

signatures of polar lows - comparing a decade of polar low tracks to infrasonic detection backazimuths

Polar lows are short-lived, but intense, small-scale extreme events which can develop quickly over polar waters. The development and tracking of these mesoscale cyclones is challenging to predict and monitor, while their high intensity may represent a significant hazard to Northern sea activities. Infrasonic tracking of polar low systems was reported in Ørbaek and Naustvik's pioneering work [Tellus A (1992): 47(5), 921-940], as well as in a recent paper by Claud et al., [Tellus A (2017): 69, 1338885]. We build upon these works by analyzing polar low tracks from 2002 to 2015 in the North Atlantic and Barents Seas. These tracks are estimated from observations, mainly in satellite data. We exploit recordings from infrasound arrays in Fennoscandia at regional distances, which for the last three of the analyzed winter seasons also includes the I37NO IMS array. At each station, we compare the backazimuth angle towards the event track to infrasonic data-derived backazimuth estimates. Based on these comparisons, we compile statistics on the number of polar low events where the infrasonic backazimuth agrees with the direction to the event track.

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Track Classification: Analysis of Sources and Scientific Applications