

# The Wave Turbopause: Seasonal and latitudinal variations

**D. Offermann** (1), M. Jarisch (1), O.A. Gusev (1), J. Oberheide (1), K.-U. Grossmann (1), M. Donner (2), P. Knieling (1), J.M. Russell III (3) and M.G. Mlynzcak (4)

(1) Wuppertal University, Wuppertal, Germany, (2) Donner-Tontechnik, Remscheid, Germany, (3) Center for Atmospheric Sciences, Hampton University, Hampton, VA, USA, (4) NASA Langley Research Center, Hampton, VA, USA (offer@uni-wuppertal.de / Phone: +49-202-439 2604)

Vertical temperatures in the mesosphere and lower thermosphere have been measured by the space borne IR instruments CRISTA and SABER. Wave breaking ceases at some altitude in the upper mesosphere which level is named the “wave turbopause”. A minor constituent transport barrier is found near to this level. The altitude  $Z_t$  of the wave turbopause varies between 85 km to 105 km. It shows an annual variation at high latitudes and a semi-annual variation at middle latitudes in four years of SABER data. Latitudinal variations (from CRISTA and SABER) are not as large, but also quite substantial.

Variations of  $Z_t$  are found to be correlated with near infrared hydroxyl emission intensities. These were measured around 87 km altitude ( $1.57 \mu\text{m}$ ) from the ground at Wuppertal ( $51^\circ\text{N}$ ,  $7^\circ\text{E}$ ; GRIPS data) and during a North-South trajectory of the research vessel “Polarstern”. Corresponding correlations were obtained for the  $1.6 \mu\text{m}$  emissions measured by SABER integrated over the altitudes 80–93 km. The correlations indicate that  $Z_t$  variations may influence the vertical transport of minor constituents. Transport velocities appear to be different in different parts of the year.