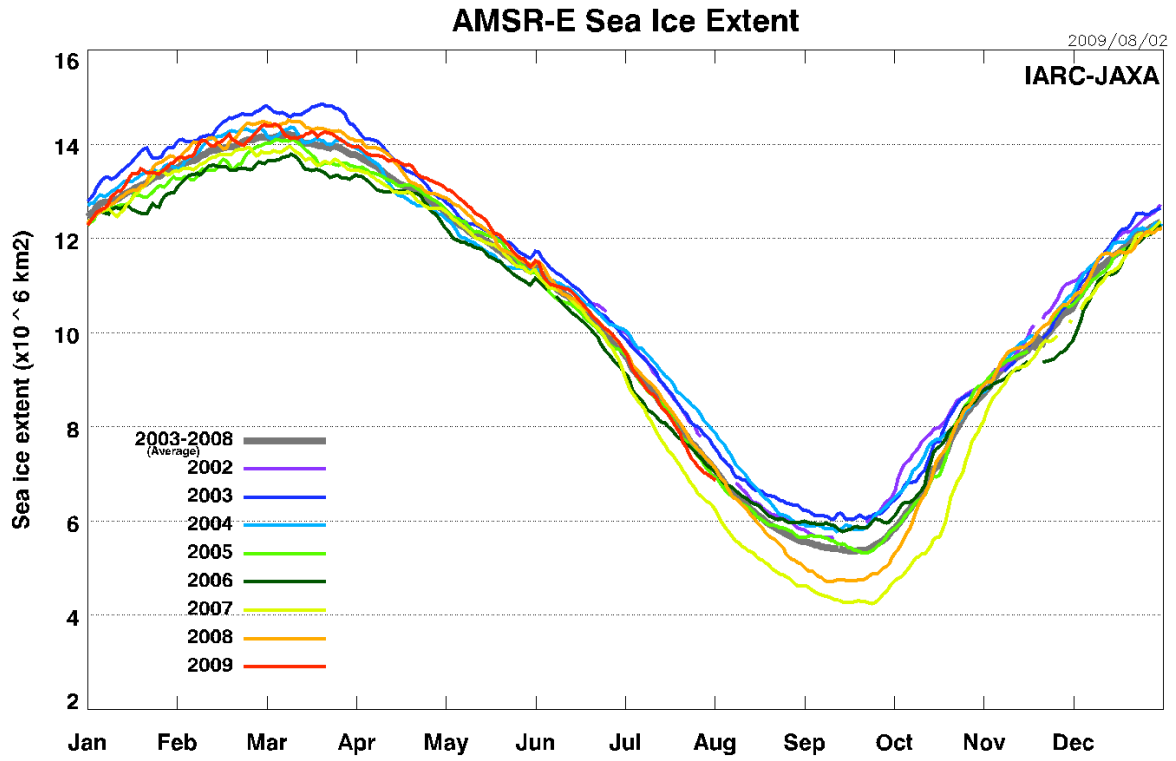


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