

Exceptionally wet weather - November 2012

A sequence of heavy rainfall events in late November 2012 resulted in one of the wettest weeks in England in the last 50 years.

The rain was due to a series of low pressure systems crossing the UK. Individually, each of these events was not exceptional, but their rapid succession led to numerous impacts. With saturated ground, the rain resulted in rapid runoff causing significant and widespread flooding problems.

Impacts

There were numerous impacts from flooding, particularly affecting the transport network. The London to South West England mainline railway was closed near Exeter due to flooding. Flooding, landslips and debris affected roads, with Devon, Somerset and Gloucestershire worst affected. A bank of the Great Western Canal near Tiverton (Devon) collapsed, draining the canal into the surrounding land.

On 22 November there were further widespread flooding problems across South West England, the Midlands, Wales, Cumbria and Scotland. One man died in Somerset when his car was submerged in floodwater. In Exeter, a large retaining wall collapsed and in Plymouth there was some structural damage reported due to high winds. There were fallen trees and structural damage to buildings in the West Midlands. In Llanberis (Gwynedd), around 100 homes were affected by flash flooding, with further flooding reported in Ulverston (Cumbria) and parts of Galashiels (Borders) and Dumfries.

Devon and Cornwall were again badly affected on 24-25 November, with the mainline railway and numerous roads including the M5 closed. In Exeter, a woman was killed by a falling tree. Hundreds of homes were flooded, with locations affected including Helston (Cornwall), Kennford (Devon), Malmesbury (Wiltshire), Kempsey (Worcestershire), and parts of Somerset and Gloucestershire.

On 26 November properties were flooded in North Wales, including St Asaph (Denbighshire), with roads and rail services affected in Conwy and Denbighshire. Parts of Newcastle-upon-Tyne and a hospital in Northallerton were affected by flooding. Roads were closed and rail services affected across North East England - including the East Coast mainline near Darlington.

In total, several thousand properties across the UK were flooded. In South West England these were judged to be the worst floods since autumn 2000.

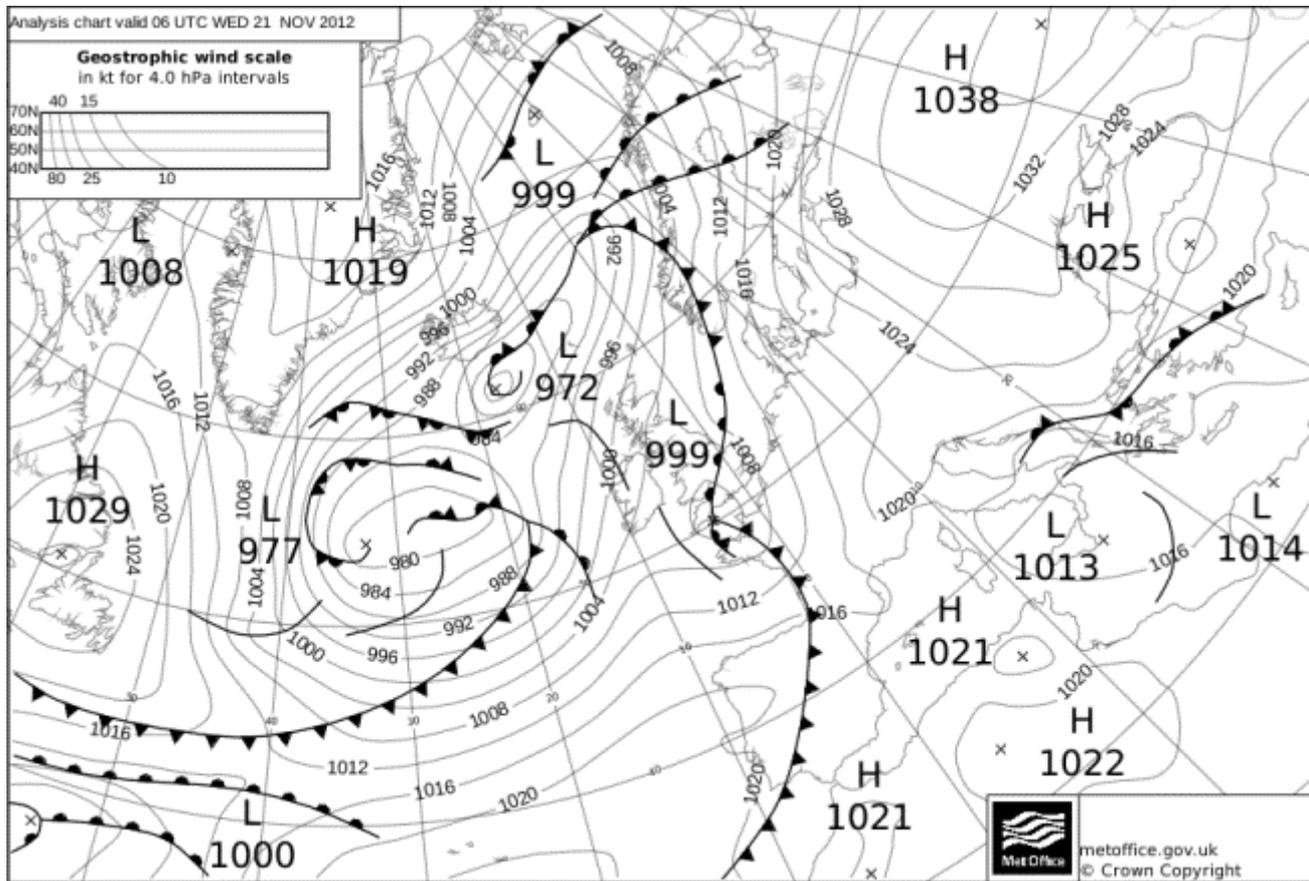
Weather data

The first weather system tracked across South West England overnight 20-21 November, bringing 40-60 mm of rain widely across south and east Devon, west Dorset and Somerset. 24-hour totals to 0900 UTC on 21st included 71.0 mm at Honiton and 62.3 mm at Holne, both in Devon. Heavier bursts of more intense rainfall within this event caused localised flash flooding.

The synoptic situation at 0600 UTC on Wednesday 21 November

Rain radar from 1200 UTC 20th to 1800 UTC 21st showing rainfall from this system moving across the UK

The second weather system was a particularly active cold front which swept across the UK during 22 November. Much of South West England and Wales received a further 20-30 mm, while the mountains of Snowdonia and the Lake District recorded over 50 mm. 24-hour totals to 0900 UTC on 23rd included 90.2 mm



at

Dinorwic, Gwynedd and 71.0 mm at Honister Pass, Cumbria.

The rain was accompanied by strong winds, gusting at 40-50 kt (46-58 mph) widely inland and 50-60 kt (58-69 mph) in exposed coastal locations.

The synoptic situation at 1800 UTC on Thursday 22 November

Rain radar from 0000 UTC 22nd to 0000 UTC 23rd showing an active cold front crossing the UK

After a brief respite, the third spell of wet weather moved up from the south-west on Saturday 24th, pushing north-east across England. A further 40-50 mm fell widely across Cornwall, Devon and Dorset and in a swathe through the Midlands to North East England. Winds again gusted at 40-50 kt across South East England.

The synoptic situation at 1800 UTC on Saturday 24 November

Rain radar from 0400 UTC 24th to 1200 UTC 25th showing rain associated with the passage of the low pressure system across the UK.

The fourth event followed rapidly, with further persistent heavy rainfall across much of northern England and north Wales from late on Sunday 25th through Monday 26th. A further 30-50 mm fell widely in these areas, with 78.2 mm recorded at Llanrwst, Gwynedd in 24 hours to 0900 UTC on 27th.

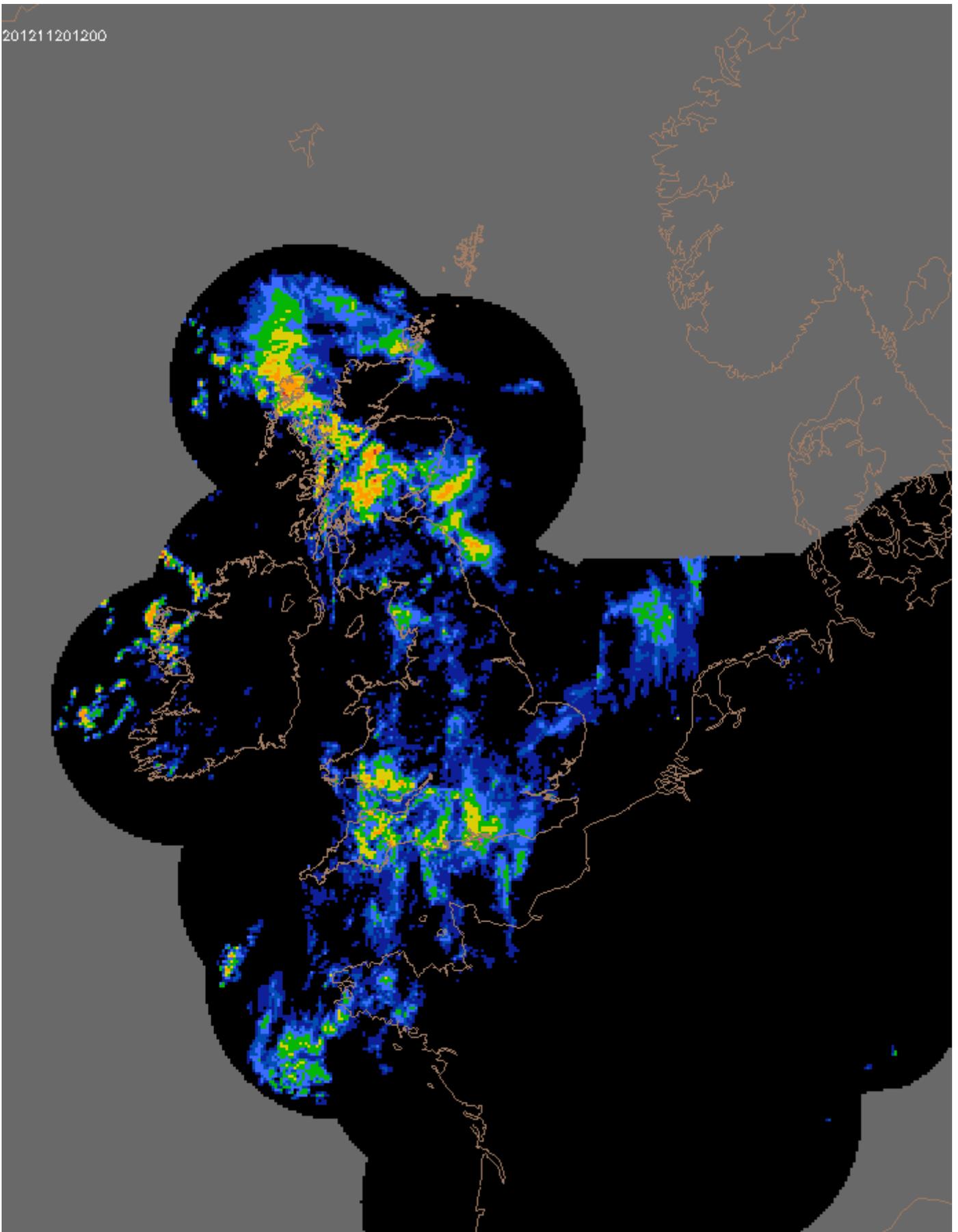
The synoptic situation at 1800 UTC on Monday 26 November

Rain radar from 1200 UTC 25th to 0600 UTC 27th showing persistent heavy rain across northern England and north Wales.

The combination of these four systems in rapid sequence resulted in an exceptionally wet week. For England, the seven-day period from 20-26 November 2012 was the second wettest week on record in the last 50 years, behind only a spell from late October to early November 2000.

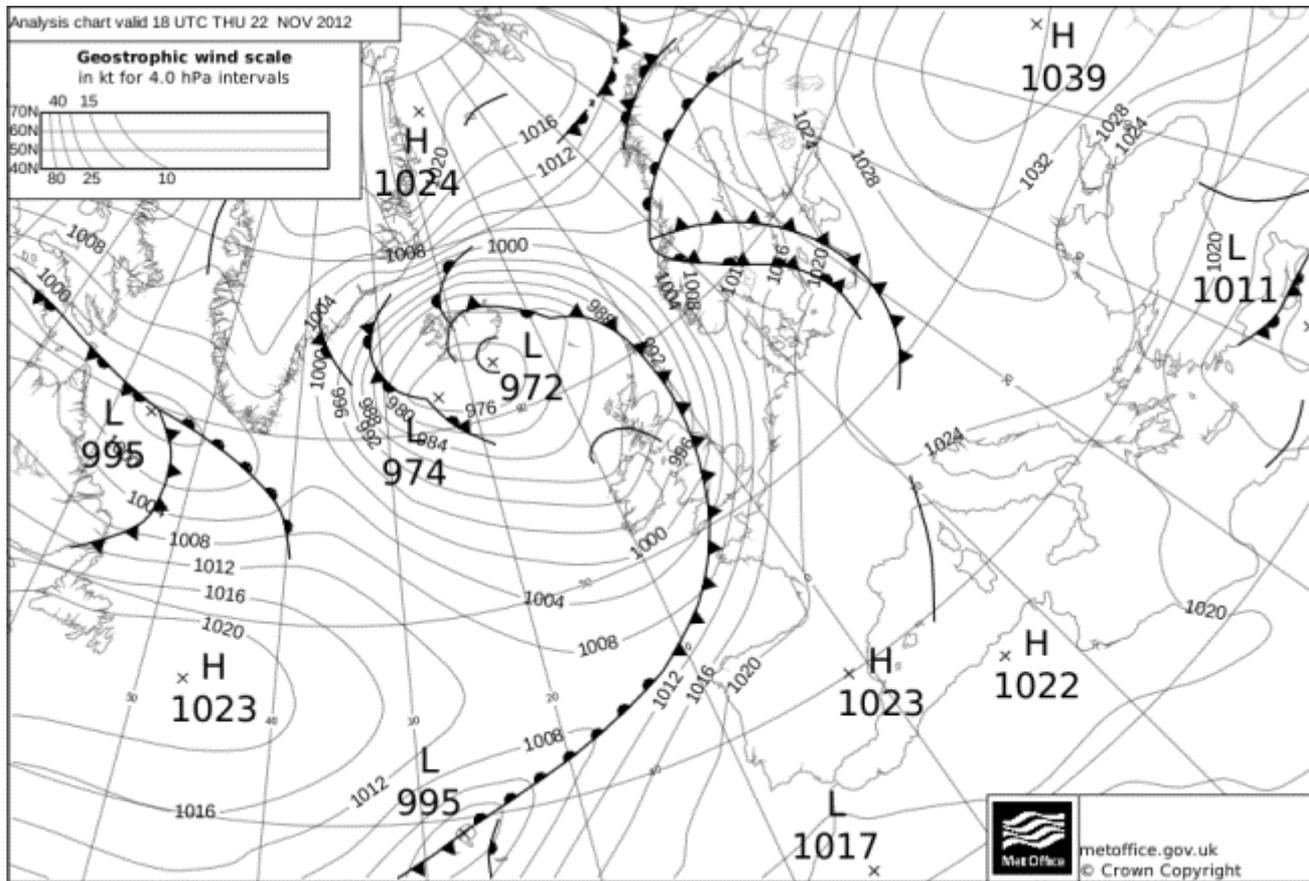
The map below shows daily rainfall totals as a percentage of the whole-month average from 19-26 November

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2012 inclusive. Through this period, a swathe from South West England through the Midlands to North East England recorded well in excess of the whole-month average rainfall, and in a few places more than 150%.

Accumulations for the eight-day period 19-26 November for selected stations, compared to their whole-month 1981-2010 long term averages, are presented in the table below.



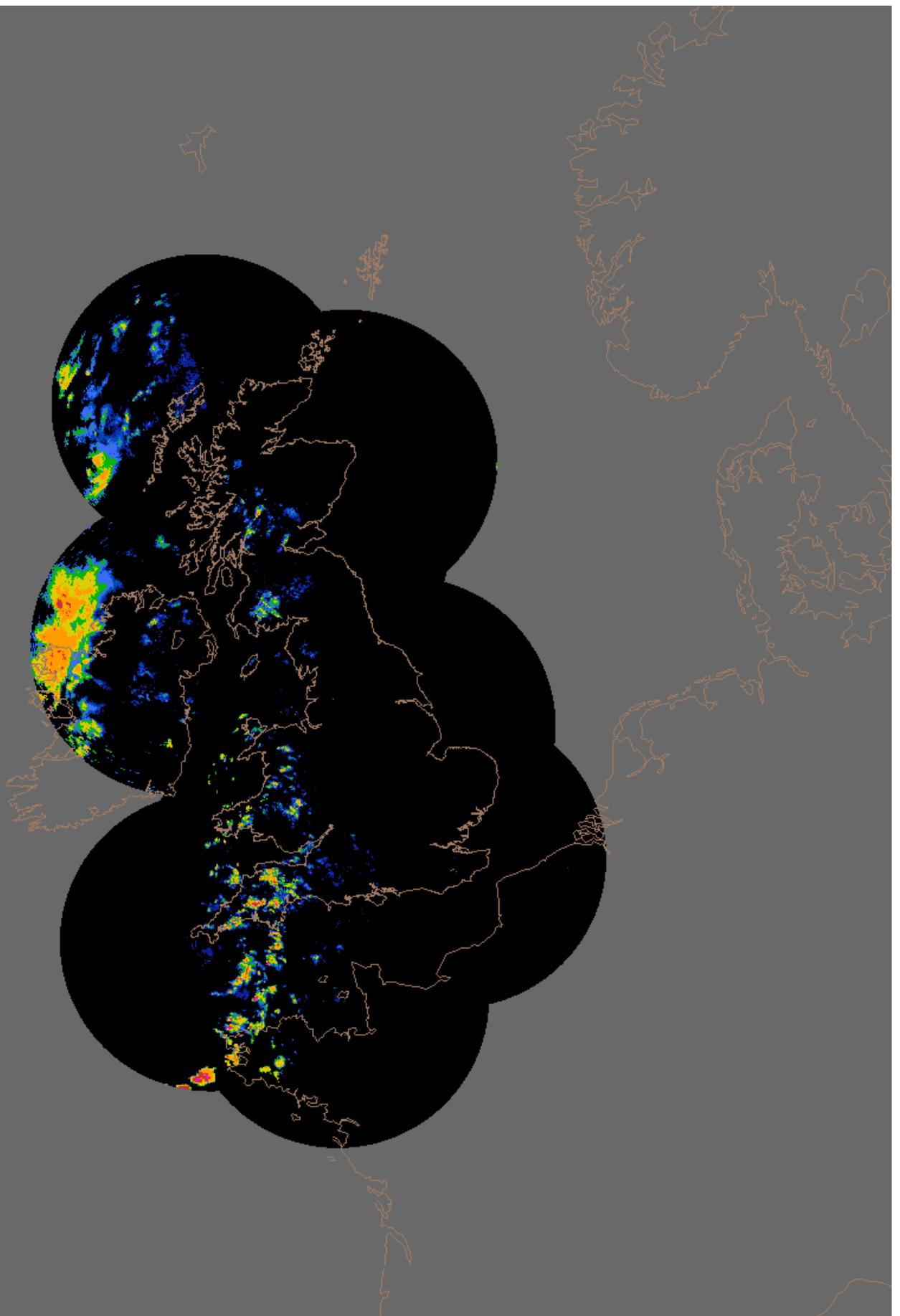
Rainfall totals for selected stations 19-26 November 2012

Station	County	Total (mm) 19 to 26 November	November average (mm)	% of Average
Hartpury College	Gloucestershire	116.0	66.6	174
Oake Manor Golf Club	Somerset	146.1	86.9	168
Exeter Airport	Devon	138.4	83.4	166
Cawood	North Yorkshire	86.3	52.8	164
Staythorpe	Nottinghamshire	76.6	46.8	164
Kirk Bramwith	South Yorkshire	81.0	50.6	160
Dalton Holme	Humberside	102.2	64.2	159
Pershore College	Worcestershire	99.6	63.2	158
Redworth	County Durham	104.9	66.9	157
Mount St Bernard Abbey	Leicestershire	106.0	67.8	156

December 2012

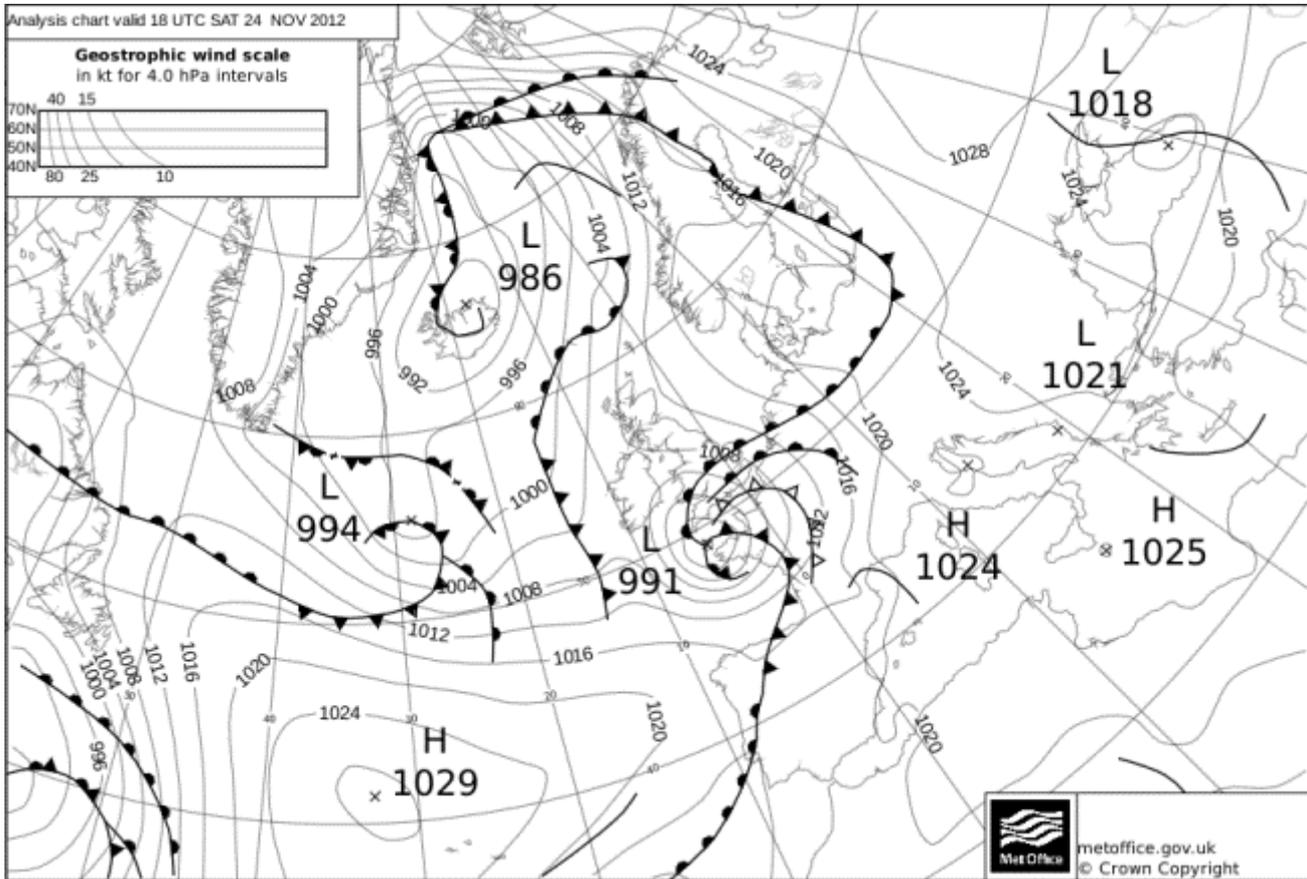
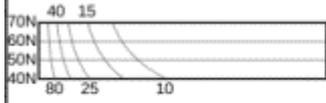
A further very wet spell of weather occurred from 19 December through into the Christmas period. Rainfall totals were not as high as in late November, but with saturated ground there were again significant and widespread flooding problems. These particularly affected transport routes during the peak travelling period before Christmas, with the mainline railway from London to South West England again disrupted

Last updated: 4 June 2013

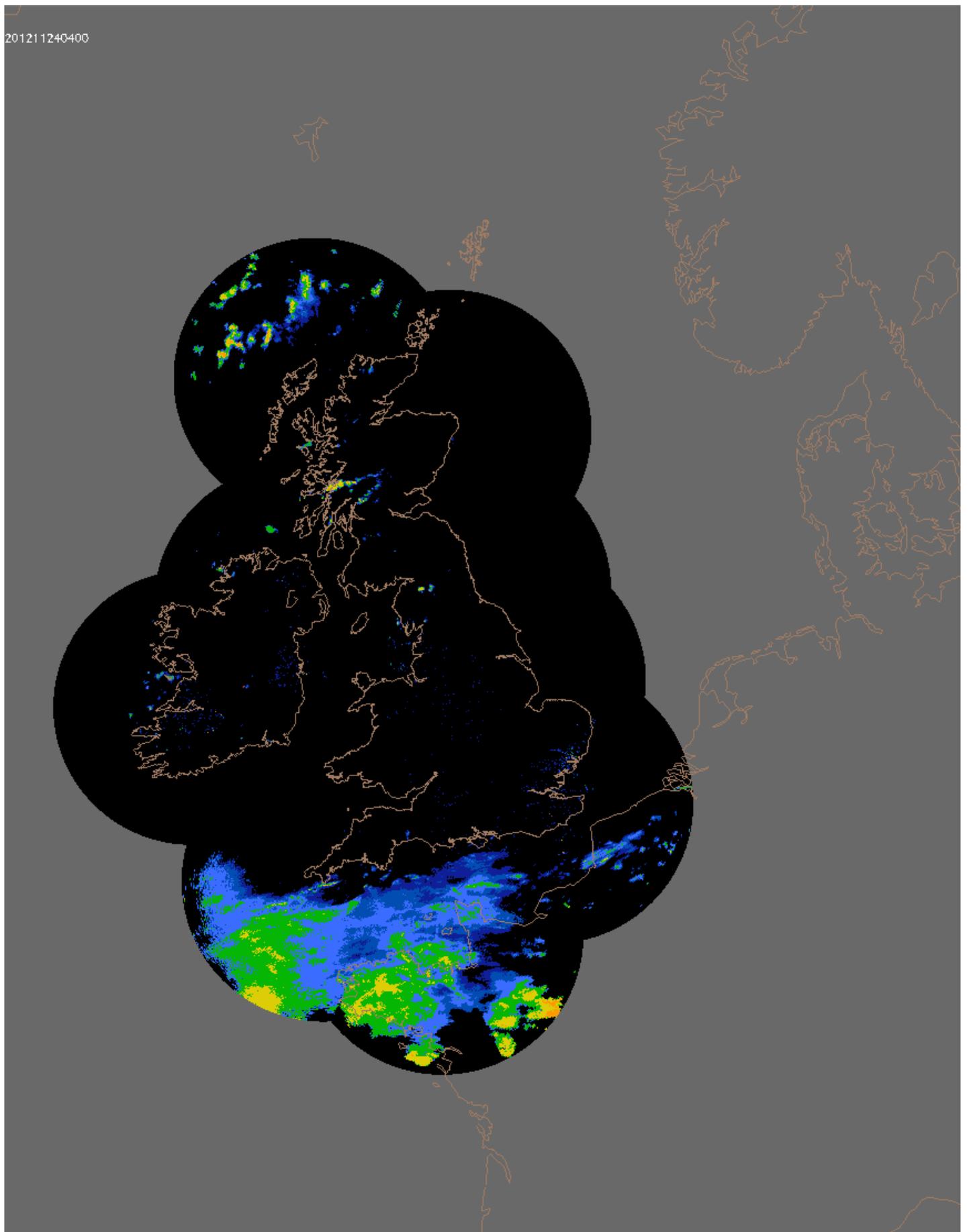


Analysis chart valid 18 UTC SAT 24 NOV 2012

Geostrophic wind scale
in kt for 4.0 hPa intervals

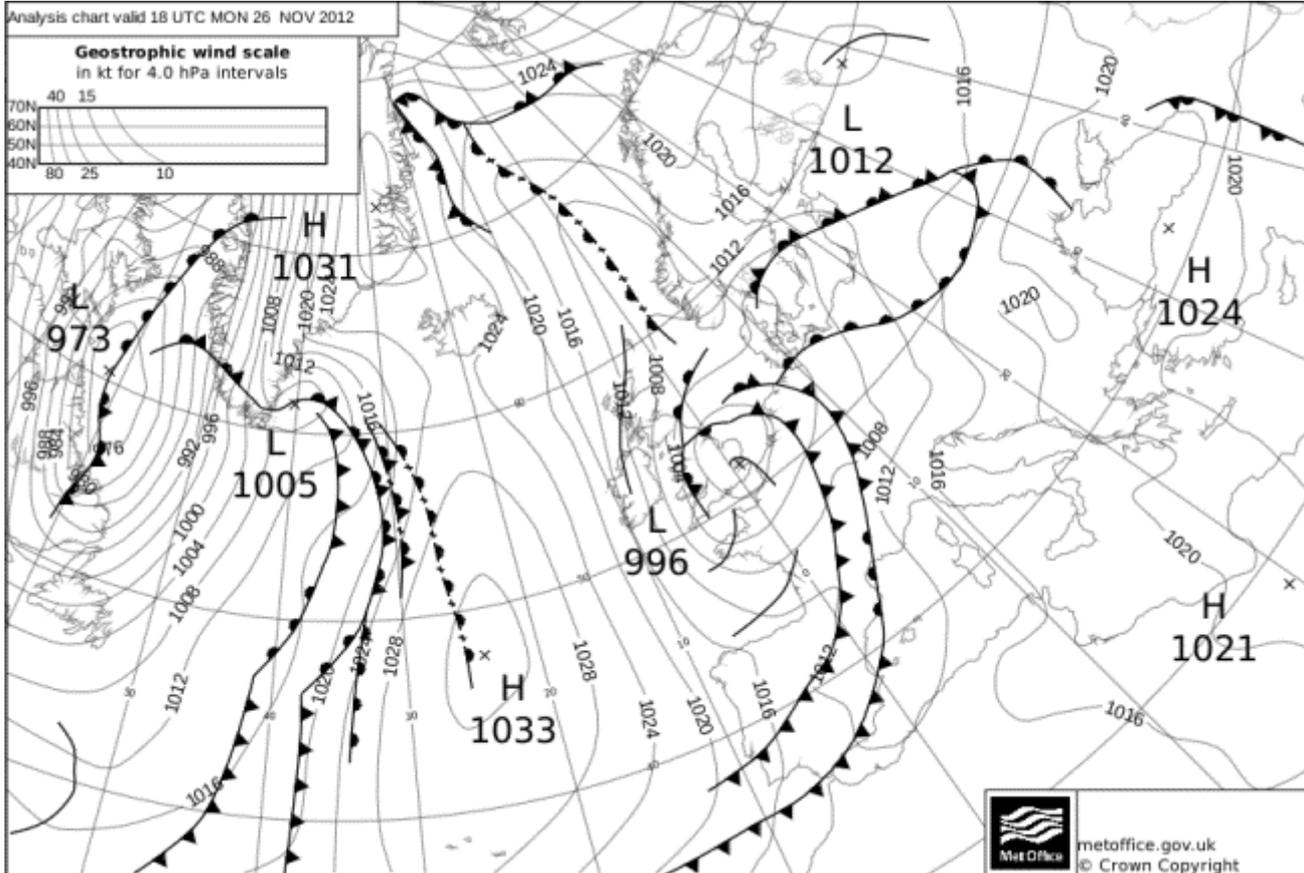
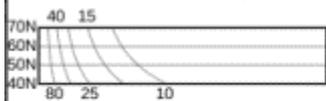


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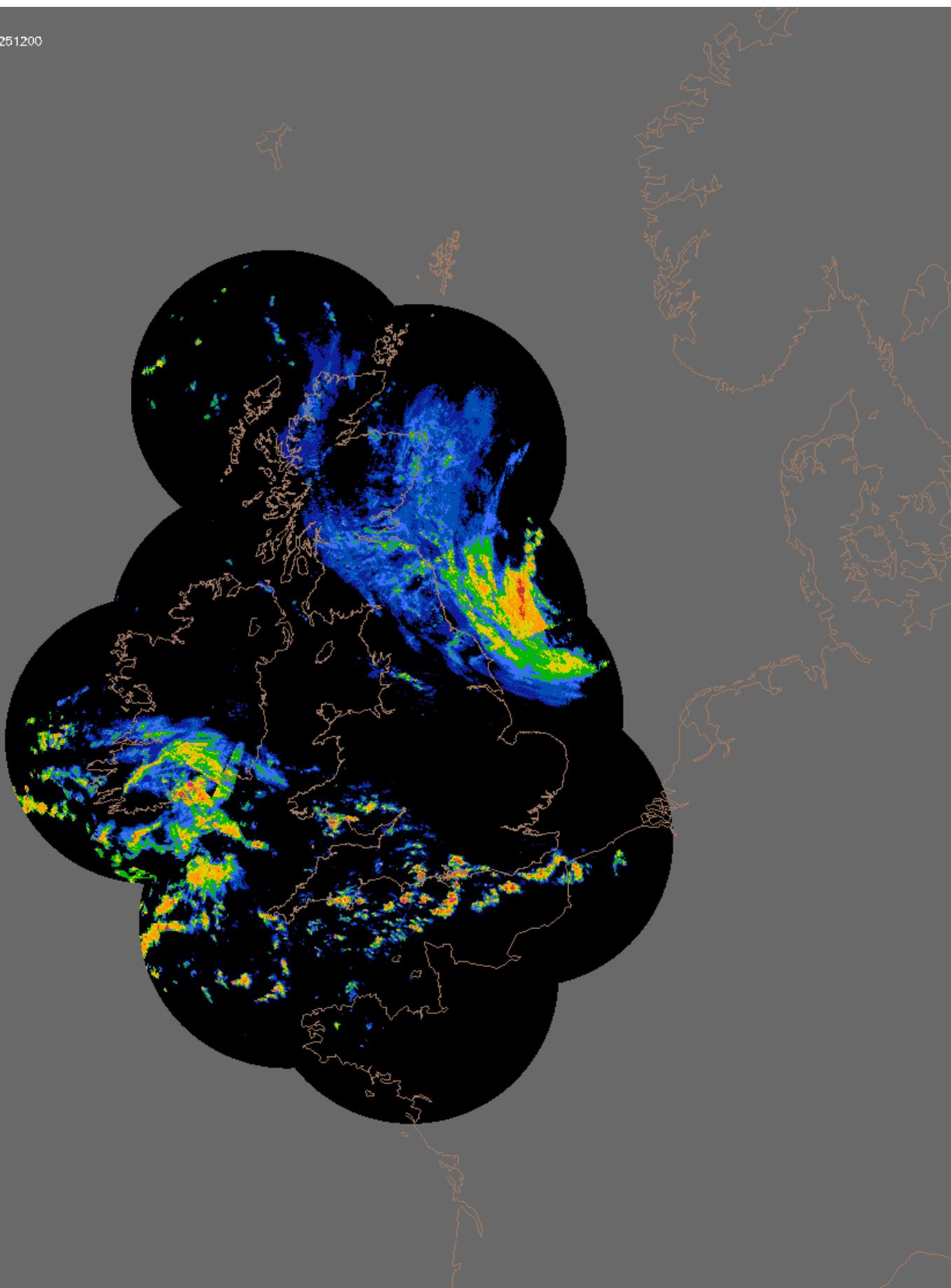


Analysis chart valid 18 UTC MON 26 NOV 2012

Geostrophic wind scale
in kt for 4.0 hPa intervals

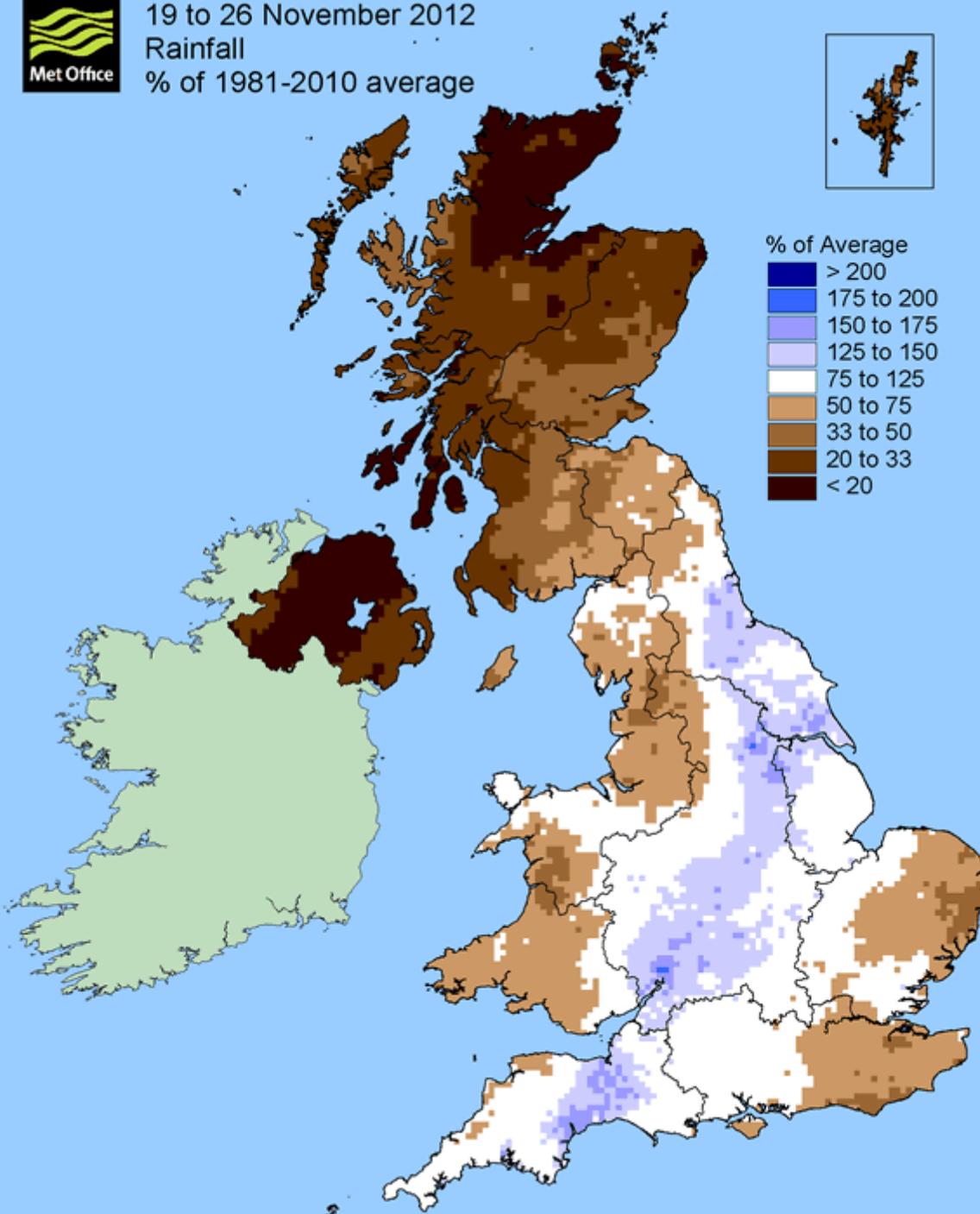
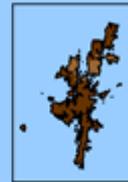


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19 to 26 November 2012
Rainfall
% of 1981-2010 average



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