

Medium-scale traveling ionospheric disturbances (MSTID) appearing in the OI 630-nm airglow in subauroral region

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We often observed propagating wave-like structures which appeared in the OI 630.0-nm airglow observed by our all-sky imager installed at Poker Flat Research Range (65.1N, 147.4W, MLAT 65.6) in Alaska. These events are classified into the medium-scale traveling ionospheric disturbance (MSTID) according to its wavelength and propagating speed. The unique points of our study are; 1) horizontal direction of the electric field can be estimated by the motion of the quasi-corotating aurora [Kubota et al., GRL, 2003] appearing simultaneously, 2) neutral winds are simultaneously observed by a Fabry-Perot interferometer.

We have investigated statistical characteristics of these MSTID, using data obtained from November 2001 to April 2002, and reported the following results. The MSTID was observed in almost every evening, and sometimes in the morning, but were not observed at midnight. Typical propagating speed, direction, and wavelength of the wave phenomena are about 135 m/s, south-westward, and about 250 km, respectively. Appearance of the MSTID correlates with the background wind direction.

In this presentation, we will discuss about the source of the MSTID using some related data.