

# Investigation of a recent dramatic late-summer Arctic cyclone using the NCEP Climate Forecast System Reanalysis

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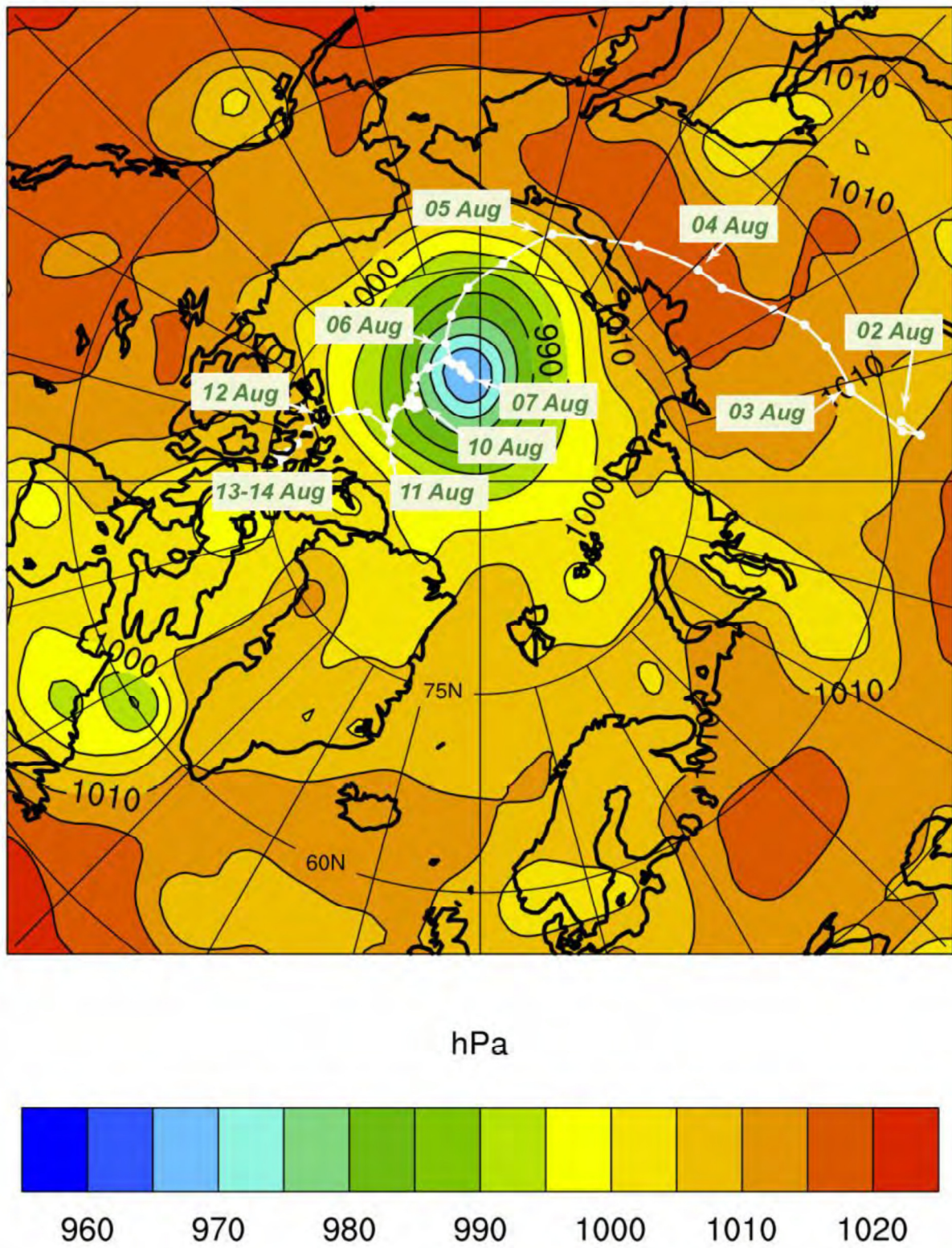
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Our group is exploring the character of extreme storms in the Arctic basin. One focus of this work is to explore the role that surface processes may be playing in inducing these events, with especial attention on the influence of decreasing sea ice concentrations. (Previous work has shown there to be a close interaction between Arctic synoptic activity and sea ice (Simmonds et al. 2008, Simmonds and Keay 2009, Screen et al. 2011).) The analysis of the particular storm we undertake is performed with the NCEP Climate Forecast System Reanalysis (Saha et al. 2010) which is particularly suited to our approach because it has high in time and space resolution, and was executed in coupled mode involving the atmosphere, ocean, sea ice, and land.

The Arctic storm ('AS12') examined here was first identified by our objective cyclone tracking algorithm at 00UTC 2 August over Siberia before tracking east northeast, and crossing into the Arctic basin at 18UTC 4 August. AS12 subsequently made its way into the central Arctic and reached the minimum central pressure of 966.38 hPa at 18UTC 6 August. Figure 1 displays the CFSR MSLP at that time. The storm then travelled east and to the south and was last identified at 18UTC 14 August in the Canadian Arctic Archipelago, a lifetime of almost 13 days. The central pressure was also remarkable, it being the deepest August Arctic storm identified in the CFSR data set (which starts in 1979). AS12 was strongly influenced by a 300 hPa Tropopause Polar Vortex (see, e.g., Cavallo and Hakim (2012)) and strong tropospheric baroclinicity. Further details may be found in Simmonds and Rudeva (2012).

## References

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**Figure 1:** CFSR MSLP field (contour interval of 5 hPa) at 18UTC 6 August 2012, and the 6-hourly positions of AS12 from its formation to its demise.