

# Mesospheric Results from the Odin Satellite Mission

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During its first five years in orbit, the Odin satellite has provided comprehensive data for both aeronomy and astronomy research. In this presentation, we review basic mesospheric results. The two limb-scanning instruments onboard Odin, the sub-millimeter receiver (SMR) and the optical spectrograph and infrared imaging system (OSIRIS), provide measurements of a number of minor species and related exchange processes. During the polar summer season, simultaneous measurements of water vapor and noctilucent cloud properties have been of particular interest. Analysis of the visible dayglow provides global distributions of mesospheric metal layers. Detailed information about ozone is obtained from tomographic analysis of the oxygen infrared atmospheric band. Carbon monoxide is measured as an important tracer for vertical transport.

Odin's global coverage of mesospheric water, ozone, carbon monoxide and metals provides a valuable basis for the study of solar influences on mesospheric processes. A prominent example is the observation of strong ozone depletion during the solar proton event of October 28, 2003. In general, however, the discrimination of solar influences and dynamic influences remains a basic challenge for Odin's mesospheric dataset.