

## ***Interactive comment on “Stratification observed by the in situ measurements from the Swarm satellites” by Xiuying Wang et al.***

**Inez Batista (Referee)**

inez.batista@inpe.br

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Comments on “Stratification observed by the in situ measurements from the Swarm satellites” by Xiuying Wang et al.

The authors use simultaneous in situ plasma density measurements obtained by the Swarm satellites orbiting at different altitudes above F2 peak to investigate the stratification phenomena at the topside F-region. The data and the assumptions are presented clearly and the manuscript has a logical presentation. Nevertheless careful language revision will contribute to a net presentation of the results. The results are interesting and deserve publication in *Angeo* once the comments below are attended.

1) Check the graphs in Figure 2a and 2b as a better correlation between Sunspot and

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F10.7 should be expected.

2) Page 3, Lines 16-18: Explain the affirmation “. This spatial difference is reasonable considering the longitudinal correlation can vary from  $23^\circ$  at mid-latitudes and  $15^\circ$  at low-latitudes during the day to  $11^\circ$  at mid-latitudes and  $10^\circ$  at low latitudes during the night”

3) On page 3, Lines 28-30 que authors explain the methodology to identify a possible stratification event as those that have positive gradients in plasma density between Swarm A and Swarm B maintained by at least 5 degrees in latitude. What about if the F region peak is above the satellite orbit? Is there any such cases?

4) In Figure 3a the position of the magnetic equator and of the “and  $35^\circ$ S geomagnetic latitude” are not correct. According to the IGRF for the year 2014 the geomagnetic equator crosses the geographic equator at approximately 196.5 degrees and 312.5 degrees, which are quite different from the positions at Figure 3a.

5) Page 4, Line 27: use “local winter” instead of “northern summer time”

6) Identify what are considered stratification events in Figures 4 and 5.

Page 5, lines 12 and 13: please refer to the frame at which the feature being described is observed.

Page 6, Line 4: there is no Fig. 3 (d4)!!!!

Page 6, Line 9-11: when referring to the distinct frames of the Figure use the word “frame” instead of “figure”.

A few examples of language revision needed:

Page1, Line 21: “Stratification is a kind of phenomenon appeared. . .” → “Stratification is a kind of phenomenon appearing. . .”

Page 1, Line 40: “are still existed” → “still exists”

Page 3, Line 5: “there are fewer geomagnetic events” → “there are few geomagnetic

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events”

Page 4, Line 21: “are focus on” → “are concentrated”

Page 9, Line 11: “seasons” instead of “reasons”???

Page 9, Line 16: “cases is similar” → “cases are similar”

Page 10, Line 22: “which located near but not the equator” → “which is located near but not at the equator”

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