Supporting Information for "Vertical resolution impacts explicit simulation of deep convection"

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1. Figures S1 to S4

Introduction

The following contains supplemental figures and any accompanying information for the main manuscript, "Vertical resolution impacts explicit simulation of deep convection."

Description of Figures

Using equation (1) from the main text, we explore the relative contributions from temperature and detrainment to the difference in the simulated relative humidity profile. Figure S1a shows relative humidity calculated with equation (1) from the main text, in which we fix the detrainment to the mean profile from nz_256, and use the simulated temperature profile from each simulation. The result (dashed lines) show that differences in temperature do not contribute to the simulated spread in relative humidity between the simulations (solid lines). Dashed lines in Figure S1b are computed in the same way, except temperature is held fixed to the nz_256 profile, and the relative humidity is calculated using the simulated detrainment profiles.

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Figure S2 shows snapshots of precipitable water from day 5 (top row) and day 150 (bottom row) of the small domain simulations.
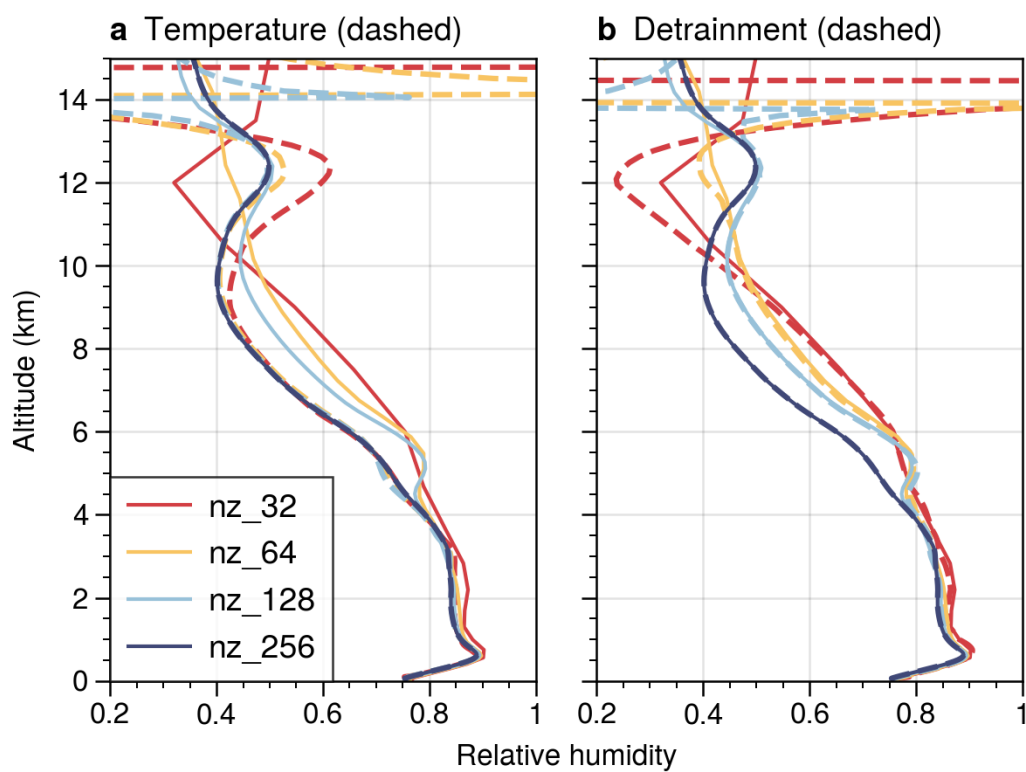
References

Figure S1.   Relative humidity calculated following equation (1) from the main text using (a) the mean detrainment profile from the nz_256 simulation and simulated temperature profiles from each simulation and (b) the mean temperature profile from the nz_256 simulation and simulated detrainment profiles from each simulation.
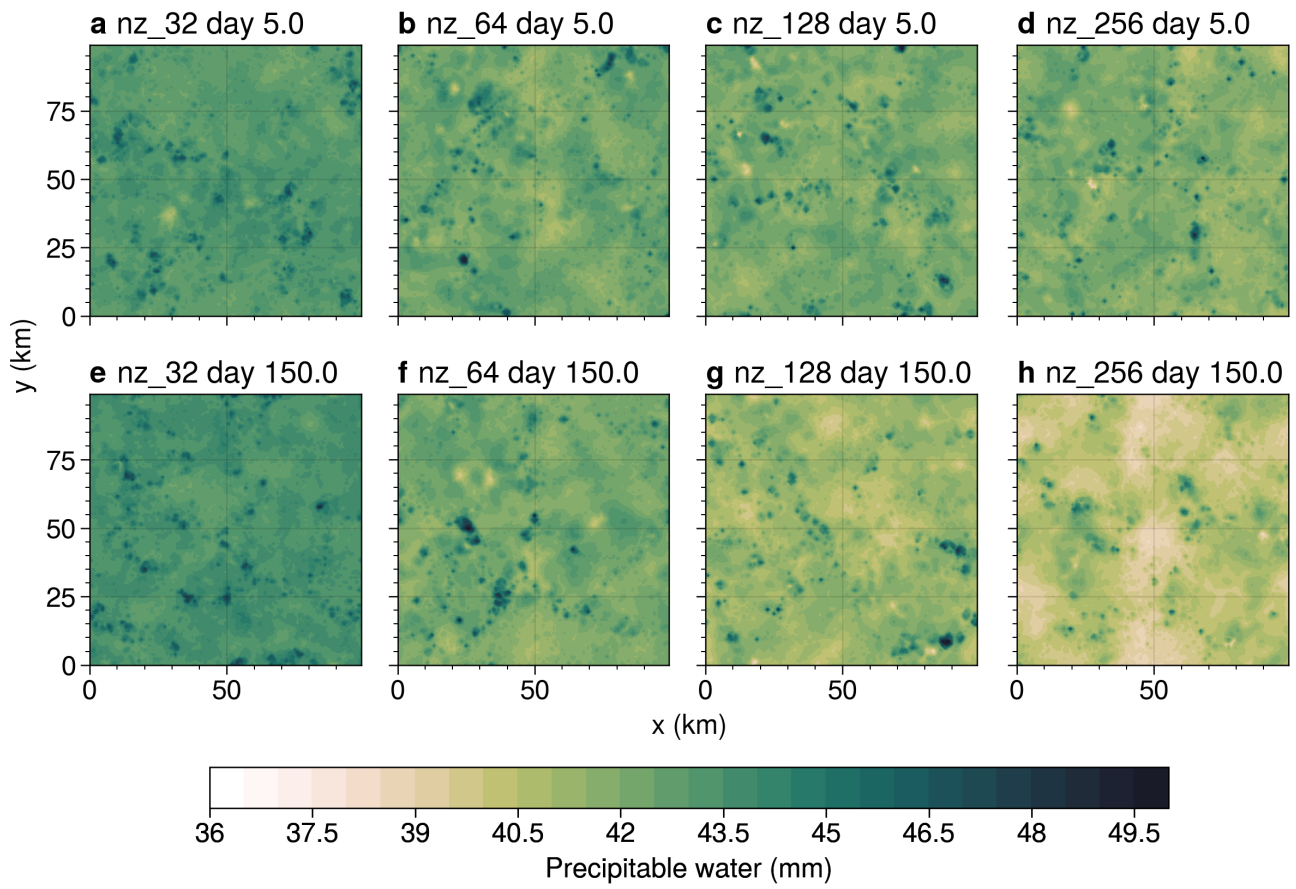
Figure S2. Snapshots of precipitable water for small domain simulations at day 5 (top row) and day 150 (bottom row).