

Study of average thermospheric wind at high latitudes using a Fabry-Perot interferometer at Tromsø, Norway

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In the previous report, we studied the thermospheric wind variations at the onsets of isolated substorms by using a Fabry-Perot interferometer (FPI) at Tromsø, Norway. In this research, we investigate the average thermospheric wind using the same FPI data set as a further study. The wind variations were measured from the Doppler shift of both red line (630.0 nm, altitudes: 200-300 km) and green line (557.7 nm, altitudes: 90-100 km) emissions with a time resolution of ~13 min. The wind data were obtained for 7 years from 2009 to 2015. We investigate the dependence of average wind at Tromsø on various parameters, i.e., the geomagnetic activity level, solar radiation, and interplanetary magnetic field conditions. At F-region height, we found that the average winds at duskside are more sensitive to the geomagnetic activity level than those at dawnside. With greater 10.7 cm solar radio flux (F10.7), the eastward wind changes its direction to the west in the post-midnight sector, the northward wind shows an increasing amplitude at pre-midnight sector. During the presentation we will show dependences with other parameters, as well as the results of E-region wind.