



Middle atmosphere dynamics inferred from ozone profiles with high temporal resolution

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The object of our research is to investigate middle atmosphere dynamics using the ozone data sets of the ground-based microwave radiometer GROMOS. Temporal changes of vertical ozone profiles are due to advection of ozone, temperature-sensitive photochemistry of ozone, diurnal variation of UV irradiance, and other causes. Thus, ozone variations can indirectly inform about middle atmospheric dynamics which are not well observed yet. The high temporal resolution of 3 min makes GROMOS well suited for detailed observations and characterization of short-term variations of the atmosphere in the altitude range from 20 to 70 km. Here, we present initial results on (1) the traces of short period gravity waves in ozone; (2) the mean diurnal variations of stratospheric and mesospheric ozone for different months; and (3) the response of ozone to the quasi two-day wave at the stratopause.

Information about the ozone microwave radiometer GROMOS:

GROMOS is located in Bern (46°57' N, 7°26' E), Switzerland and measures continuously the vertical ozone distribution in the middle atmosphere from 20 to 70 km altitude since November 1994. GROMOS is especially designed for long-term monitoring of ozone with all-weather and all-daytime capability. It is part of the Network for the Detection of Atmospheric Composition Change (NDACC).