

Noctilucent cloud studies with Envisat/SCIAMACHY: Observations of the 5-day wave

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SCIAMACHY (Scanning Imaging Absorption spectroMeter for Atmospheric CartograpHY) measures scattered solar radiation in limb viewing geometry from the troposphere up to the mesopause covering the spectral range from 220 nm to 2380 nm. It is therefore well suited to study the geographical distribution of NLCs, their temporal evolution and also allows the retrieval of NLC particle sizes. This presentation will give an overview of the NLC results obtained so far from SCIAMACHY limb scatter measurements.

A special focus will be on the first identification of the westward propagating wavenumber-1 5-day wave in collocated satellite measurements of NLC characteristics - NLC occurrence rate, brightness and radii - and mesopause temperature. The temperature measurements were made with the Microwave Limb Sounder (MLS) on Aura. The 5-day wave was recently identified in SNOE NLC brightness measurements (Merkel et al. [2003]). The 5-day wave signature has a severe impact on the geographical distribution of NLCs as well as their particle radii. Long-term changes in global middle atmospheric wind patterns affecting the vertical propagation of planetary wave signatures may be an important driver for long-term variations in NLC occurrence rates and NLC 'brightness'.