

# Heavy rainfall and flooding in Cornwall, November 2010

Very heavy rainfall in the early hours of 17 November resulted in severe flooding to parts of Cornwall.

A deep area of low pressure brought strong winds and heavy rain overnight on 16/17 November, with a line of intense rainfall developing to bring 40 mm or more in 2 hours in some places.

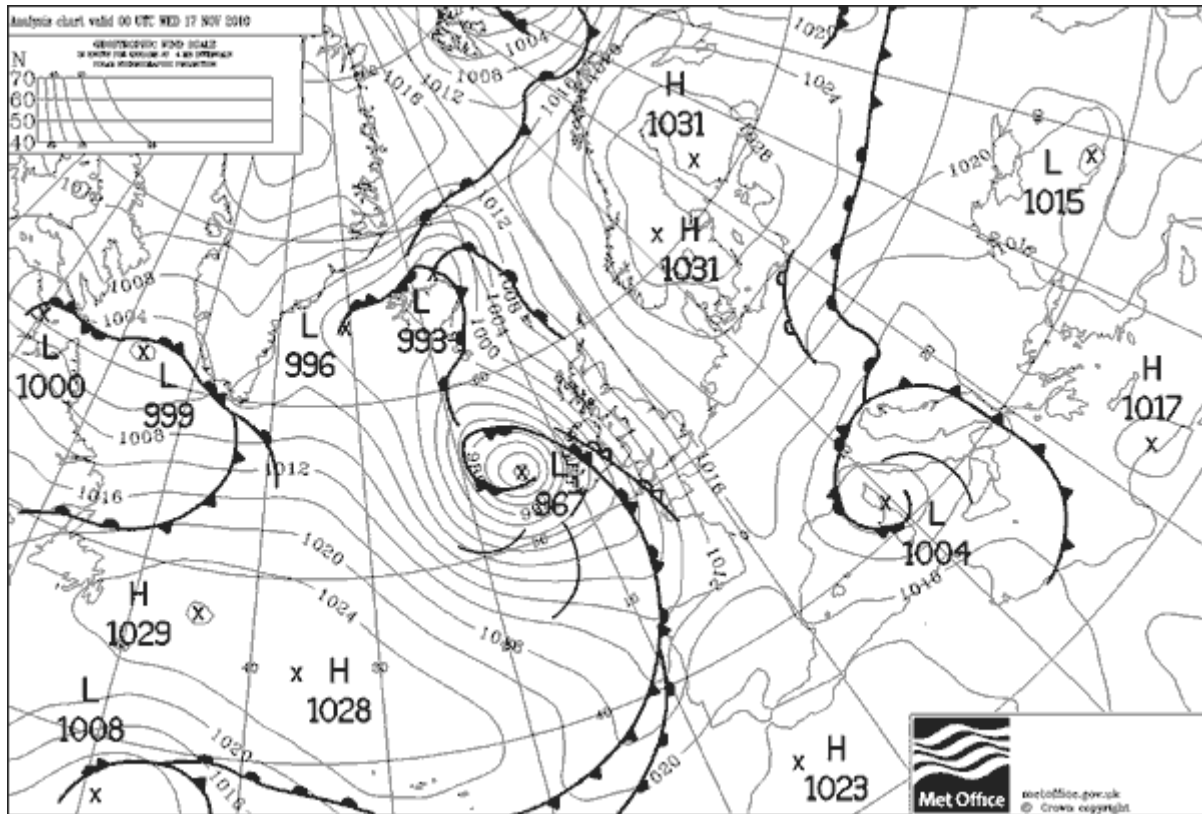
## Impacts

The worst affected places were St Blazey, St Austell, Mevagissey and Lostwithiel. More than 100 properties were flooded with significant damage to houses and businesses. Roads were closed (including both the A30 across Bodmin Moor and the A38 for several hours) and motorists were stranded by floodwaters. The mainline railway between London and Penzance was closed due to landslides. A number of schools across Cornwall were closed for the day and the Eden Project was badly affected by flooding.

## Weather data

Overnight on 16/17 November, a deep autumnal low pressure system was situated to the west of Ireland, with associated fronts bringing rain to western parts of the UK. The heavy rain was accompanied by strong winds, with gusts of 54 knots (62 mph) at St Mary's (Isles of Scilly) and 50 knots (58 mph) at Berry Head (Devon).

The synoptic situation at 0000 GMT on 17 November 2010. Select image to enlarge.

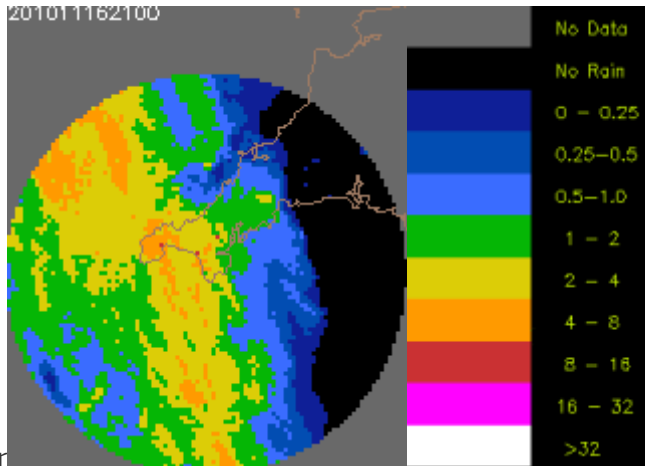


In the early hours of 17 November, a line of very intense rainfall developed within the frontal system as this crossed Cornwall. The heaviest rainfall occurred between 0400 GMT and 0700 GMT. In the 2-hour period 0400 - 0600 GMT, 45.0 mm of rainfall was recorded at Heligan (near Mevagissey) and 28.0 mm of rainfall at

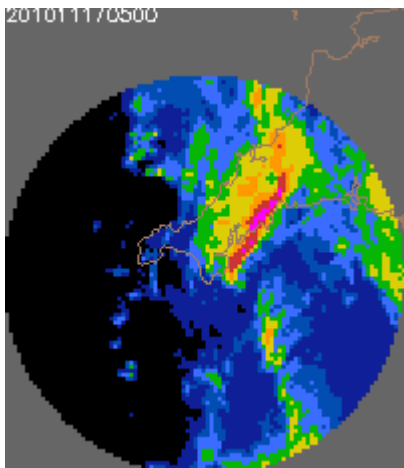
Luxulyan. In the 2-hour period 0500 - 0700 GMT, 30.8 mm of rainfall was recorded at St Clether (north of Bodmin Moor).

The very intense rainfall resulted in rapid surface water run-off, overwhelming drainage systems and rapidly increasing river flows, for example in the River Fowey. The short, steep, rapidly responding nature of Cornwall's river catchments make them particularly susceptible to flooding from this type of intense rainfall: the most dramatic example of this in recent years occurred at [Flooding in north Cornwall - 16 August 2004](#).

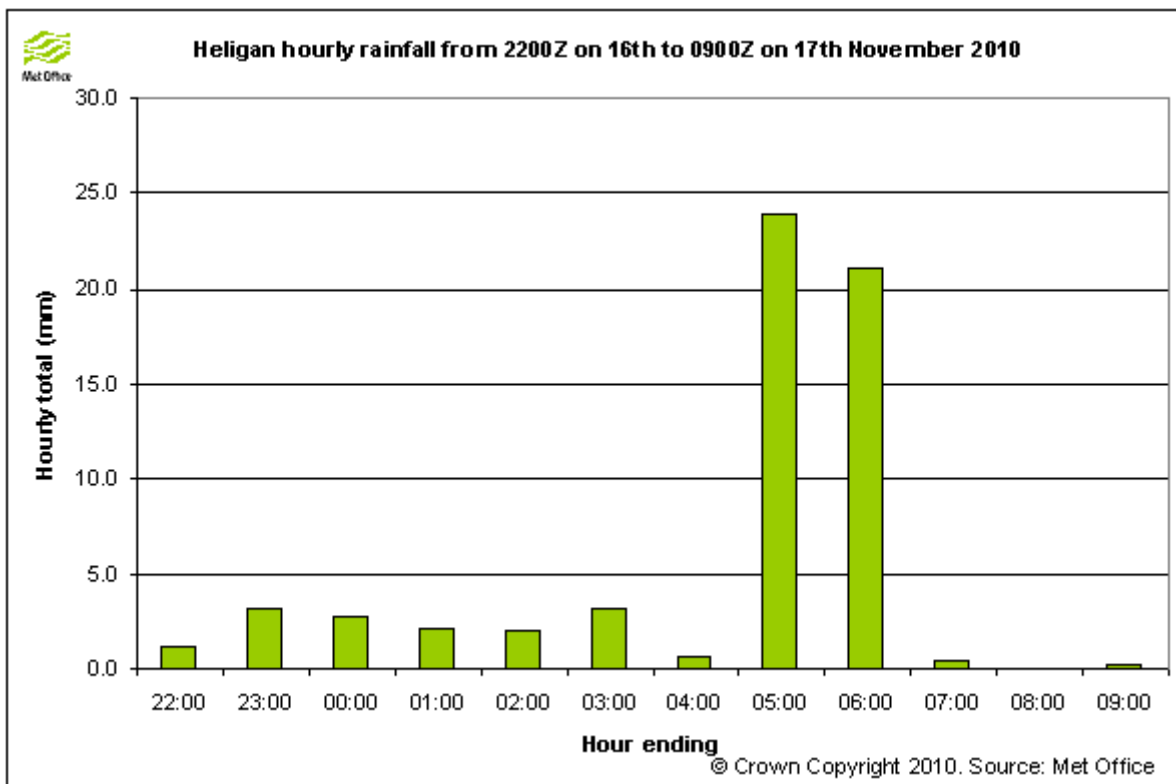
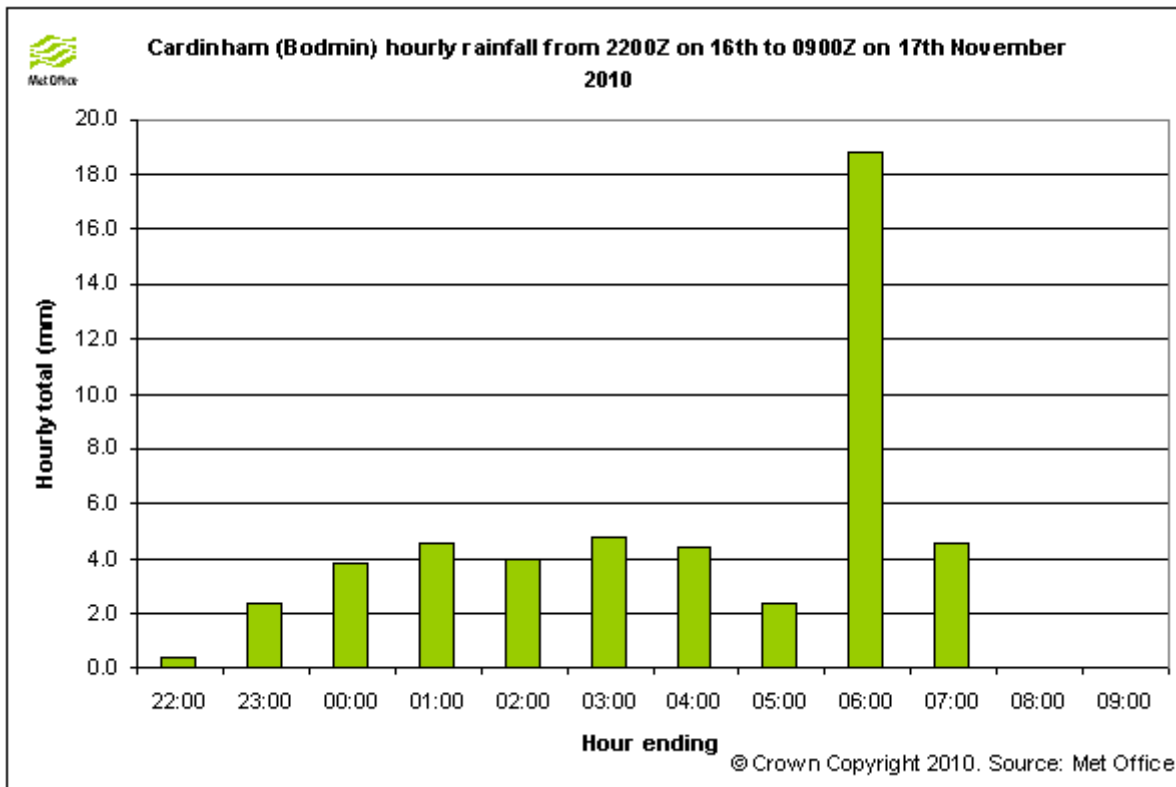
The following sequence shows rainfall radar from 2100 GMT on 16 November to 1200 GMT on 17 November detected by Predannack radar (near Lizard, Cornwall). The images are at 2 km resolution and 15-minute intervals and clearly show the line of intense rainfall developing and crossing over the worst affected areas of Cornwall.



Predannack radar, Cornwall (still image at 0500 GMT on 17 November)



The figures below show hourly rainfall totals from rain-gauges at Cardinham (near Bodmin) and Heligan (near Mevagissey) from 2200 GMT on 16 November to 0900 GMT on 17 November.

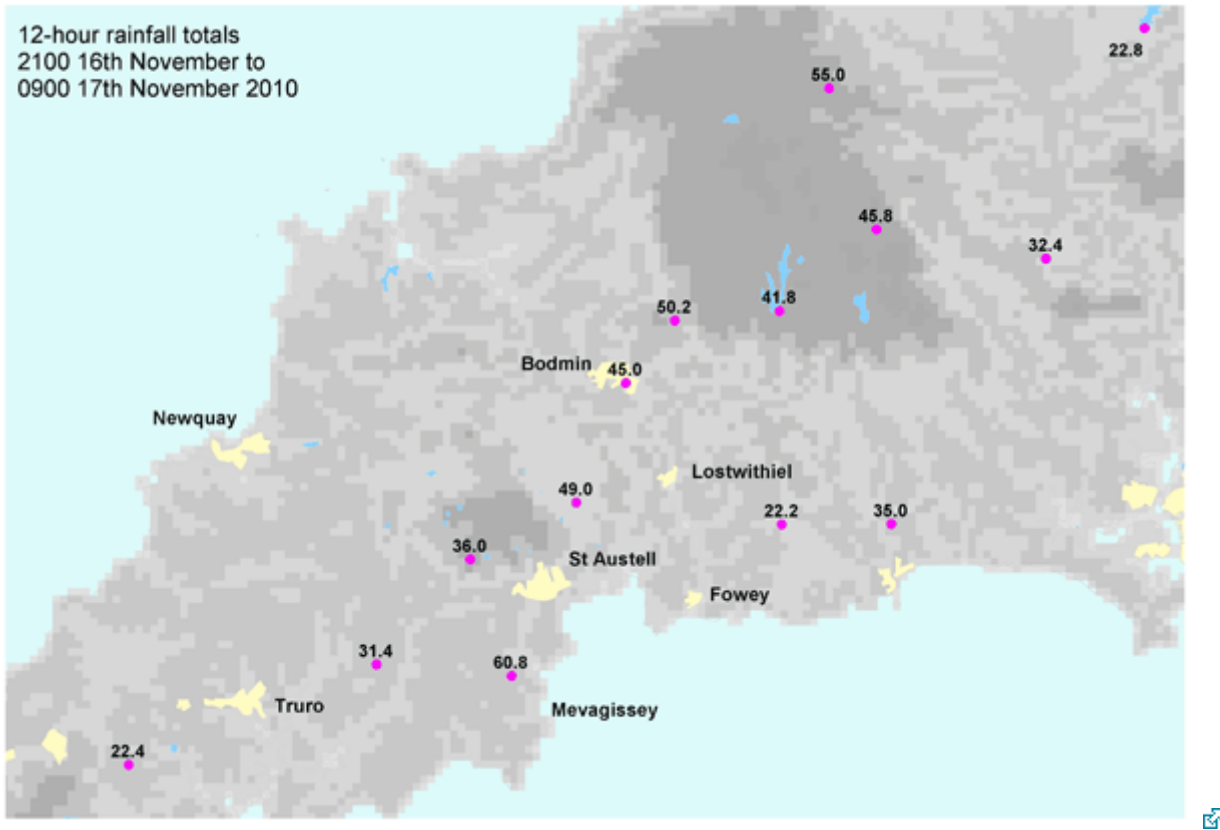


Cardinham, Bodmin recorded an hourly total of 18.8 mm, while Heligan recorded consecutive hourly totals of 24.0 mm and 21.0 mm - to give 45.0 mm in 2 hours. An analysis of these rainfall data indicates a return period exceeding 50 years for the 2-hour duration total\*.

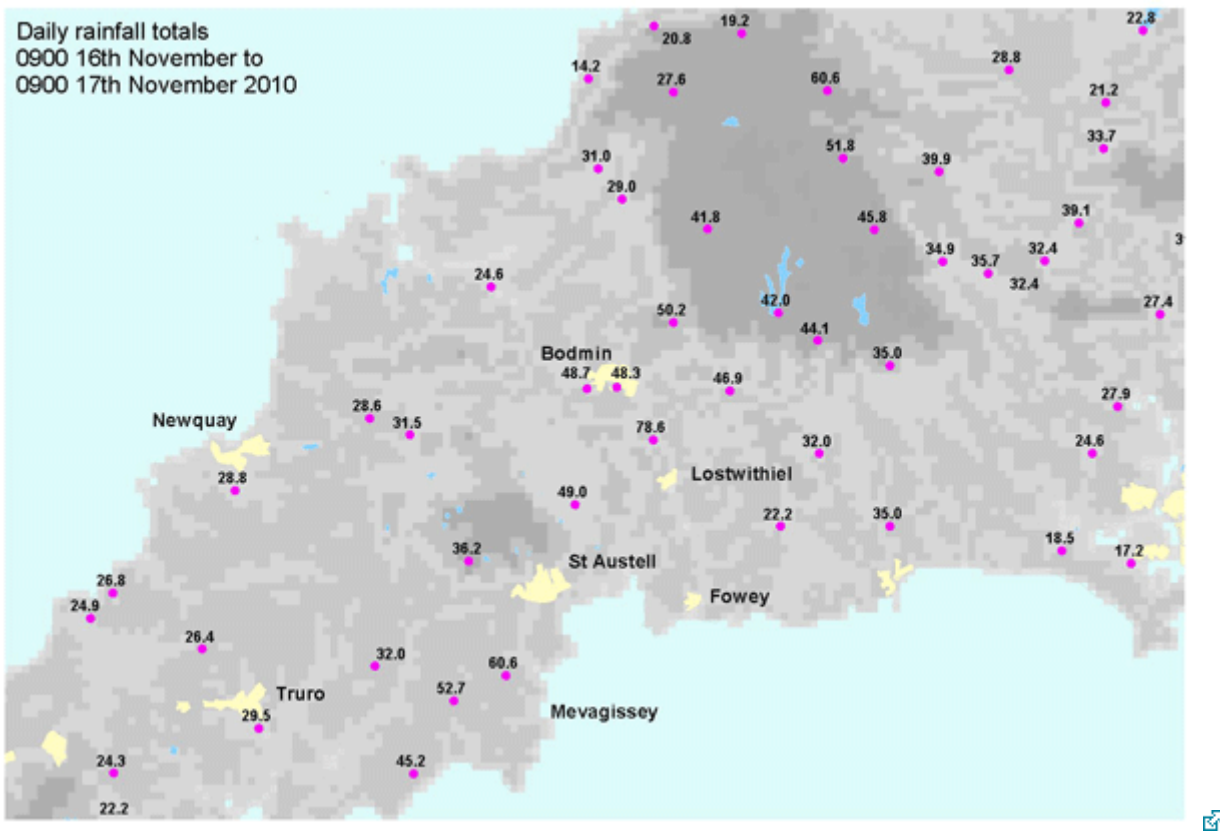
\*Return period estimates are based on the Flood Estimation Handbook (FEH) methodology. It is important to recognise the large uncertainty associated with return period estimates and the value quoted is approximate.

The map below shows 12-hour rainfall totals from 2100 GMT on 16 November to 0900 GMT on 17 November, including 60.8 mm at Heligan, 55.0 mm at St Clether and 50.2 mm at Cardinham, Bodmin. A number of other

rain-gauges in the area also recorded 12-hour totals of more than 40 mm. Select image to enlarge.



The map below shows 24-hour rainfall totals from 0900 GMT on 16 November to 0900 GMT on 17 November. The highest daily total was 78.6 mm at Restormel (between Bodmin and Lostwithiel). It is likely that most of this rain fell within a few hours. Select image to enlarge.



These maps are based upon data kindly provided by the Environment Agency.

Last updated: 5 November 2012

