

## MONTHLY BULLETIN of REGIONAL and TELESEISMIC EVENTS RECORDED with GRF- and GRSN-STATIONS in GERMANY

(produced by SZGRF/BGR - HANNOVER)

July 2009           UPDATED 01.DECEMBER.2009

Please note that local events recorded in Germany are part of the "LOCAL BULLETIN".

(Format description at the end of the bulletin)

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/06/30	23:52:49.2	19.770S	179.160W	600.0G				SZGRF

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PKPbc	Z 00:11:16.0	143.9	20.2					
BSEG	e PKPbc	Z 00:11:19.5	145.1	15.7					
HLG	e PKPbc	Z 00:11:20.0	145.2	11.7					
RUE	e PKPbc	Z 00:11:21.5	145.8	22.0					
IBBN	e PKPbc	Z 00:11:24.8	147.0	12.0					
	e PKPab	Z 00:11:28.1							
CLL	e PKPbc	Z 00:11:25.1	147.0	21.4					
	e PKPab	Z 00:11:28.2							
CLZ	e PKPbc	Z 00:11:25.4	147.1	16.7					
	e PKPab	Z 00:11:28.6							
BRG	e PKPdf	Z 00:11:22.4	147.2	23.2					
	e PKPbc	Z 00:11:25.7							
	e PKPab	Z 00:11:29.3							
FBE	e PKPbc	Z 00:11:26.3	147.3	22.2					
NEUB	e PKPbc	Z 00:11:26.1	147.4	19.4					
	e PKPab	Z 00:11:29.3							
BUG	e PKPbc	Z 00:11:27.1	147.9	11.4					
MOX	e PKPbc	Z 00:11:27.6	148.0	19.4					
	e PKPab	Z 00:11:32.1							
PLN	e PKPbc	Z 00:11:27.8	148.0	20.4					
	e PKPab	Z 00:11:32.3							
WERD	e PKPbc	Z 00:11:27.8	148.0	20.7					
GUNZ	e PKPdf	Z 00:11:24.1	148.1	20.8					
	e PKPbc	Z 00:11:28.1							
	e PKPab	Z 00:11:32.9							
UBBA	e PKPbc	Z 00:11:27.7	148.1	16.5					

WERN	e PKPbc	Z	00:11:28.2	148.1	20.9
	e PKPab	Z	00:11:33.2		
MANZ	e PKPbc	Z	00:11:29.1	148.5	20.6
ROTZ	e PKPbc	Z	00:11:29.6	148.7	20.9
GRA1	e PKPbc	Z	00:11:30.2	149.0	19.2
	e PKPab	Z	00:11:36.5		
TNS	e PKPbc	Z	00:11:30.2	149.0	14.0
WET	e PKPdf	Z	00:11:25.5	149.1	22.5
	e PKPbc	Z	00:11:30.3		
	e PKPab	Z	00:11:37.1		
GEC2	e PKPbc	Z	00:11:30.4	149.1	24.1
WLF	e PKPdf	Z	00:11:27.4	149.8	10.0
	e PKPbc	Z	00:11:32.7		
STU	e PKPbc	Z	00:11:33.1	150.2	16.0
	e PKPab	Z	00:11:41.3		
FUR	e PKPbc	Z	00:11:33.3	150.4	20.2
	e PKPab	Z	00:11:42.7		
RJOB	e PKPbc	Z	00:11:33.1	150.4	23.2
	e PKPab	Z	00:11:43.1		
BFO	e PKPbc	Z	00:11:34.2	150.8	14.6

Date 2009/07/01  
 Origin Time 00:29:31.1  
 Lat 39.140N  
 Long 72.330E  
 Depth 33.0G  
 mb 4.8  
 Ms 4.9  
 ML  
 Source SZGRF  
 Kyrgyzstan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 00:37:16.8	41.7	82.8	1.3	18	4.6		
RGN	e P	Z 00:37:19.0	41.8	86.5	1.0	62	5.3		
GEC2	e P	Z 00:37:21.0	42.2	80.5	0.9	10	4.5		
CLL	e P	Z 00:37:20.1	42.3	82.7					
WET	e P	Z 00:37:24.4	42.7	80.3	0.7	12	4.7		
WERN	e P	Z 00:37:25.4	42.8	81.1	2.0	30	4.7		
GUNZ	e P	Z 00:37:25.6	42.8	81.2	1.6	19	4.6		
WERD	e P	Z 00:37:25.7	42.8	81.3	2.0	26	4.6		
PLN	e P	Z 00:37:25.7	42.9	81.2	1.2	42	5.1		
RJOB	e P	Z 00:37:26.8	43.0	78.7	1.1	8	4.3		
ROTZ	e P	Z 00:37:26.3	43.0	80.5	1.7	26	4.7		
MOX	e P	Z 00:37:28.9	43.2	81.0	1.8	32	4.8		
	e L	Z 00:56:54.6			18.9	1611		4.9	
BSEG	e P	Z 00:37:31.3	43.6	83.6	0.9	27	5.0		
GRA1	e P	Z 00:37:32.1	43.6	79.8	1.1	23	4.8		
	e L	Z 00:56:57.8			21.0	1447		4.9	
CLZ	e P	Z 00:37:33.0	43.8	81.4	1.7	27	4.7		
FUR	e P	Z 00:37:34.9	43.9	78.2	1.0	34	5.0		
UBBA	e P	Z 00:37:37.3	44.2	80.1	1.9	21	4.6		
STU	e P	Z 00:37:44.6	45.1	77.6	1.4	20	4.9		
TNS	e P	Z 00:37:45.9	45.3	78.5	2.0	33	4.9		

IBBN	e P	Z	00:37:45.4	45.3	80.1	1.0	15	4.9
BFO	e P	Z	00:37:49.6	45.8	76.6	1.3	12	4.8
BUG	e P	Z	00:37:48.7	45.8	78.9	2.0	54	5.2
WLF	e P	Z	00:37:58.0	46.8	76.5	1.2	22	5.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/01	09:30: 6.7	33.879N	26.178E	33.0G	6.1	6.2		SZGRF

Eastern Mediterranean Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e P	Z	09:34:02.3	17.1	139.2	1.1	906	5.8		
GEC2	e P	Z	09:34:07.6	17.6	143.6	1.0	1191	6.0		
FUR	e P	Z	09:34:14.9	18.1	136.6	1.5	3583	6.3		
WET	e P	Z	09:34:14.4	18.2	142.2	1.3	2112	6.1		
ROTZ	e P	Z	09:34:23.1	18.9	141.8	1.3	663	5.7		
MANZ	e P	Z	09:34:25.5	19.1	142.0	1.2	641	5.7		
BRG	e P	Z	09:34:26.0	19.2	147.6	1.6	826	5.7		
GRA1	e P	Z	09:34:27.8	19.3	139.5	1.4	2183	6.2		
	e L	Z	09:43:32.5			18.0	108020		6.2	
WERN	e P	Z	09:34:27.6	19.3	143.1	1.4	553	5.6		
GUNZ	e P	Z	09:34:28.4	19.4	143.2	1.5	1216	5.9		
WERD	e P	Z	09:34:29.7	19.4	143.2	1.3	949	5.9		
FBE	e P	Z	09:34:29.9	19.4	146.4	1.2	1241	6.0		
PLN	e P	Z	09:34:31.5	19.5	143.0	1.6	6784	6.6		
STU	e P	Z	09:34:30.4	19.5	133.5	1.2	791	5.8		
BFO	e P	Z	09:34:31.2	19.6	130.8	1.4	1123	5.9		
MOX	e P	Z	09:34:34.6	19.9	142.1	1.3	937	5.9		
	e L	Z	09:43:41.4			19.4	148984		6.3	
CLL	e P	Z	09:34:34.6	19.9	146.2	1.5	1131	5.9		
NEUB	e P	Z	09:34:39.3	20.2	143.3	1.3	1946	6.2		
RUE	e P	Z	09:34:43.2	20.6	149.6	1.0	914	6.1		
UBBA	e P	Z	09:34:42.8	20.6	139.0	1.5	1151	6.0		
TNS	e P	Z	09:34:45.6	20.9	134.8	1.7	2857	6.3		
CLZ	e P	Z	09:34:49.9	21.3	141.4	1.6	2086	6.2		
WLF	e P	Z	09:34:53.3	21.6	129.4	1.2	1577	6.3		
NRDL	e P	Z	09:34:56.3	21.9	141.9	1.6	1674	6.2		
BUG	e P	Z	09:35:00.5	22.3	134.7					
RGN	e P	Z	09:35:02.4	22.5	151.2	1.6	1812	6.4		
IBBN	e P	Z	09:35:04.8	22.7	137.1	1.3	1197	6.3		
BSEG	e P	Z	09:35:06.8	23.0	144.4	1.4	2913	6.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/01	09:42: 3.6	34.100N	25.400E	25.0	4.9			NEIC

Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:46:20.2	18.8	140.9	1.4	103	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/01	09:59:4.8	34.042N	26.388E	33.0G	4.6			SZGRF

Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e P	Z 10:02:58.4	17.1	138.4	1.4	47	4.4		
GEC2	e P	Z 10:03:05.3	17.5	142.9	0.9	42	4.5		
FUR	e P	Z 10:03:12.1	18.1	135.9	0.8	78	4.9		
WET	e P	Z 10:03:11.9	18.1	141.5	1.0	56	4.6		
ROTZ	e P	Z 10:03:21.0	18.9	141.1	1.1	15	4.1		
MANZ	e P	Z 10:03:23.5	19.1	141.3	0.8	19	4.4		
BRG	e P	Z 10:03:24.6	19.1	146.9	0.6	6	3.9		
WERN	e P	Z 10:03:25.3	19.2	142.4	0.8	16	4.3		
GRA1	e P	Z 10:03:25.4	19.2	138.8	1.1	57	4.7		
GUNZ	e P	Z 10:03:27.0	19.3	142.5	1.0	30	4.5		
FBE	e P	Z 10:03:28.0	19.4	145.7	1.0	43	4.6		
WERD	e P	Z 10:03:27.2	19.4	142.6	0.7	20	4.4		
PLN	e P	Z 10:03:28.0	19.5	142.3	0.9	145	5.2		
STU	e P	Z 10:03:28.8	19.5	132.7	0.7	38	4.7		
BFO	e P	Z 10:03:29.7	19.6	130.1	1.2	37	4.5		
MOX	e P	Z 10:03:31.5	19.8	141.4	0.8	25	4.5		
CLL	e P	Z 10:03:31.6	19.8	145.5	0.8	17	4.3		
NEUB	e P	Z 10:03:36.7	20.2	142.7	0.7	34	4.7		
UBBA	e P	Z 10:03:40.1	20.6	138.3	1.0	21	4.4		
TNS	e P	Z 10:03:43.1	20.8	134.1	0.8	86	5.1		
CLZ	e P	Z 10:03:46.7	21.2	140.8	0.7	20	4.5		
WLF	e P	Z 10:03:51.1	21.6	128.8	1.0	56	5.0		
NRDL	e P	Z 10:03:52.8	21.8	141.3	0.9	22	4.6		
BUG	e P	Z 10:03:57.9	22.2	134.1	1.0	66	5.0		
IBBN	e P	Z 10:04:03.2	22.6	136.5	0.8	19	4.7		
BSEG	e P	Z 10:04:03.3	22.9	143.9	0.9	43	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/01	10:26:53.5	34.200N	25.300E	33.0	4.2			GSRC

Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 10:30:51.4	17.0	145.3	0.9	11	4.0		
WET	e P	Z 10:30:57.4	17.5	143.8	1.1	12	4.0		
GRA1	e P	Z 10:31:10.7	18.6	141.0	0.9	12	4.1		
MOX	e P	Z 10:31:15.4	19.2	143.6	0.7	6	3.9		
TNS	e P	Z 10:31:29.4	20.2	136.0	0.8	15	4.3		

CLZ	e P	Z	10:31:30.8	20.7	142.8	0.9	11	4.2
NRDL	e P	Z	10:31:37.1	21.3	143.3	0.8	8	4.1
BSEG	e P	Z	10:31:47.7	22.4	145.8	1.0	13	4.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/01	15:09:58.8	33.900N	25.300E	33.0	4.0			GSRC

Eastern Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 15:14:01.4	17.3	145.8	0.9	5	3.7		
WET	e P	Z 15:14:07.7	17.8	144.3	1.5	16	3.9		
MOX	e P	Z 15:14:26.4	19.5	144.0	0.9	4	3.7		
TNS	e P	Z 15:14:39.8	20.5	136.5	1.5	38	4.4		
CLZ	e P	Z 15:14:40.6	20.9	143.2	1.2	8	3.9		
NRDL	e P	Z 15:14:50.6	21.5	143.7	1.2	9	4.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/01	18:38:42.4	33.900N	25.400E	33.0	4.2			GSRC

Eastern Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 18:42:44.2	17.3	145.5	0.9	13	4.1		
FUR	e P	Z 18:42:50.4	17.7	138.3	1.1	33	4.4		
WET	e P	Z 18:42:50.3	17.8	144.0	1.4	24	4.1		
ROTZ	e P	Z 18:42:57.4	18.6	143.6	0.9	3	3.5		
MANZ	e P	Z 18:42:59.6	18.8	143.7	0.9	8	3.9		
BRG	e P	Z 18:42:59.9	18.9	149.4					
GRA1	e P	Z 18:43:04.0	18.9	141.2	1.0	18	4.3		
GUNZ	e P	Z 18:43:03.7	19.0	144.9	0.8	6	3.9		
WERD	e P	Z 18:43:04.1	19.1	145.0	0.9	9	4.0		
PLN	e P	Z 18:43:04.9	19.2	144.7	0.9	34	4.6		
MOX	e P	Z 18:43:08.6	19.5	143.7	0.8	6	3.9		
CLL	e P	Z 18:43:09.0	19.6	147.9	1.3	8	3.8		
NEUB	e P	Z 18:43:13.0	19.9	145.0	0.8	13	4.2		
UBBA	e P	Z 18:43:17.1	20.3	140.6	1.4	10	3.9		
TNS	e P	Z 18:43:21.8	20.5	136.3	0.9	17	4.4		
CLZ	e P	Z 18:43:23.6	21.0	143.0	0.9	11	4.2		
WLF	e P	Z 18:43:31.0	21.2	130.8	1.1	25	4.5		
BUG	e P	Z 18:43:35.0	21.9	136.2	1.2	12	4.2		
IBBN	e P	Z 18:43:39.2	22.3	138.6	0.6	8	4.3		
BSEG	e P	Z 18:43:40.3	22.7	145.9	1.1	17	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2009/07/01 18:43:38.1  
Crete, Greece

34.400N

25.400E 33.0

4.0

GSRC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	18:47:34.2	16.8	144.7	1.0	7	3.7		
WET	e P	Z	18:47:40.0	17.4	143.3	1.2	15	4.0		
MOX	e P	Z	18:47:58.6	19.1	143.0	0.7	4	3.7		
CLL	e P	Z	18:47:59.5	19.1	147.3	0.9	4	3.6		
UBBA	e P	Z	18:48:08.7	19.9	139.8	1.3	8	3.8		
TNS	e P	Z	18:48:12.1	20.1	135.5	1.2	15	4.1		
CLZ	e P	Z	18:48:14.0	20.5	142.4	0.8	6	4.0		
NRDL	e P	Z	18:48:20.4	21.1	142.9	0.7	4	3.8		
BSEG	e P	Z	18:48:31.1	22.2	145.4	1.0	15	4.4		

Date Origin Time Lat Long Depth mb Ms ML Source  
2009/07/01 18:58: 4.1 0.197S 95.496E 38.7 5.3  
Southwest of Sumatera, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	19:10:34.5	84.8	96.3	1.2	40	5.5		
	e pP	Z	19:10:45.5							
BRG	e P	Z	19:10:34.4	84.8	96.7	1.1	20	5.3		
	e pP	Z	19:10:45.6							
RJOB	e P	Z	19:10:36.2	85.2	95.5	1.2	13	5.0		
	e pP	Z	19:10:47.2							
WET	e P	Z	19:10:37.1	85.3	95.7	1.1	22	5.3		
CLL	e P	Z	19:10:37.1	85.5	96.0	1.1	17	5.2		
	e pP	Z	19:10:48.7							
ROTZ	e P	Z	19:10:39.9	85.8	95.3	1.1	18	5.1		
MOX	e P	Z	19:10:41.6	86.3	94.9	1.3	18	5.0		
	e pP	Z	19:10:52.6							
FUR	e P	Z	19:10:41.4	86.3	94.4	0.4	14	5.5		
GRA1	e P	Z	19:10:42.9	86.5	94.5	1.1	24	5.3		
CLZ	e P	Z	19:10:45.9	87.1	94.0	1.3	27	5.2		
	e pP	Z	19:10:57.1							
UBBA	e P	Z	19:10:46.7	87.3	93.6	2.0	20	4.9		
BSEG	e P	Z	19:10:46.6	87.3	94.0	1.2	70	5.7		
NRDL	e P	Z	19:10:47.0	87.4	93.8	1.1	35	5.4		
STU	e P	Z	19:10:48.4	87.7	92.9	0.6	12	5.4		
TNS	e P	Z	19:10:51.5	88.3	92.4	1.2	20	5.3		
BFO	e P	Z	19:10:50.9	88.3	92.2	1.0	8	5.0		
IBBN	e P	Z	19:10:53.7	88.8	91.9	1.2	54	5.6		
	e pP	Z	19:11:05.3							
BUG	e P	Z	19:10:55.0	89.0	91.5	1.2	35	5.5		
	e pP	Z	19:11:06.6							
WLF	e P	Z	19:10:58.8	89.7	90.6	1.2	26	5.4		

Date Origin Time  
2009/07/01 20:53:36.4  
South of Mariana Islands

Lat Long Depth mb Ms ML Source  
13.200N 143.700E 180.0 GSRC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 21:07:22.5	104.5	47.9					
	e PP	Z 21:11:41.8							

Date Origin Time  
2009/07/01 21:10:45.0  
Northern Molucca Sea

Lat Long Depth mb Ms ML Source  
1.100N 125.900E 37.0 NEIC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e Pdiff	Z 21:24:40.1	102.8	72.0					
	e PP	Z 21:28:52.5							
	e SKSac	R 21:35:13.5							
	e Sdiff	T 21:36:20.5							
CLL	e Pdiff	Z 21:24:42.4	103.2	71.1					
	e PP	Z 21:28:55.9							
	e SKSac	R 21:35:15.6							
	e Sdiff	T 21:36:23.5							
GEC2	e Pdiff	Z 21:24:42.0	103.5	72.2					
	e SKSac	R 21:35:17.8							
	e Sdiff	T 21:36:28.7							
TANN	e SKSac	R 21:35:16.5	103.8	70.8					
	e Sdiff	T 21:36:27.8							
BSEG	e Pdiff	Z 21:24:43.2	103.8	68.2					
	e SKSac	R 21:35:20.3							
	e Sdiff	T 21:36:30.1							
WET	e Pdiff	Z 21:24:43.9	104.0	71.5					
	e SKSac	R 21:35:20.1							
	e Sdiff	T 21:36:33.0							
ROTZ	e Pdiff	Z 21:24:44.8	104.2	70.8					
	e PP	Z 21:29:04.1							
	e SKSac	R 21:35:22.0							
	e Sdiff	T 21:36:35.0							
MOX	e Pdiff	Z 21:24:45.1	104.2	70.1					
	e PP	Z 21:29:03.6							
	e SKSac	R 21:35:20.7							
	e Sdiff	T 21:36:34.1							
	e L	Z 22:15:38.2			20.9	948		5.3	
NRDL	e Pdiff	Z 21:24:48.7	104.5	68.4					
	e PP	Z 21:29:05.1							
RJOB	e SKSac	R 21:35:19.9	104.5	71.7					
CLZ	e Pdiff	Z 21:24:49.3	104.5	68.8					

	e PP	Z	21:29:06.1						
	e SKSac	R	21:35:23.1						
	e Sdiff	T	21:36:35.6						
GRA1	e Pdiff	Z	21:24:47.6	104.8	70.0				
	e PP	Z	21:29:08.5						
	e SKSac	R	21:35:24.2						
	e Sdiff	T	21:36:39.8						
	e L	Z	22:14:43.1			21.5	910		5.3
UBBA	e PP	Z	21:29:10.3	105.1	68.7				
	e SKSac	R	21:35:24.9						
	e Sdiff	T	21:36:41.0						
FUR	e PP	Z	21:29:11.7	105.3	70.4				
	e SKSac	R	21:35:24.4						
	e Sdiff	T	21:36:43.5						
IBBN	e Pdiff	Z	21:24:55.1	105.9	66.4				
	e PP	Z	21:29:15.7						
	e Sdiff	T	21:36:46.2						
TNS	e Pdiff	Z	21:24:56.7	106.3	67.6				
	e PP	Z	21:29:19.1						
	e SKSac	R	21:35:31.9						
	e Sdiff	T	21:36:52.4						
STU	e PP	Z	21:29:19.7	106.4	68.6				
	e SKSac	R	21:35:29.9						
	e Sdiff	T	21:36:52.5						
BUG	e SKSac	R	21:35:31.8	106.5	66.2				
	e Sdiff	T	21:36:53.3						
BFO	e SKSac	R	21:35:32.9	107.1	68.0				
	e Sdiff	T	21:36:58.7						
WLF	e PP	Z	21:29:31.1	107.8	65.8				
	e SKSac	R	21:35:38.0						
	e Sdiff	T	21:37:06.1						

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/02 03:21: 1.7 10.500S 12.790W 33.0G 5.2 5.1 ML SZGRF  
 Ascension Island region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 03:31:15.3	61.7	203.7	1.4	29	4.9		
FUR	e P	Z 03:31:20.4	62.4	206.9	1.2	31	5.4		
WLF	e P	Z 03:31:19.5	62.4	201.1	1.3	22	5.2		
RJOB	e P	Z 03:31:20.6	62.5	208.6	1.5	12	4.9		
TNS	e P	Z 03:31:27.5	63.5	203.5	1.6	31	5.2		
GRA1	e P	Z 03:31:29.5	63.8	206.5	1.2	23	5.3		
	e L	Z 03:58:33.8			21.4	1169		5.0	
GEC2	e P	Z 03:31:29.4	63.8	209.3	1.3	22	5.2		
WET	e P	Z 03:31:29.3	63.8	208.3	1.4	29	5.3		
ROTZ	e P	Z 03:31:31.7	64.1	207.5	1.4	26	5.3		



MANZ	e P	Z	03:31:32.5	64.3	207.4	1.5	37	5.4	
UBBA	e P	Z	03:31:33.7	64.4	205.0	1.6	40	5.4	
WERN	e P	Z	03:31:34.4	64.6	207.6	1.5	30	5.3	
GUNZ	e P	Z	03:31:35.3	64.7	207.5	1.3	25	5.3	
MOX	e P	Z	03:31:35.5	64.7	206.7	1.3	20	5.2	
	e L	Z	03:59:13.1			21.1	1184		5.1
PLN	e P	Z	03:31:35.4	64.7	207.3	1.5	109	5.9	
WERD	e P	Z	03:31:35.5	64.8	207.5	1.3	20	5.2	
NEUB	e P	Z	03:31:39.1	65.3	206.7	1.4	26	5.3	
CLZ	e P	Z	03:31:40.2	65.5	205.2	1.5	14	5.0	
FBE	e P	Z	03:31:40.1	65.5	208.4	1.4	15	5.0	
BRG	e P	Z	03:31:42.0	65.6	209.1	1.4	14	5.0	
CLL	e P	Z	03:31:41.9	65.7	208.0	1.5	10	4.8	
NRDL	e P	Z	03:31:44.4	66.0	204.8	1.4	32	5.4	
BSEG	e P	Z	03:31:51.8	67.4	204.7	1.5	42	5.5	

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/02 19:47:48.1 34.041N 25.663E 33.0G 4.9 3.4 SZGRF  
 Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 19:51:46.0	17.3	144.6	1.1	100	4.9		
FUR	e P	Z 19:51:52.9	17.7	137.5	1.5	185	5.0		
WET	e P	Z 19:51:54.2	17.8	143.2	1.3	195	5.1		
ROTZ	e P	Z 19:52:02.5	18.6	142.8	1.7	87	4.7		
MANZ	e P	Z 19:52:04.8	18.8	142.9	1.1	51	4.7		
BRG	e P	Z 19:52:05.5	18.9	148.6	1.3	34	4.4		
GRA1	e P	Z 19:52:06.6	18.9	140.4	1.3	297	5.4		
	e L	Z 20:00:05.0			20.0	89		3.1	
WERN	e P	Z 19:52:06.7	18.9	144.1	1.5	66	4.6		
GUNZ	e P	Z 19:52:07.6	19.0	144.1	1.2	61	4.7		
WERD	e P	Z 19:52:08.7	19.1	144.2	1.2	57	4.7		
FBE	e P	Z 19:52:09.1	19.1	147.3	1.4	104	4.9		
BFO	e P	Z 19:52:10.5	19.3	131.5	1.4	41	4.5		
MOX	e P	Z 19:52:12.6	19.5	143.0	1.0	26	4.4		
	e L	Z 20:01:10.2			21.1	537		3.8	
CLL	e P	Z 19:52:13.4	19.6	147.1	1.3	69	4.7		
NEUB	e P	Z 19:52:17.9	19.9	144.3	1.2	149	5.1		
UBBA	e P	Z 19:52:21.3	20.3	139.8	1.5	76	4.7		
TNS	e P	Z 19:52:24.1	20.5	135.6	1.5	143	5.1		
CLZ	e P	Z 19:52:28.3	20.9	142.3	1.3	88	4.9		
WLF	e P	Z 19:52:31.2	21.2	130.1	1.1	137	5.2		
NRDL	e P	Z 19:52:35.0	21.5	142.8	1.4	62	4.9		
BUG	e P	Z 19:52:38.4	21.9	135.5	1.5	123	5.1		
RGN	e P	Z 19:52:40.6	22.3	152.1	1.6	159	5.2		
IBBN	e P	Z 19:52:42.8	22.3	137.9	1.5	102	5.0		
BSEG	e P	Z 19:52:45.1	22.6	145.3	1.5	252	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/02	21:27:35.5	33.444N	26.938E	33.0G	4.1			SZGRF
Eastern Mediterranean Sea								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	21:31:45.6	18.3	142.5	1.2	10	3.8		
WET	e P	Z	21:31:51.7	18.9	141.2	1.3	14	4.0		
MANZ	e P	Z	21:32:02.4	19.8	141.0	1.6	16	4.0		
GRA1	e P	Z	21:32:03.9	20.0	138.6	1.0	10	4.0		
WERD	e P	Z	21:32:05.8	20.1	142.2	1.0	5	3.7		
BFO	e P	Z	21:32:08.2	20.4	130.1	1.1	6	3.7		
NEUB	e P	Z	21:32:15.2	20.9	142.3	0.9	12	4.2		
TNS	e P	Z	21:32:23.9	21.6	134.0	1.1	8	4.1		
NRDL	e P	Z	21:32:31.5	22.6	141.0	1.8	14	4.2		
BSEG	e P	Z	21:32:42.4	23.6	143.4	1.1	16	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/02	22:36:43.3	34.034N	26.294E	33.0G	4.4			SZGRF
Crete, Greece								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	22:40:42.9	17.5	143.1	0.7	16	4.2		
FUR	e P	Z	22:40:48.9	18.0	136.1	0.8	45	4.7		
WET	e P	Z	22:40:50.2	18.1	141.7	0.9	18	4.2		
ROTZ	e P	Z	22:40:58.8	18.8	141.3	0.7	5	3.8		
MANZ	e P	Z	22:41:01.3	19.0	141.5	0.6	13	4.3		
WERN	e P	Z	22:41:03.1	19.2	142.6	0.7				
GRA1	e P	Z	22:41:03.9	19.2	139.0	0.8	20	4.4		
GUNZ	e P	Z	22:41:05.8	19.3	142.7	0.6				
FBE	e P	Z	22:41:05.3	19.3	145.9	0.7				
WERD	e P	Z	22:41:05.4	19.3	142.8	0.9				
BFO	e P	Z	22:41:07.9	19.6	130.3	0.8	10	4.1		
MOX	e P	Z	22:41:10.1	19.8	141.6	0.7	11	4.2		
CLL	e P	Z	22:41:10.4	19.8	145.7	0.6	8	4.1		
NEUB	e P	Z	22:41:15.0	20.1	142.9	0.6	19	4.5		
TNS	e P	Z	22:41:22.3	20.8	134.3	0.6	24	4.7		
CLZ	e P	Z	22:41:25.3	21.2	141.0	0.8	20	4.5		
NRDL	e P	Z	22:41:31.6	21.8	141.5	0.8	13	4.4		
BUG	e P	Z	22:41:36.3	22.2	134.3	0.6	18	4.7		
BSEG	e P	Z	22:41:42.0	22.9	144.0	0.7	19	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2009/07/02 23:08:10.9 46.578N 9.383E 10.0G 2.8 SZGRF  
Switzerland

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
PLONS	e Pg	Z	23:08:18.5	0.5	179.8					2.1
	e Sg	N	23:08:25.2							
DAVA	e Pg	Z	23:08:24.8	0.8	205.8					2.4
	e Sg	E	23:08:35.3							
WILA	e Pg	Z	23:08:27.0	0.9	158.6					3.1
	e Sg	E	23:08:39.6							
OBER	e Pn	Z	23:08:29.9	1.0	217.2					2.6
	e Pn	Z	23:08:34.2	1.3	137.2					2.8
SLE	e Sg	E	23:08:52.8							
	e Pn	Z	23:08:34.7	1.3	152.7					2.8
	e Pg	Z	23:08:36.0							
BALST	e Sg	E	23:08:53.1							
	e Pn	Z	23:08:35.6	1.4	122.7					2.5
	e Sg	N	23:08:55.1							
BFO	e Pn	Z	23:08:42.7	1.9	157.5					2.6
	e Sn	E	23:09:05.7							
FUR	e Pn	Z	23:08:46.1	2.0	219.7					3.0
	e Pg	Z	23:08:48.6							
	e Sg	N	23:09:16.3							
KBA	e Sg	N	23:09:38.7	2.8	261.0					2.5
	e Pn	Z	23:09:01.4	3.3	202.2					3.1
WET	e Sg	N	23:09:57.3							
	e Pn	Z	23:09:04.7	3.5	223.7					2.8
	e Sn	N	23:09:46.5							
GEC2	e Sg	E	23:10:00.7							
	e Pn	Z	23:09:08.5	3.7	233.7					2.8
	e Sn	N	23:09:52.9							
TNS	e Sn	N	23:09:50.1	3.7	170.0					3.1
	e Pn	Z	23:09:06.5	3.7	211.6					2.8
ROTZ	e Sn	E	23:09:50.7							
	e Sg	N	23:10:08.8							
	e Pn	Z	23:09:07.5	3.8	143.8					
WLF	e Pn	Z	23:09:14.1	4.3	200.8					3.2
	e Sn	N	23:10:03.7							
	e Sg	E	23:10:30.6							

Date Origin Time Lat Long Depth mb Ms ML Source  
2009/07/02 23:50:48.1 37.170N 72.050E 122.0 4.9  
Tajikistan SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	23:58:34.2	42.7	85.4	0.8	18	4.8		
	e pP	Z	23:59:01.6							

RGN	e P	Z	23:58:35.8	42.9	88.9	0.9	59	5.3
FBE	e P	Z	23:58:37.4	43.1	85.0	0.8	22	4.9
	e pP	Z	23:59:04.7					
CLL	e P	Z	23:58:38.0	43.3	85.2	0.8	14	4.7
WET	e P	Z	23:58:40.8	43.6	82.8	1.1	7	4.3
WERN	e pP	Z	23:59:09.7	43.8	83.7			
GUNZ	e P	Z	23:58:42.7	43.8	83.7	1.0	11	4.6
WERD	e P	Z	23:58:42.7	43.8	83.8	1.3	13	4.5
ROTZ	e P	Z	23:58:44.2	44.0	83.0	1.2	14	4.6
	e pP	Z	23:59:13.2					
MANZ	e P	Z	23:58:44.4	44.0	83.2	1.1	10	4.5
NEUB	e P	Z	23:58:44.7	44.1	84.2	0.8	17	4.8
MOX	e P	Z	23:58:46.1	44.2	83.5	1.1	14	4.6
GRA1	e P	Z	23:58:49.6	44.6	82.3	1.4	34	5.1
BSEG	e P	Z	23:58:50.1	44.7	85.9	0.8	40	5.4
FUR	e P	Z	23:58:49.5	44.8	80.8	1.0	17	4.9
CLZ	e P	Z	23:58:51.2	44.9	83.8	0.8	12	4.9
	e pP	Z	23:59:18.8					
IBBN	e P	Z	23:59:03.3	46.4	82.4	0.8	24	5.4
BFO	e P	Z	23:59:05.0	46.7	79.1	1.0	9	4.8
WLF	e P	Z	23:59:14.7	47.8	78.9	0.8	22	5.3

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03 04:16:47.1 34.000N 25.600E 26.0 3.7  
 Crete, Greece NEIC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:21:06.0	18.9	140.6	0.6	4	3.7		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03 04:17:59.7 34.100N 25.500E 32.0 4.2 3.7  
 Crete, Greece NEIC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:22:16.5	18.8	140.7	1.1	19	4.2		
	e L	Z 04:30:14.3			20.9	423		3.7	

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03 04:42:32.4 34.430N 24.147E 40.0G 4.5 3.3  
 Crete, Greece EMSC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:46:40.3	18.0	143.3	0.7	25	4.5		

e L Z 04:55:10.2 21.4 180 3.3

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03 04:42:32.8 34.500N 24.100E 41.0 3.3 NEIC  
 Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e L	Z 04:55:10.3	17.9	143.3	21.4	180		3.3	
MOX	e L	Z 04:56:11.6	18.5	145.9	19.2	198		3.4	

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:40:34.5							
	e L	Z 09:51:59.1							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03 10:26:50.7 51.084N 179.906W 33.0N 4.7 SZGRF  
 Andreanof Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:38:50.5	78.8	7.1	0.8	7	4.7		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:13:14.6							
	e L	Z 11:50:10.7							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/03 20:30:42.1 23.166N 107.816W 33.0N 4.9 4.8 SZGRF  
 Gulf of California, Mexico

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 20:43:20.9	86.4	305.7	1.0	34	5.4		
WLF	e P	Z 20:43:21.3	86.7	302.7	1.0	11	4.9		
NRDL	e P	Z 20:43:25.1	87.1	305.6	0.9	10	4.9		

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TNS	e P	Z	20:43:26.6	87.6	304.4	1.2	7	4.7		
CLZ	e P	Z	20:43:27.1	87.6	305.8	1.1	17	5.1		
STU	e P	Z	20:44:20.1	88.8	305.0					
MOX	e P	Z	20:43:33.0	89.0	306.8	1.0	4	4.6		
	e L	Z	21:21:05.4			22.0	351		4.7	
GRA1	e P	Z	20:43:35.5	89.4	306.5	1.0	17	5.2		
	e L	Z	21:23:03.0			20.0	437		4.9	
TANN	e P	Z	20:43:35.3	89.6	307.4	0.9	4	4.6		
FUR	e P	Z	20:43:40.0	90.3	306.5	0.9	10	5.1		
GEC2	e P	Z	20:43:42.8	91.2	308.4	0.8	2	4.4		
RJOB	e P	Z	20:43:44.5	91.4	307.7	1.0	4	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/04	00:42:3.7	17.417N	116.341E	33.0N	5.2			SZGRF
South China Sea								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:54:41.8	86.1	67.4	2.0	38	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/04	06:49:33.7	10.330N	78.640W	33.0G	5.9	5.8		SZGRF
North of Panama								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 07:01:38.7	78.8	272.8	1.4	208	6.0		
BUG	e P	Z 07:01:41.7	79.4	273.3	1.6	239	6.0		
IBBN	e P	Z 07:01:43.1	79.6	273.5	1.6	231	5.9		
TNS	e P	Z 07:01:46.5	80.2	274.4	1.6	205	5.8		
BFO	e P	Z 07:01:46.2	80.3	274.7	1.6	110	5.5		
STU	e P	Z 07:01:49.3	80.8	275.2	1.5	169	5.9		
BSEG	e P	Z 07:01:50.7	81.1	275.3	1.6	245	6.0		
NRDL	e P	Z 07:01:50.9	81.1	275.4	1.5	165	5.8		
UBBA	e P	Z 07:01:51.2	81.2	275.5	1.7	125	5.7		
CLZ	e P	Z 07:01:52.1	81.3	275.7	1.4	159	5.8		
GRA1	e P	Z 07:01:56.1	82.1	276.6	1.7	206	6.0		
	e L	Z 07:33:25.4			21.8	4750		5.8	
MOX	e P	Z 07:01:56.6	82.2	276.8	1.5	114	5.8		
	e L	Z 07:33:20.7			21.6	3410		5.7	
FUR	e P	Z 07:01:57.3	82.3	276.9	1.4	138	5.9		
ROTZ	e P	Z 07:01:59.8	82.7	277.4	1.7	173	6.0		
CLL	e P	Z 07:02:00.8	83.0	277.8	1.5	153	6.0		
WET	e P	Z 07:02:02.2	83.2	277.9	1.6	241	6.2		
RJOB	e P	Z 07:02:02.7	83.3	278.0	1.4	98	5.8		
BRG	e P	Z 07:02:04.3	83.6	278.5	1.6	181	6.1		
GEC2	e P	Z 07:02:04.8	83.8	278.6	1.5	134	6.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/05	09:45: 7.1	35.040N	72.750E	257.9	5.4			SZGRF
Pakistan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 09:53:24.2	44.8	85.1	0.9	15	4.9		
CLL	e P	Z 09:53:25.9	45.1	87.0	0.9	31	5.3		
WET	e P	Z 09:53:28.3	45.3	84.8	1.8	29	4.9		
RJOB	e P	Z 09:53:29.4	45.5	83.3	0.9	15	5.0		
ROTZ	e P	Z 09:53:32.0	45.7	84.9	1.1	31	5.3		
	e pP	Z 09:54:26.7							
MOX	e P	Z 09:53:33.7	46.0	85.3	0.7	31	5.4		
GRA1	e P	Z 09:53:37.2	46.3	84.1	0.8	34	5.4		
FUR	e P	Z 09:53:37.7	46.5	82.7	1.0	47	5.5		
BSEG	e P	Z 09:53:38.4	46.6	87.5	0.8	117	6.1		
CLZ	e P	Z 09:53:39.0	46.7	85.6	0.9	38	5.6		
NRDL	e P	Z 09:53:40.0	46.8	86.0	0.8	42	5.6		
UBBA	e P	Z 09:53:41.1	47.0	84.3	0.6	19	5.4		
STU	e P	Z 09:53:47.6	47.8	81.9	0.8	39	5.6		
TNS	e P	Z 09:53:49.8	48.1	82.7	1.0	21	5.2		
IBBN	e P	Z 09:53:51.1	48.2	84.1	0.8	78	5.9		
BFO	e P	Z 09:53:51.9	48.4	80.9	0.8	13	5.0		
BUG	e P	Z 09:53:54.1	48.6	82.9	0.9	43	5.5		
WLF	e P	Z 09:54:02.1	49.6	80.6	0.8	52	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/05	15:50:58.6	36.115N	10.230W	10.0G	4.1	3.0		EMSC
Portugal								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:55:36.0	20.6	237.0	0.9	9	4.1		
	e L	Z 16:05:21.9			18.4	66		3.0	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/06	06:56:18.6	58.585S	110.690W	33.0N		4.8		SZGRF
Southern Pacific Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 07:15:54.4	146.0	232.3					
	e L	Z 08:20:08.4			21.1	180		4.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/06	14:53:11.2	50.800N	176.740E	33.0G	5.7	5.5		SZGRF

Rat Islands, Aleutian Islands, United States

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	15:04:54.3	74.6	8.9	1.0	198	6.1		
NRDL	e P	Z	15:05:02.1	76.1	8.7	1.0	59	5.7		
IBBN	e P	Z	15:05:04.7	76.5	7.1	0.9	167	6.1		
CLZ	e P	Z	15:05:06.1	76.7	8.8	1.0	104	5.9		
CLL	e P	Z	15:05:06.6	77.0	10.5	1.2	45	5.5		
BUG	e P	Z	15:05:09.2	77.4	6.8	1.0	66	5.7		
UBBA	e P	Z	15:05:11.6	77.8	8.5	1.6	80	5.6		
MOX	e P	Z	15:05:11.6	77.8	9.6	1.0	53	5.6		
	e L	Z	15:47:36.3			21.0	2586		5.5	
TNS	e P	Z	15:05:15.6	78.5	7.5	0.9	76	5.7		
ROTZ	e P	Z	15:05:16.6	78.6	9.9	1.2	57	5.5		
GRA1	e P	Z	15:05:17.6	78.8	9.3	1.0	103	5.8		
	e L	Z	15:44:30.7			20.8	2513		5.5	
WET	e P	Z	15:05:18.9	79.1	10.3	1.2	49	5.4		
WLF	e P	Z	15:05:19.9	79.2	6.0	1.0	67	5.5		
GEC2	e P	Z	15:05:20.3	79.3	10.8	1.0	44	5.3		
STU	e P	Z	15:05:23.0	79.9	8.0	0.9	88	5.7		
FUR	e P	Z	15:05:25.4	80.3	9.3	1.3	143	5.8		
BFO	e P	Z	15:05:25.8	80.4	7.4	1.0	67	5.6		
RJOB	e P	Z	15:05:26.9	80.5	10.2	1.0	43	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/06	16:00:37.6	2.740N	93.570E	33.0N	4.8			SZGRF

Off west coast of northern Sumatra, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	16:12:51.1	81.3	95.9	0.9	12	4.9		
RJOB	e P	Z	16:12:52.9	81.8	95.0	0.9	5	4.6		
WET	e P	Z	16:12:54.0	81.8	95.3	1.0	5	4.6		
CLL	e P	Z	16:12:54.0	82.0	95.7	0.9	5	4.7		
ROTZ	e P	Z	16:12:56.9	82.3	94.8	1.0	5	4.6		
MOX	e P	Z	16:12:58.7	82.8	94.5	2.3	25	5.0		
GRA1	e P	Z	16:13:00.1	83.0	94.1	1.3	18	5.1		
CLZ	e P	Z	16:13:03.1	83.6	93.7	0.9	6	4.9		
UBBA	e P	Z	16:13:03.9	83.8	93.3	1.0	3	4.4		
BSEG	e P	Z	16:13:03.9	83.8	93.8	0.8	11	5.1		
NRDL	e P	Z	16:13:04.3	83.8	93.5	1.4	6	4.7		
TNS	e P	Z	16:13:09.0	84.8	92.0	0.8	7	4.9		
BFO	e P	Z	16:13:08.5	84.8	91.7	0.9	5	4.7		
BUG	e P	Z	16:13:12.7	85.6	91.2	0.9	12	5.0		



Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/06	22:34:38.9	20.190N	132.710E	33.0N	6.2	6.2		SZGRF

Philippine Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	22:47:40.8	91.0	52.4	1.4	445	6.6		
CLL	e P	Z	22:47:41.5	91.2	54.6	1.5	362	6.5		
NRDL	e P	Z	22:47:45.7	92.0	52.3	2.0	249	6.2		
CLZ	e P	Z	22:47:47.4	92.2	52.5	1.4	220	6.3		
GEC2	e P	Z	22:47:46.8	92.3	55.2	1.4	222	6.3		
MOX	e P	Z	22:47:47.3	92.3	53.5	1.5	172	6.2		
	e L	Z	23:30:39.9			18.7	10325		6.3	
ROTZ	e P	Z	22:47:48.4	92.5	54.0	1.4	262	6.5		
WET	e P	Z	22:47:48.2	92.5	54.6	1.7	241	6.4		
UBBA	e P	Z	22:47:49.9	93.0	52.3	1.6	122	6.1		
GRA1	e P	Z	22:47:51.0	93.1	53.3	1.4	309	6.5		
	e L	Z	23:29:39.4			20.5	7235		6.1	
IBBN	e P	Z	22:47:51.1	93.2	50.4	1.5	136	6.2		
RJOB	e P	Z	22:47:52.5	93.4	54.6	2.1	291	6.2		
FUR	e P	Z	22:47:54.8	94.0	53.4	1.4	328	6.5		
TNS	e P	Z	22:47:55.8	94.2	51.1	1.5	53	5.7		
STU	e P	Z	22:47:57.6	94.7	51.7	1.2	75	6.0		
BFO	e P	Z	22:48:01.1	95.4	51.1	1.5	93	6.1		
WLF	e P	Z	22:48:02.9	95.7	49.3	1.3	139	6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/07	00:32:48.4	34.022N	25.180E	30.0G	4.9	3.8		NEIC

Crete, Greece

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e P	Z	00:36:40.9	16.6	141.4	1.3	46	4.4		
GEC2	e P	Z	00:36:43.6	17.1	145.9	1.0	115	5.0		
FUR	e P	Z	00:36:51.4	17.5	138.6	1.2	194	5.1		
WET	e P	Z	00:36:52.5	17.7	144.4	1.3	242	5.2		
ROTZ	e P	Z	00:37:00.7	18.4	143.9	1.5	66	4.6		
GRA1	e P	Z	00:37:04.1	18.7	141.5	1.2	259	5.3		
	e L	Z	00:43:57.7			19.6	342		3.7	
STU	e P	Z	00:37:07.1	18.9	135.3	1.0	42	4.6		
BFO	e P	Z	00:37:08.7	19.0	132.6	1.0	17	4.2		
MOX	e P	Z	00:37:10.8	19.3	144.1	0.9	31	4.5		
	e L	Z	00:45:09.1			18.7	753		4.0	
CLL	e P	Z	00:37:11.2	19.4	148.3	1.1	68	4.8		
UBBA	e P	Z	00:37:18.9	20.1	140.9	1.4	62	4.6		
TNS	e P	Z	00:37:21.6	20.3	136.6	2.1	150	4.8		
CLZ	e P	Z	00:37:26.2	20.8	143.3	1.4	136	5.1		

WLF	e P	Z	00:37:31.9	21.0	131.0	1.1	153	5.2
NRDL	e P	Z	00:37:32.6	21.4	143.8	1.6	102	4.9
IBBN	e P	Z	00:37:41.9	22.1	138.8	1.4	124	5.2
BSEG	e P	Z	00:37:42.7	22.5	146.3	1.3	280	5.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/07	01:02:48.6	33.986N	25.611E	20.0G	4.2	3.8		EMSC

Eastern Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:07:07.8	18.9	140.6	1.4	25	4.2		
	e L	Z 01:15:05.6			21.7	490		3.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/07	15:57: 3.8	38.239N	38.792E	2.0G	4.3	3.2		EMSC

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:02:05.0	22.7	109.8	2.3	26	4.3		
	e L	Z 16:14:30.0			18.0	82		3.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/07	16:31:58.0	23.380S	65.110E	10.0G	5.5	4.6		SZGRF

Mauritius - Reunion region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e P	Z 16:44:34.9	85.2	133.2	1.0	46	5.6		
GEC2	e P	Z 16:44:36.1	85.5	134.0	1.1	38	5.5		
WET	e P	Z 16:44:38.9	86.1	133.3	1.0	42	5.5		
FUR	e P	Z 16:44:40.6	86.2	132.0	0.9	309	6.4		
ROTZ	e P	Z 16:44:43.1	86.9	132.8	1.3	31	5.3		
TANN	e P	Z 16:44:45.1	87.2	133.1	1.4	48	5.4		
GRA1	e P	Z 16:44:45.1	87.3	132.1	1.1	73	5.7		
	e L	Z 17:30:35.0			19.5	389		4.8	
CLL	e P	Z 16:44:46.6	87.6	133.5	1.7	60	5.5		
MOX	e P	Z 16:44:47.5	87.7	132.4	1.4	49	5.5		
	e L	Z 17:22:45.7			21.6	151		4.4	
BFO	e P	Z 16:44:47.7	87.8	129.8	1.1	31	5.5		
TNS	e P	Z 16:44:53.1	89.0	129.9	1.3	29	5.3		
CLZ	e P	Z 16:44:53.7	89.1	131.4	1.2	33	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/07	19:11:52.2	75.230N	68.080W	10.0G	5.0	5.6		SZGRF

Baffin Bay

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 19:18:54.2	35.7	334.7	1.1	63	5.4		
IBBN	e P	Z 19:19:01.2	36.6	335.5	1.1	38	5.0		
NRDL	e P	Z 19:19:04.8	37.0	335.5	1.2	27	4.9		
CLZ	e P	Z 19:19:10.8	37.6	335.9	1.5	53	5.1		
UBBA	e P	Z 19:19:17.5	38.5	336.4	1.7	38	4.8		
TNS	e P	Z 19:19:18.8	38.6	336.6	1.0	36	4.9		
CLL	e P	Z 19:19:19.6	38.8	336.3	1.1	38	5.0		
MOX	e P	Z 19:19:22.1	39.0	336.5	1.1	35	4.9		
	e L	Z 19:36:10.7			19.6	11054		5.7	
TANN	e P	Z 19:19:25.7	39.5	336.7	0.9	32	5.0		
GRA1	e P	Z 19:19:29.0	39.8	337.0	1.2	59	5.1		
	e L	Z 19:36:37.2			19.1	7572		5.6	
ROTZ	e P	Z 19:19:30.5	40.0	337.0	1.0	51	5.1		
STU	e P	Z 19:19:31.5	40.2	337.3	0.8	24	4.9		
BFO	e P	Z 19:19:32.9	40.3	337.5	1.2	19	4.7		
WET	e P	Z 19:19:36.6	40.7	337.3	1.0	38	5.1		
GEC2	e P	Z 19:19:40.8	41.2	337.5	0.9	45	5.2		
FUR	e P	Z 19:19:40.7	41.3	337.7	1.0	74	5.4		
RJOB	e P	Z 19:19:46.8	42.0	337.9	1.0	20	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/07	20:12:10.5	33.891N	25.573E	10.0G	4.1			EMSC

Eastern Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:16:32.9	19.0	140.8	0.8	10	4.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/08	06:19:57.5	36.291N	20.517E	20.0G		3.2		EMSC

Central Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:24:15.3	15.0	149.8					
	e L	Z 06:33:11.0			18.4	174		3.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/08	19:23:37.4	36.000S	102.700W	10.0G		5.4		NEIC

Southeast of Easter Island

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKPdf	Z 19:42:47.6	128.9						
BUG	e PKPdf	Z 19:42:48.0	128.9						
TNS	e PKPdf	Z 19:42:49.3	129.4						
UBBA	e PKPdf	Z 19:42:51.2	130.5						
NRDL	e PKPdf	Z 19:42:51.7	130.8						
CLZ	e PKPdf	Z 19:42:52.1	130.9						
GRA1	e PKPdf	Z 19:42:52.4	131.1	260.1					
	e L	Z 20:35:40.5			21.4	699		5.3	
BSEG	e PKPdf	Z 19:42:52.2	131.1						
MOX	e PKPdf	Z 19:42:52.9	131.5						
	e L	Z 20:38:30.2			19.5	834		5.4	
RJOB	e PKPdf	Z 19:42:53.7	131.7						
ROTZ	e PKPdf	Z 19:42:52.8	131.7						
TANN	e PKPdf	Z 19:42:53.9	132.0						
WET	e PKPdf	Z 19:42:53.6	132.0						
CLL	e PKPdf	Z 19:42:54.5	132.4						
GEC2	e PKPdf	Z 19:42:53.9	132.5						
BRG	e PKPdf	Z 19:42:55.5	133.0						

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/09

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:36:13.6							
	e L	Z 00:47:35.9							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/09 11:19:18.8 24.957N 101.000E 33.0N 5.4 5.6 ML SZGRF  
 Yunnan, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 11:30:21.5	69.1	75.7	1.6	29	5.3		
CLL	e P	Z 11:30:24.0	69.6	75.2	1.7	42	5.3		
GEC2	e P	Z 11:30:26.1	69.8	74.8	1.1	21	5.2		
TANN	e P	Z 11:30:27.9	70.1	74.5	1.6	34	5.2		
WET	e P	Z 11:30:28.8	70.2	74.4	1.5	34	5.3		
BSEG	e P	Z 11:30:30.2	70.4	74.2	1.5	70	5.6		
ROTZ	e P	Z 11:30:30.5	70.5	74.1	1.2	30	5.3		
MOX	e P	Z 11:30:30.7	70.6	74.0	0.5	16	5.4		
	e L	Z 12:04:02.5			21.2	4187		5.7	
RJOB	e P	Z 11:30:31.3	70.6	73.8	2.0	74	5.5		
NRDL	e P	Z 11:30:33.3	71.0	73.5	1.7	68	5.5		
CLZ	e P	Z 11:30:33.4	71.0	73.5	1.2	27	5.3		

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GRA1	e P	Z	11:30:34.3	71.1	73.4	1.8	86	5.6		
	e L	Z	12:02:30.0			21.9	3777	5.6		
FUR	e P	Z	11:30:36.7	71.5	72.9	1.8	154	5.8		
UBBA	e P	Z	11:30:36.1	71.5	72.9	2.1	80	5.5		
IBBN	e P	Z	11:30:41.7	72.4	71.7	1.6	88	5.6		
STU	e P	Z	11:30:43.3	72.6	71.7	1.3	49	5.5		
BFO	e P	Z	11:30:47.0	73.3	71.0	2.2	89	5.5		
WLF	e P	Z	11:30:53.1	74.2	69.8	2.4	214	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/09	16:27:43.8	34.026N	25.607E	30.0G		3.4		EMSC
Crete, Greece								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:32:02.2	18.9	140.5					
	e L	Z 16:42:52.8			19.6	202		3.4	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/09								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:57:13.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/09	23:47: 7.8	21.957S	174.284W	33.0N				SZGRF
Tonga Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 00:06:49.9	147.8	8.0					
CLZ	e PKPbc	Z 00:06:55.2	149.9	8.6					
CLL	e PKPbc	Z 00:06:55.0	150.1	13.7					
BRG	e PKPbc	Z 00:06:55.7	150.4	15.6					
MOX	e PKPbc	Z 00:06:57.1	150.9	11.3					
TANN	e PKPbc	Z 00:06:57.3	151.1	13.0					
WET	e PKPbc	Z 00:07:00.5	152.2	14.4					
BFO	e PKPbc	Z 00:07:03.3	153.5	5.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10	00:31:30.2	44.886N	130.791W	33.0N	5.0			SZGRF
Off coast of Oregon, United States								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	00:43:13.2	75.8	332.7	0.9	26	5.4		
IBBN	e P	Z	00:43:17.2	76.5	331.2	0.9	32	5.5		
NRDL	e P	Z	00:43:20.2	77.0	332.7	1.1	15	5.0		
CLZ	e P	Z	00:43:24.2	77.6	332.9	1.0	15	5.1		
WLF	e P	Z	00:43:27.4	78.3	330.4	1.2	22	5.0		
UBBA	e P	Z	00:43:28.0	78.5	332.8	1.9	33	5.1		
TNS	e P	Z	00:43:28.2	78.5	331.8	1.5	26	5.1		
CLL	e P	Z	00:43:30.1	78.8	334.7	0.9	16	5.0		
MOX	e P	Z	00:43:31.4	79.1	333.9	0.9	10	4.8		
BRG	e P	Z	00:43:34.0	79.5	335.4	1.0	19	5.0		
TANN	e P	Z	00:43:33.5	79.5	334.5	1.6	14	4.6		
GRA1	e P	Z	00:43:35.6	79.8	333.7	1.0	18	4.9		
ROTZ	e P	Z	00:43:36.6	80.0	334.3	1.0	10	4.7		
STU	e P	Z	00:43:36.5	80.0	332.4	1.4	16	4.8		
BFO	e P	Z	00:43:37.0	80.2	331.9	1.2	16	4.7		
WET	e P	Z	00:43:40.5	80.8	334.8	1.0	6	4.6		
FUR	e P	Z	00:43:43.1	81.2	333.8	1.2	22	5.2		
GEC2	e P	Z	00:43:43.3	81.3	335.4	0.9	6	4.7		
RJOB	e P	Z	00:43:47.2	82.0	334.9	0.8	11	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10	00:49:15.3	48.660N	148.480E	394.7	5.0			SZGRF

Northwest of Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	01:00:04.9	73.0	29.0	0.7	25	5.4		
BRG	e P	Z	01:00:05.6	73.1	29.5	1.2	8	4.8		
	e pP	Z	01:01:33.2							
FBE	e P	Z	01:00:06.7	73.3	29.1	0.9	15	5.0		
	e pP	Z	01:01:33.8							
CLZ	e P	Z	01:00:07.5	73.3	27.4	0.9	16	5.1		
NEUB	e P	Z	01:00:07.8	73.5	28.2	0.9	19	5.1		
WERD	e P	Z	01:00:10.9	74.0	28.4	1.3	12	4.8		
PLN	e P	Z	01:00:10.5	74.0	28.3	1.1	41	5.4		
MOX	e P	Z	01:00:11.1	74.0	28.0	1.2	12	4.8		
	e pP	Z	01:01:38.9							
GUNZ	e P	Z	01:00:11.3	74.1	28.4	0.8	9	4.9		
WERN	e P	Z	01:00:11.7	74.1	28.4	0.8	11	4.9		
UBBA	e P	Z	01:00:13.2	74.4	27.0	0.8	5	4.5		
MANZ	e P	Z	01:00:13.5	74.5	28.2	1.1	6	4.6		
ROTZ	e P	Z	01:00:14.9	74.6	28.3	1.1	9	4.7		
WET	e P	Z	01:00:16.8	75.0	28.6	1.0	15	5.0		
GEC2	e P	Z	01:00:16.3	75.0	29.0	1.0	6	4.6		
	e pP	Z	01:01:44.2							
GRA1	e P	Z	01:00:16.9	75.0	27.7	0.8	23	5.3		
	e pP	Z	01:01:44.6							

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TNS	e P	Z	01:00:18.6	75.3	26.0	0.8	9	5.0
RJOB	e P	Z	01:00:23.9	76.2	28.4	0.8	7	4.9
FUR	e P	Z	01:00:24.2	76.3	27.5	1.0	23	5.3
STU	e P	Z	01:00:24.5	76.4	26.3	0.8	13	5.1
BFO	e P	Z	01:00:27.9	77.1	25.7	1.0	9	4.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10	01:06:48.9	45.740N	9.257E	10.0G			2.5	SZGRF

Northern Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
DAVA	e Pn	Z	01:07:15.9	1.6	195.7					2.7
WTTA	e Pn	Z	01:07:25.9	2.2	227.9					2.3
	e Sn	N	01:07:52.9							
BFO	e Pn	Z	01:07:30.5	2.7	165.9					2.4
	e Sn	E	01:08:02.5							
STU	e Sn	N	01:08:11.2	3.0	179.2					
WET	e Pn	Z	01:07:50.4	4.2	217.1					2.6
	e Sn	N	01:08:37.0							
GEC2	e Sn	N	01:08:41.0	4.3	225.8					2.6
ROTZ	e Sn	E	01:08:43.8	4.5	207.3					
MOX	e Sn	E	01:09:00.1	5.1	198.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10	09:02: 5.9	25.055N	100.898E	33.0G	5.2	4.8		SZGRF

Yunnan, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	09:13:07.5	69.0	75.7	1.3	17	5.1		
CLL	e P	Z	09:13:10.2	69.4	75.2	1.2	11	4.9		
GEC2	e P	Z	09:13:12.2	69.6	74.8	1.7	27	5.1		
TANN	e P	Z	09:13:14.2	70.0	74.5	0.9	8	4.8		
WET	e P	Z	09:13:14.8	70.1	74.4	1.6	23	5.1		
BSEG	e P	Z	09:13:16.3	70.3	74.2	1.2	36	5.4		
ROTZ	e P	Z	09:13:16.6	70.3	74.1	1.6	43	5.3		
MOX	e P	Z	09:13:16.8	70.4	74.0	1.4	10	4.7		
	e L	Z	09:46:57.3			21.4	588		4.8	
RJOB	e P	Z	09:13:17.6	70.5	73.8	0.9	20	5.2		
NRDL	e P	Z	09:13:19.7	70.8	73.5	1.5	31	5.2		
CLZ	e P	Z	09:13:19.3	70.9	73.5	1.1	19	5.1		
GRA1	e P	Z	09:13:20.5	71.0	73.4	1.7	57	5.4		
	e L	Z	09:47:25.6			21.3	467		4.7	
FUR	e P	Z	09:13:22.7	71.4	72.9	1.5	69	5.6		
UBBA	e P	Z	09:13:22.1	71.4	72.9	1.5	28	5.2		
IBBN	e P	Z	09:13:27.7	72.3	71.8	0.8	30	5.5		

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STU	e P	Z	09:13:29.5	72.5	71.7	0.9	20	5.2
BFO	e P	Z	09:13:33.1	73.2	71.0	1.5	16	4.9
WLF	e P	Z	09:13:39.3	74.1	69.9	1.3	35	5.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10	15:01:33.1	42.415N	141.404E	83.0G	4.6			NEIC
Hokkaido, Japan, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:13:23.7	78.1	35.2	0.8	4	4.6		
	e sP	Z 15:13:56.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKPbc	Z 16:23:51.1							
GEC2	e PKPbc	Z 16:23:48.0							
GUNZ	e PKPbc	Z 16:23:43.8							
ROTZ	e PKPbc	Z 16:23:46.1							
WERN	e PKPbc	Z 16:23:45.8							
WET	e PKPbc	Z 16:23:47.5							
WLF	e PKPbc	Z 16:23:47.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/10	16:50:22.4	0.745N	98.229E	33.0N	4.7			SZGRF
Northern Sumatera, Indonesia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:03:07.2	87.5	91.8	1.2	8	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 03:18:22.5							
GEC2	e P	Z 03:17:25.2							
GTTG	e P	Z 03:18:04.6							
TANN	e P	Z 03:17:44.6							
WET	e P	Z 03:17:31.1							



Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/11 12:35:16.9 20.690S 174.450W 33.0G 5.1  
 Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	12:54:59.9	146.6	8.1					
NRDL	e PKPbc	Z	12:55:03.6	148.0	8.1					
IBBN	e PKPbc	Z	12:55:04.9	148.3	3.9					
	e PKPab	Z	12:55:08.1							
CLZ	e PKPbc	Z	12:55:05.7	148.6	8.7					
CLL	e PKPbc	Z	12:55:06.0	148.8	13.6					
	e PKPab	Z	12:55:09.7							
BRG	e PKPbc	Z	12:55:07.0	149.1	15.4					
	e PKPab	Z	12:55:11.1							
BUG	e PKPbc	Z	12:55:06.8	149.2	3.1					
	e PKPab	Z	12:55:10.7							
MOX	e PKPbc	Z	12:55:08.2	149.7	11.3					
	e L	Z	14:02:24.4			20.3	301		5.1	
UBBA	e PKPbc	Z	12:55:08.0	149.7	8.3					
TANN	e PKPbc	Z	12:55:08.3	149.8	12.9					
	e PKPab	Z	12:55:14.2							
TNS	e PKPbc	Z	12:55:10.1	150.4	5.5					
	e PKPab	Z	12:55:16.3							
ROTZ	e PKPbc	Z	12:55:10.6	150.4	12.7					
	e PKPab	Z	12:55:16.8							
GRA1	e PKPbc	Z	12:55:10.9	150.6	10.9					
	e PKPab	Z	12:55:17.5							
	e L	Z	14:03:44.0			21.5	247		5.0	
WET	e PKPbc	Z	12:55:11.6	151.0	14.2					
	e PKPab	Z	12:55:19.0							
WLF	e PKPbc	Z	12:55:11.9	151.0	1.2					
	e PKPab	Z	12:55:19.3							
GEC2	e PKPbc	Z	12:55:11.7	151.1	15.9					
STU	e PKPbc	Z	12:55:13.2	151.8	7.2					
FUR	e PKPbc	Z	12:55:13.9	152.1	11.5					
	e PKPab	Z	12:55:23.8							
BFO	e PKPbc	Z	12:55:14.1	152.3	5.6					
	e PKPab	Z	12:55:23.8							
RJOB	e PKPbc	Z	12:55:14.1	152.3	14.7					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/11 13:48:44.5 33.900N 25.100E 10.0 4.1  
 Eastern Mediterranean Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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KBA	e P	Z	13:52:36.8	15.9	141.8	0.9	14	4.1
MOA	e P	Z	13:52:38.2	16.1	145.9	1.0	14	4.0
RJOB	e P	Z	13:52:44.1	16.6	141.8	0.8	4	3.6
WTTA	e P	Z	13:52:47.0	16.8	138.0	1.0	12	4.0
GEC2	e P	Z	13:52:49.4	17.2	146.3	1.3	18	4.0
DAVA	e P	Z	13:52:56.4	17.6	134.0			
WET	e P	Z	13:52:55.4	17.7	144.8	1.2	24	4.2
ROTZ	e P	Z	13:53:04.0	18.5	144.3	1.9	24	4.0
MANZ	e P	Z	13:53:05.6	18.7	144.4	1.0	7	3.9
GRA1	e P	Z	13:53:07.2	18.8	141.9	2.0	93	4.7
TANN	e P	Z	13:53:08.4	18.9	146.0	0.9	14	4.2
STU	e P	Z	13:53:10.4	19.0	135.7	0.9	12	4.1
BFO	e P	Z	13:53:13.0	19.1	132.9	0.9	8	4.0
MOX	e P	Z	13:53:13.7	19.4	144.4	0.7	3	3.6
TNS	e P	Z	13:53:26.9	20.4	136.9	1.3	17	4.1
WLF	e P	Z	13:53:34.8	21.0	131.4	0.9	16	4.4

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/11 15:19:34.3 9.900N 122.100E 52.0 4.9 NEIC  
 Negros, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:32:55.5	95.5	67.6	1.1	4	4.9		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/11 23:30: 2.5 33.900N 25.300E 33.0 4.2 GSRC  
 Eastern Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 23:34:05.8	17.3	145.8	1.0	30	4.4		
WET	e P	Z 23:34:12.0	17.8	144.3	1.4	52	4.5		
ROTZ	e P	Z 23:34:20.2	18.6	143.8	2.2	37	4.2		
BRG	e P	Z 23:34:23.2	18.9	149.7	2.9	100	4.5		
GRA1	e P	Z 23:34:23.2	18.9	141.4	1.1	54	4.7		
ROHR	e P	Z 23:34:23.5	18.9	144.9	1.2	2	3.2		
WERN	e P	Z 23:34:24.6	18.9	145.1	1.2	11	4.0		
TANN	e P	Z 23:34:24.1	19.0	145.5	0.9	16	4.3		
GUNZ	e P	Z 23:34:24.7	19.0	145.1	1.3	16	4.1		
WERD	e P	Z 23:34:25.5	19.1	145.2	1.1	26	4.3		
FBE	e P	Z 23:34:26.3	19.1	148.4	1.0	32	4.5		
PLN	e P	Z 23:34:26.9	19.2	144.9	1.0	86	4.9		
MOX	e P	Z 23:34:30.1	19.5	144.0	0.8	9	4.1		
CLL	e P	Z 23:34:30.1	19.6	148.1	1.2	20	4.2		
NEUB	e P	Z 23:34:34.5	19.9	145.2	1.9	64	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	02:58:24.6	5.027S	134.062E	35.0G		4.9		NEIC

Aru Islands, Indonesia, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKiKP	Z	03:16:57.4	112.5	68.9					
CLL	e PKiKP	Z	03:16:57.4	112.9	67.9					
GEC2	e PKiKP	Z	03:16:59.0	113.4	69.5					
WERD	e PKiKP	Z	03:16:59.4	113.7	67.6					
GUNZ	e PKiKP	Z	03:16:59.8	113.7	67.7					
WET	e PKiKP	Z	03:16:59.4	113.8	68.7					
MOX	e L	Z	03:52:34.2	114.0	67.0	21.0	317		4.9	
GRA1	e L	Z	03:54:05.3	114.6	67.0	21.0	327		4.9	
FUR	e PKiKP	Z	03:17:02.2	115.2	67.7					
STU	e PKiKP	Z	03:17:04.3	116.2	65.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	06:12:47.9	15.000S	70.400W	196.4	5.7			NEIC

Southern Peru

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	06:25:37.0	93.0	250.2	2.0	165	6.1		
	e SKSac	R	06:35:52.2							
	e SP	Z	06:37:37.8							
BFO	e P	Z	06:25:40.9	93.9	251.7	2.2	85	5.7		
	e SKSac	R	06:35:58.2							
	e SP	Z	06:37:47.3							
BUG	e P	Z	06:25:42.7	94.2	251.1	2.2	150	5.9		
	e PP	Z	06:30:17.7							
	e SKSac	R	06:35:59.7							
	e SP	Z	06:37:50.4							
TNS	e P	Z	06:25:44.6	94.6	251.9	1.5	26	5.3		
	e SKSac	R	06:36:03.4							
	e SP	Z	06:37:54.6							
STU	e P	Z	06:25:44.3	94.6	252.4	1.1	39	5.6		
	e SKSac	R	06:36:02.2							
	e SP	Z	06:37:56.8							
IBBN	e P	Z	06:25:45.5	94.8	251.6	1.8	76	5.8		
	e PP	Z	06:30:22.7							
	e SKSac	R	06:36:02.9							
	e SP	Z	06:37:55.7							
UBBA	e P	Z	06:25:49.7	95.7	253.2	1.9	62	5.8		
	e PP	Z	06:30:28.4							
	e SKSac	R	06:36:09.9							
	e SP	Z	06:38:08.3							

FUR	e P	Z	06:25:50.0	95.7	253.8	1.1	53	6.0
	e pP	Z	06:26:38.6					
	e SKSac	R	06:36:08.0					
	e SP	Z	06:38:08.3					
GRA1	e P	Z	06:25:52.0	96.1	254.0	1.8	70	5.9
	e PP	Z	06:30:31.9					
	e SKSac	R	06:36:12.1					
	e Sdiff	R	06:36:50.3					
CLZ	e P	Z	06:25:52.2	96.2	253.5	1.3	26	5.6
	e PP	Z	06:30:32.7					
	e SKSac	R	06:36:12.5					
	e SP	Z	06:38:12.5					
NRDL	e P	Z	06:25:52.6	96.2	253.4	1.7	60	5.8
	e PP	Z	06:30:33.1					
	e SP	Z	06:38:10.4					
RJOB	e P	Z	06:25:54.0	96.6	254.9	1.2	18	5.5
	e pP	Z	06:26:42.5					
	e SKSac	R	06:36:11.8					
	e SP	Z	06:38:18.9					
MOX	e P	Z	06:25:54.0	96.6	254.4	2.2	72	5.8
	e PP	Z	06:30:35.6					
	e SKSac	R	06:36:15.3					
	e Sdiff	R	06:36:56.1					
ROTZ	e P	Z	06:25:55.1	96.7	254.7	1.4	26	5.7
	e PP	Z	06:30:36.3					
	e SKSac	R	06:36:16.0					
	e SP	Z	06:38:17.8					
BSEG	e P	Z	06:25:54.6	96.7	253.7	0.9	26	5.9
	e PP	Z	06:30:37.2					
	e SKSac	R	06:36:14.2					
	e SP	Z	06:38:16.8					
WET	e P	Z	06:25:55.9	97.0	255.1	1.8	45	5.8
	e pP	Z	06:26:44.6					
	e PP	Z	06:30:38.2					
	e SKSac	R	06:36:15.6					
TANN	e P	Z	06:25:56.7	97.1	255.0	1.4	22	5.6
	e pP	Z	06:26:45.4					
	e PP	Z	06:30:39.4					
	e SKSac	R	06:36:17.7					
	e Sdiff	R	06:37:00.3					
GEC2	e P	Z	06:25:57.8	97.4	255.7	1.5	26	5.6
	e pP	Z	06:26:46.5					
	e SKSac	R	06:36:17.2					
	e Sdiff	R	06:37:02.3					
	e SP	Z	06:38:26.2					

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CLL	e P	Z	06:25:58.8	97.6	255.5	1.1	13	5.5
	e pP	Z	06:26:47.6					
	e PP	Z	06:30:43.4					
	e SKSac	R	06:36:19.2					
	e Sdiff	R	06:37:03.8					
	e SP	Z	06:38:28.2					
BRG	e P	Z	06:26:01.0	98.1	256.1	1.9	33	5.7
	e pP	Z	06:26:49.9					
	e SKSac	R	06:36:21.7					
	e SP	Z	06:38:33.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	08:38:52.2	42.220N	13.351E	10.0G				SZGRF
Central Italy								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	08:40:27.7	6.6	182.2					
	e Sn	E	08:41:39.5							
WET	e Pn	Z	08:40:31.7	6.9	177.1					
	e Sn	E	08:41:45.4							
ROTZ	e Pn	Z	08:40:41.5	7.6	173.6					
	e Sn	E	08:42:00.8							
GRA1	e Pn	Z	08:40:41.6	7.6	168.0					
ROHR	e Sn	N	08:42:11.5	8.0	174.5					
WERN	e Sn	E	08:42:15.0	8.1	174.9					
GUNZ	e Pn	Z	08:40:50.1	8.2	174.7					
TANN	e Pn	Z	08:40:50.5	8.2	175.4					
WERD	e Pn	Z	08:40:51.3	8.3	174.6					
MOX	e Pn	Z	08:40:54.3	8.5	171.3					
	e Sn	N	08:42:22.5							
FBE	e Sn	N	08:42:28.8	8.7	180.0					
CLL	e Pn	Z	08:41:02.4	9.1	178.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	16:01:28.4	25.950N	100.250E	33.0N	4.9	4.4		SZGRF
Yunnan, China								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	16:12:23.9	67.9	75.6	0.9	5	4.7		
CLL	e P	Z	16:12:26.5	68.4	75.0	1.2	5	4.6		
GEC2	e P	Z	16:12:28.5	68.6	74.6	0.9	5	4.7		
TANN	e P	Z	16:12:30.5	68.9	74.3	1.0	4	4.6		
WERD	e P	Z	16:12:31.0	69.0	74.2	1.4	5	4.6		
WET	e P	Z	16:12:31.4	69.0	74.1	1.3	8	4.8		
WERN	e P	Z	16:12:31.3	69.0	74.2	1.5	14	5.0		

GUNZ	e P	Z	16:12:31.2	69.0	74.2	1.2	9	4.8	
BSEG	e P	Z	16:12:32.3	69.2	74.1	0.9	13	5.1	
ROTZ	e P	Z	16:12:33.1	69.3	73.9	1.4	17	5.1	
MOX	e P	Z	16:12:33.7	69.4	73.8	1.3	6	4.6	
	e L	Z	16:44:45.5			21.3	174		4.3
RJOB	e P	Z	16:12:34.0	69.5	73.6	1.2	12	4.9	
NRDL	e P	Z	16:12:35.9	69.8	73.4	1.3	11	4.8	
CLZ	e P	Z	16:12:36.1	69.8	73.4	1.2	14	5.0	
GRA1	e P	Z	16:12:36.6	69.9	73.2	1.6	24	5.1	
	e L	Z	16:44:22.3			21.7	263		4.4
FUR	e P	Z	16:12:39.4	70.3	72.7	1.2	27	5.3	
IBBN	e P	Z	16:12:44.6	71.2	71.6	1.0	8	4.8	
BUG	e P	Z	16:12:47.6	71.8	71.0	0.8	8	4.9	
BFO	e P	Z	16:12:49.7	72.1	70.8	1.9	26	5.0	
WLF	e P	Z	16:12:56.2	73.0	69.7	1.6	36	5.2	

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/12 16:15:35.5 22.990S 178.600W 33.0N  
 South of Fiji Islands SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	16:35:18.4	148.3	15.8					
NRDL	e PKPbc	Z	16:35:21.9	149.8	16.1					
CLL	e PKPbc	Z	16:35:23.2	150.3	21.9					
	e PKPab	Z	16:35:29.3							
CLZ	e PKPbc	Z	16:35:23.6	150.3	16.9					
BRG	e PKPbc	Z	16:35:23.9	150.5	23.9					
FBE	e PKPbc	Z	16:35:24.4	150.6	22.8					
NEUB	e PKPbc	Z	16:35:24.2	150.7	19.8					
MOX	e PKPbc	Z	16:35:25.5	151.2	19.8					
TANN	e PKPbc	Z	16:35:25.8	151.2	21.5					
PLN	e PKPbc	Z	16:35:25.7	151.3	20.9					
WERD	e PKPbc	Z	16:35:25.9	151.3	21.2					
GUNZ	e PKPbc	Z	16:35:26.1	151.3	21.3					
	e PKPab	Z	16:35:34.2							
WERN	e PKPbc	Z	16:35:26.5	151.4	21.5					
	e PKPab	Z	16:35:34.5							
ROHR	e PKPbc	Z	16:35:26.6	151.5	21.4					
ROTZ	e PKPbc	Z	16:35:27.4	151.9	21.5					
GRA1	e PKPbc	Z	16:35:27.9	152.2	19.7					
	e PKPab	Z	16:35:37.7							
TNS	e PKPbc	Z	16:35:27.9	152.2	14.0					
WET	e PKPbc	Z	16:35:28.2	152.3	23.2					
GEC2	e PKPbc	Z	16:35:28.2	152.4	25.0					
WLF	e PKPbc	Z	16:35:30.4	153.1	9.7					
FUR	e PKPbc	Z	16:35:31.0	153.6	20.8					
BFO	e PKPbc	Z	16:35:31.8	154.1	14.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	19:28: 7.0	42.391N	144.619E	62.0	4.6			SZGRF

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:40:09.6	79.3	33.1	1.0	7	4.6		
	e pP	Z 19:40:26.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	22:14:24.0	42.119N	13.330E	10.0G				SZGRF

Central Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:16:01.2	6.7	182.4					
	e Sn	N 22:17:13.6							
WET	e Pn	Z 22:16:05.5	7.0	177.3					
	e Sn	E 22:17:18.8							
ROTZ	e Pn	Z 22:16:16.3	7.7	173.8					
	e Sn	N 22:17:35.8							
GUNZ	e Sn	E 22:17:51.8	8.3	174.8					
WERD	e Pn	Z 22:16:24.6	8.4	174.8					
MOX	e Pn	Z 22:16:26.3	8.6	171.5					
	e Sn	N 22:17:57.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/12	23:01: 5.7	36.800S	178.100E	16.0				NEIC

Off east coast of North Island, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPab	Z 23:21:46.1	162.0	41.9					
GEC2	e PKPab	Z 23:21:52.5	163.4	49.1					
ROTZ	e PKPab	Z 23:21:53.4	163.5	43.5					
BFO	e PKPab	Z 23:22:05.0	166.3	36.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/13	03:06:26.1	52.700N	34.900W	10.0	4.5	3.8		NEIC

Reykjanes Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BUG	e P	Z 03:11:58.1	25.6	289.6	1.2	21	4.6		

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IBBN	e P	Z	03:11:57.8	25.6	288.0	1.1	23	4.7		
TNS	e P	Z	03:12:08.6	26.7	292.3	1.4	18	4.6		
NRDL	e P	Z	03:12:10.5	26.9	288.6	1.5	30	4.8		
MOX	e L	Z	03:23:08.1	28.4	292.5	18.1	325		4.0	
GRA1	e L	Z	03:22:13.9	28.6	294.0	19.8	115		3.5	
CLL	e P	Z	03:12:26.4	29.0	291.8	1.3	14	4.6		
TANN	e P	Z	03:12:26.9	29.0	293.1	0.9	3	4.1		
GEC2	e P	Z	03:12:41.0	30.4	296.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/13								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKP	Z 04:32:24.0							
WLF	e PKP	Z 04:32:23.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/13	04:12:44.9	20.410S	166.500E	31.4				SZGRF
Loyalty Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e PKPbc	Z 04:32:23.8	146.8	35.2					
	e pPKPbc	Z 04:32:33.1							
BFO	e PKPbc	Z 04:32:24.0	147.0	39.8					
	e pPKPbc	Z 04:32:33.4							
DAVA	e PKPbc	Z 04:32:24.4	147.1	43.2					
	e pPKPbc	Z 04:32:33.9							
SLE	e PKPbc	Z 04:32:25.0	147.4	40.6					
WILA	e PKPbc	Z 04:32:25.4	147.5	41.6					
PLONS	e PKPbc	Z 04:32:26.0	147.5	42.7					
SULZ	e PKPbc	Z 04:32:26.0	147.7	40.3					
BALST	e PKPbc	Z 04:32:27.2	148.1	39.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/13	10:52:45.1	9.860S	117.870E	33.0N		5.4		SZGRF
Sumbawa, Indonesia, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e SKSac	R 11:17:32.1	106.4	85.5					
	e SP	Z 11:20:37.2							
GEC2	e SKSac	R 11:17:35.6	106.7	85.9					
	e SP	Z 11:20:38.4							
CLL	e SKSac	R 11:17:34.4	107.0	84.6					



	e SP	Z	11:20:41.1							
WET	e SKSac	R	11:17:37.7	107.2	85.2					
TANN	e SKSac	R	11:17:38.0	107.4	84.4					
	e SP	Z	11:20:46.8							
RJOB	e SKSac	R	11:17:37.1	107.4	85.5					
ROTZ	e SKSac	R	11:17:39.8	107.6	84.4					
MOX	e SKSac	R	11:17:39.8	107.9	83.7					
	e L	Z	12:02:36.3			20.9	1205		5.4	
GRA1	e SKSac	R	11:17:42.1	108.3	83.7					
	e L	Z	11:58:44.6			21.5	1240		5.4	
BSEG	e SKSac	R	11:17:42.4	108.3	81.6					
FUR	e SP	Z	11:20:54.6	108.4	84.2					
CLZ	e SKSac	R	11:17:42.4	108.5	82.3					
	e SP	Z	11:20:57.8							
UBBA	e SKSac	R	11:17:44.2	108.9	82.3					
	e SP	Z	11:21:01.2							
STU	e SKSac	R	11:17:46.2	109.7	82.4					
	e SP	Z	11:21:09.0							
TNS	e SKSac	R	11:17:50.7	110.0	81.3					
	e SP	Z	11:21:11.5							
IBBN	e SP	Z	11:21:10.0	110.0	80.0					
BFO	e SP	Z	11:21:14.2	110.3	81.9					
BUG	e SKSac	R	11:17:51.5	110.5	79.9					
	e SP	Z	11:21:15.7							
WLF	e SP	Z	11:21:26.4	111.5	79.7					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/13 15:09:47.8 0.440S 82.010E 33.0N 4.8 SZGRF  
 South Indian Ocean

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	15:21:33.1	76.3	107.0	1.0	7	4.7		
RJOB	e P	Z	15:21:34.4	76.5	106.0	1.0	7	4.8		
WET	e P	Z	15:21:36.8	76.9	106.4	0.9	5	4.6		
FBE	e P	Z	15:21:38.4	77.1	107.1	0.7	8	5.0		
CLL	e P	Z	15:21:39.5	77.4	106.9	0.9	6	4.7		
ROTZ	e P	Z	15:21:40.6	77.5	106.0	0.9	6	4.7		
MANZ	e P	Z	15:21:41.4	77.6	105.9	0.9	9	4.9		
GRA1	e P	Z	15:21:43.7	78.1	105.2	1.1	19	5.1		
MOX	e P	Z	15:21:43.5	78.1	105.7	1.0	6	4.6		
CLZ	e P	Z	15:21:49.2	79.1	104.9	0.7	7	4.8		
BFO	e P	Z	15:21:51.5	79.6	102.6	0.6	4	4.5		
BSEG	e P	Z	15:21:52.1	79.7	105.2	0.8	10	4.8		
TNS	e P	Z	15:21:54.1	79.9	103.1	1.1	11	4.7		
BUG	e P	Z	15:21:59.0	80.9	102.3	0.7	10	4.9		
WLF	e P	Z	15:22:00.8	81.2	101.2	1.1	20	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/13	18:05: 4.4	24.010N	122.580E	49.4G	6.4	6.9		SZGRF
Taiwan region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	18:17:14.7	81.0	60.8	2.0	636	6.3		
	e SS	R	18:27:17.8							
RUE	e P	Z	18:17:18.9	81.8	60.9	1.3	343	6.3		
	e SS	R	18:27:24.2							
FBE	e P	Z	18:17:24.2	82.7	60.4	2.0	761	6.6		
	e PP	Z	18:20:33.3							
CLL	e P	Z	18:17:23.6	82.7	60.2	2.1	454	6.3		
	e PP	Z	18:20:32.8							
	e SS	R	18:27:35.2							
BSEG	e P	Z	18:17:24.6	82.8	58.4	2.0	371	6.3		
	e PP	Z	18:20:34.9							
	e SS	R	18:27:37.4							
NEUB	e P	Z	18:17:27.6	83.5	59.3	1.7	418	6.4		
	e pP	Z	18:17:42.1							
	e SS	R	18:27:44.2							
TANN	e P	Z	18:17:27.8	83.5	59.7					
	e SS	R	18:27:45.1							
WERD	e P	Z	18:17:28.1	83.6	59.6	2.0	422	6.3		
	e pP	Z	18:17:42.6							
GEC2	e P	Z	18:17:28.3	83.6	60.4	1.5	265	6.2		
	e PP	Z	18:20:40.7							
	e SS	R	18:27:46.2							
GUNZ	e P	Z	18:17:28.3	83.6	59.6	1.9	393	6.3		
	e pP	Z	18:17:42.7							
WERN	e P	Z	18:17:28.5	83.6	59.6	1.6	244	6.2		
	e pP	Z	18:17:42.7							
PLN	e P	Z	18:17:28.7	83.6	59.5	2.0	1683	6.9		
	e PP	Z	18:20:42.0							
NRDL	e P	Z	18:17:29.2	83.7	58.1	2.3	942	6.6		
	e PP	Z	18:20:43.2							
MOX	e P	Z	18:17:29.6	83.8	59.1	2.3	468	6.3		
	e pP	Z	18:17:43.8							
	e SS	R	18:27:47.8							
CLZ	e L	Z	18:60:00.0			18.1	62823		7.0	
	e P	Z	18:17:30.2	83.9	58.3	1.8	581	6.5		
	e SS	R	18:27:48.9							
WET	e P	Z	18:17:30.2	83.9	59.9	1.9	460	6.4		
	e SS	R	18:27:49.3							
MANZ	e P	Z	18:17:30.1	83.9	59.4	1.8	325	6.2		
	e SS	R	18:27:49.3							
ROTZ	e P	Z	18:17:30.6	84.0	59.4	1.8	436	6.4		
	e pP	Z	18:17:44.9							

	e PP	Z	18:20:44.2							
	e SS	R	18:27:50.2							
GRA1	e P	Z	18:17:33.5	84.5	58.7	1.7	617	6.6		
	e pP	Z	18:17:47.8							
	e SS	R	18:27:54.7							
	e L	Z	18:59:38.4			19.6	47276	6.9		
UBBA	e P	Z	18:17:33.4	84.6	57.9	2.0	564	6.4		
	e PP	Z	18:20:51.1							
	e SS	R	18:27:54.3							
RJOB	e P	Z	18:17:33.9	84.7	59.7	1.2	160	6.1		
	e SS	R	18:27:54.2							
IBBN	e P	Z	18:17:35.5	85.0	56.3	1.8	712	6.6		
	e SS	R	18:27:57.5							
FUR	e P	Z	18:17:37.4	85.3	58.6	1.6	986	6.7		
	e SS	R	18:28:00.1							
BUG	e P	Z	18:17:39.0	85.7	55.9	1.9	680	6.4		
	e SS	R	18:28:04.6							
TNS	e P	Z	18:17:39.6	85.8	56.7	2.1	536	6.3		
	e SS	R	18:28:05.7							
STU	e P	Z	18:17:41.1	86.2	57.2	2.2	586	6.3		
	e PP	Z	18:21:03.5							
	e SS	R	18:28:07.7							
BFO	e P	Z	18:17:44.4	86.9	56.5	2.1	548	6.3		
	e pP	Z	18:17:59.3							
	e PP	Z	18:21:09.8							
	e SS	R	18:28:14.0							
WLF	e P	Z	18:17:47.2	87.3	55.0	1.8	626	6.6		
	e SS	R	18:28:19.8							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/13 20:28:56.4 24.577N 122.266E 40.7 5.0 SZGRF  
 Taiwan region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 20:41:13.5	82.1	60.1	1.0	6	4.7		
TANN	e P	Z 20:41:17.5	82.9	59.6	1.8	16	5.0		
GEC2	e P	Z 20:41:18.2	83.0	60.3	1.1	10	5.0		
	e pP	Z 20:41:30.1							
MOX	e P	Z 20:41:19.6	83.2	59.0	1.7	24	5.1		
	e pP	Z 20:41:31.3							
CLZ	e P	Z 20:41:20.1	83.3	58.2	1.3	14	5.0		
WET	e P	Z 20:41:20.0	83.3	59.7	1.7	22	5.1		
ROTZ	e P	Z 20:41:20.6	83.3	59.3	1.7	22	5.1		
	e pP	Z 20:41:32.1							
GRA1	e P	Z 20:41:23.5	83.9	58.6	1.6	34	5.3		
UBBA	e P	Z 20:41:23.4	84.0	57.8	1.8	19	5.0		
RJOB	e P	Z 20:41:23.6	84.0	59.5	1.0	9	5.0		

	e pP	Z	20:41:35.9						
FUR	e P	Z	20:41:27.4	84.7	58.5	0.9	30	5.5	
BUG	e P	Z	20:41:29.1	85.1	55.8	0.9	10	5.0	
BFO	e P	Z	20:41:34.7	86.3	56.4	1.6	13	4.8	
WLF	e P	Z	20:41:37.4	86.7	54.9	1.2	20	5.1	
	e pP	Z	20:41:49.1						

Date 2009/07/13 Origin Time 22:31:58.2 Lat 53.198S Long 118.964W Depth 33.0G mb Ms 4.7 ML Source SZGRF  
Southern East Pacific Rise

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e PKPbc	Z 22:51:35.0	146.4	242.5					
BFO	e PKPbc	Z 22:51:36.1	147.1	241.3					
STU	e PKPbc	Z 22:51:38.7	147.8	242.1					
BUG	e PKPbc	Z 22:51:38.8	147.9	245.3					
TNS	e PKPbc	Z 22:51:39.4	148.0	243.9					
IBBN	e PKPbc	Z 22:51:40.6	148.5	246.8					
FUR	e PKPbc	Z 22:51:41.0	148.7	241.7					
UBBA	e PKPbc	Z 22:51:42.7	149.2	245.3					
GRA1	e PKPbc	Z 22:51:43.6	149.4	244.0					
	e L	Z 23:55:51.3			19.3	73		4.5	
RJOB	e PKPbc	Z 22:51:42.7	149.4	241.4					
CLZ	e PKPbc	Z 22:51:44.2	149.8	247.1					
NRDL	e PKPbc	Z 22:51:44.4	149.9	248.0					
ROTZ	e PKPbc	Z 22:51:44.4	150.0	244.4					
MOX	e PKPbc	Z 22:51:44.6	150.0	245.6					
	e L	Z 23:51:52.0			20.5	150		4.8	
WET	e PKPbc	Z 22:51:44.6	150.1	243.6					
TANN	e PKPbc	Z 22:51:45.7	150.4	245.5					
GEC2	e PKPbc	Z 22:51:45.4	150.5	243.3					
BSEG	e PKPbc	Z 22:51:45.7	150.5	250.4					
CLL	e PKPbc	Z 22:51:47.1	151.1	247.1					

Date 2009/07/14 Origin Time 03:43:49.5 Lat 16.831S Long 179.574W Depth 33.0N mb Ms ML Source SZGRF  
Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 04:03:12.9	142.1	15.5					
NRDL	e PKPbc	Z 04:03:17.5	143.5	15.7					
CLL	e PKPbc	Z 04:03:19.4	144.1	20.8					
CLZ	e PKPbc	Z 04:03:19.7	144.1	16.4					
BRG	e PKPbc	Z 04:03:20.2	144.3	22.5					
FBE	e PKPbc	Z 04:03:20.8	144.4	21.6					

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NEUB	e	PKPbc	Z	04:03:20.4	144.5	18.9
TANN	e	PKPbc	Z	04:03:22.5	145.1	20.4
PLN	e	PKPbc	Z	04:03:22.4	145.1	19.9
GUNZ	e	PKPbc	Z	04:03:22.9	145.1	20.2
ROTZ	e	PKPbc	Z	04:03:24.7	145.7	20.3
GRA1	e	PKPbc	Z	04:03:25.4	146.0	18.7
GEC2	e	PKPbc	Z	04:03:26.0	146.2	23.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/14	11:27:37.3	22.900N	143.700E	94.0	5.1			NEIC
Volcano Islands, Japan, region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	11:40:41.5	93.3	42.1					
BRG	e P	Z	11:40:44.9	94.0	45.2	1.3	11	5.0		
CLL	e P	Z	11:40:45.2	94.1	44.4	1.4	14	5.1		
FBE	e P	Z	11:40:46.3	94.2	44.7	1.1	15	5.2		
CLZ	e P	Z	11:40:48.8	94.9	42.3					
PLN	e P	Z	11:40:50.0	95.1	43.8	1.3	47	5.8		
WERN	e P	Z	11:40:50.5	95.1	44.0	1.6	16	5.2		
ROHR	e P	Z	11:40:50.3	95.2	43.9	1.2	2	4.4		
GEC2	e P	Z	11:40:51.7	95.5	45.2	1.4	7	5.0		
ROTZ	e P	Z	11:40:52.8	95.6	43.9	1.6	16	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/14	18:46:22.4	20.687S	168.883E	40.0				SZGRF
Loyalty Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e PKPbc	Z	19:05:59.5	146.8	43.8					
WLF	e PKPbc	Z	19:06:03.4	147.9	31.5					
BFO	e PKPbc	Z	19:06:03.9	148.3	36.3					
DAVA	e PKPbc	Z	19:06:04.9	148.4	39.8					
	e pPKPbc	Z	19:06:16.7							
SLE	e PKPbc	Z	19:06:05.1	148.6	37.1					
WILA	e PKPbc	Z	19:06:05.4	148.7	38.1					
	e pPKPbc	Z	19:06:17.4							
SULZ	e PKPbc	Z	19:06:06.1	149.0	36.7					
	e pPKPbc	Z	19:06:18.2							
BALST	e PKPbc	Z	19:06:07.3	149.3	36.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/15	09:22:31.4	46.150S	166.530E	31.5		7.9		SZGRF

Off west coast of South Island, New Zealand

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
OKC	e PKPdf	Z	09:42:26.7	158.7	92.2					
	e PKPab	Z	09:43:00.3							
	e sPKPab	Z	09:43:14.2							
	e PP	Z	09:46:44.2							
	e SS	T	10:06:44.6							
MORC	e PKPdf	Z	09:42:28.0	159.1	92.0					
	e PKPab	Z	09:42:59.9							
	e sPKPab	Z	09:43:15.7							
	e PP	Z	09:46:48.4							
	e SS	T	10:06:53.6							
DPC	e PKPdf	Z	09:42:28.9	159.9	89.5					
	e PKPab	Z	09:43:06.5							
	e PP	Z	09:46:52.8							
	e SS	T	10:07:04.8							
ARSA	e PKPdf	Z	09:42:29.4	160.2	97.6					
	e PKPab	Z	09:43:08.5							
	e sPKPab	Z	09:43:19.9							
	e PP	Z	09:46:53.7							
	e SS	T	10:07:07.6							
OBKA	e PKPdf	Z	09:42:29.9	160.8	99.2					
	e sPKPab	Z	09:43:22.2							
	e PP	Z	09:46:56.7							
	e SS	T	10:07:10.2							
PRU	e PKPdf	Z	09:42:30.4	161.0	89.2					
	e sPKPab	Z	09:43:23.6							
	e PP	Z	09:46:58.8							
	e SS	T	10:07:16.6							
MOA	e PKPdf	Z	09:42:29.6	161.1	95.2					
	e PKPab	Z	09:43:10.1							
	e sPKPab	Z	09:43:24.1							
	e PP	Z	09:46:58.2							
	e SS	T	10:07:15.0							
RGN	e PKPdf	Z	09:42:29.7	161.1	74.7					
	e PKPab	Z	09:43:11.3							
	e sPKPab	Z	09:43:25.7							
	e PP	Z	09:47:00.5							
	e SS	T	10:07:21.3							
RUE	e PKPdf	Z	09:42:29.5	161.3	81.2					
	e PKPab	Z	09:43:12.7							
	e PP	Z	09:46:59.6							
	e SS	T	10:07:18.5							
BRG	e PKPdf	Z	09:42:30.0	161.4	86.1					
	e sPKPab	Z	09:43:25.3							
	e PP	Z	09:47:00.6							
	e SS	T	10:07:21.0							
KHC	e PKPdf	Z	09:42:30.2	161.6	91.0					

	e PP	Z	09:47:01.5				
	e SS	T	10:07:21.9				
KBA	e PKPdf	Z	09:42:31.0	161.6	97.0		
	e PP	Z	09:47:01.0				
	e SS	T	10:07:20.6				
CLL	e PKPdf	Z	09:42:30.4	161.9	83.9		
	e PP	Z	09:47:03.3				
	e SS	T	10:07:25.8				
RJOB	e PKPdf	Z	09:42:30.7	162.1	94.7		
	e sPKPab	Z	09:43:28.0				
	e PP	Z	09:47:02.6				
	e SS	T	10:07:23.9				
WET	e PKPdf	Z	09:42:30.9	162.1	90.4		
	e PKPab	Z	09:43:16.6				
	e sPKPab	Z	09:43:28.7				
	e PP	Z	09:47:03.7				
	e SS	T	10:07:27.1				
TANN	e PKPdf	Z	09:42:31.2	162.3	86.1		
	e PKPab	Z	09:43:17.5				
	e sPKPab	Z	09:43:29.9				
	e PP	Z	09:47:04.8				
	e SS	T	10:07:30.2				
MANZ	e PKPdf	Z	09:42:31.4	162.6	87.1		
	e sPKPdf	Z	09:42:45.3				
	e PP	Z	09:47:06.0				
	e SS	T	10:07:31.9				
NEUB	e PKPdf	Z	09:42:31.2	162.7	82.9		
	e sPKPdf	Z	09:42:45.6				
	e PP	Z	09:47:06.6				
	e SS	T	10:07:33.5				
WTTA	e PKPdf	Z	09:42:32.0	162.8	95.6		
	e PP	Z	09:47:06.5				
	e SS	T	10:07:33.5				
MOX	e PKPdf	Z	09:42:31.6	162.8	84.6		
	e sPKPdf	Z	09:42:45.6				
	e PKPab	Z	09:43:19.3				
	e sPKPab	Z	09:43:32.0				
	e PP	Z	09:47:07.6				
	e SS	T	10:07:34.9				
	e L	Z	11:02:39.9			19.5	215475
BSEG	e PKPdf	Z	09:42:31.6	163.0	72.5		8.0
	e PP	Z	09:47:10.3				
	e SS	T	10:07:40.4				
FUR	e PKPdf	Z	09:42:31.7	163.1	92.4		
	e sPKPdf	Z	09:42:46.2				
	e sPKPab	Z	09:43:32.9				
	e PP	Z	09:47:07.4				
	e SS	T	10:07:37.5				
GRA1	e PKPdf	Z	09:42:32.0	163.2	87.3		

	e sPKPab	Z	09:43:33.9									
	e PP	Z	09:47:08.9									
	e SS	T	10:07:36.7									
	e L	Z	11:01:17.1			20.9	126152		7.8			
CLZ	e PKPpdf	Z	09:42:32.6	163.4	79.3							
	e sPKPpdf	Z	09:42:46.2									
	e PP	Z	09:47:12.1									
	e SS	T	10:07:42.6									
DAVA	e PKPpdf	Z	09:42:33.3	164.0	94.6							
	e PKPab	Z	09:43:25.2									
	e sPKPab	Z	09:43:36.6									
	e PP	Z	09:47:12.9									
	e SS	T	10:07:43.3									
STU	e PKPpdf	Z	09:42:33.3	164.5	88.8							
	e sPKPab	Z	09:43:38.7									
	e PP	Z	09:47:15.5									
	e SS	T	10:07:49.8									
TNS	e PKPpdf	Z	09:42:34.1	164.9	82.8							
	e PKPab	Z	09:43:28.7									
	e sPKPab	Z	09:43:40.2									
	e PP	Z	09:47:19.0									
	e SS	T	10:07:52.3									
IBBN	e PKPpdf	Z	09:42:33.8	164.9	74.4							
	e sPKPpdf	Z	09:42:47.5									
	e sPKPab	Z	09:43:41.6									
	e PP	Z	09:47:20.3									
	e SS	T	10:08:02.1									
BFO	e PKPpdf	Z	09:42:34.0	165.1	89.8							
	e sPKPab	Z	09:43:41.4									
	e PP	Z	09:47:18.0									
	e SS	T	10:07:51.8									
BUG	e PKPpdf	Z	09:42:34.3	165.4	76.9							
	e sPKPpdf	Z	09:42:47.8									
	e PP	Z	09:47:22.1									
	e SS	T	10:08:08.3									
WLF	e PKPpdf	Z	09:42:35.9	166.4	82.5							
	e PKPab	Z	09:43:35.6									
	e PP	Z	09:47:26.9									
	e SS	T	10:08:04.5									

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/15 09:41:52.7 46.960S 167.190E 33.0G  
 Off west coast of South Island, New Zealand

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKPpdf	Z	10:01:51.8	162.1	87.8					
	e PKPab	Z	10:02:37.2							



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GEC2	e PKPdf	Z	10:01:52.0	162.2	94.0
	e PKPab	Z	10:02:37.6		
CLL	e PKPdf	Z	10:01:53.3	162.7	85.6
	e PKPab	Z	10:02:39.3		
WET	e PKPab	Z	10:02:40.2	162.8	92.5
TANN	e PKPab	Z	10:02:41.5	163.0	88.0
MOX	e PKPdf	Z	10:01:54.2	163.6	86.5
	e PKPab	Z	10:02:43.5		
BSEG	e PKPdf	Z	10:01:55.1	163.8	74.0
	e PKPab	Z	10:02:44.9		
GRA1	e PKPab	Z	10:02:45.0	163.9	89.5
CLZ	e PKPdf	Z	10:01:54.2	164.2	81.2
	e PKPab	Z	10:02:46.4		
NRDL	e PKPdf	Z	10:01:54.1	164.3	78.6
	e PKPab	Z	10:02:46.6		
UBBA	e PKPdf	Z	10:01:54.4	164.6	84.4
STU	e PKPab	Z	10:02:50.6	165.2	91.3
TNS	e PKPab	Z	10:02:52.5	165.6	85.1
IBBN	e PKPdf	Z	10:01:56.2	165.7	76.2
	e PKPab	Z	10:02:53.0		
BFO	e PKPab	Z	10:02:52.7	165.7	92.4
WLF	e PKPab	Z	10:02:59.4	167.1	85.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/15	20:10:44.4	3.400S	150.400E	20.0		6.2		NEIC
New Ireland, Papua New Guinea, region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z	20:29:33.9	119.9	47.6					
	e SP	Z	20:40:31.7							
	e SS	R	20:47:38.1							
BRG	e PKPdf	Z	20:29:34.1	120.2	52.7					
	e SP	Z	20:40:34.9							
	e SS	R	20:47:42.3							
CLL	e PKPdf	Z	20:29:34.4	120.4	51.6					
	e SP	Z	20:40:35.9							
	e SS	R	20:47:44.5							
NRDL	e PKPdf	Z	20:29:35.9	121.0	48.1					
	e PP	Z	20:31:06.0							
	e SP	Z	20:40:40.1							
TANN	e PKPdf	Z	20:29:36.3	121.2	51.4					
	e SP	Z	20:40:43.3							
	e SS	R	20:47:55.0							
CLZ	e PKPdf	Z	20:29:36.8	121.3	48.6					
	e SP	Z	20:40:42.2							
	e SS	R	20:47:59.2							
MOX	e PKPdf	Z	20:29:36.8	121.5	50.5					

	e PP	Z	20:31:08.4							
	e SP	Z	20:40:49.6							
	e SS	R	20:47:56.0							
	e L	Z	21:25:10.1			21.4	7523		6.3	
GEC2	e PKPdf	Z	20:29:36.8	121.5	53.4					
	e PP	Z	20:31:09.8							
	e SP	Z	20:40:46.4							
	e SS	R	20:47:59.2							
WET	e PKPdf	Z	20:29:37.6	121.8	52.5					
	e SP	Z	20:40:50.7							
	e SS	R	20:48:05.5							
IBBN	e PKPdf	Z	20:29:38.3	122.1	45.7					
	e SS	R	20:48:07.6							
GRA1	e PKPdf	Z	20:29:38.5	122.3	50.5					
	e SP	Z	20:40:53.8							
	e SS	R	20:48:08.7							
	e L	Z	21:23:36.6			21.0	5566		6.2	
RJOB	e PKPdf	Z	20:29:39.5	122.7	53.1					
	e SS	R	20:48:17.1							
BUG	e PKPdf	Z	20:29:39.7	123.0	45.6					
	e SS	R	20:48:16.0							
FUR	e PKPdf	Z	20:29:40.2	123.2	51.3					
	e SS	R	20:48:21.3							
TNS	e PKPdf	Z	20:29:40.6	123.3	47.4					
	e SS	R	20:48:24.5							
STU	e PKPdf	Z	20:29:41.6	123.9	48.9					
	e SS	R	20:48:32.9							
BFO	e PKPdf	Z	20:29:42.5	124.6	48.2					
	e SS	R	20:48:38.2							
WLF	e SS	R	20:48:42.4	124.7	45.2					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/16 00:24: 6.5 46.100S 166.100E 10.0  
 Off west coast of South Island, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKPab	Z 00:44:48.9	161.1	86.3					
GEC2	e PKPab	Z 00:44:49.3	161.2	92.1					
	e pPKPab	Z 00:45:03.5							
FBE	e PKPab	Z 00:44:50.4	161.4	85.6					
CLL	e PKPab	Z 00:44:51.0	161.6	84.1					
RJOB	e PKPab	Z 00:44:53.0	161.8	94.8					
WET	e PKPab	Z 00:44:52.0	161.8	90.6					
	e pPKPab	Z 00:45:06.5							
TANN	e PKPab	Z 00:44:53.2	162.0	86.3					
GUNZ	e pPKPab	Z 00:45:07.8	162.1	86.4					
WERD	e PKPab	Z 00:44:53.6	162.1	86.1					

MANZ	e	PKPab	Z	00:44:54.4	162.3	87.4
NEUB	e	PKPab	Z	00:44:54.6	162.4	83.2
BSEG	e	PKPab	Z	00:44:57.1	162.7	73.0
GRA1	e	PKPab	Z	00:44:56.9	162.9	87.5
	e	pPKPab	Z	00:45:11.3		
NRDL	e	PKPab	Z	00:44:58.7	163.2	77.3
TNS	e	PKPab	Z	00:45:04.4	164.6	83.1
WLF	e	PKPab	Z	00:45:11.4	166.1	82.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	00:44:45.0	47.420S	166.940E	22.8				NEIC
Off west coast of South Island, New Zealand								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e	PKPdf	Z	01:04:46.2	162.1	77.5				
	e	PKPab	Z	01:05:31.1						
BRG	e	PKPdf	Z	01:04:45.9	162.1	89.4				
	e	pPKPdf	Z	01:04:53.2						
	e	PKPab	Z	01:05:31.1						
RUE	e	PKPab	Z	01:05:31.2	162.1	84.3				
GEC2	e	PKPdf	Z	01:04:46.2	162.2	95.6				
	e	PKPab	Z	01:05:30.9						
FBE	e	PKPab	Z	01:05:31.8	162.5	88.8				
	e	pPKPab	Z	01:05:39.0						
RJOB	e	PKPdf	Z	01:04:46.5	162.6	98.6				
	e	pPKPdf	Z	01:04:53.5						
	e	PKPab	Z	01:05:32.7						
CLL	e	PKPdf	Z	01:04:46.5	162.7	87.3				
	e	PKPab	Z	01:05:32.1						
WET	e	PKPab	Z	01:05:33.8	162.7	94.1				
	e	pPKPab	Z	01:05:39.9						
TANN	e	PKPdf	Z	01:04:46.5	163.1	89.7				
	e	PKPab	Z	01:05:34.7						
WERN	e	PKPdf	Z	01:04:46.5	163.1	90.1				
	e	pPKPdf	Z	01:04:54.7						
GUNZ	e	PKPdf	Z	01:04:46.8	163.1	89.8				
	e	PKPab	Z	01:05:35.0						
WERD	e	PKPdf	Z	01:04:46.8	163.1	89.5				
	e	pPKPdf	Z	01:04:54.7						
	e	PKPab	Z	01:05:34.8						
PLN	e	PKPab	Z	01:05:36.0	163.2	89.3				
MANZ	e	PKPdf	Z	01:04:47.7	163.3	90.9				
	e	PKPab	Z	01:05:35.9						
	e	pPKPab	Z	01:05:42.6						
NEUB	e	PKPdf	Z	01:04:47.5	163.5	86.5				
	e	pPKPdf	Z	01:04:54.7						
	e	PKPab	Z	01:05:36.2						

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MOX	e	PKPab	Z	01:05:36.8	163.6	88.3
GRA1	e	PKP	Z	01:04:47.3	163.8	91.2
	e	pPKPdf	Z	01:04:53.5		
	e	PKPab	Z	01:05:39.8		
	e	pPKPab	Z	01:05:45.8		
BSEG	e	PKPab	Z	01:05:39.2	163.9	75.7
CLZ	e	PKPdf	Z	01:04:47.7	164.3	83.0
NRDL	e	PKPab	Z	01:05:40.7	164.3	80.4
STU	e	PKPab	Z	01:05:44.3	165.1	93.2
TNS	e	PKPab	Z	01:05:45.5	165.6	87.1
	e	pPKPab	Z	01:05:52.9		
WLF	e	PKPab	Z	01:05:54.1	167.1	87.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e	PKP	Z	03:39:56.1					
FUR	e	PKP	Z	03:40:00.9					
GEC2	e	PKP	Z	03:39:56.7					
GRA1	e	PKP	Z	03:40:03.0					
GRB3	e	PKP	Z	03:40:02.0					
MANZ	e	PKP	Z	03:40:02.1					
PLN	e	PKP	Z	03:40:01.0					
WERD	e	PKP	Z	03:40:00.4					
WET	e	PKP	Z	03:39:59.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	06:28:17.9	42.318N	132.896E	17.3	5.0			SZGRF
Primorye, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e	P	Z	06:39:40.7	72.0	40.9	0.8	25	5.4
	e	pP	Z	06:39:45.9					
BRG	e	P	Z	06:39:45.0	72.8	42.6	0.7	10	5.1
CLL	e	P	Z	06:39:44.9	72.8	42.1	0.8	18	5.3
	e	pP	Z	06:39:50.1					
NRDL	e	P	Z	06:39:46.9	73.1	40.5	0.8	4	4.6
	e	pP	Z	06:39:52.3					
CLZ	e	P	Z	06:39:49.9	73.5	40.6	0.9	12	5.0
	e	pP	Z	06:39:55.2					
TANN	e	P	Z	06:39:50.5	73.7	41.6	0.9	8	4.7
	e	pP	Z	06:39:56.4					
MOX	e	P	Z	06:39:51.7	73.9	41.1	1.4	12	4.7
GEC2	e	P	Z	06:39:54.3	74.4	42.1	0.9	11	4.9

	e pP	Z	06:39:59.1							
WET	e P	Z	06:39:55.5	74.5	41.6	0.8	14	5.0		
	e pP	Z	06:40:00.4							
GRA1	e P	Z	06:39:57.6	74.8	40.7	0.8	34	5.4		
	e pP	Z	06:40:01.5							
RJOB	e P	Z	06:40:01.9	75.6	41.3	0.8	15	5.2		
	e pP	Z	06:40:05.2							
BFO	e P	Z	06:40:09.4	77.1	38.7	0.9	19	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	06:30:1.3	45.700S	166.400E	10.0				NEIC

Off west coast of South Island, New Zealand

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z	06:50:43.9	161.1	84.9					
GEC2	e PKP	Z	06:50:44.8	161.3	90.7					
WET	e PKP	Z	06:50:47.3	161.9	89.1					
WERD	e PKP	Z	06:50:48.0	162.2	84.6					
PLN	e PKP	Z	06:50:48.6	162.2	84.4					
MOX	e PKP	Z	06:50:50.8	162.6	83.3					
BSEG	e PKP	Z	06:50:51.7	162.6	71.5					
GRA1	e PKP	Z	06:50:52.7	162.9	86.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	15:05:40.6	2.520N	31.820W	33.0G	5.4	4.4		SZGRF

Central Mid-Atlantic Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z	15:15:24.7	57.3	230.0	2.1	99	5.5		
STU	e P	Z	15:15:29.4	58.0	230.6	1.5	38	5.2		
TNS	e P	Z	15:15:33.5	58.6	229.2	1.3	37	5.2		
FUR	e P	Z	15:15:34.6	58.7	233.0	2.0	123	5.6		
BUG	e P	Z	15:15:35.3	58.8	227.4	1.8	74	5.4		
RJOB	e P	Z	15:15:38.5	59.3	234.7	1.1	16	4.9		
GRA1	e P	Z	15:15:40.9	59.6	232.2	1.6	95	5.6		
	e L	Z	15:36:34.7			21.2	286		4.4	
IBBN	e P	Z	15:15:40.7	59.6	227.5	1.5	72	5.5		
UBBA	e P	Z	15:15:41.6	59.7	230.5	2.3	123	5.5		
WET	e P	Z	15:15:44.4	60.1	234.1	1.7	44	5.2		
ROTZ	e P	Z	15:15:44.7	60.2	233.2	1.5	47	5.3		
MOX	e P	Z	15:15:46.5	60.4	232.2	1.7	78	5.5		
GEC2	e P	Z	15:15:46.5	60.4	235.1	2.5	116	5.5		
CLZ	e P	Z	15:15:47.2	60.5	230.4	2.3	124	5.5		
TANN	e P	Z	15:15:48.5	60.7	233.1	1.5	81	5.3		
NRDL	e P	Z	15:15:49.6	60.8	229.9	1.5	67	5.3		

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CLL	e P	Z	15:15:53.9	61.5	233.3	1.8	59	5.1
BRG	e P	Z	15:15:55.5	61.7	234.4	1.7	56	5.5
BSEG	e P	Z	15:15:55.7	61.9	229.5	1.2	134	6.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	15:18:11.5	4.210N	31.570W	23.5	4.9			SZGRF
Central Mid-Atlantic Ridge								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z	15:27:42.7	55.7	230.7	2.2	32	5.0		
TNS	e P	Z	15:27:52.5	57.0	229.9	1.6	28	5.0		
GRA1	e P	Z	15:28:00.4	58.0	233.0	1.2	21	5.0		
	e pP	Z	15:28:06.7							
WET	e P	Z	15:28:04.0	58.6	234.9	0.9	4	4.5		
ROTZ	e P	Z	15:28:04.2	58.6	233.9	1.0	9	4.8		
MOX	e P	Z	15:28:05.0	58.8	232.9	1.4	15	4.8		
	e pP	Z	15:28:11.4							
GEC2	e P	Z	15:28:05.0	58.9	235.9	1.1	6	4.5		
CLZ	e P	Z	15:28:05.9	58.9	231.1	1.5	18	4.9		
TANN	e P	Z	15:28:07.3	59.1	233.9	1.2	20	5.0		
NRDL	e P	Z	15:28:08.0	59.2	230.5	1.1	17	5.0		
	e pP	Z	15:28:14.8							
CLL	e P	Z	15:28:12.6	59.9	234.0	1.3	12	4.7		
BRG	e P	Z	15:28:14.5	60.1	235.1	1.2	10	4.7		
BSEG	e P	Z	15:28:14.8	60.2	230.1	1.2	64	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	17:59:35.9	17.600S	167.700E	10.0		5.4		NEIC
Vanuatu Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e PKP	Z	18:19:05.3	142.3	43.1					
GRA1	e L	Z	19:24:50.5	142.7	38.9	20.7	696		5.4	
TNS	e PKP	Z	18:19:07.7	143.4	34.5					
RJOB	e PKP	Z	18:19:09.0	143.5	42.9					
STU	e PKP	Z	18:19:10.3	144.3	36.7					
WLF	e PKP	Z	18:19:12.3	144.7	31.4					
BFO	e PKP	Z	18:19:12.0	145.0	35.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/16	18:42:46.8	23.840N	122.570E	33.0N	5.2	5.1		SZGRF
Taiwan region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 18:55:09.0	82.9	60.3	1.1	10	5.0		
BSEG	e P	Z 18:55:09.7	82.9	58.5	1.2	21	5.2		
TANN	e P	Z 18:55:13.2	83.6	59.8	1.7	22	5.1		
GEC2	e P	Z 18:55:13.7	83.7	60.5	1.7	34	5.3		
NRDL	e P	Z 18:55:14.6	83.8	58.2	2.0	48	5.4		
MOX	e P	Z 18:55:14.9	84.0	59.2	1.7	21	5.1		
CLZ	e P	Z 18:55:15.6	84.0	58.4	1.6	32	5.3		
WET	e P	Z 18:55:15.6	84.0	60.0	1.7	25	5.2		
ROTZ	e P	Z 18:55:16.0	84.1	59.6	1.7	37	5.3		
GRA1	e P	Z 18:55:18.9	84.7	58.8	1.3	25	5.3		
	e L	Z 19:37:43.1			18.3	696		5.1	
UBBA	e P	Z 18:55:19.0	84.7	58.0	1.7	26	5.2		
RJOB	e P	Z 18:55:19.2	84.8	59.8	1.2	12	5.0		
IBBN	e P	Z 18:55:20.9	85.1	56.4	1.6	40	5.4		
FUR	e P	Z 18:55:22.7	85.4	58.8	1.6	88	5.6		
BUG	e P	Z 18:55:24.4	85.8	56.0	1.3	35	5.3		
TNS	e P	Z 18:55:25.0	85.9	56.8	2.1	46	5.2		
STU	e P	Z 18:55:26.4	86.3	57.3					
BFO	e P	Z 18:55:29.8	87.0	56.6	1.9	25	5.0		
WLF	e P	Z 18:55:32.5	87.4	55.1	1.6	57	5.6		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/16 22:18:22.9 46.200S 166.200E 26.0 5.5 NEIC  
 Off west coast of South Island, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e PKP	Z 22:39:04.2	161.3	92.3					
	e pPKP	Z 22:39:11.6							
WET	e PKP	Z 22:39:06.6	161.9	90.8					
	e pPKP	Z 22:39:13.9							
ROTZ	e PKP	Z 22:39:08.3	162.3	88.4					
	e pPKP	Z 22:39:16.5							
MOX	e PKP	Z 22:39:09.4	162.7	85.1					
BSEG	e PKP	Z 22:39:11.7	162.8	73.1					
GRA1	e PKP	Z 22:39:10.8	163.0	87.8					
	e pPKP	Z 22:39:19.4							
CLZ	e PKP	Z 22:39:13.4	163.3	79.9					
TNS	e PKP	Z 22:39:19.0	164.7	83.4					
BFO	e PKP	Z 22:39:18.8	164.9	90.2					
	e pPKP	Z 22:39:26.7							
GRA1	e L	Z 00:04:15.1	163.0	87.8	18.3	631		5.5	

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/16 23:52: 3.5 4.950N 126.521E 58.0 5.5 NEIC

Talaud Islands, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e Pdiff	Z	00:05:42.1	100.0	69.1					
CLL	e Pdiff	Z	00:05:43.5	100.4	68.3					
BSEG	e Pdiff	Z	00:05:46.8	100.9	65.6					
TANN	e Pdiff	Z	00:05:46.8	101.1	68.0					
MOX	e L	Z	00:56:07.8	101.5	67.2	20.7	1649		5.5	
NRDL	e Pdiff	Z	00:05:49.6	101.6	65.6					
CLZ	e Pdiff	Z	00:05:50.3	101.7	66.0					
GRA1	e L	Z	00:56:28.2	102.1	67.1	21.3	1655		5.5	
IBBN	e Pdiff	Z	00:05:55.7	103.0	63.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/17	00:59:48.0	21.580S	174.050W	33.0N				SZGRF

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	01:19:28.7	147.5	7.6					
NRDL	e PKPbc	Z	01:19:32.2	148.9	7.5					
IBBN	e PKPbc	Z	01:19:33.0	149.2	3.3					
CLZ	e PKPbc	Z	01:19:34.4	149.5	8.1					
CLL	e PKPbc	Z	01:19:34.3	149.8	13.1					
	e PKPab	Z	01:19:39.6							
BRG	e PKPbc	Z	01:19:35.4	150.0	15.0					
	e PKPab	Z	01:19:40.9							
BUG	e PKPbc	Z	01:19:35.1	150.1	2.5					
MOX	e PKPbc	Z	01:19:36.5	150.6	10.8					
	e PKPab	Z	01:19:42.5							
TANN	e PKPbc	Z	01:19:36.8	150.7	12.4					
ROTZ	e PKPbc	Z	01:19:38.6	151.4	12.2					
	e PKPab	Z	01:19:46.6							
GRA1	e PKPbc	Z	01:19:38.6	151.6	10.3					
	e PKPab	Z	01:19:47.2							
WET	e PKPbc	Z	01:19:39.4	151.9	13.8					
	e PKPab	Z	01:19:48.7							
GEC2	e PKPbc	Z	01:19:39.9	152.0	15.5					
FUR	e PKPab	Z	01:19:53.3	153.1	11.0					
BFO	e PKPbc	Z	01:19:42.1	153.2	4.9					
	e PKPab	Z	01:19:53.5							
RJOB	e PKPbc	Z	01:19:42.7	153.3	14.3					
	e PKPab	Z	01:19:54.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/17	01:55:43.9	26.223N	142.430E	30.0	5.1			NEIC



Bonin Islands, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:08:52.9	92.6	42.5	1.3	11	5.1		
	e pP	Z 02:09:01.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/17	03:20:32.0	21.750S	175.340W	41.2		5.3		SZGRF

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 03:40:12.7	147.5	9.8					
NRDL	e PKPbc	Z 03:40:16.3	149.0	9.8					
IBBN	e PKPbc	Z 03:40:17.6	149.4	5.7					
	e PKPab	Z 03:40:22.4							
CLZ	e PKPbc	Z 03:40:18.4	149.6	10.5					
	e pPKPbc	Z 03:40:30.5							
CLL	e PKPbc	Z 03:40:18.3	149.7	15.5					
BRG	e PKPbc	Z 03:40:19.2	150.0	17.4					
	e pPKPbc	Z 03:40:32.0							
BUG	e PKPbc	Z 03:40:19.7	150.2	4.9					
MOX	e PKPbc	Z 03:40:20.3	150.6	13.2					
	e PKPab	Z 03:40:27.0							
	e L	Z 04:53:48.5			19.0	572		5.4	
UBBA	e PKPbc	Z 03:40:20.5	150.6	10.2					
	e pPKPbc	Z 03:40:32.9							
TANN	e PKPbc	Z 03:40:20.7	150.7	14.9					
	e PKPab	Z 03:40:27.7							
ROTZ	e PKPbc	Z 03:40:22.8	151.4	14.7					
	e pPKPbc	Z 03:40:35.0							
TNS	e PKPbc	Z 03:40:22.5	151.4	7.4					
GRA1	e PKPbc	Z 03:40:23.4	151.6	12.9					
	e PKPab	Z 03:40:31.5							
	e L	Z 04:51:18.3			21.3	454		5.2	
WET	e PKPbc	Z 03:40:23.9	151.8	16.3					
GEC2	e PKPbc	Z 03:40:23.9	152.0	18.1					
WLF	e PKPbc	Z 03:40:24.3	152.1	3.0					
STU	e PKPbc	Z 03:40:25.6	152.7	9.2					
BFO	e PKPbc	Z 03:40:26.5	153.3	7.6					
	e PKPab	Z 03:40:38.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/17	14:35:41.8	31.400N	104.100E	10.0	4.9			NEIC

Sichuan, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	14:46:30.5	66.3	68.8	0.6	4	4.7		
GUNZ	e P	Z	14:46:37.8	67.4	67.5	0.8	6	4.9		
ROTZ	e P	Z	14:46:40.3	67.7	67.2	0.7	4	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/18								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z	01:42:33.7							
GEC2	e PKP	Z	01:42:39.6							
HKWD	e PKP	Z	01:42:35.5							
MOX	e PKP	Z	01:42:36.3							
ROHR	e PKP	Z	01:42:36.9							
ROTZ	e PKP	Z	01:42:38.6							
SCHD	e PKP	Z	01:42:37.1							
TANN	e PKP	Z	01:42:36.4							
WERD	e PKP	Z	01:42:36.4							
WERN	e PKP	Z	01:42:36.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/18	02:41:27.5	33.980N	37.950W	33.0N	4.5			SZGRF
Northern Mid-Atlantic Ridge								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	02:48:23.5	35.8	260.9	1.4	26	4.9		
BFO	e P	Z	02:48:34.3	37.0	264.6	1.1	18	4.7		
STU	e P	Z	02:48:39.2	37.6	264.8	1.0	20	4.8		
GRA1	e P	Z	02:48:51.2	39.0	265.3	1.0	20	4.7		
MOX	e P	Z	02:48:54.0	39.4	264.4	1.2	8	4.2		
TANN	e P	Z	02:48:58.6	39.9	265.4	1.3	7	4.2		
RJOB	e P	Z	02:48:59.0	40.0	268.9	1.1	14	4.5		
CLL	e P	Z	02:49:01.5	40.3	264.8	0.9	7	4.3		
GEC2	e P	Z	02:49:04.3	40.6	268.3	0.9	6	4.3		
BRG	e P	Z	02:49:06.3	40.8	266.1	1.1	7	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/18	14:00:16.1	15.900S	175.400W	304.0				NEIC
Tonga Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z	14:19:15.3	144.0	13.8					

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PLN	e	PKP	Z	14:19:16.7	144.9	12.7
WERD	e	PKP	Z	14:19:16.3	144.9	13.0
TANN	e	PKP	Z	14:19:16.9	144.9	13.2
WERN	e	PKP	Z	14:19:17.1	145.0	13.1
ROHR	e	PKP	Z	14:19:17.3	145.1	13.0
ROTZ	e	PKP	Z	14:19:17.9	145.6	13.0
	e	pPKP	Z	14:20:36.7		
WET	e	pPKP	Z	14:20:38.5	146.1	14.4
GEC2	e	pPKP	Z	14:20:38.1	146.2	15.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/18	17:06:36.3	0.180S	28.070W	33.0N	5.1			SZGRF

Central Mid-Atlantic Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z	17:16:24.1	57.8	224.5	1.5	42	5.2		
STU	e P	Z	17:16:28.7	58.5	225.2	2.0	62	5.3		
FUR	e P	Z	17:16:33.2	59.1	227.6	1.8	112	5.6		
TNS	e P	Z	17:16:33.5	59.2	223.8	1.4	30	5.1		
BUG	e P	Z	17:16:37.2	59.6	222.1	1.0	16	5.0		
GRA1	e P	Z	17:16:40.0	60.1	226.9	1.6	55	5.3		
IBBN	e P	Z	17:16:41.6	60.4	222.3	1.3	28	5.1		
WET	e P	Z	17:16:43.0	60.5	228.8	1.1	19	5.0		
ROTZ	e P	Z	17:16:43.6	60.6	227.9	1.4	33	5.0		
GEC2	e P	Z	17:16:44.8	60.8	229.8	1.4	35	5.0		
MOX	e P	Z	17:16:45.9	61.0	226.9	1.8	44	5.0		
TANN	e P	Z	17:16:47.6	61.2	227.9	1.6	44	5.0		
NRDL	e P	Z	17:16:50.1	61.6	224.7	2.0	66	5.1		
CLL	e P	Z	17:16:53.2	62.0	228.1	1.7	26	5.2		
BRG	e P	Z	17:16:54.3	62.2	229.2	1.1	13	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/18	20:32:25.8	35.610N	43.140E	33.0G	5.2	3.7		SZGRF

Iraq

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	20:37:54.1	25.3	110.6	0.9	67	5.4		
WET	e P	Z	20:37:59.4	25.9	110.1	1.3	35	4.8		
BRG	e P	Z	20:37:59.7	25.9	114.8	1.1	27	4.8		
ROTZ	e P	Z	20:38:05.7	26.5	110.5	1.4	119	5.4		
FUR	e P	Z	20:38:05.9	26.6	106.4	1.0	135	5.6		
CLL	e P	Z	20:38:05.8	26.6	114.4	1.4	55	5.1		
GRA1	e P	Z	20:38:10.6	27.1	109.2	1.2	115	5.5		
	e L	Z	20:52:51.2			20.4	236		3.7	
STU	e P	Z	20:38:18.6	28.1	105.2	1.4	58	5.2		

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CLZ	e P	Z	20:38:21.7	28.3	112.0	1.4	37	5.0
NRDL	e P	Z	20:38:24.9	28.7	112.8	1.6	25	4.8
TNS	e P	Z	20:38:27.3	28.9	107.0	1.6	64	5.2
IBBN	e P	Z	20:38:37.1	30.0	109.7	1.5	58	5.2
WLF	e P	Z	20:38:38.5	30.2	103.6	1.1	36	5.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/19	06:02:32.9	33.000N	141.300E	35.0	5.2			NEIC
Off east coast of Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 06:15:01.2	84.2	42.1	2.5	75	5.5		
	e pP	Z 06:15:12.5							
CLL	e P	Z 06:15:01.4	84.3	41.4	0.9	20	5.3		
FBE	e P	Z 06:15:02.5	84.4	41.6	1.0	20	5.3		
NEUB	e P	Z 06:15:04.4	84.8	40.5	0.9	21	5.4		
GUNZ	e P	Z 06:15:06.7	85.2	40.9	1.1	10	4.9		
WERN	e P	Z 06:15:06.9	85.3	40.9	1.0	10	4.9		
ROTZ	e P	Z 06:15:09.8	85.7	40.7	1.4	11	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/19								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e PKPbc	Z 07:36:34.3							
GRA1	e PKPbc	Z 07:36:32.9							
GRA2	e PKPbc	Z 07:36:32.9							
GRB2	e PKPbc	Z 07:36:33.7							
GRB3	e PKPbc	Z 07:36:33.5							
GRB5	e PKPbc	Z 07:36:34.3							
GRC4	e PKPbc	Z 07:36:34.3							
ROTZ	e PKPbc	Z 07:36:32.3							
WET	e PKPbc	Z 07:36:34.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/19	08:35:44.7	1.700S	80.400W	48.0	5.2			NEIC
Near coast of Ecuador								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:48:51.3	92.3	270.1					
GRB2	e P	Z 08:48:52.4	92.6	270.5	1.1	13	5.3		
GRB5	e P	Z 08:48:52.3	92.6	270.5	1.2	11	5.2		
GRB3	e P	Z 08:48:53.2	92.7	270.6	1.2	19	5.4		

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PLN	e P	Z	08:48:53.9	92.9	270.9	1.1	59	5.9
ROTZ	e P	Z	08:48:54.3	93.0	270.9	1.3	10	5.1
WERD	e P	Z	08:48:54.3	93.0	271.0	1.2	9	5.1
ROHR	e P	Z	08:48:54.5	93.0	271.0			
WERN	e P	Z	08:48:54.9	93.1	271.0	1.2	14	5.2
TANN	e P	Z	08:48:54.9	93.1	271.1	1.1	14	5.3
CLL	e P	Z	08:48:56.1	93.5	271.6	1.1	6	4.9
FBE	e P	Z	08:48:57.7	93.7	271.8	1.5	23	5.3
GEC2	e P	Z	08:48:58.2	94.0	272.0	1.7	10	4.9
BRG	e P	Z	08:48:59.2	94.1	272.3	1.0	7	4.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/19	19:43:39.1	19.409S	171.860E	33.0N				SZGRF
Vanuatu Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z	20:03:08.8	144.0	35.4					
IBBN	e PKPbc	Z	20:03:11.2	144.8	26.7					
TANN	e PKPbc	Z	20:03:11.4	145.0	35.3					
WERD	e PKPbc	Z	20:03:11.4	145.0	35.0					
PLN	e PKPbc	Z	20:03:11.6	145.0	34.8					
GUNZ	e PKPbc	Z	20:03:11.8	145.0	35.1					
MOX	e PKPbc	Z	20:03:11.7	145.1	33.8					
WERN	e PKPbc	Z	20:03:12.0	145.1	35.3					
MANZ	e PKPbc	Z	20:03:13.0	145.4	35.1					
ROTZ	e PKPbc	Z	20:03:13.7	145.6	35.5					
GEC2	e PKPbc	Z	20:03:13.6	145.7	38.5					
WLF	e PKPbc	Z	20:03:20.4	147.7	25.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/20	22:55:22.6	33.900N	25.500E	10.0G	4.3			NOA
Crete, Greece								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	22:59:23.9	17.3	145.3	0.9	14	4.1		
WET	e P	Z	22:59:29.4	17.9	143.8	1.2	18	4.1		
MANZ	e P	Z	22:59:39.6	18.9	143.5	1.0	7	3.8		
GRA1	e P	Z	22:59:43.2	19.0	141.0	1.0	24	4.4		
TANN	e P	Z	22:59:43.5	19.1	145.0	0.9	10	4.0		
GUNZ	e P	Z	22:59:43.8	19.1	144.7	0.9	6	3.8		
WERD	e P	Z	22:59:43.4	19.2	144.7	0.9	10	4.1		
FBE	e P	Z	22:59:43.8	19.2	147.9	1.0	14	4.2		
PLN	e P	Z	22:59:44.9	19.2	144.5	0.9	34	4.6		
TNS	e P	Z	23:00:01.6	20.6	136.1	0.8	24	4.6		
CLZ	e P	Z	23:00:03.4	21.0	142.8	0.2	21	5.2		

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WLF e P Z 23:00:10.6 21.2 130.6 0.9 18 4.4

Date Origin Time Lat Long Depth mb Ms ML Source  
2009/07/20 23:01:12.0 6.700S 30.000E 10.0 5.0 NEIC  
Lake Tanganyika region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 23:10:58.4	57.4	160.7	1.7	30	5.1		
WET	e P	Z 23:11:01.3	57.8	159.8	1.2	12	4.8		
ROTZ	e P	Z 23:11:06.6	58.6	159.2	1.2	12	4.8		
GRA1	e P	Z 23:11:07.8	58.7	158.0	1.1	26	5.2		
MANZ	e P	Z 23:11:08.3	58.8	159.1	1.0	17	5.0		
WERN	e P	Z 23:11:10.0	59.0	159.5	1.9	28	5.0		
GUNZ	e P	Z 23:11:10.7	59.1	159.4	1.7	24	5.0		
TANN	e P	Z 23:11:10.9	59.1	159.6	1.4	14	4.8		
WERD	e P	Z 23:11:11.4	59.2	159.4	1.9	42	5.1		
BRG	e P	Z 23:11:11.2	59.2	161.4	1.7	17	4.8		
PLN	e P	Z 23:11:11.6	59.2	159.3	0.8	51	5.6		
MOX	e P	Z 23:11:13.4	59.5	158.7	1.2	10	4.7		
CLL	e P	Z 23:11:15.1	59.8	160.4	1.3	10	4.7		
TNS	e P	Z 23:11:16.6	59.9	155.1	1.0	12	4.9		
NEUB	e P	Z 23:11:17.3	60.0	159.0	1.0	15	5.0		
CLZ	e P	Z 23:11:23.5	60.9	157.6	1.8	28	4.8		
NRDL	e P	Z 23:11:28.4	61.6	157.4	1.0	31	5.1		
BSEG	e P	Z 23:11:36.5	62.9	157.9					

Date Origin Time Lat Long Depth mb Ms ML Source  
2009/07/21 15:07:29.9 14.700S 174.100W 47.0 NEIC  
Samoa Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ROTZ	e PKP	Z 15:27:00.7	144.6	10.6					
GRA1	e PKP	Z 15:27:02.3	144.7	8.9					
WET	e PKP	Z 15:27:04.3	145.1	11.8					
GEC2	e PKP	Z 15:27:02.3	145.3	13.3					
BFO	e PKP	Z 15:27:05.7	146.3	4.2					
RJOB	e PKP	Z 15:27:06.0	146.5	12.1					

Date Origin Time Lat Long Depth mb Ms ML Source  
2009/07/21 19:55:45.5 13.700S 66.100E 10.0 4.8 NEIC  
Mid-Indian Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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WET	e P	Z	20:07:44.3	78.4	127.4	1.2	7	4.7
NKC	e P	Z	20:07:50.3	79.3	127.2	1.4	13	4.8
WERN	e P	Z	20:07:50.4	79.3	127.2	1.0	10	4.8
GUNZ	e P	Z	20:07:51.3	79.4	127.1	0.9	10	4.9
WERD	e P	Z	20:07:51.4	79.5	127.1	2.4	27	4.8
CLL	e P	Z	20:07:52.1	79.6	127.8	1.0	9	4.8
MOX	e P	Z	20:07:53.7	79.9	126.6	1.3	14	4.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/22	03:53:18.7	27.420N	53.910E	33.0G	5.2	4.4		SZGRF

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 04:00:30.9	37.5	109.9	0.9	25	4.9		
RJOB	e P	Z 04:00:32.7	37.8	107.6	0.7	56	5.4		
BRG	e P	Z 04:00:35.5	38.1	112.6	0.9	51	5.2		
WET	e P	Z 04:00:35.5	38.2	109.4	0.8	30	5.1		
ROTZ	e P	Z 04:00:41.5	38.8	109.4	0.9	56	5.2		
TANN	e P	Z 04:00:41.6	38.8	110.5	0.9	16	4.6		
CLL	e P	Z 04:00:41.6	38.8	112.1	0.8	68	5.3		
FUR	e P	Z 04:00:41.8	38.9	106.6	0.9	96	5.4		
GRA1	e P	Z 04:00:46.1	39.4	108.4	0.9	112	5.5		
	e L	Z 04:19:32.7			19.7	518		4.4	
MOX	e P	Z 04:00:46.4	39.4	109.9	1.1	22	4.7		
STU	e P	Z 04:00:53.3	40.4	105.3	0.9	30	5.0		
UBBA	e P	Z 04:00:54.6	40.4	108.4	0.8	22	4.9		
BFO	e P	Z 04:00:58.2	40.8	104.0	0.8	22	4.9		
NRDL	e P	Z 04:00:59.5	40.9	110.3	0.9	114	5.6		
TNS	e P	Z 04:01:01.6	41.2	106.2	1.1	57	5.2		
BSEG	e P	Z 04:01:02.0	41.3	112.1	1.1	63	5.3		
IBBN	e P	Z 04:01:10.1	42.2	107.8	0.9	71	5.4		
WLF	e P	Z 04:01:11.7	42.5	103.4	0.9	94	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/22	21:06: 6.0	50.976N	160.603E	33.0G	4.9			SZGRF

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:17:50.3	76.0	19.3	1.1	10	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/23	16:50:39.5	40.200N	77.600E	33.0	4.8			GSRC

Kyrgyzstan-Xinjiang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:59:06.7	46.4	75.3	1.0	9	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/23	19:55:53.2	11.600N	70.500W	29.0G	4.6			NEIC

Near coast of Venezuela

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:07:36.7	75.8	271.3	1.6	8	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/24	03:11:57.4	30.530N	85.750E	33.0G	5.9	5.8		SZGRF

Xizang

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 03:21:31.8	55.7	82.2	1.2	169	5.9		
	e S	R 03:29:14.7							
GEC2	e P	Z 03:21:35.3	56.1	80.7	1.0	138	5.9		
	e S	R 03:29:22.9							
CLL	e P	Z 03:21:35.2	56.2	81.8	1.3	99	5.7		
	e PP	Z 03:23:40.9							
	e S	R 03:29:21.7							
WET	e P	Z 03:21:38.8	56.6	80.3	1.0	94	5.8		
	e S	R 03:29:29.8							
TANN	e P	Z 03:21:39.0	56.7	80.9	1.1	104	5.8		
	e S	R 03:29:28.9							
RJOB	e P	Z 03:21:40.5	56.9	79.4	1.1	40	5.4		
	e S	R 03:29:30.9							
ROTZ	e P	Z 03:21:41.6	56.9	80.3	1.1	170	6.0		
	e S	R 03:29:34.8							
MOX	e P	Z 03:21:42.4	57.2	80.4	1.1	123	5.9		
	e S	R 03:29:35.3							
	e L	Z 03:47:12.5			21.3	5988		5.7	
BSEG	e P	Z 03:21:44.5	57.4	81.5	1.1	306	6.3		
GRA1	e P	Z 03:21:46.1	57.6	79.5	1.3	245	6.1		
	e S	R 03:29:42.4							
	e L	Z 03:48:16.5			20.0	6728		5.8	
NRDL	e P	Z 03:21:47.1	57.8	80.5	1.1	372	6.3		
FUR	e P	Z 03:21:47.5	57.8	78.6	1.0	345	6.3		
UBBA	e P	Z 03:21:49.2	58.1	79.4	1.6	115	5.7		
	e PP	Z 03:23:57.9							
	e S	R 03:29:47.8							
STU	e P	Z 03:21:55.8	59.1	77.6	1.0	193	6.1		
IBBN	e P	Z 03:21:56.8	59.2	78.7	1.1	211	6.1		



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	e PP	Z	03:24:08.8							
TNS	e P	Z	03:21:56.9	59.2	77.9	1.0	156	6.0		
	e S	R	03:30:03.4							
BUG	e P	Z	03:22:00.1	59.7	77.8	1.1	209	6.1		
BFO	e P	Z	03:21:59.7	59.7	76.8	0.8	41	5.5		
	e S	R	03:30:09.0							
WLF	e P	Z	03:22:08.2	60.8	76.1	1.0	182	5.9		
	e S	R	03:30:24.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/24	05:48:14.4	36.810N	36.210E	33.0N	4.4			SZGRF
Jordan - Syria region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 05:52:48.3	20.3	117.9	0.9	12	4.1		
RJOB	e P	Z 05:52:49.1	20.4	113.9	1.8	33	4.3		
WET	e P	Z 05:52:54.5	20.9	117.4	1.1	25	4.5		
BRG	e P	Z 05:52:57.5	21.2	123.0	1.4	26	4.4		
ROTZ	e P	Z 05:53:02.5	21.6	117.8	1.0	15	4.4		
TANN	e P	Z 05:53:04.0	21.8	119.6	1.7	40	4.6		
CLL	e P	Z 05:53:05.5	21.9	122.3	1.1	16	4.4		
MOX	e P	Z 05:53:09.2	22.3	118.8	1.7	33	4.5		
BFO	e P	Z 05:53:20.2	23.4	109.2	1.5	56	4.9		
NRDL	e P	Z 05:53:27.6	24.1	120.3	1.3	12	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/24	10:45:33.4	5.000N	94.600E	35.0	4.8			NEIC
Northern Sumatera, Indonesia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 10:57:40.6	80.3	93.6	0.7	11	4.9		
RJOB	e P	Z 10:57:42.7	80.8	92.7	0.7	6	4.7		
WET	e P	Z 10:57:43.4	80.8	93.0					
BFO	e P	Z 10:57:58.3	83.8	89.5	0.9	7	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/24	14:26:59.6	53.600N	169.300E	55.0	4.8			NEIC
Komandorsky Islands, Russia, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 14:38:15.1	71.1	13.0	0.8	13	5.1		
CLL	e P	Z 14:38:27.3	73.2	14.4	0.7	8	4.9		
BRG	e P	Z 14:38:29.2	73.5	15.0	0.4	6	4.9		

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MOX	e P	Z	14:38:32.8	74.1	13.6	0.5	5	4.8
UBBA	e P	Z	14:38:32.8	74.1	12.6			
WERD	e P	Z	14:38:33.5	74.2	13.9			
TANN	e P	Z	14:38:33.6	74.2	14.0	0.9	4	4.4
WERN	e P	Z	14:38:34.5	74.3	14.0			
NKC	e P	Z	14:38:34.7	74.4	14.0			
ROHR	e P	Z	14:38:34.8	74.4	13.9			
ROTZ	e P	Z	14:38:37.6	74.8	13.8	1.4	10	4.7
GRA1	e P	Z	14:38:39.2	75.1	13.3	0.6	7	4.9
WET	e P	Z	14:38:40.6	75.3	14.2	1.0	10	4.9
GEC2	e P	Z	14:38:41.3	75.5	14.7	0.7	8	5.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/24	21:45:52.4	59.500S	149.400E	10.0				NEIC
West of Macquarie Island								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e PKPbc	Z 22:05:47.6	152.3	131.3					
GEC2	e PKPbc	Z 22:05:49.1	152.6	129.6					
GRA1	e PKPbc	Z 22:05:53.6	154.4	128.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	01:03:14.1	13.300S	167.100E	228.0				NEIC
Vanuatu Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 01:22:09.8	136.6	38.2					
GRA1	e PKPdf	Z 01:22:12.9	138.6	37.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	01:43:54.5	60.443N	142.776W	33.0N	5.3			SZGRF
Southern Alaska, United States								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 01:54:26.1	63.6	345.6	1.5	64	5.6		
IBBN	e P	Z 01:54:33.4	64.8	344.4	1.5	60	5.6		
NRDL	e P	Z 01:54:34.6	65.0	345.6	1.4	28	5.3		
BUG	e P	Z 01:54:38.0	65.6	344.3	1.6	69	5.6		
CLL	e P	Z 01:54:44.3	66.6	347.3	1.4	26	5.3		
UBBA	e P	Z 01:54:45.0	66.6	345.8	1.6	26	5.2		
TNS	e P	Z 01:54:47.0	66.9	345.0	1.5	35	5.4		
MOX	e P	Z 01:54:47.5	67.0	346.6	1.3	23	5.3		
WLF	e P	Z 01:54:48.5	67.1	344.0	1.6	52	5.5		

TANN	e P	Z	01:54:49.7	67.4	347.1	1.5	40	5.4
GRA1	e P	Z	01:54:52.8	67.9	346.5	1.5	34	5.4
ROTZ	e P	Z	01:54:53.8	68.0	347.0	1.6	29	5.3
STU	e P	Z	01:54:56.6	68.5	345.6			
WET	e P	Z	01:54:58.3	68.7	347.4	1.6	34	5.3
BFO	e P	Z	01:54:58.0	68.7	345.2	1.4	16	5.0
GEC2	e P	Z	01:55:00.6	69.1	347.8	1.5	29	5.3
FUR	e P	Z	01:55:02.4	69.4	346.7	0.9	26	5.3
RJOB	e P	Z	01:55:06.1	70.0	347.5	0.9	8	4.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	01:42:28.2	6.500S	154.900E	65.0				NEIC
Bougainville - Solomon Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z	02:01:20.4	124.6	44.4					
	e PP	Z	02:03:05.4							
CLL	e PKPdf	Z	02:01:21.2	125.2	48.7					
	e PP	Z	02:03:10.7							
NRDL	e PKPdf	Z	02:01:22.6	125.7	44.9					
	e PP	Z	02:03:14.1							
TANN	e PKPdf	Z	02:01:23.2	126.1	48.6					
	e PP	Z	02:03:17.1							
MOX	e PKPdf	Z	02:01:23.5	126.3	47.5					
	e PP	Z	02:03:18.0							
GEC2	e PKPdf	Z	02:01:23.9	126.5	50.8					
	e PP	Z	02:03:20.0							
ROTZ	e PKPdf	Z	02:01:24.3	126.6	48.6					
	e PP	Z	02:03:21.1							
WET	e PKPdf	Z	02:01:24.5	126.7	49.7					
	e PP	Z	02:03:21.7							
IBBN	e PKPdf	Z	02:01:24.7	126.9	42.4					
	e PP	Z	02:03:21.3							
UBBA	e PKPdf	Z	02:01:24.8	127.0	45.6					
	e PP	Z	02:03:22.6							
GRA1	e PKPdf	Z	02:01:25.2	127.2	47.6					
	e PP	Z	02:03:24.4							
RJOB	e PKPdf	Z	02:01:25.7	127.7	50.4					
	e PP	Z	02:03:27.7							
BUG	e PKPdf	Z	02:01:26.1	127.7	42.2					
	e PP	Z	02:03:26.5							
TNS	e PKPdf	Z	02:01:27.1	128.1	44.2					
	e PP	Z	02:03:30.0							
FUR	e PKPdf	Z	02:01:27.1	128.2	48.5					
	e PP	Z	02:03:30.6							
STU	e PKPdf	Z	02:01:28.4	128.8	45.9					
	e PP	Z	02:03:34.8							

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BFO	e PKPdf	Z	02:01:29.4	129.5	45.2
	e PP	Z	02:03:39.6		
WLF	e PKPdf	Z	02:01:30.5	129.5	41.9
	e PP	Z	02:03:39.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	08:43:14.8	23.012S	179.443W	33.0N				SZGRF
South of Fiji Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 09:03:02.1	150.1	23.5					
MOX	e PKPbc	Z 09:03:04.3	151.1	21.4					
TANN	e PKPbc	Z 09:03:04.6	151.1	23.1					
ROTZ	e PKPbc	Z 09:03:06.2	151.7	23.1					
TNS	e PKPbc	Z 09:03:07.0	152.1	15.7					
GEC2	e PKPbc	Z 09:03:07.1	152.2	26.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	11:16:40.8	14.600S	167.200E	199.0				NEIC
Vanuatu Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 11:35:48.0	139.8	37.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	11:32:21.3	46.170N	147.860E	33.0G	5.9			SZGRF
Northwest of Kuril Islands, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 11:43:54.1	73.6	29.2	1.0	152	6.0		
NRDL	e P	Z 11:44:01.3	74.9	28.8	1.2	84	5.7		
CLL	e P	Z 11:44:01.7	75.1	30.5	1.0	192	6.1		
IBBN	e P	Z 11:44:06.1	75.8	27.3	1.0	127	6.0		
TANN	e P	Z 11:44:07.5	76.0	30.1	1.0	38	5.5		
MOX	e P	Z 11:44:07.8	76.1	29.6	1.0	69	5.7		
UBBA	e P	Z 11:44:09.8	76.4	28.6	1.1	50	5.5		
ROTZ	e P	Z 11:44:11.5	76.7	29.8	1.0	92	5.8		
BUG	e P	Z 11:44:11.1	76.7	26.9	1.1	151	6.0		
GEC2	e P	Z 11:44:12.7	77.0	30.7	1.2	65	5.7		
WET	e P	Z 11:44:13.3	77.0	30.2	1.1	158	6.0		
GRA1	e P	Z 11:44:13.6	77.0	29.2	1.1	264	6.3		
TNS	e P	Z 11:44:15.4	77.4	27.5	1.2	118	5.9		
RJOB	e P	Z 11:44:20.1	78.2	30.0	1.0	73	5.7		

FUR	e P	Z	11:44:20.7	78.3	29.1	1.3	271	6.1
STU	e P	Z	11:44:21.0	78.5	27.8	1.0	126	5.9
WLF	e P	Z	11:44:22.5	78.6	26.0	1.8	118	5.6
BFO	e P	Z	11:44:24.5	79.1	27.2	1.1	80	5.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	18:41:57.8	1.089N	95.977E	33.0G	5.1			SZGRF

Off west coast of northern Sumatera, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	18:54:25.8	84.1	95.1	1.2	19	5.2		
RJOB	e P	Z	18:54:27.6	84.6	94.3	0.9	8	4.9		
WET	e P	Z	18:54:28.4	84.7	94.5	1.1	12	5.1		
CLL	e P	Z	18:54:28.2	84.8	94.8	1.2	12	5.0		
TANN	e P	Z	18:54:30.0	85.0	94.3	1.1	5	4.6		
ROTZ	e P	Z	18:54:31.2	85.1	94.1	0.9	12	5.1		
MOX	e P	Z	18:54:32.8	85.6	93.7	1.0	6	4.6		
FUR	e P	Z	18:54:32.9	85.7	93.2	0.8	13	5.1		
GRA1	e P	Z	18:54:34.2	85.8	93.3	1.0	20	5.2		
BSEG	e P	Z	18:54:37.6	86.6	92.9	1.2	36	5.4		
UBBA	e P	Z	18:54:37.9	86.6	92.4	2.2	34	5.1		
NRDL	e P	Z	18:54:38.1	86.6	92.6	1.0	7	4.8		
STU	e P	Z	18:54:40.1	87.1	91.7					
TNS	e P	Z	18:54:43.0	87.6	91.2	0.9	10	5.2		
BFO	e P	Z	18:54:42.4	87.6	91.0	1.1	7	4.9		
IBBN	e P	Z	18:54:44.7	88.0	90.7	1.2	36	5.6		
BUG	e P	Z	18:54:46.4	88.3	90.3	1.0	20	5.4		
WLF	e P	Z	18:54:50.4	89.1	89.4	1.1	12	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/25	19:03:20.6	29.900S	177.800W	32.0				NEIC

Kermadec Islands, New Zealand

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e pPKPdf	Z	19:23:23.1	157.1	24.7					
	e PKPab	Z	19:23:42.1							
FBE	e pPKPdf	Z	19:23:24.1	157.4	25.9					
	e PKPab	Z	19:23:43.9							
TANN	e PKPab	Z	19:23:46.7	158.1	24.4					
MOX	e PKPab	Z	19:23:46.3	158.1	22.3					
WERD	e PKPab	Z	19:23:46.6	158.1	24.1					
PLN	e PKPab	Z	19:23:46.6	158.1	23.7					
WERN	e PKPab	Z	19:23:47.5	158.2	24.4					
NKC	e PKPab	Z	19:23:47.4	158.3	24.6					
ROHR	e PKPab	Z	19:23:47.7	158.3	24.3					

ROTZ	e	PKPab	Z	19:23:50.0	158.7	24.6
GRA1	e	PKPab	Z	19:23:51.5	159.1	22.4
WET	e	PKPab	Z	19:23:51.5	159.1	26.8
GEC2	e	PKPab	Z	19:23:51.3	159.1	29.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	01:00:12.4	23.600N	121.100E	41.4	5.0	4.9		NEIC

Taiwan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FBE	e pP	Z 01:12:45.4	82.3	61.7					
CLL	e P	Z 01:12:33.2	82.3	61.5	1.3	9	4.7		
	e pP	Z 01:12:45.4							
BSEG	e P	Z 01:12:35.0	82.4	59.8	1.3	32	5.4		
	e pP	Z 01:12:45.6							
NEUB	e P	Z 01:12:37.2	83.0	60.6	1.8	34	5.3		
TANN	e P	Z 01:12:37.5	83.0	61.0	1.5	9	4.8		
GEC2	e P	Z 01:12:37.8	83.0	61.8	1.3	9	4.8		
	e pP	Z 01:12:49.6							
WERD	e P	Z 01:12:37.5	83.1	60.9	1.6	11	4.9		
WERN	e P	Z 01:12:38.1	83.1	60.9	1.3	11	4.9		
PLN	e P	Z 01:12:38.1	83.1	60.8	1.2	25	5.3		
MOX	e P	Z 01:12:39.3	83.4	60.4	1.4	10	4.8		
	e L	Z 01:55:07.0			18.5	639		5.0	
WET	e P	Z 01:12:39.7	83.4	61.2	1.5	8	4.7		
MANZ	e P	Z 01:12:39.5	83.4	60.7	1.8	18	5.0		
	e pP	Z 01:12:51.6							
ROTZ	e P	Z 01:12:40.3	83.5	60.8	1.4	15	5.0		
GRA1	e P	Z 01:12:43.4	84.0	60.0	1.5	21	5.2		
	e L	Z 01:52:33.1			18.2	401		4.8	
RJOB	e P	Z 01:12:43.5	84.1	61.0	1.3	9	4.8		
IBBN	e P	Z 01:12:46.1	84.6	57.7	1.6	35	5.3		
FUR	e P	Z 01:12:47.4	84.8	60.0	1.3	37	5.4		
TNS	e pP	Z 01:13:01.1	85.3	58.1					
STU	e P	Z 01:12:51.7	85.7	58.5	1.2	9	4.8		
WLF	e P	Z 01:12:59.2	86.8	56.3	1.1	20	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	05:03:16.1	20.100S	169.800E	237.0				NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z 05:22:21.0	143.9	38.9					
NRDL	e PKP	Z 05:22:21.4	144.0	33.7					
TANN	e PKP	Z 05:22:24.7	144.8	38.9					

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IBBN	e	PKP	Z	05:22:24.9	144.9	30.2
MOX	e	PKP	Z	05:22:25.2	144.9	37.4
ROTZ	e	PKP	Z	05:22:26.5	145.4	39.1
UBBA	e	PKP	Z	05:22:25.8	145.4	34.8
GEC2	e	PKP	Z	05:22:26.6	145.5	42.2
GRA1	e	PKP	Z	05:22:28.9	145.9	37.7
TNS	e	PKP	Z	05:22:30.1	146.5	32.9
RJOB	e	PKP	Z	05:22:31.8	146.7	41.9
FUR	e	PKP	Z	05:22:33.6	147.0	39.2
STU	e	PKP	Z	05:22:34.3	147.4	35.3
BFO	e	PKP	Z	05:22:37.3	148.1	34.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	06:11:3.1	23.580N	121.050E	33.0G	5.2	4.8		SZGRF
Taiwan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 06:23:22.1	82.3	61.6	0.9	13	5.0		
BSEG	e P	Z 06:23:23.8	82.4	59.9	1.3	29	5.4		
TANN	e P	Z 06:23:25.7	83.0	61.1	1.2	11	5.0		
GEC2	e P	Z 06:23:26.4	83.0	61.8	0.8	10	5.1		
MOX	e P	Z 06:23:28.0	83.3	60.5	1.0	10	5.0		
	e L	Z 07:06:08.1			19.2	543		4.9	
WET	e P	Z 06:23:27.9	83.4	61.2	0.9	5	4.7		
ROTZ	e P	Z 06:23:28.9	83.4	60.8	0.9	11	5.1		
GRA1	e P	Z 06:23:31.7	84.0	60.1	1.7	32	5.3		
	e L	Z 07:05:13.3			21.3	302		4.6	
RJOB	e P	Z 06:23:32.1	84.1	61.0	0.8	12	5.2		
IBBN	e P	Z 06:23:34.2	84.6	57.7	1.0	24	5.4		
FUR	e P	Z 06:23:35.8	84.8	60.0	0.9	20	5.3		
BUG	e P	Z 06:23:37.4	85.3	57.3	1.1	19	5.2		
WLF	e P	Z 06:23:45.5	86.8	56.4	1.2	23	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	07:40:20.2	10.097N	92.904E	33.0N	5.0			SZGRF
Andaman Islands, India, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:52:09.8	76.9	89.7	2.2	26	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	11:55:44.4	10.600N	94.200E	10.0	5.3			NEIC
Andaman Islands, India, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:07:45.8	77.4	88.4	3.5	87	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	13:29:14.2	10.700N	94.300E	10.0	4.8			NEIC

Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 13:41:11.4	76.2	90.0	1.3	8	4.7		
ROTZ	e P	Z 13:41:15.3	76.8	89.0	1.7	19	5.0		
GRA1	e P	Z 13:41:17.9	77.4	88.3	1.6	13	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	17:09:37.8	18.245S	175.120E	33.0N				SZGRF

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 17:29:02.5	142.4	24.1					
CLL	e PKPbc	Z 17:29:06.4	144.0	29.8					
FBE	e PKPbc	Z 17:29:07.1	144.3	30.6					
NEUB	e PKPbc	Z 17:29:08.1	144.5	27.9					
WERD	e PKPbc	Z 17:29:09.4	145.0	29.3					
PLN	e PKPbc	Z 17:29:09.5	145.0	29.0					
MOX	e PKPbc	Z 17:29:09.5	145.0	28.1					
GUNZ	e PKPbc	Z 17:29:09.5	145.1	29.4					
WERN	e PKPbc	Z 17:29:09.8	145.1	29.5					
NKC	e PKPbc	Z 17:29:09.8	145.1	29.7					
MANZ	e PKPbc	Z 17:29:10.7	145.5	29.3					
ROTZ	e PKPbc	Z 17:29:11.2	145.6	29.6					
GEC2	e PKPbc	Z 17:29:12.6	145.9	32.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	23:01:36.8	17.800S	168.000E	67.0				NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e SS	T 23:42:04.2	140.0	34.2					
CLL	e SS	T 23:42:21.6	141.1	39.8					
WERD	e PKP	Z 23:20:56.8	142.0	39.6					
PLN	e PKP	Z 23:20:56.9	142.1	39.3					
GUNZ	e PKP	Z 23:20:57.1	142.1	39.7					
WERN	e PKP	Z 23:20:57.3	142.1	39.8					



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NKC	e	PKP	Z	23:20:57.3	142.1	39.9
MOX	e	PKP	Z	23:20:57.3	142.1	38.4
	e	SS	T	23:42:33.6		
ROHR	e	PKP	Z	23:20:57.6	142.2	39.8
ROTZ	e	PKP	Z	23:20:59.2	142.6	40.0
UBBA	e	SS	T	23:42:39.2	142.6	36.0
GEC2	e	SS	T	23:42:41.2	142.6	42.9
WET	e	PKP	Z	23:20:59.6	142.8	41.5
	e	SS	T	23:42:43.8		
GRA1	e	PKP	Z	23:21:00.7	143.0	38.6
	e	SS	T	23:42:46.0		
BUG	e	SS	T	23:42:43.6	143.1	31.5
TNS	e	PKP	Z	23:21:02.8	143.7	34.2
RJOB	e	PKP	Z	23:21:03.1	143.9	42.6
FUR	e	SS	T	23:43:01.6	144.2	40.0
STU	e	PKP	Z	23:21:04.8	144.6	36.4
	e	SS	T	23:43:04.1		
WLF	e	PKP	Z	23:21:05.7	144.9	31.1
BFO	e	PKP	Z	23:21:06.2	145.3	35.5
	e	SS	T	23:43:11.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/26	23:10:20.5	5.070S	103.490E	33.0G	5.9			SZGRF
Southern Sumatera, Indonesia								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	23:23:34.2	93.7	93.5	1.5	120	6.0		
FBE	e P	Z	23:23:35.7	94.0	93.1	1.0	55	5.8		
RJOB	e P	Z	23:23:35.7	94.2	92.9	1.2	32	5.5		
RGN	e P	Z	23:23:36.6	94.2	92.8	1.0	64	5.9		
WET	e P	Z	23:23:36.6	94.2	92.9	1.6	127	6.0		
CLL	e P	Z	23:23:36.2	94.3	92.8	1.1	37	5.6		
TANN	e P	Z	23:23:38.0	94.6	92.4	1.0	25	5.6		
WERN	e P	Z	23:23:38.4	94.6	92.4	1.0	28	5.7		
GUNZ	e P	Z	23:23:38.5	94.6	92.3	0.9	34	5.8		
WERD	e P	Z	23:23:38.4	94.7	92.3	0.9	33	5.7		
ROTZ	e P	Z	23:23:39.1	94.7	92.3	1.1	46	5.8		
PLN	e P	Z	23:23:38.9	94.8	92.2	1.0	167	6.4		
MANZ	e P	Z	23:23:39.4	94.8	92.2	1.1	67	6.0		
NEUB	e P	Z	23:23:39.9	95.0	91.8	1.0	95	6.2		
MOX	e P	Z	23:23:40.6	95.1	91.8	1.5	66	5.8		
FUR	e P	Z	23:23:40.7	95.3	91.7	1.3	96	6.1		
GRA1	e P	Z	23:23:41.8	95.3	91.6	1.1	61	6.0		
BSEG	e P	Z	23:23:44.2	96.0	90.4	1.2	90	6.2		
NRDL	e P	Z	23:23:44.8	96.1	90.4	1.2	45	5.9		
UBBA	e P	Z	23:23:44.8	96.1	90.5	1.6	42	5.7		
STU	e P	Z	23:23:47.2	96.6	90.1	1.1	32	5.9		

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TNS	e P	Z	23:23:49.8	97.1	89.4	1.0	51	6.1
BFO	e P	Z	23:23:49.5	97.2	89.5	1.1	23	5.7
IBBN	e P	Z	23:23:51.2	97.5	88.6	1.1	34	5.9
BUG	e P	Z	23:23:52.6	97.8	88.3	1.2	34	6.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/27	06:23:48.4	34.680N	73.150E	33.0N	5.0	4.2		SZGRF

Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 06:32:04.5	45.3	85.2	1.4	9	4.5		
CLL	e P	Z 06:32:06.3	45.6	87.1	0.8	9	4.9		
WET	e P	Z 06:32:08.9	45.8	84.9	1.4	8	4.6		
TANN	e P	Z 06:32:10.0	46.0	85.8	0.9	5	4.5		
RJOB	e P	Z 06:32:09.5	46.0	83.5	1.0	10	4.8		
ROTZ	e P	Z 06:32:11.9	46.2	85.0	1.1	11	4.8		
MOX	e P	Z 06:32:13.9	46.5	85.4	0.8	9	5.0		
	e L	Z 06:54:21.7			18.3	228		4.2	
GRA1	e P	Z 06:32:17.3	46.8	84.3	1.3	27	5.2		
	e L	Z 06:54:39.5			18.3	298		4.3	
BSEG	e P	Z 06:32:18.4	47.1	87.5	1.0	31	5.4		
NRDL	e P	Z 06:32:20.0	47.3	86.0	0.9	11	5.0		
STU	e P	Z 06:32:27.8	48.2	82.0	0.7	20	5.3		
BFO	e P	Z 06:32:32.2	48.9	81.1	1.4	16	4.8		
BUG	e P	Z 06:32:34.7	49.1	83.0	1.2	18	5.0		
WLF	e P	Z 06:32:42.3	50.1	80.7	0.8	24	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/27	09:03:37.5	43.707N	80.616E	33.0N	4.6	3.9		SZGRF

Kazakhstan-Xinjiang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 09:11:46.7	44.6	72.0	1.2	13	4.7		
GEC2	e P	Z 09:11:49.7	45.0	70.1	0.6	2	4.2		
TANN	e P	Z 09:11:51.6	45.3	70.9	1.2	6	4.4		
WET	e P	Z 09:11:53.2	45.4	69.9	1.1	7	4.6		
ROTZ	e P	Z 09:11:54.7	45.6	70.1	0.6	2	4.4		
MOX	e P	Z 09:11:55.4	45.7	70.6	1.3	12	4.8		
	e L	Z 09:32:54.8			18.7	147		4.0	
GRA1	e P	Z 09:12:00.0	46.3	69.5	0.8	12	5.0		
	e L	Z 09:35:31.2			19.6	97		3.8	
BFO	e P	Z 09:12:17.3	48.5	66.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/27	12:34:19.3	5.631S	151.802E	39.0G		5.0		NEIC

New Britain, Papua New Guinea, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z	12:53:10.3	122.5	47.3					
CLL	e PKPdf	Z	12:53:10.9	123.0	51.4					
NRDL	e PKPdf	Z	12:53:12.4	123.6	47.8					
TANN	e PKPdf	Z	12:53:12.7	123.8	51.3					
MOX	e PKPdf	Z	12:53:13.1	124.1	50.3					
	e L	Z	13:48:30.1			21.2	383		5.0	
GEC2	e PKPdf	Z	12:53:13.3	124.1	53.4					
ROTZ	e PKPdf	Z	12:53:13.8	124.4	51.4					
WET	e PKPdf	Z	12:53:13.9	124.4	52.4					
UBBA	e PKPdf	Z	12:53:14.5	124.8	48.5					
IBBN	e PKPdf	Z	12:53:14.5	124.8	45.3					
GRA1	e PKPdf	Z	12:53:14.7	124.9	50.4					
	e L	Z	13:47:35.7			21.5	376		5.0	
RJOB	e PKPdf	Z	12:53:15.1	125.3	53.1					
TNS	e PKPdf	Z	12:53:16.8	125.9	47.2					
BFO	e PKPdf	Z	12:53:19.0	127.2	48.1					
WLF	e PKPdf	Z	12:53:20.1	127.3	44.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/27	12:54:16.3	23.814S	170.062E	33.0N				SZGRF

Southeast of Loyalty Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z	13:13:56.3	147.3	41.4					
FBE	e PKPbc	Z	13:13:57.2	147.5	42.3					
TANN	e PKPbc	Z	13:13:58.8	148.2	41.5					
WERD	e PKPbc	Z	13:13:59.0	148.3	41.2					
PLN	e PKPbc	Z	13:13:59.0	148.3	40.9					
GUNZ	e PKPbc	Z	13:13:59.6	148.3	41.3					
WERN	e PKPbc	Z	13:13:59.7	148.4	41.5					
ROHR	e PKPbc	Z	13:13:59.8	148.4	41.4					
GEC2	e PKPbc	Z	13:14:00.6	148.8	45.1					
UBBA	e PKPbc	Z	13:14:00.5	148.9	37.2					
TNS	e PKPbc	Z	13:14:03.7	150.0	35.2					
RJOB	e PKPbc	Z	13:14:03.7	150.0	45.1					
WLF	e PKPbc	Z	13:14:07.2	151.3	31.8					
BFO	e PKPbc	Z	13:14:07.3	151.5	37.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/27	13:04:20.9	22.394S	172.354E	33.0N				SZGRF

## Southeast of Loyalty Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	13:23:56.7	145.7	30.4					
CLL	e PKPbc	Z	13:24:00.2	147.0	36.7					
NRDL	e PKPbc	Z	13:24:00.5	147.0	31.1					
IBBN	e PKPbc	Z	13:24:02.9	147.8	27.5					
TANN	e PKPbc	Z	13:24:03.1	147.9	36.7					
MOX	e PKPbc	Z	13:24:03.3	148.0	35.1					
UBBA	e PKPbc	Z	13:24:04.5	148.4	32.4					
ROTZ	e PKPbc	Z	13:24:05.1	148.5	36.9					
GEC2	e PKPbc	Z	13:24:04.9	148.6	40.2					
WET	e PKPbc	Z	13:24:05.4	148.7	38.6					
BUG	e PKPbc	Z	13:24:05.4	148.7	27.3					
TNS	e PKPbc	Z	13:24:07.8	149.4	30.3					
RJOB	e PKPbc	Z	13:24:07.7	149.8	40.0					
STU	e PKPbc	Z	13:24:09.6	150.4	32.9					
WLF	e PKPbc	Z	13:24:11.1	150.6	26.7					
BFO	e PKPbc	Z	13:24:10.7	151.1	31.8					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/27 19:16:22.6 44.630N 145.628E 150.4 4.9  
 Hokkaido, Japan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	19:27:43.6	74.3	31.3	0.7	23	5.3		
NRDL	e P	Z	19:27:50.8	75.6	31.0	1.3	11	4.8		
CLL	e P	Z	19:27:50.8	75.7	32.7	0.8	18	5.3		
	e pP	Z	19:28:27.5							
MOX	e P	Z	19:27:56.8	76.7	31.7	1.1	7	4.7		
ROTZ	e P	Z	19:28:00.3	77.3	32.0	1.3	10	4.8		
GEC2	e P	Z	19:28:01.2	77.5	32.8	1.1	7	4.7		
WET	e P	Z	19:28:02.0	77.6	32.4	1.0	10	4.9		
	e pP	Z	19:28:38.7							
GRA1	e P	Z	19:28:02.5	77.7	31.4	0.9	13	5.1		
	e pP	Z	19:28:39.2							
RJOB	e P	Z	19:28:08.6	78.8	32.1	0.9	9	4.8		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/28 01:30:48.9 18.710S 176.020W 33.0G  
 Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	01:50:20.1	144.4	10.4					
CLL	e PKPbc	Z	01:50:26.2	146.6	15.7					

FBE	e	PKPbc	Z	01:50:27.7	146.9	16.4
MOX	e	PKPab	Z	01:50:31.2	147.5	13.5
WERD	e	PKPbc	Z	01:50:29.4	147.6	14.8
TANN	e	PKPbc	Z	01:50:29.3	147.6	15.1
GUNZ	e	PKPbc	Z	01:50:29.8	147.7	14.9
WERN	e	PKPbc	Z	01:50:30.3	147.7	15.0
NKC	e	PKPbc	Z	01:50:30.0	147.8	15.2
	e	PKPab	Z	01:50:32.6		
ROTZ	e	PKPbc	Z	01:50:31.3	148.3	14.9
GRA1	e	PKPbc	Z	01:50:31.9	148.5	13.2
WET	e	PKPab	Z	01:50:37.2	148.7	16.4
GEC2	e	PKPbc	Z	01:50:32.4	148.9	18.0
RJOB	e	PKPab	Z	01:50:42.8	150.1	16.9
BFO	e	PKPbc	Z	01:50:35.8	150.2	8.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/28	03:17:55.1	39.930N	74.140E	33.0N	4.7	3.8		SZGRF
Southern Xinjiang, China								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	03:25:51.4	42.9	80.5	0.8	10	4.6		
GEC2	e P	Z	03:25:52.4	42.9	78.3	0.9	11	4.6		
WET	e P	Z	03:25:55.9	43.4	78.2	1.0	9	4.4		
TANN	e P	Z	03:25:56.4	43.4	79.2	0.9	4	4.2		
ROTZ	e P	Z	03:25:58.6	43.7	78.4	1.7	16	4.5		
MOX	e P	Z	03:25:59.9	43.9	78.9	1.7	19	4.6		
	e L	Z	03:46:43.6			20.5	162		3.9	
BSEG	e P	Z	03:26:01.9	44.1	81.4	0.8	13	4.7		
GRA1	e P	Z	03:26:03.0	44.3	77.7	1.0	15	4.7		
	e L	Z	03:46:47.1			19.0	97		3.7	
NRDL	e P	Z	03:26:04.8	44.5	79.8	1.0	12	4.8		
FUR	e P	Z	03:26:06.3	44.6	76.2	1.2	29	5.1		
UBBA	e P	Z	03:26:07.6	44.9	78.0	0.9	6	4.5		
STU	e P	Z	03:26:15.4	45.8	75.6	1.3	14	4.8		
BUG	e P	Z	03:26:19.8	46.4	76.9	1.5	33	5.2		
BFO	e P	Z	03:26:20.1	46.5	74.7	1.3	10	4.8		
WLF	e P	Z	03:26:29.3	47.5	74.6	1.5	27	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/28	05:14:54.5	10.188N	95.174E	23.7	4.9	4.4		SZGRF
Andaman Islands, India, region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	05:26:43.9	76.7	89.6	1.3	13	4.9		
	e pP	Z	05:26:50.1							

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CLL	e P	Z	05:26:45.7	77.2	89.7	1.3	9	4.8	
	e pP	Z	05:26:52.7						
WET	e P	Z	05:26:46.5	77.3	89.1	1.3	9	4.7	
	e pP	Z	05:26:53.5						
RJOB	e P	Z	05:26:46.7	77.4	88.7	1.5	10	4.7	
TANN	e P	Z	05:26:47.7	77.5	89.0	2.0	22	4.9	
	e pP	Z	05:26:55.2						
ROTZ	e P	Z	05:26:49.6	77.7	88.7	1.5	19	5.0	
	e pP	Z	05:26:56.1						
	e PP	Z	05:29:52.0						
MOX	e P	Z	05:26:51.3	78.1	88.4	1.3	7	4.6	
	e L	Z	06:08:03.8			20.3	193		4.4
GRA1	e P	Z	05:26:53.3	78.3	87.9	1.2	12	4.9	
	e pP	Z	05:26:59.8						
	e L	Z	06:08:32.1			20.7	170		4.4
BSEG	e P	Z	05:26:55.8	78.8	88.1	1.4	37	5.2	
	e pP	Z	05:27:02.4						
	e PP	Z	05:29:59.2						
NRDL	e P	Z	05:26:57.0	78.9	87.6	1.4	25	5.0	
	e pP	Z	05:27:03.4						
TNS	e pP	Z	05:27:09.5	80.1	85.9				
BFO	e pP	Z	05:27:10.0	80.3	85.5				
	e PP	Z	05:30:14.8						
IBBN	e pP	Z	05:27:11.1	80.4	85.8				
BUG	e pP	Z	05:27:13.0	80.7	85.2				
WLF	e PP	Z	05:30:23.5	81.6	84.1				

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/28 08:43:45.9 5.830S 101.560E 33.0G 5.2 5.4 ML SZGRF  
 Southwest of Sumatera, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	08:56:56.8	93.0	95.4	1.2	16	5.3		
	e PP	Z	09:00:38.4							
	e SKSac	E	09:07:30.1							
RJOB	e P	Z	08:56:59.2	93.5	94.8	1.3	7	5.0		
	e PP	Z	09:00:42.2							
	e SKSac	E	09:07:31.0							
WET	e P	Z	08:57:00.4	93.5	94.8	0.5	9	5.4		
	e SKSac	E	09:07:33.4							
CLL	e P	Z	08:56:59.5	93.6	94.8	1.1	8	5.0		
	e PP	Z	09:00:44.1							
	e SKSac	E	09:07:31.9							
NKC	e P	Z	08:56:57.5	93.9	94.4					
TANN	e P	Z	08:57:01.7	93.9	94.4	0.6	5	5.0		
	e PP	Z	09:00:46.5							
	e SKSac	E	09:07:35.4							

WERN	e P	Z	08:56:57.5	94.0	94.4				
ROHR	e P	Z	08:56:55.7	94.0	94.3				
ROTZ	e P	Z	08:57:02.3	94.0	94.3				
	e PP	Z	09:00:47.7						
	e SKSac	E	09:07:36.9						
NEUB	e P	Z	08:57:04.3	94.4	93.8				
MOX	e P	Z	08:57:04.1	94.5	93.7	1.0	9	5.1	
	e PP	Z	09:00:50.8						
	e SKSac	E	09:07:37.8						
	e L	Z	09:45:08.9			20.9	1070	5.3	
FUR	e P	Z	08:57:03.6	94.5	93.7	0.4	22	5.8	
	e PP	Z	09:00:50.3						
	e SKSac	E	09:07:36.9						
GRA1	e PP	Z	09:00:52.2	94.7	93.5				
	e SKSac	E	09:07:39.2						
	e L	Z	09:47:02.6			21.0	1414	5.4	
BSEG	e P	Z	08:57:07.9	95.4	92.4	0.5	11	5.5	
	e SKSac	E	09:07:43.6						
UBBA	e P	Z	08:57:08.2	95.5	92.5	0.9	5	5.0	
	e PP	Z	09:00:58.4						
	e SKSac	E	09:07:43.4						
NRDL	e P	Z	08:57:08.7	95.5	92.4	1.1	11	5.2	
	e PP	Z	09:00:57.2						
STU	e SKSac	E	09:07:44.7	95.9	92.1				
TNS	e P	Z	08:57:13.1	96.5	91.4	1.0	12	5.4	
	e PP	Z	09:01:08.6						
	e SKSac	E	09:07:49.6						
BFO	e P	Z	08:57:12.5	96.5	91.5	0.5	2	4.9	
	e PP	Z	09:01:08.4						
	e SKSac	E	09:07:48.0						
IBBN	e P	Z	08:57:14.9	96.9	90.6	0.4	3	5.3	
BUG	e P	Z	08:57:16.3	97.2	90.3	1.0	9	5.3	
	e SKSac	E	09:07:52.4						
WLF	e PP	Z	09:01:19.8	97.9	89.7				
	e SKSac	E	09:07:57.1						

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/28 13:09: 9.1 12.761N 92.590E 33.0N 4.5  
 Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:20:46.2	74.7	88.1	1.2	7	4.5		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/28 15:48: 8.5 44.433N 9.096E 10.0G 3.4 SZGRF

Northern Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
PLONS	e Pn	Z	15:48:49.8	2.6	184.5					3.2
	e Sn	E	15:49:21.4							
DAVA	e Pn	Z	15:48:54.5	2.9	191.1					3.5
	e Sn	N	15:49:28.6							
WILA	e Pn	Z	15:48:55.5	3.0	177.4					3.6
BALST	e Pn	Z	15:48:57.9	3.1	160.9					
OBER	e Pn	Z	15:48:57.0	3.1	196.1					3.3
	e Sn	E	15:49:32.2							
SULZ	e Pn	Z	15:48:58.7	3.2	167.2					3.5
WTTA	e Pn	Z	15:49:00.7	3.3	212.9					3.2
	e Sn	N	15:49:40.0							
SLE	e Pn	Z	15:48:59.8	3.4	172.6					3.3
BFO	e Pn	Z	15:49:07.3	3.9	172.0					3.5
	e Sn	E	15:49:48.6							
RJOB	e Pn	Z	15:49:11.6	4.2	219.2					3.2
	e Sn	N	15:49:59.7							
OBKA	e Pn	Z	15:49:13.8	4.3	243.5					
ARSA	e Pn	Z	15:49:25.8	5.3	240.2					
WET	e Pn	Z	15:49:26.2	5.4	210.2					
GEC2	e Pn	Z	15:49:26.5	5.4	217.3					
	e Sn	N	15:50:24.0							
TNS	e Pn	Z	15:49:33.3	5.8	175.4					
	e Sn	N	15:50:35.3							
MOX	e Sn	N	15:50:48.6	6.4	196.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/28	17:38:53.3	36.094N	29.725E	33.0N	4.4	3.3		EMSC

Turkey

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	17:42:50.0	17.3	131.5	1.4	37	4.3		
WET	e P	Z	17:42:56.7	17.9	130.4	0.9	27	4.4		
FUR	e P	Z	17:43:07.5	18.2	124.9	0.8	28	4.4		
ROTZ	e P	Z	17:43:05.1	18.7	130.5	1.6	29	4.3		
GRA1	e P	Z	17:43:09.7	19.1	128.4	1.1	50	4.6		
	e L	Z	17:51:01.4			21.1	161		3.3	
MOX	e P	Z	17:43:14.7	19.5	131.3	0.9	39	4.6		
	e L	Z	17:51:43.2			21.7	155		3.3	
BFO	e P	Z	17:43:28.3	19.9	120.0	1.2	20	4.2		
TNS	e P	Z	17:43:31.6	20.9	124.5	0.9	28	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2009/07/28 19:14: 9.1 10.487N 94.352E 33.0N 4.6 SZGRF  
Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:26:02.3	77.6	88.4	1.1	5	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/28	22:32:41.1	44.865N	15.094E	10.0G			3.0	SZGRF

Northwestern Balkan Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
OBKA	e Pn	Z 22:33:08.4	1.7	166.8					3.0
	e Sn	N 22:33:29.1							
KBA	e Pn	Z 22:33:20.6	2.5	150.6					2.7
	e Sn	E 22:33:49.5							
MOA	e Pn	Z 22:33:28.9	3.0	168.9					2.7
	e Sn	E 22:34:03.0							
RJOB	e Pn	Z 22:33:31.4	3.3	150.2					3.0
WTTA	e Pn	Z 22:33:34.1	3.4	133.7					3.3
GEC2	e Pn	Z 22:33:42.4	4.1	166.0					3.1
	e Sn	N 22:34:27.7							
WET	e Pn	Z 22:33:47.7	4.5	159.7					2.9
	e Sn	E 22:34:36.3							
ROTZ	e Sn	N 22:34:54.2	5.3	157.2					
MANZ	e Pn	Z 22:34:02.0	5.5	157.4					
BFO	e Sn	N 22:35:06.4	5.8	124.2					
MOX	e Pn	Z 22:34:10.4	6.2	156.7					
	e Sn	N 22:35:16.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/28	23:34:52.3	41.094N	19.010E	10.0G				SZGRF

Albania

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
OBKA	e Pn	Z 23:36:24.0	6.3	147.7					
	e Sn	E 23:37:31.4							
ARSA	e Pn	Z 23:36:27.6	6.6	156.7					
KBA	e Pn	Z 23:36:36.5	7.2	143.8					
	e Sn	E 23:37:53.1							
MOA	e Pn	Z 23:36:41.6	7.6	151.7					
RJOB	e Pn	Z 23:36:47.7	8.0	144.0					
WTTA	e Pn	Z 23:36:49.8	8.1	136.8					
	e Sn	E 23:38:14.9							
GEC2	e Pn	Z 23:36:54.6	8.6	152.2					
	e Sn	Z 23:38:27.5							

FUR	e Pn	Z	23:37:00.2	8.9	139.3
DAVA	e Pn	Z	23:37:02.3	9.0	130.1
	e Sn	E	23:38:36.9		
PLONS	e Pn	Z	23:37:04.7	9.1	127.3
BALST	e Pn	Z	23:37:17.4	10.2	123.5
	e Sn	E	23:39:04.5		
BFO	e Pn	Z	23:37:21.0	10.5	129.8
	e Sn	E	23:39:08.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/29	05:22:57.3	45.027N	14.897E	10.0G			2.8	SZGRF

Northwestern Balkan Peninsula

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
OBKA	e Pn	Z	05:23:21.0	1.5	170.6					2.9
	e Sn	N	05:23:41.7							
KBA	e Pn	Z	05:23:33.3	2.3	151.7					2.5
	e Sn	E	05:24:03.0							
	e Sg	N	05:24:09.5							
MOA	e Pn	Z	05:23:41.4	2.9	171.0					2.6
	e Sn	N	05:24:15.8							
WTTA	e Pn	Z	05:23:48.5	3.2	133.5					3.1
GEC2	e Sn	N	05:24:40.0	3.9	167.5					3.0
DAVA	e Sg	N	05:25:07.8	4.1	121.2					
ROTZ	e Sn	N	05:25:07.1	5.1	158.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/29	09:31:11.8	5.600S	101.600E	35.0	5.3	4.6		NEIC

Southwest of Sumatera, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	09:44:21.3	92.8	95.3	1.9	37	5.5		
WET	e P	Z	09:44:23.7	93.4	94.6	2.1	39	5.5		
CLL	e P	Z	09:44:23.8	93.5	94.6	2.2	44	5.5		
TANN	e P	Z	09:44:25.5	93.8	94.2					
WERN	e P	Z	09:44:25.9	93.8	94.2					
WERD	e P	Z	09:44:25.9	93.9	94.1	1.6	13	5.0		
ROTZ	e P	Z	09:44:26.5	93.9	94.1	1.7	19	5.2		
MOX	e P	Z	09:44:27.9	94.3	93.6	1.7	21	5.2		
	e L	Z	10:33:06.1			20.6	191		4.5	
GRA1	e P	Z	09:44:28.8	94.5	93.3	1.6	16	5.1		
	e L	Z	10:34:36.1			22.0	232		4.6	
NRDL	e P	Z	09:44:32.8	95.3	92.2					
TNS	e P	Z	09:44:38.2	96.3	91.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/29	12:22:47.9	43.780N	147.470E	33.0N	5.0			SZGRF

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	12:34:32.4	75.7	30.4	0.8	26	5.4		
NRDL	e P	Z	12:34:39.4	77.0	30.1	0.8	8	4.9		
CLL	e P	Z	12:34:39.5	77.1	31.9	0.7	25	5.5		
IBBN	e P	Z	12:34:44.3	77.8	28.5	0.5	41	5.8		
TANN	e P	Z	12:34:45.0	78.0	31.5	0.8	6	4.7		
MOX	e P	Z	12:34:45.5	78.1	30.9	0.7	8	5.0		
ROTZ	e P	Z	12:34:48.9	78.6	31.2	1.0	8	4.7		
BUG	e P	Z	12:34:49.2	78.7	28.1	0.8	18	5.1		
GEC2	e P	Z	12:34:49.9	78.9	32.1	0.8	5	4.6		
WET	e P	Z	12:34:50.6	78.9	31.6	1.0	14	4.9		
GRA1	e P	Z	12:34:51.2	79.0	30.6	0.8	20	5.2		
TNS	e P	Z	12:34:53.2	79.5	28.8	0.7	9	4.8		
RJOB	e P	Z	12:34:57.3	80.2	31.4	0.8	9	4.9		
BFO	e P	Z	12:35:02.0	81.2	28.6	0.7	7	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/29	16:53: 6.9	22.240N	120.790E	35.8	5.5	5.4		SZGRF

Taiwan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	17:05:30.7	83.2	62.6	1.1	37	5.5		
BSEG	e P	Z	17:05:32.2	83.4	60.8	1.3	46	5.6		
	e pP	Z	17:05:42.7							
TANN	e P	Z	17:05:34.7	83.9	62.1	1.3	29	5.4		
GEC2	e P	Z	17:05:34.8	83.9	62.8	1.1	31	5.5		
	e pP	Z	17:05:45.5							
NRDL	e P	Z	17:05:36.5	84.2	60.5	1.2	37	5.5		
WET	e P	Z	17:05:36.7	84.3	62.3	1.4	36	5.4		
MOX	e P	Z	17:05:36.5	84.3	61.5	1.2	31	5.4		
	e L	Z	17:47:07.5			19.8	1518		5.4	
ROTZ	e P	Z	17:05:37.4	84.4	61.8	1.1	42	5.6		
	e pP	Z	17:05:47.6							
GRA1	e P	Z	17:05:40.3	84.9	61.1	1.4	63	5.6		
	e L	Z	17:46:15.1			21.1	1355		5.3	
RJOB	e P	Z	17:05:40.0	85.0	62.1	1.0	23	5.4		
	e pP	Z	17:05:50.2							
UBBA	e P	Z	17:05:40.6	85.1	60.3	1.5	37	5.4		
IBBN	e P	Z	17:05:42.8	85.5	58.7					
FUR	e P	Z	17:05:43.8	85.7	61.0	1.4	115	5.8		
TNS	e P	Z	17:05:46.5	86.2	59.1	1.7	33	5.2		

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BUG	e P	Z	17:05:46.2	86.2	58.3	1.2	40	5.4
STU	e P	Z	17:05:47.7	86.6	59.6			
BFO	e P	Z	17:05:50.9	87.3	58.9			
WLF	e P	Z	17:05:54.2	87.8	57.3	1.3	28	5.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/29	21:33: 6.1	5.200S	152.600E	48.0		5.2		NEIC
New Britain, Papua New Guinea, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z 21:51:57.0	122.5	46.2					
CLL	e PKPdf	Z 21:51:57.8	123.0	50.3					
NRDL	e PKPdf	Z 21:51:59.1	123.6	46.7					
TANN	e PKPdf	Z 21:51:59.7	123.8	50.2					
MOX	e PKPdf	Z 21:51:59.9	124.1	49.2					
	e L	Z 22:52:36.8			19.2	426		5.1	
GEC2	e PKPdf	Z 21:52:00.1	124.2	52.3					
ROTZ	e PKPdf	Z 21:52:01.0	124.4	50.3					
WET	e PKPdf	Z 21:52:00.9	124.4	51.3					
IBBN	e PKPdf	Z 21:52:01.6	124.7	44.2					
UBBA	e PKPdf	Z 21:52:01.4	124.8	47.4					
GRA1	e PKPdf	Z 21:52:01.8	124.9	49.3					
	e L	Z 22:51:54.4			19.7	631		5.3	
BUG	e PKPdf	Z 21:52:03.0	125.6	44.1					
WLF	e PKPdf	Z 21:52:07.1	127.3	43.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/30	07:37:53.3	39.700N	39.800E	10.0	4.7			NEIC
Turkey								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 07:42:33.5	20.7	106.4	1.1	15	4.2		
RJOB	e P	Z 07:42:36.8	21.0	102.5	1.1	31	4.6		
WET	e P	Z 07:42:39.6	21.3	106.2	1.0	19	4.4		
FBE	e P	Z 07:42:43.2	21.5	111.1	1.1	36	4.7		
ROTZ	e P	Z 07:42:46.2	21.9	106.9	1.7	63	4.8		
CLL	e P	Z 07:42:46.1	21.9	111.5	1.8	59	4.7		
TANN	e P	Z 07:42:46.6	21.9	108.7	2.3	86	4.8		
WERN	e P	Z 07:42:46.9	21.9	108.3	1.2	44	4.8		
GUNZ	e P	Z 07:42:47.3	22.0	108.4	1.7	58	4.7		
MANZ	e P	Z 07:42:47.6	22.0	107.3	1.3	12	4.2		
WERD	e P	Z 07:42:47.3	22.0	108.6	2.3	67	4.7		
GRA1	e P	Z 07:42:52.8	22.5	105.5	1.3	45	4.9		
TNS	e P	Z 07:43:11.1	24.3	103.5	1.2	53	4.9		
BSEG	e P	Z 07:43:12.3	24.4	113.6	1.3	69	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/30	20:05:35.5	20.800S	174.200W	10.0		5.9		NEIC
Tonga Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e SS	T	20:47:37.3	146.7	7.7					
IBBN	e SS	T	20:47:58.1	148.5	3.5					
CLL	e SS	T	20:48:05.1	149.0	13.1					
UBBA	e PKP	Z	20:25:26.1	149.8	7.8					
	e SS	T	20:48:12.5							
MOX	e PKPpdf	Z	20:25:20.0	149.8	10.9					
	e PKP	Z	20:25:25.9							
	e L	Z	21:40:01.7			18.9	2563		6.0	
TANN	e PKPpdf	Z	20:25:20.7	149.9	12.5					
	e PKP	Z	20:25:26.9							
	e SS	T	20:48:18.4							
TNS	e PKPpdf	Z	20:25:21.2	150.5	5.0					
	e PKP	Z	20:25:27.8							
	e PKPab	Z	20:25:33.3							
ROTZ	e PKPpdf	Z	20:25:21.7	150.6	12.3					
	e PKP	Z	20:25:28.3							
	e PKPab	Z	20:25:34.5							
	e SS	T	20:48:25.9							
GRA1	e PKPpdf	Z	20:25:21.8	150.8	10.4					
	e PKP	Z	20:25:29.1							
	e PKPab	Z	20:25:35.1							
	e SS	T	20:48:25.9							
	e L	Z	21:38:34.7			20.1	1982		5.9	
WET	e PKPpdf	Z	20:25:22.4	151.1	13.8					
	e PKP	Z	20:25:29.4							
	e SS	T	20:48:30.1							
WLF	e PKPpdf	Z	20:25:22.8	151.1	0.7					
	e PKP	Z	20:25:29.6							
	e PKPab	Z	20:25:37.0							
GEC2	e PKPpdf	Z	20:25:22.3	151.3	15.5					
	e PKP	Z	20:25:30.0							
	e PKPab	Z	20:25:37.4							
	e SS	T	20:48:32.3							
STU	e PKPpdf	Z	20:25:23.5	151.9	6.7					
	e PKP	Z	20:25:31.1							
FUR	e PKPpdf	Z	20:25:24.0	152.3	11.1					
	e PKP	Z	20:25:31.9							
	e PKPab	Z	20:25:41.6							
BFO	e PKPpdf	Z	20:25:23.9	152.4	5.1					
	e PKP	Z	20:25:32.1							
	e PKPab	Z	20:25:41.9							

RJOB	e	PKPdf	Z	20:25:24.3	152.5	14.3			
	e	PKP	Z	20:25:32.4					
	e	PKPab	Z	20:25:42.7					
	e	SS	T	20:48:48.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/30	22:39: 9.8	59.930N	150.200W	51.0	5.0			SZGRF

Kenai Peninsula, Alaska, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e P	Z 22:49:55.7	66.5	349.4	0.9	7	4.9		
BUG	e P	Z 22:50:00.1	67.2	348.0	0.8	17	5.3		
CLL	e P	Z 22:50:04.6	67.9	351.0	0.6	5	4.9		
FBE	e P	Z 22:50:07.9	68.4	351.2	1.0	8	4.9		
MOX	e P	Z 22:50:08.3	68.5	350.3	1.1	14	5.1		
PLN	e P	Z 22:50:09.7	68.7	350.6	0.7	28	5.6		
WERD	e P	Z 22:50:10.0	68.7	350.7	1.3	7	4.7		
TANN	e P	Z 22:50:10.6	68.8	350.8	0.9	6	4.8		
GUNZ	e P	Z 22:50:10.6	68.8	350.7	1.1	8	4.9		
WERN	e P	Z 22:50:11.3	68.9	350.7	1.4	13	5.0		
BFO	e P	Z 22:50:19.9	70.3	348.8	1.2	6	4.6		
GEC2	e P	Z 22:50:20.6	70.4	351.5	0.7	3	4.6		
FUR	e P	Z 22:50:23.2	70.9	350.3	0.6	10	5.1		
RJOB	e P	Z 22:50:26.6	71.4	351.1	0.7	7	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2009/07/31	08:14:45.9	20.649S	15.350E	33.0G	4.8			SZGRF

Namibia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 08:25:49.5	69.3	173.0	0.9	5	4.7		
GEC2	e P	Z 08:25:51.8	69.5	178.4	1.2	9	4.9		
STU	e P	Z 08:25:52.4	69.6	173.9	0.7	13	5.2		
WET	e P	Z 08:25:53.4	69.8	177.5	1.3	10	4.8		
GRA1	e P	Z 08:25:57.3	70.4	175.9	1.0	20	5.2		
ROTZ	e P	Z 08:25:57.4	70.5	176.9	1.0	10	4.9		
MANZ	e P	Z 08:25:58.6	70.7	176.8	0.9	7	4.8		
WERN	e P	Z 08:26:00.5	71.0	177.1	0.7	3	4.5		
GUNZ	e P	Z 08:26:01.1	71.1	177.0	0.9	8	4.9		
TANN	e P	Z 08:26:01.3	71.1	177.1	0.7	4	4.6		
TNS	e P	Z 08:26:01.3	71.1	173.2	0.9	10	5.0		
WERD	e P	Z 08:26:01.4	71.1	177.0	0.8	5	4.7		
MOX	e P	Z 08:26:02.8	71.4	176.3	0.9	4	4.5		
FBE	e P	Z 08:26:03.7	71.6	178.0	1.0	5	4.6		
NEUB	e P	Z 08:26:05.7	71.9	176.5	0.9	17	5.2		

NRDL e P Z 08:26:15.1 73.3 174.9 1.0 15 5.1

Date Origin Time Lat Long Depth mb Ms ML Source  
 2009/07/31 08:07:19.4 20.670S 173.810W 42.9  
 Tonga Islands SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z 08:26:59.5	148.0	6.9					
IBBN	e PKPbc	Z 08:27:00.6	148.3	2.8					
	e pPKPbc	Z 08:27:13.7							
CLL	e PKPbc	Z 08:27:02.1	148.9	12.4					
	e pPKPbc	Z 08:27:14.8							
NEUB	e pPKPbc	Z 08:27:15.9	149.1	10.2					
BUG	e PKPbc	Z 08:27:02.9	149.2	2.0					
	e pPKPbc	Z 08:27:15.9							
FBE	e pPKPbc	Z 08:27:16.4	149.2	13.2					
UBBA	e PKPbc	Z 08:27:04.0	149.7	7.1					
	e pPKPbc	Z 08:27:16.8							
MOX	e PKPbc	Z 08:27:04.2	149.7	10.1					
	e pPKPbc	Z 08:27:17.2							
PLN	e PKPbc	Z 08:27:04.6	149.8	11.2					
	e pPKPbc	Z 08:27:17.5							
WERD	e PKPbc	Z 08:27:04.4	149.8	11.4					
	e pPKPbc	Z 08:27:17.6							
TANN	e PKPbc	Z 08:27:04.6	149.8	11.7					
	e pPKPbc	Z 08:27:17.7							
GUNZ	e PKPbc	Z 08:27:04.7	149.9	11.5					
	e pPKPbc	Z 08:27:17.8							
WERN	e PKPbc	Z 08:27:05.2	150.0	11.6					
	e pPKPbc	Z 08:27:18.1							
MANZ	e PKPbc	Z 08:27:05.8	150.3	11.2					
	e pPKPbc	Z 08:27:18.6							
TNS	e PKPbc	Z 08:27:05.9	150.4	4.3					
	e pPKPbc	Z 08:27:19.0							
ROTZ	e PKPbc	Z 08:27:06.3	150.5	11.5					
	e pPKPbc	Z 08:27:19.2							
GRA1	e PKPbc	Z 08:27:06.4	150.7	9.7					
WLF	e PKPbc	Z 08:27:07.9	151.0	359.9					
	e pPKPbc	Z 08:27:20.6							
GEC2	e PKPbc	Z 08:27:07.8	151.2	14.7					
	e pPKPbc	Z 08:27:20.6							
BFO	e PKPbc	Z 08:27:10.0	152.3	4.3					

## Format description

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(T. Plenefisch, Email: plene@szgrf.bgr.de)

In general all regional and teleseismic events clearly recorded with stations of the Gräfenberg-Array (GRF) and stronger events recorded with stations of the German Regional Seismological Network (GRSN) are included in this bulletin. Each event is reported by an EPICENTER LINE, a REGION LINE and a block of PHASE LINES.

## EPICENTER LINE:

Date	Date of the event
Origin Time	Origin time of the event
Lat	Geographic latitude (N/S) of epicenter in degree
Long	Geographic longitude (E/W) of epicenter in degree
Depth	Depth of the hypocenter beneath the surface in kilometer
	Appended flag indicates the method by which the depth was determined:
	BLANK - free
	N - preset depth of 33 kilometer
	G - geophysicist preset depth
mb, Ms, ML	Magnitudes of the event and magnitude type
Source	Abbreviations for the authority (e.g. SZGRF, NEIC, SED, MAD)

## REGION LINE:

The region name of the epicenter location.

## PHASE LINE:

Sta	Station code of the reported phase
Phase	Preceded flag for the sharpness of the onset of the phase
	e - emergent
	i - impulsive
	w - weak
	ISC phase code
	Component where the phase was picked
Time	Arrival time of the reported phase
Dist	Distance from the epicenter location to the station in degree
BAz	Backazimuth from the epicenter location to the station in degree
T[s]	Phase Period
A[nm]	Phase Amplitude
mb	Body wave magnitude
MS	Surface wave magnitude
ML	Local Richter magnitude