Figure S1. Time-varying distributions of liquid water paths and ice water paths from COSMO-NWP, WRF, and UM-CASIM for the case with a prescribed CDNC of 30 cm^{-3} and ICNC of 0.2 L^{-1} (CDNC30_ICNC0p20). All values are shown for a 100 km^2 area centred at the centre of the domain. Red dotted lines give the area maximum and minimum values, orange dash-dotted lines give the 95th and 5th percentile values, green dashed lines give the 75th and 25th percentile values, green solid lines give the median values, and blue solid lines give the centre-of-domain values.
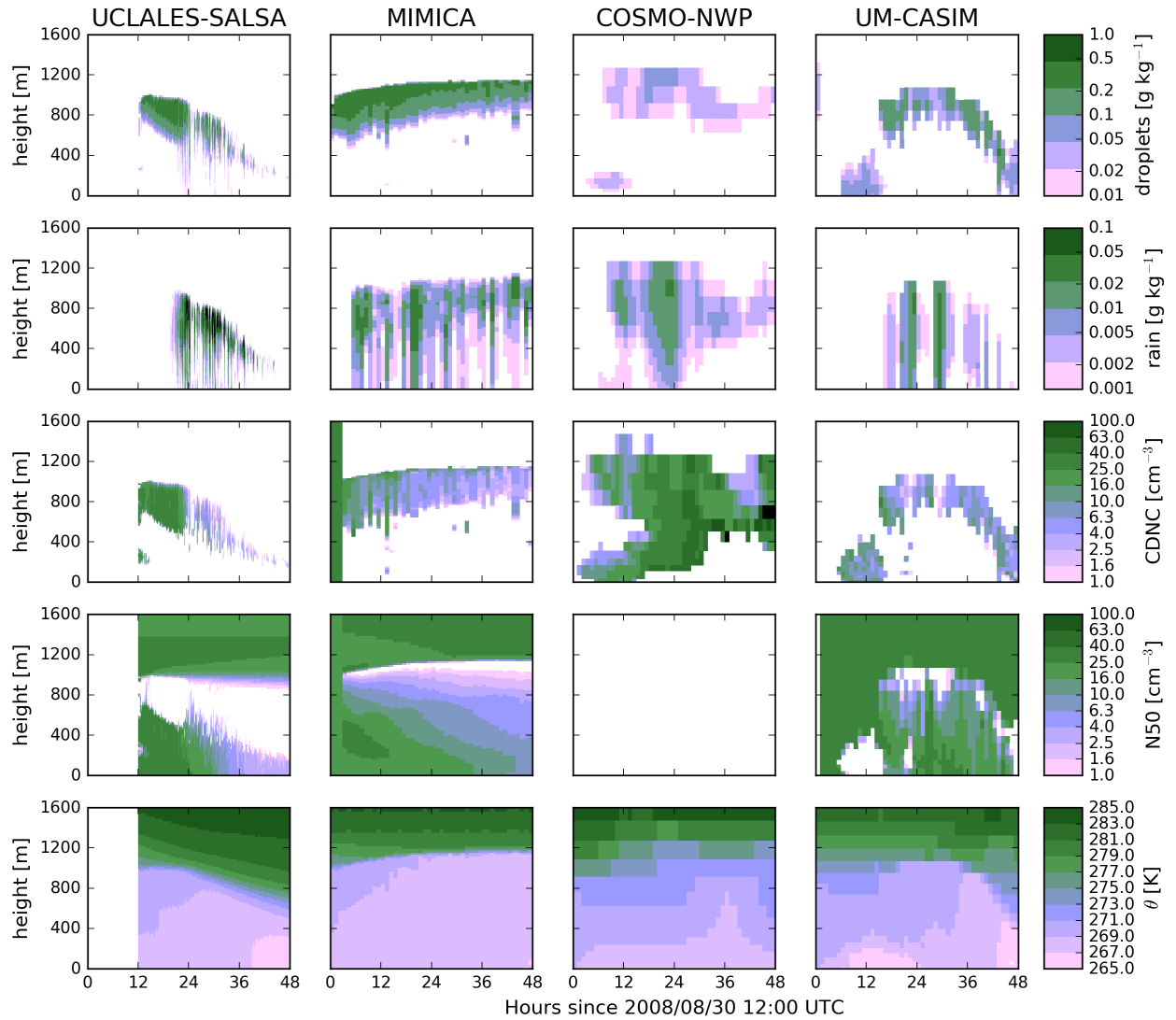
Figure S2. Cloud properties in the simulations with prognostic aerosol and an initial CCN concentration of 30 cm^{-3} (CCN80prog_noice). Top row: cloud droplet mass mixing ratio, second row: rain mass mixing ratio, third row: cloud droplet number concentration, fourth row: N50 concentration, bottom row: potential temperature. Results are shown from the (from left to right) UCLALES-SALSA, MIMICA, and UM-CASIM models. Note that aerosol concentrations and CDNCs are fixed during the two-hour spin-up period in MIMICA, and N50 concentrations are not available for COSMO-NWP.