



Variation of OH*(3-1) rotational temperature variability on timescales of 2-60 minutes: evidence for solid earth modes and infrasound?

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During November/December 2006 measurements of the nightly OH* airglow (OH*(3-1)) were performed simultaneously with two ground-based grating spectrometers at the environmental research station "Schneefernerhaus" (47,4° N, 11° E) located in the northern Alps on the mountain Zugspitze (2670m). Data are analysed with regard to OH* rotational temperature and intensity variations on timescales from 1 minute to 1 hour.

Spectral analyses of both OH* temperature time series reveal significant power at similar discrete frequencies at around 55 min/ 20 min and further frequencies below 15 min. These signatures are tentatively interpreted as a coupling of normal mode oscillations of the solid earth and the upper atmosphere.

Impacts of major bolides into the upper atmosphere during the 2006 Leonid and Geminid meteor showers are discussed as possible sources for the generation of infrasonic waves. The effect of such infrasonic waves crossing the OH-layer on OH-line intensities is shown and briefly compared to measurements.