

# ***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.***

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We thank the referee for their constructive comments and suggestions. We are very glad to alter many of the suggested changes. Please, find below our point-by-point replies to your suggestions.

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.

The statement in Line 15 has been rewritten to accommodate geomagnetic in-

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dex of the quiet days used: The five most quietest days with  $Ap \leq 4$  of each month were employed for the investigation. The quietest days for the investigation were taken from the international quiet days (IQD) from the website [http://www.ga.gov.au/oracle/geomag/iqd\\_form.jsp](http://www.ga.gov.au/oracle/geomag/iqd_form.jsp).

Line 176: there is a typing error in the equation

The typing error in Line 176 has been rewritten as:  $S(E) = 1 / (\cos \alpha(z)) = [1 - ((R_E \times \cos \alpha(E)) / (R_E + h_s))^2]^{(-1/2)}$

Line 179: explain better what do you mean for “most quiet slant GPS-TEC data”

The explanation of most quiet slant GPS-TEC data is given as: The five most quiet slant GPS-TEC data are slant GPS-TEC data recorded from the GPS receiver during the five most quiet days from the international quiet days (IQD) from the website [http://www.ga.gov.au/oracle/geomag/iqd\\_form.jsp](http://www.ga.gov.au/oracle/geomag/iqd_form.jsp) of each month in the year 2010. The slant TEC of most quiet days is converted to vertical TEC of most quiet days with the expressions below.

$\Delta(GPS-TEC) = (GPS-TEC) - [b_S + b_R + b_SR] / S(E)$  1  
 $S(E) = 1 / (\cos \alpha(z)) = [1 - ((R_E \times \cos \alpha(E)) / (R_E + h_s))^2]^{(-1/2)}$  2

Line 204 -205: delete “(Universal time)” The Universal time has been deleted and the statement now reads: Thus, 0100 UT is the same as 0200 LT in Nigeria.

Line 211 – 213: The meaning of the sentence has to be better explained.

The statement has been rewritten as: The median of the five most quietest days of each month was deduced. Therefore, the average of the median of the five most quietest days under a particular season discussed above was inferred to give GPS-TEC, DPS-TEC, IRI\_TEC and NeQ-TEC a particular season.

Line 230: “GPSTEC” has to be replaced by “GPS-TEC” The statement now reads:  $\Delta_{(GPS/DPS)}$ , represents the change between GPS-TEC and DPS-TEC

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Line 285: "DPS-TEC constantly" has to be replaced by "DPS-TEC is constantly" The word has been rewritten as DPS-TEC is constantly lower than the GPS-TEC

Line 352: "slowly reached" has to be replaced by "slowly reaches" The phrase has been changed to: slowly reaches

Line 353: "later decay" has to be replaced by "later decays" The phrase later decay has been changed to: later decays

Line 437 – 439: The meaning of the sentence has to be better explained. The statement has been rewritten as:

Our findings show that the variations in GPS, DPS, IRI, and NeQ-TEC are maximum and minimum around noontime and pre-sunrise or sunrise minimum indicating that both observed and modeled TEC are solar zenith angle dependence.

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