Editorôs comments on the manuscript angeo-2019-81 ñInvestigation of sources of gravity waves observed in the Brazilian Equatorial region on 08 April 2005ò By Oluwakemi Dare-Idowu et al.

Dear Oluwakemi Dare-Idowu

Although you have answered most of the questions raised by the reviewers, there are still some points that are not very clear and need clarification before the final acceptance of the manuscript for publication. These comments are based on your answer to both reviewers and also in other points that were observed in the revised version of your manuscript. **When you answer these comments please upload a file with the changes marked as a supplement to your answer.**

Regarding your answers to Referee 1

Line 15: use ñwas performed to search for the possibleò instead of ñwas performed to research the possibleò

Line 34: use ñby spectral analysisò instead of ñby spectral analyzingò

Lines 36 and 37: use ñsmall-scale & medium-scaleò instead of ñsmall-scaled & medium-scaledò

Line 75: The information introduced on line 75 in order to attend the reviewer comment does not seem very precise. Generally the satellite measurements are not available exactly at the same location as the ground based observations. In those cases the satellite paths that are inside a grid in latitude versus longitude are used instead. Please check what was used in the present case and change the information accordingly.

Lines 99-100 & Figure 1: Reviewer #1 questioned ñ*What is the feature identified as the gravity wave in the raw or filtered image?*ò Although you mention to have improved the resolution of the airglow image in the manuscript, it is still not possible to see the features in the images. Maybe you can upload an image at higher resolution (or a video) as supplementary material which can help the reader to identify the ripples.

Lines 111-120: The modifications to the text were introduced in order to reply the Reviewer#1 question ñWas this done to fill in data gap between 23:51 and 8:35 UT? What about time between 20:00 and 23:46 as most of your gravity waves fall within this period? Also how reliable is your interpolation when you have only a small sample of data to spread over such a long time period?ò You mention that you have used the MSIS model for the times and heights for which SABER temperatures were not available. These mean that the statements on lines 119-120 (ñoutbreak of cold air at heights lesser than 150 kmò and ñpeak period between 17h00 and 19h00 has a temperature value 1000 Kò) are totally based in MSIS which is an average model. What are the implications of this for the present study?

Page 7 and Equations 3a-3f: The equations should appear right after the sentence in which they are first mentioned; right after the sentence on lines 148-149 ñConsidering

3D-space, the wave trajectory can be represented using the dispersion relation as (3a-3c), also, the refraction of the wave packages can be represented as (3d-3f)ò

Line 170: use ñThe spectral results shown in Table 1 showò instead of ñThe spectral results shown in Table 1 showsò.
Editorôs comment: In fact the conclusions of this sentence (standard deviation and mean values) are nor shown in Table 1. You can either rephrase this sentence or modify Table 1 (add two extra lines, for example) to include this information.

Regarding Referee 2 comments:

Regarding Reviewer#2 comment that says ñmy main concern is that the paper should not concentrate only in presenting the determined wave parameters, but the discussions should extend to the physics of the wave propagationò I suggest that you introduce a paragraph in the conclusions highlighting the advances that your research has made in relation to the previous studies, mainly in relation to those studies conducted by the same group and at the same place.

Editorôs Comments:

Lines 42-43: Please rephrase the sentence ñAirglow emissions are faint luminescence that are produced as a result of the emission of solar radiations (ultraviolet and x-radiation) by ionized air moleculesò. It could be replaced by ñAirglow emissions are faint luminescence that are produced as a result of the emission of electromagnetic radiation by excited ionized or neutral atoms or moleculesò.

Line 57: Please use ñthe current studyò instead of ñthis current studyò.

Line 67: Please use ñThe present studyò instead of ñThis present studyò.

Line 74: Use ñIonosphere Mesosphereò instead of ñMesosphere Ionosphereò.

Line 106: The parameters listed in Table 1 should be defined (e.g. cH was defined only on line 244).

Line 107: Please use ñthe present studyò instead of ñthis present studyò.

Lines 141, 143: Please check Equations (1) and (2) as they differ from the ones listed in Vadas & Fritts (2005).

Line 150: ñequations (3a-3f)ò instead of ñequations (3a-3d)ò.

Line 164: Please check Equation 3e for correctness.

Regarding equations 3a-3f
These equations are the same described in the work of Marks and Eckermann (1995). In the present work you seem to have followed the methodology described by Vadas and Fritts. Please double check if these are the equations that the code you are using for the

ray tracing analysis is solving. If they are not it is better not to include them in the manuscript.

Figures 4b to 8b: Please specify the time for which the convective cloud activity was included in the Figures. This is particularly important for events for which the ray-tracing results show the starting time farther from the gravity wave detected time (e.g. event #2).

Line 227: ITCZ is first used here. Please write it out ñInter Tropical Convergence Zone (ITCZ)ò.
Line 271: Please use ñgravity wave eventsò instead of ñgravity eventsò.

References:

Please check the references. Same authors referenced in the text are not in the Reference List. Some references are incomplete (missing the name of the journal, for example). You have used more than one format for the references. Please use the Annalles Geophysical format for all of them. The format for references can be found at the website: https://www.annales-geophysicae.net/for_authors/manuscript_preparation.html