



## **Hydroxyl emission altitude variability during the last solar cycle retrieved from SCIAMACHY nightglow observations**

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Night-sky hydroxyl ( $\text{OH}^*$ ) emission observations are an important tool to study the mesosphere. They are especially used to derive OH temperatures. For the interpretation of ground-based OH temperature measurements the knowledge of the spatial and temporal variability of the  $\text{OH}^*$  nightglow emission altitude is of importance. In this context the  $\text{OH}^*$  nightglow data set from SCIAMACHY (Scanning Imaging Absorption spectrometer for Atmospheric CHartography) on Envisat (from August 2002 to April 2012) is analyzed for the 11-year solar cycle signatures and short-term variability, e.g. solar-driven 27-day cycle and QBO (Quasi-Biennial Oscillation) signatures in vertical volume emission rate profiles and mean emission altitude of the  $\text{OH}(3-1)$  Meinel emission near the mesopause.

The data set is also used to investigate the effect of SPEs (solar proton events) on the OH Meinel emission altitude and volume emission rate. On that point first results and the comparison with simulations using the UBIC (University of Bremen Ion Chemistry) model are presented.