

Meteor Radar Temperatures over Collm (51.3°N, 13°E)

G. Stober (1), Ch. Jacobi (1), K. Fröhlich (1) and D. Kürschner (2)

(1) Institute for Meteorology, University of Leipzig, (2) Institute of Geophysics and Geology, University of Leipzig (jacobi@uni-leipzig.de /Fax: +49-97-32-899)

Since July 2004 a SKiYMET Meteor Radar is operated at Collm Observatory, Germany. Using meteor echo decay times, temperatures at the meteor layer near the height of maximum meteor detectability, typically in the range 86 to 90 km can be derived. This method provides daily mean temperatures. Increasing the time resolution to hourly means by an accumulation algorithm using 7 days and running the standard routine, tidal waves in the temperature were detected. A Fourier analysis of the time series reveals the amplitudes and phases of the diurnal and semidiurnal tides at the meteor layer. This allows the creation of a tidal climatology based on monthly mean data. The diurnal tide peaks at an amplitude of 5 K in April and has a minimum of 2 K in October. During the rest of the year the amplitude remains between 2.5 - 4 K. The semidiurnal tidal amplitudes ranges between 3-7.5 K during the year. The large summer maximum shows values of 7.5 K and the two minima in the equinoxes reach 3 K. A comparison with a numerical model shows good agreement of the seasonal changes of the amplitudes for both tides, but the absolute values of the semidiurnal tide amplitudes differ from the model results.