

Interactive comment on “Solar eclipse induced perturbations at mid-latitude during the 21 August 2017 event” by Bolarinwa J. Adekoya et al.

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Dear L. R. Cander, We thank you for the useful and supportive corrections. We believe that all suggestions made have been considered accordingly in this revised edition (not attached here) of the manuscript. Major corrections have been effected accordingly, and are highlighted (colour red) in the manuscript text. We have modified the manuscript accordingly, and the detailed corrections are listed below point by point:

Major concerns: Comment 1 – This manuscript attempts to provide a discussion related to the observed solar eclipse induced perturbations at the mid-latitude during the 21 August 2017. Although long description of this event and conclusions reached are supported by data analysis, the obvious question is what is really new in author's

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results and findings which have not already been revealed in the large number of the reference papers.

Response to Comment 1 – The new findings of this present work have been given in full detail in the body text (line 294 - 300) and thus summarized in the abstract (see line 18 – 26). Moreover, the study of the circumstances of solar eclipse at the topside ionosphere and its plasma distribution mechanisms using the bottomside parameters, scale height and the F2-layer parameters makes it significantly different from previous studies (see line 52 – 56).

Comment 2 – PP 39-42: In the context of the sentence “Different physical mechanisms (e.g. neutral wind, thermospheric composition, diffusion process etc.) that explain the distribution of plasma at the different ionospheric layers are well established”, the subsequent sentence “However, these mechanisms do compete with themselves in explaining other layers, especially for the topmost F2 layers”, is confusing. Particularly, who are “other layers” and where is “topmost” F2 layer?

Response to Comment 2 – The statement has been rewritten (now in line 36-39)

Comment 3 – PP46: “However”, should be deleted, and start the sentence simple - At equatorial and low-latitudes...

Response to Comment 3 – The “However” has been deleted and the correction has been made (see line 43)

Comment 4 – PP73: foF2 is an ionospheric characteristic not an ionospheric parameter

Response to Comment 4 – Thank you for this observation, the correction has been effected (see lines 72-73)

Comment 5 – PP272-273: The sentence “This paper presents the induced perturbation of solar eclipse of 21 August 2017 on the ionospheric F parameters and their behaviour in predicting one another at mid-latitude” is not clear to me because I could

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not understand who is predicting what and where are the results of that prediction. See also the first sentence in Abstract and PP28.

Response to comment 5 Ĩij This sentence has been clarified in both in the text and the abstract (see line 13-14 and line 267)

Comment 6 Ĩc PP276-277: There is not such name as “the F layer ionosphere”. As authors know very well, there are F1 and F2 layers or F region of the Earth’s ionosphere. See also PP281.

Response to Comment 6 Ĩij Thank you for this observation. This has been corrected in the text.

Comment 7 Ĩc Most importantly for the essence of the paper the last paragraph 252-267 is completely irrelevant. Furthermore, the IRI model is not generated to capture the conditions of the ionosphere during solar eclipse. See also PP285-287 as well as the last sentence in Abstract.

Response to comment 7 Ĩij This aspect has been completely removed from the manuscript as suggested.

Comment 8 Ĩc Although I am not a native English speaker, I feel free to suggest another careful proofread to avoid some minor typo and language errors. For example: PP80: NmF2 and hmF2- non italic; PP:84 NmF2, hmF2 – italic. See also a few more cases in the text; PP:214: (NmF2e – NmF2c)/NmF2c x 100 should be 100 x (NmF2e – NmF2c)/NmF2c

Response to Comment 8 Ĩij Careful proofread of the manuscript has been carried out and all the language and typographical errors were corrected. For example: PP80 and PP84: NmF2 and hmF2 are now italicized (now in line 79 and 80). The text in PP214(Line 221) has been corrected accordingly.

Best regards, Adekoya, Bolarinwa J. (For the Authors)

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