

Magnitude 2.9 ARCHARACHLE, SCOTTISH HIGHLANDS, UK

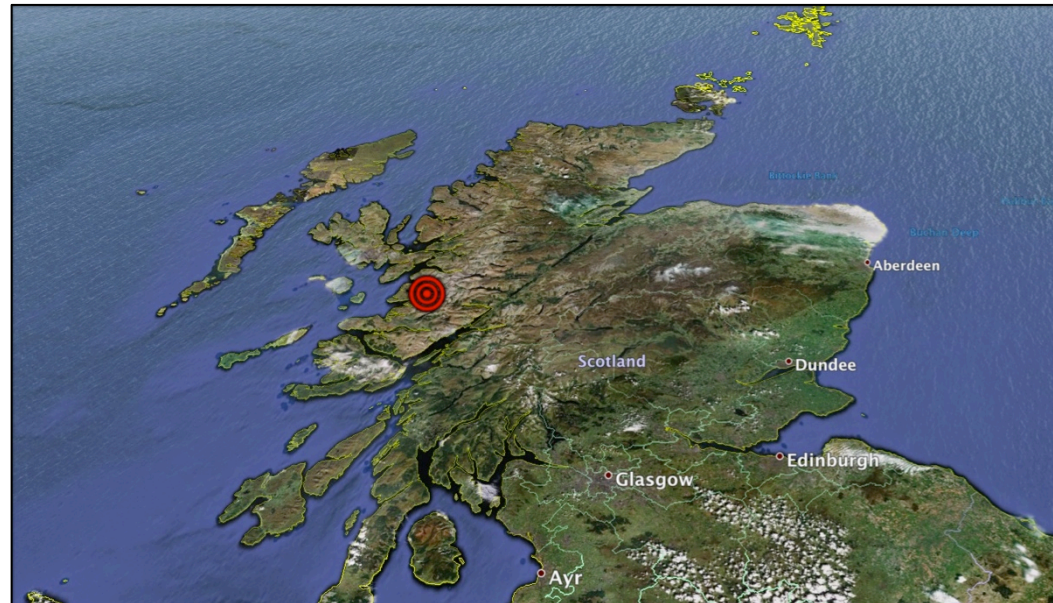
Saturday, 18 May, 2013 at 19:18:03 UTC



A magnitude 2.9 earthquake occurred in the western Scottish Highlands region of the United Kingdom on 18 May 2013. The earthquake occurred at a depth of 12 km (7.5 miles). Approximately 26 earthquakes of this magnitude occur in the UK every year.

The earthquake was preceded by a magnitude 1.4 *foreshock* which occurred earlier in the day. The Archarachle event was located around 100 km to the south of, and was slightly stronger than the earthquake that occurred on 15th May.

The Archarachle earthquake was felt in the settlements of Glenuig, Lochaillort, Spean Bridge, Oban, Glenfinnan and Fort William.



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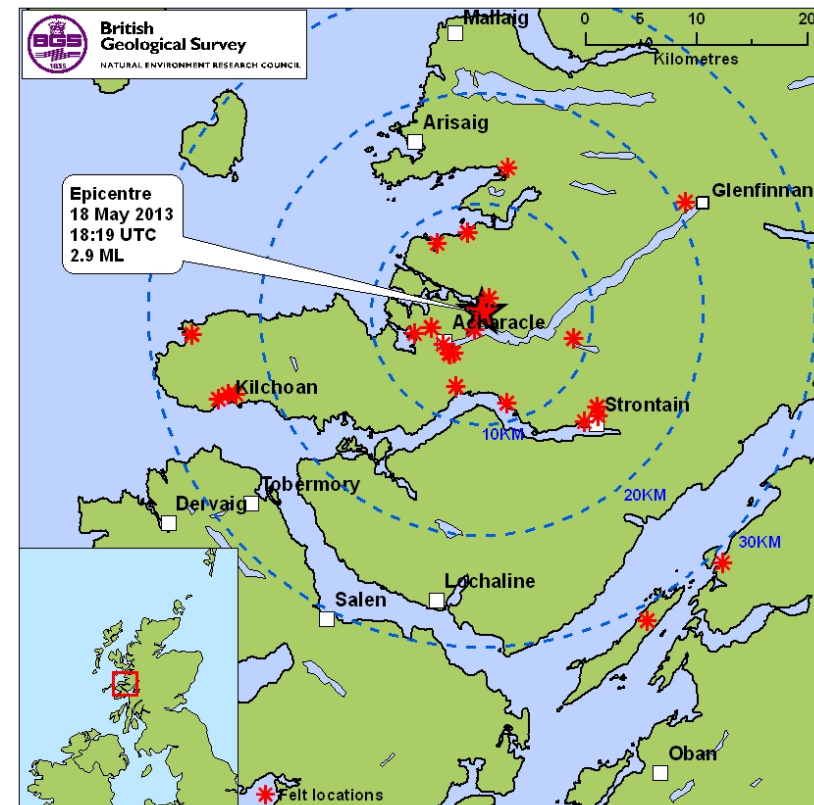
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Where was it felt?

Maximum recorded intensity of III (slight shaking) in surrounding settlements.

I. Instrumental	Not felt by many people unless in favourable conditions.
II. Weak	Felt only by a few people at best, especially on the upper floors of buildings. Delicately suspended objects may swing.
III. Slight	Felt quite noticeably by people indoors, especially on the upper floors of buildings. Many do not recognise it as an earthquake. Standing motor cars may rock slightly. Vibration similar to the passing of a truck. Duration estimated.
IV. Moderate	Felt indoors by many people, outdoors by a few people during the day. At night, some awakened.
V. Rather Strong	Felt outside by most, may not be felt by some people in non-favourable conditions. Dishes and windows may break and large bells will ring. Vibrations like train passing close to house.
VI. Strong	Felt by all; many frightened and run outdoors, walk unsteadily. Windows, dishes, glassware broken; books fall off shelves; some heavy furniture moved or overturned; a few instances of fallen plaster. Damage slight.
VII. Very Strong	Difficult to stand; furniture broken; damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. Noticed by people driving motor cars.
VIII. Destructive	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture moved.
IX. Violent	General panic; damage considerable in poorly designed structures, well designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X. Intense	Some well build wooden structures destroyed; most masonry and frame structures destroyed with foundation. Rails bent.
XI. Extreme	Few, if any masonry structures remain standing. Bridges destroyed. Rails bent greatly.
XII. Cataclysmic	Total destruction – everything is destroyed. Lines of sight and level distorted. Objects thrown into the air. The ground moves in waves or ripples. Large amounts of rock move position. Landscape altered, or leveled by several meters. In some cases, even the routes of rivers are changed.

Modified Mercalli Intensity Scale



Earthquake felt reports (image courtesy BGS)

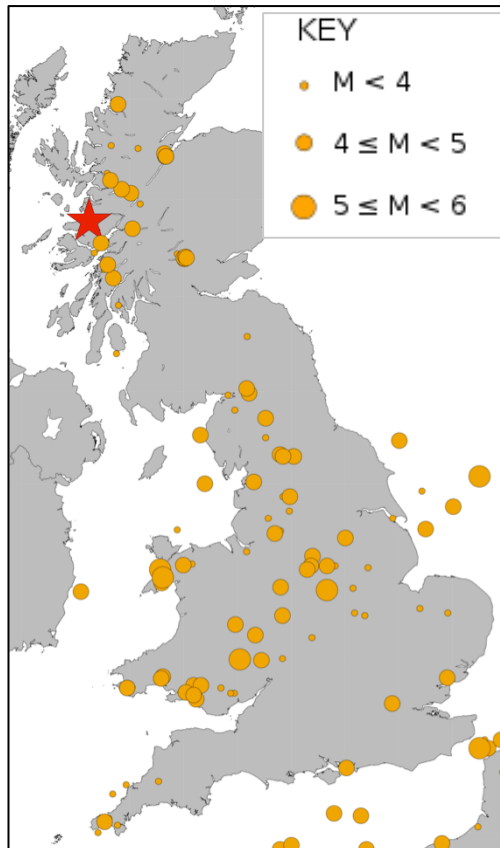
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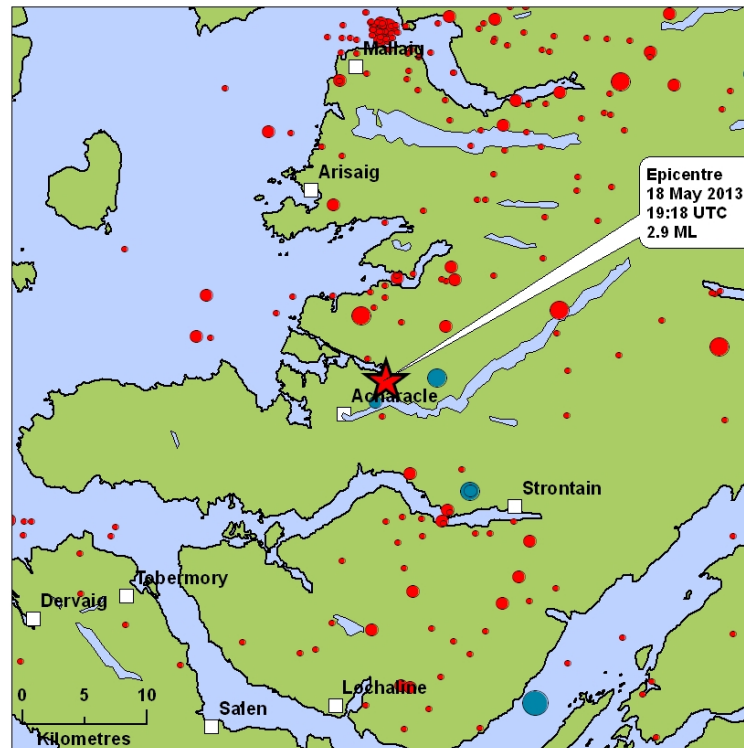
Earthquake and historic seismicity

The earthquake epicentre (red star) is plotted on the map with regional seismicity since 1960.

Historic seismicity of the British Isles



Small earthquakes have been known to occur in this region of the UK before.



Historic seismicity in the region of the mainshock (image courtesy of BGS)



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Tectonic interpretation

Although the UK does not lie on an active tectonic plate boundary (one of its nearest plate boundaries being the Mid-Atlantic Ridge), stress within the plate is released along pre-existing faults within the crust. In areas of low seismicity, such as the British Isles, it is difficult to identify the causative fault. Furthermore, with such low-magnitude events, it is not possible to determine the earthquake's focal mechanism.

Mid-Atlantic
Ridge



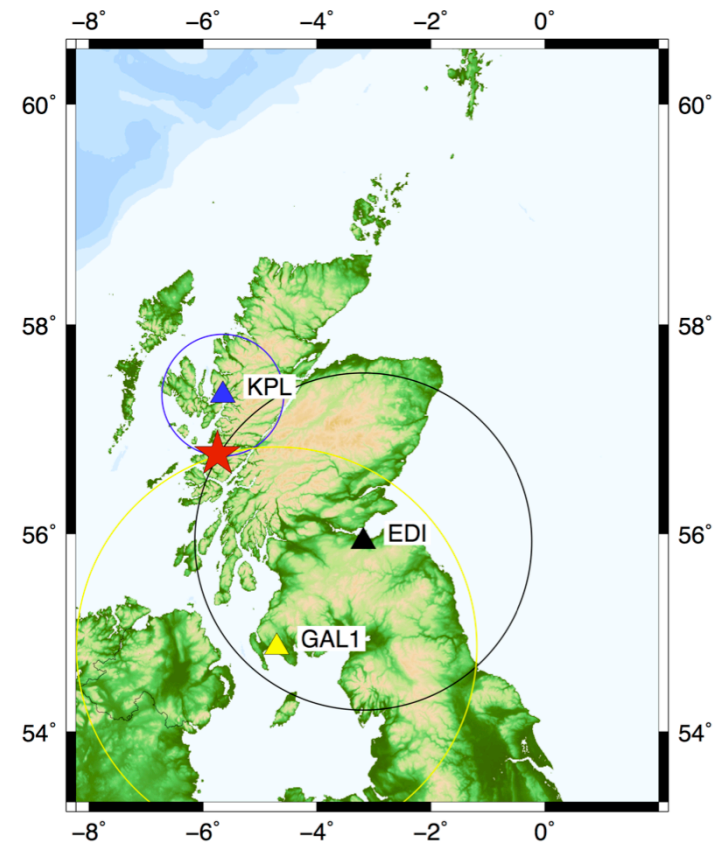
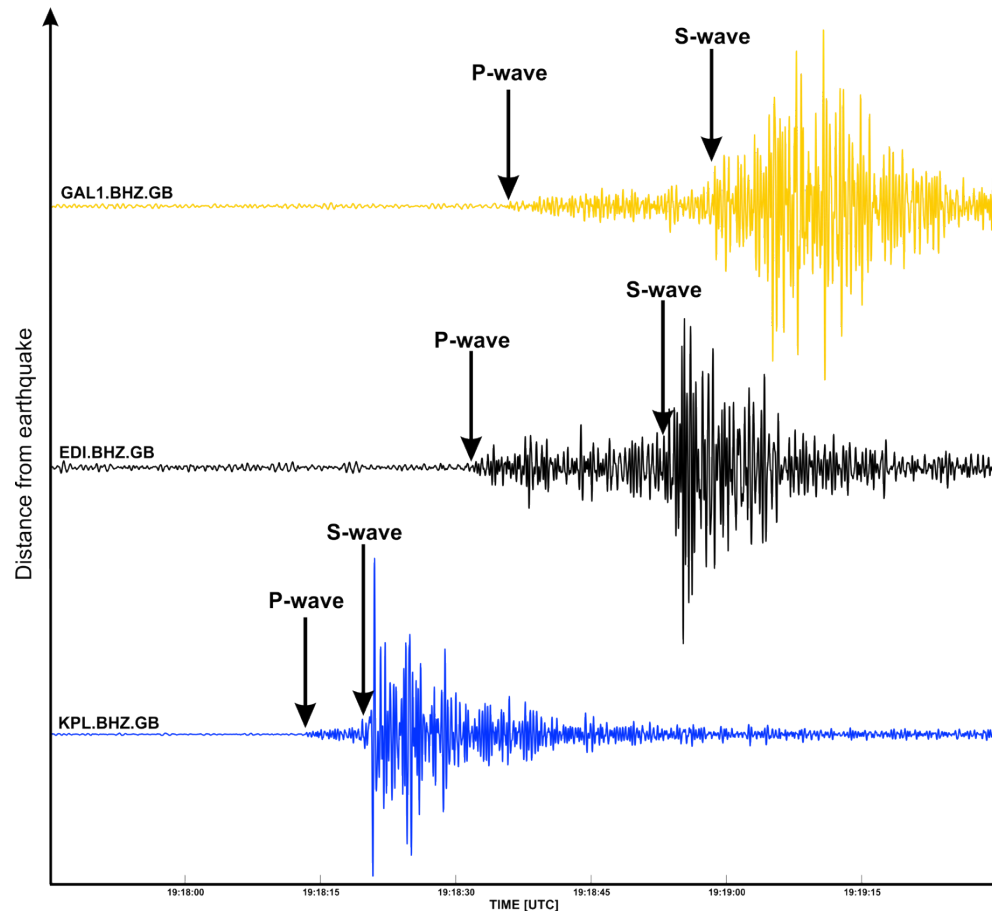


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Seismogram recordings from BGS network and locating the earthquake

By finding the arrival time difference between the P and S waves, we can calculate the distance of the earthquake from the seismometer station. If we do this for several stations (red triangles), we can determine the approximate epicenter of the earthquake (orange star) by finding where these circles intersect.





Seismology
Research Group



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Find out more...

- BGS (British Geological Survey) – seismology and earthquakes – frequently asked questions
http://www.earthquakes.bgs.ac.uk/education/faqs/faq_index.html
- IRIS (Incorporated Research Institutions for Seismology) – learning about earthquakes
http://www.iris.edu/hq/programs/education_and_outreach/students
- UK School Seismology Project – classroom activities, videos and support documents
<http://www.bgs.ac.uk/schoolseismology/home.html>
- USGS (United States Geological Survey) – FAQs, glossary, posters, animations
<http://earthquake.usgs.gov/learn/>
- EMSC (European Mediterranean Seismological Centre)
<http://www.emsc-csem.org/>