

## ***Interactive comment on “Dynamic processes in the magnetic field and in the ionosphere during the 30 August–2 September, 2019 geospace storm” by Yiyang Luo et al.***

### **Anonymous Referee #1**

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The paper contains a large volume of information on the behavior of the ionosphere during the magnetic storm of August 31–September 01, 2019. The main part of that information is obtained by the oblique sounding observations at 10 ionospheric paths with the receiver in Harbin (China). Quite similar study of the August 26, 2018 magnetic storm is published by the same group of authors in *Geomagnetism and Aeronomy* 60 (6), 2020.

As far as studying ionospheric reaction to magnetic storms is of a great importance for many applied problems and very complicated due to a different reaction of the ionosphere in different conditions, I think that any information on the ionospheric behavior

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during a particular storm is important and deserves publication.

The authors provide a valuable information on the behavior of the ionospheric parameters at 10 paths. They also describe in detail the behavior of the ionospheric layers during the storm days as compared to the quiet days according to the vertical sounding data by the ionosondes in Japan and Moscow.

I think that the aforementioned results of observations present the most valuable part of the paper. There are also some conclusions of the authors on the physical processes in the upper atmosphere and ionosphere (for example, on generation of IGW) however they could be considered only as an example of using the observed data for aeronautical considerations and could be doubled.

Thus, I think that the paper should be published in AG. However, in my mind, it needs some minor corrections.

The statement in the abstract that "...L.F. Chernogor validated that the concept of geospace storms..." is not modest and is incorrect. The studies of complex processes that occur in the terrestrial environment in disturbed solar conditions have been published much earlier by several authors (for example, H. Rishbeth, G. Prollss and others). I recommend to withdraw this sentence from the abstract.

The term geospace is not commonly used. What is actually described in the paper, is the ionospheric reaction to the particular magnetic storm. And that is how the situation is described in many studies of that kind. The source of the geomagnetic disturbance is not important in that case.

The references to main previous publications is not complete enough. In the aforementioned publications on the 2018 storm, the reference is more complete.

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Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-57>, 2020.

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