



Case studies of observed fog development over flat terrain.

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Case studies of observed fog are presented from data collected at the UK Met Office Research Unit, Cardington, Bedfordshire, UK. An ongoing programme to conduct data collection and analysis of fog days over the site began during 2006 and this paper contains some preliminary results. Fog evolution is analysed over periods from 12-48 hours with the emphasis on identifying the main processes responsible for its behaviour. Measurements include time series of winds, turbulence, temperature and humidity up to 200m above ground, and surface parameters including some microphysical measurements. Regular profiles were also collected with a tethered balloon system and radiosondes. Cases include instances where radiation fog with an initially stable temperature profile evolves after several hours into a layer with a saturated-adiabatic temperature profile. This is coupled with the change in fog dynamics once the layer becomes optically thick. Some preliminary observations of the evolution of fog droplet spectra are presented which appear to follow a particular path. A companion paper presents an LES simulation for one of the cases presented.