

Statistical characteristics of MSTIDs using 630-nm airglow imagers at Paratunka and Magadan, Russia

Ryota Kumeno[1]; Kazuo Shiokawa[2]; Yuichi Otsuka[2]; Shin Suzuki[3]
[1] Engineering, Nagoya Univ.; [2] STEL, Nagoya Univ.; [3] STEL, Nagoya Univ.

Medium-scale traveling ionospheric disturbance (MSTID) is a phenomenon in the ionosphere, which has a horizontal wavelength of a few hundred kilometers and a period of less than 1h. To date many observations of nighttime MSTIDs using all-sky airglow imagers have been conducted in Japan. Since OI 630-nm airglow emission is sensitive to the variation in the F-layer altitude and plasma density, 630-nm airglow imagers can monitor the two-dimensional structure of MSTIDs. According to the previous studies over Japan, nighttime MSTIDs predominantly propagate southwestward. However, their propagation characteristics at higher latitudes are still unclear. The Solar-Terrestrial Environment Laboratory, Nagoya University, has made airglow imaging observations of MSTIDs over two optical sites in Russia, which located nearly Japanese meridian; at Paratunka (53.0N, 158.2E), since August 2007, and Magadan (60.1N, 150.7E), since November 2008. These optical instruments has been operated as parts of the optical mesosphere thermosphere images (OMTIs) in collaboration with the Institute of Cosmophysical Research and Radiowave Propagation (IKIR), Russia.

In the presentation, we will report statistics of MSTIDs obtained by airglow measurements over Paratunka from January 2009 to October 2012 (680 nights) and Magadan from January 2009 to August 2012 (630 nights). The dataset during clear sky hours, which are available for the analysis, are, in total, 1846 h (the ratio of clear sky intervals to the total observations: 37%) at Paratunka and 2149 h (51%) at Magadan, respectively.