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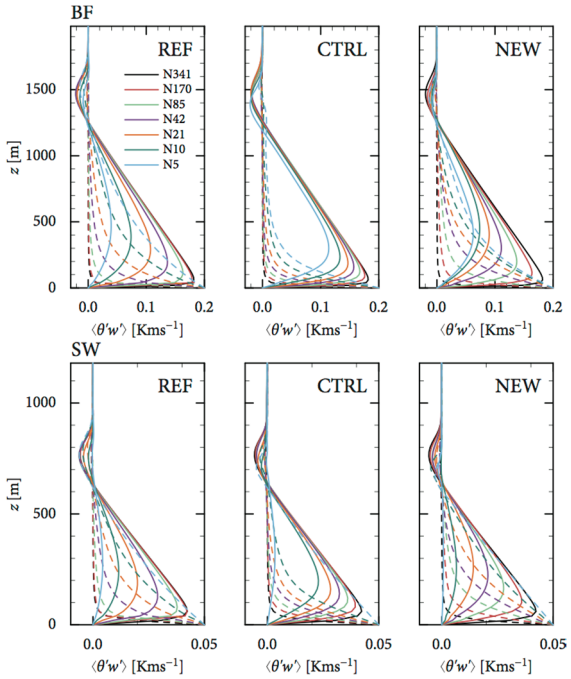

Figure 1. Vertical profile of the temperature flux. The results for the BF and SW cases are shown in the upper and lower panels. The solid and dashed lines indicate the GS and SGS components of the flux. The left panel displays the flux obtained from the N341 experiment using the procedure of a priori analysis.

- A new formulation for eddy viscosity and thermal eddy diffusivity is presented to constitute a turbulence closure model applicable to the terra incognita range in which neither the Reynolds Averaged Navier-Stokes Simulation (RANS) nor the Large-Eddy Simulation (LES) is appropriate.
- The anisotropic length scales are empirically determined as a function of the model resolution using the results of the a priori LES analysis and are applied to the Deardorff model.
- The proposed model improves the representation of the vertical heat flux and the magnitude of the resolved convection even for the resolutions including the terra incognita range, while the original Deardorff model tends to underestimate the subgrid heat flux with increasing the grid size.