Mesospheric/lower thermospheric winds and electron densities obtained by meteor radar and MF radar at Andenes in December 2004

Werner Singer[1]; Ralph Latteck[2]; Eivind.V. Thrane[3]

[1] IAP; [2] Leibniz-Institute of Atmospheric Physics; [3] Dept of Physics, Univ of Oslo

We present mesospheric/lower thermospheric winds/tides and electron densities obtained at Andenes in December 2004 with emphasis to the launch of the Japanese sounding rocket 'S-310-35'.

Winds were measured with different radar techniques at Andenes (69N) to cover an altitude range of about 60 km to 110 km. The Andenes MF radar at 1.98 MHz applied the spaced antenna technique, the ALOMAR meteor radar at 33 MHz and the Saura MF Doppler radar at 3 MHz were operated as all-sky meteor radars and provided winds above 82 km. The Saura MF Doppler radar was running in mixed mode. All-sky meteor wind observations were done using a donut like antenna radiation pattern on transmission. D-region electron densities were estimated in Doppler mode using a vertically directed narrow beam with a beam width of about 7". Interleaved transmission of the ordinary and extraordinary polarisation with a change of the polarisation from data point to data point provided differential absorption (DAE) and differential phase (DPE) measurements. Electron number densities can be estimated from both experiments in a height range between about 60 and 85 km. The electron number density profiles derived with the DAE as well as DPE method are in remarkable good agreement.