

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

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

JUNE 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		
2004/06/01	03:08:50.6	34.480N	141.230E	33.0N	5.1	5.0		SZGRF		
Off east coast of Honshu, Japan										
Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	03:21:08.3	81.7	41.4	0.8	14	5.2		
BSEG	e P	Z	03:21:09.2	82.0	39.0	1.2	16	5.0		
BRG	e P	Z	03:21:13.7	82.9	41.4	1.4	16	5.0		
	e PP	Z	03:24:24.3							
CLL	e P	Z	03:21:14.1	82.9	40.7	1.3	24	5.3		
	e PP	Z	03:24:24.8							
NRDL	e P	Z	03:21:15.3	83.2	38.7	1.2	8	4.8		
CLZ	e P	Z	03:21:17.2	83.6	38.9	1.4	32	5.4		
	e PP	Z	03:24:30.7							
GUNZ	e P	Z	03:21:18.8	83.9	40.2	1.4	21	5.2		
	e PP	Z	03:24:33.4							
IBBN	e P	Z	03:21:20.6	84.2	37.0	0.9	17	5.3		
GEC2	e P	Z	03:21:21.3	84.5	41.1	1.3	11	4.9		
	e PP	Z	03:24:38.5							
WET	e P	Z	03:21:23.1	84.6	40.5	1.6	20	5.1		
GRA1	e P	Z	03:21:24.3	84.9	39.3	1.4	50	5.6		
	e S	E	03:31:54.7							
	e SS	E	03:37:35.0							
	e L	Z	04:02:34.0			18.0	591		5.0	
BUG	e P	Z	03:21:24.5	85.1	36.6	1.2	14	5.1		
FUR	e P	Z	03:21:30.3	86.1	39.3	1.3	26	5.2		
STU	e P	Z	03:21:31.9	86.4	37.8	1.3	24	5.2		
WLF	e P	Z	03:21:34.4	86.9	35.7	1.4	18	5.0		
BFO	e P	Z	03:21:35.0	87.1	37.2	1.8	31	5.1		



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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 16:52:04.7							
	e Sn	N 16:53:42.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/01	20:47:39.5	9.024S	65.170E	33.0N	5.0	4.5		SZGRF

Mid-Indian Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 20:59:07.3	73.3	126.2	1.5	8	4.6		
WET	e P	Z 20:59:11.0	73.9	125.6	1.4	8	4.5		
FUR	e P	Z 20:59:14.1	74.3	124.0	1.1	40	5.3		
BRG	e P	Z 20:59:14.7	74.4	126.9	1.4	17	4.9		
GUNZ	e P	Z 20:59:18.3	74.9	125.4	1.2	20	5.0		
GRA1	e P	Z 20:59:18.9	75.1	124.3	1.3	31	5.2		
	e S	E 21:09:01.3							
	e SS	E 21:13:46.4							
	e L	Z 21:34:29.2			21.5	277		4.5	
CLL	e P	Z 20:59:19.2	75.2	126.2	1.2	17	5.0		
RUE	e P	Z 20:59:20.7	75.5	127.1	0.6	20	5.4		
STU	e P	Z 20:59:20.7	75.7	122.4	0.8	20	5.3		
BFO	e P	Z 20:59:24.2	76.0	121.6	1.1	14	5.0		
CLZ	e P	Z 20:59:28.3	76.8	124.0	1.2	19	5.1		
WLF	e P	Z 20:59:33.7	77.9	120.0	1.1	11	4.9		
BUG	e P	Z 20:59:36.7	78.2	121.3	0.7	13	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	03:12:57.0	18.600N	160.300E	33.0N				NOR-A

North Pacific Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 03:27:10.5	106.4	30.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	04:38:52.8	3.580S	104.920E	33.0N	5.4	4.9		SZGRF

Southern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 04:52:04.7	93.4	91.5	0.9	16	5.4		
	e S	T 05:03:09.0							
GEC2	e P	Z 04:52:05.0	93.5	91.4	1.3	20	5.4		
	e S	T 05:03:12.0							
CLL	e P	Z 04:52:07.2	94.0	90.7	1.1	14	5.2		

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WET	e P	Z	04:52:07.7	94.0	90.8	1.3	20	5.3		
GUNZ	e P	Z	04:52:09.7	94.4	90.3					
MOX	e P	Z	04:52:11.6	94.9	89.7	1.4	18	5.3		
FUR	e P	Z	04:52:12.4	95.1	89.7	1.0	20	5.5		
GRA1	e P	Z	04:52:13.3	95.1	89.5	1.0	16	5.4		
	e L	Z	05:45:08.7			20.0	411		4.9	
CLZ	e P	Z	04:52:15.1	95.6	88.6	0.9	8	5.3		
NRDL	e P	Z	04:52:16.2	95.8	88.4	1.0	9	5.3		
BUG	e P	Z	04:52:24.2	97.6	86.2	0.6	7	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	08:50:28.3	33.850S	179.190W	10.0N		6.1		MIX-A

South of Kermadec Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPdf	Z 09:10:28.8	159.2	31.6					
	e PKPab	Z 09:11:03.9							
NRDL	e PKPdf	Z 09:10:29.3	160.2	23.3					
CLL	e PKPdf	Z 09:10:29.4	160.4	31.6					
	e PKPab	Z 09:11:08.7							
BRG	e PKPdf	Z 09:10:29.9	160.5	34.4					
	e PKPab	Z 09:11:09.4							
CLZ	e PKPdf	Z 09:10:30.3	160.7	24.7					
	e PKPab	Z 09:11:10.8							
IBBN	e PKPdf	Z 09:10:30.5	160.9	17.9					
	e PKPab	Z 09:11:11.0							
MOX	e PKPdf	Z 09:10:30.5	161.4	29.3					
	e PKPab	Z 09:11:12.7							
BUG	e PKPdf	Z 09:10:31.0	161.8	17.4					
GEC2	e PKPdf	Z 09:10:31.2	162.2	37.3					
WET	e PKPdf	Z 09:10:31.7	162.3	34.8					
GRA1	e PKPdf	Z 09:10:31.7	162.4	29.8					
	e PKPab	Z 09:11:18.4							
	e L	Z 10:27:59.1			20.8	2573		6.1	
FUR	e PKPab	Z 09:11:23.9	163.7	32.5					
WLF	e PKPdf	Z 09:10:33.2	163.7	16.0					
	e PKPab	Z 09:11:23.7							
STU	e PKPab	Z 09:11:23.3	163.8	25.8					
BFO	e PKPdf	Z 09:10:33.2	164.5	23.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	15:06: 2.6	4.330N	32.600W	33.0N	4.7	4.4		SZGRF

Central Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1	e P	Z	15:15:55.7	58.5	234.1	1.1	8	4.7
	e L	Z	15:39:11.1			19.4	302	4.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	16:56:38.0	25.500N	121.500E	25.0N	5.0			SZGRF

Taiwan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 17:08:53.4	81.0	60.1	1.0	9	4.8		
GEC2	e P	Z 17:08:58.4	81.8	60.3	1.0	7	4.8		
GUNZ	e P	Z 17:08:58.3	81.8	59.5	1.1	7	4.7		
MOX	e P	Z 17:08:59.2	82.1	59.0	1.3	9	4.7		
CLZ	e P	Z 17:09:00.2	82.1	58.2	1.1	16	5.1		
WET	e P	Z 17:09:00.1	82.1	59.7	1.8	19	4.9		
GRA1	e P	Z 17:09:03.8	82.8	58.6	4.1	290	5.9		
UBBA	e P	Z 17:09:03.7	82.8	57.8	1.5	11	4.9		
BUG	e P	Z 17:09:09.2	83.9	55.9	0.9	10	5.1		
BFO	e P	Z 17:09:14.5	85.1	56.4	2.0	21	5.0		
WLF	e P	Z 17:09:17.9	85.5	54.9	1.1	24	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	17:15: 6.2	41.629N	76.432E	33.0N	4.8			SZGRF

Kyrgyzstan-Xinjiang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:23:17.3	44.8	74.3	0.7	9	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	17:05: 9.1	23.500S	178.000W	563.4				SZGRF

South of Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPdf	Z 17:23:51.1	149.7	21.8					
	e PKPbc	Z 17:23:56.0							
	e PKPab	Z 17:24:02.6							
NRDL	e PKPdf	Z 17:23:51.9	150.4	15.2					
	e PKPbc	Z 17:23:58.1							
IBBN	e PKPdf	Z 17:23:52.8	150.9	10.9					
	e PKPbc	Z 17:23:59.4							
	e PKPab	Z 17:24:08.7							
CLL	e PKPdf	Z 17:23:52.3	150.9	21.1					
	e PKPbc	Z 17:23:59.0							
	e PKPab	Z 17:24:07.8							

CLZ	e	PKPdf	Z	17:23:53.0	150.9	16.0
	e	PKPbc	Z	17:23:59.6		
	e	pPKPdf	Z	17:26:03.6		
BRG	e	PKPdf	Z	17:23:52.7	151.1	23.1
	e	PKPbc	Z	17:23:59.4		
BUG	e	PKPdf	Z	17:23:54.4	151.8	10.3
	e	PKPbc	Z	17:24:01.3		
	e	PKPab	Z	17:24:12.3		
MOX	e	PKPdf	Z	17:23:53.9	151.8	18.9
	e	PKPbc	Z	17:24:00.9		
	e	PKPab	Z	17:24:11.9		
GUNZ	e	PKPdf	Z	17:23:54.1	152.0	20.5
	e	PKPbc	Z	17:24:01.3		
	e	PKPab	Z	17:24:12.7		
	e	pPKPdf	Z	17:26:06.4		
GRA1	e	PKPdf	Z	17:23:55.5	152.8	18.8
	e	PKPbc	Z	17:24:03.3		
	e	PKPab	Z	17:24:16.7		
	e	pPKPbc	Z	17:26:13.0		
WET	e	PKPdf	Z	17:23:55.5	153.0	22.4
	e	PKPbc	Z	17:24:03.2		
	e	PKPab	Z	17:24:16.5		
GEC2	e	PKPdf	Z	17:23:55.2	153.0	24.2
	e	PKPbc	Z	17:24:03.0		
	e	PKPab	Z	17:24:16.6		
WLF	e	PKPdf	Z	17:23:57.6	153.6	8.6
	e	PKPbc	Z	17:24:06.1		
	e	PKPab	Z	17:24:21.0		
STU	e	PKPdf	Z	17:23:57.4	154.1	15.2
	e	PKPbc	Z	17:24:05.9		
	e	PKPab	Z	17:24:21.5		
FUR	e	PKPdf	Z	17:23:57.4	154.3	19.9
	e	PKPbc	Z	17:24:06.1		
	e	PKPab	Z	17:24:22.4		
BFO	e	PKPdf	Z	17:23:57.8	154.7	13.7
	e	PKPbc	Z	17:24:07.1		
	e	PKPab	Z	17:24:24.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	20:21: 9.7	37.194N	105.368E	33.0N	4.7			SZGRF
Western Nei Mongol, China								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:31:46.4	64.9	61.3	0.8	4	4.7		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/06/02

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 20:41:55.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	20:48: 7.1	5.548N	31.645W	33.0N	5.0			SZGRF

Central Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:57:49.4	56.9	233.9	1.1	20	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	22:10:40.9	9.933N	92.154E	27.0	4.6			SZGRF

Nicobar Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:22:29.4	76.6	90.4	0.9	5	4.6		
	e pP	Z 22:22:37.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/02	22:39:27.5	30.980S	177.360W	33.0N				GSRC-M

Kermadec Islands, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPdf	Z 22:59:21.6	157.0	25.1					
	e PKPab	Z 22:59:50.0							
IBBN	e PKPab	Z 22:59:55.9	158.3	12.0					
BRG	e PKPdf	Z 22:59:22.3	158.4	27.2					
MOX	e PKPab	Z 22:59:59.2	159.2	22.2					
UBBA	e PKPdf	Z 22:59:23.7	159.4	18.2					
	e PKPab	Z 22:60:00.0							
GRA1	e PKP	Z 22:59:24.6	160.2	22.2					
	e PKPab	Z 23:00:04.1							
	e PP	Z 23:03:44.0							
WET	e PKPdf	Z 22:59:24.8	160.3	26.8					
	e PKPab	Z 23:00:04.4							
WLF	e PKPdf	Z 22:59:26.7	161.1	9.3					
	e PKPab	Z 23:00:08.5							
STU	e PKPdf	Z 22:59:26.7	161.5	18.0					
	e PKPab	Z 23:00:09.9							
FUR	e PKPab	Z 23:00:10.3	161.6	24.1					

BFO e PKPab Z 23:00:12.0 162.1 16.1

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/02 23:11:37.9 N SZGRF  
 Kermadec Islands, New Zealand

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 GRA1 e P Z 23:22:25.3

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/03 13:01: 8.8 23.578N 96.607E 89.5 5.0 SZGRF  
 Myanmar

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 GRA1 e P Z 13:12:06.7 69.3 77.5 1.0 13 5.0  
 e pP Z 13:12:29.7

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/04 01:47:54.6 53.497N 165.493W 33.0N 5.3 4.4 SZGRF  
 Fox Islands, Aleutian Islands, United States

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 GRA1 e P Z 01:59:43.2 76.8 358.0 1.1 29 5.3  
 e 02:00:02.1  
 e L Z 02:35:20.0 21.6 218 4.4

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/04 02:39:15.5 17.408N 60.748W 33.0N 4.8 SZGRF  
 Leeward Islands

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 GRA1 e P Z 02:49:54.0 65.2 268.0 1.1 7 4.8

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/04 02:38:20.0 17.490S 177.620W 33.0N 5.4 SZGRF  
 Fiji Islands region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 IBBN e PKPbc Z 02:57:52.4 144.9 8.9

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CLZ	e	PKPbc	Z	02:57:52.5	145.1	13.4					
CLL	e	PKPbc	Z	02:57:52.9	145.1	17.9					
BRG	e	PKPbc	Z	02:57:54.0	145.4	19.7					
MOX	e	PKPbc	Z	02:57:55.9	146.0	15.9					
UBBA	e	PKPbc	Z	02:57:55.6	146.1	13.1					
GUNZ	e	PKPbc	Z	02:57:56.4	146.2	17.2					
GRA1	e	PKPbc	Z	02:57:59.2	147.0	15.6					
	e			02:58:22.4							
	e	PP	Z	03:01:31.0							
	e	L	Z	04:01:07.9			20.5	598		5.4	
GEC2	e	PKPbc	Z	02:58:00.4	147.3	20.3					
WLF	e	PKPbc	Z	02:58:01.3	147.7	6.7					
STU	e	PKPbc	Z	02:58:03.0	148.2	12.4					
FUR	e	PKPbc	Z	02:58:04.0	148.5	16.4					
BFO	e	PKPbc	Z	02:58:04.4	148.8	11.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/04	14:41: 6.9	53.155N	37.460W	33.0N	5.0			SZGRF

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:47:12.5	30.0	295.6	2.2	52	5.0		
	e L	Z 14:57:40.8			18.7	1248			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/04	15:15:30.3	54.200N	35.200W	33.0G	4.3			GSRC-M

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:21:21.2	28.4	297.1	1.0	5	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/04	18:00: 1.0	54.400N	35.200W	10.0N	4.8	4.1		NEIR-M

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:05:57.2	28.4	297.5	1.2	19	4.8		
	e L	Z 18:15:55.6			20.7	492		4.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/05	04:42:50.1	23.200S	178.060W	33.0N				SZGRF

South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	05:02:33.7	148.6	14.9					
RUE	e PKPbc	Z	05:02:35.7	149.4	21.7					
NRDL	e PKPbc	Z	05:02:37.5	150.0	15.2					
IBBN	e PKPbc	Z	05:02:38.8	150.6	10.9					
CLL	e PKPbc	Z	05:02:39.0	150.6	21.1					
CLZ	e PKPbc	Z	05:02:39.2	150.6	16.0					
BRG	e PKPbc	Z	05:02:39.5	150.8	23.1					
BUG	e PKPbc	Z	05:02:40.7	151.5	10.3					
MOX	e PKPbc	Z	05:02:41.2	151.5	18.9					
GUNZ	e PKPbc	Z	05:02:41.4	151.7	20.4					
UBBA	e PKPbc	Z	05:02:41.1	151.7	15.8					
GRA1	e PKPbc	Z	05:02:43.5	152.5	18.7					
GEC2	e PKPbc	Z	05:02:44.0	152.7	24.1					
WLF	e PKPbc	Z	05:02:45.9	153.3	8.7					
STU	e PKPbc	Z	05:02:46.5	153.8	15.2					
BFO	e PKPbc	Z	05:02:47.3	154.4	13.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/06	00:09:16.0	23.174N	120.975E	33.0N	4.6			SZGRF

Taiwan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	00:21:45.0	84.3	60.4	1.5	6	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/06	09:39: 5.2	4.270N	105.340E	580.4	4.9			SZGRF

South China Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	09:50:52.9	87.6	86.2					
BRG	e P	Z	09:50:52.9	87.6	86.2					
	e pP	Z	09:52:58.2							
GEC2	e P	Z	09:50:54.1	87.9	86.0					
	e pP	Z	09:52:59.8							
CLL	e P	Z	09:50:54.7	88.1	85.5	1.0	9	5.0		
	e pP	Z	09:53:00.0							
WET	e P	Z	09:50:56.7	88.4	85.3					
	e pP	Z	09:53:01.8							
GUNZ	e P	Z	09:50:57.5	88.6	85.0	0.9	6	4.8		
	e pP	Z	09:53:03.2							
MOX	e P	Z	09:50:59.5	89.1	84.4	1.4	11	4.9		
	e pP	Z	09:53:05.2							

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GRA1	e P	Z	09:51:01.0	89.4	84.1	0.8	8	5.0
	e pP	Z	09:53:07.7					
	e SKSac	E	10:00:38.6					
NRDL	e P	Z	09:51:03.1	89.8	83.3			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/06	09:47:18.1	43.830S	123.600W	33.0N				SZGRF
South Pacific Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e PKPbc	Z 10:06:52.6	145.7	260.1					
BUG	e PKPbc	Z 10:06:55.2	146.7	263.5					
BSEG	e PKPbc	Z 10:07:01.3	148.7	269.6					
FUR	e PKPbc	Z 10:07:01.5	148.8	260.8					
GRA1	e PKPbc	Z 10:07:02.2	149.0	263.3					
MOX	e PKPbc	Z 10:07:02.6	149.3	265.1					
GUNZ	e PKPbc	Z 10:07:04.2	149.8	265.1					
WET	e PKPbc	Z 10:07:04.8	150.0	263.4					
CLL	e PKPbc	Z 10:07:05.0	150.3	267.3					
GEC2	e PKPbc	Z 10:07:06.0	150.5	263.4					
BRG	e PKPbc	Z 10:07:06.7	150.8	267.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/06	11:53:27.0	73.206N	6.087E	33.0N	4.3			SZGRF
Greenland Sea								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:58:35.6	23.6	356.3	1.3	12	4.3		
	e	11:58:39.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/06	21:39:17.4	43.240N	93.270E	33.0N	4.6			SZGRF
Northern Xinjiang, China								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 21:48:20.3	51.4	66.5					
BRG	e P	Z 21:48:24.3	51.9	65.4	1.0	6	4.5		
CLL	e P	Z 21:48:26.9	52.3	65.2	0.9	10	4.7		
BSEG	e P	Z 21:48:30.2	52.7	65.4	0.9	17	5.0		
GEC2	e P	Z 21:48:31.7	52.9	63.9	1.0	5	4.3		
GUNZ	e P	Z 21:48:33.0	53.1	64.1					
WET	e P	Z 21:48:35.0	53.3	63.6	1.0	5	4.4		
MOX	e P	Z 21:48:34.8	53.4	63.9	1.0	6	4.5		



Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:59:00.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/07	20:32:34.1	4.190S	10.490W	19.8	4.9			SZGRF

North of Ascension Island

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 20:42:03.1	55.0	203.1					
FUR	e P	Z 20:42:08.5	55.7	206.6					
WLF	e P	Z 20:42:08.2	55.8	200.2					
GEC2	e P	Z 20:42:18.0	57.1	209.1					
GRA1	e P	Z 20:42:17.9	57.1	206.1	1.6	19	4.9		
	e pP	Z 20:42:23.1							
WET	e P	Z 20:42:17.8	57.1	208.1					
UBBA	e P	Z 20:42:22.6	57.8	204.4					
GUNZ	e P	Z 20:42:24.1	58.0	207.1					
MOX	e P	Z 20:42:24.3	58.0	206.3					
	e pP	Z 20:42:30.0							
BRG	e P	Z 20:42:30.5	58.9	208.8					
CLL	e P	Z 20:42:31.5	59.0	207.6					
NRDL	e P	Z 20:42:33.9	59.3	204.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/07	20:40:18.4	6.320S	11.820W	22.5				SZGRF

Ascension Island region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 20:50:02.9	57.4	204.0					
	e pP	Z 20:50:09.1							
FUR	e P	Z 20:50:08.3	58.1	207.3					
GRA1	e P	Z 20:50:17.4	59.5	206.8					
	e pP	Z 20:50:24.1							
WET	e P	Z 20:50:17.2	59.5	208.8					
GEC2	e P	Z 20:50:17.6	59.5	209.8					
GUNZ	e P	Z 20:50:23.8	60.4	207.9					
	e pP	Z 20:50:29.5							
MOX	e P	Z 20:50:24.1	60.5	207.0					
CLL	e P	Z 20:50:30.8	61.4	208.4					
HLG	e P	Z 20:50:39.4	62.7	202.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2004/06/07 20:47:31.7  
Ascension Island region

5.114S 9.370W 33.0N 4.6 SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 20:57:04.5	55.6	201.5	1.3	11	4.7		
WLF	e P	Z 20:57:09.7	56.4	198.7					
GEC2	e P	Z 20:57:18.9	57.6	207.5					
WET	e P	Z 20:57:18.7	57.6	206.5					
GRA1	e P	Z 20:57:19.0	57.6	204.5	1.3	11	4.7		
GUNZ	e P	Z 20:57:25.2	58.6	205.6					
MOX	e P	Z 20:57:25.6	58.6	204.7	1.0	5	4.5		

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/08

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e PKP	Z 02:45:47.6							
BRG	e PKP	Z 02:45:38.3							
CLL	e PKP	Z 02:45:37.5							
CLZ	e PKP	Z 02:45:37.7							
GEC2	e PKP	Z 02:45:43.6							
GRA1	e PKP	Z 02:45:43.4							
GUNZ	e PKP	Z 02:45:40.8							
MOX	e PKP	Z 02:45:40.2							
NRDL	e PKP	Z 02:45:35.8							
WLF	e PKP	Z 02:45:45.6							

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/08 04:49:58.2 40.005N 70.010E 33.0N 5.0 4.2 SZGRF  
Tajikistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:57:43.8	41.7	80.2	1.9	32	5.0		
	e SS	E 05:07:11.4							
	e L	Z 05:46:45.7			20.8	348		4.2	

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/08 08:55:57.7 17.740N 83.060W 33.0N 5.2 5.4 SZGRF  
Caribbean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 09:07:43.6	76.1	281.1	0.9	22	5.3		
BUG	e P	Z 09:07:45.7	76.4	281.5	1.4	37	5.3		

BFO	e P	Z	09:07:53.0	77.7	283.0	2.0	47	5.3		
NRDL	e P	Z	09:07:54.1	77.9	283.4	2.6	134	5.6		
CLZ	e P	Z	09:07:55.6	78.2	283.8	1.5	41	5.3		
UBBA	e P	Z	09:07:55.1	78.2	283.7	1.8	52	5.4		
MOX	e P	Z	09:08:00.7	79.3	284.9	1.8	37	5.1		
GRA1	e P	Z	09:08:01.3	79.3	284.8	0.9	12	4.9		
	e		09:08:07.5							
	e		09:08:15.9							
	e S	E	09:18:02.6							
	e L	Z	09:42:20.2			19.7	1753		5.4	
GUNZ	e P	Z	09:08:04.0	79.8	285.5	1.2	18	4.8		
CLL	e P	Z	09:08:04.9	79.9	285.9	1.3	19	4.9		
WET	e P	Z	09:08:08.0	80.4	286.1	1.6	57	5.3		
BRG	e P	Z	09:08:09.1	80.6	286.6	1.5	36	5.2		
GEC2	e P	Z	09:08:10.9	81.0	286.8	1.7	65	5.4		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/08 10:54:19.7 15.200S 167.900E 33.0N  
 Vanuatu Islands EMSC-A

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKPbc	Z	11:13:43.0	138.6	39.9					
CLL	e PKPbc	Z	11:13:42.8	138.7	38.3					
NRDL	e PKPbc	Z	11:13:43.2	138.8	33.6					
CLZ	e PKPbc	Z	11:13:44.2	139.2	34.4					
GUNZ	e PKPbc	Z	11:13:44.5	139.7	38.1					
IBBN	e PKPbc	Z	11:13:44.9	139.7	30.4					
MOX	e PKPbc	Z	11:13:44.9	139.7	36.9					
GEC2	e PKPbc	Z	11:13:45.6	140.3	41.1					
WET	e PKPbc	Z	11:13:46.2	140.4	39.7					
BUG	e PKPbc	Z	11:13:46.5	140.6	30.3					
GRA1	e PKPbc	Z	11:13:46.9	140.6	37.0					
GRFO	e PKPbc	Z	11:13:47.0	140.6	37.0					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/09 22:50:51.4 52.250S 141.240E 639.1 6.8  
 West of Macquarie Island SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e PKPbc	Z	23:09:23.0	147.2	116.3					
	e pPKPbc	Z	23:11:47.5							
WET	e PKPbc	Z	23:09:24.9	147.8	115.6					
	e pPKPbc	Z	23:11:48.8							
BRG	e PKPbc	Z	23:09:25.1	147.9	113.4					
FUR	e PKPbc	Z	23:09:26.3	148.4	116.5					

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CLL	e	PKPbc	Z	23:09:27.1	148.7	112.4					
GRA1	e	PKPbc	Z	23:09:28.5	149.1	114.3					
	e	pPKPbc	Z	23:11:53.0							
MOX	e	PKPbc	Z	23:09:28.5	149.2	112.9					
	e	pPKPbc	Z	23:11:53.1							
STU	e	PKPbc	Z	23:09:30.3	149.9	115.1					
BFO	e	PKPbc	Z	23:09:31.0	150.2	115.5					
CLZ	e	PKPbc	Z	23:09:31.6	150.4	110.5					
BUG	e	PKPbc	Z	23:09:35.8	152.0	110.0					
	e	pPKPbc	Z	23:11:59.8							
WLF	e	PKPbc	Z	23:09:35.8	152.0	112.8					
	e	pPKPbc	Z	23:11:59.8							
GRA1	e	L	Z	00:21:38.1	149.1	114.3	22.0	15665		6.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/09	03:15:38.0	39.497N	32.788E	33.0N	4.2			SZGRF

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:19:50.0	18.3	115.6	2.3	45	4.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/09	08:27:15.2	36.057N	142.853E	39.8	5.4	5.4		SZGRF

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	i P	Z 08:39:33.0	82.2	39.4	1.6	43	5.3		
CLL	i P	Z 08:39:33.0	82.2	38.8	1.3	47	5.5		
CLZ	i P	Z 08:39:36.8	82.8	36.9	1.5	75	5.7		
MOX	i P	Z 08:39:38.5	83.3	37.7	1.5	50	5.5		
GEC2	i P	Z 08:39:41.2	83.8	39.1	1.5	20	5.1		
WET	i P	Z 08:39:42.3	83.9	38.5	1.6	35	5.3		
GRA1	i P	Z 08:39:43.6	84.2	37.4	1.6	133	5.9		
	e pP	Z 08:39:55.1							
	e L	Z 09:27:34.3			18.0	1444		5.4	
BUG	i P	Z 08:39:43.8	84.2	34.7					
FUR	i P	Z 08:39:49.3	85.4	37.4					
WLF	i P	Z 08:39:53.3	86.1	33.8					
BFO	i P	Z 08:39:53.9	86.4	35.3	1.7	44	5.3		
	e pP	Z 08:40:05.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/09	16:51:50.2	21.440S	177.800W	33.0N				SZGRF

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPbc	Z 17:11:31.1	147.7	20.5					
CLL	e PKPbc	Z 17:11:34.6	149.0	19.8					
	e PKPab	Z 17:11:38.8							
BRG	e PKPbc	Z 17:11:35.3	149.2	21.7					
	e PKPab	Z 17:11:39.9							
BUG	e PKPbc	Z 17:11:36.4	149.7	9.4					
MOX	e PKPbc	Z 17:11:37.0	149.9	17.7					
	e PKPab	Z 17:11:42.7							
GRA1	e PKPbc	Z 17:11:39.8	150.9	17.4					
WET	e PKPab	Z 17:11:47.9	151.0	20.9					
GEC2	e PKPbc	Z 17:11:40.0	151.1	22.6					
WLF	e PKPbc	Z 17:11:41.9	151.6	7.8					
BFO	e PKPbc	Z 17:11:43.2	152.7	12.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/09	19:09: 8.2	45.063N	151.596E	33.0N	4.8			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:21:10.2	79.2	27.3	0.9	12	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/10	08:59:46.0	9.210N	88.810W	33.0N	5.2	5.9		SZGRF

Off coast of central America

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BUG	e P	Z 09:12:25.7	86.6	280.5					
IBBN	e P	Z 09:12:28.4	86.7	280.8					
BFO	e P	Z 09:12:32.5	87.8	281.4	1.5	22	5.2		
	e PP	Z 09:15:57.4							
NRDL	e P	Z 09:12:33.8	88.1	282.6					
STU	e P	Z 09:12:34.9	88.3	282.1					
CLZ	e P	Z 09:12:34.7	88.4	282.9					
GRA1	e P	Z 09:12:40.1	89.4	283.6	1.8	40	5.4		
	e PP	Z 09:16:11.2							
	e S	Z 09:23:23.0							
	e SS	N 09:29:04.5							
	e L	Z 09:48:34.3			20.1	4585		5.9	
MOX	e P	Z 09:12:40.2	89.4	283.9	1.8	36	5.3		
	e PP	Z 09:16:11.1							
CLL	e P	Z 09:12:42.4	90.1	284.9					
WET	e P	Z 09:12:46.0	90.6	284.8	1.0	18	5.4		

	e PP	Z	09:16:21.5								
BRG	e P	Z	09:12:46.0	90.8	285.7	1.2		13	5.1		
GEC2	e P	Z	09:12:48.6	91.2	285.4	1.1		10	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/10	09:50:35.9	17.748S	173.912W	33.0N				SZGRF

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 10:10:17.0	147.8	9.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/10	11:14: 1.3	22.479S	169.962E	33.0N				SZGRF

Southeast of Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 11:33:40.9	148.1	39.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/10	15:20: 0.3	56.000N	161.250E	195.5				SZGRF

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 15:30:28.7	66.4	18.9					
RUE	e P	Z 15:30:40.1	68.3	18.9					
	e pP'P'bc	Z 15:59:38.9							
NRDL	e P	Z 15:30:44.2	68.9	16.8					
	e pP	Z 15:31:30.6							
	e sP	Z 15:31:49.7							
	e pP'P'bc	Z 15:59:37.8							
CLZ	e P	Z 15:30:48.1	69.5	16.9	1.2	829			
	e pP	Z 15:31:35.2							
	e sP	Z 15:31:54.7							
	e pP'P'bc	Z 15:59:35.5							
IBBN	e P	Z 15:30:47.8	69.5	15.5					
	e pP	Z 15:31:34.1							
	e pP'P'bc	Z 15:59:34.2							
CLL	e P	Z 15:30:47.5	69.5	18.3	1.0	619			
	e pP'P'bc	Z 15:59:34.7							
BRG	e P	Z 15:30:48.8	69.7	18.8	1.1	307			
	e pP	Z 15:31:35.7							
	e sP	Z 15:31:56.3							
	e pP'P'bc	Z 15:59:33.9							

MOX	e P	Z	15:30:53.4	70.4	17.5	1.2	502					
	e pP	Z	15:31:40.3									
	e sP	Z	15:32:00.3									
	e pP'P'bc	Z	15:59:31.5									
BUG	e P	Z	15:30:53.2	70.4	15.1							
	e pP	Z	15:31:39.7									
	e sP	Z	15:32:00.6									
	e P'P'bc	Z	15:58:39.5									
	e pP'P'bc	Z	15:59:29.7									
	e		16:02:07.3									
UBBA	e P	Z	15:30:54.0	70.6	16.6							
GRA1	e P	Z	15:30:59.7	71.4	17.1	1.4	926					
	e pP	Z	15:31:46.3									
	e sP	Z	15:32:04.7									
	e PP	Z	15:33:39.4									
	e pPP	Z	15:34:23.0									
	e sPP	Z	15:34:42.4									
	e PPP	Z	15:35:26.5									
	e sPPP	Z	15:36:29.6									
	e S	E	15:40:04.2									
	e sS	E	15:41:26.4									
	e pP'P'bc	Z	15:59:28.6									
	WET	e P	Z					15:31:00.8	71.6	18.0	1.1	412
		e pP	Z					15:31:47.5				
		e sP	Z					15:32:06.9				
e pP'P'bc		Z	15:59:25.0									
GEC2	e P	Z	15:31:01.0	71.7	18.4	1.0	230					
	e pP	Z	15:31:48.4									
	e sP	Z	15:32:07.8									
	e pP'P'bc	Z	15:59:23.4									
STU	e P	Z	15:31:06.9	72.7	15.9							
	e pP	Z	15:31:53.4									
	e sP	Z	15:32:11.6									
FUR	e P	Z	15:31:07.8	72.9	17.0	1.3	536					
	e pP	Z	15:31:54.8									
	e sP	Z	15:32:13.5									
	e pP'P'bc	Z	15:59:21.6									
BFO	e P	Z	15:31:09.9	73.2	15.4	1.6	559					
	e pP	Z	15:31:56.9									
	e sP	Z	15:32:16.3									
	e pP'P'bc	Z	15:59:21.0									

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/10 18:10:50.8 34.816N 136.670E 33.0N  
 Western Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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BRG	e P	Z	18:23:01.1	80.6	44.4			
CLL	e P	Z	18:23:01.1	80.7	43.8	1.1	21	
CLZ	e P	Z	18:23:05.4	81.5	42.0	0.7	8	
MOX	e P	Z	18:23:06.8	81.8	42.8	1.0	5	
IBBN	e P	Z	18:23:08.8	82.2	40.2			
GEC2	e P	Z	18:23:08.5	82.2	44.0			
GRA1	e P	Z	18:23:11.4	82.7	42.4	1.4	19	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/10	18:12:15.3	43.150N	142.880E	74.1	5.2			SZGRF
Hokkaido, Japan, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 18:23:56.7	76.0	35.2	0.9	30	5.3		
BRG	e P	Z 18:23:56.9	76.0	35.8	0.9	10	4.8		
CLZ	e P	Z 18:24:00.0	76.5	33.6	1.0	34	5.4		
IBBN	e P	Z 18:24:02.6	77.0	31.9					
MOX	e P	Z 18:24:02.9	77.1	34.2	1.5	23	5.1		
UBBA	e P	Z 18:24:05.1	77.5	33.2					
GEC2	e P	Z 18:24:06.6	77.8	35.4	2.0	34	5.1		
WET	e P	Z 18:24:07.2	77.8	34.9	1.0	17	5.1		
BUG	e P	Z 18:24:07.2	77.9	31.5					
GRA1	e P	Z 18:24:08.2	78.0	33.9	0.9	34	5.5		
	e pP	Z 18:24:28.3							
FUR	e P	Z 18:24:15.1	79.3	33.7	0.9	36	5.4		
STU	e P	Z 18:24:16.1	79.5	32.4					
BFO	e P	Z 18:24:19.5	80.2	31.8	1.6	31	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/10	20:32:49.8	30.700S	177.650W	33.0N				SZGRF
Kermadec Islands, New Zealand								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 20:52:44.7	157.9	25.0					
	e PKPab	Z 20:53:16.0							
IBBN	e PKPab	Z 20:53:16.7	158.0	12.5					
BRG	e PKPdf	Z 20:52:45.2	158.1	27.5					
	e PKPab	Z 20:53:16.6							
MOX	e PKPab	Z 20:53:19.8	158.9	22.6					
BUG	e PKPab	Z 20:53:21.3	158.9	11.8					
UBBA	e PKPab	Z 20:53:21.7	159.1	18.7					
GRA1	e PKPab	Z 20:53:25.2	159.9	22.7					
WET	e PKPdf	Z 20:52:46.2	159.9	27.2					
	e PKPab	Z 20:53:25.3							
GEC2	e PKPab	Z 20:53:25.4	159.9	29.5					

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STU	e PKPab	Z	20:53:30.4	161.2	18.5
FUR	e PKPab	Z	20:53:31.0	161.3	24.5
BFO	e PKPab	Z	20:53:33.0	161.8	16.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e (P)	Z 00:56:36.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/11	03:46:48.7	42.166N	15.766E	10.0G				SZGRF
Adriatic Sea								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 03:48:28.2	6.8	167.0					
	e Sn	N 03:49:44.0							
WET	e Pn	Z 03:48:34.1	7.3	162.8					
	e Sn	E 03:49:52.9							
BFO	e Pn	Z 03:48:45.5	8.1	137.0					
MOX	e Pn	Z 03:48:55.9	8.9	159.8					
	e Sn	N 03:50:32.8							
CLL	e Pn	Z 03:49:01.9	9.3	167.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 08:16:30.4							
CLL	e PKP	Z 08:16:30.0							
CLZ	e PKP	Z 08:16:30.3							
MOX	e PKP	Z 08:16:32.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e (P)	Z 09:27:24.9							

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/11	16:33:35.5	46.713N	151.266E	33.0N	5.6			SZGRF

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	i P	Z	16:45:08.9	74.0	26.7	1.0	40	5.4		
NRDL	i P	Z	16:45:16.3	75.4	26.4					
CLL	i P	Z	16:45:17.0	75.6	28.1	1.1	110	5.9		
BRG	i P	Z	16:45:17.8	75.7	28.7	1.2	40	5.4		
CLZ	i P	Z	16:45:19.4	75.9	26.5	1.2	100	5.8		
IBBN	i P	Z	16:45:20.9	76.2	24.8					
MOX	i P	Z	16:45:22.9	76.6	27.2	1.2	50	5.5		
UBBA	i P	Z	16:45:24.5	76.9	26.1					
BUG	i P	Z	16:45:25.7	77.1	24.4	1.2	73	5.7		
WET	i P	Z	16:45:28.5	77.6	27.8	1.1	76	5.7		
GRA1	i P	Z	16:45:28.7	77.6	26.8	1.2	117	5.9		
GEC2	i P	Z	16:45:28.1	77.6	28.3	1.2	38	5.4		
FUR	i P	Z	16:45:35.8	78.9	26.7	1.2	93	5.7		
STU	i P	Z	16:45:35.9	79.0	25.4	1.2	57	5.5		
WLF	i P	Z	16:45:36.6	79.0	23.5					
BFO	i P	Z	16:45:39.4	79.6	24.8	1.0	40	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/11	17:05:36.9	41.572N	142.666E	33.0N				SZGRF

Hokkaido, Japan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	17:17:22.3	76.1	34.7					
BRG	e P	Z	17:17:28.3	77.3	36.7					
CLL	e P	Z	17:17:27.8	77.3	36.2					
CLZ	e P	Z	17:17:31.5	77.8	34.5					
GEC2	e P	Z	17:17:37.6	79.0	36.3	1.1	7			
WET	e P	Z	17:17:38.5	79.1	35.8	1.0	7			
GRA1	e P	Z	17:17:39.5	79.3	34.8	0.9	20			
STU	e P	Z	17:17:47.0	80.8	33.4	0.7	18			
BFO	e P	Z	17:17:50.2	81.5	32.8	0.8	6			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/12	02:35:48.4	44.389N	149.597E	33.0N	5.1			SZGRF

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	02:47:50.4	79.2	28.9	0.9	23	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/12	04:44:34.2	45.827N	6.712E	10.0G			3.5	SZGRF

France

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 04:45:17.6	2.7	204.3					3.4
	e Sg	N 04:46:01.8							
GRA1	e Sg	E 04:47:10.4	4.9	219.8					3.7
WET	e Pn	Z 04:45:53.2	5.3	233.8					3.3
	e Sg	E 04:47:23.4							
GEC2	e Pn	Z 04:45:58.1	5.6	240.1					
MOX	e Sg	N 04:47:38.7	5.8	216.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/12								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:49:14.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/12	13:37:51.6	38.623N	40.644E	33.0N	5.0			SZGRF

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:43:00.3	23.6	106.7	1.4	67	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/12								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 15:29:28.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/12								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 16:47:59.4							
	e (Sg)	E 16:48:33.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2004/06/12												
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
		BFO	e Pn	Z 16:47:59.2								
			e Sg	N 16:48:33.2								
		GRA1	e Sg	N 16:49:43.1								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2004/06/12												
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
		GRA1	e P	Z 17:50:21.9								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2004/06/13	02:29:16.5	44.752N	14.682E	10.0G			2.9	SZGRF				
Adriatic Sea												
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
		ARSA	e Pn	Z 02:29:56.4	2.6	193.5						
		MOA	e Pn	Z 02:30:06.3	3.1	174.5						
			e Sn	N 02:30:44.3								
		GEC2	e Pn	Z 02:30:19.8	4.1	170.3					3.1	
			e Sn	N 02:31:07.4								
		WET	e Pn	Z 02:30:25.4	4.6	163.7					2.8	
			e Sn	N 02:31:15.5								
		MOX	e Pn	Z 02:30:48.7	6.2	159.6						
			e Sn	N 02:31:56.0								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2004/06/13	05:55:58.9	40.179N	145.022E	33.0N	5.4			SZGRF				
Off east coast of Honshu, Japan												
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
		GRA1	e P	Z 06:08:12.7	81.4	33.9	1.5	46	5.4			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2004/06/13												
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	

GRA1 e PKP Z 10:57:48.3

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/13 19:27: 8.0 19.480S 178.090W 33.0  
 Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 19:46:40.2	144.9	13.9					
RUE	e PKPbc	Z 19:46:43.0	145.7	20.1					
NRDL	e PKPbc	Z 19:46:45.0	146.4	14.0					
IBBN	e PKPbc	Z 19:46:46.6	146.9	10.1					
	e	19:49:32.4							
CLZ	e PKPbc	Z 19:46:47.2	147.0	14.7					
	e	19:49:32.2							
CLL	e PKPbc	Z 19:46:46.9	147.0	19.5					
BRG	e PKPbc	Z 19:46:47.7	147.2	21.3					
	e	19:49:32.6							
BUG	e PKPbc	Z 19:46:48.7	147.8	9.5					
MOX	e PKPbc	Z 19:46:49.5	147.9	17.4					
GRA1	e PKPbc	Z 19:46:52.6	148.9	17.2					
	e PKPab	Z 19:46:56.5							
GEC2	e PKPbc	Z 19:46:53.0	149.1	22.1					
WLF	e PKPbc	Z 19:46:54.8	149.6	7.9					
	e PKPab	Z 19:46:59.3							
FUR	e PKPbc	Z 19:46:56.0	150.3	18.1					
	e PKPab	Z 19:47:01.7							
BFO	e PKPbc	Z 19:46:56.8	150.7	12.4					
	e PKPab	Z 19:47:03.2							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/13 21:05: 9.2 53.940N 161.530E 33.0N 5.0  
 Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 21:16:17.1	69.5	17.6	1.0	11	4.9		
NRDL	e P	Z 21:16:25.5	70.9	17.3	0.9	8	4.8		
CLL	e P	Z 21:16:28.7	71.5	18.9	1.2	20	5.1		
CLZ	e P	Z 21:16:29.6	71.5	17.4	1.0	24	5.3		
BRG	e P	Z 21:16:30.1	71.7	19.4	1.2	9	4.8		
MOX	e P	Z 21:16:34.5	72.4	18.0	1.2	16	5.0		
UBBA	e P	Z 21:16:35.1	72.6	17.1	0.7	6	4.8		
GRA1	e P	Z 21:16:40.6	73.4	17.7	0.9	21	5.2		
WET	e P	Z 21:16:41.7	73.6	18.6	0.9	10	4.9		
FUR	e P	Z 21:16:48.9	74.8	17.6	1.2	19	5.0		
BFO	e P	Z 21:16:50.7	75.3	15.9	0.8	7	4.9		



Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	20:26:02.2	151.8	12.1					
	e L	Z	21:39:30.6			19.8	1316		5.7	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/14	21:26:29.0	22.800S	178.090W	30.0N				SZGRF

South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	21:46:12.1	148.2	14.8					
RUE	e PKPbc	Z	21:46:14.0	149.0	21.6					
NRDL	e PKPbc	Z	21:46:15.9	149.6	15.1					
IBBN	e PKPbc	Z	21:46:17.4	150.2	10.9					
CLL	e PKPbc	Z	21:46:17.1	150.2	20.9					
	e PKPab	Z	21:46:23.0							
CLZ	e PKPbc	Z	21:46:17.8	150.2	15.9					
BRG	e PKPbc	Z	21:46:17.8	150.4	22.9					
BUG	e PKPbc	Z	21:46:19.3	151.1	10.2					
MOX	e PKPbc	Z	21:46:19.6	151.1	18.8					
	e PKPab	Z	21:46:27.0							
UBBA	e PKPbc	Z	21:46:19.6	151.3	15.7					
GRA1	e PKPbc	Z	21:46:21.6	152.1	18.6					
WET	e PKPbc	Z	21:46:22.1	152.3	22.1					
	e PKPab	Z	21:46:32.1							
GEC2	e PKPbc	Z	21:46:22.3	152.3	23.9					
	e PKPab	Z	21:46:32.1							
WLF	e PKPbc	Z	21:46:24.4	152.9	8.6					
	e PKPab	Z	21:46:35.0							
STU	e PKPbc	Z	21:46:24.7	153.4	15.1					
FUR	e PKPbc	Z	21:46:24.9	153.6	19.7					
	e PKPab	Z	21:46:37.6							
BFO	e PKPbc	Z	21:46:25.6	154.0	13.6					
	e PKPab	Z	21:46:38.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/14	22:54:27.7	15.700N	96.090W	27.2	5.1	5.6		SZGRF

Near coast of Oaxaca, Mexico

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	23:07:05.9	85.7	289.4	1.5	58	5.5		
IBBN	e P	Z	23:07:06.5	85.8	290.4	1.3	32	5.3		
BSEG	e PP	Z	23:10:30.9	86.6	292.3					
NRDL	e P	Z	23:07:11.6	87.1	292.2	1.2	14	5.0		
CLZ	e P	Z	23:07:13.4	87.5	292.5	1.0	13	5.2		

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BFO	e P	Z	23:07:13.6	87.5	291.1	1.1	8	5.0			
STU	e P	Z	23:07:15.9	87.9	291.7	1.1	18	5.3			
GRA1	e P	Z	23:07:20.4	88.8	293.2	1.5	22	5.2			
	e PP	Z	23:10:49.5								
	e L	Z	23:45:11.3			21.6	2455			5.6	
FUR	e P	Z	23:07:22.9	89.4	293.2	1.3	26	5.3			
BRG	e P	Z	23:07:24.7	89.9	295.3	1.1	5	4.7			
	e PP	Z	23:10:58.1								
WET	e P	Z	23:07:26.1	90.0	294.4	1.5	16	5.0			
	e pP	Z	23:07:34.1								
GEC2	e P	Z	23:07:28.7	90.6	295.1	1.6	16	5.1			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15	03:57:48.7	73.064N	3.650E	33.0N	4.1			SZGRF

Greenland Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:02:57.2	23.6	354.5	1.6	11	4.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15	06:47:13.0	27.082S	12.208W	33.0N	4.4			SZGRF

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:59:17.0	79.6	201.1	1.3	5	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 11:35:09.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15	11:16:16.5	38.800S	73.100W	37.0G		6.0		neic-r

Off coast of central Chile

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e SP	Z 11:45:16.0	112.6	236.0					
STU	e SSS	R 11:56:07.5	113.7	237.5					
BUG	e SSS	R 11:56:10.6	114.1	237.3					
FUR	e SP	Z 11:45:40.5	114.6	238.5					

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UBBA	e SP	Z	11:45:44.7	115.3	238.8						
GRA1	e PP	Z	11:36:16.1	115.3	239.1						
	e SP	Z	11:45:45.9								
	e L	Z	12:26:18.5			18.1		3793		6.0	
CLZ	e SP	Z	11:45:51.3	116.0	239.5						
	e SSS	R	11:56:42.7								
WET	e SP	Z	11:45:51.2	116.0	239.9						
MOX	e SP	Z	11:45:50.7	116.0	239.7						
NRDL	e SP	Z	11:45:51.2	116.2	239.6						
	e SSS	R	11:56:44.3								
GEC2	e SP	Z	11:45:52.7	116.3	240.2						
CLL	e SP	Z	11:45:59.6	117.1	240.9						
BRG	e SP	Z	11:46:02.9	117.4	241.3						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15	12:02:35.9	40.325N	26.408E	33.0N				the

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 12:05:33.1	12.4	128.6					
WET	e Pn	Z 12:05:39.4	13.0	127.6					
GRA1	e Pn	Z 12:05:56.7	14.2	125.5					
BFO	e Pn	Z 12:06:08.7	15.2	115.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15	18:43:42.0	14.800S	173.700W	33.0N				MIX-A

Samoa Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 19:03:16.0	144.9	8.3					
	e pPKP	Z 19:03:44.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/15	22:29: 7.4	35.336N	121.179W	33.0N	5.0			SZGRF

Central California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:41:40.4	85.1	322.8	1.2	14	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/16	01:42:49.3	34.880N	142.440E	33.0N	5.3	5.0		SZGRF

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 01:55:07.3	81.9	40.3	1.3	33	5.3		
BSEG	e P	Z 01:55:08.0	82.0	37.9	1.1	20	5.1		
BRG	e P	Z 01:55:13.2	83.0	40.3	1.9	48	5.4		
CLL	e P	Z 01:55:13.1	83.1	39.7	1.5	40	5.4		
CLZ	e P	Z 01:55:16.8	83.7	37.8	1.4	42	5.5		
MOX	e P	Z 01:55:18.9	84.1	38.6	1.5	32	5.3		
IBBN	e P	Z 01:55:19.7	84.3	35.9	1.3	55	5.6		
WET	e P	Z 01:55:22.3	84.8	39.4	1.9	35	5.3		
GRA1	e P	Z 01:55:23.8	85.0	38.3	1.4	70	5.7		
	e L	Z 02:38:56.1			18.4	636		5.0	
BUG	e P	Z 01:55:23.6	85.2	35.5	0.9	20	5.3		
FUR	e P	Z 01:55:29.2	86.2	38.2	1.2	27	5.2		
STU	e P	Z 01:55:30.8	86.6	36.8	1.4	37	5.3		
WLF	e P	Z 01:55:33.5	87.0	34.6	1.6	38	5.3		
BFO	e P	Z 01:55:34.0	87.3	36.1	1.1	12	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/16	21:34:20.0	5.900N	126.900E	33.0N				MIX-A

Mindanao, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 21:48:10.8	101.6	66.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:42:37.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17	01:16:1.4	21.300S	68.500W	115.0N				NEIC-M

Chile-Bolivia border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 01:29:31.2	99.8	248.5					
	e pPdiff	Z 01:30:03.9							
	e PP	Z 01:33:31.5							

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17	02:16:56.8	22.300N	143.100E	420.0G				gsrc

Volcano Islands, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 02:29:41.3	96.3	43.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17	05:20:29.7	36.573N	143.345E	33.0N	4.7			SZGRF

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:32:56.7	83.9	36.8	1.1	6	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17	13:59:15.9	18.300S	177.590W	502.8				SZGRF

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 14:17:52.1	143.8	12.8					
RUE	e PKPbc	Z 14:17:54.7	144.7	18.9					
NRDL	e PKPbc	Z 14:17:56.5	145.3	12.9					
CLZ	e PKPbc	Z 14:17:58.5	145.9	13.6					
	e pPKPbc	Z 14:19:56.1							
CLL	e PKPbc	Z 14:17:58.3	145.9	18.2					
BRG	e PKPbc	Z 14:17:58.9	146.2	19.9					
	e PKPab	Z 14:18:01.3							
MOX	e PKPbc	Z 14:18:00.8	146.8	16.1					
	e PKPab	Z 14:18:03.7							
UBBA	e PKPbc	Z 14:18:00.9	146.9	13.3					
GRA1	e PKPbc	Z 14:18:03.8	147.8	15.8					
	e PKPab	Z 14:18:08.4							
	e pPKPbc	Z 14:20:01.3							
WET	e PKPbc	Z 14:18:03.7	148.0	19.0					
	e PKPab	Z 14:18:08.5							
GEC2	e PKPbc	Z 14:18:04.1	148.1	20.6					
	e PKPab	Z 14:18:09.2							
WLF	e PKPbc	Z 14:18:05.9	148.5	6.8					
	e PKPab	Z 14:18:11.1							
STU	e PKPbc	Z 14:18:06.6	149.0	12.6					
	e PKPab	Z 14:18:13.0							
BFO	e PKPbc	Z 14:18:07.7	149.6	11.2					
	e PKPab	Z 14:18:14.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17	15:35: 7.3	17.600S	178.700E	33.0N				ODC-A

Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 15:54:29.1	142.6	18.4					
RUE	e PKPbc	Z 15:54:33.1	143.2	24.4					
CLL	e PKPbc	Z 15:54:36.3	144.4	23.9					
BRG	e PKPbc	Z 15:54:36.9	144.6	25.6					
MOX	e PKPbc	Z 15:54:37.8	145.4	22.0					
GRA1	e PKPbc	Z 15:54:41.1	146.4	21.9					
WET	e PKPbc	Z 15:54:42.1	146.4	25.0					
GEC2	e PKPbc	Z 15:54:42.4	146.5	26.5					
FUR	e PKPbc	Z 15:54:44.9	147.8	22.9					
BFO	e PKPbc	Z 15:54:44.7	148.3	17.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/17								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e (Pdiff)	Z 22:17:27.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/18								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:05:03.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/19	10:24:26.9	22.843N	99.613E	33.0N	4.6			SZGRF

Myanmar-China border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:35:46.4	71.8	75.9	1.4	7	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/19								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 11:43:37.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	00:47:28.9	22.750S	177.880W	597.7				SZGRF
South of Fiji Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	01:06:08.2	148.2	14.5					
RUE	e PKPdf	Z	01:06:05.8	149.0	21.2					
	e PKPbc	Z	01:06:09.9							
NRDL	e PKPbc	Z	01:06:12.1	149.6	14.7					
IBBN	e PKPbc	Z	01:06:13.0	150.1	10.5					
CLZ	e PKPdf	Z	01:06:08.3	150.2	15.5					
	e PKPbc	Z	01:06:13.6							
CLL	e PKPdf	Z	01:06:07.7	150.2	20.5					
	e PKPbc	Z	01:06:13.1							
BRG	e PKPbc	Z	01:06:13.6	150.4	22.5					
BUG	e PKPbc	Z	01:06:15.3	151.0	9.8					
MOX	e PKPdf	Z	01:06:09.5	151.1	18.4					
	e PKPbc	Z	01:06:15.3							
GRA1	e PKPdf	Z	01:06:10.6	152.1	18.2					
	e PKPbc	Z	01:06:17.8							
	e pPKPbc	Z	01:08:34.7							
WET	e PKPbc	Z	01:06:18.0	152.3	21.7					
GEC2	e PKPbc	Z	01:06:17.9	152.3	23.5					
STU	e PKPdf	Z	01:06:12.6	153.4	14.7					
	e PKPbc	Z	01:06:20.1							
FUR	e PKPbc	Z	01:06:20.4	153.6	19.2					
BFO	e PKPbc	Z	01:06:21.4	153.9	13.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	01:37:35.8	5.630N	84.110W	33.0G	5.6	5.4		SZGRF
Off coast of central America								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	01:50:12.5	85.9	273.9	1.2	49	5.5		
	e SKSac	R	02:00:36.1							
BUG	e P	Z	01:50:15.2	86.5	274.6	2.3	222	5.9		
	e SKSac	R	02:00:41.5							
IBBN	e P	Z	01:50:16.5	86.7	274.9	2.2	207	5.9		
BFO	e SKSac	R	02:00:50.5	87.4	275.6					
STU	e P	Z	01:50:22.1	87.9	276.2	1.4	44	5.6		
	e SS	R	02:06:53.5							
BSEG	e P	Z	01:50:23.4	88.0	276.9	2.4	185	6.0		
NRDL	e P	Z	01:50:23.6	88.1	276.8	2.0	101	5.8		
	e SKSac	R	02:00:53.4							

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	e SS	R	02:06:54.8								
CLZ	e P	Z	01:50:24.9	88.3	277.0	1.3		34	5.5		
	e SKSac	R	02:00:55.4								
GRA1	e P	Z	01:50:28.3	89.1	277.7	2.1		82	5.6		
	e SKSac	R	02:01:01.3								
	e SS	R	02:07:08.5								
	e L	Z	02:24:21.8			21.2		1671		5.4	
MOX	e SKSac	R	02:01:01.7	89.3	278.0						
	e SS	R	02:07:11.6								
FUR	e SS	R	02:07:15.6	89.4	277.8						
CLL	e SKSac	R	02:01:04.5	90.0	279.1						
WET	e P	Z	01:50:33.9	90.3	279.0	1.3		22	5.2		
	e SS	R	02:07:28.5								
RUE	e P	Z	01:50:36.4	90.3	279.7	1.6		50	5.5		
BRG	e P	Z	01:50:35.8	90.7	279.8	1.8		37	5.4		
	e SKSac	R	02:01:09.6								
GEC2	e SKSac	R	02:01:09.8	90.9	279.6						
	e SS	R	02:07:33.8								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	02:33:34.3	73.219N	8.156W	33.0N	4.0			SZGRF

Greenland Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:38:55.5	25.0	346.9	1.4	4	4.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	04:48:38.1	66.660N	142.670E	21.1	4.9			SZGRF

Eastern Siberia, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 04:58:16.7	56.0	21.6	0.9	22	5.2		
CLZ	e P	Z 04:58:18.2	56.1	20.7	1.4	20	5.0		
BRG	e P	Z 04:58:18.4	56.2	21.8					
MOX	e P	Z 04:58:23.5	57.0	20.9	1.1	12	4.9		
GRA1	e P	Z 04:58:30.8	58.0	20.5	0.8	6	4.7		
	e pP	Z 04:58:36.6							
WET	e P	Z 04:58:32.0	58.1	21.0	1.7	21	4.9		
GEC2	e P	Z 04:58:32.4	58.2	21.3	1.0	10	4.8		
FUR	e P	Z 04:58:40.2	59.4	20.2	0.9	13	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	05:39: 7.9	34.470N	140.630E	62.4	5.4			SZGRF

Near east coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 05:51:19.6	81.5	41.8	1.2	31	5.3		
BSEG	e P	Z 05:51:20.9	81.7	39.4	1.2	21	5.2		
BRG	e P	Z 05:51:25.5	82.6	41.8	1.4	38	5.4		
CLL	e P	Z 05:51:25.7	82.7	41.2	1.1	49	5.7		
NRDL	e P	Z 05:51:26.9	82.9	39.2	1.4	25	5.2		
CLZ	e P	Z 05:51:29.5	83.3	39.3	1.1	47	5.6		
MOX	e P	Z 05:51:31.1	83.8	40.1	1.5	41	5.4		
IBBN	e P	Z 05:51:32.3	84.0	37.4	1.5	74	5.7		
GEC2	e P	Z 05:51:33.4	84.3	41.5	1.1	21	5.3		
WET	e P	Z 05:51:34.5	84.4	40.9	1.1	14	5.1		
GRA1	e P	Z 05:51:35.8	84.7	39.8	1.2	73	5.8		
	e pP	Z 05:51:53.3							
BUG	e P	Z 05:51:36.4	84.9	37.0	0.9	36	5.6		
WLF	e P	Z 05:51:46.3	86.7	36.1	1.3	32	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	08:34: 8.5	23.903N	102.218E	33.0N	4.3			SZGRF

Yunnan, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:45:33.1	72.6	73.3	0.9	2	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	09:18:56.7	28.768N	125.973E	33.0N	4.3			SZGRF

Off east coast of southeastern China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:31:16.7	82.6	53.4	0.7	2	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	11:50:54.2	35.801N	71.760E	33.0N	4.5			SZGRF

Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:59:08.7	45.2	84.0	1.6	9	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	13:24:54.7	46.906N	25.810W	10.0N	4.3			SZGRF

## Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:30:14.6	24.5	277.8	1.5	10	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/20	22:47:18.2	35.551N	3.761W	33.0N	3.6			SZGRF

Strait of Gibraltar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:51:25.1	17.9	223.3	1.1	5	3.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/21	04:02:23.0	20.600S	171.000E	33.0N				MIX-A

Vanuatu Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 04:22:02.9	146.8	36.2					
	e	04:22:14.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/21	21:29:14.7	62.500N	151.500W	92.5	5.1			SZGRF

Central Alaska, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 21:39:30.8	62.7	350.7	1.0	9	4.9		
	e pP	Z 21:39:54.2							
NRDL	e P	Z 21:39:39.9	64.1	350.7	1.2	12	5.0		
	e pP	Z 21:40:03.1							
CLZ	e P	Z 21:39:44.8	64.8	350.9	0.9	19	5.3		
BUG	e P	Z 21:39:44.2	64.8	349.4	0.9	13	5.1		
CLL	e P	Z 21:39:49.0	65.5	352.2	0.9	11	5.1		
	e pP	Z 21:40:12.2							
BRG	e P	Z 21:39:52.2	66.0	352.7	0.9	11	5.1		
	e pP	Z 21:40:15.9							
MOX	e P	Z 21:39:52.4	66.1	351.6	1.0	19	5.3		
WLF	e P	Z 21:39:55.6	66.4	349.0	1.2	14	5.1		
GRA1	e P	Z 21:39:58.8	67.0	351.4	0.9	10	5.1		
	e pP	Z 21:40:22.1							
WET	e P	Z 21:40:03.1	67.7	352.3	1.3	15	5.1		
STU	e P	Z 21:40:03.0	67.7	350.5	0.6	9	5.2		
BFO	e P	Z 21:40:04.6	68.0	350.1	1.1	9	4.9		
GEC2	e P	Z 21:40:05.3	68.0	352.7	0.9	6	4.9		

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FUR e P Z 21:40:08.1 68.5 351.5 0.8 20 5.4

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/21

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e PKP Z 22:08:07.0

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/22 02:17:44.1 43.941N 144.380E 33.0N 5.4 4.9  
Hokkaido, Japan, region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
BSEG e P Z 02:29:20.7 74.6 32.5 0.8 32 5.4  
RUE e P Z 02:29:20.5 74.6 34.5 1.1 52 5.5  
NRDL e P Z 02:29:27.5 75.9 32.1 0.9 15 5.1  
CLL e P Z 02:29:27.2 75.9 33.9 0.8 52 5.7  
BRG e P Z 02:29:27.4 75.9 34.4 0.9 16 5.1  
CLZ e P Z 02:29:30.5 76.3 32.2 1.0 44 5.5  
IBBN e P Z 02:29:32.6 76.8 30.5 0.7 35 5.6  
MOX e P Z 02:29:33.1 76.9 32.9 0.9 17 5.2  
BUG e P Z 02:29:37.5 77.7 30.1 0.9 30 5.4  
GEC2 e P Z 02:29:37.1 77.7 34.0 0.9 11 5.0  
WET e P Z 02:29:38.0 77.7 33.5 1.0 33 5.4  
GRA1 e P Z 02:29:38.8 77.8 32.5 0.9 57 5.7  
e L Z 03:08:52.4 20.0 582 4.9  
FUR e P Z 02:29:45.5 79.1 32.4 0.9 54 5.6  
BFO e P Z 02:29:49.6 80.0 30.5 1.0 16 4.9

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/22 02:27:36.8 42.005N 143.701E 33.0N 5.1  
Hokkaido, Japan, region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e P Z 02:39:39.5 79.3 33.9 1.0 22 5.1

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/22

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e P Z 06:11:38.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/22	09:04:44.3	11.340S	165.440E	157.4				SZGRF
Santa Cruz Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPdf	Z	09:23:41.3	133.0	39.5					
BSEG	e PKPdf	Z	09:23:41.8	133.0	34.4					
	e pPKPdf	Z	09:24:21.8							
	e PP	Z	09:26:09.2							
	e pPP	Z	09:26:43.9							
	e		09:26:57.5							
BRG	e PKPdf	Z	09:23:43.5	134.1	40.7					
	e pPKPdf	Z	09:24:23.6							
	e PP	Z	09:26:14.8							
	e		09:27:01.4							
CLL	e PKPdf	Z	09:23:42.6	134.2	39.2					
	e pPKPdf	Z	09:24:23.8							
	e		09:27:01.2							
NRDL	e PKPdf	Z	09:23:43.8	134.3	34.9					
	e PP	Z	09:26:17.3							
	e pPP	Z	09:26:53.3							
	e		09:27:01.5							
CLZ	e PKPdf	Z	09:23:44.8	134.7	35.6					
	e PP	Z	09:26:19.8							
	e pPP	Z	09:26:56.1							
	e		09:27:03.6							
MOX	e PKPdf	Z	09:23:45.2	135.2	37.9					
	e pPKPdf	Z	09:24:28.0							
IBBN	e PKPdf	Z	09:23:46.0	135.2	31.9					
	e		09:27:04.8							
GEC2	e PKPdf	Z	09:23:45.9	135.8	41.7					
	e pPKPdf	Z	09:24:29.1							
	e PP	Z	09:26:27.4							
WET	e PKPdf	Z	09:23:46.8	135.9	40.5					
	e		09:27:07.2							
GRA1	e PKPdf	Z	09:23:47.1	136.1	38.0					
BUG	e PKPdf	Z	09:23:46.9	136.1	31.8					
	e PP	Z	09:26:29.0							
	e		09:27:08.1							
STU	e PKPdf	Z	09:23:50.1	137.7	35.9					
BFO	e PP	Z	09:26:42.5	138.4	35.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/22	14:38:51.3	27.290N	38.410E	33.0G	4.9	3.9		SZGRF

## Western Arabian Peninsula

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	14:44:46.4	28.8	129.5	0.9	15	4.8		
WET	e P	Z	14:44:51.6	29.4	128.7					
BRG	e P	Z	14:44:57.5	30.0	132.6	1.0	17	4.8		
GRA1	e P	Z	14:45:02.0	30.6	127.0					
	e L	Z	14:58:29.6			19.7	264		3.9	
CLL	e P	Z	14:45:03.6	30.7	131.7					
MOX	e P	Z	14:45:06.1	31.0	128.8	1.4	28	5.0		
BFO	e P	Z	14:45:09.6	31.4	121.2	1.7	36	5.0		
CLZ	e P	Z	14:45:16.3	32.3	128.6					
NRDL	e P	Z	14:45:22.6	32.8	129.0					
IBBN	e P	Z	14:45:31.5	33.9	125.6					

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/22

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	15:30:01.0							

Date Origin Time Lat Long Depth mb Ms ML Source  
2004/06/22 21:39:37.7  
Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z	21:58:51.2	147.2	8.9					
IBBN	e PKPbc	Z	21:58:52.3	147.6	4.8					
CLZ	e PKPbc	Z	21:58:52.9	147.8	9.5					
CLL	e PKPdf	Z	21:58:50.8	148.0	14.3					
	e PKPbc	Z	21:58:53.2							
BUG	e PKPdf	Z	21:58:52.1	148.4	4.1					
	e PKPbc	Z	21:58:54.1							
MOX	e PKPdf	Z	21:58:52.2	148.9	12.1					
	e PKPbc	Z	21:58:55.8							
GRA1	e PKPdf	Z	21:58:54.3	149.8	11.7					
	e PKPbc	Z	21:58:58.4							
WET	e PKPdf	Z	21:58:54.3	150.1	15.0					
	e PKPbc	Z	21:58:58.8							
WLF	e PKPbc	Z	21:58:59.9	150.3	2.2					
GEC2	e PKPdf	Z	21:58:54.1	150.3	16.6					
	e PKPbc	Z	21:58:59.2							
	e pPKPbc	Z	22:00:01.7							
STU	e PKPbc	Z	21:59:00.8	151.0	8.1					
FUR	e PKPbc	Z	21:59:01.8	151.3	12.3					



Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:39:16.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/25								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:35:14.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/25	02:35: 7.0	6.753S	130.307E	75.0G		5.5		neic-m
Banda Sea								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e SP	Z 03:03:29.5	110.9	71.3					
RUE	e Pdiff	Z 02:49:38.2	111.3	72.5					
	e PKPdf	Z 02:53:33.5							
	e PP	Z 02:54:22.1							
	e SP	Z 03:03:35.0							
BRG	e Pdiff	Z 02:49:41.8	111.7	73.2					
	e PKPdf	Z 02:53:34.2							
	e PP	Z 02:54:21.3							
	e SP	Z 03:03:38.1							
CLL	e Pdiff	Z 02:49:37.3	112.1	72.3					
	e PKPdf	Z 02:53:34.7							
	e PP	Z 02:54:25.6							
	e SP	Z 03:03:44.4							
GEC2	e Pdiff	Z 02:49:41.8	112.4	73.8					
	e PKPdf	Z 02:53:35.3							
	e PP	Z 02:54:30.9							
	e SP	Z 03:03:48.4							
BSEG	e Pdiff	Z 02:49:45.6	112.8	68.9					
	e PKPdf	Z 02:53:36.7							
	e PP	Z 02:54:24.3							
	e SP	Z 03:03:44.4							
WET	e Pdiff	Z 02:49:41.8	112.8	73.0					
	e PKPdf	Z 02:53:36.3							
	e PP	Z 02:54:33.8							
	e SP	Z 03:03:49.1							
MOX	e Pdiff	Z 02:49:45.6	113.2	71.3					
	e PP	Z 02:54:34.8							
	e SP	Z 03:03:54.6							
NRDL	e Pdiff	Z 02:49:47.1	113.4	69.3					
	e SP	Z 03:03:54.6							

CLZ	e Pdiff	Z	02:49:45.6	113.5	69.8				
	e PKPdf	Z	02:53:38.0						
	e PP	Z	02:54:37.3						
	e SP	Z	03:03:53.1						
GRA1	e Pdiff	Z	02:49:45.6	113.7	71.4				
	e PKPdf	Z	02:53:38.6						
	e PP	Z	02:54:39.7						
	e SP	E	03:04:02.7						
HLG	e L	Z	03:44:28.0	114.0	66.6	21.2	1238	5.5	
	e PP	Z	02:54:41.6						
FUR	e SP	Z	03:03:53.9	114.1	72.1				
	e Pdiff	Z	02:49:47.5						
IBBN	e PKPdf	Z	02:53:37.8	114.8	67.3				
	e PP	Z	02:54:42.6						
	e SP	Z	03:04:03.3						
	e PP	Z	02:54:42.0						
STU	e SP	Z	03:04:00.1	115.3	70.1				
	e Pdiff	Z	02:49:55.1						
BUG	e PKPdf	Z	02:53:40.7	115.4	67.2				
	e PP	Z	02:54:46.6						
	e Pdiff	Z	02:49:55.1						
	e PKPdf	Z	02:53:40.8						
BFO	e PP	Z	02:54:46.5	115.9	69.5				
	e SP	Z	03:04:07.2						
	e Pdiff	Z	02:49:58.9						
	e PKPdf	Z	02:53:40.5						
WLF	e PP	Z	02:54:45.9	116.8	67.0				
	e SP	Z	03:04:19.0						
	e Pdiff	Z	02:49:58.9						
	e PKPdf	Z	02:53:44.5						
	e PP	Z	02:54:59.9						
	e SP	Z	03:04:23.7						

Date 2004/06/25  
 Origin Time 14:42:55.5  
 Lat 30.566N  
 Long 50.794E  
 Depth 25.0G  
 mb 4.9  
 Ms  
 ML  
 Source neic-m

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WET	e P	Z 14:49:37.1	34.0	108.9	1.0	7	4.6		
FUR	e P	Z 14:49:43.7	34.7	105.9	0.8	38	5.4		
GRA1	e P	Z 14:49:48.1	35.2	107.9	0.8	17	5.1		
CLZ	e P	Z 14:49:58.7	36.4	109.8	0.9	15	4.8		
NRDL	e P	Z 14:50:02.1	36.8	110.4	1.1	21	4.8		

Date Origin Time Lat Long Depth mb Ms ML Source

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2004/06/25 21:42:13.4 39.125N 142.689E 33.0N 4.8 SZGRF  
Near east coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:54:27.5	81.4	36.0	1.6	14	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/25	21:47:22.4	21.566S	178.983W	33.0N				SZGRF

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 22:07:00.0	146.9	16.0					
CLL	e PKPbc	Z 22:07:05.1	148.8	21.9					
CLZ	e PKPbc	Z 22:07:05.4	148.9	17.0					
BRG	e PKPbc	Z 22:07:05.6	149.0	23.8					
MOX	e PKPbc	Z 22:07:07.6	149.8	19.9					
GRA1	e PKPbc	Z 22:07:11.2	150.7	19.7					
WET	e PKPbc	Z 22:07:10.0	150.9	23.1					
GEC2	e PKPbc	Z 22:07:09.9	150.9	24.8					
WLF	e PKPbc	Z 22:07:12.3	151.6	10.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:22:57.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	13:26:41.0	52.589N	167.331W	33.0N	4.7			SZGRF

Fox Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:38:35.0	77.7	359.1	1.2	8	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	13:44:56.2	54.700N	165.543E	33.0N	4.7			SZGRF

Komandorsky Islands, Russia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:56:25.4	73.4	15.1	1.1	8	4.7		
	e	13:56:34.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	14:13:42.1	28.810N	140.120E	33.0N	5.0			SZGRF

Bonin Islands, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 14:26:25.4	86.6	42.4	1.0	14	5.1		
BRG	e P	Z 14:26:28.6	87.3	45.1	0.8	3	4.7		
CLL	e P	Z 14:26:28.5	87.4	44.4	0.8	6	4.9		
CLZ	e P	Z 14:26:32.6	88.1	42.4	1.1	10	5.0		
MOX	e P	Z 14:26:34.1	88.5	43.3	0.8	3	4.5		
GEC2	e P	Z 14:26:35.3	88.8	44.8	0.9	4	4.7		
IBBN	e P	Z 14:26:35.4	88.8	40.4	0.9	22	5.4		
WET	e P	Z 14:26:36.7	89.0	44.2	0.8	3	4.5		
GRA1	e P	Z 14:26:38.9	89.3	43.0	1.0	12	5.1		
FUR	e P	Z 14:26:43.5	90.4	43.0	0.5	17	5.6		
STU	e P	Z 14:26:45.8	90.9	41.5	0.9	16	5.3		
WLF	e P	Z 14:26:48.7	91.5	39.1	1.1	14	5.2		
BFO	e P	Z 14:26:48.4	91.6	40.8	0.9	9	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 18:27:49.0							
GRA1	e P	Z 18:28:08.8							
WET	e P	Z 18:27:55.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	18:40:55.2	46.690N	150.698E	33.0N	4.7			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:52:47.6	77.4	27.2	0.8	5	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	19:04:37.1	55.411N	165.400E	33.0N	4.6			SZGRF

Komandorsky Islands, Russia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:16:02.2	72.7	15.0	1.4	8	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	19:06:12.0	54.455N	165.750E	33.0G	4.5			SZGRF
Komandorsky Islands, Russia, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:17:42.9	73.7	15.1	1.1	5	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	19:43:23.7	37.752N	142.810E	45.8	5.2			SZGRF
Off east coast of Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:55:44.4	82.7	36.6	1.0	15	5.2		
	e	19:55:57.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 22:52:13.4							
	e Sn	N 22:53:37.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	23:44: 4.0	8.686N	95.878E	33.0N	4.5			SZGRF
Nicobar Islands, India, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:56:10.1	79.9	88.4	1.6	10	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/26	23:45:56.5	11.517N	96.625E	33.0N	4.9			SZGRF
Andaman Islands, India, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:57:53.6	78.3	85.9	1.7	18	4.9		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	01:14:52.6	19.592S	173.429W	33.0N				SZGRF

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 01:34:27.2	145.5	6.2					
RUE	e PKPbc	Z 01:34:30.2	146.6	12.4					
NRDL	e PKPbc	Z 01:34:31.5	147.0	6.1					
IBBN	e PKPbc	Z 01:34:32.4	147.3	2.1					
CLZ	e PKPbc	Z 01:34:33.3	147.6	6.7					
CLL	e PKPbc	Z 01:34:33.5	147.9	11.4					
BUG	e PKPbc	Z 01:34:34.5	148.1	1.2					
BRG	e PKPbc	Z 01:34:34.5	148.2	13.3					
MOX	e PKPbc	Z 01:34:36.0	148.7	9.2					
GRA1	e PKPbc	Z 01:34:38.7	149.7	8.7					
WLF	i PKPbc	Z 01:34:39.7	149.9	359.2					
WET	e PKPbc	Z 01:34:39.3	150.0	12.0					
GEC2	e PKPbc	Z 01:34:39.7	150.2	13.6					
STU	e PKPbc	Z 01:34:41.1	150.7	5.1					
FUR	e PKPbc	Z 01:34:41.6	151.2	9.2					
BFO	e PKPbc	Z 01:34:42.1	151.2	3.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	01:29:40.1	51.881N	159.905E	33.0N	5.4			SZGRF

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:41:18.7	75.0	19.4	1.7	66	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	08:52:21.3	28.879N	128.815E	33.0N	5.3			SZGRF

Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:04:48.3	83.9	51.3	1.6	34	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 09:18:30.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	11:15: 8.2	44.921N	150.309E	33.0N	5.4			SZGRF

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:27:08.7	78.9	28.2	0.7	29	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	12:51:56.1	39.775S	43.253E	33.0N	5.8			SZGRF

South Indian Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:05:10.2	93.8	155.9	1.4	49	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	15:31:25.0	40.261N	27.815E	33.0N				SZGRF

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:35:00.2	15.0	122.6	1.6	24			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/27	15:53:53.8	41.285N	144.082E	33.0N	4.8			SZGRF

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:06:00.7	80.1	34.0	1.1	13	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/28	00:54:36.2	33.032S	46.665E	33.0N	4.8			SZGRF

South Indian Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:07:25.7	88.5	150.9	1.1	6	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/28	05:06:34.2	15.093N	120.367E	33.0N				SZGRF

Luzon, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:19:32.4	90.4	65.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/28	09:49:53.0	54.906N	133.713W	33.0N	6.1	6.9		SZGRF

Queen Charlotte Islands, Canada, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 10:00:44.3	67.2	338.5	1.5	231	6.2		
RGN	e P	Z 10:00:44.6	67.2	340.2					
IBBN	e P	Z 10:00:50.4	68.1	337.3					
NRDL	e P	Z 10:00:52.3	68.5	338.6					
BUG	e P	Z 10:00:54.1	68.8	337.2					
CLZ	e P	Z 10:00:56.9	69.2	338.8	1.2	195	6.1		
RUE	e P	Z 10:00:57.0	69.3	340.7					
WLF	e P	Z 10:01:03.2	70.2	336.8					
CLL	e P	Z 10:01:02.6	70.2	340.4					
MOX	e P	Z 10:01:04.8	70.6	339.7	1.6	205	6.0		
BRG	e P	Z 10:01:06.6	70.8	341.0	1.7	277	6.1		
GRA1	e P	Z 10:01:10.1	71.4	339.6	1.2	190	6.1		
	e PP	Z 10:03:53.0							
	e S	E 10:10:34.3							
	e L	Z 10:32:41.7			20.3	74736		6.9	
STU	e P	Z 10:01:12.3	71.8	338.6					
BFO	e P	Z 10:01:13.4	72.0	338.2	1.1	126	5.9		
WET	e P	Z 10:01:15.3	72.2	340.6	2.1	552	6.3		
GEC2	e P	Z 10:01:17.9	72.7	341.1	1.5	206	6.0		
FUR	e P	Z 10:01:18.7	72.8	339.8	1.0	131	6.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/29	02:22:44.7	73.395N	4.411E	33.0N	4.1	3.6		SZGRF

Greenland Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:27:56.0	23.9	355.2	1.0	7	4.1		
	e	02:28:02.2							
	e L	Z 02:36:19.8			21.1	224		3.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/29	03:08:50.8	21.060S	176.390W	33.0N				SZGRF

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	03:28:29.4	146.7	11.5					
RUE	e PKPbc	Z	03:28:31.6	147.6	17.9					
NRDL	e PKPbc	Z	03:28:33.4	148.2	11.5					
IBBN	e PKPbc	Z	03:28:35.0	148.6	7.4					
	e PKPab	Z	03:28:38.2							
CLZ	e PKPbc	Z	03:28:35.3	148.8	12.2					
CLL	e PKPbc	Z	03:28:35.0	148.9	17.1					
	e PKPab	Z	03:28:38.7							
BRG	e PKPbc	Z	03:28:35.7	149.1	19.0					
	e PKPab	Z	03:28:39.9							
BUG	e PKPbc	Z	03:28:36.9	149.5	6.7					
MOX	e PKPbc	Z	03:28:37.5	149.8	15.0					
UBBA	e PKPbc	Z	03:28:37.5	149.8	11.9					
GRA1	e PKPbc	Z	03:28:40.1	150.7	14.6					
	e PKPab	Z	03:28:47.1							
WET	e PKPbc	Z	03:28:39.8	151.0	18.0					
	e PKPab	Z	03:28:47.9							
GEC2	e PKPbc	Z	03:28:40.5	151.1	19.8					
WLF	e PKPbc	Z	03:28:42.2	151.3	4.9					
STU	e PKPbc	Z	03:28:42.8	151.9	11.1					
	e PKPab	Z	03:28:51.8							
FUR	e PKPbc	Z	03:28:43.1	152.2	15.5					
	e PKPab	Z	03:28:53.0							
BFO	e PKPbc	Z	03:28:43.9	152.5	9.6					
	e PKPab	Z	03:28:54.1							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2004/06/29 07:01:37.4 11.040N 86.190W 33.0N 6.2 6.5 ML SZGRF  
 Near coast of Nicaragua

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	07:14:00.9	83.1	279.0					
BUG	e P	Z	07:14:02.7	83.5	279.6	1.9	170	6.0		
IBBN	e P	Z	07:14:03.6	83.7	279.9					
BFO	e P	Z	07:14:08.6	84.7	280.7	4.2	1385	6.5		
BSEG	e P	Z	07:14:09.8	84.9	281.7	1.7	251	6.2		
NRDL	e P	Z	07:14:10.8	85.0	281.7					
STU	e P	Z	07:14:11.3	85.2	281.3	2.2	409	6.3		
UBBA	e P	Z	07:14:11.9	85.3	281.8					
CLZ	e P	Z	07:14:12.3	85.3	282.0	1.8	254	6.1		
GRA1	e P	Z	07:14:17.2	86.3	282.8	1.6	194	6.0		
	e S	E	07:24:48.5							
	e SS	E	07:30:36.2							
	e L	Z	07:49:44.8			19.9	19702		6.5	
MOX	e P	Z	07:14:17.1	86.4	283.0	2.0	229	6.0		
FUR	e P	Z	07:14:18.8	86.7	282.9	1.8	222	6.0		

./2004/bul0406.txt

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CLL	e P	Z	07:14:20.4	87.1	284.0	2.2	271	6.0
RUE	e P	Z	07:14:20.9	87.2	284.6			
WET	e P	Z	07:14:22.9	87.5	284.0	2.2	428	6.4
BRG	e P	Z	07:14:23.8	87.7	284.8	2.5	442	6.4
GEC2	e P	Z	07:14:25.5	88.1	284.7	1.9	178	6.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 07:40:14.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/29	08:11:40.5	35.992N	91.762E	33.0N	5.3			SZGRF
Qinghai, China								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:21:28.3	57.7	70.7	1.5	51	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30	03:43:1.5	0.672S	14.153W	33.0N	4.6			SZGRF
North of Ascension Island								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:52:29.0	54.9	211.6	0.9	6	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30	09:00:20.2	18.580S	176.320W	30.0N				SZGRF
Fiji Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z 09:19:55.3	145.7	10.9					
IBBN	e PKPbc	Z 09:19:57.4	146.1	6.9					
CLZ	e PKPbc	Z 09:19:57.9	146.3	11.5					
CLL	e PKPbc	Z 09:19:57.6	146.5	16.1					
BRG	e PKPbc	Z 09:19:58.3	146.7	17.9					
MOX	e PKPbc	Z 09:20:00.5	147.3	14.0					
GRA1	e PKPbc	Z 09:20:03.8	148.3	13.7					
	e PP	Z 09:23:33.6							
WET	e PKPbc	Z 09:20:04.2	148.5	16.9					
GEC2	e PKPbc	Z 09:20:04.1	148.7	18.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30	12:21:53.5	41.796N	118.989W	33.0N				SZGRF
Nevada, United States								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:33:52.6	78.6	324.5	1.1	13			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30	13:41:13.7	53.952N	31.302W	33.0N	4.5	4.4		SZGRF
Northern Mid-Atlantic Ridge								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:46:46.0	26.2	295.8	1.4	16	4.5		
	e L	Z 13:57:25.1			18.1	1077		4.4	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30	14:21:59.7	51.386N	42.531W	33.0N	5.0	4.9		SZGRF
North Atlantic Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e P	Z 14:28:09.6	30.4	288.7	1.2	62	5.3		
BUG	e P	Z 14:28:10.3	30.4	289.8	1.7	111	5.4		
BSEG	e P	Z 14:28:15.3	31.4	287.3	1.0	11	4.7		
NRDL	e P	Z 14:28:19.3	31.7	289.5	1.3	38	5.2		
CLZ	e P	Z 14:28:25.4	32.1	290.6	1.6	49	5.2		
BFO	e P	Z 14:28:26.5	32.3	295.0	1.6	34	5.0		
MOX	e P	Z 14:28:35.1	33.3	292.8	1.5	18	4.8		
GRA1	e P	Z 14:28:35.8	33.4	294.0	1.0	17	4.9		
	e S	N 14:33:53.0							
	e L	Z 14:39:16.3			18.2	2285		4.9	
CLL	e P	Z 14:28:38.6	33.8	292.5	1.4	26	5.0		
BRG	e P	Z 14:28:46.4	34.5	293.5	0.9	8	4.6		
GEC2	e P	Z 14:28:52.5	35.3	296.0	1.8	32	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:04:55.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30								
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb MS ML
	GRA1	e PKP	Z 22:50:03.6					
Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2004/06/30	23:37:25.8	0.800N	124.700E	90.0N		5.6		NEIC-M
Minahassa Peninsula, Sulawesi, Indonesia								
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb MS ML
	GRA1	e Pdiff	Z 23:51:20.4	104.3	71.2			
		e SS	N 00:10:32.3					
		e L	Z 00:46:59.4			20.4	1693	5.6

## 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