

# The development of tornadic storms near a surface warm front in England

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## The tornado in Birmingham (UK)



photo: Birmingham City Council

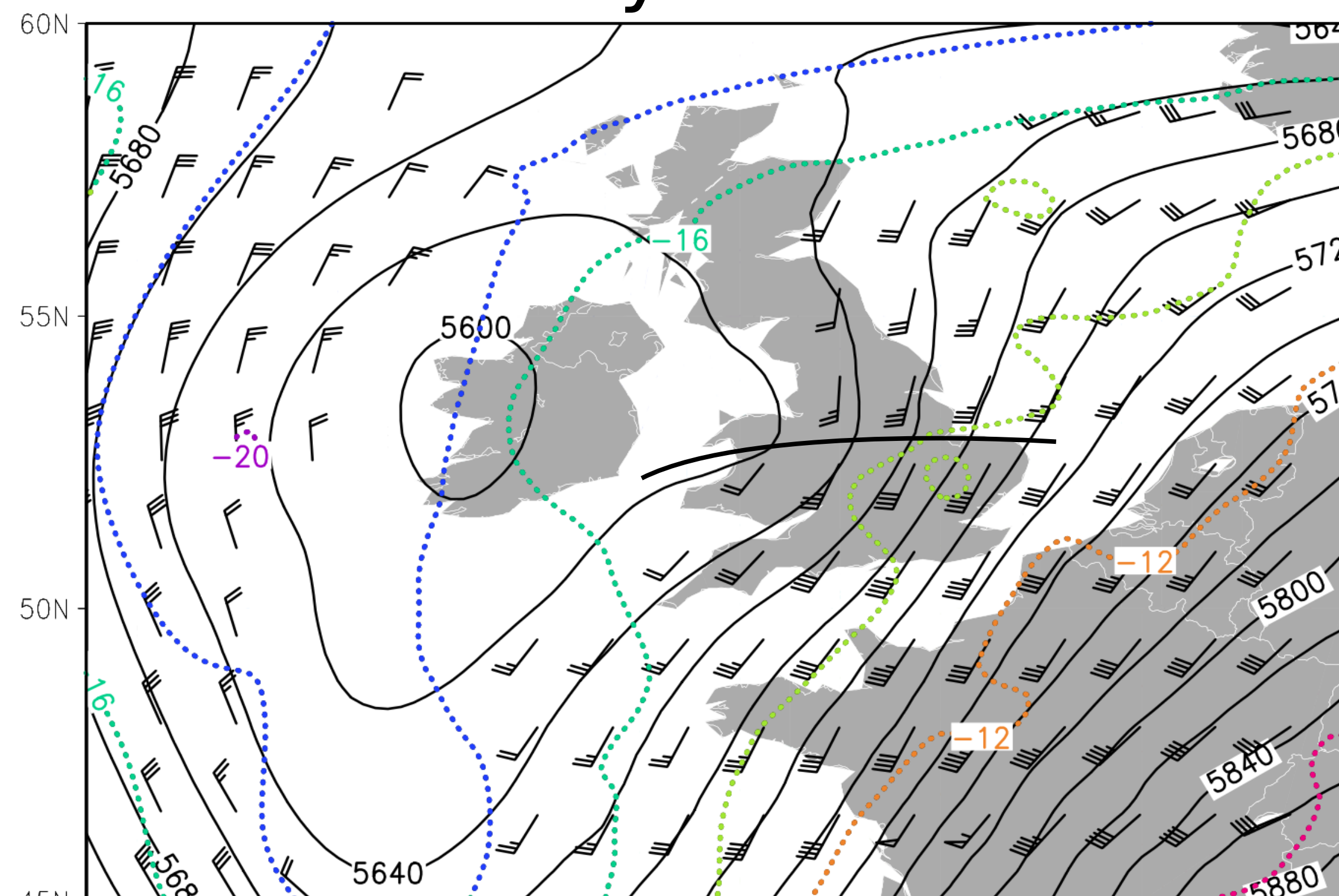
On 25th July 2005, three tornadoes developed across central England. One produced F2 damage as it moved through the city of Birmingham (Marshall and Robinson, 2006)

The Convective Storm Initiation Project (Browning et al., 2007) provided radiosonde, surface and remote-sensing data.

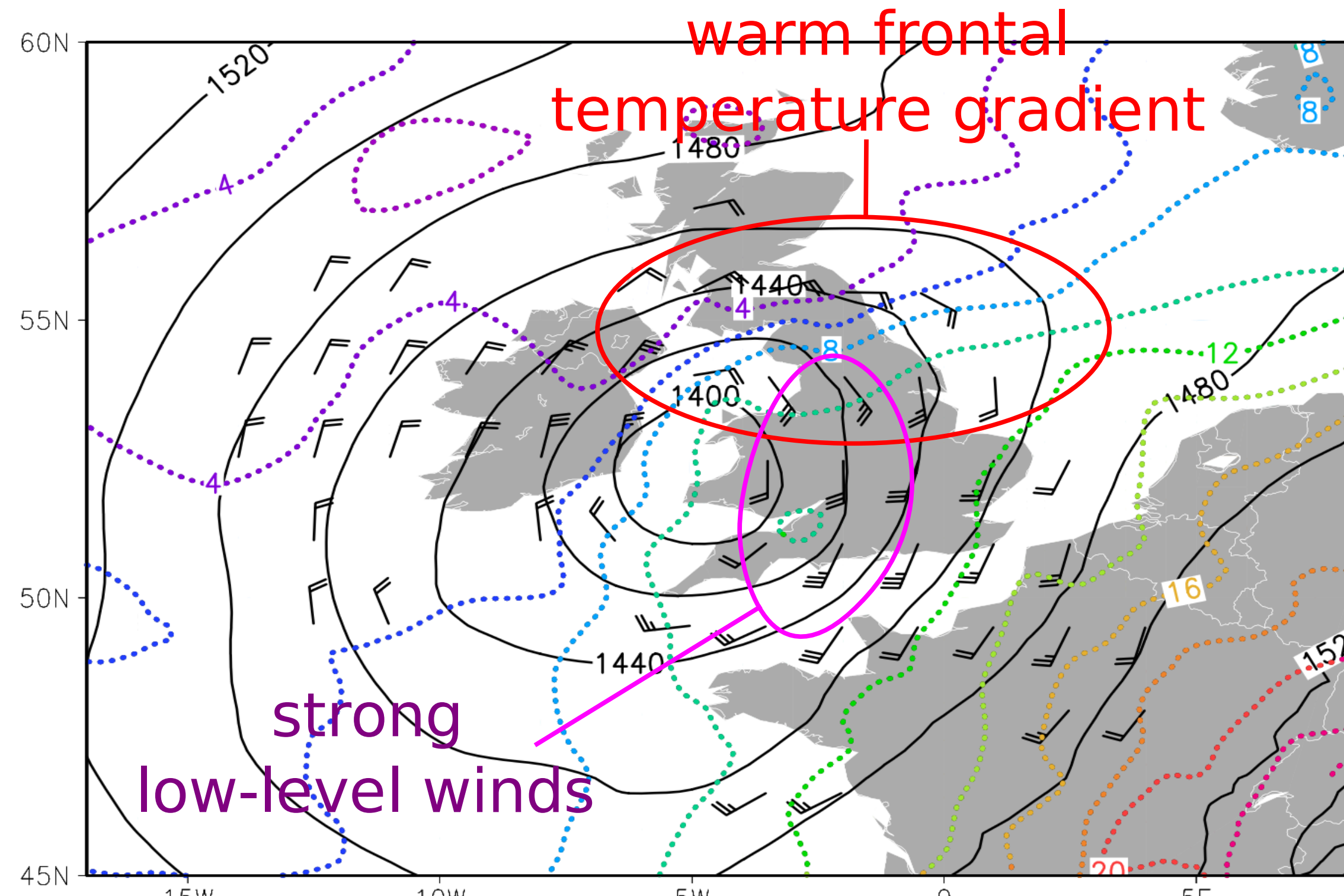


## Meteorological situation

ECMWF analysis at 1200 UTC



500 hPa  
geop. height,  
temperature  
and wind



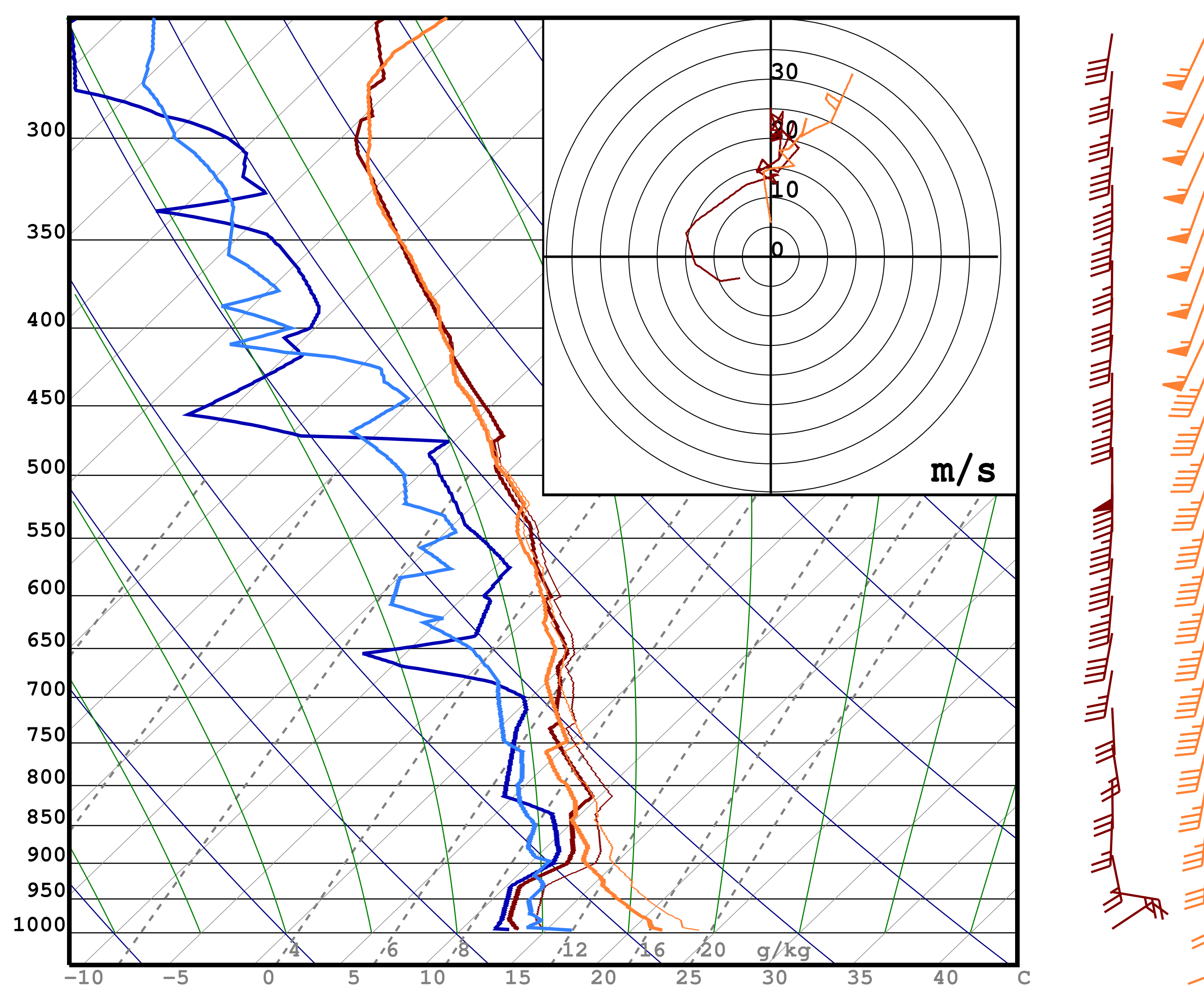
850 hPa  
geop. height,  
temperature  
and wind

East of a cyclone a SWly jet stream was located over western Europe. A mid-level shortwave trough moved northward into England during the afternoon.

## Radiosonde

Two sondes, north and south of the warm front respectively, have strongly differing low-level winds, temperature and moisture

Brize-Norton 1159 UTC  
Nottingham 1115 UTC



north of the front      south of the front

cool and almost saturated;  
easterly winds;

warm;  
drier in a relative sense;  
unidirectional wind shear