[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

convener:Charles Lin(Department of Earth Sciences, National Cheng Kung University), Yang-Yi Sun(China University of Geosciences, Institute of Geophysics and Geomatics)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe) 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-P04]An observation on global plasma density distributions and equatorial plasma irregularities observed by FORMOSAT-5/AIP during in-orbit checkout

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Keywords:FORMOSAT-5/AIP, global plasma density distributions, equatorial plasma irregularities

A remote sensing satellite, FORMOSAT-5, was launched in a circular sun-synchronous orbit at 740 km altitude on 25 August 2017 CST and carried a science payload, Advanced Ionospheric Payload (AIP), to measure ionospheric plasma characteristics, like density, velocity, and temperature. The first AIP measurement was performed on 7 September 2017 and obtained the first-orbit data in the night-side. After near three-month in-orbit check, AIP operation was finalized to maximize useful science data. In this poster, ion density measurement will be used to depict global plasma density distributions and discover equatorial plasma irregularities which are resulted from nonlinear evolution of Rayleigh-Taylor instability in the postsunset ionosphere near magnetic equator.