

Review report of the manuscript entitled “*Quarterdiurnal signature in sporadic E occurrence rates and comparison with neutral wind shear*” by Jacobi et al.

The present work portrays the QDT signature in the E_s plasma irregularities in the ionosphere and their relation with the MLT region neutral wind shear. They found good agreement between the positive phase of the QDT in the E_s layers and the negative wind shear in the MLT most of the time of the year. Their results are interesting and well-presented in the manuscript. However, a few important points should be addressed before it can be considered for publication.

Specific points

- P-4, Line. 12-13: Authors mentioned that “slightly above 100 km”. Actually, it is mostly below 100 km.
- P-7, Line. 11-12: “Due to this sampling irrespective of longitude, only migrating components contribute to the diurnal cycle in our analyses”. It is not clear why only migrating components contribute.
- Figure 1a: In northern winter high OR near 15° latitude around 98 km is evident. What is the reason for that? What is the reason for equinoctial asymmetry in OR during SON while it is very symmetric during MAM?
- Figure 2: Only winter is shown. Results of all 4 seasons could be shown in order to be complete and consistent with Figure 1.
- Figure 4: Only a single representative altitude (110 km) is shown. More altitude bins (3 or more) could be included to strengthen the claim of the authors.
- Figure 6: There is a clear inconsistency in the QDT phase between the occurrence rate and wind shear in summer when QDT is found to be weak as mentioned by the authors. It implies that the estimated phases in the wind shear in summer are incorrect. Authors should substantiate the statement in detail.
- Figure 7: Only 110 km altitude is selected. At least 3 more altitude bins could be shown to corroborate the inference.

Technical points

- P-1, Line. 5: “quarterdiurnal (QDT)” to “quarterdiurnal tide (QDT)”
 - P-2, Line. 17-19: “Assuming...” Correct the sentence.
 - P-2, Line. 24: Correct “connection of” to “connection between”
 - P-2, Line. 27: add “and QDT” after “TDT”
 - P-3, Line. 6-8: “The seasonal/latitudinal.....” Split the sentence, it is too long.
 - P-9, Line. 10-13: The sentence is too long. It is better to split.
 - P-9, Line-16: Correct “so that a correlation of” to “so that a correlation between”
 - P-9, Line. 21: Correct “compared with observations” to “in comparison with observations”
 - P-9, Line. 26: Correct “increased resolution” to “higher resolution”
 - Figure 1: Colorbar: Correct “1/1000” to “×1/1000”
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- Articles are missing at several places in the text.
 - In “introduction” section to describe past studies, both present perfect and past tenses are used. Authors are suggested to adhere to past tense only.