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Indication of short-period (infrasonic) fluctuations in high-resolution OH-airglow data

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OH-airglow measurements with the GRIPS-instruments (GRound-based Infrared P-branch Spectrometer) were performed during the winter 2008/2009 at the German Environmental Research Station “Schneefernerhaus”, Zugspitze (47.4° N, 11° E). Wave activity on multiple scales has been observed and for some events the temporal resolution was sufficient to detect short-period signals below one minute (0.017 – 0.067 Hz). This activity is situated in the far infrasound frequency regime and might be due to a variety of acoustic sources, most likely mountain-associated waves in the Alpine region.

Mesopause temperature time series derived from these OH-airglow measurements with high temporal resolution are presented. The main analysing method used is the wavelet analysis being a powerful tool for the detection and discrimination of transient signals in time series. The possibility to locate a signal in time and frequency space simultaneously is essential for pattern recognition and is described.

First results indicating the possible influence of infrasound on OH-airglow temperatures are presented.