Accepted Manuscript

Midlatitude ionospheric F2-layer response to eruptive solar events-caused geomagnetic disturbances over Hungary during the maximum of the solar cycle 24: a case study

K.A. Berényi, V. Barta, Á. Kis

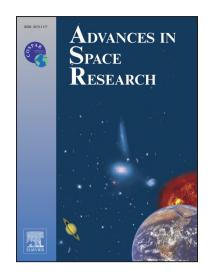
PII: S0273-1177(17)30897-9

DOI: https://doi.org/10.1016/j.asr.2017.12.021

Reference: JASR 13554

To appear in: Advances in Space Research

Received Date: 16 October 2017 Revised Date: 12 December 2017 Accepted Date: 14 December 2017



Please cite this article as: Berényi, K.A., Barta, V., Kis, Aacute., Midlatitude ionospheric F2-layer response to eruptive solar events-caused geomagnetic disturbances over Hungary during the maximum of the solar cycle 24: a case study, *Advances in Space Research* (2017), doi: https://doi.org/10.1016/j.asr.2017.12.021

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Midlatitude ionospheric F2-layer response to eruptive solar events-caused geomagnetic disturbances over Hungary during the maximum of the solar cycle 24: a case study

K. A. Berényi *,1,2, V. Barta 2, Á. Kis 2

¹ Eötvös Loránd University, Budapest, Hungary

² Research Centre for Astronomy and Earth Sciences, GGI, Hungarian Academy of Sciences, Sopron, Hungary

Abstract

In our study we analyze and compare the response and behavior of the ionospheric F2 and of the sporadic E-layer during three strong (i.e., Dst <-100nT) individual geomagnetic storms from years 2012, 2013 and 2015, winter time period. The data was provided by the state-of the art digital ionosonde of the Széchenyi István Geophysical Observatory located at midlatitude, Nagycenk, Hungary (IAGA code: NCK, geomagnetic latitude: 46,17° geomagnetic longitude: 98,85°). The local time of the sudden commencement (SC) was used to characterize the type of the ionospheric storm (after Mendillo and Narvaez, 2010). This way two regular positive phase (RPP) ionospheric storms and one no-positive phase (NPP) storm have been analyzed. In all three cases a significant increase in electron density of the foF2 layer can be observed at dawn/early morning (around 6:00 UT, 07:00 LT). Also we can observe the fade-out of the ionospheric layers at night during the geomagnetically disturbed time periods. Our results suggest that the fade-out effect is not connected to the occurrence of the sporadic E-layers.

Keywords: ionospheric storm, geomagnetic disturbance, space weather, midlatitude F2-layer, sporadic E-layer

*Corresponding author. Tel.: +3670 3198192. E-mail adresses: <u>berenyik@ggki.hu</u> (K. Berényi), <u>bartav@ggki.hu</u> (V. Barta) <u>akis@ggki.hu</u> (Á. Kis).

Download English Version:

https://daneshyari.com/en/article/8132207

Download Persian Version:

https://daneshyari.com/article/8132207

Daneshyari.com