Investigation of MSTIDs at midlatitude by GNSS and ionosonde

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ABSTRACT

In these work we are focuses on both horizontal and vertical structure of MSTIDs. For MSTIDs latitude and longitude dynamics, two dimensional perturbation TEC (first usage by A. Saito and S. Fukao, 1998) maps (TEC maps) observed by GNSS reviewer network are used. Our ground GNSS (GPS and GLONASS) network consists of nearly 150 reviewers. For MSTIDs investigation we use only 60 reviewers with distance between them ~30 km. The TEC maps resolution was increased due to the inclusion of GLONASS data. Some features of the GLONASS system were taken into account in construction of TEC maps. Their spatial resolution is 0.15 latitude x 0.15 longitude and temporal resolution is 30 seconds. The vertical structure of MSTIDs observed by ionosonde «Cyclon» with 1 minute temporal resolution and height resolution ~300 m. The minute temporal resolution of ionosonde allows us to watch on MSTIDs height dynamics. The GNSS and ionosonde coordinated observations are needed to clarifying the characteristics of MSTIDs and correct interpretation of occurrence reasons.

Key words: MSTIDs, Ionosphere, GNSS, Ionosonde