

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

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(produced by SZGRF/BGR - ERLANGEN and partly by CLL - Observatory)

SEPTEMBER 2004      UPDATED 16.FEBRUARY.2006

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		
2004/09/01	02:49:31.3	37.080N	140.870E	39.9	5.5	5.4		SZGRF		
Eastern Honshu, Japan										
Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	03:01:35.7	79.5	38.1	1.2	72	5.5		
	e pP	Z	03:01:47.2							
BRG	e P	Z	03:01:40.8	80.5	40.3	1.3	37	5.3		
CLL	e P	Z	03:01:40.7	80.5	39.7	1.2	76	5.6		
NRDL	e P	Z	03:01:42.0	80.7	37.8	1.3	32	5.2		
CLZ	e P	Z	03:01:44.5	81.1	37.9	1.3	90	5.6		
WERD	e P	Z	03:01:46.0	81.5	39.1	1.4	41	5.4		
GUNZ	e P	Z	03:01:46.5	81.5	39.1	1.4	38	5.4		
MOX	e P	Z	03:01:46.5	81.6	38.6	1.5	55	5.5		
IBBN	e P	Z	03:01:47.3	81.7	36.1	1.3	110	5.8		
GEC2	e P	Z	03:01:49.4	82.1	39.9	1.2	24	5.2		
WET	e P	Z	03:01:50.3	82.3	39.4	1.2	30	5.4		
GRA1	e P	Z	03:01:51.7	82.5	38.3	1.3	104	5.9		
	e pP	Z	03:02:03.3							
	e PP	Z	03:05:09.6							
	e SS	E	03:17:31.2							
	e L	Z	03:43:26.8			19.2	1682		5.4	
BUG	e P	Z	03:01:52.5	82.6	35.6	1.1	28	5.4		
FUR	e P	Z	03:01:57.9	83.7	38.2	1.2	77	5.8		
	e pP	Z	03:02:09.2							
STU	e P	Z	03:01:59.4	84.0	36.8	1.4	98	5.8		
	e pP	Z	03:02:10.8							
BFO	e P	Z	03:02:02.4	84.7	36.2	1.2	92	5.9		
	e pP	Z	03:02:14.2							



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2004/09/03 00:04:17.8  
Southern Italy

41.069N 16.331E 10.0G 3.8 SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e Sn	E	00:07:39.9	8.0	151.3					
GEC2	e Pn	Z	00:06:12.7	8.0	165.6					
	e Sn	E	00:07:39.3							
WET	e Pn	Z	00:06:18.0	8.4	162.0					
	e Sn	E	00:07:51.2							
	e L	E	00:09:16.6			19.1	1905		3.8	
BFO	e Pn	Z	00:06:29.0	9.2	139.0					
	e Sn	N	00:08:08.7							
GRA1	e Pn	Z	00:06:32.7	9.3	155.5					
	e Sn	N	00:08:10.6							
	e L	E	00:09:50.4			14.8	1433		3.9	
TANN	e Pn	Z	00:06:35.9	9.7	162.5					
MOX	e Pn	Z	00:06:40.9	10.1	159.3					
	e Sn	N	00:08:29.7							
CLL	e Pn	Z	00:06:47.4	10.5	166.1					

Date Origin Time  
2004/09/03 00:23: 6.0  
South of Fiji Islands

Lat Long Depth mb Ms ML Source  
22.750S 178.610W 33.0N SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	00:42:48.1	148.1	15.7					
	e PKPab	Z	00:42:51.1							
CLL	e PKPbc	Z	00:42:53.3	150.1	21.8					
	e PKPab	Z	00:42:58.9							
CLZ	e PKPbc	Z	00:42:53.4	150.1	16.8					
MOX	e PKPbc	Z	00:42:55.3	151.0	19.7					
	e PKPab	Z	00:43:02.7							
WERD	e PKPbc	Z	00:42:55.8	151.0	21.1					
GUNZ	e PKPbc	Z	00:42:56.2	151.1	21.2					
	e PKPab	Z	00:43:03.6							
GRA1	e PKPbc	Z	00:42:57.7	152.0	19.6					
	e PKPab	Z	00:43:07.3							
WET	e PKPbc	Z	00:42:58.5	152.1	23.1					
GEC2	e PKPbc	Z	00:42:58.3	152.1	24.9					
FUR	e PKPab	Z	00:43:13.3	153.4	20.7					

Date Origin Time  
2004/09/03 09:24: 7.8  
Fiji Islands region

Lat Long Depth mb Ms ML Source  
16.441S 177.277W 33.0G SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	09:43:30.6	142.0	11.9					
NRDL	e PKPbc	Z	09:43:35.2	143.5	12.0					
IBBN	e PKPbc	Z	09:43:37.1	143.9	8.2					
CLZ	e PKPbc	Z	09:43:37.8	144.1	12.6					
CLL	e PKPbc	Z	09:43:37.3	144.2	17.0					
BRG	e PKPbc	Z	09:43:38.3	144.4	18.7					
BUG	e PKPbc	Z	09:43:40.1	144.8	7.6					
MOX	e PKPbc	Z	09:43:40.2	145.1	15.0					
WERD	e PKPbc	Z	09:43:40.7	145.1	16.2					
GUNZ	e PKPbc	Z	09:43:41.0	145.2	16.3					
GRA1	e PKPbc	Z	09:43:43.7	146.0	14.7					
	e PKPab	Z	09:43:46.2							
GEC2	e PKPbc	Z	09:43:44.2	146.4	19.3					
WLF	e PKPbc	Z	09:43:46.0	146.7	6.0					
FUR	e PKPbc	Z	09:43:47.5	147.5	15.4					
	e PKPab	Z	09:43:52.0							
BFO	e PKPbc	Z	09:43:48.1	147.8	10.1					
	e PKPab	Z	09:43:52.8							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/03 12:16:52.2 15.826S 172.493W 33.0N  
 Samoa Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
MOX	e PKPbc	Z	12:36:24.1	145.0	6.9					
WERD	e PKPbc	Z	12:36:24.9	145.2	8.1					
GRA1	e PKPbc	Z	12:36:28.0	146.0	6.4					
WLF	e PKPbc	Z	12:36:28.8	146.1	357.7					
WET	e PKPbc	Z	12:36:29.0	146.4	9.4					
GEC2	e PKPbc	Z	12:36:29.7	146.6	10.9					
STU	e PKPbc	Z	12:36:31.1	147.0	3.0					
BFO	e PKPbc	Z	12:36:32.7	147.5	1.5					
FUR	e PKPbc	Z	12:36:32.4	147.5	6.8					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/03 14:53:17.3 16.878S 175.452W 33.0N  
 Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z	15:12:55.4	146.7	11.7					

Date Origin Time Lat Long Depth mb Ms ML Source

2004/09/03 19:04:41.7  
Tonga Islands

N

SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKPdf	Z 19:24:30.4							
CLZ	e PKPdf	Z 19:24:24.6							
FUR	e PKPdf	Z 19:24:30.0							
GEC2	e PKPdf	Z 19:24:27.8							
GRA1	e PKPdf	Z 19:24:26.8							
GUNZ	e PKPdf	Z 19:24:26.0							
MOX	e PKPdf	Z 19:24:25.4							
STU	e PKPdf	Z 19:24:29.2							
WERD	e PKPdf	Z 19:24:26.2							
WLF	e PKPdf	Z 19:24:27.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/03	20:26:42.1	47.198N	153.774E	33.0N	4.9			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 20:38:16.5	74.2	24.9					
NRDL	e P	Z 20:38:23.9	75.6	24.6					
CLL	e P	Z 20:38:25.2	75.9	26.3					
BRG	e P	Z 20:38:26.3	76.0	26.9					
CLZ	e P	Z 20:38:27.2	76.1	24.7					
IBBN	e P	Z 20:38:28.3	76.3	23.0					
MOX	e P	Z 20:38:31.1	76.9	25.3					
GRA1	e P	Z 20:38:36.7	77.8	25.0	1.0	22	5.2		
WET	e P	Z 20:38:36.7	77.9	26.0	0.9	8	4.8		
GEC2	e P	Z 20:38:36.4	77.9	26.5					
BFO	e P	Z 20:38:47.2	79.9	23.0	1.2	11	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/03								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 21:35:35.4							
	e Sg	N 21:36:03.7							
GRA1	e Sg	E 21:37:06.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/03	23:18:16.8			N				SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 23:37:54.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/04	03:09: 8.9	53.089N	160.864E	33.0N	5.1			SZGRF

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 03:20:18.5	70.2	18.3					
RUE	e P	Z 03:20:22.7	70.9	20.2					
NRDL	e P	Z 03:20:26.6	71.6	18.0					
CLL	e P	Z 03:20:29.6	72.2	19.6					
CLZ	e P	Z 03:20:30.6	72.2	18.1					
IBBN	e P	Z 03:20:30.8	72.2	16.6					
BRG	e P	Z 03:20:30.5	72.4	20.1					
MOX	e P	Z 03:20:35.5	73.1	18.7					
WERD	e P	Z 03:20:35.9	73.1	19.1					
UBBA	e P	Z 03:20:37.5	73.2	17.8					
GRA1	e P	Z 03:20:42.1	74.1	18.4	0.9	18	5.1		
WET	e P	Z 03:20:42.7	74.2	19.3					
GEC2	e P	Z 03:20:42.7	74.3	19.8					
WLF	e P	Z 03:20:50.5	75.0	15.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/04	18:25:29.8	42.214N	142.450E	33.0N	5.2			SZGRF

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:37:29.0	78.7	34.6	0.7	20	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/04	19:31:22.2	21.640S	169.540E	33.0N				SZGRF

Southeast of Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKPbc	Z 19:50:55.2	145.1	42.2					
CLL	e PKPbc	Z 19:50:55.3	145.2	40.4					
NRDL	e PKPbc	Z 19:50:55.8	145.3	35.0					
CLZ	e PKPbc	Z 19:50:57.7	145.8	36.0					
WERD	e PKPbc	Z 19:50:58.6	146.1	40.2					
GUNZ	e PKPbc	Z 19:50:58.8	146.2	40.3					
MOX	e PKPbc	Z 19:50:58.8	146.2	38.9					

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IBBN	e	PKPbc	Z	19:50:58.8	146.3	31.6
GEC2	e	PKPbc	Z	19:51:00.4	146.7	43.9
GRA1	e	PKPbc	Z	19:51:01.5	147.1	39.3
STU	e	PKPbc	Z	19:51:05.9	148.7	37.0
WLF	e	PKPbc	Z	19:51:07.2	149.1	31.1
BFO	e	PKPbc	Z	19:51:07.2	149.4	36.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/04	20:24: 6.7	17.138S	175.471W	33.0N				SZGRF
Tonga Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e	PKPbc	Z	20:43:45.6	147.0	11.8			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/04	21:53:13.5	10.615N	87.787W	33.0N	5.2			SZGRF
Off coast of Costa Rica								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e	P	Z	22:05:59.0	87.7	283.7	1.5	17	5.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/04	23:56:36.3			N				SZGRF
Off coast of Costa Rica								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e	PKPbc	Z	00:16:15.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	01:27:38.0	16.753S	176.810W	33.0N				SZGRF
Fiji Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e	PKPbc	Z	01:47:15.1	146.4	14.0			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	07:21:30.1	52.007N	169.224W	33.0N	4.9			SZGRF
Fox Islands, Aleutian Islands, United States								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:33:27.3	78.3	0.3	1.0	13	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	10:07: 7.9	33.070N	138.080E	33.0N	7.1	7.3		SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 10:19:17.6	80.4	44.3					
RUE	e P	Z 10:19:24.5	81.7	44.4					
BSEG	e P	Z 10:19:26.4	82.0	42.0	1.2	1532	7.0		
BRG	e P	Z 10:19:30.0	82.7	44.4					
CLL	i P	Z 10:19:30.2	82.8	43.7	1.3	2046	7.2		
NRDL	e P	Z 10:19:32.4	83.2	41.7	1.6	1792	7.1		
CLZ	e P	Z 10:19:34.5	83.5	41.9	1.3	3375	7.4		
WERD	e P	Z 10:19:35.4	83.8	43.2					
GUNZ	e P	Z 10:19:35.7	83.8	43.2					
MOX	e P	Z 10:19:36.1	83.9	42.7	1.5	1951	7.1		
IBBN	e P	Z 10:19:37.7	84.2	40.0	1.3	2711	7.3		
GEC2	e P	Z 10:19:37.7	84.3	44.0	1.2	1012	6.9		
WET	e P	Z 10:19:38.9	84.5	43.5	1.6	1816	7.1		
UBBA	e P	Z 10:19:38.8	84.5	41.5					
GRA1	e P	Z 10:19:41.0	84.8	42.3	1.5	6252	7.6		
	e S	N 10:30:05.4							
	e PKKPbc	Z 10:37:50.5							
	e PKPPKP	Z 10:45:52.2							
	e L	Z 10:58:03.9			19.6	111022		7.3	
BUG	e P	Z 10:19:41.9	85.1	39.5					
FUR	e P	Z 10:19:46.1	85.9	42.3	1.4	3048	7.2		
STU	e P	Z 10:19:48.1	86.4	40.8	1.3	1518	7.0		
WLF	e P	Z 10:19:51.5	86.9	38.6					
BFO	e P	Z 10:19:51.4	87.1	40.2	1.7	1774	6.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	10:17:25.5	30.959N	137.941E	33.0N	5.7			SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:30:05.5	86.5	43.5	1.7	121	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	10:35:48.2	53.110N	36.440W	33.0N	5.4			SZGRF

Reykjanes Ridge



Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e P	Z	10:41:22.7	26.4	289.5					
BUG	e P	Z	10:41:22.9	26.4	291.0					
WLF	e P	Z	10:41:23.3	26.4	294.0					
BSEG	e P	Z	10:41:31.0	27.3	287.6					
NRDL	e P	Z	10:41:34.5	27.6	290.1					
CLZ	e P	Z	10:41:38.1	28.0	291.4					
UBBA	e P	Z	10:41:39.1	28.2	293.0					
BFO	e P	Z	10:41:39.4	28.3	296.8					
STU	e P	Z	10:41:42.2	28.6	296.2					
MOX	e P	Z	10:41:48.3	29.2	293.8					
GRA1	e P	Z	10:41:49.4	29.4	295.2	1.8	111	5.4		
WERD	e P	Z	10:41:52.6	29.7	294.3					
GUNZ	e P	Z	10:41:53.2	29.7	294.5					
RUE	e P	Z	10:41:53.1	29.7	291.6					
CLL	e P	Z	10:41:52.8	29.7	293.2					
FUR	e P	Z	10:41:56.2	30.1	297.6					
BRG	e P	Z	10:41:59.1	30.5	294.2					
WET	e P	Z	10:42:00.5	30.6	296.5					
GEC2	e P	Z	10:42:06.3	31.2	297.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	14:57:18.5	33.090N	138.440E	33.0N	7.1	7.7		SZGRF

Southeast of Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	15:09:29.0	80.5	44.0	1.7	2134	6.9		
RUE	e P	Z	15:09:35.9	81.8	44.1	1.8	3052	7.1		
BSEG	e P	Z	15:09:37.8	82.1	41.7	1.2	914	6.8		
BRG	e P	Z	15:09:41.6	82.9	44.1	1.5	1465	7.0		
CLL	e P	Z	15:09:41.7	83.0	43.5	1.5	2096	7.2		
NRDL	e P	Z	15:09:43.8	83.3	41.4	1.6	1257	6.9		
CLZ	e P	Z	15:09:45.8	83.7	41.6	1.5	3537	7.4		
WERD	e P	Z	15:09:46.5	83.9	42.9					
MOX	e P	Z	15:09:47.5	84.0	42.4	1.5	1916	7.1		
IBBN	e P	Z	15:09:49.0	84.4	39.7					
GEC2	e P	Z	15:09:49.2	84.4	43.8	1.4	1167	6.9		
WET	e P	Z	15:09:50.4	84.6	43.2	1.6	1611	7.0		
UBBA	e P	Z	15:09:50.2	84.6	41.2					
GRA3	e PKKP	Z	15:28:15.9	84.8	42.1					
	e PKPPKP	Z	15:35:57.0							
GRA1	e P	Z	15:09:52.2	84.9	42.1	1.5	5165	7.5		
	e PP	Z	15:13:22.6							
	e S	E	15:20:31.0							
	e SS	N	15:25:59.6							
	e L	Z	15:51:51.9			18.2	295307		7.7	

BUG	e P	Z	15:09:53.1	85.2	39.3				
FUR	e P	Z	15:09:57.5	86.0	42.0	1.3	2816	7.2	
STU	e P	Z	15:09:59.5	86.5	40.5				
WLF	e P	Z	15:10:02.8	87.1	38.4				
BFO	e P	Z	15:10:02.8	87.2	39.9	1.5	1366	6.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	15:53:30.1	34.599N	137.120E	33.0N	4.7			SZGRF

Near south coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 16:05:41.8	81.0	44.2					
CLZ	e P	Z 16:05:46.3	81.8	41.8					
MOX	e P	Z 16:05:48.2	82.2	42.6	1.0	3	4.4		
GEC2	e P	Z 16:05:49.8	82.6	43.9	0.9	4	4.6		
WET	e P	Z 16:05:50.6	82.7	43.3	1.0	4	4.6		
GRA1	e P	Z 16:05:52.8	83.1	42.2	0.9	10	5.0		
BUG	e P	Z 16:05:54.4	83.4	39.5					
STU	e P	Z 16:06:00.2	84.6	40.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	16:16:54.8	34.770N	135.132E	31.1	5.0			SZGRF

Near south coast of western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:29:12.2	82.0	43.5	1.1	14	5.0		
	e pP	Z 16:29:21.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	16:30:53.7	31.734N	137.905E	33.0N	5.2			SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:43:30.4	85.8	43.1	1.5	30	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	16:43: 9.9			N				SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 17:02:50.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	17:19:34.4	32.868N	138.283E	33.0N	5.1			SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:32:07.1	85.0	42.3	1.2	14	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	17:34:17.4	33.445N	136.012E	33.0N	5.3			SZGRF

Near south coast of western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:46:42.6	83.6	43.6	1.2	22	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 18:01:00.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	18:13:46.6	32.387N	136.682E	33.0N	5.4			SZGRF

Southeast of Shikoku, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:26:17.9	84.7	43.7	1.2	30	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	20:31: 4.5	33.022N	136.302E	33.0N	5.8			SZGRF

Near south coast of western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	i P	Z 20:43:32.1	84.0	43.6	1.3	73	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/05	22:48:49.2	33.396N	137.033E	38.9	5.3			SZGRF

Near south coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:01:16.9	84.0	42.9	1.0	18	5.3		
	e pP	Z 23:01:28.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06	00:01:49.6	33.025N	135.768E	33.0N	5.2			SZGRF

Near south coast of western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	i P	Z 00:14:16.0	83.8	44.0	1.1	16	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06	23:29:33.0	32.940N	138.780E	26.8	6.8	6.8		SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 23:41:52.8	82.1	44.0					
	e pP	Z 23:42:00.4							
BSEG	e P	Z 23:41:54.6	82.4	41.5	1.6	602	6.6		
BRG	e P	Z 23:41:58.4	83.1	43.9	2.1	1245	6.8		
	e pP	Z 23:42:06.0							
CLL	e P	Z 23:41:58.7	83.2	43.3	1.6	991	6.8		
	e pP	Z 23:42:06.4							
CLZ	e P	Z 23:42:02.7	83.9	41.4	1.5	1074	6.9		
	e pP	Z 23:42:10.2							
WERD	e P	Z 23:42:03.8	84.2	42.7					
	e pP	Z 23:42:11.4							
GUNZ	e P	Z 23:42:04.1	84.2	42.7					
MOX	i P	Z 23:42:04.5	84.3	42.2	1.5	773	6.7		
	e	Z 23:42:17.6							
IBBN	e P	Z 23:42:06.0	84.6	39.5					
	e pP	Z 23:42:13.5							
GEC2	e P	Z 23:42:06.2	84.7	43.6	1.5	612	6.6		
WET	e P	Z 23:42:07.4	84.9	43.0	1.6	763	6.7		
GRA1	e P	Z 23:42:09.2	85.2	41.9	1.4	1625	7.1		
	e pP	Z 23:42:16.6							
	e	Z 23:42:22.2							
	e PP	Z 23:45:16.3							
	e S	N 23:52:35.1							
	e SS	N 23:58:12.2							
BUG	e P	Z 23:42:10.1	85.5	39.1	1.4	737	6.6		
FUR	e P	Z 23:42:14.5	86.3	41.8	1.6	1488	6.9		
	e pP	Z 23:42:22.0							

STU	e P	Z	23:42:16.2	86.8	40.4	1.4	667	6.6
WLF	e P	Z	23:42:19.7	87.3	38.2	1.7	900	6.8
BFO	e P	Z	23:42:19.7	87.5	39.7			
GRA1	e L	Z	00:26:28.5	85.2	41.9	18.5	33654	6.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06	09:12: 8.3	33.595N	135.474E	28.8	5.6			SZGRF

Near south coast of western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:24:31.6	83.2	43.9	1.1	43	5.6		
	e pP	Z 09:24:40.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06	10:44:40.7	26.428S	27.718E	33.0N	5.4			SZGRF

South Africa

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:56:33.6	77.5	164.9	0.7	22	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06	12:42:50.8	56.340S	27.371W	33.0N		6.8		SZGRF

South Sandwich Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pdiff	Z 12:57:21.2	108.8	200.0					
	e PP	Z 13:01:43.6							
FUR	e Pdiff	Z 12:57:23.6	109.4	201.5					
	e PP	Z 13:01:47.8							
STU	e Pdiff	Z 12:57:24.3	109.4	200.5					
	e PP	Z 13:01:48.2							
WLF	e Pdiff	Z 12:57:25.0	109.6	199.0					
	e PP	Z 13:01:49.5							
GEC2	e Pdiff	Z 12:57:29.4	110.6	202.9					
	e PP	Z 13:01:56.8							
WET	e Pdiff	Z 12:57:30.2	110.7	202.5					
	e PP	Z 13:01:57.4							
GRA1	e Pdiff	Z 12:57:30.5	110.8	201.7					
	e PP	Z 13:01:57.7							
	e SKSac	N 13:08:04.6							
	e SP	Z 13:11:28.4							
	e SS	E 13:17:25.5							
	e L	Z 13:44:14.4			20.1	25618		6.8	

BUG	e Pdiff	Z	12:57:33.9	111.5	199.8
	e PP	Z	13:02:03.4		
UBBA	e Pdiff	Z	12:57:33.7	111.5	201.2
	e PP	Z	13:02:03.2		
MOX	e Pdiff	Z	12:57:35.1	111.7	202.0
	e PP	Z	13:02:05.1		
IBBN	e Pdiff	Z	12:57:38.0	112.4	200.2
	e PP	Z	13:02:09.7		
BRG	e Pdiff	Z	12:57:38.3	112.5	203.3
	e PP	Z	13:02:10.7		
CLZ	e Pdiff	Z	12:57:38.7	112.6	201.6
	e PP	Z	13:02:11.1		
CLL	e Pdiff	Z	12:57:39.4	112.7	202.9
	e PP	Z	13:02:11.7		
NRDL	e Pdiff	Z	12:57:41.5	113.1	201.5
	e PP	Z	13:02:15.1		
RUE	e Pdiff	Z	12:57:44.2	113.9	203.5
	e PP	Z	13:02:20.5		
HLG	e Pdiff	Z	12:57:45.2	114.2	200.5
	e PP	Z	13:02:21.9		
BSEG	e Pdiff	Z	12:57:47.0	114.5	201.9
	e PP	Z	13:02:24.3		
RGN	e Pdiff	Z	12:57:53.2	115.7	203.7
	e PP	Z	13:02:33.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 16:14:26.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/06								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:53:54.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/07	06:10: 9.4	33.239N	136.730E	29.5	5.8			SZGRF

Near south coast of western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	i P	Z 06:22:22.5	81.3	42.9					

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CLL	i P	Z	06:22:26.4	82.1	44.6						
CLZ	i P	Z	06:22:30.6	82.8	42.8						
MOX	i P	Z	06:22:32.1	83.2	43.6						
GEC2	i P	Z	06:22:34.0	83.5	44.9						
WET	i P	Z	06:22:35.0	83.7	44.3						
GRA1	i P	Z	06:22:37.1	84.0	43.2	1.4		92		5.8	
	e pP	Z	06:22:45.7								
WLF	i P	Z	06:22:46.5	86.2	39.5						
BFO	i P	Z	06:22:47.5	86.3	41.1						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/07	11:53:18.1	27.816S	62.555W	33.0N		6.1		SZGRF
Santiago del Estero Province, Argentina								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e Pdiff	Z	12:06:51.8	98.5	236.4					
BFO	e Pdiff	Z	12:06:54.4	99.0	237.8					
STU	e Pdiff	Z	12:06:57.9	99.7	238.4					
BUG	e Pdiff	Z	12:06:59.1	100.1	237.5					
FUR	e Pdiff	Z	12:07:02.7	100.6	239.8					
IBBN	e Pdiff	Z	12:07:01.8	100.8	238.0					
UBBA	e Pdiff	Z	12:07:05.2	101.2	239.3					
GRA1	e Pdiff	Z	12:07:05.3	101.3	240.0					
	e PP	Z	12:11:15.2							
	e Sdiff	N	12:18:52.0							
	e SP	Z	12:20:36.0							
	e SS	N	12:25:55.0							
	e L	Z	12:52:30.7			21.0	6781		6.1	
CLZ	e Pdiff	Z	12:07:08.1	101.9	239.8					
WET	e Pdiff	Z	12:07:09.1	102.0	241.1					
MOX	e Pdiff	Z	12:07:08.3	102.0	240.4					
NRDL	e Pdiff	Z	12:07:08.4	102.1	239.7					
GEC2	e Pdiff	Z	12:07:09.8	102.3	241.6					
BSEG	e Pdiff	Z	12:07:11.6	102.9	240.1					
CLL	e Pdiff	Z	12:07:13.8	103.1	241.6					
BRG	e Pdiff	Z	12:07:14.8	103.4	242.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/07								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	18:09:50.0			0.9	8			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/07	18:36:25.5	34.521N	139.577E	33.0N	5.8	5.5		SZGRF

Near south coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 18:48:39.0	81.3	40.2	1.4	66	5.6		
BRG	e P	Z 18:48:42.9	82.1	42.5	2.0	126	5.7		
CLL	e P	Z 18:48:43.1	82.2	41.9	1.3	68	5.7		
NRDL	e P	Z 18:48:45.2	82.5	39.9	1.7	80	5.7		
CLZ	e P	Z 18:48:47.3	82.9	40.0	1.2	105	6.0		
WERD	e P	Z 18:48:48.2	83.2	41.3					
MOX	e P	Z 18:48:49.0	83.3	40.8	1.4	97	5.8		
IBBN	e P	Z 18:48:50.5	83.5	38.2					
GEC2	e P	Z 18:48:50.9	83.7	42.2	1.5	103	5.8		
UBBA	e P	Z 18:48:51.5	83.8	39.7					
WET	e P	Z 18:48:51.8	83.9	41.6	1.5	98	5.8		
GRA1	e P	Z 18:48:53.8	84.2	40.5	1.5	296	6.3		
	e S	N 18:59:17.0							
	e L	Z 19:30:17.5			19.1	1741		5.5	
BUG	e P	Z 18:48:54.6	84.4	37.8					
FUR	e P	Z 18:48:59.0	85.3	40.4	1.6	264	6.1		
STU	e P	Z 18:49:00.9	85.7	39.0					
WLF	e P	Z 18:49:04.2	86.3	36.8	1.5	118	5.8		
BFO	e P	Z 18:49:04.2	86.4	38.4	1.4	68	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/07								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:26:22.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/08								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 06:15:50.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/08	11:00:22.1	16.360S	173.480W	54.4		5.6		SZGRF

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
UBBA	e PKPbc	Z 11:19:52.8	145.4	5.9					



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MOX	e	PKPbc	Z	11:19:53.3	145.5	8.6					
	e	pPKPbc	Z	11:20:09.3							
WERD	e	PKPbc	Z	11:19:53.7	145.6	9.9					
	e	pPKPbc	Z	11:20:09.9							
GUNZ	e	PKPbc	Z	11:19:54.1	145.7	9.9					
	e	pPKPbc	Z	11:20:10.3							
GRA1	e	PKPbc	Z	11:19:56.2	146.5	8.2					
	e	pPKPbc	Z	11:20:12.4							
	e	L	Z	12:24:33.9			20.7	1074		5.6	
WLF	e	PKPbc	Z	11:19:57.5	146.7	359.4					
	e	pPKPbc	Z	11:20:13.2							
WET	e	PKPbc	Z	11:19:57.2	146.8	11.2					
GEC2	e	PKPbc	Z	11:19:58.2	147.0	12.7					
	e	pPKPbc	Z	11:20:13.9							
STU	e	PKPbc	Z	11:19:59.2	147.5	4.8					
	e	pPKPbc	Z	11:20:15.2							
FUR	e	PKPbc	Z	11:20:00.8	148.0	8.6					
	e	pPKPbc	Z	11:20:17.1							
BFO	e	PKPbc	Z	11:20:00.5	148.0	3.3					
	e	pPKPbc	Z	11:20:17.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/08	14:25:42.2	15.089S	173.321W	33.0N				gsrc-m
Tonga Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
MOX	e	pPKPbc	Z 14:45:19.8	144.2	8.2					
WERD	e	PKPbc	Z 14:45:15.4	144.3	9.3					
GUNZ	e	PKPbc	Z 14:45:15.3	144.4	9.4					
GRA1	e	PKPbc	Z 14:45:17.1	145.2	7.7					
	e	pPKPbc	Z 14:45:23.4							
WLF	e	PKPbc	Z 14:45:18.4	145.4	359.1					
	e	pPKPbc	Z 14:45:24.1							
WET	e	PKPbc	Z 14:45:18.1	145.6	10.6					
	e	pPKPbc	Z 14:45:24.3							
GEC2	e	PKPbc	Z 14:45:19.1	145.8	12.1					
	e	pPKPbc	Z 14:45:24.9							
BFO	e	PKPbc	Z 14:45:21.4	146.7	2.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/08	14:40:12.7	33.630N	138.020E	33.0N	5.6			SZGRF
Southeast of Honshu, Japan								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e	P	Z 14:52:27.5	81.1	44.2	0.7	35	5.5		

BSEG	e P	Z	14:52:28.6	81.5	41.8	1.0	43	5.5
BRG	e P	Z	14:52:32.2	82.2	44.1	2.0	111	5.7
CLL	e P	Z	14:52:32.9	82.3	43.5	1.4	78	5.8
NRDL	e P	Z	14:52:34.5	82.7	41.5	1.8	58	5.5
CLZ	e P	Z	14:52:37.1	83.0	41.6	1.1	78	5.8
WERD	e P	Z	14:52:37.8	83.3	42.9	1.3	43	5.5
GUNZ	e P	Z	14:52:38.3	83.3	42.9	1.1	44	5.6
MOX	e P	Z	14:52:38.2	83.4	42.4	1.5	63	5.6
IBBN	e P	Z	14:52:40.2	83.7	39.7	0.8	56	5.9
GEC2	e P	Z	14:52:40.2	83.8	43.8	1.3	38	5.5
WET	e P	Z	14:52:41.2	84.0	43.2	1.6	60	5.6
UBBA	e P	Z	14:52:41.1	84.0	41.3	1.8	71	5.6
GRA1	e P	Z	14:52:43.6	84.3	42.1	1.4	128	6.0
BUG	e P	Z	14:52:44.6	84.6	39.3	0.9	43	5.7
FUR	e P	Z	14:52:49.1	85.4	42.0	0.8	36	5.6
STU	e P	Z	14:52:51.1	85.8	40.6	1.2	35	5.3
WLF	e P	Z	14:52:54.0	86.4	38.4	1.5	62	5.5
BFO	e P	Z	14:52:53.7	86.6	39.9	1.8	50	5.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/08	14:58:21.3	32.070N	137.780E	33.0G	6.6	6.4		SZGRF
Southeast of Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 15:10:35.8	81.1	45.0	1.5	574	6.4		
RUE	e P	Z 15:10:41.3	82.4	45.1	1.5	559	6.6		
	e pP	Z 15:10:51.8							
BSEG	e P	Z 15:10:43.6	82.8	42.7	1.3	304	6.4		
	e pP	Z 15:10:53.6							
BRG	e P	Z 15:10:46.8	83.4	45.1	1.7	548	6.5		
	e pP	Z 15:10:57.1							
CLL	e P	Z 15:10:47.0	83.6	44.5	1.5	614	6.6		
	e pP	Z 15:10:57.4							
NRDL	e P	Z 15:10:49.1	83.9	42.4	1.6	383	6.4		
	e pP	Z 15:10:59.2							
CLZ	e P	Z 15:10:51.5	84.3	42.6	1.4	698	6.7		
	e pP	Z 15:11:01.8							
WERD	e P	Z 15:10:52.2	84.5	43.9	1.4	431	6.5		
	e pP	Z 15:11:02.6							
GUNZ	e P	Z 15:10:52.6	84.5	43.9	1.5	644	6.6		
	e pP	Z 15:11:02.7							
MOX	e P	Z 15:10:53.1	84.6	43.4	1.5	548	6.6		
	e pP	Z 15:11:03.2							
GEC2	e P	Z 15:10:54.6	85.0	44.8	1.5	441	6.5		
	e pP	Z 15:11:05.2							
IBBN	e P	Z 15:10:54.8	85.0	40.6	1.5	874	6.8		
	e pP	Z 15:11:04.8							

WET	e P	Z	15:10:55.8	85.2	44.2	1.6	509	6.5		
	e pP	Z	15:11:06.1							
UBBA	e P	Z	15:10:55.6	85.2	42.2	1.5	402	6.4		
	e pP	Z	15:11:06.0							
GRA3	e P'P'df	Z	15:37:07.7	85.4	43.1					
GRA1	e P	Z	15:10:57.8	85.5	43.1	1.5	1448	6.9		
	e pP	Z	15:11:08.6							
	e PP	Z	15:14:15.0							
	e S	T	15:21:26.5							
	e SS	R	15:27:02.9							
	e L	Z	15:57:01.6			19.2	14391	6.4		
BUG	e P	Z	15:10:59.1	85.9	40.2	1.4	640	6.5		
	e pP	Z	15:11:09.1							
FUR	e P	Z	15:11:03.2	86.6	43.0	1.5	1059	6.7		
	e pP	Z	15:11:13.3							
STU	e P	Z	15:11:05.4	87.1	41.5	1.5	544	6.5		
	e pP	Z	15:11:15.4							
WLF	e P	Z	15:11:08.4	87.7	39.3	1.5	612	6.7		
	e pP	Z	15:11:18.4							
BFO	e P	Z	15:11:08.2	87.8	40.9	1.5	401	6.5		
	e pP	Z	15:11:18.4							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/08 16:14:58.0 31.139N 51.260E 33.0N 4.3  
 Northern and central Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:21:48.5	35.1	106.7	1.3	6	4.3		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/09

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 02:07:32.9							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/09 12:37:48.2 29.152S 12.029W 33.0N 4.7  
 Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:50:02.7	81.5	200.4	1.1	8	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/09	13:10:29.3	16.860S	172.520W	34.7				SZGRF

Samoa Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLZ	e PKPbc	Z	13:30:02.0	144.9	4.8					
CLL	e PKPbc	Z	13:30:02.3	145.3	9.3					
	e pPKPbc	Z	13:30:12.8							
BUG	e PKPbc	Z	13:30:03.2	145.4	359.6					
	e pPKPbc	Z	13:30:13.5							
BRG	e PKPbc	Z	13:30:04.0	145.6	11.0					
	e pPKPbc	Z	13:30:14.2							
UBBA	e PKPbc	Z	13:30:04.4	146.0	4.3					
	e pPKPbc	Z	13:30:15.2							
MOX	e PKPbc	Z	13:30:05.3	146.1	7.1					
	e pPKPbc	Z	13:30:15.8							
WERD	e PKPbc	Z	13:30:05.8	146.2	8.3					
	e pPKPbc	Z	13:30:16.4							
GUNZ	e PKPbc	Z	13:30:06.3	146.3	8.4					
	e pPKPbc	Z	13:30:16.8							
GRA1	e PKPbc	Z	13:30:08.6	147.0	6.6					
WLF	e PKPbc	Z	13:30:09.2	147.2	357.7					
	e pPKPbc	Z	13:30:19.8							
WET	e PKPbc	Z	13:30:10.2	147.4	9.6					
GEC2	e PKPbc	Z	13:30:10.6	147.6	11.2					
	e pPKPbc	Z	13:30:20.7							
STU	e PKPbc	Z	13:30:12.0	148.1	3.1					
	e pPKPbc	Z	13:30:22.0							
BFO	e PKPbc	Z	13:30:12.5	148.5	1.6					
	e pPKPbc	Z	13:30:23.1							
FUR	e PKPbc	Z	13:30:13.2	148.5	7.0					
	e pPKPbc	Z	13:30:23.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/09	14:36:53.2	41.854N	142.171E	79.6	4.7			SZGRF

Hokkaido, Japan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	14:48:53.6	78.9	35.0	1.1	9	4.7		
	e pP	Z	14:49:14.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/09	16:33:24.4	17.860N	81.220W	33.0N	5.8	5.8		SZGRF

North of Honduras

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 16:45:02.7	74.8	279.9	1.2	185	6.0		
BUG	e P	Z 16:45:04.9	75.2	280.2	1.2	155	5.9		
IBBN	e P	Z 16:45:05.7	75.3	280.4	1.1	213	6.1		
BFO	e P	Z 16:45:11.4	76.5	281.8	1.3	58	5.5		
BSEG	e P	Z 16:45:12.2	76.5	281.9	1.4	156	6.0		
NRDL	e P	Z 16:45:13.6	76.7	282.1	1.2	134	5.9		
STU	e P	Z 16:45:14.6	76.9	282.3	0.9	45	5.6		
UBBA	e P	Z 16:45:14.9	77.0	282.4	1.6	129	5.8		
CLZ	e P	Z 16:45:15.2	77.0	282.5	1.1	169	6.1		
GRA1	e P	Z 16:45:20.7	78.0	283.6	1.2	105	5.8		
	e S	N 16:55:20.8							
	e SS	E 17:00:18.0							
	e L	Z 17:14:20.6			22.0	5436		5.8	
MOX	e P	Z 16:45:20.5	78.0	283.7	1.2	97	5.8		
FUR	e P	Z 16:45:23.5	78.4	283.9	1.3	139	5.8		
WERD	e P	Z 16:45:23.2	78.5	284.2	1.2	102	5.7		
GUNZ	e P	Z 16:45:23.4	78.5	284.2	1.2	117	5.8		
CLL	e P	Z 16:45:24.6	78.7	284.6	1.2	138	5.8		
RUE	e P	Z 16:45:25.6	78.9	284.9	1.4	181	5.9		
WET	e P	Z 16:45:27.3	79.2	284.9	1.2	139	5.9		
BRG	e P	Z 16:45:28.5	79.4	285.3	1.3	159	5.8		
GEC2	e P	Z 16:45:30.5	79.8	285.5	1.3	107	5.6		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/09 20:03:52.2 36.065N 71.166E 33.0N 4.5  
 Afghanistan-Tajikistan border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:12:02.4	44.7	84.1	1.4	10	4.5		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/10 02:06: 6.2 34.340N 136.860E 33.0N 5.2 5.9  
 Western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 02:18:16.3	80.4	42.3	1.4	19	4.9		
BRG	e P	Z 02:18:20.0	81.1	44.6	1.6	22	4.9		
CLL	e P	Z 02:18:18.8	81.2	43.9	1.1	18	5.1		
NRDL	e P	Z 02:18:22.0	81.6	42.0	2.2	52	5.3		
CLZ	e P	Z 02:18:24.5	81.9	42.1	1.4	34	5.3		
WERD	e P	Z 02:18:24.0	82.1	43.4	1.5	20	5.0		
GUNZ	e P	Z 02:18:25.1	82.2	43.4	1.3	24	5.2		
MOX	e P	Z 02:18:25.2	82.3	42.9	1.6	29	5.3		

IBBN	e P	Z	02:18:27.2	82.6	40.2	0.9	15	5.2
GEC2	e P	Z	02:18:27.8	82.7	44.2	0.9	12	5.1
WET	e P	Z	02:18:27.7	82.8	43.6	1.9	30	5.2
UBBA	e P	Z	02:18:29.2	82.9	41.7	1.5	20	5.1
GRA1	e P	Z	02:18:30.2	83.2	42.5	1.7	105	5.8
	e S	E	02:28:55.3					
	e L	Z	02:59:57.2			18.3	4845	5.9
BUG	e P	Z	02:18:30.9	83.5	39.8	0.9	15	5.2
FUR	e P	Z	02:18:36.0	84.3	42.4	1.1	29	5.4
STU	e P	Z	02:18:38.2	84.7	41.0	1.1	18	5.2
WLF	e P	Z	02:18:41.3	85.3	38.9	1.6	33	5.2
BFO	e P	Z	02:18:41.0	85.4	40.4	1.5	18	5.0

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/10 04:22:19.1 43.110N 142.330E 87.4 5.4 4.3  
 Hokkaido, Japan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	04:33:50.8	74.6	36.3	0.7	53	5.7		
BSEG	e P	Z	04:33:50.7	74.6	34.2	0.8	41	5.5		
CLL	e P	Z	04:33:57.2	75.9	35.6	0.8	57	5.8		
	e pP	Z	04:34:20.1							
BRG	e P	Z	04:33:57.1	75.9	36.2	0.8	12	5.1		
NRDL	e P	Z	04:33:57.7	75.9	33.9	0.8	17	5.2		
CLZ	e P	Z	04:34:00.7	76.4	34.0	0.8	50	5.7		
WERD	e P	Z	04:34:02.9	76.8	35.0	0.8	13	5.1		
IBBN	e P	Z	04:34:02.9	76.8	32.3	0.7	44	5.7		
	e pP	Z	04:34:25.8							
GUNZ	e P	Z	04:34:03.4	76.9	35.0	0.7	20	5.4		
MOX	e P	Z	04:34:03.3	76.9	34.6	0.7	17	5.3		
UBBA	e P	Z	04:34:05.3	77.3	33.6	0.6	10	5.1		
GEC2	e P	Z	04:34:07.2	77.6	35.7	0.6	12	5.2		
WET	e P	Z	04:34:08.0	77.7	35.2	0.8	24	5.4		
	e pP	Z	04:34:30.6							
BUG	e P	Z	04:34:07.7	77.7	31.9	0.8	38	5.6		
GRA1	e P	Z	04:34:09.0	77.8	34.2	0.7	63	5.8		
	e pP	Z	04:34:31.8							
	e L	Z	05:11:04.8			20.9	154		4.3	
FUR	e P	Z	04:34:15.5	79.1	34.1	0.8	62	5.7		
STU	e P	Z	04:34:16.6	79.3	32.8	0.7	29	5.3		
WLF	e P	Z	04:34:19.1	79.6	30.9	1.1	23	5.0		
BFO	e P	Z	04:34:20.1	80.0	32.2	0.8	15	5.0		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/10

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 11:02:52.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:06:21.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/11	21:52:34.2	57.511S	25.543W	33.0N		6.0		gsrc-m
South Sandwich Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pdiff	Z 22:07:00.6	109.5	198.5					
	e PP	Z 22:11:31.9							
	e SP	Z 22:20:55.7							
FUR	e Pdiff	Z 22:07:03.1	110.0	200.0					
	e PP	Z 22:11:35.5							
	e SP	Z 22:21:15.7							
STU	e Pdiff	Z 22:07:03.1	110.1	199.0					
	e PP	Z 22:11:36.3							
	e SP	Z 22:21:08.6							
WLF	e Pdiff	Z 22:07:08.2	110.3	197.5					
	e PP	Z 22:11:27.8							
	e SP	Z 22:21:04.6							
GEC2	e Pdiff	Z 22:07:13.2	111.2	201.4					
	e PP	Z 22:11:44.2							
	e SP	Z 22:21:38.4							
WET	e Pdiff	Z 22:07:08.4	111.3	201.0					
	e PP	Z 22:11:44.8							
	e SP	Z 22:21:38.3							
GRA1	e Pdiff	Z 22:07:07.8	111.4	200.2					
	e PP	Z 22:11:45.7							
	e SKSac	R 22:17:51.8							
	e SP	Z 22:21:42.2							
	e SS	R 22:27:36.5							
	e L	Z 22:52:28.8			21.9	3954	6.0		
UBBA	e Pdiff	Z 22:07:14.5	112.2	199.7					
	e PP	Z 22:11:51.4							
	e SP	Z 22:21:29.1							
BUG	e Pdiff	Z 22:07:16.5	112.2	198.3					
	e PP	Z 22:11:51.6							
	e SP	Z 22:21:28.8							

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MOX	e Pdiff	Z	22:07:14.9	112.4	200.5
	e PP	Z	22:11:52.8		
	e SP	Z	22:21:32.6		
BRG	e Pdiff	Z	22:07:18.7	113.1	201.8
	e PP	Z	22:11:58.1		
	e SP	Z	22:21:37.1		
IBBN	e Pdiff	Z	22:07:18.1	113.1	198.7
	e PP	Z	22:11:58.2		
	e SP	Z	22:21:36.5		
CLZ	e Pdiff	Z	22:07:19.0	113.2	200.1
	e PP	Z	22:11:58.9		
	e SP	Z	22:21:38.8		
CLL	e Pdiff	Z	22:07:20.4	113.3	201.4
	e PP	Z	22:11:59.4		
	e SP	Z	22:21:38.5		
NRDL	e Pdiff	Z	22:07:21.0	113.8	200.0
	e PP	Z	22:12:02.8		
	e SP	Z	22:21:43.4		
RUE	e Pdiff	Z	22:07:24.3	114.6	202.0
	e PP	Z	22:12:08.4		
	e SP	Z	22:21:50.1		
BSEG	e Pdiff	Z	22:07:27.7	115.2	200.3
	e PP	Z	22:12:12.7		
	e SP	Z	22:21:54.0		
RGN	e Pdiff	Z	22:07:33.8	116.4	202.1
	e PP	Z	22:12:21.2		
	e SP	Z	22:22:09.3		

Date  
2004/09/12

Origin Time

Lat

Long

Depth

mb

Ms

ML

Source

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	16:43:54.2							
MOX	e Pn	Z	16:44:25.7							
WET	e Pn	Z	16:44:01.2							

Date  
2004/09/12  
Northern Mid-Atlantic Ridge

Origin Time  
17:36:39.8

Lat  
27.036N

Long  
43.613W

Depth  
33.0N

mb  
5.1

Ms

ML

Source  
SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	17:45:10.3	47.3	262.4	1.6	27	5.1		



Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/12	18:02:43.7	26.242N	44.647W	33.0N	4.8			SZGRF

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:11:23.5	48.5	262.5	1.4	16	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/13	02:39:4.0	16.418S	66.927E	33.0N	4.9			SZGRF

Mid-Indian Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:51:22.6	82.3	126.9	1.4	14	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/13	03:00:23.3	44.970N	149.970E	33.0N	6.0	5.8		SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 03:12:05.3	75.3	28.3	1.0	123	6.0		
RUE	e P	Z 03:12:07.4	75.5	30.4	1.0	138	6.0		
NRDL	e P	Z 03:12:13.0	76.6	28.0	1.4	143	5.9		
CLL	e P	Z 03:12:13.8	76.8	29.7	1.0	163	6.1		
BRG	e P	Z 03:12:13.6	76.9	30.3	1.1	68	5.7		
CLZ	e P	Z 03:12:16.3	77.1	28.1	1.7	447	6.3		
IBBN	e P	Z 03:12:17.8	77.4	26.4	0.8	159	6.2		
WERD	e P	Z 03:12:19.4	77.8	29.2	4.4	2561	6.7		
MOX	e P	Z 03:12:19.7	77.8	28.7	1.3	101	5.8		
GUNZ	e P	Z 03:12:20.0	77.8	29.2	1.0	84	5.8		
UBBA	e P	Z 03:12:21.3	78.1	27.7	1.7	148	5.8		
BUG	e P	Z 03:12:22.6	78.4	26.0	1.1	123	5.9		
GEC2	e P	Z 03:12:24.7	78.7	29.9	1.4	94	5.6		
WET	e P	Z 03:12:24.4	78.7	29.4	1.3	186	5.9		
GRA1	e P	Z 03:12:25.4	78.8	28.4	0.9	154	6.0		
	e PP	Z 03:15:31.3							
	e S	N 03:22:40.8							
	e L	Z 03:55:25.8			18.4	4077		5.8	
FUR	e P	Z 03:12:32.4	80.1	28.3	1.2	301	6.1		
STU	e P	Z 03:12:32.7	80.2	27.0	1.2	225	6.0		
WLF	e P	Z 03:12:33.0	80.3	25.1	2.6	709	6.2		
BFO	e P	Z 03:12:35.9	80.8	26.4	1.5	198	5.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/09/13 17:15:11.0 17.720N 46.190W 33.0N 5.4 4.6 SZGRF  
Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 17:24:28.8	53.5	254.8	1.8	94	5.5		
STU	e P	Z 17:24:33.5	54.2	255.3	1.0	33	5.3		
UBBA	e P	Z 17:24:40.9	55.2	254.6	2.1	46	5.1		
FUR	e P	Z 17:24:42.9	55.4	257.5	1.2	59	5.5		
GRA1	e P	Z 17:24:44.0	55.7	256.4	1.5	49	5.3		
	e S	E 17:32:39.9							
	e L	Z 17:46:29.5			18.6	478		4.6	
CLZ	e P	Z 17:24:44.6	55.7	254.2	1.9	65	5.3		
NRDL	e P	Z 17:24:45.5	55.7	253.5	2.0	100	5.5		
MOX	e P	Z 17:24:48.0	56.1	256.1	1.2	16	4.9		
BSEG	e P	Z 17:24:48.4	56.3	252.8	1.8	103	5.6		
GUNZ	e P	Z 17:24:50.8	56.5	256.9	2.1	113	5.5		
WERD	e P	Z 17:24:50.9	56.5	256.8	2.2	121	5.5		
WET	e P	Z 17:24:51.3	56.6	258.2	2.0	75	5.4		
GEC2	e P	Z 17:24:54.1	57.1	259.0	1.6	40	5.2		
CLL	e P	Z 17:24:55.3	57.1	256.9	1.3	33	5.2		
BRG	e P	Z 17:24:58.4	57.6	258.0	1.8	66	5.4		
RUE	e P	Z 17:25:00.6	57.9	256.8					
RGN	e P	Z 17:25:02.0	58.1	255.2	1.3	186	6.0		

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/09/13 22:29:33.3 22.900S 175.200W 33.0N 5.2 4.6 SZGRF  
Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:49:28.5	152.7	13.0					

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/09/14 07:41:44.0 26.870N 126.950E 33.0N 5.2 4.6 SZGRF  
Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 07:54:05.9	82.7	55.3	1.0	13	5.1		
GUNZ	e P	Z 07:54:10.4	83.6	54.7	0.8	10	5.1		
CLZ	e P	Z 07:54:11.3	83.8	53.4	0.9	31	5.5		
GEC2	e P	Z 07:54:11.3	83.8	55.5	1.2	11	5.0		
GRA1	e P	Z 07:54:15.4	84.6	53.8					

Date Origin Time Lat Long Depth mb Ms ML Source

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2004/09/15 00:17:56.9  
Azores Islands region

41.088N 27.410W 33.0N 4.4 3.9

SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:23:46.1	28.1	267.1	1.0	6	4.4		
	e L	Z 00:34:10.2			19.0	283		3.9	

Date Origin Time  
2004/09/15 02:32:27.4  
Azores Islands region

Lat Long Depth mb Ms ML Source  
42.249N 25.953W 33.0N 4.4 4.5 SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:38:02.9	26.6	268.1	1.0	9	4.4		
	e L	Z 02:48:11.9			20.2	1359		4.5	

Date Origin Time  
2004/09/15

Lat Long Depth mb Ms ML Source

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:11:18.7							

Date Origin Time  
2004/09/15

Lat Long Depth mb Ms ML Source

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:10:19.8							

Date Origin Time  
2004/09/15

Lat Long Depth mb Ms ML Source

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 16:38:52.0							

Date Origin Time  
2004/09/15 19:10:57.0  
Luzon, Philippine Islands

Lat Long Depth mb Ms ML Source  
15.680N 120.260E 118.0N 6.3 5.1 SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 19:23:30.9	87.2	67.6	0.9	515	6.7		

BRG	e P	Z	19:23:33.3	87.8	67.6	1.0	246	6.5		
CLL	e P	Z	19:23:34.7	88.1	66.9	1.0	192	6.4		
BSEG	e P	Z	19:23:37.0	88.6	64.9	0.9	244	6.4		
GEC2	e P	Z	19:23:37.6	88.7	67.4	1.0	148	6.2		
WERD	e P	Z	19:23:38.5	88.9	66.4	1.1	152	6.1		
GUNZ	e P	Z	19:23:38.7	88.9	66.4	1.0	229	6.4		
WET	e P	Z	19:23:39.6	89.1	66.8	1.4	163	6.1		
MOX	e P	Z	19:23:40.0	89.2	65.8	1.2	140	6.1		
NRDL	e P	Z	19:23:40.7	89.3	64.7	1.2	140	6.1		
CLZ	e P	Z	19:23:41.3	89.4	64.9	1.5	281	6.3		
GRA1	e P	Z	19:23:43.2	89.8	65.5	1.0	146	6.2		
	e PP	Z	19:27:12.2							
	e S	N	19:34:33.1							
	e SS	E	19:40:38.6							
	e L	Z	20:05:05.6			21.6	743		5.1	
FUR	e P	Z	19:23:45.9	90.4	65.6	1.4	369	6.5		
IBBN	e P	Z	19:23:46.7	90.7	62.8	0.9	171	6.4		
BUG	e P	Z	19:23:49.7	91.3	62.4	1.0	146	6.3		
STU	e P	Z	19:23:50.2	91.4	64.0	1.0	164	6.3		
BFO	e P	Z	19:23:53.1	92.1	63.3	1.1	94	6.0		
WLF	e P	Z	19:23:57.1	92.8	61.6	1.0	247	6.6		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/15 20:00:1.7 44.470N 153.060E 33.0N 4.9  
 East of Kuril Islands, Russia SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	20:11:51.3	76.6	26.4	1.7	48	5.3		
NRDL	e P	Z	20:11:58.5	77.9	26.1					
CLL	e P	Z	20:11:59.7	78.2	27.9	1.1	19	5.0		
BRG	e P	Z	20:12:00.4	78.3	28.5	1.1	6	4.6		
CLZ	e P	Z	20:12:01.9	78.5	26.2	1.0	16	5.0		
WERD	e P	Z	20:12:05.5	79.2	27.4	1.1	9	4.7		
MOX	e P	Z	20:12:05.5	79.2	26.9	1.2	13	4.7		
GUNZ	e P	Z	20:12:05.9	79.2	27.4	1.0	10	4.7		
WET	e P	Z	20:12:11.0	80.1	27.6	1.3	16	4.8		
GRA1	e P	Z	20:12:11.3	80.1	26.6	1.0	16	4.9		
GEC2	e P	Z	20:12:10.5	80.1	28.1	1.2	7	4.5		
FUR	e P	Z	20:12:17.9	81.5	26.5	2.9	297	5.9		
BFO	e P	Z	20:12:21.1	82.2	24.6	1.1	13	5.1		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/16 14:49:14.9 14.080S 69.930W 59.8 5.7 5.1  
 Peru-Bolivia border region SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	15:02:16.6	92.0	250.4	1.4	53	5.7		
BUG	e P	Z	15:02:21.8	93.2	251.3	1.2	36	5.7		
IBBN	e P	Z	15:02:24.5	93.8	251.8	0.7	24	5.6		
UBBA	e P	Z	15:02:28.4	94.7	253.4	1.7	24	5.4		
GRA1	e P	Z	15:02:30.5	95.1	254.2	0.1	90	7.5		
	e pP	Z	15:02:47.5							
	e L	Z	15:44:37.6			20.1	659		5.1	
CLZ	e P	Z	15:02:31.1	95.2	253.7	1.4	33	5.6		
NRDL	e P	Z	15:02:31.6	95.2	253.6	1.5	25	5.4		
MOX	e P	Z	15:02:32.8	95.6	254.6	2.1	41	5.5		
BSEG	e P	Z	15:02:33.6	95.7	253.9	1.6	25	5.5		
WET	e P	Z	15:02:35.0	96.0	255.4	1.8	37	5.6		
CLL	e P	Z	15:02:37.5	96.6	255.7	1.0	8	5.3		
BRG	e P	Z	15:02:39.8	97.1	256.4	1.4	13	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/16	19:57: 9.8	3.676N	97.534E	33.0N	4.8			SZGRF

Northern Sumatera, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	20:09:41.3	84.8	90.4	0.9	6	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/16	20:09:40.3	31.910N	128.710E	33.0N	4.9			SZGRF

Northwest of Ryukyu Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	20:21:43.8	79.3	51.7	0.9	3	4.3		
CLL	e P	Z	20:21:44.8	79.5	51.1	0.8	9	4.8		
NRDL	e P	Z	20:21:48.5	80.1	49.2	1.4	13	4.7		
WERD	e P	Z	20:21:50.1	80.4	50.5	1.0	6	4.6		
CLZ	e P	Z	20:21:50.3	80.4	49.3	1.2	29	5.2		
GUNZ	e P	Z	20:21:50.4	80.4	50.5	0.9	8	4.8		
MOX	e P	Z	20:21:50.8	80.6	50.0	1.2	8	4.7		
GEC2	e P	Z	20:21:51.5	80.7	51.2	0.9	7	4.7		
WET	e P	Z	20:21:52.6	80.9	50.7	9.3	1806	6.1		
UBBA	e P	Z	20:21:54.1	81.3	48.9	0.7	6	4.8		
IBBN	e P	Z	20:21:54.5	81.3	47.4					
GRA1	e P	Z	20:21:55.3	81.4	49.6	1.0	21	5.2		
FUR	e P	Z	20:22:00.4	82.4	49.5	0.9	12	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/09/17 23:43:29.4  
Guatemala

15.830N 89.410W 33.0N 5.7 4.8

SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 23:55:44.7	81.5	284.5	1.5	81	5.6		
BUG	e P	Z 23:55:45.3	81.7	285.1	2.0	163	5.8		
IBBN	e P	Z 23:55:46.0	81.8	285.3	1.9	154	5.8		
NRDL	e P	Z 23:55:53.3	83.1	287.1	2.1	130	5.8		
BFO	e P	Z 23:55:53.3	83.2	286.3	1.7	56	5.5		
CLZ	e P	Z 23:55:54.9	83.5	287.4	1.7	77	5.7		
UBBA	e P	Z 23:55:55.5	83.6	287.2	2.3	158	5.8		
STU	e P	Z 23:55:55.5	83.7	286.8	2.0	130	5.8		
MOX	e P	Z 23:56:00.3	84.6	288.5	1.9	83	5.6		
GRA1	e P	Z 23:56:01.1	84.7	288.3	2.3	194	5.9		
WERD	e P	Z 23:56:02.5	85.1	289.0	2.1	87	5.6		
GUNZ	e P	Z 23:56:03.0	85.1	289.0	2.0	96	5.7		
CLL	e P	Z 23:56:03.1	85.2	289.5	1.1	18	5.2		
WET	e P	Z 23:56:07.1	85.8	289.5	2.1	115	5.6		
BRG	e P	Z 23:56:06.8	85.9	290.2	2.8	181	5.7		
GEC2	e P	Z 23:56:09.5	86.5	290.2	0.2	24	5.9		
GRA1	e L	Z 00:31:46.1	84.7	288.3	21.2	463		4.8	

Date Origin Time  
2004/09/17 02:38:12.0  
Reykjanes Ridge

Lat Long Depth mb Ms  
59.453N 29.121W 33.0N 4.4 4.1

ML Source  
SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:43:32.0	24.9	308.5	1.0	8	4.4		
	e L	Z 02:52:37.1			20.9	618		4.1	

Date Origin Time  
2004/09/17 05:37:19.5  
North Atlantic Ocean

Lat Long Depth mb Ms  
58.607N 28.786W 33.0N 4.8 4.6

ML Source  
SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:42:37.3	24.6	306.5	1.2	22	4.8		
	e L	Z 05:51:53.8			22.0	2200		4.6	

Date Origin Time  
2004/09/17 07:07:40.9  
North Atlantic Ocean

Lat Long Depth mb Ms  
58.621N 28.631W 33.0N 4.8 4.6

ML Source  
SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1	e P	Z	07:12:58.0	24.5	306.6	1.3	23	4.8
	e L	Z	07:22:01.9			21.4	2314	4.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/17	11:25:57.9	15.650N	94.240E	33.0N	5.7	5.7		SZGRF

Near south coast of Myanmar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 11:37:17.3	71.8	87.3	1.3	72	5.6		
GEC2	e P	Z 11:37:19.1	72.1	86.5	1.4	73	5.6		
CLL	e P	Z 11:37:20.4	72.4	86.7	1.5	106	5.7		
WET	e P	Z 11:37:22.1	72.6	86.0	1.6	95	5.7		
GUNZ	e P	Z 11:37:23.5	72.9	85.9	1.4	101	5.7		
WERD	e P	Z 11:37:23.4	72.9	85.9	1.6	91	5.7		
MOX	e P	Z 11:37:25.9	73.3	85.5	1.7	129	5.8		
GRA1	e P	Z 11:37:28.6	73.7	84.9	1.6	203	5.9		
	e S	N 11:47:11.9							
	e L	Z 12:18:28.9			18.6	3792		5.7	
FUR	e P	Z 11:37:29.4	73.8	84.5					
BSEG	e P	Z 11:37:29.6	73.9	85.4	1.5	191	5.9		
CLZ	e P	Z 11:37:30.0	74.0	84.9	1.4	118	5.7		
NRDL	e P	Z 11:37:30.9	74.1	84.9	1.6	248	6.0		
UBBA	e P	Z 11:37:32.1	74.3	84.3	1.7	109	5.6		
STU	e P	Z 11:37:36.7	75.1	83.1	1.1	61	5.5		
IBBN	e P	Z 11:37:39.4	75.5	83.0	1.5	200	6.0		
BFO	e P	Z 11:37:39.3	75.7	82.4	1.9	92	5.6		
BUG	e P	Z 11:37:41.6	76.0	82.4	1.3	120	5.9		
WLF	e P	Z 11:37:47.9	76.9	81.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/17	14:08:23.3	58.621N	28.772W	33.0N	5.0	5.1		SZGRF

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:13:41.0	24.6	306.5	1.6	50	5.0		
	e PPP	Z 14:14:19.3							
	e L	Z 14:22:47.2			21.7	6802		5.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/17	14:33:11.2	58.552N	28.351W	33.0	4.8			SZGRF

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1 e P Z 14:38:26.9 24.4 306.4 1.5 29 4.8

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/09/17

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e PKP Z 15:02:57.6

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/09/17 15:29:29.4 17.660S 172.220W 33.0N SZGRF  
Tonga Islands region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
NRDL e PKPbc Z 15:49:02.5 145.1 3.9  
IBBN e PKPbc Z 15:49:03.8 145.4 360.0  
CLZ e PKPbc Z 15:49:05.1 145.8 4.4  
CLL e PKPbc Z 15:49:05.7 146.1 8.9  
BUG e PKPbc Z 15:49:06.3 146.2 359.1  
BRG e PKPbc Z 15:49:06.8 146.4 10.7  
UBBA e PKPbc Z 15:49:07.2 146.8 3.9  
MOX e PKPbc Z 15:49:08.3 146.9 6.7  
WERD e PKPbc Z 15:49:08.5 147.0 7.9  
GUNZ e PKPbc Z 15:49:09.1 147.1 8.0  
GRA1 e PKPbc Z 15:49:11.2 147.8 6.2  
WLF e PKPbc Z 15:49:11.7 148.0 357.1  
WET e PKPbc Z 15:49:12.0 148.2 9.3  
GEC2 e PKPbc Z 15:49:12.6 148.4 10.8  
BFO e PKPbc Z 15:49:14.3 149.3 1.0  
FUR e PKPbc Z 15:49:15.4 149.4 6.5

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/09/18 23:43:38.8 36.620N 120.804W 33.0N 5.5 5.6 SZGRF  
Central California, United States

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e P Z 23:56:05.5 83.8 323.2 1.3 40 5.5  
e L Z 00:32:26.0 18.4 2282 5.6

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/09/18 07:07:47.3 22.500N 67.930W 19.5 5.8 5.5 SZGRF  
North Atlantic Ocean



Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	07:18:11.5	62.9	273.5					
BUG	e P	Z	07:18:14.9	63.5	273.5					
IBBN	e P	Z	07:18:16.7	63.7	273.4					
BFO	e P	Z	07:18:20.8	64.4	275.8	1.1	35	5.5		
STU	e P	Z	07:18:24.3	64.9	276.2					
NRDL	e P	Z	07:18:26.3	65.2	275.1					
BSEG	e P	Z	07:18:25.9	65.2	274.6	1.2	63	5.7		
UBBA	e P	Z	07:18:26.5	65.2	275.8					
CLZ	e P	Z	07:18:27.6	65.4	275.6	0.9	76	5.9		
GRA1	e P	Z	07:18:32.5	66.2	277.2	1.3	86	5.8		
	e pP	Z	07:18:38.0							
	e S	E	07:27:17.2							
	e SS	E	07:31:38.0							
	e L	Z	07:44:43.9			18.4	3071		5.5	
MOX	e P	Z	07:18:33.3	66.3	277.1	1.6	73	5.6		
FUR	e P	Z	07:18:34.1	66.4	277.9	2.1	375	6.3		
WERD	e P	Z	07:18:36.1	66.7	277.7					
GUNZ	e P	Z	07:18:36.4	66.8	277.7					
CLL	e P	Z	07:18:38.2	67.1	277.8	1.0	55	5.7		
WET	e P	Z	07:18:40.0	67.3	278.6	1.1	65	5.8		
RUE	e P	Z	07:18:40.2	67.4	277.9					
BRG	e P	Z	07:18:42.4	67.7	278.7	1.0	54	5.8		
GEC2	e P	Z	07:18:43.5	67.9	279.4	1.0	53	5.7		

Date 2004/09/18 Origin Time 12:52:17.5 Lat 43.265N Long 2.292W Depth 10.0G mb Ms 3.2 ML Source SZGRF Spain

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e Pn	Z	12:54:20.6	8.6	225.4					
	e Sn	Z	12:55:54.4							
BFO	e Pn	Z	12:54:24.1	9.0	239.5					
	e Sn	Z	12:56:03.8							
	e L	Z	12:57:27.3			19.1	417		3.2	
STU	e Pn	Z	12:54:35.3	9.7	239.6					
BUG	e Pn	Z	12:54:44.4	10.4	222.0					
	e Sn	Z	12:56:37.6							
FUR	e Sn	Z	12:56:42.9	10.6	247.6					
IBBN	e Pn	Z	12:54:58.4	11.3	220.6					
	e Sn	Z	12:56:56.1							
GRA1	e Pn	Z	12:54:58.1	11.3	240.4					
	e L	Z	12:58:47.7			19.7	366		3.3	
MOX	e Pn	Z	12:55:05.9	12.0	237.4					
	e Sn	Z	12:57:16.4							
	e L	Z	12:59:09.0			21.1	324		3.3	

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WET	e Pn	Z	12:55:07.2	12.0	246.4						
	e Sn	Z	12:57:14.5								
	e L	Z	12:59:52.2			21.1	274	3.2			
CLZ	e Pn	Z	12:55:06.6	12.1	229.7						
GUNZ	e Pn	Z	12:55:11.9	12.2	240.2						
	e Sn	Z	12:57:21.7								
WERD	e Pn	Z	12:55:12.5	12.3	239.8						
GEC2	e Pn	Z	12:55:10.6	12.4	249.3						
	e Sn	Z	12:57:23.6								
CLL	e Pn	Z	12:55:23.5	13.1	238.1						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/18								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:58:52.9			1.0	12			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/18								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:26:52.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/18	21:16:18.3			N				SZGRF
Spain								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKPbc	Z 21:36:07.1							
BSEG	e PKPbc	Z 21:36:02.5							
CLL	e PKPbc	Z 21:36:06.7							
CLZ	e PKPbc	Z 21:36:07.4							
GEC2	e PKPbc	Z 21:36:11.1							
GRA1	e PKPbc	Z 21:36:11.1							
MOX	e PKPbc	Z 21:36:08.7							
NRDL	e PKPbc	Z 21:36:05.8							
RUE	e PKPbc	Z 21:36:03.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/18	22:09:42.3	49.400N	153.870E	33.0N	5.1			SZGRF
Kuril Islands, Russia								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	22:21:09.5	72.7	25.9					
CLL	e P	Z	22:21:16.3	73.9	25.3					
BRG	e P	Z	22:21:17.2	74.1	25.8					
CLZ	e P	Z	22:21:18.0	74.1	23.7					
IBBN	e P	Z	22:21:19.3	74.3	22.1					
MOX	e P	Z	22:21:22.1	74.9	24.4					
UBBA	e P	Z	22:21:23.6	75.1	23.4					
BUG	e P	Z	22:21:24.2	75.2	21.7					
GRA1	e P	Z	22:21:28.4	75.9	24.0	0.7	14	5.2		
WET	e P	Z	22:21:28.7	75.9	25.0	0.7	7	4.9		
GEC2	e P	Z	22:21:28.3	75.9	25.4					
STU	e P	Z	22:21:35.5	77.2	22.7					
BFO	e P	Z	22:21:39.0	77.9	22.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/18	23:02:22.6	36.873N	117.703W	33.0N	5.3	5.7		SZGRF

California-Nevada border region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	23:14:41.7	82.4	321.1	1.0	22	5.3		
	e L	Z	23:52:49.6			18.0	2676		5.7	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/19								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	00:26:05.3			1.0	6			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/19	01:57: 6.7	33.300N	14.190E	33.0N	4.8			SZGRF

Central Mediterranean Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e P	Z	02:00:40.9	15.0	170.6					
GEC2	e P	Z	02:00:48.1	15.5	178.5	0.8	46	4.7		
BFO	e P	Z	02:00:48.0	15.7	161.6					
WET	e P	Z	02:00:51.1	15.9	176.0	0.6	45	4.8		
STU	e P	Z	02:00:51.1	15.9	164.6					
GRA1	e P	Z	02:00:58.2	16.5	171.3	0.7	96	5.0		
GUNZ	e P	Z	02:01:05.4	17.1	174.7					
WERD	e P	Z	02:01:06.3	17.2	174.7					

WLF	e P	Z	02:01:09.8	17.4	157.0
MOX	e P	Z	02:01:09.0	17.4	172.8
BRG	e P	Z	02:01:11.0	17.6	179.3
UBBA	e P	Z	02:01:12.1	17.8	168.5
CLL	e P	Z	02:01:15.8	18.0	176.8
CLZ	e P	Z	02:01:22.7	18.7	170.0
BUG	e P	Z	02:01:25.4	18.8	161.8
RUE	e P	Z	02:01:28.3	19.2	179.0
NRDL	e P	Z	02:01:30.0	19.4	169.7
IBBN	e P	Z	02:01:32.5	19.6	163.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/19								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 02:06:00.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/19	04:09:21.6	33.370S	179.180W	130.0G				SZGRF
South of Kermadec Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z 04:29:18.2	158.4	21.9					
	e PKPab	Z 04:29:50.1							
RUE	e PKPdf	Z 04:29:18.8	158.7	31.1					
	e PKPab	Z 04:29:52.1							
NRDL	e PKPdf	Z 04:29:19.0	159.7	22.9					
	e PKPab	Z 04:29:55.1							
CLL	e PKPdf	Z 04:29:19.0	160.0	31.0					
	e PKPab	Z 04:29:56.8							
BRG	e PKPdf	Z 04:29:18.7	160.0	33.7					
	e PKPab	Z 04:29:57.0							
IBBN	e PKPdf	Z 04:29:19.3	160.4	17.5					
	e PKPab	Z 04:29:58.9							
WERD	e PKPdf	Z 04:29:19.5	161.0	30.6					
	e PKPab	Z 04:30:01.8							
MOX	e PKPdf	Z 04:29:19.5	161.0	28.7					
	e PKPab	Z 04:30:01.5							
GUNZ	e PKPdf	Z 04:29:19.8	161.0	30.8					
	e PKPab	Z 04:30:01.4							
UBBA	e PKPdf	Z 04:29:19.8	161.3	24.6					
	e PKPab	Z 04:30:02.6							
BUG	e PKPdf	Z 04:29:20.0	161.3	17.0					
	e PKPab	Z 04:30:02.7							
GEC2	e PKPdf	Z 04:29:20.3	161.8	36.6					

	e	PKPab	Z	04:30:04.4							
WET	e	PKPdf	Z	04:29:21.8	161.9	34.1					
	e	PKPab	Z	04:30:05.2							
GRA1	e	PKPdf	Z	04:29:21.3	162.0	29.1					
	e	PKPab	Z	04:30:05.8							
	e	PP	Z	04:33:45.8							
WLF	e	PKPab	Z	04:30:12.0	163.2	15.6					
FUR	e	PKPdf	Z	04:29:23.1	163.3	31.7					
	e	PKPab	Z	04:30:11.4							
STU	e	PKPdf	Z	04:29:22.3	163.4	25.2					
	e	PKPab	Z	04:30:12.3							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/19 10:43:48.8 55.579N 160.907W 33.0N 4.8  
 Alaska Peninsula, United States

	Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	GRA1	e P	Z	10:55:24.6	74.5	355.4	0.5	5	4.8		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/19

	Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	GRA1	e PKPdf	Z	11:25:22.7							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/19 20:26: 8.6 52.850N 173.600E 41.4 5.9 5.9  
 Near Islands, Aleutian Islands, United States

	Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	BSEG	e P	Z	20:37:33.0	72.3	10.5					
	RUE	e P	Z	20:37:38.6	73.3	12.6					
	NRDL	e P	Z	20:37:41.1	73.8	10.3					
	IBBN	e P	Z	20:37:43.9	74.2	8.8					
	CLZ	e P	Z	20:37:45.1	74.4	10.4	1.3	158	5.9		
	CLL	e P	Z	20:37:45.6	74.6	12.0	1.8	224	5.9		
	BRG	e P	Z	20:37:47.4	74.9	12.6	1.7	157	5.8		
	BUG	e P	Z	20:37:48.6	75.1	8.5					
	MOX	e P	Z	20:37:50.7	75.4	11.1	1.4	87	5.7		
	UBBA	e P	Z	20:37:50.6	75.4	10.1					
	WERD	e P	Z	20:37:51.4	75.5	11.5					
	GUNZ	e P	Z	20:37:52.0	75.6	11.6					
	GRA1	e P	Z	20:37:56.7	76.4	10.8	1.4	181	6.0		

	e pP	Z	20:38:08.6							
	e S	E	20:47:44.2							
	e L	Z	21:10:44.1			21.1	6996		5.9	
WET	e P	Z	20:37:58.5	76.7	11.8	1.7	163		5.9	
GEC2	e P	Z	20:37:59.3	76.9	12.3	1.8	174		5.9	
WLF	e P	Z	20:37:59.7	76.9	7.7					
STU	e P	Z	20:38:02.4	77.5	9.6					
FUR	e P	Z	20:38:04.8	77.9	10.8	1.8	304		6.1	
BFO	e P	Z	20:38:05.4	78.0	9.0	1.8	198		5.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/19	23:24:31.3	16.450S	63.470E	33.0N	5.3			SZGRF
South Indian Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 23:36:30.1	78.8	131.7	1.7	33	5.1		
WET	e P	Z 23:36:32.8	79.4	131.1	1.4	14	4.8		
FUR	e P	Z 23:36:34.4	79.6	129.6	2.1	265	5.9		
BRG	e P	Z 23:36:37.1	80.0	132.2	1.7	40	5.1		
GUNZ	e P	Z 23:36:39.4	80.5	130.8					
WERD	e P	Z 23:36:39.7	80.5	130.8					
GRA1	e P	Z 23:36:39.4	80.6	129.8	1.7	89	5.4		
CLL	e P	Z 23:36:40.8	80.8	131.5	2.0	83	5.4		
MOX	e P	Z 23:36:41.8	81.0	130.2	1.5	33	5.1		
STU	e P	Z 23:36:41.9	81.0	128.0					
RUE	e P	Z 23:36:42.9	81.2	132.3					
BFO	e P	Z 23:36:43.2	81.2	127.2	1.9	72	5.4		
CLZ	e P	Z 23:36:49.1	82.3	129.3	1.4	50	5.5		
WLF	e P	Z 23:36:53.7	83.1	125.6					
BSEG	e P	Z 23:36:56.0	83.7	129.5	2.4	96	5.6		
IBBN	e P	Z 23:36:57.1	83.9	127.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/21								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pn	Z 04:48:08.1							
	e Sn	E 04:50:24.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/21	14:15:27.2	36.700N	25.770E	33.0N	4.8			SZGRF
Dodecanese Islands, Greece								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	14:19:01.9	15.0	139.6					
WET	e P	Z	14:19:08.5	15.6	138.2					
FUR	e P	Z	14:19:09.2	15.6	131.8					
GRA1	e P	Z	14:19:21.8	16.7	135.5	1.1	79	4.7		
GUNZ	e P	Z	14:19:21.1	16.7	139.6					
WERD	e P	Z	14:19:22.3	16.8	139.8					
CLL	e P	Z	14:19:27.5	17.2	143.2					
MOX	e P	Z	14:19:28.7	17.2	138.6	1.3	116	4.9		
BFO	e P	Z	14:19:28.9	17.3	125.9	1.4	81	4.7		
RUE	e P	Z	14:19:35.0	17.9	147.2					
WLF	e P	Z	14:19:48.7	19.2	125.1					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/21 15:48: 4.0 42.393N 1.885E 10.0G 3.8 ML SZGRF  
 Pyrenees

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z	15:49:51.6	7.5	219.7					
	e Sn	E	15:51:12.3							
WLF	e L	E	15:52:30.0	7.8	203.7	15.1	1642		3.8	
STU	e Pn	Z	15:50:01.0	8.2	221.4					
GRA1	e Sn	N	15:52:08.8	9.7	225.1					
WET	e Pn	Z	15:50:29.3	10.2	232.7					
	e Sn	N	15:52:18.4							
GEC2	e Pn	Z	15:50:33.4	10.5	236.4					
	e Sn	N	15:52:24.3							
WERD	e Sn	N	15:52:33.7	10.8	225.6					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/23 01:05:45.2 25.503N 128.355E 33.0N 4.7 ML SZGRF  
 Ryukyu Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	01:18:24.8	86.4	53.6	1.1	7	4.7		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/23 01:55:25.8 25.622N 128.461E 33.0N 5.4 5.3 ML SZGRF  
 Ryukyu Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	02:08:05.2	86.4	53.4	1.2	37	5.4		
	e S	E	02:18:49.8							

e SS	E	02:24:05.3									
e L	Z	02:49:43.4			20.2		1174			5.3	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/23	10:08:27.9	15.500S	177.300W	15.0N		6.0		NEIC-M

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 10:28:06.4	145.1	14.5					
	e SS	E 10:50:14.1							
	e L	Z 11:36:12.4			19.7	2660		6.0	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/24	02:38:51.8	29.920N	156.440E	33.0N	5.2			SZGRF

North Pacific Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 02:52:01.9	92.6	31.1	0.7	13	5.5		
BRG	e P	Z 02:52:02.2	92.7	31.9	0.7	10	5.3		
CLZ	e P	Z 02:52:03.1	93.0	29.0	1.0	7	5.1		
WERD	e P	Z 02:52:06.5	93.6	30.6	1.1	10	5.0		
MOX	e P	Z 02:52:06.5	93.6	30.0	1.4	8	4.9		
GUNZ	e P	Z 02:52:06.8	93.7	30.6	1.0	13	5.2		
GEC2	e P	Z 02:52:09.8	94.5	31.8	0.9	4	4.9		
WET	e P	Z 02:52:10.8	94.5	31.1	0.8	5	5.0		
GRA1	e P	Z 02:52:11.2	94.6	29.7	1.0	14	5.4		
FUR	e P	Z 02:52:16.7	95.9	29.8	0.8	16	5.6		
STU	e P	Z 02:52:17.5	96.0	28.1	0.6	14	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/24	08:22:21.9	22.290S	176.170W	33.0N				SZGRF

South of Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 08:42:03.7	148.0	11.4					
NRDL	e PKPbc	Z 08:42:08.4	149.4	11.5					
CLZ	e PKPbc	Z 08:42:09.4	150.0	12.2					
	e PKPab	Z 08:42:14.8							
CLL	e PKPbc	Z 08:42:09.0	150.1	17.2					
BRG	e PKPbc	Z 08:42:09.8	150.3	19.2					
	e PKPab	Z 08:42:15.5							
MOX	e PKPbc	Z 08:42:11.4	151.0	15.0					
	e PKPab	Z 08:42:18.5							



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UBBA	e	PKPbc	Z	08:42:12.0	151.1	11.9
WERD	e	PKPbc	Z	08:42:11.6	151.1	16.4
	e	PKPab	Z	08:42:18.9		
GUNZ	e	PKPbc	Z	08:42:12.0	151.1	16.5
	e	PKPab	Z	08:42:19.5		
GRA1	e	PKPbc	Z	08:42:13.8	152.0	14.7
	e	PKPab	Z	08:42:23.8		
WET	e	PKPbc	Z	08:42:13.8	152.2	18.2
	e	PKPab	Z	08:42:24.4		
GEC2	e	PKPbc	Z	08:42:14.1	152.3	20.0
STU	e	PKPbc	Z	08:42:17.6	153.2	11.1
FUR	e	PKPbc	Z	08:42:17.9	153.5	15.6
	e	PKPab	Z	08:42:29.8		
BFO	e	PKPbc	Z	08:42:18.0	153.7	9.4
	e	PKPab	Z	08:42:30.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/24	10:34:44.4	1.591S	24.672W	33.0N	4.8	5.2		SZGRF
Central Mid-Atlantic Ridge								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:44:46.9	59.8	222.7	1.7	17	4.8		
	e L	Z 11:09:49.1			20.1	1981		5.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/24	14:43:23.5	29.804N	111.177W	33.0N		6.2		SZGRF
Sonora, Mexico								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:55:58.5	85.5	312.7					
	e L	Z 15:33:36.6			18.4	9551		6.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/25								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 19:16:45.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/25	20:27:18.8	64.655N	24.178W	33.0N	4.2	3.3		SZGRF
Iceland region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:32:29.3	23.8	322.1	0.9	7	4.2		
	e L	Z 20:41:00.6			21.8	112		3.3	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/26	03:06:02	38.207N	23.835E	10.0G				gsrc

Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 03:09:06.0	12.9	141.8					
GRA1	e Pn	Z 03:09:36.0	14.6	137.1					
GUNZ	e Pn	Z 03:09:30.1	14.6	141.7					
WERD	e Pn	Z 03:09:31.0	14.7	141.8					
BFO	e Pn	Z 03:09:34.5	15.1	126.3					
MOX	e Pn	Z 03:09:37.7	15.2	140.5					
CLZ	e Pn	Z 03:09:56.3	16.6	140.1					
BSEG	e Pn	Z 03:10:15.3	18.2	144.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/26	22:50:31.3	39.320N	28.814W	33.0N	4.5			SZGRF

Azores Islands, Portugal

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:56:37.0	30.0	265.2	1.5	12	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/27	07:01:31.4	44.668N	12.312E	10.0G			3.8	SZGRF

Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 07:02:36.2	4.3	193.3					3.7
WET	e Pn	Z 07:02:38.6	4.5	185.1					
GRA1	e Sn	E 07:03:44.2	5.1	171.2					4.0
GUNZ	e Sn	E 07:03:57.2	5.7	180.1					
TANN	e Pn	Z 07:02:57.0	5.7	181.1					3.7
	e Sn	E 07:04:00.8							
WERD	e Pn	Z 07:02:56.4	5.8	180.0					3.5
	e Sn	E 07:04:00.9							
MOX	e Pn	Z 07:02:59.6	6.0	175.3					3.8
	e Sn	E 07:04:05.6							
BRG	e Sn	E 07:04:13.8	6.3	190.6					3.8
CLL	e Pn	Z 07:03:08.5	6.7	184.2					4.1

e Sn E 07:04:20.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/27	09:16:23.8	46.877N	27.083E	146.0G				neir

Romania

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:18:57.4	10.9	98.9	0.9	34			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/27	17:05:49.8	30.950N	95.043E	33.0N	5.6			SZGRF

Xizang

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:16:14.7	63.1	72.9	0.9	44	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKP	Z 18:02:19.2							
FUR	e PKP	Z 18:02:16.5							
STU	e PKP	Z 18:02:17.1							
WLF	e PKP	Z 18:02:18.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/27	23:06:44.7	17.620S	172.750W	217.4				SZGRF

Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLZ	e PKPbc	Z 23:25:57.3	145.7	5.3					
CLL	e PKPbc	Z 23:25:58.1	146.0	9.8					
BUG	e PKPbc	Z 23:25:59.5	146.2	0.0					
BRG	e PKPbc	Z 23:25:59.3	146.3	11.6					
MOX	e PKPbc	Z 23:26:00.9	146.8	7.6					
WERD	e PKPbc	Z 23:26:01.9	146.9	8.9					
GUNZ	e PKPbc	Z 23:26:01.7	147.0	8.9					
GRA1	e PKPbc	Z 23:26:04.8	147.8	7.1					
WET	e PKPbc	Z 23:26:05.3	148.1	10.2					
	e pPKPbc	Z 23:27:00.2							
GEC2	e PKPbc	Z 23:26:05.0	148.3	11.8					

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	e pPKPbc	Z	23:27:00.7						
STU	e PKPbc	Z	23:26:06.8	148.8	3.6				
BFO	e PKPbc	Z	23:26:07.0	149.3	2.0				
	e pPKPbc	Z	23:27:02.1						
FUR	e PKPbc	Z	23:26:07.0	149.3	7.5				
	e pPKPbc	Z	23:27:02.6						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	08:03:12.8	38.964N	35.283E	33.0N	4.0			SZGRF

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 08:07:25.7	18.3	114.5	1.0	8	3.8		
WET	e P	Z 08:07:31.6	18.9	114.1	1.3	18	4.1		
BRG	e P	Z 08:07:35.9	19.1	120.2	1.0	6	3.8		
GUNZ	e P	Z 08:07:42.1	19.8	116.4	1.5	14	4.0		
WERD	e P	Z 08:07:42.7	19.8	116.5	1.4	14	4.0		
GRA1	e P	Z 08:07:44.7	20.1	113.0	0.7	11	4.2		
MOX	e P	Z 08:07:48.4	20.3	115.9	1.3	10	3.9		
CLZ	e P	Z 08:07:59.8	21.5	116.9	0.8	9	4.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	08:54:23.7	41.007N	73.090E	33.0N	4.3			SZGRF

Kyrgyzstan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:02:20.8	43.1	77.0	0.9	6	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	10:41:47.8	32.289N	142.762E	33.0N	4.9			SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 10:54:21.3	85.4	41.4					
CLL	e P	Z 10:54:21.6	85.5	40.7					
NRDL	e P	Z 10:54:30.8	85.7	38.6					
CLZ	e P	Z 10:54:25.1	86.1	38.7					
GRA1	e P	Z 10:54:32.3	87.4	39.3	1.0	6	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	10:43:47.0	32.348N	139.454E	39.6				SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:56:24.4	86.0	41.7	1.1	7			
	e pP	Z 10:56:35.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	13:39:24.9	17.997S	12.822W	33.0N	4.5			SZGRF

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:50:39.5	71.0	204.2	0.8	4	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	13:43:21.3	14.536S	13.878W	33.0N	5.5	4.8		SZGRF

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:54:17.3	67.9	206.3	1.4	46	5.5		
	e L	Z 14:20:30.1			19.3	560		4.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	15:09:15.2	31.640N	142.367E	33.0N	4.9			SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 15:21:50.8	85.8	42.0	1.0	5	4.6		
CLL	e P	Z 15:21:50.8	85.9	41.3	1.0	20	5.2		
TANN	e P	Z 15:21:56.3	86.8	40.9	1.5	8	4.6		
WERD	e P	Z 15:21:55.8	86.8	40.7	1.2	10	4.8		
GUNZ	e P	Z 15:21:56.4	86.9	40.8	0.2	17	5.9		
MOX	e P	Z 15:21:56.4	87.0	40.2	0.9	4	4.5		
GEC2	e P	Z 15:21:58.1	87.4	41.7	1.3	6	4.7		
WET	e P	Z 15:21:59.8	87.6	41.1	1.1	4	4.6		
GRA1	e P	Z 15:22:01.6	87.8	39.9	1.1	10	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	15:29:57.3	52.400S	29.300E	33.0N		6.3		GSRC-M

South of Africa

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1	e Pdiff	Z	15:43:53.8	103.2	168.8						
	e		15:46:32.5								
	e PP	Z	15:48:02.8								
	e PKKP	Z	16:00:08.9								
	e SKKP	Z	16:04:02.0								
	e L	Z	16:30:32.4			21.0	9898		6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	16:24:58.7	10.652S	14.770W	33.0N	4.6			SZGRF

Ascension Island region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:35:32.5	64.5	208.5	1.2	4	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	17:15:24.4	34.860N	120.880W	33.0N	5.5	6.4		SZGRF

Southern California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 17:27:41.3	81.7	321.4	0.9	56	5.7		
NRDL	e P	Z 17:27:48.1	82.8	321.4	1.3	41	5.5		
WLF	e P	Z 17:27:50.2	83.3	318.7	1.2	59	5.7		
CLZ	e P	Z 17:27:50.6	83.4	321.6	1.9	134	5.8		
CLL	e P	Z 17:27:57.1	84.8	323.6	1.2	51	5.6		
MOX	e P	Z 17:27:57.2	84.8	322.6	1.3	58	5.7		
WERD	e P	Z 17:27:59.0	85.2	323.1	1.1	25	5.3		
BFO	e P	Z 17:27:59.2	85.3	320.4	1.0	37	5.5		
GUNZ	e P	Z 17:27:59.8	85.3	323.1	1.2	36	5.4		
GRA1	e P	Z 17:28:00.9	85.4	322.4	1.1	108	5.9		
	e L	Z 18:03:51.5			19.3	15032		6.4	
BRG	e P	Z 17:28:00.9	85.5	324.3					
WET	e P	Z 17:28:05.7	86.5	323.6	1.2	25	5.2		
GEC2	e P	Z 17:28:09.2	87.1	324.2	1.8	45	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	18:27:42.1	48.204N	172.792W	33.0N	4.6			SZGRF

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:39:59.4	82.0	2.7	1.0	4	4.6		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/09/28

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 20:12:31.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/28	21:32:58.2	8.512S	69.878W	33.0N	5.1			SZGRF

Western Brazil

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:45:58.4	90.8	257.7	1.2	11	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/09/28

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:52:31.8							
	e	Z 21:52:44.8							
	e L	Z 22:31:10.5			18.9	1074			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/09/29

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 01:03:46.9							
CLL	e PKP	Z 01:03:45.7							
GEC2	e PKP	Z 01:03:51.7							
GRA1	e PKP	Z 01:03:54.1							
WERD	e PKP	Z 01:03:48.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/29	02:00:56.8	58.380S	25.135W	33.0N		4.9		neic-m

South Sandwich Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PP	Z 02:20:03.3	110.2	197.9					
	e SP	Z 02:29:31.9							
FUR	e PP	Z 02:19:59.7	110.7	199.4					
	e SP	Z 02:29:58.3							
STU	e PP	Z 02:20:06.2	110.8	198.4					

	e SP	Z	02:29:39.0								
WLF	e PP	Z	02:20:15.3	111.0	197.0						
	e SP	Z	02:29:44.9								
GEC2	e SP	Z	02:29:54.1	111.9	200.7						
WET	e PP	Z	02:20:14.4	112.0	200.4						
	e SP	Z	02:29:57.5								
GRA1	e PP	Z	02:20:25.7	112.1	199.6						
	e SP	Z	02:29:49.9								
	e L	Z	03:00:41.8			22.0	338		4.9		
UBBA	e PP	Z	02:20:25.4	112.9	199.1						
	e SP	Z	02:30:05.4								
BUG	e PP	Z	02:20:29.5	113.0	197.8						
	e SP	Z	02:29:57.2								
MOX	e PP	Z	02:20:32.2	113.1	199.9						
	e SP	Z	02:30:06.3								
BRG	e PP	Z	02:20:33.0	113.8	201.2						
	e SP	Z	02:30:06.8								
IBBN	e PP	Z	02:20:36.2	113.9	198.1						
	e SP	Z	02:30:07.9								
CLZ	e SP	Z	02:30:09.3	113.9	199.5						
CLL	e PP	Z	02:20:31.3	114.0	200.8						
	e SP	Z	02:30:08.5								
NRDL	e PP	Z	02:20:33.9	114.5	199.4						
	e SP	Z	02:30:12.7								
RUE	e PP	Z	02:20:25.7	115.3	201.4						
	e SP	Z	02:30:20.5								
HLG	e PP	Z	02:20:43.9	115.7	198.5						
	e SP	Z	02:30:30.5								
BSEG	e PP	Z	02:20:43.8	115.9	199.8						
	e SP	Z	02:30:23.8								
RGN	e SP	Z	02:30:38.9	117.1	201.5						

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/29 04:55:32.3 44.211N 85.486E 33.0N 4.9  
 Northern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:04:15.3	48.9	66.3	0.8	8	4.9		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/09/29 17:10:10.0 36.185N 121.728W 33.0N 5.1 5.0  
 Central California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 17:22:36.4	83.9	324.8	1.1	17	5.2		



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MOX	e P	Z	17:22:36.7	84.0	323.8	1.1	12	5.1		
WERD	e P	Z	17:22:38.7	84.4	324.3	1.0	7	4.8		
GUNZ	e P	Z	17:22:39.3	84.5	324.4	1.2	12	5.0		
BFO	e P	Z	17:22:39.0	84.5	321.6	1.1	10	4.9		
GRA1	e P	Z	17:22:40.4	84.6	323.6	1.4	40	5.4		
	e L	Z	17:58:17.3			19.8	603		5.0	
BRG	e P	Z	17:22:40.3	84.6	325.5	0.9	20	5.3		
WET	e P	Z	17:22:45.6	85.7	324.8	1.1	8	4.8		
GEC2	e P	Z	17:22:48.8	86.2	325.4	2.0	24	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/29	18:38:17.6	5.370S	75.410W	30.3	5.2	4.7		SZGRF

Northern Peru

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	18:51:08.2	88.7	260.1	1.1	34	5.5		
BUG	e P	Z	18:51:12.5	89.7	260.9	0.8	16	5.3		
BFO	e P	Z	18:51:13.4	89.9	261.8	1.0	7	4.8		
STU	e P	Z	18:51:17.0	90.5	262.4	1.5	32	5.3		
UBBA	e P	Z	18:51:20.5	91.3	263.1	1.8	21	5.2		
NRDL	e P	Z	18:51:21.6	91.5	263.2	1.9	36	5.4		
	e pP	Z	18:51:30.6							
CLZ	e P	Z	18:51:22.2	91.6	263.4	1.6	29	5.4		
BSEG	e P	Z	18:51:22.4	91.8	263.4	1.1	15	5.2		
GRA1	e P	Z	18:51:23.6	91.9	264.0	1.7	22	5.2		
	e pP	Z	18:51:32.3							
	e L	Z	19:32:17.7			20.5	284		4.7	
MOX	e P	Z	18:51:25.0	92.3	264.3	1.7	23	5.2		
WERD	e P	Z	18:51:27.1	92.7	264.8	1.3	9	5.1		
	e pP	Z	18:51:35.9							
GUNZ	e P	Z	18:51:27.2	92.7	264.8	1.8	26	5.4		
WET	e P	Z	18:51:28.0	92.9	265.2	2.4	42	5.4		
CLL	e P	Z	18:51:29.1	93.2	265.4	1.0	6	5.0		
	e pP	Z	18:51:38.0							
GEC2	e P	Z	18:51:29.9	93.5	265.8	0.9	2	4.6		
BRG	e P	Z	18:51:31.7	93.8	266.1	1.1	12	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/29	20:51:28.2	55.370N	160.953W	33.0N	4.6			SZGRF

Alaska Peninsula, United States

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	21:03:05.2	74.7	355.4	1.0	6	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/29	22:55: 4.4	36.319N	119.096W	33.0N	4.8	4.9		SZGRF

Central California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
MOX	e P	Z 23:07:24.6	82.8	322.0	1.8	22	5.1		
CLL	e P	Z 23:07:24.7	82.8	322.9	1.0	5	4.7		
BFO	e P	Z 23:07:27.0	83.3	319.9	1.0	4	4.5		
GUNZ	e P	Z 23:07:28.0	83.3	322.5	0.9	4	4.6		
GRA1	e P	Z 23:07:28.9	83.4	321.8	1.5	28	5.3		
	e L	Z 23:43:39.8			20.8	554		4.9	
BRG	e P	Z 23:07:28.6	83.5	323.7	1.3	11	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/30	13:09: 7.1	42.771N	1.555W	10.0G				mad-m

Pyrenees

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e Pn	Z 13:11:11.4	8.7	220.6					
	e Sn	N 13:12:43.1							
BFO	e Pn	Z 13:11:12.2	8.9	234.8					
	e Sn	E 13:12:51.0							
BUG	e Sn	E 13:13:25.9	10.5	218.0					
GRA1	e Pn	Z 13:11:47.8	11.2	236.7					
	e Sg	N 13:15:10.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/30	15:25:10.8	3.572N	97.402E	33.0N	4.8			SZGRF

Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:37:42.3	84.8	90.6	1.4	9	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/30	16:48:11.7	28.399S	176.537W	34.0G				neic-m

Kermadec Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPab	Z 17:08:30.1	156.0	21.0					
GRA1	e PKPab	Z 17:08:37.4	157.9	18.4					
WET	e PKPab	Z 17:08:40.1	158.0	22.6					
GEC2	e PKPab	Z 17:08:41.3	158.1	24.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/30	18:54:34.5	35.830N	121.266W	33.0N	4.9	4.8		SZGRF

Central California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:07:05.5	84.7	323.1	1.2	10	4.9		
	e L	Z 19:42:42.4			19.5	404		4.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/09/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKPbc	Z 19:17:17.6							
BRG	e PKPbc	Z 19:17:08.7							
BSEG	e PKPbc	Z 19:17:01.4							
CLL	e PKPbc	Z 19:17:07.7							
GEC2	e PKPbc	Z 19:17:13.7							
GUNZ	e PKPbc	Z 19:17:11.0							

## Format description

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(K. Klinge Email:klinge@szgrf.bgr.de and A. Schick)

In general all regional and teleseismic events clearly recorded with GRF-Array stations and stronger events recorded with stations of the German Regional Seismological Network (GRSN) are included in this bulletin. Additionally, some selected events are analysed more comprehensively at CLL-station and included in the bulletin (ISOP-analyses).

Each event is reported by several EPICENTER LINES with possible COMMENT LINES, a REGION LINE and a block of PHASE LINES.

## EPICENTER LINES:

The epicenter locations of several authorities can be reported. The epicenter location with the highest priority (i.e. the most reliable one) is written in the undermost EPICENTER LINE. The REGION LINE and all origin related parameter in the PHASE LINES (i.e. Def, Dist, EvAz) are determined regarding this epicenter location with the highest priority.

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, PIDC, SED)

## COMMENT LINE:

Each EPICENTER LINE can be followed by a COMMENT LINE about interesting topics submitted by the preceding authority.

## REGION LINE:

The region name of the epicenter location with the highest priority (undermost EPICENTER LINE).

## 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  
Flag for the direction of the first motion  
                 '+' - compression  
                 '-' - dilatation  
Component where the phase was picked  
  
Time             Arrival time of the reported phase  
Dist             Distance from the epicenter location with the highest priority to the station in kilometer  
BAz              Backazimuth from the epicenter location with the highest priority 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