

Ann. Geophys. Discuss., referee comment RC1
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Comment on angeo-2021-42

Sergey Sokolov (Referee)

Referee comment on "Diagnostic study of geomagnetic storm-induced ionospheric changes over very low-frequency signal propagation paths in the mid-latitude D region" by Victor U. J. Nwankwo et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2021-42-RC1>, 2021

The preprint of the article seems to me interesting and quite worthy for its publication.

The authors continued their studies of the effects of geomagnetic storms in the mid-latitude D region, begun in their previous works, for example, in [Nwankwo V. U. J., Chakrabarti S. K. and Ogunmodimu O. Probing geomagnetic storm-driven magnetosphere-ionosphere dynamics in D-region via propagation characteristics of very low frequency radio signals, *J. Atmos. Sol-Terr. Phys.*, 145, 154-169, 2016]. They used VLF data from mid-latitude paths obtained during storms of different intensities and obtained detailed and interesting statistics on the occurrence of VLF signal amplitude anomalies along these paths.

This information itself is very valuable and complements the results of studies of VLF propagation during periods of magnetic storms and substorms carried out over the past decades.

In my opinion, at the end of the article, the authors should say at least a few words about what, in their opinion, are the reasons for the occurrence (or absence) of these anomalies. If these reasons are the precipitation of energetic magnetospheric electrons during and after storms, then in the future, satellite data on such precipitations could be drawn into the data obtained by the authors, of course, if such data are available. In addition, for the periods of storms considered by the authors, it would be possible to analyze the data of riometric measurements, as well as VLF observations on other paths.

P.S. I noticed one typo in the text of the preprint. In line 60, instead of "Kleimenov et al ..." you need "Kleimenova et al ..."

Please also note the supplement to this comment:

<https://angeo.copernicus.org/preprints/angeo-2021-42/angeo-2021-42-RC1-supplement.pdf>