

***Interactive comment on* “Simultaneous Ground-based and In Situ Swarm Observations of Equatorial F-region Irregularities over Jicamarca” by Sharon Aol et al.**

Anonymous Referee #1

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Review notes:

Present work describes comparison of ionospheric irregularity data between the satellite SWARM electron densities and groundbased JULIA radar data and ionosonde data, using the data obtained over Peru from 2014 to 2018. In terms of identification of ionospheric irregularities, they found good similarities between the three different data set. Their final conclusion was that SWARM data can be used as a tool to indicate presence of plasma plumes and Spread F occurrence. The data sets used in the manuscript are interesting and comparison of them in terms of plasma bubble finding, or validation study for identification of the plasma irregularities, are useful. However, if one asks

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what is a new finding in this work I could not find anything. The authors could have a new aspect if they further discuss in the data analysis, I guess. Therefore my conclusion is that the present work will not be acceptable as a scientific paper without any further scientific new finding.

Minor comments are as follows: Page 4, line 29, “Ngwira et al. (2013a)”: change to “(Ngwira et al., 2013a) Page 5, line 8, “Smith et al.,,”: change to “(Smith et al., 2015; Zhan et al. 2018) Page 5, line 29, “from the left panel of Fig. 1”: change to “from the right panel of Fig. 1” Page 7, Figure 3: Please explain why the authors plotted the maximum ranges as a function of time (days). It seems to have no relation between the maximum range and Time(days). Page 12, Figure 7: The authors did not discuss in the case of “Irregularities observed by SWARM only”. According to the height coverage of Julia radar (90 to 800 km), any irregularities detected by SWARM should be detected by Julia radar. It could be difference of threshold of detection amplitude (?), further discussion would be helpful for readers. Page 16, line 1, “The Bragg condition”: Please explain what is “Bragg condition” for readers who are not familiar to the phrase. Page 17, Conclusions, lines 13-14: “A few exceptions were also observed when,”: Further scientific discussion would be valuable for readers.

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