Study of the lower thermospheric wind in the polar cap using ESR longrun data obtained in October 2002

Takuo Tsuda[1]; Satonori Nozawa[2]; Yasunobu Ogawa[3]; Ryoichi Fujii[2]

[1] Particle and Astrophysical Sci.,Nagoya Univ; [2] STEL, Nagoya Univ; [3] STE Lab., Nagoya Univ.

We will report results of the lower thermospheric wind in the polar cap by using extraordinary longrun data obtained by EISCAT Svalbard Radar (ESR). From October 4 to Novemer 3, 2002, ESR located at Longyearbyen (78.2 deg N, 16.0 deg E) was operated continuously with a CP-2 mode over 31 days. By using the data sets, we have derived mean wind and tidal amplitudes and phases in order to investigate the lower thermopheric wind dynamics in the polar cap region. In particular, special attentions are paid to examine day-to-day variations of the mean wind as well as tides.

The preliminary results are as follows: (1) The meridional mean wind blows averagely about 0 m/s. (2) The zonal mean wind blows mainly eastward with an amplitude of about 20 m/s above 105 km. (3) The meridional and zonal mean winds exhibit remarkable day-to-day variations with amplitudes of about 30 m/s. (4) The diurnal and semidiurnal tidal amplitudes are smaller than about 20 m/s below 110 km. (5) The difference between maximum and minimum values of the tidal amplitudes reaches 30 m/s above 115 km.