



Effect of a mesoscale cut-off low on the convective stability of the troposphere

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A mesoscale cut-off low (or potential vorticity (PV) anomaly) moved across Wales and southern England on the 15th June 2005. This feature was observed on ECMWF PV charts, MSG water vapour images and in TOMS total ozone data. A clear tropopause fold was also seen in the Mesosphere-Stratosphere-Troposphere (MST) radar data (located at Aberystwyth, Wales) for the 15th June 2005. The combination of these data allows the accurate determination of the position of the cut-off low during this day.

The movement of the PV anomaly across southern England (behind a cold front) was coincident with the development of an isolated thunderstorm during a day that was otherwise notable because of widespread convective inhibition (CIN). This event occurred during the Convective Storm Initiation Project (CSIP) in the UK and the relatively high resolution data from CSIP radiosondes and radars presented here indicates that the PV anomaly was a major influence in determining the thermodynamic structure of the troposphere and the subsequent development of the convective storm despite the high CIN.