

**Institut für Meteorologie und Klimaforschung  
KIT Campus Nord / KIT Campus Süd**

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**Karlsruher Meteorologisches Kolloquium**

Einladung zum Vortrag

**"Effects of short term solar variability on the middle  
atmosphere"**

**Herrn Prof. Dr. Christian von Savigny, Institut für Physik,  
Ernst-Moritz-Arndt-Universität, Greifswald**

**Dienstag, den 19. Juli 2016, 15:00 Uhr s.t.  
Campus Nord, Gebäude 435, Raum 2.05**

The Earth's mesosphere / lower thermosphere region (MLT) is subject to variability driven by a variety of different processes from above and below, including variations in solar activity. The dominating solar cycles are the 11-year cycle and the 27-day differential rotational cycle.

In terms of solar 27-day effects, statistically significant signatures have been identified in several MLT parameters, including temperature, ozone, atomic oxygen, OH emission rate and altitude, as well as noctilucent (or polar mesospheric) clouds. While the identification of these signatures is often straightforward the underlying physico-chemical mechanisms driving the signatures are often only poorly understood and involve both photochemical and dynamical effects.

This talk attempts to summarize the current status of our understanding of solar 27-day effects in the MLT region with a focus on satellite remote sensing observations. For some parameters the sensitivities to solar forcing at the 27-day time scale agree within uncertainties with the sensitivities at the 11-year time scale, suggesting similar driving mechanisms. Hypotheses for driving mechanisms - where applicable - will be presented and gaps in the scientific understanding will be discussed.