

The characteristics of the mean zonal winds observed from SKiYMET Meteor Wind Radar at Trivandrum during CEJ and non CEJ days.

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The state of the art, newly installed All-sky SKiYMET Meteor Wind Radar at Space Physics Laboratory (SPL), Trivandrum (8.5°N, 77°E, Dip - 0.5°N) is being operated at a VHF frequency of 35.25 MHz with a peak power of 40kW and a pulse repetition frequency of 2144 Hz round the clock since June 2004. An ionised plasma trail, left by the meteor produces a strong backscatter in the direction perpendicular to the trail. The backscattered signal is used to derive various atmospheric parameters like wind and temperature in the MLT region (80-100 km). The hourly values of horizontal winds (80-100 km) and temperature (~near mesopause) are continuously derived from the data collected from the radar. The co-located facilities like Proton Precision Magnetometer (PPM) and Digital Ionosonde provide information on the variations in the horizontal component of the Earth's Magnetic field and ionospheric parameters respectively.

The characteristics of the mean winds and tidal structure during the Counter Electrojet (CEJ) event as indicated by the horizontal component of the Earth's Magnetic field during 01-06 July 2004 were looked into, in comparison with no Counter Electrojet (no CEJ) days during 02-06 August 2004.

During the Counter Electrojet (CEJ) event occurring at ~1500-1700 hrs IST on all these days, it was seen that there was a consistent wind reversal from easterly to westerly in the height region of 82-94km and the magnitude of the wind during whole day, from morning onwards, was very much reduced in comparison with the wind behaviour during non CEJ days. Also, the ionograms from Trivandrum showed the disappearance and reappearance of the E_{sq} echoes and formation of the blanketing E_s layers around ~1500-1700 hrs IST on all these days, which is confirmatory for the occurrence of a CEJ event. For the whole period of observation the A_p values were between 3-8. However, during non CEJ days, the behaviour of mean wind and tidal structure were distinctly different with no wind reversal during 1500-1700 hrs IST. The detailed results will be presented and discussed.