

Abstract Submitted
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Storm Activities and Impacts in the Western Arctic Marginal Ice Zone WEI TAO, JING ZHANG, North Carolina A&T State University, XI-ANGDONG ZHANG, University of Alaska, Fairbanks — Long-term changes in weather patterns and surface winds have been detected over the Chukchi-Beaufort Seas through the use of the newly-developed Chukchi-Beaufort High-Resolution Atmospheric Reanalysis (CBHAR). Embedded within these long-term changes, it has been noted that storm frequently invaded Western Arctic marginal ice zone. To understand the physical mechanisms and impacts of these storms, we have investigated two particularly unusual storms in this study. The first storm occurred during 23-30 September 2010, showing unusual persistence and lingering over the Beaufort Sea for more than five days. The other occurred during 2-13 August 2012, exhibiting extremely strong intensity with a minimum central surface pressure of 964 hPa on 6 August. The presence of the former storm resulted in persistent northerly winds that favored a southward extension of the ice edge, resulting in enhanced sea ice coverage in the Northern Beaufort Sea. The wind pattern associated with the August storm brought southwest winds into the Beaufort Sea, an anomalous wind pattern that enhanced warm air transport into the area and contributed to a rapid retreat of sea ice cover.

Wei Tao
North Carolina A&T State University

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