Grid-size dependence of shallow Cu simulations

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Based on RICO case described by Abel & Shipway:
Grid-size dependence in a large-domain LES

• **RICO trade wind cumulus case**: 19 Jan 2005

• **University of Utah LES model** (Zulauf 2001)

• **Control simulation**: 100 m horizontal grid size, 40 km x 40 km domain, 24 h simulation

• **Grid-size dependence simulations**: 500 m, 1000 m, 2000 m, 4000 m horizontal grid sizes

• **Subgrid-scale turbulence length scale dependence simulations**: length scale is given on plots
\[(dx \cdot dy \cdot dz)^{1/3}\]

dz
\[(dx \times dy \times dz)^{(1/3)}\]
(dx*dy*dz)^(1/3)

dz

Figure 30: Average over all cloudy grid points of w
Figure 33: Average over all cloudy grid points of \( q_l \)
\((\text{dx} \times \text{dy} \times \text{dz})^{(1/3)}\)
$(dx*dy*dz)^{(1/3)}$
$$(dx \cdot dy \cdot dz)^{(1/3)}$$

dz

Figure 9: Resolved variance of the vertical wind