

RESPONSE LETTER TO EDITOR

Dear Angela Santos et al.

Thank you for revise the manuscript ANGIO-2019-74. It is clear that your manuscript has been improved after the revision. I would like to thank the both reviewers for important suggestions/comments that they have posted. Based on your responses and the new version of the manuscript, I still not convinced about the presence of gravity waves in figures 9 and 10b). I guess the filtering process that you are using is not good to show the phase propagation of gravity waves in the dhF. I mean, the phase structures were not well defined and they have changed from a fixed frequency line to another. May you, please, work to improve these figures? I am going to consider the paper for publication in the Annales Geophysicae after your feedback.

Best regards,

Igo

Our answer:

We thank the editor for considering our paper for publication after minor revisions. We believe that the mixed effects from disturbed electric fields and gravity waves can make it difficult for the visualization of the downward phase propagation in dhF parameter. Thus, we think it was better to remove this specific analysis from this plot (second panel from top to bottom in the former Figure 9). See the new Figure 9 in Page 25 and the new explanation about it in Page 24, lines 14 to 16. Regarding Figure 10a, in which the ILs occurred in the absence of the magnetic storm events, a new data filtering and processing methodology were used enhancing the phenomena signature that we would like to highlight and now the downward phase propagation of the gravity waves is more clearly seen. The description of this Figure can be found on Pages 27-28 and the new Figure 10b on Page 29.

Dear Editor, please consider the inclusion of Dr. Christiano Brum as co-author of this paper.

Thank you,

Ângela Santos