

Interactive comment on “Dissipation rate of turbulent kinetic energy in stably stratified sheared flows” by Sergej Zilitinkevich et al.

Anonymous Referee #3

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The topic of the manuscript is of fundamental importance in the field of atmospheric turbulence. The manuscript is theoretically convincing, demonstrating a thorough understanding on the physics of turbulence, but I see two major issues that require more attention.

1. The results and conclusions presented are strongly based on DNS results, but the DNS experiments are presented very briefly: only a few sentences on lines 8-17 on page 4. This is not sufficient to convince a reader on the relevance of the experiments and the accuracy and robustness of their results. The models and the experiment setup have to be described much more in detail.

2. The conclusions of the study are based on comparison of DNS results and observations, but the observations are described even more briefly than the DNS experiments:

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only lines 13-14 on page 5. It is well known that ABL observations in conditions of stable stratification are very liable to errors. In fact, in Section 4 the authors pay attention on the observational challenges. Hence, it is surprising that they do not evaluate the error sources and accuracy of the observational data that they have used themselves. The good match between the DNS results and observations does not guarantee that both are error-free. They may have same kind of biases.

Hence, a major revision is needed before I can recommend acceptance of the manuscript.

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