

Interactive comment on “Mesospheric turbulence during PMWE-conducive conditions” by C. M. Hall et al.

C. M. Hall et al.

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We, the authors thank the referees for their comments.

In response to Referee #1, we concede that the information presented is very qualitative and that this ought to be corrected in a future revision. We were unaware that access to observational data and inclusion of equations in the manuscript were prerequisites. The method of estimating turbulent intensity together with its substantiation is, however, accessible via the references given.

Referee #2 also points to the qualitative nature of the paper, but indicates more constructively where improvements might be made. Answering the points that arose:

(1) The earlier reports of ILME are contained in Hall et al. 2006 in the reference list. This could be explicitly included in a revised manuscript.

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(2) and (4) we agree that any dependence of turbulence on proton flux is very speculative. A better presentation of the information in the 3rd column of Figure 4 would indeed be required in a future manuscript, as would a more quantitative/statistical treatment.

(3) We appreciate the encouraging remarks on our hypotheses for mechanisms, and agree that the referee's point 2 must be addressed first

(5) The point we are trying to make is that many factors contribute to the degree to which the atmosphere is turbulent, and these are likely to mask any clear correlation with proton flux. This is also why a more quantitative correlation analysis is very difficult to perform: one must first remove effects of other mechanisms from the turbulence dataset or at least excludes their influence in the analysis. Hence the qualitative approach in our paper.

(6) And (7) are important, of course, and easily corrected.

To summarize, we agree that that a better presentation of the turbulence vs. proton flux aspect is desirable, together with a quantitative approach to identifying (or otherwise) any dependence of turbulence on proton flux. We would like to emphasize, however that this was not the sole object of the study; we suggest that enhanced turbulence is not a prerequisite for ILME, and that the presence of ILME (at MF) is an indicator that PMWE would be observable (at VHF), and therefore that enhanced turbulence is a prerequisite for PMWE is not a certainty. Finally, we draw attention to the last sentence in the conclusion in which we point out that a fuller (and hence quantitative) analysis of any dependence of turbulence on proton flux might be a subsequent study.

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