

NASA/ADS

How and in Which way Space Weather Changed the Ionospheric Irregularities Occurrence During the St. Patrick's Storm ()

Fagundes, P. R. (/search/?q=author%3A%22Fagundes%2C+P.+R.%22);
Barbosa, F. R. E., Sr. (/search/?q=author%3A%22Barbosa%2C+F.+R.+E.%2C+Sr.%22);
Kavutarapu, V. (/search/?q=author%3A%22Kavutarapu%2C+V.%22);
Fejer, B. G. (/search/?q=author%3A%22Fejer%2C+B.+G.%22);
Pillat, V. G. (/search/?q=author%3A%22Pillat%2C+V.+G.%22);
De Nardin, C. M. (/search/?q=author%3A%22De+Nardin%2C+C.+M.%22);
Muella, M. (/search/?q=author%3A%22Muella%2C+M.%22)

During the solar cycle 24 there was a very intense geomagnetic storm, called St. Patrick's Day storm and the effects of this storm on ionosphere has become a topic of extensive space weather investigation. The Dst during this storm reached -223 nT on March 17, 2015 at 23:00 UT. Special efforts have been devoted so far to investigate many aspects of the St. Patrick's Day ionospheric storm such as the prompt penetration electric fields (PPEFs), GPS-TEC changes, electron density disturbances, plasma drift, O⁺ concentration modification, hemispherical asymmetry developments, equatorial ionization anomaly (EIA) modification, and ionospheric irregularities. Besides all these important studies, there are some essential aspects, which have not been addressed yet, related to the occurrence of ionospheric irregularities with different scale sizes. In this paper, we present and discuss the generation and suppression of ionospheric irregularities during March 2015, using the observations conducted in the Latin American Sector from 4 ionosondes (ESF) and 20 GPS-TEC stations (ROT phase fluctuation), which includes the St. Patrick's Day geomagnetic storm period. Suppression of large-small scales ionospheric irregularities has occurred during the main and second night of the recovery phases. However, during the first night of recovery phase there was post-midnight ionospheric irregularities.

Publication:

AGU Fall Meeting Abstracts

Pub Date:

December 2017

Bibcode:

Keywords:

2415 Equatorial ionosphere; IONOSPHERE;
2435 Ionospheric disturbances; IONOSPHERE;
2437 Ionospheric dynamics; IONOSPHERE;
2443 Midlatitude ionosphere; IONOSPHERE