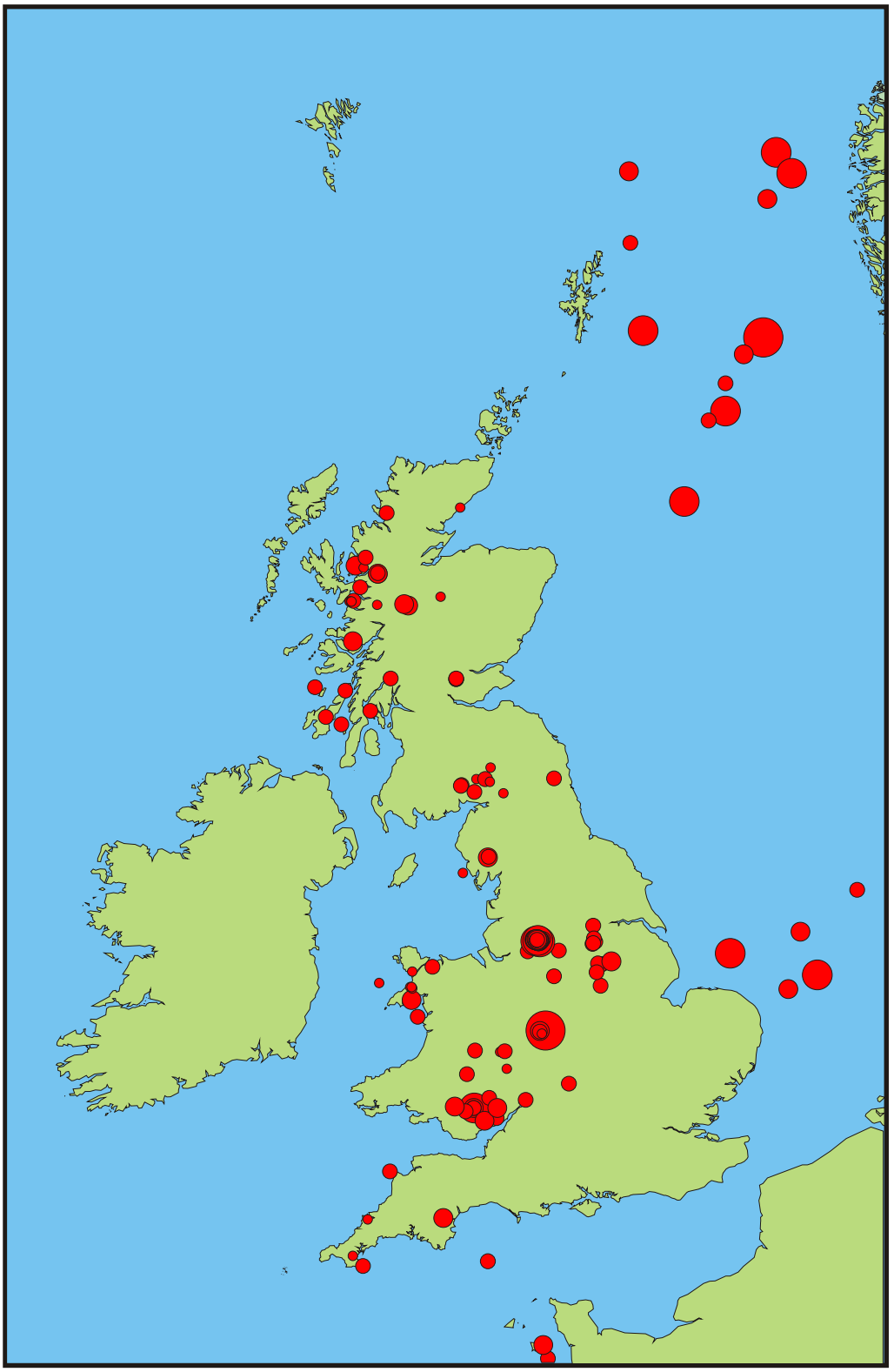
British Geological Survey

BULLETIN OF BRITISH EARTHQUAKES 2002



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BRITISH GEOLOGICAL SURVEY

TECHNICAL REPORT IR/03/057

Global Seismology and Geomagnetism

Bulletin of British earthquakes 2002

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BRITISH GEOLOGICAL SURVEY

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1. INTRODUCTION

1.1 The Bulletin

The British Geological Survey's Seismic Monitoring and Information Service operates a nationwide network of seismograph stations in the United Kingdom. The whole of the UK, including coastal waters, is covered within the limits of the detection capabilities of the seismograph network, and accuracy is extended through data exchange with neighbouring countries. Seismic phase data, location details and magnitudes are presented in the Bulletin for all earthquakes detected and located by BGS during 2002 together with maps showing the larger magnitude events since 1979 ($ML \geq 2.5$) and since 1970 ($ML \geq 3.5$). All felt areas are quoted in km², and are for the area enclosed within isoseismal 3 EMS (European Macroseismic Scale, Appendix C).

1.2 Summary of 2002 Seismicity

There were 235 earthquakes located by the monitoring network during the year, with 87 of them having magnitudes of 2.0 ML or greater. Of these, 42 are known to have been felt, together with a further 6 smaller ones, bringing the total to 48 felt earthquakes in 2002.

The largest onshore earthquake occurred on 22 September (Appendix A3) some 3 km northwest of Dudley, at a depth of 14 km, with a magnitude of 4.7 ML. It was felt over an area of 126,000 km^2 (isoseismal 3) and BGS were inundated with reports about the earthquake. Many media interviews were given and a macroseismic survey questionnaire was published both online and in the Daily Telegraph newspaper. Approximately 6,300 electronic reports were completed with a further 1,900 from the Daily Telegraph. BGS received reports of electric power being cut off to many homes in districts of Birmingham and multi-storey flats were evacuated in the Egbaston district of Birmingham. The earthquake was felt from the west coast to the east coast, as far north as Lancashire, West Yorkshire and Humberside and to Dorset and Kent in the south. The highest observed intensity was 5 EMS, which was observed quite widely over an area around Dudley, Birmingham, Walsall and Wolverhampton and as far south as Kidderminster and Bromwich. In a number of cases, mirrors and clocks were thrown off walls, a bookcase fell over, large items of furniture shook violently and there was a high level of alarm amongst the local population. A few reports mentioned children being thrown out of their beds. A maximum acceleration of 0.015g was measured at the strong motion station at Keyworth, some 82 km from the earthquake. The focal mechanism for the Dudley earthquake shows strike-slip faulting along either near north-south or east-west fault planes. The average maximum compressive stress direction has an azimuth of 323° and dip of 5° and the minimum stress direction strikes at 233° and dips at 9°. Two aftershocks were recorded, with magnitudes of 2.7 and 1.2 ML on 23 and 24 September respectively. The larger of the two aftershocks was felt with an intensity of 3 EMS.

The largest offshore earthquake occurred in the Northern North Sea on 14 February, with a magnitude of 4.0 ML. It was located approximately 210 km east of Lerwick, Shetland Islands. A further 14 events occurred in the North Sea and surrounding waters during the year, with magnitudes ranging between 1.5 and 3.5 ML.

A magnitude 3.0 ML earthquake occurred on 12 February (Appendix A1) near Bargoed, Mid Glamorgan. BGS received reports from residents of Bargoed, Pontypridd, Bridgend, Penpedairheol and Blackwood. These described, “the house shook violently”, “the furniture shook”, “the windows vibrated” and “we ran into the street”, indicating an intensity of 4

EMS. A further 5 events were detected in the Bargoed area throughout 2002 with magnitudes ranging from 1.4–2.5 ML. This is an area that has experienced many seismic events in the past. The events in 2002 locate in the same area as events on 10 and 18 October 2001, with magnitudes of 3.1 & 2.5 ML, respectively, that were felt with intensities of 4 EMS. The focal mechanism obtained for the Bargoed earthquake shows normal/oblique normal faulting along either a north-south fault plane dipping sharply west or a NNW-SSE fault plane, dipping ENE.

A magnitude of 2.3 ML earthquake occurred on 2 May, near Loch Lochy, Highland Region. A single report was received from a resident of Spean Bridge, who described "the whole house shook", "the windows rattled" and "felt a shudder", indicating an intensity of 3 EMS.

Near Shiel Bridge, Highland, five earthquakes occurred with magnitudes ranging from 0.9 – 2.3 ML, three of these earthquakes with magnitudes of 2.3, 2.0 and 1.4 ML, occurred on 3 May. Felt reports were received for all three of these earthquakes from the village of Mallaig, where intensities reached 3 EMS. Felt reports described, "I felt a shudder through my feet" and "sounded like a large explosion".

A magnitude 2.9 ML earthquake occurred on 20 June (Appendix A2), near Cardiff, South Glamorgan. Felt reports were received from residents of Cardiff and Caerphilly where intensities reached 3 EMS. Felt reports described "the furniture moved" and "both the chairs moved for a few seconds". The focal mechanism obtained for this earthquake shows normal faulting along a northwest-southeast fault plane, dipping either northeast or southwest.

On 1 August, an earthquake with a magnitude of 1.7 ML, occurred near Blackford, Tayside. BGS received a single report from a resident of Blackford, which described, "the bed shook and I was woken from sleep", indicating an intensity of 3 EMS. A further three earthquakes with magnitudes of 1.3, 1.0 and 0.4 ML, occurred in the Blackford area during 2002. This is an area that has continued to be active in recent years; 49 events occurred in 1997, of which five were felt by local residents; 10 events occurred in 1998, of which 2 were felt by local residents, 3 events occurred in 1999, 4 events occurred in 2000, of which 3 were felt and 3 events occurred in 2001, of which all were felt**.** These are all in the same general area as the magnitude 3.2 ML Ochil Hills earthquake in 1979, which had a maximum intensity of 5 EMS.

An earthquake with a magnitude of 1.3 ML, occurred near Dumfries, Dumfries and Galloway, on 9 October. BGS received a single report for this earthquake from a resident of Tinwald which described, " I felt a slight shudder" indicating an intensity of 2 EMS.

Five events occurred throughout the year, near Mallaig Highland region, with magnitudes ranging from 0.4 – 1.9 ML. BGS received no reports of these earthquakes being felt.

A magnitude of 4.5 ML earthquake occurred in northwest France on 30 September. BGS received many felt reports from residents throughout Jersey and Guernsey. These reports described "whole house shook", "a loud rumble", "cracking sound", "everyone woke up", "furniture moved" and "the bed shook", indicating an intensity of 4 EMS.

One hundred and sixteen earthquakes were located in the Manchester area during 2002 with magnitudes ranging from 1.3 – 3.9 ML (Appendix A4). Thirty-six of these events were reported felt to BGS with intensities ranging from 2-5 EMS. The largest earthquake of the sequence occurred in central Manchester, on 21 October at 11:42 (UTC), with a magnitude of 3.9 ML. This was closely followed 22 seconds later by a magnitude 3.5 ML earthquake in the

same locality. BGS received numerous felt reports about this earthquake swarm and a large number of phone calls. Many media interviews were given and a macroseismic survey questionnaire was published online. To date, BGS has received approximately 3000 reports via email. The earthquake together with several others in the swarm, were felt throughout Greater Manchester, up to distances of approximately 30 km. There have been reports of minor damage to buildings in the central Manchester area, indicating an intensity of 5 EMS.

On 19 November, an earthquake with a magnitude of 2.4 ML, occurred on Jersey, Channel Islands. BGS received felt reports from residents throughout Jersey, which described "items on the desk rumbled and we felt something rumbling in the ground" indicating an intensity of 3 EMS. This event is the largest in the general area since the magnitude 3.5 ML St Aubin's Bay earthquake on 30 April 1990, which was felt with intensities of 5 EMS.

In North Wales, two events on 1 June and 1 July with magnitudes of 0.7 ML and 0.2 ML, respectively, occurred on the Lleyn Peninsula, in the same area and at similar depths (20 km) as the magnitude 5.4 ML Lleyn earthquake of 19 July 1984, which was felt throughout England and Wales and into Scotland and Ireland.

The coalfield areas of Yorkshire, Nottinghamshire and West Glamorgan continued to experience shallow earthquake activity that is believed to be mining induced. Some 11 coalfield events, with magnitudes ranging between 1.0 and 2.2 ML, were detected during the year.

2. BULLETIN FORMAT

2.1 Tables

Data on the earthquakes and seismograph stations operated in 2002 are arranged as follows:

TABLE 1: Chronological listing of all earthquakes in and near the UK for which a reliable epicentral location could be obtained together with felt sonic events and other significant non-natural events.

TABLE 2: Listing of earthquakes arranged in order of decreasing latitude to facilitate identification of earthquakes in selected regions.

TABLE 3: Chronological listing of felt sonic events and significant non-natural events detected by the seismograph network. These events are included in Table 1 but not Table 2.

TABLES 4: **A**lphabetical listing of the geographical co-ordinates of seismograph stations operated in 2002 by BGS, DIAS (the Dublin Institute of Advanced Studies) and KUN (Keele University). Table 4a lists the short period instruments; Table 4b the BGS low gain stations and Table 4c the BGS strong motion instruments.

TABLE 5: **A**rrival times of phases for the events in Table 2 at each station, together with amplitude information used for magnitude calculation.

TABLE 6: Crustal seismic velocity models used for event location.

2.2 Figures

FIGURE 1: Seismograph network operational in December 2002

FIGURE 2: Detection threshold of the seismograph stations operational in December 2002 for average background noise conditions where the detection criterion is that the signal has to exceed 4 nanometers at 10 Hz on 4 stations.

FIGURE 3: Epicentral location map of all the events in 2002 that are listed in Table 2. It is estimated that the dataset is complete for the land area.

FIGURE 4: Locations of earthquakes in the UK of magnitude 2.5 ML and above in the period 1979 to 2002. It is estimated that the dataset is complete for the land area.

FIGURE 5: Locations of earthquakes in the UK of magnitude 3.5 ML and above in the period 1970 to 2002.

3. THE BGS UK SEISMOGRAPH NETWORK

3.1 Instrumentation

A standard seismic network consists 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 seismometers, are recorded digitally with the SEISLOG data acquisition system (Utheim and Havskov, 1993). The system records data continuously, but also creates event-triggered files. The networks are accessed for data transfer from Edinburgh several times a day through Internet or dial-up modems. Once transferred, the events are analysed to provide rapid response for 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. A broadband seismic station is located in Edinburgh, providing data with a larger dynamic range and over a wider frequency band.

3.2 Detection Threshold

The detection capabilities of a network depend upon station distribution, instrument sensitivity and background noise levels. The contours in Figure 2 illustrate the lower threshold magnitude for an earthquake to significantly exceed 4 nanometers of noise (average) at 10 Hz on at least four seismographs. Noise sources such as wind, waves, traffic and livestock vary considerably with time (typically 0.5 to 15 nanometers, 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.

The detection contours in Figure 2 hold true only if all stations are continuously monitored. Small events in unmonitored areas may go undetected unless they are felt and reported to BGS by local inhabitants. The detection capabilities by this process are strongly dependent on population density.

3.3 Environmental Monitoring

The infrastructure provided by the UK nationwide seismic monitoring network, comprising remote sensing stations linked to computers, is ideal for expansion into a full-spectrum environmental monitoring network (including pollution, radioactivity and climate). The remote sites required for seismic stations (in order to escape 'cultural' vibration noise from industry, towns, roads etc) are ideal for establishing environmental baselines, long-term trends, the effects of sudden release incidents and the long-range impacts of power stations, traffic and city emissions. The data-rate for seismics, at 100 samples per second per channel, is very high compared to the normal requirements of an environmental monitoring station. It has, therefore, proved to be relatively simple to provide for the transmission of several channels of environmental data, at 1 minute intervals, alongside the seismics. To demonstrate this, BGS has established several remote environmental stations, recording Ultra Violet-B, a full set of meteorological parameters, radioactivity, NOx, SO2 and O3 gases. At Eskdalemuir Observatory, in the Scottish Borders, and Hartland Observatory in North Devon comprehensive systems for environmental monitoring have been installed to prove this capability, disseminating the data through an INTERNET connection to the wider community.

4. HYPOCENTRE PARAMETERS AND THEIR ERRORS

4.1 Epicentre Location

By accurately timing the signal onsets at a minimum of three stations, a location can be found for an earthquake which satisfies the observed pattern of arrivals. Instrumental locations in the bulletin were obtained using the computer program HYPO71 (Lee and Lahr, 1975) which 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 velocity through the earth can be modelled.

The velocity models used for the location of events in 2002 are given in Table 6 and were derived from a series of refraction profiles traversing Britain, LISPB (Bamford et al, 1976; Bamford et al, 1978; Assumpçao and Bamford, 1978 and Bott et al., 1985).

4.2 Depth Determination

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. Constraints on the depth can usually only be imposed when a station is very near the epicentre and even then the accuracy depends on the velocity model.

The best depth determinations have been obtained when an earthquake or earthquake series occurred almost beneath a network. For events at larger distances, and where the error columns (ERH and ERZ), in the tables, are blank, the depth errors can be up to tens of kilometres. The quality factor of the event, as listed in the tables (SQD), is an indication of the depth error. As a general guide only, A*A, A*B, B*A and possibly B*B class events, have reliable depths.

4.3 Seismicity Distribution

Owing to variability in the earthquake detection threshold, which is governed by ambient noise conditions and the geometry of the observing network (see 3.2), the bulletin is biased towards certain localities. In order to present a consistent picture of UK seismic activity, only earthquakes with magnitude 2.5 ML or greater, in the period 1979 to 2002, have been plotted in Figure 4. The data set is considered complete for these magnitudes in all localities of the onshore area. Seismicity for the period 1970 to 2002 is shown in Figure 5 with a threshold magnitude of 3.5 ML. This is the period covered by BGS instrumentation which in the early years, only consisted of the network around Edinburgh (LOWNET) and Eskdalemuir (ESK) and a station near Kyle of Lochalsh (KYL). The dataset is likely to be complete for such magnitudes.

4.4 Magnitude

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

$$ML = \log10\ (A/Ao)$$

where A is the maximum deflection (centre to peak in mm) registered by the earthquake on a Wood-Anderson seismograph and Ao is that for a 'standard' magnitude zero earthquake at the same distance. The Ao term is thus a distance correction factor tabulated by Richter out 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, Ao, strictly only applies to California, the formula is still used world-wide today. The ML magnitudes in this bulletin have been calculated according to Richter by 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 was not possible, the mean of the magnitudes from a number of verticals has been used. Ground motion registered at a seismograph varies with site conditions, 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.

4.5 Intensity

Intensity is a measure of the effect of the shaking on people, structures and objects. It decreases with distance from a maximum value (Imax) usually found close to the epicentre. The maximum felt intensity is quoted, where known, on the European Macroseismic Scale (EMS), (Grünthal, 1998).

5. BULLETIN CONTENT AND COMPLETENESS

5.1 The Geographical Area

The bulletin covers all of the UK land mass and its coastal waters including the North Sea to 800 kmE and 1500 kmN.

5.2 Events Included

All events believed to be of true tectonic origins have been included, that is, events caused by natural stresses within the earth.

Coalfield events are also included. These are small events occurring near coal workings which are believed to be caused by the redistribution of stress as the coal is extracted and, in some cases by collapse in old workings. They are indicated by C/F in the comments column of Tables 1, 2 and 5.

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 reported by local people as small earthquakes. They are indicated by 'SONIC' in both the locality and comments column of Tables 1 and 3. There were five felt sonic events reported during the year.

Significant non-natural events which received media attention or were greater than magnitude 2.5 ML and felt explosions are also included in Tables 1 and 3. The felt explosions are indicated by 'EXPL' in both the locality and comments column.

5.3 Events Excluded

Events that are known, or suspected to be of explosive origin, are excluded from the bulletin. Explosions due to quarrying, mining, weapon testing or disposal, naval exercises, geophysical prospecting and civil engineering are all excluded where possible, unless they are greater than 2.5 ML or reported to be felt. 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.

5.4 Completeness

The contours of detection threshold in Figure 2 show that 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. High noise levels may cause this 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.

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UK Earthquake Monitoring Annual Reports

YEAR	AUTHOR(S)	BGS REPORT NO.
89/90	Browitt, CWA and Turbitt, T	WL/90/13
90/91	Browitt, CWA and Turbitt T	WL/91/26
91/92	Browitt, CWA and Turbitt T	WL/92/11
92/93	Browitt, CWA and Walker, AB	WL/93/08
93/94	Walker, AB and Browitt, CWA	WL/94/10
94/95	Walker, AB and Browitt, CWA	WL/95/10
95/96	Walker, AB and Browitt, CWA	WL/96/06
96/97	Walker, AB	WL/97/16
97/98	Walker, AB	WL/98/03
98/99	Walker, AB	WL/99/03
99/00	Walker, AB	WL/00/03
00/01	Walker, AB	IR/01/46
01/02	Walker, AB	IR/02/53

TABLE 1

CATALOGUE OF EVENTS LISTED CHRONOLOGICALLY: 2002

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, neg ative longitude indicates west.
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.
DM	:	Epicentral distance in kilometres to the closest station.
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.
SQD	:	S is quality factor ascribed to RMS, D is quality ascribed to number and distribution of stations.

Locality abbreviations

Sonic	:	Sonic boom	N Yorkshire	:	North Yorkshire
Expl	:	Explosion	Notts	:	Nottinghamshire
D & G	:	Dumfries and Galloway	Lincs	:	Lincolnshire
Gtr	:	Greater	N'umberlnd	:	Northumberland
Her & Worcs	:	Hereford and Worcester	Staffs	:	Staffordshire
S'Clyde	:	Strathclyde	Leics	:	Leicestershire
S Yorkshire	:	South Yorkshire	W Mids	:	West Midlands
New-U-Lyme	:	Newcastle-Under-Lyme	Salop	:	Shropshire
Penin	:	Peninsula			

Comments abbreviations

Sonic	:	Sonic boom
Expl	:	Explosion
C/F	:	Coalfield type event
...	:	and felt elsewhere

TABLE 1: CATALOGUE OF EVENTS LISTED CHRONOLOGICALLY: 2002

YearMoDy	HrMnSecs	Lat	Lon	kmE	kmN	Dep	Mag	Locality	Int	No	DM	Gap	RMS	ERH	ERZ	SQD	Comments
20020106	171457.5	53.23	-1.04	464.0	371.1	1.0	1.6	OLLERTON,NOTTS		8	33	224	0.27	2.50	2.10	C*D	C/F
20020108	180012.1	50.10	-5.22	170.0	26.9	4.2	0.2	HELSTON,CORNWALL		6	1	167	0.05	1.50	1.40	B*C	3KM EAST OF HELSTON
20020109	095225.8	57.03	-5.76	171.8	799.7	7.5	0.4	MALLAIG,HIGHLAND		5	29	255	0.06	3.40	5.40	C*D	
20020109	105223.5	57.03	-5.78	170.5	799.2	8.6	1.9	MALLAIG,HIGHLAND		7	30	197	0.08	0.50	8.30	C*D	5KM NORTHEAST OF MALLAIG
20020110	094459.0							SONIC-PLYMOUTH	3+							*	SONIC-FELT PLYMOUTH...
20020110	221437.0	57.00	-5.31	198.7	794.4	9.8	0.6	LOCH QUOICH,HIGHLAND		5	25	199	0.19	6.20	11.60	D*D	25KM NW OF FORT WILLIAM
20020114	001836.4	50.08	-2.99	329.1	20.4	0.5	1.9	ENGLISH CHANNEL		19	78	121	0.22	0.80	1.70	B*D	
20020115	201530.0							SONIC-NORTH DEVON	2+							*	SONIC-FELT N DEVON
20020123	010527.3	53.22	-1.06	462.5	370.2	2.1	1.3	WORKSOP,NOTTS		4	31	281	0.09			A*D	C/F,9KM SOUTH OF WORKSOP
20020128	003009.2	51.70	-3.26	313.1	201.1	5.1	1.7	BARGOED,MID GLAMORGAN		5	32	256	0.24	4.20	7.70	C*D	
20020128	003014.8	51.70	-3.26	313.1	200.9	6.3	2.5	BARGOED,MID GLAMORGAN		7	32	173	0.09	0.80	3.50	B*C	
20020130	170609.8	53.31	1.23	614.9	383.9	21.9	3.5	SOUTHERN NORTH SEA		12	55	212	0.25	1.80	2.50	B*D	
20020209	210246.3	57.02	-5.85	166.3	798.8	5.4	0.8	MALLAIG,HIGHLAND		6	12	205	0.16	7.50	7.40	D*D	
20020212	191316.2	51.70	-3.26	313.2	201.0	5.2	3.0	BARGOED,MID GLAMORGAN	4+	11	32	84	0.09	0.40	1.20	A*C	FELT BARGOED...
20020214	190038.2	59.79	2.54	654.4	1109.5	15.0	4.0	NORTHERN NORTH SEA								*	
20020217	154406.7	51.71	-3.26	312.9	201.6	2.4	2.0	BARGOED,MID GLAMORGAN		10	32	104	0.09	0.40	0.90	A*C	
20020223	214227.6	52.65	-4.27	246.5	308.8	14.5	1.3	CARDIGAN BAY		11	16	231	0.09	1.70	0.90	B*D	
20020224	231835.4	51.70	-3.27	312.1	200.9	3.2	1.7	BARGOED,MID GLAMORGAN		9	33	173	0.06	0.30	1.00	A*C	
20020225	034604.3	57.02	-5.83	167.6	798.7	5.3	0.4	MALLAIG,HIGHLAND		7	11	197	0.12	2.00	2.40	B*D	
20020225	061037.3	57.02	-5.81	168.7	798.6	3.6	0.8	MALLAIG,HIGHLAND		6	11	190	0.12	4.70	7.10	C*D	
20020303	081039.9	52.12	-2.71	351.4	247.4	13.5	0.8	HEREFORD,HER & WOR		5	15	170	0.04	5.90	1.80	D*D	
20020308	214637.2	55.30	-3.17	325.7	601.1	19.2		ESKDALEMUIR,D & G		4	3	215	0.02	0.00	0.00	A*D	
20020316	002124.7	57.01	-4.72	234.9	793.9	7.7	2.0	INVERGARRY,HIGHLAND		8	26	145	0.16	1.30		C*C	8KM SE OF INVERGARRY
20020316	050714.7	51.70	-3.27	312.5	201.2	2.2	1.4	BARGOED,MID GLAMORGAN		7	33	105	0.07	0.60	1.60	A*C	
20020317	004554.0	52.30	-2.82	343.8	267.3	21.4	0.6	LEOMINSTER,HER & WOR		6	24	203	0.10	1.70	2.90	B*D	7KM NW OF LEOMINSTER
20020324	111759.0	55.31	-3.07	332.0	602.4	18.0	0.0	ESKDALE,D & G		4	9	280	0.04	0.00	0.00	A*D	
20020329	165035.0	55.12	-3.60	298.0	581.6	11.9	1.0	DUMFRIES,D & G		5	31	301	0.06	4.40	18.60	C*D	
20020404	084546.8	51.66	-3.40	303.0	196.9	8.0	1.5	MOUNTAIN ASH,MID GLAM		6	41	116	0.12	1.30		C*C	
20020404	122924.9							SONIC-NORFOLK	3+							*	SONIC-FELT N NORFOLK
20020405	081051.4	60.86	-0.21	497.2	1221.1	8.0	1.5	NORTHERN NORTH SEA		5	59	337	0.28	9.20		D*D	
20020410	044718.6	58.06	-3.75	296.4	909.4	4.1	0.8	BRORA,HIGHLAND		10	30	121	0.20	1.00	1.60	B*C	7KM NW OF BRORA
20020417	191301.8	51.44	1.36	633.4	176.9	0.0	2.0	EXP-OFF MARGATE	4+							*	FELT MARGATE...
20020418	225418.4	57.11	-4.08	273.8	804.0	5.1	0.7	KINGUSSIE,HIGHLAND		11	40	77	0.07	0.30	2.10	B*C	
20020423	213026.7	53.50	2.50	698.2	409.4	10.0	2.7	SOUTHERN NORTH SEA								*	
20020426	032531.3	52.83	-4.38	239.4	328.8	11.9	2.1	PWLLHELI,GWYNEDD		12	16	145	0.07	0.40	0.60	A*C	5KM OFFSHORE
20020428	130937.8	57.33	-5.34	199.1	831.7	3.2	0.9	SHIEL BRIDGE,HIGHLAND		6	14	151	0.12	1.30	4.00	B*C	10KM NNE OF SHIEL BRIDGE
20020502	014803.1	57.02	-4.80	230.3	795.0	3.3	2.3	LOCH LOCHY,HIGHLAND	3+	11	24	104	0.14	0.80	2.00	A*C	FELT SPEAN BRIDGE
20020503	024630.5	52.31	-3.26	314.2	268.9	16.0	1.0	LLANDRINDOD WELLS,POWYS		6	16	218	0.06	0.70	0.90	A*D	12KM NE OF LLANDRINDOD
20020503	084908.2	57.33	-5.33	199.2	831.3	3.0	1.2	SHIEL BRIDGE,HIGHLAND		8	14	93	0.08	0.70	1.90	A*C	10KM NNE OF SHIEL BRIDGE
20020503	184458.9	57.33	-5.33	199.3	831.2	3.5	2.3	SHIEL BRIDGE,HIGHLAND	3+	9	14	81	0.06	0.40	0.80	A*C	FELT 10KM NNE OF SHIEL BRIDGE
20020503	184629.7	57.32	-5.33	199.5	830.8	2.7	2.0	SHIEL BRIDGE,HIGHLAND	3+	8	14	91	0.09	0.70	2.00	B*C	FELT 10KM NNE OF SHIEL BRIDGE
20020503	213509.7	57.33	-5.33	199.3	831.8	3.5	1.4	SHIEL BRIDGE,HIGHLAND	2+	7	15	122	0.09	1.00	2.40	B*C	FELT 10KM NNE OF SHIEL BRIDGE
20020515	072139.7	51.60	-2.87	339.6	189.5	24.0	1.2	NEWPORT,GWENT		6	6	284	0.04	1.10	0.90	B*D	
20020524	014941.0	61.74	3.10	669.3	1328.1	15.0	2.4	NORWEGIAN COAST		7	62	351	0.16			D*D	
20020525	002904.4	57.97	-5.22	209.6	902.7	7.0	1.5	ULLAPOOL,HIGHLAND		8	17	107	0.20	1.90	3.50	B*C	8KM NW OF ULLAPOOL
20020525	092352.1	53.19	-4.04	263.7	367.5	16.8	1.2	BETHESDA,GWYNEDD		12	10	86	0.09	0.50	0.60	A*A	
20020525	210401.0	57.40	-5.78	173.0	840.4	11.7	2.1	PLOCKTON,HIGHLAND		10	10	94	0.20	1.20	2.20	B*B	7KM NW OF PLOCKTON
20020527	204116.4	50.63	-1.78	415.4	80.9	0.0	1.7	EXP-OFF CHRISTCHURCH	4+	7	29	209	0.24	2.30	12.50	C*D	FELT CHRISTCHURCH...
20020530	062055.2	55.19	-3.33	315.6	588.9	14.4	0.2	BORELAND,D & G		4	13	295	0.05	0.00	0.00	A*D	
20020601	014302.6	52.97	-4.42	237.7	343.6	21.0	0.7	LLEYN PENINSULA,GWYNED		10	2	117	0.06	0.50	0.80	A*B	
20020606	061808.5	52.95	-4.38	239.8	342.5	7.2	0.6	PWLLHELI,GWYNEDD		11	4	99	0.03	0.20	0.30	A*B	6KM NORTH OF PWLLHELI
20020606	122544.7	53.37	-2.36	375.9	386.1	10.6	1.7	ALTRINCHAM,CHESHIRE		10	39	134	0.11	0.70	6.80	C*C	
20020609	050349.2	57.17	-5.66	178.7	815.0	3.0	1.7	KYLE OF LOCHALSH,HIGHLAND		9	19	98	0.14	0.80	1.80	A*C	12KM SSE OF KYLE OF LOCHALSH

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20020609	183459.8	54.19	-3.54	299.7	478.1	4.6	0.8	IRISH SEA		7	15	204	0.13	1.90	4.50	B*D	15KM W OF BARROW-IN-FURNESS
20020610	235244.4	57.38	-5.61	182.8	838.4	3.4	0.9	PLOCKTON,HIGHLAND		5	6	149	0.24	4.10	8.20	C*D	
20020620	172641.8	51.57	-3.08	325.1	186.0	14.3	2.9	CARDIFF,S GLAMORGAN	3+	13	21	83	0.12	0.60	1.30	A*B	FELT CARDIFF...
20020622	071410.2	53.38	-1.81	412.8	387.1	16.4	1.7	GLOSSOP,DERBYSHIRE		11	19	116	0.15	1.00	1.00	A*B	8KM SE OF GLOSSOP
20020625	010828.5	48.97	-2.15	388.7	-102.9	9.5	1.1	S OF JERSEY,CHANNEL IS		5	24	338	0.01	1.00	3.30	B*D	25KM SOUTH OF JERSEY
20020628	005318.8	57.49	-5.59	184.8	850.0	10.0	1.0	TORRIDON,HIGHLAND		3	17	254	0.11	0.00	0.00	A*D	6KM SW OF TORRIDON
20020701	020234.6	55.19	-3.16	325.9	589.3	5.9	0.7	LANGHOLM,D & G		8	3	125	0.09	0.60	1.00	A*B	5KM N OF LANGHOLM
20020701	122513.8	52.97	-4.39	239.4	343.8	21.4	0.2	LLEYN PENINSULA,GWYNEDD		8	3	105	0.10	0.60	0.60	A*B	
20020704	095433.9	53.13	-4.40	239.7	362.2	9.8	0.4	CAERNARVON BAY,GWYNEDD		9	15	112	0.08	0.50	1.90	A*B	
20020705	214644.5	50.49	-5.00	187.4	70.0	3.6	0.4	NEWQUAY,CORNWALL		12	17	308	0.38	4.50	19.20	C*D	8KM NNE OF NEWQUAY
20020708	055540.2	53.00	-1.07	462.1	345.2	14.3	1.7	LAMBLEY,NOTTS		7	14	144	0.06	0.40	0.70	A*C	
20020712	223952.9	53.64	-1.20	453.2	416.2	1.6	1.7	PONTEFRACT,W YORKS		9	45	85	0.27	1.60	3.70	B*C	C/F,7KM SE OF PONTEFRACT
20020714	215551.8	56.23	-5.00	214.3	707.8	7.5	1.7	INVERARAY S'CLYDE		9	41	167	0.06	1.00	3.90	B*C	5KM E OF INVERARAY
20020716	010158.3	55.19	-3.17	325.8	589.3	5.7	1.1	LANGHOLM,D & G		7	3	124	0.08	0.60	1.10	A*B	11KM NW OF LANGHOLM
20020720	021034.2	52.90	2.22	683.6	341.7	15.0	2.3	SOUTHERN NORTH SEA		9	52	321	0.35	9.20	5.00	D*D	
20020720	083200.2	53.89	3.56	765.0	458.4	16.6	1.9	IRISH SEA		16	40	174	0.16	1.50	2.60	B*C	
20020721	092100.0							SONIC-NORTH DEVON	2+								SONIC-FELT N DEVON
20020722	092413.0							SONIC-NORTH DEVON	2+								SONIC-FELT N DEVON
20020731	082232.7	51.97	-1.64	424.9	230.2	20.9	1.8	MORETON-IN-MARSH,GLOS		10	15	101	0.10	0.70	1.40	A*B	
20020801	031649.1	56.24	-3.75	291.6	707.0	5.1	1.7	BLACKFORD,TAYSIDE	3+	11	15	105	0.06	0.30	0.50	A*C	FELT BLACKFORD
20020801	231456.5	51.81	-3.01	330.6	213.1	15.3	1.6	ABERGAVENNY,GWENT		11	21	67	0.11	0.70	0.90	A*B	
20020803	014004.0	55.88	-5.35	190.6	669.8	13.0	1.1	TARBERT,STRATHCLYDE		9	61	151	0.13	0.80	1.20	A*D	
20020806	050007.6	56.09	-6.41	125.6	697.7	10.0	1.4	IS OF COLONSAY,S'CLYDE		11	98	230	0.23	2.40	2.30	B*D	10KM W OF COLONSAY
20020820	070503.5	55.04	-2.81	347.9	572.3	12.3	0.4	LONGTOWN,CUMBRIA		10	13	154	0.17	1.20	2.10	B*C	8KM NE OF LONGTOWN
20020822	032029.0	53.24	-1.11	459.4	371.6	3.7	1.4	WORKSOP,NOTTS		8	28	154	0.09	0.90	2.00	B*C	C/F,7KM S OF WORKSOP
20020823	213617.6	51.00	-4.65	213.9	126.0	30.2	1.6	OFF HARTLAND PT,DEVON		12	12	140	0.17	1.30	0.80	B*C	
20020825	044331.6	58.11	0.73	560.7	916.7	20.0	3.3	CENTRAL NORTH SEA								*	
20020828	100954.9	61.62	-0.20	495.5	1305.9	15.0	2.3	NORTH OF SHETLAND								*	
20020829	182723.7	53.00	-4.96	201.3	348.6	15.0	0.3	CAERNARVON BAY,GWYNEDD		8	29	264	0.10	1.50	1.20	B*D	
20020904	104805.7	56.60	-5.75	169.9	751.2	7.6	2.3	LOCHALINE,HIGHLAND		10	36	235	0.17	3.00	3.70	C*D	7KM NORTH OF LOCHALINE
20020906	123045.9	61.50	3.41	687.8	1303.1	5.6	3.1	NORTHERN NORTH SEA								*	
20020907	191723.0	53.11	-1.89	407.4	356.6	12.9	1.8	LEEK,STAFFS		9	11	189	0.12	1.10	1.10	B*D	9KM EAST OF LEEK
20020911	185813.9	56.08	-5.84	161.2	693.7	5.8	1.4	ISLE OF JURA,S'CLYDE		8	73	195	0.16	2.10	7.30	C*D	
20020913	054535.8	56.24	-3.74	292.2	706.6	5.4	1.3	BLACKFORD,TAYSIDE		9	14	104	0.07	1.10	2.70	B*C	
20020914	044042.9	59.04	1.65	609.2	1023.1	15.0	3.4	NORTHERN NORTH SEA		15	96	277	0.27	8.90	11.20	D*D	
20020915	081533.2	58.95	1.29	589.4	1011.9	15.4	1.9	NORTHERN NORTH SEA		5	86	346	0.25			D*D	
20020918	052010.3	51.71	-3.59	290.3	202.9	1.5	2.1	GLYN-NEATH,W GLAMORGAN		11	39	96	0.19	0.80	1.50	B*C	C/F
20020922	235314.8	52.53	-2.16	389.2	292.8	14.0	4.7	DUDLEY,W MIDLANDS	5	55	58	34	0.32	0.60	1.10	C*D	FELT ENGLAND & WALES
20020923	033215.9	52.52	-2.14	390.8	291.7	9.3	2.7	DUDLEY,W MIDLANDS	3+	17	58	75	0.20	0.80	2.10	B*D	FELT DUDLEY...
20020924	092919.0	52.52	-2.14	390.6	291.5	7.9	1.2	DUDLEY,W MIDLANDS								*	
20020926	023113.6	49.05	-2.00	399.8	-94.5	8.4	1.0	JERSEY,CHANNEL ISLANDS		6	17	330	0.02	2.40	11.30	C*D	20KM SSE OF JERSEY
20020929	193956.9	59.33	1.69	609.6	1055.4	15.0	1.7	NORTHERN NORTH SEA		6	81	344	0.36			D*D	
20020930	064451.2	48.08	-3.23	308.3	-201.2	21.7	4.5	NORTH-WEST FRANCE	4+	22	46	288	0.15	3.90		C*D	FELT JERSEY & GUERNSEY
20021001	233027.6	59.63	2.10	631.1	1089.6	19.5	2.0	NORTHERN NORTH SEA		3	92	356	0.23	0.00	0.00	B*D	
20021002	004759.3	56.24	-3.75	291.4	707.1	3.0	0.4	BLACKFORD,TAYSIDE		8	15	105	0.06	0.40	1.30	A*C	
20021007	223147.8	50.53	-3.74	276.7	71.2	4.5	2.1	ASHBURTON,DEVON		10	17	237	0.12	1.30	2.00	B*D	
20021008	020833.9	53.47	-1.18	454.7	397.6	0.2	1.2	DONCASTER,S YORKSHIRE		6	34	174	0.03	0.20	0.30	A*C	C/F
20021009	210307.7	55.12	-3.61	297.0	581.4	7.2	1.3	DUMFRIES,D & G	2+	13	7	188	0.20	2.20	2.20	B*D	FELT TINWALD
20021010	215932.0	53.47	-1.16	455.7	397.0	1.7	1.0	DONCASTER,S YORKSHIRE		7	34	175	0.22	1.50	2.20	B*C	C/F
20021012	004226.1	59.93	0.02	512.7	1118.2	12.3	3.5	NORTHERN NORTH SEA		9	69	289	0.20	2.60	8.60	C*D	
20021013	072750.9	53.51	-1.19	454.0	401.4	11.5	1.5	DONCASTER,S YORKSHIRE		8	36	176	0.06	0.60	12.40	C*C	
20021013	100337.4	53.44	-1.20	453.0	394.4	1.0	1.5	MALTBY,S YORKSHIRE		8	30	168	0.37	2.40	3.80	C*C	C/F
20021014	015952.1	53.45	-1.20	453.5	395.5	1.0	1.3	MALTBY,S YORKSHIRE		6	31	170	0.30	2.70	4.60	C*C	C/F
20021014	131221.5	48.40	-6.99	30.6	-155.1	15.0	3.1	ENGLISH CHANNEL		7	21	337	0.24			D*D	150KM SSW OF SCILLY ISLES
20021016	071109.4	52.31	-2.74	349.4	267.9	17.4	1.0	LUDLOW,SHROPSHIRE		6	28	220	0.05	0.80	2.10	B*D	5KM SOUTH OF LUDLOW

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20021019	012126.6	53.51	-2.20	386.5	401.1	5.0	1.4	GREATER MANCHESTER		11	24	190	0.33	1.60	1.80	C*D	
20021019	014459.5	53.50	-2.19	387.7	400.9	5.0	1.4	GREATER MANCHESTER		5	22	251	0.18	4.20	2.20	C*D	
20021021	003359.8	52.06	-3.39	304.9	240.8	12.3	1.7	BRECON,POWYS		11	9	98	0.06	0.50	0.40	A*B	10KM NNW OF BRECON
20021021	072920.4	53.49	-2.20	386.9	399.3	5.0	1.8	GREATER MANCHESTER		7	24	147	0.37	3.20	4.30	C*C	
20021021	074515.8	53.48	-2.20	387.0	397.6	5.0	3.2	GREATER MANCHESTER	4+	22	24	53	0.37	1.10	3.30	C*C	FELT GREATER MANCHESTER
20021021	080458.7	53.50	-2.21	386.1	400.1	5.0	2.3	GREATER MANCHESTER	3+	9	24	140	0.34	1.70	2.40	C*C	FELT GREATER MANCHESTER
20021021	111506.6	53.49	-2.15	389.7	399.3	5.0	1.8	GREATER MANCHESTER		6	21	88	0.38	2.90	3.90	C*C	
20021021	114234.7	53.48	-2.20	387.0	398.0	2.8	3.9	GREATER MANCHESTER	5+	16	24	90	0.13	0.60	1.30	A*C	FELT GREATER MANCHESTER
20021021	114256.9	53.48	-2.22	385.5	397.9	5.0	3.5	GREATER MANCHESTER	4+	7	25	147	0.31	2.30	40.50	C*C	FELT GREATER MANCHESTER
20021021	115646.0	53.44	-2.14	390.8	393.8	5.0	2.0	GREATER MANCHESTER		6	22	140	0.20	1.40	1.40	B*C	
20021021	162221.8	53.48	-2.19	387.2	398.2	5.0	2.0	GREATER MANCHESTER		11	24	116	0.38	1.90	3.30	C*C	
20021021	170242.1	53.50	-2.21	386.0	400.6	5.0	2.2	GREATER MANCHESTER		9	24	118	0.37	2.20	2.70	C*C	
20021021	223438.3	53.47	-2.18	387.9	397.3	5.0	2.1	GREATER MANCHESTER		9	23	115	0.29	2.00	2.30	B*C	
20021022	002422.0	53.47	-2.17	388.7	397.2	5.0	1.6	GREATER MANCHESTER		8	23	84	0.27	1.90	2.30	B*C	
20021022	004149.9	53.50	-2.12	392.2	400.6	5.0	1.6	GREATER MANCHESTER		8	18	210	0.33	3.80	2.70	C*D	
20021022	033937.6	53.46	-2.22	385.5	396.3	5.0	2.9	GREATER MANCHESTER	4+	20	51	182	0.30	2.20	3.90	C*D	FELT GREATER MANCHESTER
20021022	035402.4	53.46	-2.15	389.8	396.3	5.0	2.0	GREATER MANCHESTER	2+	7	48	321	0.51	21.30	47.00	D*D	FELT GREATER MANCHESTER
20021022	040245.9	53.48	-2.20	386.8	398.7	5.0	1.8	GREATER MANCHESTER		6	51	138	0.18	5.40	32.90	D*D	
20021022	040851.9	53.49	-2.12	392.0	399.5	5.0	1.5	GREATER MANCHESTER	2+	4	48	323	0.12	0.00	0.00	A*D	FELT GREATER MANCHESTER
20021022	042719.0	53.48	-2.13	391.2	398.3	5.0	1.3	GREATER MANCHESTER		5	20	163	0.12	2.40	2.10	B*D	
20021022	062057.5	53.48	-2.20	386.6	398.6	5.0	2.0	GREATER MANCHESTER		7	24	168	0.20	1.50	2.30	B*C	
20021022	062724.7	53.49	-2.08	394.8	399.4	5.0	1.7	GREATER MANCHESTER		9	16	207	0.25	2.90	2.60	C*D	
20021022	094702.3	53.48	-2.15	390.3	398.2	5.0	1.7	GREATER MANCHESTER		7	21	88	0.26	1.00	1.60	B*C	
20021022	122808.4	53.47	-2.15	390.3	397.4	4.2	3.1	GREATER MANCHESTER	4+	11	21	159	0.08	0.70	1.10	A*C	FELT GREATER MANCHESTER
20021022	125159.6	53.47	-2.10	393.7	396.9	5.0	1.4	GREATER MANCHESTER		4	18	211	0.13	0.00	0.00	A*D	
20021022	133827.9	53.49	-2.19	387.5	399.4	5.0	1.9	GREATER MANCHESTER		11	23	138	0.21	0.70	1.10	B*C	
20021022	165341.0	53.49	-2.15	390.4	399.1	5.0	2.4	GREATER MANCHESTER	2+	17	20	108	0.27	0.80	1.60	B*C	FELT GREATER MANCHESTER
20021023	015328.8	53.48	-2.16	389.6	397.9	5.0	2.8	GREATER MANCHESTER	3+	9	21	215	0.13	1.70	1.30	B*D	FELT GREATER MANCHESTER
20021023	035747.6	53.49	-2.05	396.6	399.6	5.0	1.6	GREATER MANCHESTER		7	14	223	0.18	2.00	1.00	B*D	
20021023	044621.1	53.51	-2.21	386.0	402.0	5.0	1.6	GREATER MANCHESTER		9	24	192	0.58	3.50	2.20	D*D	
20021023	054434.8	53.48	-2.12	391.7	397.6	3.6	1.9	GREATER MANCHESTER	2+	7	20	157	0.15	2.20	2.30	B*C	FELT MANCHESTER
20021023	062752.6	53.50	-2.14	390.9	400.2	5.0	2.0	GREATER MANCHESTER		9	19	157	0.16	0.60	0.90	B*C	
20021023	182504.3	55.16	-3.07	331.7	585.9	11.3	0.8	LANGHOLM,D & G		12	4	136	0.05	0.20	0.50	A*C	5KM W OF LANGHOLM
20021023	191811.6	53.49	-2.16	389.2	399.1	5.0	2.0	GREATER MANCHESTER		9	21	186	0.23	2.20	2.20	B*D	
20021023	201631.7	53.48	-2.16	389.2	397.8	5.0	2.2	GREATER MANCHESTER	3+	14	22	60	0.26	1.00	1.70	B*C	FELT MANCHESTER
20021023	202056.7	53.50	-2.21	385.8	400.3	5.0	1.8	GREATER MANCHESTER		7	53	141	0.25	2.00	7.30	C*D	
20021023	203128.8	53.48	-2.17	388.6	398.6	5.0	2.5	GREATER MANCHESTER	3+	19	22	60	0.23	0.70	1.50	B*C	FELT MANCHESTER
20021023	232725.4	53.48	-2.17	388.4	398.8	5.0	1.9	GREATER MANCHESTER		11	22	137	0.40	1.70	2.80	C*C	
20021024	043659.1	53.47	-2.16	389.3	397.1	5.0	2.3	GREATER MANCHESTER		15	22	59	0.29	1.10	2.00	B*C	
20021024	043836.9	53.48	-2.15	390.2	398.0	5.0	2.0	GREATER MANCHESTER	2+	14	21	67	0.27	1.20	1.90	B*C	FELT MANCHESTER
20021024	055354.5	53.48	-2.20	386.8	398.4	5.0	2.2	GREATER MANCHESTER		15	24	91	0.48	1.50	3.20	C*C	
20021024	063826.5	53.47	-2.15	390.0	397.4	5.0	1.7	GREATER MANCHESTER		11	21	66	0.38	1.80	2.80	C*C	
20021024	075254.4	53.48	-2.17	388.5	398.2	5.0	2.6	GREATER MANCHESTER	3+	14	22	110	0.27	1.10	1.90	B*C	FELT MANCHESTER
20021024	082144.7	53.49	-2.18	388.1	399.3	5.0	2.0	GREATER MANCHESTER		14	22	60	0.30	1.10	1.90	B*C	
20021024	082454.7	53.48	-2.18	388.1	398.7	3.7	3.1	GREATER MANCHESTER	4+	20	23	110	0.26	0.90	2.00	B*C	FELT GREATER MANCHESTER
20021024	084236.7	53.50	-2.15	389.8	400.3	5.0	1.9	GREATER MANCHESTER		8	20	165	0.44	4.10	3.70	C*C	
20021024	091805.1	53.50	-2.14	390.7	400.8	5.0	1.8	GREATER MANCHESTER		9	20	108	0.29	1.30	2.00	B*C	
20021024	093605.5	53.49	-2.14	391.0	399.7	5.0	1.7	GREATER MANCHESTER		9	20	163	0.38	3.30	3.70	C*C	
20021024	094654.6	53.49	-2.13	391.1	399.6	5.0	1.9	GREATER MANCHESTER		10	19	77	0.38	1.30	1.80	C*C	
20021024	102655.8	53.49	-2.15	389.9	399.3	5.0	1.9	GREATER MANCHESTER		10	21	88	0.28	1.20	1.90	B*C	
20021024	104513.9	53.48	-2.17	388.6	398.2	5.0	1.8	GREATER MANCHESTER		10	22	115	0.43	2.10	4.00	C*C	
20021024	122028.4	53.49	-2.14	390.7	399.9	5.0	1.6	GREATER MANCHESTER		12	20	88	0.32	1.30	2.10	C*C	
20021024	142926.1	53.46	-2.18	387.9	395.5	5.0	1.7	GREATER MANCHESTER	2+	10	24	143	0.23	2.40	3.80	B*C	FELT MANCHESTER
20021024	145555.7	53.50	-2.20	386.7	400.1	5.0	1.9	GREATER MANCHESTER		14	24	61	0.49	1.60	2.90	C*C	
20021024	145640.7	53.50	-2.19	387.2	400.0	5.0	2.1	GREATER MANCHESTER		15	23	61	0.45	1.50	2.50	C*C	

TABLE 1: CATALOGUE OF EVENTS LISTED CHRONOLOGICALLY: 2002

20021024	150009.9	53.49	-2.21	386.3	399.8	5.0	1.8	GREATER MANCHESTER			11	24	147	0.45	2.00	3.60	C*C	
20021024	153349.4	53.51	-2.23	384.8	401.8	5.0	1.9	GREATER MANCHESTER			8	25	134	0.50	1.30	1.40	C*C	
20021024	154644.2	53.48	-2.20	386.9	398.4	5.0	2.8	GREATER MANCHESTER		3+	17	24	91	0.38	1.20	2.60	C*C	FELT MANCHESTER
20021024	163438.8	53.49	-2.19	387.5	399.6	5.0	2.2	GREATER MANCHESTER			15	23	61	0.47	1.80	3.20	C*C	
20021024	183712.6	53.49	-2.21	385.9	399.0	5.0	2.6	GREATER MANCHESTER		3+	15	25	61	0.39	1.50	3.10	C*C	FELT MANCHESTER
20021024	190045.8	53.49	-2.20	386.6	399.2	5.0	2.2	GREATER MANCHESTER		3+	8	24	121	0.42	3.20	5.70	C*C	FELT MANCHESTER
20021024	191318.6	53.48	-2.14	390.8	398.4	5.0	1.9	GREATER MANCHESTER			8	20	163	0.43	3.00	3.10	C*C	
20021024	230751.6	53.50	-2.21	386.1	399.9	5.0	2.2	GREATER MANCHESTER			13	24	118	0.39	1.80	3.00	C*C	
20021025	000251.0	53.51	-2.17	388.5	401.0	5.0	1.6	GREATER MANCHESTER			11	22	117	0.43	1.50	2.00	C*C	
20021025	001927.1	53.49	-2.23	384.6	399.7	3.0	2.6	GREATER MANCHESTER		3+	19	3	110	0.23	0.90	1.00	B*B	FELT MANCHESTER
20021025	002039.5	53.49	-2.21	386.3	399.5	2.0	2.6	GREATER MANCHESTER		3+	20	3	109	0.15	0.60	0.40	B*B	FELT MANCHESTER
20021025	002544.5	53.49	-2.22	385.3	399.8	2.2	2.3	GREATER MANCHESTER		2+	15	3	118	0.31	1.50	0.80	C*B	FELT MANCHESTER
20021025	003829.9	53.50	-2.21	386.1	400.7	1.6	1.6	GREATER MANCHESTER			8	4	171	0.10	0.90	0.70	A*C	
20021025	042614.9	53.52	-2.26	382.6	402.2	1.3	1.6	GREATER MANCHESTER			12	6	176	0.33	1.80	1.60	C*C	
20021025	091548.9	53.49	-2.20	386.4	399.2	3.0	1.7	GREATER MANCHESTER			7	3	139	0.03	0.80	1.00	A*C	
20021025	172448.0	53.48	-2.19	387.2	398.6	3.3	2.6	GREATER MANCHESTER		3+	11	3	93	0.09	0.40	0.80	A*B	FELT MANCHESTER
20021026	054359.9	53.48	-2.19	387.5	398.0	3.9	1.7	GREATER MANCHESTER			7	3	153	0.05	0.40	0.60	A*C	
20021026	211426.1	53.49	-2.19	387.3	399.1	1.8	1.9	GREATER MANCHESTER			10	3	94	0.09	0.40	0.40	A*B	
20021026	223534.9	53.49	-2.21	386.4	399.4	2.2	1.6	GREATER MANCHESTER			10	3	110	0.15	0.60	0.50	B*B	
20021027	072650.0	53.49	-2.21	386.4	399.7	2.0	2.0	GREATER MANCHESTER			13	3	109	0.08	0.30	0.20	A*B	
20021028	030814.1	53.49	-2.19	387.4	399.7	5.0	2.0	GREATER MANCHESTER			12	23	113	0.29	1.20	1.80	B*C	
20021028	032751.1	53.49	-2.11	392.7	399.7	5.0	1.7	GREATER MANCHESTER			9	18	210	0.13	1.80	1.40	B*D	
20021028	192559.1	53.48	-2.20	386.7	398.6	5.0	2.3	GREATER MANCHESTER		3+	13	24	117	0.27	1.30	2.20	B*C	FELT MANCHESTER
20021028	203004.4	53.48	-2.19	387.4	397.9	4.7	1.8	GREATER MANCHESTER			10	3	80	0.08	0.40	0.60	A*A	
20021028	221037.1	53.49	-2.20	386.9	398.9	3.5	1.5	GREATER MANCHESTER			8	3	105	0.06	0.70	1.40	A*B	
20021028	233915.6	53.48	-2.19	387.3	397.9	4.4	1.6	GREATER MANCHESTER			10	3	82	0.06	0.30	0.50	A*A	
20021029	000753.7	53.49	-2.20	386.9	398.8	5.0	2.2	GREATER MANCHESTER		3+	13	24	117	0.40	1.80	2.90	C*C	FELT MANCHESTER
20021029	022322.9	53.49	-2.20	386.9	399.4	2.3	1.6	GREATER MANCHESTER			11	3	103	0.04	0.20	0.10	A*B	
20021029	044252.0	53.48	-2.20	386.9	398.3	5.0	2.6	GREATER MANCHESTER		3+	14	24	116	0.28	1.30	2.20	B*C	FELT MANCHESTER
20021029	044359.1	53.51	-2.18	388.2	401.1	5.0	1.8	GREATER MANCHESTER			5	22	189	0.22	2.20	1.40	B*D	
20021029	045730.2	53.49	-2.20	386.7	399.4	1.7	1.6	GREATER MANCHESTER			11	3	106	0.09	0.40	0.30	A*B	
20021029	045811.4	53.48	-2.21	385.9	398.5	4.3	1.7	GREATER MANCHESTER			7	2	141	0.03	0.50	0.60	A*C	
20021029	045957.2	53.49	-2.21	386.0	399.7	5.0	1.6	GREATER MANCHESTER			9	24	140	0.31	1.80	2.80	C*C	
20021029	052326.2	53.49	-2.20	386.5	399.4	2.1	1.7	GREATER MANCHESTER			11	3	109	0.06	0.30	0.20	A*B	
20021029	055441.7	53.49	-2.20	386.8	399.4	2.2	1.4	GREATER MANCHESTER			8	3	156	0.07	0.40	0.30	A*C	
20021029	173215.9	53.49	-2.21	386.1	398.9	5.0	2.4	GREATER MANCHESTER		3+	14	24	117	0.33	1.30	2.70	C*C	FELT MANCHESTER
20021029	193243.8	55.05	-3.36	313.0	573.7	16.6	1.8	ANNAN,D & G			15	10	89	0.11	0.50	0.70	A*A	9KM NE OF ANNAN
20021029	234746.0	55.21	-1.89	407.0	590.2	10.8	1.1	MORPETH,NORTHUMBERLAND			14	44	183	0.34	2.10	6.90	C*D	14KM WNW OF MORPETH
20021030	074957.2	55.78	-6.18	137.9	662.1	5.0	1.4	ISLAY,STRATHCLYDE			10	61	192	0.27	2.00	4.30	B*D	
20021031	000715.0	53.47	-2.13	391.6	396.9	4.3	1.9	GREATER MANCHESTER			8	20	162	0.25	2.50	2.90	B*C	
20021031	015057.4	53.48	-2.21	386.0	398.6	5.7	2.3	GREATER MANCHESTER		2+	13	25	147	0.36	1.90	2.60	C*C	FELT MANCHESTER
20021101	042252.7	53.49	-2.22	385.6	399.0	5.0	1.5	GREATER MANCHESTER			13	2	120	0.32	1.30	1.20	C*B	
20021102	043738.8	52.50	-2.10	392.8	289.2	12.1	0.9	DUDLEY,W MIDLANDS			10	60	146	0.18	1.10	14.50	C*D	
20021104	014415.5	53.50	-2.17	389.0	400.2	5.0	1.1	GREATER MANCHESTER			7	21	116	0.49	2.40	3.30	C*C	
20021104	072912.8	53.48	-2.17	388.8	398.3	5.0	2.3	GREATER MANCHESTER		2+	16	22	60	0.37	1.10	2.00	C*C	FELT MANCHESTER
20021104	073232.0	53.47	-2.16	389.5	397.6	5.0	2.7	GREATER MANCHESTER		3+	16	22	59	0.27	1.00	1.90	B*C	FELT MANCHESTER
20021105	203123.5	53.48	-2.16	389.2	397.9	5.0	1.9	GREATER MANCHESTER			13	22	115	0.39	1.80	2.60	C*C	
20021106	023438.9	53.50	-2.08	394.6	400.2	5.0	1.7	GREATER MANCHESTER			9	16	160	0.19	1.40	1.60	B*C	
20021106	024552.0	53.49	-2.17	388.4	399.9	5.0	1.6	GREATER MANCHESTER			9	22	167	0.28	1.50	1.60	B*C	
20021106	033222.7	53.49	-2.10	393.3	399.3	5.0	1.8	GREATER MANCHESTER			10	17	161	0.25	1.70	2.00	B*C	
20021106	043743.8	53.48	-2.11	392.9	398.0	5.0	1.7	GREATER MANCHESTER			8	18	141	0.09	0.50	0.50	A*C	
20021107	132900.0							SONIC-PETERBOROUGH		2+						*		FELT PETERBOROUGH
20021109	002107.3	53.49	-2.18	388.2	398.9	5.0	1.7	GREATER MANCHESTER			13	22	116	0.39	1.50	2.40	C*C	
20021109	002743.7	53.48	-2.14	390.9	398.7	5.0	1.9	GREATER MANCHESTER			13	20	76	0.19	0.70	1.20	B*C	
20021109	011120.1	53.47	-2.17	388.9	397.5	5.0	2.1	GREATER MANCHESTER			16	22	60	0.30	1.10	2.00	B*C	

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20021109	015433.2	53.48	-2.16	389.2	398.2	5.0	2.2	GREATER MANCHESTER	2+	18	22	60	0.25	0.90	1.60	B*C	FELT MANCHESTER
20021109	233642.7	53.48	-2.16	389.5	398.3	5.0	2.0	GREATER MANCHESTER		15	21	60	0.33	1.20	1.80	C*C	
20021110	041222.6	53.49	-2.22	385.3	399.4	5.0	2.3	GREATER MANCHESTER	3+	14	25	118	0.29	1.30	2.10	B*C	FELT MANCHESTER
20021110	114354.7	53.48	-2.17	388.6	398.4	5.0	2.0	GREATER MANCHESTER		10	22	137	0.15	0.50	0.90	A*C	
20021110	183122.5	49.99	-5.04	182.1	14.9	23.4	1.2	OFF LIZARD PT,CORNWALL		10	11	322	0.06	1.90	1.10	B*D	12KM EAST OF LIZARD PT
20021110	184709.5	53.49	-2.22	385.3	399.4	5.0	2.0	GREATER MANCHESTER		13	25	118	0.35	1.50	2.50	C*C	
20021111	222112.7	53.48	-2.16	389.3	398.6	5.0	1.8	GREATER MANCHESTER		14	21	63	0.29	1.20	1.80	B*C	
20021112	085923.0	56.25	-3.75	291.5	707.9	4.0	1.0	BLACKFORD,TAYSIDE		10	15	107	0.09	0.50	1.30	A*C	
20021113	001958.5	53.49	-2.20	386.7	399.1	5.0	1.6	GREATER MANCHESTER		9	24	169	0.21	1.10	1.30	B*C	
20021113	182248.3	61.25	2.83	658.7	1273.0	10.8	2.7	NORTHERN NORTH SEA		18	6	170	0.27	2.40	2.60	B*D	
20021116	045746.7	53.49	-2.17	389.0	399.3	5.0	2.1	GREATER MANCHESTER	2+	16	22	60	0.34	1.10	1.90	C*C	FELT MANCHESTER
20021116	045901.9	53.48	-2.18	388.1	398.6	5.0	2.5	GREATER MANCHESTER	3+	21	23	60	0.29	0.80	1.60	B*C	FELT MANCHESTER
20021116	073436.9	53.50	-2.21	386.4	400.5	5.0	2.1	GREATER MANCHESTER		12	24	118	0.37	1.60	2.20	C*C	
20021119	010031.0	53.49	-2.19	387.5	399.4	5.0	2.1	GREATER MANCHESTER	2+	17	23	61	0.33	1.10	2.00	C*C	FELT MANCHESTER
20021119	023145.3	53.49	-2.21	386.2	398.8	5.0	1.7	GREATER MANCHESTER		10	24	169	0.23	0.90	1.10	B*C	
20021119	211556.4	49.19	-2.08	394.2	-78.5	13.1	2.5	JERSEY,CHANNEL ISLANDS	3+	7	1	182	0.11	5.00	2.00	C*D	FELT JERSEY
20021122	014022.0	53.03	2.74	717.6	358.5	5.0	3.1	SOUTHERN NORTH SEA		8	90	331	0.41	8.10	5.70	D*D	
20021130	130514.9	53.49	-2.19	387.2	399.7	5.0	1.8	GREATER MANCHESTER		15	23	61	0.34	1.10	2.00	C*C	
20021201	093705.0	53.26	-0.88	474.7	373.8	1.0	2.2	WORKSOP,NOTTS		7	43	239	0.40	4.20	1.70	C*D	C/F,15KM SE OF WORKSOP
20021202	215513.3	51.79	-2.38	374.0	210.5	19.1	1.7	GLOUCESTER,GLOS		5	30	263	0.01	0.20	0.80	A*D	10KM SW OF GLOUCESTER
20021217	114954.2	53.15	-1.14	457.6	361.2	0.0	1.2	MANSFIELD,NOTTS		6	29	183	0.20	1.90	2.20	B*D	C/F
20021217	205259.7	55.71	-5.88	156.2	653.6	12.9	1.9	SOUND OF JURA		9	45	169	0.10	1.00	1.70	A*C	
20021228	143603.2	51.71	-2.86	340.5	201.4	25.9	2.4	USK,GWENT		13	9	55	0.13	0.70	1.20	A*A	
20021230	015923.6	54.36	-3.08	329.5	497.1	11.6	2.0	CONISTON,CUMBRIA		32	8	52	0.20	0.50	0.60	B*A	
20021230	021433.0	54.37	-3.07	330.2	497.2	11.5	1.3	CONISTON,CUMBRIA		8	9	228	0.05	0.60	0.80	A*D	

TABLE 2

CATALOGUE OF EARTHQUAKES LISTED IN ORDER OF DECREASING LATITUDE: 2002

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, neg ative longitude indicates west.
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.
DM	:	Epicentral distance in kilometres to the closest station.
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.
SQD	:	S is quality factor ascribed to RMS, D is quality ascribed to number and distribution of stations.

Locality abbreviations

Sonic	:	Sonic boom	N Yorkshire	:	North Yorkshire
Expl	:	Explosion	Notts	:	Nottinghamshire
D & G	:	Dumfries and Galloway	Lincs	:	Lincolnshire
Gtr	:	Greater	N'umberlnd	:	Northumberland
Her & Worcs	:	Hereford and Worcester	Staffs	:	Staffordshire
S'Clyde	:	Strathclyde	Leics	:	Leicestershire
S Yorkshire	:	South Yorkshire	W Mids	:	West Midlands
New-U-Lyme	:	Newcastle-Under-Lyme	Salop	:	Shropshire
Penin	:	Peninsula			

Comments abbreviations

Sonic	:	Sonic boom
Expl	:	Explosion
C/F	:	Coalfield type event
...	:	and felt elsewhere

TABLE 2: CATALOGUE OF EARTHQUAKES LISTED IN DECREASING LATITUDE: 2002

YearMoDy	HrMnSecs	Lat	Lon	kmE	kmN	Dep	Mag	Locality	Int	No	DM	Gap	RMS	ERH	ERZ	SQD	Comments
20020524	014941.0	61.74	3.10	669.3	1328.1	15.0	2.4	NORWEGIAN COAST		7	62	351	0.16			D*D	
20020828	100954.9	61.62	-0.20	495.5	1305.9	15.0	2.3	NORTH OF SHETLAND								*	
20020906	123045.9	61.50	3.41	687.8	1303.1	5.6	3.1	NORTHERN NORTH SEA								*	
20021113	182248.3	61.25	2.83	658.7	1273.0	10.8	2.7	NORTHERN NORTH SEA		18	6	170	0.27	2.40	2.60	B*D	
20020405	081051.4	60.86	-0.21	497.2	1221.1	8.0	1.5	NORTHERN NORTH SEA		5	59	337	0.28	9.20		D*D	
20021012	004226.1	59.93	0.02	512.7	1118.2	12.3	3.5	NORTHERN NORTH SEA		9	69	289	0.20	2.60	8.60	C*D	
20020214	190038.2	59.79	2.54	654.4	1109.5	15.0	4.0	NORTHERN NORTH SEA								*	
20021001	233027.6	59.63	2.10	631.1	1089.6	19.5	2.0	NORTHERN NORTH SEA		3	92	356	0.23	0.00	0.00	B*D	
20020929	193956.9	59.33	1.69	609.6	1055.4	15.0	1.7	NORTHERN NORTH SEA		6	81	344	0.36			D*D	
20020914	044042.9	59.04	1.65	609.2	1023.1	15.0	3.4	NORTHERN NORTH SEA		15	96	277	0.27	8.90	11.20	D*D	
20020915	081533.2	58.95	1.29	589.4	1011.9	15.4	1.9	NORTHERN NORTH SEA		5	86	346	0.25			D*D	
20020825	044331.6	58.11	0.73	560.7	916.7	20.0	3.3	CENTRAL NORTH SEA								*	
20020410	044718.6	58.06	-3.75	296.4	909.4	4.1	0.8	BRORA,HIGHLAND		10	30	121	0.20	1.00	1.60	B*C	7KM NW OF BRORA
20020525	002904.4	57.97	-5.22	209.6	902.7	7.0	1.5	ULLAPOOL,HIGHLAND		8	17	107	0.20	1.90	3.50	B*C	8KM NW OF ULLAPOOL
20020628	005318.8	57.49	-5.59	184.8	850.0	10.0	1.0	TORRIDON,HIGHLAND		3	17	254	0.11	0.00	0.00	A*D	6KM SW OF TORRIDON
20020525	210401.0	57.40	-5.78	173.0	840.4	11.7	2.1	PLOCKTON,HIGHLAND		10	10	94	0.20	1.20	2.20	B*B	7KM NW OF PLOCKTON
20020610	235244.4	57.38	-5.61	182.8	838.4	3.4	0.9	PLOCKTON,HIGHLAND		5	6	149	0.24	4.10	8.20	C*D	
20020503	213509.7	57.33	-5.33	199.3	831.8	3.5	1.4	SHIEL BRIDGE,HIGHLAND	2+	7	15	122	0.09	1.00	2.40	B*C	FELT 10KM NNE OF SHIEL BRIDGE
20020428	130937.8	57.33	-5.34	199.1	831.7	3.2	0.9	SHIEL BRIDGE,HIGHLAND		6	14	151	0.12	1.30	4.00	B*C	10KM NNE OF SHIEL BRIDGE
20020503	084908.2	57.33	-5.33	199.2	831.3	3.0	1.2	SHIEL BRIDGE,HIGHLAND		8	14	93	0.08	0.70	1.90	A*C	10KM NNE OF SHIEL BRIDGE
20020503	184458.9	57.33	-5.33	199.3	831.2	3.5	2.3	SHIEL BRIDGE,HIGHLAND	3+	9	14	81	0.06	0.40	0.80	A*C	FELT 10KM NNE OF SHIEL BRIDGE
20020503	184629.7	57.32	-5.33	199.5	830.8	2.7	2.0	SHIEL BRIDGE,HIGHLAND	3+	8	14	91	0.09	0.70	2.00	B*C	FELT 10KM NNE OF SHIEL BRIDGE
20020609	050349.2	57.17	-5.66	178.7	815.0	3.0	1.7	KYLE OF LOCHALSH,HIGHLAND		9	19	98	0.14	0.80	1.80	A*C	12KM SSE OF KYLE OF LOCHALSH
20020418	225418.4	57.11	-4.08	273.8	804.0	5.1	0.7	KINGUSSIE,HIGHLAND		11	40	77	0.07	0.30	2.10	B*C	
20020109	095225.8	57.03	-5.76	171.8	799.7	7.5	0.4	MALLAIG,HIGHLAND		5	29	255	0.06	3.40	5.40	C*D	
20020109	105223.5	57.03	-5.78	170.5	799.2	8.6	1.9	MALLAIG,HIGHLAND		7	30	197	0.08	0.50	8.30	C*D	5KM NORTHEAST OF MALLAIG
20020225	034604.3	57.02	-5.83	167.6	798.7	5.3	0.4	MALLAIG,HIGHLAND		7	11	197	0.12	2.00	2.40	B*D	
20020209	210246.3	57.02	-5.85	166.3	798.8	5.4	0.8	MALLAIG,HIGHLAND		6	12	205	0.16	7.50	7.40	D*D	
20020225	061037.3	57.02	-5.81	168.7	798.6	3.6	0.8	MALLAIG,HIGHLAND		6	11	190	0.12	4.70	7.10	C*D	
20020502	014803.1	57.02	-4.80	230.3	795.0	3.3	2.3	LOCH LOCHY,HIGHLAND	3+	11	24	104	0.14	0.80	2.00	A*C	FELT SPEAN BRIDGE
20020316	002124.7	57.01	-4.72	234.9	793.9	7.7	2.0	INVERGARRY,HIGHLAND		8	26	145	0.16	1.30		C*C	8KM SE OF INVERGARRY
20020110	221437.0	57.00	-5.31	198.7	794.4	9.8	0.6	LOCH QUOICH,HIGHLAND		5	25	199	0.19	6.20	11.60	D*D	25KM NW OF FORT WILLIAM
20020904	104805.7	56.60	-5.75	169.9	751.2	7.6	2.3	LOCHALINE,HIGHLAND		10	36	235	0.17	3.00	3.70	C*D	7KM NORTH OF LOCHALINE
20021112	085923.0	56.25	-3.75	291.5	707.9	4.0	1.0	BLACKFORD,TAYSIDE		10	15	107	0.09	0.50	1.30	A*C	
20021002	004759.3	56.24	-3.75	291.4	707.1	3.0	0.4	BLACKFORD,TAYSIDE		8	15	105	0.06	0.40	1.30	A*C	
20020801	031649.1	56.24	-3.75	291.6	707.0	5.1	1.7	BLACKFORD,TAYSIDE	3+	11	15	105	0.06	0.30	0.50	A*C	FELT BLACKFORD
20020913	054535.8	56.24	-3.74	292.2	706.6	5.4	1.3	BLACKFORD,TAYSIDE		9	14	104	0.07	1.10	2.70	B*C	
20020714	215551.8	56.23	-5.00	214.3	707.8	7.5	1.7	INVERARAY S'CLYDE		9	41	167	0.06	1.00	3.90	B*C	5KM E OF INVERARAY
20020806	050007.6	56.09	-6.41	125.6	697.7	10.0	1.4	IS OF COLONSAY,S'CLYDE		11	98	230	0.23	2.40	2.30	B*D	10KM W OF COLONSAY
20020911	185813.9	56.08	-5.84	161.2	693.7	5.8	1.4	ISLE OF JURA,S'CLYDE		8	73	195	0.16	2.10	7.30	C*D	
20020803	014004.0	55.88	-5.35	190.6	669.8	13.0	1.1	TARBERT,STRATHCLYDE		9	61	151	0.13	0.80	1.20	A*D	
20021030	074957.2	55.78	-6.18	137.9	662.1	5.0	1.4	ISLAY,STRATHCLYDE		10	61	192	0.27	2.00	4.30	B*D	
20021217	205259.7	55.71	-5.88	156.2	653.6	12.9	1.9	SOUND OF JURA		9	45	169	0.10	1.00	1.70	A*C	
20020324	111759.0	55.31	-3.07	332.0	602.4	18.0	0.0	ESKDALE,D & G		4	9	280	0.04	0.00	0.00	A*D	
20021029	234746.0	55.21	-1.89	407.0	590.2	10.8	1.1	MORPETH,NORTHUMBERLAND		14	44	183	0.34	2.10	6.90	C*D	14KM WNW OF MORPETH
20020701	020234.6	55.19	-3.16	325.9	589.3	5.9	0.7	LANGHOLM,D & G		8	3	125	0.09	0.60	1.00	A*B	5KM N OF LANGHOLM
20020716	010158.3	55.19	-3.17	325.8	589.3	5.7	1.1	LANGHOLM,D & G		7	3	124	0.08	0.60	1.10	A*B	11KM NW OF LANGHOLM
20020530	062055.2	55.19	-3.33	315.6	588.9	14.4	0.2	BORELAND,D & G		4	13	295	0.05	0.00	0.00	A*D	
20021023	182504.3	55.16	-3.07	331.7	585.9	11.3	0.8	LANGHOLM,D & G		12	4	136	0.05	0.20	0.50	A*C	5KM W OF LANGHOLM
20020329	165035.0	55.12	-3.60	298.0	581.6	11.9	1.0	DUMFRIES,D & G		5	31	301	0.06	4.40	18.60	C*D	
20021009	210307.7	55.12	-3.61	297.0	581.4	7.2	1.3	DUMFRIES,D & G	2+	13	7	188	0.20	2.20	2.20	B*D	FELT TINWALD
20021029	193243.8	55.05	-3.36	313.0	573.7	16.6	1.8	ANNAN,D & G		15	10	89	0.11	0.50	0.70	A*A	9KM NE OF ANNAN
20020820	070503.5	55.04	-2.81	347.9	572.3	12.3	0.4	LONGTOWN,CUMBRIA		10	13	154	0.17	1.20	2.10	B*C	8KM NE OF LONGTOWN

TABLE 2: CATALOGUE OF EARTHQUAKES LISTED IN DECREASING LATITUDE: 2002

20021230	021433.0	54.37	-3.07	330.2	497.2	11.5	1.3	CONISTON,CUMBRIA			8	9	228	0.05	0.60	0.80	A*D	
20021230	015923.6	54.36	-3.08	329.5	497.1	11.6	2.0	CONISTON,CUMBRIA			32	8	52	0.20	0.50	0.60	B*A	
20020609	183459.8	54.19	-3.54	299.7	478.1	4.6	0.8	IRISH SEA			7	15	204	0.13	1.90	4.50	B*D	15KM W OF BARROW-IN-FURNESS
20020720	083200.2	53.89	3.56	765.0	458.4	16.6	1.9	IRISH SEA			16	40	174	0.16	1.50	2.60	B*C	
20020712	223952.9	53.64	-1.20	453.2	416.2	1.6	1.7	PONTEFRACT,W YORKS			9	45	85	0.27	1.60	3.70	B*C	C/F,7KM SE OF PONTEFRACT
20021025	042614.9	53.52	-2.26	382.6	402.2	1.3	1.6	GREATER MANCHESTER			12	6	176	0.33	1.80	1.60	C*C	
20021023	044621.1	53.51	-2.21	386.0	402.0	5.0	1.6	GREATER MANCHESTER			9	24	192	0.58	3.50	2.20	D*D	
20021024	153349.4	53.51	-2.23	384.8	401.8	5.0	1.9	GREATER MANCHESTER			8	25	134	0.50	1.30	1.40	C*C	
20021013	072750.9	53.51	-1.19	454.0	401.4	11.5	1.5	DONCASTER,S YORKSHIRE			8	36	176	0.06	0.60	12.40	C*C	
20021029	044359.1	53.51	-2.18	388.2	401.1	5.0	1.8	GREATER MANCHESTER			5	22	189	0.22	2.20	1.40	B*D	
20021019	012126.6	53.51	-2.20	386.5	401.1	5.0	1.4	GREATER MANCHESTER			11	24	190	0.33	1.60	1.80	C*D	
20021025	000251.0	53.51	-2.17	388.5	401.0	5.0	1.6	GREATER MANCHESTER			11	22	117	0.43	1.50	2.00	C*C	
20021019	014459.5	53.50	-2.19	387.7	400.9	5.0	1.4	GREATER MANCHESTER			5	22	251	0.18	4.20	2.20	C*D	
20021024	091805.1	53.50	-2.14	390.7	400.8	5.0	1.8	GREATER MANCHESTER			9	20	108	0.29	1.30	2.00	B*C	
20021025	003829.9	53.50	-2.21	386.1	400.7	1.6	1.6	GREATER MANCHESTER			8	4	171	0.10	0.90	0.70	A*C	
20021022	004149.9	53.50	-2.12	392.2	400.6	5.0	1.6	GREATER MANCHESTER			8	18	210	0.33	3.80	2.70	C*D	
20021021	170242.1	53.50	-2.21	386.0	400.6	5.0	2.2	GREATER MANCHESTER			9	24	118	0.37	2.20	2.70	C*C	
20021116	073436.9	53.50	-2.21	386.4	400.5	5.0	2.1	GREATER MANCHESTER			12	24	118	0.37	1.60	2.20	C*C	
20021106	023438.9	53.50	-2.08	394.6	400.2	5.0	1.7	GREATER MANCHESTER			9	16	160	0.19	1.40	1.60	B*C	
20021104	014415.5	53.50	-2.17	389.0	400.2	5.0	1.1	GREATER MANCHESTER			7	21	116	0.49	2.40	3.30	C*C	
20021024	084236.7	53.50	-2.15	389.8	400.3	5.0	1.9	GREATER MANCHESTER			8	20	165	0.44	4.10	3.70	C*C	
20021023	202056.7	53.50	-2.21	385.8	400.3	5.0	1.8	GREATER MANCHESTER			7	53	141	0.25	2.00	7.30	C*D	
20021023	062752.6	53.50	-2.14	390.9	400.2	5.0	2.0	GREATER MANCHESTER			9	19	157	0.16	0.60	0.90	B*C	
20021024	145555.7	53.50	-2.20	386.7	400.1	5.0	1.9	GREATER MANCHESTER			14	24	61	0.49	1.60	2.90	C*C	
20021021	080458.7	53.50	-2.21	386.1	400.1	5.0	2.3	GREATER MANCHESTER		3+	9	24	140	0.34	1.70	2.40	C*C	FELT GREATER MANCHESTER
20021024	230751.6	53.50	-2.21	386.1	399.9	5.0	2.2	GREATER MANCHESTER			13	24	118	0.39	1.80	3.00	C*C	
20021024	145640.7	53.50	-2.19	387.2	400.0	5.0	2.1	GREATER MANCHESTER			15	23	61	0.45	1.50	2.50	C*C	
20020423	213026.7	53.50	2.50	698.2	409.4	10.0	2.7	SOUTHERN NORTH SEA								*		
20021024	122028.4	53.49	-2.14	390.7	399.9	5.0	1.6	GREATER MANCHESTER			12	20	88	0.32	1.30	2.10	C*C	
20021106	024552.0	53.49	-2.17	388.4	399.9	5.0	1.6	GREATER MANCHESTER			9	22	167	0.28	1.50	1.60	B*C	
20021025	002544.5	53.49	-2.22	385.3	399.8	2.2	2.3	GREATER MANCHESTER		2+	15	3	118	0.31	1.50	0.80	C*B	FELT MANCHESTER
20021024	150009.9	53.49	-2.21	386.3	399.8	5.0	1.8	GREATER MANCHESTER			11	24	147	0.45	2.00	3.60	C*C	
20021028	030814.1	53.49	-2.19	387.4	399.7	5.0	2.0	GREATER MANCHESTER			12	23	113	0.29	1.20	1.80	B*C	
20021027	072650.0	53.49	-2.21	386.4	399.7	2.0	2.0	GREATER MANCHESTER			13	3	109	0.08	0.30	0.20	A*B	
20021130	130514.9	53.49	-2.19	387.2	399.7	5.0	1.8	GREATER MANCHESTER			15	23	61	0.34	1.10	2.00	C*C	
20021028	032751.1	53.49	-2.11	392.7	399.7	5.0	1.7	GREATER MANCHESTER			9	18	210	0.13	1.80	1.40	B*D	
20021025	001927.1	53.49	-2.23	384.6	399.7	3.0	2.6	GREATER MANCHESTER		3+	19	3	110	0.23	0.90	1.00	B*B	FELT MANCHESTER
20021029	045957.2	53.49	-2.21	386.0	399.7	5.0	1.6	GREATER MANCHESTER			9	24	140	0.31	1.80	2.80	C*C	
20021023	035747.6	53.49	-2.05	396.6	399.6	5.0	1.6	GREATER MANCHESTER			7	14	223	0.18	2.00	1.00	B*D	
20021024	093605.5	53.49	-2.14	391.0	399.7	5.0	1.7	GREATER MANCHESTER			9	20	163	0.38	3.30	3.70	C*C	
20021024	163438.8	53.49	-2.19	387.5	399.6	5.0	2.2	GREATER MANCHESTER			15	23	61	0.47	1.80	3.20	C*C	
20021025	002039.5	53.49	-2.21	386.3	399.5	2.0	2.6	GREATER MANCHESTER		3+	20	3	109	0.15	0.60	0.40	B*B	FELT MANCHESTER
20021022	040851.9	53.49	-2.12	392.0	399.5	5.0	1.5	GREATER MANCHESTER		2+	4	48	323	0.12	0.00	0.00	A*D	FELT GREATER MANCHESTER
20021024	094654.6	53.49	-2.13	391.1	399.6	5.0	1.9	GREATER MANCHESTER			10	19	77	0.38	1.30	1.80	C*C	
20021110	184709.5	53.49	-2.22	385.3	399.4	5.0	2.0	GREATER MANCHESTER			13	25	118	0.35	1.50	2.50	C*C	
20021026	223534.9	53.49	-2.21	386.4	399.4	2.2	1.6	GREATER MANCHESTER			10	3	110	0.15	0.60	0.50	B*B	
20021022	062724.7	53.49	-2.08	394.8	399.4	5.0	1.7	GREATER MANCHESTER			9	16	207	0.25	2.90	2.60	C*D	
20021022	133827.9	53.49	-2.19	387.5	399.4	5.0	1.9	GREATER MANCHESTER			11	23	138	0.21	0.70	1.10	B*C	
20021110	041222.6	53.49	-2.22	385.3	399.4	5.0	2.3	GREATER MANCHESTER		3+	14	25	118	0.29	1.30	2.10	B*C	FELT MANCHESTER
20021029	045730.2	53.49	-2.20	386.7	399.4	1.7	1.6	GREATER MANCHESTER			11	3	106	0.09	0.40	0.30	A*B	
20021029	052326.2	53.49	-2.20	386.5	399.4	2.1	1.7	GREATER MANCHESTER			11	3	109	0.06	0.30	0.20	A*B	
20021119	010031.0	53.49	-2.19	387.5	399.4	5.0	2.1	GREATER MANCHESTER		2+	17	23	61	0.33	1.10	2.00	C*C	FELT MANCHESTER
20021029	055441.7	53.49	-2.20	386.8	399.4	2.2	1.4	GREATER MANCHESTER			8	3	156	0.07	0.40	0.30	A*C	
20021029	022322.9	53.49	-2.20	386.9	399.4	2.3	1.6	GREATER MANCHESTER			11	3	103	0.04	0.20	0.10	A*B	
20021024	082144.7	53.49	-2.18	388.1	399.3	5.0	2.0	GREATER MANCHESTER			14	22	60	0.30	1.10	1.90	B*C	

TABLE 2: CATALOGUE OF EARTHQUAKES LISTED IN DECREASING LATITUDE: 2002

20021116	045746.7	53.49	-2.17	389.0	399.3	5.0	2.1	GREATER MANCHESTER	2+	16	22	60	0.34	1.10	1.90	C*C	FELT MANCHESTER			
20021106	033222.7	53.49	-2.10	393.3	399.3	5.0	1.8	GREATER MANCHESTER		10	17	161	0.25	1.70	2.00	B*C				
20021021	072920.4	53.49	-2.20	386.9	399.3	5.0	1.8	GREATER MANCHESTER		7	24	147	0.37	3.20	4.30	C*C				
20021021	111506.6	53.49	-2.15	389.7	399.3	5.0	1.8	GREATER MANCHESTER		6	21	88	0.38	2.90	3.90	C*C				
20021024	102655.8	53.49	-2.15	389.9	399.3	5.0	1.9	GREATER MANCHESTER		10	21	88	0.28	1.20	1.90	B*C				
20021024	190045.8	53.49	-2.20	386.6	399.2	5.0	2.2	GREATER MANCHESTER	3+	8	24	121	0.42	3.20	5.70	C*C	FELT MANCHESTER			
20021025	091548.9	53.49	-2.20	386.4	399.2	3.0	1.7	GREATER MANCHESTER		7	3	139	0.03	0.80	1.00	A*C				
20021022	165341.0	53.49	-2.15	390.4	399.1	5.0	2.4	GREATER MANCHESTER	2+	17	20	108	0.27	0.80	1.60	B*C	FELT GREATER MANCHESTER			
20021023	191811.6	53.49	-2.16	389.2	399.1	5.0	2.0	GREATER MANCHESTER		9	21	186	0.23	2.20	2.20	B*D				
20021113	001958.5	53.49	-2.20	386.7	399.1	5.0	1.6	GREATER MANCHESTER		9	24	169	0.21	1.10	1.30	B*C				
20021026	211426.1	53.49	-2.19	387.3	399.1	1.8	1.9	GREATER MANCHESTER		10	3	94	0.09	0.40	0.40	A*B				
20021024	183712.6	53.49	-2.21	385.9	399.0	5.0	2.6	GREATER MANCHESTER	3+	15	25	61	0.39	1.50	3.10	C*C	FELT MANCHESTER			
20021029	173215.9	53.49	-2.21	386.1	398.9	5.0	2.4	GREATER MANCHESTER	3+	14	24	117	0.33	1.30	2.70	C*C	FELT MANCHESTER			
20021028	221037.1	53.49	-2.20	386.9	398.9	3.5	1.5	GREATER MANCHESTER		8	3	105	0.06	0.70	1.40	A*B				
20021109	002107.3	53.49	-2.18	388.2	398.9	5.0	1.7	GREATER MANCHESTER		13	22	116	0.39	1.50	2.40	C*C				
20021101	042252.7	53.49	-2.22	385.6	399.0	5.0	1.5	GREATER MANCHESTER		13	2	120	0.32	1.30	1.20	C*B				
20021119	023145.3	53.49	-2.21	386.2	398.8	5.0	1.7	GREATER MANCHESTER		10	24	169	0.23	0.90	1.10	B*C				
20021029	000753.7	53.49	-2.20	386.9	398.8	5.0	2.2	GREATER MANCHESTER	3+	13	24	117	0.40	1.80	2.90	C*C	FELT MANCHESTER			
20021109	002743.7	53.48	-2.14	390.9	398.7	5.0	1.9	GREATER MANCHESTER		13	20	76	0.19	0.70	1.20	B*C				
20021023	232725.4	53.48	-2.17	388.4	398.8	5.0	1.9	GREATER MANCHESTER		11	22	137	0.40	1.70	2.80	C*C				
20021024	082454.7	53.48	-2.18	388.1	398.7	3.7	3.1	GREATER MANCHESTER	4+	20	23	110	0.26	0.90	2.00	B*C	FELT GREATER MANCHESTER			
20021116	045901.9	53.48	-2.18	388.1	398.6	5.0	2.5	GREATER MANCHESTER	3+	21	23	60	0.29	0.80	1.60	B*C	FELT MANCHESTER			
20021111	222112.7	53.48	-2.16	389.3	398.6	5.0	1.8	GREATER MANCHESTER		14	21	63	0.29	1.20	1.80	B*C				
20021031	015057.4	53.48	-2.21	386.0	398.6	5.7	2.3	GREATER MANCHESTER	2+	13	25	147	0.36	1.90	2.60	C*C	FELT MANCHESTER			
20021023	203128.8	53.48	-2.17	388.6	398.6	5.0	2.5	GREATER MANCHESTER	3+	19	22	60	0.23	0.70	1.50	B*C	FELT MANCHESTER			
20021025	172448.0	53.48	-2.19	387.2	398.6	3.3	2.6	GREATER MANCHESTER	3+	11	3	93	0.09	0.40	0.80	A*B	FELT MANCHESTER			
20021022	040245.9	53.48	-2.20	386.8	398.7	5.0	1.8	GREATER MANCHESTER		6	51	138	0.18	5.40	32.90	D*D				
20021029	045811.4	53.48	-2.21	385.9	398.5	4.3	1.7	GREATER MANCHESTER		7	2	141	0.03	0.50	0.60	A*C				
20021028	192559.1	53.48	-2.20	386.7	398.6	5.0	2.3	GREATER MANCHESTER	3+	13	24	117	0.27	1.30	2.20	B*C	FELT MANCHESTER			
20021022	062057.5	53.48	-2.20	386.6	398.6	5.0	2.0	GREATER MANCHESTER		7	24	168	0.20	1.50	2.30	B*C				
20021024	191318.6	53.48	-2.14	390.8	398.4	5.0	1.9	GREATER MANCHESTER		8	20	163	0.43	3.00	3.10	C*C				
20021024	055354.5	53.48	-2.20	386.8	398.4	5.0	2.2	GREATER MANCHESTER		15	24	91	0.48	1.50	3.20	C*C				
20021110	114354.7	53.48	-2.17	388.6	398.4	5.0	2.0	GREATER MANCHESTER		10	22	137	0.15	0.50	0.90	A*C				
20021024	154644.2	53.48	-2.20	386.9	398.4	5.0	2.8	GREATER MANCHESTER	3+	17	24	91	0.38	1.20	2.60	C*C	FELT MANCHESTER			
20021029	044252.0	53.48	-2.20	386.9	398.3	5.0	2.6	GREATER MANCHESTER	3+	14	24	116	0.28	1.30	2.20	B*C	FELT MANCHESTER			
20021104	072912.8	53.48	-2.17	388.8	398.3	5.0	2.3	GREATER MANCHESTER	2+	16	22	60	0.37	1.10	2.00	C*C	FELT MANCHESTER			
20021109	233642.7	53.48	-2.16	389.5	398.3	5.0	2.0	GREATER MANCHESTER		15	21	60	0.33	1.20	1.80	C*C				
20021022	042719.0	53.48	-2.13	391.2	398.3	5.0	1.3	GREATER MANCHESTER		5	20	163	0.12	2.40	2.10	B*D				
20021024	104513.9	53.48	-2.17	388.6	398.2	5.0	1.8	GREATER MANCHESTER		10	22	115	0.43	2.10	4.00	C*C				
20021021	162221.8	53.48	-2.19	387.2	398.2	5.0	2.0	GREATER MANCHESTER		11	24	116	0.38	1.90	3.30	C*C				
20021022	094702.3	53.48	-2.15	390.3	398.2	5.0	1.7	GREATER MANCHESTER		7	21	88	0.26	1.00	1.60	B*C				
20021024	075254.4	53.48	-2.17	388.5	398.2	5.0	2.6	GREATER MANCHESTER	3+	14	22	110	0.27	1.10	1.90	B*C	FELT MANCHESTER			
20021109	015433.2	53.48	-2.16	389.2	398.2	5.0	2.2	GREATER MANCHESTER	2+	18	22	60	0.25	0.90	1.60	B*C	FELT MANCHESTER			
20021024	043836.9	53.48	-2.15	390.2	398.0	5.0	2.0	GREATER MANCHESTER	2+	14	21	67	0.27	1.20	1.90	B*C	FELT MANCHESTER			
20021021	114234.7	53.48	-2.20	387.0	398.0	2.8	3.9	GREATER MANCHESTER	5+	16	24	90	0.13	0.60	1.30	A*C	FELT GREATER MANCHESTER			
20021026	054359.9	53.48	-2.19	387.5	398.0	3.9	1.7	GREATER MANCHESTER		7	3	153	0.05	0.40	0.60	A*C				
20021021	114256.9	53.48	-2.22	385.5	397.9	5.0	3.5	GREATER MANCHESTER	4+	7	25	147	0.31	2.30	40.50	C*C	FELT GREATER MANCHESTER			
20021028	233915.6	53.48	-2.19	387.3	397.9	4.4	1.6	GREATER MANCHESTER		10	3	82	0.06	0.30	0.50	A*A				
20021106	043743.8	53.48	-2.11	392.9	398.0	5.0	1.7	GREATER MANCHESTER		8	18	141	0.09	0.50	0.50	A*C				
20021023	015328.8	53.48	-2.16	389.6	397.9	5.0	2.8	GREATER MANCHESTER	3+	9	21	215	0.13	1.70	1.30	B*D	FELT GREATER MANCHESTER			
20021028	203004.4	53.48	-2.19	387.4	397.9	4.7	1.8	GREATER MANCHESTER		10	3	80	0.08	0.40	0.60	A*A				
20021105	203123.5	53.48	-2.16	389.2	397.9	5.0	1.9	GREATER MANCHESTER		13	22	115	0.39	1.80	2.60	C*C				
20021023	201631.7	53.48	-2.16	389.2	397.8	5.0	2.2	GREATER MANCHESTER	3+	14	22	60	0.26	1.00	1.70	B*C	FELT MANCHESTER			
20021023	054434.8	53.48	-2.12	391.7	397.6	3.6	1.9	GREATER MANCHESTER	2+	7	20	157	0.15	2.20	2.30	B*C	FELT MANCHESTER			
20021021	074515.8	53.48	-2.20	387.0	397.6	5.0	3.2	GREATER MANCHESTER	4+	22	24	53	0.37	1.10	3.30	C*C	FELT GREATER MANCHESTER			

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20021104	073232.0	53.47	-2.16	389.5	397.6	5.0	2.7	GREATER MANCHESTER	3+	16	22	59	0.27	1.00	1.90	B*C	FELT MANCHESTER
20021109	011120.1	53.47	-2.17	388.9	397.5	5.0	2.1	GREATER MANCHESTER		16	22	60	0.30	1.10	2.00	B*C	
20021022	122808.4	53.47	-2.15	390.3	397.4	4.2	3.1	GREATER MANCHESTER	4+	11	21	159	0.08	0.70	1.10	A*C	FELT GREATER MANCHESTER
20021024	063826.5	53.47	-2.15	390.0	397.4	5.0	1.7	GREATER MANCHESTER		11	21	66	0.38	1.80	2.80	C*C	
20021021	223438.3	53.47	-2.18	387.9	397.3	5.0	2.1	GREATER MANCHESTER		9	23	115	0.29	2.00	2.30	B*C	
20021008	020833.9	53.47	-1.18	454.7	397.6	0.2	1.2	DONCASTER,S YORKSHIRE		6	34	174	0.03	0.20	0.30	A*C	C/F
20021022	002422.0	53.47	-2.17	388.7	397.2	5.0	1.6	GREATER MANCHESTER		8	23	84	0.27	1.90	2.30	B*C	
20021024	043659.1	53.47	-2.16	389.3	397.1	5.0	2.3	GREATER MANCHESTER		15	22	59	0.29	1.10	2.00	B*C	
20021031	000715.0	53.47	-2.13	391.6	396.9	4.3	1.9	GREATER MANCHESTER		8	20	162	0.25	2.50	2.90	B*C	
20021022	125159.6	53.47	-2.10	393.7	396.9	5.0	1.4	GREATER MANCHESTER		4	18	211	0.13	0.00	0.00	A*D	
20021010	215932.0	53.47	-1.16	455.7	397.0	1.7	1.0	DONCASTER,S YORKSHIRE		7	34	175	0.22	1.50	2.20	B*C	C/F
20021022	035402.4	53.46	-2.15	389.8	396.3	5.0	2.0	GREATER MANCHESTER	2+	7	48	321	0.51	21.30	47.00	D*D	FELT GREATER MANCHESTER
20021022	033937.6	53.46	-2.22	385.5	396.3	5.0	2.9	GREATER MANCHESTER	4+	20	51	182	0.30	2.20	3.90	C*D	FELT GREATER MANCHESTER
20021024	142926.1	53.46	-2.18	387.9	395.5	5.0	1.7	GREATER MANCHESTER	2+	10	24	143	0.23	2.40	3.80	B*C	FELT MANCHESTER
20021014	015952.1	53.45	-1.20	453.5	395.5	1.0	1.3	MALTBY,S YORKSHIRE		6	31	170	0.30	2.70	4.60	C*C	C/F
20021013	100337.4	53.44	-1.20	453.0	394.4	1.0	1.5	MALTBY,S YORKSHIRE		8	30	168	0.37	2.40	3.80	C*C	C/F
20021021	115646.0	53.44	-2.14	390.8	393.8	5.0	2.0	GREATER MANCHESTER		6	22	140	0.20	1.40	1.40	B*C	
20020622	071410.2	53.38	-1.81	412.8	387.1	16.4	1.7	GLOSSOP,DERBYSHIRE		11	19	116	0.15	1.00	1.00	A*B	8KM SE OF GLOSSOP
20020606	122544.7	53.37	-2.36	375.9	386.1	10.6	1.7	ALTRINCHAM,CHESHIRE		10	39	134	0.11	0.70	6.80	C*C	
20020130	170609.8	53.31	1.23	614.9	383.9	21.9	3.5	SOUTHERN NORTH SEA		12	55	212	0.25	1.80	2.50	B*D	
20021201	093705.0	53.26	-0.88	474.7	373.8	1.0	2.2	WORKSOP,NOTTS		7	43	239	0.40	4.20	1.70	C*D	C/F,15KM SE OF WORKSOP
20020822	032029.0	53.24	-1.11	459.4	371.6	3.7	1.4	WORKSOP,NOTTS		8	28	154	0.09	0.90	2.00	B*C	C/F,7KM S OF WORKSOP
20020106	171457.5	53.23	-1.04	464.0	371.1	1.0	1.6	OLLERTON,NOTTS		8	33	224	0.27	2.50	2.10	C*D	C/F
20020123	010527.3	53.22	-1.06	462.5	370.2	2.1	1.3	WORKSOP,NOTTS		4	31	281	0.09			A*D	C/F,9KM SOUTH OF WORKSOP
20020525	092352.1	53.19	-4.04	263.7	367.5	16.8	1.2	BETHESDA,GWYNEDD		12	10	86	0.09	0.50	0.60	A*A	
20021217	114954.2	53.15	-1.14	457.6	361.2	0.0	1.2	MANSFIELD,NOTTS		6	29	183	0.20	1.90	2.20	B*D	C/F
20020704	095433.9	53.13	-4.40	239.7	362.2	9.8	0.4	CAERNARVON BAY,GWYNEDD		9	15	112	0.08	0.50	1.90	A*B	
20020907	191723.0	53.11	-1.89	407.4	356.6	12.9	1.8	LEEK,STAFFS		9	11	189	0.12	1.10	1.10	B*D	9KM EAST OF LEEK
20021122	014022.0	53.03	2.74	717.6	358.5	5.0	3.1	SOUTHERN NORTH SEA		8	90	331	0.41	8.10	5.70	D*D	
20020708	055540.2	53.00	-1.07	462.1	345.2	14.3	1.7	LAMBLEY,NOTTS		7	14	144	0.06	0.40	0.70	A*C	
20020829	182723.7	53.00	-4.96	201.3	348.6	15.0	0.3	CAERNARVON BAY,GWYNEDD		8	29	264	0.10	1.50	1.20	B*D	
20020701	122513.8	52.97	-4.39	239.4	343.8	21.4	0.2	LLEYN PENINSULA,GWYNED		8	3	105	0.10	0.60	0.60	A*B	
20020601	014302.6	52.97	-4.42	237.7	343.6	21.0	0.7	LLEYN PENINSULA,GWYNED		10	2	117	0.06	0.50	0.80	A*B	
20020606	061808.5	52.95	-4.38	239.8	342.5	7.2	0.6	PWLLHELI,GWYNEDD		11	4	99	0.03	0.20	0.30	A*B	6KM NORTH OF PWLLHELI
20020720	021034.2	52.90	2.22	683.6	341.7	15.0	2.3	SOUTHERN NORTH SEA		9	52	321	0.35	9.20	5.00	D*D	
20020426	032531.3	52.83	-4.38	239.4	328.8	11.9	2.1	PWLLHELI,GWYNEDD		12	16	145	0.07	0.40	0.60	A*C	5KM OFFSHORE
20020223	214227.6	52.65	-4.27	246.5	308.8	14.5	1.3	CARDIGAN BAY		11	16	231	0.09	1.70	0.90	B*D	
20020922	235314.8	52.53	-2.16	389.2	292.8	14.0	4.7	DUDLEY,W MIDLANDS	5	55	58	34	0.32	0.60	1.10	C*D	FELT ENGLAND & WALES
20020923	033215.9	52.52	-2.14	390.8	291.7	9.3	2.7	DUDLEY,W MIDLANDS	3+	17	58	75	0.20	0.80	2.10	B*D	FELT DUDLEY...
20020924	092919.0	52.52	-2.14	390.6	291.5	7.9	1.2	DUDLEY,W MIDLANDS								*	
20021102	043738.8	52.50	-2.10	392.8	289.2	12.1	0.9	DUDLEY,W MIDLANDS		10	60	146	0.18	1.10	14.50	C*D	
20020503	024630.5	52.31	-3.26	314.2	268.9	16.0	1.0	LLANDRINDOD WELLS,POWYS		6	16	218	0.06	0.70	0.90	A*D	12KM NE OF LLANDRINDOD
20021016	071109.4	52.31	-2.74	349.4	267.9	17.4	1.0	LUDLOW,SHROPSHIRE		6	28	220	0.05	0.80	2.10	B*D	5KM SOUTH OF LUDLOW
20020317	004554.0	52.30	-2.82	343.8	267.3	21.4	0.6	LEOMINSTER,HER & WOR		6	24	203	0.10	1.70	2.90	B*D	7KM NW OF LEOMINSTER
20020303	081039.9	52.12	-2.71	351.4	247.4	13.5	0.8	HEREFORD,HER & WOR		5	15	170	0.04	5.90	1.80	D*D	
20021021	003359.8	52.06	-3.39	304.9	240.8	12.3	1.7	BRECON,POWYS		11	9	98	0.06	0.50	0.40	A*B	10KM NNW OF BRECON
20020731	082232.7	51.97	-1.64	424.9	230.2	20.9	1.8	MORETON-IN-MARSH,GLOS		10	15	101	0.10	0.70	1.40	A*B	
20020801	231456.5	51.81	-3.01	330.6	213.1	15.3	1.6	ABERGAVENNY,GWENT		11	21	67	0.11	0.70	0.90	A*B	
20021202	215513.3	51.79	-2.38	374.0	210.5	19.1	1.7	GLOUCESTER,GLOS		5	30	263	0.01	0.20	0.80	A*D	10KM SW OF GLOUCESTER
20020918	052010.3	51.71	-3.59	290.3	202.9	1.5	2.1	GLYN-NEATH,W GLAMORGAN		11	39	96	0.19	0.80	1.50	B*C	C/F
20021228	143603.2	51.71	-2.86	340.5	201.4	25.9	2.4	USK,GWENT		13	9	55	0.13	0.70	1.20	A*A	
20020217	154406.7	51.71	-3.26	312.9	201.6	2.4	2.0	BARGOED,MID GLAMORGAN		10	32	104	0.09	0.40	0.90	A*C	
20020316	050714.7	51.70	-3.27	312.5	201.2	2.2	1.4	BARGOED,MID GLAMORGAN		7	33	105	0.07	0.60	1.60	A*C	
20020128	003009.2	51.70	-3.26	313.1	201.1	5.1	1.7	BARGOED,MID GLAMORGAN		5	32	256	0.24	4.20	7.70	C*D	
20020212	191316.2	51.70	-3.26	313.2	201.0	5.2	3.0	BARGOED,MID GLAMORGAN	4+	11	32	84	0.09	0.40	1.20	A*C	FELT BARGOED...

TABLE 2: CATALOGUE OF EARTHQUAKES LISTED IN DECREASING LATITUDE: 2002

20020224	231835.4	51.70	-3.27	312.1	200.9	3.2	1.7	BARGOED,MID GLAMORGAN		9	33	173	0.06	0.30	1.00	A*C	
20020128	003014.8	51.70	-3.26	313.1	200.9	6.3	2.5	BARGOED,MID GLAMORGAN		7	32	173	0.09	0.80	3.50	B*C	
20020404	084546.8	51.66	-3.40	303.0	196.9	8.0	1.5	MOUNTAIN ASH,MID GLAM		6	41	116	0.12	1.30		C*C	
20020515	072139.7	51.60	-2.87	339.6	189.5	24.0	1.2	NEWPORT,GWENT		6	6	284	0.04	1.10	0.90	B*D	
20020620	172641.8	51.57	-3.08	325.1	186.0	14.3	2.9	CARDIFF,S GLAMORGAN	3+	13	21	83	0.12	0.60	1.30	A*B	FELT CARDIFF...
20020823	213617.6	51.00	-4.65	213.9	126.0	30.2	1.6	OFF HARTLAND PT,DEVON		12	12	140	0.17	1.30	0.80	B*C	
20021007	223147.8	50.53	-3.74	276.7	71.2	4.5	2.1	ASHBURTON,DEVON		10	17	237	0.12	1.30	2.00	B*D	
20020705	214644.5	50.49	-5.00	187.4	70.0	3.6	0.4	NEWQUAY,CORNWALL		12	17	308	0.38	4.50	19.20	C*D	8KM NNE OF NEWQUAY
20020108	180012.1	50.10	-5.22	170.0	26.9	4.2	0.2	HELSTON,CORNWALL		6	1	167	0.05	1.50	1.40	B*C	3KM EAST OF HELSTON
20020114	001836.4	50.08	-2.99	329.1	20.4	0.5	1.9	ENGLISH CHANNEL		19	78	121	0.22	0.80	1.70	B*D	
20021110	183122.5	49.99	-5.04	182.1	14.9	23.4	1.2	OFF LIZARD PT,CORNWALL		10	11	322	0.06	1.90	1.10	B*D	12KM EAST OF LIZARD PT
20021119	211556.4	49.19	-2.08	394.2	-78.5	13.1	2.5	JERSEY,CHANNEL ISLANDS	3+	7	1	182	0.11	5.00	2.00	C*D	FELT JERSEY
20020926	023113.6	49.05	-2.00	399.8	-94.5	8.4	1.0	JERSEY,CHANNEL ISLANDS		6	17	330	0.02	2.40	11.30	C*D	20KM SSE OF JERSEY
20020625	010828.5	48.97	-2.15	388.7	-102.9	9.5	1.1	S OF JERSEY,CHANNEL IS		5	24	338	0.01	1.00	3.30	B*D	25KM SOUTH OF JERSEY
20021014	131221.5	48.40	-6.99	30.6	-155.1	15.0	3.1	ENGLISH CHANNEL		7	21	337	0.24			D*D	150KM SSW OF SCILLY ISLES
20020930	064451.2	48.08	-3.23	308.3	-201.2	21.7	4.5	NORTH-WEST FRANCE	4+	22	46	288	0.15	3.90		C*D	FELT JERSEY & GUERNSEY

TABLE 3

CATALOGUE OF NON-NATURAL EVENTS LISTED CHRONOLOGICALLY: 2002

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, negative longitude indicates west.
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.
DM	**:**	Epicentral distance in kilometres to the closest station.
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.
SQD	**:**	S is quality factor ascribed to RMS, D is quality ascribed to number and distribution of stations.

Locality abbreviations

Sonic	**:**	Sonic boom	N Yorkshire	**:**	North Yorkshire
Expl	**:**	Explosion	Notts	**:**	Nottinghamshire
D & G	**:**	Dumfries and Galloway	Lincs	**:**	Lincolnshire
Gtr	**:**	Greater	N' umberlnd	**:**	Northumberland
Her & Worcs	**:**	Hereford and Worcester	Staffs	**:**	Staffordshire
S'Clyde	**:**	Strathclyde	Leics	**:**	Leicestershire
S Yorkshire	**:**	South Yorkshire	W Mids	**:**	West Midlands
New-U-Lyme	**:**	Newcastle-Under-Lyme	Salop	**:**	Shropshire
Penin	**:**	Peninsula			

Comments abbreviations

Sonic	**:**	Sonic boom
Expl	**:**	Explosion
C/F	**:**	Coalfield type event
...	**:**	and felt elsewhere

TABLE 3: CATALOGUE OF NON-NATURAL EVENTS LISTED CHRONOLOGICALLY: 2002

YearMoDy	HrMnSecs	Lat	Lon	kmE	kmN	Dep	Mag	Locality	Int	No	DM	Gap	RMS	ERH	ERZ	SQD	Comments
20020417	191301.8	51.44	1.36	633.4	176.9	0.0	2.0	EXP-OFF MARGATE	4+							*	FELT MARGATE...
20020527	204116.4	50.63	-1.78	415.4	80.9	0.0	1.7	EXP-OFF CHRISTCHURCH	4+	7	29	209	0.24	2.30	12.50	C*D	FELT CHRISTCHURCH...
20020721	092100.0							SONIC-NORTH DEVON	2+							*	FELT N DEVON
20021107	132900.0							SONIC-PETERBOROUGH	2+							*	FELT PETERBOROUGH
20020115	201530.0							SONIC-NORTH DEVON	2+							*	SONIC-FELT N DEVON
20020404	122924.9							SONIC-NORFOLK	3+							*	SONIC-FELT N NORFOLK
20020110	094459.0							SONIC-PLYMOUTH	3+							*	SONIC-FELT PLYMOUTH...
20020722	092413.0							SONIC-NORTH DEVON	2+							*	SONIC-FELT N DEVON

TABLES 4

GEOGRAPHICAL COORDINATES OF SEISMOGRAPH STATIONS: DECEMBER 2002

TABLE 4a

GEOGRAPHIC COORDINATES OF SEISMOGRAPH STATIONS, DECEMBER 2002

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Yrs open	Comp	Agency
ABA	BACONSTHORPE	52.8884	1.1453	611.58	337.00	74	82-	1	BGS
AEU	EAST ANGLIA UNIV	52.6208	1.2403	619.30	307.53	45	00-	3M	BGS
APA	PACKWAY	52.3006	1.4782	637.12	272.68	58	84-	1	BGS
AWH	WHINBURGH	52.6297	0.9507	599.67	307.68	64	80-	1R	BGS
AWI	WITTON	52.8319	1.4471	632.17	331.65	46	83-	1	BGS
BBH	BRUNTSHEIL	55.1333	-2.9299	340.72	582.50	216	92-	1	BGS
BBO	BOTHEL	54.7367	-3.2464	319.76	538.69	209	92-	3	BGS
BCM	CHAPELCROSS MIC	55.0151	-3.2212	321.92	569.64	78	92-	M	BGS
BDL	DOBCROSS HALL	54.8030	-2.9385	339.68	545.76	157	92-	1	BGS
BHH	HOWATS HILL	55.0931	-3.2181	322.27	578.31	216	92-	3	BGS
BNA	NEW ABBEY	54.9658	-3.6242	296.03	564.68	28	92-	1	BGS
BTA	TALKIN	54.9057	-2.6844	356.12	557.00	279	92-	3	BGS
BWH	WARDLAW	55.1758	-3.6549	294.62	588.09	269	92-	1	BGS
CBW	BUDOCK WATER	50.1482	-5.1144	177.53	32.29	94	81-	1	BGS
CCA	CARNMENELLIS	50.1866	-5.2277	169.62	36.90	210	81-	1	BGS
CCO	CONSTANTINE	50.1357	-5.1957	171.66	31.14	168	81-	1	BGS
CDU	DUNNERDALE	54.3362	-3.1952	322.30	494.08	355	92-	1	BGS
CGH	GOONHILLY	50.0507	-5.1649	173.46	21.60	97	81-	1	BGS
CGW	GWEEK	50.1006	-5.2228	169.56	27.32	9	93-	1	BGS
CKE	KESWICK	54.5877	-3.1059	328.54	521.96	304	92-	1	BGS
CMA	MANACCAN	50.0821	-5.1274	176.29	24.98	42	93-	1	BGS
CPZ	PENZANCE	50.1566	-5.5828	144.12	34.72	199	81-	1R	BGS
CR2	ROSEMANOWES 2	50.1667	-5.1687	173.74	34.51	143	81-	3	BGS
CSA	ST AUSTELL	50.3527	-4.8919	194.30	54.38	112	81-	1	BGS
CSF	SCAFELL	54.4478	-3.2430	319.41	506.55	540	92-	1	BGS
CSM	SELLAFIELD MIC	54.4183	-3.4913	303.24	503.58	50	92-	M	BGS
CST	STITHIANS	50.1952	-5.1635	174.24	37.66	141	81-	1	BGS
CWF	CHARNWOOD FST	52.7385	-1.3076	446.74	315.91	203	75-	3R	BGS
DCO	COMBE FARM	50.3201	-3.8721	266.74	48.43	117	82-	1R	BGS
DYA	YADSWORTHY	50.4353	-3.9310	262.88	61.34	292	82-	3R	BGS
EAB	ABERFOYLE	56.1887	-4.3373	254.97	702.02	279	69-	1R	BGS
EAU	AUCHINOON	55.8454	-3.4474	309.38	662.30	359	69-	1R	BGS
EBH	BLACK HILL	56.2476	-3.5084	306.54	707.13	375	69-	1R	BGS
EBL	BROAD LAW	55.7723	-3.0445	334.48	653.71	436	69-	1R	BGS
ECK	CAULDKAINE HILL	55.1810	-3.1292	328.10	588.00	351	81-	1R	BGS
EDI	EDINBURGH	55.9233	-3.1875	325.80	670.66	125	69-	3R	BGS
EDR	DRUMTOCHTY	56.9190	-2.5393	367.17	780.97	401	89-	1R	BGS
EDU	DUNDEE	56.5477	-3.0110	337.85	739.97	421	69-	1R	BGS
ELO	LOGIEALMOND	56.4703	-3.7112	294.59	732.21	523	69-	1R	BGS
ESK	ESKDALEMUIR	55.3165	-3.2052	323.52	603.16	261	65-	3R	BGS
ESY	STONEYPATH	55.9175	-2.6141	361.62	669.55	337	81-	1R	BGS
FHV	HALDARSVIK	62.2597	-7.0984	135.46	1385.95	380	99-	1R	BGS
FSD	SUDUROY	61.5701	-6.7884	145.86	1308.06	480	99-	1R	BGS
FSV	SVINOY	62.2598	-6.3550	173.99	1383.14	430	99-	1R	BGS
FTO	TORSHAVN	62.0199	-6.8274	147.51	1358.21	325	99-	3R	BGS
FVA	VAGAR	62.0575	-7.3520	120.46	1364.55	430	99-	1R	BGS
GAL	GALLOWAY	54.8664	-4.7114	226.02	555.78	117	89-	3M	BGS
GCD	CASTLE DOUGLAS	54.8630	-3.9403	275.48	553.76	184	89-	1R	BGS
GCL	CUSHENDALL	55.0783	-6.1264	136.66	583.77	278	89-	1R	BGS
GIM	ISLE OF MAN (North)	54.2923	-4.4672	239.44	491.35	346	89-	3R	BGS
GMK	MULL OF KINTYRE	55.3458	-5.5934	172.19	611.64	164	89-	1R	BGS
GMM	MTNS OF MOURNE	54.2377	-5.9498	142.66	489.67	155	89-	1R	BGS
HAE	ALDERS END	52.0368	-2.5434	362.73	237.79	260	82-	1R	BGS
HCG	CRAIG GOCH	52.3231	-3.6570	287.08	270.78	533	80-	1R	BGS
HEX	EXMOOR	51.0664	-3.8026	273.71	131.28	230	91-	1R	BGS
HGH	GRAY HILL	51.6379	-2.8057	344.25	193.59	223	80-	1R	BGS
HLM	LONG MYND	52.5184	-2.8807	340.25	291.57	429	84-	1	BGS
HPE	PEMBROKE	51.9372	-4.7746	209.29	230.21	349	90-	1R	BGS
HPK	HAVERAH PARK	53.9581	-1.6241	424.66	451.42	233	78-	3R	BGS

TABLE 4a: continued

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Yrs open	Comp	Agency
HSA	SWANSEA	51.7500	-4.1532	251.38	207.94	293	87-	1R	BGS
HTL	HARTLAND	50.9943	-4.4849	225.64	124.66	86	81-	3RM	BGS
HTR	TREWERN HILL	52.0785	-3.2679	313.12	243.04	337	82-	1R	BGS
JLP	LES PLATONS	49.2486	-2.1039			129	81-	1R	BGS
JQE	QUEENS EAST	49.2000	-2.0383			58	91-	1	BGS
JRS	MAISON ST LOUIS	49.1922	-2.0922			56	81-	3R	BGS
JSA	ST AUBINS	49.1878	-2.1717			39	81-	1R	BGS
JVM	VALLE D.L.MARE	49.2169	-2.2067			64	81	1R	BGS
KAC	ACHNASHELLACH	57.4989	-5.2988	202.36	850.19	206	83-	1R	BGS
KAR	ARISAIG	56.9188	-5.8290	166.98	787.34	186	83-	1	BGS
KBI	BIRLEY GRANGE	53.2543	-1.5279	431.49	373.17	272	88-	1	BGS
KLE	KEELE UNIVERSITY	53.0038	-2.2657	382.17	345.23	203		1	KUN
KLE3	NEWCHAPEL	53.0928	-2.2047	386.29	355.12	200		1	KUN
KNR	NEVIS RANGE	56.8219	-4.9714	218.68	773.97	1147	91-	1R	BGS
KPL	PLOCKTON	57.3391	-5.6527	180.21	833.50	13	86-	3R	BGS
KSB	SHIEL BRIDGE	57.2099	-5.4214	193.40	818.40	417	83-	1R	BGS
KSK	SCOVAL	57.4659	-6.7002	118.21	851.46	265	89-	1R	BGS
KSY	SYSTON	52.9642	-0.5872	494.88	341.73	121	88-	1R	BGS
KTG	TILBROOK GRNGE	52.3264	-0.4019	508.90	271.06	83	88-	1	BGS
KUF	UFFORD	52.6170	-0.3907	508.94	303.39	38	88-	1R	BGS
KWE	WEAVER FARM	53.0164	-1.8412	410.65	346.61	328	88-	1R	BGS
LCP	CASSOP	54.7370	-1.4744	433.84	538.14	185	91-	1R	BGS
LDU	LEEDS	53.8058	-1.5540	429.37	434.51	74	83-	M	BGS
LHO	HOLMEFIRTH	53.5453	-1.8548	409.62	405.44	462	91-	1R	BGS
LMI	MILLOM	54.2206	-3.3070	314.79	481.35	129	89-	3R	BGS
LMK	MARKET RASEN	53.4569	-0.3260	511.14	396.90	146	91-	1R	BGS
LRN	RICHMOND	54.4165	-1.8007	412.93	502.37	313	91-	1R	BGS
LRW	LERWICK	60.1360	-1.1779	445.66	1139.27	98	78-	3R	BGS
LWH	WHINNY NAB	54.3338	-0.6717	486.36	493.97	277	91-	1R	BGS
MCD	COLEBURN DISTIL	57.5828	-3.2541	325.02	855.42	293	81-	3RM	BGS
MCH	MICHAELCHURCH	51.9974	-2.9983	331.47	233.74	219	78-	3	BGS
MDO	DOCHFOUR	57.4409	-4.3633	258.17	841.39	415	81-	1R	BGS
MFI	FISHRIE	57.6119	-2.2956	382.34	858.00	232	88-	1R	BGS
MLA	LATHERON	58.3055	-3.3627	320.15	935.98	188	81-	1	BGS
MME	MEIKLE CAIRN	57.3149	-2.9647	341.90	825.32	475	81-	1	BGS
MVH	ACHVAICH	57.9250	-4.1825	270.75	894.90	185	84-	1	BGS
OBR	BRABSTER	58.6142	-3.1626	332.47	970.13	89	95-	1R	BGS
OHO	HOY	58.8322	-3.2465	328.05	994.48	172	95-	1R	BGS
ORE	REAY	58.5480	-3.7622	297.45	963.52	100	95-	3RM	BGS
OST	STRONSAY	59.0860	-2.5516	368.39	1022.20	21	95-	1R	BGS
OTO	TONGUE	58.4953	-4.3939	260.49	958.79	338	95-	1R	BGS
OWE	WESTRAY	59.3180	-3.0289	341.44	1048.36	87	95-	1R	BGS
PCA	CARROT	55.7007	-4.2550	258.30	647.55	302	83-	1	BGS
PCO	CORRIE	55.9880	-4.1002	269.00	679.21	267	83-	1	BGS
PGB	GLENIFFERBRAES	55.8115	-4.4837	244.38	660.37	199	84-	3	BGS
PMS	MUIRSHIEL	55.8459	-4.7452	228.15	664.82	351	83-	1	BGS
RCR	CAPE WRATH	58.6245	-4.9987	225.90	974.58	100	95-	1R	BGS
REB	EISG-BRACHAIDH	58.1194	-5.2802	206.82	919.16	100	95-	1R	BGS
RFO	FORSNAVAL	58.2133	-7.0052	106.10	935.83	195	95-	1R	BGS
RRH	RHENIGIDALE	57.9197	-6.6881	122.43	901.86	103	95-	1R	BGS
RRR	RUBHA REIDH	57.8577	-5.8067	174.19	891.68	61	95-	3RM	BGS
RSC	SCOURIE	58.3485	-5.1683	214.61	944.33	60	95-	1R	BGS
RTO	TOLSTA	58.3778	-6.2092	153.95	950.93	74	95-	1R	BGS
SAN	SANDWICK	60.0179	-1.2392	442.41	1126.08	150	85-	1	BGS
SBD	BRYN DU	52.9055	-3.2585	315.37	335.01	489	80-	1	BGS
SFH	HASELMERE	51.0604	-0.6912	491.71	129.88	260	93-	1	BGS
SIW	ISLE OF WHITE	50.6711	-1.3747	444.18	85.97	162	93-	1	BGS
SKP	KOPHILL	51.7218	-0.8096	482.22	203.29	212	93-	1	BGS
SMD	MENDIPS	51.3083	-2.7170	350.03	156.88	310	93-	1	BGS
SSP	STONEY POUND	52.4177	-3.1119	324.39	280.59	428	90-	3	BGS
SSW	STOW-ON-WOLD	51.9667	-1.8499	410.31	229.86	291	93-	1	BGS

TABLE 4a: continued

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Yrs open	Comp	Agency
SWK	WARMINSTER	51.1483	-2.2471	382.72	138.87	266	93-	1	BGS
SWN	SWINDON	51.5137	-1.8007	413.83	179.49	192	93-	3	BGS
TBW	BRENTWOOD	51.6549	0.2913	558.48	197.66	89	89-	1R	BGS
TCR	COLCHESTER	51.8347	0.9212	601.24	219.20	45	89-	1R	BGS
TEB	EASTBOURNE	50.8187	0.1457	551.13	104.39	68	89-	1R	BGS
TFO	FOLKESTONE	51.1135	1.1409	619.81	139.66	202	89-	3	BGS
TSA	SEVENOAKS	51.2426	0.1561	550.48	151.53	177	89-	1	BGS
WAL	WALLS	60.2564	-1.6173	421.18	1152.46	167	80-	1	BGS
WCB	CHURCH BAY	53.3782	-4.5467	230.62	389.87	139	85-	3M	BGS
WFB	FAIRBOURNE	52.6831	-4.0383	262.23	311.48	316	85-	1R	BGS
WIM	ISLE OF MAN(South)	54.1475	-4.6738	225.39	475.73	386	85-	1R	BGS
WLF	LLYNFAES	53.2894	-4.3966	240.27	379.65	58	85-	1	BGS
WME	MYNDD EILIAN	53.3969	-4.3032	246.88	391.40	129	85-	1R	BGS
WPM	PENMAENMAWR	53.2581	-3.9048	272.95	375.18	353	85-	1R	BGS
XAL	ALLENDALE	54.8617	-2.2147	386.22	551.91	458	83-	1R	BGS
XDE	DENT	54.5056	-3.4902	303.52	513.29	301	83-	1R	BGS
XSO	SOURHOPE	55.4924	-2.2510	384.14	622.10	516	83-	1R	BGS
YEL	YELL	60.5509	-1.0830	450.29	1185.55	203	79-	1	BGS
YLL	LLANBERIS	53.1402	-4.1704	254.84	362.57	159	84-	1R	BGS
YRC	RHOSCOLYN	53.2508	-4.5753	228.21	375.77	22	84-	1R	BGS
YRE	YR EIFL	52.9811	-4.4254	237.19	345.43	193	84-	1R	BGS
YRH	RHIW	52.8336	-4.6288	222.94	329.51	286	84-	1R	BGS
DCN	CROGHAN	53.3439	-7.2767			150	77-	1R	DIAS
DLF	LYONS FARM	53.2958	-6.5314			96	91-	3	DIAS
ASK	ASKOY	60.4830	5.1950			50	83-	1	BER
BER	BERGEN	60.3838	5.3339			50		1	BER
EGD	ESPEGREND	60.2712	5.2257			20	91-	1	BER
FOO	FLORO	61.5980	5.0440			50		1	BER
KMY	KARMOY	59.2120	5.2470			58	84-	1	BER
MOL	MOLDE	62.5700	7.5480			98	87-	1	BER
ODD1	ODDA	59.9120	6.6280			684	87-	1	BER
SUE	SULEN	61.0570	4.7610			10	84-	1	BER

Component Codes:

1	Single vertical seismometer
3	Orthogonal set of 3 seismometers
M	Low-frequency microphone
R	Station coordinates registered with the International Seismological Centre (ISC), England and the National Earthquake Information Centre (NEIC), USA

Agency Codes:

BGS	British Geological Survey
DIAS	Dublin Institute of Advanced Studies
KUN	Keele University
BER	University of Bergen

TABLE 4b

GEOGRAPHIC COORDINATES OF LOW GAIN STATIONS, DECEMBER 2002

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Yrs open	Comp	Agency
BCC	CHAPELCROSS	55.0153	-3.2201	321.99	569.66	138	92-	L	BGS
CRQ	ROSEMANOWES	50.1672	-5.1726	173.46	34.57	156	81-	L	BGS
DYA	YADSWORTHY	50.4353	-3.9310	262.88	61.34	292	82-	LR	BGS
EDI	EDINBURGH	55.9233	-3.1875	325.80	670.66	125	89-	LR	BGS
ESK	ESKDALEMUIR	55.3165	-3.2052	323.52	603.16	261	86-	LR	BGS
GAL	GALLOWAY	54.8664	-4.7114	226.02	555.78	117	89-	L	BGS
HBL2	BONNYLANDS	52.0508	-3.0384	328.80	239.71	437	91-	LR	BGS
HTL	HARTLAND	50.9943	-4.4849	225.64	124.66	86	87-	LR	BGS
JRS	MAISON ST LOUIS	49.1922	-2.0922			56	81-	LR	BGS
KEY	KEYWORTH	52.8779	-1.0757	462.20	331.59	59	88-	L	BGS
KPL	PLOCKTON	57.3391	-5.6527	180.21	833.50	13	86-	LR	BGS
LDU	LEEDS	53.8058	-1.5540	429.37	434.51	74	94-	L	BGS
LRW	LERWICK	60.1360	-1.1779	445.66	1139.27	98	78-	LR	BGS
MCH	MICHAELCHURCH	51.9974	-2.9983	331.47	233.74	219	78-	L	BGS
MCD	COLEBURN DISTIL	57.5828	-3.2541	325.02	855.42	293	81-	LR	BGS
ORE	REAY	58.5480	-3.7622	297.45	963.52	100	95-	LR	BGS
POB	OBSERVATORY	55.8458	-44299	247.88	664.06	34	92-	L	BGS
RRR	RUBHA REIDH	57.8577	-5.8067	174.19	891.68	61	95-	LR	BGS
SWN	SWINDON	51.5131	-1.8004	413.85	179.42	192	93-	L	BGS
TFO	FOLKESTONE	51.1135	1.1409	619.81	139.66	202	89-	L	BGS
WCB	CHURCH BAY	53.3782	-4.5467	230.62	389.87	139	85-	L	BGS

Component Codes:

L Single low-gain vertical seismometer
R Station coordinates registered with the International Seismological Centre (ISC), England and the National Earthquake Information Centre (NEIC), USA

Agency Codes:

BGS British Geological Survey

TABLE 4c

GEOGRAPHIC COORDINATES OF STRONG MOTION STATIONS, DECEMBER 2002

Code	Name	Lat	Lon	KmE (km)	KmN (km)	Ht (m)	Yrs open	Comp	Agency
AEU	EAST ANGLIA	52.6202	1.2347	618.93	307.45	28	95-	S	BGS
BCC	CHAPELCROSS	55.0153	-3.2201	321.99	569.66	138	92-	S	BGS
CRQ	ROSEMANOWES	50.1672	-5.1726	173.46	34.57	156	87-	SR	BGS
JDC	DAM (CREST)	49.1947	-2.0469			39	92-	1	BGS
JDG	DAM (GALLERY)	49.1947	-2.0469			7	92-	S	BGS
HUA	HUNTERSTON A	55.7190	-4.8970	218.06	651.09	10	90-	S	BGS
HUB	HUNTERSTON B	55.7210	-4.8890	218.57	651.29	10	90-	S	BGS
KEY2	KEYWORTH	52.8790	-1.0770	462.13	331.73	76	97-	S	BGS
KPL	PLOCKTON	57.3391	-5.6527	180.21	833.50	13	94-	SR	BGS
HBL2	BONNYLANDS	52.0509	-3.0365	328.93	239.72	437	94-	SR	BGS
LDU	LEEDS	53.8058	-1.5540	429.00	435.00	74	98-	S	BGS
LRWS	LERWICK	60.1397	-1.1831	445.37	1139.69	80	96-	S	BGS
MCD	COLEBURN DISTIL	57.5828	-3.2541	325.02	855.42	293	98-	S	BGS
ODR	DOUNREAY	58.5825	-3.7241	299.77	967.30	100	00-	S	BGS
RRR	RUBHA REIDH	57.8577	-5.8067	174.19	891.68	61	95-	SR	BGS
SWN	SWINDON	51.5137	-1.8007	413.83	179.49	192	95-	S	BGS
TFO	FOLKESTONE	51.1135	1.1409	619.81	139.66	202	94-	S	BGS
TOA	TORNESS A	55.9692	-2.4037	374.80	675.20	5	94-	S	BGS
TOB	TORNESS B	55.9673	-2.4085	374.50	674.99	5	94-	S	BGS
WCB	CHURCH BAY	53.3782	-4.5467	230.62	389.87	139	98-	S	BGS
HTL	HARTLAND	50.9943	-4.4849	225.64	124.66	86	81-	3RM	BGS

Component Codes:

S	Orthogonal set of 3 strong motion seismometers
1	Single strong motion seismometer – aligned NS
R	Station coordinates registered with the International Seismological Centre (ISC), England and the National Earthquake Information Centre (NEIC), USA

Agency Codes:

BGS	British Geological Survey

TABLE 5

PHASE DATA: 2002

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.
Quality	:	Solution quality of hypocentre averaged from QS and QD. A, excellent; B, good; C, fair; D, poor
RMS	:	Root Mean Square of the travel -time residuals in seconds.
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.
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

Locality abbreviations

Sonic	:	Sonic boom	N Yorkshire	:	North Yorkshire
Expl	:	Explosion	Notts	:	Nottinghamshire
D & G	:	Dumfries and Galloway	Lincs	:	Lincolnshire
Gtr	:	Greater	N'umberlnd	:	Northumberland
Her & Worcs	:	Hereford and Worcester	Staffs	:	Staffordshire
S'Clyde	:	Strathclyde	Leics	:	Leicestershire
S Yorkshire	:	South Yorkshire	W Mids	:	West Midlands
New-U-Lyme	:	Newcastle-Under-Lyme	Salop	:	Shropshire
Penin	:	Peninsula			

Comments abbreviations

Sonic	:	Sonic boom
Expl	:	Explosion
C/F	:	Coalfield type event
...	:	and felt elsewhere

PHASE DATA : 2002

January 6 2002 Time: 17:14 57.5 UTC Magnitude: 1.6 ML
Lat: 53.233N Lon: -1.040W Depth: 1.0 km
Grid Ref: 464.04 kmE 371.07 kmN RMS: 0.27 secs
Locality: OLLERTON,NOTTS Quality: D
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	33	EP	3		17:15	04.20		
CWF	SZ	58	EP	3		17:15	07.65		
CWF	SE	58	ES	3		17:15	15.74		
CWF	SN	58				17:15	22.36	8	0.14
CWF	SE	58				17:15	21.84	7	0.27
KWE	SZ	59	EP	3		17:15	07.90		
KWE	SZ	59	ES	3		17:15	15.80		
LHO	SZ	64	EP	3		17:15	08.60		
HPK	SZ	90	EP	3		17:15	13.26		
HPK	SE	90	ES	3		17:15	23.99		
SSP	SN	167	ES	3		17:15	45.11		
SSP	SN	167				17:15	47.11	8	0.21
SSP	SE	167				17:15	47.85	11	0.23
MCH	SN	191	ES	4		17:15	51.11		
MCH	SN	191				17:15	52.98	11	0.29
MCH	SE	191				17:15	54.01	8	0.35

January 8 2002 Time: 18:00 12.1 UTC Magnitude: 0.2 ML
Lat: 50.097N Lon: -5.216W Depth: 4.2 km
Grid Ref: 170.01 kmE 26.89 kmN RMS: 0.05 secs
Locality: HELSTON,CORNWALL Quality: C
Comment: 3KM EAST OF HELSTON

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CGW	SZ	1	IP		U	18:00	13.09		
CCO	SZ	5	IP		U	18:00	13.57		
CGH	SZ	6	IP		D	18:00	13.77		
CMA	SZ	7	EP	2		18:00	13.87		
CR2	SZ	9	IP		U	18:00	14.20		
CR2	SN	9	ES	2		18:00	15.39		
CR2	SN	9				18:00	15.42	11	0.12
CR2	SE	9				18:00	15.41	31	0.06

January 9 2002 Time: 09:52 25.8 UTC Magnitude: 0.4 ML
Lat: 57.032N Lon: -5.761W Depth: 7.5 km
Grid Ref: 171.84 kmE 799.66 kmN RMS: 0.06 secs
Locality: MALLAIG,HIGHLAND Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	29	IP	1	D	09:52	31.02		
KPL	SZ	35	IP	1	U	09:52	31.97		
KPL	SN	35	ES	2		09:52	36.57		
KPL	SN	35				09:52	36.68	4	0.13
KPL	SE	35				09:52	36.74	5	0.20
KNR	SZ	54	EP	2		09:52	34.88		
KAC	SZ	59	EP	3		09:52	36.02		

January 9 2002 Time: 10:52 23.5 UTC Magnitude: 1.9 ML
Lat: 57.027N Lon: -5.781W Depth: 8.6 km
Grid Ref: 170.55 kmE 799.18 kmN RMS: 0.08 secs
Locality: MALLAIG,HIGHLAND Quality: D
Comment: 5KM NORTHEAST OF MALLAIG

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	30	IP		D	10:52	28.95		
KPL	SZ	36	IP			10:52	29.88		
KPL	SN	36	ES	2		10:52	34.45		
KPL	SN	36				10:52	34.84	36	0.09
KPL	SE	36				10:52	34.53	51	0.18
KNR	SZ	54	IP		U	10:52	32.76		
KAC	SZ	60	EP	2		10:52	33.89		
KSK	SZ	74	EP	2		10:52	35.87		
MDO	SZ	97	EP	1		10:52	39.86		
MCD	SZ	165	EP	2		10:52	49.34		
MCD	SE	165	ES	3		10:53	08.74		
MCD	SN	165				10:53	11.38	31	0.27
MCD	SE	165				10:53	11.48	39	0.20
MME	SZ	173	EP	1	D	10:52	50.30		

January 10 2002 Time: 22:14 37.0 UTC Magnitude: 0.6 ML
Lat: 56.997N Lon: -5.314W Depth: 9.8 km
Grid Ref: 198.70 kmE 794.42 kmN RMS: 0.19 secs
Locality: LOCH QUOICH,HIGHLAND Quality: D
Comment: 25KM NW OF FORT WILLIAM

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	25	EP	1	D	22:14	41.53		
KNR	SZ	29	EP	2		22:14	42.41		
KNR	SZ	29	ES	3		22:14	45.82		
KPL	SZ	43	EP	3		22:14	44.91		
KPL	SN	43	ES	3		22:14	50.02		
KPL	SN	43				22:14	50.34	4	0.14
KPL	SE	43				22:14	50.13	7	0.18

January 14 2002 Time: 00:18 36.4 UTC Magnitude: 1.9 ML
Lat: 50.079N Lon: -2.991W Depth: 0.5 km
Grid Ref: 329.12 kmE 20.38 kmN RMS: 0.22 secs
Locality: ENGLISH CHANNEL Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
DYA	SZ	78	EP	2		00:18	49.65		
DYA	SE	78	ES	3		00:19	00.08		
DYA	SN	78				00:19	02.48	5	0.11
DYA	SE	78				00:19	02.38	77	0.11
JLP	SZ	112	EP	2		00:18	55.32		
JSA	SZ	115	EP	2		00:18	56.00		
JRS	SZ	118	EP	2		00:18	56.35		
JRS	SN	118	ES	3		00:19	10.69		
JRS	SN	118				00:19	11.76	34	0.11
JRS	SE	118				00:19	11.19	38	0.12
JQE	SZ	120	EP	2		00:18	56.53		
SWK	SZ	130	EP	2		00:18	58.32		
SMD	SZ	138	EP	3		00:18	58.92		
CSA	SZ	139	EP	2		00:18	59.80		
CBW	SZ	152	EP	3		00:19	01.32		
CMA	SZ	153	EP	3		00:19	01.69		
CGH	SZ	156	EP	3		00:19	01.63		
CST	SZ	156	EP	3		00:19	01.53		
CR2	SZ	156	EP	3		00:19	01.51		
CR2	SN	156	ES	3		00:19	21.01		
CR2	SN	156				00:19	24.29	20	0.08
CR2	SE	156				00:19	24.93	18	0.08
CCO	SZ	158	EP	3		00:19	01.91		
CGW	SZ	160	EP	3		00:19	01.80		
SSW	SZ	225	EP	3		00:19	10.15		

January 23 2002 Time: 01:05 27.3 UTC Magnitude: 1.3 ML
Lat: 53.225N Lon: -1.064W Depth: 2.1 km
Grid Ref: 462.49 kmE 370.19 kmN RMS: 0.09 secs
Locality: WORKSOP,NOTTS Quality: C
Comment: C/F,9KM SOUTH OF WORKSOP

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	31	EP	3		01:05	33.01		
CWF	SZ	57	EP	3		01:05	37.33		
CWF	SN	57	ES			01:05	44.65		
CWF	SN	57				01:05	45.41	12	0.15
CWF	SE	57				01:05	44.98	12	0.13
KWE	SZ	57	EP	3		01:05	37.66		

January 28 2002 Time: 00:30 09.2 UTC Magnitude: 1.7 ML
Lat: 51.702N Lon: -3.258W Depth: 5.1 km
Grid Ref: 313.05 kmE 201.11 kmN RMS: 0.24 secs
Locality: BARGOED,MID GLAMORGAN Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	32	EP	2		00:30	15.00		
MCH	SZ	38	EP	2		00:30	15.90		
MCH	SN	38	ES	2		00:30	20.89		
MCH	SN	38	AMPL			00:30	21.23	80	0.16
MCH	SE	38	AMPL			00:30	21.00	88	0.12
HTR	SZ	42	EP	2		00:30	16.68		
HAE	SZ	62	EP	2		00:30	20.32		

January 28 2002 Time: 00:30 14.8 UTC Magnitude: 2.5 ML
Lat: 51.700N Lon: -3.257W Depth: 6.3 km
Grid Ref: 313.13 kmE 200.88 kmN RMS: 0.09 secs
Locality: BARGOED,MID GLAMORGAN Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	32	IP		U	00:30	20.62		
HGH	SZ	32	ES	3		00:30	24.96		
MCH	SZ	38	EP	3		00:30	21.59		
MCH	SN	38	ES	2		00:30	26.51		
HSA	SZ	62	EP	2		00:30	25.39		
HAE	SZ	62	EP	2		00:30	25.59		
HEX	SZ	80	EP	4		00:30	28.43		
SSP	SZ	81	EP	4		00:30	29.34		
SSP	SN	81				00:30	41.14	41	0.25
SSP	SE	81				00:30	39.01	36	0.25
SWN	SN	103	ES			00:30	45.83		
SWN	SN	103				00:30	47.48	132	0.19
SWN	SE	103				00:30	47.54	65	0.18
HTL	SE	116	ES	2		00:30	48.46		
HTL	SN	116				00:30	49.81	86	0.23
HTL	SE	116				00:30	49.75	99	0.18
DYA	SE	148	ES	2		00:30	56.94		
DYA	SN	148				00:30	58.54	179	0.11
DYA	SE	148				00:30	57.75	151	0.19
HTR	SZ	42	EP	2		00:30	22.17		

January 30 2002 Time: 17:06 09.8 UTC Magnitude: 3.5 ML
Lat: 53.308N Lon: 1.226W Depth: 21.9 km
Grid Ref: 614.93 kmE 383.91 kmN RMS: 0.25 secs
Locality: SOUTHERN NORTH SEA Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
AWI	SZ	55	IP		D	17:06	19.29		
AEU	SN	77	ES	2		17:06	31.56		
AEU	AE	77				17:06	33.02	2155	0.15
LMK	SZ	105	EP	2		17:06	27.08		
KTG	SZ	155	EP	3		17:06	33.03		
LWH	SZ	169	EP	3		17:06	34.60		
CWF	SZ	182	EP	2		17:06	36.55		
CWF	SN	182	ES	3		17:06	57.91		
CWF	SN	182				17:07	03.96	103	0.18
CWF	SE	182				17:07	03.58	115	0.16
KBI	SZ	184	EP	2		17:06	36.27		
HPK	SZ	202	EP	2		17:06	39.03		
HPK	SN	202				17:07	14.21	781	0.33
HPK	SE	202				17:07	16.32	770	0.24
LHO	SZ	207	EP	3		17:06	39.02		
KWE	SZ	208	EP	3		17:06	40.46		
LCP	SZ	238	EP	2		17:06	42.69		
AEU	AN	77				17:06	33.04	2886	0.22
AEU	AE	77	ES	4		17:06	32.40		
AEU	SZ	77	EP	2		17:06	22.47		

February 9 2002 Time: 21:02 46.3 UTC Magnitude: 0.8 ML
Lat: 57.021N Lon: -5.850W Depth: 5.4 km
Grid Ref: 166.34 kmE 798.84 kmN RMS: 0.16 secs

PHASE DATA : 2002

Locality: MALLAIG,HIGHLAND **Quality: D**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KAR	SZ	12	IP		C	21:02	48.90		
KAR	SZ	12	ES	3		21:02	50.33		
KPL	SZ	37	EP	2		21:02	53.16		
KPL	SN	37	ES	2		21:02	57.84		
KPL	SE	37	AMPL			21:02	58.22	14	0.16
KPL	SN	37	AMPL			21:02	58.25	10	0.18
KAC	SZ	63	EP	2		21:02	57.47		
KSB	SZ	33	EP	2		21:02	52.59		

February 12 2002 Time: 19:13 16.2 UTC Magnitude: 3.0 ML
Lat: 51.701N Lon: -3.256W Depth: 5.2 km
Grid Ref: 313.25 kmE 200.99 kmN RMS: 0.09 secs
Locality: BARGOED,MID GLAMORGAN Quality: B
Comment: FELT BARGOED... Intensity: 4+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	32	IP		C	19:13	22.04		
HGH	SZ	32	ES	3		19:13	26.33		
MCH	SN	38	ES	2		19:13	27.90		
HTR	SZ	42	IP		D	19:13	23.64		
SMD	SZ	58	IP		D	19:13	25.99		
HSA	SZ	62	IP		C	19:13	26.80		
HAE	SZ	62	IP		C	19:13	26.88		
SSP	SN	80	ES	2		19:13	39.82		
HEX	SZ	80	IP		C	19:13	29.81		
SSP	SZ	80	IP		D	19:13	29.72		
SSP	SE	80	E			19:13	40.34	280	0.31
SSP	SN	80	E			19:13	47.17	268	0.15
SWK	SZ	93	EP	1	D	19:13	32.24		
SSW	SZ	101	IP		C	19:13	33.76		
SWN	SZ	103	EP	2		19:13	34.05		
SWN	SN	103	E			19:13	51.89	566	0.22
SWN	SE	103	E			19:13	52.00	402	0.35
HTL	SN	116	ES	2		19:13	49.46		
DYA	SZ	149	EP	2		19:13	39.90		
DYA	SE	149	E			19:13	59.13	792	0.25
DYA	SN	149	E			19:13	59.74	363	0.22
MCH	SZ	38	IP		C	19:13	22.98		

February 14 2002 Time: 19:00 38.2 UTC Magnitude: 4.0 ML
Lat: 59.793N Lon: 2.536W Depth: 15.0 km
Grid Ref: 654.43 kmE 1109.51 kmN RMS:
Locality: NORTHERN NORTH SEA Quality:

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRW	SN		ES	3		19:01	30.48		
LRW	SN		AMPL			19:01	32.53	616	0.33
LRW	SE		AMPL			19:01	36.80	796	0.43
SAN	SZ		EP	2		19:01	08.04		
YEL	SZ		EP	2		19:01	09.86		
WAL	SZ		EP	2		19:01	11.66		
OST	SZ		EP	2		19:01	20.02		
OWE	SZ		EP	3		19:01	22.70		
OHO	SZ		EP	3		19:01	25.55		
OBR	SZ		EP	3		19:01	25.98		
MLA	SZ		EP	3		19:01	28.74		
ORE	SZ		EP	3		19:01	30.24		
ORE	SN		AMPL			19:02	23.36	335	0.48
ORE	SE		AMPL			19:02	28.16	380	0.60
MCD	SZ		EP	3		19:01	34.08		
MCD	SN		ES	3		19:02	11.84		
MCD	SE		AMPL			19:02	12.66	261	0.52
MCD	SN		AMPL			19:02	13.28	324	0.26
MME	SZ		EP	3		19:01	35.22		
EDR	SZ		EP	3		19:01	37.31		
MVH	SZ		EP	3		19:01	36.09		
MDO	SZ		EP	3		19:01	41.26		
ESY	SZ		EP	3		19:01	48.86		
EBH	SZ		EP	3		19:01	48.93		
EDI	SZ		EP	2		19:01	51.55		
EDI	SN		ES	3		19:02	41.40		
EDI	SN		AMPL			19:02	45.59	152	0.50
EDI	SE		AMPL			19:02	45.64	127	0.30
EBL	SZ		EP	3		19:01	52.49		
EAU	SZ		EP	3		19:01	53.65		
ESK	SN		ES	3		19:02	54.31		
ESK	SE		AMPL			19:02	57.70	87	0.28
ESK	SN		AMPL			19:02	58.23	56	0.24
LRW	SZ		EP	3		19:01	08.49		

February 17 2002 Time: 15:44 06.7 UTC Magnitude: 2.0 ML
Lat: 51.706N Lon: -3.261W Depth: 2.4 km
Grid Ref: 312.90 kmE 201.56 kmN RMS: 0.09 secs
Locality: BARGOED,MID GLAMORGAN Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	32	IP		C	15:44	12.60		
HGH	SZ	32	ES	3		15:44	16.96		
MCH	SZ	37	IP		C	15:44	13.52		
MCH	SN	37	ES	2		15:44	18.45		
MCH	SE	37	AMPL			15:44	18.72	131	0.13
MCH	SN	37	AMPL			15:44	19.01	178	0.15
HTR	SZ	42	EP	2		15:44	14.21		
HAE	SZ	62	EP	2		15:44	17.48		
HSA	SZ	62	IP	1	C	15:44	17.43		
SSP	SZ	80	EP	3		15:44	20.93		
SSP	SE	80	ES	2		15:44	30.16		
HEX	SZ	81	EP	2		15:44	20.50		
HTL	SE	116	ES	2		15:44	40.43		
HTL	SN	116	AMPL			15:44	41.94	49	0.20
HTL	SE	116	AMPL			15:44	43.02	60	0.40

February 23 2002 Time: 21:42 27.6 UTC Magnitude: 1.3 ML
Lat: 52.654N Lon: -4.270W Depth: 14.5 km
Grid Ref: 246.46 kmE 308.76 kmN RMS: 0.09 secs
Locality: CARDIGAN BAY Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WFB	SZ	16	IP	1	C	21:42	31.27		
YRH	SZ	31	IP	1	D	21:42	33.43		
YRE	SZ	38	EP	1	C	21:42	34.65		
YLL	SZ	55	IP		C	21:42	37.04		
YRC	SZ	69	IP	1	C	21:42	39.36		
YRC	SZ	69	ES	2		21:42	47.59		
WLF	SZ	71	EP	2		21:42	39.57		
WPM	SZ	72	IP		D	21:42	39.61		
WME	SZ	83	EP	2		21:42	41.54		
WCB	SE	83	ES	2		21:42	51.24		
WCB	SE	83	E			21:42	51.60		
WCB	SE	83	AMP			21:42	51.69	14	0.23
WCB	SN	83	E			21:42	52.01		
WCB	SN	83	AMP			21:42	52.07	10	0.30
WIM	SZ	168	EP	2		21:42	53.87		
WCB	SZ	83	EP	1	C	21:42	41.55		

February 24 2002 Time: 23:18 35.4 UTC Magnitude: 1.7 ML
Lat: 51.700N Lon: -3.272W Depth: 3.2 km
Grid Ref: 312.14 kmE 200.90 kmN RMS: 0.06 secs
Locality: BARGOED,MID GLAMORGAN Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	33	IP		D	23:18	41.40		
HGH	SZ	33	ES	2		23:18	45.89		
MCH	SZ	38	IP	1	C	23:18	42.37		
MCH	SE	38	ES	2		23:18	47.27		
MCH	SE	38	AMPL			23:18	47.70	82	0.16
MCH	SN	38	AMPL			23:18	47.70	111	0.16
HTR	SZ	42	IP		D	23:18	43.02		
HSA	SZ	61	EP	2		23:18	46.03		
HAE	SZ	63	EP	2		23:18	46.22		
SSP	SZ	81	EP	2		23:18	49.24		
SSP	SE	81	ES	3		23:18	58.98		
HTL	SZ	115	IP		D	23:18	55.45		
HTL	SE	115	ES	2		23:19	08.91		

February 25 2002 Time: 03:46 04.3 UTC Magnitude: 0.4 ML
Lat: 57.021N Lon: -5.830W Depth: 5.3 km
Grid Ref: 167.56 kmE 798.69 kmN RMS: 0.12 secs
Locality: MALLAIG,HIGHLAND Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KAR	SZ	11	IP		C	03:46	06.83		
KAR	SZ	11	ES	2		03:46	08.32		
KSB	SZ	33	EP	3		03:46	10.38		
KPL	SZ	37	EP	2		03:46	11.03		
KPL	SN	37	ES	2		03:46	15.74		
KPL	SN	37	AMPL			03:46	16.11	4	0.33
KPL	SE	37	AMPL			03:46	16.26	5	0.18
KNR	SZ	57	EP			03:46	14.08		
KAC	SZ	62	EP	3		03:46	15.37		

February 25 2002 Time: 06:10 37.3 UTC Magnitude: 0.8 ML
Lat: 57.020N Lon: -5.811W Depth: 3.6 km
Grid Ref: 168.70 kmE 798.55 kmN RMS: 0.12 secs
Locality: MALLAIG,HIGHLAND Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KAR	SZ	11	IP		C	06:10	39.78		
KAR	SZ	11	ES	2		06:10	41.27		
KSB	SZ	32	EP	3		06:10	43.34		
KPL	SZ	37	EP	2		06:10	44.07		
KPL	SE	37	ES	2		06:10	48.65		
KPL	SN	37	AMPL			06:10	48.86	9	0.14
KPL	SE	37	AMPL			06:10	49.18	15	0.17
KNR	SZ	56	EP	2		06:10	47.04		
KAC	SZ	62	EP	3		06:10	48.71		
KSK	SZ	73	EP	3		06:10	50.59		

March 3 2002 Time: 08:10 39.9 UTC Magnitude: 0.8 ML
Lat: 52.122N Lon: -2.710W Depth: 13.5 km
Grid Ref: 351.40 kmE 247.40 kmN RMS: 0.04 secs
Locality: HEREFORD,HER & WOR Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HAE	SZ	15	ES	3		08:10	45.77		
SSP	SN	43	ES	2		08:10	53.04		
SSP	SN	43	AMPL			08:10	53.29	11	0.17
SSP	SE	43	AMPL			08:10	53.32	9	0.14
HGH	SZ	54	EP	2		08:10	49.12		
SSP	SZ	43	EP	2		08:10	47.43		
HAE	SZ	15	IP		D	08:10	43.33		

March 16 2002 Time: 00:21 24.7 UTC Magnitude: 2.0 ML
Lat: 57.007N Lon: -4.719W Depth: 7.7 km
Grid Ref: 234.91 kmE 793.92 kmN RMS: 0.16 secs
Locality: INVERGARRY,HIGHLAND Quality: C
Comment: 8KM SE OF INVERGARRY

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KNR	SZ	26	IP		D	00:21	29.49		
MDO	SZ	53	IP		D	00:21	33.74		
KAC	SZ	65	EP	1	C	00:21	35.62		
KAR	SZ	68	EP	2		00:21	36.35		
KPL	SZ	68	IP	1	C	00:21	36.31		

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KPL	SN	68	ES	2	00:21	44.00		
KPL	SN	68	AMPL		00:21	44.81	44	0.27
KPL	SE	68	AMPL		00:21	47.80	74	0.26
MME	SZ	111	EP	2	00:21	43.51		
MCD	SZ	109	EP	2	00:21	43.08		
MCD	SN	109	AMPL		00:21	57.86	46	0.28
MCD	SE	109	ES	2	00:21	56.49		
MCD	SE	109	AMPL		00:21	57.59	53	0.14

March 16 2002 Time: 05:07 14.7 UTC Magnitude: 1.4 ML
Lat: 51.702N Lon: -3.266W Depth: 2.2 km
Grid Ref: 312.55 kmE 201.23 kmN RMS: 0.07 secs
Locality: BARGOED,MID GLAMORGAN Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SE		AMPL			05:07	38.63	7	0.26
SSP	SN		AMPL			05:07	45.93	7	0.18
HGH	SZ	33	IP		C	05:07	20.77		
MCH	SZ	38	IP		D	05:07	21.80		
MCH	SN	38	ES	2		05:07	26.64		
MCH	SE	38	AMPL			05:07	27.04	60	0.24
MCH	SN	38	AMPL			05:07	27.16	89	0.23
HTR	SZ	42	IP		D	05:07	22.34		
HAE	SZ	62	EP	2		05:07	25.63		
HSA	SZ	62	EP	2		05:07	25.48		
HEX	SZ	80	EP	2		05:07	28.54		
HTL	SN	116	ES	3		05:07	48.46		
HTL	SN	116	AMPL			05:07	50.89	6	0.16
HTL	SE	116	AMPL			05:07	51.47	9	0.17

March 17 2002 Time: 00:45 54.0 UTC Magnitude: 0.6 ML
Lat: 52.300N Lon: -2.824W Depth: 21.4 km
Grid Ref: 343.79 kmE 267.26 kmN RMS: 0.10 secs
Locality: LEOMINSTER,HER & WOR Quality: C
Comment: 7KM NW OF LEOMINSTER

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	24	IP		D	00:45	59.32		
SSP	SN	24	ES	2		00:46	02.83		
SSP	SN	24	AMPL			00:46	02.96	9	0.11
SSP	SE	24	AMPL			00:46	03.02	13	0.08
HAE	SZ	35	EP	2		00:46	00.65		
MCH	SZ	36	IP		C	00:46	00.89		
MCH	SN	36	ES	2		00:46	05.75		
MCH	SE	36	AMPL			00:46	06.10	6	0.10
MCH	SN	36	AMPL			00:46	06.22	6	0.18
HTR	SZ	39	IP		D	00:46	01.15		
HGH	SZ	74	EP	2		00:46	07.13		

March 24 2002 Time: 11:17 59.0 UTC Magnitude: 0.0 ML
Lat: 55.311N Lon: -3.071W Depth: 18.0 km
Grid Ref: 332.03 kmE 602.44 kmN RMS: 0.04 secs
Locality: ESKDALE,D & G Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ESK	SZ	9	IP	1	C	11:18	02.50		
ESK	SE	9	ES	1		11:18	05.04		
ESK	SE	9	AMPL			11:18	05.22	4	0.13
ESK	SN	9	AMPL			11:18	06.23	4	0.12
ECK	SZ	15	IP	1	C	11:18	03.16		
ECK	SZ	15	ES	3		11:18	05.97		

March 29 2002 Time: 16:50 35.0 UTC Magnitude: 1.0 ML
Lat: 55.118N Lon: -3.599W Depth: 11.9 km
Grid Ref: 298.04 kmE 581.56 kmN RMS: 0.06 secs
Locality: DUMFRIES,D & G Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ECK	SZ	31	EP	2		16:50	40.55		
ECK	SZ	31	ES	3		16:50	44.86		
ESK	SZ	33	IP		C	16:50	41.04		
ESK	SE	33	ES	2		16:50	45.51		
ESK	SE	33	AMPL			16:50	46.47	22	0.16
ESK	SN	33	AMPL			16:50	46.54	19	0.13
XAL	SZ	93	EP	2		16:50	50.71		

April 4 2002 Time: 08:45 46.8 UTC Magnitude: 1.5 ML
Lat: 51.662N Lon: -3.402W Depth: 8.0 km
Grid Ref: 303.00 kmE 196.88 kmN RMS: 0.12 secs
Locality: MOUNTAIN ASH,MID GLAMO Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	41	IP		D	08:45	53.99		
MCH	SZ	47	EP	2		08:45	54.97		
MCH	SN	47	ES	2		08:45	59.85		
MCH	SN	47	AMPL			08:46	00.36	47	0.19
MCH	SE	47	AMPL			08:46	00.41	34	0.27
HSA	SZ	53	EP	2		08:45	55.83		
HAE	SZ	73	EP	2		08:45	59.12		
HEX	SZ	72	EP	2		08:45	58.84		

April 5 2002 Time: 08:10 51.4 UTC Magnitude: 1.5 ML
Lat: 60.861N Lon: -0.211W Depth: 8.0 km
Grid Ref: 497.16 kmE 1221.06 kmN RMS: 0.28 secs
Locality: NORTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YEL	SZ	59	ES	3		08:11	08.51		
LRW	SZ	97	EP	3		08:11	07.01		
LRW	SE	97	ES	3		08:11	18.84		
LRW	SN	97	AMPL			08:11	19.98	14	0.19
LRW	SE	97	AMPL			08:11	21.87	21	0.25
WAL	SZ	102	EP	3		08:11	08.56		
SAN	SZ	110	EP	3		08:11	08.80		

April 10 2002 Time: 04:47 18.6 UTC Magnitude: 0.8 ML
Lat: 58.062N Lon: -3.755W Depth: 4.1 km
Grid Ref: 296.44 kmE 909.41 kmN RMS: 0.20 secs
Locality: BRORA,HIGHLAND Quality: C
Comment: 7KM NW OF BRORA

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MVH	SZ	30	EP	2		04:47	24.08		
MVH	SZ	30	ES	3		04:47	27.59		
MLA	SZ	36	IP		D	04:47	25.11		
MLA	SZ	36	ES	3		04:47	29.40		
ORE	SZ	54	IP		C	04:47	28.26		
ORE	SN	54	ES	2		04:47	34.77		
ORE	SN	54	AMPL			04:47	35.75	14	0.24
ORE	SE	54	AMPL			04:47	36.29	15	0.13
MCD	SZ	61	EP	3		04:47	29.25		
MCD	SN	61	ES	2		04:47	36.79		
MCD	SE	61	AMPL			04:47	37.07	2	0.27
MCD	SN	61	AMPL			04:47	37.22	6	0.38
OBR	SZ	71	EP	2		04:47	30.83		
MDO	SZ	78	EP	3		04:47	31.87		

April 18 2002 Time: 22:54 18.4 UTC Magnitude: 0.7 ML
Lat: 57.110N Lon: -4.084W Depth: 5.1 km
Grid Ref: 273.78 kmE 804.04 kmN RMS: 0.07 secs
Locality: KINGUSSIE,HIGHLAND Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MDO	SZ	41	EP	2		22:54	25.61		
KNR	SZ	63	EP	2		22:54	29.12		
MME	SZ	71	EP	2		22:54	30.37		
MCD	SZ	73	EP			22:54	30.76		
MCD	SN	73	ES	2		22:54	39.58		
MCD	SN	73	AMPL			22:54	39.74	4	0.17
MCD	SE	73	AMPL			22:54	42.24	8	0.09
ELO	SZ	75	EP	2		22:54	30.99		
KAC	SZ	85	EP	2		22:54	32.51		
MVH	SZ	91	EP	2		22:54	33.60		
EDR	SZ	96	EP	2		22:54	34.40		
KPL	SZ	98	EP	2		22:54	34.82		
KPL	SN	98	ES	2		22:54	46.63		
KPL	SE	98	AMPL			22:54	47.33	1	0.13
KPL	SN	98	AMPL			22:54	47.38	3	0.14
KAR	SZ	108	EP	3		22:54	35.98		

April 23 2002 Time: 21:30 26.7 UTC Magnitude: 2.7 ML
Lat: 53.496N Lon: 2.497W Depth: 10.0 km
Grid Ref: 698.21 kmE 409.36 kmN RMS:
Locality: SOUTHERN NORTH SEA Quality:

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
AWI	SZ		EP	2		21:30	42.83		
ABA	SZ		EP	2		21:30	44.72		
AEU	SZ		EP	3		21:30	47.60		
AEU	SN		ES	3		21:31	02.67		
AEU	SN		AMPL			21:31	03.66	63	0.21
AEU	SE		AMPL			21:31	03.78	93	0.63
AWH	SZ		EP	2		21:30	49.28		
CWF	SZ		EP	2		21:31	06.04		
CWF	SE		AMPL			21:31	47.30	25	0.38
CWF	SN		AMPL			21:31	52.77	18	0.63
KBI	SZ		EP	2		21:31	06.12		
HPK	SZ		EP	3		21:31	13.22		
HPK	SN		AMPL			21:31	56.88	89	0.68
HPK	SE		AMPL			21:32	00.77	160	0.53

April 26 2002 Time: 03:25 31.3 UTC Magnitude: 2.1 ML
Lat: 52.833N Lon: -4.385W Depth: 11.9 km
Grid Ref: 239.37 kmE 328.83 kmN RMS: 0.07 secs
Locality: PWLLHELI,GWYNEDD Quality: B
Comment: 5KM OFFSHORE

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YRH	SZ	17	IP		C	03:25	34.70		
YRE	SZ	17	IP		D	03:25	34.82		
WFB	SZ	29	IP		C	03:25	36.50		
YLL	SZ	37	IP		D	03:25	37.81		
YRC	SZ	48	IP		D	03:25	39.64		
WLF	SZ	51	IP		D	03:25	40.03		
WPM	SZ	57	EP	1	C	03:25	41.02		
WME	SZ	63	EP	2		03:25	41.79		
SBD	SZ	76	EP	1	C	03:25	43.87		
MCH	SZ	133	EP	2		03:25	53.32		
MCH	SN	133	ES	2		03:26	08.60		
MCH	SN	133	AMPL			03:26	08.89	53	0.16
MCH	SE	133	AMPL			03:26	09.08	65	0.15
KWE	SZ	172	EP	2		03:25	58.43		
CWF	SZ	208	EP	2		03:26	03.25		
CWF	SE	208	AMPL			03:26	28.93	9	0.12
CWF	SN	208	AMPL			03:26	29.14	14	0.15
WCB	SZ	62	IP		D	03:25	41.80		
SSP	SZ	98	EP	2		03:25	47.82		
SSP	SN	98	ES	2		03:25	59.11		
SSP	SN	98	AMPL			03:26	03.70	73	0.18
SSP	SE	98	AMPL			03:26	03.94	61	0.09

April 28 2002 Time: 13:09 37.8 UTC Magnitude: 0.9 ML
Lat: 57.331N Lon: -5.339W Depth: 3.2 km
Grid Ref: 199.07 kmE 831.66 kmN RMS: 0.12 secs
Locality: SHIEL BRIDGE,HIGHLAND Quality: C
Comment: 10KM NNE OF SHIEL BRIDGE

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	14	EP	3		13:09	40.52		

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KAC	SZ	19	EP	2		13:09	41.45		
KPL	SZ	19	EP	1	C	13:09	41.63		
KPL	SN	19	ES	2		13:09	43.97		
KPL	SN	19	AMPL			13:09	44.17	63	0.15
KPL	SE	19	AMPL			13:09	44.21	22	0.10
KAR	SZ	55	EP	2		13:09	47.52		
KNR	SZ	61	EP	3		13:09	48.48		

May 2 2002 Time: 01:48 03.1 UTC Magnitude: 2.3 ML
Lat: 57.015N Lon: -4.796W Depth: 3.3 km
Grid Ref: 230.26 kmE 794.96 kmN RMS: 0.14 secs
Locality: LOCH LOCHY,HIGHLAND Quality: B
Comment: FELT SPEAN BRIDGE Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	44	IP		C	01:48	11.07		
MDO	SZ	54	IP		D	01:48	12.60		
KAC	SZ	62	IP		C	01:48	13.96		
KPL	SZ	63	IP		C	01:48	14.28		
KPL	SN	63	ES	2		01:48	21.49		
KPL	SN	63	AMPL			01:48	25.44	76	0.10
KPL	SE	63	AMPL			01:48	25.75	173	0.28
KAR	SZ	64	IP		C	01:48	14.17		
KAR	SZ	64	ES	3		01:48	21.56		
ELO	SZ	90	IP		C	01:48	18.27		
EAB	SZ	96	IP		C	01:48	19.41		
MVH	SZ	108	EP	2		01:48	21.24		
MCD	SZ	112	EP	2		01:48	22.23		
MCD	SN	112	ES	2		01:48	35.77		
MCD	SN	112	AMPL			01:48	37.56	142	0.30
MCD	SE	112	AMPL			01:48	37.83	167	0.43
MME	SZ	116	EP	3		01:48	22.35		
EBH	SZ	116	EP	1	C	01:48	22.75		
EDU	SZ	121	EP	2		01:48	23.60		
KSK	SZ	126	EP	2		01:48	24.30		
EDR	SZ	138	EP	2		01:48	25.71		
EDI	SZ	157	EP	2		01:48	28.93		
EDI	SN	157	ES	2		01:48	47.21		
EDI	SE	157	AMPL			01:48	47.98	52	0.29
EDI	SN	157	AMPL			01:48	49.36	41	0.24
KNR	SZ	24	IP		D	01:48	07.52		
KNR	SZ	24	ES	3		01:48	10.42		

May 3 2002 Time: 02:46 30.5 UTC Magnitude: 1.0 ML
Lat: 52.311N Lon: -3.258W Depth: 16.0 km
Grid Ref: 314.24 kmE 268.85 kmN RMS: 0.06 secs
Locality: LLANDRINDOD WELLS,POWY Quality: C
Comment: 12KM NE OF LLANDRINDOD

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	16	IP		C	02:46	34.26		
SSP	SN	16	AMPL			02:46	37.33	62	0.08
SSP	SE	16	AMPL			02:46	37.34	57	0.11
HTR	SZ	26	IP		D	02:46	35.68		
MCH	SZ	39	EP	2		02:46	37.51		
MCH	SN	39	ES	2		02:46	42.84		
MCH	SN	39	AMPL			02:46	42.99	9	0.19
MCH	SE	39	AMPL			02:46	43.00	7	0.16
HAE	SZ	58	IP	1	D	02:46	40.40		
SSP	SN	16	ES	2		02:46	37.08		

May 3 2002 Time: 08:49 08.2 UTC Magnitude: 1.2 ML
Lat: 57.328N Lon: -5.335W Depth: 3.0 km
Grid Ref: 199.24 kmE 831.28 kmN RMS: 0.08 secs
Locality: SHIEL BRIDGE,HIGHLAND Quality: B
Comment: 10KM NNE OF SHIEL BRIDGE

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	14	EP	2		08:49	10.99		
KPL	SZ	19	EP	1	C	08:49	12.02		
KPL	SN	19	ES	2		08:49	14.45		
KPL	SE	19	AMPL			08:49	14.68	38	0.11
KAC	SZ	19	IP	1	D	08:49	11.87		
KPL	SN	19	AMPL			08:49	14.77	114	0.27
KAR	SZ	55	EP	2		08:49	17.84		
MDO	SZ	60	IP		C	08:49	18.56		
KNR	SZ	61	EP	2		08:49	18.74		
MVH	SZ	96	EP	1	C	08:49	24.23		

May 3 2002 Time: 18:44 58.9 UTC Magnitude: 2.3 ML
Lat: 57.327N Lon: -5.334W Depth: 3.5 km
Grid Ref: 199.30 kmE 831.22 kmN RMS: 0.06 secs
Locality: SHIEL BRIDGE,HIGHLAND Quality: B
Comment: FELT 10KM NNE OF SHIEL BRIDGE Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MDO	SZ	60	IP		C	18:45	09.30		
RRR	SZ	66	EP	2		18:45	10.12		
RRR	SE	66	AMPL			18:45	20.29	67	0.44
RRR	SN	66	AMPL			18:45	22.60	82	0.14
MVH	SZ	96	IP		D	18:45	14.92		
MCD	SZ	128	EP	2		18:45	20.54		
MCD	SN	128	ES	2		18:45	34.48		
MCD	SN	128	AMPL			18:45	36.99	127	0.20
MCD	SE	128	AMPL			18:45	37.65	144	0.20
ELO	SZ	138	EP	1	C	18:45	22.08		
EAB	SZ	141	EP	2		18:45	22.84		
EDU	SZ	166	EP	2		18:45	26.72		
EDR	SZ	175	EP	2		18:45	26.54		
EDI	SZ	205	EP	4		18:45	30.08		
EDI	SN	205	AMPL			18:45	57.09	34	0.42
EDI	SE	205	AMPL			18:45	58.19	37	0.40
KSB	SZ	14	IP		D	18:45	01.74		
KAC	SZ	19	IP		D	18:45	02.61		
KSK	SZ	84	IP		C	18:45	13.59		
KPL	SZ	19	IP		C	18:45	02.75		
KPL	SN	19	ES	2		18:45	05.17		
KNR	SZ	61	IP		C	18:45	09.38		
KAR	SZ	55	EP	2		18:45	08.50		

May 3 2002 Time: 18:46 29.7 UTC Magnitude: 2.0 ML
Lat: 57.324N Lon: -5.331W Depth: 2.7 km
Grid Ref: 199.51 kmE 830.82 kmN RMS: 0.09 secs
Locality: SHIEL BRIDGE,HIGHLAND Quality: C
Comment: FELT 10KM NNE OF SHIEL BRIDGE Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	14	IP		D	18:46	32.59		
KAC	SZ	20	IP		D	18:46	33.47		
KPL	SZ	20	EP	1	C	18:46	33.62		
KPL	SN	20	ES	2		18:46	36.04		
KPL	SE	20	AMPL			18:46	36.27	101	0.10
KPL	SN	20	AMPL			18:46	36.36	448	0.28
KAR	SZ	54	EP	2		18:46	39.36		
KNR	SZ	60	EP	2		18:46	39.97		
MDO	SZ	60	IP		C	18:46	40.16		
KSK	SZ	84	EP	2		18:46	44.45		
MVH	SZ	96	EP	2		18:46	45.58		
MCD	SZ	128	EP	2		18:46	51.44		
MCD	SN	128	ES	2		18:47	05.39		
MCD	SN	128	AMPL			18:47	07.83	55	0.17
MCD	SE	128	AMPL			18:47	08.49	65	0.19

May 3 2002 Time: 21:35 09.7 UTC Magnitude: 1.4 ML
Lat: 57.333N Lon: -5.335W Depth: 3.5 km
Grid Ref: 199.26 kmE 831.78 kmN RMS: 0.09 secs
Locality: SHIEL BRIDGE,HIGHLAND Quality: C
Comment: FELT 10KM NNE OF SHIEL BRIDGE Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSB	SZ	15	EP	3		21:35	12.51		
KAC	SZ	19	EP	2		21:35	13.35		
KPL	SN	19	ES	2		21:35	15.97		
KPL	SN	19	AMPL			21:35	16.06	118	0.16
KPL	SE	19	AMPL			21:35	16.19	49	0.11
KAR	SZ	55	EP	2		21:35	19.32		
MDO	SZ	60	IP		C	21:35	20.09		
MVH	SZ	95	EP	2		21:35	25.76		
MCD	SZ	128	EP	2		21:35	31.37		
MCD	SE	128	AMPL			21:35	48.43	15	0.20
MCD	SN	128	AMPL			21:35	48.84	13	0.35
MME	SZ	143	EP	2		21:35	33.16		
KPL	SZ	19	IP		C	21:35	13.54		

May 15 2002 Time: 07:21 39.7 UTC Magnitude: 1.2 ML
Lat: 51.601N Lon: -2.872W Depth: 24.0 km
Grid Ref: 339.58 kmE 189.52 kmN RMS: 0.04 secs
Locality: NEWPORT,GWENT Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	6	EP	2		07:21	43.77		
MCH	SZ	45	IP		D	07:21	47.92		
MCH	SE	45	ES	2		07:21	53.86		
MCH	SN	45	AMPL			07:21	53.96	28	0.10
MCH	SE	45	AMPL			07:21	54.04	28	0.13
HAE	SZ	54	EP	2		07:21	49.05		
HTR	SZ	60	EP	2		07:21	49.91		
SSP	SZ	92	EP	2		07:21	55.03		
SSP	SN	92	ES	2		07:22	06.11		
SSP	SE	92	AMPL			07:22	06.29	5	0.23
SSP	SN	92	AMPL			07:22	06.48	7	0.18

May 24 2002 Time: 01:49 41.0 UTC Magnitude: 2.4 ML
Lat: 61.739N Lon: 3.102W Depth: 15.0 km
Grid Ref: 669.28 kmE 1328.15 kmN RMS: 0.16 secs
Locality: NORWEGIAN COAST Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ODD1	SZ		ES			01:50	46.25		
SUE	SZ		ES			01:50	10.46		
RUND	BZ		ES			01:50	28.32		
FOO	SZ		AMPL			01:50	09.57	177	0.21
SUE	SZ		AMPL			01:50	14.02	117	0.24
ASK	SZ		EP			01:50	06.47		
ASK	SZ		AMPL			01:50	32.47	77	0.21
HYA	SZ		EPG			01:50	09.15		
HYA	SZ		AMPL			01:50	31.02	204	0.20
FOO	SZ		EPG			01:49	56.93		
FOO	SZ		ES			01:50	07.63		
HYA	SZ		ES			01:50	28.20		
BER	SZ		ES			01:50	27.82		
EGD	SZ		EP			01:50	09.01		
EGD	SZ		ES			01:50	30.57		
EGD	SZ		AMPL			01:50	36.35	42	0.20
MOL	SZ		E			01:50	46.50		
MOL	SZ		ES			01:50	46.85		
MOL	SZ		AMPL			01:50	49.79	47	0.36
ODD1	SZ		EP			01:50	17.89		
FOO	SZ	106	EP			01:49	56.16		
SUE	SZ	112	EP			01:49	57.89		
HYA	SZ	175	EP			01:50	07.02		
RUND	BZ	184	EP			01:50	07.96		

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STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MOL	SZ	257	EP			01:50	15.86		
LRW	SN	293	AMPL			01:50	54.33	15	0.11
LRW	SE	293	ES	2		01:50	52.32		
LRW	SE	293	AMPL			01:50	54.76	18	0.18
YEL	SZ	262	EP	2		01:50	18.39		
SAN	SZ	304	EP	2		01:50	23.37		
SAN	SZ	304	ES	3		01:50	55.08		
WAL	SZ	304	EP	2		01:50	23.81		
WAL	SZ	304	ES	3		01:50	54.32		
LRW	SZ	293	EP	3		01:50	22.36		

May 25 2002 Time: 00:29 04.4 UTC Magnitude: 1.5 ML
Lat: 57.973N Lon: -5.220W Depth: 7.0 km
Grid Ref: 209.56 kmE 902.74 kmN RMS: 0.20 secs
Locality: ULLAPOOL,HIGHLAND Quality: C
Comment: 8KM NW OF ULLAPOOL

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
REB	SZ	17	IP		C	00:29	07.81		
REB	SZ	17	ES	2		00:29	10.03		
RRR	SZ	37	IP	1	D	00:29	11.34		
RRR	SE	37	ES	2		00:29	15.36		
RRR	SE	37	AMPL			00:29	16.05	19	0.20
RRR	SN	37	AMPL			00:29	16.23	25	0.17
KAC	SZ	53	IP	1	C	00:29	13.55		
MVH	SZ	62	IP		C	00:29	14.78		
RTO	SZ	74	IP		C	00:29	17.21		
MDO	SZ	78	IP		C	00:29	17.48		
MLA	SZ	116	EP	2		00:29	23.51		
MCD	SZ	125	EP	2		00:29	25.02		
MCD	SN	125	ES	2		00:29	39.20		
MCD	SE	125	AMPL			00:29	41.04	42	0.12
MCD	SN	125	AMPL			00:29	41.20	28	0.25

May 25 2002 Time: 09:23 52.1 UTC Magnitude: 1.2 ML
Lat: 53.187N Lon: -4.041W Depth: 16.8 km
Grid Ref: 263.66 kmE 367.48 kmN RMS: 0.09 secs
Locality: BETHESDA,GWYNEDD Quality: A

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YLL	SZ	10	IP		C	09:23	55.41		
YLL	SZ	10	ES	2		09:23	57.50		
WPM	SZ	12	IP		C	09:23	55.58		
WLF	SZ	26	EP	2		09:23	57.18		
WME	SZ	29	IP		D	09:23	57.65		
YRE	SZ	35	IP		C	09:23	58.53		
YRC	SZ	36	IP		D	09:23	58.69		
WCB	SZ	40	EP	2		09:23	59.43		
WCB	SN	40	ES	2		09:24	03.95		
WCB	SN	40	AMPL			09:24	04.34	23	0.20
WCB	SE	40	AMPL			09:24	04.36	31	0.14
YRH	SZ	56	IP		C	09:24	01.70		
WFB	SZ	56	IP		D	09:24	01.49		
SBD	SZ	61	EP	2		09:24	02.29		

May 25 2002 Time: 21:04 01.0 UTC Magnitude: 2.1 ML
Lat: 57.398N Lon: -5.778W Depth: 11.7 km
Grid Ref: 173.02 kmE 840.44 kmN RMS: 0.20 secs
Locality: PLOCKTON,HIGHLAND Quality: B
Comment: 7KM NW OF PLOCKTON

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KPL	SZ	10	IP		C	21:04	03.81		
KPL	SN	10	ES	2		21:04	05.63		
KAC	SZ	31	IP		D	21:04	06.82		
RRR	SZ	51	IP		C	21:04	09.83		
RRR	SE	51	ES	2		21:04	15.97		
RRR	SN	51	AMPL			21:04	16.52	87	0.20
RRR	SE	51	AMPL			21:04	16.55	94	0.29
KAR	SZ	53	IP	1	D	21:04	09.84		
KSK	SZ	56	IP		C	21:04	10.83		
RRH	SZ	80	IP		C	21:04	14.07		
KNR	SZ	81	EP	2		21:04	14.51		
MDO	SZ	85	IP		C	21:04	15.23		
MVH	SZ	112	EP	2		21:04	19.54		
MCD	SZ	153	EP	2		21:04	25.97		
MCD	SE	153	AMPL			21:04	44.89	54	0.26
MCD	SN	153	AMPL			21:04	44.90	49	0.17

May 30 2002 Time: 06:20 55.2 UTC Magnitude: 0.2 ML
Lat: 55.187N Lon: -3.326W Depth: 14.4 km
Grid Ref: 315.61 kmE 588.92 kmN RMS: 0.05 secs
Locality: BORELAND,D & G Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ECK	SZ	13	IP		C	06:20	58.61		
ECK	SZ	13	ES	3		06:21	00.91		
ESK	SZ	16	IP		C	06:20	59.00		
ESK	SN	16	ES	3		06:21	01.86		
ESK	SE	16	AMPL			06:21	02.54	6	0.12
ESK	SN	16	AMPL			06:21	02.62	5	0.29

June 1 2002 Time: 01:43 02.6 UTC Magnitude: 0.7 ML
Lat: 52.965N Lon: -4.417W Depth: 21.0 km
Grid Ref: 237.70 kmE 343.60 kmN RMS: 0.06 secs
Locality: LLEYN PENINSULA,GWYNEDD Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YRE	SZ	2	IP		D	01:43	06.01		
YRH	SZ	20	IP	1	C	01:43	07.33		
YLL	SZ	26	IP		C	01:43	07.98		
YRC	SZ	34	EP	2		01:43	09.01		
WLF	SZ	36	EP			01:43	09.24		
WFB	SZ	40	EP	3		01:43	09.94		
WCB	SZ	47	EP	3		01:43	11.08		
WCB	SE	47	ES	2		01:43	16.64		
WCB	SE	47	AMPL			01:43	16.88	6	0.13
WCB	SN	47	AMPL			01:43	17.70	5	0.18
WPM	SZ	47	EP	1	C	01:43	10.98		
WME	SZ	49	EP	2		01:43	11.09		

June 6 2002 Time: 06:18 08.5 UTC Magnitude: 0.6 ML
Lat: 52.955N Lon: -4.385W Depth: 7.2 km
Grid Ref: 239.77 kmE 342.47 kmN RMS: 0.03 secs
Locality: PWLLHELI,GWYNEDD Quality: B
Comment: 6KM NORTH OF PWLLHELI

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YRE	SZ	4	IP		D	06:18	09.92		
YRE	SZ	4	ES	3		06:18	10.98		
YRH	SZ	21	IP		C	06:18	12.34		
YLL	SZ	25	EP	1	C	06:18	12.92		
YLL	SZ	25	ES	3		06:18	15.98		
YRC	SZ	35	IP		D	06:18	14.66		
WFB	SZ	38	EP	2		06:18	15.13		
WPM	SZ	47	EP	1	C	06:18	16.48		
WCB	SZ	48	EP	2		06:18	16.85		
WCB	SE	48	ES	2		06:18	22.38		
WCB	SE	48	AMPL			06:18	22.65	5	0.16
WCB	SN	48	AMPL			06:18	24.10	5	0.65
WME	SZ	49	EP	2		06:18	16.90		

June 6 2002 Time: 12:25 44.7 UTC Magnitude: 1.7 ML
Lat: 53.371N Lon: -2.362W Depth: 10.6 km
Grid Ref: 375.91 kmE 386.12 kmN RMS: 0.11 secs
Locality: ALTRINCHAM,CHESHIRE Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	39	IP			12:25	51.60		
KWE	SZ	53	EP	1	C	12:25	53.82		
KBI	SZ	57	EP	1	C	12:25	54.41		
SBD	SZ	79	EP	2		12:25	57.68		
HPK	SZ	82	EP	2		12:25	58.24		
HPK	SN	82	ES	2		12:26	08.02		
CWF	SZ	100	EP	3		12:26	00.99		
CWF	SN	100	ES	3		12:26	12.99		
CWF	SN	100	AMPL			12:26	13.83	33	0.34
CWF	SE	100	AMPL			12:26	14.53	21	0.26
WPM	SZ	104	EP	2		12:26	02.00		
SSP	SZ	118	EP	2		12:26	03.85		
SSP	SN	118	ES	3		12:26	18.07		
SSP	SN	118	AMPL			12:26	19.19	12	0.14
SSP	SE	118	AMPL			12:26	19.43	23	0.27
YLL	SZ	123	EP	2		12:26	04.49		
KSY	SZ	127	EP	3		12:26	05.79		
WME	SZ	129	EP	2		12:26	05.03		
WCB	SZ	145	EP	3		12:26	07.41		
WCB	SN	145	ES	3		12:26	23.86		
WCB	SN	145	AMPL			12:26	24.09	10	0.52
WCB	SE	145	AMPL			12:26	24.73	12	0.66
YRE	SZ	145	EP	2		12:26	07.48		
HAE	SZ	149	EP	3		12:26	09.04		

June 9 2002 Time: 05:03 49.2 UTC Magnitude: 1.7 ML
Lat: 57.173N Lon: -5.661W Depth: 3.0 km
Grid Ref: 178.71 kmE 815.03 kmN RMS: 0.14 secs
Locality: KYLE OF LOCHALSH,HIGHLAND Quality: B
Comment: 12KM SSE OF KYLE OF LOCHALSH

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KPL	SZ	19	IP		D	05:03	52.89		
KPL	SN	19	AMPL			05:03	52.96	124	0.15
KPL	SN	19	ES	2		05:03	55.03		
KPL	SE	19	AMPL			05:03	55.68	81	0.13
KAR	SZ	30	EP	2		05:03	54.73		
KAR	SZ	30	ES	3		05:03	58.68		
KAC	SZ	42	IP	1	D	05:03	56.84		
KNR	SZ	57	EP	2		05:03	59.37		
KSK	SZ	71	EP	3		05:04	01.58		
RRR	SZ	77	EP	2		05:04	02.11		
RRR	SN	77	AMPL			05:04	15.80	25	0.10
RRR	SE	77	AMPL			05:04	15.84	36	0.37
MDO	SZ	84	EP	1	C	05:04	03.48		
MCD	SZ	152	EP	3		05:04	14.26		
MCD	SN	152	AMPL			05:04	32.92	28	0.21
MCD	SE	152	AMPL			05:04	33.54	31	0.22

June 9 2002 Time: 18:34 59.8 UTC Magnitude: 0.8 ML
Lat: 54.189N Lon: -3.537W Depth: 4.6 km
Grid Ref: 299.74 kmE 478.10 kmN RMS: 0.13 secs
Locality: IRISH SEA Quality: C
Comment: 15KM W OF BARROW-IN-FURNESS

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SZ	15	IP		C	18:35	02.84		
LMI	SN	15	ES	2		18:35	05.05		
LMI	SE	15	AMPL			18:35	05.33	25	0.18
LMI	SN	15	AMPL			18:35	05.66	11	0.07
CDU	SZ	28	EP	3		18:35	05.56		
XDE	SZ	35	IP		D	18:35	06.32		
CSF	SZ	35	IP	1	C	18:35	06.04		
GIM	SZ	62	EP	2		18:35	10.60		
GIM	SE	62	ES	2		18:35	17.99		
GIM	SE	62	AMPL			18:35	18.26	10	0.10
GIM	SN	62	AMPL			18:35	19.59	15	0.11

June 10 2002 Time: 23:52 44.4 UTC Magnitude: 0.9 ML

PHASE DATA : 2002

Lat: 57.384N Lon: -5.613W Depth: 3.4 km
Grid Ref: 182.84 kmE 838.37 kmN RMS: 0.24 secs
Locality: PLOCKTON,HIGHLAND Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KPL	SZ	6	IP		D	23:52	46.00		
KPL	SN	6	ES	2		23:52	46.51		
KPL	SN	6	AMPL			23:52	46.85	111	0.15
KPL	SE	6	AMPL			23:52	46.92	96	0.11
KAC	SZ	23	IP		D	23:52	48.96		
KAC	SZ	23	ES	3		23:52	51.57		
RRR	SN	54	ES	3		23:53	00.60		

June 20 2002 Time: 17:26 41.8 UTC Magnitude: 2.9 ML
Lat: 51.567N Lon: -3.081W Depth: 14.3 km
Grid Ref: 325.06 kmE 185.95 kmN RMS: 0.12 secs
Locality: CARDIFF,S GLAMORGAN Quality: B
Comment: FELT CARDIFF... Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SMD	SZ	38	EP	2		17:26	48.32		
SMD	SZ	38	ES	3		17:26	53.01		
SWK	SZ	74	IP		C	17:26	54.22		
SWN	SZ	89	IP		C	17:26	56.59		
SWN	SN	89	ES	2		17:27	07.79		
SSW	SZ	96	IP		C	17:26	57.79		
DYA	SZ	139	EP	2		17:27	02.88		
DYA	SN	139	ES	2		17:27	20.53		
DYA	SE	139	AMPL			17:27	21.08	408	0.28
DYA	SN	139	AMPL			17:27	21.18	292	0.23
CWF	SZ	178	EP	2		17:27	08.42		
CWF	SN	178	ES	2		17:27	28.07		
CWF	SE	178	AMPL			17:27	29.80	391	0.16
CWF	SN	178	AMPL			17:27	29.93	313	0.20
HGH	SZ	21	IP		C	17:26	46.20		
HTR	SZ	58	EP	1	C	17:26	51.67		
WCB	SZ	225	EP	3		17:27	14.64		
WCB	SN	225	AMPL			17:27	45.33	31	0.52
WCB	SE	225	AMPL			17:27	50.00	37	0.31
YRE	SZ	182	EP	2		17:27	09.43		
YRH	SZ	176	EP	2		17:27	08.46		
WFB	SZ	140	EP	2		17:27	03.93		
HTL	SN	117	ES	2		17:27	14.40		
HTL	SN	117	AMPL			17:27	15.41	311	0.16
HTL	SE	117	AMPL			17:27	15.36	518	0.37
HSA	SZ	77	IP	1	C	17:26	54.61		
HPE	SZ	124	EP	2		17:27	01.64		
HEX	SZ	75	IP		C	17:26	54.35		
SSP	SZ	95	EP	2		17:26	57.21		
SSP	SN	95	AMPL			17:27	09.54	290	0.09
SSP	SE	95	ES	2		17:27	08.78		
SSP	SE	95	AMPL			17:27	11.66	280	0.10
HAE	SZ	64	IP		C	17:26	52.52		

June 22 2002 Time: 07:14 10.2 UTC Magnitude: 1.7 ML
Lat: 53.380N Lon: -1.807W Depth: 16.4 km
Grid Ref: 412.85 kmE 387.08 kmN RMS: 0.15 secs
Locality: GLOSSOP,DERBYSHIRE Quality: B
Comment: 8KM SE OF GLOSSOP

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	23	IP		D	07:14	15.11		
KBI	SZ	23	ES	3		07:14	18.49		
KWE	SZ	41	EP	2		07:14	17.58		
CWF	SZ	79	EP	2		07:14	23.45		
CWF	SE	79	ES	2		07:14	32.50		
CWF	SN	79	AMPL			07:14	33.58	14	0.17
CWF	SE	79	AMPL			07:14	33.58	11	0.15
SBD	SZ	111	EP	2		07:14	27.90		
LRN	SZ	115	EP	2		07:14	28.47		
SSP	SZ	139	EP	2		07:14	32.27		
SSP	SN	139	ES	3		07:14	48.27		
SSP	SN	139	AMPL			07:14	49.37	9	0.17
SSP	SE	139	AMPL			07:14	50.11	11	0.28
HPK	SZ	66	EP	2		07:14	21.67		
HPK	SN	66	ES	2		07:14	29.37		
HPK	SN	66	AMPL			07:14	30.39	148	0.22
HPK	SE	66	AMPL			07:14	30.03	141	0.13
LHO	SZ	19	IP		D	07:14	14.41		
LHO	SZ	19	ES	3		07:14	17.07		

June 25 2002 Time: 01:08 28.5 UTC Magnitude: 1.1 ML
Lat: 48.974N Lon: -2.155W Depth: 9.5 km
Grid Ref: 388.66 kmE -102.88 kmN RMS: 0.01 secs
Locality: S OF JERSEY,CHANNEL IS Quality: C
Comment: 25KM SOUTH OF JERSEY

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
JSA	SZ	24	IP		C	01:08	33.01		
JRS	SZ	25	IP		C	01:08	33.12		
JRS	SN	25	ES	3		01:08	36.56		
JRS	SE	25	AMPL			01:08	36.70	46	0.26
JRS	SN	25	AMPL			01:08	36.86	28	0.09
JQE	SZ	27	IP		C	01:08	33.44		
JLP	SZ	31	IP		C	01:08	34.07		

June 28 2002 Time: 00:53 18.8 UTC Magnitude: 1.0 ML
Lat: 57.489N Lon: -5.592W Depth: 10.0 km
Grid Ref: 184.75 kmE 849.99 kmN RMS: 0.11 secs
Locality: TORRIDON,HIGHLAND Quality: C
Comment: 6KM SW OF TORRIDON

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KPL	SZ	17	EP	1	C	00:53	22.51		
KPL	SN	17	ES	1		00:53	24.82		
KPL	SE	17	AMPL			00:53	25.00	20	0.10
KPL	SN	17	AMPL			00:53	25.05	70	0.32
KAC	SZ	18	EP	1	D	00:53	22.36		

July 1 2002 Time: 02:02 34.6 UTC Magnitude: 0.7 ML
Lat: 55.192N Lon: -3.164W Depth: 5.9 km
Grid Ref: 325.93 kmE 589.28 kmN RMS: 0.09 secs
Locality: LANGHOLM,D & G Quality: B
Comment: 5KM N OF LANGHOLM

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ECK	SZ	3	IP		D	02:02	36.00		
ECK	SZ	3	ES	3		02:02	36.76		
BHH	SZ	12	IP		C	02:02	37.23		
BHH	SE	12	ES	2		02:02	38.81		
BHH	SN	12	AMPL			02:02	38.95	98	0.09
BHH	SE	12	AMPL			02:02	39.47	96	0.21
ESK	SZ	14	IP		C	02:02	37.63		
ESK	SE	14	ES	2		02:02	39.51		
ESK	SE	14	AMPL			02:02	39.73	11	0.17
ESK	SN	14	AMPL			02:02	40.16	5	0.18
BBH	SZ	16	IP		D	02:02	37.87		
BWH	SZ	31	IP		C	02:02	40.40		

July 1 2002 Time: 12:25 13.8 UTC Magnitude: 0.2 ML
Lat: 52.967N Lon: -4.392W Depth: 21.4 km
Grid Ref: 239.39 kmE 343.84 kmN RMS: 0.10 secs
Locality: LLEYN PENINSULA,GWYNEDD Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YRE	SZ	3	IP		D	12:25	17.34		
YRE	SZ	3	ES	3		12:25	19.81		
YRH	SZ	22	IP		D	12:25	18.71		
YRH	SZ	22	ES	3		12:25	22.26		
YLL	SZ	24	IP		C	12:25	18.99		
YLL	SZ	24	ES	3		12:25	22.78		
WFB	SZ	40	EP	2		12:25	21.31		
WCB	SZ	47	EP	3		12:25	22.49		
WCB	SE	47	ES	3		12:25	28.12		
WCB	SN	47	AMPL			12:25	28.80	2	0.09
WCB	SE	47	AMPL			12:25	28.97	2	0.11

July 4 2002 Time: 09:54 33.9 UTC Magnitude: 0.4 ML
Lat: 53.132N Lon: -4.396W Depth: 9.8 km
Grid Ref: 239.74 kmE 362.20 kmN RMS: 0.08 secs
Locality: CAERNARVON BAY,GWYNEDD Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YLL	SZ	15	EP	1	C	09:54	37.03		
WLF	SZ	17	EP	2		09:54	37.38		
YRE	SZ	17	IP		C	09:54	37.34		
YRC	SZ	18	IP		D	09:54	37.46		
WCB	SZ	29	EP	2		09:54	39.47		
WCB	SE	29	ES	2		09:54	42.66		
WCB	SE	29	AMPL			09:54	42.92	8	0.20
WCB	SN	29	AMPL			09:54	43.21	6	0.27
WME	SZ	30	EP	2		09:54	39.23		
WPM	SZ	36	EP	2		09:54	40.25		
YRH	SZ	37	IP		C	09:54	40.36		

July 5 2002 Time: 21:46 44.5 UTC Magnitude: 0.4 ML
Lat: 50.491N Lon: -4.998W Depth: 3.6 km
Grid Ref: 187.36 kmE 69.99 kmN RMS: 0.38 secs
Locality: NEWQUAY,CORNWALL Quality: D
Comment: 8KM NNE OF NEWQUAY

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CSA	SZ	17	EP	3		21:46	47.27		
CST	SZ	35	EP	2		21:46	51.03		
CST	SZ	35	ES	3		21:46	55.41		
CCA	SZ	38	EP	3		21:46	51.11		
CR2	SZ	38	EP	2		21:46	51.53		
CR2	SE	38	ES	2		21:46	56.17		
CR2	SE	38	AMPL			21:46	56.57	6	0.08
CR2	SN	38	AMPL			21:46	56.70	3	0.07
CCA	SZ	38	ES	3		21:46	55.44		
CBW	SZ	39	IP		D	21:46	52.03		
CBW	SZ	39	ES	3		21:46	57.05		
CCO	SZ	42	EP	2		21:46	52.07		
CCO	SZ	42	ES	3		21:46	57.14		
CGH	SZ	50	EP	2		21:46	53.76		
CPZ	SZ	56	EP	3		21:46	57.45		

July 8 2002 Time: 05:55 40.2 UTC Magnitude: 1.7 ML
Lat: 53.000N Lon: -1.075W Depth: 14.3 km
Grid Ref: 462.08 kmE 345.16 kmN RMS: 0.06 secs
Locality: LAMBLEY,NOTTS Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSY	SZ	33	IP		D	05:55	46.34		
CWF	SZ	33	IP		C	05:55	46.44		
CWF	SE	33	ES	2		05:55	50.61		
CWF	SE	33	AMPL			05:55	50.74	112	0.17
CWF	SN	33	AMPL			05:55	50.76	76	0.18
KBI	SZ	42	IP		D	05:55	47.63		
KWE	SZ	52	IP		D	05:55	49.33		
KUF	SZ	63	EP	1	D	05:55	50.89		
KEY	SZ	14	EP	2		05:55	43.60		

July 12 2002 Time: 22:39 52.9 UTC Magnitude: 1.7 ML
Lat: 53.639N Lon: -1.195W Depth: 1.6 km
Grid Ref: 453.19 kmE 416.21 kmN RMS: 0.27 secs

PHASE DATA : 2002

Locality: PONTEFRACT,W YORKS **Quality: C**
Comment: C/F,7KM SE OF PONTEFRACT

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
BTA	SE		AMPL			22:40	44.66	24	0.38
HPK	SZ	45	EP	3		22:40	00.70		
HPK	SE	45	ES	2		22:40	07.25		
LHO	SZ	45	EP	2		22:40	00.90		
KBI	SZ	48	EP	3		22:40	02.06		
LMK	SZ	61	EP	2		22:40	03.45		
KWE	SZ	82	EP	3		22:40	07.04		
KSY	SZ	85	EP	3		22:40	07.85		
LWH	SZ	85	EP	2		22:40	07.56		
LRN	SZ	95	EP	2		22:40	09.09		
CWF	SZ	101	EP	2		22:40	10.74		
CWF	SN	101	ES	2		22:40	23.65		
CWF	SE	101	AMPL			22:40	25.99	28	0.43
CWF	SN	101	AMPL			22:40	26.44	24	0.21
LCP	SZ	124	EP	2		22:40	08.71		
LMI	SZ	153	EP	3		22:40	18.97		
LMI	SN	153	ES	3		22:40	36.80		
CSF	SZ	162	EP	3		22:40	19.79		

July 14 2002 Time: 21:55 51.8 UTC Magnitude: 1.7 ML
Lat: 56.226N Lon: -4.996W Depth: 7.5 km
Grid Ref: 214.29 kmE 707.76 kmN RMS: 0.06 secs
Locality: INVERARAY S'CLYDE Quality: C
Comment: 5KM E OF INVERARAY

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
BBO	SE		AMPL			21:56	47.99	4	0.47
BBO	SN		AMPL			21:56	51.17	6	0.34
MCD	SE	185	ES	4		21:56	44.57		
MCD	SE	185	AMPL			21:56	45.93	9	0.33
MCD	SN	185	AMPL			21:56	48.88	8	0.19
KPL	SN	130	AMPL			21:56	33.95	9	0.34
KPL	SE	130	ES	3		21:56	28.55		
KPL	SE	130	AMPL			21:56	31.05	8	0.29
KAR	SZ	93	EP	2		21:56	07.03		
KPL	SZ	130	EP	3		21:56	13.07		
EDI	SN	118	ES	3		21:56	25.34		
EDI	SN	118	AMPL			21:56	26.89	15	0.25
EDI	SE	118	AMPL			21:56	27.08	17	0.28
EDU	SZ	128	EP	2		21:56	12.43		
EDI	SZ	118	EP	3		21:56	11.34		
PCA	SZ	75	EP	1	C	21:56	04.29		
PMS	SZ	45	ES	2		21:56	05.40		
PCO	SZ	62	IP		C	21:56	02.37		
BHH	SZ	169	EP	2		21:56	19.29		
BHH	SN	169	AMPL			21:56	41.35	16	0.46
BHH	SE	169	AMPL			21:56	40.10	14	0.69
BTA	SZ	207	EP	3		21:56	22.50		
BTA	SN	207	AMPL			21:56	55.52	5	0.44
BTA	SE	207	AMPL			21:56	53.41		
BWH	SZ	144	EP	2		21:56	15.12		
BBH	SZ	178	EP	3		21:56	20.42		

July 16 2002 Time: 01:01 58.3 UTC Magnitude: 1.1 ML
Lat: 55.192N Lon: -3.166W Depth: 5.7 km
Grid Ref: 325.78 kmE 589.26 kmN RMS: 0.08 secs
Locality: LANGHOLM,D & G Quality: B
Comment: 11KM NW OF LANGHOLM

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ECK	SZ	3	IP		D	01:01	59.71		
BHH	SZ	12	IP	1	C	01:02	00.95		
BHH	SN	12	ES	2		01:02	02.41	369	0.08
BHH	SE	12	ES	2		01:02	02.58		
BHH	SE	12	AMPL			01:02	02.67	207	0.05
BHH	SN	12	AMPL			01:02	02.69	369	0.08
ESK	SE	14	ES	1		01:02	03.30		
ESK	SE	14	AMPL			01:02	03.52	11	0.07
ESK	SN	14	AMPL			01:02	04.21	6	0.12
BBH	SZ	16	IP		D	01:02	01.58		
BWH	SZ	31	EP	2		01:02	04.10		
ESK	SZ	14	IP		C	01:02	01.32		

July 20 2002 Time: 02:10 34.2 UTC Magnitude: 2.3 ML
Lat: 52.897N Lon: 2.218W Depth: 15.0 km
Grid Ref: 683.62 kmE 341.67 kmN RMS: 0.35 secs
Locality: SOUTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
AEU	SN		AMPL			02:11	00.67	92	0.28
AEU	SE		AMPL			02:11	00.81	79	0.23
AWI	SZ	52	EP	3		02:10	43.52		
ABA	SZ	72	EP	3		02:10	46.53		
AWH	SZ	91	EP	3		02:10	50.36		
KUF	SZ	179	EP	3		02:11	02.90		
LMK	SZ	181	EP	3		02:11	03.27		
LMK	SZ	181	ES	3		02:11	24.76		
KSY	SZ	189	EP	3		02:11	03.92		
CWF	SZ	238	EP	3		02:11	10.45		
CWF	SN	238	ES	3		02:11	38.02		
CWF	SN	238	AMPL			02:11	41.08	22	0.28
CWF	SE	238	AMPL			02:11	42.22	15	0.27
KBI	SZ	254	EP	3		02:11	11.31		
KWE	SZ	273	EP	3		02:11	14.15		
LHO	SZ	282	EP	3		02:11	14.33		

July 20 2002 Time: 08:32 00.2 UTC Magnitude: 1.9 ML
Lat: 53.893N Lon: 3.557W Depth: 16.6 km
Grid Ref: 764.98 kmE 458.43 kmN RMS: 0.16 secs

Locality: IRISH SEA **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SZ	40	EP	2		08:32	07.20		
LMI	SE	40	ES	2		08:32	12.80		
LMI	SN	40	AMPL			08:32	14.53	52	0.52
LMI	SE	40	AMPL			08:32	14.87	94	0.42
CSF	SZ	65	EP	3		08:32	11.17		
XDE	SZ	68	EP	3		08:32	11.98		
WME	SZ	74	EP	2		08:32	12.28		
GIM	SZ	74	EP	3		08:32	12.65		
GIM	SE	74	ES	3		08:32	21.76		
GIM	SN	74	AMPL			08:32	25.22	64	0.26
GIM	SE	74	AMPL			08:32	27.18	38	0.21
WPM	SZ	74	EP	2		08:32	12.66		
WIM	SZ	79	EP	3		08:32	13.14		
CKE	SZ	83	EP	3		08:32	14.32		
WLF	SZ	87	EP	2		08:32	14.23		
WCB	SZ	87	EP	2		08:32	14.20		
WCB	SE	87	ES	3		08:32	25.61		
WCB	SN	87	AMPL			08:32	27.37	44	0.21
WCB	SE	87	AMPL			08:32	27.64	60	0.16
YLL	SZ	93	EP	3		08:32	15.51		
BBO	SZ	96	EP	3		08:32	16.32		
BBO	SE	96	AMPL			08:32	30.31	42	0.19
BBO	SN	96	AMPL			08:32	30.65	33	0.18
YRC	SZ	98	EP	3		08:32	15.81		
GCD	SZ	111	EP	2		08:32	18.70		
YRE	SZ	117	EP	3		08:32	19.46		
BTA	SZ	126	EP	3		08:32	21.34		
BTA	SE	126	ES	3		08:32	37.10		
BTA	SN	126	AMPL			08:32	41.17	54	0.21
BTA	SE	126	AMPL			08:32	44.01	55	0.52
GAL	SZ	132	EP	3		08:32	21.95		
GAL	SE	132	ES	2		08:32	37.56		
GAL	SN	132	AMPL			08:32	39.72	8	0.20
GAL	SE	132	AMPL			08:32	40.39	13	0.17
BHH	SZ	135	EP	3		08:32	21.80		
BHH	SN	135	ES	2		08:32	38.96		
YRH	SZ	138	EP	2		08:32	22.46		
WFB	SZ	138	EP	3		08:32	22.67		
XAL	SZ	139	EP	2		08:32	22.82		
BWH	SZ	143	EP	3		08:32	24.06		
BBH	SZ	144	EP	3		08:32	23.00		
ECK	SZ	146	EP	3		08:32	23.11		
ESK	SZ	160	EP	2		08:32	26.95		
ESK	SE	160	ES	3		08:32	44.85		
ESK	SE	160	AMPL			08:32	47.30	30	0.29
ESK	SN	160	AMPL			08:32	48.28	14	0.33

July 31 2002 Time: 08:22 32.7 UTC Magnitude: 1.8 ML
Lat: 51.969N Lon: -1.637W Depth: 20.9 km
Grid Ref: 424.92 kmE 230.15 kmN RMS: 0.10 secs
Locality: MORETON-IN-MARSH,GLOS Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SWN	SN	52	ES	2		08:22	48.53		
SWN	SN	52	AMPL			08:22	49.27	123	0.26
SWN	SE	52	AMPL			08:22	49.55	120	0.15
SWK	SZ	101	EP	1	C	08:22	49.34		
SSW	SZ	15	IP		D	08:22	36.94		
SMD	SZ	105	EP	2		08:22	49.45		
SKP	SZ	63	EP	2		08:22	43.29		
SWN	SZ	52	IP		C	08:22	41.76		
SSP	SZ	113	EP	2		08:22	50.40		
SSP	SN	113	ES	2		08:23	03.97		
SSP	SN	113	AMPL			08:23	06.64	12	0.18
SSP	SE	113	AMPL			08:23	06.43	14	0.19
HAE	SZ	63	EP	1	D	08:22	43.05		
HGH	SZ	89	EP	2		08:22	46.93		
MCH	SZ	94	EP	2		08:22	47.80		
MCH	SN	94	AMPL			08:22	59.40	96	0.14
MCH	SE	94	ES	2		08:22	58.44		
MCH	SE	94	AMPL			08:22	59.03	42	0.16
CWF	SZ	89	EP	2		08:22	47.15		
CWF	SN	89	ES	2		08:22	57.63		
CWF	SN	89	AMPL			08:22	59.00	18	0.08
CWF	SE	89	AMPL			08:22	58.51	37	0.13
KWE	SZ	117	EP	2		08:22	51.91		
KUF	SZ	112	EP	3		08:22	50.81		

August 1 2002 Time: 03:16 49.1 UTC Magnitude: 1.7 ML
Lat: 56.243N Lon: -3.750W Depth: 5.1 km
Grid Ref: 291.55 kmE 707.03 kmN RMS: 0.06 secs
Locality: BLACKFORD,TAYSIDE Quality: B
Comment: FELT BLACKFORD Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
EAB	SZ	37	IP		C	03:16	55.80		
PCO	SZ	36	IP		C	03:16	55.64		
EAU	SZ	48	EP	2		03:16	57.56		
EDI	SZ	50	EP	2		03:16	57.80		
EDI	SE	50	ES	2		03:17	04.19		
EDI	SE	50	AMPL			03:17	04.61	29	0.28
ELO	SZ	25	EP	2		03:16	53.88		
EBH	SZ	15	ES	3		03:16	54.17		
ESY	SZ	80	EP	2		03:17	02.56		
EDR	SZ	106	EP	2		03:17	05.99		
ESK	SZ	109	EP	2		03:17	07.63		
ESK	SN	109	ES	2		03:17	20.11		
ESK	SE	109	AMPL			03:17	23.08	41	0.22

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ESK	SN	109	AMPL		03:17	23.19	30	0.19
ECK	SZ	125	EP	2	03:17	10.19		
EBH	SZ	15	IP	C	03:16	52.05		
EDI	SN	50	AMPL		03:17	06.35	42	0.37
EDU	SZ	57	EP	2	03:16	59.01		
EAB	SZ	37	ES	3	03:17	00.35		

August 1 2002 Time: 23:14 56.5 UTC Magnitude: 1.6 ML
Lat: 51.812N Lon: -3.006W Depth: 15.3 km
Grid Ref: 330.63 kmE 213.12 kmN RMS: 0.11 secs
Locality: ABERGAVENNY,GWENT Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HTL	SN	137	AMPL			23:15	35.47	10	0.35
HTL	SE	137	ES	4		23:15	34.53		
HTL	SE	137	AMPL			23:15	35.31	13	0.15
HSA	SZ	79	IP	1	C	23:15	09.72		
SSP	SZ	68	EP	3		23:15	07.97		
SSP	SN	68	AMPL			23:15	16.86	25	0.09
SSP	SE	68	ES	3		23:15	16.13		
SSP	SE	68	AMPL			23:15	16.37	24	0.18
HAE	SZ	41	IP		C	23:15	03.70		
HGH	SZ	24	IP		D	23:15	01.37		
HTR	SZ	35	EP	1	D	23:15	02.90		
MCH	SZ	21	IP	1	C	23:15	01.00		
MCH	SE	21	ES	1		23:15	04.35		
SWN	SN	90	AMPL			23:15	24.00	24	0.18
SWN	SE	90	AMPL			23:15	23.93	39	0.22
SSW	SZ	82	EP	2		23:15	10.31		
SMD	SZ	60	EP	3		23:15	06.62		
SWN	SZ	90	EP	3		23:15	11.95		
HPE	SZ	123	EP	3		23:15	16.08		
HEX	SZ	100	EP	1	C	23:15	12.95		

August 3 2002 Time: 01:40 04.0 UTC Magnitude: 1.1 ML
Lat: 55.875N Lon: -5.348W Depth: 13.0 km
Grid Ref: 190.56 kmE 669.77 kmN RMS: 0.13 secs
Locality: TARBERT,STRATHCLYDE Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
GMK	SZ	61	EP	2		01:40	14.51		
GMK	SZ	61	ES	3		01:40	21.51		
EAB	SZ	72	EP	2		01:40	16.00		
PCO	SZ	79	EP	2		01:40	17.12		
PCO	SZ	79	ES	3		01:40	26.83		
GAL	SZ	119	EP	2		01:40	23.26		
GAL	SE	119	ES	2		01:40	36.94		
GAL	SE	119	AMPL			01:40	37.96	6	0.29
GAL	SN	119	AMPL			01:40	39.32	3	0.34
KAR	SZ	120	EP	2		01:40	23.18		
KAR	SZ	120	ES	3		01:40	37.05		
KPL	SZ	164	EP	3		01:40	30.31		
KPL	SN	164	AMPL			01:40	48.26	3	0.42
KPL	SE	164	ES	3		01:40	48.57		
KPL	SE	164	AMPL			01:40	49.54	3	0.40

August 6 2002 Time: 05:00 07.6 UTC Magnitude: 1.4 ML
Lat: 56.093N Lon: -6.412W Depth: 10.0 km
Grid Ref: 125.64 kmE 697.70 kmN RMS: 0.23 secs
Locality: IS OF COLONSAY,S'CLYDE Quality: C
Comment: 10KM W OF COLONSAY

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
GMK	SZ	98	EP	2		05:00	23.72		
EAB	SZ	130	EP	2		05:00	27.97		
PCO	SZ	145	EP	2		05:00	30.60		
PCO	SZ	145	ES	3		05:00	47.15		
KPL	SZ	146	EP	2		05:00	30.55		
KPL	SE	146	ES	2		05:00	47.93		
KPL	SE	146	AMPL			05:00	49.66	5	0.20
KPL	SN	146	AMPL			05:00	50.58	5	0.21
KAC	SZ	171	EP	3		05:00	33.31		
ELO	SZ	172	EP	3		05:00	34.80		
GAL	SZ	174	EP	2		05:00	34.14		
GAL	SE	174	ES	3		05:00	53.47		
GAL	SE	174	AMPL			05:00	56.44	8	0.20
GAL	SN	174	AMPL			05:00	57.06	6	0.33
KAR	SZ	99	EP	2		05:00	23.73		

August 20 2002 Time: 07:05 03.5 UTC Magnitude: 0.4 ML
Lat: 55.042N Lon: -2.815W Depth: 12.3 km
Grid Ref: 347.95 kmE 572.27 kmN RMS: 0.17 secs
Locality: LONGTOWN,CUMBRIA Quality: C
Comment: 8KM NE OF LONGTOWN

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
BBH	SZ	13	IP		D	07:05	06.83		
ECK	SZ	25	IP		D	07:05	08.28		
ECK	SZ	25	ES	3		07:05	11.65		
BDL	SZ	28	EP	2		07:05	08.73		
ESK	SZ	39	EP	2		07:05	10.62		
ESK	SE	39	ES	2		07:05	15.48		
XAL	SZ	43	EP	2		07:05	11.14		
BBO	SZ	44	EP	2		07:05	11.62		
BBO	SN	44	ES	2		07:05	16.47		
BBO	SE	44	AMPL			07:05	17.03	5	0.32
BBO	SN	44	AMPL			07:05	17.40	4	0.25
BTA	SN	17	ES	2		07:05	09.74		
BTA	SN	17	AMPL			07:05	10.32	9	0.08
BTA	SE	17	AMPL			07:05	10.42	7	0.16

August 22 2002 Time: 03:20 29.0 UTC Magnitude: 1.4 ML
Lat: 53.238N Lon: -1.110W Depth: 3.7 km
Grid Ref: 459.37 kmE 371.64 kmN RMS: 0.09 secs
Locality: WORKSOP,NOTTS Quality: C
Comment: C/F,7KM S OF WORKSOP

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	28	EP	2		03:20	34.12		
KSY	SZ	47	EP	2		03:20	37.25		
KWE	SZ	55	EP	2		03:20	38.79		
CWF	SZ	57	EP	3		03:20	38.97		
CWF	SE	57	ES	2		03:20	46.14		
CWF	SE	57	AMPL			03:20	47.45	13	0.40
CWF	SN	57	AMPL			03:20	49.21	7	0.20
LHO	SZ	60	EP	3		03:20	39.21		
HPK	SZ	87	EP	1	C	03:20	43.85		
HPK	SE	87	ES	3		03:20	54.56		
HPK	SE	87	AMPL			03:21	00.12	39	0.28
HPK	SN	87	AMPL			03:21	00.15	43	0.12

August 23 2002 Time: 21:36 17.6 UTC Magnitude: 1.6 ML
Lat: 51.003N Lon: -4.653W Depth: 30.2 km
Grid Ref: 213.87 kmE 126.03 kmN RMS: 0.17 secs
Locality: OFF HARTLAND PT,DEVON Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CSA	SZ	74	EP	2		21:36	30.25		
DYA	SZ	81	EP	2		21:36	30.83		
DYA	SN	81	ES	3		21:36	41.06		
DYA	SE	81	AMPL			21:36	41.70	40	0.18
DYA	SN	81	AMPL			21:36	42.14	45	0.15
CST	SZ	97	EP	2		21:36	32.95		
CR2	SZ	100	EP	2		21:36	33.33		
CR2	SN	100	AMPL			21:36	46.90	17	0.08
CCA	SZ	100	EP	1	C	21:36	33.26		
CR2	SE	100	AMPL			21:36	46.82	20	0.08
CCO	SZ	104	EP	2		21:36	33.84		
CPZ	SZ	115	EP	3		21:36	35.24		
HTL	SN	12	AMPL			21:36	27.07	45	0.08
HTL	SE	12	ES	2		21:36	26.39		
HTL	SE	12	AMPL			21:36	26.61	70	0.07
HPE	SZ	104	IP		C	21:36	34.09		
HEX	SZ	60	IP	1	C	21:36	28.08		
HTL	SZ	12	IP		D	21:36	23.09		

August 25 2002 Time: 04:43 31.6 UTC Magnitude: 3.3 ML
Lat: 58.110N Lon: 0.728W Depth: 20.0 km
Grid Ref: 560.71 kmE 916.66 kmN RMS:
Locality: CENTRAL NORTH SEA Quality:

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SAN	SZ		EP	3		04:44	04.71		
WAL	SZ		EP	3		04:44	09.45		
YEL	SZ		EP	2		04:44	11.15		
ESK	SZ		EP	2		04:44	23.58		
ESK	SE		ES	3		04:45	02.29		
ESK	SE		AMPL			04:45	04.66	32	0.11
ESK	SN		AMPL			04:45	06.97	33	0.10
LCP	SZ		EP	2		04:44	24.67		
BBH	SZ		EP	3		04:44	24.68		
ECK	SZ		EP	3		04:44	24.75		
BTA	SZ		EP	2		04:44	26.37		
BTA	SE		ES	3		04:45	06.30		
BTA	SE		AMPL			04:45	39.53	55	0.71
BTA	SN		AMPL			04:45	49.98	60	0.44
BHH	SZ		EP	3		04:44	26.13		
BHH	SN		ES	3		04:45	06.96		
BHH	SN		AMPL			04:45	09.29	70	0.32
BHH	SE		AMPL			04:45	10.96	61	0.17
BWH	SZ		EP	3		04:44	27.46		
LWH	SZ		EP	2		04:44	28.64		
BDL	SZ		EP	3		04:44	28.54		
LRN	SZ		EP	2		04:44	29.68		
BBO	SZ		EP	2		04:44	30.35		
BBO	SE		ES	3		04:45	14.49		
BBO	SN		AMPL			04:45	51.27	33	0.46
BBO	SE		AMPL			04:45	57.59	42	0.58
HPK	SZ		EP	3		04:44	35.08		
HPK	SE		ES	3		04:45	21.04		
LMK	SZ		EP	3		04:44	40.06		
LHO	SZ		EP	2		04:44	40.68		
MCD	SN		ES	3		04:44	30.45		
MCD	SN		AMPL			04:44	50.90	88	0.32
MCD	SE		AMPL			04:44	54.84	106	0.66
MME	SZ		EP	2		04:44	04.61		
MDO	SZ		EP	2		04:44	13.78		
MVH	SZ		EP	2		04:44	11.47		
MLA	SZ		EP	2		04:44	05.71		
MCD	SZ		EP	2		04:44	05.48		
EDI	SN		AMPL			04:44	54.31	37	0.34
EDI	SE		ES	3		04:44	51.44		
EDI	SE		AMPL			04:44	53.02	59	0.30
EAU	SZ		EP	2		04:44	19.58		
ESY	SZ		EP	2		04:44	14.40		
EAB	SZ		EP	2		04:44	22.43		
EBH	SZ		EP	3		04:44	16.33		
EDU	SZ		EP	2		04:44	10.80		
ELO	SZ		EP	2		04:44	15.65		
EDR	SZ		EP	2		04:44	04.94		
EDI	SZ		EP			04:44	17.43		
ORE	SN		ES	2		04:44	34.33		
ORE	SN		AMPL			04:44	37.05	208	0.19
ORE	SE		AMPL			04:44	35.89	100	0.09
OWE	SZ		EP	3		04:44	07.05		

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STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
OST	SZ		EP	1	D	04:44	02.34		
OHO	SZ		EP	1	C	04:44	05.83		
OBR	SZ		EP	3		04:44	04.08		
ORE	SZ		EP	1	C	04:44	08.29		
XAL	SZ		EP	1	C	04:44	25.24		

August 28 2002 Time: 10:09 54.9 UTC Magnitude: 2.3 ML
Lat: 61.623N Lon: -0.199W Depth: 15.0 km
Grid Ref: 495.48 kmE 1305.92 kmN RMS:
Locality: NORTH OF SHETLAND Quality:

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YEL	SZ		EP			10:10	14.77		
YEL	SZ		ES			10:10	29.10		
WAL	SZ		EP			10:10	20.65		
LRW	SN		EP	2		10:10	20.93		
LRW	SE		ES	3		10:10	39.75		
LRW	SE		AMPL			10:10	44.79	54	0.21
LRW	SN		AMPL			10:10	45.22	27	0.19
SAN	SZ		EP			10:10	22.45		
OST	SZ		EP	2		10:10	37.43		
ASK	SZ		EP			10:10	38.00		
ASK	SZ		ES			10:11	10.00		
OBR	SZ		EP	4		10:10	44.77		
ORE	SZ		EP	4		10:10	46.88		
ORE	SN		AMPL			10:11	46.42	8	0.83
ORE	SE		AMPL			10:11	52.07	8	0.34
KMY	SZ		EP			10:10	48.69		
KMY	SE		ES			10:11	28.02		
KMY	SE		AMPL			10:11	28.98	3	0.17
BLS5	SZ		EP			10:10	54.56		
BLS5	SE		ES			10:11	37.18		
BLS5	SE		AMPL			10:11	39.52	3	0.25

August 29 2002 Time: 18:27 23.7 UTC Magnitude: 0.3 ML
Lat: 52.997N Lon: -4.961W Depth: 15.0 km
Grid Ref: 201.31 kmE 348.56 kmN RMS: 0.10 secs
Locality: CAERNARVON BAY,GWYNEDD Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
YRH	SZ	29	EP	2		18:27	29.23		
YRH	SZ	29	ES	2		18:27	33.11		
YRC	SZ	38	EP	3		18:27	30.84		
YRC	SZ	38	ES	3		18:27	35.63		
WLF	SZ	50	EP	3		18:27	32.60		
WLF	SZ	50	ES	3		18:27	38.92		
WCB	SZ	51	EP			18:27	32.39		
WCB	SE	51	ES	3		18:27	38.45		
WCB	SE	51	AMPL			18:27	39.18	2	0.13
WCB	SN	51	AMPL			18:27	39.24	3	0.20

September 4 2002 Time: 10:48 05.7 UTC Magnitude: 2.3 ML
Lat: 56.596N Lon: -5.749W Depth: 7.6 km
Grid Ref: 169.90 kmE 751.21 kmN RMS: 0.17 secs
Locality: LOCHALINE,HIGHLAND Quality: D
Comment: 7KM NORTH OF LOCHALINE

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KAR	SZ	36	IP			10:48	12.15		
KAR	SZ	36	ES	2		10:48	16.48		
KSB	SZ	71	EP	3		10:48	17.24		
KPL	SZ	83	EP	2		10:48	19.52		
KPL	SN	83	ES	3		10:48	29.73		
KPL	SN	83	AMPL			10:48	33.10	90	0.13
KPL	SE	83	AMPL			10:48	33.26	155	0.17
EAB	SZ	98	EP	1	C	10:48	21.70		
KAC	SZ	104	IP	1	C	10:48	23.04		
KAC	SZ	104	ES	3		10:48	35.29		
KSK	SZ	113	EP	3		10:48	24.68		
ELO	SZ	126	EP			10:48	26.04		
MDO	SZ	126	EP	1	C	10:48	26.14		
RRR	SZ	141	EP	2		10:48	28.47		
RRR	SN	141	ES	2		10:48	44.63		
RRR	SN	141	AMPL			10:48	46.91	46	0.31
RRR	SE	141	AMPL			10:48	47.61	43	0.24
EBH	SZ	144	EP	2		10:48	29.17		
RRH	SZ	158	EP	3		10:48	31.08		
EAU	SZ	166	EP	2		10:48	32.51		
EDU	SZ	168	EP	3		10:48	32.87		
REB	SZ	172	EP	2		10:48	32.11		
MVH	SZ	176	EP	2		10:48	33.70		
MCD	SZ	187	EP	4		10:48	33.75		
MCD	SE	187	ES	3		10:48	54.15		
MCD	SN	187	AMPL			10:48	59.88	27	0.13
MCD	SE	187	AMPL			10:49	00.14	39	0.24
EDR	SZ	199	EP	3		10:48	37.63		
RTO	SZ	200	EP	2		10:48	35.72		
ESK	SZ	213	EP	2		10:48	37.36		
ESK	SN	213	ES	3		10:49	00.66		
ESK	SN	213	AMPL			10:49	06.95	22	0.21
ESK	SE	213	AMPL			10:49	07.05	16	0.23
ECK	SZ	227	EP	3		10:48	39.31		
BBH	SZ	240	EP	3		10:48	40.92		
ORE	SZ	248	EP	3		10:48	41.39		
ORE	SE	248	ES	3		10:49	14.36		
ORE	SE	248	AMPL			10:49	15.22	21	0.43
ORE	SN	248	AMPL			10:49	18.88	32	0.33

September 6 2002 Time: 12:30 45.9 UTC Magnitude: 3.1 ML
Lat: 61.502N Lon: 3.412W Depth: 5.6 km
Grid Ref: 687.82 kmE 1303.08 kmN RMS:
Locality: NORTHERN NORTH SEA Quality:

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
FOO	SN		EP			12:30	58.20		
FOO	SN		ES			12:31	07.87		
SUE	SN		EP			12:31	00.58		
SUE	SN		ES			12:31	10.20		
ASK	SN		EP			12:31	09.14		
HYA	SN		EP			12:31	09.34		
HYA	SN		ES			12:31	27.78		
MCD	SE		ES	3		12:32	58.70		
MCD	SN		AMPL			12:32	59.22	17	0.30
MCD	SE		AMPL			12:32	59.55	21	0.34
LRW	SN		EP	3		12:31	27.52		
LRW	SN		AMPL			12:31	59.37	17	0.13
LRW	SE		ES	3		12:31	57.85		
LRW	SE		AMPL			12:31	59.05	26	0.36
YEL	SZ		EP	2		12:31	23.87		
SAN	SZ		EP	2		12:31	28.47		
SAN	SZ		ES	3		12:31	59.99		
ORE	SN		ES	3		12:32	45.24		
ORE	SN		AMPL			12:32	47.38	33	0.42
ORE	SE		AMPL			12:32	48.58	42	0.37

September 7 2002 Time: 19:17 23.0 UTC Magnitude: 1.8 ML
Lat: 53.107N Lon: -1.889W Depth: 12.9 km
Grid Ref: 407.44 kmE 356.65 kmN RMS: 0.12 secs
Locality: LEEK,STAFFS Quality: C
Comment: 9KM EAST OF LEEK

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KWE	SZ	11	IP		C	19:17	25.92		
KBI	SZ	29	IP		C	19:17	28.44		
CWF	SZ	57	EP	2		19:17	32.54		
CWF	SE	57	ES	3		19:17	39.73		
CWF	SN	57	AMPL			19:17	40.08	61	0.13
CWF	SE	57	AMPL			19:17	40.11	63	0.22
KEY	SZ	60	EP	2		19:17	33.51		
KSY	SZ	89	IP		C	19:17	37.86		
KSY	SZ	89	ES	2		19:17	47.98		
SSP	SZ	113	EP	2		19:17	41.24		
SSP	SZ	113	E		C	19:17	42.56		
SSP	SN	113	ES	2		19:17	54.08		
SSP	SN	113	AMPL			19:17	55.24	25	0.29
SSP	SE	113	AMPL			19:17	57.07	39	0.27
KUF	SZ	115	EP	2		19:17	42.07		
HAE	SZ	127	EP	2		19:17	43.42		
HTR	SZ	148	EP	2		19:17	46.62		
WFB	SZ	152	EP	3		19:17	47.12		
YLL	SZ	153	EP	3		19:17	46.91		
WLF	SZ	169	EP	3		19:17	49.41		
YRE	SZ	171	EP	3		19:17	49.09		
HGH	SZ	175	EP	2		19:17	50.75		
YRH	SZ	187	EP	3		19:17	51.12		

September 11 2002 Time: 18:58 13.9 UTC Magnitude: 1.4 ML
Lat: 56.077N Lon: -5.838W Depth: 5.8 km
Grid Ref: 161.23 kmE 693.73 kmN RMS: 0.16 secs
Locality: ISLE OF JURA,S'CLYDE Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
PMS	SZ	73	IP	1	C	18:58	26.18		
GMK	SZ	83	EP	2		18:58	27.70		
EAB	SZ	94	EP	2		18:58	29.29		
PCA	SZ	108	EP	2		18:58	31.80		
PCO	SZ	109	EP	2		18:58	31.98		
PCO	SZ	109	ES	3		18:58	44.80		
KPL	SZ	141	EP	2		18:58	36.85		
KPL	SN	141	ES	2		18:58	54.64		
KPL	SN	141	AMPL			18:58	57.27	4	0.19
KPL	SE	141	AMPL			18:58	59.30	8	0.28
EBH	SZ	146	EP	2		18:58	38.11		
GAL	SZ	152	EP	3		18:58	38.41		
GAL	SE	152	ES	2		18:58	55.46		
GAL	SN	152	AMPL			18:58	57.14	5	0.25
GAL	SE	152	AMPL			18:58	58.58	11	0.15
KAC	SZ	162	EP	2		18:58	40.46		

September 13 2002 Time: 05:45 35.8 UTC Magnitude: 1.3 ML
Lat: 56.240N Lon: -3.740W Depth: 5.4 km
Grid Ref: 292.19 kmE 706.64 kmN RMS: 0.07 secs
Locality: BLACKFORD,TAYSIDE Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
EBH	SZ	14	IP		C	05:45	38.76		
EBH	SZ	14	ES	3		05:45	40.82		
ELO	SZ	26	IP		C	05:45	40.68		
ELO	SZ	26	ES	3		05:45	44.07		
EAB	SZ	38	IP		C	05:45	42.60		
EAB	SZ	38	ES	3		05:45	47.36		
EAU	SZ	48	IP	1	C	05:45	44.27		
EDI	SZ	49	EP	2		05:45	44.52		
EDI	SN	49	AMPL			05:45	50.68	7	0.43
EDI	SE	49	ES	2		05:45	50.80		
EDI	SE	49	AMPL			05:45	53.28	9	0.20
EDU	SZ	57	EP	2		05:45	45.69		
EDR	SZ	106	EP	2		05:45	53.85		
MME	SZ	129	EP	2		05:45	57.28		
MDO	SZ	139	EP	3		05:45	59.23		
MDO	SZ	139	ES	3		05:46	15.57		
MCD	SZ	152	EP	2		05:46	01.45		
MCD	SN	152	ES	2		05:46	18.65		
MCD	SE	152	AMPL			05:46	20.26	18	0.20
MCD	SN	152	AMPL			05:46	20.38	18	0.15

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MVH	SZ	190	EP	3	05:46	07.57		

September 14 2002 Time: 04:40 42.9 UTC Magnitude: 3.4 ML
Lat: 59.044N Lon: 1.647W Depth: 15.0 km
Grid Ref: 609.16 kmE 1023.07 kmN RMS: 0.27 secs
Locality: NORTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRW	SZ	201	EP	2		04:41	11.66		
LRW	SN	201	ES	2		04:41	33.18		
LRW	SE	201	AMPL			04:41	33.81	213	0.34
LRW	SN	201	AMPL			04:41	40.62	412	0.44
YEL	SZ	227	IP		D	04:41	15.47		
WAL	SZ	228	IP		D	04:41	15.32		
OST	SZ	241	EP	2		04:41	17.18		
OWE	SZ	269	EP	2		04:41	20.29		
OBR	SZ	282	EP	2		04:41	21.78		
OHO	SZ	283	EP	2		04:41	22.07		
MLA	SZ	302	EP	2		04:41	24.41		
MCD	SZ	330	IP		D	04:41	28.61		
MCD	SN	330	ES	2		04:42	01.26		
MCD	SE	330	AMPL			04:42	17.74	143	0.74
MCD	SN	330	AMPL			04:42	22.48	98	0.56
MME	SZ	333	EP	2		04:41	29.01		
EDR	SZ	343	EP	2		04:41	30.92		
MVH	SZ	362	EP	2		04:41	32.10		
RCR	SZ	387	EP	2		04:41	34.50		
EDU	SZ	392	EP	2		04:41	37.30		
MDO	SZ	396	EP	3		04:41	35.88		
REB	SZ	416	EP	2		04:41	38.10		
ESY	SZ	432	EP	2		04:41	42.29		
EBH	SZ	438	EP	3		04:41	42.63		
RRR	SZ	454	EP	2		04:41	42.74		
ESK	SZ	508	EP	2		04:41	51.56		
ESK	SN	508	ES	2		04:42	42.10		
ESK	SN	508	AMPL			04:42	48.03	30	0.40
ESK	SE	508	AMPL			04:42	55.97	34	0.44
XAL	SZ	522	EP	2		04:41	53.54		
HPK	SZ	601	EP	2		04:42	03.97		
LHO	SZ	650	EP	2		04:42	09.42		
LRN	SZ	557	IP	1	D	04:41	58.41		
LCP	SZ	516	EP	2		04:41	52.64		
LWH	SZ	543	EP	2		04:41	57.21		
EDI	SZ	453	EP	2		04:41	44.88		
EDI	SN	453	AMPL			04:42	31.35	32	0.27
EDI	SE	453	ES	2		04:42	28.73		
EDI	SE	453	AMPL			04:42	32.09	80	0.35
EAU	SZ	470	EP	2		04:41	47.26		
ORE	SZ	318	EP	2		04:41	26.02		
ORE	SN	318	ES	2		04:41	57.12		
SAN	SZ	196	EP	1	D	04:41	10.83		

September 15 2002 Time: 08:15 33.2 UTC Magnitude: 1.9 ML
Lat: 58.952N Lon: 1.293W Depth: 15.4 km
Grid Ref: 589.39 kmE 1011.86 kmN RMS: 0.25 secs
Locality: NORTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRW	SN	192	AMPL			08:16	30.10	12	0.30
YEL	SZ	223	EP	2		08:16	05.63		
YEL	SZ	223	ES	4		08:16	30.72		
SAN	SZ	186	EP	3		08:16	00.36		
SAN	SZ	186	ES	4		08:16	20.46		
WAL	SZ	219	EP	3		08:16	05.16		
LRW	SZ	192	EP	3		08:16	02.62		
LRW	SN	192	ES	2		08:16	22.64		
OWE	SZ		EP	3		08:16	10.69		
OHO	SZ		EP	3		08:16	16.49		
LRW	SE	192	AMPL			08:16	23.23	11	0.24

September 18 2002 Time: 05:20 10.3 UTC Magnitude: 2.1 ML
Lat: 51.713N Lon: -3.588W Depth: 1.5 km
Grid Ref: 290.31 kmE 202.87 kmN RMS: 0.19 secs
Locality: GLYN-NEATH,W GLAMORGAN Quality: C
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SMD	SZ	75	EP	3		05:20	23.78		
SWK	SZ	113	EP	2		05:20	29.77		
SSW	SZ	123	EP	2		05:20	32.36		
SWN	SZ	126	EP	3		05:20	32.59		
SWN	SN	126	ES	2		05:20	48.32		
SWN	SN	126	AMPL			05:20	50.21	56	0.51
SWN	SE	126	AMPL			05:20	52.54	50	0.31
DYA	SZ	144	EP	2		05:20	33.80		
DYA	SE	144	ES	2		05:20	51.83		
DYA	SE	144	AMPL			05:20	53.40	67	0.33
DYA	SN	144	AMPL			05:20	53.67	43	0.43
HGH	SZ	55	IP		D	05:20	20.07		
HGH	SZ	55	ES	3		05:20	27.34		
HTR	SZ	46	EP	2		05:20	18.65		
WFB	SZ	112	EP	2		05:20	29.52		
SSP	SZ	85	EP	2		05:20	25.37		
SSP	SN	85	AMPL			05:20	43.88	24	0.20
SSP	SE	85	AMPL			05:20	44.02	29	0.33
HAE	SZ	80	EP	2		05:20	24.57		
HTL	SN	102	AMPL			05:20	44.84	62	0.64
HTL	SE	102	ES	2		05:20	40.31		
HTL	SE	102	AMPL			05:20	44.15	95	0.73
HSA	SZ	39	EP	2		05:20	17.37		
HSA	SZ	39	ES	3		05:20	22.92		
HPE	SZ	86	EP	2		05:20	25.11		
HPE	SZ	86	ES	3		05:20	34.89		
HEX	SZ	74	EP	2		05:20	23.17		
HTL	SZ	102	EP	2		05:20	27.81		

September 22 2002 Time: 23:53 14.8 UTC Magnitude: 4.7 ML
Lat: 52.533N Lon: -2.159W Depth: 14.0 km
Grid Ref: 389.25 kmE 292.81 kmN RMS: 0.32 secs
Locality: DUDLEY,W MIDLANDS Quality: D
Comment: FELT ENGLAND & WALES
Intensity: 5

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KWE	SZ	58	IP		C	23:53	24.50		
HAE	SZ	61	IP		C	23:53	24.74		
CWF	SZ	62	IP		C	23:53	24.96		
SSP	SZ	66	IP		C	23:53	26.00		
SSW	SZ	66	IP		D	23:53	25.80		
HBL2	AZ	81	EP	9		23:53	27.97		
HBL2	AE	81	ES	2		23:53	37.51		
HBL2	AE	81	AMPL			23:53	39.15	14336	0.26
HBL2	AN	81	AMPL			23:53	39.52	10522	0.22
KEY2	AZ	83	EP	9		23:53	29.34		
KEY2	AN	83	AMPL			23:53	29.80	26260	0.14
KEY2	AE	83	AMPL			23:53	29.80	50813	0.14
KEY2	AN	83	ES	1		23:53	39.11		
MATA	SZ	85	IP			23:53	29.47		
SBD	SZ	85	IP		D	23:53	29.33		
KBI	SZ	91	IP		C	23:53	29.60		
HTR	SZ	91	IP		C	23:53	29.35		
HGH	SZ	109	IP		C	23:53	32.28		
LHO	SZ	115	EP			23:53	33.56		
SWN	SZ	116	IP		D	23:53	33.48		
SWN	AZ	116	EP	9		23:53	34.34		
SWN	AE	116	ES	2		23:53	47.83		
SWN	AE	116	AMPL			23:53	50.03	23185	0.59
SWN	AN	116	AMPL			23:53	50.31	13074	0.29
KSY	SZ	117	IP		C	23:53	33.51		
KUF	SZ	120	IP		C	23:53	33.77		
KTG	SZ	122	IP		D	23:53	34.18		
WFB	SZ	129	IP		D	23:53	35.79		
SKP	SZ	129	IP		D	23:53	35.02		
WPM	SZ	143	IP		D	23:53	37.24		
LDU	AN	147	AMPL			23:53	56.97	19691	0.31
LDU	AN	147	ES	4		23:53	56.97		
LDU	AE	147	AMPL			23:53	57.58	35142	0.33
WOL	BZ	150	EP	9		23:53	58.69		
WOL	BN	150	AMPL			23:54	49.38	5734	0.62
WOL	BE	150	AMPL			23:54	55.55	3904	0.50
YLL	SZ	152	IP		D	23:53	38.24		
SWK	SZ	154	IP		D	23:53	39.34		
YRE	SZ	161	IP		D	23:53	39.72		
HSA	SZ	162	EP		C	23:53	39.71		
HPK	SZ	163	EP			23:53	39.99		
YRH	SZ	170	EP			23:53	40.95		
WLF	SZ	173	EP		D	23:53	40.79		
WME	SZ	173	EP		D	23:53	41.08		
YRC	SZ	181	EP		D	23:53	42.00		
WCB	SZ	186	EP		D	23:53	42.73		
HPE	SZ	191	EP			23:53	43.17		
HEX	SZ	199	IP		C	23:53	44.40		
LMI	SZ	203	EP		D	23:53	44.44		
LRN	SZ	211	EP		D	23:53	45.98		
AWH	SZ	211	EP		C	23:53	46.21		
TSA	SZ	215	EP		D	23:53	46.68		
LWH	SZ	224	IP		C	23:53	47.75		
CSF	SZ	225	EP		D	23:53	47.20		
ABA	SZ	227	EP		C	23:53	48.21		
AEU	AE	230	ES	4		23:54	17.46		
AEU	AE	230	AMPL			23:54	17.46	14914	0.39
AEU	AN	230	AMPL			23:54	17.49	16872	0.26
HTL	SZ	235	EP		C	23:53	48.56		
CKE	SZ	237	EP		D	23:53	48.86		
XDE	SZ	237	EP		D	23:53	48.54		
GIM	SZ	249	EP		D	23:53	49.93		
TEB	SZ	249	EP		D	23:53	50.73		
LCP	SZ	250	EP		D	23:53	50.63		
BBO	SZ	256	IP		D	23:53	51.14		
BBO	SN	256	AMPL			23:54	31.11	2985	0.48
BBO	SE	256	AMPL			23:54	34.14	3761	0.63
BDL	SZ	258	EP		D	23:53	51.61		
XAL	SZ	259	EP			23:53	51.72		
DYA	SZ	264	IP		C	23:53	51.65		
BTA	SZ	266	EP		D	23:53	52.62		
TFO	SZ	277	EP	4		23:53	54.99		
GCD	SZ	285	EP		D	23:53	54.25		
BHH	SZ	293	EP		D	23:53	55.55		
BHH	SN	293	AMPL			23:54	42.29	6939	0.69
BHH	SE	293	AMPL			23:54	43.03	5736	0.54
BBH	SZ	294	EP		D	23:53	55.79		
DSB	BE	295	ES	4		23:54	41.15		
DSB	BE	295	AMPL			23:54	41.15	889	0.31
DSB	BN	295	AMPL			23:54	42.01	623	0.31
CSA	SZ	308	EP	2		23:53	56.98		
GAL	SZ	310	EP	2		23:53	57.45		
GMM	SZ	316	EP		D	23:53	58.10		
ESK	SZ	317	EP		D	23:53	58.48		
CST	SZ	334	EP		C	23:53	59.71		
CR2	SZ	337	EP			23:54	00.09		
CCA	SZ	337	EP		C	23:54	00.16		
CGW	SZ	345	EP		C	23:54	01.19		

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CGH	SZ	347	EP	C	23:54	01.44			
JQE	SZ	371	EP		23:54	04.55			
JRS	SZ	372	EP		23:54	04.61			
PCA	SZ	378	EP	D	23:54	05.76			
ESY	SZ	378	EP	1	23:54	06.38			
EAU	SZ	378	EP	D	23:54	06.81			
EDI	SZ	383	EP		23:54	07.15			
GMK	SZ	386	EP	D	23:54	06.53			
PCO	SZ	405	EP	D	23:54	09.28			
PMS	SZ	406	EP	D	23:54	08.96			
EAB	SZ	431	EP	D	23:54	12.13			
EDU	SZ	450	EP		23:54	15.52			
EDR	SZ	489	EP		23:54	19.89			
MME	SZ	535	EP	1	23:54	25.62			
MCD	SZ	567	EP	1	23:54	29.52			
MVH	SZ	614	EP	1	23:54	35.17			
RRR	SZ	637	EP	2	23:54	38.15			
REB	SZ	653	EP	2	23:54	40.08			
RRH	SZ	666	EP		23:54	41.07			
ORE	SZ	677	EP		23:54	42.76			
RTO	SZ	699	EP		23:54	45.63			
RCR	SZ	702	EP	1	23:54	46.13			
OST	SZ	730	EP	1	23:54	49.18			
WAL	SZ	861	EP	1	23:55	04.64			
YEL	SZ	895	EP	1	23:55	08.86			

September 23 2002 Time: 03:32 15.9 UTC Magnitude: 2.7 ML
Lat: 52.522N Lon: -2.136W Depth: 9.3 km
Grid Ref: 390.76 kmE 291.66 kmN RMS: 0.20 secs
Locality: DUDLEY,W MIDLANDS Quality: C
Comment: FELT DUDLEY... Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	91	EP	2		03:32	30.93		
SWN	SZ	115	EP	2		03:32	35.00		
SWN	SN	115	ES	2		03:32	49.24		
SWN	SN	115	AMPL			03:32	50.10	209	0.15
SWN	SE	115	AMPL			03:32	50.25	262	0.57
KTG	SZ	120	ES	2		03:32	49.42		
WPM	SZ	145	EP	2		03:32	38.51		
SWK	SZ	153	EP	2		03:32	40.71		
YLL	SZ	154	EP	2		03:32	39.69		
WCB	SZ	188	EP	2		03:32	44.26		
WCB	SN	188	AMPL			03:33	08.05	59	0.22
WCB	SE	188	AMPL			03:33	09.27	51	0.25
KEY	SZ	82	EP	2		03:32	29.70		
SSW	SZ	65	EP	2		03:32	27.06		
HAE	SZ	61	EP	2		03:32	25.87		
KSY	SZ	116	EP	2		03:32	34.76		
KUF	SZ	119	EP	2		03:32	34.93		
HGH	SZ	109	EP	2		03:32	33.46		
MCH	SZ	83	EP	3		03:32	29.49		
HTR	SZ	92	EP	2		03:32	30.48		
KWE	SZ	59	EP	2		03:32	25.73		
SBD	SZ	87	IP	C		03:32	30.51		
SSP	SZ	67	EP	2		03:32	27.13		
SSP	SE	67	ES	2		03:32	35.37		
CWF	SZ	61	IP	C		03:32	26.09		
CWF	SE		ES	2		03:32	33.48		

September 24 2002 Time: 09:29 19.0 UTC Magnitude: 1.2 ML
Lat: 52.521N Lon: -2.138W Depth: 7.9 km
Grid Ref: 390.64 kmE 291.51 kmN RMS:
Locality: DUDLEY,W MIDLANDS Quality:

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ		EP	3		09:29	34.47		
SSP	SZ		EP	2		09:29	30.31		
SSP	SN		ES	2		09:29	38.26		
SSP	SN		AMPL			09:29	38.93	11	0.19
SSP	SE		AMPL			09:29	38.84	10	0.22
HAE	SZ		IP		D	09:29	29.32		
HGH	SZ		EP	1	D	09:29	36.83		
SBD	SZ		EP	2		09:29	33.79		
CWF	SZ		IP		C	09:29	29.42		
CWF	SN		ES	2		09:29	36.59		
CWF	SN		AMPL			09:29	36.77	25	0.11
CWF	SE		AMPL			09:29	36.75	20	0.07
KWE	SZ		IP		D	09:29	29.02		

September 26 2002 Time: 02:31 13.6 UTC Magnitude: 1.0 ML
Lat: 49.049N Lon: -2.003W Depth: 8.4 km
Grid Ref: 399.81 kmE -94.52 kmN RMS: 0.02 secs
Locality: JERSEY,CHANNEL ISLANDS Quality: D
Comment: 20KM SSE OF JERSEY

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
JRS	SN	17	ES	2		02:31	19.61		
JQE	SZ	17	EP	2		02:31	17.00		
JRS	SZ	17	IP		D	02:31	17.07		
JRS	SN	17	AMPL			02:31	19.83	45	0.07
JRS	SE	17	AMPL			02:31	19.94	38	0.06
JQE	SZ	17	ES	3		02:31	19.64		
JSA	SZ	20	EP	3		02:31	17.48		
JSA	SZ	20	ES	3		02:31	20.31		

September 29 2002 Time: 19:39 56.9 UTC Magnitude: 1.7 ML
Lat: 59.333N Lon: 1.686W Depth: 15.0 km
Grid Ref: 609.61 kmE 1055.41 kmN RMS: 0.36 secs
Locality: NORTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRW	SN	184	EP	3		19:40	25.34		
LRW	SN	184	ES	3		19:40	43.37		
LRW	SN	184	AMPL			19:40	45.85	9	0.14
LRW	SE	184	AMPL			19:40	45.07	9	0.17
YEL	SZ	206	EP	2		19:40	26.40		
YEL	SZ	206	ES	3		19:40	48.17		
SAN	SZ	182	EP	2		19:40	23.19		
WAL	SZ	212	EP	3		19:40	27.41		

September 30 2002 Time: 06:44 51.2 UTC Magnitude: 4.5 ML
Lat: 48.083N Lon: -3.232W Depth: 21.7 km
Grid Ref: 308.25 kmE -201.24 kmN RMS: 0.15 secs
Locality: NORTH-WEST FRANCE Quality: D
Comment: FELT JERSEY & GUERNSEY Intensity: 4+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HGH	SZ	397	IPN	1	D	06:45	44.73		
HSA	SZ	413	EPN	2		06:45	47.02		
SKP	SZ	441	EPN	3		06:45	50.05		
CST	SZ	274	IPN	1	D	06:45	29.54		
CGW	SZ	267	EPN	2		06:45	28.91		
HAE	SZ	443	EPN	2		06:45	50.54		
HTR	SZ	445	EPN	2		06:45	50.73		
SSP	SZ	482	IPN		C	06:45	55.83		
SSP	SN	482	ES	3		06:46	46.27		
SSP	SN	482	AMPL			06:47	20.02	652	0.52
SSP	SE	482	AMPL			06:47	25.33	713	0.65
SWK	SZ	348	IPN	1	D	06:45	38.94		
CSA	SZ	280	EPN	3		06:45	30.76		
WCB	SE	596	AMPL			06:47	49.18	175	0.52
WCB	SN	596	AMPL			06:48	04.38	188	0.62
CR2	SZ	272	EPN	2		06:45	29.07		
DYA	SN	267	ES	4		06:46	10.99		
DYA	SZ	267	EPN	2		06:45	28.77		
CGH	SZ	260	IPN	1	D	06:45	27.91		
JQE	SZ	152	EPN	2		06:45	14.40		
JRS	SE	149	ES	3		06:45	34.94		
JRS	SZ	149	EPN	2		06:45	13.97		
JSA	SZ	146	EPN	2		06:45	13.61		
SSW	SZ	443	EPN	2		06:45	51.01		
HPE	SZ	443	IPN	1	C	06:45	50.70		
HTL	SN	336	ES	4		06:46	31.21		
HEX	SZ	334	EPN	2		06:45	37.01		
CPZ	SZ	288	EPN	2		06:45	31.04		
YRH	SZ	538	EPN	2		06:46	02.68		
WCB	SZ	596	EPN	3		06:46	10.09		
SWN	SZ	395	EPN	2		06:45	44.98		
SMD	SZ	361	IPN	1	D	06:45	40.26		

October 1 2002 Time: 23:30 27.6 UTC Magnitude: 2.0 ML
Lat: 59.629N Lon: 2.100W Depth: 19.5 km
Grid Ref: 631.11 kmE 1089.62 kmN RMS: 0.23 secs
Locality: NORTHERN NORTH SEA Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SAN	SZ	192	EP	2		23:30	54.98		
LRW	SZ	192	EP	2		23:30	55.44		
LRW	SE	192	ES	3		23:31	14.94		
LRW	SE	192	AMPL			23:31	23.03	5	0.18
LRW	SN	192	AMPL			23:31	26.42	6	0.20
YEL	SZ	205	EP	2		23:30	56.97		
WAL	SZ	220	EP	2		23:30	58.62		
OST	SZ	271	EP	2		23:31	06.40		
OWE	SZ	293	IP	1	D	23:31	09.08		
OHO	SZ	318	EP	2		23:31	11.84		
OBR	SZ	322	EP	2		23:31	12.05		
ORE	SZ	357	EP	2		23:31	16.30		
ORE	SN	357	ES	2		23:31	51.54		
ORE	SN	357	AMPL			23:31	53.64	12	0.14
ORE	SE	357	AMPL			23:31	53.94	8	0.10

October 2 2002 Time: 00:47 59.3 UTC Magnitude: 0.4 ML
Lat: 56.244N Lon: -3.753W Depth: 3.0 km
Grid Ref: 291.41 kmE 707.13 kmN RMS: 0.06 secs
Locality: BLACKFORD,TAYSIDE Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
EBH	SZ	15	IP		C	00:48	02.36		
EBH	SZ	15	ES	2		00:48	04.51		
ELO	SZ	25	EP	2		00:48	04.06		
ELO	SZ	25	ES	3		00:48	07.41		
PCO	SZ	36	EP	2		00:48	05.75		
EAB	SZ	37	IP		C	00:48	06.00		
EDI	SE	50	ES	3		00:48	14.62		
EDI	SE	50	AMPL			00:48	14.76	3	0.18
EDI	SN	50	AMPL			00:48	15.25	3	0.25
PCA	SZ	68	EP	3		00:48	11.29		

October 7 2002 Time: 22:31 47.8 UTC Magnitude: 2.1 ML
Lat: 50.527N Lon: -3.740W Depth: 4.5 km
Grid Ref: 276.68 kmE 71.22 kmN RMS: 0.12 secs
Locality: ASHBURTON,DEVON Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
DYA	SZ	17	IPG		C	22:31	51.22		
DYA	SE	17	ESG	2		22:31	53.55		
HEX	SZ	60	EP	2		22:31	58.12		
HTL	SZ	74	EP	2		22:32	00.58		
HTL	SN	74	ES	2		22:32	09.39		
HTL	SE	74	AMPL			22:32	12.35	126	0.23
HTL	SN	74	AMPL			22:32	12.64	103	0.27
CSA	SZ	84	EPN	2		22:32	01.94		

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CR2	SZ	109	EPN	2	22:32	05.94		
CR2	SN	109	ES	2	22:32	19.00		
CR2	SN	109	AMPL		22:32	20.24	43	0.09
CR2	SE	109	AMPL		22:32	20.60	48	0.07
CGH	SZ	115	EPN	2	22:32	06.78		
CGW	SZ	116	EPN	2	22:32	06.95		
CPZ	SZ	138	EPN	2	22:32	09.60		
HSA	SZ	139	EPN	2	22:32	10.68		

October 8 2002 Time: 02:08 33.9 UTC Magnitude: 1.2 ML
Lat: 53.472N Lon: -1.176W Depth: 0.2 km
Grid Ref: 454.67 kmE 397.60 kmN RMS: 0.03 secs
Locality: DONCASTER,S YORKSHIRE Quality: B
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	34	EP	2		02:08	40.41		
HPK	SN	62	ES	3		02:08	53.27		
HPK	SE	62	AMPL			02:08	57.41	25	0.30
HPK	SN	62	AMPL			02:08	59.87	42	0.27
KSY	SZ	69	EP	2		02:08	46.18		
CWF	SZ	82	EP	2		02:08	48.23		
CWF	SN	82	ES	2		02:08	58.80		
CWF	SN	82	AMPL			02:09	02.11	4	0.12
CWF	SE	82	AMPL			02:09	04.31	7	0.19
LRN	SZ	113	EP	2		02:08	55.23		
LCP	SZ	142	EP	2		02:08	54.88		
LHO	SZ	46	EP	2		02:08	42.52		

October 9 2002 Time: 21:03 07.7 UTC Magnitude: 1.3 ML
Lat: 55.117N Lon: -3.614W Depth: 7.2 km
Grid Ref: 297.05 kmE 581.45 kmN RMS: 0.20 secs
Locality: DUMFRIES,D & G Quality: C
Comment: FELT TINWALD Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
BWH	SZ	7	IP		C	21:03	09.71		
BWH	SZ	7	ES	1		21:03	11.02		
BHH	SZ	25	IP		D	21:03	12.26		
BHH	SE	25	ES	1		21:03	15.71		
BHH	SN	25	AMPL			21:03	16.95	86	0.20
ECK	SZ	32	EP	2		21:03	13.19		
ESK	SZ	34	IP		C	21:03	13.67		
ESK	SE	34	ES	2		21:03	18.73		
ESK	SE	34	AMPL			21:03	19.03	46	0.20
ESK	SN	34	AMPL			21:03	19.13	38	0.12
BBH	SZ	44	EP	2		21:03	15.32		
BBO	SZ	48	IP		D	21:03	15.99		
BBO	SN	48	ES	2		21:03	22.51		
BBO	SN	48	AMPL			21:03	23.08	14	0.11
BBO	SE	48	AMPL			21:03	24.04	12	0.17
BDL	SZ	56	EP	2		21:03	17.43		
BTA	SZ	64	EP	3		21:03	19.01		
BTA	SN	64	AMPL			21:03	30.71	19	0.32
BTA	SE	64	AMPL			21:03	31.42	14	0.19
XAL	SZ	94	EP	2		21:03	23.38		
BHH	SE	25	AMPL			21:03	15.82	140	0.17

October 10 2002 Time: 21:59 32.0 UTC Magnitude: 1.0 ML
Lat: 53.467N Lon: -1.160W Depth: 1.7 km
Grid Ref: 455.74 kmE 397.03 kmN RMS: 0.22 secs
Locality: DONCASTER,S YORKSHIRE Quality: C
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	47	EP	2		21:59	40.57		
HPK	SZ	63	EP	3		21:59	43.36		
HPK	SE	63	ES	3		21:59	51.27		
KSY	SZ	68	EP	2		21:59	43.85		
CWF	SZ	82	EP	2		21:59	46.17		
CWF	SN	82	ES	3		21:59	56.57		
CWF	SN	82	AMPL			21:59	57.09	6	0.15
CWF	SE	82	AMPL			21:59	57.71	7	0.11
LRN	SZ	114	EP	2		21:59	53.24		
KBI	SZ	34	EP	2		21:59	37.95		

October 12 2002 Time: 00:42 26.1 UTC Magnitude: 3.5 ML
Lat: 59.934N Lon: 0.017W Depth: 12.3 km
Grid Ref: 512.72 kmE 1118.18 kmN RMS: 0.20 secs
Locality: NORTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRW	SN	69	EP	2		00:42	37.27		
SAN	SZ	69	IP	1	D	00:42	37.16		
SAN	SZ	69	ES	3		00:42	45.67		
LRW	SN	69	ES	2		00:42	44.99		
YEL	SZ	91	EP	2		00:42	40.92		
YEL	SZ	91	ES	3		00:42	51.06		
WAL	SZ	96	EP	1	D	00:42	41.45		
WAL	SZ	96	ES	3		00:42	52.97		
OST	SZ	172	EP	2		00:42	53.24		
OWE	SZ	183	EP	3		00:42	53.43		
OHO	SZ	221	EP	2		00:42	58.22		
OBR	SZ	232	EP	3		00:43	00.41		
MLA	SZ	264	EP	3		00:43	03.55		
ORE	SZ	264	EP	2		00:43	03.35		
ORE	SN	264	ES	2		00:43	29.56		
ORE	SE	264	AMPL			00:43	41.28	287	0.36
ORE	SN	264	AMPL			00:43	42.23	376	0.32
MCD	SZ	322	EP	2		00:43	10.26		
MCD	SN	322	AMPL			00:44	00.11	151	0.52
MCD	SE	322	AMPL			00:44	03.82	124	0.50
MDO	SZ	375	EP	2		00:43	17.67		

October 13 2002 Time: 07:27 50.9 UTC Magnitude: 1.5 ML
Lat: 53.506N Lon: -1.185W Depth: 11.5 km
Grid Ref: 454.05 kmE 401.39 kmN RMS: 0.06 secs
Locality: DONCASTER,S YORKSHIRE Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SZ	58	EP	2		07:28	00.88		
HPK	SN	58	ES	2		07:28	07.89		
HPK	SE	58	AMPL			07:28	09.67	76	0.15
HPK	SN	58	AMPL			07:28	10.35	70	0.14
KWE	SZ	70	EP	2		07:28	02.63		
KSY	SZ	72	IP		D	07:28	03.01		
CWF	SZ	86	EP	2		07:28	04.99		
CWF	SN	86	ES	2		07:28	15.38		
CWF	SE	86	AMPL			07:28	15.82	8	0.11
CWF	SN	86	AMPL			07:28	15.83	7	0.12
LHO	SZ	45	IP	1	C	07:27	58.72		
KBI	SZ	36	EP	2		07:27	57.76		

October 13 2002 Time: 10:03 37.4 UTC Magnitude: 1.5 ML
Lat: 53.444N Lon: -1.202W Depth: 1.0 km
Grid Ref: 452.99 kmE 394.41 kmN RMS: 0.37 secs
Locality: MALTBY,S YORKSHIRE Quality: C
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	30	EP	2		10:03	43.60		
LHO	SZ	45	EP	2		10:03	45.84		
LHO	SZ	45	ES			10:03	51.90		
HPK	SZ	64	EP	2		10:03	50.27		
HPK	SE	64	ES	2		10:03	56.43		
HPK	SE	64	AMPL			10:04	00.79	50	0.17
HPK	SN	64	AMPL			10:04	03.38	70	0.20
KWE	SZ	64	EP	3		10:03	48.88		
KSY	SZ	67	IP		D	10:03	49.20		
CWF	SZ	79	EP	2		10:03	51.60		
CWF	SN	79	AMPL			10:04	05.21	5	0.17
LWH	SZ	105	EP	3		10:03	56.68		
LRN	SZ	115	EP	2		10:03	58.46		

October 14 2002 Time: 01:59 52.1 UTC Magnitude: 1.3 ML
Lat: 53.453N Lon: -1.195W Depth: 1.0 km
Grid Ref: 453.45 kmE 395.50 kmN RMS: 0.30 secs
Locality: MALTBY,S YORKSHIRE Quality: C
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	31	EP	2		02:00	58.29		
LHO	SZ	45	EP	3		02:01	00.60		
HPK	SZ	63	EP	3		02:01	04.19		
HPK	SN	63	ES	2		02:01	11.03		
HPK	SE	63	AMPL			02:01	15.50	48	0.17
HPK	SN	63	AMPL			02:01	18.10	69	0.20
KSY	SZ	68	IP	1	D	02:01	03.93		
CWF	SZ	80	EP	2		02:01	06.30		
CWF	SE	80	AMPL			02:01	21.21	5	0.27
CWF	SN	80	AMPL			02:01	22.65	4	0.52
LRN	SZ	114	EP	2		02:01	12.98		

October 14 2002 Time: 13:12 21.5 UTC Magnitude: 3.1 ML
Lat: 48.396N Lon: -6.991W Depth: 15.0 km
Grid Ref: 30.60 kmE -155.14 kmN RMS: 0.24 secs
Locality: ENGLISH CHANNEL Quality: D
Comment: 150KM SSW OF SCILLY ISLES

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CPZ	SZ	221	EP	2		13:12	53.83		
CGH	SZ	227	EP	2		13:12	54.45		
CR2	SZ	237	EP	2		13:12	55.63		
CR2	SE	237	AMPL			13:13	16.95	121	0.19
CR2	SN	237	AMPL			13:13	17.36	107	0.17
DYA	SZ	318	EP	2		13:13	06.34		
DYA	SN	318	ES	2		13:13	37.92		
DYA	SE	318	AMPL			13:13	44.28	64	0.39
DYA	SN	318	AMPL			13:13	46.63	65	0.39
HTL	SE	341	ES	3		13:13	43.64		
HTL	SN	341	AMPL			13:13	46.20	56	0.16
HTL	SE	341	AMPL			13:13	48.48	121	0.37
JRS	SZ	371	EP	4		13:13	14.82		
JRS	SN	371	AMPL			13:14	07.45	44	0.41
JRS	SE	371	AMPL			13:14	10.09	31	0.44
HPE	SZ	425	EP	3		13:13	19.97		

October 16 2002 Time: 07:11 09.4 UTC Magnitude: 1.0 ML
Lat: 52.307N Lon: -2.742W Depth: 17.4 km
Grid Ref: 349.40 kmE 267.94 kmN RMS: 0.05 secs
Locality: LUDLOW,SHROPSHIRE Quality: C
Comment: 5KM SOUTH OF LUDLOW

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	28	IPG		D	07:11	14.92		
SSP	SN	28	ESG	2		07:11	18.88		
SSP	SN	28	AMPL			07:11	19.11	23	0.17
SSP	SE	28	AMPL			07:11	20.76	11	0.16
HAE	SZ	33	IPG		D	07:11	15.58		
MCH	SZ	39	EPG	2		07:11	16.46		
MCH	SN	39	ESG	2		07:11	21.82		
MCH	SN	39	AMPL			07:11	22.16	33	0.08
MCH	SE	39	AMPL			07:11	22.45	23	0.08
HTR	SZ	44	EPG	1	C	07:11	17.21		
HGH	SZ	75	EPG	2		07:11	22.39		

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October 19 2002 Time: 01:21 26.6 UTC Magnitude: 1.4 ML
Lat: 53.506N Lon: -2.203W Depth: 5.0 km
Grid Ref: 386.54 kmE 401.06 kmN RMS: 0.33 secs
Locality: GREATER MANCHESTER Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	01:21	30.73		
KBI	SZ	53	EP	2		01:21	35.50		
KWE	SZ	60	EP	3		01:21	37.13		
HPK	SZ	63	EP	3		01:21	37.68		
HPK	SN	63	ES	2		01:21	45.71		
HPK	SN	63	AMPL			01:21	46.29	69	0.13
HPK	SE	63	AMPL			01:21	46.36	53	0.23
CWF	SZ	104	EP	2		01:21	44.00		
CWF	SE	104	ES	2		01:21	56.56		
CWF	SN	104	AMPL			01:21	59.60	7	0.19
CWF	SE	104	AMPL			01:21	59.90	6	0.21
KSY	SZ	124	EP	3		01:21	47.41		
SSP	SZ	136	EP	2		01:21	48.75		
SSP	SN	136	ES	2		01:22	04.40		
SSP	SN	136	AMPL			01:22	05.90	5	0.41
SSP	SE	136	AMPL			01:22	06.60	7	0.44
MCH	SN	176	ES	2		01:22	15.05		
MCH	SE	176	AMPL			01:22	16.21	6	0.26
MCH	SN	176	AMPL			01:22	16.39	4	0.29

October 19 2002 Time: 01:44 59.5 UTC Magnitude: 1.4 ML
Lat: 53.504N Lon: -2.186W Depth: 5.0 km
Grid Ref: 387.69 kmE 400.87 kmN RMS: 0.18 secs
Locality: GREATER MANCHESTER Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		C	01:45	03.70		
KBI	SZ	52	EP	3		01:45	08.73		
HPK	SZ	63	EP	3		01:45	09.98		
HPK	SN	63	ES	3		01:45	18.23		
HPK	SE	63	AMPL			01:45	19.36	73	0.14
HPK	SN	63	AMPL			01:45	19.81	39	0.17
CWF	SZ	104	EP	3		01:45	17.13		
CWF	SN	104	ES	3		01:45	30.72		
CWF	SN	104	AMPL			01:45	32.89	4	0.17
CWF	SE	104	AMPL			01:45	33.54	5	0.15
SSP	SZ	136	EP	3		01:45	21.74		
SSP	SN	136	ES	3		01:45	37.32		
SSP	SN	136	AMPL			01:45	39.15	4	0.22
SSP	SE	136	AMPL			01:45	40.54	6	0.30
MCH	SE	176	ES	3		01:45	47.95		
MCH	SN	176	AMPL			01:45	49.23	4	0.27
MCH	SE	176	AMPL			01:45	49.35	6	0.37

October 21 2002 Time: 00:33 59.8 UTC Magnitude: 1.7 ML
Lat: 52.057N Lon: -3.388W Depth: 12.3 km
Grid Ref: 304.87 kmE 240.84 kmN RMS: 0.06 secs
Locality: BRECON,POWYS Quality: B
Comment: 10KM NNW OF BRECON

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HTR	SZ	9	IP		D	00:34	02.35		
HTR	SZ	9	ES	3		00:34	04.05		
MCH	SZ	28	IP		C	00:34	04.94		
MCH	SN	28	ES	1		00:34	08.68		
MCH	SN	28	AMPL			00:34	08.86	263	0.11
MCH	SE	28	AMPL			00:34	08.92	178	0.19
SSP	SZ	44	EP	1	D	00:34	07.58		
SSP	SN	44	ES	2		00:34	13.25		
SSP	SE	44	AMPL			00:34	13.96	86	0.29
SSP	SN	44	AMPL			00:34	14.06	33	0.16
HAE	SZ	58	IP		C	00:34	09.70		
HGH	SZ	62	EP	2		00:34	10.38		
HSA	SZ	63	EP	2		00:34	10.17		
WFB	SZ	83	EP	2		00:34	13.63		
SBD	SZ	95	EP	2		00:34	15.55		
HEX	SZ	114	EP	2		00:34	19.08		
YRH	SZ	121	EP	2		00:34	19.57		
YRE	SZ	125	EP	2		00:34	20.49		
WPM	SZ	138	EP	2		00:34	22.41		
KWE	SZ	150	EP	2		00:34	24.13		
WLF	SZ	153	EP	2		00:34	24.13		
CWF	SZ	161	EP	2		00:34	25.73		
CWF	SN	161	ES	2		00:34	44.38		
CWF	SE	161	AMPL			00:34	45.46	10	0.12
CWF	SN	161	AMPL			00:34	47.00	12	0.11

October 21 2002 Time: 07:29 20.4 UTC Magnitude: 1.8 ML
Lat: 53.490N Lon: -2.198W Depth: 5.0 km
Grid Ref: 386.88 kmE 399.34 kmN RMS: 0.37 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	07:29	24.66		
KWE	SZ	58	EP	2		07:29	30.69		
HPK	SZ	64	EP	2		07:29	31.65		
HPK	SN	64	ES	2		07:29	39.36		
HPK	SE	64	AMPL			07:29	40.02	92	0.29
HPK	SN	64	AMPL			07:29	40.77	107	0.18
SBD	SZ	96	EP	2		07:29	35.83		
CWF	SZ	103	EP	2		07:29	37.81		
CWF	SE	103	AMPL			07:29	53.41	12	0.31
CWF	SN	103	AMPL			07:29	54.13	10	0.16
LRN	SZ	106	EP	2		07:29	39.08		
KSY	SZ	123	EP	3		07:29	41.54		
SSP	SZ	134	EP	2		07:29	42.39		
SSP	SN	134	ES	2		07:29	58.23		
SSP	SN	134	AMPL			07:30	00.13	10	0.23
SSP	SE	134	AMPL			07:30	01.51	18	0.29
MCH	SN	175	ES	3		07:30	07.69		
MCH	SE	175	AMPL			07:30	10.14	16	0.25
MCH	SN	175	AMPL			07:30	10.99	17	0.24

October 21 2002 Time: 07:45 15.8 UTC Magnitude: 3.2 ML
Lat: 53.475N Lon: -2.196W Depth: 5.0 km
Grid Ref: 387.00 kmE 397.63 kmN RMS: 0.37 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT GREATER MANCHESTER Intensity: 4+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CWF	SN		ES	3		07:45	46.06		
KSY	SZ	122	EP	2		07:45	36.53		
KBI	SZ	51	EP	2		07:45	24.55		
KBI	SZ		ES	3		07:45	31.68		
CWF	SZ		EP	1		07:45	32.79		
KWE	SZ	56	IP		D	07:45	25.57		
KUF	SZ	154	EP	3		07:45	41.19		
XDE	SZ	143	EP	2		07:45	38.48		
BBO	SZ	156	EP	2		07:45	40.60		
CSF	SZ	128	IP		D	07:45	37.01		
CDU	SZ	116	EP	2		07:45	35.25		
LMI	SZ	111	EP	2		07:45	34.37		
BBO	SN	156	AMPL			07:46	05.26	314	0.48
LMI	SN	111	AMPL			07:45	49.14	790	0.45
LMI	SN	111	ES	2		07:45	47.27	790	0.45
BBO	SE	156	AMPL			07:46	04.82	581	0.54
LMI	SE	111	AMPL			07:45	50.54	995	0.50
XAL	SZ		EP		D	07:45	40.49		
ESK	BZ		EP			07:45	48.04		
HPK	SZ	66	IP		C	07:45	26.89		
HPK	SE	66	ES	2		07:45	35.00		
LHO	SZ	24	IP		C	07:45	20.01		
LRN	SZ	108	EP	1	D	07:45	34.11		
LCP	SZ	148	EP	2		07:45	40.51		
LWH	SZ	139	EP	2		07:45	39.26		
LDU	SZ		IP		C	07:45	25.43		
WCB	SZ	157	IP		C	07:45	40.42		
WCB	SN	157	ES	2		07:45	58.19		
WCB	SN	157	AMPL			07:46	05.81	134	0.54
WCB	SE	157	AMPL			07:46	01.21	175	0.55
WME	SZ	140	IP		C	07:45	38.17		
WLF	SZ	148	IP	1		07:45	39.28		
WPM	SZ		EP	2		07:45	34.44		
YLL	SZ	137	EP	1	C	07:45	37.75		
YRE	SZ	159	EP	1	C	07:45	40.81		
YRH	SZ	178	EP	2		07:45	43.28		
WFB	SZ	152	EP	1	C	07:45	39.99		
WIM	SZ	180	EP	2		07:45	43.18		
SSP	SZ	133	EP	2		07:45	37.59		
SSP	SN	133	AMPL			07:45	55.40	357	0.29
SSP	SN	133	ES	3		07:45	53.69		
SSP	SE	133	AMPL			07:45	55.88	706	0.39
HGH	SZ	209	EP	2		07:45	48.16		
HTR	SZ	171	EP	2		07:45	43.36		
SBD	SZ	95	IP	1	C	07:45	31.00		
SBD	SZ		ES	3		07:45	42.84		
MCH	SZ	173	EP		C	07:45	43.59		
MCH	SN	173	AMPL			07:46	06.12	474	0.23
MCH	SN	173	ES	2		07:46	03.80	474	0.23
MCH	SE	173	AMPL			07:46	06.42	469	0.51
HAE	SZ		EP	1	D	07:45	42.15		

October 21 2002 Time: 08:04 58.7 UTC Magnitude: 2.3 ML
Lat: 53.497N Lon: -2.210W Depth: 5.0 km
Grid Ref: 386.06 kmE 400.06 kmN RMS: 0.34 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT GREATER MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	08:05	02.84		
KBI	SZ	53	EP	2		08:05	07.81		
KWE	SZ	59	EP	2		08:05	09.32		
HPK	SZ	64	EP	2		08:05	09.73		
HPK	SE	64	ES	2		08:05	17.77		
CWF	SE	104	ES	2		08:05	29.04		
CWF	SN	104	AMPL			08:05	31.84	54	0.22
CWF	SE	104	AMPL			08:05	32.02	45	0.17
WPM	SZ	116	EP	2		08:05	17.86		
HPK	SN	64	AMPL			08:05	18.99	509	0.17
SSP	SZ	135	EP	2		08:05	20.56		
SSP	SN	135	AMPL			08:05	38.24	38	0.44
SSP	SE	135	AMPL			08:05	38.65	65	0.31
YLL	SZ	137	EP	2		08:05	20.68		
WFB	SZ	152	EP	2		08:05	22.88		
WCB	SZ	156	EP	2		08:05	23.39		
WCB	SE	156	AMPL			08:05	43.44	30	0.21
WCB	SN	156	AMPL			08:05	43.74	18	0.35
HAE	SZ	164	EP	2		08:05	24.94		
MCH	SZ	175	EP	2		08:05	26.40		
MCH	SN	175	ES	2		08:05	46.58		
MCH	SN	175	AMPL			08:05	49.21	52	0.20
MCH	SE	175	AMPL			08:05	51.60	44	0.31
SSP	SN	135	ES	2		08:05	36.43		
SBD	SZ	96	EP	2		08:05	14.07		
HPK	SE	64	AMPL			08:05	18.22	629	0.25
CWF	SZ	104	EP	2		08:05	15.98		

PHASE DATA : 2002

October 21 2002 Time: 11:15 06.6 UTC Magnitude: 1.8 ML
Lat: 53.490N Lon: -2.155W Depth: 5.0 km
Grid Ref: 389.68 kmE 399.31 kmN RMS: 0.38 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	21	IP		C	11:15	10.35		
KWE	SZ	57	EP	3		11:15	16.71		
HPK	SZ	63	EP	3		11:15	18.03		
HPK	SE	63	ES	2		11:15	25.29		
HPK	SE	63	AMPL			11:15	25.75	89	0.28
HPK	SN	63	AMPL			11:15	26.51	70	0.22
SBD	SZ	98	EP	3		11:15	21.95		
LMI	SN	111	ES	3		11:15	37.59		
SSP	SZ	136	EP	3		11:15	28.73		
SSP	SE	136	ES	3		11:15	44.61		
SSP	SN	136	AMPL			11:15	45.80	11	0.54
SSP	SE	136	AMPL			11:15	45.86	18	0.19

October 21 2002 Time: 11:42 34.7 UTC Magnitude: 3.9 ML
Lat: 53.478N Lon: -2.196W Depth: 2.8 km
Grid Ref: 386.98 kmE 398.00 kmN RMS: 0.13 secs
Locality: GREATER MANCHESTER Quality: B
Comment: FELT GREATER MANCHESTER Intensity: 5+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KWE	SZ	57	IP		D	11:42	44.73		
SBD	SZ	95	IP	1	C	11:42	50.23		
KEY2	AE	100	AMPL			11:43	06.70	3152	0.21
KEY	SZ	100	EP	4		11:42	52.56		
KEY2	AZ	100	EP	4		11:42	52.52		
KEY2	AN	100	AMPL			11:43	07.32	2975	0.38
CWF	SE	102	ES	3		11:43	04.79		
LMI	SN	110	ES	2		11:43	06.31		
CDU	SZ	116	IP		D	11:42	54.42		
KSY	SZ	122	EP	2		11:42	55.47		
CSF	SZ	128	IP		D	11:42	56.18		
KBI	SZ	51	IP		C	11:42	43.73		
SSP	SN	133	ES	2		11:43	12.78		
CKE	SZ	137	IP		D	11:42	57.48		
YLL	SZ	137	EP		C	11:42	56.93		
WME	SZ	140	EP		C	11:42	57.38		
WLF	SZ	148	EP		C	11:42	58.47		
GC#1	SZ	32	EP		C	11:42	40.50		
GC#1	SE	32	ES	2		11:42	44.50		
WCB	SZ	157	EP		C	11:42	59.63		
YRE	SZ	159	EP		C	11:43	00.05		
YRC	SZ	160	EP		C	11:43	00.24		
HAE	SZ	162	IP		D	11:43	01.31		
HBL2	AE	169	ES	4		11:43	23.06		
HBL2	AN	169	AMPL			11:43	24.17	3181	0.40
HBL2	AE	169	AMPL			11:43	24.56	3916	0.42
HTR	SZ	172	EP	1	C	11:43	02.38		
MCH	SZ	174	IP		C	11:43	02.86		
MCH	SN	174	ES	2		11:43	23.03		
GIM	SZ	175	IP		D	11:43	01.43		
HGH	SZ	209	EP	2		11:43	07.50		
ESK	BZ	215	EP		C	11:43	06.90		
DSB	BZ	279	EP			11:43	16.19		
CUMB	SN	32	ES	2		11:42	44.70		
CUMB	SN		AMPL			11:42	45.87	4141	0.16
CUMB	SE		AMPL			11:42	45.18	2642	0.23
CUMB	SZ	32	EP		C	11:42	40.49		
CWF	SZ	102	EP	2		11:42	51.73		
WFB	SZ	152	EP		C	11:42	59.20		
KUF	SZ	155	EP	2		11:43	00.47		
LMI	SZ	110	IP		D	11:42	53.51		
SSP	SZ	133	EP	2		11:42	56.46		
ORE	SE		ES			11:45	16.53		
ORE	SZ		EP			11:44	47.73		
OBR	SZ		EP			11:44	46.79		
OST	SZ		EP			11:44	47.22		
OWE	SZ		EP			11:44	48.30		
ORE	SN		EP			11:44	47.73		
LRW	SE		AMPL			11:45	24.77	25	0.25
LRW	SN		ES	3		11:45	21.41		
LRW	SN		EP	1	C	11:44	11.12		
LRW	SN		AMPL			11:45	24.94	14	0.42
LHO	SZ	24	IP		C	11:42	39.12		
LRN	SZ	108	IP		D	11:42	53.22		
LCP	SZ	148	EP	2		11:42	59.15		
LWH	SZ	138	EP	2		11:42	58.48		
LDU	AE	56	AMPL			11:42	52.36	5565	0.39
LDU	SZ	56	IP		C	11:42	44.51		
LDU	SZ	56	ES	3		11:42	51.29		
LDU	SZ	56	E			11:43	06.58		
LDU	AN	56	AMPL			11:42	52.31	6925	0.38
HPK	SZ	65	IP		C	11:42	46.03		

October 21 2002 Time: 11:42 56.9 UTC Magnitude: 3.5 ML
Lat: 53.478N Lon: -2.218W Depth: 5.0 km
Grid Ref: 385.52 kmE 397.91 kmN RMS: 0.31 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT GREATER MANCHESTER Intensity: 4+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HBL2	AN		AMPL			11:43	49.19	1934	0.70
HBL2	AE		AMPL			11:43	51.15	2189	0.63
SBD	SZ	94	IP	1	C	11:42	50.25		
CWF	SZ	102	EP	3		11:42	52.02		
KSY	SZ	123	EP	2		11:42	55.20		
SSP	SZ	132	EP	2		11:42	56.56		
KUF	SZ	156	EP	2		11:43	00.46		
HAE	SZ	162	EP	2	D	11:43	01.33		
MCH	SZ	173	EP	2		11:43	02.88		
HPK	SZ	66	IP		C	11:42	46.05		
LHO	SZ	25	IP		C	11:42	39.12		
LRN	SZ	108	IP		D	11:42	53.25		
LCP	SZ	148	IP	2		11:42	59.12		
LDU	AN	57	AMPL			11:43	14.20	3240	0.34
LDU	AE	57	AMPL			11:43	14.22	4165	0.36
KBI	SZ	52	EP	2		11:42	43.81		
LDU	SZ	57	IP		C	11:42	44.49		

October 21 2002 Time: 11:56 46.0 UTC Magnitude: 2.0 ML
Lat: 53.441N Lon: -2.139W Depth: 5.0 km
Grid Ref: 390.78 kmE 393.80 kmN RMS: 0.20 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		C	11:56	50.39		
KBI	SZ	46	EP	3		11:56	53.64		
HPK	SN	67	ES	2		11:57	05.46		
HPK	SN	67	AMPL			11:57	06.01	146	0.16
HPK	SE	67	AMPL			11:57	06.39	155	0.19
SBD	SZ	96	EP	2		11:57	01.88		
LRN	SZ	111	EP	2		11:57	04.57		
SSP	SZ	131	EP	2		11:57	08.67		
SSP	SE	131	ES	2		11:57	24.16		
SSP	SN	131	AMPL			11:57	25.61	16	0.32
SSP	SE	131	AMPL			11:57	26.25	27	0.29
HAE	SZ	159	EP	3		11:57	13.00		
MCH	SZ	171	EP	3		11:57	14.36		
MCH	SE	171	ES	2		11:57	34.93		
MCH	SE	171	AMPL			11:57	36.09	21	0.26
MCH	SN	171	AMPL			11:57	36.10	18	0.23
HPK	SZ	67	EP	2		11:56	57.59		

October 21 2002 Time: 16:22 21.8 UTC Magnitude: 2.0 ML
Lat: 53.480N Lon: -2.193W Depth: 5.0 km
Grid Ref: 387.21 kmE 398.22 kmN RMS: 0.38 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	EP	2		16:22	25.97		
KBI	SZ	51	EP	2		16:22	30.42		
KWE	SZ	57	EP	2		16:22	32.17		
HPK	SZ	65	EP	2		16:22	33.14		
HPK	SN	65	ES	2		16:22	41.13		
HPK	SN	65	AMPL			16:22	41.58	196	0.27
HPK	SE	65	AMPL			16:22	45.28	121	0.23
SBD	SZ	96	EP	2		16:22	37.19		
CWF	SZ	102	EP	2		16:22	39.07		
CWF	SN	102	AMPL			16:22	55.28	20	0.27
CWF	SE	102	AMPL			16:22	55.79	18	0.15
LRN	SZ	107	EP	2		16:22	40.44		
WPM	SZ	117	EP	2		16:22	41.05		
SSP	SZ	134	EP	2		16:22	43.82		
SSP	SN	134	ES	2		16:22	59.19		
SSP	SN	134	AMPL			16:23	01.43	26	0.23
SSP	SE	134	AMPL			16:23	01.74	50	0.27
HAE	SZ	162	EP	2		16:22	48.62		
MCH	SZ	174	EP	2		16:22	50.01		
MCH	SE	174	AMPL			16:23	11.41	31	0.15
MCH	SN	174	AMPL			16:23	11.53	33	0.29

October 21 2002 Time: 17:02 42.1 UTC Magnitude: 2.2 ML
Lat: 53.502N Lon: -2.211W Depth: 5.0 km
Grid Ref: 385.97 kmE 400.62 kmN RMS: 0.37 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	17:02	46.29		
KBI	SZ	53	EP	2		17:02	51.38		
KWE	SZ	59	EP	2		17:02	52.78		
HPK	SZ	64	IP		D	17:02	53.27		
HPK	SN	64	ES	2		17:03	01.32		
HPK	SE	64	AMPL			17:03	01.69	468	0.24
CWF	SZ	104	EP	2		17:02	59.57		
CWF	SN	104	AMPL			17:03	15.29	45	0.15
CWF	SE	104	AMPL			17:03	15.47	37	0.12
LRN	SZ	105	EP	1	D	17:03	00.37		
WPM	SZ	116	EP	2		17:03	01.25		
KSY	SZ	124	EP	3		17:03	02.74		
SSP	SZ	135	EP	2		17:03	04.02		
SSP	SN	135	ES	2		17:03	19.94		
SSP	SN	135	AMPL			17:03	21.72	40	0.42
SSP	SE	135	AMPL			17:03	22.15	69	0.32
WFB	SZ	153	EP	2		17:03	06.35		
WCB	SZ	156	EP	2		17:03	06.76		
WCB	SE	156	AMPL			17:03	26.25	19	0.20
WCB	SN	156	AMPL			17:03	27.12	13	0.22
YRE	SZ	159	EP	2		17:03	07.22		
HAE	SZ	165	EP	2		17:03	08.80		
MCH	SZ	176	EP	2		17:03	10.56		
MCH	SN	176	ES	2		17:03	30.65		
MCH	SE	176	AMPL			17:03	32.02	47	0.35
MCH	SN	176	AMPL			17:03	32.08	38	0.37
SBD	SZ	96	EP	2		17:02	57.46		
HPK	SN	64	AMPL			17:03	02.45	363	0.20

PHASE DATA : 2002

October 21 2002 Time: 22:34 38.3 UTC Magnitude: 2.1 ML
Lat: 53.472N Lon: -2.183W Depth: 5.0 km
Grid Ref: 387.88 kmE 397.33 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	23	IP		D	22:34	42.58		
KBI	SZ	50	EP	2		22:34	47.04		
KWE	SZ	56	EP	3		22:34	48.40		
HPK	SZ	66	EP	3		22:34	49.68		
HPK	SN	66	ES	2		22:34	57.84		
HPK	SN	66	AMPL			22:34	58.29	219	0.29
SBD	SZ	96	EP	2		22:34	53.85		
CWF	SZ	101	EP	2		22:34	55.78		
CWF	SN	101	ES	2		22:35	09.15		
CWF	SE	101	AMPL			22:35	11.93	29	0.11
CWF	SN	101	AMPL			22:35	11.95	37	0.20
LRN	SZ	108	EP	2		22:34	56.92		
WPM	SZ	117	EP	3		22:34	57.68		
SSP	SZ	133	EP	2		22:35	00.11		
SSP	SE	133	ES	2		22:35	16.38		
SSP	SN	133	AMPL			22:35	18.06	22	0.17
SSP	SE	133	AMPL			22:35	18.38	43	0.27
HAE	SZ	162	EP	2		22:35	05.15		
HTR	SZ	172	EP	3		22:35	06.09		
MCH	SZ	173	EP	2		22:35	06.43		
MCH	SN	173	ES	2		22:35	26.62		
MCH	SE	173	AMPL			22:35	28.09	24	0.21
MCH	SN	173	AMPL			22:35	28.24	28	0.15
HPK	SE	66	AMPL			22:35	00.50	101	0.20

October 22 2002 Time: 00:24 22.0 UTC Magnitude: 1.6 ML
Lat: 53.471N Lon: -2.170W Depth: 5.0 km
Grid Ref: 388.69 kmE 397.22 kmN RMS: 0.27 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	23	IP		C	00:24	26.21		
KBI	SZ	49	EP	3		00:24	30.90		
HPK	SN	65	ES	2		00:24	41.37		
HPK	SN	65	AMPL			00:24	41.76	71	0.18
HPK	SE	65	AMPL			00:24	44.04	40	0.23
SBD	SZ	96	EP	3		00:24	37.45		
CWF	SZ	100	EP	2		00:24	40.10		
CWF	SN	100	AMPL			00:24	55.46	8	0.22
CWF	SE	100	AMPL			00:24	56.20	7	0.11
LMI	SZ	112	EP	2		00:24	40.78		
LMI	SE	112	ES	2		00:24	54.37		
LMI	SN	112	AMPL			00:24	55.75	10	0.21
LMI	SE	112	AMPL			00:24	56.41	13	0.42
WPM	SZ	118	EP	3		00:24	41.30		
CSF	SZ	130	EP	2		00:24	43.78		
SSP	SZ	133	EP	3		00:24	44.82		
SSP	SE	133	ES	2		00:25	00.07		
SSP	SN	133	AMPL			00:25	01.52	11	0.34
SSP	SE	133	AMPL			00:25	01.92	20	0.25
MCH	SE	173	ES	2		00:25	10.66		
MCH	SE	173	AMPL			00:25	11.62	11	0.22
MCH	SN	173	AMPL			00:25	11.69	13	0.22

October 22 2002 Time: 00:41 49.9 UTC Magnitude: 1.6 ML
Lat: 53.502N Lon: -2.118W Depth: 5.0 km
Grid Ref: 392.21 kmE 400.59 kmN RMS: 0.33 secs
Locality: GREATER MANCHESTER Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	18	IP		C	00:41	53.20		
KBI	SZ	48	EP	2		00:41	58.45		
KWE	SZ	57	EP	2		00:41	59.69		
HPK	SZ	60	EP	3		00:41	59.44		
HPK	SN	60	ES	2		00:42	08.19		
HPK	SE	60	AMPL			00:42	08.59	116	0.27
HPK	SN	60	AMPL			00:42	09.36	85	0.18
CWF	SZ	101	EP	2		00:42	06.75		
CWF	SE	101	ES	3		00:42	19.23		
CWF	SN	101	AMPL			00:42	22.20	10	0.11
CWF	SE	101	AMPL			00:42	22.40	11	0.09
LRN	SZ	104	EP	2		00:42	07.52		
KSY	SZ	119	EP	2		00:42	10.42		
SSP	SZ	138	EP	3		00:42	11.54		
SSP	SN	138	ES	3		00:42	26.82		
SSP	SN	138	AMPL			00:42	28.64	7	0.40
SSP	SE	138	AMPL			00:42	29.05	13	0.30
MCH	SZ	178	EP	3		00:42	17.16		
MCH	SN	178	ES	2		00:42	37.50		
MCH	SE	178	AMPL			00:42	38.94	11	0.38
MCH	SN	178	AMPL			00:42	39.01	8	0.36

October 22 2002 Time: 03:39 37.6 UTC Magnitude: 2.9 ML
Lat: 53.463N Lon: -2.219W Depth: 5.0 km
Grid Ref: 385.48 kmE 396.26 kmN RMS: 0.30 secs
Locality: GREATER MANCHESTER Quality: D
Comment: FELT GREATER MANCHESTER Intensity: 4+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CWF	SZ	101	EP	1		03:39	54.37		
CWF	SN	101	AMPL			03:40	10.57	463	0.12
CWF	SE	101	AMPL			03:40	10.76	333	0.27
CWF	SE	101	ES	3		03:40	06.53		
KTG	SZ	176	EP	1	C	03:40	06.54		
KSY	SZ	122	EP	1	C	03:39	58.20		
KSY	SZ	122	ES	3		03:40	12.39		
KWE	SZ	56	IP		D	03:39	47.25		
KBI	SZ	52	ES	2		03:39	52.64		
KBI	SZ	52	EP	2	D	03:39	46.18		
KUF	SZ	155	EP	2		03:40	02.92		
HPK	SZ		EP		C	03:39	48.64		
LHO	SZ		EP		C	03:39	41.70		
LRN	SZ		EP		D	03:39	55.84		
LWH	SZ		EP			03:40	01.23		
LDU	SZ		EP		C	03:39	47.09		
WCB	SZ	155	IP	1	C	03:40	02.27		
WCB	SN	155	AMPL			03:40	24.35	183	0.36
WCB	SN	155	ES	3		03:40	19.52		
WCB	SE	155	AMPL			03:40	23.02	209	0.33
WME	SZ	139	IP		C	03:40	00.04		
WLF	SZ	146	IP		C	03:40	01.07		
YRC	SZ	159	IP	1	C	03:40	02.86		
WPM	SZ	114	EP	2		03:39	56.28		
YLL	SZ	135	EP		C	03:39	59.71		
YRE	SZ	157	IP		C	03:40	02.66		
YRH	SZ	176	EP	2		03:40	05.30		
WFB	SZ	150	IP	1	C	03:40	01.76		
WIM	SZ	179	EP	2		03:40	05.00		
SSP	SZ		EP			03:39	59.32		
SSP	SN		ES			03:40	15.40		
HAE	SZ		EP			03:40	03.91		
HTR	SZ		EP		C	03:40	05.34		
SBD	SZ		EP			03:39	52.92		
MCH	SZ		EP		D	03:40	05.26		
MCH	SE		ES			03:40	26.26		
BTA	SZ		EP		D	03:40	03.41		
BDL	SZ		EP		D	03:40	02.58		
XAL	SZ		EP		D	03:40	02.25		
GC#1	SZ		EP			03:39	43.08		
GC#1	SE		ES			03:39	47.33		

October 22 2002 Time: 03:54 02.4 UTC Magnitude: 2.0 ML
Lat: 53.464N Lon: -2.154W Depth: 5.0 km
Grid Ref: 389.79 kmE 396.35 kmN RMS: 0.51 secs
Locality: GREATER MANCHESTER Quality: D
Comment: FELT GREATER MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	48	EP	2		03:54	10.48		
KBI	SZ	48	ES	2		03:54	16.40		
KWE	SZ	54	EP	1	D	03:54	11.34		
CWF	SZ	99	EP	2		03:54	18.85		
CWF	SE	99	ES	3		03:54	31.23		
CWF	SE	99	AMPL			03:54	34.59	47	0.12
CWF	SN	99	AMPL			03:54	34.64	47	0.08
KSY	SZ	119	EP	2		03:54	22.53		
KUF	SZ	151	EP	2		03:54	27.54		

October 22 2002 Time: 04:02 45.9 UTC Magnitude: 1.8 ML
Lat: 53.484N Lon: -2.198W Depth: 5.0 km
Grid Ref: 386.84 kmE 398.65 kmN RMS: 0.18 secs
Locality: GREATER MANCHESTER Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	51	EP	2		04:02	54.73		
KWE	SZ	57	EP	3		04:02	56.08		
HPK	SN	65	ES	2		04:03	05.06		
HPK	SN	65	AMPL			04:03	05.65	138	0.13
HPK	SE	65	AMPL			04:03	06.05	118	0.18
SBD	SZ	96	EP	2		04:03	01.45		
CWF	SZ	102	EP	3		04:03	03.15		
CWF	SN	102	AMPL			04:03	18.90	15	0.12
CWF	SE	102	AMPL			04:03	19.94	14	0.21
WPM	SZ	116	EP	2		04:03	05.28		
SSP	SZ	134	EP	2		04:03	08.48		
SSP	SE	134	ES	2		04:03	23.91		
SSP	SN	134	AMPL			04:03	25.11	7	0.15
SSP	SE	134	AMPL			04:03	25.91	19	0.24
HAE	SZ	163	EP	2		04:03	12.58		
MCH	SZ	174	EP	3		04:03	14.33		
MCH	SN	174	ES	2		04:03	34.44		
MCH	SE	174	AMPL			04:03	35.60	15	0.35
MCH	SN	174	AMPL			04:03	35.75	14	0.25

October 22 2002 Time: 04:08 51.9 UTC Magnitude: 1.5 ML
Lat: 53.492N Lon: -2.121W Depth: 5.0 km
Grid Ref: 391.98 kmE 399.55 kmN RMS: 0.12 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT GREATER MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CWF	SZ	100	EP	2		04:09	08.67		
CWF	SN	100	AMPL			04:09	25.31	15	0.14
CWF	SE	100	AMPL			04:09	24.33	18	0.16
CWF	SE	100	ES	3		04:09	21.35	18	0.16
KSY	SZ	118	EP	2		04:09	12.24		
KWE	SZ	56	EP	2		04:09	01.58		
HPK	SZ		EP	2		04:09	02.42		
HPK	SN		AMPL			04:09	11.29	119	0.18
HPK	SE		ES	2		04:09	10.55		
HPK	SE		AMPL			04:09	11.50	133	0.16
LHO	SZ		IP		C	04:08	55.44		
KBI	SZ	48	EP	2		04:09	00.17		

October 22 2002 Time: 04:27 19.0 UTC Magnitude: 1.3 ML
Lat: 53.481N Lon: -2.133W Depth: 5.0 km

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Grid Ref: 391.16 kmE 398.27 kmN **RMS: 0.12 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	04:27	22.75		
HPK	SZ	63	EP	3		04:27	29.54		
HPK	SN	63	ES	2		04:27	37.79		
HPK	SN	63	AMPL			04:27	38.35	57	0.12
HPK	SE	63	AMPL			04:27	38.75	46	0.13
SBD	SZ	99	EP	3		04:27	35.28		
CWF	SZ	99	EP	3		04:27	35.72		
CWF	SE	99	ES	3		04:27	48.41	5	0.09
CWF	SN	99	AMPL			04:27	51.60	6	0.10
CWF	SE	99	AMPL			04:27	52.26	5	0.09
SSP	SZ	135	EP	2		04:27	41.47		

October 22 2002 Time: 06:20 57.5 UTC **Magnitude: 2.0 ML**
Lat: 53.483N Lon: -2.202W **Depth: 5.0 km**
Grid Ref: 386.61 kmE 398.56 kmN **RMS: 0.20 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	EP	2		06:21	01.85		
KBI	SZ	52	EP	2		06:21	06.57		
KWE	SZ	57	EP	3		06:21	07.60		
HPK	SZ	65	EP	2		06:21	08.90		
HPK	SN	65	ES	2		06:21	16.84		
HPK	SE	65	AMPL			06:21	17.39	104	0.29
HPK	SN	65	AMPL			06:21	17.46	188	0.21
SBD	SZ	96	EP	2		06:21	13.20		
CWF	SZ	102	EP	2		06:21	14.97		
CWF	SE	102	ES	3		06:21	28.34		
CWF	SN	102	AMPL			06:21	31.19	26	0.22
CWF	SE	102	AMPL			06:21	31.26	27	0.14
KSY	SZ	122	EP	2		06:21	18.59		
SSP	SZ	133	EP	2		06:21	19.72		
SSP	SN	133	ES	2		06:21	35.37		
SSP	SN	133	AMPL			06:21	37.29	23	0.21
SSP	SE	133	AMPL			06:21	37.60	42	0.30
HAE	SZ	163	EP	2		06:21	24.59		
MCH	SZ	174	EP	2		06:21	25.91		
MCH	SE	174	ES	2		06:21	46.24		
MCH	SE	174	AMPL			06:21	47.29	24	0.20
MCH	SN	174	AMPL			06:21	47.48	26	0.21

October 22 2002 Time: 06:27 24.7 UTC **Magnitude: 1.7 ML**
Lat: 53.491N Lon: -2.079W **Depth: 5.0 km**
Grid Ref: 394.76 kmE 399.43 kmN **RMS: 0.25 secs**
Locality: GREATER MANCHESTER **Quality: D**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	16	IP		D	06:27	27.75		
LHO	SZ	16	ES	3		06:27	30.83		
KWE	SZ	55	EP	2		06:27	34.15		
HPK	SZ	60	EP	1	C	06:27	34.90		
HPK	SN	60	ES	2		06:27	42.57		
HPK	SN	60	AMPL			06:27	43.52	88	0.33
HPK	SE	60	AMPL			06:27	47.08	55	0.25
CWF	SZ	98	EP			06:27	41.45		
CWF	SE	98	ES	3		06:27	53.26		
CWF	SN	98	AMPL			06:27	57.04	16	0.19
CWF	SE	98	AMPL			06:27	57.79	18	0.15
LRN	SZ	105	EP	1	D	06:27	42.21		
KBI	SZ	45	EP	2		06:27	32.40		

October 22 2002 Time: 09:47 02.3 UTC **Magnitude: 1.7 ML**
Lat: 53.480N Lon: -2.147W **Depth: 5.0 km**
Grid Ref: 390.28 kmE 398.18 kmN **RMS: 0.26 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	21	EP	1	C	09:47	06.00		
KBI	SZ	48	EP	3		09:47	10.86		
KWE	SZ	56	EP	3		09:47	12.05		
HPK	SN	63	ES	2		09:47	21.33		
HPK	SN	63	AMPL			09:47	22.13	60	0.17
HPK	SE	63	AMPL			09:47	25.33	56	0.23
SBD	SZ	98	EP	2		09:47	18.65		
CWF	SZ	100	EP	3		09:47	19.71		
CWF	SN	100	AMPL			09:47	35.51	10	0.18
CWF	SE	100	AMPL			09:47	36.05	11	0.18
LMI	SE	112	ES	2		09:47	33.69		
CSF	SZ	130	EP	3		09:47	23.34		
SSP	SZ	135	EP	3		09:47	23.81		
SSP	SE	135	ES	3		09:47	39.83		
SSP	SN	135	AMPL			09:47	41.47	14	0.19
SSP	SE	135	AMPL			09:47	41.81	30	0.30

October 22 2002 Time: 12:28 08.4 UTC **Magnitude: 3.1 ML**
Lat: 53.473N Lon: -2.146W **Depth: 4.2 km**
Grid Ref: 390.33 kmE 397.38 kmN **RMS: 0.08 secs**
Locality: GREATER MANCHESTER **Quality: B**
Comment: FELT GREATER MANCHESTER **Intensity: 4+**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	134	EPN	1	D	12:28	29.95		
SSP	SN	134	ES	2		12:28	46.02		
SSP	SN	134	AMPL			12:28	47.65	398	0.36
SSP	SE	134	AMPL			12:28	48.97	664	0.38
HAE	SZ		EP	1		12:28	34.57		
HGH	SZ		EP	2		12:28	40.72		
HTR	SZ		EP		D	12:28	36.11		
MCH	SZ		EP	2	C	12:28	36.07		
MCH	SN	174	AMPL			12:28	58.13	495	0.26
MCH	SE	174	ES	3		12:28	56.29		
MCH	SE	174	AMPL			12:28	58.10	522	0.25
CWF	SZ		EP			12:28	25.24		
CWF	SN	99	ES	2		12:28	38.62		
CWF	SN	99	AMPL			12:28	41.25	305	0.16
CWF	SE	99	AMPL			12:28	42.26	329	0.14
KTG	SZ		EP	2		12:28	37.15		
KSY	SZ		EP	2		12:28	28.80		
KWE	SZ	55	IP		D	12:28	17.93		
KBI	SZ	48	EP	2		12:28	16.86		
KUF	SZ	152	EP	2		12:28	33.70		
HPK	SZ		IP		C	12:28	19.34		
HPK	SE	64	ES	2		12:28	27.44		
LHO	SZ	21	IP		C	12:28	12.38		
LRN	SZ		IP		D	12:28	26.56		
LDU	SZ		IP		C	12:28	17.80		
WCB	SZ		EP		C	12:28	33.00		
WME	SZ		EP		C	12:28	30.71		
WLF	SZ		EP		C	12:28	31.84		
YRC	SZ		EP		C	12:28	33.62		
YLL	SZ		EP			12:28	30.40		
YRE	SZ		EP		C	12:28	33.39		
YRH	SZ		EP		C	12:28	36.06		
WFB	SZ		EP		C	12:28	32.50		
GIM	SZ	178	IP		C	12:28	34.98		
XDE	SZ	145	EP			12:28	31.23		
CKE	SZ	139	IP		C	12:28	30.62		
CSF	SZ	130	IP		D	12:28	29.56		
CDU	SZ		EP			12:28	27.88		
LMI	SZ		EP			12:28	26.89		
GIM	SN	178	ES	2		12:28	53.81		
GIM	SN	178	AMPL			12:28	59.57	138	0.31
LMI	SN	113	ES	2		12:28	40.49		
LMI	SN	113	AMPL			12:28	41.70	673	0.38
GIM	SE	178	AMPL			12:28	59.17	161	0.13
LMI	SE	113	AMPL			12:28	43.17	784	0.61

October 22 2002 Time: 12:51 59.6 UTC **Magnitude: 1.4 ML**
Lat: 53.468N Lon: -2.095W **Depth: 5.0 km**
Grid Ref: 393.69 kmE 396.89 kmN **RMS: 0.13 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	18	IP		C	12:52	03.07		
LHO	SZ	18	ES	3		12:52	06.07		
KBI	SZ	45	EP	2		12:52	07.55		
SSP	SZ	136	EP	3		12:52	22.21		
SSP	SE	136	ES	3		12:52	37.71	8	0.27
SSP	SN	136	AMPL			12:52	38.55	5	0.22
SSP	SE	136	AMPL			12:52	38.86	8	0.27
MCH	SE	175	ES	3		12:52	47.60		
MCH	SN	175	AMPL			12:52	48.64	7	0.30
MCH	SE	175	AMPL			12:52	49.73	6	0.23

October 22 2002 Time: 13:38 27.9 UTC **Magnitude: 1.9 ML**
Lat: 53.491N Lon: -2.188W **Depth: 5.0 km**
Grid Ref: 387.50 kmE 399.43 kmN **RMS: 0.21 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	23	IP		C	13:38	31.94		
KBI	SZ	51	EP	3		13:38	36.93		
KWE	SZ	58	EP	2		13:38	37.80		
HPK	SZ	64	EP	2		13:38	38.89		
HPK	SE	64	ES	2		13:38	46.90		
HPK	SN	64	AMPL			13:38	47.53	257	0.14
HPK	SE	64	AMPL			13:38	47.66	129	0.13
SBD	SZ	97	EP	2		13:38	43.60		
CWF	SZ	103	EP	2		13:38	45.04		
CWF	SE	103	ES	3		13:38	57.68		
CWF	SN	103	AMPL			13:39	01.15	23	0.51
CWF	SE	103	AMPL			13:39	01.49	14	0.20
WPM	SZ	117	EP	3		13:38	47.21		
SSP	SZ	135	EP	3		13:38	50.22		
SSP	SE	135	ES	2		13:39	05.95		
SSP	SN	135	AMPL			13:39	07.76	14	0.15
SSP	SE	135	AMPL			13:39	08.46	24	0.41
MCH	SN	175	ES	3		13:39	16.83		
MCH	SE	175	AMPL			13:39	17.59	16	0.29
MCH	SN	175	AMPL			13:39	17.60	18	0.22

October 22 2002 Time: 16:53 41.0 UTC **Magnitude: 2.4 ML**
Lat: 53.488N Lon: -2.145W **Depth: 5.0 km**
Grid Ref: 390.36 kmE 399.12 kmN **RMS: 0.27 secs**
Locality: GREATER MANCHESTER **Quality: C**
Comment: FELT GREATER MANCHESTER **Intensity: 2+**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CWF	SZ	101	EP		C	16:53	57.84		
CWF	SN	101	AMPL			16:54	13.70	47	0.14
CWF	SE	101	AMPL			16:54	13.47	58	0.17
KSY	SZ	119	EP	3		16:54	01.48		
KWE	SZ	56	EP			16:53	50.44		
KBI	SZ	49	EP		D	16:53	49.40		
HPK	SZ	63	EP		C	16:53	51.63		
HPK	SN	63	ES			16:53	59.78		
HPK	SN	63	AMPL			16:54	00.22	628	0.15
HPK	SE	63	AMPL			16:54	00.35	430	0.19
LHO	SZ	20	EP		C	16:53	44.67		
LRN	SZ	106	EP			16:53	58.92		

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SSP	SZ	136	EP		16:54	02.71		
SSP	SN	136	AMPL		16:54	20.44	34	0.27
SSP	SE	136	AMPL		16:54	20.57	94	0.32
HAE	SZ	164	EP		16:54	07.28		
HGH	SZ	211	EP	3	16:54	13.25		
MCH	SZ	176	EP		16:54	08.51		
MCH	SE	176	ES		16:54	29.24		
MCH	SE	176	AMPL		16:54	30.36	60	0.26
CSF	SZ	129	IP	D	16:54	01.88		
CDU	SZ	117	EP	3	16:54	00.20		
LMI	SZ	112	IP	C	16:53	59.34		
LMI	SN	112	AMPL		16:54	14.01	96	0.40
LMI	SE	112	ES	2	16:54	12.68		
LMI	SE	112	AMPL		16:54	14.94	86	0.26

October 23 2002 Time: 01:53 28.8 UTC Magnitude: 2.8 ML
Lat: 53.477N Lon: -2.157W Depth: 5.0 km
Grid Ref: 389.61 kmE 397.88 kmN RMS: 0.13 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT GREATER MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRN	SZ	107	IP		C	01:53	47.11		
LWH	SZ	136	IP		D	01:53	52.52		
LCP	SZ	147	IP		C	01:53	53.23		
HPK	SE	64	ES	2		01:53	47.88		
HPK	SZ	64	IP		C	01:53	39.75		
SSP	SZ	134	EP	2		01:53	50.49		
LDU	SZ	54	EP	2		01:53	38.18		
SSP	SN	134	AMPL			01:54	08.08	159	0.39
SSP	SE	134	AMPL			01:54	09.41	313	0.41
LHO	SZ	21	IP		C	01:53	32.82		
HGH	SZ	209	EP	2		01:54	01.30		
HTR	SZ	173	EP	1		01:53	56.59		
MCH	SZ	174	EP	2		01:53	56.51		
MCH	SN	174	ES	2		01:54	16.81		
MCH	SN	174	AMPL			01:54	18.41	218	0.45
SSP	SN	134	ES	2		01:54	06.57		
MCH	SE	174	AMPL			01:54	18.39	180	0.54
CWF	SN	100	AMPL			01:54	02.09	144	0.23
CWF	SE	100	ES	2		01:53	57.97		
CWF	SE	100	AMPL			01:54	02.00	136	0.29
KSY	SZ		EP			01:53	49.37		
KWE	SZ	56	EP	1	D	01:53	38.37		
KBI	SZ	49	EP	2		01:53	37.25		
WCB	SZ		EP		C	01:53	53.45		
WME	SZ		EP		C	01:53	51.22		
WPM	SZ		EP			01:53	48.10		
YLL	SZ		EP		C	01:53	50.89		
WFB	SZ		EP		C	01:53	53.01		
XDE	SZ		IP		C	01:53	51.74		
BBO	SZ		EP		D	01:53	53.60		
CKE	SZ		EP			01:53	51.33		
CSF	SZ		IP		D	01:53	49.98		
LMI	SN		ES	2		01:54	00.63		
LMI	SN		AMPL			01:54	02.18	251	0.38
CWF	SZ	100	EP	2		01:53	45.61		
HAE	SZ	162	EP	1		01:53	55.18		

October 23 2002 Time: 03:57 47.6 UTC Magnitude: 1.6 ML
Lat: 53.493N Lon: -2.051W Depth: 5.0 km
Grid Ref: 396.63 kmE 399.62 kmN RMS: 0.18 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	14	IP		C	03:57	50.43		
HPK	SE	59	ES	2		03:58	05.50		
HPK	SE	59	AMPL			03:58	05.87	94	0.31
CWF	SZ	98	EP	3		03:58	03.82		
CWF	SE	98	ES	3		03:58	15.74		
SSP	SE	139	ES	3		03:58	25.39		
SSP	SN	139	AMPL			03:58	25.91	8	0.44
SSP	SE	139	AMPL			03:58	26.31	17	0.26
MCH	SN	178	ES	3		03:58	34.33		
MCH	SE	178	AMPL			03:58	36.02	9	0.28
MCH	SN	178	AMPL			03:58	36.08	12	0.26
CWF	SN	98	AMPL			03:58	20.06	6	0.21
HPK	SZ	59	EP	3		03:57	57.71		
KWE	SZ	55	EP	3		03:57	57.18		
KBI	SZ	44	EP	3		03:57	55.95		

October 23 2002 Time: 04:46 21.1 UTC Magnitude: 1.6 ML
Lat: 53.514N Lon: -2.211W Depth: 5.0 km
Grid Ref: 386.02 kmE 401.99 kmN RMS: 0.58 secs
Locality: GREATER MANCHESTER Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	04:46	25.19		
KBI	SZ	54	EP	3		04:46	30.04		
KWE	SZ	61	EP	3		04:46	31.78		
HPK	SN	63	ES	2		04:46	40.43		
HPK	SE	63	AMPL			04:46	40.66	41	0.24
HPK	SN	63	AMPL			04:46	43.26	56	0.32
CWF	SZ	105	EP	2		04:46	38.33		
CWF	SN	105	ES	2		04:46	52.29		
CWF	SE	105	AMPL			04:46	54.22	8	0.21
CWF	SN	105	AMPL			04:46	55.55	6	0.26
KSY	SZ	125	EP	3		04:46	42.15		
SSP	SZ	136	EP	2		04:46	44.15		
SSP	SE	136	ES	3		04:46	59.39		
SSP	SN	136	AMPL			04:47	00.22	9	0.21
SSP	SE	136	AMPL			04:47	01.05	25	0.28
HAE	SZ	166	EP	3		04:46	48.43		
MCH	SZ	177	EP	3		04:46	49.68		
MCH	SN	177	ES	2		04:47	09.68		
MCH	SN	177	AMPL			04:47	10.90	14	0.22
MCH	SE	177	AMPL			04:47	11.91	12	0.30

October 23 2002 Time: 05:44 34.8 UTC Magnitude: 1.9 ML
Lat: 53.475N Lon: -2.125W Depth: 3.6 km
Grid Ref: 391.70 kmE 397.58 kmN RMS: 0.15 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	05:44	38.44		
KBI	SZ	47	EP	2		05:44	43.24		
KWE	SZ	54	EP	2		05:44	44.36		
HPK	SZ	63	EP	2		05:44	45.94		
HPK	SN	63	ES	2		05:44	53.59		
HPK	SE	63	AMPL			05:44	53.89	90	0.24
HPK	SN	63	AMPL			05:44	54.65	118	0.34
CWF	SZ	99	EP	2		05:44	51.67		
CWF	SN	99	AMPL			05:45	09.05	16	0.17
CWF	SE	99	AMPL			05:45	09.42	16	0.16
LMI	SZ	114	EP	2		05:44	53.26		
LMI	SE	114	ES	2		05:45	05.69		
LMI	SN	114	AMPL			05:45	07.70	23	0.29
LMI	SE	114	AMPL			05:45	11.01	25	0.58
KSY	SZ	117	EP	3		05:44	55.28		
CSF	SZ	131	EP	2		05:44	55.71		
SSP	SN	135	ES	2		05:45	13.25		
SSP	SN	135	AMPL			05:45	13.86	25	0.31
SSP	SE	135	AMPL			05:45	14.27	55	0.28
MCH	SN	175	ES	3		05:45	22.51		
MCH	SE	175	AMPL			05:45	23.96	23	0.27
MCH	SN	175	AMPL			05:45	24.12	28	0.18

October 23 2002 Time: 06:27 52.6 UTC Magnitude: 2.0 ML
Lat: 53.498N Lon: -2.137W Depth: 5.0 km
Grid Ref: 390.89 kmE 400.16 kmN RMS: 0.16 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	06:27	56.13		
KBI	SZ	49	EP	2		06:28	01.36		
KWE	SZ	57	EP	2		06:28	02.48		
HPK	SZ	61	IP		C	06:28	03.07		
HPK	SE	61	ES	2		06:28	11.02		
HPK	SN	61	AMPL			06:28	11.73	285	0.15
HPK	SE	61	AMPL			06:28	12.12	204	0.18
CWF	SZ	101	EP	3		06:28	09.84		
CWF	SN	101	AMPL			06:28	25.22	15	0.19
CWF	SE	101	AMPL			06:28	25.91	18	0.18
LRN	SZ	105	EP	2		06:28	10.43		
LMI	SZ	111	EP	2		06:28	10.72		
LMI	SN	111	ES	2		06:28	24.38		
LMI	SN	111	AMPL			06:28	25.40	34	0.38
LMI	SE	111	AMPL			06:28	26.32	38	0.25
WPM	SZ	121	EP	2		06:28	11.37		
CSF	SZ	128	EP	2		06:28	13.32		
SSP	SZ	137	EP	3		06:28	13.93		
SSP	SN	137	ES	2		06:28	29.73		
SSP	SN	137	AMPL			06:28	31.36	20	0.38
SSP	SE	137	AMPL			06:28	32.66	34	0.32
HAE	SZ	165	EP	2		06:28	18.91		

October 23 2002 Time: 18:25 04.3 UTC Magnitude: 0.8 ML
Lat: 55.162N Lon: -3.072W Depth: 11.3 km
Grid Ref: 331.69 kmE 585.87 kmN RMS: 0.05 secs
Locality: LANGHOLM,D & G Quality: B
Comment: 5KM W OF LANGHOLM

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
ECK	SZ	4	IP		D	18:25	06.66		
BBH	SZ	10	IP		C	18:25	07.05		
BHH	SZ	12	IP		C	18:25	07.41		
BHH	SN	12	ES	2		18:25	09.51		
BHH	SN	12	AMPL			18:25	09.61	58	0.10
BHH	SE	12	AMPL			18:25	09.79	79	0.19
ESK	SZ	19	IP		D	18:25	08.39		
ESK	SE	19	ES	2		18:25	11.15		
ESK	SN	19	AMPL			18:25	11.47	6	0.11
ESK	SE	19	AMPL			18:25	11.51	6	0.08
BWH	SZ	37	IP		C	18:25	11.07		
BWH	SZ	37	ES	3		18:25	15.63		
BTA	SZ	38	IP		D	18:25	11.25		
BTA	SE	38	ES	2		18:25	15.44		
BTA	SN	38	AMPL			18:25	16.27	17	0.18
BTA	SE	38	AMPL			18:25	16.50	19	0.18
BDL	SZ	41	EP	2		18:25	11.80		
BBO	SZ	49	EP	2		18:25	12.99		
BBO	SN	49	ES	2		18:25	19.11		
BBO	SE	49	AMPL			18:25	19.26	18	0.19
BBO	SN	49	AMPL			18:25	19.63	6	0.18
BCC	SZ		EP	4		18:25	02.55		

October 23 2002 Time: 19:18 11.6 UTC Magnitude: 2.0 ML
Lat: 53.488N Lon: -2.164W Depth: 5.0 km
Grid Ref: 389.15 kmE 399.13 kmN RMS: 0.23 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI

PHASE DATA : 2002

LHO	SZ	21	EP	2	19:18	15.47		
KBI	SZ	50	EP	2	19:18	20.25		
HPK	SN	63	AMPL		19:18	33.88	145	0.40
CWF	SZ	101	EP	3	19:18	29.29		
CWF	SE	101	AMPL		19:18	44.90	17	0.16
CWF	SN	101	AMPL		19:18	47.60	13	0.11
KSY	SZ	120	EP	2	19:18	32.36		
SSP	SZ	135	EP	3	19:18	33.51		
SSP	SE	135	ES	2	19:18	49.38		
SSP	SN	135	AMPL		19:18	50.98	20	0.23
SSP	SE	135	AMPL		19:18	51.28	38	0.26
YRE	SZ	161	EP	3	19:18	36.74		
MCH	SN	175	ES	3	19:18	59.86		
MCH	SN	175	AMPL		19:19	01.15	26	0.21
MCH	SE	175	AMPL		19:19	02.15	22	0.29
HPK	SN	63	ES	2	19:18	30.55		
HPK	SZ	63	IP	C	19:18	22.43		
HPK	SE	63	AMPL		19:18	33.63	204	0.21
KWE	SZ	57	EP	3	19:18	21.43		

October 23 2002 Time: 20:16 31.7 UTC Magnitude: 2.2 ML
Lat: 53.477N Lon: -2.162W Depth: 5.0 km
Grid Ref: 389.24 kmE 397.83 kmN RMS: 0.26 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		D	20:16	35.65		
KBI	SZ	49	EP	2		20:16	40.12		
KWE	SZ	56	EP	2		20:16	41.54		
HPK	SZ	64	EP	2		20:16	42.78		
HPK	SN	64	ES	2		20:16	50.84		
CWF	SZ	100	EP	2		20:16	48.76		
CWF	SE	100	AMPL			20:17	04.65	29	0.11
CWF	SN	100	AMPL			20:17	04.94	30	0.16
LRN	SZ	107	EP	2		20:16	49.85		
LMI	SZ	112	IP		D	20:16	50.35		
LMI	SE	112	ES	2		20:17	03.29		
LMI	SN	112	AMPL			20:17	04.72	40	0.24
LMI	SE	112	AMPL			20:17	08.45	48	0.54
WPM	SZ	118	EP	2		20:16	50.70		
KSY	SZ	120	EP	2		20:16	51.96		
CSF	SZ	129	EP	2		20:16	52.77		
SSP	SZ	134	EP	2		20:16	53.20		
SSP	SE	134	ES	2		20:17	09.36		
SSP	SN	134	AMPL			20:17	11.08	38	0.17
SSP	SE	134	AMPL			20:17	11.39	72	0.25
HAE	SZ	162	EP	2		20:16	58.17		
MCH	SZ	174	EP	2		20:16	59.72		
MCH	SE	174	ES	2		20:17	19.93		
MCH	SE	174	AMPL			20:17	21.12	43	0.24
MCH	SN	174	AMPL			20:17	21.18	46	0.25
HPK	SE	64	AMPL			20:16	54.96	200	0.27
HPK	SN	64	AMPL			20:16	51.22	308	0.18

October 23 2002 Time: 20:20 56.7 UTC Magnitude: 1.8 ML
Lat: 53.499N Lon: -2.214W Depth: 5.0 km
Grid Ref: 385.77 kmE 400.32 kmN RMS: 0.25 secs
Locality: GREATER MANCHESTER Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	53	EP	3		20:21	05.84		
HPK	SZ	64	EP	3		20:21	08.31		
HPK	SN	64	ES	2		20:21	15.58		
HPK	SE	64	AMPL			20:21	16.53	67	0.16
HPK	SN	64	AMPL			20:21	16.72	84	0.16
WPM	SZ	116	EP	3		20:21	15.63		
SSP	SZ	135	EP	2		20:21	19.02		
SSP	SE	135	ES	3		20:21	34.72		
SSP	SN	135	AMPL			20:21	35.95	9	0.39
SSP	SE	135	AMPL			20:21	36.37	15	0.26
MCH	SN	175	ES	3		20:21	44.98		
MCH	SN	175	AMPL			20:21	46.16	12	0.26
MCH	SE	175	AMPL			20:21	47.11	10	0.21
KWE	SZ	59	EP	3		20:21	07.08		

October 23 2002 Time: 20:31 28.8 UTC Magnitude: 2.5 ML
Lat: 53.484N Lon: -2.172W Depth: 5.0 km
Grid Ref: 388.59 kmE 398.57 kmN RMS: 0.23 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SN	64	ES	2		20:31	47.86		
CWF	SZ	101	EP	2		20:31	45.89		
CWF	SE	101	ES	3		20:31	58.73		
CWF	SN	101	AMPL			20:32	01.76	83	0.17
CWF	SE	101	AMPL			20:32	01.94	107	0.10
LRN	SZ	107	IP		D	20:31	46.89		
LMI	SZ	111	EP	2		20:31	47.25		
HPK	SZ	64	IP		C	20:31	39.68		
KWE	SZ	57	EP	2		20:31	38.59		
CDU	SZ	116	EP	2		20:31	48.13		
WPM	SZ	118	EP	2		20:31	47.86		
KSY	SZ	121	EP	2		20:31	49.22		
KBI	SZ	50	EP	2		20:31	37.56		
LHO	SZ	22	IP		C	20:31	32.79		
SSP	SN	134	ES	2		20:32	06.45		
LDU	SZ	54	EP	3		20:31	38.18		
SSP	SN	134	AMPL			20:32	08.20	80	0.42
XDE	SZ	143	IP		C	20:31	51.58		
LCP	SZ	147	EP	2		20:31	52.75		
WFB	SZ	154	EP	2		20:31	52.86		
BBO	SZ	156	EP	2		20:31	53.39		
BBO	SE	156	AMPL			20:32	17.56	91	0.54
BBO	SN	156	AMPL			20:32	18.05	59	0.53
HAE	SZ	163	EP	2		20:31	55.20		
HTR	SZ	173	EP	2		20:31	56.42		
MCH	SZ	175	EP	3		20:31	56.62		
MCH	SN	175	ES	2		20:32	16.57		
MCH	SN	175	AMPL			20:32	18.49	68	0.20
MCH	SE	175	AMPL			20:32	18.51	92	0.36
GIM	SZ	176	EP	2		20:31	55.65		
GIM	SN	176	AMPL			20:32	18.35	41	0.35
CSF	SZ	128	IP		D	20:31	49.83		
LMI	SN	111	ES	2		20:32	00.13		
SSP	SE	134	AMPL			20:32	08.60	136	0.24
LMI	SN	111	AMPL			20:32	02.45	134	0.44
LMI	SE	111	AMPL			20:32	03.10	157	0.36
SSP	SZ	134	IP		D	20:31	50.55		

October 23 2002 Time: 23:27 25.4 UTC Magnitude: 1.9 ML
Lat: 53.485N Lon: -2.174W Depth: 5.0 km
Grid Ref: 388.42 kmE 398.78 kmN RMS: 0.40 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SZ	64	EP	3		23:27	37.32		
HPK	SN	64	ES	2		23:27	44.46		
CWF	SZ	101	EP	2		23:27	42.35		
CWF	SE	101	ES	2		23:27	55.01		
CWF	SN	101	AMPL			23:27	58.38	14	0.16
KBI	SZ	50	EP	2		23:27	33.99		
LHO	SZ	22	ES	3		23:27	32.52		
SSP	SZ	135	EP	3		23:27	47.36		
SSP	SN	135	ES	2		23:28	02.84		
SSP	SE	135	AMPL			23:28	04.99	42	0.26
HAE	SZ	163	EP	2		23:27	52.01		
MCH	SN	175	ES	3		23:28	13.04		
MCH	SE	175	AMPL			23:28	14.68	21	0.26
MCH	SN	175	AMPL			23:28	14.77	23	0.29
LHO	SZ	22	EP	2		23:27	29.13		
CWF	SE	101	AMPL			23:27	59.26	12	0.18
WPM	SZ	118	EP	3		23:27	44.26		
HPK	SN	64	AMPL			23:27	45.33	99	0.39
SSP	SN	135	AMPL			23:28	04.67	19	0.19
HPK	SE	64	AMPL			23:27	48.55	75	0.26
KWE	SZ	57	EP	2		23:27	35.09		

October 24 2002 Time: 04:36 59.1 UTC Magnitude: 2.3 ML
Lat: 53.470N Lon: -2.161W Depth: 5.0 km
Grid Ref: 389.32 kmE 397.09 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		C	04:37	03.09		
KBI	SZ	49	EP	2		04:37	07.81		
KWE	SZ	55	EP	2		04:37	08.63		
HPK	SZ	65	IP		C	04:37	10.07		
HPK	SN	65	ES	2		04:37	18.26		
LMI	SZ	113	EP	2		04:37	18.10		
SBD	SZ	97	EP	2		04:37	14.42		
LMI	SN	113	AMPL			04:37	32.40	69	0.23
WPM	SZ	118	EP	2		04:37	18.32		
KSY	SZ	119	EP	2		04:37	19.76		
CSF	SZ	130	EP	2		04:37	20.36		
HPK	SN	65	AMPL			04:37	21.19	333	0.31
SSP	SZ	134	EP	2		04:37	20.97		
SSP	SE	134	AMPL			04:37	38.98	122	0.26
HAE	SZ	162	EP	3		04:37	25.84		
HTR	SZ	172	EP	2		04:37	26.89		
MCH	SZ	173	EP	2		04:37	26.87		
MCH	SN	173	AMPL			04:37	48.82	69	0.18
MCH	SE	173	AMPL			04:37	49.84	54	0.29
LMI	SE	113	ES	2		04:37	31.23		
CWF	SE	100	ES	3		04:37	28.92		
LMI	SE	113	AMPL			04:37	33.64	67	0.36
CWF	SE	100	AMPL			04:37	32.44	39	0.14
CWF	SZ	100	EP	2		04:37	15.97		
CWF	SN	100	AMPL			04:37	33.71	27	0.10
HPK	SE	65	AMPL			04:37	18.63	265	0.27
SSP	SN	134	AMPL			04:37	38.57	54	0.30
LRN	SZ	108	EP	2		04:37	17.41		

October 24 2002 Time: 04:38 36.9 UTC Magnitude: 2.0 ML
Lat: 53.479N Lon: -2.148W Depth: 5.0 km
Grid Ref: 390.16 kmE 398.01 kmN RMS: 0.27 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	21	IP		C	04:38	40.82		
KBI	SZ	48	EP	2		04:38	45.42		
KWE	SZ	55	EP	2		04:38	46.61		
HPK	SZ	64	EP	2		04:38	48.02		
HPK	SE	64	ES	2		04:38	55.34		
HPK	SE	64	AMPL			04:38	56.42	106	0.40
CWF	SZ	100	EP	3		04:38	54.00		
CWF	SE	100	AMPL			04:39	09.79	26	0.21
CWF	SN	100	AMPL			04:39	09.99	14	0.09
LMI	SZ	113	EP	2		04:38	55.70		

PHASE DATA : 2002

LMI	SE	113	ES	3	04:39	09.04		
LMI	SN	113	AMPL		04:39	10.07	28	0.26
LMI	SE	113	AMPL		04:39	13.41	37	0.51
WPM	SZ	119	EP	2	04:38	56.04		
KSY	SZ	119	EP	3	04:38	57.44		
CSF	SZ	130	EP	2	04:38	58.10		
SSP	SZ	135	EP	2	04:38	58.62		
SSP	SN	135	ES	2	04:39	14.40		
SSP	SN	135	AMPL		04:39	16.23	25	0.33
SSP	SE	135	AMPL		04:39	16.66	62	0.30
HAE	SZ	163	EP	2	04:39	03.48		
MCH	SZ	175	EP	2	04:39	04.55		
MCH	SE	175	ES	2	04:39	25.23		
MCH	SN	175	AMPL		04:39	26.80	31	0.25
MCH	SE	175	AMPL		04:39	27.50	25	0.29
SBD	SZ	98	EP	2	04:38	52.42		
HPK	SN	64	AMPL		04:38	58.83	135	0.29

October 24 2002 Time: 05:53 54.5 UTC Magnitude: 2.2 ML
Lat: 53.482N Lon: -2.200W Depth: 5.0 km
Grid Ref: 386.76 kmE 398.45 kmN RMS: 0.48 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	05:53	58.61		
KBI	SZ	51	EP	2		05:54	03.35		
KWE	SZ	57	EP	3		05:54	04.64		
HPK	SZ	65	EP	2		05:54	05.48		
HPK	SE	65	ES	2		05:54	13.53		
HPK	SN	65	AMPL			05:54	13.92	420	0.19
HPK	SE	65	AMPL			05:54	13.95	496	0.21
SBD	SZ	96	IP		D	05:54	09.63		
CWF	SZ	102	IP		D	05:54	11.83		
CWF	SE	102	ES	2		05:54	24.64		
CWF	SN	102	AMPL			05:54	27.62	47	0.18
CWF	SE	102	AMPL			05:54	28.37	39	0.21
LRN	SZ	107	IP		C	05:54	12.71		
LMI	SZ	110	EP	2		05:54	12.98		
LMI	SE	110	ES	2		05:54	26.19		
LMI	SN	110	AMPL			05:54	27.80	52	0.35
LMI	SE	110	AMPL			05:54	28.73	78	0.44
KSY	SZ	122	EP	2		05:54	15.30		
CSF	SZ	127	EP	1	D	05:54	15.51		
SSP	SZ	133	IP		D	05:54	16.26		
SSP	SN	133	ES	2		05:54	32.60		
SSP	SN	133	AMPL			05:54	34.05	26	0.32
SSP	SE	133	AMPL			05:54	34.53	47	0.35
HAE	SZ	163	EP	2		05:54	21.03		
MCH	SZ	174	EP	2		05:54	22.31		
MCH	SN	174	ES	2		05:54	42.83		
MCH	SN	174	AMPL			05:54	44.49	38	0.30
MCH	SE	174	AMPL			05:54	47.31	32	0.34

October 24 2002 Time: 06:38 26.5 UTC Magnitude: 1.7 ML
Lat: 53.473N Lon: -2.150W Depth: 5.0 km
Grid Ref: 390.02 kmE 397.37 kmN RMS: 0.38 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	21	IP		C	06:38	30.19		
KBI	SZ	48	EP	2		06:38	34.81		
KWE	SZ	55	EP	2		06:38	36.08		
HPK	SZ	64	EP	2		06:38	38.16		
HPK	SN	64	ES	2		06:38	45.43		
HPK	SE	64	AMPL			06:38	47.18	42	0.19
HPK	SN	64	AMPL			06:38	48.25	64	0.29
CWF	SZ	99	EP	2		06:38	43.69		
CWF	SN	99	AMPL			06:38	45.18	14	0.10
CWF	SE	99	AMPL			06:38	59.19	13	0.22
LMI	SE	113	ES	3		06:38	58.38		
LMI	SN	113	AMPL			06:38	59.49	13	0.26
LMI	SE	113	AMPL			06:39	00.58	13	0.23
WPM	SZ	119	EP	2		06:38	45.43		
CSF	SZ	130	EP	2		06:38	47.57		
SSP	SZ	134	EP	2		06:38	48.38		
SSP	SE	134	ES	2		06:39	04.02		
SSP	SN	134	AMPL			06:39	05.65	11	0.29
SSP	SE	134	AMPL			06:39	06.08	27	0.29
MCH	SE	174	ES	2		06:39	14.16		
MCH	SN	174	AMPL			06:39	16.23	13	0.29
MCH	SE	174	AMPL			06:39	16.92	12	0.26
HPK	SE	64	ES	2		06:38	45.44		

October 24 2002 Time: 07:52 54.4 UTC Magnitude: 2.6 ML
Lat: 53.480N Lon: -2.173W Depth: 5.0 km
Grid Ref: 388.54 kmE 398.17 kmN RMS: 0.27 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		D	07:52	58.38		
KBI	SZ	50	EP	2		07:53	02.82		
HPK	SZ	64	IP		C	07:53	05.42		
HPK	SN	64	ES	2		07:53	13.64		
CWF	SZ	101	EP	2		07:53	11.43		
CWF	SE	101	ES	3		07:53	24.18		
CWF	SN	101	AMPL			07:53	27.69	144	0.18
CWF	SE	101	AMPL			07:53	27.74	93	0.16
LRN	SZ	107	EP	2		07:53	12.55		
LMI	SZ	111	EP	2		07:53	12.88		
LMI	SN	111	ES	2		07:53	25.52		
LMI	SN	111	AMPL			07:53	27.88	105	0.48
LMI	SE	111	AMPL			07:53	31.01	117	0.42
KSY	SZ	121	EP	2		07:53	14.97		
CSF	SZ	129	EP	1	C	07:53	15.47		
SSP	SZ	134	EP	2		07:53	16.03		
SSP	SE	134	ES	2		07:53	32.09		
SSP	SN	134	AMPL			07:53	33.74	99	0.41
SSP	SE	134	AMPL			07:53	34.16	206	0.29
HAE	SZ	163	EP	2		07:53	20.73		
HTR	SZ	173	EP	2		07:53	21.99		
MCH	SZ	174	EP	2		07:53	22.07		
MCH	SE	174	ES	2		07:53	42.67		
MCH	SE	174	AMPL			07:53	43.86	114	0.24
MCH	SN	174	AMPL			07:53	44.04	131	0.24
GIM	SZ	176	IP		D	07:53	20.81		
KWE	SZ	56	EP	2		07:53	04.02		

October 24 2002 Time: 08:21 44.7 UTC Magnitude: 2.0 ML
Lat: 53.490N Lon: -2.180W Depth: 5.0 km
Grid Ref: 388.08 kmE 399.33 kmN RMS: 0.30 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		C	08:21	48.66		
KBI	SZ	51	EP	2		08:21	53.84		
KWE	SZ	57	EP	2		08:21	54.48		
HPK	SZ	64	EP	2		08:21	55.90		
HPK	SN	64	ES	2		08:22	03.52		
HPK	SE	64	AMPL			08:22	04.03	252	0.23
HPK	SN	64	AMPL			08:22	04.45	190	0.16
CWF	SZ	102	EP	3		08:22	02.25		
CWF	SE	102	ES	3		08:22	14.99		
CWF	SN	102	AMPL			08:22	17.67	19	0.18
CWF	SE	102	AMPL			08:22	18.38	16	0.24
LRN	SZ	106	EP	2		08:22	02.66		
LMI	SZ	110	EP	2		08:22	03.08		
LMI	SN	110	ES	2		08:22	15.80		
LMI	SN	110	AMPL			08:22	18.15	36	0.41
LMI	SE	110	AMPL			08:22	19.17	47	0.65
WPM	SZ	118	EP	3		08:22	03.62		
CSF	SZ	127	EP	2		08:22	05.59		
SSP	SZ	135	EP	2		08:22	06.35		
SSP	SN	135	ES	2		08:22	22.34		
SSP	SN	135	AMPL			08:22	24.18	17	0.29
SSP	SE	135	AMPL			08:22	24.48	35	0.34
HAE	SZ	164	EP	2		08:22	11.13		
MCH	SN	175	ES	2		08:22	32.87		
MCH	SE	175	AMPL			08:22	34.19	18	0.24
MCH	SN	175	AMPL			08:22	35.05	23	0.22

October 24 2002 Time: 08:24 54.7 UTC Magnitude: 3.1 ML
Lat: 53.485N Lon: -2.179W Depth: 3.7 km
Grid Ref: 388.11 kmE 398.69 kmN RMS: 0.26 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT GREATER MANCHESTER Intensity: 4+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SN	64	ES	2		08:25	13.61		
LHO	SZ	23	IP		C	08:24	58.86		
LRN	SZ	107	IP		D	08:25	12.90		
LWH	SZ	137	EP	2		08:25	18.41		
LDU	SZ	55	ES	3		08:25	11.20		
LDU	SZ	55	IP		C	08:25	04.27		
CWF	SZ	102	EP	2		08:25	12.04		
CWF	SN	102	AMPL			08:25	31.20	305	0.31
CWF	SE	102	ES	2		08:25	25.28		
KSY	SZ	121	EP	2		08:25	15.16		
CWF	SE	102	AMPL			08:25	28.63	323	0.19
KBI	SZ	50	EP	2		08:25	03.56		
KUF	SZ	154	EP	2		08:25	20.26		
KEY	SZ	100	EP	2		08:25	12.23		
GIM	SZ	175	IP		C	08:25	21.19		
XDE	SZ	143	IP		C	08:25	17.59		
CKE	SZ	137	IP			08:25	17.12		
CSF	SZ	128	IP		D	08:25	15.84		
CDU	SZ	116	EP	2		08:25	14.14		
LMI	SZ	111	IP		D	08:25	13.17		
GIM	SN	175	ES	2		08:25	40.76		
GIM	SN	175	AMPL			08:25	44.25	276	0.33
LMI	SN	111	ES	2		08:25	25.94		
GIM	SE	175	AMPL			08:25	43.00	49	0.14
SSP	SZ	134	EP	1	D	08:25	16.33		
SSP	SN	134	ES	2		08:25	32.51		
SSP	SN	134	AMPL			08:25	34.44	466	0.28
SSP	SE	134	AMPL			08:25	34.75	920	0.33
HAE	SZ	163	EP	1		08:25	21.13		
HGH	SZ	210	EP	2		08:25	27.17		
HTR	SZ	173	EP	2		08:25	22.12		
MCH	SZ	175	EP	2	C	08:25	22.52		
MCH	SN	175	ES	2		08:25	42.85		
MCH	SN	175	AMPL			08:25	45.33	612	0.24
MCH	SE	175	AMPL			08:25	45.25	459	0.38
BTA	SZ		EP		D	08:25	20.45		
BWH	SZ		EP		C	08:25	26.10		
BDL	SZ		EP		D	08:25	19.60		
BBO	SZ	156	IP		D	08:25	19.40		
BBO	SN	156	AMPL			08:25	39.70	402	0.32
BBO	SE	156	AMPL			08:25	43.57	530	0.46
KWE	SZ	57	EP		D	08:25	04.48		
HPK	SZ	64	IP		C	08:25	05.72		

PHASE DATA : 2002

October 24 2002 Time: 08:42 36.7 UTC Magnitude: 1.9 ML
Lat: 53.499N Lon: -2.153W Depth: 5.0 km
Grid Ref: 389.83 kmE 400.31 kmN RMS: 0.44 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	21	IP		C	08:42	40.23		
KBI	SZ	50	EP	3		08:42	45.95		
KWE	SZ	58	EP	3		08:42	46.73		
HPK	SN	62	ES	2		08:42	55.29		
HPK	SN	62	AMPL			08:42	56.44	124	0.34
CWF	SZ	102	EP	3		08:42	54.66	12	0.20
CWF	SN	102	AMPL			08:43	09.34	20	0.16
CWF	SE	102	AMPL			08:43	09.73	16	0.15
LRN	SZ	105	EP	3		08:42	54.48		
SSP	SZ	137	EP	2		08:42	58.14		
SSP	SN	137	ES	3		08:43	14.00		
SSP	SN	137	AMPL			08:43	15.76	15	0.30
SSP	SE	137	AMPL			08:43	16.27	30	0.47
HAE	SZ	165	EP	2		08:43	02.58		
MCH	SN	177	ES	2		08:43	24.61		
MCH	SE	177	AMPL			08:43	25.78	18	0.20
MCH	SN	177	AMPL			08:43	26.64	25	0.17
HPK	SE	62	AMPL			08:42	55.62	139	0.23

October 24 2002 Time: 09:18 05.1 UTC Magnitude: 1.8 ML
Lat: 53.503N Lon: -2.140W Depth: 5.0 km
Grid Ref: 390.69 kmE 400.77 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	09:18	08.55		
KBI	SZ	49	EP	3		09:18	13.88		
KWE	SZ	58	EP	2		09:18	15.34		
HPK	SE	61	ES	2		09:18	23.38		
HPK	SN	61	AMPL			09:18	23.88	106	0.21
HPK	SE	61	AMPL			09:18	23.90	156	0.18
CWF	SZ	102	EP	3		09:18	22.29		
CWF	SN	102	AMPL			09:18	37.63	17	0.15
CWF	SE	102	AMPL			09:18	38.03	17	0.18
LMI	SE	111	ES	3		09:18	36.42		
SSP	SZ	137	EP	3		09:18	26.41		
SSP	SN	137	ES	2		09:18	42.83		
SSP	SN	137	AMPL			09:18	44.05	12	0.27
SSP	SE	137	AMPL			09:18	44.58	22	0.49
MCH	SN	177	ES	2		09:18	52.86		
MCH	SE	177	AMPL			09:18	54.08	15	0.21
MCH	SN	177	AMPL			09:18	54.94	19	0.22
HPK	SZ	61	EP	3		09:18	15.86		

October 24 2002 Time: 09:36 05.5 UTC Magnitude: 1.7 ML
Lat: 53.493N Lon: -2.136W Depth: 5.0 km
Grid Ref: 390.98 kmE 399.66 kmN RMS: 0.38 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	09:36	08.90		
KBI	SZ	48	EP	3		09:36	14.80		
KWE	SZ	57	EP	3		09:36	15.57		
HPK	SN	62	ES	2		09:36	23.90		
HPK	SN	62	AMPL			09:36	24.21	83	0.21
HPK	SE	62	AMPL			09:36	24.23	105	0.21
CWF	SZ	101	EP	3		09:36	22.88		
CWF	SN	101	AMPL			09:36	37.94	11	0.18
CWF	SE	101	AMPL			09:36	40.63	9	0.37
LRN	SZ	105	EP	2		09:36	23.09		
SSP	SZ	137	EP	2		09:36	26.96		
SSP	SN	137	ES	2		09:36	43.01		
SSP	SN	137	AMPL			09:36	44.33	8	0.31
SSP	SE	137	AMPL			09:36	44.60	14	0.33
MCH	SE	176	ES	2		09:36	53.24		
MCH	SE	176	AMPL			09:36	54.34	8	0.19
MCH	SN	176	AMPL			09:36	55.21	12	0.20
HPK	SZ	62	EP	2		09:36	15.98		

October 24 2002 Time: 09:46 54.6 UTC Magnitude: 1.9 ML
Lat: 53.492N Lon: -2.134W Depth: 5.0 km
Grid Ref: 391.14 kmE 399.55 kmN RMS: 0.38 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	19	IP		C	09:46	58.07		
KBI	SZ	48	EP	3		09:47	03.90		
KWE	SZ	57	EP	3		09:47	04.01		
HPK	SN	62	AMPL			09:47	13.79	109	0.24
HPK	SE	62	AMPL			09:47	16.00	102	0.32
CWF	SZ	101	EP	2		09:47	11.58		
CWF	SE	101	ES	3		09:47	23.87		
CWF	SE	101	AMPL			09:47	27.08	22	0.23
CWF	SN	101	AMPL			09:47	27.22	15	0.09
LMI	SN	112	ES	3		09:47	26.51		
SSP	SZ	137	EP	2		09:47	16.69		
SSP	SE	137	ES	2		09:47	31.95		
SSP	SN	137	AMPL			09:47	33.55	14	0.33
SSP	SE	137	AMPL			09:47	33.99	36	0.31
YLL	SZ	141	EP	3		09:47	16.54		
WFB	SZ	156	EP	3		09:47	18.41		
HAE	SZ	164	EP	2		09:47	21.01		
MCH	SZ	176	EP	3		09:47	22.99		
MCH	SE	176	ES	2		09:47	42.49		
MCH	SE	176	AMPL			09:47	43.75	16	0.18
MCH	SN	176	AMPL			09:47	43.99	21	0.19
HPK	SN	62	ES	2		09:47	13.31		

October 24 2002 Time: 10:26 55.8 UTC Magnitude: 1.9 ML
Lat: 53.490N Lon: -2.152W Depth: 5.0 km
Grid Ref: 389.94 kmE 399.27 kmN RMS: 0.28 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	21	IP		C	10:26	59.53		
KWE	SZ	57	EP	3		10:27	05.93		
HPK	SZ	63	EP	2		10:27	06.47		
HPK	SN	63	ES	2		10:27	14.54		
HPK	SE	63	AMPL			10:27	14.86	109	0.20
HPK	SN	63	AMPL			10:27	15.68	97	0.28
SBD	SZ	99	EP	2		10:27	10.81		
LMI	SZ	111	EP	2		10:27	14.01		
LMI	SN	111	ES	2		10:27	27.59		
CSF	SZ	128	EP	2		10:27	16.51		
SSP	SZ	136	EP	2		10:27	17.72		
SSP	SN	136	ES	2		10:27	33.79		
SSP	SN	136	AMPL			10:27	34.89	10	0.37
SSP	SE	136	AMPL			10:27	35.55	19	0.48
YRE	SZ	162	EP	3		10:27	20.51		
MCH	SN	176	ES	2		10:27	44.22		
MCH	SE	176	AMPL			10:27	45.03	11	0.18
MCH	SN	176	AMPL			10:27	45.91	16	0.19

October 24 2002 Time: 10:45 13.9 UTC Magnitude: 1.8 ML
Lat: 53.480N Lon: -2.172W Depth: 5.0 km
Grid Ref: 388.56 kmE 398.20 kmN RMS: 0.43 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		C	10:45	17.91		
KBI	SZ	50	EP	2		10:45	22.52		
KWE	SZ	56	EP	2		10:45	24.16		
CWF	SZ	101	EP	2		10:45	31.87		
CWF	SN	101	ES	3		10:45	44.51		
CWF	SE	101	AMPL			10:45	46.92	19	0.22
CWF	SN	101	AMPL			10:45	47.11	16	0.07
LRN	SZ	107	EP	2		10:45	32.13		
WPM	SZ	118	EP	2		10:45	32.96		
SSP	SZ	134	EP	2		10:45	36.49		
SSP	SE	134	ES	2		10:45	51.57		
SSP	SN	134	AMPL			10:45	53.41	14	0.31
SSP	SE	134	AMPL			10:45	53.84	32	0.30
WFB	SZ	153	EP	2		10:45	38.32		
MCH	SN	174	ES	2		10:46	02.36		
MCH	SN	174	AMPL			10:46	03.84	20	0.21
MCH	SE	174	AMPL			10:46	04.68	15	0.38
SBD	SZ	97	EP	2		10:45	29.53		

October 24 2002 Time: 12:20 28.4 UTC Magnitude: 1.6 ML
Lat: 53.495N Lon: -2.140W Depth: 5.0 km
Grid Ref: 390.74 kmE 399.87 kmN RMS: 0.32 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	12:20	31.92		
KBI	SZ	49	EP	3		12:20	37.14		
KWE	SZ	57	EP	3		12:20	38.37		
HPK	SZ	62	EP	2		12:20	39.04		
HPK	SN	62	ES	2		12:20	46.89		
HPK	SN	62	AMPL			12:20	47.25	92	0.20
HPK	SE	62	AMPL			12:20	47.27	118	0.18
SBD	SZ	100	EP	3		12:20	45.90		
CWF	SZ	101	EP	3		12:20	45.89		
CWF	SN	101	AMPL			12:21	00.93	11	0.21
CWF	SE	101	AMPL			12:21	01.79	10	0.16
LRN	SZ	105	EP	2		12:20	46.14		
LMI	SZ	111	EP	2		12:20	46.48		
CSF	SZ	128	EP	2		12:20	48.82		
SSP	SZ	137	EP	2		12:20	50.24		
SSP	SN	137	ES	2		12:21	06.30		
SSP	SN	137	AMPL			12:21	07.41	7	0.26
SSP	SE	137	AMPL			12:21	07.94	12	0.45

October 24 2002 Time: 14:29 26.1 UTC Magnitude: 1.7 ML
Lat: 53.456N Lon: -2.182W Depth: 5.0 km
Grid Ref: 387.94 kmE 395.52 kmN RMS: 0.23 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	EP	1	C	14:29	30.62		
HPK	SZ	67	EP	2		14:29	37.34		
HPK	SN	67	AMPL			14:29	45.85	72	0.18
SBD	SZ	95	EP	2		14:29	41.64		
LRN	SZ	110	EP	3		14:29	44.83		
LMI	SZ	113	EP	2		14:29	44.96		
LMI	SE	113	ES	2		14:29	58.59		
LMI	SN	113	AMPL			14:29	59.24	15	0.51
LMI	SE	113	AMPL			14:30	00.58	20	0.46
SSP	SN	131	ES	2		14:30	04.87		
SSP	SN	131	AMPL			14:30	05.97	5	0.30
SSP	SE	131	AMPL			14:30	06.63	10	0.37
CSF	SZ	131	EP	2		14:29	47.48		
SSP	SZ	131	EP	3		14:29	48.78		
HPK	SN	67	ES	3		14:29	45.32		
HPK	SE	67	AMPL			14:29	45.74	82	0.28

October 24 2002 Time: 14:55 55.7 UTC Magnitude: 1.9 ML

PHASE DATA : 2002

Lat: 53.497N Lon: -2.201W Depth: 5.0 km
Grid Ref: 386.67 kmE 400.08 kmN RMS: 0.49 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	14:55	59.61		
KBI	SZ	52	EP	3		14:56	05.30		
KWE	SZ	59	EP	2		14:56	06.28		
HPK	SZ	64	EP	2		14:56	06.75		
HPK	SN	64	ES	2		14:56	14.62		
HPK	SE	64	AMPL			14:56	14.93	167	0.19
HPK	SN	64	AMPL			14:56	15.44	139	0.16
SBD	SZ	97	EP	2		14:56	10.70		
CWF	SZ	104	EP	3		14:56	13.45		
LRN	SZ	106	EP	2		14:56	13.64		
LMI	SZ	109	EP	2		14:56	14.11		
LMI	SE	109	ES	2		14:56	26.80		
LMI	SN	109	AMPL			14:56	28.69	30	0.28
LMI	SE	109	AMPL			14:56	29.81	31	0.35
WPM	SZ	116	EP	2		14:56	14.15		
CSF	SZ	126	EP	2		14:56	16.45		
SSP	SZ	135	EP	2		14:56	17.63		
SSP	SN	135	ES	2		14:56	33.74		
SSP	SN	135	AMPL			14:56	35.01	11	0.33
SSP	SE	135	AMPL			14:56	35.31	22	0.35
MCH	SN	175	ES	2		14:56	43.87		
MCH	SE	175	AMPL			14:56	45.11	11	0.16
MCH	SN	175	AMPL			14:56	45.90	19	0.21

October 24 2002 Time: 14:56 40.7 UTC Magnitude: 2.1 ML
Lat: 53.496N Lon: -2.194W Depth: 5.0 km
Grid Ref: 387.17 kmE 400.02 kmN RMS: 0.45 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	23	IP		C	14:56	44.68		
KBI	SZ	52	EP	2		14:56	49.55		
KWE	SZ	58	EP	2		14:56	51.48		
HPK	SZ	64	EP	2		14:56	51.46		
HPK	SN	64	ES	2		14:56	59.68		
SBD	SZ	97	EP	2		14:56	56.05		
CWF	SZ	103	EP	2		14:56	58.28		
CWF	SE	103	ES	3		14:57	10.78		
CWF	SN	103	AMPL			14:57	13.86	30	0.17
CWF	SE	103	AMPL			14:57	14.52	38	0.19
HPK	SN	64	AMPL			14:57	00.06	342	0.20
LRN	SZ	106	EP	2		14:56	58.66		
WPM	SZ	117	EP	2		14:56	59.50		
KSY	SZ	123	EP	2		14:57	01.61		
CSF	SZ	126	EP	2		14:57	01.54		
SSP	SZ	135	EP	3		14:57	02.61		
SSP	SN	135	ES	2		14:57	18.82		
SSP	SN	135	AMPL			14:57	20.07	22	0.29
SSP	SE	135	AMPL			14:57	20.59	38	0.45
WFB	SZ	153	EP	2		14:57	04.66		
MCH	SN	176	ES	2		14:57	28.92		
MCH	SN	176	AMPL			14:57	30.97	27	0.21
MCH	SE	176	AMPL			14:57	31.13	18	0.25
LMI	SZ	109	EP	2		14:56	59.18		
HPK	SE	64	AMPL			14:57	00.02	438	0.30

October 24 2002 Time: 15:00 09.9 UTC Magnitude: 1.8 ML
Lat: 53.494N Lon: -2.206W Depth: 5.0 km
Grid Ref: 386.33 kmE 399.78 kmN RMS: 0.45 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	15:00	13.95		
KBI	SZ	52	EP	2		15:00	18.96		
KWE	SZ	59	EP	2		15:00	20.25		
HPK	SN	64	ES	2		15:00	28.88		
HPK	SN	64	AMPL			15:00	29.70	103	0.32
HPK	SE	64	AMPL			15:00	29.97	119	0.19
SBD	SZ	96	EP	2		15:00	25.34		
CWF	SZ	103	EP	2		15:00	27.70		
CWF	SE	103	ES	2		15:00	39.95		
CWF	SN	103	AMPL			15:00	43.03	15	0.29
CWF	SE	103	AMPL			15:00	43.86	15	0.22
LRN	SZ	106	EP	2		15:00	27.97		
SSP	SZ	134	EP	2		15:00	32.21		
SSP	SN	134	ES	2		15:00	47.03		
SSP	SE	134	AMPL			15:00	49.64	19	0.36
SSP	SN	134	AMPL			15:00	51.08	10	0.16
WFB	SZ	152	EP	2		15:00	33.96		
HPK	SZ	64	EP	2		15:00	20.80		

October 24 2002 Time: 15:33 49.4 UTC Magnitude: 1.9 ML
Lat: 53.512N Lon: -2.229W Depth: 5.0 km
Grid Ref: 384.79 kmE 401.75 kmN RMS: 0.50 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	25	IP		C	15:33	53.51		
KBI	SZ	55	EP	2		15:33	59.41		
KWE	SZ	61	EP	2		15:34	00.33		
HPK	SN	64	ES	2		15:34	08.59		
HPK	SE	64	AMPL			15:34	08.87	134	0.19
SBD	SZ	96	EP	2		15:34	04.83		
SSP	SZ	135	EP	2		15:34	11.50		
SSP	SN	135	ES	2		15:34	27.71		
SSP	SN	135	AMPL			15:34	29.00	12	0.31
SSP	SE	135	AMPL			15:34	29.51	22	0.43
WME	SZ	138	EP	3		15:34	11.90		
WFB	SZ	152	EP	3		15:34	13.69		
MCH	SE	176	ES	2		15:34	37.73		
MCH	SE	176	AMPL			15:34	39.03	15	0.22
MCH	SN	176	AMPL			15:34	39.88	19	0.18

October 24 2002 Time: 15:46 44.2 UTC Magnitude: 2.8 ML
Lat: 53.482N Lon: -2.197W Depth: 5.0 km
Grid Ref: 386.95 kmE 398.43 kmN RMS: 0.38 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SN	65	ES	2		15:47	03.36		
SBD	SZ	96	EP	2		15:46	59.32		
CWF	SZ	102	EP	2		15:47	01.49		
CWF	SE	102	ES	3		15:47	14.38		
CWF	SN	102	AMPL			15:47	17.49	126	0.22
CWF	SE	102	AMPL			15:47	18.23	123	0.15
HPK	SZ	65	IP		C	15:46	55.17		
LMI	SN	110	ES	2		15:47	15.38		
LMI	SN	110	AMPL			15:47	17.51	343	0.32
LMI	SE	110	AMPL			15:47	18.18	332	0.30
CDU	SZ	116	EP	2		15:47	03.40		
KSY	SZ	122	EP	2		15:47	05.38		
KWE	SZ	57	EP	2		15:46	53.92		
LDU	AN	56	AMPL			15:47	04.12	1622	0.65
SSP	SN	134	ES	3		15:47	22.02		
SSP	SN	134	AMPL			15:47	23.81	97	0.27
SSP	SE	134	AMPL			15:47	24.35	196	0.47
LWH	SZ	138	EP	2		15:47	07.93		
BBO	SZ	156	EP	2		15:47	08.83		
BBO	SN	156	AMPL			15:47	29.89	128	0.28
BBO	SE	156	AMPL			15:47	32.30	154	0.39
HAE	SZ	163	EP	2		15:47	10.71		
HTR	SZ	172	EP	2		15:47	11.51		
GIM	SN	174	AMPL			15:47	33.58	90	0.27
MCH	SN	174	ES	2		15:47	32.45		
GIM	SZ	174	EP	2		15:47	10.67		
MCH	SZ	174	EP	2		15:47	11.94		
MCH	SE	174	AMPL			15:47	34.65	112	0.40
MCH	SN	174	AMPL			15:47	34.73	124	0.26
LDU	AZ	56	AMPL			15:47	02.68	3004	0.64
LDU	AZ	56	ES	4		15:47	01.70		
KBI	SZ	51	EP	2		15:46	53.37		
LHO	SZ	24	IP		C	15:46	48.34		
CSF	SZ	128	IP		D	15:47	05.22		
SSP	SZ	134	EP	2		15:47	05.87		
LRN	SZ	107	IP		D	15:47	02.36		
LMI	SZ	110	EP	2		15:47	02.63		

October 24 2002 Time: 16:34 38.8 UTC Magnitude: 2.2 ML
Lat: 53.493N Lon: -2.188W Depth: 5.0 km
Grid Ref: 387.51 kmE 399.60 kmN RMS: 0.47 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	23	IP		C	16:34	42.72		
KBI	SZ	51	EP	2		16:34	47.46		
KWE	SZ	58	EP	2		16:34	49.53		
HPK	SZ	64	IP		C	16:34	49.56		
HPK	SN	64	ES	2		16:34	57.70		
HPK	SN	64	AMPL			16:34	58.04	303	0.18
SBD	SZ	97	EP	2		16:34	53.84		
CWF	SZ	103	EP	2		16:34	56.32		
CWF	SN	103	AMPL			16:35	11.72	36	0.16
CWF	SE	103	AMPL			16:35	12.48	36	0.17
LRN	SZ	106	IP		C	16:34	56.92		
LMI	SZ	109	EP	2		16:34	57.18		
LMI	SN	109	ES	2		16:35	09.89		
LMI	SN	109	AMPL			16:35	11.87	76	0.27
LMI	SE	109	AMPL			16:35	12.57	74	0.35
WPM	SZ	117	EP	2		16:34	57.62		
KSY	SZ	122	EP	2		16:34	59.80		
CSF	SZ	127	EP	2		16:34	59.60		
SSP	SZ	135	EP	2		16:35	00.47		
SSP	SE	135	ES	2		16:35	17.26		
SSP	SN	135	AMPL			16:35	18.20	27	0.28
SSP	SE	135	AMPL			16:35	18.71	50	0.46
MCH	SZ	175	EP	2		16:35	06.34		
MCH	SN	175	ES	2		16:35	26.48		
MCH	SE	175	AMPL			16:35	28.23	33	0.21
MCH	SN	175	AMPL			16:35	29.08	40	0.15
HPK	SE	64	AMPL			16:34	58.06	422	0.18

October 24 2002 Time: 18:37 12.6 UTC Magnitude: 2.6 ML
Lat: 53.487N Lon: -2.213W Depth: 5.0 km
Grid Ref: 385.88 kmE 399.01 kmN RMS: 0.39 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	25	EP	2		18:37	16.78		
KBI	SZ	52	EP	3		18:37	22.65		
KWE	SZ	58	EP	2		18:37	22.63		
HPK	SZ	65	IP		C	18:37	23.61		
HPK	SN	65	ES	2		18:37	31.75		
HPK	SE	65	AMPL			18:37	32.18	715	0.33
HPK	SN	65	AMPL			18:37	34.70	555	0.41
CWF	SZ	103	EP	3		18:37	30.27		
CWF	SN	103	AMPL			18:37	46.29	53	0.21

PHASE DATA : 2002

CWF	SE	103	AMPL		18:37	48.60	98	0.44
LRN	SZ	107	EP	2	18:37	30.67		
LMI	SZ	109	EP	2	18:37	31.11		
LMI	SN	109	ES	2	18:37	43.59		
LMI	SN	109	AMPL		18:37	46.20	206	0.56
LMI	SE	109	AMPL		18:37	46.85	246	0.53
WPM	SZ	115	EP	2	18:37	31.56		
KSY	SZ	123	EP	2	18:37	33.59		
CSF	SZ	127	EP	2	18:37	33.61		
SSP	SZ	134	EP	2	18:37	34.00		
SSP	SE	134	ES	3	18:37	50.55		
SSP	SE	134	AMPL		18:37	52.52	147	0.41
SSP	SN	134	AMPL		18:37	54.06	65	0.46
WFB	SZ	152	EP	2	18:37	36.51		
HAE	SZ	163	EP	2	18:37	39.08		
MCH	SZ	174	EP	2	18:37	40.39		
MCH	SN	174	ES	2	18:38	00.58		
MCH	SN	174	AMPL		18:38	03.10	94	0.25
MCH	SE	174	AMPL		18:38	03.14	95	0.53
SBD	SZ	95	EP	2	18:37	27.75		

October 24 2002 Time: 19:00 45.8 UTC Magnitude: 2.2 ML
Lat: 53.489N Lon: -2.202W Depth: 5.0 km
Grid Ref: 386.60 kmE 399.15 kmN RMS: 0.42 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	EP		C	19:00	49.76		
KBI	SZ	52	EP			19:00	54.71		
HPK	SZ	65	EP			19:00	56.63		
HPK	SN	65	ES			19:01	04.87		
HPK	SE	65	AMPL			19:01	04.96	138	0.17
HPK	SN	65	AMPL			19:01	05.25	131	0.15
CWF	SZ	103	EP			19:01	03.42		
LRN	SZ	107	EP			19:01	03.81		
WCB	SZ	156	EP			19:01	10.26		
WCB	SN	156	ES			19:01	28.23		

October 24 2002 Time: 19:13 18.6 UTC Magnitude: 1.9 ML
Lat: 53.482N Lon: -2.139W Depth: 5.0 km
Grid Ref: 390.80 kmE 398.40 kmN RMS: 0.43 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	IP		C	19:13	22.11		
KWE	SZ	56	EP	2		19:13	27.79		
HPK	SN	63	ES	2		19:13	37.23		
HPK	SE	63	AMPL			19:13	37.54	77	0.25
HPK	SN	63	AMPL			19:13	38.29	84	0.32
SBD	SZ	99	EP	3		19:13	34.88		
CWF	SZ	100	EP	3		19:13	35.77		
SSP	SZ	135	EP	2		19:13	40.48		
SSP	SN	135	ES	3		19:13	56.46		
SSP	SN	135	AMPL			19:13	57.60	16	0.20
SSP	SE	135	AMPL			19:13	57.93	35	0.31
MCH	SN	175	ES	3		19:14	06.41		
MCH	SN	175	AMPL			19:14	07.78	19	0.24
MCH	SE	175	AMPL			19:14	08.77	16	0.28
KBI	SZ	48	EP	2		19:13	27.95		

October 24 2002 Time: 23:07 51.6 UTC Magnitude: 2.2 ML
Lat: 53.496N Lon: -2.210W Depth: 5.0 km
Grid Ref: 386.06 kmE 399.93 kmN RMS: 0.39 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	23:07	55.90		
KBI	SZ	53	EP	2		23:08	00.52		
KWE	SZ	59	EP	2		23:08	02.20		
HPK	SZ	64	IP		C	23:08	02.74		
HPK	SN	64	ES	2		23:08	10.70		
CWF	SZ	104	EP	2		23:08	09.21		
CWF	SN	104	ES	2		23:08	23.05		
CWF	SN	104	AMPL			23:08	24.93	33	0.18
CWF	SE	104	AMPL			23:08	25.77	34	0.17
WPM	SZ	116	EP	3		23:08	10.44		
KSY	SZ	124	EP	2		23:08	12.95		
SSP	SZ	134	EP	2		23:08	13.70		
SSP	SN	134	ES	2		23:08	30.14		
SSP	SN	134	AMPL			23:08	31.21	22	0.39
SSP	SE	134	AMPL			23:08	31.89	41	0.47
HAE	SZ	164	EP	2		23:08	18.27		
HTR	SZ	173	EP	3		23:08	19.72		
MCH	SN	175	ES	2		23:08	40.17		
MCH	SN	175	AMPL			23:08	41.66	26	0.34
MCH	SE	175	AMPL			23:08	45.39	28	0.30
LRN	SZ	106	EP	2		23:08	09.85		
SBD	SZ	96	IP		C	23:08	07.14		
HPK	SN	64	AMPL			23:08	11.20	335	0.16
HPK	SE	64	AMPL			23:08	11.24	455	0.21

October 25 2002 Time: 00:02 51.0 UTC Magnitude: 1.6 ML
Lat: 53.505N Lon: -2.173W Depth: 5.0 km
Grid Ref: 388.50 kmE 400.96 kmN RMS: 0.43 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	IP		C	00:02	54.77		
KBI	SZ	51	EP	3		00:03	00.55		
KWE	SZ	59	EP	2		00:03	01.37		
HPK	SE	62	AMPL			00:03	10.10	96	0.26
HPK	SN	62	AMPL			00:03	10.32	86	0.14
SBD	SZ	99	EP	3		00:03	07.73		
CWF	SZ	103	EP	3		00:03	08.27		
CWF	SE	103	ES	3		00:03	20.69		
CWF	SN	103	AMPL			00:03	23.86	8	0.15
CWF	SE	103	AMPL			00:03	23.96	9	0.19
LRN	SZ	104	EP	3		00:03	09.01		
WPM	SZ	118	EP	2		00:03	09.93		
SSP	SZ	136	EP	3		00:03	13.26		
SSP	SE	136	ES	3		00:03	28.83		
SSP	SN	136	AMPL			00:03	30.23	6	0.27
SSP	SE	136	AMPL			00:03	31.40	10	0.38
HPK	SN	62	ES	2		00:03	09.80		

October 25 2002 Time: 00:19 27.1 UTC Magnitude: 2.6 ML
Lat: 53.493N Lon: -2.233W Depth: 3.0 km
Grid Ref: 384.57 kmE 399.70 kmN RMS: 0.23 secs
Locality: GREATER MANCHESTER Quality: B
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	3	IP		D	00:19	28.06		
MUNI	S	3	ES	2		00:19	28.89		
LHO	SZ	26	IP		C	00:19	31.69		
KBI	SZ	54	EP	2		00:19	36.35		
LDU	SZ	57	IP		C	00:19	37.03		
KWE	SZ	59	EP	2		00:19	37.25		
HPK	SZ	66	IP		C	00:19	38.54		
HPK	SN	66	ES	2		00:19	46.66		
SBD	SZ	95	EP	2		00:19	42.64		
CWF	SZ	104	EP	2		00:19	44.49		
CWF	SE	104	ES	2		00:19	57.71		
CWF	SE	104	AMPL			00:20	00.49	138	0.24
CWF	SN	104	AMPL			00:20	00.69	179	0.20
LRN	SZ	107	IP		D	00:19	45.68		
WPM	SZ	114	EP	2		00:19	46.36		
KSY	SZ	125	EP	2		00:19	48.10		
SSP	SZ	134	EP	2		00:19	49.04		
SSP	SN	134	ES	2		00:20	04.95		
SSP	SN	134	AMPL			00:20	06.89	74	0.32
SSP	SE	134	AMPL			00:20	07.57	166	0.41
WME	SZ	138	IP		C	00:19	49.69		
WLF	SZ	146	EP	2		00:19	50.83		
LCP	SZ	147	EP	2		00:19	51.35		
WFB	SZ	151	EP	2		00:19	51.41		
WCB	SZ	155	EP	2		00:19	51.31		
WCB	SE	155	AMPL			00:20	11.30	37	0.28
WCB	SN	155	AMPL			00:20	12.17	41	0.32
HAE	SZ	164	EP	2		00:19	53.90		
HTR	SZ	172	EP	2		00:19	54.90		
MCH	SZ	174	EP	2		00:19	55.19		
MCH	SN	174	ES	2		00:20	15.37		
MCH	SN	174	AMPL			00:20	17.96	173	0.22
MCH	SE	174	AMPL			00:20	18.76	115	0.26
HGH	SZ	210	EP	2		00:20	00.00		

October 25 2002 Time: 00:20 39.5 UTC Magnitude: 2.6 ML
Lat: 53.492N Lon: -2.207W Depth: 2.0 km
Grid Ref: 386.26 kmE 399.51 kmN RMS: 0.15 secs
Locality: GREATER MANCHESTER Quality: B
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	3	IP		D	00:20	40.41		
MUNI	S	3	ES	2		00:20	41.22		
LHO	SZ	24	IP		C	00:20	44.05		
KBI	SZ	52	IP		C	00:20	48.69		
KBI	SZ	52	ES	3		00:20	55.75		
LDU	SZ	56	IP		C	00:20	49.42		
KWE	SZ	58	EP	2		00:20	49.77		
HPK	SZ	65	IP		C	00:20	50.89		
HPK	SE	65	ES	2		00:20	58.96		
SBD	SZ	96	EP	2		00:20	55.10		
CWF	SZ	103	EP	2		00:20	57.16		
CWF	SE	103	ES	3		00:21	09.44		
CWF	SE	103	AMPL			00:21	12.85	101	0.20
CWF	SN	103	AMPL			00:21	12.98	114	0.19
LRN	SZ	106	EP	2		00:20	58.04		
WPM	SZ	116	EP	2		00:20	58.77		
KSY	SZ	123	EP	2		00:21	00.65		
SSP	SZ	134	EP	2		00:21	01.50		
SSP	SN	134	ES	2		00:21	18.11		
SSP	SN	134	AMPL			00:21	19.43	71	0.34
SSP	SE	134	AMPL			00:21	19.76	136	0.46
WME	SZ	140	IP		C	00:21	02.09		
WLF	SZ	147	EP	1	D	00:21	03.22		
LCP	SZ	147	EP	2		00:21	03.93		
HAE	SZ	164	EP	2		00:21	06.47		
HTR	SZ	173	EP	2		00:21	07.44		
MCH	SZ	175	EP	2		00:21	07.66		
MCH	SN	175	ES	2		00:21	28.08		
MCH	SN	175	AMPL			00:21	30.33	139	0.22
MCH	SE	175	AMPL			00:21	31.13	84	0.27

October 25 2002 Time: 00:25 44.5 UTC Magnitude: 2.3 ML
Lat: 53.495N Lon: -2.221W Depth: 2.2 km
Grid Ref: 385.34 kmE 399.82 kmN RMS: 0.31 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

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STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	3	IP		D	00:25	45.37		
MUNI	S	3	ES	2		00:25	46.04		
LHO	SZ	25	IP		C	00:25	49.00		
KBI	SZ	53	EP	2		00:25	53.52		
KWE	SZ	59	EP	2		00:25	54.84		
HPK	SZ	65	IP		C	00:25	55.88		
HPK	SN	65	ES	2		00:26	04.00		
HPK	SE	65	AMPL			00:26	04.31	542	0.20
HPK	SN	65	AMPL			00:26	04.60	510	0.17
SBD	SZ	95	EP	2		00:25	59.93		
CWF	SZ	104	EP	2		00:26	02.09		
CWF	SE	104	ES	2		00:26	15.02		
CWF	SN	104	AMPL			00:26	18.04	59	0.20
CWF	SE	104	AMPL			00:26	18.79	45	0.19
LRN	SZ	106	IP		C	00:26	03.06		
WPM	SZ	115	EP	2		00:26	03.83		
KSY	SZ	124	EP	2		00:26	05.62		
SSP	SZ	134	EP	2		00:26	06.65		
SSP	SN	134	ES	2		00:26	23.13		
SSP	SN	134	AMPL			00:26	24.39	29	0.27
SSP	SE	134	AMPL			00:26	24.91	52	0.42
WFB	SZ	152	EP	2		00:26	08.96		
YRE	SZ	158	EP	2		00:26	09.72		
HAE	SZ	164	EP	2		00:26	11.44		
MCH	SZ	175	EP	2		00:26	12.58		
MCH	SN	175	ES	2		00:26	33.01		
MCH	SE	175	AMPL			00:26	35.43	33	0.21

October 25 2002 Time: 00:38 29.9 UTC Magnitude: 1.6 ML
Lat: 53.503N Lon: -2.210W Depth: 1.6 km
Grid Ref: 386.07 kmE 400.75 kmN RMS: 0.10 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	4	IP		C	00:38	30.95		
MUNI	S	4	ES	2		00:38	31.86		
LHO	SZ	24	IP		C	00:38	34.46		
KBI	SZ	53	EP	2		00:38	39.66		
KWE	SZ	60	EP	2		00:38	40.46		
HPK	SN	64	ES	2		00:38	49.40		
HPK	SN	64	AMPL			00:38	50.01	99	0.13
HPK	SE	64	AMPL			00:38	50.05	101	0.20
SBD	SZ	97	EP	3		00:38	46.28		
CWF	SZ	104	EP	2		00:38	47.96		
CWF	SN	104	AMPL			00:39	03.37	11	0.20
CWF	SE	104	AMPL			00:39	03.65	10	0.20
SSP	SZ	135	EP	3		00:38	52.83		
SSP	SE	135	ES	3		00:39	09.06		
SSP	SN	135	AMPL			00:39	09.93	7	0.28
SSP	SE	135	AMPL			00:39	11.29	12	0.28
MCH	SN	176	ES	2		00:39	18.24		
MCH	SN	176	AMPL			00:39	20.77	9	0.24
MCH	SE	176	AMPL			00:39	20.97	10	0.43

October 25 2002 Time: 04:26 14.9 UTC Magnitude: 1.6 ML
Lat: 53.516N Lon: -2.262W Depth: 1.3 km
Grid Ref: 382.64 kmE 402.24 kmN RMS: 0.33 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	27	IP		C	04:26	19.83		
KBI	SZ	57	EP	2		04:26	25.68		
KWE	SZ	62	EP	2		04:26	26.51		
HPK	SZ	65	EP	2		04:26	26.61		
HPK	SN	65	ES	2		04:26	34.80		
HPK	SE	65	AMPL			04:26	35.16	104	0.23
HPK	SN	65	AMPL			04:26	35.66	75	0.15
SBD	SZ	95	EP	2		04:26	30.98		
CWF	SZ	108	EP	3		04:26	33.00		
CWF	SE	108	ES	2		04:26	45.94		
CWF	SN	108	AMPL			04:26	48.82	9	0.17
CWF	SE	108	AMPL			04:26	49.74	9	0.12
SSP	SZ	135	EP	3		04:26	37.62		
SSP	SE	135	ES	3		04:26	54.35		
SSP	SN	135	AMPL			04:26	55.19	7	0.20
YRE	SZ	156	EP	3		04:26	40.76		
MCH	SN	176	ES	2		04:27	04.09		
MCH	SE	176	AMPL			04:27	06.04	8	0.21
MCH	SN	176	AMPL			04:27	06.14	11	0.22
MUNI	S	6	IP		D	04:26	16.17		
MUNI	S	6	ES	2		04:26	17.00		
MUNI	S		AMPL			04:26	17.31	3812	0.19

October 25 2002 Time: 09:15 48.9 UTC Magnitude: 1.7 ML
Lat: 53.489N Lon: -2.204W Depth: 3.0 km
Grid Ref: 386.44 kmE 399.21 kmN RMS: 0.03 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	09:15	53.46		
HPK	SZ	65	EP	1	C	09:16	00.13		
HPK	SE	65	ES	3		09:16	08.32	80	0.19
HPK	SE	65	AMPL			09:16	09.48	80	0.19
HPK	SN	65	AMPL			09:16	09.66	50	0.18
CWF	SZ	103	EP	3		09:16	06.47		
CWF	SE	103	AMPL			09:16	22.19	12	0.18
CWF	SN	103	AMPL			09:16	22.38	12	0.15
WPM	SZ	116	EP	3		09:16	08.54		
MUNI	S	3	IP		C	09:15	49.91		
MUNI	S	3	ES	2		09:15	50.67		
MUNI	S		AMPL			09:15	51.06	845	0.22

October 25 2002 Time: 17:24 48.0 UTC Magnitude: 2.6 ML
Lat: 53.484N Lon: -2.194W Depth: 3.3 km
Grid Ref: 387.16 kmE 398.63 kmN RMS: 0.09 secs
Locality: GREATER MANCHESTER Quality: B
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	3	EP	2		17:24	48.95		
MUNI	S	3	ES	2		17:24	49.79		
MHEA	S	7	IP		D	17:24	49.69		
MHEA	S	7	ES	2		17:24	50.85		
MALT	S	17	EP	2		17:24	51.50		
MALT	S	17	ES	2		17:24	53.62		
CWF	SZ	102	EP	2		17:25	05.57		
CWF	SN	102	ES	3		17:25	18.08		
CWF	SN	102	AMPL			17:25	21.76	79	0.22
CWF	SE	102	AMPL			17:25	22.60	69	0.14
KSY	SZ	122	EP	2		17:25	08.93		
KWE	SZ	57	EP	2		17:24	57.86		
KBI	SZ	51	EP	2		17:24	56.98		
WCB	SZ	157	EP	1	C	17:25	13.05		
WCB	SE	157	ES	3		17:25	30.86		
WME	SZ	141	EP	1	C	17:25	10.81		
WLF	SZ	148	EP	1	C	17:25	11.84		
YRC	SZ	161	EP	1	C	17:25	13.64		
WPM	SZ	117	EP	2		17:25	07.45		
YLL	SZ	137	EP	1	C	17:25	10.36		
YRE	SZ	159	EP	1	C	17:25	13.46		
YRH	SZ	178	EP	3		17:25	16.22		
WFB	SZ	152	EP	2		17:25	12.52		
HPK	SZ	65	EP	1	C	17:24	59.36		
HPK	SN	65	AMPL			17:25	08.19	573	0.20
HPK	SE	65	ES	2		17:25	07.61		
HPK	SE	65	AMPL			17:25	07.98	368	0.26
LHO	SZ	24	IP	1	C	17:24	52.51		
LRN	SZ	107	EP	1	C	17:25	06.68		
SSP	SZ	134	EP	2		17:25	10.02		
SSP	SN	134	AMPL			17:25	27.89	83	0.35
SSP	SE	134	ES	3		17:25	26.10		
SSP	SE	134	AMPL			17:25	28.32	172	0.26
HAE	SZ	163	EP	2	C	17:25	15.22		
HGH	SZ	210	EP	3		17:25	22.04		
HTR	SZ	172	EP	2		17:25	16.07		
MCH	SZ	174	EP	3		17:25	15.94		
MCH	SN	174	AMPL			17:25	38.20	107	0.21
MCH	SE	174	ES	3		17:25	36.33		
MCH	SE	174	AMPL			17:25	38.02	94	0.25

October 26 2002 Time: 05:43 59.9 UTC Magnitude: 1.7 ML
Lat: 53.478N Lon: -2.188W Depth: 3.9 km
Grid Ref: 387.51 kmE 397.96 kmN RMS: 0.05 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MHEA	SN	8	ES	2		05:44	03.09		
MCH	SN	174	AMPL			05:44	49.98	11	0.26
MCH	SE	174	AMPL			05:44	49.87	11	0.42
MCH	SE	174	ES	3		05:44	49.11		
WPM	SZ	117	EP	3		05:44	19.56		
LRN	SZ	108	EP	3		05:44	18.76		
CWF	SN	101	AMPL			05:44	33.24	9	0.28
CWF	SE	101	AMPL			05:44	33.06	12	0.17
HPK	SN	65	AMPL			05:44	19.90	92	0.15
CWF	SZ	101	EP	3		05:44	18.22		
HPK	SE	65	AMPL			05:44	20.29	86	0.34
HPK	SN	65	ES	2		05:44	19.38		
LHO	SZ	23	EP	2		05:44	04.31		
MALT	SN	16	ES	2		05:44	05.51		
MHEA	SZ	8	IP		D	05:44	01.60		
MUNI	SN	3	ES	2		05:44	01.86		
MUNI	SZ	3	IP		C	05:44	00.93		

October 26 2002 Time: 21:14 26.1 UTC Magnitude: 1.9 ML
Lat: 53.488N Lon: -2.191W Depth: 1.8 km
Grid Ref: 387.31 kmE 399.06 kmN RMS: 0.09 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	4	IP		D	21:14	27.03		
MUNI	S	4	ES	2		21:14	27.76		
MHEA	S	7	EP	1	D	21:14	27.69		
MHEA	S	7	ES	2		21:14	29.14		
MALT	S	17	IP		D	21:14	29.63		
MALT	S	17	ES	2		21:14	31.79		
LHO	SZ	23	EP	1	C	21:14	30.64		
KBI	SZ	51	EP	3		21:14	35.35		
KWE	SZ	57	EP	3		21:14	36.49		
HPK	SZ	64	EP	1	C	21:14	37.49		
HPK	SN	64	ES	3		21:14	45.01		
HPK	SE	64	AMPL			21:14	46.17	118	0.24
HPK	SN	64	AMPL			21:14	46.26	187	0.22
CWF	SZ	102	EP	2		21:14	43.82		
CWF	SE	102	ES	3		21:14	56.16		
CWF	SN	102	AMPL			21:15	00.92	13	0.20
CWF	SE	102	AMPL			21:15	00.99	16	0.14
LRN	SZ	107	EP	2		21:14	44.87		
WPM	SZ	117	EP	2		21:14	45.73		
KSY	SZ	122	EP	2		21:14	47.46		
YLL	SZ	138	EP	3		21:14	48.45		

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WME	SZ	141	EP	3	21:14	48.78		
WLF	SZ	148	EP	3	21:14	49.94		
WFB	SZ	153	EP	3	21:14	50.78		

October 26 2002 Time: 22:35 34.9 UTC Magnitude: 1.6 ML
Lat: 53.491N Lon: -2.205W Depth: 2.2 km
Grid Ref: 386.37 kmE 399.45 kmN RMS: 0.15 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	3	EP	2		22:35	35.76		
MUNI	S	3	ES	2		22:35	36.62		
MHEA	S	6	IP		D	22:35	36.32		
MHEA	S	6	ES	2		22:35	37.69		
MALT	S	17	ES	2		22:35	40.62		
LHO	SZ	24	IP		C	22:35	39.35		
KBI	SZ	52	EP	2		22:35	44.62		
KWE	SZ	58	EP	2		22:35	46.12		
HPK	SZ	65	EP	2		22:35	46.18		
HPK	SN	65	ES	2		22:35	54.30		
HPK	SN	65	AMPL			22:35	54.62	78	0.20
HPK	SE	65	AMPL			22:35	55.36	92	0.22
SBD	SZ	96	EP	3		22:35	50.58		
CWF	SZ	103	EP	3		22:35	52.88		
CWF	SN	103	AMPL			22:36	08.34	8	0.20
CWF	SE	103	AMPL			22:36	09.07	8	0.20
LRN	SZ	106	EP	2		22:35	53.86		
WPM	SZ	116	EP	3		22:35	54.46		
MCH	SN	175	ES	3		22:36	24.08		
MCH	SN	175	AMPL			22:36	25.15	7	0.29
MCH	SE	175	AMPL			22:36	27.99	6	0.32

October 27 2002 Time: 07:26 50.0 UTC Magnitude: 2.0 ML
Lat: 53.494N Lon: -2.205W Depth: 2.0 km
Grid Ref: 386.37 kmE 399.73 kmN RMS: 0.08 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	S	3	IP		D	07:26	50.86		
MUNI	SZ	3	IP		D	07:26	50.87		
MUNI	SE	3	ES	1		07:26	51.64		
MUNI	S	3	ES	2		07:26	51.74		
MHEA	S	6	IP		D	07:26	51.40		
MHEA	SZ	6	IP		D	07:26	51.40		
MHEA	S	6	ES	2		07:26	52.63		
MHEA	SE	6	ES	1		07:26	52.63		
MALT	SE	17	ES	2		07:26	55.81		
LHO	SZ	24	IP	1	C	07:26	54.53		
KWE	SZ	58	EP	2		07:27	00.61		
HPK	SZ	64	EP	2		07:27	01.37		
HPK	SE	64	ES	2		07:27	09.44		
HPK	SE	64	AMPL			07:27	09.79	196	0.21
HPK	SN	64	AMPL			07:27	10.09	226	0.17
CWF	SZ	103	EP	3		07:27	07.80		
CWF	SN	103	ES	3		07:27	21.69		
CWF	SN	103	AMPL			07:27	23.56	26	0.19
CWF	SE	103	AMPL			07:27	24.33	21	0.25
LRN	SZ	106	EP	1	C	07:27	08.51		
WFB	SZ	152	EP	3		07:27	14.61		

October 28 2002 Time: 03:08 14.1 UTC Magnitude: 2.0 ML
Lat: 53.494N Lon: -2.190W Depth: 5.0 km
Grid Ref: 387.41 kmE 399.73 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	23	IP	1	C	03:08	18.09		
KBI	SZ	52	EP	3		03:08	23.25		
KWE	SZ	58	EP	2		03:08	24.10		
HPK	SZ	64	EP	1	C	03:08	24.96		
HPK	SN	64	AMPL			03:08	33.38	172	0.16
HPK	SE	64	AMPL			03:08	33.45	212	0.26
CWF	SZ	103	EP	1	C	03:08	31.26		
CWF	SE	103	ES	2		03:08	43.66		
CWF	SE	103	AMPL			03:08	47.21	31	0.11
CWF	SN	103	AMPL			03:08	47.25	24	0.14
LRN	SZ	106	EP	1	C	03:08	32.25		
WPM	SZ	117	EP	2		03:08	33.13		
KSY	SZ	122	EP	3		03:08	35.29		
YLL	SZ	138	EP	1	C	03:08	36.00		
LCP	SZ	146	EP	2		03:08	39.04		
WLF	SZ	149	EP	2		03:08	37.52		
WCB	SZ	157	EP	3		03:08	38.60		
YRE	SZ	160	EP	2		03:08	39.07		
HPK	SE	64	ES	2		03:08	33.00		

October 28 2002 Time: 03:27 51.1 UTC Magnitude: 1.7 ML
Lat: 53.494N Lon: -2.109W Depth: 5.0 km
Grid Ref: 392.74 kmE 399.73 kmN RMS: 0.13 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	18	IP	1	C	03:27	54.60		
KBI	SZ	47	EP	3		03:27	59.35		
HPK	SZ	61	EP	1	C	03:28	01.49		
HPK	SN	61	ES	2		03:28	09.21		
HPK	SN	61	AMPL			03:28	10.21	92	0.16
HPK	SE	61	AMPL			03:28	10.71	86	0.21
CWF	SZ	100	EP	1	C	03:28	07.75		
CWF	SN	100	ES	3		03:28	20.62		
CWF	SN	100	AMPL			03:28	23.44	12	0.12
CWF	SE	100	AMPL			03:28	24.47	13	0.10
LRN	SZ	105	EP	3		03:28	08.83		
KSY	SZ	118	EP	3		03:28	11.25		
YRE	SZ	165	EP	3		03:28	15.78		
KWE	SZ	56	EP	2		03:28	00.76		

October 28 2002 Time: 19:25 59.1 UTC Magnitude: 2.3 ML
Lat: 53.483N Lon: -2.201W Depth: 5.0 km
Grid Ref: 386.70 kmE 398.56 kmN RMS: 0.27 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	19:26	03.39		
KBI	SZ	52	EP	2		19:26	08.20		
LDU	SZ	56	EP	3		19:26	08.75		
KWE	SZ	57	EP	2		19:26	08.97		
HPK	SZ	65	IP		C	19:26	10.23		
CWF	SN	102	AMPL			19:26	32.49	56	0.28
CWF	SE	102	AMPL			19:26	33.23	64	0.25
LRN	SZ	107	EP	2		19:26	17.35		
WPM	SZ	116	EP	2		19:26	18.21		
KSY	SZ	122	EP	2		19:26	20.04		
SBD	SZ	96	EP	2		19:26	14.51		
SSP	SZ	133	EP	2		19:26	20.93		
SSP	SN	133	AMPL			19:26	38.79	55	0.28
SSP	SE	133	AMPL			19:26	39.30	131	0.43
WCB	SZ	157	EP	2		19:26	23.67		
WCB	SN	157	ES	2		19:26	41.44		
WCB	SE	157	AMPL			19:26	43.05	24	0.22
WCB	SN	157	AMPL			19:26	44.09	30	0.39
HAE	SZ	163	EP	2		19:26	25.59		
HTR	SZ	172	EP	2		19:26	26.85		
MCH	SZ	174	EP	2		19:26	26.96		
MCH	SE	174	ES	2		19:26	47.37		
MCH	SN	174	AMPL			19:26	49.11	69	0.39
MCH	SE	174	AMPL			19:26	49.85	77	0.25
SSP	SN	133	ES	2		19:26	37.47		
CWF	SZ	102	EP	2		19:26	16.58		
HPK	SN	65	ES	2		19:26	18.38		
MUNI	S		IP		D	19:25	59.75		
MHEA	S		IP	1	D	19:26	00.31		
MALT	S		EP	2		19:26	02.00		

October 28 2002 Time: 20:30 04.4 UTC Magnitude: 1.8 ML
Lat: 53.477N Lon: -2.191W Depth: 4.7 km
Grid Ref: 387.36 kmE 397.85 kmN RMS: 0.08 secs
Locality: GREATER MANCHESTER Quality: A

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	3	IP		C	20:30	05.47		
MUNI	SE	3	ES	1		20:30	06.41		
MHEA	SZ	8	IP		D	20:30	06.11		
MHEA	SE	8	ES	1		20:30	07.61		
MALT	SN	16	ES	2		20:30	09.96		
LHO	SZ	24	IP		C	20:30	08.83		
KBI	SZ	51	EP	3		20:30	13.39		
KWE	SZ	56	EP	3		20:30	14.41		
HPK	SZ	65	IP	1	C	20:30	15.76		
HPK	SE	65	ES	2		20:30	23.75		
HPK	SN	65	AMPL			20:30	24.42	193	0.15
HPK	SE	65	AMPL			20:30	24.54	95	0.11
CWF	SZ	101	EP	1	C	20:30	21.91		
CWF	SE	101	ES	3		20:30	33.76		
CWF	SE	101	AMPL			20:30	37.54	12	0.21
CWF	SN	101	AMPL			20:30	38.03	15	0.21
LRN	SZ	108	EP	1	C	20:30	23.04		
WPM	SZ	117	IP	1	C	20:30	24.21		
YLL	SZ	137	EP	1	C	20:30	27.15		
WLF	SZ	148	EP	2		20:30	28.41		
YRE	SZ	159	EP	3		20:30	30.01		

October 28 2002 Time: 22:10 37.1 UTC Magnitude: 1.5 ML
Lat: 53.487N Lon: -2.198W Depth: 3.5 km
Grid Ref: 386.87 kmE 398.95 kmN RMS: 0.06 secs
Locality: GREATER MANCHESTER Quality: B
Comment: NET WAV EVE NWQ QNX 2002_10_28_

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	3	IP		C	22:10	38.13		
MUNI	SE	3	ES	1		22:10	38.98		
MHEA	SZ	7	IP		D	22:10	38.72		
MHEA	SE	7	ES	1		22:10	39.94		
LHO	SZ	24	IP		C	22:10	41.61		
KBI	SZ	52	EP	3		22:10	46.50		
KWE	SZ	58	EP	2		22:10	47.77		
HPK	SZ	65	EP	2		22:10	48.53		
HPK	SN	65	ES	2		22:10	56.07		
HPK	SN	65	AMPL			22:10	56.93	55	0.21
HPK	SE	65	AMPL			22:10	57.69	73	0.19
CWF	SZ	102	EP	2		22:10	54.65		
CWF	SN	102	ES	3		22:11	07.46		
CWF	SN	102	AMPL			22:11	10.53	8	0.17
CWF	SE	102	AMPL			22:11	10.65	8	0.13
LRN	SZ	107	EP	1	C	22:10	55.70		

October 28 2002 Time: 23:39 15.6 UTC Magnitude: 1.6 ML
Lat: 53.478N Lon: -2.192W Depth: 4.4 km
Grid Ref: 387.26 kmE 397.91 kmN RMS: 0.06 secs
Locality: GREATER MANCHESTER Quality: A

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	3	IP		C	23:39	16.73		
MUNI	SE	3	ES	1		23:39	17.61		

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MHEA	SZ	8	IP	D	23:39	17.37		
MHEA	SE	8	ES	1	23:39	18.82		
MALT	SN	16	ES	2	23:39	21.22		
LHO	SZ	24	IP	C	23:39	20.10		
KBI	SZ	51	EP	2	23:39	25.29		
KWE	SZ	56	EP	3	23:39	25.54		
HPK	SZ	65	EP	1 C	23:39	27.04		
HPK	SE	65	ES	2	23:39	35.03		
HPK	SN	65	AMPL		23:39	35.69	117	0.12
HPK	SE	65	AMPL		23:39	35.75	65	0.21
CWF	SZ	101	EP	1 C	23:39	33.10		
CWF	SN	101	ES	3	23:39	45.74		
CWF	SE	101	AMPL		23:39	49.31	7	0.20
CWF	SN	101	AMPL		23:39	49.34	8	0.21
LRN	SZ	108	EP	2	23:39	34.45		

October 29 2002 Time: 00:07 53.7 UTC Magnitude: 2.2 ML
Lat: 53.486N Lon: -2.198W Depth: 5.0 km
Grid Ref: 386.86 kmE 398.84 kmN RMS: 0.40 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	00:07	57.90		
KBI	SZ	52	EP	2		00:08	02.51		
KWE	SZ	57	EP	2		00:08	04.06		
SBD	SZ	96	EP	2		00:08	09.00		
CWF	SN	102	AMPL			00:08	27.22	43	0.17
CWF	SE	102	AMPL			00:08	27.34	39	0.23
LRN	SZ	107	IP		D	00:08	11.87		
WPM	SZ	116	EP	2		00:08	12.71		
KSY	SZ	122	EP	2		00:08	14.49		
SSP	SZ	134	EP	2		00:08	15.52		
SSP	SE	134	ES	2		00:08	31.45		
SSP	SE	134	AMPL			00:08	33.62	63	0.36
SSP	SN	134	AMPL			00:08	35.06	29	0.17
LCP	SZ	147	EP	2		00:08	17.67		
WCB	SZ	157	EP	2		00:08	18.25		
WCB	SN	157	ES	2		00:08	35.98		
WCB	SE	157	AMPL			00:08	37.55	16	0.28
WCB	SN	157	AMPL			00:08	37.75	16	0.25
HAE	SZ	163	EP	2		00:08	20.56		
HTR	SZ	173	EP	2		00:08	21.52		
MCH	SZ	174	EP	3		00:08	21.54		
MCH	SE	174	ES	2		00:08	42.05		
MCH	SE	174	AMPL			00:08	43.48	30	0.27
MCH	SN	174	AMPL			00:08	44.24	37	0.24
CWF	SZ	102	EP	2		00:08	11.50		
HPK	SZ	65	EP	2		00:08	04.73		
HPK	SN	65	ES	2		00:08	12.89		
HPK	SN	65	AMPL			00:08	13.52	452	0.23
HPK	SE	65	AMPL			00:08	13.22	512	0.19

October 29 2002 Time: 02:23 22.9 UTC Magnitude: 1.6 ML
Lat: 53.491N Lon: -2.197W Depth: 2.3 km
Grid Ref: 386.94 kmE 399.41 kmN RMS: 0.04 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	4	IP		C	02:23	23.88		
MUNI	SE	4	ES	1		02:23	24.65		
MHEA	SZ	6	IP		D	02:23	24.38		
MHEA	SE	6	ES	1		02:23	25.58		
MALT	SZ	17	EP	2		02:23	26.31		
MALT	SE	17	ES	2		02:23	28.68		
LHO	SZ	24	IP		C	02:23	27.34		
KBI	SZ	52	EP	2		02:23	32.10		
KWE	SZ	58	EP	3		02:23	33.01		
HPK	SZ	64	IP	1	C	02:23	34.23		
HPK	SE	64	ES	2		02:23	42.03		
HPK	SN	64	AMPL			02:23	42.95	49	0.19
HPK	SE	64	AMPL			02:23	43.38	76	0.19
CWF	SZ	103	EP	2		02:23	40.37		
CWF	SE	103	ES	3		02:23	53.26		
CWF	SN	103	AMPL			02:23	56.29	10	0.15
CWF	SE	103	AMPL			02:23	56.34	12	0.14
LRN	SZ	106	EP	1	C	02:23	41.58		

October 29 2002 Time: 04:42 52.0 UTC Magnitude: 2.6 ML
Lat: 53.481N Lon: -2.198W Depth: 5.0 km
Grid Ref: 386.88 kmE 398.34 kmN RMS: 0.28 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	24	IP		C	04:42	56.23		
KBI	SZ	51	EP	2		04:43	01.02		
LDU	SZ	56	IP		C	04:43	01.61		
KWE	SZ	57	EP	2		04:43	01.84		
HPK	SZ	65	IP		C	04:43	03.07		
CWF	SN	102	AMPL			04:43	25.40	126	0.20
CWF	SE	102	AMPL			04:43	25.98	141	0.19
LRN	SZ	107	IP		D	04:43	10.23		
WPM	SZ	116	EP	2		04:43	11.09		
KSY	SZ	122	EP	2		04:43	12.85		
SBD	SZ	96	EP	2		04:43	07.34		
SSP	SZ	133	EP	2		04:43	13.56		
SSP	SN	133	AMPL			04:43	31.74	118	0.27
SSP	SE	133	AMPL			04:43	32.04	220	0.33
LCP	SZ	148	EP	2		04:43	16.03		
WCB	SZ	157	EP	2		04:43	16.37		
WCB	SE	157	AMPL			04:43	36.08	50	0.25
WCB	SN	157	AMPL			04:43	36.90	44	0.22
HAE	SZ	162	EP	2		04:43	18.63		
HTR	SZ	172	EP	2		04:43	19.49		
MCH	SZ	174	EP	2		04:43	19.72		
MCH	SN	174	ES	2		04:43	40.06		
MCH	SE	174	AMPL			04:43	41.97	115	0.46
MCH	SN	174	AMPL			04:43	42.61	165	0.22
HGH	SZ	209	EP	2		04:43	25.48		
SSP	SN	133	ES	2		04:43	29.82		
CWF	SZ	102	EP	2		04:43	09.46		
HPK	SN	65	ES	2		04:43	11.28		

October 29 2002 Time: 04:43 59.1 UTC Magnitude: 1.8 ML
Lat: 53.506N Lon: -2.178W Depth: 5.0 km
Grid Ref: 388.22 kmE 401.08 kmN RMS: 0.22 secs
Locality: GREATER MANCHESTER Quality: C
Comment: Intensity: 0

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	22	EP	2		04:44	03.07		
KWE	SZ	59	EP	3		04:44	09.36		
HPK	SN	62	ES	2		04:44	17.69		
HPK	SN	62	AMPL			04:44	18.08	106	0.27
HPK	SE	62	AMPL			04:44	18.09	94	0.18
CWF	SZ	103	EP	3		04:44	16.63		
CWF	SN	103	AMPL			04:44	31.82	14	0.14
SSP	SN	136	ES	2		04:44	36.93		
SSP	SN	136	AMPL			04:44	38.22	14	0.31
SSP	SE	136	AMPL			04:44	38.47	22	0.31
MCH	SN	177	ES	3		04:44	47.10		
MCH	SE	177	AMPL			04:44	48.47	14	0.48
MCH	SN	177	AMPL			04:44	49.11	18	0.22
CWF	SE	103	AMPL			04:44	32.24	14	0.20

October 29 2002 Time: 04:57 30.2 UTC Magnitude: 1.6 ML
Lat: 53.491N Lon: -2.200W Depth: 1.7 km
Grid Ref: 386.73 kmE 399.39 kmN RMS: 0.09 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	3	IP		C	04:57	31.08		
MUNI	SE	3	ES	1		04:57	31.80		
MHEA	SZ	6	IP		D	04:57	31.65		
MHEA	SE	6	ES	1		04:57	32.99		
MALT	SZ	17	IP	1	C	04:57	33.62		
MALT	SE	17	ES	1		04:57	36.14		
LHO	SZ	24	IP		C	04:57	34.75		
KBI	SZ	52	EP	3		04:57	39.70		
KWE	SZ	58	EP	3		04:57	40.95		
HPK	SZ	64	IP	1	C	04:57	41.54		
HPK	SE	64	ES	1		04:57	49.75		
HPK	SE	64	AMPL			04:57	50.15	98	0.37
HPK	SN	64	AMPL			04:57	52.45	76	0.37
CWF	SZ	103	EP	3		04:57	48.38		
CWF	SE	103	ES	3		04:58	00.77		
CWF	SN	103	AMPL			04:58	03.75	8	0.13
CWF	SE	103	AMPL			04:58	06.64	10	0.31
LRN	SZ	106	EP	2		04:57	48.72		

October 29 2002 Time: 04:58 11.4 UTC Magnitude: 1.7 ML
Lat: 53.483N Lon: -2.213W Depth: 4.3 km
Grid Ref: 385.89 kmE 398.52 kmN RMS: 0.03 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	2	IP		C	04:58	12.42		
MUNI	SE	2	ES	1		04:58	13.21		
MHEA	SZ	6	IP		D	04:58	13.01		
MHEA	SE	6	ES	1		04:58	14.21		
LHO	SZ	25	IP		C	04:58	16.07		
KWE	SZ	58	EP	3		04:58	22.18		
HPK	SZ	66	IP	1	C	04:58	22.78		
HPK	SE	66	ES	2		04:58	31.08		
HPK	SN	66	AMPL			04:58	31.38	92	0.21
HPK	SE	66	AMPL			04:58	31.41	125	0.20
CWF	SZ	103	EP	3		04:58	29.85		
CWF	SN	103	ES	3		04:58	42.75		
CWF	SN	103	AMPL			04:58	45.65	12	0.11
CWF	SE	103	AMPL			04:58	45.83	11	0.26

October 29 2002 Time: 04:59 57.2 UTC Magnitude: 1.6 ML
Lat: 53.493N Lon: -2.212W Depth: 5.0 km
Grid Ref: 385.96 kmE 399.69 kmN RMS: 0.31 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WPM	SZ	116	EP	2		05:00	16.47		
MHEA	SZ		IP		D	04:59	58.43		
MHEA	SE		ES	1		04:59	59.65		
MUNI	SZ		IP		C	04:59	57.83		
MUNI	SE		ES	1		04:59	58.62		
HPK	SZ	65	IP	1	C	05:00	08.35		
HPK	SN	65	ES	2		05:00	16.46		
HPK	SN	65	AMPL			05:00	16.79	74	0.20
HPK	SE	65	AMPL			05:00	16.81	96	0.22
LHO	SZ	24	IP		C	05:00	01.47		
SSP	SZ	134	EP	2		05:00	19.34		
SSP	SN	134	AMPL			05:00	36.89	8	0.28
SSP	SE	134	AMPL			05:00	37.20	14	0.39
SBD	SZ	96	EP	2		05:00	12.56		

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MCH	SZ	175	EP	3	05:00	25.07		
MCH	SN	175	AMPL		05:00	47.78	12	0.20
MCH	SE	175	AMPL		05:00	47.69	7	0.25
CWF	SZ	104	EP	3	05:00	14.57		
CWF	SN	104	AMPL		05:00	30.53	9	0.19
CWF	SE	104	AMPL		05:00	31.28	10	0.19
CWF	SE		ES	3	05:00	27.49		
KWE	SZ	59	EP	3	05:00	07.00		
KBI	SZ	53	EP	3	05:00	06.01		

October 29 2002 Time: 05:23 26.2 UTC Magnitude: 1.7 ML
Lat: 53.491N Lon: -2.204W Depth: 2.1 km
Grid Ref: 386.49 kmE 399.38 kmN RMS: 0.06 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	3	IP		D	05:23	27.16		
MUNI	SE	3	ES	1		05:23	27.90		
MHEA	SZ	6	IP		D	05:23	27.74		
MHEA	SE	6	ES	1		05:23	28.93		
MALT	SZ	17	IP		C	05:23	29.73		
MALT	SN	17	ES	1		05:23	31.99		
LHO	SZ	24	IP		C	05:23	30.83		
KBI	SZ	52	EP	2		05:23	35.51		
KWE	SZ	58	EP	3		05:23	36.40		
HPK	SZ	65	IP	1	C	05:23	37.70		
HPK	SE	65	ES	1		05:23	45.87		
HPK	SN	65	AMPL			05:23	46.14	78	0.19
HPK	SE	65	AMPL			05:23	46.17	119	0.20
CWF	SZ	103	EP	2		05:23	44.53		
CWF	SE	103	ES	3		05:23	56.99		
CWF	SN	103	AMPL			05:23	59.98	9	0.18
CWF	SE	103	AMPL			05:24	00.63	11	0.17
LRN	SZ	106	EP	1	C	05:23	44.84		
WLF	SZ	148	EP	2		05:23	50.12		

October 29 2002 Time: 05:54 41.7 UTC Magnitude: 1.4 ML
Lat: 53.491N Lon: -2.199W Depth: 2.2 km
Grid Ref: 386.82 kmE 399.41 kmN RMS: 0.07 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MUNI	SZ	3	EP	1	C	05:54	42.68		
MUNI	SN	3	ES	1		05:54	43.53		
MHEA	SZ	6	IP		D	05:54	43.22		
MHEA	SE	6	ES	1		05:54	44.50		
MALT	SZ	17	EP	2		05:54	45.24		
MALT	SE	17	ES	2		05:54	47.52		
KBI	SZ	52	EP	2		05:54	51.02		
KWE	SZ	58	EP	3		05:54	52.11		
CWF	SZ	103	EP	2		05:54	59.38		
CWF	SE	103	ES	3		05:55	13.23		
CWF	SE	103	AMPL			05:55	14.99	14	0.12
CWF	SN	103	AMPL			05:55	15.22	9	0.18

October 29 2002 Time: 17:32 15.9 UTC Magnitude: 2.4 ML
Lat: 53.487N Lon: -2.209W Depth: 5.0 km
Grid Ref: 386.11 kmE 398.95 kmN RMS: 0.33 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CWF	SZ	103	EP	2		17:32	33.18		
CWF	SE	103	AMPL			17:32	48.90	74	0.20
CWF	SN	103	AMPL			17:32	49.12	97	0.21
LRN	SZ	107	IP		C	17:32	34.16		
WPM	SZ	116	EP	2		17:32	34.89		
KSY	SZ	123	IP		D	17:32	36.84		
SSP	SZ	134	EP	2		17:32	37.65		
HPK	SN	65	ES	2		17:32	35.11		
HPK	SZ	65	IP		C	17:32	26.96		
SSP	SE	134	AMPL			17:32	55.82	78	0.36
HAE	SZ	163	EP	2		17:32	42.56		
MCH	SZ	174	EP			17:32	43.79		
MCH	SN	174	ES	2		17:33	04.30		
MCH	SE	174	AMPL			17:33	05.40	48	0.22
MCH	SN	174	AMPL			17:33	06.30	81	0.17
KWE	SZ	58	IP		C	17:32	25.87		
LDU	SZ	56	EP	2		17:32	25.51		
KBI	SZ	52	ES	3		17:32	31.76		
KBI	SZ	52	EP	2		17:32	24.93		
LHO	SZ	24	IP		C	17:32	20.13		
SSP	SN	134	ES	2		17:32	54.22		
SSP	SN	134	AMPL			17:32	55.53	42	0.29
SBD	SZ	95	EP	2		17:32	31.11		

October 29 2002 Time: 19:32 43.8 UTC Magnitude: 1.8 ML
Lat: 55.050N Lon: -3.361W Depth: 16.6 km
Grid Ref: 313.04 kmE 573.65 kmN RMS: 0.11 secs
Locality: ANNAN,D & G Quality: A
Comment: 9KM NE OF ANNAN

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
BHH	SN	10	AMPL			19:32	49.75	511	0.24
BHH	SE	10	AMPL			19:32	49.95	444	0.13
BCC	SZ	10	IP	1	C	19:32	47.30		
ECK	SZ	21	IP		C	19:32	48.29		
BWH	SZ	23	IP		D	19:32	48.86		
ESK	SZ	31	IP		C	19:32	49.89		
ESK	SN	31	ES	2		19:32	53.92		
ESK	SN	31	AMPL			19:32	54.52	104	0.11
ESK	SE	31	AMPL			19:32	54.55	233	0.20
BBO	SZ	36	IP		D	19:32	50.42		
BBO	SN	36	ES	2		19:32	55.04		
BBO	SE	36	AMPL			19:32	55.25	76	0.10
BBO	SN	36	AMPL			19:32	55.72	70	0.11
BDL	SZ	39	IP		D	19:32	50.93		
BTA	SZ	46	IP	1	D	19:32	52.17		
BTA	SN	46	ES	2		19:32	58.09		
BTA	SN	46	AMPL			19:32	58.74	55	0.11
BTA	SE	46	AMPL			19:33	01.60	35	0.29
XAL	SZ	76	EP	3		19:32	56.59		
GAL	SZ	89	IP	1	C	19:32	58.31		
GAL	SE	89	ES	2		19:33	09.00		
GAL	SN	89	AMPL			19:33	10.26	58	0.21
GAL	SE	89	AMPL			19:33	10.38	20	0.19
EDI	SZ	98	EP	3		19:33	00.39		
EDI	SN	98	AMPL			19:33	13.11	21	0.30
EDI	SE	98	AMPL			19:33	13.92	34	0.22
ESY	SZ	108	EP	2		19:33	01.57		
BCC	AE	10	ES	2		19:32	49.71		
BHH	SZ	10	IP		C	19:32	47.25		

October 29 2002 Time: 23:47 46.0 UTC Magnitude: 1.1 ML
Lat: 55.206N Lon: -1.891W Depth: 10.8 km
Grid Ref: 406.97 kmE 590.22 kmN RMS: 0.34 secs
Locality: MORPETH,NORTHUMBERLAND Quality: D
Comment: 14KM WNW OF MORPETH

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
XAL	SZ	44	IP		D	23:47	53.12		
LCP	SZ	59	EP	2		23:47	55.86		
BTA	SZ	61	IP	1	C	23:47	56.09		
BTA	SN	61	ES	2		23:48	04.00		
BTA	SE	61	AMPL			23:48	05.46	8	0.25
BTA	SN	61	AMPL			23:48	06.29	7	0.23
ECK	SZ	79	EP	2		23:47	58.99		
ESK	SZ	84	EP	3		23:48	00.12		
ESK	SN	84	ES	2		23:48	09.74		
ESK	SN	84	AMPL			23:48	10.83	6	0.20
ESK	SE	84	AMPL			23:48	12.29	4	0.10
BHH	SZ	86	EP	2		23:48	00.27		
BHH	SE	86	AMPL			23:48	05.96	16	0.29
BHH	SN	86	AMPL			23:48	11.27	19	0.31
LRN	SZ	88	EP	2		23:48	01.10		
ESY	SZ	91	EP	3		23:48	01.64		
BBO	SZ	101	EP	1	D	23:48	02.32		
BBO	SN	101	ES	2		23:48	15.48		
BBO	SN	101	AMPL			23:48	16.36	9	0.22
BBO	SE	101	AMPL			23:48	16.86	7	0.23
CSF	SZ	121	EP	2		23:48	05.31		
XDE	SZ	129	EP	2		23:48	06.86		

October 30 2002 Time: 07:49 57.2 UTC Magnitude: 1.4 ML
Lat: 55.781N Lon: -6.181W Depth: 5.0 km
Grid Ref: 137.88 kmE 662.13 kmN RMS: 0.27 secs
Locality: ISLAY,STRATHCLYDE Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
GMK	SZ	61	EP	2		07:50	07.33		
GMK	SZ	61	ES	3		07:50	15.35		
GCL	SZ	78	EP	2		07:50	10.64		
PCA	SZ	121	EP	2		07:50	17.22		
EAB	SZ	124	EP	2		07:50	17.27		
KAR	SZ	129	EP	3		07:50	18.21		
PCO	SZ	132	EP	3		07:50	19.12		
PCO	SZ	132	ES	3		07:50	34.64		
GAL	SZ	138	EP	2		07:50	20.57		
GAL	SE	138	ES	2		07:50	36.19		
GAL	SN	138	AMPL			07:50	37.96	7	0.23
GAL	SE	138	AMPL			07:50	39.24	16	0.27
KPL	SZ	177	EP	2		07:50	24.89		
KPL	SE	177	ES	3		07:50	45.48		
KPL	SE	177	AMPL			07:50	46.76	4	0.54
KPL	SN	177	AMPL			07:50	50.35	3	0.59

October 31 2002 Time: 00:07 15.0 UTC Magnitude: 1.9 ML
Lat: 53.469N Lon: -2.127W Depth: 4.3 km
Grid Ref: 391.58 kmE 396.94 kmN RMS: 0.25 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LHO	SZ	20	EP	1	C	00:07	18.72		
KBI	SZ	47	EP	2		00:07	23.51		
KWE	SZ	54	EP	2		00:07	24.24		
CWF	SZ	98	EP	3		00:07	32.63		
CWF	SN	98	AMPL			00:07	48.81	14	0.25
CWF	SE	98	AMPL			00:07	51.05	18	0.23
LRN	SZ	108	EP	2		00:07	33.12		
KSY	SZ	117	EP	3		00:07	34.63		
SSP	SE	135	ES	3		00:07	52.49		
SSP	SE	135	AMPL			00:07	54.01		
SSP	SN	135	AMPL			00:07	54.01	28	0.24
MCH	SN	174	ES	2		00:08	02.72		
MCH	SZ	174	AMPL			00:08	04.14	10	0.34
MCH	SE	174	AMPL			00:08	04.18	33	0.31
MCH	SN	174	AMPL			00:08	04.77	36	0.27
HPK	SN	64	ES	2		00:07	33.66		
HPK	SZ	64	EP	2		00:07	26.03		
HPK	SN	64	AMPL			00:07	34.32	131	0.35

October 31 2002 Time: 01:50 57.4 UTC Magnitude: 2.3 ML
Lat: 53.484N Lon: -2.211W Depth: 5.7 km
Grid Ref: 386.01 kmE 398.60 kmN RMS: 0.36 secs

PHASE DATA : 2002

Locality: GREATER MANCHESTER **Quality: C**
Comment: FELT MANCHESTER **Intensity: 2+**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	52	EP	1	C	01:51	06.47		
KWE	SZ	58	EP	2		01:51	07.76		
SBD	SZ	95	EP	2		01:51	12.57		
CWF	SZ	103	EP			01:51	14.79		
CWF	SN	103	ES			01:51	26.24		
CWF	SN	103	AMPL			01:51	30.73	73	0.23
CWF	SE	103	AMPL			01:51	30.75	56	0.14
KSY	SZ	123	EP	2		01:51	18.33		
SSP	SZ	133	EP	3		01:51	19.16		
SSP	SN	133	ES	3		01:51	34.87		
SSP	SE	133	AMPL			01:51	37.31	47	0.39
SSP	SN	133	AMPL			01:51	38.62	26	0.36
HAE	SZ	163	EP	2		01:51	24.25		
HTR	SZ	172	EP	2		01:51	25.21		
MCH	SZ	174	EP	2		01:51	25.01		
MCH	SN	174	ES	3		01:51	45.59		
MCH	SE	174	AMPL			01:51	47.25	34	0.23
MCH	SN	174	AMPL			01:51	47.83	40	0.21
HGH	SZ	209	EP	3		01:51	30.42		
LCP	SZ	148	EP	2		01:51	21.32		
LRN	SZ	107	EP	2		01:51	15.68		
HPK	SZ	66	IP		C	01:51	08.51		
HPK	SN	66	AMPL			01:51	17.38	441	0.24
HPK	SE	66	ES	2		01:51	16.61		
HPK	SE	66	AMPL			01:51	16.86	409	0.18
LHO	SZ	25	IP		C	01:51	01.69		

November 1 2002 Time: 04:22 52.7 UTC **Magnitude: 1.5 ML**
Lat: 53.487N Lon: -2.217W **Depth: 5.0 km**
Grid Ref: 385.59 kmE 399.03 kmN **RMS: 0.32 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
MHEA	S	6	IP		D	04:22	54.15		
MHEA	S	6	ES	1		04:22	55.62		
MALT	S	16	IP	1	C	04:22	55.94		
MALT	S	16	ES	1		04:22	58.42		
LHO	SZ	25	EP	3		04:22	57.24		
KBI	SZ	53	EP	3		04:23	02.41		
KWE	SZ	58	EP	3		04:23	03.72		
HPK	SN	65	ES	3		04:23	11.61		
HPK	SN	65	AMPL			04:23	12.91	52	0.41
HPK	SE	65	AMPL			04:23	14.88	35	0.42
CWF	SZ	103	EP	3		04:23	10.47		
CWF	SE	103	ES	3		04:23	23.74		
CWF	SN	103	AMPL			04:23	26.79	6	0.16
CWF	SE	103	AMPL			04:23	26.84	6	0.16
SSP	SN	133	ES	3		04:23	31.22		
SSP	SN	133	AMPL			04:23	32.12	5	0.49
SSP	SE	133	AMPL			04:23	32.80	12	0.26
MCH	SN	174	ES	3		04:23	41.27		
MCH	SE	174	AMPL			04:23	42.45	7	0.18
MCH	SN	174	AMPL			04:23	43.31	9	0.18
HPK	SZ	65	EP	3		04:23	04.46		
MUNI	S	2	IP		C	04:22	53.44		
MUNI	S	2	ES	1		04:22	54.28		

November 2 2002 Time: 04:37 38.8 UTC **Magnitude: 0.9 ML**
Lat: 52.500N Lon: -2.105W **Depth: 12.1 km**
Grid Ref: 392.84 kmE 289.20 kmN **RMS: 0.18 secs**
Locality: DUDLEY,W MIDLANDS **Quality: D**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HAE	SZ	60	EP	2		04:37	49.08		
CWF	SZ	60	IP		C	04:37	49.19		
CWF	SN	60	ES	2		04:37	56.27		
CWF	SE	60	AMPL			04:37	56.45	7	0.07
CWF	SN	60	AMPL			04:37	56.47	9	0.15
KWE	SZ	60	EP	2		04:37	48.85		
SSP	SZ	69	EP	2		04:37	50.54		
SSP	SN	69	ES	3		04:37	58.28		
SSP	SE	69	AMPL			04:37	58.91	4	0.11
SSP	SN	69	AMPL			04:37	59.13	4	0.22
MCH	SZ	83	EP	1	C	04:37	52.34		
MCH	SN	83	ES	2		04:38	01.89	5	0.21
MCH	SE	83	AMPL			04:38	02.30	7	0.19
MCH	SN	83	AMPL			04:38	02.49	5	0.21
HTR	SZ	92	EP	2		04:37	53.97		
KBI	SZ	93	EP	2		04:37	54.13		

November 4 2002 Time: 01:44 15.5 UTC **Magnitude: 1.1 ML**
Lat: 53.499N Lon: -2.165W **Depth: 5.0 km**
Grid Ref: 389.02 kmE 400.24 kmN **RMS: 0.49 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WPM	SZ	119	EP	2		01:44	34.48		
LRN	SZ	105	EP	3		01:44	33.45		
CWF	SN	102	AMPL			01:44	51.14	3	0.27
CWF	SE	102	AMPL			01:44	47.80	3	0.08
HPK	SN	62	AMPL			01:44	35.32	31	0.18
CWF	SE	102	ES	3		01:44	44.84		
CWF	SZ	102	EP	2		01:44	33.24		
HPK	SE	62	AMPL			01:44	34.99	21	0.18
HPK	SN	62	ES	2		01:44	34.27		
MUNI	SN		ES	1		01:44	16.73		
MUNI	SZ		IP		C	01:44	15.83		
MHEA	SE		ES	2		01:44	18.03		
MHEA	SZ		IP		D	01:44	16.50		
LHO	SZ	21	IP		C	01:44	19.14		
KBI	SZ	50	EP	3		01:44	24.85		

November 4 2002 Time: 07:29 12.8 UTC **Magnitude: 2.3 ML**
Lat: 53.481N Lon: -2.168W **Depth: 5.0 km**
Grid Ref: 388.83 kmE 398.33 kmN **RMS: 0.37 secs**
Locality: GREATER MANCHESTER **Quality: C**
Comment: FELT MANCHESTER **Intensity: 2+**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SN	111	AMPL			07:29	46.08	74	0.36
LMI	SE	111	AMPL			07:29	47.03	60	0.21
WPM	SZ	118	EP	2		07:29	32.00		
KSY	SZ	120	EP	2		07:29	33.45		
CSF	SZ	129	EP	2		07:29	33.93		
SSP	SZ	134	EP	2		07:29	34.66		
SSP	SE	134	ES	2		07:29	50.54		
SSP	SE	134	AMPL			07:29	52.61	79	0.33
SSP	SN	134	AMPL			07:29	52.16	34	0.32
MCH	SZ	174	EP	2		07:29	40.47		
MCH	SN	174	ES	2		07:30	01.01		
MCH	SN	174	AMPL			07:30	02.26	51	0.43
MCH	SE	174	AMPL			07:30	03.05	40	0.22
SBD	SZ	97	EP	2		07:29	28.25		
LRN	SZ	107	IP		D	07:29	30.87		
LMI	SN	111	ES	2		07:29	44.52		
LMI	SZ	111	EP			07:29	31.37		
CWF	SN	101	AMPL			07:29	45.78	32	0.10
CWF	SE	101	AMPL			07:29	45.41	41	0.11
CWF	SE	101	ES	2		07:29	42.37		
CWF	SZ	101	EP	2		07:29	30.26		
HPK	SN	64	AMPL			07:29	32.87	383	0.21
HPK	SE	64	AMPL			07:29	32.78	315	0.15
HPK	SN	64	ES	2		07:29	31.75		
HPK	SZ	64	EP	2		07:29	23.61		
KWE	SZ	56	EP	2		07:29	22.36		
KBI	SZ	50	EP	2		07:29	21.42		
LHO	SZ	22	IP		C	07:29	16.65		

November 4 2002 Time: 07:32 32.0 UTC **Magnitude: 2.7 ML**
Lat: 53.474N Lon: -2.159W **Depth: 5.0 km**
Grid Ref: 389.46 kmE 397.55 kmN **RMS: 0.27 secs**
Locality: GREATER MANCHESTER **Quality: C**
Comment: FELT MANCHESTER **Intensity: 3+**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CSF	SZ	130	EP	2		07:32	53.21		
SSP	SZ	134	EP	2		07:32	53.83		
SSP	SN	134	ES	2		07:33	09.70		
SSP	SN	134	AMPL			07:33	11.46	107	0.32
SSP	SE	134	AMPL			07:33	12.60	250	0.40
HAE	SZ	162	EP	2		07:32	58.32		
MCH	SN	174	ES	2		07:33	20.28		
HTR	SZ	172	EP	2		07:32	59.87		
MCH	SZ	174	EP	2		07:32	59.68		
MCH	SE	174	AMPL			07:33	21.54	126	0.36
MCH	SN	174	AMPL			07:33	21.58	147	0.45
HPK	SN	64	ES	2		07:32	50.94		
SBD	SZ	97	EP	2		07:32	47.37		
LMI	SN	112	AMPL			07:33	05.44	221	0.42
KSY	SZ	119	EP	3		07:32	51.93		
WPM	SZ	119	EP	2		07:32	51.26		
LMI	SE	112	AMPL			07:33	06.84	198	0.47
LMI	SN	112	ES	2		07:33	03.89		
LMI	SZ	112	EP	2		07:32	50.82		
LRN	SZ	108	IP		D	07:32	50.14		
CWF	SN	100	AMPL			07:33	04.97	91	0.13
CWF	SZ	100	EP	2		07:32	49.12		
HPK	SZ	64	IP		C	07:32	42.88		
KWE	SZ	55	EP	2		07:32	41.48		
LDU	SZ	55	EP	2		07:32	41.36		
KBI	SZ	49	EP	2		07:32	40.71		
LHO	SZ	22	IP		C	07:32	35.91		

November 5 2002 Time: 20:31 23.5 UTC **Magnitude: 1.9 ML**
Lat: 53.477N Lon: -2.163W **Depth: 5.0 km**
Grid Ref: 389.19 kmE 397.87 kmN **RMS: 0.39 secs**
Locality: GREATER MANCHESTER **Quality: C**

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	134	EP	2		20:31	46.03		
SSP	SN	134	ES	2		20:32	01.86		
SSP	SE	134	AMPL			20:32	03.35	34	0.32
SSP	SN	134	AMPL			20:32	03.68	13	0.25
MCH	SZ	174	EP	2		20:31	51.06		
MCH	SN	174	ES	2		20:32	11.75		
MCH	SE	174	AMPL			20:32	13.79	20	0.27
MCH	SN	174	AMPL			20:32	13.13	18	0.29
HPK	SE	64	AMPL			20:31	43.44	163	0.16
LMI	SZ		EP	2		20:31	42.14		
LMI	SN		AMPL			20:31	57.03	28	0.39
LMI	SE		AMPL			20:31	57.79	23	0.28
SBD	SZ	97	EP	3		20:31	38.84		
LRN	SZ	107	IP		D	20:31	41.63		
KSY	SZ	120	EP	2		20:31	43.97		
WPM	SZ	118	EP	2		20:31	42.74		
CWF	SN	100	AMPL			20:31	56.45	19	0.10
CWF	SE	100	AMPL			20:31	56.16	21	0.17
CWF	SE	100	ES	3		20:31	52.96		

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CWF	SZ	100	EP	3	20:31	40.64		
HPK	SN	64	AMPL		20:31	43.60	240	0.18
HPK	SN	64	ES	2	20:31	42.42		
HPK	SZ	64	EP	2	20:31	34.66		
KWE	SZ	56	EP	2	20:31	33.14		
KBI	SZ	49	EP	3	20:31	31.67		
LHO	SZ	22	IP	C	20:31	27.41		

November 6 2002 Time: 02:34 38.9 UTC Magnitude: 1.7 ML
Lat: 53.499N Lon: -2.082W Depth: 5.0 km
Grid Ref: 394.59 kmE 400.25 kmN RMS: 0.19 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LRN	SZ	104	EP			02:34	56.02		
SSP	SE	139	ES	3		02:35	17.07		
SSP	SN	139	AMPL			02:35	17.19	9	0.29
SSP	SE	139	AMPL			02:35	17.78	20	0.31
KWE	SZ	56	EP	3		02:34	48.49		
MCH	SE	178	ES	4		02:35	26.65		
MCH	SN	178	AMPL			02:35	27.42	14	0.40
MCH	SE	178	AMPL			02:35	27.49	9	0.12
KBI	SZ	46	EP			02:34	46.99		
CWF	SE	99	ES	3		02:35	07.58		
CWF	SN	99	AMPL			02:35	10.86	9	0.10
CWF	SE	99	AMPL			02:35	10.60	12	0.11
CWF	SZ	99	EP	3		02:34	55.69		
HPK	SN	59	AMPL			02:34	58.05	101	0.17
HPK	SE	59	AMPL			02:34	57.96	81	0.15
HPK	SN	59	ES	2		02:34	57.03		
HPK	SZ	59	EP	2		02:34	48.86		
LHO	SZ	16	EP	1	C	02:34	41.90		

November 6 2002 Time: 02:45 52.0 UTC Magnitude: 1.6 ML
Lat: 53.495N Lon: -2.175W Depth: 5.0 km
Grid Ref: 388.38 kmE 399.89 kmN RMS: 0.28 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SZ	63	EP	2		02:46	02.80		
HPK	SN	63	ES	2		02:46	10.90		
CWF	SE	102	AMPL			02:46	24.54	10	0.10
MCH	SE	176	AMPL			02:46	41.43	9	0.17
MCH	SN	176	AMPL			02:46	41.35	11	0.44
MCH	SN	176	ES	3		02:46	40.76		
SSP	SE	135	AMPL			02:46	31.68	18	0.31
SSP	SE	135	ES	3		02:46	31.07		
SSP	SN	135	AMPL			02:46	30.73	7	0.18
CWF	SE	102	ES	3		02:46	21.52		
SSP	SZ	135	EP	3		02:46	14.19		
CWF	SN	102	AMPL			02:46	24.74	7	0.22
CWF	SZ	102	EP	3		02:46	08.41		
SBD	SZ	98	EP	3		02:46	07.41		
HPK	SN	63	AMPL			02:46	11.96	79	0.16
HPK	SE	63	AMPL			02:46	11.88	68	0.18
KWE	SZ	58	EP			02:46	02.09		
KBI	SZ	51	EP	3		02:46	01.15		
LHO	SZ	22	EP	1	C	02:45	55.84		

November 6 2002 Time: 03:32 22.7 UTC Magnitude: 1.8 ML
Lat: 53.490N Lon: -2.101W Depth: 5.0 km
Grid Ref: 393.29 kmE 399.29 kmN RMS: 0.25 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KWE	SZ	56	EP			03:32	32.07		
HPK	SZ	61	EP	1	C	03:32	32.85		
CWF	SE	99	AMPL			03:32	54.64	11	0.14
MCH	SE	177	AMPL			03:33	11.56	13	0.27
MCH	SN	177	AMPL			03:33	11.45	19	0.26
MCH	SN	177	ES	3		03:33	10.78		
SSP	SE	137	AMPL			03:33	01.76	23	0.31
SSP	SN	137	AMPL			03:33	01.14	11	0.43
SSP	SE	137	ES	3		03:33	01.07		
CWF	SE	99	ES	3		03:32	51.39		
LRN	SZ	105	EP	2		03:32	40.37		
CWF	SN	99	AMPL			03:32	54.67	10	0.10
CWF	SZ	99	EP	3		03:32	39.03		
HPK	SE	61	AMPL			03:32	41.81	105	0.16
HPK	SN	61	AMPL			03:32	41.42	206	0.16
HPK	SN	61	ES	2		03:32	40.97		
KBI	SZ	46	EP			03:32	31.10		
LHO	SZ	18	EP	1	C	03:32	25.94		

November 6 2002 Time: 04:37 43.8 UTC Magnitude: 1.7 ML
Lat: 53.478N Lon: -2.107W Depth: 5.0 km
Grid Ref: 392.88 kmE 397.99 kmN RMS: 0.09 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SE	62	ES	2		04:38	02.28		
MCH	SN	176	AMPL			04:38	32.80	14	0.44
MCH	SE	176	AMPL			04:38	32.60	12	0.36
MCH	SE	176	ES	3		04:38	32.01		
SSP	SE	136	AMPL			04:38	23.13	19	0.31
SSP	SN	136	AMPL			04:38	22.56	9	0.23
SSP	SE	136	ES	3		04:38	22.08		
LRN	SZ	106	EP	2		04:38	01.35		
SBD	SZ	100	EP	3		04:38	00.25		
CWF	SE	98	AMPL			04:38	16.00	11	0.13
CWF	SN	98	AMPL			04:38	16.37	9	0.19
CWF	SE	98	ES	3		04:38	12.56		
CWF	SZ	98	EP	2		04:38	00.25		
HPK	SN	62	AMPL			04:38	03.40	73	0.16
HPK	SE	62	AMPL			04:38	03.07	79	0.15
KWE	SZ	54	EP	3		04:37	53.32		
KBI	SZ	46	EP	3		04:37	51.97		
LHO	SZ	18	EP	1	C	04:37	47.28		

November 9 2002 Time: 00:21 07.3 UTC Magnitude: 1.7 ML
Lat: 53.487N Lon: -2.178W Depth: 5.0 km
Grid Ref: 388.17 kmE 398.93 kmN RMS: 0.39 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WPM	SZ	118	EP	2		00:21	26.64		
KSY	SZ	121	EP	2		00:21	28.17		
SSP	SZ	135	EP	2		00:21	29.86		
SSP	SN	135	ES	2		00:21	45.71		
SSP	SN	135	AMPL			00:21	46.73	8	0.38
MCH	SN	175	ES	3		00:21	56.00		
SSP	SE	135	AMPL			00:21	47.18	17	0.33
MCH	SN	175	AMPL			00:21	56.96	12	0.26
MCH	SE	175	AMPL			00:21	57.62	11	0.22
HPK	SN	64	AMPL			00:21	26.90	173	0.16
HPK	SE	64	ES	2		00:21	26.30		
CWF	SE	102	AMPL			00:21	39.99	16	0.14
LRN	SZ	106	EP	2		00:21	25.63		
CWF	SN	102	AMPL			00:21	40.44	12	0.13
CWF	SE	102	ES	2		00:21	36.57		
CWF	SZ	102	EP	2		00:21	24.39		
SBD	SZ	97	EP	2		00:21	22.73		
HPK	SE	64	AMPL			00:21	27.04	94	0.16
HPK	SZ	64	EP	2		00:21	18.25		
KWE	SZ	57	EP	2		00:21	17.56		
KBI	SZ	50	EP	2		00:21	16.20		
LHO	SZ	22	IP	C		00:21	11.29		

November 9 2002 Time: 00:27 43.7 UTC Magnitude: 1.9 ML
Lat: 53.485N Lon: -2.137W Depth: 5.0 km
Grid Ref: 390.90 kmE 398.72 kmN RMS: 0.19 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SN	112	AMPL			00:28	16.71	21	0.40
LMI	SE	112	AMPL			00:28	17.70	28	0.36
WPM	SZ	120	EP	2		00:28	02.66		
SSP	SZ	136	EP	2		00:28	05.51		
SSP	SN	136	ES	2		00:28	21.46		
SSP	SN	136	AMPL			00:28	22.37	12	0.21
MCH	SZ	176	EP	3		00:28	11.19		
SSP	SE	136	AMPL			00:28	23.25	26	0.38
MCH	SN	176	AMPL			00:28	32.89	19	0.48
MCH	SE	176	AMPL			00:28	33.68	17	0.25
HPK	SN	63	AMPL			00:28	02.96	251	0.17
HPK	SE	63	AMPL			00:28	03.17	144	0.19
CWF	SE	100	AMPL			00:28	16.06	18	0.16
LMI	SE	112	ES	2		00:28	15.68		
LMI	SZ	112	EP	2		00:28	02.25		
CWF	SE	100	ES	3		00:28	12.44		
CWF	SZ	100	EP	2		00:28	00.46		
SBD	SZ	99	EP	2		00:27	59.03		
HPK	SN	63	ES	2		00:28	02.33		
HPK	SZ	63	IP	C		00:27	54.33		
KWE	SZ	56	EP	2		00:27	53.34		
KBI	SZ	48	EP	2		00:27	52.37		
LHO	SZ	20	IP	C		00:27	47.34		
KSY	SZ		AMPL			00:28	20.77	24	0.19

November 9 2002 Time: 01:11 20.1 UTC Magnitude: 2.1 ML
Lat: 53.474N Lon: -2.167W Depth: 5.0 km
Grid Ref: 388.91 kmE 397.53 kmN RMS: 0.30 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	134	EP	2		01:11	42.20		
SSP	SN	134	ES	2		01:11	57.90		
SSP	SN	134	AMPL			01:11	59.44	27	0.43
SSP	SE	134	AMPL			01:12	00.75	51	0.43
YLL	SZ	139	EP	2		01:11	42.32		
WFB	SZ	153	EP	2		01:11	44.43		
WCB	SZ	159	EP	2		01:11	44.91		
YRE	SZ	161	EP	2		01:11	45.34		
WCB	SN	159	AMPL			01:12	05.40	16	0.28
WCB	SE	159	AMPL			01:12	07.84	16	0.35
MCH	SZ	174	EP	2		01:11	47.92		
MCH	SN	174	ES	2		01:12	08.37		
MCH	SE	174	AMPL			01:12	09.73	30	0.53
MCH	SN	174	AMPL			01:12	09.76	34	0.49
CWF	SN	100	AMPL			01:11	53.44	18	0.28
LRN	SZ	108	EP	2		01:11	38.52		
WPM	SZ	118	EP	2		01:11	39.46		
LHO	SZ	22	IP	C		01:11	24.21		
KBI	SZ	49	EP	2		01:11	28.93		
KWE	SZ	55	EP	2		01:11	29.26		
HPK	SZ	65	IP	C		01:11	31.13		
HPK	SN	65	ES	2		01:11	39.28		
HPK	SN	65	AMPL			01:11	39.83	313	0.19
HPK	SE	65	AMPL			01:11	40.22	215	0.37
CWF	SZ	100	EP	2		01:11	37.24		
CWF	SE	100	AMPL			01:11	53.08	22	0.15
SBD	SZ	97	EP	2		01:11	35.55		
LMI	SZ	112	EP	2		01:11	39.04		
LMI	SN	112	ES	2		01:11	51.99		
LMI	SN	112	AMPL			01:11	53.53	49	0.40

PHASE DATA : 2002

LMI	SE	112	AMPL		01:11	54.49	58	0.33
KSY	SZ	120	EP	3	01:11	40.79		
CSF	SZ	129	EP	2	01:11	41.41		

November 9 2002 Time: 01:54 33.2 UTC Magnitude: 2.2 ML
Lat: 53.480N Lon: -2.164W Depth: 5.0 km
Grid Ref: 389.15 kmE 398.16 kmN RMS: 0.25 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CSF	SZ	129	IP		D	01:54	54.42		
SSP	SZ	134	EP	2		01:54	55.02		
SSP	SE	134	ES	2		01:55	10.85		
SSP	SN	134	AMPL			01:55	12.17	38	0.22
SSP	SE	134	AMPL			01:55	13.05	79	0.39
YLL	SZ	139	EP	2		01:54	55.21		
WFB	SZ	154	EP	2		01:54	57.29		
MCH	SZ	174	EP	2		01:55	00.79		
YRE	SZ	161	EP	2		01:54	58.18		
HAE	SZ	163	EP	2		01:54	59.43		
MCH	SE	174	ES	2		01:55	21.52		
MCH	SN	174	AMPL			01:55	22.82	59	0.26
MCH	SE	174	AMPL			01:55	23.48	53	0.26
CWF	SE	101	ES	3		01:55	02.38		
CWF	SE	101	AMPL			01:55	05.88	43	0.22
LMI	SN	112	AMPL			01:55	06.50	65	0.40
LHO	SZ	22	IP		C	01:54	37.15		
KBI	SZ	49	EP	2		01:54	41.70		
LDU	SZ	54	EP	2		01:54	42.57		
KWE	SZ	56	EP	2		01:54	42.92		
HPK	SZ	64	IP		C	01:54	44.10		
HPK	SE	64	ES	2		01:54	52.13		
SBD	SZ	97	EP	2		01:54	48.41		
CWF	SZ	101	EP	2		01:54	49.94		
CWF	SN	101	AMPL			01:55	06.31	43	0.16
LRN	SZ	107	IP		D	01:54	51.33		
LMI	SZ	112	EP	2		01:54	51.78		
LMI	SN	112	ES	2		01:55	04.72		
LMI	SE	112	AMPL			01:55	07.49	85	0.38
WPM	SZ	118	EP	2		01:54	52.31		
KSY	SZ	120	EP	2		01:54	53.58		

November 9 2002 Time: 23:36 42.7 UTC Magnitude: 2.0 ML
Lat: 53.481N Lon: -2.158W Depth: 5.0 km
Grid Ref: 389.54 kmE 398.35 kmN RMS: 0.33 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KSY	SZ	120	EP	3		23:37	03.13		
CSF	SZ	129	EP	2		23:37	03.96		
SSP	SZ	135	EP	2		23:37	04.36		
SSP	SE	135	ES	2		23:37	21.26		
SSP	SN	135	AMPL			23:37	22.98	18	0.19
SSP	SE	135	AMPL			23:37	23.20	45	0.39
WFB	SZ	154	EP	2		23:37	06.95		
MCH	SZ	175	EP	2		23:37	10.40		
HAE	SZ	163	EP	2		23:37	09.22		
MCH	SN	175	ES	2		23:37	30.40		
MCH	SN	175	AMPL			23:37	31.96	21	0.49
MCH	SE	175	AMPL			23:37	32.98	20	0.34
SBD	SZ	98	EP	2		23:36	58.29		
CWF	SZ	100	EP	3		23:36	59.96		
LMI	SZ	112	EP	2		23:37	01.31		
LHO	SZ	21	IP		C	23:36	46.52		
KBI	SZ	49	EP	2		23:36	51.00		
KWE	SZ	56	EP	3		23:36	52.75		
HPK	SZ	64	EP	2		23:36	53.57		
HPK	SN	64	ES	2		23:37	01.65		
HPK	SE	64	AMPL			23:37	02.70	248	0.19
HPK	SN	64	AMPL			23:37	02.86	251	0.16
CWF	SN	100	ES	3		23:37	11.89		
CWF	SE	100	AMPL			23:37	15.27	24	0.08
CWF	SN	100	AMPL			23:37	15.44	25	0.11
LRN	SZ	107	EP	2		23:37	00.81		
LMI	SN	112	AMPL			23:37	16.11	31	0.42
LMI	SE	112	AMPL			23:37	17.48	29	0.37
WPM	SZ	119	EP	2		23:37	01.94		

November 10 2002 Time: 04:12 22.6 UTC Magnitude: 2.3 ML
Lat: 53.491N Lon: -2.222W Depth: 5.0 km
Grid Ref: 385.29 kmE 399.36 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SN	134	AMPL			04:13	04.12	32	0.24
WCB	SZ	155	EP	2		04:12	47.38		
WCB	SE	155	AMPL			04:13	06.57	21	0.26
WCB	SN	155	AMPL			04:13	07.83	22	0.41
YRE	SZ	158	EP	2		04:12	47.76		
HAE	SZ	163	EP	2		04:12	49.39		
MCH	SZ	174	EP	2		04:12	50.65		
MCH	SN	174	AMPL			04:13	13.29	50	0.18
MCH	SN	174	ES	2		04:13	10.74		
MCH	SE	174	AMPL			04:13	14.07	51	0.19
WPM	SZ	115	EP	2		04:12	41.72		
KSY	SZ	124	EP	2		04:12	43.47		
CWF	SZ	104	EP	2		04:12	40.14		
LDU	SZ	56	EP	2		04:12	32.39		
LHO	SZ	25	IP		C	04:12	27.06		
KWE	SZ	59	EP	2		04:12	32.86		
HPK	SZ	65	IP		C	04:12	33.85		
HPK	SN	65	ES	2		04:12	41.99		
HPK	SE	65	AMPL			04:12	42.32	492	0.21
HPK	SN	65	AMPL			04:12	42.75	524	0.28
SBD	SZ	95	EP	2		04:12	37.97		
CWF	SE	104	ES	3		04:12	53.12		
CWF	SE	104	AMPL			04:12	55.89	91	0.15
CWF	SN	104	AMPL			04:12	56.01	95	0.27
LRN	SZ	107	EP	2		04:12	41.03		
KBI	SZ	53	EP	2		04:12	31.74		
SSP	SZ	134	EP	2		04:12	44.55		
SSP	SN	134	ES	2		04:12	59.93		
SSP	SE	134	AMPL			04:13	02.86	54	0.41

November 10 2002 Time: 11:43 54.7 UTC Magnitude: 2.0 ML
Lat: 53.482N Lon: -2.172W Depth: 5.0 km
Grid Ref: 388.56 kmE 398.43 kmN RMS: 0.15 secs
Locality: GREATER MANCHESTER Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SE	134	AMPL			11:44	35.34	47	0.37
MCH	SZ	174	EP	3		11:44	22.57		
MCH	SN	174	ES	2		11:44	43.10		
MCH	SN	174	AMPL			11:44	44.11	23	0.43
MCH	SE	174	AMPL			11:44	45.21	19	0.18
CWF	SN	101	AMPL			11:44	27.70	22	0.22
CWF	SE	101	AMPL			11:44	27.47	20	0.19
HPK	SE	64	AMPL			11:44	14.84	243	0.21
HPK	SN	64	AMPL			11:44	14.97	224	0.09
KWE	SZ	56	EP	2		11:44	04.62		
WPM	SZ	118	EP	2		11:44	14.05		
SSP	SN	134	AMPL			11:44	34.46	21	0.48
SSP	SE	134	ES	2		11:44	32.58		
SSP	SZ	134	EP	3		11:44	16.59		
LHO	SZ	22	IP		C	11:43	58.66		
KBI	SZ	50	EP	3		11:44	03.47		
CWF	SE	101	ES	2		11:44	23.50		
CWF	SZ	101	EP	3		11:44	12.24		
SBD	SZ	97	EP	2		11:44	10.45		
HPK	SN	64	ES	2		11:44	13.73		
HPK	SZ	64	IP		C	11:44	05.68		

November 10 2002 Time: 18:31 22.5 UTC Magnitude: 1.2 ML
Lat: 49.994N Lon: -5.041W Depth: 23.4 km
Grid Ref: 182.10 kmE 14.93 kmN RMS: 0.06 secs
Locality: OFF LIZARD PT,CORNWALL Quality: C
Comment: 12KM EAST OF LIZARD PT

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CGH	SZ	11	IP		D	18:31	26.82		
CMA	SZ	12	IP		D	18:31	26.84		
CMA	SZ	12	ES	3		18:31	29.70		
CBW	SZ	18	IP		D	18:31	27.36		
CGW	SZ	18	IP		C	18:31	27.31		
CCO	SZ	19	IP		D	18:31	27.49		
CR2	SZ	21	IP		D	18:31	27.69		
CR2	SE	21	ES	2		18:31	31.69		
CR2	SN	21	AMPL			18:31	31.83	31	0.10
CR2	SE	21	AMPL			18:31	31.88	47	0.06
CST	SZ	24	IP		D	18:31	27.98		
CCA	SZ	25	IP		D	18:31	28.15		

November 10 2002 Time: 18:47 09.5 UTC Magnitude: 2.0 ML
Lat: 53.491N Lon: -2.222W Depth: 5.0 km
Grid Ref: 385.26 kmE 399.42 kmN RMS: 0.35 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SE	134	AMPL			18:47	49.73	28	0.40
SSP	SN	134	AMPL			18:47	50.95	13	0.19
WFB	SZ	151	EP	2		18:47	33.71		
YRE	SZ	158	EP	2		18:47	34.55		
MCH	SZ	174	EP	2		18:47	37.43		
MCH	SN	174	ES	2		18:47	57.96		
MCH	SE	174	AMPL			18:48	00.89	20	0.22
MCH	SN	174	AMPL			18:48	00.12	29	0.22
LRN	SZ	107	EP	2		18:47	27.90		
WPM	SZ	115	EP	2		18:47	28.68		
CWF	SZ	104	EP	2		18:47	26.93		
KWE	SZ	59	EP	2		18:47	19.67		
LHO	SZ	25	IP		C	18:47	13.89		
SSP	SE	134	ES	2		18:47	47.60		
SSP	SZ	134	EP	2		18:47	31.41		
KSY	SZ	124	EP	2		18:47	30.35		
KBI	SZ	53	EP	2		18:47	18.51		
CWF	SN	104	AMPL			18:47	42.79	26	0.22
CWF	SE	104	AMPL			18:47	42.67	28	0.20
CWF	SN	104	ES	2		18:47	40.34		
SBD	SZ	95	EP	2		18:47	24.84		
HPK	SE	65	AMPL			18:47	29.90	231	0.22
HPK	SN	65	AMPL			18:47	29.44	186	0.15
HPK	SN	65	ES	2		18:47	28.77		
HPK	SZ	65	IP		C	18:47	20.73		
MUNI	SE		EP			18:47	10.40		

November 11 2002 Time: 22:21 12.7 UTC Magnitude: 1.8 ML
Lat: 53.484N Lon: -2.162W Depth: 5.0 km
Grid Ref: 389.27 kmE 398.59 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI

PHASE DATA : 2002

LMI	SN	111	AMPL		22:21	45.57	21	0.52
LMI	SE	111	AMPL		22:21	46.94	32	0.58
CSF	SZ	129	EP	3	22:21	33.63		
SSP	SZ	135	EP	2	22:21	34.43		
SSP	SE	135	ES	2	22:21	51.21		
SSP	SN	135	AMPL		22:21	51.87	12	0.45
YLL	SZ	139	EP	3	22:21	34.41		
SSP	SE	135	AMPL		22:21	52.50	16	0.34
MCH	SN	175	ES	2	22:22	00.79		
MCH	SE	175	AMPL		22:22	01.99	12	0.23
MCH	SN	175	AMPL		22:22	02.86	17	0.19
HPK	SN	64	AMPL		22:21	32.82	84	0.15
CWF	SN	101	AMPL		22:21	45.58	15	0.15
LMI	SE	111	ES	3	22:21	44.59		
LMI	SZ	111	EP	2	22:21	31.15		
LRN	SZ	107	EP	2	22:21	30.82		
CWF	SE	101	AMPL		22:21	45.39	18	0.21
CWF	SZ	101	EP	2	22:21	29.82		
SBD	SZ	98	EP	2	22:21	27.85		
HPK	SE	64	AMPL		22:21	32.65	136	0.23
HPK	SE	64	ES	2	22:21	31.58		
HPK	SZ	64	EP	3	22:21	23.48		
KWE	SZ	56	EP	2	22:21	22.61		
KBI	SZ	49	EP	2	22:21	21.41		
LHO	SZ	22	IP	C	22:21	16.63		

November 12 2002 Time: 08:59 23.0 UTC Magnitude: 1.0 ML
Lat: 56.251N Lon: -3.752W Depth: 4.0 km
Grid Ref: 291.46 kmE 707.85 kmN RMS: 0.09 secs
Locality: BLACKFORD,TAYSIDE Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
EBH	SZ	15	IP		C	08:59	26.02		
ELO	SZ	25	IP		D	08:59	27.75		
ELO	SZ	25	ES	3		08:59	30.93		
PCO	SZ	36	IP		C	08:59	29.69		
EAB	SZ	37	IP		C	08:59	29.79		
EAB	SZ	37	ES	3		08:59	34.44		
PCA	SZ	69	IP		D	08:59	34.98		
EDI	SZ	51	EP	2		08:59	31.89		
EDI	SN	51	AMPL			08:59	43.05	10	0.41
EDI	SE	51	ES	2		08:59	38.29		
EDI	SE	51	AMPL			08:59	40.60	15	0.23
EAU	SZ	49	EP	2		08:59	32.01		

November 13 2002 Time: 00:19 58.5 UTC Magnitude: 1.6 ML
Lat: 53.488N Lon: -2.201W Depth: 5.0 km
Grid Ref: 386.67 kmE 399.08 kmN RMS: 0.21 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HPK	SZ	65	EP	2		00:20	09.76		
HPK	SE	65	AMPL			00:20	18.90	66	0.21
CWF	SN	103	AMPL			00:20	31.82	9	0.21
MCH	SE	174	AMPL			00:20	49.52	8	0.35
MCH	SN	174	AMPL			00:20	49.13	8	0.23
MCH	SN	174	ES	3		00:20	47.11		
SSP	SE	134	AMPL			00:20	39.67	11	0.23
SSP	SN	134	AMPL			00:20	38.15	8	0.41
SSP	SN	134	ES	3		00:20	36.64		
CWF	SN	103	ES	3		00:20	29.21		
SSP	SZ	134	EP	2		00:20	20.87		
CWF	SE	103	AMPL			00:20	31.83	8	0.15
CWF	SZ	103	EP	2		00:20	15.63		
SBD	SZ	96	EP	3		00:20	14.14		
HPK	SN	65	AMPL			00:20	18.97	59	0.17
HPK	SN	65	ES	2		00:20	17.81		
KWE	SZ	58	EP	3		00:20	08.97		
KBI	SZ	52	EP	2		00:20	07.63		
LHO	SZ	24	IP		C	00:20	02.86		

November 13 2002 Time: 18:22 48.3 UTC Magnitude: 2.7 ML
Lat: 61.253N Lon: 2.825W Depth: 10.8 km
Grid Ref: 658.71 kmE 1272.95 kmN RMS: 0.27 secs
Locality: NORTHERN NORTH SEA Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
FOO	SZ		EP	2		18:23	07.14		
FOO	SZ		AMPL			18:23	21.04	212	0.21
DOMB	SZ		AMPL			18:24	10.85	24	0.09
STAV	SZ		EP			18:23	30.52		
STAV	SZ		ES			18:24	01.11		
DOMB	SZ		EP			18:23	35.84		
DOMB	SZ		ES			18:24	10.04		
STAV	SZ		AMPL			18:24	02.37	39	0.18
FOO	SZ		ES			18:23	20.39		
SUE	SZ	106	IP		D	18:23	05.39		
SUE	SZ	106	ES			18:23	17.24		
SUE	SZ	106	AMPL			18:23	17.56	159	0.09
ASK	SZ	155	IP		D	18:23	12.13		
ASK	SZ	155	ES			18:23	29.59		
ASK	SZ	155	AMPL			18:23	30.58	93	0.07
BER	SZ	168	EP	2		18:23	13.55		
BER	SZ	168	ES			18:23	32.14		
BER	SZ	168	AMPL			18:23	33.69	58	0.13
EGD	SZ	171	IP		D	18:23	14.04		
HYA	SZ	181	IP		C	18:23	16.13		
YEL	SZ	226	EP	2		18:23	20.84		
LRW	SZ	252	EP	2		18:23	24.42		
LRW	SE	252	ES	2		18:23	49.46		
LRW	SE	252	AMPL			18:23	51.36	47	0.16
LRW	SN	252	AMPL			18:23	51.41	32	0.03
ODD1	SZ	256	IP		D	18:23	24.00		
ODD1	SZ	256	ES			18:23	50.54		
ODD1	SZ	256	AMPL			18:23	51.29	36	0.00
SAN	SZ	262	EP	2		18:23	25.12		
KMY	SZ	265	EP	2		18:23	25.68		
KMY	SZ	265	ES			18:23	53.27		
KMY	SZ	265	AMPL			18:23	53.67	27	0.15
WAL	SZ	266	EP	2		18:23	25.81		
BLS5	SZ	286	IP		D	18:23	29.40		
BLS5	SZ	286	ES			18:23	58.59		
BLS5	SZ	286	AMPL			18:24	00.33	34	0.14
MOL	SZ	289	EP	2		18:23	28.53		
OST	SZ	384	EP	3		18:23	41.31		
OWE	SZ	389	EP	2		18:23	41.54		
KONO	BZ	413	EP			18:23	43.62		
OHO	SZ	433	EP	2		18:23	46.02		
NSS	BZ	591	EP			18:24	06.07		
NSS	BZ	591	ES			18:25	04.71		
NSS	BZ	591	AMPL			18:25	08.57	6	0.47
MOR8	SZ	812	EP			18:24	32.76		
MOR8	SZ	812	ES			18:25	51.32		
MOR8	SZ	812	AMPL			18:26	11.38	6	0.52

November 16 2002 Time: 04:57 46.7 UTC Magnitude: 2.1 ML
Lat: 53.490N Lon: -2.166W Depth: 5.0 km
Grid Ref: 388.99 kmE 399.26 kmN RMS: 0.34 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WPM	SZ	119	EP	2		04:58	05.76		
KSY	SZ	121	EP	2		04:58	07.55		
CSF	SZ	128	EP	2		04:58	07.71		
SSP	SZ	135	EP	2		04:58	08.39		
SSP	SE	135	ES	2		04:58	24.43		
SSP	SN	135	AMPL			04:58	26.11	22	0.15
SSP	SE	135	AMPL			04:58	26.44	48	0.27
HAE	SZ	164	EP	2		04:58	13.21		
YLL	SZ	139	EP	2		04:58	08.65		
MCH	SZ	175	EP	2		04:58	14.41		
MCH	SN	175	ES	2		04:58	34.41		
MCH	SN	175	AMPL			04:58	36.30	39	0.23
MCH	SE	175	AMPL			04:58	37.30	28	0.30
HPK	SN	63	AMPL			04:58	06.93	245	0.30
LMI	SZ	111	EP	2		04:58	05.18		
LHO	SZ	22	IP		C	04:57	50.54		
KBI	SZ	50	EP	2		04:57	55.59		
KWE	SZ	57	EP	2		04:57	57.13		
HPK	SZ	63	IP		C	04:57	57.51		
HPK	SN	63	ES	2		04:58	05.57		
HPK	SE	63	AMPL			04:58	06.01	305	0.30
SBD	SZ	98	EP	2		04:58	01.90		
CWF	SE	102	ES	3		04:58	15.88		
CWF	SN	102	AMPL			04:58	20.18	18	0.24
CWF	SE	102	AMPL			04:58	22.59	19	0.25
LRN	SZ	106	EP	2		04:58	04.67		
LMI	SE	111	ES	2		04:58	18.41		
LMI	SN	111	AMPL			04:58	19.86	40	0.38
LMI	SE	111	AMPL			04:58	21.00	50	0.37

November 16 2002 Time: 04:59 01.9 UTC Magnitude: 2.5 ML
Lat: 53.484N Lon: -2.179W Depth: 5.0 km
Grid Ref: 388.12 kmE 398.57 kmN RMS: 0.29 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WCB	SN	158	AMPL			04:59	46.97	47	0.31
WCB	SZ	158	EP	2		04:59	26.49		
WFB	SZ	153	EP	2		04:59	26.02		
LCP	SZ	147	EP	2		04:59	25.87		
SSP	SE	134	AMPL			04:59	41.77	182	0.27
YLL	SZ	138	EP	2		04:59	23.90		
CKE	SZ	137	EP	2		04:59	24.33		
SSP	SN	134	AMPL			04:59	41.34	90	0.42
SSP	SE	134	ES	2		04:59	39.71		
HAE	SZ	163	EP	2		04:59	28.25		
WCB	SE	158	AMPL			04:59	47.12	42	0.17
YRC	SZ	162	EP	2		04:59	27.06		
HTR	SZ	173	EP	2		04:59	29.50		
MCH	SZ	174	EP	2		04:59	29.63		
MCH	SN	174	ES	2		04:59	49.74		
MCH	SN	174	AMPL			04:59	51.62	124	0.20
MCH	SE	174	AMPL			04:59	51.64	100	0.37
SBD	SZ	97	EP	2		04:59	17.18		
LMI	SN	111	ES	2		04:59	33.35		
WPM	SZ	118	EP	2		04:59	21.04		
LHO	SZ	23	IP		C	04:59	05.88		
KBI	SZ	50	EP	2		04:59	10.83		
LDU	SZ	55	EP	2		04:59	11.31		
KWE	SZ	57	EP	2		04:59	11.48		
HPK	SZ	64	IP		C	04:59	12.82		
HPK	SN	64	ES	2		04:59	20.90		
CWF	SZ	101	EP	2		04:59	19.22		
CWF	SE	101	ES	3		04:59	31.07		
CWF	SN	101	AMPL			04:59	35.53	64	0.18
CWF	SE	101	AMPL			04:59	37.83	77	0.33
LRN	SZ	107	EP	2		04:59	20.02		
LMI	SZ	111	EP	2		04:59	20.40		

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STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SN	111	AMPL			04:59	35.20	173	0.37
LMI	SE	111	AMPL			04:59	36.33	203	0.34
CDU	SZ	116	EP	3		04:59	21.40		
KSY	SZ	121	EP	2		04:59	22.76		
CSF	SZ	128	EP	1	D	04:59	23.02		
SSP	SZ	134	EP	2		04:59	23.70		

November 16 2002 Time: 07:34 36.9 UTC Magnitude: 2.1 ML
Lat: 53.501N Lon: -2.205W Depth: 5.0 km
Grid Ref: 386.40 kmE 400.54 kmN RMS: 0.37 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
SSP	SZ	135	EP	2		07:34	59.63		
SSP	SN	135	ES	2		07:35	14.69		
SSP	SN	135	AMPL			07:35	16.48	19	0.39
SSP	SE	135	AMPL			07:35	16.89	36	0.27
YLL	SZ	137	EP	2		07:34	58.90		
MCH	SN	176	ES	2		07:35	24.82		
MCH	SZ	176	EP	2		07:35	04.92		
MCH	SN	176	AMPL			07:35	26.78	26	0.19
MCH	SE	176	AMPL			07:35	27.64	23	0.21
HPK	SN	64	ES	2		07:34	56.10		
CWF	SZ	104	EP	2		07:34	54.40		
WPM	SZ	116	EP	2		07:34	56.25		
LRN	SZ	105	EP	2		07:34	55.14		
SBD	SZ	97	EP	2		07:34	52.37		
HPK	SN	64	AMPL			07:34	57.26	176	0.16
HPK	SE	64	AMPL			07:34	56.48	232	0.25
HPK	SZ	64	EP	2		07:34	47.70		
KWE	SZ	59	EP	2		07:34	47.33		
KBI	SZ	53	EP	3		07:34	46.34		
LHO	SZ	24	IP		C	07:34	41.07		

November 19 2002 Time: 01:00 31.0 UTC Magnitude: 2.1 ML
Lat: 53.491N Lon: -2.188W Depth: 5.0 km
Grid Ref: 387.50 kmE 399.41 kmN RMS: 0.33 secs
Locality: GREATER MANCHESTER Quality: C
Comment: FELT MANCHESTER Intensity: 2+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SN	110	AMPL			01:01	03.97	49	0.32
LMI	SE	110	AMPL			01:01	05.07	48	0.36
WPM	SZ	117	EP	2		01:00	49.79		
KSY	SZ	122	EP	2		01:00	51.75		
CSF	SZ	127	EP	2		01:00	51.80		
SSP	SZ	135	EP	2		01:00	52.66		
SSP	SE	135	AMPL			01:01	10.83	21	0.33
SSP	SE	135	ES	2		01:01	08.60		
SSP	SN	135	AMPL			01:01	10.77	14	0.19
MCH	SZ	175	EP	2		01:00	58.60		
MCH	SN	175	ES	2		01:01	18.97		
MCH	SE	175	AMPL			01:01	21.43	19	0.32
MCH	SN	175	AMPL			01:01	24.75	17	0.38
SBD	SZ	97	EP	2		01:00	45.93		
CWF	SN	102	AMPL			01:01	04.02	52	0.23
LHO	SZ	23	IP		C	01:00	35.06		
KBI	SZ	51	EP	2		01:00	39.75		
LDU	SZ	55	EP	2		01:00	40.39		
KWE	SZ	58	EP	2		01:00	40.93		
HPK	SZ	64	IP		C	01:00	41.87		
HPK	SN	64	ES	2		01:00	49.98		
HPK	SN	64	AMPL			01:00	50.62	299	0.20
HPK	SE	64	AMPL			01:00	50.73	223	0.21
CWF	SZ	102	EP	2		01:00	48.21		
CWF	SE	102	ES	2		01:01	01.14		
CWF	SE	102	AMPL			01:01	03.93	50	0.19
LRN	SZ	106	EP	2		01:00	48.95		
LMI	SZ	110	EP	2		01:00	49.38		
LMI	SE	110	ES	2		01:01	02.50		

November 19 2002 Time: 02:31 45.3 UTC Magnitude: 1.7 ML
Lat: 53.486N Lon: -2.208W Depth: 5.0 km
Grid Ref: 386.22 kmE 398.84 kmN RMS: 0.23 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CWF	SE	103	AMPL			02:32	19.13	9	0.15
SSP	SZ	134	EP	3		02:32	07.50		
SSP	SN	134	ES	2		02:32	23.23		
SSP	SN	134	AMPL			02:32	25.42	9	0.14
MCH	SN	174	AMPL			02:32	35.28	12	0.22
SSP	SE	134	AMPL			02:32	26.12	14	0.36
MCH	SZ	174	EP	3		02:32	13.94		
MCH	SE	174	AMPL			02:32	35.94	11	0.21
HPK	SZ	65	IP		C	02:31	56.59		
SBD	SZ	95	EP	2		02:32	01.00		
CWF	SN	103	AMPL			02:32	18.47	12	0.16
CWF	SE	103	ES	3		02:32	15.19		
CWF	SZ	103	EP	2		02:32	02.81		
HPK	SE	65	AMPL			02:32	05.62	108	0.16
HPK	SN	65	AMPL			02:32	05.24	179	0.13
HPK	SN	65	ES	2		02:32	04.69		
KWE	SZ	58	EP	3		02:31	55.65		
KBI	SZ	52	EP	3		02:31	54.58		
LHO	SZ	24	IP		C	02:31	49.65		

November 19 2002 Time: 21:15 56.4 UTC Magnitude: 2.5 ML
Lat: 49.194N Lon: -2.079W Depth: 13.1 km
Grid Ref: 394.21 kmE -78.45 kmN RMS: 0.11 secs
Locality: JERSEY,CHANNEL ISLANDS Quality: D
Comment: FELT JERSEY Intensity: 3+

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
JRS	SZ	1	IP		D	21:15	58.62		
JRS	SE	1	ES	2		21:16	00.59		
JQE	SZ	3	IP		D	21:15	58.87		
JLP	SZ	6	EP	2		21:15	58.65		
JSA	SZ	7	ES	3		21:16	00.56		
JVM	SZ	10	IP		D	21:15	59.24		
JVM	SZ	10	ES	3		21:16	01.66		
DYA	SZ	192	EP	4		21:16	27.97		
DYA	SE	192	AMPL			21:16	56.71	50	0.25
DYA	SN	192	AMPL			21:16	57.60	61	0.19
CR2	SZ	248	EP	3		21:16	32.45		
CR2	SN	248	AMPL			21:17	13.70	22	0.35
CR2	SE	248	AMPL			21:17	14.53	23	0.25

November 22 2002 Time: 01:40 22.0 UTC Magnitude: 3.1 ML
Lat: 53.029N Lon: 2.737W Depth: 5.0 km
Grid Ref: 717.58 kmE 358.48 kmN RMS: 0.41 secs
Locality: SOUTHERN NORTH SEA Quality: D

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
AWI	SZ	90	IP		D	01:40	36.34		
AWI	SZ	90	ES	3		01:40	48.00		
AEU	SZ	111	EP	2		01:40	40.23		
AEU	SN	111	ES	2		01:40	53.56		
AEU	SN	111	AMPL			01:40	54.33	238	0.21
AEU	SE	111	AMPL			01:40	58.09	215	0.36
KUF	SZ	216	EP	3		01:40	55.13		
KSY	SZ	223	EP	2		01:40	56.00		
CWF	SZ	274	EP	2		01:41	02.16		
CWF	SE	274	AMPL			01:41	40.05	43	0.40
CWF	SN	274	AMPL			01:41	45.35	66	0.64
KBI	SZ	287	EP	3		01:41	02.63		
HPK	SN	307	AMPL			01:42	02.27	250	0.50
KWE	SZ	307	EP	3		01:41	06.26		
HPK	SZ	307	EP	3		01:41	05.78		
HPK	SE	307	AMPL			01:42	01.52	237	0.52
LHO	SZ	312	EP	3		01:41	05.66		
HAE	SZ	375	EP	3		01:41	14.55		
SSP	SZ	401	EP	4		01:41	15.28		
SSP	SE	401	AMPL			01:42	15.07	37	0.57
SSP	SN	401	AMPL			01:42	20.53	38	0.78
MCH	SZ	406	EP	2		01:41	18.37		
MCH	SN	406	AMPL			01:42	16.92	32	0.45
MCH	SE	406	AMPL			01:42	18.95	34	0.65

November 30 2002 Time: 13:05 14.9 UTC Magnitude: 1.8 ML
Lat: 53.494N Lon: -2.192W Depth: 5.0 km
Grid Ref: 387.24 kmE 399.73 kmN RMS: 0.34 secs
Locality: GREATER MANCHESTER Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
LMI	SE	109	AMPL			13:05	48.90	26	0.32
WPM	SZ	117	EP	2		13:05	33.62		
CSF	SZ	127	EP	2		13:05	35.65		
SSP	SZ	135	EP	3		13:05	36.69		
SSP	SN	135	ES	2		13:05	53.00		
SSP	SN	135	AMPL			13:05	54.50	9	0.17
MCH	SZ	175	EP	3		13:05	43.07		
SSP	SE	135	AMPL			13:05	54.70	13	0.25
MCH	SN	175	ES	2		13:06	03.06		
MCH	SE	175	AMPL			13:06	04.70	12	0.17
MCH	SN	175	AMPL			13:06	05.15	9	0.23
SBD	SZ	97	EP	2		13:05	29.77		
CWF	SZ	103	EP	2		13:05	32.21		
LMI	SZ	109	EP	3		13:05	33.14		
LMI	SN	109	AMPL			13:05	47.80	34	0.27
LMI	SE	109	ES	2		13:05	46.49		
LRN	SZ	106	EP	2		13:05	32.98		
CWF	SN	103	AMPL			13:05	47.95	22	0.20
CWF	SE	103	AMPL			13:05	47.85	24	0.15
CWF	SE	103	ES	2		13:05	44.99		
HPK	SE	64	AMPL			13:05	35.14	113	0.16
HPK	SN	64	AMPL			13:05	34.54	122	0.27
HPK	SN	64	ES	2		13:05	33.78		
HPK	SZ	64	IP		C	13:05	25.80		
KWE	SZ	58	EP	2		13:05	25.07		
KBI	SZ	52	EP	3		13:05	23.79		
LHO	SZ	23	EP	1	C	13:05	19.02		

December 1 2002 Time: 09:37 05.0 UTC Magnitude: 2.2 ML
Lat: 53.256N Lon: -0.880W Depth: 1.0 km
Grid Ref: 474.72 kmE 373.84 kmN RMS: 0.40 secs
Locality: WORKSOP,NOTTS Quality: D
Comment: C/F,15KM SE OF WORKSOP

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	43	EP	2		09:37	13.42		
CWF	SZ	64	EP	3		09:37	16.71		
CWF	SE	64	ES	2		09:37	24.40		
CWF	SE	64	AMPL			09:37	24.87	40	0.29
CWF	SN	64	AMPL			09:37	33.13	39	0.67
KWE	SZ	70	EP	3		09:37	17.03		
LHO	SZ	72	EP	3		09:37	17.91		
HPK	SZ	92	E			09:37	21.73		
HPK	SZ	92	EP	3		09:37	21.73		
HPK	SN	92	ES	2		09:37	31.87		
HPK	SN	92	AMPL			09:37	37.68	295	0.46
HPK	SE	92	AMPL			09:37	37.78	367	0.63

PHASE DATA : 2002

December 2 2002 Time: 21:55 13.3 UTC Magnitude: 1.7 ML
Lat: 51.792N Lon: -2.377W Depth: 19.1 km
Grid Ref: 373.99 kmE 210.47 kmN RMS: 0.01 secs
Locality: GLOUCESTER,GLOS Quality: C
Comment: 10KM SW OF GLOUCESTER

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HAE	SZ	30	IP		D	21:55	19.10		
HGH	SZ	34	IP		C	21:55	19.75		
MCH	SZ	49	EP	2		21:55	21.85		
MCH	SN	49	ES	2		21:55	27.99		
MCH	SN	49	AMPL			21:55	28.32	48	0.23
MCH	SE	49	AMPL			21:55	28.32	61	0.24
HTR	SZ	69	EP	2		21:55	24.88		

December 17 2002 Time: 11:49 54.2 UTC Magnitude: 1.2 ML
Lat: 53.145N Lon: -1.138W Depth: 0.0 km
Grid Ref: 457.63 kmE 361.20 kmN RMS: 0.20 secs
Locality: MANSFIELD,NOTTS Quality: C
Comment: C/F

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
KBI	SZ	29	EP	1	C	11:49	59.85		
KBI	SZ	29	ES	3		11:50	04.33		
KSY	SZ	42	EP	3		11:50	01.93		
CWF	SZ	47	EP	1	D	11:50	03.22		
CWF	SE	47	ES	2		11:50	09.15		
CWF	SE	47	AMPL			11:50	14.36	27	0.39
CWF	SN	47	AMPL			11:50	14.76	17	0.21
KWE	SZ	49	EP	1	C	11:50	03.56		

December 17 2002 Time: 20:52 59.7 UTC Magnitude: 1.9 ML
Lat: 55.714N Lon: -5.881W Depth: 12.9 km
Grid Ref: 156.24 kmE 653.55 kmN RMS: 0.10 secs
Locality: SOUND OF JURA Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
EDI	SN	171	AMPL			20:53	48.38	16	0.48
EDI	SE	171	AMPL			20:53	49.17	18	0.23
KPL	SZ	182	EP	2		20:53	26.41		
BHH	SZ	182	EP	2		20:53	26.86		
KPL	SN	182	ES	3		20:53	46.02		
KPL	SE	182	AMPL			20:53	53.74	11	0.37
KPL	SN	182	AMPL			20:53	55.46	6	0.18
BBO	SE	200	ES	3		20:53	50.50		
BBO	SZ	200	EP	2		20:53	29.82		
BBO	SE	200	AMPL			20:53	57.97	7	0.16
BBO	SN	200	AMPL			20:54	00.02	12	0.26
KAC	SZ	202	EP	3		20:53	29.77		
ESY	SZ	206	EP	3		20:53	30.15		
BDL	SZ	213	EP	3		20:53	31.18		
GAL	SE	120	AMPL			20:53	34.00	105	0.20
GMM	SZ	164	EP	1	C	20:53	24.16		
GMK	SZ	45	IP		D	20:53	07.53		
GCL	SZ	73	IP		D	20:53	11.81		
POB	SZ	92	EP	3		20:53	14.86		
PCA	SZ	102	EP	1	C	20:53	16.37		
EAB	SZ	110	EP	2		20:53	17.40		
PCO	SZ	116	EP	2		20:53	18.42		
GAL	SZ	120	EP	1	C	20:53	19.09		
GAL	SE	120	ES	3		20:53	32.46		
GAL	SN	120	AMPL			20:53	34.00	56	0.18
KAR	SZ	134	EP	2		20:53	20.87		
BWH	SZ	153	EP	2		20:53	23.41		
EAU	SZ	153	EP	3		20:53	23.90		
ELO	SZ	159	EP	3		20:53	24.99		
EDI	SZ	171	EP	3		20:53	26.18		
EDI	SN	171	ES	3		20:53	44.19		

December 28 2002 Time: 14:36 03.2 UTC Magnitude: 2.4 ML
Lat: 51.708N Lon: -2.861W Depth: 25.9 km
Grid Ref: 340.51 kmE 201.43 kmN RMS: 0.13 secs
Locality: USK,GWENT Quality: A

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
HSA	SZ	90	IP		C	14:36	18.02		
HEX	SZ	97	EP	1	C	14:36	19.18		
HPE	SZ	135	EP	2		14:36	24.05		
SWN	SE	77	ES	2		14:36	26.34		
SWK	SZ	76	IP		D	14:36	16.04		
SSW	SZ	76	IP		C	14:36	16.08		
SMD	SZ	46	EP	2		14:36	11.40		
SKP	SZ	142	EP	2		14:36	24.95		
SWN	SZ	77	EP	2		14:36	16.32		
SSP	SZ	81	IP		D	14:36	16.70		
SSP	SN	81	ES	2		14:36	26.70		
SSP	SN	81	AMPL			14:36	27.61	143	0.22
SSP	SE	81	AMPL			14:36	27.62	173	0.38
HAE	SZ	43	IP		C	14:36	11.07		
HGH	SZ	9	IP		D	14:36	07.70		
HTR	SZ	50	IP		D	14:36	12.22		
SBD	SZ	136	EP	2		14:36	24.48		
MCH	SZ	34	IP		D	14:36	10.07		
MCH	SN	34	ES	2		14:36	15.05		
DYA	SZ	160	EP	2		14:36	26.66		
DCO	SZ	170	EP	2		14:36	27.82		

December 30 2002 Time: 01:59 23.6 UTC Magnitude: 2.0 ML
Lat: 54.364N Lon: -3.085W Depth: 11.6 km
Grid Ref: 329.50 kmE 497.06 kmN RMS: 0.20 secs
Locality: CONISTON,CUMBRIA Quality: B

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
WLF	SZ	148	EP	1	C	01:59	46.51		
WCB	SN	146	AMPL			02:00	07.99	18	0.39
YRC	SZ	158	EP	1	D	01:59	47.80		
ESK	SN	106	ES	3		01:59	53.77		
ESK	SE	106	AMPL			01:59	55.14	38	0.18
LCP	SZ	112	EP	1	C	01:59	42.47		
GAL	SZ	119	EP	1	D	01:59	43.24		
GAL	SN	119	ES	2		01:59	56.76		
LHO	SZ	122	EP	2		01:59	43.98		
WME	SZ	134	EP	1	C	01:59	44.87		
WPM	SZ	134	EP	1	D	01:59	45.02		
CWF	SZ	216	EP	3		01:59	56.59		
YLL	SZ	154	EP	1	C	01:59	47.73		
YRE	SZ	178	EP	1	C	01:59	50.72		
YRH	SZ	199	EP	1	C	01:59	53.33		
CWF	SE	216	ES	3		02:00	20.47		
CWF	SN	216	AMPL			02:00	25.95	9	0.42
BHH	SE	82	ES	3		01:59	47.31		
BWH	SZ	98	EP	1	C	01:59	40.38		
CDU	SZ	8	IP		C	01:59	26.24		
GIM	SZ	90	EP	1	C	01:59	39.21		
CKE	SZ	25	IP		D	01:59	28.41		
BHH	SZ	82	EP	1	C	01:59	37.80		
KWE	SZ	171	EP	3		01:59	50.73		
BTA	SE	66	AMPL			01:59	43.73	117	0.25
BTA	SE	66	ES	3		01:59	42.88		
BTA	SZ	66	IP	1	C	01:59	35.04		
BDL	SZ	50	IP	1	C	01:59	32.50		
XDE	SZ	31	IP		C	01:59	29.49		
LMI	SE	22	ES	2		01:59	31.03		
LMI	SE	22	AMPL			01:59	32.07	335	0.13
LMI	SN	22	AMPL			01:59	31.64	270	0.14
LMI	SZ	22	IP		C	01:59	27.99		
CSF	SZ	14	IP		C	01:59	26.96		
LRN	SZ	84	EP	1	C	01:59	37.74		
BTA	SN	66	AMPL			01:59	44.18	94	0.14
XAL	SZ	79	EP	1	C	01:59	36.88		
GIM	SN	90	ES	3		01:59	49.75		
GIM	SN	90	AMPL			01:59	51.49	81	0.15
GIM	SE	90	AMPL			01:59	51.65	102	0.10
ESK	SZ	106	EP	1	D	01:59	41.50		
ESK	SN	106	AMPL			01:59	56.17	30	0.17
WIM	SZ	106	EP	1	C	01:59	41.59		
CWF	SE	216	AMPL			02:00	27.47	9	0.22
WCB	SE	146	AMPL			02:00	07.80	15	0.13
WCB	SZ	146	IP	1	C	01:59	46.17		

December 30 2002 Time: 02:14 33.0 UTC Magnitude: 1.3 ML
Lat: 54.366N Lon: -3.074W Depth: 11.5 km
Grid Ref: 330.23 kmE 497.23 kmN RMS: 0.05 secs
Locality: CONISTON,CUMBRIA Quality: C

STAT	CO	DIST	PHAS	WT	P	HrMn	SECS	AMPL	PERI
CDU	SZ	9	IP	1	C	02:14	35.65		
CSF	SZ	14	IP		C	02:14	36.37		
LMI	SZ	22	IP		C	02:14	37.50		
LMI	SE	22	ES	3		02:14	40.64		
LMI	SE	22	AMPL			02:14	41.51	50	0.14
LMI	SN	22	AMPL			02:14	41.54	43	0.15
CKE	SZ	25	EP	1	D	02:14	37.85		
XDE	SZ	31	IP		C	02:14	38.94		
GIM	SZ	91	EP	1	C	02:14	48.54		
GIM	SE	91	ES	3		02:14	59.33		
GIM	SN	91	AMPL			02:15	00.58	13	0.14
GIM	SE	91	AMPL			02:15	01.08	13	0.09

TABLE 6

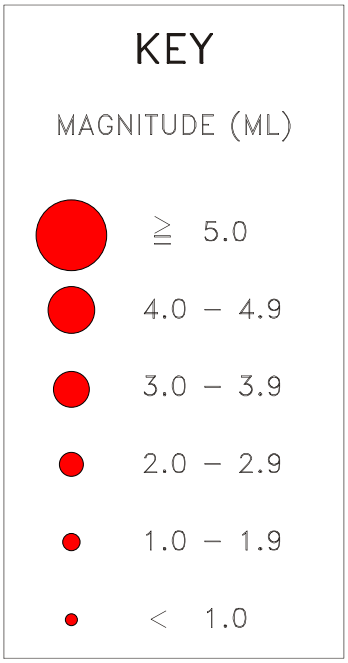
DEPTH/CRUSTAL VELOCITY MODELS

TABLE 6

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	

FIGURES 1 TO 5



KEY TO EPICENTRE MAPS, FIGURES 3 TO 5

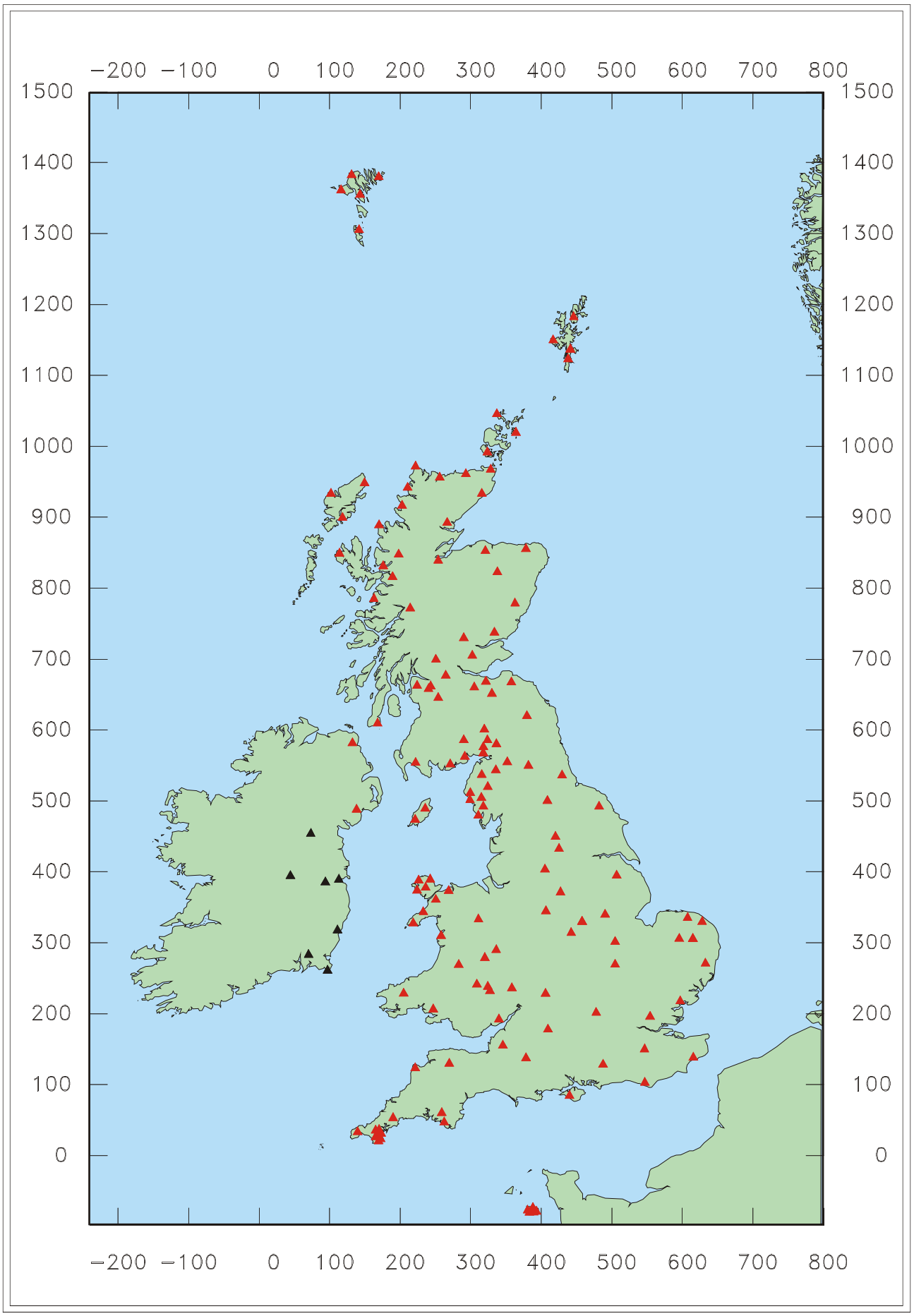


Figure 1. Seismograph network operational in December 2002. Colour coding shows the rapid access stations (red) and DIAS stations (black).

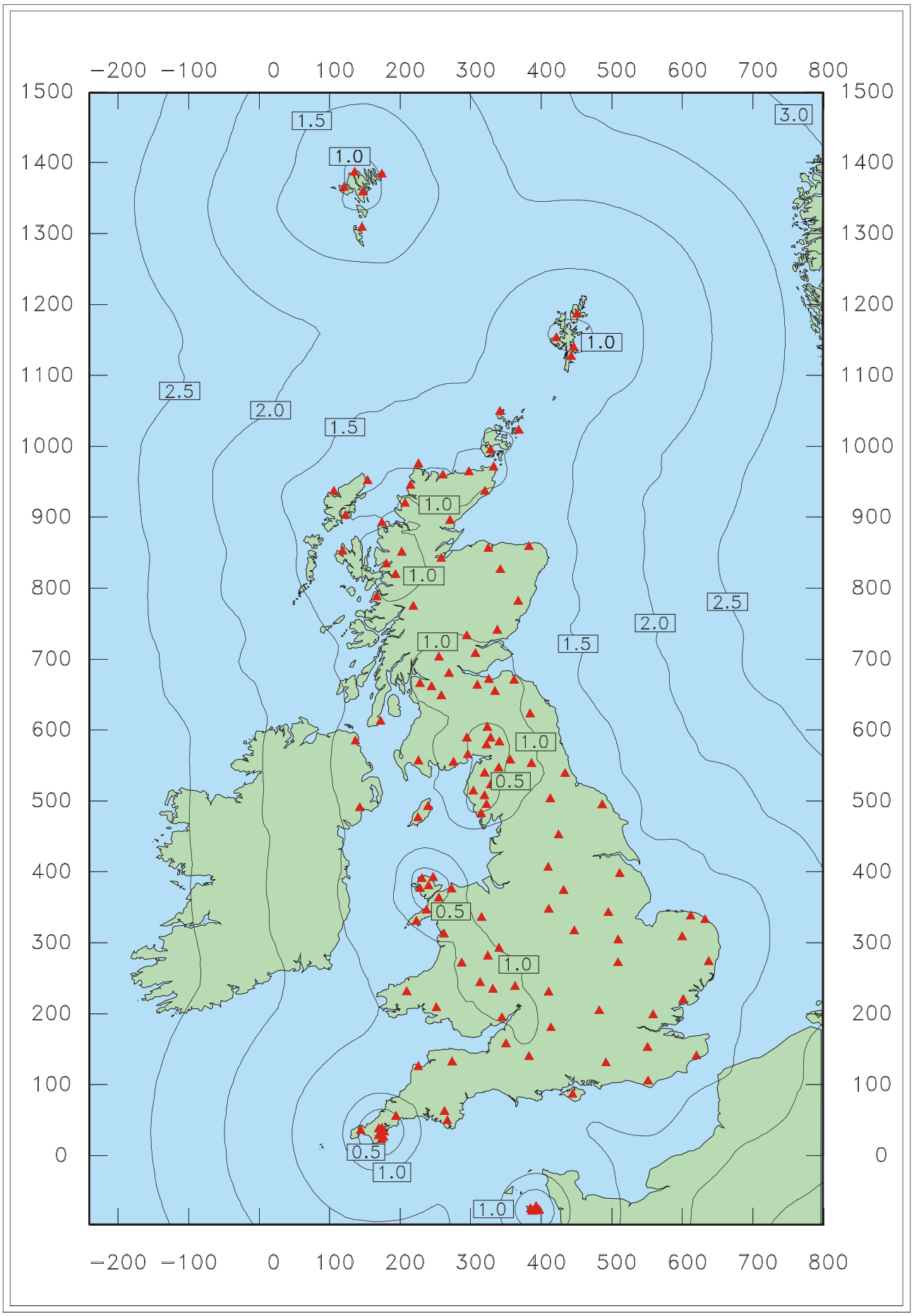


Figure 2. Earthquake detection capability in December 2002. Contour values are Richter local magnitude (ML) for 4 nanometres of noise (average) and S-wave amplitude twice that at the fourth nearest station.

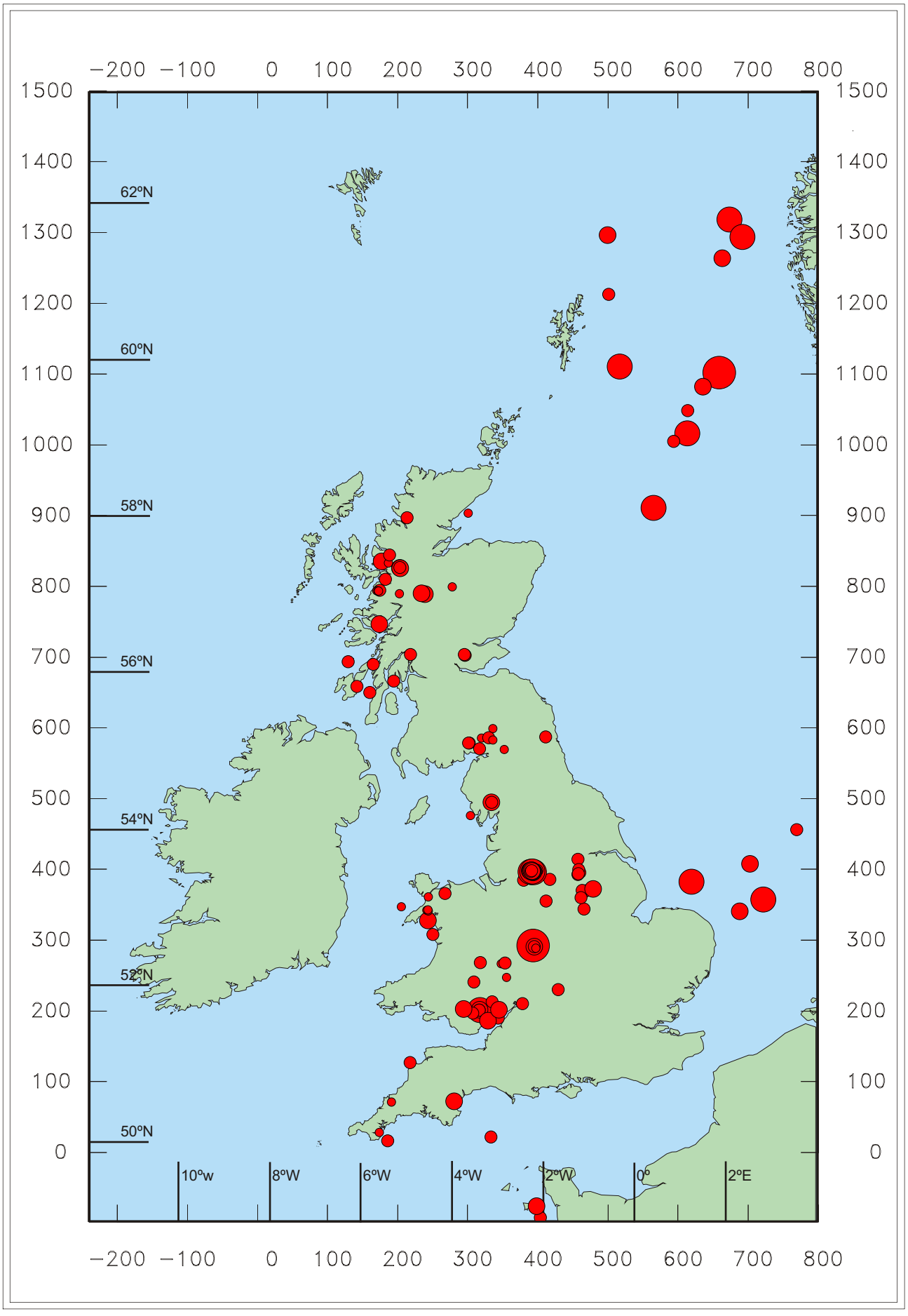


Figure 3. Epicentres of all UK earthquakes located in 2002.

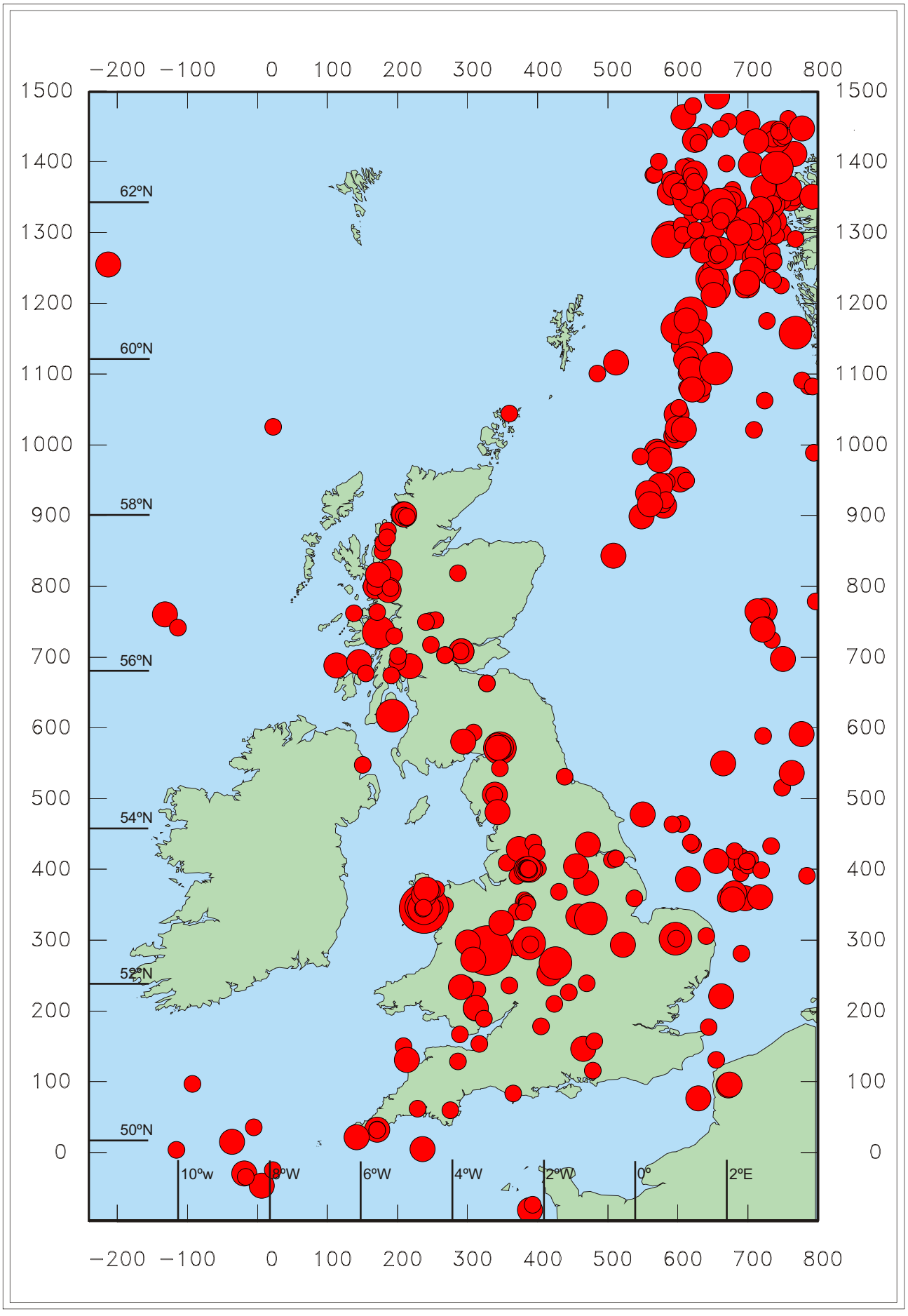


Figure 4. Epicentres of earthquakes with magnitudes 2.5 ML or greater, for the period 1979 to 2002.

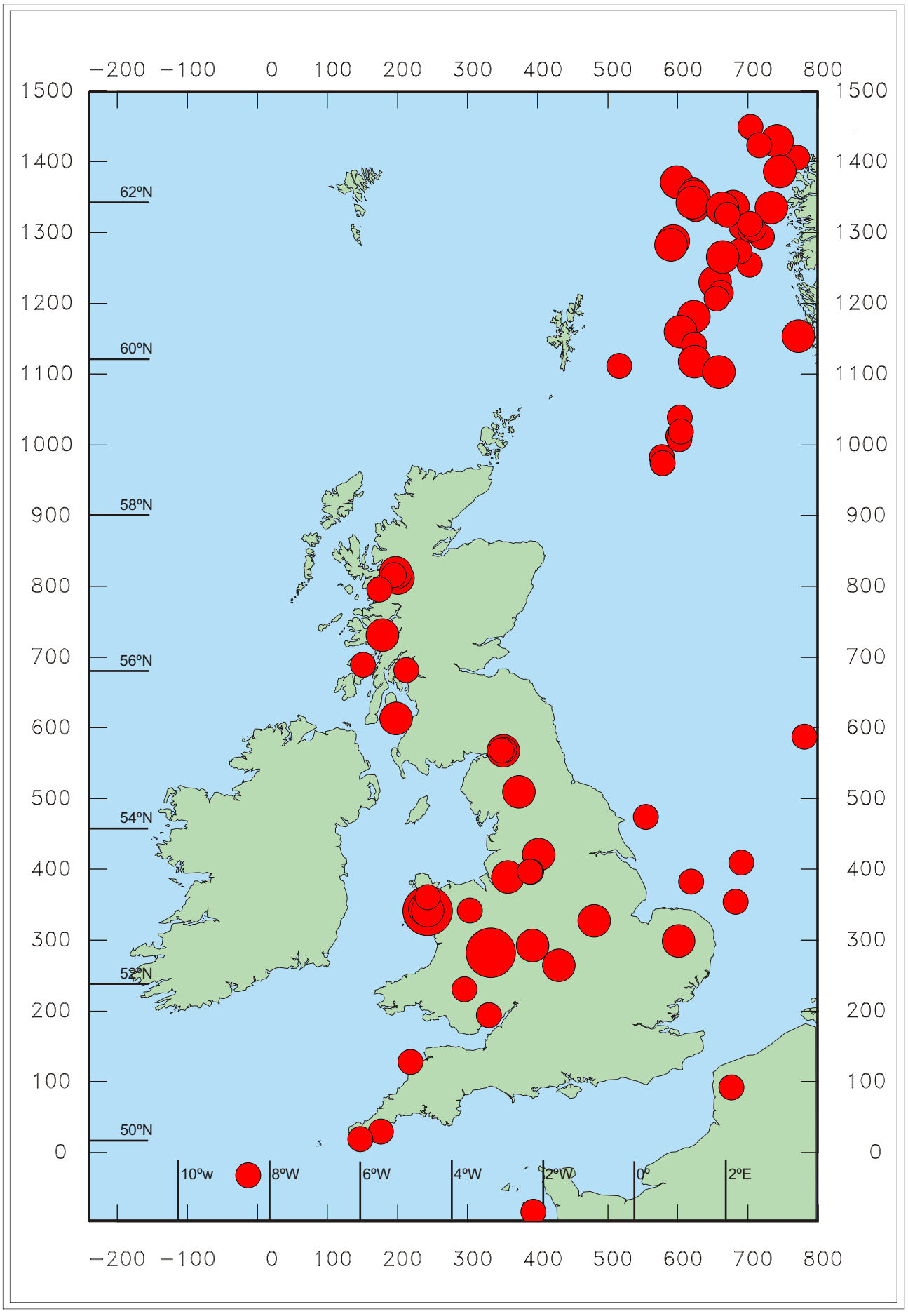


Figure 5. Epicentres of earthquakes with magnitudes 3.5 ML or greater, for the period 1970 to 2002.

APPENDIX A

SIGNIFICANT EARTHQUAKES IN 2002

APPENDIX A1

BARGOED EARTHQUAKE, 12 FEBRUARY 2002

PARAMETERS

Date:	**12 February 2002**
Origin Time:	**19:13 16.2 UTC**
Latitude and longitude:	**51.70^{o} N 3.26^{o} W**
Grid Reference:	**313.2 km E 201.0 km N**
Depth:	**5.2 km**
Magnitude:	**3.0 ML**
Hypo Solution Quality:	**B (A*C)**

Discussion

A magnitude 3.0 ML earthquake occurred on 12 February near Bargoed, Mid Glamorgan. BGS received reports from residents of Bargoed, Pontypridd, Bridgend, Penpedairheol and Blackwood. These described, "the house shook violently", "the furniture shook", "the windows vibrated" and "we ran into the street", indicating an intensity of 4 EMS. A further 5 events were detected in the Bargoed area throughout 2002 with magnitudes ranging from 1.4 – 2.5 ML. This is an area that has experienced many seismic events in the past. These events locate in the same area as events on 10 and 18 October 2001, with magnitudes of 3.1 & 2.5 ML, respectively, that were felt with intensities of 4 EMS. The focal mechanism obtained for the Bargoed earthquake shows normal/oblique normal faulting along either a north-south fault plane dipping sharply west or a NNW-SSE fault plane, dipping ENE.

Seismograms recorded by the BGS networks around Hereford and Cornwall are shown in Figure A1.1 and A1.2 and the focal mechanism is shown in Figure A1.3.

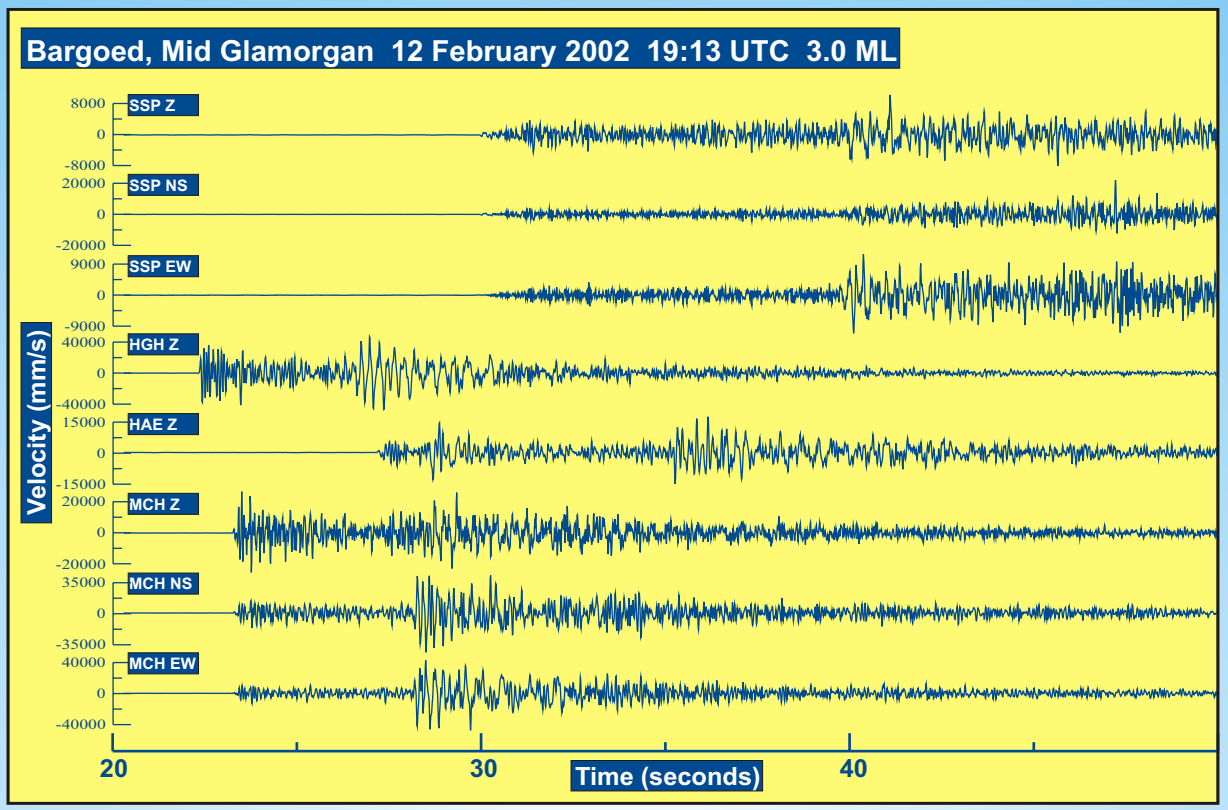


Figure A1.1. Seismograms of the Bargoed earthquake of 12 February 2002 19:13 UTC 3.0 ML recorded on the Hereford seismic network.

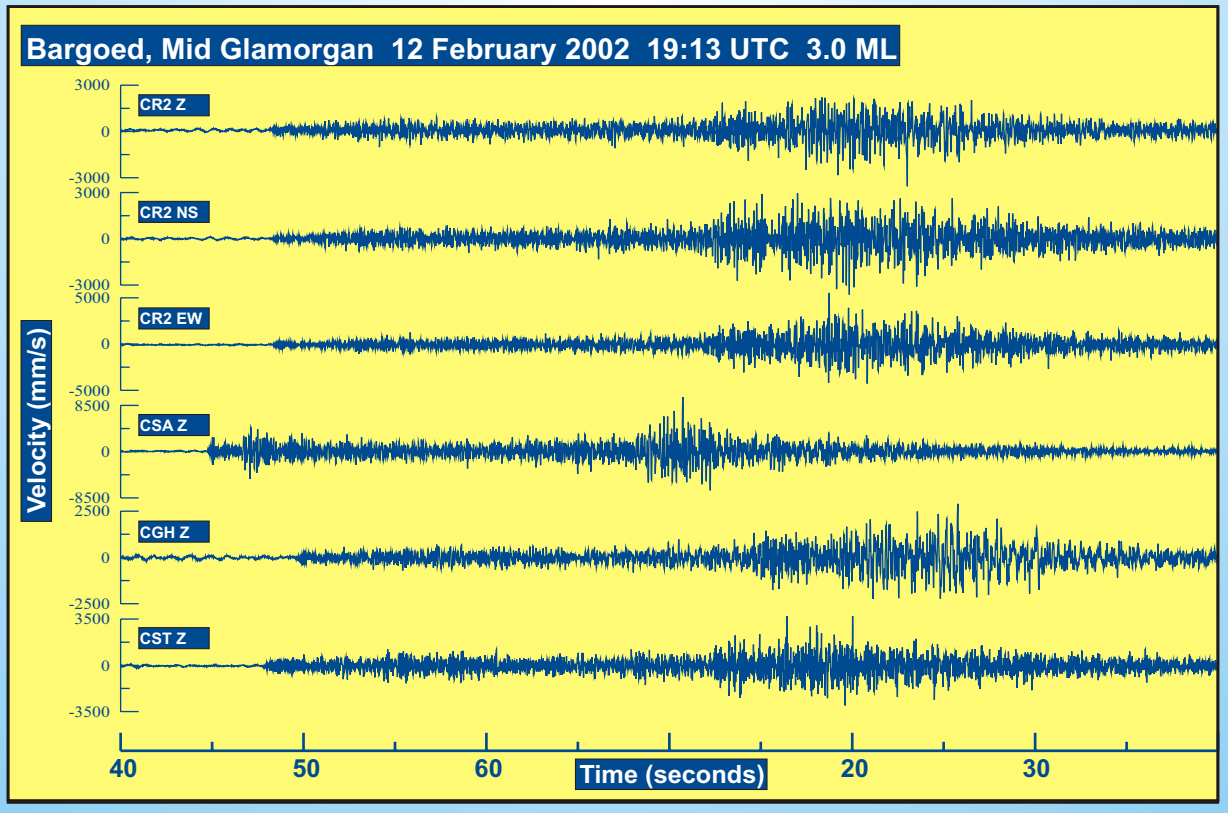
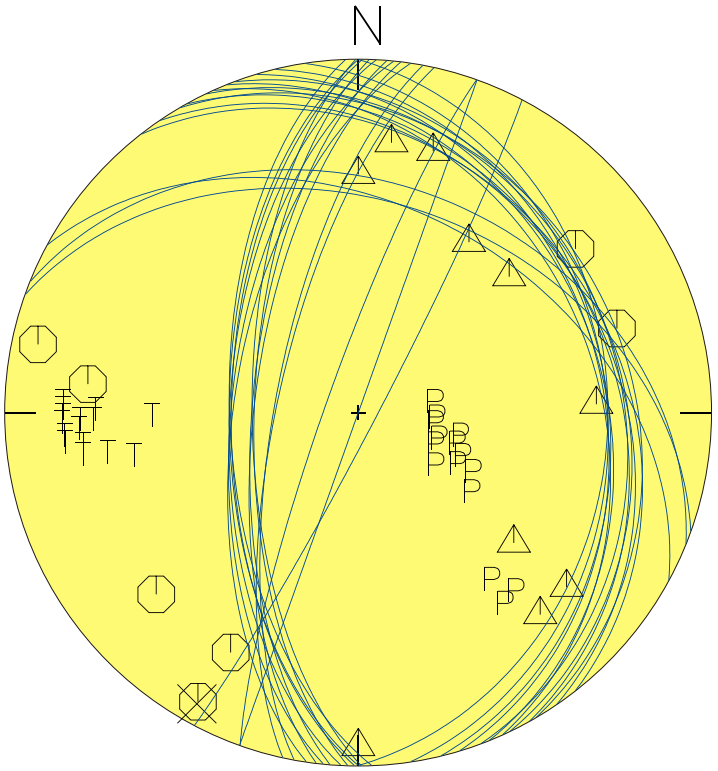


Figure A1.2. Seismograms of the Bargoed earthquake of 12 February 2002 19:13 UTC 3.0 ML recorded on the Cornwall seismic network.

FAULT PLANE SOLUTION : BARGOED EARTHQUAKE OF 12 FEBRUARY 2002



Compression

Dilatation

SV/P ratio

Emergent polarity (compression) +

Emergent polarity (dilatation) –

Emergent arrival e

Figure A1.3. Equal area projection of the upper lower hemisphere for the Bargoed earthquake 12 February 2002 19:13 UTC 3.0 ML. The axes of maximum and minimum compressive stress are denoted by P and T respectively.

APPENDIX A2

CARDIFF EARTHQUAKE, 20 JUNE 2002

PARAMETERS

Date:	**20 June 2002**
Origin Time:	**17:26 41.8 UTC**
Latitude and longitude:	**51.57^{o} N 3.08^{o} W**
Grid Reference:	**325.1 km E 186.0 km N**
Depth:	**14.3 km**
Magnitude:	**2.9 ML**
Hypo Solution Quality:	**B (A*B)**

Discussion

A magnitude 2.9 ML earthquake occurred on 20 June, near Cardiff, South Glamorgan. Felt reports were received from residents of Cardiff and Caerphilly where intensities reached 3 EMS. Felt reports described "the furniture moved" and "both the chairs moved for a few seconds". The focal mechanism obtained for this earthquake shows normal faulting along a northwest-southeast fault plane, dipping either northeast or southwest.

Seismograms recorded by the BGS networks around Hereford and Hartland are shown in Figure A2.1 and seismograms recorded on the BGS Swindon network are shown in Figure A2.2. The focal mechanism is shown in Figure A2.3.

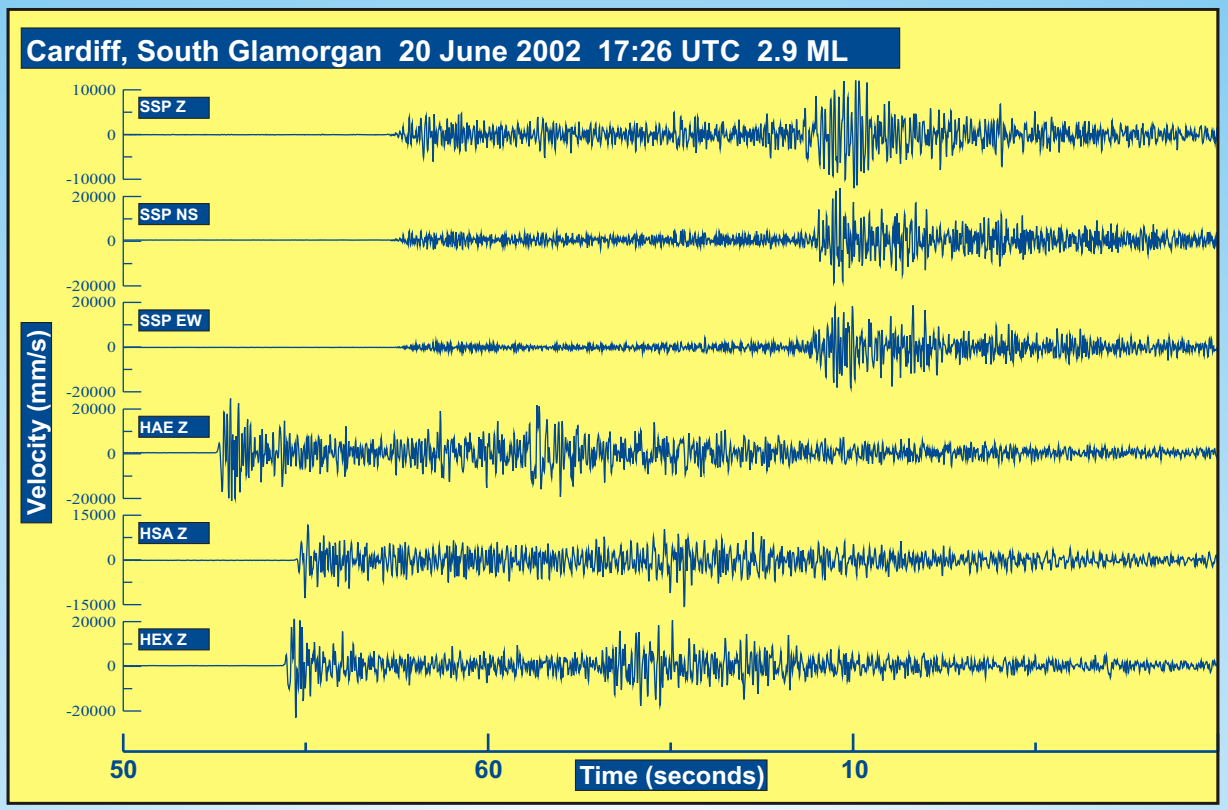


Figure A2.1. Seismograms of the Cardiff earthquake of 20 June 2002 17:26 UTC 2.9 ML recorded on the Hereford and Hartland seismic networks.

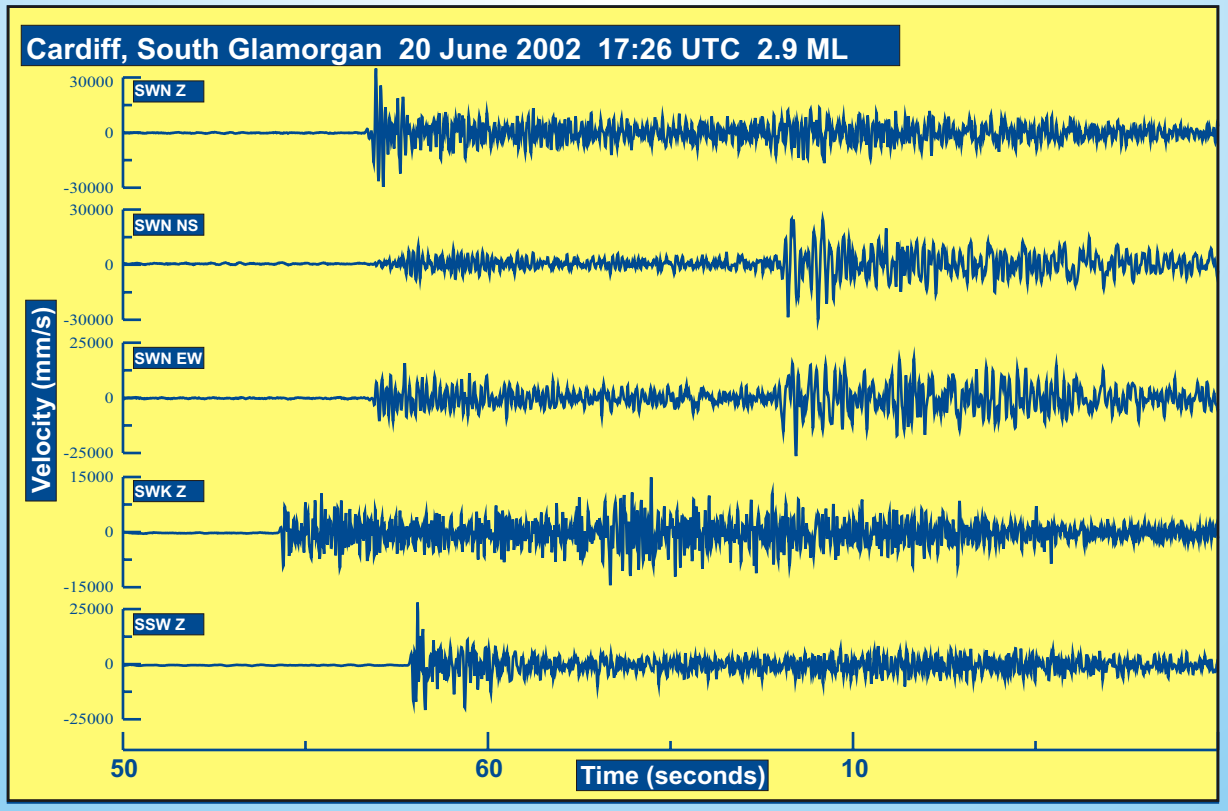
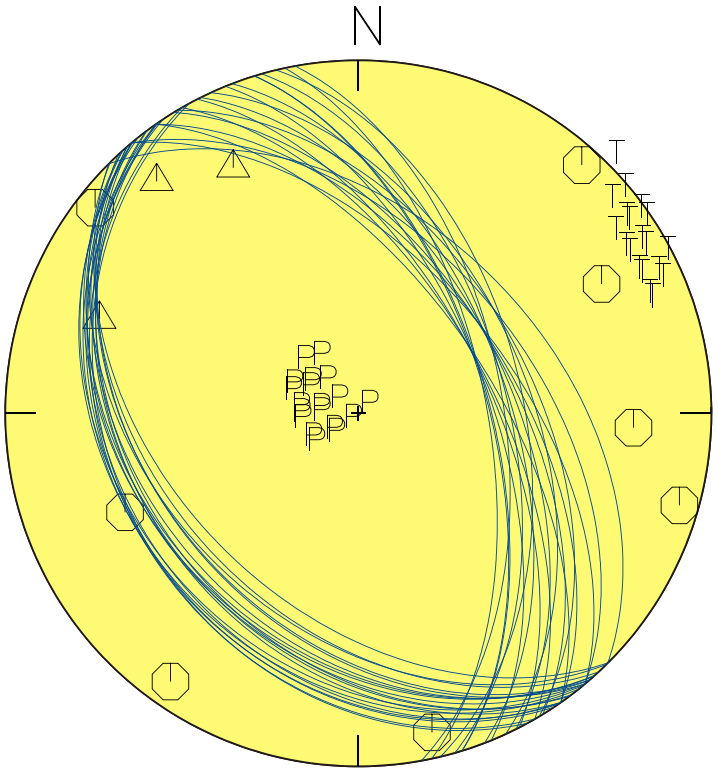


Figure A2.2. Seismograms of the Cardiff earthquake of 20 June 2002 17:26 UTC 2.9 ML recorded on the Swindon seismic network.

FAULT PLANE SOLUTION : CARDIFF EARTHQUAKE OF 20 JUNE 2002



Compression

Dilatation

SV/P ratio

Emergent polarity (compression) +

Emergent polarity (dilatation) –

Emergent arrival e

Figure A2.3. Equal area projection of the upper lower hemisphere for the Cardiff earthquake 20 June 2002 17:26 UTC 2.9 ML. The axes of maximum and minimum compressive stress are denoted by P and T respectively.

APPENDIX A3

DUDLEY EARTHQUAKE, 22 SEPTEMBER 2002

PARAMETERS

Date:	**22 September 2002**
Origin Time:	**23:53 14.8 UTC**
Latitude and longitude:	**52.53^{o} N 2.16^{o} W**
Grid Reference:	**389.3 km E 292.8 km N**
Depth:	**14.0 km**
Magnitude:	**4.7 ML**
Hypo Solution Quality:	**D (C*D)**

Discussion

The largest onshore earthquake occurred on 22 September some 3 km northwest of Dudley, at a depth of 14 km, with a magnitude of 4.7 ML. It was felt over an area of 126,000 km^2 (isoseismal 3) and BGS were inundated with reports about the earthquake. Many media interviews were given and a macroseismic survey questionnaire was published both online and in the Daily Telegraph newspaper. Approximately 6,300 electronic reports were completed with a further 1,900 from the Daily Telegraph. BGS received reports of electric power being cut off to many homes in districts of Birmingham and multi-storey flats were evacuated in the Egbaston district of Birmingham. The earthquake was felt from the west coast to the east coast, as far north as Lancashire, West Yorkshire and Humberside and to Dorset and Kent in the South. The highest observed intensity was 5 EMS, which was observed quite widely over an area around Dudley, Birmingham, Walsall and Wolverhampton and as far south as Kidderminster and Bromwich. In a number of cases, mirrors and clocks were thrown off walls, a bookcase fell over, large items of furniture shook violently and there was a high level of alarm amongst the local population. A few reports mentioned children being thrown out of their beds. A maximum acceleration of 0.015g was measured at the strong motion station at Keyworth, some 82 km from the earthquake. The focal mechanism for the Dudley earthquake shows strike-slip faulting along either near north-south or east-west fault planes. The average maximum compressive stress direction has an azimuth of 323°and dip of 5° and the minimum stress direction strikes at 233° and dips at 9°. Two aftershocks were recorded, with magnitudes of 2.7 and 1.2 ML on 23 and 24 September respectively. The larger of the two aftershocks was felt with an intensity of 3 EMS.

Seismograms recorded by the BGS networks around Hereford and Swindon are shown in Figure A3.1, seismograms recorded by the BGS networks around Keyworth are shown in Figure A3.2, the focal mechanism is shown in Figure A3.3 and an isoseismal map is shown in Figure A3.4.

APPENDIX A3 continued

The Dudley earthquake on 22 September 2002 at 23:53 (UTC) was widely felt throughout England and Wales and was the largest earthquake to occur onshore in the UK since the Bishop's Castle earthquake in 1990. The hypocenter was determined based on a total of 90 phase readings identified from the seismograms recorded on the stations of the BGS seismic network. The epicentre location was about 3 km northwest of Dudley, with a horizontal error of about 2 km. The source depth was determined at 14 (±2) km. The magnitude was derived from amplitude readings on strong motion stations in the distance range 80 to 230 km, while beyond this distance the values were measured on unclipped normal gain short-period stations. The average magnitude based on readings from 9 stations was 4.7 ML.

Earthquakes with the size of the Dudley event typically occur somewhere in the UK once in ten years. Comparable events with respect to magnitude have been the Carlisle earthquake in 1979, the Skipton earthquake in 1944, the North Wales earthquake in 1940, and the Caernarvon earthquake in 1903. Historically, the West Midlands area has been seismically quite active. The largest earthquake in the area in the last hundred years was the 15 August 1926, 4.8ML, event near Ludlow. During this event slight damage occurred, mostly to chimneys in the epicentral area. Another prominent earthquake in the area was the 14 January 1916, magnitude 4.6 ML, event near Stafford.

A study was carried out after the event to investigate the macroseismic effects. A total of about 8000 responses to the questionnaire published in the Daily Telegraph newspaper and on the BGS web-site were received. This information was analysed in detail to assign macroseismic intensity values to locations where the event was reported felt. Iso-contour lines were identified after plotting these data on a map. The highest intensity experienced was 5 EMS (European Macroseismic Scale), which was observed over an area around Dudley, Birmingham, Walsall and Wolverhampton, and as far south as Kidderminster and Bromwich. On a larger scale, the earthquake was felt throughout England and Wales, with the most distant reports coming from Carlisle and Durham in the north, and Camborne and Truro, Cornwall, in the south. There were also some reports from east coast towns in Southern Ireland. The total felt area was over 260,000 km^2.

The source mechanism of the event was determined with two different methods for a source depth of 14 km. BGS carried out a focal mechanism analysis based on first motion polarities observed on seismic stations, most of which were located in the UK. On the other hand, the Swiss Seismological Survey, performing moment tensor analysis on a regular basis for European earthquakes, determined the mechanism based on recordings from broadband stations in the UK and other European countries. The regional moment tensor analysis provides a source solution that explains the observed seismograms for long-period waves with minimal error. Both solutions were very similar and basically show a strike-slip mechanism with a small thrust component, with the nodal planes oriented in NNE-SSW and WNW-ESE directions.

The epicentre lies in a major zone of faulting associated with the Western Boundary Fault of the South Staffordshire Coalfield. It seems likely that movement on a fault, or faults, associated with

this major crustal fracture could have caused the earthquake. The surface trace of the Western Boundary Fault passes to the west of Dudley and to the east of Stourbridge along a southerly or south-easterly trend. The fault throws down Triassic rocks to the west against older (Upper Carboniferous rocks) of the South Staffordshire Coalfield to the east. The epicentre was estimated at a depth of 13 km and about 1 km to the west of the Western Boundary Fault. The horizontal error in epicentre determination is on the order of 5 km, which means that there are possibly several faults that may have been the source of the event. The majority of the larger faults trend NE-SW, which may indicate that the NNE-SSW nodal plane is likely the fault plane of the earthquake. The source mechanism indicates an eastward dipping fault plane, which is different from the westward dipping Western Boundary fault. This implies that movement may have occurred on a fault splay, rather than on the main structure mapped at surface. In addition, it is unknown how the faults continue at depth, which makes the interpretation even more ambiguous.

Two aftershocks were recorded, the first on 23 September at 03:32 (2.7 ML) about 3.5 hours after the mainshock and the second some 6 hours later at 09:29 (1.2 ML). Both these events were located within the error ellipse of the main shock. Recordings of the aftershocks were unsaturated, which allowed direct comparison of the waveform signals for both events on the same station. It appears that the signal for the first P arrival is nearly identical between the two aftershocks, indicating that the hypocenter locations of both events must be within tens of meters. An interesting observation for the first aftershock is that the first P arrival is after about 0.3 seconds followed by a larger signal that is identical to the first arriving phase. Considering that this phase is not seen for the second aftershock, it is possible that the first onset seen for the first aftershock is the initiation of the rupture, which was then followed by the significantly larger event. Direct comparison between mainshock and the first aftershock was only possible for a few stations at relatively large distances. These observations indicate a high degree of similarity between the mainshock and the first aftershock. It is thus likely that the 3 earthquakes originate from the same source.

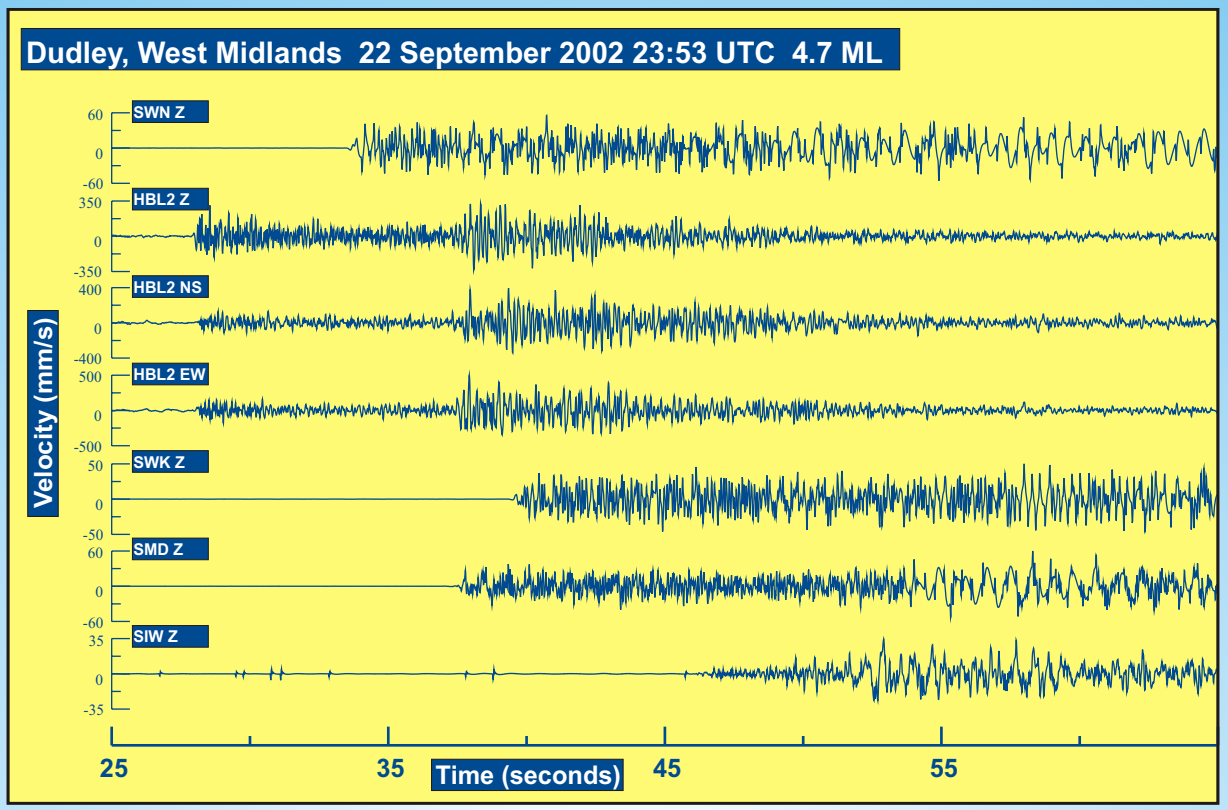


Figure A3.1. Seismograms of the Dudley earthquake of 22 September 2002 23:53 UTC 4.7 ML recorded on the Hereford and Swindon seismic networks.

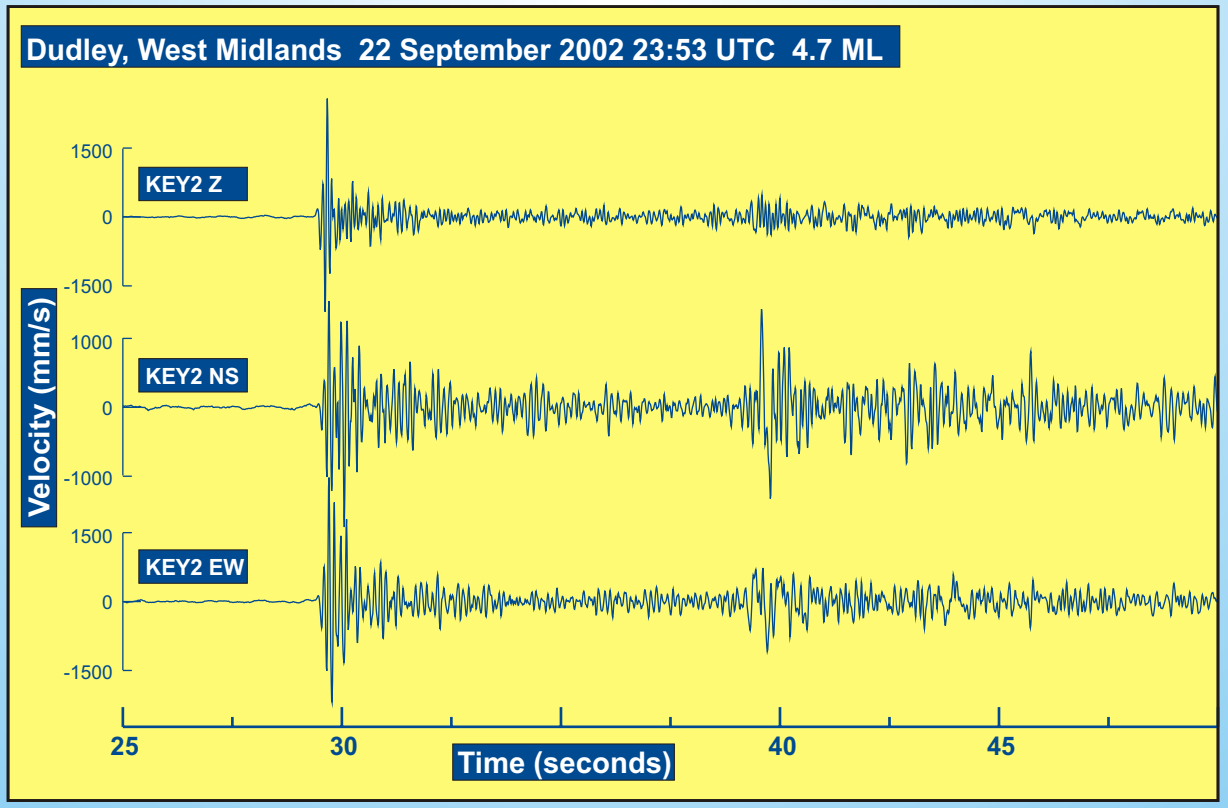
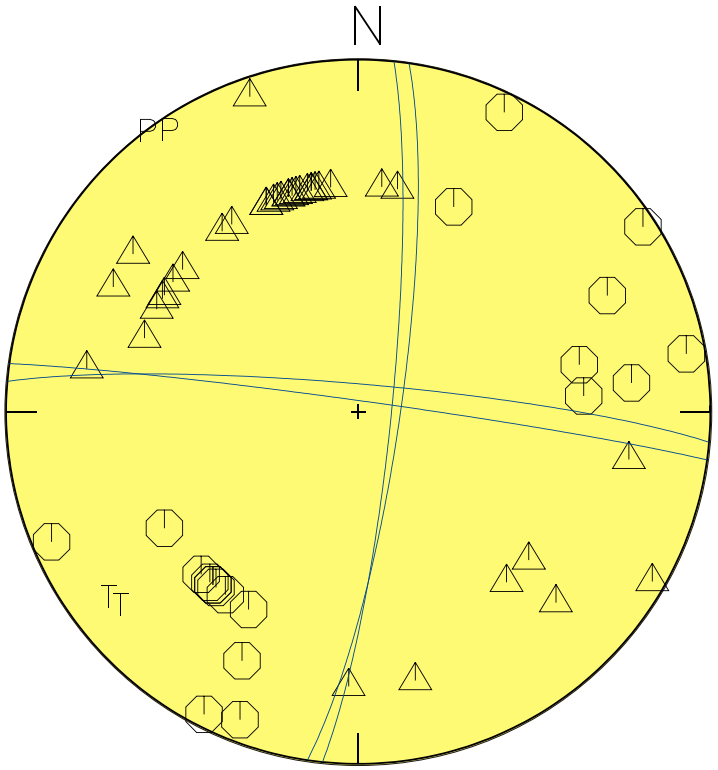


Figure A3.2. Seismograms of the Dudley earthquake of 22 September 2002 23:53 UTC 4.7 ML recorded on the Keyworth seismic network.

FAULT PLANE SOLUTION : DUDLEY EARTHQUAKE OF 22 SEPTEMBER 2002



Compression	⬭
Dilatation	△
SV/P ratio	╳
Emergent polarity (compression)	+
Emergent polarity (dilatation)	–
Emergent arrival	e

Figure A3.3. Equal area projection of the upper lower hemisphere for the Dudley earthquake 22 September 2002 23:53 UTC 4.7 ML. The axes of maximum and minimum compressive stress are denoted by P and T respectively.

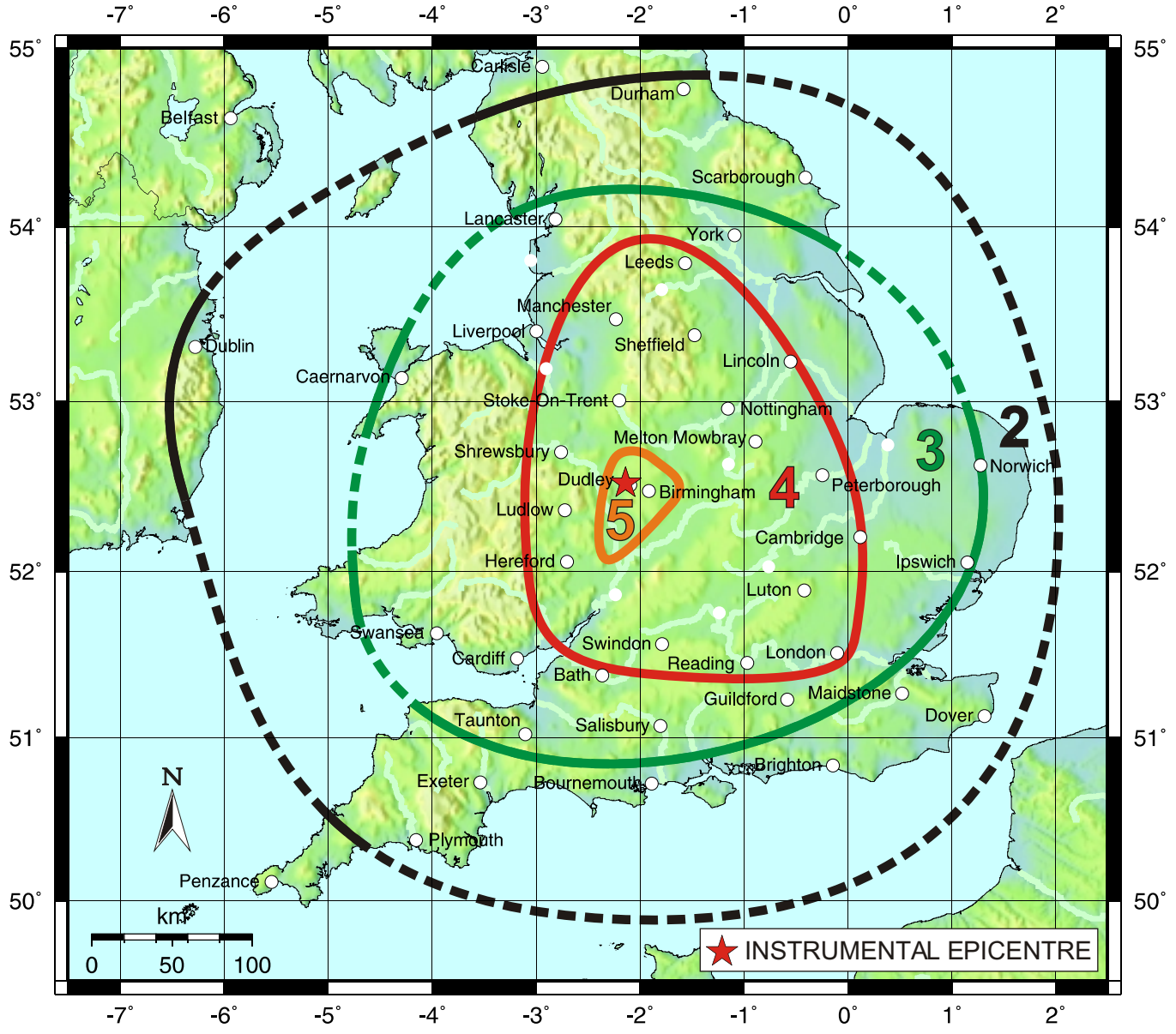


Figure A3.4. Dudley Earthquake 22 September 2002, 23:53 UTC (4.7 ML) - EMS Intensities

APPENDIX A4

THE MANCHESTER EARTHQUAKE SWARM

An earthquake sequence started in the Greater Manchester area of the United Kingdom on October 19, 2002. This continued until January 2003 and consisted of more than 225 discrete earthquakes, 117 of which have been located by BGS to date. Due to the urban location, these were experienced by a large number of people. The largest event on October 21 had a magnitude ML 3.9. The clustering of these events in time and space does suggest that there is a causal relationship between the events of the sequence. Other examples of swarm activity in the UK include Comrie (1788-1801, 1839-46), Glenalmond (1970-72), Doune (1997) and Blackford (1997-98, 2000-01) in central Scotland, Constantine (1981, 1986, 1992-4) in Cornwall, and Johnstonbridge (mid1980s) and Dumfries (1991,1999).

The number of events increased fastest in the period 21 October to 24 October, with the peak number of events occurring on 24 October. After this the activity slowed down significantly. Most of the energy during the sequence was actually released in two earthquakes separated by a few seconds in time, on 21 October at 11:42. A *b*-value of 1.01 has been determined using least-squares regression on the frequency-magnitude data shown in Figure 1. This value may be rather low in comparison to other examples of earthquake swarms around the world. However, the result may be biased by the limited detection threshold for small events, particularly before the installation of the temporary seismograph stations closer to the epicentral area. The *b*-value obtained by Musson (1994) for the entire UK earthquake catalogue is 1.03. B-values have not been determined for other UK earthquake swarms.

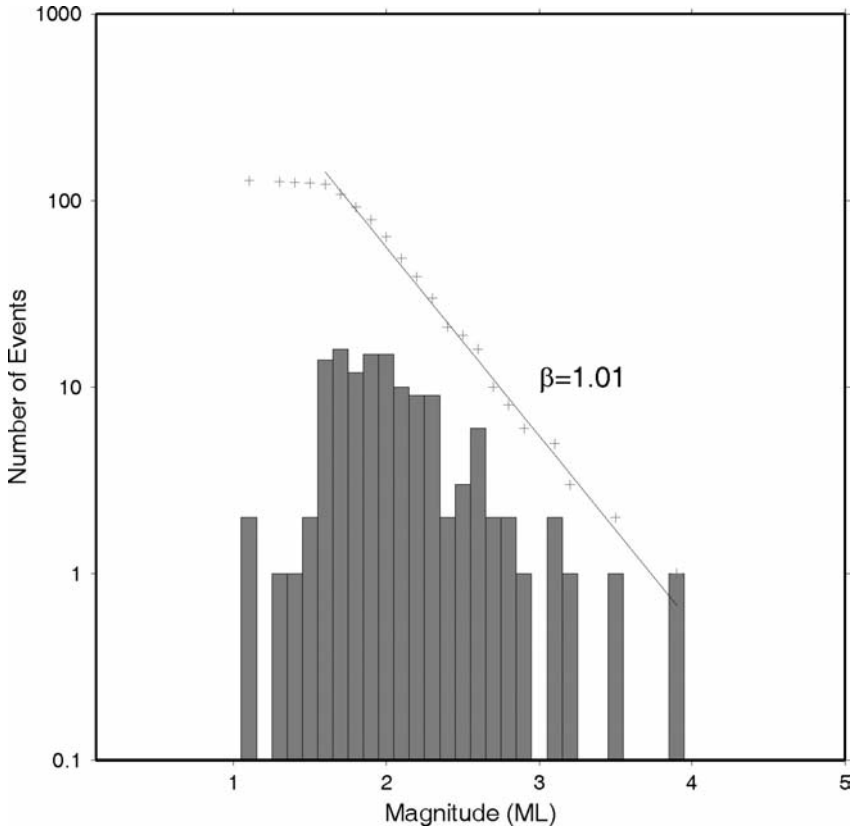


Figure 1

To improve the hypocentral resolution, three temporary recording stations were deployed in the Greater Manchester area within 15 km of the epicentres. P-wave arrivals were picked on vertical component seismometers and S-wave arrivals on three-component seismometers where possible. Weighted arrival time data were input to the HYPOCENTER location algorithm (Lienert et al., 1988) to determine earthquake hypocenters. In the absence of any definitive crustal velocity model for this area, from refraction or other sources, we used a 1-D velocity model determined from the LISP-B refraction experiment (Bamford et al., 1978) over Northern Britain. Strictly speaking, this is only valid for the Midland valley region of Scotland, however, the model has been widely used to locate earthquakes throughout England and has given reasonable results. Hypocenters are within a source volume of a few kilometres and depths are very shallow at around 2-3 km. However, uncertainties in the epicentre and earthquake depth are of the order of a few kilometres, which makes it difficult to relate the earthquakes to specific faults. Figure 2 shows seismograms of the vertical component of ground velocity, recorded at the Manchester University station for eight events that occurred between 24 and 25 October, with a magnitude range between 1.9 and 2.6 ML. The differences between events, even in this small group, suggest that the earthquakes are probably distributed throughout a larger source volume and may result from displacements along a number of small faults within that volume.

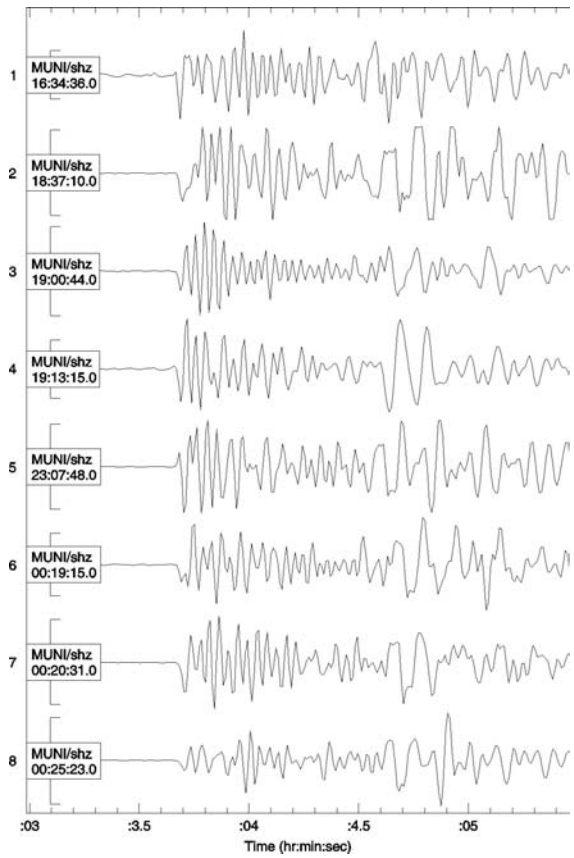


Figure 2

Joint Hypocenter Determination has been used successfully in a number of cases, for example Pujol, (2000) to improve the relative locations of earthquakes and to account for lateral variations neglected in the 1-D velocity model. The computer program VELEST (Kissling et al., 1994) was used to apply the JHD technique to the Manchester earthquakes and to better understand the relationship with the local geology. Figure 3 shows single event locations (red)

determined using HYPOCENTER and those determined using JHD (blue). The use of JHD results in some increased clustering of events in the epicentral area. However, the resolution of the data is probably still insufficient to precisely image geological features.

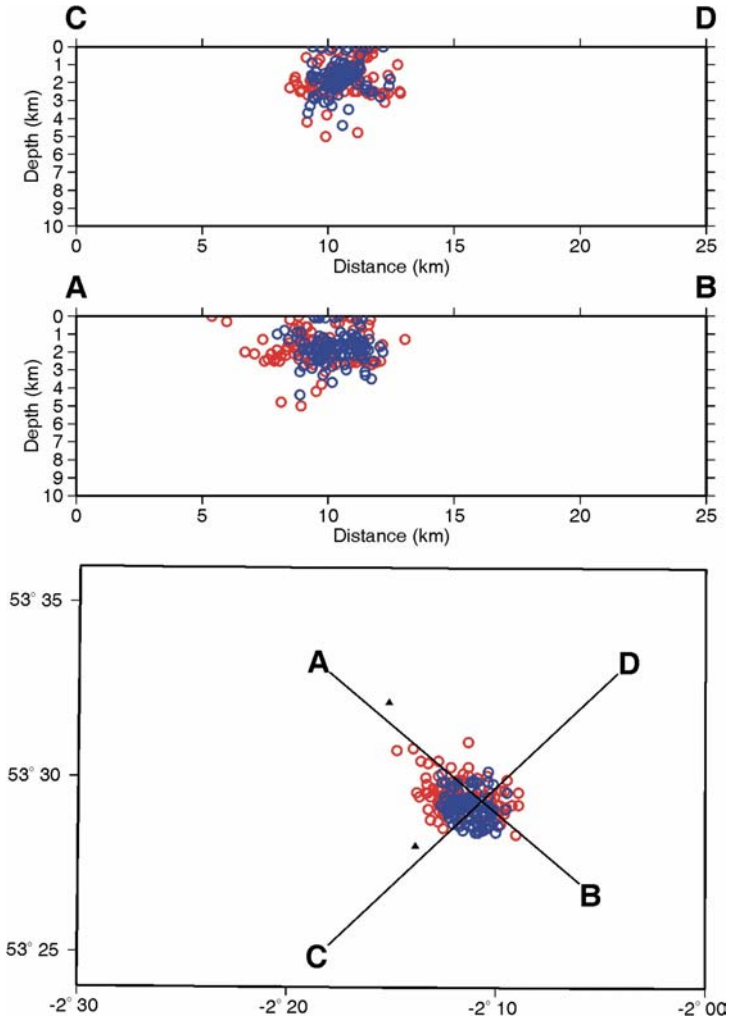


Figure 3

Geologically, the Manchester and Salford area straddles the southern part of the Carboniferous South Lancashire Coalfield and the northern part of the Permo-Triassic Cheshire Basin. The coalfield has been extensively worked from numerous collieries in the north Manchester city area. Coal mining ceased in this part of the coalfield in the late 1970's and Focal depths are significantly deeper than the deepest mine workings, therefore mine collapse can be ruled out as a cause for these events. However, the possibility that the earthquakes are a result of stress adjustments caused by the workings cannot be ruled out at this stage. The main faults in the epicentral area strike roughly northwest-southeast and dip gently to the northeast. The Manchester swarm may result from movement on one or more of these faults, however, the nature of the faulting at greater depths is unclear, and therefore, it is difficult to associate the earthquakes with specific faults in this case. Figure 4 shows the focal mechanisms obtained for eight of the largest of the Manchester earthquakes. Most of the mechanisms show strike-slip solutions, however, the strike and dip of these faults does not provide a good match to the faulting observed at the surface.

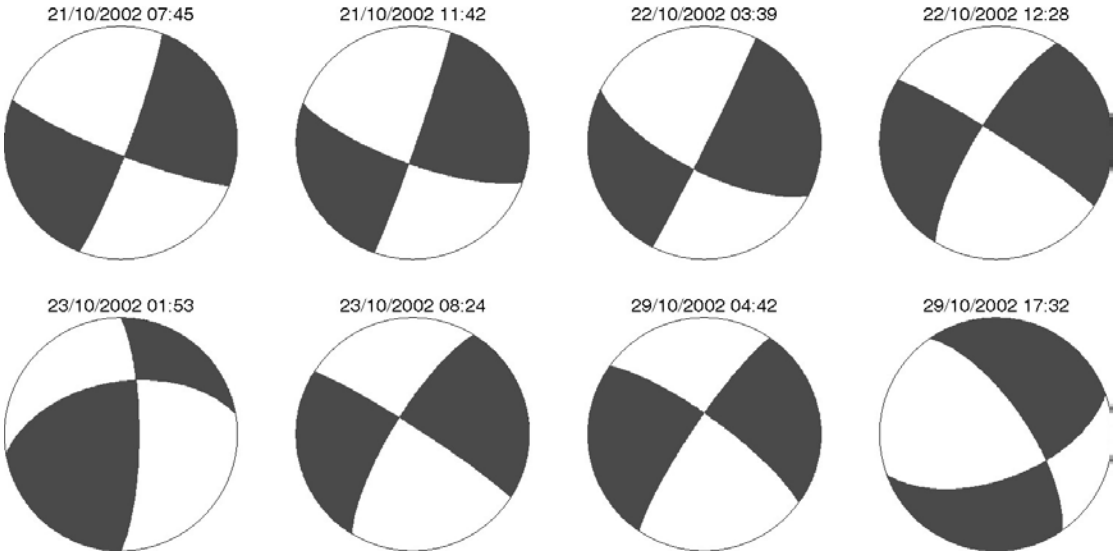

21/10/2002 07:45
21/10/2002 11:42
22/10/2002 03:39
22/10/2002 12:28
23/10/2002 01:53
23/10/2002 08:24
29/10/2002 04:42
29/10/2002 17:32

Figure 4

APPENDIX B

EARTHQUAKE INFORMATION CHARGES

APPENDIX B

SUMMARY OF CHARGES FOR DATABASE ENQUIRIES	COST (£)
A search of the instrumental database producing a catalogue list, a map of the seismicity, a key to the abbreviations and a covering letter.	**£150.00 + VAT**
A search of the historical database producing a catalogue list, a map of the seismicity, a key to the abbreviations and a covering letter.	**£150.00 + VAT**
A combined search of both the historical and instrumental database providing the above for both the historical and instrumental seismicity.	**£275.00 + VAT**
An enquiry involving searching data tapes for specific events. £80.00 for first hour and £40.00 for each additional ½ hour. Note: charges can be waived for the public, media and schools.	**£80.00 + VAT**
A search and interpretation of raw macroseismic data (felt reports) for a specific region for an individual earthquake.	**£120.00 + VAT**

For more information on the above and other services available please contact Mr Glenn D Ford, (g.ford@bgs.ac.uk) or Mr Bennett Simpson, (b.simpson@bgs.ac.uk) at the Global Seismology and Geomagnetism Group, Murchison House, West Mains Road, Edinburgh, EH9 3LA.

BULLETIN OF BRITISH EARTHQUAKES: PRICE LIST

Burton, P.W. and Neilson, G., 1980. **Annual catalogues of British earthquakes recorded on LOWNET (1967-1978). Inst.Geol.Sci. Seismological Bulletin No.7.**	**£3 + pp**
Turbitt, T., et al., 1984. **Catalogue of British earthquakes recorded by the BGS seismograph network 1979, 1980, 1981.** BGS Global Seismology Report No. 210.	**£11 + pp**
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Turbitt, T., et al., 1992. **Bulletin of British Earthquakes 1991.** BGS Global Seismology Report No. WL/92/29.	**£12.50 + pp**
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Musson, R.M.W., 1994. **A Catalogue of British earthquakes**. BGS Global Seismology Report No. WL/94/04.	**£15.00 + pp**
Walker, A.B., et al., 1994. **Bulletin of British Earthquakes 1993.** BGS Global Seismology Report No. WL/94/09.	**£12.50 + pp**
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Simpson, B A, et al., 2001. **Bulletin of British Earthquakes 2000.** BGS Global Seismology Report No. IR/01/281.	**£12.50 + pp**
Simpson, B A, et al., 2001. **Bulletin of British Earthquakes 2001.** BGS Global Seismology Report No. IR/02/26.	**£12.50 + pp**

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APPENDIX C

EUROPEAN MACROSEISMIC SCALE (EMS 98)

APPENDIX C

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.

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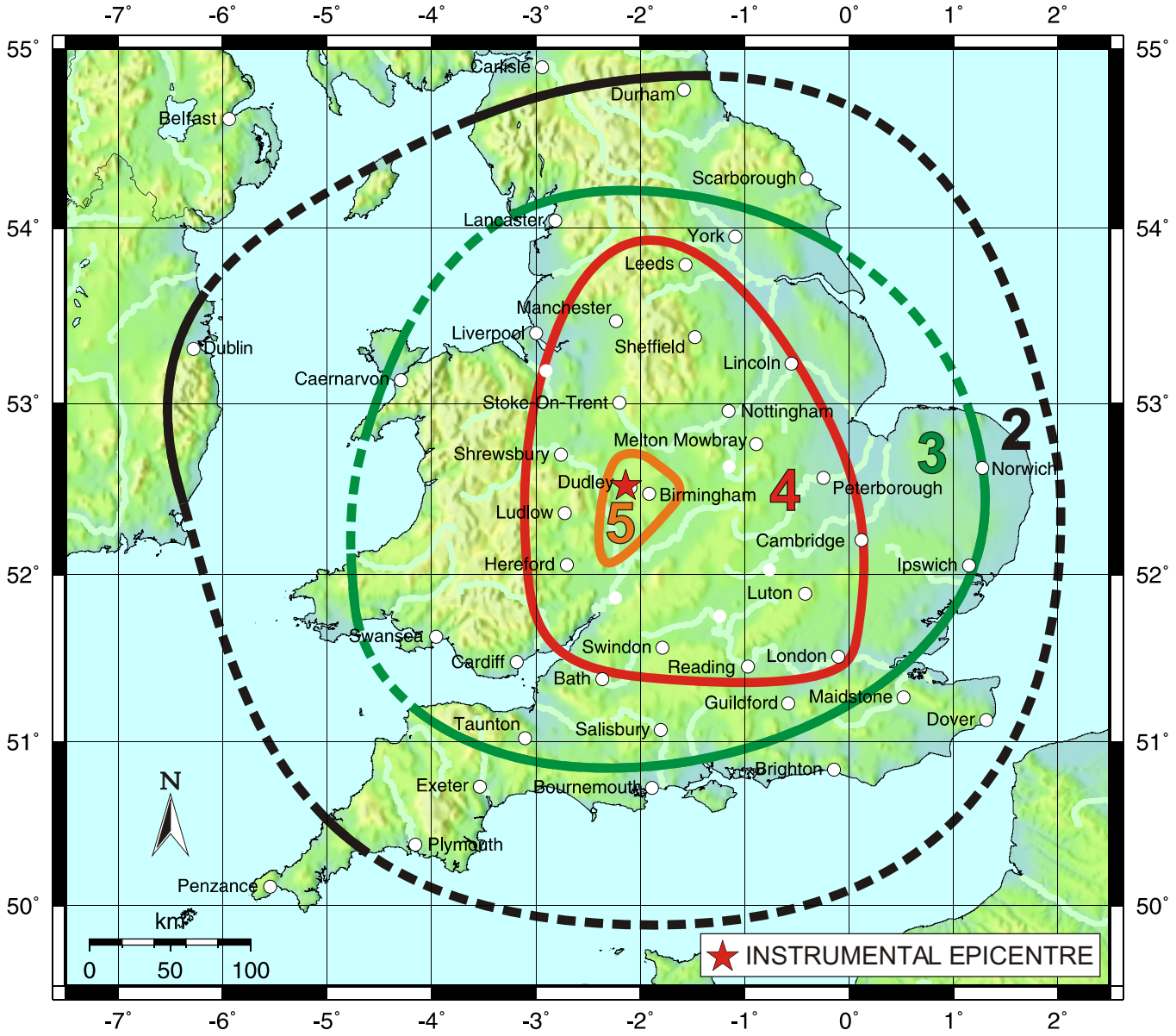
A complete description of the EMS-98 scale is given in: Grunthal, G., (Ed) 1998. European Macroseismic scale 1998. Cahiers du Centre European de Geodynamique et de Seismologie. Vol 15.

NATURAL ENVIRONMENT RESEARCH COUNCIL



Dudley Earthquake 22 September 2002, 23:53 UTC (4.7 ML) - EMS Intensities