Response to Reviewer #2

Arecibo measurements of D-region electron densities during sunset and sunrise: implications for atmospheric composition

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We would like to thank the referee #2 for taking the time to review our manuscript. The constructive comments on our manuscript and the overall positive judgement of our work are appreciated. Especially, the additional VLF references are appreciated as this topic was not well represented.

In the following we will address all comments point by point.

Page 1 Para 20: The relevant citations be added to rocket borne in situ measurements (citations), interpretation of VLF radio wave reflections (citations) and its sensing by means of incoherent scatter from free electrons and Faraday rotation. For the VLF following citations are suggested:

Han, F., & Cummer, S. A. (2010a). Midlatitude daytime D region ionosphere variations measured from radio atmospherics. Journal of Geophysical Research, 115, A10314. https://doi.org/10.1029/2010JA015715

Kumar, A., & Kumar, S. (2020). Ionospheric D region parameters obtained using VLF measurements in the South Pacific region. Journal of Geophysical Research: Space Physics, 125, e2019JA027536. https://doi.org/10.1029/2019JA027536

Maurya, A. K., Veenadhari, B., Singh, R., Kumar, S., Cohen, M. B., Selvakumaran, R., et al. (2012). Nighttime D region electron density measurements from ELFVLF tweek radio atmospherics recorded at low latitudes. Journal of Geophysical Research, 117, A11308. https://doi.org/10.1029/2012JA017876.

Thomson, N. R., Clilverd, M. A., & McRae, W. M. (2007). Nighttime D region parameters from VLF amplitude and Phase. Journal of Geophysical Research, 112, A07304. https://doi.org/10.1029/2007JA91227

We incorporated your suggested references throughout the manuscript at the mentioned places.

Page 12-13, Para 270: Other studies using MF radar and VLF observations (Coyne and Belrose, 1972; Laštovicka, 1977; Li and Chen, 2014, e.g.). None of the citation is from VFL study. Please check. The VLF is the most coseffective and forms a novel tool to study D-region under the normal and natural Hazards which I think needs to be given bit more emphasis.

Thank you for pointing out that appropriate references were missing, we added studies from your suggested list. The citations at the location you mentioned have been

separated according to their subject (VLF and MF).