

## Stormy and very wet spell March 2019

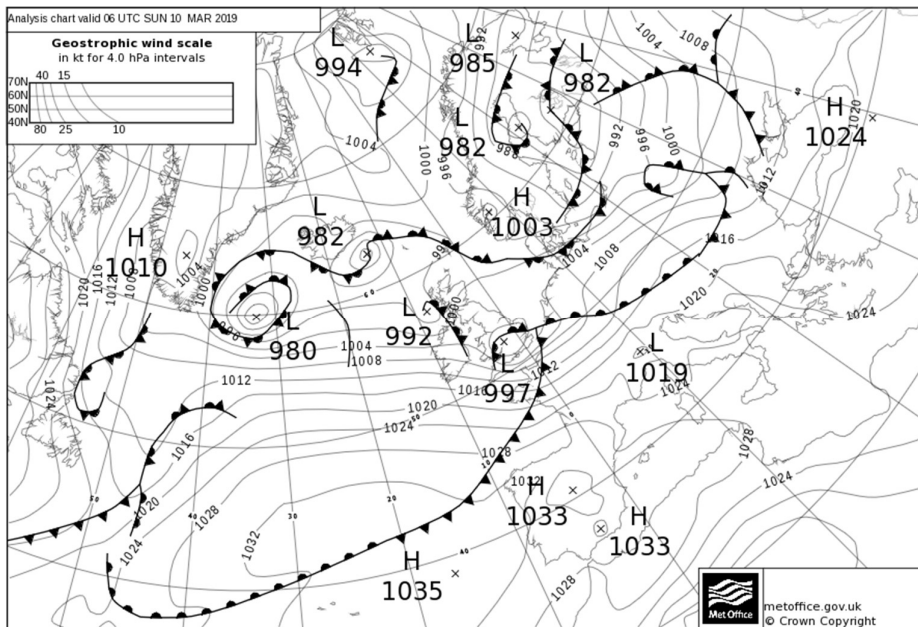
The UK experienced a turbulent week of weather from 10 to 16 March 2019 as a succession of Atlantic low pressure systems brought strong winds and heavy rain, driven by a powerful jet stream. This spell included storm Gareth on 12 to 13 March, the seventh named storm of the 2018/2019 winter.

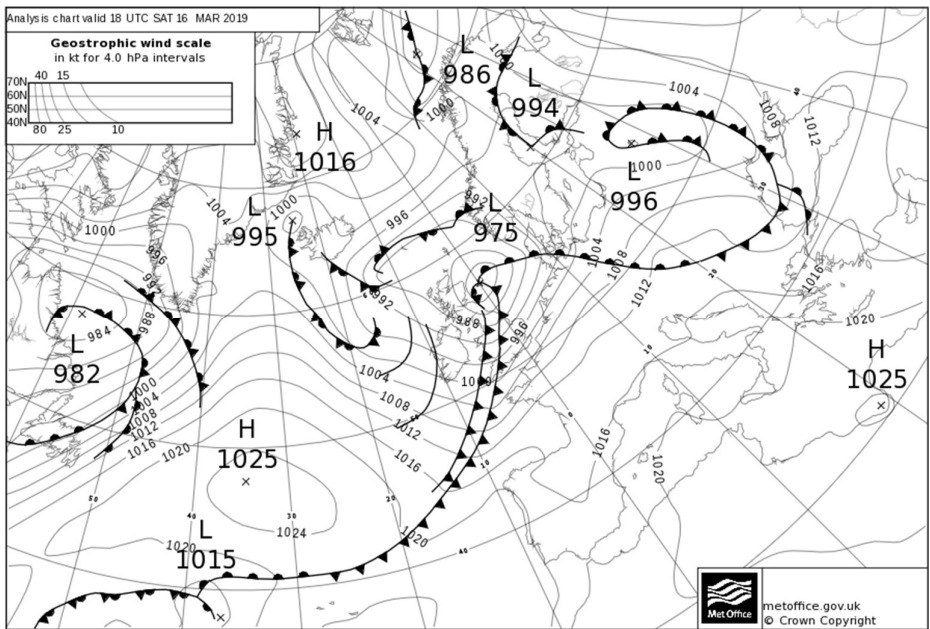
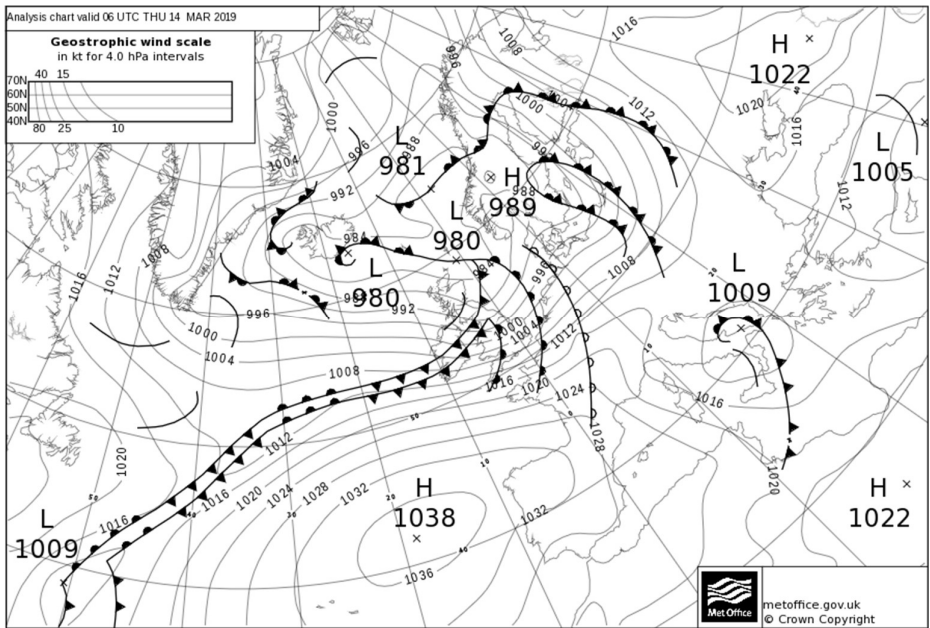
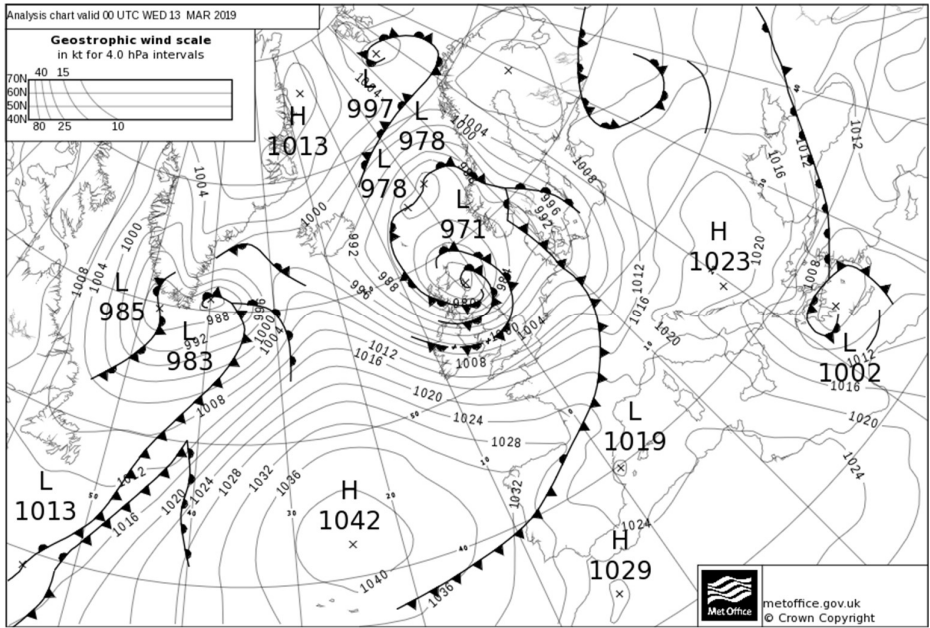
### Impacts

Storm Gareth brought travel disruption with rail services affected across northern England and Scotland. Ferry crossings between Dover and Calais were delayed and fallen trees blocked some roads across Wales. Large waves battered exposed coastlines. On 16 March there were significant flooding problems across Wales with the Conwy valley badly affected. There was also localised flooding in parts of West Yorkshire and Greater Manchester and temporary barriers were installed in the Midlands on the River Severn. Some flooding was also reported in York from the River Ouse. Snow caused some further travel disruption across Scotland.

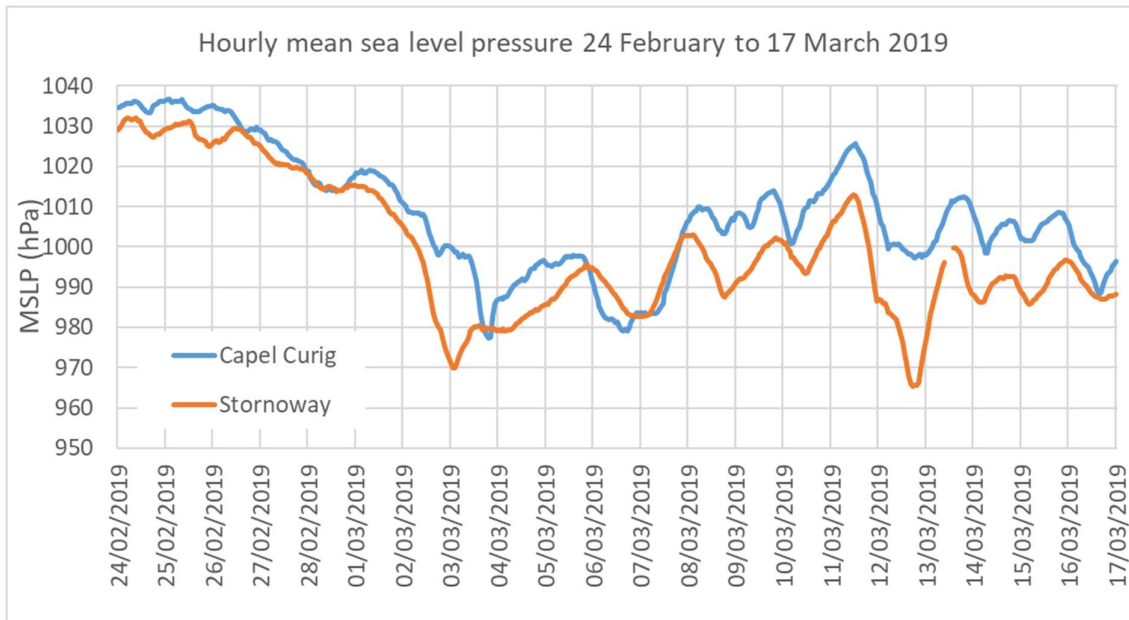
### Weather data

On Sunday, 10 March, a low pressure system tracking across southern England brought some very strong winds to the southern half of the UK. Storm Gareth was a deep area of low pressure tracking across Scotland overnight 12 to 13 March. A further area of low pressure brought some very wet weather to western and northern areas on 14 March, with the last low of the sequence on 16 March 2019. The sequence of analysis charts below show the succession of low pressure systems affecting the UK: 0600 UTC 10 March, 0000 UTC 13 March, 0600 UTC 14 March and 1800 UTC 16 March.

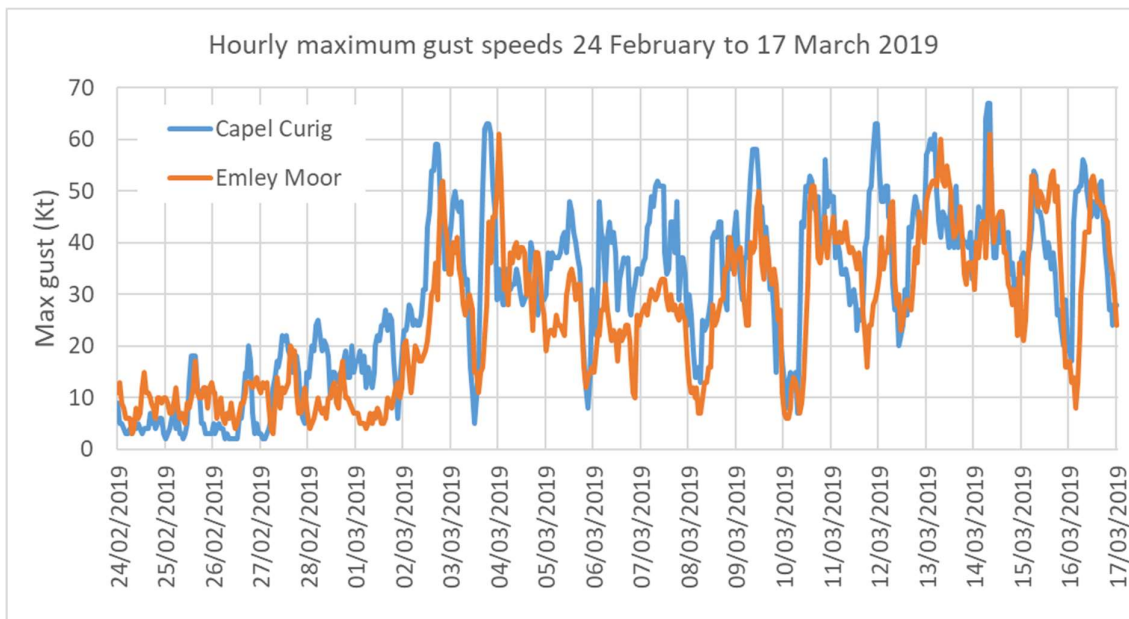




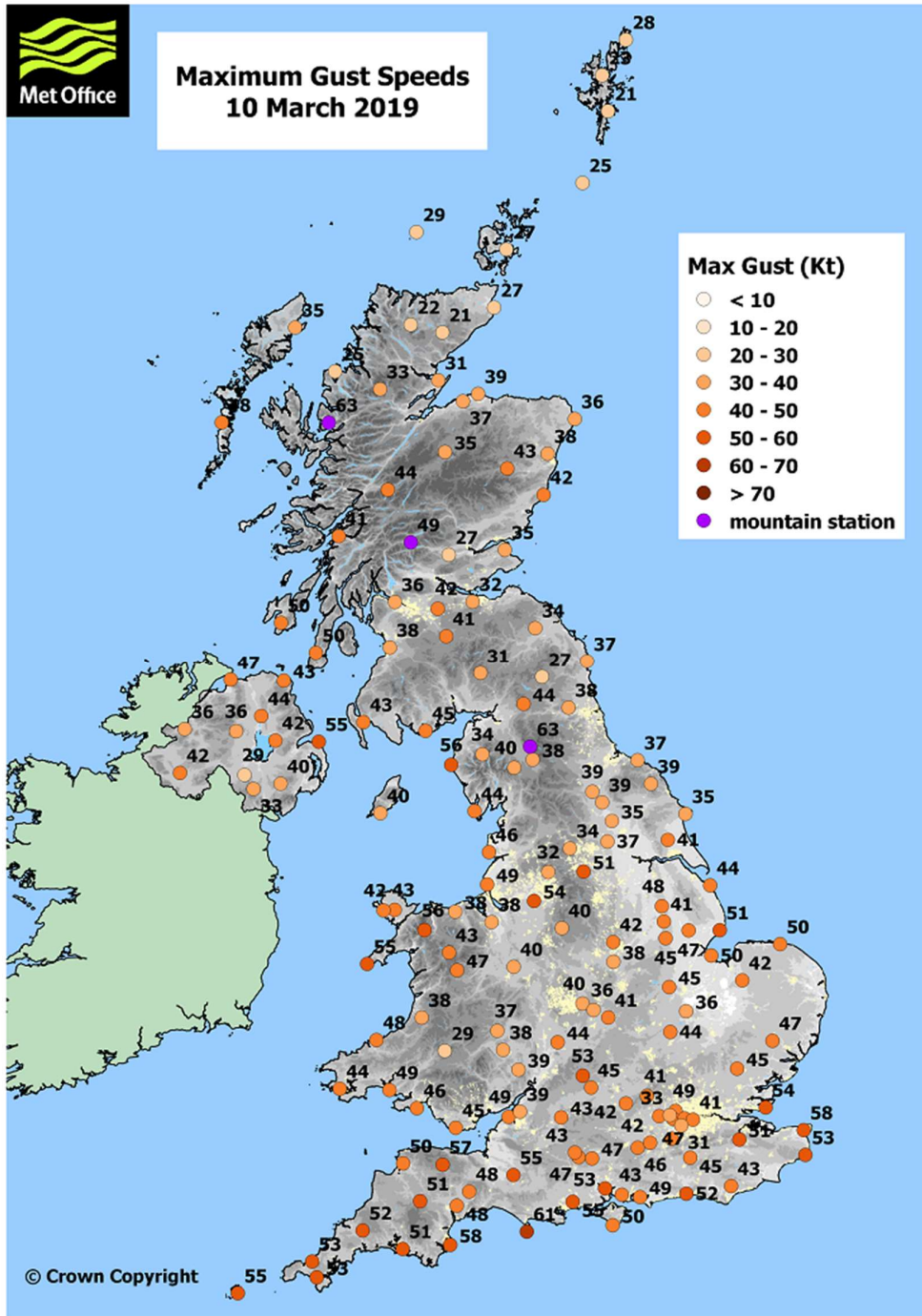
The chart below shows hourly mean sea level pressure at Capel Curig (Conwy) and Stornoway (Western Isles) from 24 February to 17 March 2019. The chart shows high pressure in late February (associated with mainly fine, dry, settled conditions) subsequently falling, with the succession of low pressure systems during the first half of March including storms Freya (3 March) and Gareth (12-13 March) associated with the prominent dips in the Stornoway time-series.



The chart below shows hourly maximum gust speeds at Capel Curig and Emley Moor (West Yorkshire) for the same period. It emphasises the contrast between mainly calm conditions in late February (winds gusting at generally less than 20 Kt) with much more turbulent conditions for the first half of March (winds gusting at 40 to 50 Kt during passage of the low pressure systems).

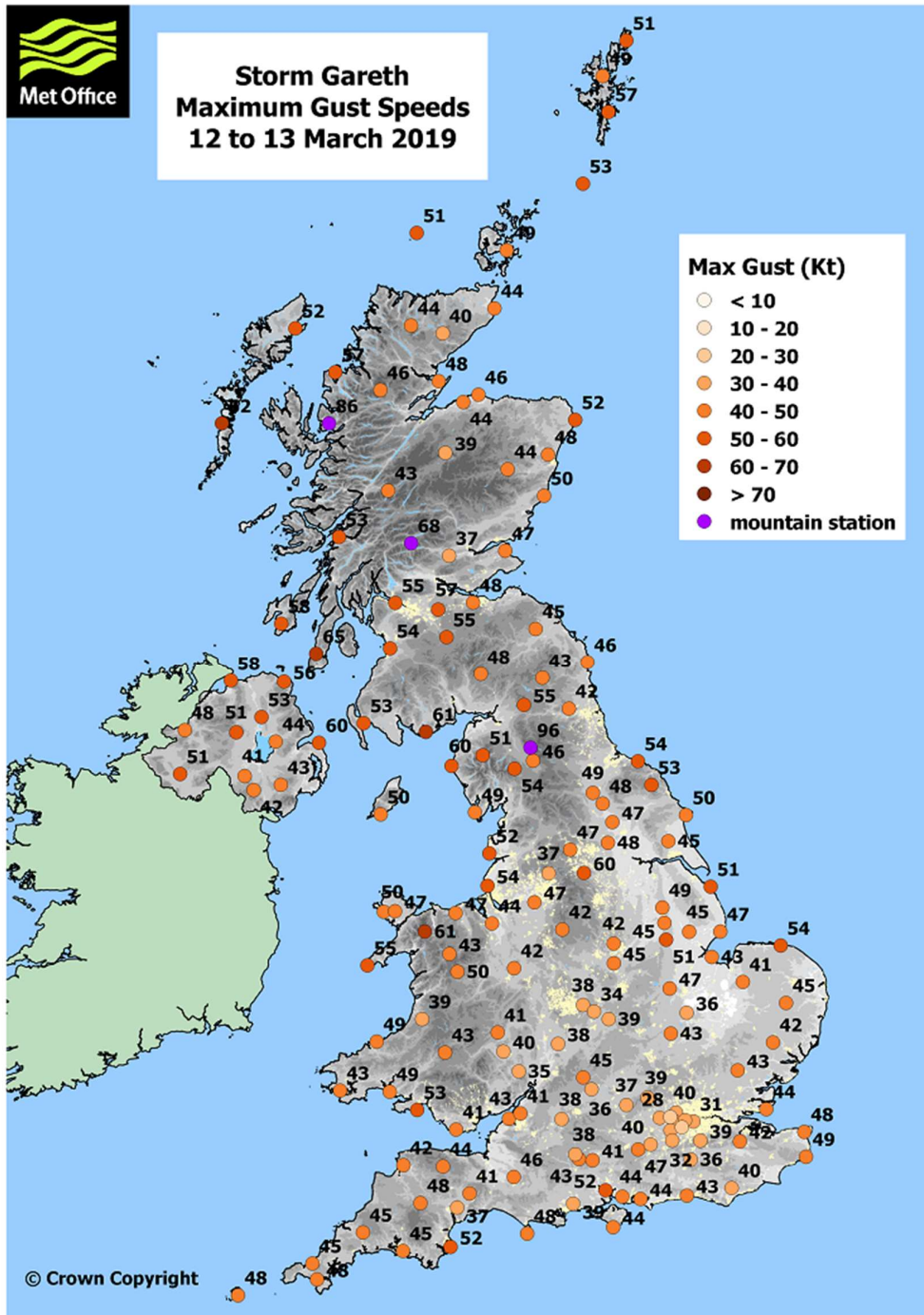


The map below shows maximum gust speeds on 10 March 2019. Much of the southern half of the UK recorded gusts of 40 to 50 Kt (46 to 58 mph), with 50 to 60 Kt (58 to 69 mph) in exposed coastal locations. A gust of 61 Kt (70 mph) was recorded at Isle of Portland, West Dorset.

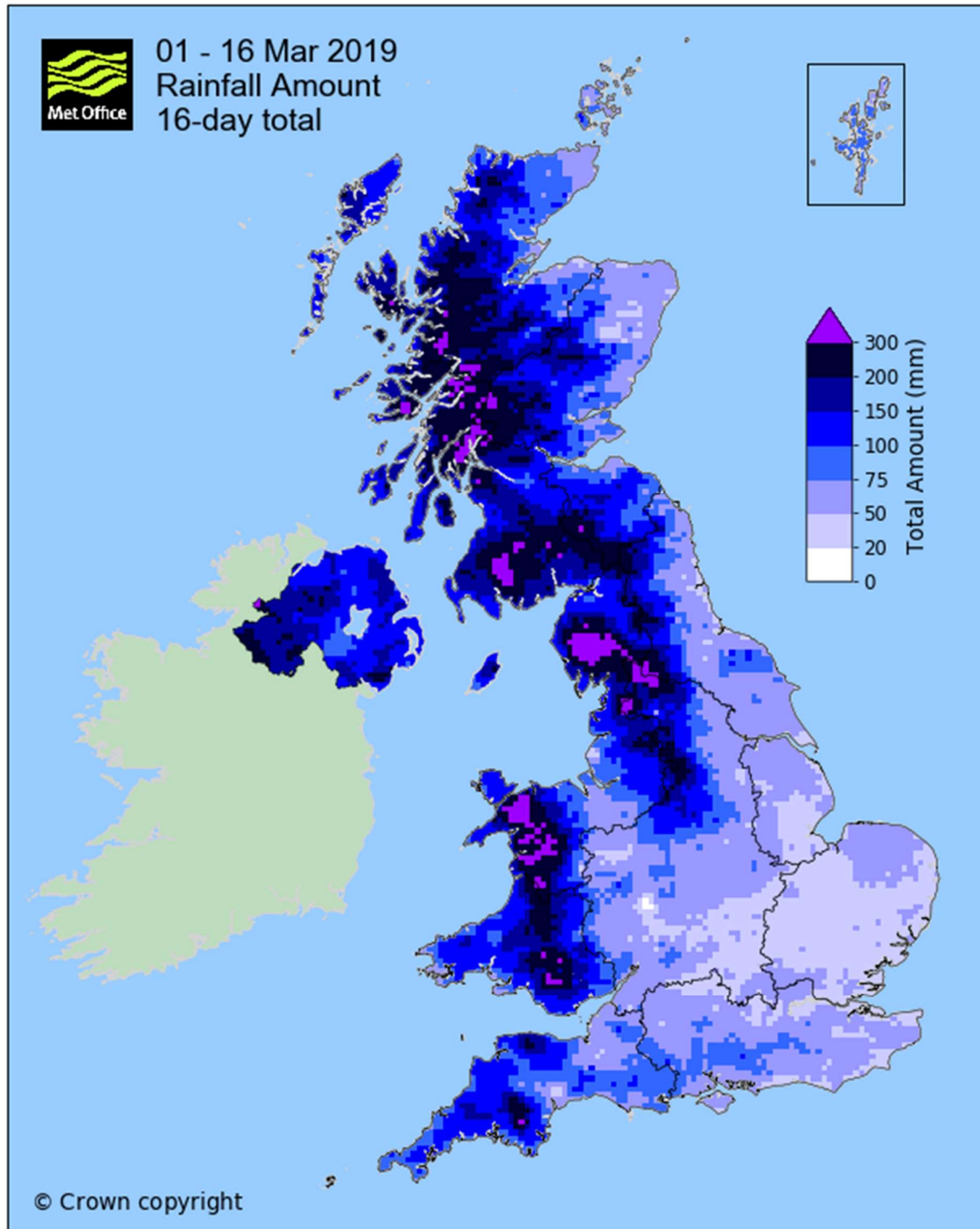


The map below shows maximum gust speeds from storm Gareth on 12 to 13 March 2019. Gusts of 40 to 50 Kt were recorded throughout the UK, and 50 to 60 Kt in exposed coastal locations. Gusts of 60 Kt or more were recorded at several stations including 65 Kt (75 mph) at Machrihanish, Argyll, 61 Kt at Dundrennan, Kirkcudbrightshire and Capel Curig, and 60 Kt at Orlock Head, County Down and Emley Moor, West Yorkshire.

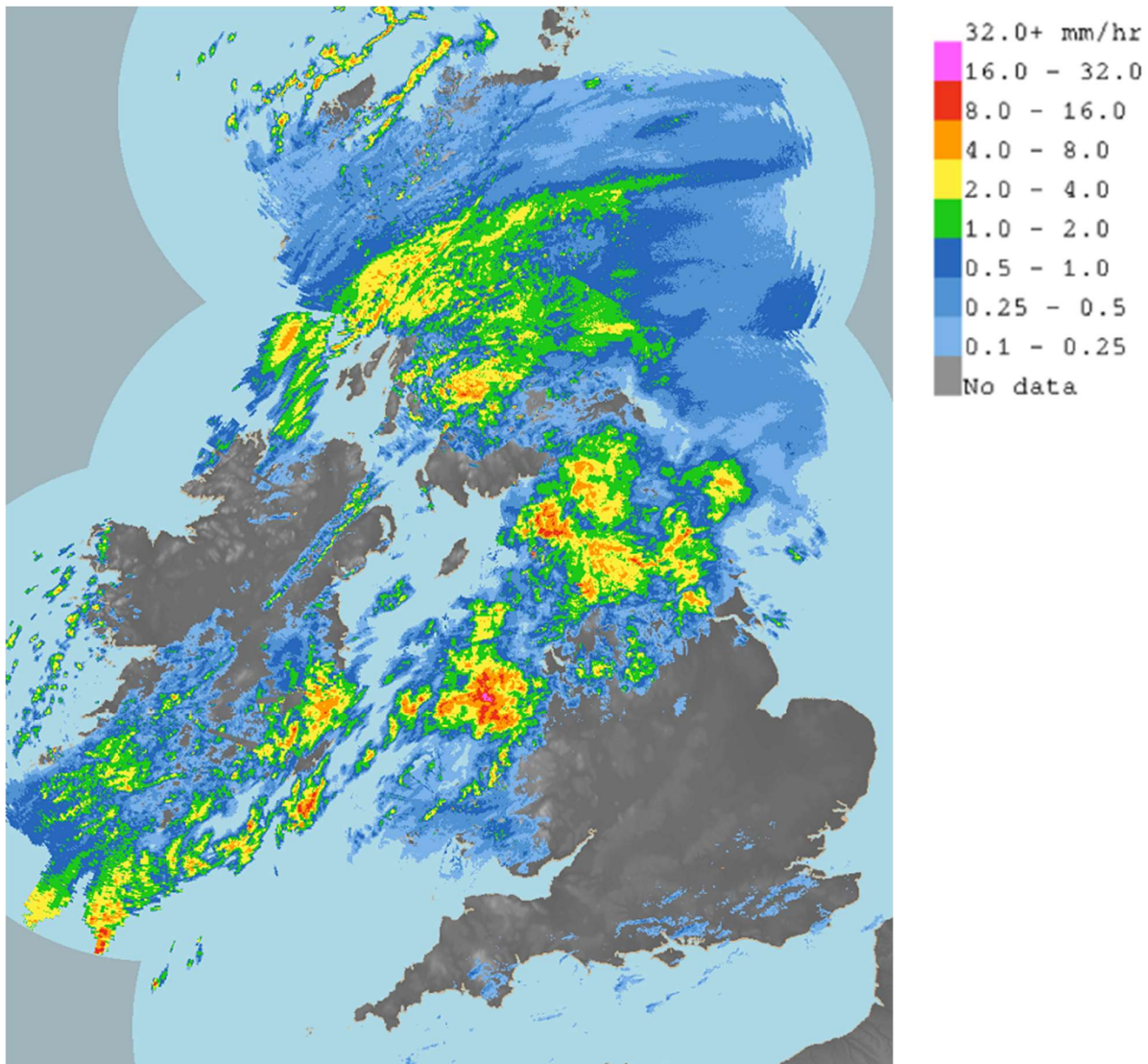
The spell of windy weather was notable, but not exceptional for the time of year. Based on a count of the number of 'station-days' in the month where a gust of 50 Kt or more was recorded, this was the windiest month for the UK since January 2018, and the windiest March since March 2015. Nevertheless, there have been much more powerful individual storms since January 2018, such as storm Ali on 19 September 2018.



The succession of storms brought persistent wet weather, particularly across western upland areas of the UK. The map below shows rainfall accumulations from 1 to 16 March 2019, with many western areas receiving over 100mm of rain and more than 200mm across the higher ground – typically around 150 to 200% of the March 1981-2010 long-term average. Rainfall totals in the wettest locations exceeded 300mm.



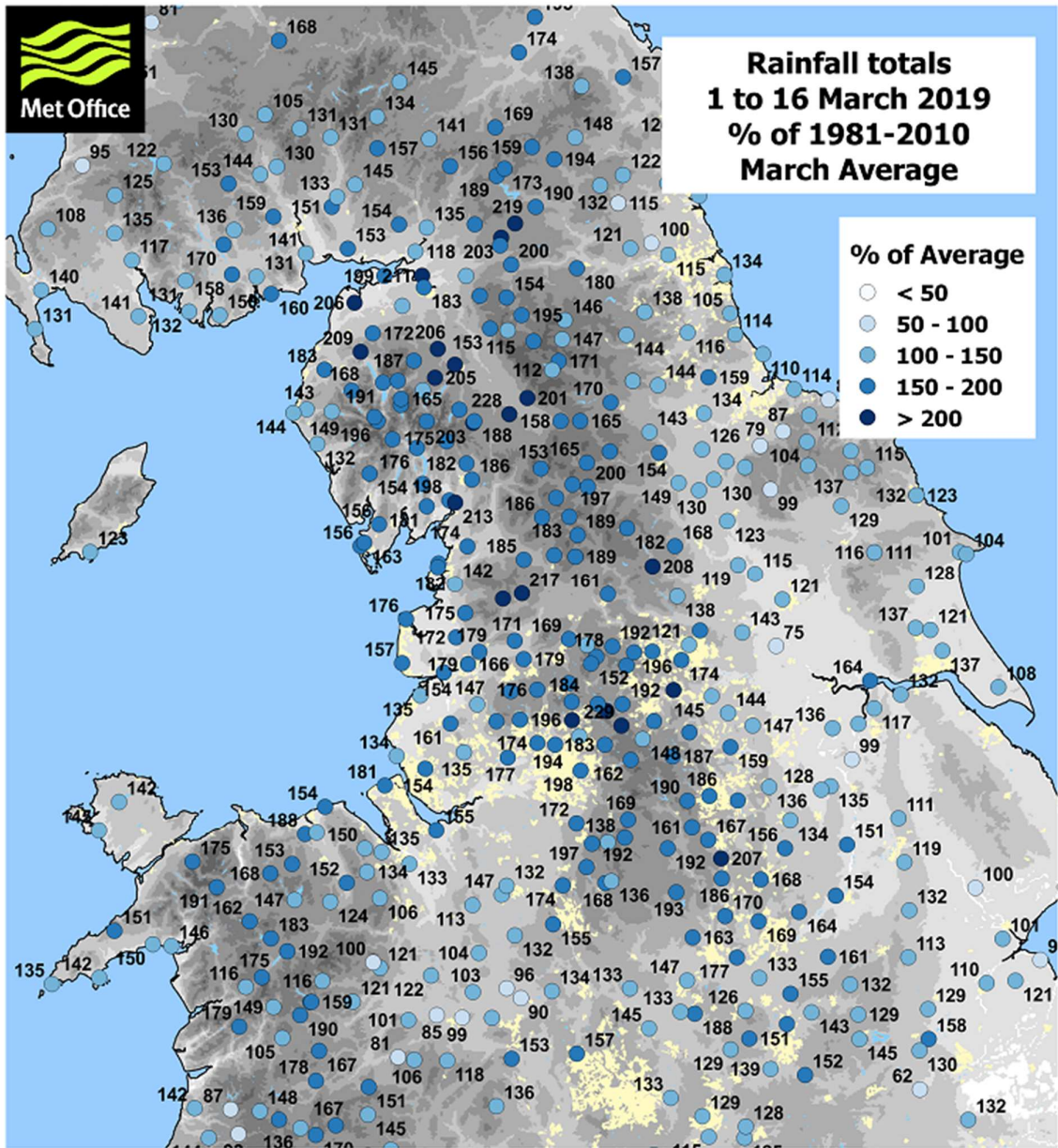
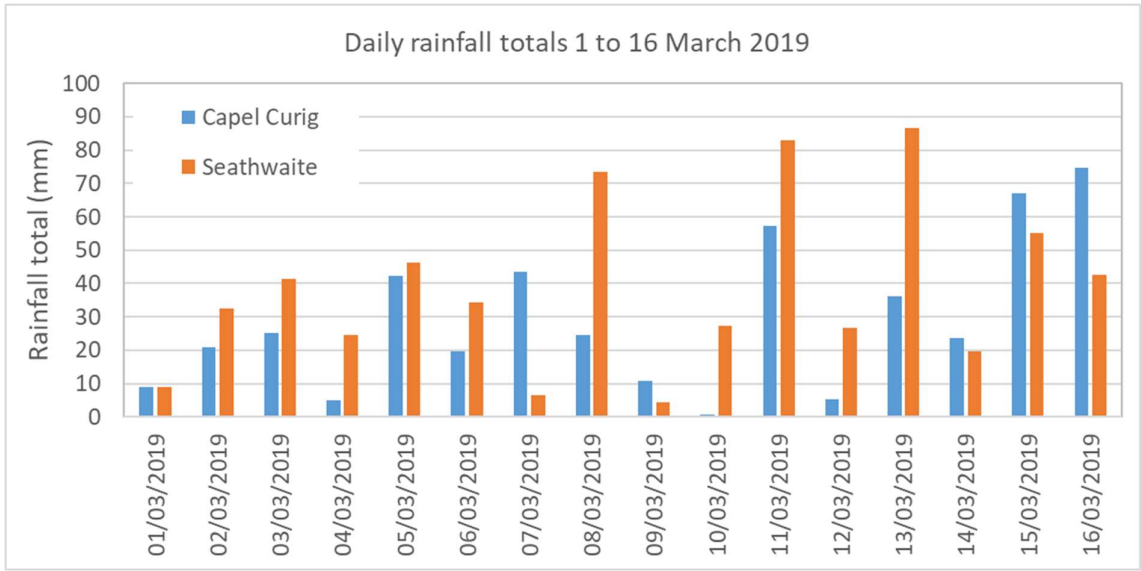
The chart below shows rain-rates at 1200 UTC on Saturday 16 March 2019, with the last of the low pressure systems bringing heavy rain across north Wales, northern England and Scotland – particularly focussed across Snowdonia, the Pennines and Lake District fells.



The chart below shows daily rainfall totals at Capel Curig and Seathwaite, Cumbria from 1 to 16 March 2019 as an example of the persistence of the wet weather. The accumulated rainfall totals are given in the table below. At least three stations in Cumbria (Seathwaite, Honister Pass and Mickleden, Middlefell Farm) recorded over half a metre of rain in 16 days – an average of over 30mm per day.

Station	Rainfall total 1 to 16 March 2019 (mm)	March long-term average (mm)	% of Average
Capel Curig, Conwy	465.4	243.5	191
Seathwaite, Cumbria	613.4	312.7	196

The chart below shows 16-day totals as a percentage of the March 1981-2010 long term average across northern England and North Wales, with several stations across Cumbria, West Yorkshire, Lancashire and the north Manchester area recording more than 200% of average.



Last updated 19/03/2019