

Interactive comment on “Morphology of GPS and DPS-TEC Over an Equatorial Station: Validation of IRI and NeQuick 2 Models” by Olumide O. Odeyemi et al.

Anonymous Referee #1

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The manuscript show an interesting work on the comparison between GPS-TEC and DPS-TEC, and on the validation of IRI-TEC and NeQ-TEC, at equatorial latitude, and during low solar activity. The authors found that there is a solar zenith angle dependence of the variations in GPS-TEC DPS-TEC, IRI-TEC and NeQ-TEC. They also show a faster increase of DPS-TEC, IRI-TEC and NeQ-TEC, with respect to GPS-TEC, during sunrise. The authors suggest a misinterpretation of the topside Ne profile of the DPS-TEC, IRI-TEC and NeQ-TEC, due to the incorporation of the plasmaspheric electron content (PEC) into the models. Their conclusion is that the DPS-TEC is suitable to predict GPS-TEC during daytime when PEC contribution is often negligible, while should be paid attention when considering dusk period: a substantial correction is

needed. The paper describe an interesting investigation in order to improve models for the equatorial latitudes. I suggest the paper for final publication after some minor revisions.

Line 15: A better description of the geomagnetic conditions of the “quiet days “ taken into account for the analysis, For example showing some geomagnetic index related to the considered periods

Line 176: there is a typing error in the equation Line 179: explain better what do you mean for “most quiet slant GPS-TEC data” Line 204 -205: delete “(Universal time)”

Line 211 – 213: The meaning of the sentence has to be better explained Line 230 : “GPSTEC” has to be replaced by “GPS-TEC” Line 285: "DPS-TEC constantly" has to be replaced by "DPS-TEC is constantly" Line 352: "slowly reached" has to be replaced by "slowly reaches" Line 353: "later decay" has to be replaced by "later decays" Line 437 – 439: The meaning of the sentence has to be better explained.

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Discussion paper

