

Storm Dennis

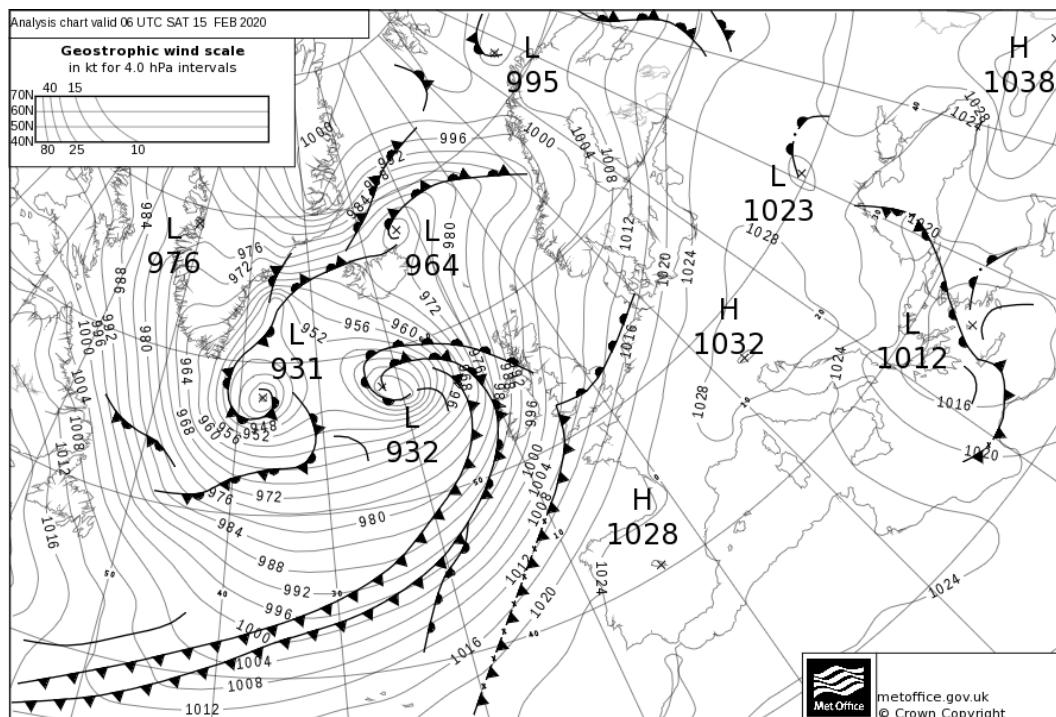
Storm Dennis was the fourth named storm of the 2019/2020 season. Arriving one week after storm Ciara, Dennis brought heavy and persistent rain across much of the UK – especially Wales and western England. Western upland parts of the UK received 50 to 100mm or more of rain falling on saturated ground. The Met Office issued a Red Warning for rain across parts of south Wales and there was major and widespread flooding. Storm Dennis also brought very strong winds, but the worst of the impacts were from the rain.

Impacts

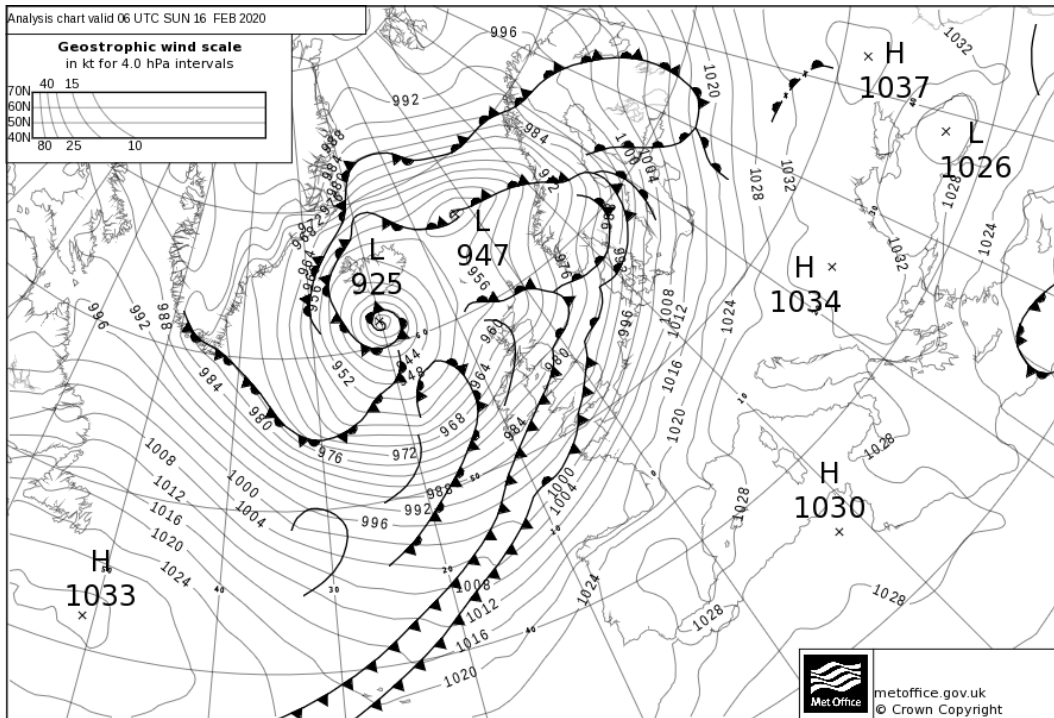
South Wales, Herefordshire, Worcestershire and Shropshire were worst affected by flooding and major incidents declared. The River Wye and River Severn which were reported to have reached their highest-ever levels. Areas of several towns including Hereford and Pontypridd were inundated. The Environment Agency issued over 600 flood warnings and alerts including several severe flood warnings. A woman was swept away by floodwater in Worcestershire and over 1400 homes and businesses were flooded across several counties. The flooding also caused major travel disruption with roads blocked, damaged railway lines and hundreds of flights cancelled. Large areas of farmland were also underwater. Strong winds and large waves battered exposed coastlines, and in County Cork an abandoned ‘ghost’ cargo ship was washed ashore.

Weather data

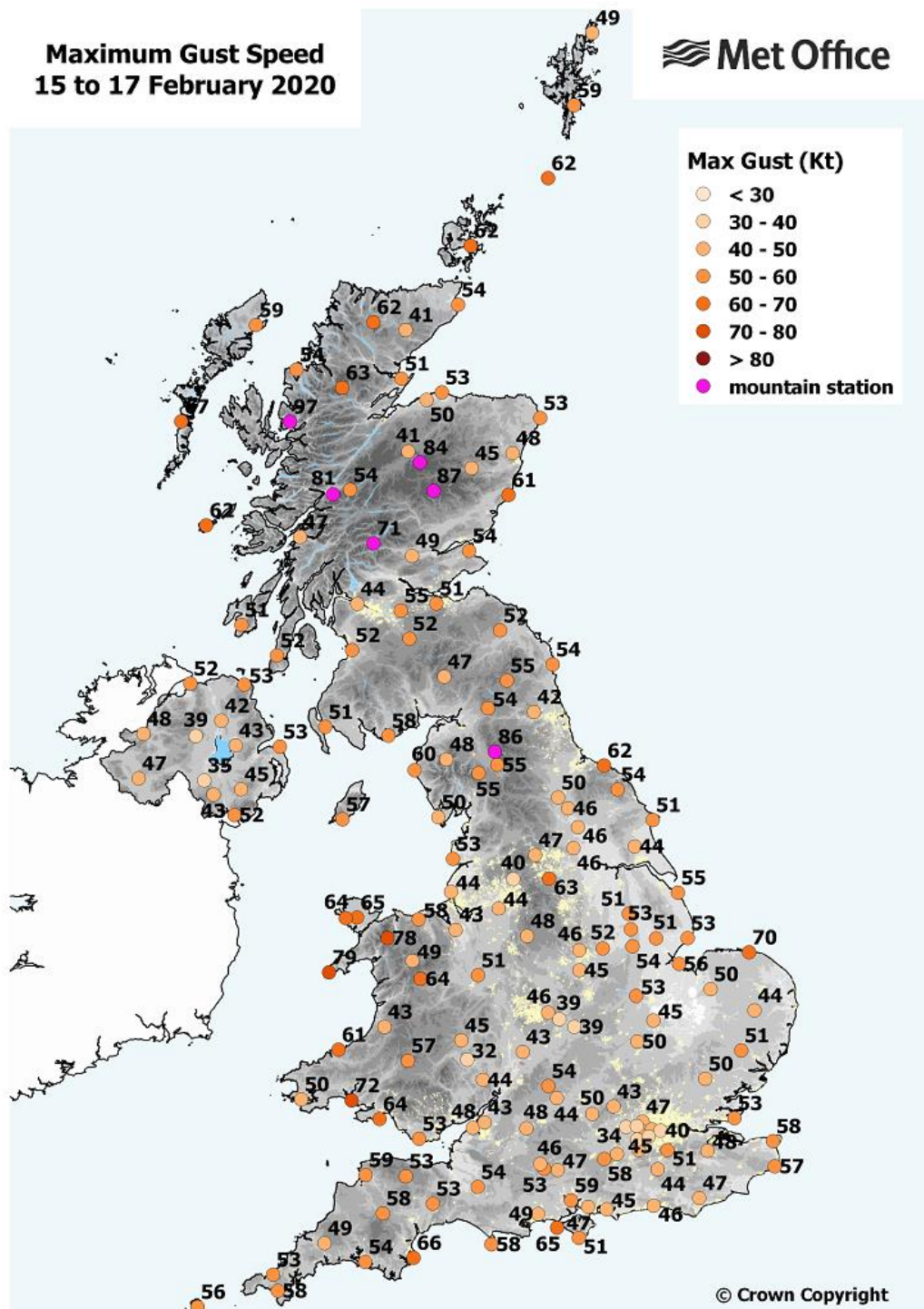
The analysis chart at 06 UTC 15 February 2020 shows storm Dennis as the deepening area of low pressure to the north-west of the UK, driven by a powerful Atlantic jet stream.



The analysis chart at 06 UTC 16 February 2020 (24 hours later) shows storm Dennis as the large area of low pressure still dominating the north Atlantic with rain-bearing fronts and strong winds sweeping across the UK.

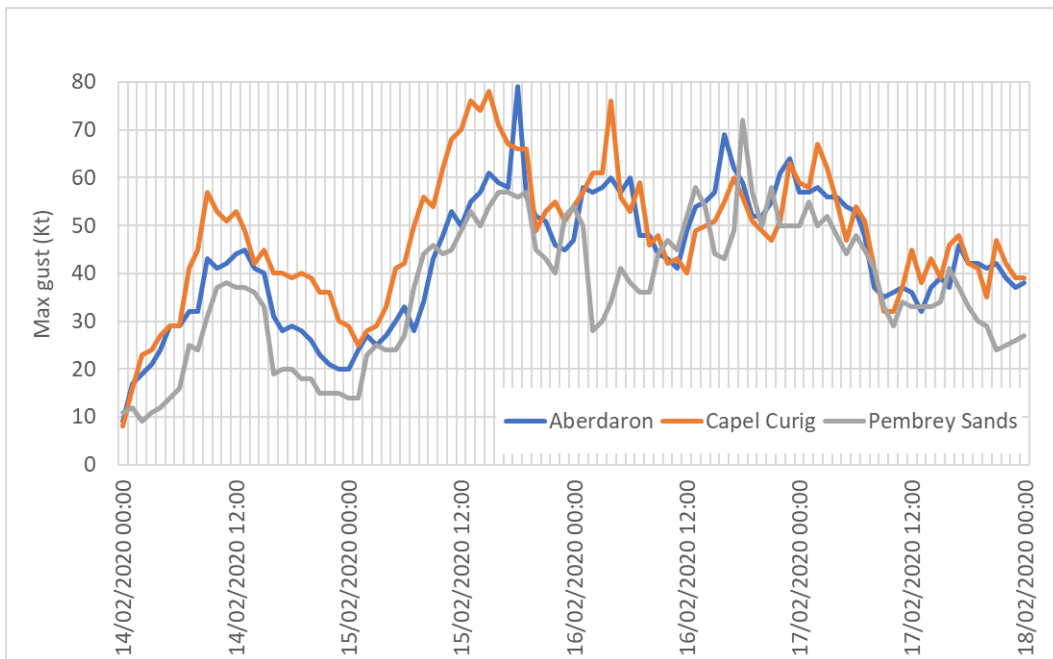


The map below shows maximum gust speeds from storm Dennis. Winds were comparable to storm Ciara, gusting at over 50 Kt (58 mph) across the UK and over 60 Kt (69 mph) around exposed coastlines. In total over 20 stations recorded gusts exceeding 60 Kt. The highest gusts were 79 Kt (91 mph) at Aberdaron, Llyn Peninsula, 78 Kt (90 mph) at Capel Curig, Conwy, 72 Kt (83 mph) at Pembrey Sands, Dyfed and 70 Kt (81 mph) at Weybourne, Norfolk. Wind speeds reached around 100 mph across the tops of the Pennines and Scottish mountains.

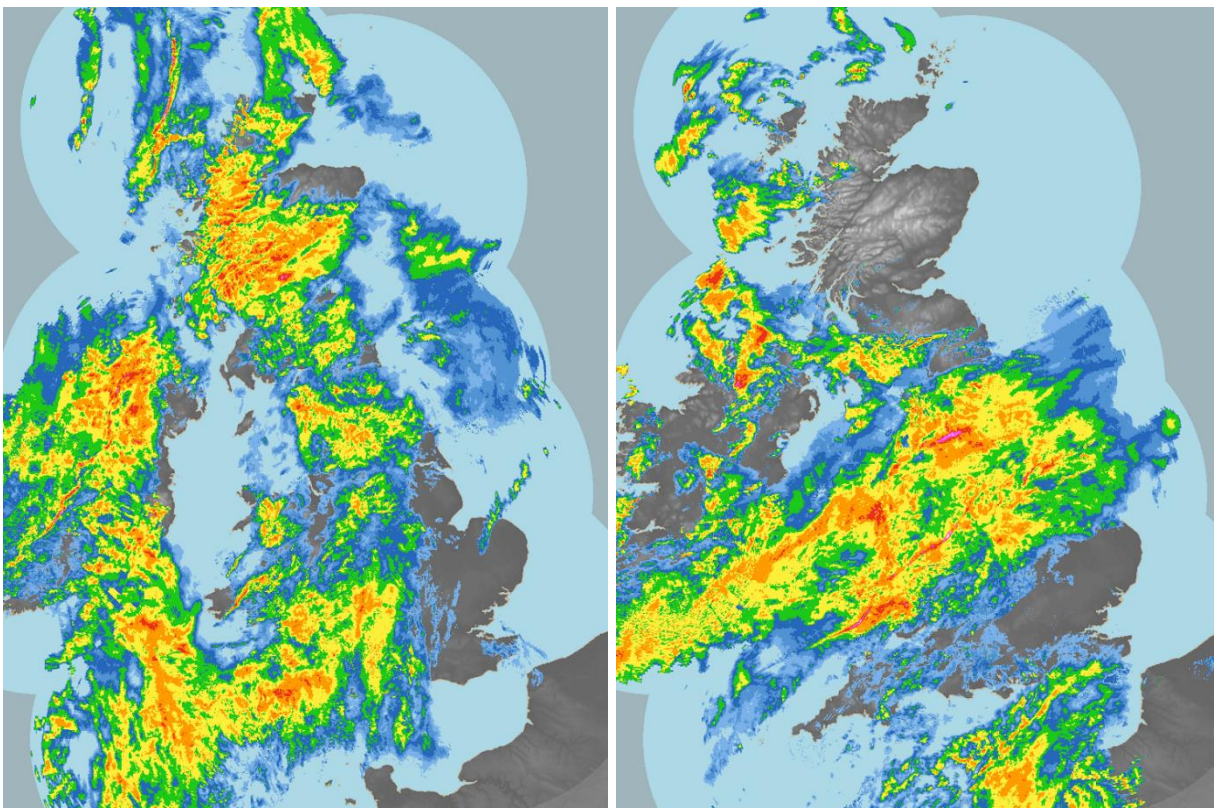


In terms of wind speeds, this was a notable although not exceptional storm for the time of year. However, one feature of storm Dennis was the persistence of the strong winds across the UK for several days, with the low pressure centre to the north-west slow to clear. The strongest winds on 15th to 16th were across England and Wales, transferring to Scotland on the 17th as the low's centre finally pulled away east toward Norway. The chart below shows hourly maximum gust speeds for three stations in Wales – Aberdaron, Capel Curig and Pembrey Sands – all three being

exposed locations. Hourly maximum gust speeds reached 50 Kt during the morning of the 15th and remained mostly above 50 Kt until the morning of the 17th – being sustained at this level for around two days.



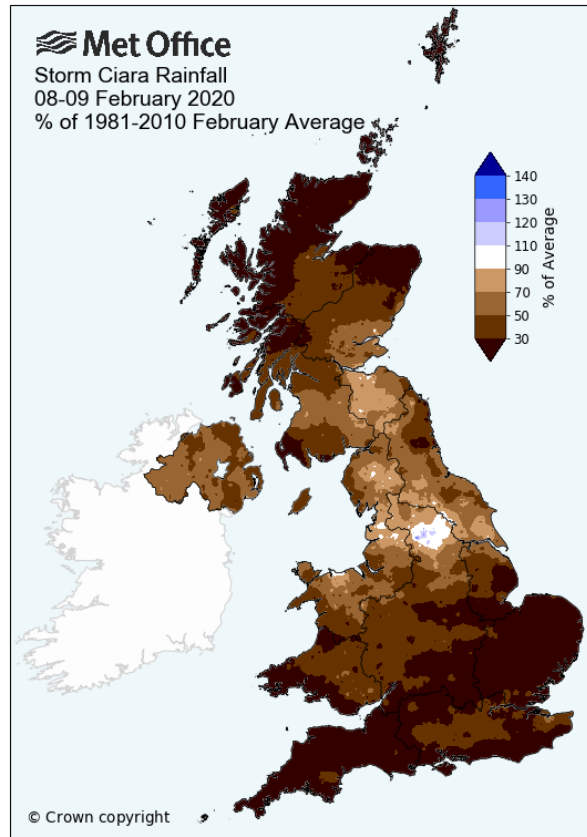
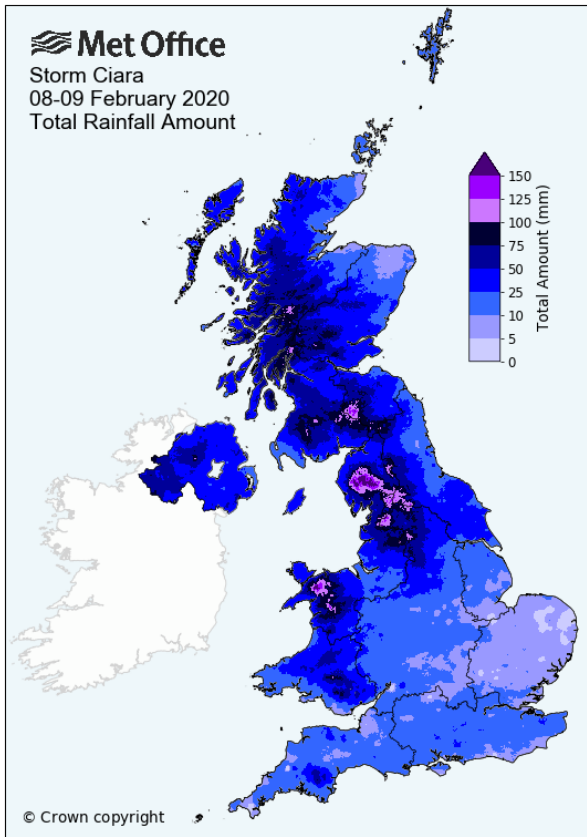
The rain-radar images at 12 UTC 15th and 00 UTC 16th February 2020 show the heavy and persistent rainfall from storm Dennis with the fronts sweeping across the UK.



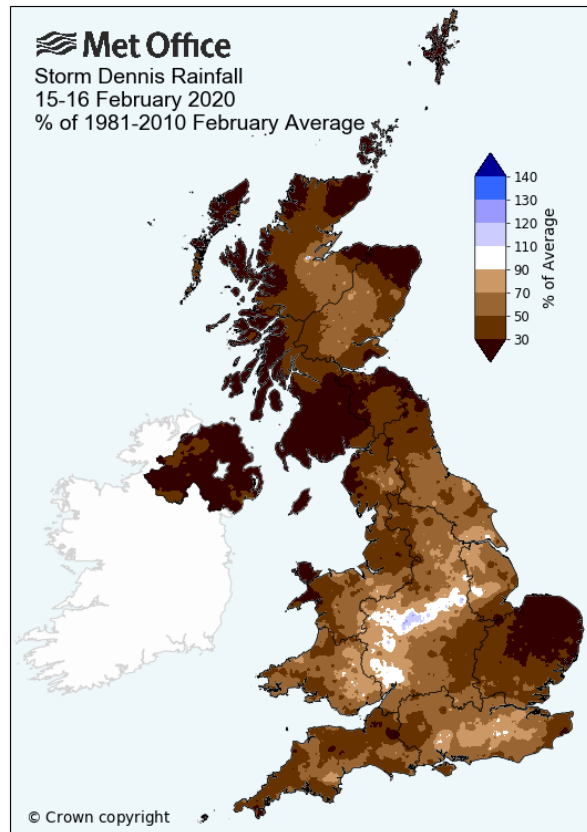
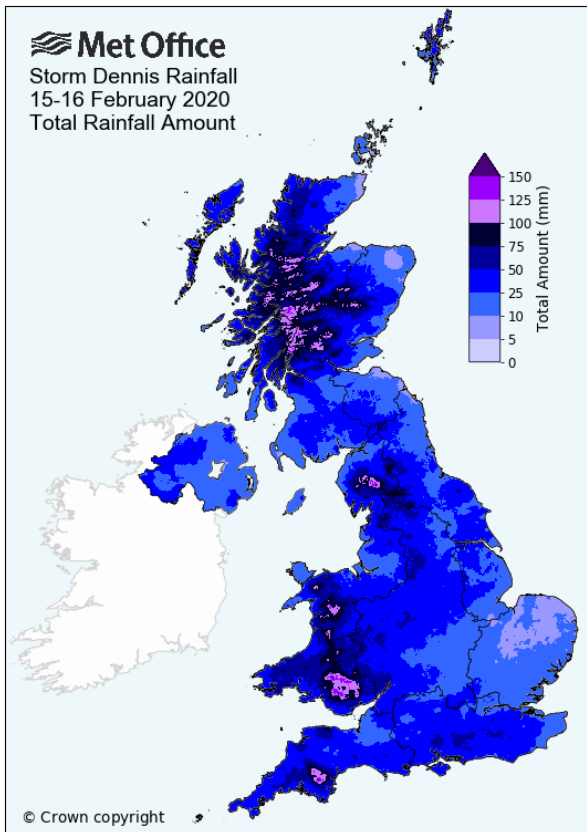
The map below shows rainfall totals for a) storm Ciara and b) storm Dennis, as actuals and % of 1981-2010 February long-term average. Storm Dennis brought 50 to 100mm or more of rain across the high ground of Dartmoor, parts of Wales, the Lake District and Highlands. 100 to 150mm of rain fell across parts of the Brecon Beacons and south Wales valleys. More than the February whole-month average rain fell for the rain-days 15-16 February (09 UTC 15th to 09 UTC 17th) across parts of the west and north Midlands.

Storm Ciara one week earlier brought 100mm+ of rain across the high ground of Snowdonia, the Lake District and parts of the Pennines. More than the February whole-month average rain fell for the rain-days 8 to 9 February (09 UTC 8th to 09 UTC 10th) across parts of the south Pennines

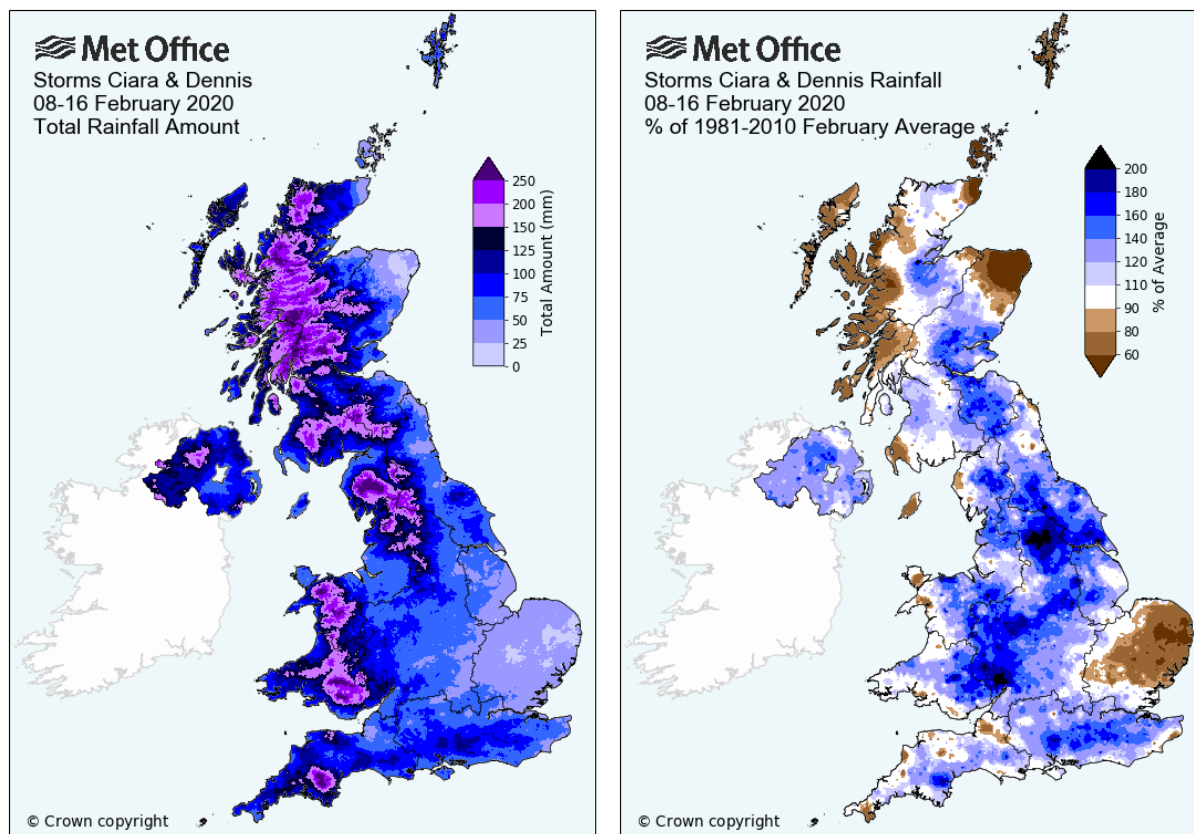
a) – storm Ciara rainfall



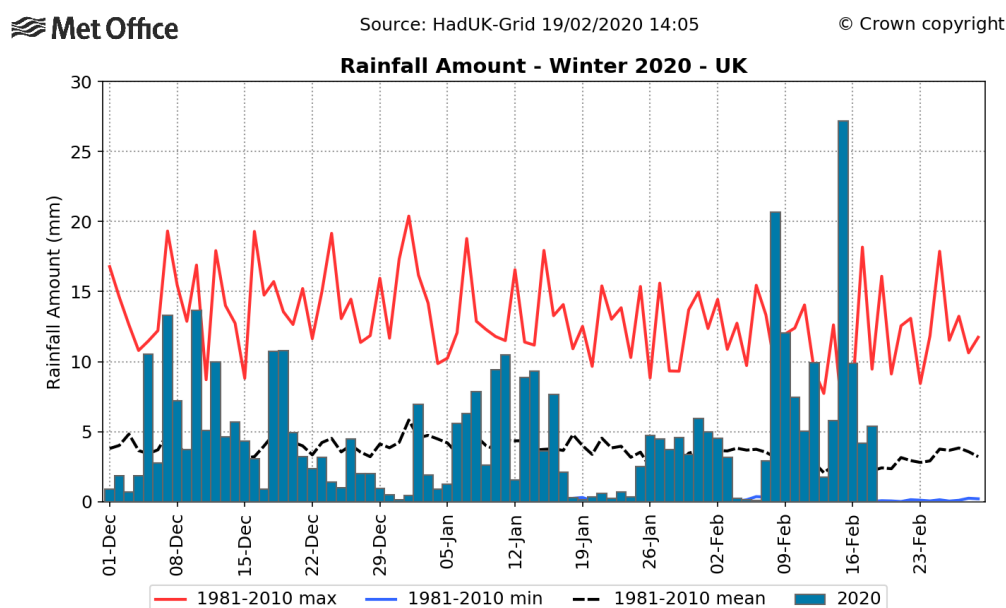
b) – storm Dennis rainfall



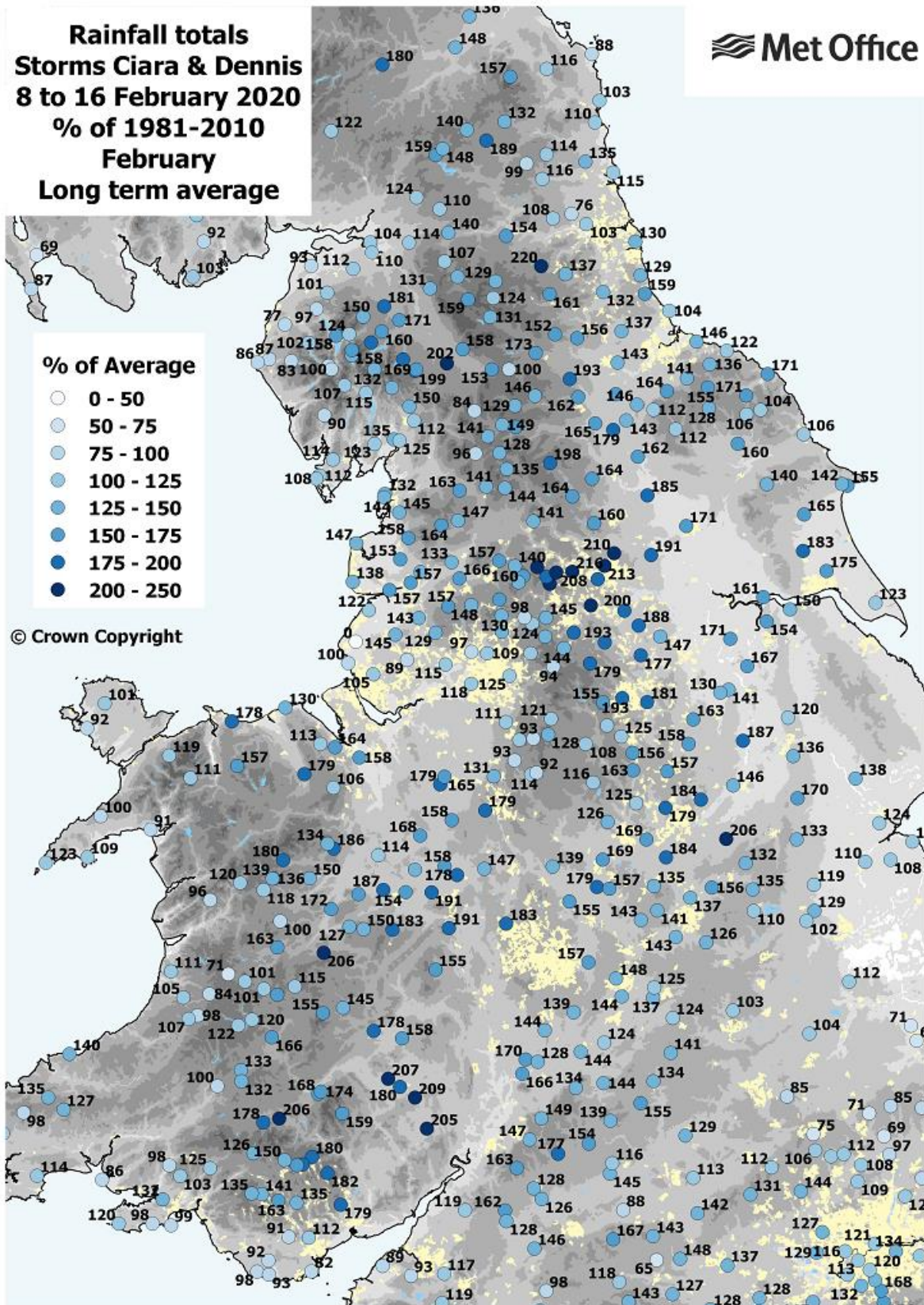
The maps below show how much rain fell across the UK overall for the 9-day period from 8th to 16th February, including both storms Ciara and Dennis. Over 100mm of rain fell across many western parts of the UK through this period with 150 to 250mm or more across the high ground of Dartmoor, Wales, northern England, Southern Uplands, West Highlands and parts of Northern Ireland. Most of the UK received the February whole-month average rainfall over this 9-day period, with around 150% fairly widely across east Wales, the West Midlands and a swathe of the Pennines through to Edinburgh and over 200% locally in the Pennines and parts of Gloucestershire and Herefordshire.



The chart below shows UK areal-average rainfall totals for each day of winter 2020 so far (1 December 2019 to 18 February 2020), with the exceptionally wet days of 8 and 15 February associated with storms Ciara and Dennis.



The map below shows rainfall totals at individual stations for storms Ciara and Dennis combined as % of 1981-2010 February long term average.



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Last updated 20/02/2020