

Interactive comment on “Traits of sub-kilometer F-region irregularities as seen with the Swarm satellites” by S. Aol et al.

Anonymous Referee #3

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In this paper, the ionospheric irregularities are studied by using two methods: the absolute and relative changes of electron density. The distribution characteristics with local time, season and longitude of irregular structures are reproduced. The differences in the latitudinal distribution, and the correlation difference with F107 between the two methods are reported.

The main problem for the reviewer is that the relative change depends on both the absolute change in electron density and the value of background electron density. The strong relative change in the equatorial region may be due to the weaker background electron density. The dependence on F107 is not strong and may also be due to changes in background electron density with F107. From this point of view, perhaps absolute changes may be more suitable for studying the ionospheric irregularities. So

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I don't know why the author should use the relative change as a way to study the ionospheric irregularities? I hope they can explain why.

More interesting is the finding of the importance of the meridional difference in electron density in the irregular structure of the ionosphere. Could they explain more about the physical mechanism?

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