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Poster
Since the launch of FORMOSAT-7/COSMIC-2 constellation in the mid- 2019, there have been about 185 days with geomagnetic disturbances, ranging from minor to extreme events. The disturbances triggered intense positive variations in the low- and mid-latitude ionosphere on several occasions and long-lasting negative storm effects over a wide range of longitudes. The Global Ionosphere Specification (GIS) 3D electron density profiles constructed by assimilating slant total electron content measurements by FORMOSAT-7/COSMIC-2 constellation and ground-based global navigation satellite system receiver network are used to examine the ionospheric response during these events. A superposed epoch analysis is carried out to investigate the onset and impact of the positive response, with the time of maximum interplanetary electric field as the zero-epoch time, and the local-time and latitude variations of the GIS electron density are investigated by using previous 5-day average as the quiet-time reference. The results reveal ~200% enhancement in the average electron density over low latitudes over the longitude that falls at local-noon sector at the zero-epoch time. Maximum electron density response occurs within about 3.5-4 hours after the zero-epoch. In the night sector, the enhancement occurs after 5-12 hours of the zero-epoch. The latitude variation reveals classic storm-time behavior in solar maximum, with stronger response occurring earlier over mid- and low-latitudes and propagating to equatorial region. The storm effect lasts for about 3-days over the mid- and low-latitudes. The results are further compared with the corresponding variations of IMF parameters and the possible factors that contribute to the observed response are examined.
Poster session day
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45
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