

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)

DECEMBER 2003 UPDATED 28.OCTOBER.2004

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		
2003/12/01	01:38:37.8	43.170N	80.480E	33.0N	6.3	6.0		SZGRF		
2003/12/01	01:38:32.0	42.875N	80.545E	10G	5.9	5.9		NEIC		
Kazakhstan-Xinjiang border region										
Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	01:46:43.9	44.3	74.6	0.9	294	6.0		
BRG	e P	Z	01:46:47.0	44.6	73.2	0.9	182	5.8		
CLL	e P	Z	01:46:50.2	45.1	73.0	0.8	496	6.5		
GEC2	e P	Z	01:46:53.5	45.4	71.1					
	e S	T	01:53:30.4							
WERD	e P	Z	01:46:56.0	45.8	71.8	0.9	259	6.1		
GUNZ	e P	Z	01:46:56.2	45.8	71.7	0.9	389	6.3		
WET	e P	Z	01:46:56.7	45.8	70.9	1.0	240	6.1		
MOX	e P	Z	01:46:58.8	46.1	71.6	1.0	298	6.3		
NRDL	e P	Z	01:47:01.7	46.4	72.4	1.0	496	6.5		
CLZ	e P	Z	01:47:01.7	46.5	71.9	1.1	189	6.0		
GRA1	e P	Z	01:47:03.8	46.7	70.5	0.9	853	6.8		
	e PcP	Z	01:48:37.2							
	e ScP	Z	01:52:30.2							
	e L	Z	02:07:40.9			21.9	17365		6.0	
GRFO	e P	Z	01:47:03.8	46.7	70.5					
UBBA	e P	Z	01:47:05.8	47.0	70.8	1.0	135	5.9		
FUR	e P	Z	01:47:07.6	47.2	69.2	0.9	741	6.8		
IBBN	e P	Z	01:47:12.2	47.9	70.8	0.8	351	6.5		
TNS	e P	Z	01:47:14.7	48.2	69.4	0.9	134	6.1		
STU	e P	Z	01:47:15.2	48.2	68.6	0.9	365	6.5		
	e PP	Z	01:49:05.7							
	e S	T	01:54:16.1							
BUG	e P	Z	01:47:16.8	48.4	69.7	1.1	244	6.3		
BFO	e P	Z	01:47:20.4	48.9	67.8	1.2	303	6.3		

	e SS	R	01:57:56.0							
WLF	e P	Z	01:47:27.2	49.7	67.7	1.0	330	6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	02:07:00.8	44.550N	79.600E	19.3	5.0			SZGRF
2003/12/01	02:06:46.5	43.040N	80.679E	10G	4.9			NEIC

Eastern Kazakhstan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 02:15:02.2	44.6	72.9	0.8	9	4.6		
CLL	e P	Z 02:15:05.5	45.1	72.7	0.7	22	5.0		
GEC2	e P	Z 02:15:08.6	45.4	70.8	0.8	7	4.5		
WERD	e P	Z 02:15:11.1	45.8	71.5	0.8	10	4.6		
GUNZ	e P	Z 02:15:11.4	45.8	71.5	0.9	18	4.8		
WET	e P	Z 02:15:11.9	45.8	70.7	0.9	11	4.8		
MOX	e P	Z 02:15:13.9	46.1	71.3	1.0	15	4.9		
GRA1	e P	Z 02:15:18.8	46.7	70.2	0.8	36	5.4		
	e pP	Z 02:15:23.9							
FUR	e P	Z 02:15:22.9	47.2	68.9	0.8	33	5.4		
TNS	e P	Z 02:15:30.1	48.1	69.1	0.6	6	4.9		
STU	e P	Z 02:15:30.5	48.2	68.3	0.6	13	5.3		
WLF	e P	Z 02:15:42.5	49.7	67.4	1.1	22	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	07:11:25.1	44.528N	154.361E	33.0N	4.6			SZGRF

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:23:34.0	80.5	25.7	0.9	6	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	10:29:08.2	43.670N	79.730E	33.0N	5.3	4.1		SZGRF
2003/12/01	10:28:55.4	43.023N	80.559E	10G	5.2	4.1		NEIC

Lake Issyk-Kul, Kyrgyzstan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 10:37:10.8	44.6	73.0	0.8	18	4.9		
CLL	e P	Z 10:37:14.0	45.0	72.8	0.7	48	5.3		
GEC2	e P	Z 10:37:17.2	45.3	70.9	0.9	16	5.0		
WERD	e P	Z 10:37:19.9	45.7	71.6	0.9	27	5.2		
GUNZ	e P	Z 10:37:19.9	45.7	71.6	0.9	39	5.3		
WET	e P	Z 10:37:20.6	45.8	70.7	1.1	26	5.1		
BSEG	e P	Z 10:37:21.2	45.8	73.6	1.1	36	5.2		

./2003/bul0312.txt

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MOX	e P	Z	10:37:22.5	46.0	71.4	1.2	34	5.2			
NRDL	e P	Z	10:37:25.4	46.4	72.2	1.1	56	5.5			
CLZ	e P	Z	10:37:25.4	46.4	71.8	1.1	17	5.0			
GRA1	e P	Z	10:37:27.5	46.6	70.3	0.8	93	5.9			
	e L	Z	10:58:13.2			20.2	238			4.1	
UBBA	e P	Z	10:37:29.3	47.0	70.6	0.9	10	4.8			
FUR	e P	Z	10:37:31.3	47.1	69.0	0.8	60	5.7			
TNS	e P	Z	10:37:38.8	48.1	69.2	0.8	18	5.3			
STU	e P	Z	10:37:39.6	48.2	68.4	0.9	41	5.6			
BUG	e P	Z	10:37:40.7	48.4	69.6	1.2	30	5.3			
BFO	e P	Z	10:37:44.5	48.9	67.6	1.4	43	5.4			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	10:34:58.3	18.374S	178.067W	610*	4.9			NEIC
Fiji Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 10:53:37.5	147.8	16.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	14:29:50.5	42.312N	83.437E	33.0N	4.9			SZGRF
2003/12/01	14:30:02.9	43.253N	80.511E	10G	4.5			NEIC
Northern Xinjiang, China								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:38:32.3	46.4	70.1	0.8	11	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	16:32:11.4	24.188S	179.643E	600G	4.7			NEIC
South of the Fiji Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e (PKP)	Z 16:50:58.0	151.0	25.8					
BRG	e (PKP)	Z 16:50:58.6	151.1	27.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	17:19:44.1	17.827S	167.437E	33N	4.8			NEIC
Vanuatu Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WERD	e PKP	Z 17:39:15.5	141.8	40.4					

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MOX	e PKP	Z	17:39:14.4	141.9	39.2
WLF	e PKP	Z	17:39:18.7	144.8	32.0
BFO	e PKP	Z	17:39:19.4	145.1	36.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/01	20:55:40.3	55.893N	114.567E	33.0N	4.9			SZGRF
2003/12/01	20:55:43.3	56.131N	111.604E	10G	4.8			NEIC

East of Lake Baykal, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:05:21.6	55.4	41.8	0.9	12	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/02	03:58:0.4	35.017N	73.284E	33.0N	5.0			SZGRF
2003/12/02	03:58:19.5	36.511N	71.684E	100G	4.5			NEIC

Northwestern Kashmir

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:06:26.4	44.8	83.3	1.0	13	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/02	13:56:58.8	22.008S	179.614W	607*	4.7			NEIC

South of the Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 14:15:36.5	149.1	23.3					
	i PKPbc	+ Z 14:15:41.0			1.0	66			
	i PKPab	Z 14:15:47.3			0.8	16			
	e pPKPbc	Z 14:18:00.0							
GRA1	e PKPbc	Z 14:15:45.4	151.0	21.1					
	e PKPab	Z 14:15:56.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/02	21:46:16.4	36.320N	71.340E	262.2	5.3			SZGRF
2003/12/02	21:46:17.5	36.508N	71.263E	266D	4.7			NEIC

Afghanistan-Tajikistan border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 21:53:50.8	42.7	86.7	0.9	43	5.2		
RUE	e P	Z 21:53:50.5	42.7	88.3	1.1	62	5.3		
GEC2	e P	Z 21:53:53.1	43.0	84.4	1.4	22	4.7		

CLL	e P	Z	21:53:54.9	43.2	86.5	0.8	24	5.2
WET	e P	Z	21:53:57.3	43.5	84.1	0.5	8	4.9
GUNZ	e P	Z	21:53:59.4	43.7	85.0	0.9	23	5.1
WERD	e P	Z	21:53:59.3	43.7	85.1	0.8	21	5.1
MOX	e P	Z	21:54:02.7	44.1	84.8	1.5	55	5.4
GRA1	e P	Z	21:54:06.2	44.5	83.5	0.9	32	5.4
	e pP	Z	21:55:00.6					
	e sP	Z	21:55:31.8					
FUR	e P	Z	21:54:06.6	44.6	82.0	1.5	95	5.6
BSEG	e P	Z	21:54:07.3	44.7	87.2	0.8	49	5.6
CLZ	e P	Z	21:54:07.9	44.8	85.1	1.4	76	5.5
NRDL	e P	Z	21:54:09.0	44.9	85.6	0.8	28	5.3
UBBA	e P	Z	21:54:10.1	45.1	83.8	0.8	16	5.2
STU	e P	Z	21:54:16.4	45.9	81.3	0.8	33	5.5
TNS	e P	Z	21:54:18.8	46.2	82.2	0.9	19	5.2
IBBN	e P	Z	21:54:20.0	46.4	83.7	0.8	62	5.8
BFO	e P	Z	21:54:20.8	46.6	80.3	0.8	11	5.0
BUG	e P	Z	21:54:23.0	46.8	82.5	1.1	43	5.5
WLF	e P	Z	21:54:31.0	47.7	80.1	1.0	57	5.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/03	02:25:31.2	17.498N	96.370W	33.0N	5.1			SZGRF
2003/12/03	02:25:15.4	15.076N	93.986W	33N	4.2			NEIC

Oaxaca, Mexico

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:38:16.1	88.0	291.2	1.5	14	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/03	07:33:58.0	20.600S	177.207W	609.3				SZGRF
2003/12/03	07:33:57.4	20.772S	178.748W	611D	5.1			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 07:52:31.3	146.1	15.3					
HLG	e PKP	Z 07:52:32.4	146.2	11.2					
RUE	e PKPbc	Z 07:52:33.4	146.8	21.8					
NRDL	e PKPpdf	Z 07:52:31.6	147.5	15.6					
	e PKPbc	Z 07:52:35.1							
	e PKPab	Z 07:52:39.2							
IBBN	e PKPpdf	Z 07:52:32.5	148.1	11.6					
	e PKPbc	Z 07:52:36.4							
	e PKPab	Z 07:52:41.2							
CLL	e PKPpdf	Z 07:52:32.3	148.1	21.1					
	e PKPbc	Z 07:52:36.6							

	e	PKPab	Z	07:52:41.6					
	e	pPKPbc	Z	07:54:55.6					
CLZ	e	PKPdf	Z	07:52:32.5	148.1	16.3			
	e	PKPbc	Z	07:52:36.9					
BRG	e	PKPdf	Z	07:52:32.7	148.3	23.0			
	e	PKPbc	Z	07:52:37.0					
	e	PKPab	Z	07:52:42.7					
BUG	e	PKPdf	Z	07:52:33.7	149.0	11.0			
	e	PKPbc	Z	07:52:38.3					
MOX	e	PKPdf	Z	07:52:33.4	149.0	19.1			
	e	PKPbc	Z	07:52:39.0					
	e	PKPab	Z	07:52:45.5					
WERD	e	PKPdf	Z	07:52:33.7	149.1	20.4			
	e	PKPbc	Z	07:52:39.2					
	e	PKPab	Z	07:52:45.8					
GUNZ	e	PKPbc	Z	07:52:39.4	149.1	20.5			
	e	PKPab	Z	07:52:46.4					
UBBA	e	PKPdf	Z	07:52:33.5	149.2	16.1			
	e	PKPbc	Z	07:52:39.0					
GRA1	e	PKPbc	Z	07:52:41.8	150.0	18.9			
	e	PKPab	Z	07:52:50.0					
WET	e	PKPdf	Z	07:52:35.5	150.2	22.2			
	e	PKPbc	Z	07:52:41.7					
	e	PKPab	Z	07:52:50.8					
GEC2	e	PKPdf	Z	07:52:35.7	150.2	23.9			
	e	PKPbc	Z	07:52:41.7					
	e	PKPab	Z	07:52:50.9					
WLF	e	PKPbc	Z	07:52:43.6	150.8	9.4			
	e	PKPab	Z	07:52:53.2					
STU	e	PKPdf	Z	07:52:37.1	151.3	15.6			
	e	PKPbc	Z	07:52:44.4					
	e	PKPab	Z	07:52:55.0					
FUR	e	PKPab	Z	07:52:56.1	151.4	19.9			
BFO	e	PKPbc	Z	07:52:45.2	151.9	14.1			
	e	PKPab	Z	07:52:57.2					

Date 2003/12/03 Origin Time 12:04:04.2 Lat 6.899S Long 106.310E Depth 33N mb 5.3 Ms 4.8 ML Source NEIC
Jawa, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PP	Z 12:21:40.2	98.5	90.6					

Date 2003/12/03 Origin Time 14:11:24.0 Lat 43.470N Long 143.110E Depth 33.0N mb 5.5 Ms 6.1 ML Source SZGRF

2003/12/03 14:11:14.1
Hokkaido, Japan, region

42.418N 144.682E 33N

NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	14:23:01.1	76.0	32.9	1.0	60	5.6		
RUE	e P	Z	14:23:01.4	76.1	35.1	1.1	70	5.6		
NRDL	e P	Z	14:23:09.1	77.3	32.6	1.2	29	5.3		
CLL	i P	+ Z	14:23:07.9	77.3	34.4	1.0	64	5.7		
	e pP	Z	14:23:21.7							
	e PP	Z	14:26:06.4							
	e PPP	Z	14:27:59.1							
	e PPPP	Z	14:29:20.9							
	e S	T	14:32:54.0							
	e sS	E	14:33:18.1							
	e SS	T	14:37:54.4							
	e SSS	T	14:41:35.3							
	e LQ	T	14:46:50.9							
	e LR	Z	14:49:19.0							
	e L	Z	15:01:06.5			18.0	10828		6.2	
BRG	e P	Z	14:23:08.0	77.3	35.0	1.1	27	5.3		
CLZ	e P	Z	14:23:11.1	77.8	32.7	1.0	54	5.6		
IBBN	e P	Z	14:23:14.2	78.2	31.0	1.0	58	5.7		
WERD	e P	Z	14:23:13.2	78.3	33.8	1.3	27	5.2		
GUNZ	e P	Z	14:23:13.7	78.3	33.9	1.1	29	5.3		
MOX	e P	Z	14:23:13.8	78.4	33.4	1.2	36	5.4		
UBBA	e P	Z	14:23:15.9	78.8	32.4	2.1	97	5.6		
GEC2	e P	Z	14:23:19.0	79.1	34.6	0.9	19	5.3		
BUG	e P	Z	14:23:18.0	79.1	30.6	1.0	46	5.6		
WET	e P	Z	14:23:18.9	79.1	34.1					
GRA1	e P	Z	14:23:20.0	79.3	33.0	1.1	80	5.7		
	e PP	Z	14:26:23.5							
	e S	N	14:33:28.4							
	e L	Z	15:01:48.7			19.0	8714		6.1	
FUR	e P	Z	14:23:26.3	80.6	32.9	1.0	93	5.8		
STU	e P	Z	14:23:26.8	80.8	31.6	0.7	35	5.4		
WLF	e P	Z	14:23:29.8	81.0	29.7	1.1	38	5.2		
BFO	e P	Z	14:23:31.4	81.4	31.0	0.8	28	5.2		

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/03 17:42:31.7 1.880N 88.351E 33.0N 4.6
 North Indian Ocean SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	17:54:39.6	80.3	98.7	1.3	10	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/04								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 03:27:11.8							
	e Sg	N 03:28:15.7							
WET	e Pn	Z 03:27:15.6							
	e Sg	E 03:28:21.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/04	03:56:13.1	17.827S	173.903W	144.7				SZGRF
2003/12/04	03:56:21.4	18.751S	174.701W	139D	4.9			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 04:15:41.6	144.6	8.2					
RUE	e PKPbc	Z 04:15:45.1	145.6	14.3					
NRDL	e PKPbc	Z 04:15:46.6	146.0	8.2					
IBBN	e PKPbc	Z 04:15:47.6	146.4	4.2					
	e pPKPbc	Z 04:16:26.0							
CLZ	e PKPbc	Z 04:15:48.6	146.7	8.8					
CLL	e PKPbc	Z 04:15:48.9	146.9	13.4					
	e pPKPbc	Z 04:16:26.4							
BRG	e PKPbc	Z 04:15:49.8	147.2	15.2					
BUG	e PKPbc	Z 04:15:49.6	147.3	3.5					
MOX	e PKPbc	Z 04:15:51.3	147.7	11.2					
WERD	e PKPbc	Z 04:15:51.7	147.8	12.5					
GUNZ	e PKPbc	Z 04:15:52.1	147.9	12.6					
GRA1	e PKPbc	Z 04:15:54.4	148.7	10.8					
WET	e PKPbc	Z 04:15:54.6	149.0	14.0					
WLF	e PKPbc	Z 04:15:55.7	149.1	1.6					
GEC2	e PKPbc	Z 04:15:55.2	149.2	15.7					
STU	e PKPbc	Z 04:15:56.5	149.8	7.3					
FUR	e PKPbc	Z 04:15:57.7	150.2	11.4					
BFO	e PKPbc	Z 04:15:57.9	150.3	5.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/04	17:43: 7.3	44.381N	10.483E	10.0G			3.4	SZGRF

Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
DAVA	e Pn	Z 17:43:54.7	2.9	171.6					3.6
	e Sn	N 17:44:29.3							
WTTA	e Pn	Z 17:43:55.1	3.0	196.0					
	e Sn	Z 17:44:32.5							

KBA	e Pn	Z	17:44:00.8	3.4	217.6	3.1
	e Sn	E	17:44:40.5			
MOA	e Pn	Z	17:44:13.6	4.3	218.5	3.3
	e Sn	N	17:45:03.4			
GEC2	e Pn	Z	17:44:20.9	5.0	207.5	3.5
	e Sn	N	17:45:15.9			
WET	e Pn	Z	17:44:21.3	5.0	199.9	
	e Sn	E	17:45:17.2			

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/05 00:27:23.0 26.127S 179.262E 511* 5.0
 South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z	00:46:21.8	152.8	27.8	0.8	16			
	i PKPab	Z	00:46:35.6			0.8	20			
	e pPKPbc	Z	00:48:20.6							
GRA1	e PKP	Z	00:46:44.8	154.7	25.8					

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/05 02:02:49.1 28.518N 126.322E 33.0N 5.5 5.0
 2003/12/05 02:02:30.9 27.394N 130.473E 33N 5.3 5.1
 Northwest of Ryukyu Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	02:14:59.2	83.7	50.6	0.8	27	5.3		
BRG	e P	Z	02:14:59.4	83.9	53.0	1.2	22	5.1		
CLL	e P	Z	02:15:00.3	84.1	52.4	0.7	20	5.3		
NRDL	e P	Z	02:15:04.4	84.7	50.3	1.7	51	5.4		
GUNZ	e P	Z	02:15:05.4	85.0	51.8	0.8	21	5.3		
CLZ	e P	Z	02:15:05.7	85.0	50.4	1.1	62	5.7		
MOX	e P	Z	02:15:06.9	85.2	51.3	1.1	18	5.1		
GEC2	e P	Z	02:15:06.3	85.2	52.7	0.9	15	5.1		
WET	e P	Z	02:15:08.6	85.5	52.1	1.4	28	5.3		
UBBA	e P	Z	02:15:11.2	85.9	50.1	2.0	94	5.7		
IBBN	e P	Z	02:15:11.7	85.9	48.5	0.8	52	5.8		
GRA1	e P	Z	02:15:11.1	86.0	50.9	1.3	69	5.7		
	e L	Z	02:57:14.2			18.9	616		5.0	
BUG	e P	Z	02:15:15.8	86.7	48.1	1.9	118	5.8		
FUR	e P	Z	02:15:15.7	86.9	50.9	0.2	56	6.4		
WLF	e P	Z	02:15:24.7	88.5	47.2	0.9	24	5.3		

Date Origin Time Lat Long Depth mb Ms ML Source

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2003/12/05 03:31:48.7 41.375N 19.858E 10G NEIC
Albania

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 03:33:57.1	8.6	147.6					
WET	e Pn	Z 03:34:00.8	9.2	145.2					
BFO	e Pn	Z 03:34:22.8	10.7	126.2					
MOX	e Pn	Z 03:34:27.4	10.9	145.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/05	15:51:45.0	28.418N	130.975E	33.0N	5.2			SZGRF
2003/12/05	15:51:29.9	27.284N	130.246E	33N	4.4			NEIC

Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:04:19.3	86.0	51.2	1.7	37	5.2		
	e	16:04:25.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/05	16:45:11.8	22.863S	175.348W	100G	5.0			NEIC

Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:05:10.2	152.7	13.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/05	21:26:17.5	56.180N	165.660E	33.0N	6.2	6.8		SZGRF
2003/12/05	21:26:09.3	55.500N	165.763E	10G	6.2	6.5		NEIC

Komandorsky Islands, Russia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 21:37:16.8	68.7	14.6	1.6	396	6.4		
RUE	e P	Z 21:37:21.7	69.6	16.5	1.6	485	6.5		
NRDL	e P	Z 21:37:25.3	70.1	14.4	1.7	243	6.1		
IBBN	e P	Z 21:37:28.6	70.7	13.0	1.7	670	6.5		
CLZ	e P	Z 21:37:29.3	70.7	14.5	1.6	532	6.4		
CLL	e P	Z 21:37:28.5	70.8	15.9	1.7	540	6.4		
	e PP	Z 21:40:05.1							
	e PPP	Z 21:42:00.5							
	e S	E 21:46:47.1							
	e SS	E 21:51:21.7							
	e SSS	Z 21:54:44.9							
	e LR	Z 22:00:11.1							

	e L	Z	22:10:29.1				22.0	60823		6.8
BRG	e P	Z	21:37:30.7	71.1	16.4	1.5		231	6.1	
BUG	e P	Z	21:37:33.8	71.6	12.6	1.7		410	6.3	
MOX	e P	Z	21:37:34.8	71.7	15.1	1.7		364	6.2	
WERD	e P	Z	21:37:35.4	71.8	15.5	1.5		324	6.2	
UBBA	e P	Z	21:37:35.2	71.8	14.2	1.7		354	6.2	
GUNZ	e P	Z	21:37:36.0	71.9	15.5	1.6		435	6.3	
GRA1	e P	Z	21:37:41.2	72.7	14.8	1.6		709	6.5	
	e PP	Z	21:40:24.8							
	e S	E	21:47:07.0							
	e SS	E	21:51:45.4							
	e L	Z	22:12:00.1				21.4	56635		6.8
WET	e P	Z	21:37:42.6	72.9	15.7	1.6		423	6.3	
GEC2	e P	Z	21:37:43.1	73.1	16.1	1.5		259	6.1	
WLF	e P	Z	21:37:45.6	73.5	11.9	1.7		278	6.1	
STU	e P	Z	21:37:47.6	73.9	13.6	1.5		197	5.9	
FUR	e P	Z	21:37:49.5	74.2	14.7	1.7		540	6.3	
BFO	e P	Z	21:37:50.9	74.5	13.0	1.7		263	6.0	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06	00:18:23.9	39.597N	20.484E	10.0G				SZGRF
2003/12/06	00:18:52.7	41.753N	18.955E	10G	4.6			NEIC

Greece-Albania border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 00:20:51.4	8.0	150.6					
WET	e Pn	Z 00:20:58.6	8.5	147.8					
	e Sn	Z 00:22:56.7							
GRA1	e Pn	Z 00:21:13.0	9.6	142.9					
BRG	e Pn	Z 00:21:15.6	9.7	157.4					
GUNZ	e Pn	Z 00:21:16.3	9.8	149.5					
WERD	e Pn	Z 00:21:17.7	9.8	149.6					
BFO	e Pn	Z 00:21:18.1	10.0	127.4					
MOX	e Pn	Z 00:21:22.2	10.2	147.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06	03:33:11.1	16.517N	69.243W	33.0N	4.6			SZGRF
2003/12/06	03:33:27.7	19.381N	67.460W	25G	5.2	4.4		NEIC

Caribbean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:44:28.2	68.1	274.5	1.2	7	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06	04:35:52.4	55.305N	166.415E	26.1	5.0			SZGRF
2003/12/06	04:35:48.4	55.628N	165.530E	10G	4.8	4.5		NEIC

Komandorsky Islands, Russia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:47:19.1	72.5	14.9	0.8	11	5.0		
	e pP	Z 04:47:26.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06	05:08:12.6	54.683N	166.613E	33.0N				SZGRF
2003/12/06	05:08:12.0	55.583N	165.452E	10G	4.7	4.6		NEIC

Komandorsky Islands, Russia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:19:43.0	72.6	14.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06	10:05:23.2	38.624N	78.900E	33.0N	5.1			SZGRF
2003/12/06	10:06:03.6	41.036N	72.283E	33N	4.6			NEIC

Southern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:14:00.0	42.5	77.5	0.9	13	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 17:34:34.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/06	23:13:14.1	54.809N	164.241W	33.0N	5.4			SZGRF
2003/12/06	23:13:23.7	55.581N	165.580E	10G	4.8			NEIC

Unimak Island, Alaska, United States, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:24:55.1	72.6	14.9	2.4	76	5.4		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	00:11:33.4	0.816S	37.786E	33.0N	4.8			SZGRF
2003/12/07	00:11:02.1	5.400S	35.365E	10G	4.9			NEIC

Kenya

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:21:04.8	58.9	151.6	0.9	9	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	00:49:55.6	20.075S	173.877W	33N	4.7			NEIC

Tonga

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 01:09:34.8	146.0	7.1					
NRDL	e PKPbc	Z 01:09:38.9	147.4	7.0					
CLZ	e PKPbc	Z 01:09:40.9	148.1	7.6					
CLL	i PKPbc	Z 01:09:40.9	148.3	12.4	1.0	19			
	e PKPab	Z 01:09:43.8			1.0	10			
BRG	e PKPbc	Z 01:09:41.9	148.6	14.2					
BUG	e PKPbc	Z 01:09:40.7	148.6	2.1					
MOX	e PKPbc	Z 01:09:43.4	149.1	10.1					
GRA1	e PKPbc	Z 01:09:46.2	150.1	9.6					
GEC2	e PKPbc	Z 01:09:46.9	150.6	14.6					
FUR	e PKPbc	Z 01:09:49.3	151.6	10.2					
BFO	e PKPbc	Z 01:09:49.2	151.7	4.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:16:43.4							
	e	01:16:53.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	05:21:38.5	55.449N	165.593E	10G	4.5			NEIC

Komandorskiye Ostrova, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:33:10.8	72.7	14.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/07

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 07:29:49.1	150.4	20.4					
	e PKPab	Z 07:29:55.2			1.1	14			
	e pPKPbc	Z 07:31:46.9							
GRA1	e PKPbc	Z 07:29:53.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:19:19.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	09:16:32.6	75.690N	131.831E	26.4	4.8			SZGRF
2003/12/07	09:16:12.7	74.128N	134.804E	10G	5.0	4.5		NEIC

Laptev Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:25:15.6	50.5	17.2	1.2	12	4.8		
	e pP	Z 09:25:22.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	10:20:34.3	44.336N	12.341E	10.0G			4.7	SZGRF
2003/12/07	10:20:32.1	44.244N	12.183E	10G	4.2			NEIC

Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e Pn	Z 10:21:34.7	4.0	170.6					4.9
GEC2	e Pn	Z 10:21:43.8	4.7	193.3					
BFO	e Pn	Z 10:21:46.8	4.9	145.5					4.4
	e Sn	N 10:22:41.4							
WET	e Pn	Z 10:21:46.4	4.9	185.8					4.7
	e Sn	N 10:22:41.4							
STU	e Pn	Z 10:21:48.4	5.0	154.5					
	e Sn	Z 10:22:44.0							
GRA1	e Pn	Z 10:21:54.3	5.5	172.8					
	e Sn	N 10:22:55.9							
TANN	e Pn	Z 10:22:03.8	6.2	181.9					
	e Sn	E 10:23:11.6							
MOX	e Pn	Z 10:22:06.2	6.4	176.4					
	e Sn	E 10:23:15.3							

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BRG	e Pn	Z	10:22:10.6	6.7	190.8
	e Sn	N	10:23:23.8		
WLF	e Pn	Z	10:22:14.5	6.8	140.5
	e Sn	E	10:23:27.8		
CLL	e Pn	Z	10:22:15.8	7.1	184.8
CLZ	e Pn	Z	10:22:24.0	7.7	170.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	13:41:45.2	39.737N	24.309E	10G	4.4			NEIC
Aegean Sea								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pn	Z 13:45:11.3	13.6	132.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	15:08:3.4	27.919N	127.788E	33.0N	5.2			SZGRF
Ryukyu Islands, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:20:31.8	84.2	52.6	1.4	20	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	17:46:00.3	16.869S	172.336W	33N	4.7			NEIC
Samoa Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:05:43.0	147.1	6.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	18:48:36.8	17.570S	172.470W	33N	4.7			NEIC
Tonga region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 19:08:15.2	146.1	9.4	1.2	29			
GRA1	e PKP	Z 19:08:21.0	147.7	6.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/07	20:21:10.9	20.272N	94.129E	33.0N	5.5			SZGRF
2003/12/07	20:20:58.2	19.855N	95.951E	33N	5.1	4.2		NEIC

Myanmar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:32:20.7	71.6	80.7	1.4	58	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/08	07:20:22.4	42.734N	141.458E	33.0N	5.5			SZGRF
2003/12/08	07:20:15.0	41.250N	141.913E	69D	5.1			NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	i P	Z 07:32:17.1	79.3	35.5	1.1	47	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/08	14:12:27.7	27.375N	131.639E	33.0N	5.0			SZGRF
2003/12/08	14:12:23.7	27.309N	130.117E	33N	5.1			NEIC

Southeast of Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:25:08.0	85.9	51.3	1.3	17	5.0		
	e	14:25:18.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/1/08	16:50:22.2	17.301S	171.756W	33N	5.1	4.5		NEIC

Tonga region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKP	Z 17:09:55.8	144.8	3.1					
CLZ	e PKP	Z 17:09:57.3	145.4	3.6					
CLL	i PKPbc	Z 17:09:58.6	145.8	8.1	1.0	41			
	e	17:10:01.1							
BUG	e PKP	Z 17:09:58.3	145.9	358.3					
BRG	e PKP	Z 17:09:59.3	146.1	9.8					
UBBA	e PKP	Z 17:10:00.4	146.5	3.0					
MOX	e PKP	Z 17:10:01.0	146.5	5.8					
WERD	e PKP	Z 17:10:01.4	146.7	7.1					
GUNZ	e PKP	Z 17:10:01.9	146.8	7.1					
GRA1	e PKP	Z 17:10:04.5	147.5	5.3					
WLF	e PKP	Z 17:10:04.5	147.6	356.3					
WET	e PKP	Z 17:10:05.2	147.9	8.4					
GEC2	e PKP	Z 17:10:05.6	148.1	9.9					
STU	e PKP	Z 17:10:06.8	148.5	1.7					
BFO	e PKP	Z 17:10:07.5	149.0	0.2					

FUR e PKP Z 17:10:07.7 149.0 5.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/08	19:32:20.8	29.135N	43.484W	18.1	5.0			SZGRF
2003/12/08	19:32:00.0	26.969N	44.456W	10G	4.7	4.0		NEIC

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:40:41.2	47.9	263.0	1.1	16	5.0		
	e pP	Z 19:40:46.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/08	20:12:47.7	52.719N	177.308E	33.0N	5.2	5.2		SZGRF
2003/12/08	20:12:34.6	51.154N	178.225E	33N	5.3	5.2		NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 20:24:13.4	74.4	7.8	1.1	38	5.4		
RUE	e P	Z 20:24:20.1	75.5	10.0					
NRDL	e P	Z 20:24:22.1	75.9	7.7					
IBBN	e P	Z 20:24:23.9	76.2	6.1					
CLZ	e P	Z 20:24:25.4	76.5	7.8					
CLL	e P	Z 20:24:26.4	76.8	9.5	0.9	8	4.8		
	e PPP	Z 20:29:13.4							
	e S	Z 20:34:12.8							
	e SS	Z 20:39:09.9							
	e LR	Z 20:50:20.2							
	e L	Z 21:01:50.0			20.0	1193		5.2	
BRG	e P	Z 20:24:28.1	77.1	10.0					
BUG	e P	Z 20:24:28.7	77.1	5.8					
UBBA	e P	Z 20:24:30.8	77.5	7.5					
MOX	e P	Z 20:24:31.0	77.6	8.6					
GRA1	e P	Z 20:24:37.1	78.5	8.3	1.1	34	5.4		
	e S	N 20:35:10.0							
	e L	Z 21:05:44.4			19.2	1110		5.2	
WET	e P	Z 20:24:39.3	78.9	9.3					
WLF	e P	Z 20:24:39.8	79.0	5.1					
GEC2	e P	Z 20:24:40.0	79.1	9.8					
FUR	e P	Z 20:24:44.6	80.1	8.3					
BFO	e P	Z 20:24:45.4	80.1	6.4	0.8	10	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/08	20:27:14.7	56.205N	165.154E	33.0N	5.4			SZGRF

2003/12/08 20:27:05.6 55.715N 165.219E 10G 5.1 5.0 NEIC
 Komandorsky Islands, Russia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:38:35.1	72.4	15.0	1.8	54	5.4		

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/09 12:44:01.7 51.482N 179.282W 33N 5.9 5.8 NEIC
 Andreanof Islands, Aleutian Is.

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 12:55:40.1	74.3	6.2	1.3	291	6.2		
RUE	e P	Z 12:55:46.3	75.5	8.4	1.3	236	6.1		
NRDL	e P	Z 12:55:47.9	75.7	6.0	1.2	172	5.9		
IBBN	e P	Z 12:55:50.2	76.0	4.5	1.2	497	6.5		
CLZ	e P	Z 12:55:52.0	76.4	6.2	1.3	299	6.3		
CLL	i P	+ Z 12:55:52.9	76.7	7.8	1.2	113	5.9		
	e PP	Z 12:58:48.3							
	e PPP	Z 13:00:39.8							
	e S	E 13:05:34.6							
	e SP	R 13:06:17.6							
	e PPS	N 13:06:43.4							
	e SS	R 13:10:43.7							
	e SSS	Z 13:14:03.5							
	e SSSS	E 13:16:24.1							
	e LR	Z 13:21:23.3							
	e L	Z 13:31:45.9			22.0	5758		5.9	
BUG	e P	Z 12:55:54.6	76.9	4.2	1.2	168	6.0		
BRG	e P	Z 12:55:54.9	77.0	8.4	1.2	118	5.9		
UBBA	e P	Z 12:55:57.3	77.4	5.9	1.6	187	6.0		
MOX	e P	Z 12:55:57.6	77.5	6.9	1.2	124	5.9		
WERD	e P	Z 12:55:58.5	77.6	7.4	1.3	109	5.8		
GUNZ	e P	Z 12:55:59.1	77.7	7.4	1.3	121	5.9		
GRA1	e P	Z 12:56:03.5	78.4	6.7	1.2	298	6.3		
	e L	Z 13:33:28.8			21.9	4560		5.8	
WLF	e P	Z 12:56:05.2	78.7	3.4	1.2	130	5.9		
WET	e P	Z 12:56:05.5	78.8	7.7	1.3	84	5.7		
GEC2	e P	Z 12:56:06.5	79.1	8.2	1.2	87	5.6		
STU	e P	Z 12:56:08.7	79.5	5.4	1.1	115	5.8		
FUR	e P	Z 12:56:11.3	79.9	6.7	1.2	192	5.9		
BFO	e P	Z 12:56:11.3	80.0	4.8	1.2	105	5.6		

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/10 04:38:11.5 22.470N 122.120E 33.0N 6.2 7.1 SZGRF
 2003/12/10 04:38:11.6 23.055N 121.330E 10G 6.0 6.7 NEIC

Taiwan region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	04:50:33.9	81.9	62.4	1.0	240	6.4		
BRG	e P	Z	04:50:36.8	82.5	62.3	1.3	162	6.1		
CLL	e P	Z	04:50:37.8	82.8	61.7	1.1	228	6.3		
	e PP	Z	04:53:48.0							
	e S	N	05:00:58.6							
	e PS	Z	05:01:53.0							
	e SS	N	05:06:24.8							
	e SSS	T	05:09:56.9							
	e LQ	T	05:15:38.6							
	e LR	Z	05:18:41.4							
	e L	Z	05:32:43.0			20.0	124726		7.3	
BSEG	e P	Z	04:50:39.1	83.0	59.9	1.2	151	6.1		
GEC2	e P	Z	04:50:42.4	83.6	61.9	1.1	164	6.2		
	e S	R	05:01:08.6							
WERD	e P	Z	04:50:42.5	83.6	61.1	1.2	147	6.1		
GUNZ	e P	Z	04:50:42.7	83.7	61.1	1.1	211	6.3		
NRDL	e P	Z	04:50:43.8	83.8	59.6	1.3	249	6.3		
MOX	e P	Z	04:50:43.9	83.9	60.6	1.2	165	6.1		
	e S	R	05:01:11.0							
WET	e P	Z	04:50:44.3	83.9	61.4	1.4	128	6.0		
CLZ	e P	Z	04:50:44.7	84.0	59.8	1.1	292	6.4		
GRA1	e P	Z	04:50:47.9	84.6	60.2	1.5	368	6.3		
	e S	R	05:01:16.5							
	e L	Z	05:32:15.8			21.1	84822		7.1	
IBBN	e P	Z	04:50:50.0	85.1	57.8	1.0	305	6.4		
FUR	e P	Z	04:50:51.5	85.3	60.1	1.1	272	6.3		
BUG	e P	Z	04:50:53.4	85.8	57.4	1.4	332	6.3		
TNS	e P	Z	04:50:53.9	85.9	58.2	1.2	99	5.8		
STU	e P	Z	04:50:55.5	86.2	58.7	0.9	56	5.9		
BFO	e P	Z	04:50:57.7	86.9	58.0	1.6	60	5.7		
WLF	e P	Z	04:51:01.5	87.4	56.5	1.2	218	6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
0003/12/10	09:42:25.7	50.012S	114.610W	10G	4.8	5.1		NEIC

Southern East Pacific Rise

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	10:02:06.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/10	14:57:44.8	21.386S	179.050W	500G	4.4			NEIC

Fiji region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z	15:16:33.9	148.7	22.0	1.1	24			
GRA1	e PKP	Z	15:16:38.8	150.5	19.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/10	15:51:38.6	17.880N	121.750E	18.7	5.3	5.2		SZGRF
2003/12/10	15:51:39.3	17.688N	120.819E	33N	5.7	4.8		NEIC

Luzon, Philippine Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	16:04:15.3	85.3	65.7					
RUE	e P	Z	16:04:18.3	85.9	66.0					
BRG	e P	Z	16:04:21.0	86.5	66.0	1.3	53	5.5		
CLL	e P	Z	16:04:22.9	86.9	65.3	1.5	163	5.9		
	e PP	Z	16:07:51.4							
	e S	Z	16:14:54.4							
	e PS	Z	16:16:05.5							
	e SS	Z	16:20:46.3							
	e SSS	Z	16:24:28.6							
	e LR	Z	16:33:57.3							
	e L	Z	16:49:01.7			18.0	624		5.1	
BSEG	e P	Z	16:04:24.3	87.2	63.3	1.3	38	5.4		
GEC2	e P	Z	16:04:25.9	87.5	65.7	1.3	27	5.2		
WERD	e P	Z	16:04:26.4	87.6	64.7					
GUNZ	e P	Z	16:04:26.7	87.6	64.7					
WET	e P	Z	16:04:27.8	87.8	65.1	1.4	16	5.0		
MOX	e P	Z	16:04:27.8	87.9	64.2	1.1	14	5.0		
NRDL	e P	Z	16:04:28.1	87.9	63.1	1.2	35	5.4		
CLZ	e P	Z	16:04:28.8	88.1	63.3	1.1	30	5.3		
GRA1	e P	Z	16:04:31.2	88.6	63.9	1.2	20	5.3		
	e pP	Z	16:04:36.6							
	e L	Z	16:47:18.2			19.7	972		5.2	
UBBA	e P	Z	16:04:31.7	88.8	63.0	1.5	18	5.2		
FUR	e P	Z	16:04:34.3	89.2	63.9	1.1	68	5.9		
IBBN	e P	Z	16:04:34.1	89.3	61.2					
TNS	e P	Z	16:04:37.4	89.9	61.8	1.4	23	5.2		
BUG	e P	Z	16:04:37.2	90.0	60.9					
STU	e P	Z	16:04:38.4	90.2	62.3	0.9	24	5.4		
BFO	e P	Z	16:04:41.5	90.9	61.7	1.4	34	5.4		
WLF	e P	Z	16:04:45.0	91.5	60.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/11	00:01:52.7	23.585N	122.273E	33.0N	5.3			SZGRF
2003/12/11	00:01:46.3	22.726N	121.452E	10G	5.1	5.0		NEIC

Taiwan region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:14:23.7	84.9	60.3	1.8	32	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/11	08:05:2.4	16.770S	170.200W	50.0N				SZGRF
2003/12/11	08:04:55.2	16.536S	170.199W	10G	5.6	4.8		NEIC

Samoa Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLZ	e PKPbc	Z 08:24:32.5	144.7	0.9					
BUG	e PKPbc	Z 08:24:33.1	145.0	355.8					
CLL	i PKPbc	Z 08:24:33.4	145.1	5.4	1.2	46			
BRG	e PKPbc	Z 08:24:34.9	145.5	7.0					
UBBA	e PKPbc	Z 08:24:35.2	145.7	0.3					
MOX	e PKPbc	Z 08:24:36.2	145.9	3.1					
WERD	e PKPbc	Z 08:24:36.9	146.0	4.3					
GUNZ	e PKPbc	Z 08:24:37.1	146.1	4.4					
TNS	e PKPbc	Z 08:24:37.3	146.3	357.7					
WLF	e PKPbc	Z 08:24:39.3	146.7	353.6					
GRA1	e PKPbc	Z 08:24:39.3	146.8	2.5					
WET	e PKPbc	Z 08:24:40.5	147.3	5.5					
GEC2	e PKPbc	Z 08:24:41.7	147.5	7.0					
BFO	e PKPbc	Z 08:24:43.3	148.2	357.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/11	16:28:15.1	31.317N	49.326E	33.0N	5.3			SZGRF
2003/12/11	16:28:17.7	32.022N	49.313E	33N	5.0			NEIC

Western Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WET	e P	Z 16:34:42.7	32.1	108.6	0.9	13	4.8		
FUR	e P	Z 16:34:49.6	32.8	105.4	0.9	116	5.8		
GRA1	e P	Z 16:34:54.1	33.3	107.6	1.0	53	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/11	18:00:43.9	44.458N	11.113E	10.0G				SZGRF

Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 18:01:49.4	4.3	152.6					
	e Sn	N 18:02:39.0							

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GEC2	e Pn	Z	18:01:55.3	4.7	203.0
	e Sn	N	18:02:48.6		
WET	e Pn	Z	18:01:56.0	4.8	195.1
TANN	e Sn	E	18:03:20.1	6.0	189.2
MOX	e Sn	N	18:03:22.0	6.2	183.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/12	01:46:13.5	42.620N	143.530E	33.0N	5.2			SZGRF
2003/12/12	01:46:13.3	42.571N	142.928E	33N	5.0	4.5		NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 01:57:56.8	75.3	36.2	1.2	51	5.5		
BSEG	e P	Z 01:57:57.1	75.3	34.1	1.1	28	5.3		
CLL	e P	Z 01:58:03.4	76.6	35.5	0.9	32	5.5		
BRG	e P	Z 01:58:03.7	76.6	36.1	1.2	23	5.2		
NRDL	e P	Z 01:58:03.9	76.6	33.7	1.2	22	5.2		
CLZ	e P	Z 01:58:06.9	77.0	33.8	1.0	34	5.4		
WERD	e P	Z 01:58:09.3	77.5	34.9	1.2	15	5.0		
IBBN	e P	Z 01:58:09.2	77.5	32.1	1.2	44	5.5		
GUNZ	e P	Z 01:58:09.6	77.6	34.9	1.1	16	5.1		
MOX	e P	Z 01:58:09.3	77.6	34.5	1.0	12	5.0		
GEC2	e P	Z 01:58:13.4	78.3	35.6	1.0	7	4.7		
WET	e P	Z 01:58:14.4	78.4	35.1	1.0	19	5.1		
BUG	e P	Z 01:58:14.3	78.4	31.7	0.8	17	5.1		
GRA1	e P	Z 01:58:15.3	78.5	34.1	1.1	48	5.5		
TNS	e P	Z 01:58:17.3	79.1	32.4	1.3	24	5.0		
FUR	e P	Z 01:58:22.0	79.8	34.0	1.0	41	5.3		
STU	e P	Z 01:58:22.9	80.0	32.7	0.8	22	5.2		
WLF	e P	Z 01:58:24.3	80.3	30.8	2.2	124	5.6		
BFO	e P	Z 01:58:26.4	80.7	32.1	1.5	26	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/12	06:01:09.5	17.257S	167.178E	33N	5.3			NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 06:20:43.8	142.2	39.4					
WLF	e PKPdf	Z 06:20:43.7	144.2	32.0					
	e PP	Z 06:23:49.2							
BFO	e PKPdf	Z 06:20:43.4	144.5	36.4					
	e PP	Z 06:23:49.2							

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/12	13:39:52.5	37.560N	94.940E	33.0N	5.1	4.7		SZGRF
2003/12/12	13:39:48.9	37.623N	94.617E	10G	5.1	4.7		NEIC

Qinghai, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	13:49:32.9	56.3	69.9	0.9	16	5.0		
CLL	e P	Z	13:49:35.9	56.7	69.6	1.1	29	5.2		
GEC2	e P	Z	13:49:39.5	57.2	68.5	1.1	16	4.9		
BSEG	e P	Z	13:49:41.3	57.3	69.4	1.0	21	5.1		
WERD	e P	Z	13:49:41.2	57.4	68.6	1.3	19	5.0		
GUNZ	e P	Z	13:49:41.6	57.5	68.6	1.4	35	5.2		
WET	e P	Z	13:49:42.7	57.6	68.2	1.3	23	5.1		
MOX	e P	Z	13:49:43.5	57.8	68.3	1.1	18	5.0		
NRDL	e P	Z	13:49:45.2	58.0	68.4	1.0	31	5.3		
CLZ	e P	Z	13:49:45.8	58.1	68.2	1.0	25	5.2		
GRA1	e P	Z	13:49:48.2	58.4	67.5	0.9	31	5.4		
	e L	Z	14:15:57.2			19.5	595		4.7	
FUR	e P	Z	13:49:52.4	58.9	66.7	0.8	45	5.5		
IBBN	e P	Z	13:49:53.8	59.4	66.8					
TNS	e P	Z	13:49:57.4	59.8	66.1	1.1	13	4.9		
STU	e P	Z	13:49:59.0	59.9	65.8					
BUG	e P	Z	13:49:59.4	60.0	66.0					
BFO	e P	Z	13:50:03.0	60.7	65.1	1.6	33	4.9		
WLF	e P	Z	13:50:08.9	61.4	64.4	1.3	38	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/12	18:14:56.2	37.280N	69.880E	33.0N	4.9			SZGRF
2003/12/12	18:14:58.4	36.903N	68.406E	33N	4.6			NEIC

Afghanistan-Tajikistan border region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	18:22:53.9	42.4	85.1	1.3	35	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/13	12:21:07.6	21.600S	179.370W	600D	4.8			NEIC

Fiji region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	12:42:19.0	150.7	20.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/14	03:09:19.0	50.820N	163.877W	33.0N	4.2			SZGRF

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2003/12/14 03:09:40.3 53.399N 169.208W 130? 4.1 NEIC
South of Alaska

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:21:22.2	76.9	0.3	0.8	2	4.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/14	06:44:53.5	37.606N	23.598E	10.0G				SZGRF

Southern Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 06:48:12.3	13.3	143.8					
FUR	e P	Z 06:48:17.6	13.9	135.1					
WET	e P	Z 06:48:18.1	13.9	142.1					
BRG	e P	Z 06:48:29.8	14.9	149.0					
GRA1	e P	Z 06:48:31.3	15.0	139.0					
STU	e P	Z 06:48:34.2	15.3	131.6	0.8	13			
TNS	e P	Z 06:48:48.9	16.6	133.6	0.6	27			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/15	06:26:58.7	49.697N	157.618E	33.0N	4.8			SZGRF

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:38:45.9	76.5	21.6	1.2	9	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/15								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:34:38.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/15	22:28:51.9	11.808S	65.339E	33.0N	4.6			SZGRF
2003/12/15	22:28:54.4	9.119S	67.220E	10G	4.8			NEIC

Mid-Indian Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:40:45.1	76.3	122.6	1.0	5	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/15	22:57:20.5	28.152N	55.675E	33.0N	5.0	4.2		SZGRF
2003/12/15	22:57:25.7	28.349N	54.056E	33N	4.9	4.2		NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:04:51.8	38.8	107.2	1.1	47	5.0		
	e L	Z 23:22:48.8			18.8	309		4.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/16	01:10:59.9	39.349N	16.138E	10.0G				SZGRF

Southern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e P	Z 01:13:17.4	9.5	156.6					
GEC2	e P	Z 01:13:19.8	9.7	168.7					
WET	e P	Z 01:13:24.3	10.1	165.4					
BFO	e P	Z 01:13:30.9	10.6	145.1					
GRA1	e P	Z 01:13:34.5	10.9	159.5					
GUNZ	e P	Z 01:13:40.7	11.3	164.9					
WERD	e P	Z 01:13:41.3	11.4	164.9					
BRG	e P	Z 01:13:44.6	11.6	171.5					
MOX	e P	Z 01:13:45.2	11.7	162.6					
CLL	e P	Z 01:13:52.1	12.2	168.4					
RGN	e P	Z 01:14:34.5	15.3	171.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/16	07:06:18.6	46.175N	17.185E	10.0G			4.0	SZGRF

Hungary

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pn	Z 07:06:45.1	1.6	132.7					3.4
MOA	e Pn	Z 07:07:00.5	2.6	129.0					3.6
KBA	e Pn	Z 07:07:04.3	2.8	107.5					3.8
	e Sg	N 07:07:47.3							
GEC2	e Pn	Z 07:07:14.5	3.6	137.3					3.8
WTTA	e Sn	N 07:08:04.7	4.0	103.9					
WET	e Pn	Z 07:07:22.2	4.1	134.1					4.1
DAVA	e Sn	N 07:08:33.6	5.1	99.8					4.3
TANN	e Pn	Z 07:07:37.0	5.3	141.7					4.2
GUNZ	e Pn	Z 07:07:37.2	5.3	140.5					4.2
GRA1	e Pn	Z 07:07:37.9	5.3	129.1					4.4
MOX	e Pn	Z 07:07:44.3	5.8	138.3					4.3
CLL	e Pn	Z 07:07:44.3	5.8	150.2					4.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/16	10:41:17.8	39.780N	27.175E	33.0N				SZGRF
2003/12/16	10:41:09.7	38.974N	26.827E	16	4.3	3.4		NEIC

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:44:52.9	15.4	128.1	0.9	12			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/16								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:46:38.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/16	20:08:21.3	18.700S	177.420W	384.9				SZGRF
2003/12/16	20:08:18.2	18.891S	177.344W	377D	5.3			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 20:27:10.5	144.5	12.5					
RUE	e PKPbc	Z 20:27:13.3	145.3	18.7					
NRDL	e PKPbc	Z 20:27:14.7	145.9	12.6					
	e pPKPbc	Z 20:28:46.3							
IBBN	e PKPbc	Z 20:27:16.2	146.3	8.7					
	e pPKPbc	Z 20:28:48.6							
CLL	e PKPbc	Z 20:27:16.8	146.6	18.0					
	e pPKPbc	Z 20:28:49.4							
BRG	e PKPbc	Z 20:27:17.4	146.8	19.8					
	e pPKPbc	Z 20:28:50.3							
BUG	e pPKPbc	Z 20:28:51.2	147.2	8.1					
MOX	e PKPbc	Z 20:27:19.3	147.5	15.9					
	e pPKPbc	Z 20:28:52.3							
WERD	e PKPbc	Z 20:27:19.7	147.5	17.2					
	e pPKPbc	Z 20:28:52.6							
UBBA	e PKPbc	Z 20:27:19.4	147.5	13.0					
	e pPKPbc	Z 20:28:52.3							
GUNZ	e PKPbc	Z 20:27:20.0	147.6	17.3					
	e pPKPbc	Z 20:28:52.8							
TNS	e PKPbc	Z 20:27:21.6	148.3	10.5					
	e pPKPbc	Z 20:28:54.8							
GRA1	e PKPbc	Z 20:27:22.3	148.4	15.6					

BRG	e P	Z	16:39:48.0	82.2	64.1	1.6	28	5.1	
CLL	e P	Z	16:39:49.5	82.6	63.4	0.9	14	5.2	
BSEG	e P	Z	16:39:51.5	82.8	61.7				
GEC2	e P	Z	16:39:53.7	83.2	63.7	0.1	6	5.8	
WERD	e P	Z	16:39:53.5	83.3	62.8	1.8	38	5.3	
GUNZ	e P	Z	16:39:54.8	83.4	62.8	1.0	21	5.3	
WET	e P	Z	16:39:55.1	83.6	63.1	1.9	37	5.3	
MOX	e P	Z	16:39:55.1	83.6	62.3	1.7	33	5.3	
GRA1	e P	Z	16:39:59.2	84.3	62.0	1.5	68	5.7	
	e L	Z	17:23:12.9			18.2	1009		5.2
UBBA	e P	Z	16:40:00.0	84.5	61.2	1.6	45	5.4	
IBBN	e P	Z	16:40:02.2	84.9	59.6				
TNS	e P	Z	16:40:06.1	85.6	60.0	1.5	29	5.2	
BUG	e P	Z	16:40:05.0	85.6	59.1	1.5	60	5.5	
WLF	e P	Z	16:40:12.7	87.2	58.2	1.2	45	5.5	

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/18 05:05: 7.3 N SZGRF
 Northern Mid-Atlantic Ridge

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e (P) Z 05:14:49.6

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/18 05:41:58.8 7.040S 150.480E 46.9 5.4 SZGRF
 2003/12/18 05:41:57.5 6.278S 151.341E 53D 5.6 NEIC
 New Britain, Papua New Guinea, region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 BRG e PKPdf Z 06:00:50.4 123.1 53.5
 CLL e PKPdf Z 06:00:50.2 123.3 52.3 0.7 18
 e pPKPdf Z 06:01:04.7
 e PP Z 06:02:36.5
 e PS Z 06:12:44.3
 e PPS Z 06:14:10.8
 e SS E 06:19:35.7
 e SSS E 06:23:55.5
 e LR Z 06:41:19.0
 e L Z 06:57:03.7 21.0 1461 5.7
 e L N 07:03:42.3
 NRDL e PKPdf Z 06:00:52.8 124.0 48.6
 GEC2 e PKPdf Z 06:00:53.3 124.5 54.3
 e PP Z 06:02:40.1
 WET e PKPdf Z 06:00:54.0 124.7 53.3
 e PP Z 06:02:43.4

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UBBA	e PP	Z	06:02:45.1	125.1	49.4						
GRA1	e PKPdf	Z	06:00:54.9	125.2	51.3						
	e pPKPdf	Z	06:01:09.1								
	e L	Z	06:55:32.9			21.6	864	5.4			
TNS	e PKPdf	Z	06:00:57.2	126.2	48.0						
STU	e PKPdf	Z	06:00:58.3	126.8	49.6						
	e PP	Z	06:02:57.6								
BFO	e PP	Z	06:03:01.3	127.6	49.0						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/18	16:37:41.8	52.402N	150.858E	33.0N	4.7			SZGRF
2003/12/18	16:37:46.2	51.900N	142.954E	10G	4.7			NEIC

Sea of Okhotsk

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:49:04.7	70.5	29.2	1.0	7	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/18	20:05:25.1	40.705N	143.760E	33.0N	4.6			SZGRF
2003/12/18	20:06:03.3	43.961N	141.018E	219*	4.3			NEIC

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:17:34.0	76.6	34.6	0.9	5	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/18	21:26:43.8	43.180N	144.830E	48.9	5.2			SZGRF
2003/12/18	21:26:37.0	43.071N	146.430E	33N	5.0	4.5		NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 21:38:24.3	76.0	31.5	0.8	32	5.5		
RUE	e P	Z 21:38:24.7	76.1	33.6	1.2	37	5.4		
CLL	e P	Z 21:38:31.2	77.3	32.9	0.9	30	5.4		
BRG	e P	Z 21:38:31.7	77.4	33.5	0.9	8	4.8		
IBBN	e P	Z 21:38:36.7	78.2	29.5	0.9	48	5.6		
GUNZ	e P	Z 21:38:37.5	78.4	32.4	0.8	7	4.9		
MOX	e P	Z 21:38:37.2	78.4	31.9	0.8	7	4.9		
WET	e P	Z 21:38:42.2	79.2	32.6	1.0	12	4.9		
GRA1	e P	Z 21:38:42.7	79.3	31.6	1.0	32	5.3		
	e pP	Z 21:38:56.7							
BFO	e P	Z 21:38:54.2	81.5	29.6	1.1	12	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/18								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:04:39.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	00:12:3.2	19.550N	95.420E	33.0N	6.0	4.7		SZGRF
2003/12/19	00:11:58.0	19.842N	95.717E	10G	5.8	5.0		NEIC

Myanmar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 00:23:09.9	69.5	83.7	1.0	312	6.4		
BRG	e P	Z 00:23:10.5	69.6	83.3	0.9	126	6.1		
GEC2	e P	Z 00:23:13.1	70.0	82.4	0.9	151	6.1		
	e PP	Z 00:25:48.2							
CLL	e P	Z 00:23:13.2	70.2	82.7	1.2	126	5.9		
	e PP	Z 00:25:48.9							
WET	e P	Z 00:23:16.1	70.5	81.9	1.0	112	5.9		
GUNZ	e P	Z 00:23:17.2	70.7	81.9	1.0	158	6.1		
WERD	e P	Z 00:23:17.1	70.7	81.9	0.9	117	6.0		
	e PP	Z 00:25:54.3							
MOX	e P	Z 00:23:19.4	71.1	81.5	1.1	113	5.9		
BSEG	e P	Z 00:23:21.7	71.4	81.6	0.9	232	6.3		
GRA1	e P	Z 00:23:22.1	71.5	80.9	1.5	329	6.2		
	e L	Z 00:59:01.7			18.1	416		4.7	
FUR	e P	Z 00:23:23.2	71.7	80.4	0.9	97	5.9		
NRDL	e P	Z 00:23:23.9	71.8	80.9	1.4	266	6.2		
UBBA	e P	Z 00:23:25.2	72.1	80.3	1.5	108	5.8		
STU	e P	Z 00:23:30.9	73.0	79.1	1.0	173	6.1		
TNS	e P	Z 00:23:32.1	73.2	79.0	1.1	125	6.0		
IBBN	e P	Z 00:23:32.2	73.2	79.1	1.0	147	6.1		
BFO	e P	Z 00:23:34.0	73.6	78.4	1.1	58	5.5		
BUG	e P	Z 00:23:35.0	73.7	78.5	1.2	141	5.9		
WLF	e P	Z 00:23:41.6	74.7	77.2	1.1	334	6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	00:37:39.0	44.380N	6.970E	10G				NEIC

France

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 00:38:39.4	4.1	193.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	00:55:48.7	27.241N	132.281E	33.0N	5.1			SZGRF

West of Bonin Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:08:31.1	87.0	49.7	1.6	25	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	05:33: 9.2	49.652N	128.189W	33.0N	5.2	4.9		SZGRF
2003/12/19	05:32:51.8	49.083N	128.958W	10G	5.0	4.7		NEIC

Vancouver Island, Canada, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:44:46.2	75.5	334.3	1.4	25	5.2		
	e L	Z 06:14:57.6			21.8	698		4.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	08:01:25.8	17.729S	178.850W	600G	4.2			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 08:20:05.1	147.0	17.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	09:51:27.2	36.248N	21.934E	33.0N	4.7			SZGRF

Southern Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:55:12.9	16.1	146.0					
	e L	Z 10:02:37.5			20.6	1061		4.0	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	12:56:11.0	29.052N	43.709W	19.8	5.0			SZGRF

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:04:31.1	46.0	264.5	1.1	17	5.0		
	e pP	Z 13:04:36.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	13:05:33.8	13.612N	123.859E	33.0N	5.4			SZGRF
2003/12/19	13:05:29.7	13.769N	124.472E	33N	5.4	4.9		NEIC

Luzon, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 13:18:37.3	91.7	65.5	1.6	22	5.2		
CLL	e P	Z 13:18:37.9	92.1	64.8	1.3	23	5.3		
GEC2	e P	Z 13:18:41.2	92.7	65.4	1.3	10	5.1		
GUNZ	e P	Z 13:18:41.6	92.9	64.3	1.6	28	5.4		
NRDL	e P	Z 13:18:43.2	93.2	62.4	1.1	17	5.4		
MOX	e P	Z 13:18:43.3	93.2	63.7	1.3	16	5.3		
CLZ	e P	Z 13:18:43.3	93.3	62.6	1.3	26	5.5		
GRA1	e P	Z 13:18:45.9	93.8	63.4					
WLF	e P	Z 13:19:00.0	96.7	59.4	1.6	37	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	14:12:17.6	16.795S	172.347E	33N	5.2			NEIC

Vanuatu Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:31:49.1	143.7	31.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	17:28: 0.5	51.894N	177.999W	33.0N	4.7			SZGRF
2003/12/19	17:27:48.2	50.254N	178.397E	33N	4.5			NEIC

Andreanof Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:39:56.7	79.5	8.3	1.5	10	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/19	20:30: 5.2	47.831N	154.945E	33.0N	4.6			SZGRF
2003/12/19	20:30:00.0	47.180N	154.040E	33N	4.5			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:41:58.4	77.9	24.8	0.9	5	4.6		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/20	03:29:41.4	44.488N	7.389E	10.0G			3.3	SZGRF

Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 03:30:40.6	3.9	189.9					3.3
	e Sn	N 03:31:25.3							
TNS	e Sn	N 03:32:12.1	5.8	187.5					
GRA1	e Sn	N 03:32:11.7	5.8	208.1					
WET	e Pn	Z 03:31:09.0	6.0	220.9					
	e Sn	N 03:32:14.6							
GEC2	e Pn	Z 03:31:12.5	6.1	227.2					
	e Sn	N 03:32:20.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/21								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 01:36:59.4							
GEC2	e Pn	Z 01:37:31.4							
WET	e Pn	Z 01:37:28.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/21								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 05:11:44.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/21	07:40:50.2	0.800S	20.030W	33.0N	5.7	5.9		SZGRF
2003/12/21	07:40:45.7	0.748S	20.560W	10G	5.5	5.8		NEIC

Central Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 07:50:18.5	55.1	216.1	1.2	129	5.8		
STU	e P	Z 07:50:23.1	55.8	216.9	1.3	130	5.8		
FUR	e P	Z 07:50:26.0	56.2	219.4	1.2	203	6.0		
TNS	e P	Z 07:50:30.5	56.7	215.5	1.3	144	5.8		
BUG	e P	Z 07:50:34.2	57.2	213.7	1.3	142	5.8		
GRA1	e P	Z 07:50:34.5	57.3	218.7	1.4	152	5.8		
	e S	N 07:58:35.8							
	e L	Z 08:21:25.2			19.8	9872		5.9	
WET	e P	Z 07:50:36.3	57.6	220.7	1.0	86	5.7		

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GEC2	e P	Z	07:50:37.0	57.7	221.7	1.2	69	5.6
UBBA	e P	Z	07:50:37.8	57.7	217.0			
IBBN	e P	Z	07:50:40.3	58.1	213.9			
MOX	e P	Z	07:50:41.0	58.2	218.8	1.1	84	5.7
GUNZ	e P	Z	07:50:44.7	58.3	219.7			
WERD	e P	Z	07:50:41.7	58.3	219.6			
CLL	e P	Z	07:50:47.8	59.3	220.0	1.3	65	5.5
BRG	e P	Z	07:50:48.2	59.3	221.2	1.2	43	5.4
BSEG	e P	Z	07:50:55.6	60.4	216.2	1.1	110	5.8
RUE	e P	Z	07:50:56.6	60.5	220.4			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/21	19:48:7.9	71.014N	9.251W	33.0N	4.4			SZGRF
Jan Mayen Island region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:53:13.6	23.3	343.3	1.6	21	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/21	20:30:44.6	4.786S	13.277W	33.0N	4.9			SZGRF
North of Ascension Island								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:40:37.7	58.5	209.0	1.8	20	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/22								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:37:25.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/22	08:47:11.8	43.110N	145.210E	42.2	5.8	5.9		SZGRF
2003/12/22	08:47:06.8	42.290N	144.596E	33N	5.8	5.2		NEIC
Hokkaido, Japan, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 08:58:54.7	76.1	33.1	1.4	138	5.9		
RUE	e P	Z 08:58:55.0	76.2	35.2	1.4	239	6.1		
CLL	e P	Z 08:59:01.5	77.4	34.5	1.2	168	6.0		
	e pP	Z 08:59:14.1							

	e PP	Z	09:01:58.9								
	e PPP	Z	09:03:43.5								
	e S	R	09:08:54.3								
	e SS	R	09:14:04.3								
	e LR	Z	09:24:14.6								
	e L	Z	09:36:49.4			18.0	6513			6.0	
NRDL	e P	Z	08:59:01.9	77.4	32.7	1.7	144		5.8		
BRG	e P	Z	08:59:01.8	77.4	35.1	1.4	87		5.7		
IBBN	e P	Z	08:59:06.8	78.3	31.1	1.2	142		6.0		
WERD	e P	Z	08:59:07.1	78.4	34.0	1.7	116		5.7		
GUNZ	e P	Z	08:59:07.6	78.4	34.0	1.5	103		5.7		
MOX	e P	Z	08:59:07.6	78.4	33.5	1.6	149		5.9		
UBBA	e P	Z	08:59:09.2	78.8	32.5	1.8	112		5.6		
GEC2	e P	Z	08:59:11.6	79.2	34.7	1.4	76		5.5		
BUG	e P	Z	08:59:11.6	79.2	30.7	1.2	103		5.7		
WET	e P	Z	08:59:12.4	79.2	34.2	1.2	142		5.9		
GRA1	e P	Z	08:59:13.2	79.4	33.2	1.4	243		6.1		
	e pP	Z	08:59:25.4								
	e L	Z	09:37:43.5			18.1	4672			5.9	
TNS	e P	Z	08:59:15.5	79.9	31.4	1.3	88		5.5		
FUR	e P	Z	08:59:19.8	80.6	33.1	1.2	239		6.0		
STU	e P	Z	08:59:20.5	80.9	31.7	1.2	122		5.8		
BFO	e P	Z	08:59:24.3	81.5	31.1	1.6	173		5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/22	19:16:0.5	35.500N	121.360W	33.0N	6.3	7.0		SZGRF
2003/12/22	19:15:56.0	35.706N	121.102W	8	6.0	6.4		NEIC

Central California, United States

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	19:28:15.3	81.1	321.9	1.7	472	6.3		
IBBN	e P	Z	19:28:16.9	81.4	320.2	1.4	223	6.1		
BUG	e P	Z	19:28:19.2	81.8	320.0	2.2	572	6.3		
NRDL	e P	Z	19:28:21.1	82.1	321.9	2.2	692	6.5		
WLF	e P	Z	19:28:24.2	82.7	319.3	1.5	348	6.4		
TNS	e P	Z	19:28:26.8	83.2	320.9	2.3	724	6.5		
UBBA	e P	Z	19:28:27.5	83.4	322.0	1.8	544	6.5		
RUE	e P	Z	19:28:27.8	83.5	324.6	2.0	797	6.6		
CLL	i P	+ Z	19:28:30.7	84.1	324.1	16.3	5050	6.7		
	e PP	Z	19:31:52.1			16.3	3334			
	e SKSac	R	19:38:58.2							
	e S	T	19:39:01.6							
	e SS	R	19:44:45.0							
	e SSS	R	19:48:19.4							
	e LR	Z	19:56:06.2							
	e L	Z	20:09:08.3			17.9	64774			7.1
MOX	e P	Z	19:28:31.3	84.1	323.1	1.6	392	6.4		

WERD	e P	Z	19:28:33.3	84.6	323.7	2.5	819	6.5			
GUNZ	e P	Z	19:28:33.8	84.6	323.7	1.6	295	6.3			
BFO	e P	Z	19:28:33.5	84.7	321.0	1.4	159	6.0			
STU	e P	Z	19:28:34.0	84.7	321.5	1.4	195	6.1			
GRA1	e P	Z	19:28:34.8	84.8	322.9	1.5	672	6.6			
	e PP	Z	19:31:54.2								
	e S	E	19:39:05.7								
	e SS	N	19:44:28.7								
	e L	Z	20:08:23.4			18.2	57533			7.0	
BRG	e P	Z	19:28:34.7	84.8	324.8	1.5	415	6.4			
WET	e P	Z	19:28:39.7	85.8	324.1	1.7	210	6.0			
FUR	e P	Z	19:28:40.8	86.0	323.0	1.6	348	6.2			

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/22

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 23:21:48.2

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/23 05:58:41.5 1.080S 19.660W 33.0N 5.7 4.8 SZGRF
2003/12/23 05:58:37.2 0.688S 20.340W 10G 5.6 5.3 NEIC
Central Mid-Atlantic Ridge

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
BFO e P Z 06:08:09.3 54.9 215.9 1.1 120 5.8
WLF e P Z 06:08:11.0 55.2 212.9 1.6 171 5.8
STU e P Z 06:08:13.8 55.6 216.7 1.0 84 5.7
FUR e P Z 06:08:16.9 56.0 219.2 1.5 358 6.2
TNS e P Z 06:08:20.7 56.5 215.3 1.4 167 5.9
BUG e P Z 06:08:25.1 57.1 213.5 1.0 98 5.8
e PP Z 06:10:31.2
GRA1 e P Z 06:08:25.1 57.2 218.5 1.0 91 5.8
e PPP Z 06:11:51.3
e S N 06:16:26.6
e L Z 06:30:55.4 21.5 741 4.8
WET e P Z 06:08:26.8 57.4 220.5 1.0 117 5.8
e PP Z 06:10:31.4
GEC2 e P Z 06:08:27.8 57.6 221.5 1.1 72 5.6
e PP Z 06:10:32.4
UBBA e P Z 06:08:28.0 57.6 216.7 1.7 137 5.7
IBBN e P Z 06:08:31.3 58.0 213.7 1.0 106 5.8
MOX e P Z 06:08:31.7 58.1 218.6 1.1 88 5.7
e PP Z 06:10:36.0
GUNZ e P Z 06:08:31.9 58.1 219.5 1.3 77 5.6

WERD	e P	Z	06:08:32.0	58.2	219.4	1.4	89	5.6		
NRDL	e P	Z	06:08:38.5	59.0	216.2	1.3	79	5.6		
CLL	i P	+ Z	06:08:38.6	59.1	219.8	1.4	69	5.5		
	e PP	Z	06:10:47.5							
	e PPP	Z	06:12:14.8							
	e S	R	06:16:47.9							
	e SS	Z	06:20:57.5							
	e LQ	T	06:24:38.0							
	e LR	Z	06:26:48.8							
	e L	Z	06:32:17.7			22.0	605		4.7	
BRG	e P	Z	06:08:39.0	59.2	221.0	1.3	51	5.4		
	e PP	Z	06:10:47.1							
BSEG	e P	Z	06:08:46.4	60.2	216.0	0.8	119	6.0		
RUE	e P	Z	06:08:47.6	60.4	220.2	1.0	89	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	06:32:33.7	28.541N	55.336E	33.0N	4.4			SZGRF
2003/12/23	06:32:37.8	28.414N	54.064E	33N	4.9			NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:40:00.9	38.7	107.1	1.1	10	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	09:20:38.8	28.227N	54.978E	33.0N	4.2			SZGRF

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:28:06.1	39.4	106.4	1.2	8	4.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	12:23:37.0	39.926N	29.234E	10G	4.5	3.7		NEIC

W Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:27:27.9	16.0	120.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	13:05:48.8	22.677S	175.106W	33N	5.2			NEIC

Tonga region

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 13:25:38.6	150.7	15.5	0.8	20			
	e PKPab	Z 13:25:45.1			1.3	23			
GRA1	e PKP	Z 13:25:53.8	152.5	12.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	14:02:2.8	40.314N	30.958W	33.0N	5.4	5.3		SZGRF
2003/12/23	14:02:03.7	40.059N	29.669W	10G	5.4	5.5		NEIC

Azores Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 14:07:46.8	26.8	262.8	1.4	145	5.6		
BUG	e P	Z 14:07:55.7	27.8	260.5	1.8	150	5.5		
BFO	e P	Z 14:07:58.2	28.1	267.2	1.8	124	5.4		
IBBN	e P	Z 14:07:58.1	28.2	259.3	0.5	61	5.7		
TNS	e P	Z 14:08:00.8	28.4	263.8	2.2	163	5.5		
STU	e P	Z 14:08:04.1	28.7	267.1	0.8	40	5.3		
UBBA	e P	Z 14:08:09.9	29.4	264.1	1.7	70	5.2		
NRDL	e P	Z 14:08:12.7	29.7	261.3	1.8	102	5.4		
CLZ	e P	Z 14:08:13.2	29.8	262.7	1.5	70	5.3		
BSEG	e P	Z 14:08:15.7	30.1	259.0	1.7	245	5.9		
FUR	e P	Z 14:08:17.9	30.1	269.8	1.8	140	5.6		
GRA1	e P	Z 14:08:15.9	30.1	267.2	1.5	115	5.6		
	e L	Z 14:18:29.6			20.5	6947		5.3	
MOX	e P	Z 14:08:18.9	30.4	265.9	1.3	46	5.2		
WERD	e P	Z 14:08:22.4	30.8	266.8	1.3	32	5.1		
GUNZ	e P	Z 14:08:22.6	30.9	266.9	1.1	36	5.2		
WET	e P	Z 14:08:24.9	31.2	269.4	1.4	41	5.2		
CLL	e P	Z 14:08:26.6	31.3	265.9	3.3	335	5.7		
GEC2	e P	Z 14:08:29.7	31.7	270.5	1.8	75	5.3		
BRG	e P	Z 14:08:31.6	31.9	267.4	1.4	33	5.1		
RUE	e P	Z 14:08:32.0	31.9	264.7	1.5	108	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	16:05:53.5	50.585N	177.538E	33.0N	4.7			SZGRF

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:17:54.8	79.0	8.8	1.0	7	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	17:39:37.0	27.506N	140.843E	33.0N	4.9			SZGRF

Bonin Islands, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:52:37.2	90.8	43.1	1.1	7	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	18:17:19.9	35.824N	120.570W	33.0N	5.6			SZGRF
2003/12/23	18:17:11.0	35.654N	121.045W	7	5.1	4.6		NEIC

Central California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:29:49.6	84.8	322.9	1.3	52	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	23:01:10.9	23.196N	125.579E	33.0N	4.7			SZGRF
2003/12/23	23:01:15.1	26.294N	125.741E	33N	5.1			NEIC

Southwestern Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:13:52.4	84.4	55.0	1.0	7	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/23	23:15:23.8	25.685N	129.070E	33.0N	5.1	6.1		SZGRF
2003/12/23	23:15:27.3	26.264N	125.661E	33N	5.4	5.4		NEIC

Southeast of Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 23:27:49.6	82.8	56.6	1.3	6	4.7		
	e PPPP	Z 23:33:59.4							
	e S	E 23:38:11.3							
	e SS	E 23:43:47.3							
	e L	Z 00:07:29.4			22.0	9326		6.1	
GRA1	e P	Z 23:28:04.5	84.4	55.1	1.7	27	5.1		
	e	23:28:18.6							
	e PP	Z 23:31:16.6							
	e L	Z 00:08:25.4			19.9	7207		6.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/24	03:48:53.3	30.228N	58.409E	33.0N	4.5			SZGRF
2003/12/24	03:49:58.1	35.167N	50.557E	10G	4.7			NEIC

Northern and central Iran

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:56:26.9	32.0	101.9	1.6	20	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/24	08:25:00.5	50.685N	175.943E	33.0N	4.3			SZGRF
2003/12/24	08:24:56.9	51.044N	178.137E	33N	4.7			NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:37:00.4	78.6	8.3	1.0	3	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/24	11:33:07.0	5.485S	102.956E	33.0N	5.1	5.1		SZGRF
2003/12/24	11:33:07.8	5.723S	102.200E	33N	5.5	5.4		NEIC

Southern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:46:27.9	95.0	93.0	1.1	8	5.1		
	e PP	Z 11:50:19.5							
	e L	Z 12:36:43.6			20.9	720		5.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/24								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:03:08.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/25	03:07:33.5	19.730S	177.460W	33.0G				SZGRF
2003/12/25	03:08:43.6	18.295S	177.979W	600G	4.7			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 03:27:11.8	143.8	13.4					
RUE	e PKPbc	Z 03:27:14.6	144.6	19.5					
NRDL	e PKPbc	Z 03:27:16.2	145.2	13.5					
IBBN	e PKPbc	Z 03:27:17.8	145.7	9.7					
CLZ	e PKPbc	Z 03:27:18.3	145.8	14.2					
CLL	e PKPbc	Z 03:27:18.2	145.9	18.8					
BRG	e PKPbc	Z 03:27:19.0	146.1	20.6					
BUG	e PKPbc	Z 03:27:19.9	146.6	9.1					

MOX	e	PKPbc	Z	03:27:20.7	146.8	16.8
WERD	e	PKPbc	Z	03:27:21.0	146.8	18.0
GUNZ	e	PKPbc	Z	03:27:21.4	146.9	18.1
TNS	e	PKPbc	Z	03:27:23.2	147.7	11.5
GRA1	e	PKPbc	Z	03:27:23.7	147.7	16.5
GRFO	e	PKPbc	Z	03:27:23.7	147.7	16.5
WET	e	PKPbc	Z	03:27:23.9	147.9	19.7
GEC2	e	PKPbc	Z	03:27:24.2	148.0	21.3
WLF	e	PKPbc	Z	03:27:25.6	148.5	7.5
STU	e	PKPbc	Z	03:27:26.5	149.0	13.3
FUR	e	PKPbc	Z	03:27:26.9	149.2	17.3
BFO	e	PKPbc	Z	03:27:27.6	149.5	11.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/25	07:11:18.7	9.250N	82.250W	33.0G	6.2	6.9		SZGRF
2003/12/25	07:11:11.3	8.407N	82.824W	33N	6.1	6.4		NEIC

Panama-Costa Rica border region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	07:23:36.0	82.9	274.7	1.6	221	6.0		
BUG	e P	Z	07:23:38.5	83.5	275.3	1.4	172	6.1		
IBBN	e P	Z	07:23:39.7	83.7	275.6	1.5	262	6.3		
TNS	e P	Z	07:23:43.3	84.4	276.4	1.8	331	6.3		
BFO	e P	Z	07:23:43.3	84.5	276.5	2.2	269	6.1		
STU	e P	Z	07:23:46.4	85.0	277.1	1.4	221	6.2		
BSEG	e P	Z	07:23:46.7	85.1	277.5	1.8	373	6.3		
NRDL	e P	Z	07:23:47.3	85.1	277.4	1.7	313	6.3		
UBBA	e P	Z	07:23:47.7	85.3	277.5	2.0	360	6.2		
CLZ	e P	Z	07:23:48.5	85.4	277.7	3.2	1150	6.6		
GRA1	e P	Z	07:23:52.7	86.2	278.5	8.7	14340	7.2		
	e		07:24:04.5							
	e S	E	07:34:23.4							
	e SS	E	07:40:17.6							
	e SKKSdf	Z	07:49:55.1							
	e L	Z	07:56:31.3			22.0	48964		6.9	
MOX	e P	Z	07:23:53.0	86.3	278.8	1.7	165	6.0		
FUR	e P	Z	07:23:53.9	86.5	278.7	1.9	304	6.1		
WERD	e P	Z	07:23:55.4	86.8	279.3	1.5	248	6.1		
GUNZ	e P	Z	07:23:55.7	86.8	279.3	1.6	257	6.1		
CLL	e P	Z	07:23:56.2	87.1	279.8	1.6	89	5.6		
	e		07:24:08.5							
	e PP	Z	07:27:30.9							
	e S	E	07:34:30.0							
	e SP	Z	07:35:20.8							
	e PPS	E	07:35:58.1							
	e		07:37:09.1							
	e SS	E	07:40:28.7							

	e LR	Z	07:52:29.5								
	e L	Z	07:58:22.3			22.0	16775		6.4		
RUE	e P	Z	07:23:57.7	87.3	280.3	1.8	294		6.1		
WET	e P	Z	07:23:58.5	87.3	279.8	1.5	271		6.2		
BRG	e P	Z	07:24:00.0	87.7	280.5	1.8	327		6.2		
GEC2	e P	Z	07:24:01.0	87.9	280.4	1.7	210		6.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/25	11:50:7.2	35.426N	120.701W	33.0N	4.8			SZGRF
2003/12/25	11:50:01.0	35.553N	120.839W	1	4.5			NEIC

Central California, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:02:38.9	84.8	322.7	1.2	8	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/25	13:31:16.8	37.910N	74.060E	33.0N	5.0			SZGRF
2003/12/25	13:31:27.1	38.465N	73.311E	86*	4.7			NEIC

Tajikistan-Xinjiang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 13:39:18.7	42.8	83.0	0.9	20	4.9		
RGN	e P	Z 13:39:19.5	42.8	86.5	1.1	165	5.7		
GEC2	e P	Z 13:39:23.0	43.2	80.7	0.9	8	4.5		
CLL	e P	Z 13:39:22.6	43.3	82.8	0.6	22	5.1		
WET	e P	Z 13:39:25.7	43.7	80.4	1.2	10	4.6		
GUNZ	e P	Z 13:39:27.5	43.8	81.3	0.7	9	4.8		
WERD	e P	Z 13:39:27.3	43.8	81.4	0.6	8	4.8		
MOX	e P	Z 13:39:30.8	44.2	81.1	0.9	13	4.9		
BSEG	e P	Z 13:39:33.7	44.6	83.6	0.8	25	5.3		
GRA1	e P	Z 13:39:34.5	44.6	79.9	1.1	25	5.2		
NRDL	e P	Z 13:39:36.2	44.9	82.0	0.8	19	5.2		
FUR	e P	Z 13:39:36.6	44.9	78.4	0.8	22	5.3		
UBBA	e P	Z 13:39:38.0	45.2	80.2	0.5	6	4.9		
IBBN	e P	Z 13:39:47.3	46.3	80.1	0.8	20	5.3		
BFO	e P	Z 13:39:50.1	46.8	76.8	0.8	6	4.7		
BUG	e P	Z 13:39:51.1	46.8	79.0	1.6	34	5.2		
WLF	e P	Z 13:39:59.4	47.9	76.7	0.8	17	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/25	14:21:10.9	35.237S	177.999W	10G	5.9	5.0		NEIC

South of Kermadec Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
BSEG	e PKPab	Z	14:41:50.5	160.4	20.6						
RUE	e PKPab	Z	14:41:53.0	160.8	30.5						
CLL	e PKPdf	Z	14:41:13.0	162.1	30.5						
	i PKPab	Z	14:41:57.8			1.0	90				
	e pPKPab	Z	14:42:06.8								
	e PP	Z	14:45:39.9								
	e PPP	Z	14:49:44.9								
	e SKKSac	N	14:52:45.1								
	e LR	Z	15:39:57.8								
	e L	Z	15:5								
	BRG	e PKPab	Z	14:41:57.9	162.1	33.5					
	CLZ	e PKPab	Z	14:41:58.9	162.3	23.1					
IBBN	e PKPab	Z	14:41:59.6	162.4	15.8						
WERD	e PKPab	Z	14:42:02.3	163.1	30.1						
MOX	e PKPab	Z	14:42:02.3	163.1	28.0						
GUNZ	e PKPab	Z	14:42:03.0	163.1	30.3						
BUG	e PKPab	Z	14:42:03.5	163.4	15.2						
UBBA	e PKPab	Z	14:42:03.5	163.4	23.4						
GRA1	e PKPab	Z	14:42:07.1	164.1	28.4						
	e pPKPab	Z	14:42:16.3								
	e PP	Z	14:45:52.9								
	e L	Z	15:55:53.7			21.4	1313		5.8		
TNS	e PKPab	Z	14:42:07.5	164.3	19.8						
WLF	e PKPab	Z	14:42:11.9	165.3	13.4						
FUR	e PKPab	Z	14:42:13.0	165.4	31.4						
STU	e PKPab	Z	14:42:13.0	165.5	24.0						
BFO	e PKPab	Z	14:42:15.5	166.1	22.0						

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/25 20:42:33.6 22.270S 169.490E 10G 6.3 6.3 NEIC
 Southeast of Loyalty Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z	21:02:14.0	145.7	41.0	1.9	532			
	e		21:02:29.6							
	e PP	Z	21:05:37.3							
	e PPP	Z	21:08:49.0							
	e PPS	N	21:18:11.3							
	e SS	E	21:24:36.5							
	e SSS	E	21:29:54.8							
	e LQ	E	21:45:09.7							
	e L	Z	22:06:51.0			22.0	7339		6.4	
	GRA1	e PKPdf	Z	21:02:16.5	147.7	39.9				
e PP		Z	21:05:50.4							
e L		Z	22:14:54.3			20.2	5455		6.3	

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/25 21:25:10.0 22.354S 169.644E 10G 5.2
 SE of the Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:44:56.1	147.8	39.7					

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/25 23:09:43.2 22.394S 169.532E 10G 5.8 5.5
 Southeast of Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPdf	+ Z 23:29:24.7	145.9	41.1	1.7	288			
	e	Z 23:29:36.2							
	e LR	Z 00:21:05.0							
	e L	Z 00:33:57.7			22.0	1493		5.7	
GRA1	e PKPdf	Z 23:29:25.9	147.8	39.9					
	e PKPbc	Z 23:29:30.6							
	e L	Z 00:41:40.6			21.6	1169		5.6	

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/25 23:13:21.3 22.409S 169.565E 10G 5.3
 Southeast of Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 23:33:08.2	147.8	39.9					

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/25

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 23:47:35.2							

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:19:27.9							
	e	Z 00:19:39.0							

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26 01:30:19.4 22.730S 169.120E 10G 4.7
 SE of the Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:50:11.0	147.9	40.8					

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26 01:56:49.9 28.120N 58.780E 33.0N 5.9 6.6
 2003/12/26 01:56:52.3 29.002N 58.325E 10G 6.0 6.8
 Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 02:04:22.4	39.2	103.7	1.4	397	5.9		
BRG	e P	Z 02:04:26.3	39.6	106.3	1.9	357	5.8		
WET	e P	Z 02:04:27.6	39.8	103.3	1.6	403	5.9		
RUE	e P	Z 02:04:31.3	40.2	108.0	1.6	331	5.8		
	e S	N 02:10:45.3							
CLL	e P	Z 02:04:32.6	40.3	105.9	1.2	421	5.9		
	e PP	Z 02:06:13.1			1.6	423			
	e S	E 02:10:28.1			29.5	36720			
	e SS	N 02:13:52.6							
	e LQ	N 02:15:59.0							
	e LR	Z 02:17:18.2							
	e L	Z 02:25:47.0			21.5	68499		6.5	
GUNZ	e P	Z 02:04:32.8	40.4	104.2	2.0	186	5.5		
WERD	e P	Z 02:04:33.5	40.5	104.2	2.4	316	5.6		
FUR	e P	Z 02:04:33.8	40.6	100.7	1.2	246	5.8		
MOX	e P	Z 02:04:37.1	41.0	103.8	1.9	187	5.5		
	e S	E 02:10:52.8							
GRA1	e P	Z 02:04:37.5	41.0	102.4	1.5	478	6.0		
	e PP	Z 02:06:30.6							
	e S	N 02:10:54.9							
	e SS	E 02:14:01.2							
	e L	Z 02:28:03.2			18.4	75407		6.6	
RGN	e P	Z 02:04:40.8	41.1	109.8	1.8	3974	6.8		
	e S	E 02:10:54.9							
UBBA	e P	Z 02:04:45.6	42.0	102.5	1.8	278	5.7		
	e S	N 02:11:10.0							
CLZ	e P	Z 02:04:46.9	42.0	103.9	1.9	892	6.2		
	e S	N 02:11:10.6							
STU	e P	Z 02:04:47.8	42.1	99.5	1.8	319	5.7		
	e S	E 02:11:08.7							
NRDL	e P	Z 02:04:48.9	42.3	104.4	1.9	689	6.1		

	e S	E	02:11:13.3						
BSEG	e P	Z	02:04:50.8	42.6	106.1	1.7	454	5.9	
	e S	N	02:11:19.2						
BFO	e P	Z	02:04:49.0	42.6	98.3	1.6	100	5.3	
	e S	E	02:11:14.8						
TNS	e P	Z	02:04:53.4	42.8	100.4	1.7	472	5.9	
	e S	N	02:11:21.9						
IBBN	e P	Z	02:05:00.6	43.7	102.0	1.6	639	6.3	
BUG	e P	Z	02:05:01.3	43.8	100.6	1.5	373	6.1	
	e S	E	02:11:35.6						
HLG	e S	N	02:11:40.8	44.0	104.0				
WLF	e P	Z	02:05:04.0	44.2	97.8	1.2	98	5.6	
	e S	N	02:11:51.8						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26	03:06:19.4	28.486N	57.701E	33.0N	4.9			SZGRF
2003/12/26	03:06:13.4	28.868N	58.365E	10G	5.2	5.3		NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 03:13:44.3	39.3	103.8	1.2	51	5.0		
WET	e P	Z 03:13:49.7	39.9	103.4	1.4	32	4.8		
CLL	e P	Z 03:13:54.1	40.4	106.0	1.2	48	5.0		
GRA1	e P	Z 03:13:59.2	41.1	102.5	1.4	59	5.1		
CLZ	e P	Z 03:14:08.7	42.1	104.0	1.2	32	4.9		
STU	e P	Z 03:14:08.4	42.2	99.6	1.2	18	4.7		
TNS	e P	Z 03:14:15.0	43.0	100.5	1.4	40	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26	03:53:31.6	29.661N	59.320E	33.0N	4.1			SZGRF
2003/12/26	03:53:26.2	28.836N	58.303E	10G	4.3			NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:01:13.2	41.1	102.6	1.5	6	4.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 04:19:07.0							

GRA1 e PKP Z 17:27:59.4

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26 19:05:59.9 15.520S 173.270W 33N 4.7 NEIC
 Tonga

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e PKP Z 19:25:36.1 145.6 7.7
 e 19:25:56.4

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e PKP Z 20:04:40.6

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26 20:54:11.8 22.309S 169.495E 10G 5.3 6.2 NEIC
 Vanuatu Islands region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e PKPdf Z 21:13:58.8 147.7 39.9
 e pPKPdf Z 21:14:06.7

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e PKP Z 21:27:15.3
 e 21:27:23.3
 e 21:28:08.4

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/26 21:16:11.2 22.498S 169.491E 10G 5.2 NEIC
 SE of the Loyalty Islands

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e PKP Z 21:35:58.1 147.9 40.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26	21:26:03.8	22.319S	169.295E	10G	6.2	6.8		NEIC
Southeast of Loyalty Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 21:45:42.8			1.0	14			
	e	21:45:48.4							
	e PP	Z 21:49:11.2							
	e SKSdf	Z 21:53:08.3							
	e PPS	N 22:01:44.8							
	e SS	E 22:08:08.3							
	e SSS	E 22:13:55.4							
	e LQ	E 22:28:51.6							
	e LR	Z 22:37:31.9							
	e L	Z 22:50:24.2			22.0	17743		6.8	
GRA1	e PKP	Z 21:45:50.4	147.6	40.2					
	e PP	Z 21:49:21.8							
	e L	Z 22:57:55.8			20.0	10956		6.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:03:48.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26	21:52:43.3	22.240S	169.644E	10G	5.1			NEIC
SE of the Loyalty Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:12:30.3	147.7	39.6					
	e	22:12:42.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:21:39.6							
	e	22:21:48.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26	22:31:15.1	22.080S	169.439E	10G	4.9			NEIC

SE of the Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:51:01.5	147.5	39.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:58:28.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/26								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:15:59.6							
	e	23:16:09.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27	04:55:25.4	22.144S	169.335E	10G	5.9	5.9		NEIC

Southeast of Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKP	Z 05:15:00.8	144.5	34.8					
BRG	e PKP	Z 05:15:03.5	145.5	42.9					
CLL	e PKP	Z 05:15:04.3	145.5	41.1					
NRDL	e PKP	Z 05:15:04.6	145.7	35.7					
CLZ	e PKP	Z 05:15:06.7	146.2	36.7					
WERD	e PKP	Z 05:15:07.1	146.5	40.9					
GUNZ	e PKP	Z 05:15:07.6	146.5	41.0					
MOX	e PKP	Z 05:15:07.2	146.6	39.7					
IBBN	e PKP	Z 05:15:07.3	146.7	32.2					
GEC2	e PKP	Z 05:15:08.2	147.0	44.6					
UBBA	e PKP	Z 05:15:08.0	147.1	37.0					
WET	e PKP	Z 05:15:08.6	147.2	43.1					
GRA1	e PKP	Z 05:15:09.3	147.5	40.0					
	e PP	Z 05:18:41.4							
	e SS	E 05:37:51.3							
	e L	Z 06:28:54.2			20.8	1738		5.8	
BUG	e PKP	Z 05:15:10.6	147.6	32.1					

GRA1 e PKP Z 08:57:24.9

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 09:04:00.9

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKPbc Z 11:09:57.0

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 13:28:00.2

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27 15:23:19.9 43.107N 129.388W 33.0N 4.7 SZGRF

2003/12/27 15:23:15.3 43.558N 127.338W 10G 5.0 4.6 NEIC

Off coast of Oregon, United States

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e P Z 15:35:31.9 80.0 330.9 1.5 13 4.7

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27 16:00:59.4 22.033S 169.650E 10G 6.1 7.1 NEIC

Southeast of Loyalty Islands

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
RUE e PKP Z 16:20:34.9 144.4 40.6
BSEG e PKP Z 16:20:34.7 144.5 34.3
BRG e PKP Z 16:20:39.2 145.5 42.3
CLL e PKPpdf Z 16:20:38.0 145.6 40.5 1.3 671
e PP Z 16:24:18.5
e PPP Z 16:27:29.7

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 17:10:57.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 17:40:43.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 17:45:19.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:56:43.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 18:09:46.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 18:21:36.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

GRA1 e PKP Z 20:11:09.3

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKPbc Z 20:57:43.1

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27 21:27:50.5 36.903N 22.082E 33.0N 4.4
Southern Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 21:30:58.4	13.4	149.8					
WET	e P	Z 21:31:14.4	13.9	147.9					
GRA1	e P	Z 21:31:20.5	15.0	144.4					
GUNZ	e P	Z 21:31:23.6	15.2	148.8					
BFO	e P	Z 21:31:24.3	15.2	133.6	3.1	262			
WERD	e P	Z 21:31:26.4	15.2	148.9	1.5	36			
MOX	e P	Z 21:31:30.4	15.6	147.4	0.9	12	4.0		
CLL	e P	Z 21:31:33.6	15.8	152.4	1.3	38	4.4		
UBBA	e P	Z 21:31:37.5	16.4	143.6					
TNS	e P	Z 21:31:41.7	16.5	138.5					
RUE	e P	Z 21:31:44.5	16.6	156.2	1.2	100	4.8		
CLZ	e P	Z 21:31:48.6	17.1	146.4	1.0	21	4.2		
WLF	e P	Z 21:31:51.0	17.2	132.0	1.3	44	4.4		
NRDL	e P	Z 21:32:01.7	17.7	146.9	0.9	24	4.3		
BSEG	e P	Z 21:32:07.4	18.9	149.7	1.1	43	4.6		

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/27 22:38:01.5 21.774S 169.780E 10G 5.8 6.8
Southeast of Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKP	Z 22:57:37.4	144.2	40.2					
BSEG	e PKP	Z 22:57:37.5	144.3	33.9					
BRG	e PKP	Z 22:57:41.3	145.3	41.9					
CLL	e PKPbc	Z 22:57:41.6	145.4	40.1	0.9	459			
	e PP	Z 23:01:05.8							
	e PPP	R 23:04:11.8							
	e SKSP	R 23:11:14.7							
	e PPPr	Z 23:12:10.0							
	e PPS	E 23:13:44.2							

	e	SS	N	23:20:10.6								
	e	SSS	N	23:25:25.4								
	e	L	Z	00:04:46.1			22.0	19581		6.8		
NRDL	e	PKP	Z	22:57:41.8	145.5	34.8						
CLZ	e	PKP	Z	22:57:44.0	146.0	35.7						
WERD	e	PKP	Z	22:57:44.3	146.3	39.9						
GUNZ	e	PKP	Z	22:57:44.7	146.4	40.0						
MOX	e	PKP	Z	22:57:45.6	146.5	38.7						
IBBN	e	PKP	Z	22:57:43.8	146.5	31.3						
GEC2	e	PKP	Z	22:57:46.5	146.9	43.6						
UBBA	e	PKP	Z	22:57:46.6	146.9	36.0						
WET	e	PKP	Z	22:57:46.8	147.1	42.1						
GRA1	e	PKP	Z	22:57:48.0	147.4	39.0						
	e	PP	Z	23:01:17.6								
	e	SS	E	23:20:16.8								
	e	SSS	N	23:25:49.9								
BUG	e	PKP	Z	22:57:47.3	147.4	31.2						
TNS	e	PKP	Z	22:57:49.1	148.0	34.1						
FUR	e	PKP	Z	22:57:50.8	148.5	40.6						
STU	e	PKP	Z	22:57:51.6	148.9	36.7						
WLF	e	PKP	Z	22:57:52.8	149.3	30.8						
BFO	e	PKP	Z	22:57:53.2	149.6	35.7						
GRA1	e	L	Z	00:07:03.6	147.4	39.0	20.6	15643		6.8		

Date 2003/12/27 Origin Time 22:55:01.0 Lat 21.764S Long 169.744E Depth 10G mb 5.7 Ms 6.4 ML Source NEIC
Southeast of the Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 23:14:40.2	145.4	40.3	0.8	49			
	e	23:14:45.9							
GRA1	e PKPbc	Z 23:14:45.9	147.3	39.0					

Date 2003/12/27 Origin Time Lat Long Depth mb Ms ML Source

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 23:09:38.4							

Date 2003/12/27 Origin Time Lat Long Depth mb Ms ML Source

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 23:29:14.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 23:37:42.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:07:52.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:10:58.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:21:03.9							
	e	00:23:02.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:36:53.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:42:54.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:47:04.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:15:24.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:22:06.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:34:13.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 02:20:32.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:01:33.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:10:06.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:35:06.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28	04:45:45.2	28.875N	132.131E	38.1	4.8	5.5		SZGRF
2003/12/28	04:45:43.0	29.612N	131.025E	10G	4.9	4.8		NEIC

West of Bonin Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:58:19.7	84.4	49.3	1.4	12	4.8		
	e pP	Z 04:58:30.8							
	e L	Z 05:39:41.1			18.1	1928		5.5	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 05:14:51.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28	05:15:26.2	22.071S	170.056E	10G	5.3	5.2		NEIC

SE of the Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	Z 05:35:07.0	145.8	40.0	0.9	103			
	e	05:35:16.0							
GRA1	e PKP	Z 05:35:13.2	147.7	38.8					

2003/12/28

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 08:27:04.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 11:32:54.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:22:37.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:26:40.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:35:58.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:55:21.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 13:29:40.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:10:07.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:26:18.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:34:39.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:36:02.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:51:10.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 15:07:34.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 15:38:45.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28	15:59:26.0	47.159N	153.642E	33.0N	4.8			SZGRF
Kuril Islands, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:11:20.7	77.8	25.1	0.8	6	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 16:14:38.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 16:17:18.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28	16:07:19.1	59.408N	169.504E	33.0N	4.3			SZGRF
Eastern Siberia, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e (P)	Z 16:18:24.6	69.5	11.6	0.8	2	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:02:27.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 19:41:08.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28	20:34:48.8	15.094S	70.402W	33.0N	4.9			SZGRF
2003/12/28	20:34:58.8	15.682S	71.159W	170?	4.5			NEIC

Southern Peru

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:48:13.7	97.1	254.1	0.8	3	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:18:02.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:24:43.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:42:23.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/28

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:11:12.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:05:09.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 00:07:15.5			0.8	78			
	e L	Z 00:07:20.4							
GRA1	e PKP	Z 01:14:40.0			22.0	803		5.5	
	e PKP	Z 00:07:22.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:08:20.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:22:34.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29	01:30:55.7	42.850N	145.190E	33.0N	6.1	6.4		SZGRF
2003/12/29	01:30:54.6	42.468N	144.540E	33N	5.7	5.8		NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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BSEG	e P	Z	01:42:40.9	75.9	33.0	1.5	229	6.1	
	e S	T	01:52:23.0						
RUE	e P	Z	01:42:41.1	76.0	35.2	1.6	418	6.3	
CLL	i P	+ Z	01:42:48.6	77.2	34.5	1.3	199	6.1	
	e pP	Z	01:43:02.1						
	e PP	Z	01:45:47.1						
	e PPP	R	01:47:27.8						
	e S	T	01:52:33.2						
	e SKSac	R	01:52:53.5						
	e PS	Z	01:53:20.9						
	e (SS)	N	01:58:06.5						
	e (SSS)	N	02:01:58.9						
	e LQ	T	02:06:27.5						
	e LR	Z	02:09:00.0						
	e L	Z	02:20:35.9			18.0	20613		6.5
NRDL	e P	Z	01:42:48.0	77.2	32.7	2.0	358	6.2	
BRG	e P	Z	01:42:48.1	77.2	35.0	2.5	524	6.2	
CLZ	e P	Z	01:42:50.8	77.7	32.8	1.7	396	6.3	
	e S	T	01:52:41.6						
IBBN	e P	Z	01:42:52.9	78.1	31.1	1.7	364	6.2	
WERD	e P	Z	01:42:53.5	78.2	33.9	2.1	322	6.1	
GUNZ	e P	Z	01:42:53.9	78.2	33.9	2.3	474	6.2	
MOX	e P	Z	01:42:53.8	78.3	33.5	2.1	399	6.2	
UBBA	e P	Z	01:42:55.8	78.7	32.4	1.9	226	5.9	
GEC2	e P	Z	01:42:57.9	79.0	34.6	1.9	184	5.8	
BUG	e P	Z	01:42:57.7	79.0	30.7	2.0	389	6.1	
WET	e P	Z	01:42:58.6	79.1	34.1	1.7	269	6.0	
	e S	T	01:52:57.3						
GRA1	e P	Z	01:42:59.4	79.2	33.1	1.9	664	6.3	
	e L	Z	02:21:36.9			18.2	16777		6.4
TNS	e P	Z	01:43:01.6	79.7	31.3	2.0	250	5.8	
FUR	e P	Z	01:43:06.0	80.5	33.0	1.6	393	6.2	
STU	e P	Z	01:43:06.9	80.7	31.7	1.4	126	5.8	
WLF	e P	Z	01:43:08.4	80.9	29.7	2.2	481	6.1	
	e S	T	01:53:17.4						
BFO	e P	Z	01:43:10.4	81.4	31.1	2.0	370	6.2	

Date 2003/12/29 Origin Time Lat Long Depth mb Ms ML Source

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e PKP Z 06:13:59.2

Date 2003/12/29 Origin Time Lat Long Depth mb Ms ML Source

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 07:00:13.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 07:27:02.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 08:19:10.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:00:38.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29	11:48:45.4	22.536S	169.644E	27D	5.8	5.3		NEIC
Southeast of Loyalty Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z 12:08:24.2	146.0	41.0	2.3	883			
	e	12:08:33.2							
	e PP	Z 12:11:52.8							
	e L	Z 13:16:02.7			20.0	859		5.5	
GRA1	e PKP	Z 12:08:27.4	148.0	39.8					
	e L	Z 13:19:01.3			21.9	555		5.3	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:15:59.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2003/12/29												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e PKP	Z 14:42:10.4									
2003/12/29												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e PKP	Z 14:51:39.4									
2003/12/29	15:04:50.0	0.447N	99.400E	19.1	5.2							
Northern Sumatera, Indonesia												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e P	Z 15:17:41.4	88.5	91.1	0.9	10	5.2				
		e pP	Z 15:17:47.0									
2003/12/29												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e PKP	Z 15:19:45.3									
2003/12/29												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e PKP	Z 15:23:43.5									
2003/12/29												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		

GRA1 e PKP Z 15:41:20.3

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/29

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 16:05:08.1

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/29

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 16:44:09.1

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/29

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 16:44:24.3

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/29

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 17:53:31.0

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/29

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKP Z 18:38:46.3

Date Origin Time Lat Long Depth mb Ms ML Source
2003/12/30

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
GRA1 e PKPbc Z 00:33:36.5

e PKPab Z 00:33:45.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2003/12/30												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e PKP	Z 01:30:32.5									

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2003/12/30												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	CLL	e P	Z 04:12:27.4									
	GEC2	e P	Z 04:12:05.5									
	GUNZ	e P	Z 04:12:23.9									
	MOX	e P	Z 04:12:29.8									
	WET	e P	Z 04:12:10.8									

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2003/12/30												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	GRA1	e PKP	Z 05:30:15.0									

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source				
2003/12/30	05:31:41.1	41.846N	14.901E	10.0G		3.0	4.8	SZGRF				
Southern Italy												
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML		
	KBA	e Pn	Z 05:33:01.4	5.3	167.5							
	ARSA	e Pn	Z 05:33:00.0	5.4	184.9							
	MOA	e Pn	Z 05:33:09.7	6.0	175.5							
		e Sn	N 05:34:18.9									
	DAVA	e Pn	Z 05:33:17.6	6.5	144.9							
	GEC2	e Pn	Z 05:33:23.8	7.0	172.7							
		e Sn	N 05:34:41.3									
	WET	e Pn	Z 05:33:28.2	7.4	168.3							
		e Sn	N 05:34:47.5									
	BFO	e Pn	Z 05:33:35.9	8.0	142.0							
		e Sn	N 05:35:02.3									
	GRA1	e L	Z 05:36:58.0	8.3	160.5	20.5	338			3.0		

MOX	e Pn	Z	05:33:50.5	9.1	164.3
	e Sn	N	05:35:28.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 06:24:46.9							
	e PKPab	Z 06:24:52.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 06:31:24.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 06:48:46.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 07:26:38.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	07:35:58.5	43.500N	146.500E	32.8	5.3	5.0		SZGRF
2003/12/30	07:35:55.5	43.054N	146.885E	33N	5.2	4.7		NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 07:47:43.5	76.1	31.2	0.8	43	5.6		
RUE	e P	Z 07:47:44.2	76.3	33.3	0.9	43	5.6		
NRDL	e P	Z 07:47:50.6	77.4	30.8	0.9	20	5.2		
CLL	i P	+ Z 07:47:51.1	77.5	32.6	0.6	47	5.8		
	e pP	Z 07:48:00.2							

	e sP	Z	07:48:04.1									
	e PP	R	07:50:49.0									
	e S	T	07:57:34.0									
	e SP	R	07:58:20.9									
	e LQ	T	08:11:23.2									
	e LR	Z	08:14:32.5									
	e L	Z	08:26:54.9			20.0	1185			5.2		
BRG	e P	Z	07:47:51.2	77.6	33.2	0.9	13			5.1		
CLZ	e P	Z	07:47:53.9	77.9	30.9	0.8	38			5.6		
IBBN	e P	Z	07:47:55.8	78.3	29.2	0.7	47			5.7		
	e pP	Z	07:48:05.1									
	e sP	Z	07:48:09.3									
WERD	e P	Z	07:47:56.4	78.5	32.1	0.9	8			4.9		
GUNZ	e P	Z	07:47:56.8	78.5	32.1	0.7	18			5.3		
MOX	e P	Z	07:47:56.6	78.5	31.6	0.7	15			5.2		
BUG	e P	Z	07:48:00.5	79.2	28.8	1.0	27			5.2		
GEC2	e P	Z	07:48:01.1	79.3	32.8	0.8	9			4.8		
WET	e P	Z	07:48:01.8	79.4	32.3	0.9	19			5.1		
GRA1	e P	Z	07:48:02.5	79.5	31.3	0.8	48			5.6		
	e pP	Z	07:48:11.1									
	e sP	Z	07:48:16.2									
	e L	Z	08:29:24.5			20.1	711			5.0		
TNS	e P	Z	07:48:04.4	79.9	29.5	0.8	13			4.9		
FUR	e P	Z	07:48:09.0	80.8	31.2	0.9	38			5.3		
	e pP	Z	07:48:18.4									
	e sP	Z	07:48:22.9									

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 09:22:40.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 09:46:04.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	09:50:53.3	48.310N	153.040E	33.0N	6.2	5.8		SZGRF
2003/12/30	09:50:44.2	47.165N	154.068E	33N	5.5	5.6		NEIC

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	10:02:14.6	73.0	26.7	1.0	539	6.6		
BSEG	e P	Z	10:02:22.4	74.3	24.7	1.1	234	6.2		
RUE	e P	Z	10:02:24.5	74.8	26.8	1.1	459	6.5		
NRDL	e P	Z	10:02:30.2	75.7	24.4	1.1	174	6.1		
CLL	e P	Z	10:02:31.8	76.0	26.1	1.0	456	6.6		
	e PP	Z	10:05:25.0							
	e PPP	Z	10:07:16.8							
	e S	T	10:12:19.0							
	e SP	T	10:12:54.2							
	e SS	R	10:17:42.1							
	e SSS	T	10:20:34.4							
	e LQ	T	10:26:10.0							
	e LQ	Z	10:28:14.0							
	e L	Z	10:39:13.2			20.0	6481		5.9	
BRG	e P	Z	10:02:32.2	76.1	26.7	1.2	171	6.1		
CLZ	e P	Z	10:02:33.6	76.2	24.5	1.0	314	6.4		
IBBN	e P	Z	10:02:34.5	76.4	22.8	1.1	331	6.3		
WERD	e P	Z	10:02:37.5	77.0	25.6	1.2	188	6.0		
MOX	e P	Z	10:02:37.5	77.0	25.2	1.0	219	6.1		
GUNZ	e P	Z	10:02:37.9	77.0	25.6	1.0	170	6.0		
UBBA	e P	Z	10:02:38.7	77.3	24.1	0.9	101	5.9		
BUG	e P	Z	10:02:39.6	77.4	22.4	1.2	210	6.1		
GRA1	e P	Z	10:02:43.4	78.0	24.8	1.0	513	6.5		
	e L	Z	10:40:01.2			20.6	5229		5.8	
WET	e P	Z	10:02:43.6	78.0	25.8	1.1	254	6.2		
GEC2	e P	Z	10:02:43.4	78.0	26.3	1.1	107	5.8		
TNS	e P	Z	10:02:44.5	78.2	23.1	1.2	192	6.0		
WLF	e P	Z	10:02:50.6	79.3	21.6	1.6	280	6.1		
FUR	e P	Z	10:02:50.9	79.3	24.7	1.1	363	6.4		
STU	e P	Z	10:02:50.7	79.3	23.5	1.1	201	6.2		
BFO	e P	Z	10:02:54.1	80.0	22.9	1.0	155	6.1		

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/30 10:46:30.0 47.179N 155.196E 33.0N 4.8
 East of Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	10:58:26.9	78.2	24.1	0.9	9	4.8		

Date Origin Time Lat Long Depth mb Ms ML Source
 2003/12/30 14:37:51.0 47.632N 154.755E 33.0N 5.2
 Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:49:44.9	77.7	24.2	0.9	18	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	15:32:38.2	34.025N	139.513E	33.0N	4.8			SZGRF
2003/12/30	15:32:35.8	34.190N	139.134E	33N	4.4			NEIC

Near south coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:45:08.6	84.3	41.0	1.2	8	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	16:41: 8.7	43.405N	13.748E	10.0G				SZGRF

Central Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pn	Z 16:42:09.1	4.0	198.6					
MOA	e Pn	Z 16:42:18.0	4.5	184.8					
DAVA	e Pn	Z 16:42:21.8	4.7	143.6					
GEC2	e Pn	Z 16:42:29.8	5.4	179.6					
WET	e Pn	Z 16:42:34.3	5.8	173.7					
BFO	e Pn	Z 16:42:38.6	6.2	140.6					
GRA1	e Pn	Z 16:42:44.5	6.5	163.6					
MOX	e Pn	Z 16:42:56.0	7.4	167.9					
BRG	e Pn	Z 16:42:55.0	7.5	181.1					
TNS	e Pn	Z 16:42:59.2	7.7	150.0					
CLL	e Pn	Z 16:43:01.8	7.9	176.1					
CLZ	e Pn	Z 16:43:12.3	8.7	163.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:11:18.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	19:33:13.7	46.020N	154.671E	33.0N	4.6			SZGRF

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:45:15.6	79.2	24.9	1.0	8	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	19:53:4.0	49.239N	153.861E	33.0N	4.7			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:04:48.3	76.0	24.1	0.8	6	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	22:04:48.1	48.400N	152.230E	33.0N	5.9			SZGRF
2003/12/30	22:04:37.9	47.220N	154.162E	33N	5.3			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 22:16:07.6	73.0	26.6	0.6	246	6.5		
BSEG	e P	Z 22:16:15.3	74.3	24.6	0.9	77	5.8		
RUE	e P	Z 22:16:17.4	74.7	26.7	0.9	160	6.2		
NRDL	e P	Z 22:16:23.1	75.7	24.3	0.9	62	5.6		
CLL	i P	Z 22:16:24.7	76.0	26.0	0.7	230	6.4		
	e S	T 22:26:11.3							
	e PS	Z 22:26:51.0							
	e SS	R 22:31:25.7							
	e LR	Z 22:42:30.9							
	e L	Z 22:52:53.8			20.0	401		4.7	
BRG	e P	Z 22:16:25.1	76.1	26.6	0.9	57	5.6		
CLZ	e P	Z 22:16:26.5	76.2	24.4	0.8	126	6.0		
IBBN	e P	Z 22:16:27.5	76.4	22.7	0.8	106	5.9		
WERD	e P	Z 22:16:30.4	77.0	25.5	0.9	60	5.7		
MOX	e P	Z 22:16:30.4	77.0	25.1	0.8	82	5.9		
GUNZ	e P	Z 22:16:30.8	77.0	25.5	0.8	90	6.0		
UBBA	e P	Z 22:16:33.8	77.2	24.1	0.8	32	5.5		
BUG	e P	Z 22:16:32.5	77.3	22.3	0.8	67	5.8		
GRA1	e P	Z 22:16:36.4	77.9	24.7	0.7	224	6.4		
WET	e P	Z 22:16:36.5	78.0	25.7	0.8	86	5.9		
GEC2	e P	Z 22:16:36.1	78.0	26.2	0.8	37	5.6		
TNS	e P	Z 22:16:37.5	78.2	23.0	0.7	90	6.0		
FUR	e P	Z 22:16:43.8	79.3	24.6	0.9	124	6.1		
STU	e P	Z 22:16:43.6	79.3	23.4	0.8	73	5.9		
BFO	e P	Z 22:16:47.1	79.9	22.8	0.8	71	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/30	22:41:43.1	47.122N	153.037E	33.0N	4.9			SZGRF

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	22:53:37.1	77.7	25.5	1.0	9	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31	03:05:11.4	49.070N	152.550E	33.0N	5.3			SZGRF
2003/12/31	03:04:58.5	47.192N	154.101E	33N	5.0			NEIC

Northwest of Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	03:16:35.0	74.3	24.6	0.9	20	5.2		
RUE	e P	Z	03:16:38.2	74.7	26.7	1.0	41	5.5		
CLL	e P	Z	03:16:44.9	76.0	26.1	1.0	53	5.5		
BRG	e P	Z	03:16:45.9	76.1	26.6	0.9	16	5.0		
CLZ	e P	Z	03:16:47.0	76.2	24.5	0.9	32	5.3		
IBBN	e P	Z	03:16:48.1	76.4	22.8	1.0	41	5.4		
MOX	e P	Z	03:16:50.9	77.0	25.1	1.0	20	5.1		
GUNZ	e P	Z	03:16:51.3	77.0	25.6	0.9	17	5.1		
BUG	e P	Z	03:16:53.4	77.3	22.4	1.0	20	5.2		
GRA1	e P	Z	03:16:56.8	77.9	24.8	1.0	60	5.7		
WET	e P	Z	03:16:57.1	78.0	25.8	1.0	24	5.3		
GEC2	e P	Z	03:16:56.8	78.0	26.3	1.0	9	4.9		
TNS	e P	Z	03:16:58.0	78.2	23.1	0.8	19	5.3		
FUR	e P	Z	03:17:04.3	79.3	24.7	0.9	24	5.3		
STU	e P	Z	03:17:04.3	79.3	23.4	0.9	27	5.4		
BFO	e P	Z	03:17:07.5	80.0	22.8	0.9	14	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31	03:44:45.4	48.090N	152.980E	33.0N	5.3			SZGRF
2003/12/31	03:44:37.7	47.117N	154.022E	33N	5.0			NEIC

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	03:56:15.7	74.4	24.7	0.9	22	5.3		
RUE	e P	Z	03:56:18.0	74.8	26.8	0.9	45	5.6		
NRDL	e P	Z	03:56:23.3	75.7	24.4	0.9	15	5.0		
CLL	e P	Z	03:56:24.8	76.0	26.2	0.8	55	5.6		
BRG	e P	Z	03:56:25.4	76.2	26.7	1.0	19	5.1		
CLZ	e P	Z	03:56:26.7	76.3	24.5	0.9	39	5.4		
IBBN	e P	Z	03:56:27.5	76.5	22.9	0.8	35	5.4		
WERD	e P	Z	03:56:30.7	77.0	25.6	1.0	15	5.0		
MOX	e P	Z	03:56:30.6	77.0	25.2	1.0	26	5.2		
GUNZ	e P	Z	03:56:31.1	77.1	25.6	0.9	24	5.2		
UBBA	e P	Z	03:56:32.2	77.3	24.2	0.7	11	5.0		
BUG	e P	Z	03:56:32.8	77.4	22.5	0.9	27	5.3		

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GRA1	e P	Z	03:56:36.6	78.0	24.9	0.7	67	5.9
WET	e P	Z	03:56:36.5	78.0	25.9	0.9	33	5.4
GEC2	e P	Z	03:56:36.3	78.1	26.4	1.0	17	5.1
TNS	e P	Z	03:56:37.7	78.2	23.1	0.7	28	5.5
STU	e P	Z	03:56:43.9	79.4	23.5	0.8	30	5.5
BFO	e P	Z	03:56:47.4	80.0	22.9	0.8	22	5.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/31

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 05:59:47.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/31

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 10:50:44.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/31

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 13:07:57.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/31

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 13:58:37.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/12/31

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:54:12.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31	16:15:58.7	48.812N	156.395E	33.0N	4.9			SZGRF
2003/12/31	16:15:54.9	47.970N	153.480E	33N	4.5			NEIC

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:27:48.9	77.1	24.9	0.9	9	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:48:23.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31	21:57:14.9	47.880N	153.740E	33.0N	5.4	5.3		SZGRF
2003/12/31	21:57:08.6	47.213N	154.082E	33N	5.2	5.2		NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 22:08:46.6	74.3	24.7	1.8	80	5.5		
RUE	e P	Z 22:08:48.9	74.7	26.7	1.3	84	5.7		
NRDL	e P	Z 22:08:54.4	75.7	24.4	1.8	78	5.4		
BRG	e P	Z 22:08:56.6	76.1	26.6	1.5	44	5.3		
CLZ	e P	Z 22:08:57.8	76.2	24.5	1.7	143	5.7		
CLL	e P	Z 22:08:54.5	76.3	26.2	1.5	103	5.7		
	e PP	Z 22:11:34.9							
	e PPP	R 22:13:40.7							
	e S	T 22:18:39.8							
	e SP	Z 22:19:19.2							
	e (SS)	R 22:24:21.4							
	e SSS	T 22:26:53.3							
	e LQ	T 22:33:56.9							
	e LR	Z 22:34:40.7							
	e L	Z 22:45:49.3			18.0	2099		5.5	
IBBN	e P	Z 22:08:58.7	76.4	22.8	1.8	115	5.6		
WERD	e P	Z 22:09:01.7	76.9	25.6	1.9	86	5.5		
MOX	e P	Z 22:09:01.6	76.9	25.1	1.8	101	5.5		
GUNZ	e P	Z 22:09:02.1	77.0	25.6	1.9	94	5.5		
UBBA	e P	Z 22:09:03.0	77.2	24.1	2.1	113	5.5		
BUG	e P	Z 22:09:03.7	77.3	22.4	1.2	37	5.3		
GRA1	e P	Z 22:09:07.6	77.9	24.8	1.1	75	5.7		
	e L	Z 22:46:37.7			18.9	1457		5.3	
WET	e P	Z 22:09:07.7	78.0	25.8	1.2	41	5.4		
GEC2	e P	Z 22:09:07.3	78.0	26.3	0.9	10	4.9		

TNS	e P	Z	22:09:08.7	78.2	23.1	1.2	36	5.4
FUR	e P	Z	22:09:15.0	79.3	24.7	1.0	43	5.5
STU	e P	Z	22:09:14.8	79.3	23.4	1.2	36	5.4
BFO	e P	Z	22:09:18.2	79.9	22.8	0.9	20	5.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31	22:52: 4.6	46.287N	155.586E	33.0N	4.6			SZGRF

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:04:06.6	79.2	24.2	1.3	10	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/12/31	23:42: 0.2	47.363N	153.351E	33.0N	4.4			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:53:53.3	77.6	25.2	0.9	3	4.4		

Format description

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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