

Comment on **angeo-2022-24**

Anonymous Referee #2

Referee comment on "Effects of the super-powerful tropospheric western Pacific phenomenon of September–October 2018 on the ionosphere over China: results from oblique sounding" by Leonid F. Chernogor et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2022-24-RC2>, 2022

Dear Dr. Ana Elias!

Thank you for the nomination to evaluate the manuscript "Ionospheric Effects over the People's Republic of China from the Super-Powerful Tropospheric Western Pacific Phenomenon of September–October 2018: Results from Oblique Sounding" by Dr. Chernogor et al. The topic sounds interesting and within the scope of the Annales Geophysicae. The authors performed an interesting experiment to investigate the ionosphere using oblique soundings during the passage of the Super Typhoon Kong-Rey in 2018. I have few comments and suggestions to improve the manuscript to be appreciated by you and the authors and I am willing to revise the manuscript again, if you consider appropriate.

Please, see below, my comments:

Main points

1. From my point of view, the citations of the scientific works is not good form. When there are more than three works cited in the beginning of the statement, I suggest removing those citations to the end of the phrase as the suggestion below. Please, note that it repeats throughout the manuscript.

Lines 63-4: -> Observations of AGWs from meteorological origin have been reported elsewhere (Boška and Šauli, 2001; Šindelarova et al., 2009; Chernigovskaya et al., 2015).

Lines 65-6: -> Recently, theoretical studies on the coupling between the lower and upper atmosphere by the propagation of AGWs have been published as well (Hickey et al., 2001, 2011; Kuester et al., 2008, Gavrilov and Kshevetskii, 2015, Karpov and Kshevetskii, 2017).

2. I missed connections between the paragraphs of the Introduction. It is not clear how the state of art of the investigated topic and how are, in fact, the contributions of the authors to understanding the coupling between the typhoon and the ionosphere. I would suggest revising the Introduction to improve the text itself.

3. In the present manuscripts, the authors are assuming that the periodic oscillations in

the Doppler shift signal might be gravity waves from typhoons. They can be, but gravity waves can be produced by several other atmospheric processes, even small scale structures compared to typhoons. So, in this case, from my point of view, it will be very welcome, further analysis on the periodic structure in order to resolve the phases and find out the propagation direction of the wave structures. Certainly, they are propagating from the region of the typhoon. If the authors could address this point, the scientific discussion on gravity waves will be stronger and more convincing.

Specific points:

1. Line 93: The minimum value of the pressure is different from the value presented in the first paragraph of the introduction.

2. I also missed some citations on periodic gravity waves/MSTID, which could sustain the argumentation of the authors. Please, see some suggestions:

<https://doi.org/10.1002/2014JA019870>

<https://doi.org/10.1029/2012JA017758>

<https://doi.org/10.1007/s00585-996-0917-6>

<https://doi.org/10.1029/2000GL011858>

<https://doi.org/10.1016/j.jastp.2008.07.008>

<https://doi.org/10.5194/angeo-34-293-2016>

<https://doi.org/10.5194/angeo-36-265-2018>

<https://doi.org/10.1029/2002JA009491>