

Interactive comment on “High-resolution large-eddy simulations of sub-kilometer-scale turbulence in the upper troposphere lower stratosphere” by R. Paoli et al.

Anonymous Referee #2

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The paper uses a meteorological LES model to simulate mesoscale turbulence in the upper troposphere and lower stratosphere. The results from the simulations are consistent with previous idealized box-simulations of stratified turbulence and theoretical predictions from the recently emerging new paradigm of "stratified turbulence". Although the numerical set-up is still rather idealized the use of a meteorological model is a significant step in bringing new theoretical findings to practical use. The paper is generally well written.

There is one thing I really miss, and which I think the authors should include in the paper: temperature spectra, or more appropriately temperature spectra converted into

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available potential energy spectra (APE). The ratio of APE to KE in the $k^{5/3}$ range should also be given. The results may be compared to the results from other simulations.

Another thing that the authors may consider, is to make a rotational/divergent decompositions of the KE-spectra and compare with previous findings, for example the calculation of Lindborg (JAS, 2007) based on measurements of structure functions.

To summarize, I recommend publication, provided that the authors include the suggested material.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 31891, 2013.