
[EE] Evening Poster | P (Space and Planetary Sciences) | P-EM Solar-Terrestrial Sciences, Space Electromagnetism & Space Environment

[P-EM14]Recent Advances in Ionosphere Observation and Modeling for Monitoring and Forecast

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Increasing number of observation opportunities in the Earth's ionosphere and upper atmosphere advances the research of the ionosphere weather in the recent two decades. In the ground segment, global deployment of ground-based GNSS receivers, newly planned radars and airglow instruments greatly extend the observation coverages. In the space segment, a number of upcoming new satellite missions with capabilities of airglow, neutral winds and electron density observations will provide a variety of observation worldwide. With the large amount and diversity of datasets, sophisticated theoretical and empirical models can be validated, and implemented for inclusion of new thermosphere and ionosphere phenomena. Additionally, advances in applications of data assimilation technique on the ionosphere monitoring and forecast system are developing in progress. These recent advances in observations and models are important to move forward the status of the ionospheric space weather monitoring and forecast. It is the purpose of this session to solicit studies providing observations, theoretical and empirical modeling and data assimilation on the multiple scales of ionosphere structures, from global morphology to small scale irregularities and traveling ionospheric disturbances. Studies on magnetically quiescent and disturbed conditions will both be addressed.

[PEM14-P02]Longitude variations of medium-scale traveling ionospheric disturbances from GPS observations

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More than ten small Global Position System (GPS) networks located at middle latitude of both hemisphere with different longitude selected from International GNSS Service (IGS) were used to investigate the global longitude variations of medium-scale traveling ionospheric disturbances (MSTIDs). These networks can provide the total electron content (TEC) over the global major sectors (Asia-Australia, Europe-Africa, and America). To detect MSTIDs, the cross-spectral method is used to obtain the nighttime MSTID parameters from small GPS network TEC series. The parameters of MSTIDs in different longitude are first compared, and their similarities and differences are discussed. On other hand, we focus on the seasonal variation of MSTID occurrence rate, especially their comparison in different longitude. Further, the features of MSTIDs in inter-hemisphere are also discussed. In addition, the characteristics of the MSTIDs during nighttime and daytime are compared, especially their similarities and differences in different longitude.