

Antarctic Sea Ice Observations for Year 2007

Year 2007's sea ice extent, concentration and timing of sea ice advance for the months February to September were analyzed within the context of variability observed over 1979-2007. The analyses were based on passive microwave satellite derived sea ice observations available from the National Snow and Ice Data Center in Boulder Colorado (www.nsidc.org).

Monthly average sea ice concentration for February to May, 2007 (**Figure 1a**) and June to September 2007 (**Figure 1b**) show regionally where the ice edge for the month in question (white dotted contour) was equatorward/poleward of the 29-year mean (solid white line). Based on the 29 year time series (1979-2007), the following rankings were observed for monthly averaged Southern Ocean sea ice extent from January to August 2007: January 2007 was the fourth lowest January observed over 1979-2007; February the second lowest; March and April the fourth lowest; May the second lowest, June the fourth lowest, July the third lowest, and August the lowest. In general the western Weddell and western Ross Sea regions showed near to above average sea ice extent. In contrast, the Bellingshausen-Amundsen Sea region showed well below average sea ice extent, with the following monthly rankings: January and February were the fourth lowest; March was the lowest, April was the second lowest; May through July were the lowest; and August was the fifth lowest. Sea ice extent averaged over September 1-18, 2007 (the data available before leaving port) showed September to be the lowest over 1979-2007 for the Bellingshausen-Amundsen Sea region. However, September's ranking may change slightly when we include days 19-30 in the monthly average, but that will have to wait until we return to port and can download those data.

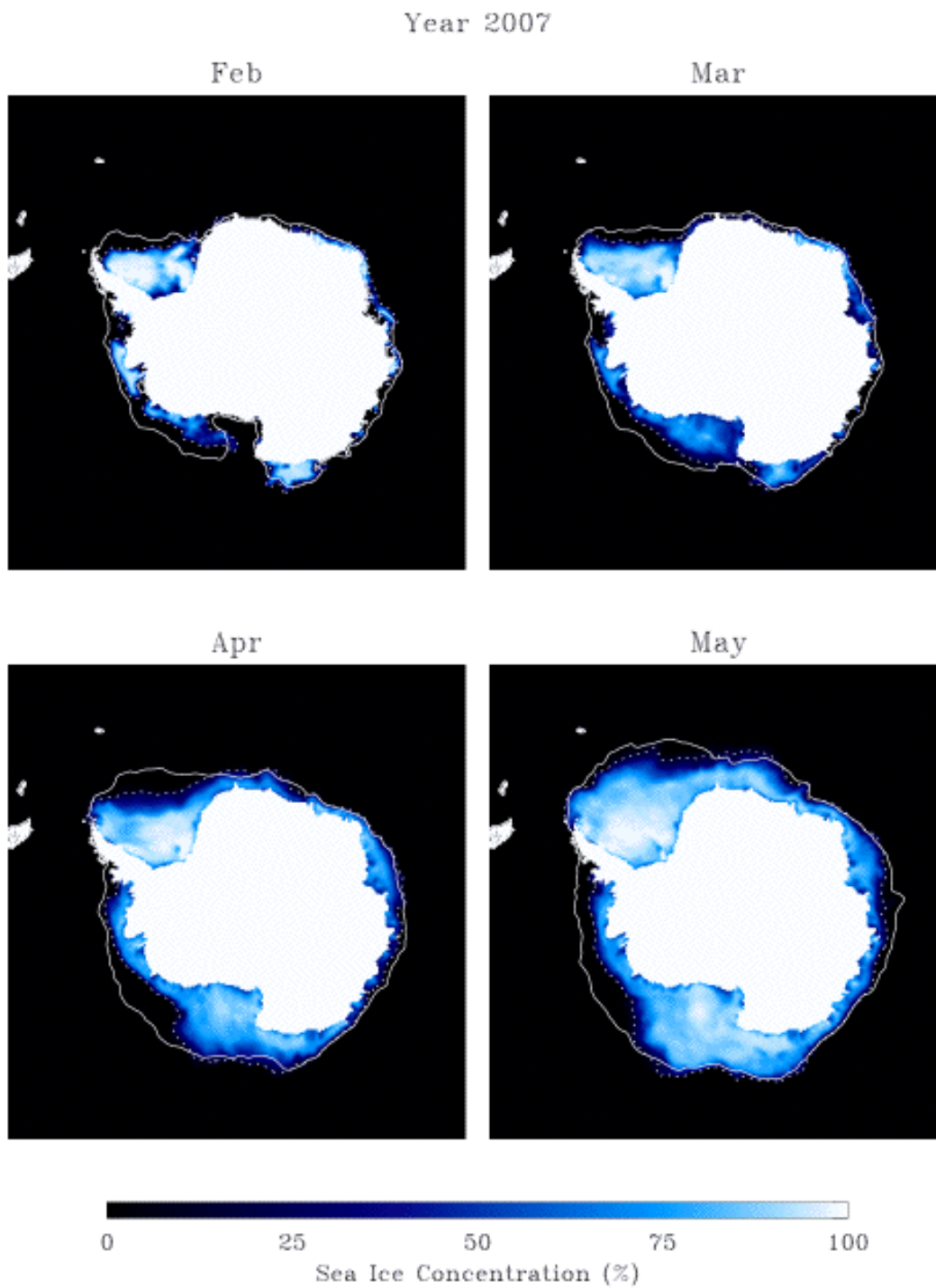


Figure 1a. Monthly averaged sea ice concentrations for Feb-May. Dotted contour outlines the ice edge for the month in question, the solid contour is the ice edge based on the 1979-2007 mean.

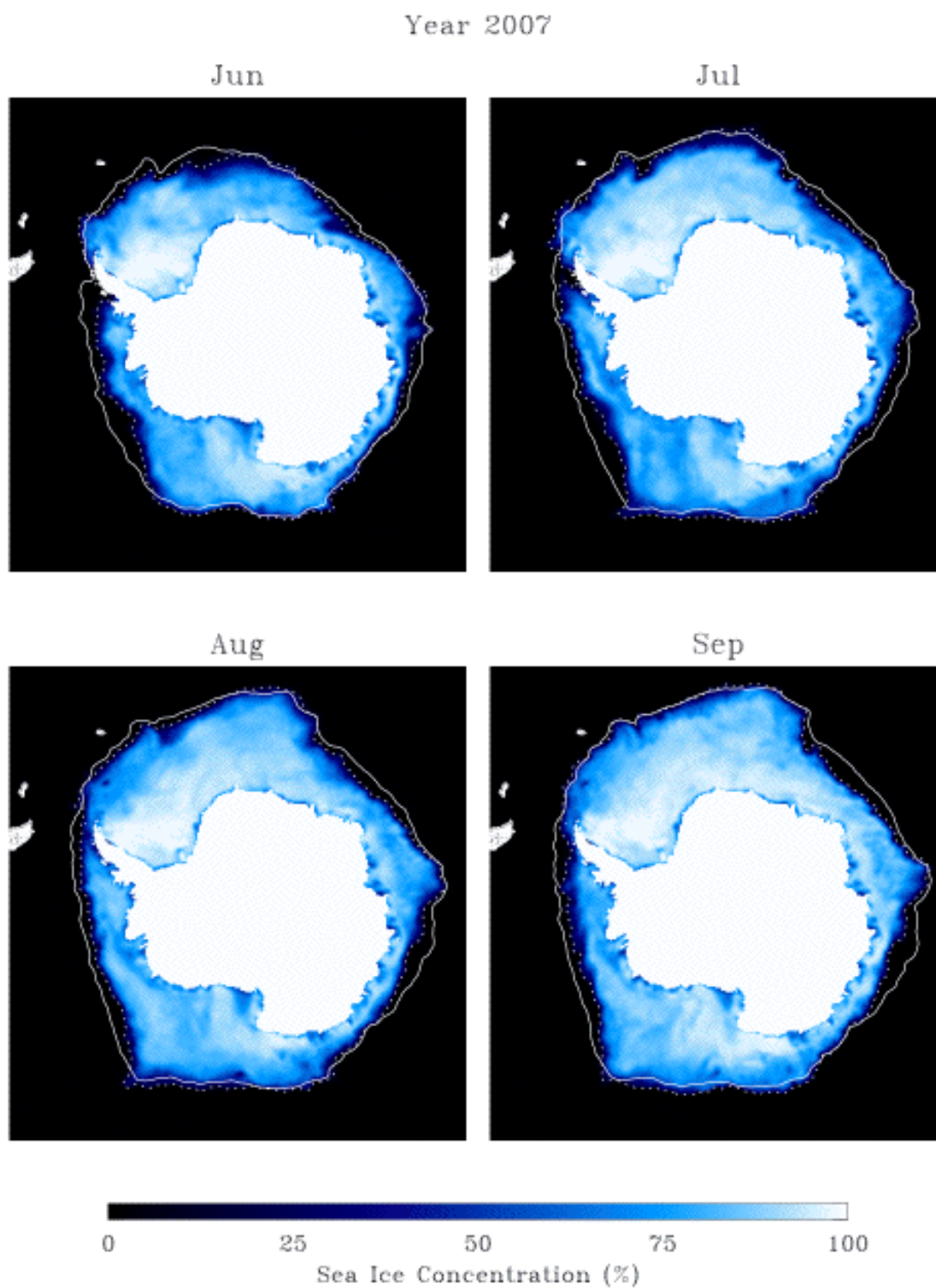


Figure 1b. Monthly averaged sea ice concentrations for Jun-Sep. The dotted contour outlines the ice edge for the month in question, the solid contour is the ice edge based on the 1979-2007 mean.

As seen in the monthly sea ice concentration images, the ice edge in the Bellingshausen-Amundsen Sea region was well poleward during the months of sea ice advance (Feb-Sep). Using the daily sea ice concentration data, the day of sea ice advance (in year day) was recorded for every location in the daily sea ice concentration images for each year. Anomalies in the timing of sea ice advance were determined by subtracting the mean (1979-2007) day of sea ice advance from the day of advance for each location in 2007 (**Figure 2**). Positive day of advance anomalies show where the sea ice advance in 2007 was later than usual; negative anomalies where the sea ice advance was earlier than usual. As can be seen in Figure 2, the advance in most of the Bellingshausen and Amundsen Sea region was up to 80+ days later than the 29-year mean. Sea ice advance also was late in the East Antarctic sector between 90-130E where the RVIB Aurora Australis conducted an IPY research cruise during August-September.

