

Ann. Geophys. Discuss., referee comment RC1
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Comment on angeo-2021-34

Anonymous Referee #1

Referee comment on "Latitude Oscillations of Zonal Mean Total Electron Content and Super-Fountain Effects Provided from Global GNSS Stations" by Mohammad Joghataei et al., Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2021-34-RC1>, 2021

The manuscript present TEC variations using 19 years of IONEX data. The manuscript is not well presented and the methodology adopted is questionable. The novelty and new understanding form the present study is not visible. Overall, the manuscript is not upto the standards of the journal. The manuscript needs major revisions addressing following issues.

- The main objective of the present work is not described. In the introduction, the main objective of the study, related background and importance of present objective must be stated clearly.
- Data analysis: For zonal mean TEC estimation, whether geographic latitude is considered or geomagnetic latitude. It looks like that the geographic latitude is considered. If so, the on global scales, the geomagnetic equator vary significantly and any geographic latitude range do not have same geomagnetic latitude. So, the derived zonal mean TEC provides erroneous and suppressed information of EIA since EIA structure is geomagnetic latitude dependent.
- Statement on planetary wave signatures is too superficial without suitable wave analysis. I am also not sure, whether the wave features can be persistent after averaging TEC over the complete globe.
- Table 1: What does 0.1 TECU represent written after 'Maximum zonal-mean TEC average' ?
- Figures 4, 5, 6: The figures are not clear. Axis labels, tick labels and legends are not at all visible.
- Line 65: What is meant by 'Maximum diurnal of TEC location' ?
- Lines 65-68: The sentence is not clear and must be rewritten.