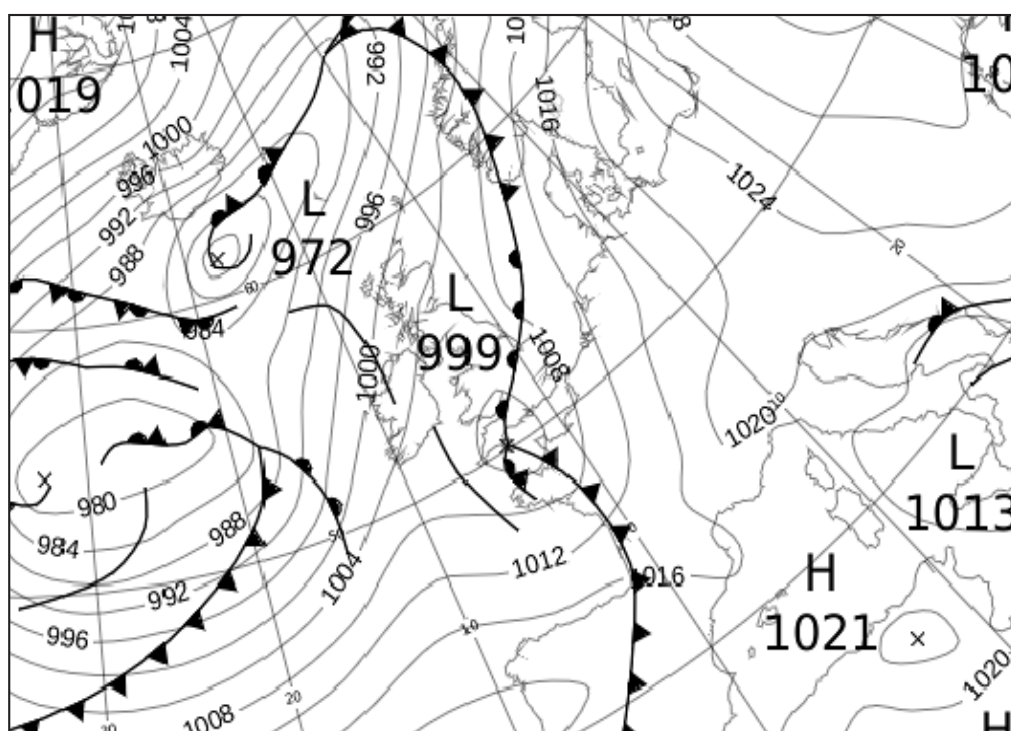


Education case study November 2012 flooding

2012 brought numerous flooding events to the UK. This case study focuses on one week in November when four periods of rainfall brought widespread flooding to many parts of the UK.

Meteorological situation

Image 1 below shows the weather chart for 6am on 21 November 2012 with active weather fronts associated with low pressure over South West England.



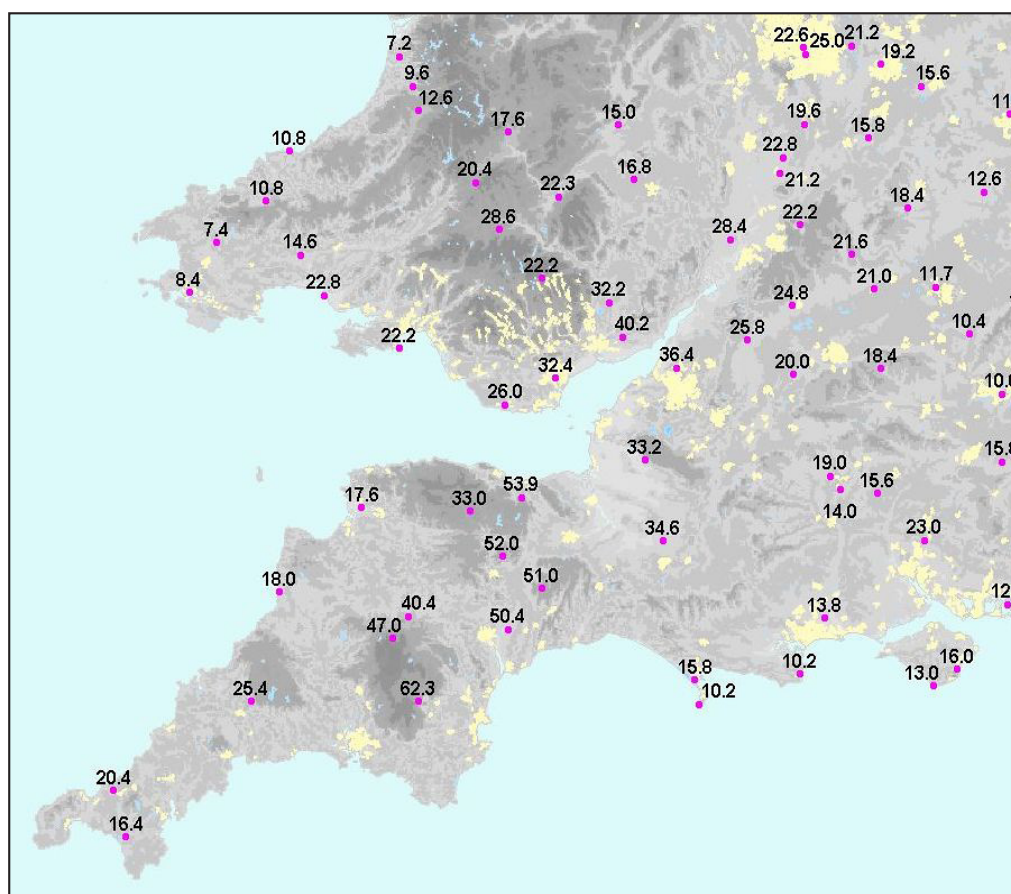
Typically 40-50 mm fell within a 12 hour period across the South West. These figures are not particularly exceptional so why did this period bring extensive flooding? The answer is that the ground was already saturated before the rain fell. The impact of autumn rainfall is often exacerbated by fallen leaves blocking drains.



Met Office

Education case study November 2012 flooding

Image 2 below shows rainfall totals in millimetres between 10pm on 20 and 10am on 21 November 2012.



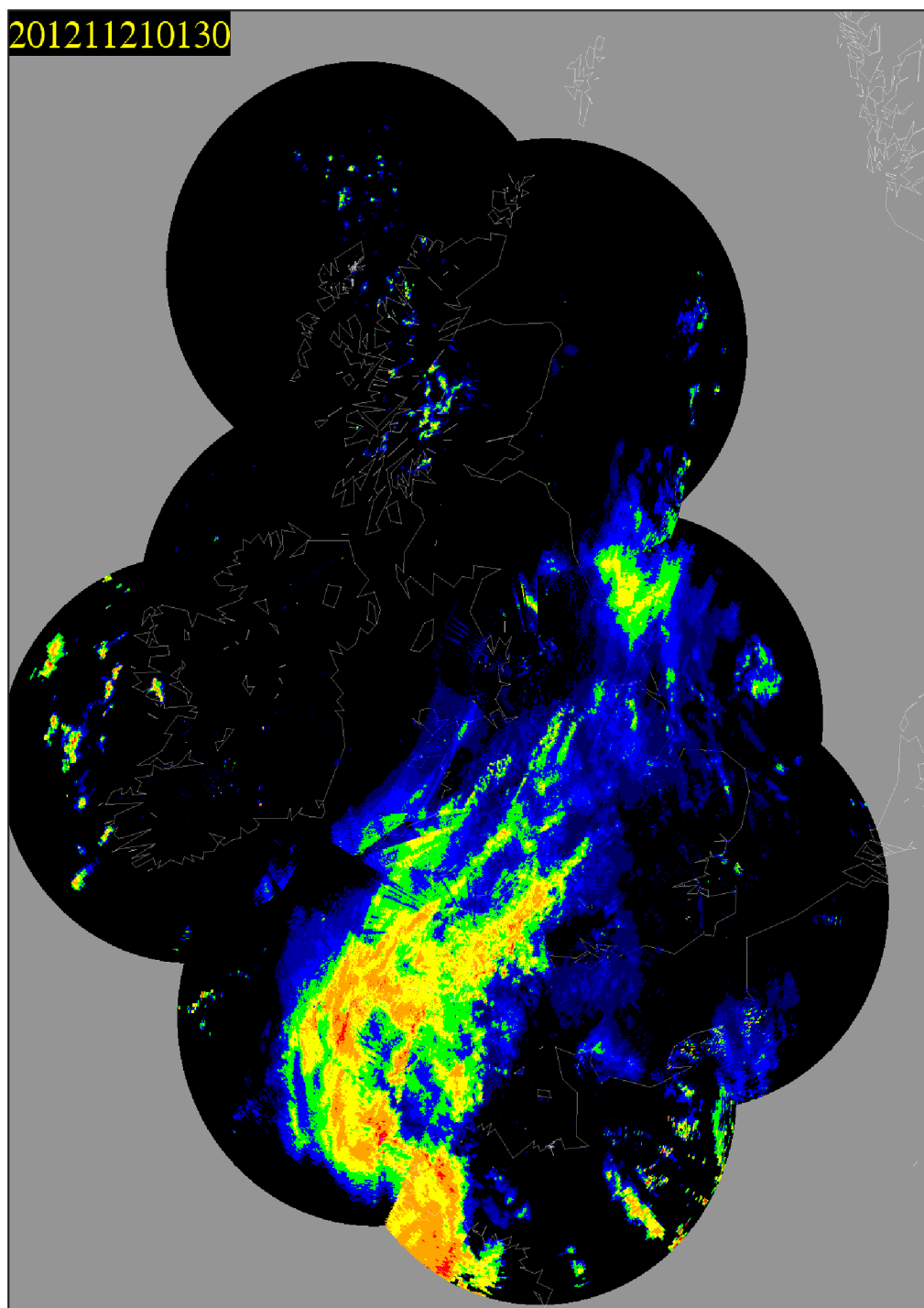


Met Office

3

Education case study November 2012 flooding

Met Office forecasters look at weather radar images to show where rain is falling. Brighter colours indicate heavier rainfall. Image 3 below is the radar image for 1.30am on 21 November.





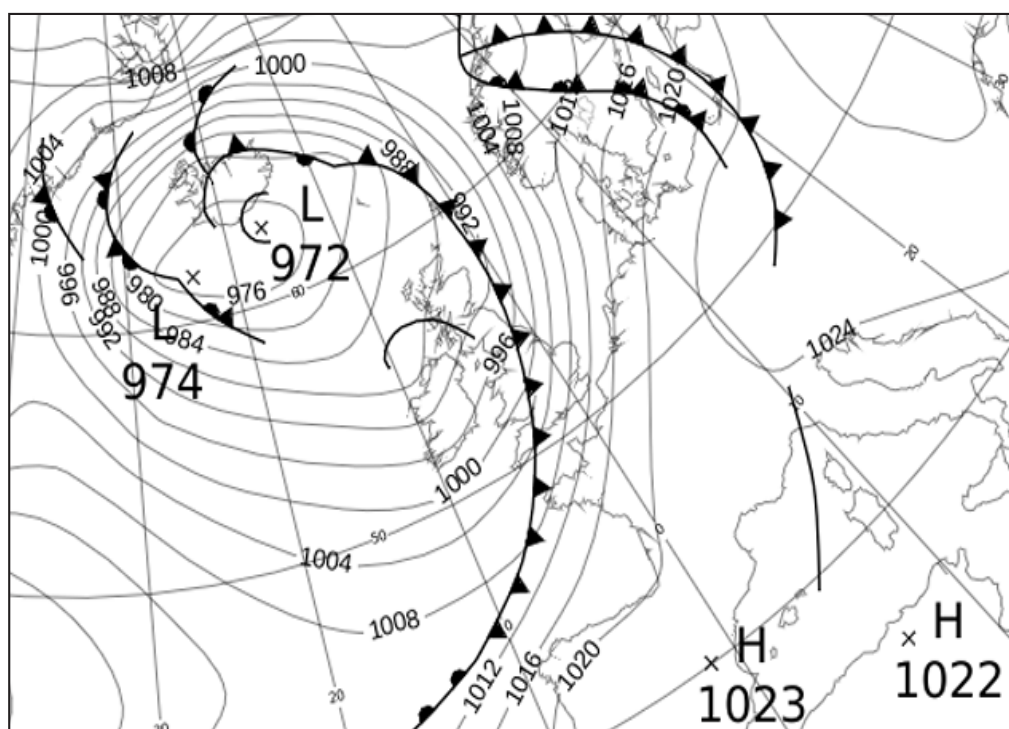
Met Office

4

Education case study November 2012 flooding

The 22 November brought further flooding. Image 4 below shows an active cold front at 6pm on 22 November 2012. Air flows in an anticlockwise direction around low pressure systems.

To the east of the cold front the isobars (lines of equal pressure) are packed closely together. This chart indicates very strong southerly winds.



Rainfall totals associated with this frontal system were again unexceptional but the rain was falling on already saturated ground.



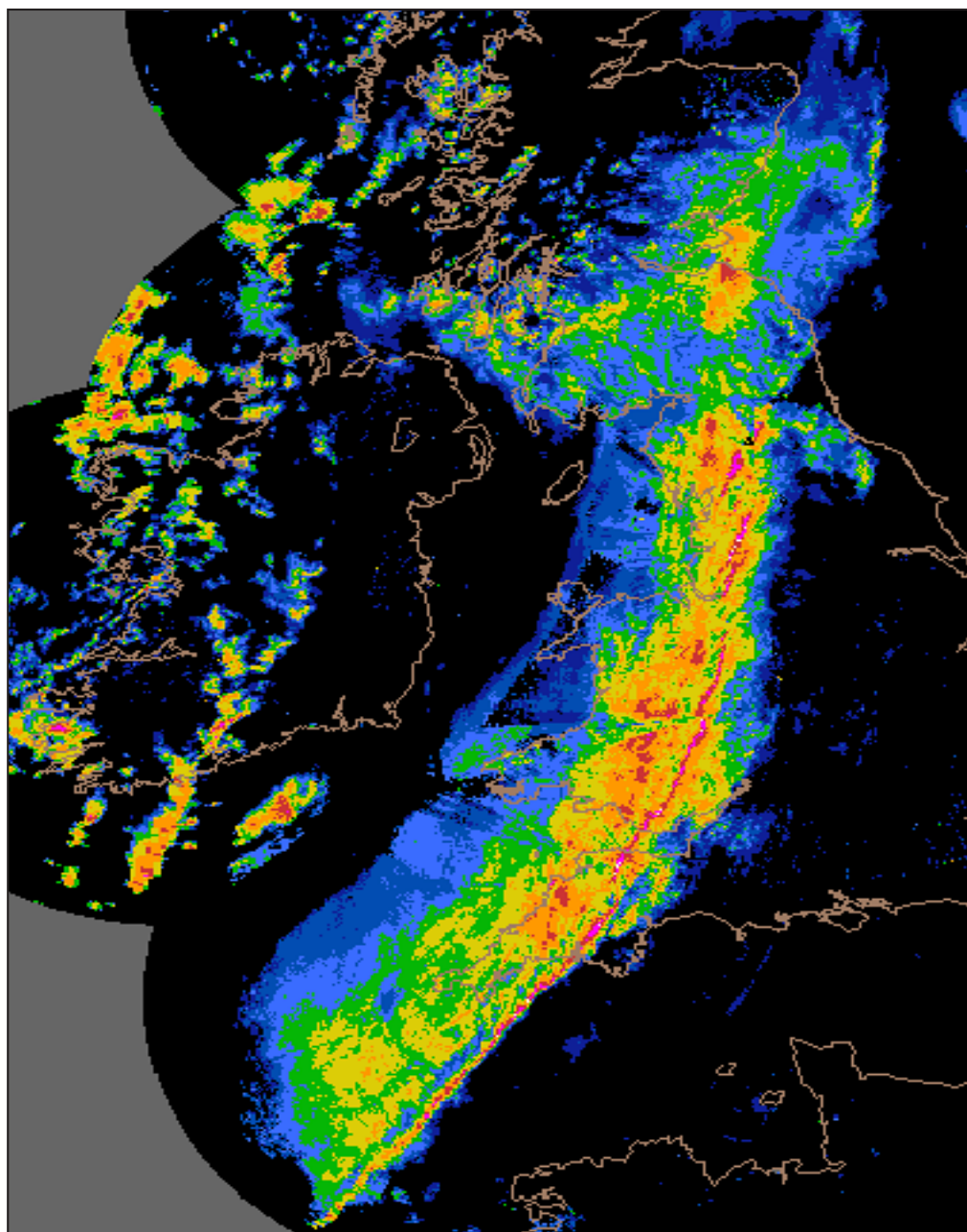
Met Office

5

Education case study November 2012 flooding

Image 5 below is the radar image at 4pm on 22 November 2012 which shows a very intense line of rainfall running from South West England to South East Scotland.

South West England received another 20 mm of rain while parts of Cumbria and North Wales received 40 mm. Flooding was widespread across the UK with further travel disruption. Wind speeds further added to the disruption with 60 mph gusts occurring widely at inland locations, 70 mph at coastal locations. Capel Curig in Wales had a gust of 86 mph.





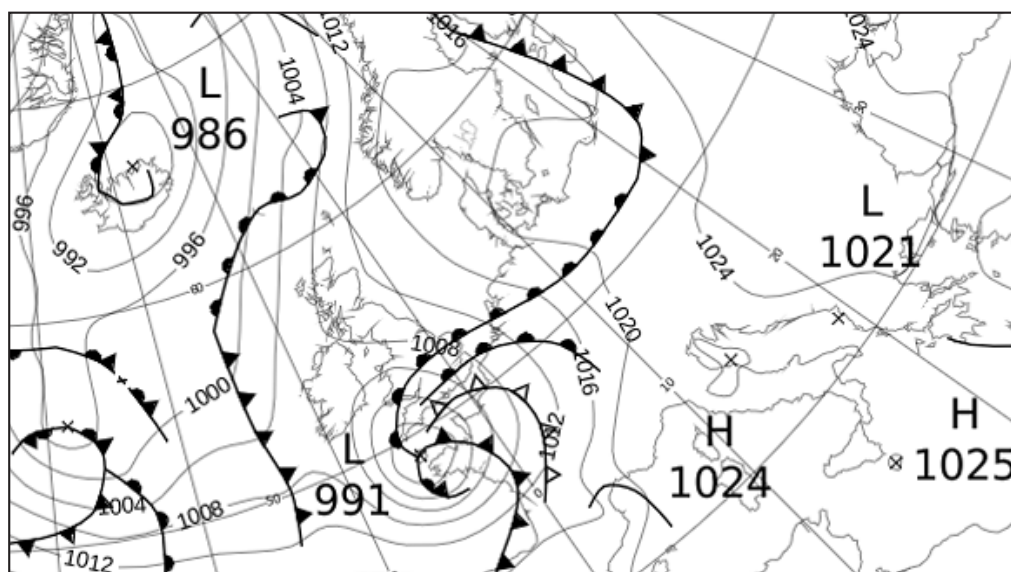
Met Office

Education case study November 2012 flooding

Image 6 below shows how severe the flooding was in Cumbria.



Another period of flooding occurred during 24 and 25 November 2012. Image 7 below shows the chart from 6pm on 24 November 2012 with low pressure to the south of Cornwall.



More than 50 mm fell widely and there were major flooding problems. Devon and Cornwall were the worst affected. The South West's rail network was badly affected. The M5 was forced to close and hundreds of homes were flooded.



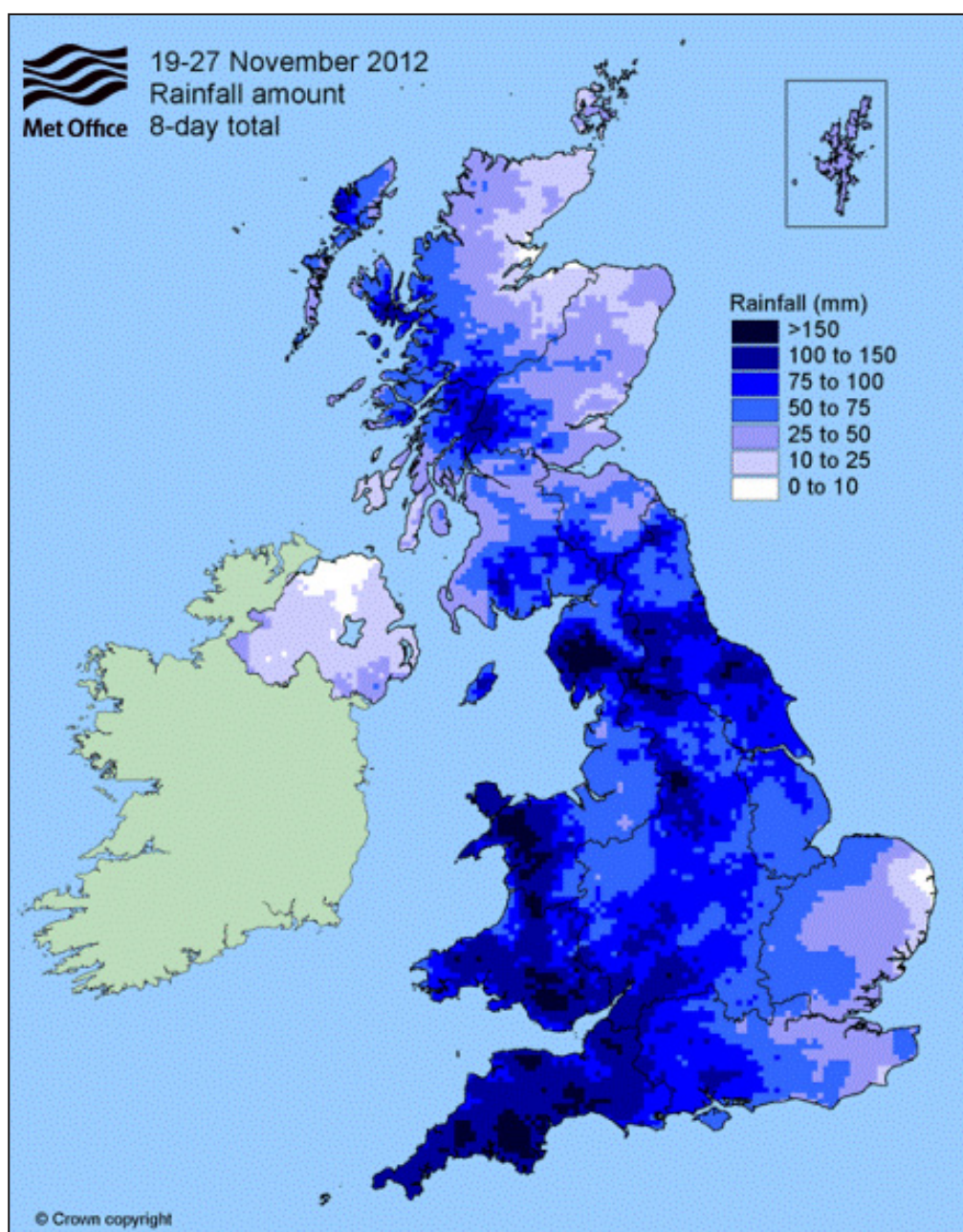
Met Office

7

Education case study November 2012 flooding

A fourth period of flooding occurred on the 25 and 26 November with a further 30–50 mm falling across South West England, Wales and Northern England.

Image 8 below shows the rainfall accumulations for the period 19 to 27 November 2012. This week brought four significant rainfall events in the space of a week with already saturated ground given no chance to recover.

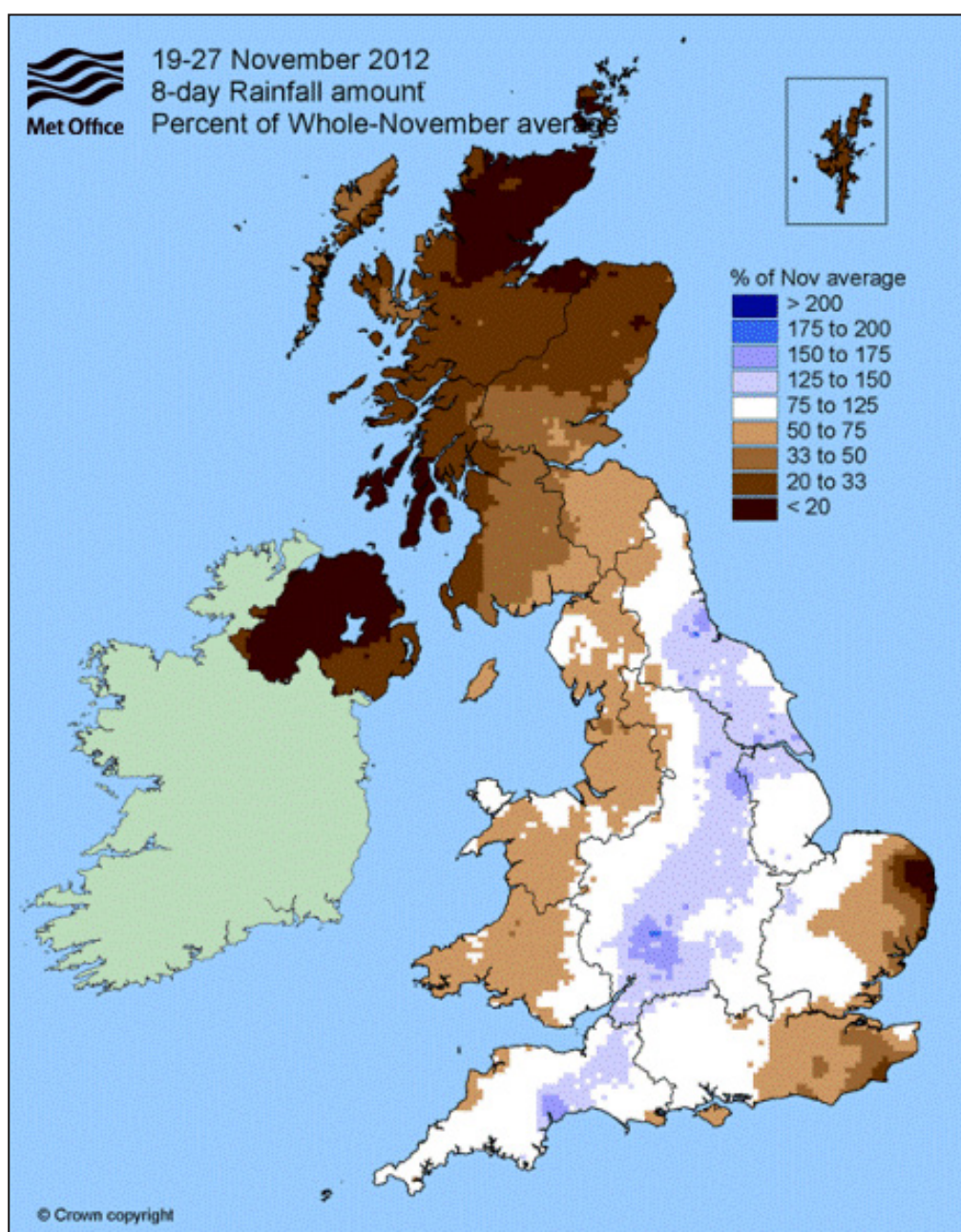




Met Office

Education case study November 2012 flooding

Image 9 below shows the amount of rainfall in a one week period as a percentage of the November average. The strip from South West England to North East England shows that many areas had one and a half times their monthly average rainfall in one week.





Met Office

9

Education case study November 2012 flooding

Impacts

This week brought numerous road closures due to flooding and the Exeter to London railway line was also flooded. When road and rail networks are affected people are unable to get to work and school. One particular event which made the national news was the Grand Western Canal breaching one of its banks near the village of Halberton in Devon. The canal drained into the surrounding land.



Some people find it difficult to get insurance cover because of the number of times their property has been flooded. Flooding affects agriculture. In 2012 it's estimated that £600 million worth of crops such as potatoes and wheat was lost. The apple crop was affected and honey production dropped by around 75%.

The timing of this particular week of severe weather was significant. The last week of November is normally a very busy one for retailers. In 2012 some retailers had to close their shops due to flooding. Numbers of Christmas shoppers were down on normal figures due to shoppers having their travel plans disrupted. In addition if you'd woken up to a flooded house for the second time in a week you probably wouldn't be in the mood for Christmas shopping. Weather really does affect the economy.

Further information

www.guardian.co.uk/environment/2013/jan/04/2012-year-british-weather-dangerous
www.bbc.co.uk/news/uk-20450182
www.bbc.co.uk/news/uk-20488645