

Interactive comment on “Formulation of and numerical studies with the Dutch Atmospheric Large-Eddy Simulation (DALES)” by T. Heus et al.

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We thank the reviewer for the constructive comments and helpful suggestions to improve the manuscript. The main point of critique of the referee, the lack of resolution studies, has been addressed in an additional section for a few key cases, at points where the resolution dependency starts to get significant.

0.1 Specific comments

- The switch between wet and dry coefficients may be abrupt, but is not arbitrary. This value is chosen so that for equidistant grids, the switch corresponds exactly to the cell interface. For non-equidistant grids, the criterion is therefore slightly

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- different; this is reflected in eq. 18 in the revised manuscript.
- The c_h values for unstable flow are also given by equation 26. The manuscript is clarified to emphasize this point.
 - We've rewritten this section after comments by the other referee on the validity of this semi-local approach of the surface layer parameterization. In general the validity of MO theory on such local scale is questionable, and therefore it is advisable to work with average values.
 - The main difference lies in the use of RK3 time integration instead of leap frog; this is clarified in the manuscript.
 - The new manuscript has been adapted to incorporate this comment.
 - Due to the cloud top instability of RF01, is this case sensitive to any parameter change. This is much less true for Eurocs. Altered the manuscript accordingly.

The technical corrections are all taken into account in the revised manuscript.

Interactive comment on Geosci. Model Dev. Discuss., 3, 99, 2010.

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