

## ○ Catastrophe Report ○

# Dudley earthquake: 23 September 2002

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**At 00:53 (23:53 GMT) 23 September 2002, an earthquake of local magnitude (ML) = 4.8 (Richter scale of 4.8) occurred in the West Midlands. The epicentre is reported to be located in the town of Dudley, with a focal depth of 9.7 km. An after-shock, measuring 2.7, also hit the area around four hours later.**

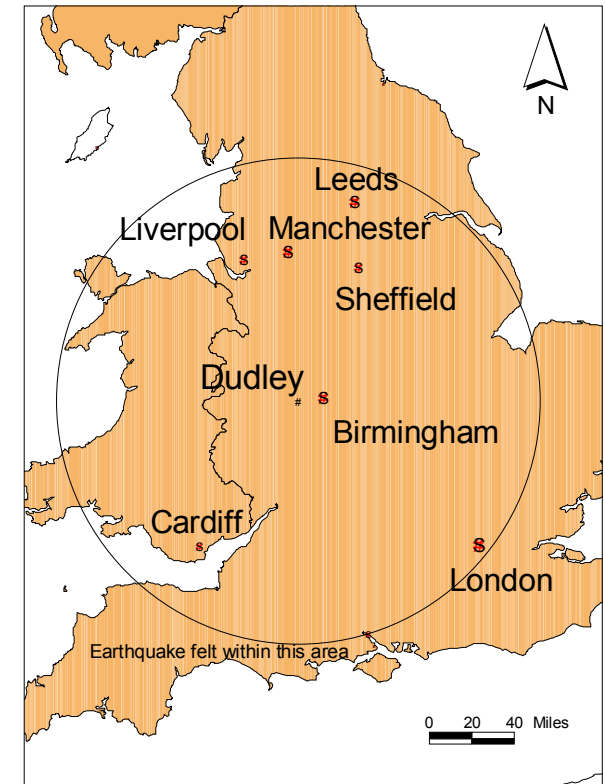
It is likely to have occurred on the Midlands Microcraton, which is a fault made up of hard rock with areas of soft rock that runs up through Birmingham. Historically, no events with ML exceeding 5.5 are known to have occurred in the area. Earthquakes of magnitude 4.5 or greater tend to occur once every 10 years with the most recent being in Bishops Castle in 1990 with magnitude 5.1. The British Geological Survey (BGS) estimates that the intensity of the earthquake was 4+ (European Macroseismic Scale). Small objects indoors shaking and rattling such as beds and dishes characterise earthquakes with intensity 4. There is moderate vibration but no major damage.

There were no reported injuries related to the earthquake; however, several people have reported chimneys crumbling, pictures falling, and broken windows. The most notable damage occurred in Walsall where a chunk of the steeple fell at St. Michael's and All Angels' Church. Dudley Castle was damaged during the earthquake. Stones from the walls of the kitchen area, which dates back to the 16th century, fell to the ground. The Black Country landmark stands on Castle Hill - less than two miles from the epicentre of the quake.

The electrical power went out in a five-mile radius but was restored in approximately 20 minutes. People reported feeling the earthquake as far away as London.

Two insurance companies had reported 80 claims each by mid afternoon on Tuesday 24 September. The majority of the claims were for minor damage to residential property and came from the West Midlands area. (source: Wolverhampton Express and Star).

The damage was similar to that experienced from the Bishop's Castle earthquake. The study by an engineering consultant, Ove Arup modelled damage using the Bishop's Castle specifications. It estimated that at most, slight damage of less than 5% of reconstruction cost would occur to less than 1% of the buildings of nearby towns (source: Earthquake Hazard and Risk in the UK, Department of the Environment, 1993).



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