



## **Monitoring extratropical cyclone activity through the observation of stratospheric gravity waves using highly resolved radio sounding data**

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Strong cyclones can be hazardous atmospheric systems. Their enormous energy content and the resulting precipitation are parameters which have to be observed and analysed in detail. Consequently, improved understanding of the life-cycle of strong cyclones and their physics is important.

Atmospheric waves, especially gravity waves, which are radiated from a storm system, are investigated to serve as a proxy for the energy content of the storm itself: in several case studies higher gravity wave activity in the lower and middle stratosphere related to the passage of fronts, which are part of extratropical cyclones, are analyzed. All analyses are based on high resolution radio sounding data of several European stations, whereas the longest time series lasts from 1997 to 2009. Thereby, wave signatures in temperature between 15km and 30km height are focussed on and compared to strong winds in the troposphere due to densely spaced isobars.

A measuring campaign in autumn/winter 2011 on Mallorca will extend the data base. The concept will be presented.