

## ***Interactive comment on “Semimonthly oscillation observed in the start time of equatorial Spread-F” by Igo Paulino et al.***

### **Anonymous Referee #1**

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In this study, the authors investigated the start time of equatorial spread-F (ESF) by using the long term dataset (2000-2010) from an all-sky airglow imager and a coherent backscatter radar at the two stations Sao Joao do Cariri and Sao Luis, respectively. They reported that the semimonthly oscillations were seen in the start time of ESF during the periods September 2003, September-November 2005, January and November 2008. It was suggested that the ESF semimonthly oscillations could be associated with the 16-day planetary waves and/or lunar semidiurnal tides which affected the pre-reversal enhancement of eastward electric field (PRE) around sunset. The result of ESF semimonthly oscillation is interesting and deserves to be published.

Some comments, 1. Although the authors stated that a long term dataset was used in this study, it is not clear how often the semimonthly oscillation was observed. Whereas

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the weather could cause lack of data from all-sky airglow imager, VHF radar should not be affected. It would be better if one more figure can be included to provide both the periods with data (all-sky airglow imager and VHF coherent, respectively), and the periods when semimonthly oscillation were detected.

2. On the possible cause of ESF semimonthly oscillation, the authors suggested that the planetary waves and/or lunar semidiurnal tide modulated the PRE which can play an important role on the ESF generation. This can be investigated further and demonstrated by using the simultaneous F layer height measurements from the SAO Luis digisonde. And also please explain in more detail on how lunar semidiurnal tides affect the PRE.

3. Regarding the identification of ESF start time, examples from both the airglow imager and VHF radar are suggested to be given. Further, as shown in Figure 1, the ESF structure is not obvious in the images taken at 23:48-00:21 UT. Please use arrows or other symbols to mark the ESF region.

4. “equatorial spread-F” and “equatorial plasma bubble” were used in the title/abstract and text respectively. For consistency please use “equatorial spread-F” or “equatorial plasma bubble”.

5. How the oscillation amplitude was calculated, peak to trough? From Figure 3, the difference of ESF start time during the period is more than 2 hours, but the amplitude is ~57 min.

There are some misprints in the manuscript. For example “did not allowed to”, “it is well know that”. Please check the whole manuscript.

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