

Ann. Geophys. Discuss., referee comment RC1
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Comment on **angeo-2020-68**

Anonymous Referee #1

Referee comment on "Simulation of Gravity Wave D-region disturbance and its effect on the LWPC simulated VLF signal" by Abdellatif Benchafaa et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-68-RC1>, 2021

In this paper, numerical simulation of the gravity waves (GWs) due to D region disturbance of different origins such as solar flares, solar energetic particles, thunderstorm activity using Glukhov-Pasko-Inan (GPI) model of the electron density in the D region has been carried out. The technique and model are scientifically sound and technically valid and present along with new results, the results consistent with earlier findings also.

The sentence line 20 -21, "D region 20 disturbances are of different sources such as: solar flares, solar energetic particles, thunderstorm activity..." needs to be supported with relevant references. Some of the suggested references are:

- Salut, M. M., M. B. Cohen, M. A. M. Ali, K. L. Graf, B. R. T. Cotts, and S. Kumar (2013), On the relationship between lightning peak current and Early VLF perturbations, *J. Geophys. Res. Space Physics*, 118, doi:10.1002/2013JA01908.
- Salut, M. M., M. Abdullah, K. L. Graf, M. B. Cohen, B. R. T. Cotts, and S. Kumar (2012), Long recovery VLF perturbations associated with lightning discharges, *J. Geophys. Res.*, 117, A08311, doi:10.1029/2012JA017567.
- Kerrache, F., Nait Amor, S., & Kumar, S. (2021). Ionospheric D region disturbances due to FAC and LEP associated with three severe geomagnetic storms as observed by VLF signals. *Journal of Geophysical Research: Space Physics*, 126, e2020JA027838. <https://doi.org/10.1029/2020JA027838>
- Kumar and Kumar, Solar flare effects on D region ionosphere using VLF measurements during low and high solar activity phases of solar cycle 24, *Planets and Space* (2018) 70:29 <https://doi.org/10.1186/s40623-018-0794-8>

I do recommend the publication of this paper.