



## **Infrasound detections of polar lows during the last three winters from the Norwegian infrasound station #IS18.**

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Polar lows are intense and very short (1 or 2 days) high latitude maritime cyclones of small horizontal (few hundred kilometers) and vertical scales (up to 5 km), that develop when very cold air is advected over relatively warmer water. Associated with severe meteorological conditions (large ocean waves, heavy precipitations, thunders and low visibility), they represent a real hazard for maritime and coastal activities but remain difficult to forecast, because of their rarity and the scarcity of observations in polar regions where they develop.

With the signature of the Comprehensive Nuclear-Test-Ban Treaty (CTBT – <http://www.ctbto.org>) in 1996, a global infrasound monitoring network (named International Monitoring System – IMS) has been developed and provides a potential new technology to detect polar lows. According to Orbaek and Naustvik (1995), polar lows are indeed assumed to generate strong infrasound signals in the frequency range of 0.2-13 Hz, which are detectable over distances of up to 1000km. However, until recently and the exploratory study of Claud et al. (submitted), no similar study was available to generalize the possibility to use infrasound, as an alternative technology to detect and monitor polar lows. By analysing the infrasound measurements of the Norwegian infrasound station #IS18, we here try to detect the infrasound signatures of dated polar lows in the Barents and Norwegian Seas, during the 2013-2014, 2014-2015 and 2015-2016 winters.