



## **Daytime ozone and temperature variations in the mesosphere: A comparison between SABER observations and HAMMONIA model**

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The scope of this paper is to investigate the latest version 1.07 SABER (Sounding of the Atmosphere using Broadband Emission Radiometry) tropical ozone from the 1.27  $\mu\text{m}$  as well as from the 9.6  $\mu\text{m}$  retrieval and temperature data with respect to daytime variations in the upper mesosphere. For a better understanding of the processes involved we compare these daytime variations to the output of the three-dimensional general circulation and chemistry model HAMMONIA (Hamburg Model of the Neutral and Ionized Atmosphere). The results show good agreement for ozone. The amplitude of daytime variations is in both cases approximately 60 % of the daytime mean. During equinox the daytime maximum ozone abundance is for both, the observations and the model, higher than during solstice, especially above 80 km. We also use the HAMMONIA output of daytime variation patterns of several other different trace gas species, e.g., water vapor and atomic oxygen, to discuss the daytime pattern in ozone. In contrast to ozone, temperature data show little daytime variations between 65 and 90 km and their amplitudes are on the order of less than 1.5 %. In addition, SABER and HAMMONIA temperatures show significant differences above 80 km.