

# ***Interactive comment on “Neutral air turbulence in the mesosphere and associated polar mesospheric summer echoes (PMSEs)” by Alireza Mahmoudian et al.***

## **Anonymous Referee #1**

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This paper presents the simultaneous PMSE observations at four radar frequencies and a comparison to a model of the PMSE formation. The presented observations are new and interesting and the manuscript may include new scientific results. A meaningful review of the manuscript is only possible after additional work and revision.

The authors present an interesting set of new observation, but unfortunately the organization and writing of the manuscript makes it hard for the reader to follow the presentation and to understand its conclusions: The paper includes a lengthy introduction, but it is not evident from the introduction what exactly the authors want to study. The numerical model that the authors apply is not sufficiently described. The paper

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includes a comparison of normalized echo powers measured with different radars, but the applied normalization is not described. The observations are made during artificial heating. It is not sufficiently described how the heating is included in the numerical model that the authors compare to the observations. The conclusion section includes mainly discussion and it is difficult for the reader to find a conclusion to the work. The language is not precise and the text is not well structured.

Minor comments The labels in figures 4 – 8 are too small. Check spelling of ÅńLue-bkenÅż.

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Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-81>, 2020.

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