

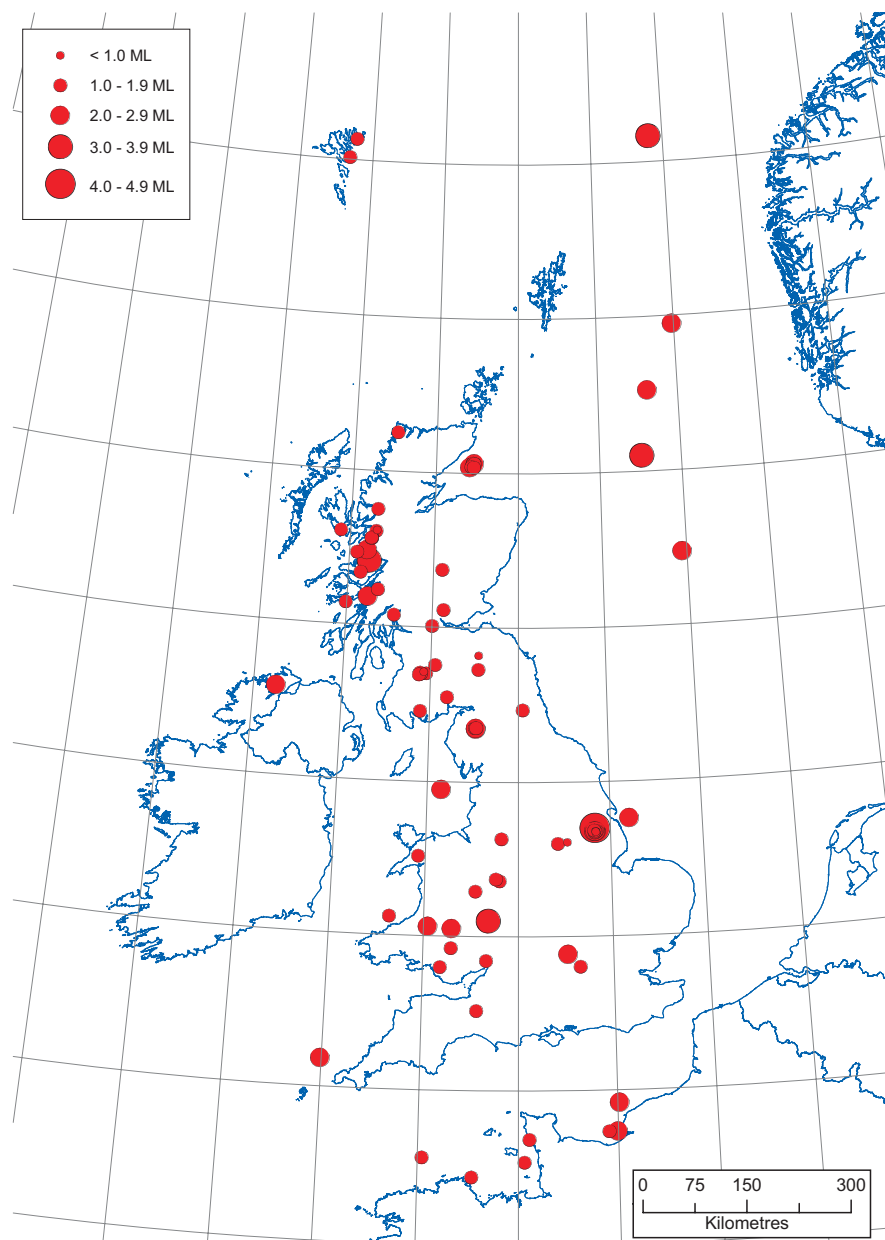
BRITISH GEOLOGICAL SURVEY

REPORT OR/09/029

Bulletin of British Earthquakes 2008

D D Galloway (Editor)

Contributors: J Bukits and G D Ford



The National Grid and other Ordnance Survey data are used with the permission of the Controller of Her Majesty's Stationery Office. Ordnance Survey licence number 100017897/2005

Bibliographical reference

GALLOWAY, D D 2009. Bulletin of British Earthquakes 2008. *British Geological Survey Internal Report, OR/09/029*

BRITISH GEOLOGICAL SURVEY

The full range of Survey publications is available from the BGS Sales Desks at Nottingham and Edinburgh; see contact details below or shop online at www.thebgs.co.uk

The London Information Office maintains a reference collection of BGS publications including maps for consultation.

The Survey publishes an annual catalogue of its maps and other publications; this catalogue is available from any of the BGS Sales Desks.

The British Geological Survey carries out the geological survey of Great Britain and Northern Ireland (the latter as an agency service for the government of Northern Ireland), and of the surrounding continental shelf, as well as its basic research projects. It also undertakes programmes of British technical aid in geology in developing countries as arranged by the Department for International Development and other agencies.

The British Geological Survey is a component body of the Natural Environment Research Council.

Keyworth, Nottingham NG12 5GG

☎ 0115-936 3241 Fax 0115-936 3488
e-mail: sales@bgs.ac.uk
www.bgs.ac.uk
Shop online at: www.thebgs.co.uk

Murchison House, West Mains Road, Edinburgh EH9 3LA

☎ 0131-667 1000 Fax 0131-668 2683
e-mail: scotsales@bgs.ac.uk

London Information Office at the Natural History Museum (Earth Galleries), Exhibition Road, South Kensington, London SW7 2DE

☎ 020-7589 4090 Fax 020-7584 8270
☎ 020-7942 5344/45 email: bgs london@bgs.ac.uk

Forde House, Park Five Business Centre, Harrier Way, Sowton, Exeter, Devon EX2 7HU

☎ 01392-445271 Fax 01392-445371

Geological Survey of Northern Ireland, 20 College Gardens, Belfast BT9 6BS

☎ 028-9066 6595 Fax 028-9066 2835

Maclea Building, Crowmarsh Gifford, Wallingford, Oxfordshire OX10 8BB

☎ 01491-838800 Fax 01491-692345

Parent Body

Natural Environment Research Council, Polaris House, North Star Avenue, Swindon, Wiltshire SN2 1EU

☎ 01793-411500 Fax 01793-411501
www.nerc.ac.uk

Contents

Contents.....	1
1 Introduction.....	3
2 The BGS UK Seismograph Network.....	3
3 Earthquake Parameters and Their Errors.....	4
Hyocentre Location.....	4
Magnitude.....	5
Intensity.....	5
4 Summary of 2008 Seismicity.....	5
Acknowledgements.....	8
References.....	9
Figures.....	10
Tables.....	20
Appendix 1 Key to Bulletin Encoding.....	42
Appendix 2 Key to Phase Data Encoding.....	43
Appendix 3 The European Macroseismic Scale (EMS 98).....	44

FIGURES

Figure 1. Epicentre map of earthquakes in 2008 as listed in Table 1.

Figure 2. Seismograph network operational during 2008.

Figure 3. Earthquake detection capability during Contour values are for Richter local magnitude (ML) calculated for average background noise conditions (4nm) where the detection criterion is that the signal has to exceed 4nm at 10Hz at 4 stations.

Figure 4. Epicentres of earthquakes with magnitudes of 2.5 ML and above, in the period 1979 to 2008.

Figure 5. Epicentres of earthquakes with magnitudes of 3.5 ML and above, in the period 1970 to 2008.

Figure 6. Seismograms of the ground displacement from the magnitude 5.2 ML Market Rasen, Lincolnshire earthquake, 27 February 2008, recorded by BGS seismograph stations.

Figure 7. Iseismal map for the Market Rasen, Lincolnshire earthquake.

Figure 8. Focal mechanism for the Market Rasen, Lincolnshire earthquake.

Figure 9. Seismograms of the ground displacement from the magnitude 3.9 ML Norwegian Sea earthquake, 14 October 2008, recorded by BGS seismograph stations.

Figure 10. Seismograms of the ground displacement from the magnitude 3.5 ML Glenfinnan, Highland earthquake, 10 October 2008, recorded by BGS seismograph stations.

Figure 11. Seismograms of the ground displacement from the magnitude 3.5 ML Bromyard, Herefordshire earthquake, 26 October 2008, recorded by BGS seismograph stations.

TABLES

Table 1. Catalogue of events in chronological order: 2008.

Table 2. Phase data of the earthquakes in Table 1.

Table 3. Geographic coordinates and instrumentation of BGS seismograph stations.

Table 4. Depth / crustal velocity models used in earthquake locations.

1 Introduction

The British Geological Survey's (BGS) Seismic Monitoring and Information Service operate a nationwide network of seismograph stations in the United Kingdom (UK). Earthquakes in the UK, and coastal waters, are detected within limits dependent on the distribution of seismograph stations. Location accuracy is improved in offshore areas through data exchange with neighbouring countries. This bulletin contains locations, magnitudes and phase data for all earthquakes detected and located by the BGS during 2008, listed in Tables 1 and 2. Maps showing seismic activity in 2008 (Figure 1), and the larger magnitude events since 1979 ($ML > 2.5$) and since 1970 ($ML > 3.5$) are also included. The bulletin covers all of the UK land mass and its coastal waters including the North Sea ($-11^{\circ}W$ to $6^{\circ}E$ and $47^{\circ}N$ to $65^{\circ}N$).

All events believed to be of true tectonic origin are included. Coalfield events are also included. Acoustic disturbances, such as sonic booms from supersonic aircraft, are included when they are felt. The air-borne waves are readily identified by their slow travel time across an array or by their signature on a microphone, but they are frequently mistaken as small earthquakes by the public. They are indicated by 'SONIC' in both the locality and comments column of Table 1.

Significant non-natural events, such as explosions, which received media attention or were greater than magnitude 2.5 ML or felt by local residents, are also included in Table 1. Smaller events that are known, or suspected to be of explosive origin are excluded from the bulletin where possible. These include explosions due to quarrying, mining, weapon testing or disposal, naval exercises, geophysical prospecting and civil engineering. Unfortunately, identification by record character, location and time of occurrence is not always conclusive and some man-made events may be included in the bulletin or, more rarely, a small natural event may have been excluded.

2 The BGS UK Seismograph Network

The UK seismograph network consists of a number of sub-networks, which, in turn, consist of up to ten 'outstation' vertical seismometers radio-linked over distances of up to 100 km to a central site. Here, the data, along with that from a local 3-component set of two horizontal and one vertical seismometer, are recorded digitally by SDAS or the SEISLOG data acquisition system (Utheim and Havskov, 1993). The system records data continuously, but also creates event-triggered files. The sub-networks are accessed for data transfer to Edinburgh several times a day through Internet or dial-up modems. Once transferred, the events are analysed to determine location and magnitude. At a number of sites, low-gain vertical seismometers are installed to extend the dynamic range of the system (by 34 dB) to stronger motions, and low frequency microphones are used to aid the discrimination of sonic booms. In addition, strong motion accelerometers have been installed at locations throughout the country and record accelerations up to 0.1g. At present the seismic network is undergoing an upgrade with the installation of broadband seismometers that record with a larger dynamic range and over a wider frequency band. In 2008, 23 broadband stations were in operation by the BGS. Data from these stations together with some short-period data are transmitted and processed at the central recording site in Edinburgh in real time. Operational seismograph stations in December 2008 are shown in Figure 2.

The detection capabilities of a network depend upon station distribution, instrument sensitivity and background noise levels. Figure 3 shows the magnitude detection thresholds for the

seismograph stations operational in December 2008. The contours illustrate the lower threshold magnitude for an earthquake to significantly exceed 4 nanometres of noise (average) at 10 Hz on at least four seismographs. These detection levels hold true only if data from all stations are continuously monitored. Small events may go undetected unless they are felt and reported to BGS by local inhabitants, so the detection capabilities of this process are strongly dependent on the population density.

The whole of the UK is covered by the seismograph network for approximately magnitude 1.5 ML, and above, at times of average ambient noise levels. Noise sources such as wind, ocean waves and traffic vary considerably with time (typically 0.5 to 15 nanometres, at 10 Hz) causing the magnitude thresholds to increase or decrease. In conditions of high noise, 0.8 ML should be added to the contour values, causing the threshold to rise to about 2.3 ML. Normally, however, an earthquake of this size would be felt, if not detected, in the areas of poorer instrumental coverage. The bulletin can, therefore, be assumed to be complete for all earthquakes of magnitude 2.3 ML and above.

Given the variability in the earthquake detection threshold, as governed by ambient noise conditions and the geometry of the observing network, the bulletin is biased towards certain localities. Figure 4 shows only earthquakes with magnitude 2.5 ML or greater, in the period 1979 to 2008. The data set is considered complete for these magnitudes in all localities onshore. Seismicity for the period 1970 to 2008 is shown in Figure 5 with a threshold magnitude of 3.5 ML. This is the period covered by BGS instrumentation that, in the early years, only consisted of the network around Edinburgh (LOWNET) and Eskdalemuir (ESK) and a station near Kyle of Lochalsh (KYL). The data set is likely to be complete for such magnitudes.

3 Earthquake Parameters and Their Errors

HYPOCENTRE LOCATION

By accurately timing the signal onsets at a minimum of three stations, a location can be found for an earthquake that satisfies the observed pattern of arrivals. Instrumental locations in the bulletin were obtained using the computer program HYPOCENTER (Lienert and Havskov 1995) that iteratively adjusts a trial hypocentre (latitude, longitude, depth, and origin time) until the observed and computed arrival times coincide closely.

The accuracy of locations is dependent on distances from the closest stations, the distribution of the stations around the epicentre, the resolution to which signal onsets can be timed from the records, and the accuracy with which the seismic wave velocities through the Earth are known.

The accurate determination of earthquake depth presents a more difficult problem, mainly because phase arrival patterns at the seismographs can still be satisfied for a large range of depths merely by adjusting the origin time to suit. Depth is usually only well constrained when there is a station very close to the epicentre.

The best depth determinations are obtained when an earthquake or earthquake series occurs almost beneath a network. For events at larger distances the depth errors can be many kilometres. Where the depth error, ERZ in Table 1, is 0.0, this indicates that the depth has been fixed in the hypocentre calculation. This is the case for explosions, which are known to occur at the surface, and for events at larger distances, where depth control is poor.

MAGNITUDE

All earthquakes in the bulletin have been assigned a local magnitude (ML) as defined by Richter (1935):

$$ML = \log_{10} (A/A_0)$$

Where A is the maximum deflection (centre to peak in mm) registered on a Wood-Anderson seismograph and A₀ is that for a 'standard' magnitude zero earthquake at the same distance. The A₀ term is thus a distance correction factor, tabulated by Richter to 200 km, and later adjusted to include up to 600 km. Although Richter intended his method to be an approximate quantification of earthquake size and his attenuation term, A₀, strictly only applies to California, the formula is still used worldwide today. The ML magnitudes in this bulletin have been calculated according to Richter's formula after converting the output of the BGS instruments to an equivalent Wood-Anderson deflection. Ideally, the measurements are made on two horizontal instruments and averaged but, if this is not possible, the mean of the magnitudes from a number of verticals are used. Ground motion registered at a seismograph varies with site conditions, distance and direction from the earthquake, and the nature of the ray path. Consequently, it is important to take the mean from a good distribution of stations. The resulting errors on magnitudes quoted in the bulletin will normally be less than 0.4 ML.

INTENSITY

Intensity is a measure of the effect of the shaking produced by the earthquake on people, structures and objects. It decreases with distance from a maximum value (I_{max}) usually found close to the epicentre. The maximum felt intensity is quoted, where known, with reference to the European Macroseismic Scale (EMS), (Grünthal, 1993).

4 Summary of 2008 Seismicity

There were 102 earthquakes located by the BGS seismic monitoring network during the year, with 28 having magnitudes of 2.0 ML or greater, five having magnitudes of 3.0 ML or greater and one with a magnitude of 4.0 ML or greater. Seven events with a magnitude of 2.0 ML or greater were reported felt, together with a further four smaller ones, bringing the total to eleven felt earthquakes in 2008.

The largest onshore earthquake of the year with a magnitude of 5.2 ML occurred near Market Rasen, Lincolnshire on 27 February at 00:56 UTC, at a depth of about 18 km (Figure 6). Data from over 30,000 questionnaires, collected online, were used to determine how widely the earthquake had been felt, with the most distant reports coming from Aberdeen, Truro, Ireland and Liege, Belgium. The results (Figure 7) show isolated values of 6 EMS at 59 locations, widely scattered over England in an area roughly between York and Nottingham, and east of Manchester. BGS also received reports of damage to chimneys and masonry over a widespread area. This earthquake was followed by 11 aftershocks with magnitudes between 0.6 and 2.8 ML. The magnitude of the earthquake, makes it the largest earthquake in the UK since a magnitude 5.4 ML earthquake struck North Wales in 1984. The best-fitting fault plane solution (Figure 8), computed from inversion of regional data, shows predominantly strike-slip faulting on a near vertical fault, striking either east west or north south, which is consistent with maximum compression in NW-SE direction (Ottemoller et al, 2009).

The largest offshore earthquake occurred in the Norwegian Sea on 14 October, with a magnitude of 3.9 ML. It was located approximately 275 km northeast of Lerwick, Shetland Islands (Figure 9). On 9 January an earthquake with a magnitude of 3.1 ML occurred in the northern North Sea

region, approximately 220 km northeast of Aberdeen. A further 5 events occurred in the North Sea and adjacent waters during the year, with magnitudes ranging between 2.2 and 2.8 ML.

Between 23 June and 16 December, ten events were recorded, with magnitudes ranging between 0.9 and 2.5 ML, in the Moray Firth. The epicentres of these events were approximately 30 km east of the village of Helmsdale in the county of Sutherland, Highland, Scotland.

An earthquake with a magnitude of 2.0 ML and at a depth of 4 km occurred on 27 January, with a location near Loch Morar, Highland. The BGS received a single report from a resident in Lochailort describing “I thought it was a thunderclap, it shook the whole house from the ground up and sounded like the chimney had fallen down”. It locates in the same region as a magnitude 2.8 ML earthquake which occurred on 19 January 2006 and was also felt with similar intensities of around 3-4 EMS.

On 21 February, an earthquake with a magnitude of 2.4 ML was detected 3 km northwest of the town of Buncrana in County Donegal, Ireland. The BGS received information from the local Media that it was felt by scores of people in Donegal in an area stretching from the Inishowen peninsula westwards to Kerrykeel and Downings. Reports described “houses shaking” and “windows rattling for a second or two”. An intensity of 3 EMS was assigned to the earthquake.

A magnitude 1.6 ML earthquake occurred on 23 July, with an epicentre approximately 13 km southeast of Caernarvon, Gwynedd. The BGS received several reports from residents in Penygroes, Bangor, Groeslon, Beddgelert, Llanberis and Dyffryn Ardudwy, Gwynedd that described “a roaring noise, immediately followed by the house shaking and the windows rattling” indicating an intensity of at least 3 EMS.

Between 24 and 28 May, four earthquakes were detected in the Penrith area with magnitudes ranging between 1.0 and 2.5 ML. None were reported felt. The epicentres of these earthquakes are approximately 13 km WNW of Penrith, 35 km SSE of Chapelcross and 50 km northeast of Sellafield. The larger event (magnitude 2.5 ML) is the largest in the region since a similar magnitude 2.6 ML earthquake, near Calthwaite, on 24 April 2000, which was felt with intensities of around 3-4 EMS.

On 9 August, a magnitude 1.8 ML earthquake occurred near Tarbert, Argyll and Bute. The BGS received several reports from residents in Tarbert, Lochgilphead and West Loch, describing “the house shook”, “various objects rattled” and “that it was the talk of the local hotel”. An intensity of 3 EMS was assigned to the earthquake.

An earthquake with a magnitude of 3.5 ML occurred at 04:28 UTC on 10 October, with a location approximately 6 km southwest of Glenfinnan, Highland (Figure 10). The BGS received over 200 reports from residents in villages such as Glenfinnan, Fort William, Ardgour, Strontian and Drumnadrochit, which described “it felt like a train rumbling past”, “all my dogs went mad and started barking and growling” and “a loud bang that shook the whole house and rattled all the windows”, indicating an intensity of at least 4 EMS. Most reports received also indicated that people were woken from their sleep. The epicentre is approximately 17 km SSE of the magnitude 2.0 ML Loch Morar earthquake on 27 January 2008 and 13 km WNW of the magnitude 3.0 ML Fort William earthquake on 10 December 2005.

On 26 October, a magnitude 3.5 ML earthquake occurred near Bromyard, Herefordshire. Data from over 400 questionnaires, collected online, were used to determine the felt area, with the most distant reports coming from Cardiff, to the south, Burton upon Trent, to the north, Milton Keynes, to the east and Brecon, to the west. Felt reports described “a thump as if someone had jumped off the bed upstairs” and “a loud boom noise as though something extremely heavy had fallen on the wooden floor above my head”. The strength of the shaking has been described as moderate, enough to make furniture shake and windows and crockery rattle. Some reports indicate that people were woken from sleep and a few were frightened, indicating an intensity of at least 4 EMS. The epicentre is approximately 17 km southeast of a magnitude 2.4 ML event which occurred on 17 September 1993. Historically, the largest event to have occurred in this

area was the magnitude 5.3 ML Hereford earthquake on 17 December 1896, which was felt throughout most of England and Wales. Significant damage was caused in Hereford and surrounding villages, where over 200 chimneys were damaged or twisted.

A magnitude 2.5 ML earthquake occurred on 3 November, with an epicentre about 6 km southwest of Oban, Argyll & Bute. The BGS received a few reports from residents of Oban and from Croggan, on the eastern side of Mull, describing, “felt like a lorry crashing in to the side of the house” and “all the windows started rattling”. It locates approximately 11 km northeast of the magnitude 4.1 ML Oban earthquake of 29 September 1986 which was felt over an area of around 30,000 km² with a maximum intensity of 5 EMS.

The BGS received reports of another two earthquakes being felt during the year. They occurred on 12 August, near Warrington, Cheshire and on 18 September, near Bridgwater, Somerset, with magnitudes of 1.4 ML and 1.2 ML, respectively.

Acknowledgements

We are indebted to the States of Jersey Meteorological Office, the Universities of East Anglia, and Leeds, and many individuals who assisted with station operation.

The work was supported in part by:

British Energy

BNFL Magnox Generation

British Nuclear Fuels plc

Health and Safety Executive

HM Nuclear Installations Inspectorate

Jersey Water

Natural Environment Research Council

Department of Communities and Local Government

Scottish & Southern Energy plc

Scottish Power

Scottish Water

Interchange of data with UK and European agencies, has contributed to the accuracy of location of some of these events and to the determination of their magnitudes. They include:

Atomic Weapons Establishment (Blacknest, UK)

Centre Seismologique Euro-Mediterranean (Bruyères-le-Châtel, France)

Dublin Institute for Advanced Studies (Dublin, Ireland)

GEUS (Geological Survey of Denmark and Greenland)

Institute de Physique du Globe (Paris, France)

Koninklijk Nederlands Meteorologisch Instituut (Ae de Bilt, Netherlands)

Laboratoire de Detection et de Geophysique (Bruyères-le-Châtel, France)

NORSAR (Oslo, Norway)

University of Bergen (Bergen, Norway)

University of Keele (Keele, UK)

This report is published with the approval of the Director of the British Geological Survey (NERC).

References

Grünthal, G.,(Ed) 1993. European Macroseismic scale 1992 (up-dated MSK-scale). Cahiers du Centre European de Geodynamique et de Seismologie. **Vol 7**.

Lienert, B.R.E., and Havskov, J., 1995. A computer program for locating earthquakes both locally and globally, *Seis. Res. Lett.*, **66**, 26-36.

Ottmoller, L. ,S. Sargeant, and B. Baptie, The ML 5.2 Lincolnshire earthquake in 2008: A high stress drop event, EGU, Vienna, 2009.

Richter, C., 1935. An instrumental earthquake magnitude scale, *Bull.Seism. Soc.Am.*,**25**, 1-32.

Uthem, T. and Havskov, J., 1993. The SEISLOG Data-Acquisition System. Guide to installation, maintenance and daily operation of the system, Version 5.0, last updated September 1993. University of Bergen, Institute of Solid Earth Physics, Seismological Observatory. Allegaten 41, 5007 Bergen, Norway.

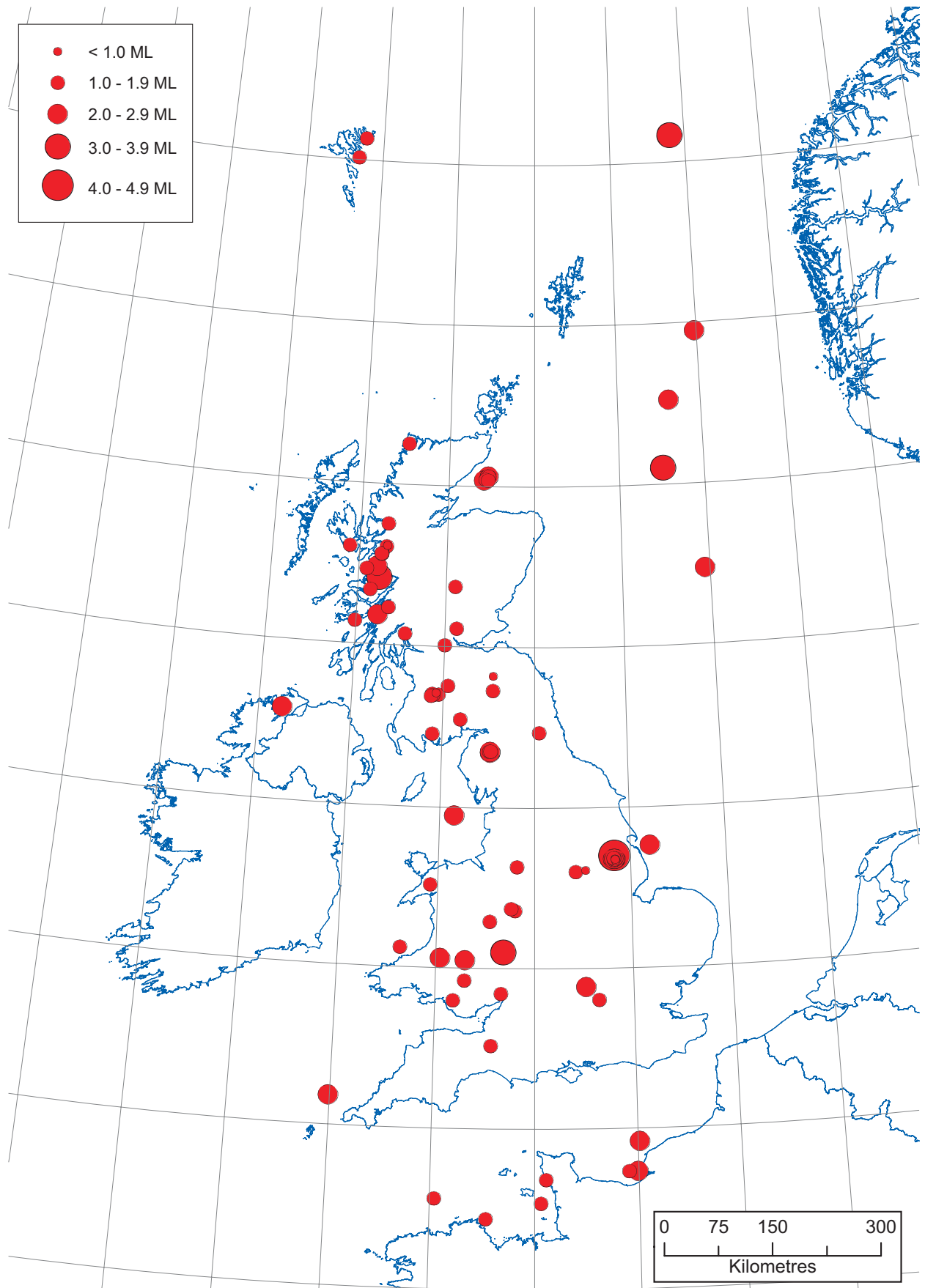


Figure 1. Epicentre map of earthquakes in 2008 as listed in Table 1.

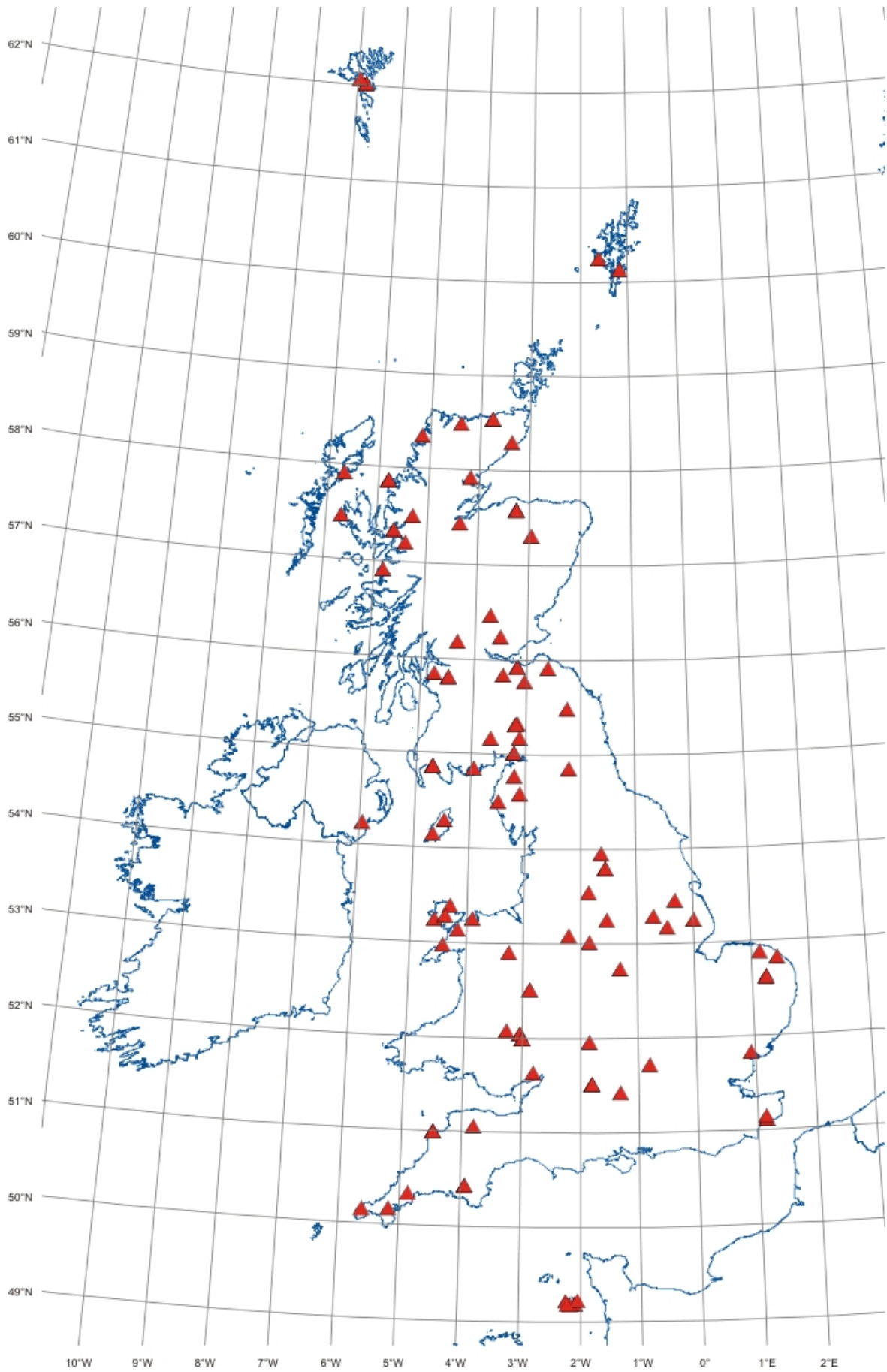


Figure 2. Seismograph network operational during 2008.

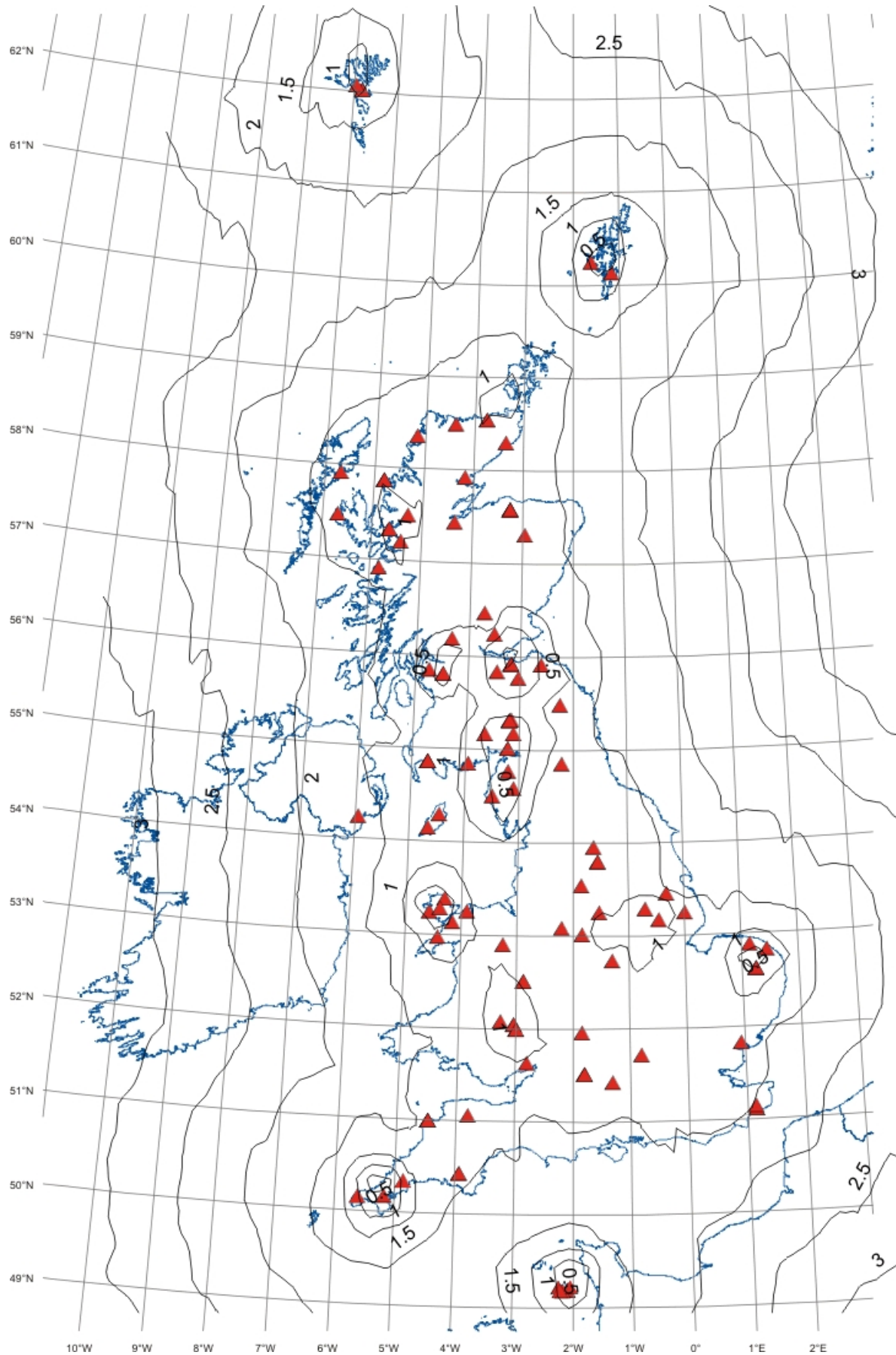


Figure3. Earthquake detection capability during 2008. Contour values are for Richter local magnitude (ML) calculated for average background noise conditions (4nm) where the detection criterion is that the signal has to exceed 4nm at 10Hz at 4 stations.

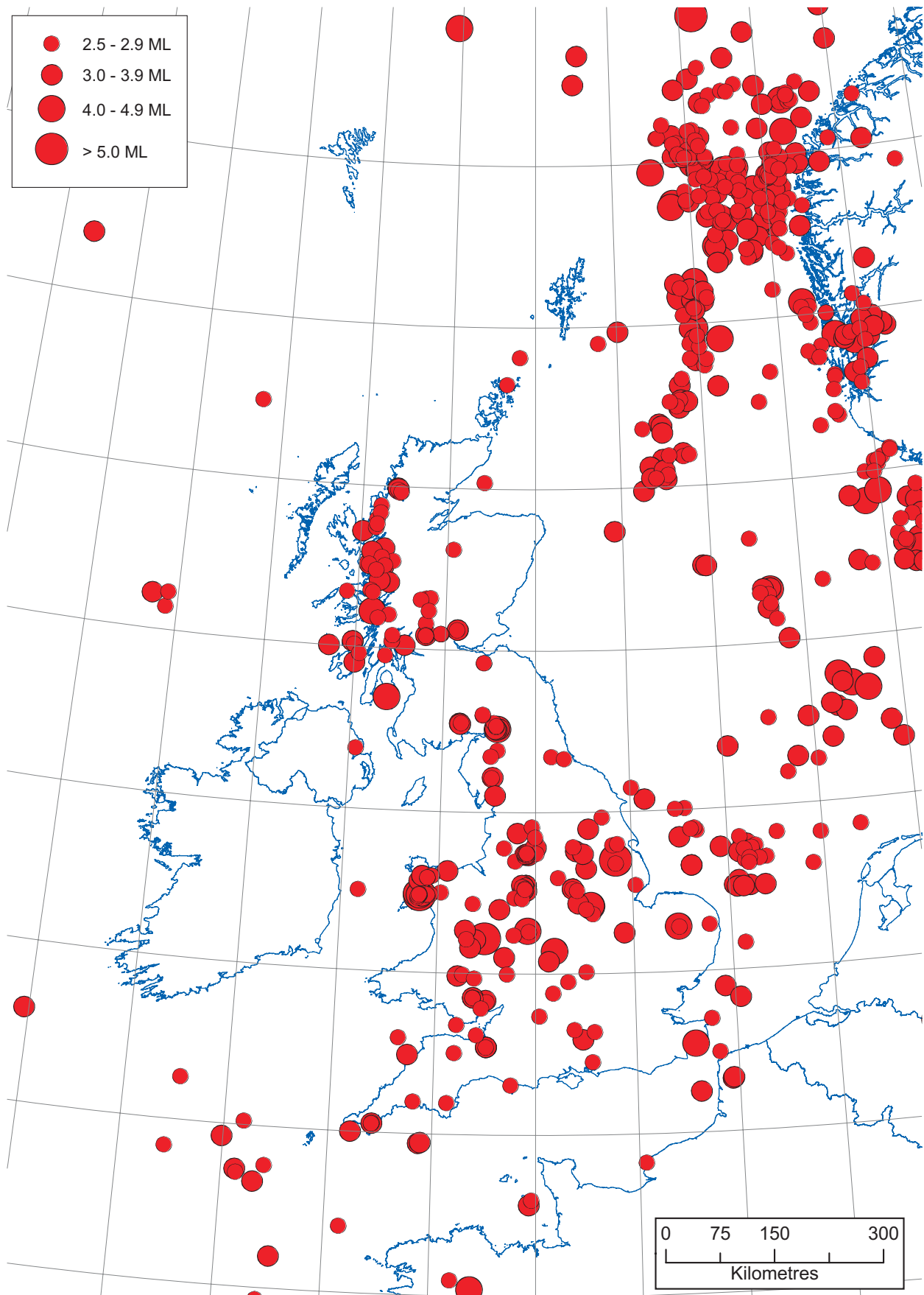


Figure 4. Epicentres of earthquakes with magnitudes of 2.5 ML and above, in the period 1979 to 2008.



Figure 5. Epicentres of earthquakes with magnitudes of 3.5 ML and above, in the period 1970 - 2008.

MARKET RASEN, LINCOLNSHIRE 27 FEBRUARY 2008 00:56 UTC 5.2 ML

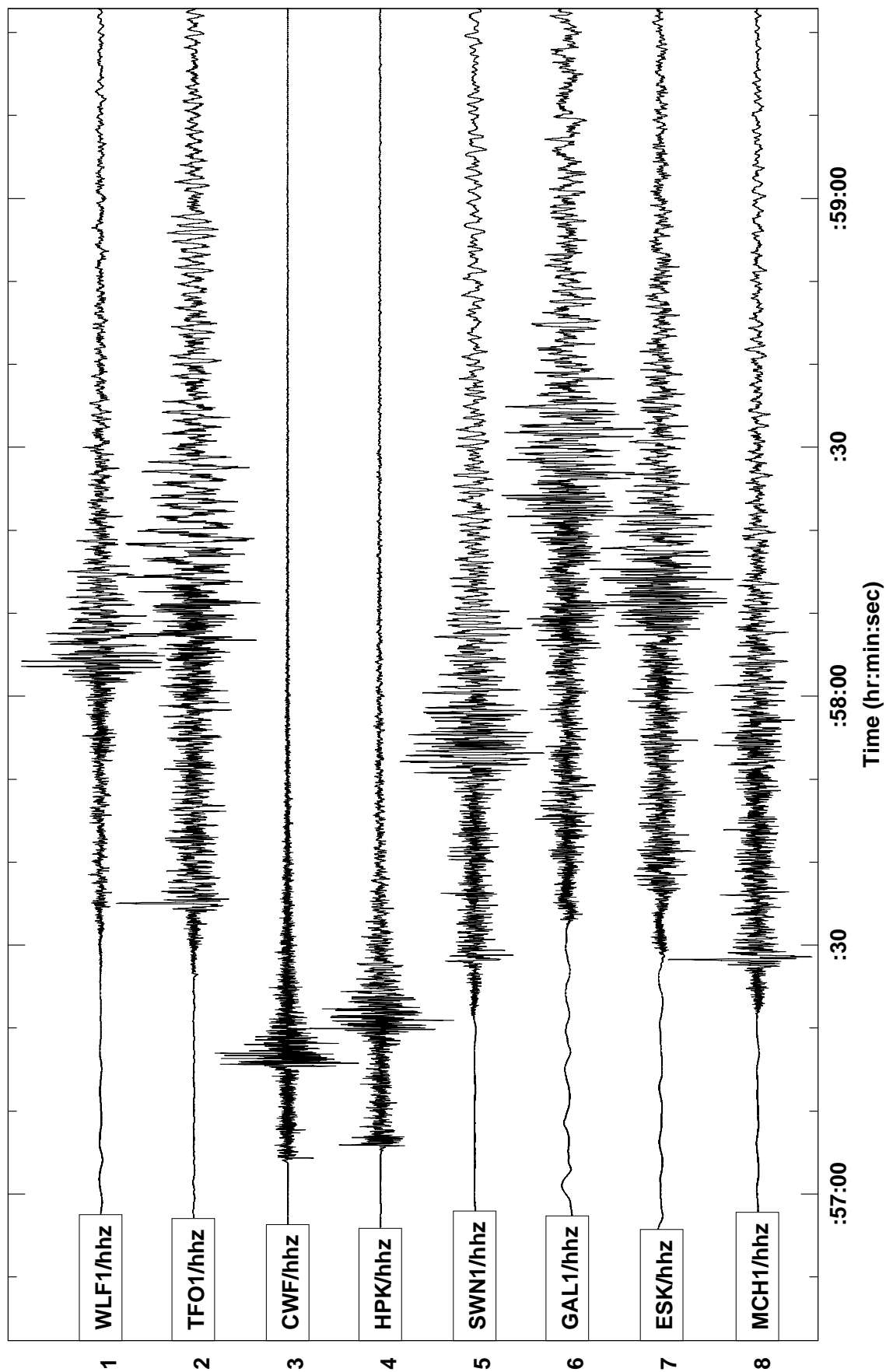


Figure 6. Seismograms of the ground displacement from the Market Rasen, Lincolnshire earthquake, 27 February 2008, recorded by BGS seismograph stations.

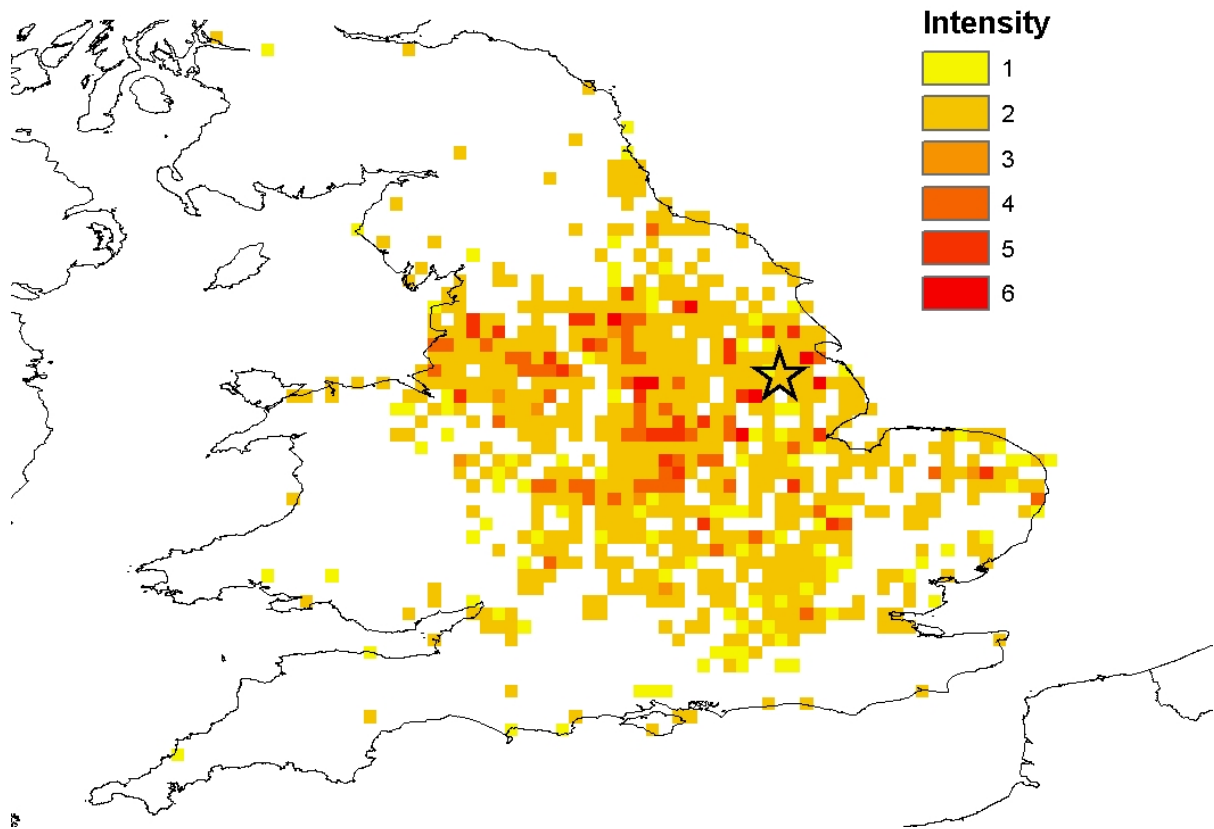


Figure 7. Isoseismal map for the Market Rasen, Lincolnshire earthquake.

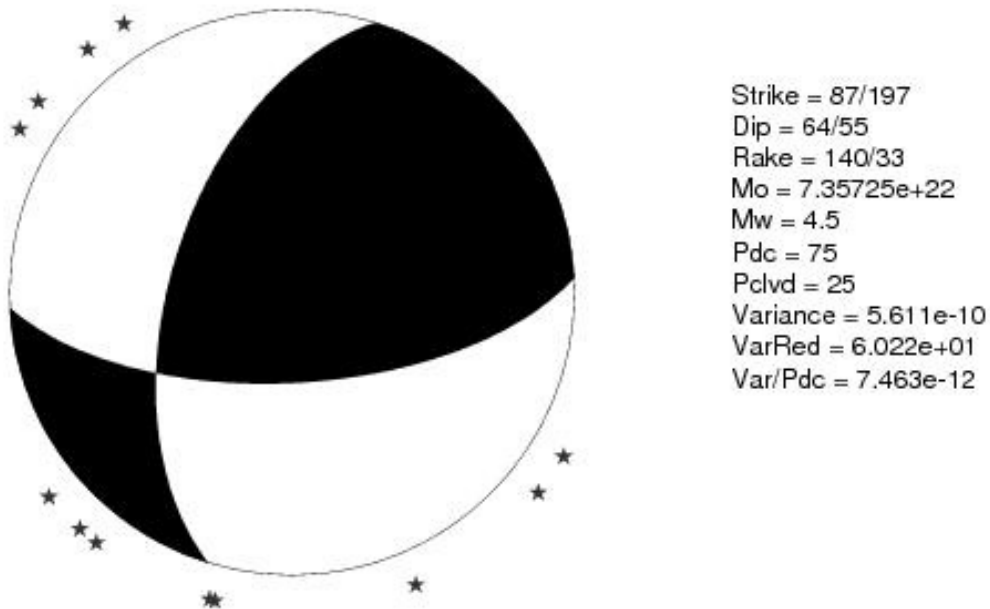


Figure 8. Focal mechanism for the Market Rasen, Lincolnshire earthquake.

NORWEGIAN SEA 14 OCTOBER 2008 02:23 UTC 3.9 ML

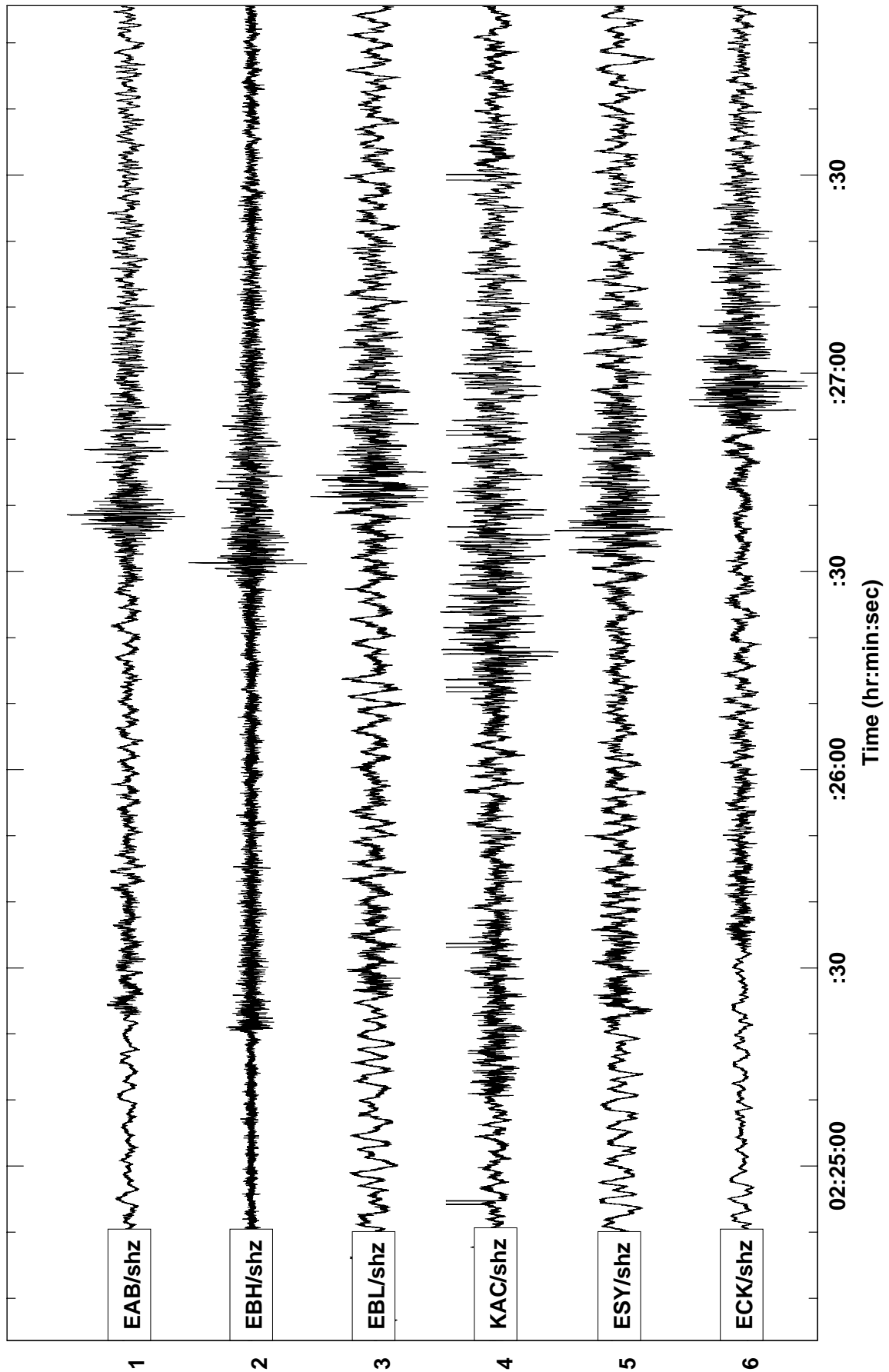


Figure 9. Seismograms of the ground displacement from the Norwegian Sea earthquake, 14 October 2008, recorded by BGS seismograph stations.

GLENFINNAN, HIGHLAND 10 OCTOBER 2008 04:28 UTC 3.5 ML

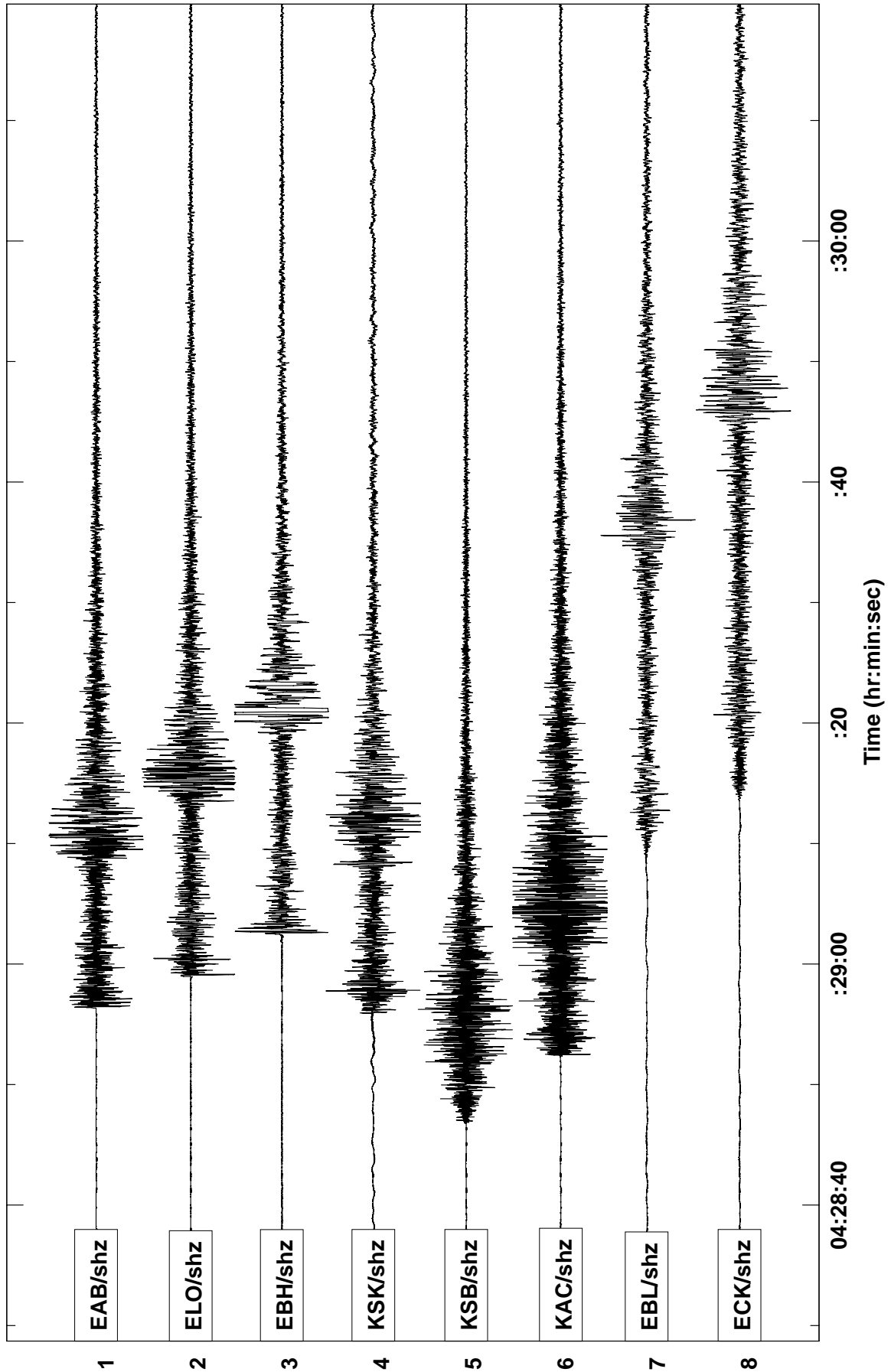


Figure 10. Seismograms of the ground displacement from the Glenfinnan, Highland earthquake, 10 October 2008, recorded by BGS seismograph stations.

BROMYARD, HEREFORDSHIRE 26 OCTOBER 2008 18:06 UTC 3.5 ML

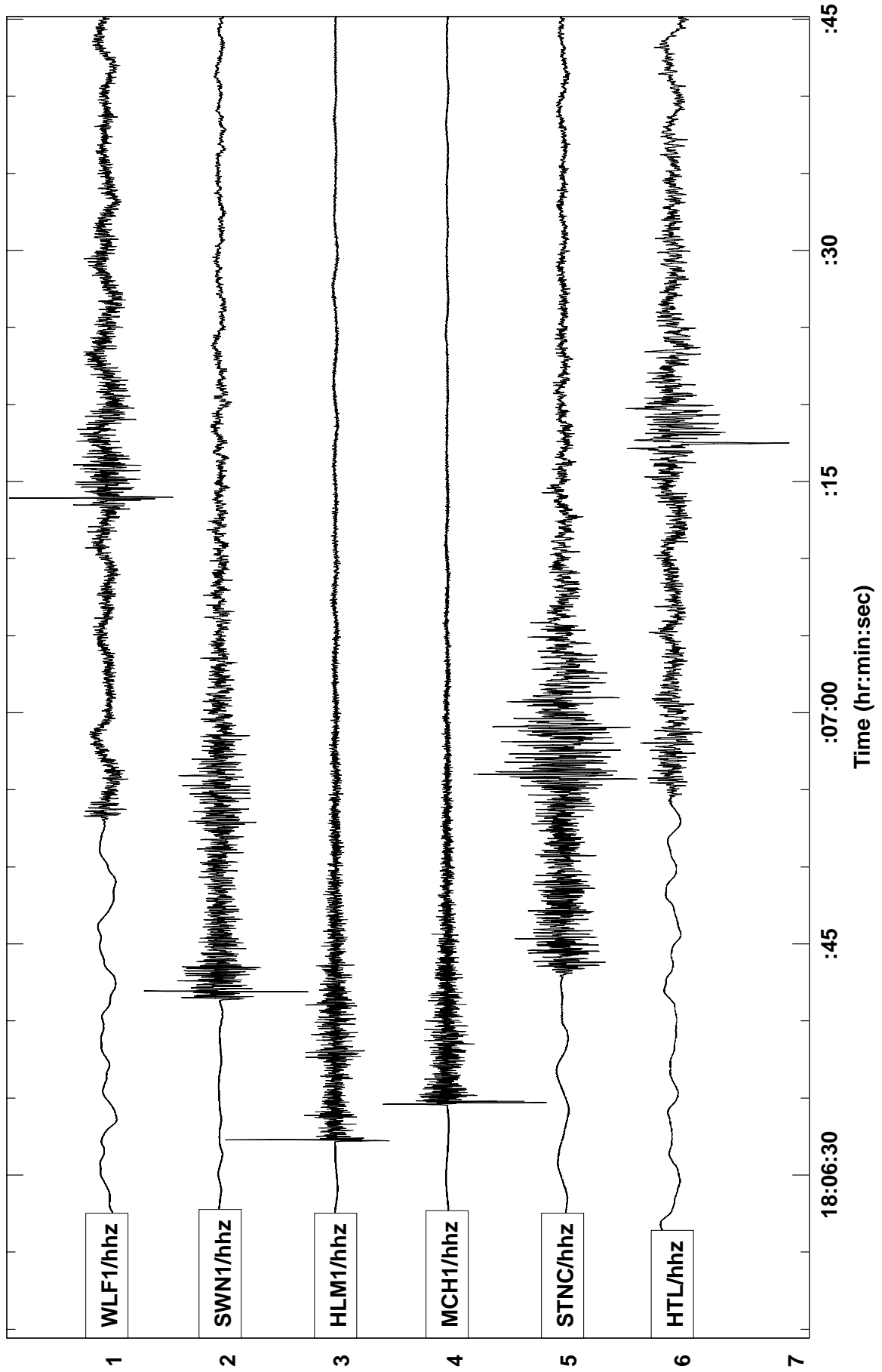


Figure 11. Seismograms of the ground displacement from the Bromyard, Herefordshire earthquake, 26 October 2008, recorded by BGS seismograph stations.

TABLE 1 : CATALOGUE OF EVENTS : 2008

YearMoDy	HrMnSecs	Lat	Lon	kmE	kmN	Dep	Mag	Locality	Int	No	Gap	RMS	ERH	ERZ	Comments
20080108	145218.9	54.94	-1.90	406.5	560.0	2.7	1.4	PRUDHOE,NORTHUMBERLAND	5	268	0.50	4.91	5.50	5KM SW OF PRUDHOE	
20080109	223904.6	58.20	1.03	578.1	927.9	20.2	3.1	NORTHERN NORTH SEA	21	157	0.50	8.96	9.30	220KM NE OF ABERDEEN	
20080112	133800.8	49.07	-1.87	409.3	-91.9	6.2	1.1	ENGLISH CHANNEL	5	341	0.00	5.47	3.20	20KM SE OF JERSEY	
20080112	230054.2	52.59	-2.92	338.0	299.0	11.3	1.6	SHREWSBURY,SHROPSHIRE	14	91	0.30	2.88	4.10	17KM SW OF SHREWSBURY	
20080113	082314.9	56.68	-5.72	172.4	760.3	9.0	1.6	STRONTIAN,HIGHLAND	9	204	0.30	3.15	9.50		
20080114	160000.0							SONIC-SHREWSBURY	2						FELT SHREWSBURY
20080117	043652.7	51.68	-2.67	353.4	198.6	18.8	1.7	CHEPSTOW,MONMOUTHSHIRE	10	101	0.30	3.24	2.60	5KM N OF CHEPSTOW	
20080127	132102.7	56.98	-5.58	182.2	792.8	4.0	2.0	LOCH MORAR,HIGHLAND	3	16	0.30	5.09	6.50	FELT LOCHAILORT	
20080130	132508.0	52.24	-4.74	213.0	264.3	4.8	1.2	CARDIGAN BAY	7	193	0.10	3.27	4.30	30KM E OF ABERAERON	
20080205	235754.7	51.77	-0.96	471.6	208.4	21.5	2.0	AYLESBURY,BUCKS	8	128	0.50	3.67	2.30	10KM SW OF AYLESBURY	
20080212	103800.0							SONIC-DEVON	3	1					FELT SOUTH DEVON
20080212	133852.1	56.94	-5.82	167.6	789.2	1.6	1.4	ARTSAIG,HIGHLAND	11	140	0.40	3.30	3.50		
20080215	042805.2	57.50	-5.37	197.9	851.0	2.5	1.1	LAIR,HIGHLAND	8	125	0.30	4.39	5.90		
20080221	024229.7	55.15	-7.49	50.4	597.9	3.6	2.4	COUNTY DONEGAL,IRELAND	3	12	224	0.40	4.87	6.90	FELT COUNTY DONEGAL
20080227	005647.8	53.40	-0.33	510.9	390.6	17.8	5.2	MARKET RASEN,LINCS	6	92	116	0.80	8.96	14.60	FELT ENGLAND...
20080227	024606.1	53.34	-0.35	510.1	384.3	20.8	1.8	MARKET RASEN,LINCS	3	275	0.00	0.91	0.40		
20080227	090305.0	53.36	-0.31	512.7	386.2	19.8	1.8	MARKET RASEN,LINCS	6	170	0.10	3.13	7.80		
20080227	165423.5	53.36	-0.36	509.2	386.5	19.6	2.2	MARKET RASEN,LINCS	7	168	0.10	2.16	5.70		
20080228	181923.8	53.35	-0.32	511.7	385.5	19.8	0.7	MARKET RASEN,LINCS	4	119	0.10	1.91	2.10		
20080228	224953.2	53.36	-0.33	511.0	385.9	19.6	0.7	MARKET RASEN,LINCS	4	116	0.10	2.62	2.70		
20080304	223134.3	53.33	-0.31	512.6	383.3	19.6	0.6	MARKET RASEN,LINCS	4	211	0.20	4.85	3.90		
20080306	210741.5	53.35	-0.32	511.6	385.2	18.9	0.8	MARKET RASEN,LINCS	5	118	0.20	2.91	2.20		
20080311	032256.5	53.20	-1.14	457.3	367.5	4.4	1.6	MANSFIELD,NOTTS	6	213	0.20	7.88	5.00	7KM NNE OF MANSFIELD	
20080315	224704.7	53.22	-0.94	470.8	369.7	17.5	0.9	OLLERTON,NOTTS	5	212	0.20	3.55	4.00	6KM NE OF OLLERTON	
20080319	201500.0							SONIC-EAST YORKSHIRE	2						FELT BRIDLINGTON...
20080319	202500.0							SONIC-EAST YORKSHIRE	2						FELT BRIDLINGTON...
20080320	002125.2	49.36	-1.78	416.1	-59.5	5.6	1.4	ENGLISH CHANNEL	4	350	0.10	5.76	1.70	40KM NE OF JERSEY	
20080320	121000.0							SONIC-NORFOLK	2	1					FELT NORWICH...
20080323	083309.7	50.37	-6.03	113.7	59.8	7.4	2.4	CELTIC SEA	8	278	0.10	4.08	3.70	40KM NW OF PENZANCE	
20080329	062955.1	53.36	-0.32	511.7	386.1	20.8	2.0	MARKET RASEN,LINCS	12	140	0.40	5.58	3.70		
20080404	175215.8	55.46	-2.91	342.4	618.4	2.5	1.4	HAWICK,BORDERS	13	175	0.30	6.24	3.70	8KM NW OF HAWICK	
20080405	135726.3	53.36	-0.33	510.9	386.4	19.5	2.8	MARKET RASEN,LINCS	22	113	0.20	2.69	2.20	FELT MARKET RASEN	
20080424	135448.6	54.91	-4.22	257.9	559.7	7.5	1.0	KIRKCUDBRIGHT,D & G	8	154	0.30	4.05	2.60		
20080429	234321.8	62.03	-6.64	157.6	1358.5	12.3	1.7	FAROE ISLANDS	2	340	0.10				
20080506	062551.1	52.13	-3.91	269.2	249.3	5.4	2.2	LAMPETER,CEREDIGION	13	148	0.40	4.11	5.30	11KM E OF LAMPETER	
20080511	195138.4	57.23	-5.37	196.5	820.2	4.5	0.6	SHIEL BRIDGE,HIGHLAND	6	147	0.30	4.49	3.30		
20080512	013659.6	52.72	-2.40	373.2	313.7	7.6	1.4	TELFORD,SHROPSHIRE	7	105	0.40	5.08	4.80	6KM NE OF TELFORD	
20080522	070243.4	49.47	-0.18	531.7	-46.6	7.0	1.8	ENGLISH CHANNEL	5	357	0.10				140KM ENE OF JERSEY

TABLE 1 : CATALOGUE OF EVENTS : 2008

YearMoDy	HrMnSecs	Lat	Lon	kmE	kmN	Dep	Mag	Locality	Int	No Gap	RMS	ERH	ERZ	Comments
20080523	133651.5	62.27	-6.47	168.1	1384.3	17.4	1.6	FAROE ISLANDS	2	345	0.60			
20080524	031601.9	54.70	-2.97	337.6	534.7	4.5	1.3	PENRITH, CUMBRIA	13	99	0.20	2.73	3.20	13KM WNW OF PENRITH
20080528	200908.3	54.69	-2.95	338.6	533.3	6.3	2.5	PENRITH, CUMBRIA	23	65	0.40	3.54	4.50	13KM WNW OF PENRITH
20080528	200931.9	54.70	-2.96	338.4	534.5	6.7	2.0	PENRITH, CUMBRIA	13	105	0.50	5.28	7.60	13KM WNW OF PENRITH
20080528	235857.7	54.70	-2.94	339.2	534.3	4.0	1.0	PENRITH, CUMBRIA	9	105	0.30	4.13	5.30	13KM WNW OF PENRITH
20080529	072327.3	59.05	1.24	585.8	1022.7	15.7	2.5	NORTHERN NORTH SEA	17	261	0.70	11.10	7.20	180KM SE OF LERWICK
20080530	075515.5	49.84	0.03	546.1	-4.3	7.8	2.0	ENGLISH CHANNEL	5	321	0.30			170KM NE OF JERSEY
20080616	011014.2	51.60	-3.64	286.5	190.1	5.2	1.5	MAESTEG, BRIDGEND	6	164	0.30	5.97	5.50	
20080619	072944.2	55.64	-2.91	342.6	639.1	7.4	0.4	GALASHIELS, BORDERS	4	164	0.20	8.75	1.50	7KM NW OF GALASHIELS
20080623	063752.7	58.13	-3.08	336.5	915.9	6.9	2.1	MORAY FIRTH	13	216	0.40	8.93	9.40	30KM E OF HELMSDALE
20080624	233131.5	58.51	-4.97	227.1	961.3	4.3	1.9	KINLOCHBERVIE, HIGHLAND	12	208	0.40	9.63	7.00	13KM S OF CAPE WRATH
20080627	142335.7	55.40	-4.11	266.7	613.8	7.2	1.0	CUMNOCK, EAST AYRSHIRE	8	137	0.10	2.59	3.10	
20080630	003417.1	56.95	1.89	636.5	790.8	10.0	2.0	CENTRAL NORTH SEA	33	198	0.30	1.27	0.00	250KM E OF ABERDEEN
20080630	090033.5	56.02	-4.00	275.6	682.0	4.5	1.4	DENNY, FALKIRK	10	79	0.30	4.83	9.30	
20080702	031404.7	53.35	-0.33	511.5	385.3	19.3	1.5	MARKET RASEN, LINCS	5	274	0.10	6.79	3.10	
20080702	103719.0	52.10	-3.41	303.7	245.7	8.4	2.1	BUILTH WELLS, POWYS	10	178	0.30	4.92	2.90	6KM S OF BUILTH WELLS
20080702	104816.6	55.51	-3.90	280.2	625.8	5.3	1.2	DOUGLAS, S LANARKSHIRE	8	96	0.20	2.92	9.00	6KM SW OF DOUGLAS
20080702	160000.0							SONIC-NORTH WALES	2					FELT NORTH WALES
20080702	190536.8	58.12	-3.12	334.0	915.5	6.9	1.9	MORAY FIRTH	9	212	0.20	6.55	3.30	30KM E OF HELMSDALE
20080703	171756.5	58.12	-3.09	335.6	915.5	5.9	1.6	MORAY FIRTH	10	214	0.30	9.97	8.40	30KM E OF HELMSDALE
20080703	175033.7	58.12	-3.09	335.9	915.5	5.2	1.5	MORAY FIRTH	10	215	0.40	8.11	9.30	30KM E OF HELMSDALE
20080703	182734.6	58.13	-3.11	334.8	915.8	4.8	1.7	MORAY FIRTH	10	214	0.40	8.64	9.90	30KM E OF HELMSDALE
20080703	214048.8	59.90	1.96	621.3	1118.8	10.0	2.4	NORTHERN NORTH SEA	7	304	0.40	0.00	0.00	175KM E OF LERWICK
20080704	122025.6	55.42	-4.15	263.9	615.9	7.8	0.8	CUMNOCK, EAST AYRSHIRE	7	142	0.20			
20080708	092202.3	56.74	-3.79	290.4	762.9	3.6	1.4	ALDCLUNE, PERTH/KINROSS	12	103	0.40	6.04	5.70	
20080713	053053.7	57.21	-6.24	144.2	821.3	9.6	1.1	ISLE OF SKYE	9	173	0.20	3.49	4.80	20KM S OF PORTREE
20080717	072647.4	56.15	-4.89	220.7	698.7	9.7	1.2	LOCH GOIL, ARGYLL/BUTE	10	165	0.30	6.24	6.60	
20080722	010448.5	53.27	-2.37	375.5	374.4	17.0	1.3	KNUTSFORD, CHESHIRE	13	120	0.30	3.58	2.60	
20080722	160309.6	53.37	-0.35	509.5	387.1	19.4	1.9	MARKET RASEN, LINCS	5	261	0.20	2.76	5.10	
20080723	000325.3	53.03	-4.15	255.6	350.6	8.6	1.6	CAERNARVON, GWYNEDD	3	16	0.40	5.46	3.90	FELT PENYGROES...
20080729	064025.8	58.12	-3.08	336.7	915.6	7.5	1.2	MORAY FIRTH	7	216	0.30	1.26	1.50	30KM E OF HELMSDALE
20080804	025201.3	56.47	-5.29	197.4	735.3	7.3	1.8	BONAWE, ARGYLL/BUTE	24	155	0.40	5.60	8.00	
20080804	144920.1	55.41	-4.26	256.8	615.2	7.5	1.1	CUMNOCK, EAST AYRSHIRE	10	137	0.50	6.91		
20080807	121327.8	57.52	-5.69	179.1	853.6	8.6	1.6	SHIELDSDAIG, HIGHLAND	10	120	0.20	3.57	7.40	
20080808	220127.1	51.95	1.68	652.9	234.2	8.7	2.2	SOUTHERN NORTH SEA	7	212	0.30	1.46	4.10	27KM EAST OF HARWICH
20080809	095652.4	52.34	-2.51	365.5	271.7	10.7	1.9	LUDLOW, SHROPSHIRE	9	134	0.40	9.40	9.30	15KM ESE OF LUDLOW
20080809	123203.2	55.82	-5.36	189.7	663.3	7.8	1.8	TARBERT, ARGYLL/BUTE	3	15	0.40	6.04	6.60	FELT TARBERT...
20080812	222238.1	53.38	-2.58	361.6	387.6	6.4	1.4	WARRINGTON, CHESHIRE	2	13	0.40	4.44	1.30	FELT WARRINGTON

TABLE 1 : CATALOGUE OF EVENTS : 2008

YearMoDy	HrMnSecs	Lat	Lon	kmE	kmN	Dep	Mag	Locality	Int	No Gap	RMS	ERH	ERZ	Comments
20080821	043804.4	53.33	-0.62	491.9	381.8	7.7	1.5	LINCOLN, LINCOLNSHIRE	5	258	0.20	20.74		11KM NNW OF LINCOLN
20080822	233052.0	56.56	-5.25	200.5	745.8	5.6	1.2	PORT APPIN, ARGYLL/BUTE	14	168	0.50	1.41	6.40	
20080823	125230.1	59.99	4.88	783.4	1142.9	10.0	2.8	SOUTHERN NORWAY	12	197	0.30	7.38	0.00	340KM E OF LERWICK
20080827	235429.6	49.07	-4.19	240.1	-90.1	7.8	1.7	ENGLISH CHANNEL	6	245	0.40			150KM W OF JERSEY
20080829	163045.0	58.12	-3.14	333.0	914.5	6.3	0.9	MORAY FIRTH	5	210	0.20	8.28	8.50	30KM E OF HELMSDALE
20080830	193319.0	53.65	-3.16	323.6	417.9	4.7	1.6	IRISH SEA	15	72	0.60	5.50	9.60	10KM W OF SOUTHPORT
20080905	050215.1	55.10	-3.62	296.9	579.4	8.0	1.1	DUMFRIES, D & G	12	144	0.50	5.06	10.40	3KM NNW OF DUMFRIES
20080908	040253.1	56.29	-6.03	150.9	717.7	4.5	1.3	ISLE OF MULL	15	225	0.40	8.52	8.00	12KM SW OF LOCHBUIE
20080910	150550.6	51.85	-3.42	302.5	217.4	14.1	1.4	BRECON, POWYS	6	163	0.20	4.88	8.90	11KM SSW OF BRECON
20080912	140706.1	55.41	-4.24	258.1	615.0	7.1	1.3	CUMNOCK, EAST AYRSHIRE	2	12	0.40	5.86	10.00	
20080918	210103.1	51.04	-2.87	339.0	126.8	4.5	1.2	BRIDGWATER, SOMERSET	8	174	0.50	7.19	16.40	FELT BRIDGWATER
20080919	052351.6	49.12	-3.91	260.5	-84.6	6.9	1.8	ENGLISH CHANNEL	5	263	0.40			125KM W OF JERSEY
20080921	083127.7	49.47	-0.01	543.9	-45.9	8.8	2.4	ENGLISH CHANNEL	6	295	0.30			150KM ENE OF JERSEY
20080929	200454.7	57.22	-5.39	195.3	819.5	4.2	1.3	SHIEL BRIDGE, HIGHLAND	4	125	0.10	2.66	21.30	
20080930	204632.1	58.08	-3.18	330.4	910.6	8.6	2.5	MORAY FIRTH	19	277	0.40	12.79	5.30	30KM E OF HELMSDALE
20081006	003651.1	56.23	-3.74	291.9	705.0	4.3	1.5	BLACKFORD, PERTH/KINROS	17	69	0.40	5.09	8.90	
20081010	042839.3	56.83	-5.53	185.0	776.8	12.7	3.5	GLENFINNAN, HIGHLAND	4	32	1.12	5.10	4.00	FELT GLENFINNAN...
20081014	022343.3	62.34	1.61	586.8	1389.2	7.4	3.9	NORWEGIAN SEA	39	176	1.30			275KM NE OF LERWICK
20081024	232137.3	52.74	-2.49	367.2	316.2	8.8	1.8	TELFORD, SHROPSHIRE	13	106	0.40	3.94	7.20	10KM N OF TELFORD
20081026	180625.5	52.20	-2.63	356.7	256.0	5.3	3.5	BROMYARD, HEREFORDSHIRE	28	81	0.30	2.73	3.30	FELT HEREFORDSHIRE...
20081103	095342.4	56.37	-5.52	182.5	725.3	15.5	2.5	OBAN, ARGYLL/BUTE	26	176	0.40	8.07	6.80	FELT OBAN...
20081117	020447.4	48.88	-2.93	331.7	-113.1	4.3	1.7	ENGLISH CHANNEL	6	274	0.60			70KM SW OF JERSEY
20081125	032410.3	53.53	0.41	560.0	406.2	19.4	2.2	SOUTHERN NORTH SEA	6	240	0.20	40.31	51.30	30KM E OF HELMSDALE
20081211	131205.3	55.39	-4.23	259.0	613.3	7.4	1.2	CUMNOCK, EAST AYRSHIRE	7	112	0.30	3.66	12.40	
20081211	151200.4	55.38	-4.26	256.6	612.1	7.7	1.1	CUMNOCK, EAST AYRSHIRE	7	150	0.50	7.35	18.80	
20081212	201110.8	58.08	-3.14	332.7	911.1	5.3	1.5	MORAY FIRTH	6	279	0.30	5.24	12.70	30KM E OF HELMSDALE
20081219	200502.3	57.13	-5.49	188.9	809.7	2.9	1.1	GLEN SHIEL, HIGHLAND	3	162	0.10	6.67	2.30	
20081219	220100.8	57.12	-5.49	189.0	809.2	2.4	1.7	GLEN SHIEL, HIGHLAND	7	181	0.50	5.13	7.80	
20081219	220648.1	57.12	-5.50	188.2	809.2	2.5	1.8	GLEN SHIEL, HIGHLAND	6	194	0.30	1.04	4.90	
20081225	110151.8	53.90	-3.69	288.7	446.6	4.5	2.3	IRISH SEA	16	113	0.40	5.35	7.60	40KM W OF BLACKPOOL
20081227	210040.9	51.61	-0.70	490.2	190.8	15.2	1.9	HIGH WYCOMBE, BUCKS	8	254	0.20	3.05	1.60	

TABLE 2 : PHASE DATA

										Locality: COUNTY DONEGAL, IRELAND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
										Velocity model: Lownet Xnear: 300.0 Xfar: 600.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
										Comment: FELT COUNTY DONEGAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
										Intensity: 3																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
January 30 2008 Time: 13:25 08.0 UTC Magnitude: 1.2 ML																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Lat: 52.245N Lon: -4.739W Depth: 4.8 km																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Grid Ref: 213.03 kmE 264.34 kmN RMS: 0.10 secs																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Locality: CARDIGAN BAY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Velocity model: Mid Wales Xnear: 200.0 Xfar: 300.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Comment: 30KM E OF ABERAERON																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
HTR	SZ	102.0	EP			13:25	25.23			-0.02	GALL	HE	181.0	ES			02:43	18.65			-0.32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
YRC	SZ	112.0	EP			13:25	26.96			0.12	GALL	HN	181.0	AML			02:43	24.30	54	0.26																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
MCH1	HZ	122.0	EP			13:25	28.20			-0.16	GALL	HE	181.0	AML			02:43	24.86	41	0.32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
MCH1	HN	122.0	ES			13:25	43.00			-0.03	PGB1	HZ	204.0	EP			02:43	01.30			0.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
MCH1	HE	122.0	AML			13:25	44.95	6	0.42		PGB1	HE	204.0	ES			02:43	24.80			0.78																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
MCH1	HN	122.0	AML			13:25	47.02	6	0.46		PGB1	HN	204.0	AML			02:43	34.56	54	0.46																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WPM	SZ	126.0	EP			13:25	28.81			-0.11	PGB1	HE	204.0	AML			02:43	35.32	33	0.34																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WME	SZ	131.0	EP			13:25	29.70			-0.02	KAR1	SZ	222.0	EP			02:43	04.13			0.69																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
HTL	HZ	140.0	EP			13:25	30.94			-0.09	DSB	BZ	224.0	EP			02:43	03.62			-0.03																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
HGH	SZ	149.0	EP			13:25	32.70			0.32	DSB	BN	224.0	ES			02:43	28.97			0.57																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
February 5 2008 Time: 23:57 54.7 UTC Magnitude: 2.0 ML																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Lat: 51.769N Lon: -0.962W Depth: 21.5 km																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Grid Ref: 471.62 kmE 208.37 kmN RMS: 0.50 secs																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Locality: AYLESBURY, BUCKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Velocity model: Lownet Xnear: 150.0 Xfar: 300.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Comment: 10KM SW OF AYLESBURY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
SKP	EZ	11.7	IP		D	23:57	59.62			0.72	KPL	HN	269.0	EP			02:43	08.86			-0.36																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
SKP	EZ	11.7	ES			23:58	01.80			-0.13	KPL	HE	269.0	AML			02:43	46.65	10	0.54																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WOL	BZ	53.8	EP			23:58	03.38			-0.77	KPL	HE	269.0	AML			02:43	52.23	13	0.32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
WOL	BN	53.8	ES			23:58	10.59			-0.43	ESK	HZ	273.0	EP			02:43	09.45			-0.35																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
WOL	BN	53.8	AML			23:58	12.55	39	0.20		ESK	HN	273.0	ES			02:43	38.88			-0.17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
WOL	BE	53.8	AML			23:58	13.23	25	0.25		ESK	HN	273.0	AML			02:43	53.68	23	0.76																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
SWN1	HE	64.6	EP			23:58	05.85			0.16	ESK	HE	273.0	AML			02:43	57.88	16	0.48																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
SWN1	HN	64.6	ES			23:58	13.97			0.29	ECK	SZ	278.0	EP			02:43	10.23			-0.18																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
SWN1	HE	64.6	AML			23:58	14.37	85	0.30		YRC	SZ	284.0	EP			02:43	10.78			-0.38																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
SWN1	HE	64.6	AML			23:58	14.52	47	0.66		WME	SZ	285.0	EP			02:43	10.93			-0.32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
CWF	HZ	110.0	IP		D	23:58	12.51			0.28	YRE	SZ	314.0	EP			02:43	15.06			0.17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
CWF	HN	110.0	ES			23:58	24.18			-0.82																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
CWF	HE	110.0	AML			23:58	24.84	42	0.44		CWF	HN	110.0	AML			23:58	25.01	18	0.10		MCH1	HN	143.0	EP			23:58	17.16			0.47	MCH1	HN	143.0	ES			23:58	32.39			-0.32	MCH1	HN	143.0	AML			23:58	34.45	28	0.34		MCH1	HE	143.0	AML			23:58	34.83	22	0.34		HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50
CWF	HN	110.0	AML			23:58	25.01	18	0.10		MCH1	HN	143.0	EP			23:58	17.16			0.47	MCH1	HN	143.0	ES			23:58	32.39			-0.32	MCH1	HN	143.0	AML			23:58	34.45	28	0.34		MCH1	HE	143.0	AML			23:58	34.83	22	0.34		HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50											
MCH1	HN	143.0	EP			23:58	17.16			0.47	MCH1	HN	143.0	ES			23:58	32.39			-0.32	MCH1	HN	143.0	AML			23:58	34.45	28	0.34		MCH1	HE	143.0	AML			23:58	34.83	22	0.34		HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																						
MCH1	HN	143.0	ES			23:58	32.39			-0.32	MCH1	HN	143.0	AML			23:58	34.45	28	0.34		MCH1	HE	143.0	AML			23:58	34.83	22	0.34		HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																	
MCH1	HN	143.0	AML			23:58	34.45	28	0.34		MCH1	HE	143.0	AML			23:58	34.83	22	0.34		HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																												
MCH1	HE	143.0	AML			23:58	34.83	22	0.34		HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																							
HTR	SZ	162.0	EP			23:58	19.85			0.66	STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																		
STNC	HZ	170.0	EP		9	23:58	21.59			1.49	STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																													
STNC	HN	170.0	ES		9	23:58	40.68			0.58	STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																																								
STNC	HN	170.0	AML			23:58	41.33	72	0.30		STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																																																			
STNC	HE	170.0	AML			23:58	41.51	89	0.38		HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																																																														
HPK	HN	248.0	AML			23:59	04.80	18	0.56		HPK	HE	248.0	AML			23:59	08.92	15	0.74		February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																				Lat: 56.936N Lon: -5.821W Depth: 1.6 km																				Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																				Locality: ARISAIG, HIGHLAND																				Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																				KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES	KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41	KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28	KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08	KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24		KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25		RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38	RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87	RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28	MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21	RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17	EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15	PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58	MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19	PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25	PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44		PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32		MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																																																																									
HPK	HE	248.0	AML			23:59	08.92	15	0.74																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
February 12 2008 Time: 13:38 52.1 UTC Magnitude: 1.4 ML																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Lat: 56.936N Lon: -5.821W Depth: 1.6 km																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Grid Ref: 167.58 kmE 789.23 kmN RMS: 0.40 secs																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Locality: ARISAIG, HIGHLAND																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Velocity model: Lownet Xnear: 100.0 Xfar: 200.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
KAR1	SZ	1.9	IP		C	13:38	52.50			-0.26	STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI	RES																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
KPL	HZ	46.1	IP		C	13:39	00.66			0.12	KB11	SZ	81.3	IP		C	00:57	01.56			0.41																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
KPL	HN	46.1	AML			13:39	00.94	31	0.22		CWF	HZ	98.4	EPg			00:57	03.71			-0.28																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
KPL	HN	46.1	ES			13:39	06.09			-0.61	CWF	HN	98.4	ES			00:57	15.22			0.08																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
KPL	HE	46.1	AML			13:39	07.25	23	0.26		CWF	HN	98.4	AML			00:57	15.95	64128	0.24																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
KAC	SZ	70.2	EP			13:39	04.46			0.08	CWF	HE	98.4	AML			00:57	16.10	86527	0.25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
RRR	SZ	103.0	EP			13:39	09.76			0.37	LHO	SZ	102.0	IP		D	00:57	04.58			0.38																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
RRR	SE	103.0	AML			13:39	15.97	7	0.34		HPK	HZ	106.0	EP			00:57	05.48			0.87																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
RRR	SN	103.0	AML			13:39	25.82	12	0.26		HPK	HE	106.0	ES			00:57	18.20			1.28																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
MDO	SZ	105.0	EP			13:39	10.17			0.42	HPK	HN	106.0	AML			00:57	20.24			0.21																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
RRH	SZ	121.0	EP			13:39	12.38			0.09	HPK	HE	106.0	AML			00:57	20.40			0.17																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
EAB	SZ	123.0	EP			13:39	12.72			0.07	KWE	SZ	109.0	IP		C	00:57	05.34			0.15																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
PMS1	SZ	138.0	EP			13:39	15.26			0.35	ABA1	SZ	114.0	IP		D	00:57	06.37			0.58																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
MVH1	SZ	148.0	EP			13:39	15.60			-0.62	STNC	HZ	130.0	EP			00:57	08.25			0.19																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
PGB1	HE	150.0	ES			13:39	33.83			-0.56	STNC	HE	130.0	ES			00:57	24.13			1.25																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
PGB1	HN	150.0	AML			13:39	35.61	9	0.32		STNC	HE	130.0	AML			00:57	29.36	85406	0.44																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
PGB1	HE	150.0	AML			13:39	37.14	11	0.34		STNC	HN	130.0	AML			00:57	25.50	78149	0.32																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
MME1	SZ	178.0	EP			13:39	21.10			0.56	AW11	SZ	135.0	IP		D	00:57	09.25			0.50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

TABLE 2 : PHASE DATA

WLF1 HE 142.0 AML 23:22 18.70 28 0.26	EDI HN 153.0 AML 09:54 26.82 69 0.16	
WLF1 HN 142.0 AML 23:22 18.70 40 0.58	EDI HE 153.0 AML 09:54 27.63 72 0.46	
SWN1 HZ 145.0 EP 23:22 01.85 0.33	RRR SZ 167.0 EP 09:54 07.70 -0.03	
SWN1 HN 145.0 ES 23:22 19.63 0.70	RRR SN 167.0 ES 09:54 26.35 0.13	
SWN1 HN 145.0 AML 23:22 19.67 24 0.32	RRR SE 167.0 AML 09:54 29.89 95 0.56	
SWN1 HE 145.0 AML 23:22 20.79 16 0.20	RRR SN 167.0 AML 09:54 29.93 68 0.22	
MCH1 EZ 89.9 EP 23:21 52.77 -0.07	EBL SZ 168.0 EP 09:54 08.28 0.28	
October 26 2008 Time: 18:06 25.5 UTC Magnitude: 3.5 ML Lat: 52.200N Lon: -2.633W Depth: 5.3 km Grid Ref: 356.74 kmE 255.99 kmN RMS: 0.30 secs Locality: BROMYARD, HEREFORDSHIRE Velocity model: LowNet Xnear: 150.0 Xfar: 300.0 Comment: FELT HEREFORDSHIRE... Intensity: 4		
STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	
MCH1 EZ 33.7 IP 18:06 31.89 0.11	EDI HN 187.0 AML 09:54 35.15 49 0.42	
MCH1 EN 33.7 ES 18:06 36.46 0.13	EDI HE 187.0 AML 09:54 35.32 57 0.25	
MCH1 HN 33.7 AML 18:06 39.75 1741 0.21	MME1 SZ 188.0 EP 09:54 09.57 -0.96	
MCH1 HE 33.7 AML 18:06 39.84 1971 0.16	ESY SZ 188.0 EP 09:54 11.02 0.59	
HLM1 HZ 39.2 IP D 18:06 32.17 -0.53	MVH1 SZ 191.0 EP 09:54 10.10 -0.74	
HLM1 HE 39.2 ES 18:06 37.45 -0.48	MCD SZ 193.0 EP 09:54 10.22 -0.87	
HLM1 HE 39.2 AML 18:06 38.23 2269 0.30	MCD SE 193.0 ES 09:54 32.41 0.37	
HLM1 HN 39.2 AML 18:06 38.37 1994 0.24	MCD SE 193.0 AML 09:54 38.25 75 0.22	
HTR SZ 45.5 IP C 18:06 33.82 0.16	MCD SN 193.0 AML 09:54 40.96 69 0.22	
HGH SZ 63.7 IP C 18:06 36.22 -0.23	ECK SZ 200.0 EP 09:54 12.20 0.20	
SWN1 HZ 95.6 IP D 18:06 41.34 -0.05	RSC SZ 221.0 EP 09:54 14.47 -0.11	
SWN1 HE 95.6 ES 18:06 52.93 -0.03	KESW HZ 250.0 EP 09:54 18.54 0.29	
SWN1 HN 95.6 AML 18:06 53.74 1609 0.18	KESW HN 250.0 AML 09:55 00.49 29 0.54	
SWN1 HE 95.6 AML 18:06 56.53 1181 0.22	KESW HE 250.0 AML 09:55 03.26 25 0.56	
STNC HZ 103.0 EP 18:06 42.86 0.26	XAL SZ 268.0 EP 09:54 20.89 0.44	
STNC HE 103.0 ES 18:06 55.52 0.48	EAB SZ 76.2 EP 09:53 54.60 -0.54	
STNC HN 103.0 AML 18:06 56.06 3094 0.30	November 17 2008 Time: 02:04 47.4 UTC Magnitude: 1.7 ML	
STNC HE 103.0 AML 18:06 58.19 3896 0.32	Lat: 48.878N Lon: -2.931W Depth: 4.3 km	
KWE SZ 105.0 EP 18:06 42.83 -0.12	Grid Ref: 331.75 kmE -113.14 kmN RMS: 0.60 secs	
WOL BZ 139.0 EP 18:06 47.77 -0.16	Locality: ENGLISH CHANNEL	
KBIL SZ 139.0 EP 18:06 48.06 0.05	Velocity model: LowNet Xnear: 200.0 Xfar: 500.0	
WOL BE 139.0 AML 18:07 05.07 980 0.25	Comment: 70KM SW OF JERSEY	
WOL BN 139.0 AML 18:07 06.40 1536 0.35	STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	
HEX SZ 150.0 IP C 18:06 49.76 0.21	JSA HZ 65.4 EP 02:04 58.23 -0.71	
WLF1 HZ 170.0 EP 18:06 52.87 0.50	JSA HE 65.4 ES 02:05 06.78 -0.61	
WLF1 HE 170.0 ES 18:07 12.03 0.08	JSA HN 65.4 AML 02:05 12.24 37 0.37	
WLF1 HE 170.0 AML 18:07 14.13 1108 0.13	JSA HE 65.4 AML 02:05 12.81 32 0.31	
WLF1 HN 170.0 AML 18:07 16.47 926 0.25	JRS SE 70.6 ES 02:05 09.28 0.48	
HTL HZ 186.0 EP 18:06 53.98 -0.36	JRS SE 70.6 AML 02:05 15.70 30 0.20	
HTL HE 186.0 ES 18:07 15.47 0.11	JLP SZ 73.2 EP 02:05 00.58 0.41	
HTL HN 186.0 AML 18:07 17.70 676 0.24	JQE SZ 74.5 EP 02:05 00.59 0.23	
HTL HE 186.0 AML 18:07 18.10 1143 0.39	DYA HZ 188.0 EP 02:05 16.90 -0.15	
XDE SZ 263.0 EP 18:07 03.13 -0.91	DYA HN 188.0 ES 02:05 39.62 0.90	
GIM SZ 263.0 EP 18:07 03.72 -0.35	DYA HE 188.0 AML 02:05 43.86 10 0.27	
GIM SE 263.0 AML 18:07 40.89 347 0.20	DYA HN 188.0 AML 02:05 45.19 8 0.38	
GIM SN 263.0 AML 18:07 41.19 101 0.10	HTL HE 261.0 ES 02:05 53.16 -1.23	
KESW HZ 268.0 EP 18:07 04.47 -0.16	HTL HN 261.0 AML 02:06 06.28 8 0.42	
KESW HN 268.0 AML 18:07 40.93 200 0.34	HTL HE 261.0 AML 02:06 11.65 7 0.48	
KESW HE 268.0 AML 18:07 45.04 290 0.56	JRS SZ 70.6 EP 02:05 00.00 0.24	
ELSH HZ 286.0 EP 18:07 06.61 -0.23	November 25 2008 Time: 03:24 10.3 UTC Magnitude: 2.2 ML	
ELSH HE 286.0 AML 18:07 46.50 274 0.32	Lat: 53.528N Lon: 0.414W Depth: 19.4 km	
ELSH HN 286.0 AML 18:07 49.96 289 0.32	Grid Ref: 559.99 kmE 406.22 kmN RMS: 0.20 secs	
GCD SZ 309.0 EP 18:07 08.80 -0.95	Locality: SOUTHERN NORTH SEA	
GMM SZ 317.0 EP 18:07 10.76 -0.01	Velocity model: LowNet Xnear: 500.0 Xfar: 1000.0	
BHH SZ 324.0 EP 18:07 11.01 -0.69	Comment: 30KM E OF GRIMSBY	
BHH SE 324.0 ES 18:07 44.47 -0.93	STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	
BHH SN 324.0 AML 18:07 59.98 253 0.28	AW11 SZ 104.0 EP 03:24 27.07 0.23	
BHH SE 324.0 AML 18:08 01.60 259 0.58	AEU SZ 115.0 EP 03:24 28.58 0.14	
GAL1 HZ 327.0 EP 18:07 11.04 -0.99	AEU SN 115.0 ES 03:24 41.49 -0.17	
GAL1 HE 327.0 AML 18:07 57.04 164 0.50	AEU SN 115.0 AML 03:24 43.28 40 0.22	
GAL1 HN 327.0 AML 18:08 02.69 166 0.52	AEU SE 115.0 AML 03:24 44.43 68 0.16	
ECK SZ 333.0 EP 18:07 11.95 -0.91	KBIL SZ 133.0 EP 03:24 30.71 -0.29	
BWH SZ 338.0 EP 18:07 13.77 0.35	KBIL SZ 133.0 ES 03:24 46.48 0.39	
ESK HZ 349.0 EP 18:07 12.94 -1.84	KWE SZ 161.0 EP 03:24 34.40 -0.13	
ESK HN 349.0 AML 18:07 47.97 85 0.30	KESW HE 259.0 AML 03:25 26.81 14 0.56	
ESK HE 349.0 AML 18:08 13.03 88 0.40	KESW HN 259.0 AML 03:25 30.19 13 0.56	
EBL SZ 399.0 EP 18:07 20.53 -0.50	MCH1 HZ 286.0 EP 03:24 50.03 -0.17	
EAU SZ 409.0 EP 18:07 21.76 -0.59	MCH1 HE 286.0 AML 03:25 31.34 7 0.66	
ESY SZ 414.0 EP 18:07 22.11 -0.80	MCH1 HN 286.0 AML 03:25 32.79 8 0.22	
EDI HZ 416.0 EP 18:07 21.64 -1.50	December 11 2008 Time: 13:12 05.3 UTC Magnitude: 1.2 ML	
EDI HN 416.0 ES 18:08 02.62 -2.57	Lat: 55.393N Lon: -4.227W Depth: 7.4 km	
EDI HE 416.0 AML 18:08 35.76 53 0.70	Grid Ref: 258.96 kmE 613.26 kmN RMS: 0.30 secs	
EDI HN 416.0 AML 18:08 36.23 70 0.70	Locality: CUMNOCK, EAST AYRSHIRE	
EAB SZ 458.0 EP 18:07 26.62 -1.77	Velocity model: LowNet Xnear: 100.0 Xfar: 200.0	
November 3 2008 Time: 09:53 42.4 UTC Magnitude: 2.5 ML		
Lat: 56.370N Lon: -5.523W Depth: 15.5 km		
Grid Ref: 182.46 kmE 725.30 kmN RMS: 0.40 secs		
Locality: OBAN, ARGYLL/BUTE		
Velocity model: LowNet Xnear: 150.0 Xfar: 300.0		
Comment: FELT OBAN... Intensity: 3		
STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	
PGB1 HZ 89.7 EP 09:53 57.18 0.12	ESK HZ 52.8 EP 13:12 13.90 -0.47	
PGB1 HN 89.7 ES 09:54 07.88 0.11	ESK HN 52.8 ES 13:12 20.91 -0.09	
PGB1 HE 89.7 AML 09:54 10.82 171 0.46	ESK HN 52.8 AML 13:12 26.72 11 0.54	
PGB1 HN 89.7 AML 09:54 10.92 178 0.34	ESK HE 52.8 AML 13:12 28.44 14 0.48	
KSB SZ 93.7 EP 09:53 57.25 -0.43	PGB1 HZ 54.7 EP 13:12 14.67 0.01	
GQUA SZ 99.9 EP 09:53 58.22 -0.39	PGB1 HE 54.7 AML 13:12 23.85 15 0.40	
GTRA SZ 101.0 EP 09:53 58.68 -0.14	PGB1 HN 54.7 AML 13:12 25.27 11 0.44	
GVIE BZ 101.0 EP 09:53 58.61 -0.09	EAU SZ 62.2 EP 13:12 15.94 0.10	
GVIE BE 101.0 ES 09:54 10.79 0.19	GAL1 HZ 73.1 EP 13:12 17.45 -0.04	
GPIP SZ 102.0 EP 09:53 59.72 0.85	GAL1 HN 73.1 ES 13:12 26.28 -0.12	
KPL HZ 108.0 EP 09:53 59.68 0.01	GAL1 HE 73.1 AML 13:12 31.70 6 0.24	
KPL HE 108.0 ES 09:54 12.56 0.29	GAL1 HN 73.1 AML 13:12 31.82 13 0.54	
KPL HN 108.0 AML 09:54 15.28 311 0.14	EAB SZ 90.7 EP 13:12 20.24 0.00	
KPL HE 108.0 AML 09:54 15.30 484 0.40	KESW HZ 107.0 EP 13:12 23.16 0.35	
EBH SZ 125.0 EP 09:54 02.70 0.50	KESW HE 107.0 AML 13:12 40.19 11 0.40	
KAC SZ 126.0 EP 09:54 02.70 0.39	KESW HN 107.0 AML 13:12 40.63 18 0.72	
MDO SZ 139.0 EP 09:54 03.58 -0.51	XAL SZ 130.0 EP 13:12 26.88 0.60	
EAU SZ 142.0 EP 09:54 05.15 0.62	December 11 2008 Time: 15:12 00.4 UTC Magnitude: 1.1 ML	
EDI HZ 153.0 EP 09:54 05.75 -0.35	Lat: 55.382N Lon: -4.263W Depth: 7.7 km	
EDI HN 153.0 ES 09:54 23.54 0.14	Grid Ref: 256.64 kmE 612.11 kmN RMS: 0.50 secs	
Locality: CUMNOCK, EAST AYRSHIRE		
Velocity model: LowNet Xnear: 100.0 Xfar: 200.0		
STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	STAT CO DIST PHAS WT P HrMn SECS AMPL PERI RES	
PGB1 HZ 48.4 EP 15:12 09.34 0.54	PGB1 HZ 48.4 EP 15:12 14.66 -0.26	
PGB1 HN 48.4 ES 15:12 14.66 -0.26		

TABLE 3

GEOGRAPHIC COORDINATES OF SEISMOGRAPH STATIONS, 2008

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Comp
ABA1	BACONSTHORPE	52.8884	1.1453	611.58	337.00	74	1R
AEA	EAST ANGLIA UNIV	52.6208	1.2403	619.30	307.53	45	3M
AEU	EAST ANGLIA	52.6202	1.2347	618.93	307.45	28	SMR
APAE	PACKWAY	52.3006	1.4782	637.12	272.68	58	1R
AWH	WHINBURGH	52.6297	0.9507	599.67	307.68	64	1R
AWI1	WITTON	52.8319	1.4471	632.17	331.65	46	1R
BBH	BRUNTSHEIL	55.1333	-2.9299	340.72	582.50	216	1R
BBO1	BOTHEL	54.7367	-3.2464	319.76	538.69	209	3R
BCC1	CHAPELCROSS	55.0153	-3.2201	321.99	569.66	138	1SMR
BCM	CHAPELCROSS MIC	55.0151	-3.2212	321.92	569.64	78	M
BDL	DOBCROSS HALL	54.8030	-2.9385	339.68	545.76	157	1R
BHH	HOWATS HILL	55.0931	-3.2181	322.27	578.31	216	3R
BNA	NEW ABBEY	54.9658	-3.6242	296.03	564.68	28	1R
BTA	TALKIN	54.9057	-2.6844	356.12	557.00	279	3R
BWH	WARDLAW	55.1758	-3.6549	294.62	588.09	269	1R
CBW1	BUDOCK WATER	50.1482	-5.1144	177.53	32.29	94	1R
CCA1	CARNMENELLIS	50.1866	-5.2277	169.62	36.90	210	1R
CCO1	CONSTANTINE	50.1357	-5.1957	171.66	31.14	168	1R
CDU1	DUNNERDALE	54.3362	-3.1952	322.30	494.08	355	1R
CGH1	GOONHILLY	50.0507	-5.1649	173.46	21.60	97	1R
CGW	GWEEK	50.1006	-5.2228	169.56	27.32	9	1R
CMA1	MANACCAN	50.0821	-5.1274	176.29	24.98	42	1R
CPZ	PENZANCE	50.1566	-5.5828	144.12	34.72	199	1R
CRQ	ROSEMANOWES	50.1672	-5.1726	173.46	34.57	156	SMR
CRQ2	ROSEMANOWES2	50.1667	-5.1687	173.74	34.51	143	3R
CSA1	ST AUSTELL	50.3527	-4.8919	194.30	54.38	112	1R
CSF	SCAFELL	54.4478	-3.2430	319.41	506.55	540	1R
CSM	SELLAFIELD MIC	54.4183	-3.4913	303.24	503.58	50	M
CST1	STITHIANS	50.1952	-5.1635	174.24	37.66	141	1R
CWF	CHARNWOOD FST	52.7385	-1.3076	446.74	315.91	203	BBR
DCO	COMBE FARM	50.3201	-3.8721	266.74	48.43	117	1R
DYA	YADSWORTHY	50.4353	-3.9310	262.88	61.34	292	3MLGBBR
EAB	ABERFOYLE	56.1887	-4.3373	254.97	702.02	279	1R
EAU	AUCHINOON	55.8454	-3.4474	309.38	662.30	359	1R
EBH	BLACK HILL	56.2476	-3.5084	306.54	707.13	375	1R
EBL	BROAD LAW	55.7723	-3.0445	334.48	653.71	436	1R
ECK	CAULDKAINE HILL	55.1810	-3.1292	328.10	588.00	351	1R
EDI	EDINBURGH	55.9233	-3.1875	325.80	670.66	125	BBR
EDR	DRUMTOCHTY	56.9190	-2.5393	367.17	780.97	401	1R
EDU	DUNDEE	56.5477	-3.0110	337.85	739.97	421	1R
ELO	LOGIEALMOND	56.4703	-3.7112	294.59	732.21	523	1R
ELSH	ELHAM	51.1482	1.1345	619.32	143.44	126	BBR
ESK	ESKDALEMUIR	55.3165	-3.2052	323.52	603.16	261	3MLGBBR
ESY	STONEYPATH	55.9175	-2.6141	361.62	669.55	337	1R
FHV	HALDARSVIK	62.2597	-7.0984			380	1R
FSD	SUDUROY	61.5701	-6.7884			480	1R
FOEL	FOEL WYLFA	52.8898	-3.2012	319.27	333.15	449	BBR
FSV	SVINOY	62.2598	-6.3550			430	1R
FTO	TORSHAVN	62.0199	-6.8274			325	3R
FVA	VAGAR	62.0575	-7.3520			430	1R
GAL1	GALLOWAY	54.8664	-4.7114	226.02	555.78	117	3MLGBBR
GCD	CASTLE DOUGLAS	54.8630	-3.9403	275.48	553.76	184	1R
GCL	CUSHENDALL	55.0783	-6.1264	136.66	583.77	278	1R
GIM	ISLE OF MAN (North)	54.2923	-4.4672	239.44	491.35	346	3R
GMK	MULL OF KINTYRE	55.3458	-5.5934	172.19	611.64	164	1R
GMM	MTNS OF MOURNE	54.2377	-5.9498	142.66	489.67	155	1R
HAE	ALDERS END	52.0368	-2.5434	362.73	237.79	260	1R
HBL2	BONNYLANDS	52.0508	-3.0384	328.80	239.71	437	SMR

TABLE 3

GEOGRAPHIC COORDINATES OF SEISMOGRAPH STATIONS, 2008

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Comp
HCG	CRAIG GOCH	52.3231	-3.6570	287.08	270.78	533	1R
HEX	EXMOOR	51.0664	-3.8026	273.71	131.28	230	1R
HGH	GRAY HILL	51.6379	-2.8057	344.25	193.59	223	1R
HLM1	LONG MYND	52.5184	-2.8807	340.25	291.57	429	BBR
HPE	PEMBROKE	51.9372	-4.7746	209.29	230.21	349	1R
HPK	HAVERAH PARK	53.9581	-1.6241	424.66	451.42	233	BBR
HSA	SWANSEA	51.7500	-4.1532	251.38	207.94	293	1R
HTL	HARTLAND	50.9943	-4.4849	225.64	124.66	86	3MLGSMBBR
HTR	TREWERN HILL	52.0785	-3.2679	313.12	243.04	337	1R
JDC	DAM (CREST)	49.1947	-2.0469			39	SMR
JDG	DAM (GALLERY)	49.1947	-2.0469			7	SMR
JLP	LES PLATONS	49.2486	-2.1039			129	1R
JQE	QUEENS EAST	49.2000	-2.0383			58	1R
JRS	MAISON ST LOUIS	49.1922	-2.0922			56	3LGR
JSA	ST AUBINS	49.1878	-2.1717			39	BBR
JVM	VALLE D.L.MARE	49.2169	-2.2067			64	1R
KAC	ACHNASHELLACH	57.4989	-5.2988	202.36	850.19	206	1R
KAR1	ARISAIG	56.9188	-5.8290	166.98	787.34	186	1R
KBI1	BIRLEY GRANGE	53.2543	-1.5279	431.49	373.17	272	1R
KESW	KESWICK	54.5886	-3.1048	328.70	522.05	282	BB
KEY1	KEYWORTH	52.8779	-1.0757	462.20	331.59	59	LGR
KEY2	KEYWORTH	52.8790	-1.0770	462.13	331.73	76	SMR
KNR1	NEVIS RANGE	56.8219	-4.9714	218.68	773.97	1147	1R
KPL	PLOCKTON	57.3391	-5.6527	180.21	833.50	13	3LGSMBBR
KSB	SHIEL BRIDGE	57.2099	-5.4214	193.40	818.40	417	1R
KSK	SCOVAL	57.4659	-6.7002	118.21	851.46	265	1R
KSY	SYSTON	52.9642	-0.5872	494.88	341.73	121	1R
KTG1	TILBROOK GRNGE	52.3264	-0.4019	508.90	271.06	83	1R
KUF	UFFORD	52.6170	-0.3907	508.94	303.39	38	1R
KWE	WEAVER FARM	53.0164	-1.8412	410.65	346.61	328	1R
LCP	CASSOP	54.7370	-1.4744	433.84	538.14	185	1R
LDU	LEEDS	53.8058	-1.5540	429.37	434.51	74	MLGSMR
LHO	HOLMEFIRTH	53.5453	-1.8548	409.62	405.44	462	1R
LMI	MILLOM	54.2206	-3.3070	314.79	481.35	129	3R
LMK	MARKET RASEN	53.4569	-0.3260	511.14	396.90	146	1R
LRN	RICHMOND	54.4165	-1.8007	412.93	502.37	313	1R
LRW	LERWICK	60.1360	-1.1779	445.66	1139.27	98	3MLGBBR
LWH	WHINNY NAB	54.3338	-0.6717	486.36	493.97	277	1R
MCD	COLEBURN DISTIL	57.5828	-3.2541	325.02	855.42	293	3MLGSMR
MCH1	MICHAELCHURCH	51.9974	-2.9983	331.47	233.74	219	SMBBR
MDO	DOCHFOUR	57.4409	-4.3633	258.17	841.39	415	1R
MFI	FISHRIE	57.6119	-2.2956	382.34	858.00	232	1R
MLA1	LATHERON	58.3055	-3.3627	320.15	935.98	188	1R
MME1	MEIKLE CAIRN	57.3149	-2.9647	341.90	825.32	475	1R
MVH1	ACHVAICH	57.9250	-4.1825	270.75	894.90	185	1R
OBR	BRABSTER	58.6142	-3.1626	332.47	970.13	89	1R
ODR	DOUNREAY	58.5822	-3.7256	299.68	967.27	100	SM
OHO	HOY	58.8322	-3.2465	328.05	994.48	172	1R
ORE	REAY	58.5480	-3.7622	297.45	963.52	100	3MLGR
OST	STRONSAY	59.0860	-2.5516	368.39	1022.20	21	1R
OTO	TONGUE	58.4953	-4.3939	260.49	958.79	338	1R
OWE	WESTRAY	59.3180	-3.0289	341.44	1048.36	87	1R
PCA1	CARROT	55.7007	-4.2550	258.30	647.55	302	1R
PCO1	CORRIE	55.9880	-4.1002	269.00	679.21	267	1R
PGB1	GLENIFFERBRAES	55.8115	-4.4837	244.38	660.37	199	BBR
PMS1	MUIRSHIEL	55.8459	-4.7452	228.15	664.82	351	1R
POB1	OBSERVATORY	55.8458	-44299	247.88	664.06	34	MLGR
RCR	CAPE WRATH	58.6245	-4.9987	225.90	974.58	100	1R
REB	EISG-BRACHAIDH	58.1194	-5.2802	206.82	919.16	100	1R

TABLE 3

GEOGRAPHIC COORDINATES OF SEISMOGRAPH STATIONS, 2008

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Comp
RFO	FORSNAVAL	58.2133	-7.0052	106.10	935.83	195	1R
RRH	RHENIGDALE	57.9197	-6.6881	122.43	901.86	103	1R
RRR	RUBHA REIDH	57.8577	-5.8067	174.19	891.68	61	3MLGSMR
RSC	SCOURIE	58.3485	-5.1683	214.61	944.33	60	1R
RTO	TOLSTA	58.3778	-6.2092	153.95	950.93	74	1R
SAN1	SANDWICK	60.0179	-1.2392	442.41	1126.08	150	1R
SBD1	BRYN DU	52.9055	-3.2585	315.37	335.01	489	1R
SFH	HASELMERE	51.0604	-0.6912	491.71	129.88	260	1R
SIW	ISLE OF WHITE	50.6711	-1.3747	444.18	85.97	162	1R
SKP1	KOPHILL	51.7218	-0.8096	482.22	203.29	212	1R
SMD	MENDIPS	51.3083	-2.7170	350.03	156.88	310	1R
SOFL	SORNFELLI	62.0689	-6.9658			721	BBR
SSP1	STONE POUND	52.4177	-3.1119	324.39	280.59	428	3R
SSW	STOW-ON-WOLD	51.9667	-1.8499	410.31	229.86	291	1R
STNC	STOKE	53.0913	-2.2062	354.95	386.19	234	BBR
SWK	WARMINSTER	51.1483	-2.2471	382.72	138.87	266	1R
SWN1	SWINDON	51.5137	-1.8007	413.83	179.49	192	3MLGSMBBR
TBW	BRENTWOOD	51.6549	0.2913	558.48	197.66	89	1R
TCR	COLCHESTER	51.8347	0.9212	601.24	219.20	45	1R
TEB	EASTBOURNE	50.8187	0.1457	551.13	104.39	68	1R
TFO1	FOLKESTONE	51.1135	1.1409	619.81	139.66	202	3MLGSMR
TSA1	SEVENOAKS	51.2426	0.1561	550.48	151.53	177	1R
WAL1	WALLS	60.2564	-1.6173	421.18	1152.46	167	1R
WCB1	CHURCH BAY	53.3782	-4.5467	230.62	389.87	139	3MSMR
WFB	FAIRBOURNE	52.6831	-4.0383	262.23	311.48	316	1R
WIM	ISLE OF MAN(South)	54.1475	-4.6738	225.39	475.73	386	1R
WLF1	LLYNFAES	53.2894	-4.3966	240.27	379.65	58	BBR
WME	MYNDD EILIAN	53.3969	-4.3032	246.88	391.40	129	1R
WPM1	PENMAENMAWR	53.2581	-3.9048	272.95	375.18	353	1R
XAL	ALLENDALE	54.8617	-2.2147	386.22	551.91	458	1R
XDE	DENT	54.5056	-3.4902	303.52	513.29	301	1R
XSO	SOURHOPE	55.4924	-2.2510	384.14	622.10	516	1R
YEL1	YELL	60.5509	-1.0830	450.29	1185.55	203	1R
YLL	LLANBERIS	53.1402	-4.1704	254.84	362.57	159	1R
YRC	RHOSCOLYN	53.2508	-4.5753	228.21	375.77	22	1R

Component Codes:

- 1 Single vertical seismometer
- 3 Orthogonal set of 3 seismometers
- M Low-frequency microphone
- LG Single low-gain vertical seismometer
- SM Strong motion seismometers
- BB Broadband Instrument
- R Station coordinates registered with the International Seismological Centre (ISC), England and the National Earthquake Information Centre (NEIC), USA

TABLE 4**Depth / crustal velocity models used in earthquake locations**

Structural area	Depth to top of layer (km)	P-wave velocity (km/sec)	Vp/Vs
North Sea	0.00	6.20	1.73
	12.00	6.50	
	23.00	7.10	
	31.00	8.05	
Lownet and general UK	0.00	4.00	1.73
	2.52	5.90	
	7.55	6.45	
	18.87	7.00	
	34.15	8.00	
Borders	0.00	4.10	1.71
	3.00	5.60	
	4.10	6.15	
	17.00	6.60	
	30.00	8.00	
North Wales (Lleyn)	0.00	5.40	1.68
	2.00	6.05	
	13.00	6.50	
	25.00	6.80	
	34.00	8.00	
Mid Wales	0.00	5.40	1.72
	3.80	6.05	
	15.50	6.65	
	34.30	8.00	
Cornwall	0.00	5.50	1.77
	0.30	5.76	
	15.00	6.90	
	30.00	8.00	

Appendix 1 Key to Bulletin Encoding

YearMoDy	Year, month and day of event.
HrMn Secs	Time of occurrence of event in hours, mins and secs, (UTC).
Lat	Latitude of the event, positive latitude indicates north.
Lon	Longitude of the event, positive longitude indicates east.
kmE	UK National Grid Reference in kilometres east of grid origin.
kmN	UK National Grid Reference in kilometres north of grid origin.
Dep	Depth of the hypocentre in kilometres.
Mag	Richter local magnitude of the event.
Locality	A geographical indication of the epicentral area, usually the nearest town followed by the region. A key to the abbreviations used in the locality column are given below.
Int	Maximum EMS intensity. 2+ indicates felt, no macroseismic details. 3+, 4+ etc indicates felt at 3 or 4, but no survey carried out. 3, 4, 5 etc describes the maximum EMS intensity produced by the event.
Comments	Additional comments about the event eg: C/F, see below under comments abbreviations.

The following abbreviations are extracted from the output of the location program HYPO71 (Lee and Lahr,1975)

No	Total number of P and S readings used in the event location.
Gap	Largest azimuthal separation in degrees between stations.
RMS	Root Mean Square of the travel time residuals in seconds.
ERH	Standard error of the epicentre in kilometres. When this column is blank, the error is large and indeterminate.
ERZ	Standard error of the focal depth in kilometres. When this column is blank, the error is large and indeterminate.

Locality abbreviations

Sonic	Sonic boom
Bucks	Buckinghamshire
D & G	Dumfries and Galloway
Lincs	Lincolnshire
Notts	Nottinghamshire

Comments abbreviations

...	and felt elsewhere
N,S,E,W	North, South, East, West

Appendix 2 Key to Phase Data Encoding

Time	Time of occurrence of event in hours, mins and secs, (UTC).
Lat	Latitude of the event, N indicates North.
Lon	Longitude of the event, W indicates West, E indicates East.
Depth	Depth of the hypocentre in kilometres.
Grid Ref	UK National Grid Reference in kilometres east (kmE) and kilometres north (kmN) of grid origin.
RMS	Root Mean Square of the travel time residuals in seconds.
Velocity Model	Velocity model used in location.
Magnitude	Richter local magnitude of the event.
Locality	A geographical indication of the epicentral area, usually the nearest town followed by the region.
Intensity	Maximum EMS intensity. 2+ indicates felt, no macroseismic details. 3+, 4+ etc indicates felt at 3 or 4, but no survey carried out. 3, 4, 5 etc describes the maximum EMS intensity produced by the event.
Comments	Additional comments about the event eg: C/F see list of comments abbreviations below.
STAT	Station name
CO	Station component S=short period Z=vertical N=north south E=east west
DIST	Distance from earthquake to station (km)
PHAS	Phase identifier; the first letter characterizes onset E=emergent I=impulsive, the second indicates the phase eg P, S, PG and PN. AML
WT	Hypo weighting factor to arrival. 0 or blank=full weighting to 4=zero weighting (ignore). 9=use P S interval only for this line.
P	Polarity C=Compression/up D=Dilatation/down
HrMn	Hour, Minute of event
SECS	Seconds of event
AMPL	Amplitude centre to peak in nanometres (nm)
PERI	Period in seconds
RES	Station residual

Appendix 3 The European Macroseismic Scale (EMS 98)

1 - **Not felt**

Not felt, even under the most favourable circumstances.

2 - **Scarcely felt**

Vibration is felt only by individual people at rest in houses, especially on upper floors of buildings.

3 - **Weak**

The vibration is weak and is felt indoors by a few people. People at rest feel a swaying or light trembling.

4 - **Largely observed**

The earthquake is felt indoors by many people, outdoors by very few. A few people are awakened. The level of vibration is not frightening. Windows, doors and dishes rattle. Hanging objects swing.

5 - **Strong**

The earthquake is felt indoors by most, outdoors by few. Many sleeping people awake. A few run outdoors. Buildings tremble throughout. Hanging objects swing considerably. China and glasses clatter together. The vibration is strong. Top heavy objects topple over. Doors and windows swing open or shut.

6 - **Slightly damaging**

Felt by most indoors and by many outdoors. Many people in buildings are frightened and run outdoors. Small objects fall. Slight damage to many ordinary buildings eg; fine cracks in plaster and small pieces of plaster fall.

7 - **Damaging**

Most people are frightened and run outdoors. Furniture is shifted and objects fall from shelves in large numbers. Many ordinary buildings suffer moderate damage: small cracks in walls; partial collapse of chimneys.

8 - **Heavily damaging**

Furniture may be overturned. Many ordinary buildings suffer damage: chimneys fall; large cracks appear in walls and a few buildings may partially collapse.

9 - **Destructive**

Monuments and columns fall or are twisted. Many ordinary buildings partially collapse and a few collapse completely.

10 - **Very destructive**

Many ordinary buildings collapse.

11 - **Devastating**

Most ordinary buildings collapse.

12 - **Completely devastating**

Practically all structures above and below ground are heavily damaged or destroyed.

-----****-----

A complete description of the EMS-98 scale is given in: Grunthal, G., (Ed) 1998. European Macroseismic scale 1998. Cahiers du Centre European de Geodynamique et de Seismologie. Vol 15.