

“The History of Flooding on the River Severn”

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Professor McEwen started with a brief comparison of the floods of 2007 with those of more recent history i.e. 1990 – 2007 including a project involving community engagement with its flood history. This research is part of that undertaken by the Centre for the Study of Floods and Communities at the University of Gloucestershire. The aim is to understand the size of the floods, what caused them and to identify any intensifying factors.

In 2007 there was exceptional rainfall from May to mid July which left the river catchment area near to saturation when there was a 24-hour period of rain that was 400% above the daily average of the previous 30years. This initially produced localised flash flooding, followed by very high flows in small catchment areas and then long duration inundation of the flood plain. Overall the rainfall represented a one in 200-year event and the fact that it was a summer flood was also unusual.

Recorded scientific data such as flow rates etc. is only available for a relatively short period of history. However using a wide range of sources such as newspapers, personal experiences, parish records, old photographs, history books and archives, Professor McEwen produced details of floods back to the 18th century and even description of floods as early as the 13th century.

Floods can be characterised by five main causes:

- Long duration rainfall
- Warm rain following snow melt
- Ice break
- Tidal influences
- Storm surge

Analysis of the data shows that 54% of floods occurred in winter, 23% in autumn, 13% in spring and 9% in summer. However care is needed in the interpretation of older data due to uncertainties such as past climate changes e.g. the “mini ice-age” (the Severn froze over several years in the 17th to 19th century).

The largest flood ever recorded was in the winter of 1770, following a very wet autumn and was a one in 500-year event.

Overall conclusions that can be drawn from the research include:

- There have been bigger floods in the past
- Extreme flooding in the lower and middle catchment is caused and intensified by a number of conditions.
- There appear to be “flood rich” periods although the exact reasons for this are not clear.
- Historic evidence from the little ice age gives interesting insights into the effects of snowmelt.
- The predominant circulation pattern in flood periods is cyclonic, mainly from a southwesterly direction.

The research should help should help authorities to plan for future flooding episodes and mitigate their impact on communities. However natural events are subject to many variables and therefore there will always be considerable uncertainty in any predictions.

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