

Response to Reviewers' Comments

We would like to thank the editor and the referees for useful comments and suggestions. We have made the suggested changes/corrections to the manuscript. Below is the summary.

In the Abstract, we have modified line 1 into "...the investigation of the ionospheric response to..." and lines 14-15 into "...cross-sectional cuts..."

In the Introduction, we have modified line 30 into "see Aplin et al., 2016 for an overview" lines 54-55 into "...ionospheric response to..." and lines 69-71 into "...Section 3 describes the results, Section 4 presents the discussion of the findings, and Section 5 the conclusion."

In the Instruments and Methodology section, we have modified line 112 into "...the two frequencies..."; and we have also modified Figure 3 to include the solar eclipse path line visualization on 25 and 27 December 2019, plus a sample TEC keogram in panel (d).

In the Observation Results section, we have made the suggested changes:

In line 285, we have modified the sentence into "...averaging the TEC values on 25 and 27 December 2019..." (26 December 2019 was excluded from the baseline TEC averaging)

In lines 321-322, we have modified the labeling to make use of the sub-labels.

In line 334, we have modified the wording into "...approaching the maximum eclipse..."

In line 367, we have removed the word "occurs"

In line 390, we have removed the extra "the"

In the Discussion section, we have modified lines 465-466 into "...The significant difference in the findings of Adeniyi et al. (2007)..." and we have also revised lines 532-534 into "This scenario predicts that the 'shallow TEC valley' would have happened over the ocean region. However, the 'shallow TEC valley' was in fact found over land mass (well-populated with receiver stations), contrary to what this scenario predicts. Hence, we can rule out systematic bias shift and extreme slant factor as the root cause of the 'shallow TEC valley' feature. As such, a few major instrumental artefacts have been ruled out, and the question regarding the responsible physical mechanism remains open."