

## ***Interactive comment on “Spread F occurrence features at different longitudinal regions during low and moderate solar activity” by Abimbola O. Afolayan et al.***

### **Anonymous Referee #2**

Received and published: 2 April 2019

Comment on: Spread F occurrence features at different 1 longitudinal regions during low and moderate solar activity, by Afolayan et al.

The present work describes statistical (4 years) analysis of Range type Spread F occurrence at 4 different longitudinal zones (Africa, Asia, Pacific, South America). Their discussion is mainly focused on longitudinal difference of occurrence and symmetric or anti-symmetric occurrence between March and September equinoxes, and December to June solstices. The seasonal variabilities of the occurrence and anti-symmetric features were attributed to seasonal variability of (1) relation between solar terminator and declination over the geomagnetic equator, (2) zonal winds, (3) eastward E-fields,

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(3) magnetic field strength, (4) electron density, and (5) seeding source such as gravity waves and variability of Inter tropical convergence zone. The comparison of Spread F occurrence between the 4 different longitudinal zones is interesting and something new. However, their discussions regarding the observed variabilities looks like that already have been discussed by previous works. I could not find any new aspects of interpretation in what they observed and discussed. Data and the analysis are interesting. However the authors should present what they found out new things in their work. My conclusion is, therefore, the present work will be worthwhile to publish as a full paper in Journal, but with some improvement in the text, as pointed out below:

1. The authors are requested to highlight what is new in this work. 2. In Fig. 4, one can see high occurrence of Spread F at Ilorin in all seasons, which is clearly different to the other longitudes. No clear discussion can be found in the text. To my point of view, this is a new result and worth to discuss further. Minor comments: Pages 13, 15-21: There are several paragraphs with the length more than one page, which made readers confused to understand. Concise description or to divide it in sub-paragraphs will be better. In Fig 4, the authors showed occurrence rate at Ilorin during Low solar activity. But, in Fig 7, the authors showed monthly averaged virtual height at Ilorin during Medium solar activity. Why they are different period ? Page 18, line 360, “GW”: Gravity waves ?

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Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2019-24>, 2019.

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