

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

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

JULY 2003      UPDATED 22.APRIL.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
2003/07/01	02:42:1.5	57.535N	157.006W	33.0N	4.9			SZGRF
2003/07/01	02:42:06.6	57.698N	156.192W	99	4.6			NEIC

Alaska Peninsula, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e P	Z 02:53:06.5	69.2	352.2	0.8	8	4.9		
CLZ	e P	Z 02:53:11.2	69.9	352.4	1.0	14	5.0		
BUG	e P	Z 02:53:11.3	70.0	350.7	0.9	18	5.2		
CLL	e P	Z 02:53:14.6	70.6	353.9	1.0	8	4.8		
BRG	e P	Z 02:53:17.9	71.1	354.4	1.2	7	4.7		
MOX	e P	Z 02:53:18.3	71.2	353.2	0.7	10	5.0		
TNS	e P	Z 02:53:19.6	71.3	351.4	1.4	15	4.9		
GRA1	e P	Z 02:53:24.3	72.1	353.0	0.8	9	4.9		
STU	e P	Z 02:53:28.4	72.8	351.9	0.8	16	5.2		
GEC2	e P	Z 02:53:29.8	73.1	354.4	0.7	4	4.6		
BFO	e P	Z 02:53:30.4	73.2	351.4	0.9	6	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	05:52:26.1	4.561N	122.652E	637D	5.8			NEIC

Mindanao, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e Pdiff	Z 06:04:54.0	97.3	71.5					
	e PP	Z 06:09:04.0							
RUE	e PP	Z 06:09:06.7	97.7	72.1					
	e SKSac	E 06:14:34.1							
	e Sdiff	N 06:15:26.4							
	e sS	N 06:19:28.0							

	e SS	N	06:22:34.5				
BRG	e sP	Z	06:08:05.2	98.1	72.5		
	e PP	Z	06:09:09.6				
	e SKSac	E	06:14:35.4				
	e Sdiff	N	06:15:35.2				
	e sS	N	06:19:34.5				
	e SS	N	06:22:41.5				
CLL	i Pdiff	- Z	06:04:59.3	98.5	71.7	1.1	64
	e pP	Z	06:07:10.0				
	e sP	Z	06:08:12.7				
	e PP	Z	06:09:10.6				
	e pPP	Z	06:10:57.6				
	e sPP	Z	06:12:03.5				
	e sPPP	Z	06:14:18.0				
	e SKSac	R	06:14:36.5				
	e Sdiff	T	06:15:35.0				
	e SP	Z	06:16:52.8				
	e sSdiff	T	06:19:40.6				
	e SS	T	06:22:39.8				
GEC2	e PP	Z	06:09:16.4	98.8	72.6		
	e pPP	Z	06:11:04.2				
	e sPP	Z	06:12:09.6				
	e SKSac	E	06:14:40.7				
	e Sdiff	N	06:15:42.8				
	e sS	N	06:19:41.1				
WET	e PP	Z	06:09:19.4	99.2	71.9		
	e pPP	Z	06:11:17.3				
	e sPP	Z	06:12:13.6				
	e SKSac	E	06:14:42.6				
	e Sdiff	N	06:15:42.5				
	e sS	N	06:19:45.4				
	e SS	N	06:22:58.8				
MOX	e Pdiff	Z	06:05:04.4	99.5	70.6		
	e pP	Z	06:07:17.1				
	e PP	Z	06:09:22.5				
	e SKSac	E	06:14:42.9				
	e Sdiff	N	06:15:42.4				
	e sS	N	06:19:47.1				
	e SS	N	06:23:01.3				
NRDL	e Pdiff	Z	06:05:05.9	99.8	69.1		
	e PP	Z	06:09:24.6				
	e SKSac	E	06:14:45.5				
	e Sdiff	N	06:15:46.5				
	e sS	N	06:19:48.4				
	e SS	N	06:23:05.2				
CLZ	e PP	Z	06:09:25.7	99.8	69.4		
	e SKSac	E	06:14:45.4				
	e Sdiff	N	06:15:47.0				
	e sS	N	06:19:50.5				

GRA1	e Pdiff	Z	06:05:07.1	100.1	70.5
	e PP	Z	06:09:25.9		
	e pPP	Z	06:11:19.1		
	e sPP	Z	06:12:21.1		
	e SKSac	E	06:14:46.8		
	e Sdiff	N	06:15:51.1		
	e sS	N	06:19:53.6		
	e SS	N	06:23:11.5		
FUR	e PP	Z	06:09:33.4	100.6	70.8
IBBN	e PP	Z	06:09:33.3	101.2	67.2
TNS	e Pdiff	Z	06:05:13.8	101.6	68.1
	e PP	Z	06:09:36.8		
	e SKSac	E	06:14:54.4		
	e Sdiff	N	06:16:03.9		
	e sS	N	06:20:05.7		
	e SS	N	06:23:28.6		
STU	e PP	Z	06:09:37.5	101.6	69.0
	e SKSac	E	06:14:52.5		
	e Sdiff	N	06:16:01.9		
	e sS	N	06:20:04.3		
	e SS	N	06:23:32.0		
BUG	e PP	Z	06:09:38.1	101.8	66.9
	e sPP	Z	06:12:32.3		
	e SKSac	E	06:14:54.9		
	e Sdiff	N	06:16:04.8		
	e sS	N	06:20:05.4		
BFO	e PP	Z	06:09:42.3	102.3	68.4
	e SKSac	E	06:14:56.1		
	e Sdiff	N	06:16:07.6		
	e sS	N	06:20:10.5		
	e SS	N	06:23:40.9		
WLF	e PP	Z	06:09:48.7	103.1	66.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	12:10:12.9	15.322S	173.464W	33N	4.5			NEIC
Tonga								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:29:50.2	145.4	8.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	13:10:58.5	15.372S	173.411W	33N	4.8	4.4		NEIC
Tonga Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1	e PKP	Z	13:30:36.3	145.5	7.9
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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	13:45:29.7	15.327S	173.480W	33N	4.8	4.4		NEIC
Tonga Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	14:05:07.3	145.4	8.0					
	e pPKP	Z	14:05:16.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	17:00:23.5	13.140N	125.660E	52.8	5.6	5.8		SZGRF
2003/07/01	17:00:22.1	12.723N	124.847E	33N	5.5	5.9		NEIC
Philippine Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	17:13:31.4	92.2	65.6	0.8	54	5.9		
BRG	e P	Z	17:13:34.0	92.8	65.8	1.2	22	5.5		
CLL	i P	Z	17:13:35.0	93.2	65.1	1.8	52	5.7		
	e PP	Z	17:17:27.3							
	e SKKSac	R	17:24:25.5							
	e SS	T	17:30:57.9							
	e SSS	T	17:34:30.3							
	e SSSS	T	17:37:57.1							
	e LR	Z	17:47:02.1							
	e L	Z	18:00:27.4			20.0	2761		5.7	
GEC2	e P	Z	17:13:38.6	93.8	65.7	1.6	43	5.5		
WERD	e P	Z	17:13:39.4	93.9	64.6	1.5	31	5.4		
WET	e P	Z	17:13:40.7	94.1	65.1	1.5	19	5.2		
MOX	e P	Z	17:13:40.4	94.2	64.0	1.2	21	5.5		
NRDL	e P	Z	17:13:41.2	94.2	62.7	1.3	41	5.6		
CLZ	e P	Z	17:13:41.5	94.4	62.9	1.2	31	5.6		
GRA1	e P	Z	17:13:44.3	94.9	63.8	1.7	52	5.7		
	e pP	Z	17:13:59.1							
	e S	N	17:24:59.5							
	e SS	N	17:31:28.2							
	e L	Z	18:00:54.5			21.6	3825		5.8	
IBBN	e P	Z	17:13:46.9	95.6	60.8	1.3	54	5.9		
TNS	e P	Z	17:13:50.0	96.2	61.5	1.2	26	5.6		
BUG	e P	Z	17:13:49.6	96.3	60.4	1.3	21	5.6		
STU	e P	Z	17:13:51.0	96.5	62.2					
BFO	e P	Z	17:13:53.8	97.2	61.6	1.2	15	5.5		

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Thu Apr 23 08:38:25 2020

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	17:50:53.5	30.672N	140.201E	33.0N	5.0			SZGRF

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:03:39.5	87.8	42.0	0.9	7	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/01	20:25:3.7	43.392N	19.206E	10.0G				SZGRF

Northwestern Balkan Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pn	Z 20:26:13.6	4.6	144.8					
MOA	e Pn	Z 20:26:27.4	5.6	140.4					
	e Sn	N 20:27:30.0							
GEC2	e Pn	Z 20:26:41.3	6.7	143.0					
	e Sn	E 20:27:53.8							
DAVA	e Pn	Z 20:26:54.4	7.6	117.3					
GRB3	e Pn	Z 20:26:56.7	7.8	136.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/02	00:47:12.8	3.240S	101.090E	33.0N	5.2			SZGRF
2003/07/02	00:47:06.1	3.704S	101.894E	33N	5.3	4.3		NEIC

Southern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 01:00:12.8	91.6	93.9	0.8	12	5.3		
GEC2	e P	Z 01:00:12.8	91.6	93.8	0.9	11	5.2		
RUE	e P	Z 01:00:13.9	91.8	93.8	0.9	24	5.5		
WET	e P	Z 01:00:15.3	92.2	93.2	0.9	9	5.1		
WERD	e P	Z 01:00:17.0	92.6	92.7	0.9	8	5.1		
MOX	e P	Z 01:00:19.4	93.0	92.1	0.9	6	5.0		
GRA1	e P	Z 01:00:21.0	93.3	91.9	0.8	15	5.4		
TNS	e P	Z 01:00:28.8	95.1	89.7	0.9	12	5.2		
IBBN	e P	Z 01:00:30.6	95.5	89.0	0.7	10	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/02	23:52:27.2	42.470N	145.860E	31.8	5.9	6.1		SZGRF
2003/07/02	23:52:26.1	42.355N	144.804E	23D	5.7	5.5		NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 00:04:07.3	74.6	35.0	2.5	1710	6.6		

RUE	e P	Z	00:04:15.8	76.2	35.0	2.0	708	6.5
NRDL	e P	Z	00:04:22.6	77.4	32.6	2.1	311	6.1
CLL	i P	+ Z	00:04:22.5	77.4	34.4	1.0	197	6.2
	e PP	Z	00:07:20.0					
	e PPP	Z	00:09:02.2					
	e PPPP	Z	00:10:34.0					
	e S	T	00:14:12.4					
	e ScS	Z	00:14:32.3					
	e SP	Z	00:14:55.2					
	e (SS)	T	00:19:04.9					
	e (SSS)	N	00:23:12.6					
	e LQ	T	00:28:59.7					
	e LR	Z	00:30:22.3					
	e L	Z	00:42:11.6			18.0	8626	6.1
BRG	e P	Z	00:04:22.8	77.4	34.9	1.1	90	5.8
CLZ	e P	Z	00:04:25.7	77.9	32.7	1.0	184	6.1
IBBN	e P	Z	00:04:27.6	78.3	30.9	1.0	191	6.1
WERD	e P	Z	00:04:28.2	78.4	33.8	1.2	81	5.6
MOX	e P	Z	00:04:28.4	78.4	33.4	1.1	100	5.7
GEC2	e P	Z	00:04:32.6	79.2	34.5	1.1	74	5.5
BUG	e P	Z	00:04:32.4	79.2	30.5	1.1	118	5.7
WET	e P	Z	00:04:33.4	79.2	34.0	1.1	156	5.9
GRA1	e P	Z	00:04:34.1	79.4	33.0	1.0	242	6.1
	e pP	Z	00:04:43.3					
	e S	E	00:14:33.8					
	e L	Z	00:43:02.5			19.2	8275	6.1
TNS	e P	Z	00:04:36.3	79.9	31.2	1.1	88	5.6
STU	e P	Z	00:04:41.5	80.9	31.6	1.0	133	5.9
WLF	e P	Z	00:04:42.9	81.1	29.6	2.4	393	6.1
BFO	e P	Z	00:04:45.0	81.5	31.0	1.1	91	5.8

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/03 00:08:29.6 20.210S 173.010E 33N 4.9  
 Vanuatu Islands Region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:28:10.4							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/03 05:54:1.4 44.435N 85.734E 35.9 4.9 SZGRF  
 2003/07/03 05:53:52.5 43.926N 86.239E 33N 4.7 NEIC  
 Northern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:02:44.5	49.5	66.2	1.1	14	4.9		

e pP Z 06:02:54.7  
e sP Z 06:02:57.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	06:05:37.0	36.705N	92.417E	33.0G	5.0			SZGRF
2003/07/03	06:05:23.7	35.722N	93.781E	33N	4.9			NEIC

Qinghai, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:15:24.3	59.1	69.7	1.3	23	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	06:21:53.4	21.388S	174.473W	33N	5.4	5.7		NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPbc	Z 06:41:40.2	148.3	14.7					
	e	06:41:49.4							
NRDL	e PKPbc	Z 06:41:41.4	148.7	8.2					
IBBN	e PKPbc	Z 06:41:42.0	149.0	4.0					
CLZ	e PKPbc	Z 06:41:43.0	149.3	8.9					
	e	06:41:52.1							
CLL	e PKPpdf	Z 06:41:41.1	149.5	13.8	1.6	104			
	e PKPbc	Z 06:41:43.1							
	e	06:41:53.0							
	e PP	Z 06:45:12.0							
	e SS	E 07:04:25.9							
	e SSS	E 07:10:11.8							
	e L	Z 07:51:21.7			20.0	1768		5.9	
BRG	e PKPbc	Z 06:41:44.3	149.8	15.7					
	e	06:41:53.6							
BUG	e PKPbc	Z 06:41:44.2	149.9	3.2					
	e	06:41:53.2							
MOX	e PKPbc	Z 06:41:45.5	150.4	11.5					
	e	06:41:54.9							
WERD	e PKPbc	Z 06:41:45.9	150.5	12.9					
	e	06:41:55.2							
TNS	e PKPbc	Z 06:41:47.1	151.1	5.6					
GRA1	e PKPbc	Z 06:41:48.2	151.3	11.1					
	e L	Z 07:50:22.4			21.4	1319		5.7	
WET	e PKPbc	Z 06:41:48.5	151.6	14.5					
WLF	e PKPbc	Z 06:41:49.2	151.7	1.2					
GEC2	e PKPbc	Z 06:41:48.9	151.8	16.3					
STU	e PKPbc	Z 06:41:50.2	152.5	7.4					
BFO	e PKPbc	Z 06:41:51.2	153.0	5.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	13:06:17.9	5.412S	151.796E	33N	5.5	5.3		NEIC
New Britain, Papua New Guinea, region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPdf	Z	13:25:12.5	122.9	51.4	1.5	17			
	e PP	Z	13:26:55.8							
	e PPP	Z	13:29:30.7							
	e PS	R	13:36:46.9							
	e PPS	Z	13:38:10.1							
	e SS	N	13:43:36.0							
	e PSPS	R	13:44:04.3							
	e SSS	R	13:48:04.8							
	e L	Z	14:21:21.5			20.0	1021		5.5	
GRA1	e PKPdf	Z	13:25:15.9	124.7	50.3					
	e pPKPdf	Z	13:25:27.4							
	e L	Z	14:20:35.5			21.4	835		5.4	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	14:59:25.3	33.410N	60.270E	33.0N	4.8			SZGRF
2003/07/03	14:59:31.2	35.447N	60.739E	33N	5.4	5.0		NEIC
Northern and central Iran								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	15:06:38.7	36.7	96.4	1.3	17	4.6		
	e S	N	15:12:29.0							
CLL	i P	+ Z	15:06:43.8	37.3	96.2	1.4	15	4.5		
	e PP	Z	15:08:09.4							
	e PcP	Z	15:09:02.8							
	e S	N	15:12:32.4							
	e SS	N	15:15:20.7							
	e L	Z	15:26:30.4			18.0	702		4.5	
MOX	e P	Z	15:06:51.1	38.1	94.1	0.9	17	4.6		
	e S	N	15:12:49.6							
GRA1	e P	Z	15:06:52.6	38.3	92.6	1.9	49	4.8		
	e S	N	15:12:54.7							
CLZ	e P	Z	15:06:58.2	39.0	94.6	1.8	64	5.0		
STU	e P	Z	15:07:02.8	39.6	89.9	1.7	73	5.1		
	e S	N	15:13:09.2							
TNS	e S	N	15:13:19.5	40.1	91.1					
WLF	e P	Z	15:07:19.7	41.6	88.7	1.1	21	4.8		
	e S	N	15:13:42.6							



Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	15:27:29.8	5.383S	151.643E	33N	5.0	5.2		NEIC
New Britain, Papua New Guinea, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 15:46:27.9	124.6	50.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	18:57:27.7	18.529S	174.598W	92D	4.8			NEIC
Fiji Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z 19:17:00.9	146.7	13.2	1.4	40			
	e pPKPbc	Z 19:17:28.7							
	e sPKPbc	Z 19:17:39.3							
	e LR	Z 20:07:10.3							
	e L	Z 20:19:56.9			22.0	69		4.4	
GRA1	e PKPbc	Z 19:17:06.4	148.5	10.6					
	e pPKP	Z 19:17:34.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/03	21:58:14.5	34.260N	26.110E	35	4.1			NEIC
Crete, Greece								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:02:14.9	17.2	143.2					
WERD	e Pn	Z 22:02:35.1	19.1	142.9					
BFO	e Pn	Z 22:02:37.4	19.3	130.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/04								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:46:26.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/04	00:33:53.3	5.479S	151.657E	33N	5.4	5.9		NEIC
New Britain, Papua New Guinea, region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PP	Z	00:54:17.2	121.7	51.7					
BRG	e PKPdf	Z	00:52:48.9	122.6	52.7					
	e PP	Z	00:54:23.3							
CLL	e Pdiff	Z	00:49:19.3							
	i PKPdf	+ Z	00:52:48.5	122.8	51.5	0.8	12			
	e PP	Z	00:54:22.1							
	e PPP	Z	00:57:08.3							
	e SKKSac	R	01:01:21.8							
	e PS	R	01:04:22.5							
	e PPS	Z	01:05:47.4							
	e SS	T	01:11:14.5							
	e PSPS	R	01:11:42.8							
	e SSS	R	01:15:50.7							
	e L	Z	01:48:46.3			20.0	4083		6.1	
NRDL	e PP	Z	00:54:28.7	123.4	47.8					
CLZ	e PP	Z	00:54:31.0	123.7	48.5					
MOX	e PKPdf	Z	00:52:51.1	123.9	50.4					
	e PP	Z	00:54:32.1							
GEC2	e PKPdf	Z	00:52:51.0	123.9	53.5					
	e PP	Z	00:54:32.4							
WET	e PP	Z	00:54:34.1	124.2	52.5					
IBBN	e PP	Z	00:54:36.5	124.6	45.4					
GRA1	e PKPdf	Z	00:52:52.5	124.7	50.5					
	e PP	Z	00:54:37.4							
	e L	Z	01:49:49.7			21.5	3846		6.0	
BUG	e PP	Z	00:54:42.1	125.4	45.3					
TNS	e PP	Z	00:54:44.1	125.7	47.2					
STU	e PP	Z	00:54:48.2	126.3	48.8					
BFO	e PP	Z	00:54:52.9	127.0	48.1					
WLF	e PKPdf	Z	00:52:58.2	127.1	45.0					
	e PP	Z	00:54:53.7							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/04 01:15:56.7 20.931S 174.574W 33N 5.1 NEIC  
 Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKP	Z	01:35:40.8	147.8	14.8					
NRDL	e PKP	Z	01:35:41.7	148.2	8.3					
IBBN	e PKP	Z	01:35:42.5	148.6	4.2					
CLZ	e PKP	Z	01:35:43.7	148.9	9.0					
CLL	e (PKPdf)	Z	01:35:39.5	149.1	13.9					
	i PKPbc	+ Z	01:35:43.9			0.8	46			
	e PKPab	Z	01:35:46.9							
BRG	e PKP	Z	01:35:45.0	149.3	15.7					

BUG	e	PKP	Z	01:35:44.8	149.5	3.4
MOX	e	PKP	Z	01:35:46.2	149.9	11.6
WERD	e	PKP	Z	01:35:46.6	150.0	12.9
TNS	e	PKP	Z	01:35:48.0	150.6	5.8
GRA1	e	PKP	Z	01:35:48.8	150.9	11.2
WET	e	PKP	Z	01:35:49.3	151.2	14.5
WLF	e	PKP	Z	01:35:50.0	151.3	1.4
GEC2	e	PKP	Z	01:35:49.6	151.3	16.3
BFO	e	PKP	Z	01:35:52.1	152.5	5.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/04	03:39:06.2	5.446S	151.686E	33N	5.3	4.9		NEIC
New Britain, Papua New Guinea, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e L	Z 04:52:12.2	124.6	50.5	22.0	270		4.9	
GRA1	e PKPdf	Z 03:58:05.0	124.7	50.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/04	07:16:39.4	77.360N	25.270E	33.0N	5.8	4.9		SZGRF
2003/07/04	07:16:45.3	76.307N	22.869E	10G	5.8	5.1		NEIC
Svalbard, Norway, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 07:21:43.9	22.1	6.0	1.4	2000	6.5		
RUE	e P	Z 07:22:03.4	24.1	5.3	1.1	273	5.9		
NRDL	e P	Z 07:22:05.8	24.3	7.3	1.5	441	5.9		
	e S	R 07:26:28.9							
IBBN	e P	Z 07:22:09.5	24.7	8.5	1.4	410	5.9		
CLZ	e P	Z 07:22:11.8	24.9	7.0	1.2	340	5.8		
	e S	R 07:26:41.3							
CLL	e P	Z 07:22:14.0	25.3	5.4	1.5	286	5.8		
	e S	R 07:26:47.5							
BUG	e P	Z 07:22:18.1	25.6	8.5	1.1	339	6.0		
BRG	e P	Z 07:22:17.5	25.7	4.9	1.4	233	5.7		
MOX	e P	Z 07:22:21.4	26.0	6.0	1.5	239	5.7		
	e S	R 07:27:05.3							
WERD	e P	Z 07:22:22.7	26.2	5.6	1.3	235	5.7		
TNS	e P	Z 07:22:27.6	26.7	7.5	1.6	119	5.5		
GRA1	e P	Z 07:22:30.8	27.0	6.0	1.3	398	6.1		
	e L	Z 07:33:45.5			19.6	2774		4.9	
WET	e P	Z 07:22:34.8	27.5	5.1	1.1	172	5.8		
WLF	e P	Z 07:22:35.4	27.5	8.5	1.8	193	5.6		
GEC2	e P	Z 07:22:37.0	27.7	4.7	1.2	137	5.7		
STU	e P	Z 07:22:39.9	28.1	6.8	0.9	60	5.4		

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BFO e P Z 07:22:44.6 28.6 7.1 1.7 122 5.5

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/05

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e PKP Z 20:09:03.0

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/05 23:30:20.6 31.330N 136.350E 33.0N 5.1 SZGRF  
2003/07/05 23:30:25.4 32.622N 136.016E 33N 4.9 4.3 NEIC  
Southeast of Shikoku, Japan

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
BRG e P Z 23:42:46.4 82.2 46.1 1.1 8 4.9  
CLL e P Z 23:42:46.8 82.3 45.5 1.1 13 5.1  
CLZ e P Z 23:42:51.2 83.1 43.6 1.3 28 5.3  
MOX e P Z 23:42:52.8 83.4 44.4 1.6 16 5.0  
GEC2 e P Z 23:42:53.7 83.7 45.7 1.2 8 4.8  
WET e P Z 23:42:55.4 83.9 45.2 1.9 19 5.0  
GRA1 e P Z 23:42:57.4 84.2 44.0 1.7 71 5.5  
BUG e P Z 23:42:59.1 84.7 41.3 1.4 23 5.1  
STU e P Z 23:43:05.0 85.8 42.5  
BFO e P Z 23:43:07.8 86.5 41.9 1.4 8 4.9

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/06 01:19: 5.2 44.420N 149.950E 33.0N 4.6 SZGRF  
Kuril Islands, Russia

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRA1 e P Z 01:31:07.6 79.3 28.7 1.4 11 4.6  
e 01:31:20.4

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/06 04:04:50.0 11.108N 96.914E 33.0N 4.8 SZGRF  
2003/07/06 04:04:58.1 12.198N 95.211E 28D 4.9 NEIC  
Andaman Islands, India, region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
GRB3 e P Z 04:16:47.9 76.5 86.9 1.4 10 4.8  
e PcP Z 04:16:56.0

GRA1	e P	Z	04:16:50.0	76.9	86.5
	e PcP	Z	04:16:57.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/06	16:04:26.3	28.169N	57.113E	23.5	4.6			SZGRF
2003/07/06	16:04:20.4	28.052N	57.661E	33N	4.9	4.1		NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 16:11:49.9	39.5	105.4	0.9	17	4.7		
	e pP	Z 16:11:56.3							
BRG	e pP	Z 16:11:59.9	39.9	108.0					
WET	e P	Z 16:11:54.3	40.1	105.0	2.1	33	4.6		
CLL	e P	Z 16:11:59.6	40.6	107.5	1.2	20	4.6		
	e pP	Z 16:12:05.7							
WERD	e P	Z 16:12:00.3	40.8	105.9	1.5	6	4.0		
GRA1	e P	Z 16:12:04.9	41.2	104.0	2.2	62	4.9		
	e pP	Z 16:12:11.1							
CLZ	e P	Z 16:12:14.0	42.3	105.5	2.0	63	5.0		
NRDL	e P	Z 16:12:16.9	42.6	106.0	1.1	10	4.5		
TNS	e P	Z 16:12:20.2	43.1	102.0	1.5	26	4.7		
IBBN	e P	Z 16:12:27.6	44.0	103.5	1.5	30	4.8		
BUG	e P	Z 16:12:28.2	44.1	102.2	1.1	12	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/06	18:58:07.2	43.275N	15.059E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 18:59:33.5	5.6	169.9					
	e Sn	N 19:00:37.9							
WET	e Sn	N 19:00:47.5	6.1	164.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/06	18:53:19.3	24.610S	12.249W	33.0N	4.9			SZGRF

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:05:10.2	77.2	201.8	1.4	13	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/07/06	19:10:39.7	40.849N	25.151E	10.0G		5.3		SZGRF
2003/07/06	19:10:27.2	40.461N	26.014E	10G	5.2	5.6		NEIC

Aegean Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	19:13:22.2	12.1	129.3	1.8	104			
WET	e P	Z	19:13:31.0	12.7	128.2	1.9	170			
BRG	e P	Z	19:13:39.9	13.4	136.5	1.5	18			
WERD	e P	Z	19:13:44.2	13.8	131.0	1.6	26			
GRA1	e P	Z	19:13:45.5	13.9	126.0	1.4	80			
	e L	Z	19:19:06.7			18.3	24517		5.3	
CLL	e P	Z	19:13:48.2	14.1	135.3	1.4	60			
MOX	e P	Z	19:13:50.7	14.3	129.9	1.6	48			
STU	e P	Z	19:13:53.2	14.5	118.6	1.5	78			
RUE	e P	Z	19:13:57.4	14.6	140.3	1.7	89			
BFO	e P	Z	19:13:57.7	14.8	115.5	1.7	52			
CLZ	e P	Z	19:14:09.6	15.6	130.5	2.2	98			
TNS	e P	Z	19:14:10.6	15.7	121.8	1.5	100			
NRDL	e P	Z	19:14:15.0	16.2	131.6	2.4	130			
WLF	e P	Z	19:14:23.8	16.7	115.9	1.6	86			
BUG	e P	Z	19:14:26.0	17.0	123.0	1.5	42			
IBBN	e P	Z	19:14:30.0	17.2	126.3	1.9	296			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/06	20:10:25.3	40.635N	25.301E	10.0G		4.2		SZGRF
2003/07/06	20:10:15.0	40.463N	26.077E	10G	4.8	5.0		NEIC

Aegean Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	20:13:11.0	12.1	129.1					
WET	e P	Z	20:13:19.1	12.7	128.0					
BRG	e P	Z	20:13:28.2	13.4	136.3					
WERD	e P	Z	20:13:33.3	13.8	130.8					
GRA1	e P	Z	20:13:34.4	13.9	125.9					
	e L	Z	20:20:32.5			21.6	2206		4.2	
MOX	e P	Z	20:13:39.7	14.3	129.8					
STU	e P	Z	20:13:42.1	14.6	118.5					
RUE	e P	Z	20:13:44.5	14.7	140.2					
BFO	e P	Z	20:13:46.4	14.9	115.3					
CLZ	e P	Z	20:13:57.7	15.7	130.4					
TNS	e P	Z	20:13:57.8	15.7	121.7					
NRDL	e P	Z	20:14:04.7	16.2	131.5					
WLF	e P	Z	20:14:11.1	16.7	115.8					
IBBN	e P	Z	20:14:18.0	17.2	126.2					

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/06	21:34:15.6	15.556S	167.498E	87D	5.3			NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPpre	Z 21:53:24.9	138.9	39.1					
	e PKPdf	Z 21:53:34.0			0.6	37			
	i SKPbc	Z 21:57:01.6							
	e LR	Z 22:40:30.3							
	e L	Z 22:50:44.3			20.0	479		5.2	
GRA1	e PKP	Z 21:53:30.6	140.8	37.8					
	i SKPbc	Z 21:57:06.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/06	22:33:51.4	36.775N	3.803E	10G				NEIC

Northern Algeria

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WET	e P	Z 22:45:11.5	14.0	211.4					
GEC2	e P	Z 22:45:02.9	14.1	214.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	06:55:42.3	33.980N	90.398E	19.4	5.2	5.9		SZGRF
2003/07/07	06:55:45.3	34.617N	89.447E	33N	5.4	5.7		NEIC

Qinghai, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PcP	Z 07:06:21.8	54.7	78.1					
RUE	e P	Z 07:05:17.0	54.9	77.0	0.9	51	5.6		
	e PcP	Z 07:06:21.6							
	e PP	Z 07:07:22.5							
BRG	e P	Z 07:05:19.0	55.2	76.0	0.9	20	5.2		
	e PcP	Z 07:06:22.2							
	e PP	Z 07:07:26.7							
CLL	e P	Z 07:05:22.1	55.7	75.7	1.2	42	5.3		
	e PcP	Z 07:06:24.6							
	e PP	Z 07:07:25.0							
	e S	N 07:13:10.5							
	e SS	E 07:16:55.5							
	e L	Z 07:32:59.8			22.0	6634		5.7	
GEC2	e P	Z 07:05:24.1	55.9	74.5	1.1	29	5.2		
	e PP	Z 07:07:32.7							
WET	e P	Z 07:05:27.3	56.3	74.2	1.1	16	5.0		
	e PcP	Z 07:06:26.8							

WERD	e P	Z	07:05:26.9	56.3	74.6	1.0	17	5.0		
	e PcP	Z	07:06:26.4							
MOX	e P	Z	07:05:29.7	56.7	74.3	1.3	24	5.1		
NRDL	e P	Z	07:05:32.5	57.1	74.4	1.0	58	5.5		
CLZ	e P	Z	07:05:33.0	57.1	74.2	0.9	45	5.5		
GRA1	e P	Z	07:05:33.6	57.2	73.4	1.0	46	5.5		
	e pP	Z	07:05:39.0							
	e PcP	Z	07:06:31.1							
	e S	N	07:13:36.6							
	e L	Z	07:31:45.0			18.7	8683		5.9	
GRFO	e P	Z	07:05:34.0	57.2	73.4	1.0	33	5.3		
IBBN	e P	Z	07:05:42.6	58.5	72.7	0.9	28	5.3		
STU	e P	Z	07:05:44.4	58.7	71.6	1.6	69	5.4		
TNS	e P	Z	07:05:44.3	58.7	72.0	1.0	19	5.1		
BUG	e P	Z	07:05:46.5	59.1	71.9	1.0	26	5.2		
BFO	e P	Z	07:05:48.4	59.4	70.8	1.2	28	5.0		
WLF	e P	Z	07:05:55.7	60.3	70.2	1.2	39	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	07:16:49.8	33.468N	90.355E	33.0N	5.0			SZGRF
2003/07/07	07:16:55.8	34.629N	89.314E	33N	4.7			NEIC

Qinghai, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:26:43.3	57.1	73.5	1.2	18	5.0		

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

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:05:19.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	15:42:17.9	44.448N	14.968E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 15:43:30.0	4.5	168.4					
	e Sn	E 15:44:20.3							
WET	e Pn	Z 15:43:32.7	4.9	162.3					
	e Sn	N 15:44:32.1							



Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	16:30:08.7	21.937S	179.527W	600D	5.0			NEIC

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PKP	Z	16:48:45.7	146.0	21.6					
HLG	e PKPbc	Z	16:48:47.2	147.3	12.8					
RUE	e PKPbc	Z	16:48:48.4	147.8	23.6					
	e PKPab	Z	16:48:53.1							
	e pPKPab	Z	16:51:08.8							
NRDL	e PKPpdf	Z	16:48:45.6	148.6	17.3					
	e PKPbc	Z	16:48:50.2							
	e PKPab	Z	16:48:55.8							
	e pPKPab	Z	16:51:10.0							
CLL	i PKPpdf	+ Z	16:48:46.2	149.1	23.0	1.2	11			
	i PKPbc	- Z	16:48:51.4			1.0	198			
	i PKPab	Z	16:48:58.1			0.8	83			
	e pPKPbc	Z	16:51:12.0							
	e SKPpdf	Z	16:51:19.8							
	e PP	Z	16:52:21.1							
IBBN	e PKPbc	Z	16:48:51.5	149.1	13.2					
CLZ	e PKPpdf	Z	16:48:46.8	149.1	18.1					
	e PKPbc	Z	16:48:51.9							
	e pPKPab	Z	16:51:13.4							
BRG	e PKPpdf	Z	16:48:46.6	149.2	25.0					
	e PKPbc	Z	16:48:52.0							
	e PKPab	Z	16:48:59.0							
	e pPKPab	Z	16:51:14.8							
MOX	e PKPpdf	Z	16:48:47.5	150.0	21.0					
	e PKPbc	Z	16:48:53.6							
	e PKPab	Z	16:49:01.8							
	e pPKPab	Z	16:51:14.1							
	e PP	Z	16:52:31.5							
WERD	e PKPpdf	Z	16:48:47.6	150.0	22.4					
	e PKPbc	Z	16:48:53.9							
	e PKPab	Z	16:49:02.4							
	e PP	Z	16:52:31.6							
BUG	e PKPbc	Z	16:48:53.5	150.0	12.7					
	e PKPab	Z	16:49:02.5							
GRA1	e PKPbc	Z	16:48:56.0	151.0	20.9					
	e PKPab	Z	16:49:06.8							
	e PP	Z	16:52:37.3							
TNS	e PKPpdf	Z	16:48:49.6	151.0	15.4					
	e PKPbc	Z	16:48:56.1							
	e PKPab	Z	16:49:06.4							
	e pPKPab	Z	16:51:15.9							
WET	e PKPpdf	Z	16:48:49.5	151.1	24.3					
	e PKPbc	Z	16:48:56.1							

	e PKPab	Z	16:49:07.4		
	e pPKPab	Z	16:51:16.9		
	e PP	Z	16:52:38.1		
GEC2	e PKPdf	Z	16:48:49.2	151.1	26.1
	e PKPbc	Z	16:48:56.2		
	e PKPab	Z	16:49:07.3		
	e pPKPab	Z	16:51:16.2		
	e PP	Z	16:52:38.5		
WLF	e PKPbc	Z	16:48:58.4	151.9	11.2
	e PKPab	Z	16:49:10.5		
	e pPKP	Z	16:51:21.6		
STU	e PKPdf	Z	16:48:51.5	152.3	17.6
	e PKPbc	Z	16:48:58.9		
	e PKPab	Z	16:49:11.7		
BFO	e PKPdf	Z	16:48:51.5	152.9	16.1
	e PKPbc	Z	16:48:59.8		
	e PKPab	Z	16:49:14.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	19:54:57.4	17.630N	120.850E	33.0N	5.3	5.8		SZGRF
2003/07/07	19:55:00.3	20.352N	121.960E	10G	5.3	5.2		NEIC

Luzon, Philippine Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	20:07:36.5	84.4	63.5	1.0	36	5.4		
BRG	e P	Z	20:07:38.5	85.0	63.5	1.9	47	5.3		
	e PP	Z	20:11:00.6							
	e SKSac	N	20:18:03.7							
	e S	E	20:18:12.3							
CLL	e P	Z	20:07:40.6	85.4	62.8	1.2	23	5.2		
	e PP	Z	20:11:08.2							
	e PPPP	Z	20:14:29.6							
	e SKSac	R	20:18:03.1							
	e S	T	20:18:10.0							
	e SP	Z	20:19:11.0							
	e SS	R	20:23:48.6							
	e (SSS)	E	20:27:56.2							
	e LR	Z	20:36:28.5							
	e L	Z	20:50:52.9			20.0	6413		6.0	
GEC2	e P	Z	20:07:43.7	86.1	63.2	2.1	40	5.4		
WERD	e P	Z	20:07:44.1	86.1	62.2	1.7	22	5.2		
NRDL	e P	Z	20:07:45.2	86.4	60.7	1.4	37	5.5		
WET	e P	Z	20:07:45.5	86.4	62.6	2.2	42	5.4		
	e PP	Z	20:11:13.6							
MOX	e P	Z	20:07:44.9	86.4	61.7	2.3	67	5.6		
CLZ	e P	Z	20:07:46.3	86.5	60.9	1.5	43	5.6		

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GRA1	e P	Z	20:07:47.9	87.1	61.4	2.0	52	5.4			
	e		20:08:00.3								
	e PP	Z	20:11:24.1								
	e S	N	20:18:27.3								
	e SS	N	20:24:36.7								
	e L	Z	20:50:37.5			21.4	4099		5.8		
IBBN	e P	Z	20:07:51.6	87.7	58.9	1.8	57	5.5			
TNS	e P	Z	20:07:53.8	88.4	59.3	1.3	8	4.8			
BUG	e P	Z	20:07:55.2	88.4	58.5	1.2	20	5.2			
BFO	e P	Z	20:07:59.2	89.4	59.2	0.9	4	4.7			
WLF	e P	Z	20:08:02.7	89.9	57.6	1.2	24	5.4			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	21:44:10.1	20.935S	168.304E	33N	5.2	4.4		NEIC
Vanuatu Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:03:49.1	146.0	40.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/07	22:40:28.7	20.986S	168.333E	33N	5.1	4.1		NEIC
New Caledonia region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:00:07.4	146.1	40.6					
	e pPKPpdf	Z 23:00:16.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	03:25:50.5	5.420S	68.190W	531.0	5.4			SZGRF
2003/07/08	03:25:31.9	7.011S	71.858W	517D	5.2			NEIC
Western Brazil								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 03:37:25.9	87.7	256.3	0.9	70	5.8		
BFO	e P	Z 03:37:30.3	88.8	258.0	0.9	17	5.4		
BUG	e P	Z 03:37:31.2	88.8	257.1	1.0	58	5.9		
TNS	e P	Z 03:37:33.1	89.2	258.1	1.1	27	5.5		
IBBN	e P	Z 03:37:33.4	89.3	257.5	0.8	65	6.0		
STU	e P	Z 03:37:33.8	89.4	258.7	0.9	49	5.9		
NRDL	e P	Z 03:37:40.2	90.7	259.4	1.9	50	5.4		
CLZ	e P	Z 03:37:40.6	90.7	259.6	1.5	45	5.5		
GRA1	e P	Z 03:37:41.3	90.9	260.2	1.1	19	5.3		
MOX	e P	Z 03:37:42.7	91.3	260.5	1.3	16	5.1		

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WERD	e P	Z	03:37:45.1	91.7	261.0	1.7	33	5.4
WET	e P	Z	03:37:45.4	91.9	261.4	1.0	8	5.0
	e pP	Z	03:39:42.0					
CLL	e P	Z	03:37:47.3	92.3	261.6	0.8	10	5.2
GEC2	e P	Z	03:37:47.4	92.4	262.1	0.9	9	5.1
BRG	e P	Z	03:37:50.0	92.8	262.3	1.1	11	5.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	04:30:49.3	41.869N	145.157E	33.0N	5.5	5.4		SZGRF
2003/07/08	04:30:49.8	42.440N	144.946E	35D	5.4	4.9		NEIC

Hokkaido, Japan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z	04:42:44.1	77.7	34.3	1.1	57	5.6		
	i pP	Z	04:42:55.0							
	e PP	Z	04:45:40.5							
	e S	T	04:52:32.1							
	e SS	E	04:57:45.4							
	e SSS	Z	05:01:19.3							
	e LR	Z	05:09:24.4							
	e L	Z	05:20:56.8			18.0	2320		5.6	
GRA1	e P	Z	04:42:55.4	79.4	32.9	1.3	86	5.5		
	e		04:43:05.8							
	e		04:43:10.8							
	e L	Z	05:21:22.8			20.2	1869		5.4	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	08:51:56.9	1.922S	23.315W	33.0N	5.3			SZGRF
2003/07/08	08:51:26.6	7.078S	21.821W	10G	4.8			NEIC

Central Mid-Atlantic Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	09:01:57.4	63.6	217.2	1.8	54	5.3		
CLL	e P	Z	09:02:13.3	65.4	218.6	1.5	22	5.1		
	e PP	Z	09:04:33.6							
	e S	T	09:10:58.4							
	e SP	R	09:11:09.7							
	e SSS	T	09:18:17.4							
	e LR	Z	09:22:18.8							
	e L	Z	09:27:15.8			22.0	219		4.3	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	13:13: 2.4	36.301N	71.971E	33.0N	4.8			SZGRF

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2003/07/08 13:13:19.5 37.595N 72.240E 190D 4.7 NEIC  
Afghanistan-Tajikistan border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:21:15.5	44.5	81.6	1.3	17	4.8		
	e	13:21:21.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	18:15:33.8	40.286N	143.472E	33.0N	4.9			SZGRF
2003/07/08	18:16:06.0	41.581N	138.901E	205*	4.2			NEIC

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:27:44.1	77.9	37.3	0.7	8	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	18:26:56.0	15.435S	177.678W	291?	4.7			NEIC

Fiji region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:45:59.1	145.0	15.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/08	22:11:16.1	39.755N	144.001E	33.0N	4.8			SZGRF
2003/07/08	22:11:23.9	42.435N	144.832E	33N	4.7	3.9		NEIC

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:23:29.9	79.3	32.9	0.9	7	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/09	07:22:47.5	4.070S	144.370E	33.0N		5.1		SZGRF
2003/07/09	07:22:38.8	4.944S	145.254E	50*	5.4	5.0		NEIC

Near north coast of New Guinea, Papua New Guinea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PP	Z 07:42:38.7	118.0	57.8					
BRG	e PP	Z 07:42:43.3	118.8	58.7					
CLL	e PP	Z 07:42:45.6	119.1	57.5					
NRDL	e PP	Z 07:42:50.8	119.9	54.1					
CLZ	e PP	Z 07:42:53.3	120.1	54.7					
MOX	e PP	Z 07:42:52.1	120.2	56.5					

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WET	e PP	Z	07:42:53.9	120.3	58.5						
GRA1	e PP	Z	07:42:57.8	120.9	56.6						
	e PS	E	07:52:58.8								
	e SS	N	08:00:10.2								
GRFO	e Pdiff	Z	07:38:02.4	120.9	56.6						
	e PP	Z	07:43:03.0								
	e PS	N	07:53:13.7								
	e SS	N	08:00:07.8								
	e L	Z	08:34:49.5			21.3		527		5.1	
TNS	e PP	Z	07:43:05.7	122.1	53.6						
STU	e PP	Z	07:43:09.1	122.5	55.1						
WLF	e PP	Z	07:43:17.0	123.6	51.5						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/09	09:07:36.8	58.341N	30.381W	33.0N	4.5			SZGRF
2003/07/09	09:07:23.2	58.245N	32.184W	10G	4.4			NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:13:02.1	26.4	305.6	1.2	14	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/09	09:09:21.2	58.298N	30.383W	33.0N	4.8			SZGRF
2003/07/09	09:09:07.1	58.133N	32.212W	10G	4.6	4.4		NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:14:46.5	26.4	305.3	1.4	36	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/09	10:24: 6.5	35.080N	15.856E	33.0	3.9			SZGRF
2003/07/09	10:25:10.5	39.339N	15.655E	247*	4.2			NEIC

Central Mediterranean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:27:41.7	10.8	161.4					
	e pP	Z 10:27:47.3			0.5	27			
MOX	e P	Z 10:27:52.5	11.7	164.4	2.2	23	3.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/09	12:33:11.5	58.711N	32.550W	14.8	5.1	4.7		SZGRF

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2003/07/09 12:33:07.8  
North Atlantic Ocean

58.310N

32.271W

10G

5.0

4.8

NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	Z	12:38:45.4	26.6	303.0	1.2	44	5.0		
	e PP	Z	12:39:25.0							
	e S	E	12:43:13.4							
	e LR	Z	12:45:58.0							
	e L	Z	12:48:03.7			18.0	2274		4.7	
GRA1	e P	Z	12:38:47.0	26.4	305.7	1.0	39	5.1		
	e pP	Z	12:38:50.8							
	e L	Z	12:48:00.9			22.0	2223		4.7	

Date Origin Time  
2003/07/09 13:35:51.8  
2003/07/09 13:35:50.2  
North Atlantic Ocean

Lat Long  
58.442N 32.870W  
58.312N 32.145W

Depth  
33.0N  
10G

mb Ms  
5.1 4.7  
4.9 4.9

ML Source  
SZGRF  
NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	13:41:28.8	26.4	305.7	1.4	53	5.1		
	e L	Z	13:50:54.8			21.4	2448		4.7	

Date Origin Time  
2003/07/09 17:15: 8.2  
2003/07/09 17:15:14.6  
Southeast of Ryukyu Islands, Japan

Lat Long  
29.252N 131.290E  
29.752N 129.964E

Depth  
65.0  
66D

mb Ms  
5.8 5.2  
5.4

ML Source  
SZGRF  
NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	- Z	17:27:29.3	82.1	51.5	0.9	27	5.4		
	e pP	Z	17:27:47.6							
	e PP	Z	17:30:48.9							
	e S	E	17:37:37.8							
	e SSSS	Z	17:49:19.9							
	e LR	Z	17:55:17.6							
GRA1	e L	Z	18:07:59.3			18.0	2172		5.6	
	e P	Z	17:27:39.9	83.8	50.0	1.4	88	5.8		
	e pP	Z	17:27:57.9							
GRFO	e S	N	17:37:59.1							
	e P	Z	17:27:40.7	83.8	50.0					
	e S	N	17:37:59.1							
	e SS	N	17:43:33.5							
	e L	Z	18:08:44.5			20.6	950		5.2	

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/09	22:31:32.7	39.873N	26.556E	10.0G	3.9	3.4		SZGRF
2003/07/09	22:31:39.9	40.433N	25.884E	10G	4.7			NEIC

Turkey

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	22:34:34.4	12.1	129.7	1.1	20			
WET	e P	Z	22:34:42.9	12.7	128.6	1.5	42			
BRG	e P	Z	22:34:52.8	13.3	136.9	1.9	13			
WERD	e P	Z	22:34:55.3	13.8	131.4	1.6	10			
GRA1	e P	Z	22:34:57.4	13.8	126.4	1.4	18			
GRFO	e L	Z	22:43:31.5	13.8	126.4	18.1	245		3.4	
CLL	e P	Z	22:35:00.0	14.1	135.7	1.2	8			
MOX	e P	Z	22:35:02.6	14.2	130.3	1.2	10			
BFO	e P	Z	22:35:10.3	14.8	115.8	1.6	15	3.9		
CLZ	e P	Z	22:35:21.0	15.6	130.8	1.6	13			
TNS	e P	Z	22:35:22.5	15.6	122.1	1.2	23			
NRDL	e P	Z	22:35:28.1	16.2	132.0	1.5	27			
WLF	e P	Z	22:35:33.8	16.6	116.2	1.8	30			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/10	01:34:13.2	28.172N	100.327E	33.0N	5.3			SZGRF
2003/07/10	01:33:59.9	27.782N	102.415E	33N	4.6			NEIC

Sichuan, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	01:45:11.7	69.9	70.4	1.7	34	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/10	17:06:39.5	27.560N	53.570E	33.0G	5.8	5.3		SZGRF
2003/07/10	17:06:37.4	28.346N	54.155E	10G	5.8	5.5		NEIC

Southern Iran

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	17:13:48.8	37.0	108.6	1.8	252	5.7		
	e S	N	17:19:35.0							
BRG	e P	Z	17:13:53.2	37.6	111.3	1.2	136	5.6		
	e S	N	17:19:43.0							
WET	e P	Z	17:13:53.6	37.6	108.1	1.8	315	5.8		
RUE	e P	Z	17:13:59.4	38.3	113.0	1.1	261	5.8		
CLL	e P	Z	17:14:00.3	38.3	110.8	1.0	217	5.8		
	e PP	Z	17:15:27.4							
	e PcP	Z	17:16:12.1							
	e S	E	17:19:50.3							
	e SS	E	17:22:46.3							



	e L	Z	17:31:48.7			18.0	6109		5.5
WERD	e P	Z	17:14:00.3	38.4	109.1	1.7	125	5.3	
GRA1	e P	Z	17:14:04.3	38.8	107.1	1.7	855	6.1	
	e PP	Z	17:15:46.9						
	e S	N	17:20:06.4						
	e L	Z	17:33:35.4			18.9	4712		5.3
MOX	e P	Z	17:14:04.5	38.9	108.6	1.4	130	5.4	
RGN	e P	Z	17:14:09.0	39.4	114.9	1.3	773	6.2	
STU	e P	Z	17:14:11.4	39.9	104.0	1.1	77	5.2	
CLZ	e P	Z	17:14:14.5	40.0	108.7	1.0	454	6.0	
	e S	N	17:20:22.6						
BFO	e P	Z	17:14:15.6	40.3	102.7	2.2	190	5.4	
NRDL	e P	Z	17:14:17.9	40.4	109.2	1.1	559	6.2	
TNS	e P	Z	17:14:20.0	40.7	105.0	1.8	526	6.0	
BUG	e P	Z	17:14:28.9	41.7	105.2	1.5	559	6.1	
WLF	e P	Z	17:14:30.0	42.0	102.2	1.1	144	5.6	
HLG	e P	Z	17:14:32.0	42.2	108.7	1.3	597	6.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/10	17:40:18.7	27.880N	54.000E	33.0G	5.5	4.9		SZGRF
2003/07/10	17:40:16.0	28.304N	54.106E	10G	5.4	5.5		NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 17:47:27.8	37.0	108.7	1.4	110	5.4		
	e S	N 17:53:14.4							
BRG	e P	Z 17:47:32.5	37.6	111.4	0.9	60	5.3		
WET	e P	Z 17:47:32.7	37.6	108.2	1.3	110	5.4		
	e S	N 17:53:21.1							
RUE	e P	Z 17:47:39.0	38.3	113.1	1.0	137	5.5		
CLL	e P	Z 17:47:37.5	38.3	110.9	0.9	138	5.7		
	e PP	Z 17:49:15.6							
	e S	N 17:53:33.4							
	e L	Z 18:05:26.0			18.0	6061			5.5
WERD	e P	Z 17:47:39.3	38.4	109.2	1.8	70	5.0		
GRA1	e P	Z 17:47:43.4	38.8	107.2	1.0	219	5.7		
	e S	N 17:53:42.8							
GRFO	e L	Z 18:06:46.9	38.8	107.2	21.5	1930			4.9
MOX	e P	Z 17:47:43.7	38.9	108.7	1.1	61	5.1		
	e S	N 17:53:43.6							
RGN	e P	Z 17:47:48.5	39.4	115.0	0.8	214	5.8		
STU	e P	Z 17:47:51.0	39.9	104.1	1.0	60	5.2		
CLZ	e P	Z 17:47:53.6	40.0	108.8	0.8	308	6.0		
	e S	N 17:53:58.9							
BFO	e P	Z 17:47:55.8	40.3	102.8	1.1	47	5.1		
NRDL	e P	Z 17:47:57.0	40.4	109.3	1.0	282	6.0		
TNS	e P	Z 17:47:59.1	40.7	105.1	1.2	114	5.5		

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BUG	e P	Z	17:48:08.0	41.7	105.3	1.2	256	5.8
WLF	e P	Z	17:48:09.0	42.0	102.3	1.1	124	5.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/10	20:00:52.2	8.716N	85.311W	30.9	5.1			SZGRF
2003/07/10	20:00:56.6	9.143N	83.938W	33N	4.4			NEIC

Off coast of Costa Rica

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:13:37.2	86.3	279.8	1.1	12	5.1		
	e pP	Z 20:13:46.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/11	01:21:49.4	17.274S	175.089W	300G	4.1			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:40:59.5	147.2	11.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/11	10:23:26.8	27.803N	55.760E	33.0N	4.6			SZGRF
2003/07/11	10:23:31.9	28.152N	54.268E	10G	4.5	3.8		NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:31:00.6	39.0	107.2	0.7	10	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/11	13:53:24.8	9.359N	122.082E	33N	5.6	5.4		NEIC

Leyte, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PP	Z 14:10:27.3	93.4	69.8					
BRG	e Pdiff	Z 14:06:41.3	93.9	70.0					
	e PP	Z 14:10:31.5							
CLL	i P	+ Z 14:06:42.8	94.3	69.2	1.4	44	5.7		
	e	14:06:59.9							
	e PP	Z 14:10:34.9							
	e PPP	Z 14:12:35.8							
	e SKSac	R 14:17:13.0							
	e S	T 14:17:53.2							

	e SP	Z	14:19:08.6								
	e SS	T	14:24:16.5								
	e SSS	T	14:28:05.5								
	e SSSS	T	14:31:21.0								
	e LQ	T	14:36:15.5								
	e LR	Z	14:43:36.9								
	e L	Z	14:55:29.1			20.0	2686		5.7		
GEC2	e Pdiff	Z	14:06:44.9	94.7	70.0						
	e PP	Z	14:10:38.4								
TANN	e Pdiff	Z	14:06:46.0	94.9	68.9						
WET	e Pdiff	Z	14:06:45.8	95.1	69.3						
	e PP	Z	14:10:41.6								
	e SP	Z	14:19:28.3								
MOX	e Pdiff	Z	14:06:47.8	95.3	68.2						
	e PP	Z	14:10:42.3								
NRDL	e PP	Z	14:10:43.2	95.5	66.8						
CLZ	e Pdiff	Z	14:06:49.3	95.6	67.1						
	e PP	Z	14:10:42.9								
GRA1	e Pdiff	Z	14:06:50.8	95.9	68.0						
	e L	Z	14:53:05.5			19.9	3539		5.8		
FUR	e PP	Z	14:10:51.9	96.5	68.2						
TNS	e PP	Z	14:10:57.4	97.4	65.7						
STU	e PP	Z	14:10:58.4	97.5	66.5						
BUG	e PP	Z	14:10:57.8	97.5	64.6						
BFO	e PP	Z	14:11:03.8	98.2	65.8						
WLF	e PP	Z	14:11:09.1	98.9	63.9						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/11	23:55:51.5	29.028N	54.368E	33.0N	4.6			SZGRF
2003/07/11	23:55:44.5	28.462N	54.044E	10G	4.8			NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:03:10.8	38.7	107.1	1.2	18	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/12	01:56:16.8	16.890N	94.650E	33.0N	5.1			SZGRF
2003/07/12	01:55:43.7	11.592N	95.209E	33N	5.0	4.5		NEIC

Near south coast of Myanmar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 02:07:33.3	75.5	89.3	1.3	16	5.0		
GEC2	e P	Z 02:07:35.0	75.7	88.6	1.1	11	4.9		
CLL	e P	Z 02:07:36.5	76.1	88.7	1.3	16	5.0		
WERD	e P	Z 02:07:39.3	76.6	88.0	1.3	16	5.0		

GRA1	e P	Z	02:07:44.4	77.3	87.0	1.2	23	5.2
CLZ	e P	Z	02:07:45.8	77.7	86.8	1.1	17	5.1
NRDL	e P	Z	02:07:46.7	77.9	86.7	1.4	31	5.2
BUG	e P	Z	02:07:57.4	79.7	84.3	1.3	37	5.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/12	02:43:2.4	13.850N	93.930E	14.2	4.9	4.7		SZGRF
2003/07/12	02:42:45.7	12.720N	95.007E	33N	5.3	5.0		NEIC

Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 02:54:23.1	74.5	88.7	1.4	13	4.9		
GEC2	e P	Z 02:54:24.4	74.8	88.0	1.3	11	4.8		
CLL	e P	Z 02:54:25.9	75.1	88.1	1.3	43	5.3		
	e	02:54:29.4							
	e	02:54:33.2							
	e S	Z 03:04:12.9							
	e LR	Z 03:18:31.9							
	e L	Z 03:32:36.4			20.0	808		5.0	
WET	e P	Z 02:54:28.0	75.3	87.5	1.4	11	4.7		
WERD	e P	Z 02:54:29.1	75.6	87.4	1.5	12	4.7		
GRA4	e L	Z 03:32:33.4	76.2	86.5	21.7	454		4.7	
GRA1	e P	Z 02:54:34.0	76.3	86.3	2.0	54	5.2		
	e pP	Z 02:54:37.4							
	e sP	Z 02:54:40.6							
GRFO	e P	Z 02:54:33.8	76.3	86.3	1.9	38	5.1		
CLZ	e P	Z 02:54:35.9	76.7	86.2	1.2	14	4.8		
NRDL	e P	Z 02:54:37.3	76.9	86.2	1.6	26	5.0		
TNS	e P	Z 02:54:42.9	78.1	84.4	1.2	10	4.8		
BUG	e P	Z 02:54:47.1	78.7	83.7	1.2	19	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/12	08:31:46.3	45.270N	147.898E	33.0N	4.8			SZGRF
2003/07/12	08:32:35.9	46.797N	143.791E	380	4.3			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:43:40.9	75.2	31.4	1.0	9	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/12	15:58:34.9	6.317N	48.751W	33.0N	4.8			SZGRF
2003/07/12	15:59:20.0	12.112N	43.925W	10G	4.7			NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:09:18.9	58.6	250.1	1.2	7	4.8		
	e	16:09:31.5							

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

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:25:31.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/12	23:01:43.8	55.130N	134.940W	33.0N	5.3	5.6		SZGRF
2003/07/12	23:01:38.2	54.885N	134.325W	10G	5.5	5.6		NEIC
Southeastern Alaska, United States								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e P	Z 23:12:46.0	68.7	338.9	1.1	35	5.5		
BUG	e P	Z 23:12:47.7	69.0	337.5	1.2	41	5.5		
CLZ	e P	Z 23:12:50.4	69.3	339.2	1.0	54	5.6		
WLF	e P	Z 23:12:56.5	70.3	337.1	1.1	22	5.2		
CLL	i P	+ Z 23:12:56.0	70.4	340.8	1.0	21	5.2		
	e PP	Z 23:15:37.3							
	e PPP	Z 23:17:22.1							
	e S	T 23:22:10.5							
	e ScS	T 23:22:58.1							
	e SS	T 23:26:41.1							
	e LR	Z 23:35:02.7							
	e PKPPKPdf	Z 23:40:53.9							
	e L	Z 23:43:20.8			22.0	3313		5.6	
TNS	e P	Z 23:12:56.5	70.4	338.3	1.1	17	5.1		
BRG	e P	Z 23:13:00.1	71.0	341.3	1.1	34	5.4		
WERD	e P	Z 23:13:00.5	71.0	340.5	1.1	14	5.0		
GRA3	e L	Z 23:44:50.2	71.5	340.0	19.8	3073		5.6	
GRA1	e P	Z 23:13:03.8	71.5	339.9	1.1	32	5.4		
BFO	e P	Z 23:13:06.9	72.1	338.5	1.1	36	5.4		
WET	e P	Z 23:13:08.5	72.4	340.9	1.1	16	5.1		
GEC2	e P	Z 23:13:11.5	72.9	341.4	1.1	26	5.3		
FUR	e P	Z 23:13:12.0	73.0	340.1	1.1	38	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	01:48:30.7	38.486N	38.613E	33.0G	5.6	4.9		SZGRF
2003/07/13	01:48:22.0	38.300N	38.936E	10G	5.4	5.3		NEIC

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 01:53:07.8	21.0	110.7	1.0	303	5.6		
WET	e P	Z 01:53:13.7	21.6	110.3	1.3	415	5.6		
BRG	e P	Z 01:53:14.7	21.6	115.9	1.8	546	5.6		
FUR	e P	Z 01:53:21.6	22.3	106.0	1.2	551	5.9		
CLL	e P	Z 01:53:22.1	22.3	115.5	1.1	225	5.5		
WERD	e P	Z 01:53:23.0	22.4	112.6	1.5	393	5.6		
RUE	e P	Z 01:53:22.8	22.5	119.1	1.3	235	5.5		
GRA1	e P	Z 01:53:26.6	22.8	109.4	1.1	756	6.1		
	e L	Z 02:03:24.1			22.0	5485		4.9	
STU	e P	Z 01:53:35.9	23.8	105.0	1.5	391	5.7		
CLZ	e P	Z 01:53:39.2	24.1	113.0	1.5	275	5.6		
BFO	e P	Z 01:53:41.2	24.2	103.0	1.9	399	5.6		
NRDL	e P	Z 01:53:43.1	24.5	113.9	1.3	97	5.2		
TNS	e P	Z 01:53:44.8	24.6	107.2	1.5	319	5.6		
BUG	e P	Z 01:53:55.4	25.7	108.3	1.1	151	5.7		
WLF	e P	Z 01:53:56.1	25.9	103.5	1.4	144	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	02:00:23.0	17.349N	81.611W	33.0N	4.8			SZGRF
2003/07/13	01:59:36.1	12.991N	90.013W	32D	4.8	5.0		NEIC

Caribbean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:12:22.1	87.2	286.9	0.8	7	4.8		
	e pP	Z 02:12:32.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	02:29: 9.2	47.781N	20.826E	10.0G			3.0	SZGRF
2003/07/13	02:29:07.7	47.780N	20.755E	10G				NEIC

Hungary

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 02:30:22.0	4.8	100.1					3.0
	e Sn	N 02:31:16.6							
WET	e Pn	Z 02:30:29.7	5.4	101.7					
	e Sn	N 02:31:31.4							
BRG	e Pn	Z 02:30:30.4	5.4	122.2					
CLL	e Pn	Z 02:30:39.5	6.1	122.0					
GRA1	e Pn	Z 02:30:46.6	6.6	103.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 02:32:00.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	03:19:25.7	6.267N	42.664W	33.0N	5.1			SZGRF
North Atlantic Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:29:46.2	62.5	244.9	1.5	18	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	06:14:2.5	58.320N	29.266W	33.0N	4.9			SZGRF
2003/07/13	06:13:43.8	58.155N	32.021W	10G	4.8			NEIC
North Atlantic Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:19:22.4	26.3	305.4	1.1	30	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	14:21:13.7	11.912N	122.248E	33.0N	5.0			SZGRF
2003/07/13	14:21:03.7	9.222N	122.027E	45D	4.8	4.2		NEIC
Panay, Philippine Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:34:28.7	96.0	68.1	1.0	7	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	14:36:29.6	40.124N	70.562E	33.0N	4.7			SZGRF
2003/07/13	14:36:18.2	38.994N	70.798E	33N	4.7			NEIC
Tajikistan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 14:44:01.5	40.9	84.1	1.1	25	4.7		
GEC2	e P	Z 14:44:05.1	41.3	81.6	1.3	15	4.6		
CLL	i P	- Z 14:44:05.5	41.4	83.9	1.1	19	4.7		
	e PP	Z 14:45:39.6							
	e PcP	Z 14:46:03.3							
	e SS	E 14:53:34.3							

	e LR	Z	14:56:12.3							
	e L	Z	15:04:25.4			20.0		201		4.0
WET	e P	Z	14:44:09.1	41.8	81.4	1.4		19		4.6
WERD	e P	Z	14:44:10.3	41.9	82.5	1.5		16		4.5
GRA1	e P	Z	14:44:17.6	42.7	80.9	1.6		70		5.1
CLZ	e P	Z	14:44:19.0	43.0	82.7	1.7		40		4.9
NRDL	e P	Z	14:44:19.7	43.0	83.2	1.3		36		4.9
TNS	e P	Z	14:44:30.7	44.4	79.7	1.5		18		4.6
BFO	e P	Z	14:44:33.5	44.9	77.7	1.3		10		4.4
BUG	e P	Z	14:44:34.5	44.9	80.1	1.2		24		4.8
WLF	e P	Z	14:44:43.4	46.0	77.7	0.9		23		5.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	21:22: 2.4	13.567N	89.567W	33.0N	5.2			SZGRF
2003/07/13	21:21:57.6	13.036N	89.878W	33N	5.2	4.9		NEIC

El Salvador

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:34:42.3	87.1	286.8	0.9	20	5.2		
	e pP	Z 21:34:52.2							
CLL	i P	Z 21:34:44.7	87.8	288.1	0.9	17	5.4		
	e PP	Z 21:38:15.5							
	e S	E 21:45:30.1							
	e SP	Z 21:46:31.2							
	e SS	E 21:51:33.3							
	e SSS	E 21:55:12.1							
	e LR	Z 22:03:34.7							
	e L	Z 22:17:19.8				20.0	520		4.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/13	23:38:49.5	12.273N	96.438E	33.0G	5.2			SZGRF

Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 23:50:35.0	77.6	91.4	1.6	32	5.2		
	e L	Z 00:28:41.0				142		4.2	
GRA1	e P	Z 23:50:42.8	77.6	85.6	1.6	35	5.2		
	e	23:50:46.3							
	e	23:51:08.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/07/14 02:49:52.9 18.755S 178.387W 600G 4.2 NEIC  
Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:08:34.8	148.1	17.4					

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/14 16:00:57.2 8.90N 124.20E 440  
Mindanao, Philippine islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 16:13:45.2	97.7						

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/14 18:19:42.1 21.250S 174.469W 33N 4.8 4.9  
Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z 18:39:30.1	149.4	13.8	2.3	120			
	e PKPab	Z 18:39:34.4							
GRA1	e PKP	Z 18:39:34.8	151.2	11.1					

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/14 19:35:25.8 40.903N 76.685E 33.0N 4.6  
Kyrgyzstan-Xinjiang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:43:41.4	45.4	75.0	1.2	7	4.6		

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/14 20:00:17.8 1.556N 100.033E 144.5 6.0 SZGRF  
2003/07/14 20:00:06.2 0.502S 100.841E 144D 5.4 NEIC  
Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 20:12:46.8	89.0	92.0	1.2	83	5.9		
	e pP	Z 20:13:23.2							
	e SKSac	E 20:22:58.2							
	e S	N 20:23:19.5							
	e sS	N 20:24:23.8							
	e PPS	E 20:25:19.8							

GRA1	e P	Z	20:12:51.7	90.1	90.6	1.5	125	6.0
	e pP	Z	20:13:28.3					
	e PP	Z	20:16:27.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	02:50:54.7	6.050N	30.064W	33.0N	5.3			SZGRF
2003/07/15	02:50:27.4	2.946N	31.263W	10G	4.6			NEIC

Central Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:00:28.1	59.0	231.9	2.2	64	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	03:12:30.5	0.672N	34.544W	33.0N	5.4			SZGRF
2003/07/15	03:12:51.4	3.038N	31.106W	10G	4.5			NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:22:51.8	58.8	231.8	2.0	54	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	03:21:50.8	2.070S	32.535W	33.0N	5.1			SZGRF
2003/07/15	03:22:20.8	3.063N	31.275W	10G	4.5			NEIC

South Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:32:21.0	58.9	232.0	2.3	27	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	04:28:51.9	2.186S	33.749W	33.0N	5.0			SZGRF
2003/07/15	04:29:26.3	3.064N	31.262W	10G	4.8			NEIC

South Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:39:26.8	58.9	232.0	1.8	20	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	09:25:58.8	5.132S	151.834E	45D	4.9	4.7		NEIC

New Britain, Papua New Guinea, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 09:45:08.6	124.5	50.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	14:02:50.3	4.073N	27.468W	33.0N	4.8			SZGRF
2003/07/15	14:02:24.8	2.956N	31.217W	10G	4.8			NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:12:26.7	58.9	231.9	2.0	18	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	17:50:46.8	8.321N	28.489W	33.0N	4.9			SZGRF
2003/07/15	17:50:00.0	3.050N	31.298W	10G	5.1			NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:00:00.1	58.9	232.0	2.0	33	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	18:46:37.8	3.823S	152.153E	33N	6.0	6.4		NEIC

Bougainville - Solomon Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PP	Z 19:06:58.7	119.3	48.9					
RUE	e PP	Z 19:07:08.0	120.5	50.3					
	e SS	R 19:23:51.6							
BRG	e PP	Z 19:07:14.9	121.4	51.2					
CLL	e Pdiff	Z 19:02:03.8	121.6	50.0					
	e PKPpdf	Z 19:05:28.8							
	e	19:06:14.9							
	e PP	Z 19:07:07.5							
	e PKKP	Z 19:15:37.0							
	e SP	R 19:16:55.5							
	e PPS	N 19:18:26.7							
	e SS	T 19:23:35.7							
	e SSS	T 19:28:09.6							
	e LR	Z 19:45:43.4							
	e L	Z 20:00:10.6			22.0	13294		6.5	
HLG	e PP	Z 19:07:17.1	121.9	43.3					
CLZ	e PP	Z 19:07:22.3	122.5	47.0					

MOX	e PP	Z	19:07:22.4	122.7	48.9				
GEC2	e PP	Z	19:07:23.8	122.8	51.9				
WET	e PP	Z	19:07:26.0	123.0	50.9				
GRA1	e PKP	Z	19:05:39.4	123.5	49.0				
	e PP	Z	19:07:28.5						
	e SKKP	Z	19:19:19.7						
	e L	Z	19:59:51.8			21.7	8430		6.4
TNS	e PP	Z	19:07:34.4	124.5	45.7				
FUR	e PP	Z	19:07:36.7	124.5	49.8				
STU	e PP	Z	19:07:39.5	125.1	47.3				
BFO	e PP	Z	19:07:44.6	125.8	46.6				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	20:27:29.8	5.740S	70.610E	10.0G	6.8	7.2		SZGRF
2003/07/15	20:27:50.2	2.562S	68.300E	10G	6.4	7.6		NEIC

Chagos Archipelago region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	20:39:06.8	70.6	120.6	2.0	1644	6.7		
	e S	T	20:48:44.9							
GRC3	e		21:07:28.6	70.9	117.9					
WERD	e P	Z	20:39:12.4	71.3	119.0	2.8	3180	6.9		
CLL	e P	Z	20:39:12.0	71.3	119.9	1.8	1082	6.7		
	e PP	Z	20:42:40.7							
	e S	T	20:48:26.8							
	e PS	R	20:49:05.8							
	e SS	R	20:53:11.7							
	e LQ	T	20:59:32.7							
	e LR	Z	21:02:27.9							
	e L	Z	21:12:25.4			18.0	158972		7.3	
RUE	e P	Z	20:39:13.3	71.5	120.9	1.4	2220	7.0		
GRA1	e P	Z	20:39:12.9	71.5	117.8	1.5	1956	6.9		
	e L	Z	21:10:47.0			21.0	137660		7.2	
GRFO	e P	Z	20:39:13.0	71.5	117.8	1.4	1588	6.9		
MOX	e P	Z	20:39:14.8	71.7	118.5	2.4	1985	6.8		
STU	e S	T	20:49:00.0	72.3	115.8					
BFO	e P	Z	20:39:19.9	72.6	115.0	1.4	774	6.6		
CLZ	e P	Z	20:39:22.8	73.0	117.7	1.5	912	6.7		
TNS	e P	Z	20:39:24.7	73.3	115.6	1.9	1987	6.9		
NRDL	e P	Z	20:39:25.4	73.4	117.7	1.6	903	6.7		
WLF	e P	Z	20:39:30.6	74.5	113.5	1.4	771	6.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/15	20:36:58.4	1.199N	66.739E	33.0N	6.0			SZGRF

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2003/07/15 20:36:24.8  
Carlsberg Ridge

2.317S 68.700E 10G 5.4 NEIC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:47:51.8	71.5	117.4	1.1	98	6.0		

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/15 21:14:43.1 3.758S 68.024E 33.0N 4.9 SZGRF  
Chagos Archipelago region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:26:06.0	72.3	118.8	1.0	11	4.9		
	e	21:26:11.4							

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/15 21:43: 2.3 2.872N 66.790E 33.0N 5.2 SZGRF  
Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:53:47.2	66.2	115.8	1.4	22	5.2		
	e	21:53:52.9							

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/15 21:54:48.2 2.249S 67.556E 33.0N 5.2 SZGRF  
2003/07/15 21:54:41.0 1.887S 68.774E 10G 5.2 NEIC  
Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:06:02.1	71.2	117.0	1.3	24	5.2		
	e	22:06:09.5							

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/15 23:36:20.9 21.437S 179.434W 600D 5.0 NEIC  
Fiji region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 23:54:57.5	148.6	22.7					
	i PKPbc	Z 23:55:01.3			0.7	13			
	e PKPab	Z 23:55:07.6			0.6	15			
	e pPKPdf	Z 23:57:20.6							
	e pPKPbc	Z 23:57:25.1							

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GRA1	e PKP	Z	23:55:07.0	150.5	20.5						
	e		23:55:16.1								
	e		23:57:27.5								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/16	01:24:50.3	1.906N	66.353E	33.0N	5.4			SZGRF
2003/07/16	01:24:12.4	2.785S	68.616E	10G	4.8	4.6		NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:35:38.6	71.9	117.7	1.7	40	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/16	02:29:53.3	2.852S	67.628E	33.0N	6.3			SZGRF
2003/07/16	02:29:48.3	2.679S	68.417E	10G	5.6	4.9		NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 02:41:09.7	71.4	119.8	1.6	189	6.0		
	e PcP	Z 02:41:27.8							
	e S	E 02:50:43.7							
	e SS	E 02:55:06.9							
	e L	Z 03:10:45.3			22.0	238		4.4	
GRA1	e P	Z 02:41:10.3	71.7	117.8	1.6	375	6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/16	02:44:37.5	45.656N	152.942E	33N	4.4			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:56:40.7	79.0	26.2	1.7	10	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/16	02:52:47.6	9.018S	157.973E	88?	5.3			NEIC

Solomon Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:11:50.9	130.8	45.7					

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/16	03:17:3.8	1.035N	66.969E	33.0N	5.2			SZGRF
2003/07/16	03:16:39.3	1.605S	68.773E	10G	5.0	4.6		NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:28:01.5	71.0	116.9	1.2	21	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/17	02:29:56.8	49.735N	158.886E	33.0N	5.1			SZGRF
2003/07/17	02:30:06.9	49.082N	153.583E	117*	4.6			NEIC

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:41:45.5	76.1	24.3	0.6	11	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/17	06:30:27.7	35.130N	35.028E	10.0G	4.6			SZGRF
2003/07/17	06:30:53.9	35.541N	31.070E	33N	4.1			NEIC

Jordan - Syria region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:35:29.2	20.2	126.9	0.8	16	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/17	19:03:49.8	17.465S	65.851W	33.0N	5.1			SZGRF
2003/07/17	19:03:46.6	19.543S	68.459W	136D	5.1			NEIC

Central Bolivia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:17:10.3	98.4	249.6	0.9	7	5.1		
	e pP	Z 19:17:19.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/17	20:10:39.4	17.515N	119.863E	33.0N	5.3			SZGRF
2003/07/17	20:10:39.7	17.814N	119.738E	43D	5.1	5.0		NEIC

Philippine Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:23:27.2	87.8	64.6	1.7	27	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	00:12: 8.0	46.338N	12.824E	10.0G			2.6	SZGRF
2003/07/18	00:12:12.6	46.805N	12.611E	10G				NEIC

Northern Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e Pn	Z	00:12:45.5	1.6	145.9					2.9
	e Sn	N	00:13:11.3							
GEC2	e Pn	Z	00:12:50.2	2.2	200.1					2.3
WET	e Pn	Z	00:12:53.0	2.3	184.5					
BFO	e Pn	Z	00:13:04.7	3.3	116.2					
	e Sn	N	00:13:45.2							
TANN	e Pn	Z	00:13:10.6	3.6	178.4					
WERD	e Pn	Z	00:13:10.6	3.6	176.7					
MOX	e Pn	Z	00:13:13.4	3.9	169.9					
	e Sn	N	00:14:03.2							
CLL	e Pn	Z	00:13:21.7	4.5	183.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	02:15:57.3	4.496N	36.908W	33.0N	4.3			SZGRF

North Atlantic Ocean

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	02:26:05.4	60.6	238.4	1.7	8	4.3		
	e		02:26:13.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	02:28:25.3	17.869S	173.068W	33N	5.0			NEIC

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z	02:48:04.1	146.3	10.5	1.2	81			
	e pPKPbc	Z	02:48:15.0							
	e sPKPbc	Z	02:48:20.8							
	e L	Z	04:00:05.5			20.0	352		5.1	
GRA1	e PKP	Z	02:48:09.7	148.0	7.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	03:33: 4.8	39.738N	142.543E	33.0N	4.6			SZGRF
2003/07/18	03:32:45.2	39.044N	141.430E	78D	4.7			NEIC

Near east coast of eastern Honshu, Japan



Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:45:15.8	81.0	36.9	1.4	9	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	10:17:44.6	40.630N	95.410E	33.0N	4.9			SZGRF
2003/07/18	10:17:17.5	38.905N	98.529E	10G	4.8			NEIC

Gansu, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 10:27:13.1	57.8	66.3	0.9	9	4.8		
CLL	e P	Z 10:27:15.8	58.1	66.0	0.8	12	5.0		
GEC2	e P	Z 10:27:20.2	58.7	65.1	1.1	6	4.5		
WERD	e P	Z 10:27:21.0	58.9	65.1	0.9	6	4.6		
WET	e P	Z 10:27:22.9	59.1	64.7	1.2	8	4.6		
MOX	e P	Z 10:27:23.4	59.2	64.8	1.0	5	4.5		
NRDL	e P	Z 10:27:24.3	59.3	64.8	0.9	18	5.1		
CLZ	e P	Z 10:27:25.1	59.4	64.7	0.8	21	5.2		
GRA1	e P	Z 10:27:28.3	59.8	64.0	0.8	19	5.2		
WLF	e P	Z 10:27:48.4	62.8	61.0	0.9	18	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	11:01:36.6	46.739N	9.849E	10.0G			4.0	SZGRF
2003/07/18	11:01:42.0	47.280N	10.213E	5G				NEIC

Switzerland

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WILA	e Pg	Z 11:01:54.4	0.9	98.2					
LLS	e Pg	Z 11:01:47.0	0.9	61.8					
VDL	e Pg	Z 11:01:43.0	1.0	32.9					
MUO	e Pg	Z 11:01:52.4	1.1	73.2					
FUR	e Pn	Z 11:02:07.8	1.1	219.4					4.1
SULZ	e Pg	Z 11:02:03.1	1.4	99.2					
STU	e Pn	Z 11:02:11.5	1.6	155.0					4.1
BFO	e Pn	Z 11:02:09.1	1.6	129.0					3.6
	e Sn	N 11:02:31.6							
GRA1	e Pn	Z 11:02:24.2	2.5	195.9					4.2
	e Sn	N 11:03:01.5							
WET	e Pn	Z 11:02:26.3	2.6	224.6					4.0
	e Sn	N 11:03:03.8							
GEC2	e Pn	Z 11:02:29.6	2.8	237.4					
	e Sn	N 11:03:09.2							
TNS	e Pn	Z 11:02:32.5	3.2	157.7					
TANN	e Pn	Z 11:02:37.7	3.5	206.1					
	e Sn	N 11:03:25.1							

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MOX	e Pn	Z	11:02:37.1	3.5	195.8
	e Sn	N	11:03:24.9		
WLF	e Pn	Z	11:02:37.2	3.6	130.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/18	20:48:10.4	18.679S	177.937W	600G	4.3			NEIC

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPbc	Z	21:06:43.2	145.0	19.6					
NRDL	e PKPbc	Z	21:06:45.2	145.6	13.6					
CLZ	e PKPbc	Z	21:06:47.3	146.2	14.2					
CLL	i PKPbc	- Z	21:06:47.1	146.2	18.9	0.9	63			
	e PKPab	Z	21:06:49.1			0.6	18			
BRG	e PKPbc	Z	21:06:47.9	146.5	20.7					
BUG	e PKPbc	Z	21:06:48.9	147.0	9.1					
MOX	e PKPbc	Z	21:06:49.5	147.1	16.8					
	e PKPab	Z	21:06:52.8							
WERD	e PKPbc	Z	21:06:49.8	147.2	18.1					
TNS	e PKPbc	Z	21:06:52.0	148.0	11.5					
GRA1	e PKPbc	Z	21:06:52.4	148.1	16.6					
	e PKPab	Z	21:06:57.4							
GRFO	e PKPbc	Z	21:06:52.1	148.1	16.6					
	e PKPab	Z	21:06:57.5							
GEC2	e PKPbc	Z	21:06:52.8	148.4	21.4					
WLF	e PKPbc	Z	21:06:53.8	148.8	7.5					
FUR	e PKPbc	Z	21:06:56.0	149.6	17.4					
	e PKPab	Z	21:07:03.2							
BFO	e PKPbc	Z	21:06:56.3	149.9	11.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	03:27:52.0	29.628N	125.811E	33.0N	4.4			SZGRF

Off east coast of southeastern China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	03:40:08.0	81.8	53.0	1.2	4	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	11:05: 8.6	62.972N	24.861W	33.0N	4.8	4.2		SZGRF
2003/07/19	11:04:56.2	62.168N	26.912W	10G	4.6	4.1		NEIC

Iceland region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA3	e L	Z	11:19:56.3	24.2	315.2	18.9	878	4.2			
GRA1	e P	Z	11:10:16.3	24.2	315.4	2.4	79	4.8			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	11:07:15.0	62.385N	25.449W	33.0N	4.5			SZGRF

Iceland region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:12:23.7	23.6	316.3	2.6	42	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	11:08:10.3	52.155N	175.803W	33.0N	5.0	4.5		SZGRF
2003/07/19	11:08:06.0	51.726N	173.387W	57*	4.5			NEIC

Andreanof Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e L	Z 11:50:49.4	78.4	3.0	19.7	227	4.5		
GRA1	e P	Z 11:20:05.7	78.5	2.9	1.1	14	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	13:12:49.6	62.426N	25.125W	33.0N	4.5			SZGRF
2003/07/19	13:12:39.4	61.897N	26.727W	10G	4.5			NEIC

Iceland region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:17:56.9	24.1	314.8	1.3	23	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	13:13:56.9	62.797N	25.102W	33.0N	5.1	4.5		SZGRF
2003/07/19	13:13:48.1	61.967N	26.714W	10G	4.9	4.9		NEIC

Iceland region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e L	Z 13:27:14.8	24.1	314.8	21.7	1949	4.5		
GRA1	e P	Z 13:19:05.1	24.1	314.9	2.1	144	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	13:17:49.0	62.705N	24.736W	33.0N	4.5			SZGRF
2003/07/19	13:17:35.5	61.993N	26.676W	10G	4.4			NEIC

Iceland region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:22:55.4	24.1	315.0	1.6	27	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	15:19:48.9	62.667N	24.761W	33.0N	4.5	3.9		SZGRF
2003/07/19	15:19:38.3	62.141N	26.631W	10G	4.4	3.9		NEIC

Iceland region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e L	Z 15:34:28.5	24.1	315.2	18.9	366		3.9	
GRA1	e P	Z 15:24:55.3	24.1	315.4	1.4	21	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	15:23:41.7	19.106N	66.258W	67				NEIC

Puerto Rico region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:34:05.8	67.5	273.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	18:07:36.7	20.067S	176.687W	257D	4.3			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPbc	Z 18:26:52.7	147.8	17.3					
BRG	e PKPbc	Z 18:26:53.4	148.1	19.1					
BUG	e PKPab	Z 18:26:59.1	148.5	7.1					
MOX	e PKPbc	Z 18:26:55.7	148.7	15.1					
WERD	e PKPbc	Z 18:26:55.7	148.8	16.5					
TNS	e PKPbc	Z 18:26:57.4	149.6	9.6					
	e PKPab	Z 18:27:03.4							
GRA1	e PKPbc	Z 18:26:58.1	149.7	14.8					
GRFO	e PKPbc	Z 18:26:57.4	149.7	14.8					
GEC2	e PKPbc	Z 18:26:58.7	150.0	19.8					
WLF	e PKPbc	Z 18:26:59.9	150.3	5.4					
BFO	e PKPab	Z 18:27:02.1	151.4	9.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	19:55:28.2	62.808N	24.880W	33.0N	4.6	3.9		SZGRF

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2003/07/19 19:55:20.9  
Iceland region

62.397N

27.006W

10G

4.4

NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e L	Z	20:10:11.8	24.3	315.8	18.2	407		3.9	
GRA1	e P	Z	20:00:35.6	24.3	315.9	2.0	39	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	21:20:37.8	8.150S	110.580E	33.0N		5.3		SZGRF
2003/07/19	21:20:34.0	8.649S	111.285E	33N	6.0	5.2		NEIC

Jawa, Indonesia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PP	Z	21:38:29.3	101.3	89.8					
RUE	e PP	Z	21:38:27.9	101.4	89.4					
GEC2	e PP	Z	21:38:30.6	101.5	90.0					
RGN	e PP	Z	21:38:31.6	101.7	88.6					
CLL	i Pdiff	+ Z	21:34:24.9	101.9	89.0	1.6	23			
	e pPdiff	Z	21:34:34.0							
	e PP	Z	21:38:38.1							
	e PPP	Z	21:40:48.8							
	e SKKSac	E	21:45:24.5							
	e PS	E	21:47:42.3							
	e PPS	E	21:48:38.8							
	e PKKPbc	Z	21:50:32.1			1.3	11			
	e SS	E	21:53:20.1							
	e L	Z	22:26:13.3			22.0	828		5.2	
WET	e PP	Z	21:38:33.4	102.0	89.4					
MOX	e PP	Z	21:38:39.5	102.8	88.1					
GRA3	e L	Z	22:28:08.7	103.0	88.0	19.0	839		5.3	
GRA1	e Pdiff	Z	21:34:30.5	103.1	88.0					
	e PP	Z	21:38:42.7							
	e PKKP	Z	21:50:28.3							
FUR	e PP	Z	21:38:39.9	103.1	88.4					
CLZ	e PP	Z	21:38:44.6	103.5	86.8					
UBBA	e PP	Z	21:38:45.7	103.8	86.8					
STU	e PP	Z	21:38:52.8	104.5	86.6					
TNS	e PP	Z	21:38:54.5	104.8	85.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/19	23:04:55.3	28.388S	26.786E	33.0N	4.6			SZGRF

South Africa

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1	e P	Z	23:16:58.0	79.3	166.1	1.2	8	4.6
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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/20	01:40:27.2	27.996N	55.237E	33.0N	4.5			SZGRF
2003/07/20	01:40:34.9	28.626N	54.074E	33N	4.5			NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:47:57.2	38.6	106.8	1.3	15	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/20	07:35:29.9	51.043N	159.578E	33.0N	5.0			SZGRF
2003/07/20	07:35:24.3	51.133N	159.882E	33N	4.4			NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:47:12.6	75.7	19.7	1.3	17	5.0		
	e PcP	Z 07:47:25.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/20	13:08:15.0	62.934N	24.887W	33.0N	4.5			SZGRF
2003/07/20	13:08:05.8	61.988N	26.773W	10G	4.7			NEIC

Iceland region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:13:22.7	24.1	315.0	1.6	24	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	05:45:59.9	46.906N	6.765E	10.0G			2.2	SZGRF
2003/07/21	05:45:58.2	46.812N	6.790E	2G				NEIC

Switzerland

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
SULZ	e Sg	N 05:46:35.3	1.1	231.9					
ZUR	e Sg	N 05:46:42.3	1.3	246.1					
SLE	e Pg	Z 05:46:26.8	1.5	231.1					
	e Sg	N 05:46:45.7							
WILA	e Pg	Z 05:46:28.1	1.6	248.1					
	e Sg	N 05:46:48.8							
BFO	e Pn	Z 05:46:29.3	1.8	215.0					2.2
	e Sg	N 05:46:56.3							

KAMOR e Sg N 05:46:59.9 1.9 256.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	06:00:23.1	2.450N	65.967E	21.5	5.0			SZGRF
2003/07/21	05:59:43.6	1.302S	69.767E	10G	4.9	4.0		NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:11:07.1	71.3	115.8	1.3	13	5.0		
	e pP	Z 06:11:13.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	12:46:42.6	28.957N	44.071W	33.0N	5.3			SZGRF
2003/07/21	12:46:58.7	30.758N	41.754W	10G	4.7	4.6		NEIC

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:55:05.1	43.6	264.7	1.7	50	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	13:53:59.1	5.491S	148.928E	190D	6.2			NEIC

New Britain, Papua New Guinea, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 14:08:57.9	121.5	54.3					
	e pPdiff	Z 14:09:46.0							
	i PKPdf	+ Z 14:12:30.9			0.9	66			
	e pPKPdf	Z 14:13:20.2							
	e PP	Z 14:14:05.4							
	e pPP	Z 14:14:51.1							
	e sPPP	Z 14:17:44.2							
	e PKKPab	Z 14:22:32.7							
	e pPKKPab	Z 14:23:19.5							
	e SP	Z 14:23:41.3							
	e sSP	E 14:25:10.5							
	e sPPS	Z 14:26:22.3							
	e SKKPdf	Z 14:26:26.6							
	e SS	T 14:30:27.6							
	e SSS	T 14:34:58.5							
	e LR	Z 14:52:44.3							
	e L	Z 15:03:50.3			20.0	3861		6.0	
GRA3	e L	Z 15:04:13.4	123.2	53.3	21.7	3060		5.9	
GRA1	e PKPdf	Z 14:12:34.1	123.3	53.3					

e pPKPdf Z 14:13:24.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	15:16:41.6	26.143N	100.911E	33.0N	5.3	6.0		SZGRF
2003/07/21	15:16:31.5	25.964N	101.317E	10G	5.4	6.0		NEIC

Yunnan, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	M
CLL	i P	+ Z 15:27:40.0	69.2	74.3	1.2	31	5.4		
	e PPPP	R 15:32:39.2							
	e S	T 15:36:46.8							
	e SKSac	R 15:37:36.6							
	e SS	T 15:41:13.1							
	e SSS	T 15:44:32.0							
	e L	Z 16:01:14.5			20.0	10020		6.1	L
GRA3	e L	Z 15:59:28.1	70.5	72.5	20.7	9583		6.0	
GRA1	e P	Z 15:27:51.4	70.6	72.4	1.1	31	5.3		
	e S	N 15:37:10.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	19:21:17.6	6.770N	93.210E	33.0N	5.2	5.4		SZGRF
2003/07/21	19:21:10.6	6.701N	93.647E	10G	5.2	5.5		NEIC

Nicobar Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 19:33:13.2	78.3	93.8	1.2	25	5.2		
GEC2	e P	Z 19:33:13.4	78.3	93.1	1.6	69	5.5		
RUE	e P	Z 19:33:14.0	78.5	93.9	1.5	93	5.7		
WET	e P	Z 19:33:16.5	78.9	92.6	1.4	30	5.1		
CLL	i P	Z 19:33:16.1	78.9	93.1	1.6	41	5.2		
	e PPP	Z 19:38:01.2							
	e S	N 19:43:11.3							
	e L	Z 20:11:24.6			22.0	1543		5.3	
WERD	e P	Z 19:33:18.6	79.3	92.4	1.4	23	5.0		
MOX	e P	Z 19:33:21.0	79.8	91.9	1.0	16	5.0		
FUR	e P	Z 19:33:21.6	79.9	91.2	0.9	25	5.1		
GRA3	e L	Z 20:14:51.8	79.9	91.5	18.9	1604		5.4	
GRA1	e P	Z 19:33:22.8	80.0	91.4	1.6	90	5.4		
	e S	N 19:43:27.1							
NRDL	e P	Z 19:33:26.7	80.8	91.0	1.5	60	5.3		
UBBA	e P	Z 19:33:27.6	80.8	90.7	1.8	36	5.1		
STU	e P	Z 19:33:30.3	81.3	89.7	1.4	36	5.2		
TNS	e P	Z 19:33:31.9	81.8	89.4	1.1	17	5.0		
BFO	e P	Z 19:33:31.9	81.9	89.0	1.7	36	5.2		
BUG	e P	Z 19:33:35.6	82.5	88.6	1.5	50	5.4		



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WLF e P Z 19:33:40.0 83.3 87.6 1.6 45 5.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/21	23:53:40.6	19.220N	101.450W	33.0N	5.0	4.0		SZGRF
2003/07/21	23:53:41.5	18.674N	100.879W	62D	5.0			NEIC

Michoacan, Mexico

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 00:06:19.7	86.3	294.8	1.0	21	5.2		
NRDL	e P	Z 00:06:24.3	87.3	297.7	1.0	16	5.1		
TNS	e P	Z 00:06:24.7	87.4	296.5	1.0	18	5.2		
BFO	e P	Z 00:06:28.2	88.2	296.5	1.2	8	4.9		
MOX	e P	Z 00:06:32.0	89.0	298.9	1.1	8	4.8		
GRFO	e L	Z 00:46:16.8	89.2	298.6	20.8	62		4.0	
GRA1	e P	Z 00:06:33.9	89.2	298.6	1.2	20	5.2		
CLL	e P	Z 00:06:34.2	89.4	300.0	1.3	11	4.9		
WERD	e P	Z 00:06:34.7	89.5	299.4	1.3	8	4.8		
BRG	e P	Z 00:06:37.5	90.1	300.7	1.0	8	4.9		
WET	e P	Z 00:06:39.4	90.4	299.9	1.1	8	5.0		
GEC2	e P	Z 00:06:42.1	91.0	300.5	0.9	6	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	02:13:23.8	19.207S	173.296W	33N	4.6			NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 02:33:11.5	149.4	8.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	03:42:31.1	72.090N	1.460E	33.0N	4.3			SZGRF
2003/07/22	03:42:25.9	72.432N	0.602E	10G	4.4			NEIC

Norwegian Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BUG	e P	Z 03:47:10.9	21.2	354.4	1.1	16	4.3		
CLL	e P	Z 03:47:17.0	21.8	350.0	1.3	20	4.3		
UBBA	e P	Z 03:47:19.7	22.0	352.4	1.4	15	4.2		
MOX	e P	Z 03:47:23.0	22.3	351.3	1.2	20	4.4		
BRG	e P	Z 03:47:22.4	22.3	349.4	1.5	16	4.2		
GRA1	e P	Z 03:47:33.6	23.2	351.9	1.2	18	4.5		
WET	e P	Z 03:47:40.2	23.9	350.9	1.7	13	4.2		
GEC2	e P	Z 03:47:43.8	24.3	350.4	1.0	9	4.3		
BFO	e P	Z 03:47:43.1	24.4	354.4	1.5	12	4.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	04:21:42.2	15.420S	165.600E	33.0N		5.7		SZGRF
2003/07/22	04:21:41.0	15.449S	166.191E	33N	5.7	5.7		NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PP	Z 04:43:44.7	137.0	40.9					
BRG	e PP	Z 04:43:51.2	138.2	42.3					
CLL	e PKPdf	Z 04:41:04.5	138.2	40.7	1.6	23			
	e	04:41:16.1							
	e PP	Z 04:43:55.9							
	e PKSbc	Z 04:44:37.5							
	e SKKSac	R 04:50:42.7							
	e PPS	Z 04:56:15.5							
	e SKKSdf	R 04:57:42.5							
	e SS	T 05:02:15.5							
	e PSPS	R 05:03:00.4							
	e SSS	R 05:07:42.0							
	e LR	Z 05:27:09.4							
	e L	Z 05:40:31.8			22.0	2201		5.9	
NRDL	e PP	Z 04:43:53.5	138.4	36.1					
MOX	e PP	Z 04:43:58.6	139.3	39.4					
GEC2	e PP	Z 04:44:00.9	139.7	43.5					
UBBA	e PP	Z 04:44:02.3	139.8	37.1					
WET	e PP	Z 04:44:02.3	139.9	42.2					
GRA1	e PKPdf	Z 04:41:08.1	140.2	39.6					
	e PP	Z 04:44:04.6							
GRFO	e L	Z 05:47:32.9	140.2	39.6	21.0	1375		5.7	
BUG	e PP	Z 04:44:04.6	140.3	32.8					
TNS	e PP	Z 04:44:08.8	140.8	35.3					
STU	e PP	Z 04:44:13.4	141.7	37.5					
WLF	e PP	Z 04:44:15.7	142.1	32.4					
BFO	e PP	Z 04:44:18.5	142.4	36.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	06:21:14.2	6.330N	94.350E	33.0N	4.9			SZGRF
2003/07/22	06:21:17.6	6.763N	93.537E	33N	4.9			NEIC

Nicobar Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 06:33:16.0	78.2	93.8	2.1	40	5.1		
GEC2	e P	Z 06:33:16.2	78.2	93.2	0.8	14	5.0		
WET	e P	Z 06:33:19.3	78.8	92.6	0.8	8	4.7		

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CLL	e P	Z	06:33:18.9	78.8	93.1	0.8	6	4.5
WERD	e P	Z	06:33:21.5	79.2	92.4	0.8	8	4.7
MOX	e P	Z	06:33:23.9	79.7	91.9	1.4	10	4.7
GRA1	e P	Z	06:33:25.5	79.9	91.5	0.7	16	5.2
CLZ	e P	Z	06:33:28.1	80.5	91.2	0.7	10	4.9
TNS	e P	Z	06:33:34.9	81.7	89.4	0.8	9	5.0
BFO	e P	Z	06:33:34.7	81.8	89.1	0.8	6	4.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	11:14:17.3	17.557N	56.440E	33.0N	5.1			SZGRF
2003/07/22	11:14:04.5	14.741N	54.593E	10G	4.8			NEIC

Eastern Arabian Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:22:56.1	49.5	119.2	1.1	18	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	15:39: 6.7	2.659N	66.492E	33.0N	4.7			SZGRF
2003/07/22	15:38:21.4	1.890S	68.187E	10G	4.5			NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:49:51.6	70.9	117.5	0.9	5	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	17:29:25.8	2.304S	67.940E	33.0N	5.1			SZGRF
2003/07/22	17:29:19.5	1.425S	69.784E	10G	4.8	4.2		NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:40:41.2	71.4	115.9	1.0	15	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/22	21:42:35.4	12.151N	89.650E	33.0N	4.7			SZGRF
2003/07/22	21:41:57.8	6.579N	93.449E	33N	4.7			NEIC

Bay of Bengal

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:54:04.1	80.0	91.6	0.8	4	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/23								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:22:09.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/23	04:56: 7.3	38.570N	29.040E	10.0G	4.5	4.5		SZGRF
2003/07/23	04:56:05.7	38.205N	28.755E	33N	4.9			NEIC

Turkey

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 04:59:41.3	15.2	128.8					
WET	e P	Z 04:59:48.7	15.8	127.9	1.0	86	4.8		
BRG	e P	Z 04:59:56.6	16.4	134.7	1.3	43	4.4		
WERD	e P	Z 05:00:06.4	16.9	130.1	1.3	31	4.3		
GRA3	e L	Z 05:06:49.5	17.0	126.3	18.2	2849		4.5	
GRA1	e P	Z 05:00:07.7	17.0	125.9	1.5	60	4.5		
GRFO	e L	Z 05:06:49.0	17.0	125.9	18.3	2488		4.5	
CLL	e P	Z 05:00:09.0	17.2	133.7	1.2	27	4.2		
MOX	e P	Z 05:00:11.6	17.4	129.1	1.9	94	4.6		
BFO	e P	Z 05:00:16.9	17.9	116.9	2.0	142	4.8		
UBBA	e P	Z 05:00:21.3	18.3	126.4	3.0	96	4.4		
CLZ	e P	Z 05:00:25.7	18.7	129.5	2.3	89	4.6		
TNS	e P	Z 05:00:26.6	18.8	122.0	1.2	42	4.5		
NRDL	e P	Z 05:00:31.7	19.3	130.4	1.2	30	4.4		
WLF	e P	Z 05:00:38.1	19.8	116.8	1.1	18	4.2		
BUG	e P	Z 05:00:41.0	20.0	122.9	1.4	86	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/23	09:15: 1.6	37.970N	74.360E	33.0N	4.5			SZGRF
2003/07/23	09:15:13.2	38.357N	73.620E	115?	4.3			NEIC

Tajikistan-Xinjiang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 09:23:04.0	43.0	82.9	0.9	9	4.5		
GEC2	e P	Z 09:23:08.2	43.5	80.6	1.2	4	4.0		
CLL	e P	Z 09:23:08.0	43.5	82.7	0.9	8	4.4		
WERD	e P	Z 09:23:12.7	44.1	81.3	0.9	5	4.4		
MOX	e P	Z 09:23:16.4	44.5	81.1	0.7	5	4.5		
GRA1	e P	Z 09:23:20.2	44.9	79.9	1.5	24	5.0		
CLZ	e P	Z 09:23:21.0	45.1	81.4	1.2	6	4.5		
NRDL	e P	Z 09:23:21.7	45.2	81.9	1.0	12	4.9		
BFO	e P	Z 09:23:35.6	47.0	76.8	1.5	9	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/23	16:38:45.9	15.005S	10.928W	20.2	6.0	5.1		SZGRF
2003/07/23	16:38:37.1	15.550S	13.321W	10G	5.6	5.2		NEIC

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 16:49:28.4	66.7	202.8	2.5	265	6.0		
STU	e P	Z 16:49:32.3	67.4	203.6	1.6	46	5.5		
FUR	e P	Z 16:49:32.7	67.4	205.7	3.8	1359	6.6		
WLF	e P	Z 16:49:33.5	67.4	200.4	2.3	322	6.1		
TNS	e P	Z 16:49:40.1	68.5	202.6	3.6	750	6.3		
GEC2	e P	Z 16:49:41.3	68.7	208.0	2.8	342	6.1		
	e PP	Z 16:52:09.1							
WET	e P	Z 16:49:41.2	68.7	207.2	2.4	239	6.0		
	e PP	Z 16:52:09.2							
GRFO	e P	Z 16:49:40.3	68.7	205.4					
	e S	N 16:58:49.2							
	e SS	N 17:02:48.3							
	e L	Z 17:18:07.8			21.2	1236		5.1	
GRA1	e P	Z 16:49:41.4	68.7	205.4	1.2	66	5.7		
	e pP	Z 16:49:47.1							
BUG	e P	Z 16:49:45.4	69.4	201.2	1.6	136	5.9		
UBBA	e P	Z 16:49:46.0	69.4	204.0	2.4	224	6.0		
MOX	e P	Z 16:49:47.3	69.7	205.7	1.8	66	5.6		
WERD	e P	Z 16:49:47.4	69.7	206.4	2.1	152	5.9		
	e PP	Z 16:52:23.0							
CLZ	e P	Z 16:49:52.4	70.5	204.3	2.6	231	5.9		
	e PP	Z 16:52:26.5							
BRG	e P	Z 16:49:52.4	70.6	207.9	3.4	334	6.0		
CLL	i P	Z 16:49:54.2	70.7	206.9	2.1	210	5.9		
	e PP	Z 16:52:36.5							
	e PPP	Z 16:54:14.7							
	e S	N 16:59:10.0							
	e PS	N 16:59:34.0							
	e SS	N 17:03:42.9							
	e SSS	N 17:06:56.6							
	e LR	Z 17:12:23.6							
	e L	Z 17:18:20.8			22.0	1418		5.2	
NRDL	e P	Z 16:49:56.5	71.0	203.9	2.0	195	5.9		
RUE	e P	Z 16:50:01.2	72.0	207.5	1.7	129	5.8		
HLG	e P	Z 16:50:05.4	72.0	201.5	1.3	141	5.9		
RGN	e P	Z 16:50:11.7	73.7	206.8	2.0	250	6.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/07/23	16:53:49.6	14.093S	10.770W	18.8	5.4	SZGRF
2003/07/23	16:53:35.4	15.482S	13.268W	10G	5.2	NEIC

Southern Mid-Atlantic Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z	17:04:26.5	66.7	202.7	1.2	36	5.5		
STU	e P	Z	17:04:30.5	67.3	203.5	1.0	29	5.5		
FUR	e P	Z	17:04:30.8	67.3	205.7	1.3	54	5.6		
WLF	e P	Z	17:04:31.6	67.4	200.3	1.2	40	5.5		
TNS	e P	Z	17:04:38.1	68.4	202.5	1.4	31	5.3		
GEC2	e P	Z	17:04:39.4	68.6	208.0	1.0	13	5.1		
WET	e P	Z	17:04:39.3	68.7	207.1	1.3	27	5.3		
	e PP	Z	17:07:06.3							
GRA1	e P	Z	17:04:39.5	68.7	205.4	1.1	20	5.3		
	e pP	Z	17:04:44.8							
	e PP	Z	17:07:05.5							
UBBA	e P	Z	17:04:44.0	69.4	204.0	1.6	26	5.2		
MOX	e P	Z	17:04:45.4	69.6	205.6	1.2	28	5.4		
WERD	e P	Z	17:04:45.8	69.7	206.3	1.1	21	5.3		
CLZ	e P	Z	17:04:50.5	70.4	204.2	1.2	15	5.1		
BRG	e P	Z	17:04:50.8	70.5	207.9	1.1	12	5.0		
CLL	e P	Z	17:04:51.5	70.6	206.9	2.2	55	5.4		
NRDL	e P	Z	17:04:54.6	70.9	203.9	1.2	42	5.6		
RUE	e P	Z	17:04:59.3	71.9	207.5	1.3	64	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/23	20:07:13.3	15.740S	10.970W	18.9	5.0			SZGRF
2003/07/23	20:07:05.2	15.630S	13.213W	10G	5.0			NEIC

Southern Mid-Atlantic Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z	20:17:56.3	66.8	202.6	1.0	7	4.9		
WLF	e P	Z	20:18:02.3	67.5	200.2	1.5	18	5.1		
TNS	e P	Z	20:18:09.9	68.6	202.5	2.2	35	5.2		
GEC2	e P	Z	20:18:09.6	68.8	207.9	2.4	38	5.2		
WET	e P	Z	20:18:09.5	68.8	207.0	2.4	42	5.2		
	e PP	Z	20:20:37.3							
GRA1	e P	Z	20:18:09.7	68.8	205.3	1.9	36	5.3		
	e pP	Z	20:18:15.0							
	e PP	Z	20:20:40.7							
UBBA	e P	Z	20:18:14.3	69.5	203.9	2.2	35	5.2		
MOX	e P	Z	20:18:15.7	69.8	205.5	1.3	10	4.9		
	e PP	Z	20:20:49.5							
CLZ	e P	Z	20:18:20.7	70.5	204.1	1.8	25	5.0		
BRG	e P	Z	20:18:21.0	70.6	207.8	1.2	3	4.3		
	e PP	Z	20:20:58.8							
CLL	e P	Z	20:18:21.7	70.7	206.8	1.8	19	4.9		

NRDL e P Z 20:18:24.4 71.1 203.8 2.3 61 5.3

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/23 21:30:56.5 4.287S 145.045E 33N 5.4 5.0 ML NEIC  
 Nr N Cst New Guinea, P.N.G.

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 21:49:45.1	118.5	57.4	0.7	4			
	e PP	Z 21:51:06.7							
	e PS	E 22:00:44.6							
	e SS	N 22:07:19.6							
	e L	Z 22:42:24.2			22.0	506		5.1	
GRA1	e PKP	Z 21:49:47.6	120.2	56.4					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/23 22:52:57.4 44.784N 149.480E 33.0N 4.6 SZGRF  
 2003/07/23 22:53:13.2 46.320N 149.740E 138\* 4.3 NEIC  
 Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:04:57.2	77.5	27.9	0.9	6	4.6		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/24 07:10:29.5 16.537S 177.278W 33N 4.9 NEIC  
 Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 07:30:10.2	146.1	14.7					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/24 10:23:25.2 0.640N 123.200E 33.0G 4.9 SZGRF  
 2003/07/24 10:23:16.9 0.124N 124.502E 33N 5.7 5.0 NEIC  
 Minahassa Peninsula, Sulawesi, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PP	Z 10:41:21.5	102.0	72.4					
RUE	e PP	Z 10:41:23.5	102.3	73.2					
BRG	e PP	Z 10:41:26.5	102.7	73.7					
CLL	e PP	Z 10:41:29.6	103.1	72.8					
CLL	e Pdiff	Z 10:37:14.6	103.1	72.8	1.5	32			
	e PP	Z 10:41:34.7							

e PPP	Z	10:43:48.0									
e SKSac	E	10:47:45.2									
e Sdiff	N	10:48:51.0									
e PS	E	10:50:42.2									
e PPS	E	10:51:29.9									
e LR	Z	11:15:55.9									
e L	Z	11:23:15.1					22.0	598		5.1	

MOX	e PP	Z	10:41:37.6	104.2	71.8						
NRDL	e PP	Z	10:41:39.9	104.5	70.1						
CLZ	e PP	Z	10:41:40.3	104.5	70.5						
GRA1	e Pdiff	Z	10:37:21.6	104.7	71.8						
GRFO	e L	Z	11:26:00.2	104.7	71.8	20.8		411		4.9	
UBBA	e PP	Z	10:41:44.0	105.1	70.5						
HLG	e PP	Z	10:41:45.3	105.1	67.8						
FUR	e PP	Z	10:41:45.6	105.2	72.2						
TNS	e PP	Z	10:41:53.0	106.2	69.3						
STU	e PP	Z	10:41:53.0	106.3	70.3						
BUG	e PP	Z	10:41:54.7	106.5	68.0						
BFO	e PP	Z	10:41:57.3	107.0	69.8						
WLF	e PP	Z	10:42:04.7	107.8	67.6						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/24	20:49:56.2	32.861N	86.734E	33.0N	4.3			SZGRF

Xizang

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:59:36.5	56.7	76.8	0.9	2	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	04:28:38.1	10.697S	165.017E	33N	5.5	5.0		NEIC

Santa Cruz Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 04:47:56.2	135.4	38.2					
	e PP	Z 04:50:31.5							
GRFO	e L	Z 05:52:23.5	135.4	38.2	21.6	274		4.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	09:37:41.4	1.060S	150.380E	33.0N		6.6		SZGRF
2003/07/25	09:37:48.3	1.487S	149.630E	42*	6.4	6.2		NEIC

New Ireland, Papua New Guinea, region



Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PP	Z 09:57:25.1	116.1	50.3					
RUE	e PP	Z 09:57:33.6	117.2	51.5					
	e PKKPab	Z 10:06:55.2							
BRG	e PP	Z 09:57:40.0	118.1	52.4					
	e Sdiff	T 10:05:33.0							
	e PKKPab	Z 10:06:51.2							
CLL	e Pdiff	Z 09:52:52.7	118.3	51.3	1.2	16			
	e sPdiff	Z 09:53:07.8							
	e PKPdf	Z 09:56:33.6			0.8	71			
	e PP	Z 09:57:57.4							
	e PPP	Z 10:00:27.5							
	e Sdiff	T 10:05:35.8							
	e PKKPab	Z 10:06:50.7							
	e PS	E 10:07:38.2							
	e PPS	E 10:08:57.9							
	e SS	N 10:14:11.1							
	e SSS	E 10:18:23.3							
	e SSSS	Z 10:22:22.2							
	e LR	Z 10:35:13.0							
	e L	Z 10:53:15.2			20.0	8088		6.3	
HLG	e PP	Z 09:57:43.9	118.7	44.9					
NRDL	e PP	Z 09:57:45.2	118.9	47.8					
TANN	e Sdiff	T 10:05:39.1	119.2	51.1					
CLZ	e PP	Z 09:57:48.2	119.2	48.4					
	e PKKPab	Z 10:06:47.7							
MOX	e PP	Z 09:57:49.0	119.4	50.2					
GEC2	e PKPdf	Z 09:56:35.5	119.5	53.0					
	e PP	Z 09:57:49.4							
	e Sdiff	T 10:05:47.2							
WET	e PP	Z 09:57:51.1	119.7	52.1					
	e Sdiff	T 10:05:49.2							
UBBA	e PP	Z 09:57:53.3	120.1	48.4					
GRA3	e	10:14:08.2	120.1	50.2					
GRA1	e Pdiff	Z 09:53:01.5	120.2	50.2					
	e PKPdf	Z 09:56:37.5							
	e PP	Z 09:57:55.4							
	e PPP	Z 10:00:37.0							
	e Sdiff	T 10:05:53.3							
	e PKKPab	Z 10:06:44.0							
	e SP	Z 10:07:48.7							
	e	10:09:04.3							
	e SKKP	Z 10:10:13.2							
	e SS	T 10:14:30.3							
	e L	Z 10:50:38.6			20.0	13534		6.6	
BUG	e PP	Z 09:57:58.8	120.9	45.4					
FUR	e PP	Z 09:58:01.8	121.2	50.9					
	e PKKPab	Z 10:06:40.5							

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STU	e PP	Z	09:58:05.3	121.8	48.5
BFO	e PP	Z	09:58:10.0	122.6	47.9
	e PKKPab	Z	10:06:34.5		
WLF	e PP	Z	09:58:11.7	122.7	45.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	11:52:25.7	30.070N	140.320E	33.0N	5.4			SZGRF
2003/07/25	11:53:11.6	31.271N	138.308E	373D	4.9			NEIC

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 12:05:05.6	84.4	45.2	0.8	33	5.6		
CLL	e P	Z 12:05:05.9	84.5	44.5	1.2	72	5.7		
CLZ	e P	Z 12:05:09.8	85.2	42.6	1.1	25	5.3		
WERD	e P	Z 12:05:11.1	85.4	43.9	1.1	22	5.2		
MOX	e P	Z 12:05:11.4	85.6	43.4	1.6	45	5.3		
GEC2	e P	Z 12:05:13.4	85.9	44.9	1.1	19	5.1		
WET	e P	Z 12:05:14.1	86.1	44.3	1.2	17	5.1		
UBBA	e P	Z 12:05:13.9	86.1	42.2	2.0	34	5.1		
GRA1	e P	Z 12:05:16.3	86.4	43.1	1.5	112	5.8		
	e PP	Z 12:08:44.8							
TNS	e P	Z 12:05:19.1	87.2	41.1	1.3	18	5.2		
FUR	e P	Z 12:05:21.1	87.5	43.1	0.8	52	5.8		
STU	e P	Z 12:05:23.2	88.0	41.6	1.0	36	5.6		
WLF	e P	Z 12:05:26.3	88.6	39.3	1.9	119	5.8		
BFO	e P	Z 12:05:26.2	88.7	40.9	1.0	38	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	14:40:39.2	48.810N	152.400E	33.0N	5.5			SZGRF
2003/07/25	14:40:43.2	47.603N	152.689E	136D	4.9			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 14:52:07.1	74.0	27.5	1.1	71	5.7		
NRDL	e P	Z 14:52:12.8	74.9	25.1	1.0	28	5.2		
CLL	e P	Z 14:52:14.1	75.2	26.8	1.1	88	5.7		
BRG	e P	Z 14:52:14.6	75.3	27.4	1.2	30	5.2		
CLZ	e P	Z 14:52:16.2	75.5	25.2	1.0	61	5.6		
WERD	e P	Z 14:52:20.1	76.2	26.3	1.5	46	5.3		
MOX	e P	Z 14:52:19.8	76.2	25.9	0.8	27	5.3		
UBBA	e P	Z 14:52:21.5	76.5	24.9	1.8	73	5.5		
BUG	e P	Z 14:52:22.2	76.6	23.2	1.0	39	5.5		
GRA1	e P	Z 14:52:25.8	77.2	25.5	1.0	86	5.8		
WET	e P	Z 14:52:26.1	77.2	26.5	1.0	37	5.4		
GEC2	e P	Z 14:52:25.9	77.2	27.0	1.0	18	5.1		

TNS	e P	Z	14:52:27.2	77.4	23.8	1.0	34	5.4
FUR	e P	Z	14:52:33.6	78.5	25.4	0.8	49	5.7
STU	e P	Z	14:52:33.4	78.6	24.2	1.0	37	5.5
BFO	e P	Z	14:52:36.7	79.2	23.6	1.1	35	5.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	15:13:14.9	39.480N	141.500E	33.0N	5.5	5.1		SZGRF
2003/07/25	15:13:11.2	38.480N	140.961E	33N	5.5	4.9		NEIC

Eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 15:25:09.5	78.2	39.6	1.3	73	5.6		
BRG	e P	Z 15:25:15.7	79.3	39.5	1.5	69	5.5		
CLL	i P	Z 15:25:16.3	79.4	38.9	0.8	34	5.3		
	e PP	Z 15:28:21.7							
	e S	E 15:35:16.6							
	e SP	Z 15:36:00.4							
	e SS	N 15:40:35.9							
	e SSS	E 15:44:07.4							
	e LR	Z 15:51:30.2							
	e L	Z 16:03:30.2			18.0	1779		5.5	
NRDL	e P	Z 15:25:16.8	79.5	37.0	1.6	64	5.4		
CLZ	e P	Z 15:25:19.4	79.9	37.1	1.6	125	5.6		
WERD	e P	Z 15:25:21.3	80.3	38.3	1.7	70	5.3		
MOX	e P	Z 15:25:21.6	80.4	37.9	1.7	71	5.3		
UBBA	e P	Z 15:25:23.9	80.9	36.8	1.0	21	5.1		
GEC2	e P	Z 15:25:24.7	81.0	39.1	1.5	37	5.2		
WET	e P	Z 15:25:25.7	81.1	38.6	1.5	62	5.4		
GRA1	e P	Z 15:25:27.1	81.3	37.5	1.8	311	6.0		
GRFO	e P	Z 15:25:27.1	81.3	37.5					
	e L	Z 16:06:23.0			20.2	894		5.1	
BUG	e P	Z 15:25:26.5	81.4	34.9	1.6	89	5.5		
TNS	e P	Z 15:25:29.8	82.0	35.6	1.5	53	5.4		
FUR	e P	Z 15:25:33.0	82.5	37.4	0.9	88	5.9		
STU	e P	Z 15:25:34.5	82.9	36.0	0.7	39	5.7		
WLF	e P	Z 15:25:36.9	83.3	34.0	2.1	214	6.0		
BFO	e P	Z 15:25:38.0	83.6	35.4	1.1	78	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	15:37:49.4	5.742S	153.617E	33N	5.1	4.5		NEIC

New Britain, Papua New Guinea, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 15:56:52.0	125.9	48.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/07/25											
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
		GRA1	e PKP	Z 16:26:02.7							
			e	16:27:05.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/07/25	17:36:41.4	16.758S	177.165E	33N	5.1	4.9		NEIC			
Fiji Islands											
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
		GRA1	e PKP	Z 17:56:17.9	145.2	24.0					
			e	17:58:19.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/07/25	18:18:59.4	21.040S	177.940W	33.0N				SZGRF			
2003/07/25	18:19:54.1	20.080S	177.881W	500G	4.3			NEIC			
Fiji Islands region											
		Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
		NRDL	e PKPbc	Z 18:38:41.0	147.0	13.9					
		CLZ	e PKPbc	Z 18:38:42.8	147.6	14.6					
		CLL	e PKPbc	Z 18:38:42.7	147.6	19.3					
			e PKPab	Z 18:38:46.2							
		BRG	e PKPbc	Z 18:38:43.4	147.8	21.2					
		MOX	e PKPbc	Z 18:38:45.1	148.5	17.3					
		WERD	e PKPbc	Z 18:38:45.3	148.6	18.6					
		TNS	e PKPbc	Z 18:38:47.3	149.4	11.7					
			e PKPab	Z 18:38:54.0							
		GRA1	e PKPbc	Z 18:38:47.6	149.5	17.0					
			e PKPab	Z 18:38:54.6							
		GEC2	e PKPbc	Z 18:38:48.2	149.8	22.0					
		WLF	e PKPbc	Z 18:38:49.9	150.2	7.6					
			e PKPab	Z 18:38:57.3							
		STU	e PKPbc	Z 18:38:50.4	150.8	13.7					
		FUR	e PKPab	Z 18:39:00.5	151.0	17.9					
		BFO	e PKPbc	Z 18:38:52.4	151.3	12.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	22:13:31.6	38.490N	142.910E	33.0N	6.3	6.2		SZGRF

2003/07/25 22:13:30.3 38.510N 140.984E 6G 6.1 5.8 NEIC  
Near east coast of eastern Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	22:25:25.7	76.7	39.5	1.7	848	6.5		
RUE	e P	Z	22:25:33.6	78.1	39.6	1.8	635	6.5		
BRG	e P	Z	22:25:40.0	79.3	39.5	2.6	1133	6.5		
	e S	T	22:35:44.1							
CLL	i P	+ Z	22:25:39.6	79.3	38.9	2.0	680	6.2		
	e		22:27:13.0							
	e PP	Z	22:28:42.4							
	e S	E	22:35:42.7							
	e PS	N	22:36:22.5							
	e SS	N	22:40:53.3							
	e SSS	E	22:44:30.6							
	e LR	Z	22:51:30.6							
	e L	Z	23:02:32.0			20.0	12281		6.2	
NRDL	e P	Z	22:25:41.0	79.5	37.0	2.5	810	6.4		
CLZ	e P	Z	22:25:43.5	79.9	37.1	1.7	492	6.4		
	e S	T	22:35:50.5							
WERD	e P	Z	22:25:45.4	80.3	38.3	2.1	502	6.2		
MOX	e P	Z	22:25:45.8	80.4	37.8	2.2	591	6.2		
	e S	T	22:35:54.9							
UBBA	e P	Z	22:25:48.1	80.9	36.7	1.9	338	6.1		
GEC2	e P	Z	22:25:48.8	81.0	39.1	2.5	631	6.1		
WET	e P	Z	22:25:49.8	81.1	38.6	2.1	632	6.2		
	e S	T	22:36:04.2							
GRA1	e P	Z	22:25:51.2	81.3	37.5	1.8	1166	6.5		
	e S	T	22:36:05.8							
	e L	Z	23:06:47.4			20.0	9902		6.2	
GRFO	e P	Z	22:25:51.2	81.3	37.5					
BUG	e P	Z	22:25:50.6	81.4	34.9	1.9	492	6.1		
TNS	e P	Z	22:25:53.9	81.9	35.6	2.8	941	6.2		
FUR	e P	Z	22:25:57.1	82.5	37.4	2.2	1460	6.6		
STU	e P	Z	22:25:58.6	82.8	36.0	0.9	147	6.0		
WLF	e P	Z	22:26:01.0	83.2	34.0	2.4	969	6.5		
BFO	e P	Z	22:26:02.1	83.5	35.4	1.4	428	6.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/25	22:55:26.8	54.340N	167.700W	33.0N	5.5			SZGRF
2003/07/25	22:55:13.7	52.519N	168.271W	33N	5.3			NEIC

Fox Islands, Aleutian Islands, United States

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e P	Z	23:06:56.4	75.0	359.0	1.1	42	5.5		
RUE	e P	Z	23:06:56.6	75.0	1.3	1.2	72	5.7		

CLZ	e P	Z	23:07:00.6	75.6	359.1	1.1	69	5.6
BUG	e P	Z	23:07:01.8	76.0	357.2	1.2	52	5.4
CLL	e P	Z	23:07:03.0	76.2	0.8	1.2	44	5.4
BRG	e P	Z	23:07:05.6	76.6	1.4	1.2	45	5.4
UBBA	e P	Z	23:07:05.9	76.7	358.9	1.6	39	5.2
MOX	e P	Z	23:07:07.1	76.8	359.9	1.2	53	5.5
WERD	e P	Z	23:07:08.4	77.0	0.4	1.4	37	5.2
TNS	e P	Z	23:07:09.3	77.2	358.0	1.1	39	5.4
WLF	e P	Z	23:07:12.4	77.7	356.5	1.2	45	5.5
GRA1	e P	Z	23:07:13.0	77.8	359.7	1.1	89	5.8
GRFO	e P	Z	23:07:13.0	77.8	359.7			
WET	e P	Z	23:07:15.9	78.3	0.7	1.3	41	5.4
GEC2	e P	Z	23:07:17.3	78.6	1.2	1.1	39	5.4
STU	e P	Z	23:07:17.4	78.7	358.4	1.3	71	5.6
BFO	e P	Z	23:07:19.8	79.1	357.9	1.1	43	5.5
FUR	e P	Z	23:07:21.2	79.3	359.7	1.0	70	5.7

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/26 01:01: 3.3 38.060N 28.120E 10.0G 4.2  
 Turkey SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	01:04:41.7	15.0	130.7					
WET	e P	Z	01:04:47.5	15.6	129.6	1.2	26	4.2		
FUR	e P	Z	01:04:49.8	15.9	123.4	1.3	34	4.3		
BRG	e P	Z	01:04:52.3	16.3	136.5	1.6	30	4.2		
WERD	e P	Z	01:05:00.8	16.7	131.8	1.5	15	3.9		
GRA1	e P	Z	01:04:59.0	16.8	127.5	5.2	673	5.0		
CLL	e P	Z	01:05:06.2	17.0	135.4	1.6	24	4.1		
STU	e P	Z	01:05:07.8	17.3	121.1	1.6	18	4.0		
RUE	e P	Z	01:05:09.5	17.5	139.6	2.5	157	4.7		
BFO	e P	Z	01:05:11.2	17.6	118.3	1.2	20	4.1		
TNS	e P	Z	01:05:21.0	18.5	123.5	1.2	18	4.2		
CLZ	e P	Z	01:05:21.1	18.5	131.0	1.1	8	3.8		
NRDL	e P	Z	01:05:26.6	19.1	131.9	1.3	17	4.1		
WLF	e P	Z	01:05:33.5	19.5	118.1	1.1	23	4.3		
BUG	e P	Z	01:05:35.0	19.8	124.3	1.2	26	4.3		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/07/26 00:58:40.6 52.022N 175.786W 33.0N 5.8  
 2003/07/26 00:58:41.8 52.305N 174.296W 71D 4.9  
 Andreanof Islands, Aleutian Islands, United States NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	01:10:36.7	77.9	3.4	0.8	61	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	01:22:38.2	39.803N	139.674E	12.6	5.3			SZGRF
2003/07/26	01:22:23.0	38.540N	141.025E	10G	5.0	4.4		NEIC

Near west coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:34:43.0	81.3	37.4	1.7	64	5.3		
	e pP	Z 01:34:46.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	05:21:26.5	51.667N	177.582E	33.0N	5.1			SZGRF
2003/07/26	05:21:23.8	51.706N	175.932E	33N	4.7	4.3		NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:33:22.2	77.8	9.6	0.9	14	5.1		
	e	05:33:26.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	06:24:07.1	17.136S	176.988W	33N	5.0			NEIC

Fiji region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z 06:43:41.7	145.0	16.8	1.6	22			
GRA1	e PKP	Z 06:43:48.3	146.8	14.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	07:56:47.3	37.998N	141.044E	33.0N	5.3			SZGRF
2003/07/26	07:56:43.9	38.604N	140.985E	10G	5.4	4.7		NEIC

Near east coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:09:03.3	81.2	37.4	0.8	21	5.3		
	e PcP	Z 08:09:07.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	08:36:56.8	38.190N	28.360E	33.0N	4.9	4.8		SZGRF
2003/07/26	08:36:48.7	37.997N	28.878E	10G	5.1	5.2		NEIC

Turkey

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	08:40:28.5	15.4	129.1					
WET	e P	Z	08:40:36.3	16.0	128.1	1.1	124	4.9		
FUR	e P	Z	08:40:39.8	16.3	122.0	1.6	301	5.2		
BRG	e P	Z	08:40:44.3	16.7	134.9	1.6	172	4.9		
WERD	e P	Z	08:40:49.9	17.1	130.3	1.2	59	4.6		
GRA1	e P	Z	08:40:51.4	17.2	126.1	1.6	183	5.0		
	e S	E	08:44:14.1							
GRFO	e L	Z	08:47:36.8	17.2	126.1	18.0	5358		4.8	
CLL	e P	Z	08:40:53.2	17.4	133.8	2.4	384	5.1		
MOX	e P	Z	08:40:58.6	17.6	129.3	1.7	198	5.0		
STU	e P	Z	08:41:00.5	17.8	119.8	1.6	120	4.8		
RUE	e P	Z	08:41:01.1	17.9	138.1	2.1	444	5.2		
BFO	e P	Z	08:41:02.5	18.1	117.2	1.1	85	4.8		
UBBA	e P	Z	08:41:08.1	18.5	126.6	1.8	100	4.7		
CLZ	e P	Z	08:41:12.7	19.0	129.6	1.3	61	4.7		
TNS	e P	Z	08:41:13.2	19.0	122.3	1.4	102	4.9		
NRDL	e P	Z	08:41:19.0	19.5	130.6	1.4	84	4.8		
RGN	e P	Z	08:41:20.6	19.6	141.0	0.8	99	5.1		
WLF	e P	Z	08:41:24.4	20.0	117.1	1.1	115	5.0		
BUG	e P	Z	08:41:27.5	20.3	123.1	1.4	92	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	11:05:38.5	23.085S	179.633W	600.0G				SZGRF
2003/07/26	11:05:35.1	23.894S	178.876E	600G	4.6			NEIC

South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
HLG	e PKPbc	Z	11:24:18.8	149.0	16.1					
RUE	e PKPbc	Z	11:24:19.6	149.2	27.4					
	e PKPab	Z	11:24:26.5							
NRDL	e PKPbc	Z	11:24:21.6	150.1	21.0					
CLL	e PKPdf	Z	11:24:16.3	150.5	27.0					
	e PKPbc	Z	11:24:22.4							
	e PKPab	Z	11:24:31.7							
	e pPKPbc	Z	11:26:32.7							
BRG	e PKPdf	Z	11:24:16.9	150.6	29.0					
	e PKPbc	Z	11:24:22.7							
	e PKPab	Z	11:24:32.5							
CLZ	e PKPdf	Z	11:24:16.5	150.7	21.9					
	e PKPbc	Z	11:24:23.0							
WERD	e PKPdf	Z	11:24:17.1	151.5	26.4					
	e PKPbc	Z	11:24:24.6							
	e PKPab	Z	11:24:36.1							
MOX	e PKPdf	Z	11:24:17.2	151.5	25.0					



	e	PKPbc	Z	11:24:24.4					
	e	PKPab	Z	11:24:35.8					
BUG	e	PKPbc	Z	11:24:24.7	151.7	16.4			
	e	PKPab	Z	11:24:36.1					
UBBA	e	PKPbc	Z	11:24:24.9	151.7	21.9			
GEC2	e	PKPdf	Z	11:24:19.1	152.5	30.4			
	e	PKPbc	Z	11:24:26.8					
	e	PKPab	Z	11:24:40.3					
GRA1	e	PKPbc	Z	11:24:26.8	152.5	25.0			
	e	PKPab	Z	11:24:41.1					
WET	e	PKPdf	Z	11:24:19.1	152.5	28.6			
	e	PKPbc	Z	11:24:27.1					
	e	PKPab	Z	11:24:40.7					
TNS	e	PKPdf	Z	11:24:19.1	152.6	19.3			
	e	PKPbc	Z	11:24:27.3					
	e	PKPab	Z	11:24:40.9					
WLF	e	PKPdf	Z	11:24:21.2	153.6	15.1			
	e	PKPbc	Z	11:24:29.7					
	e	PKPab	Z	11:24:45.1					
STU	e	PKPdf	Z	11:24:21.2	153.8	21.8			
	e	PKPbc	Z	11:24:29.8					
	e	PKPab	Z	11:24:46.5					
BFO	e	PKPbc	Z	11:24:30.8	154.4	20.4			
	e	PKPab	Z	11:24:48.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	13:31:32.2	37.740N	29.890E	33.0N	4.2			SZGRF
2003/07/26	13:31:35.9	38.027N	28.926E	10G	4.6			NEIC

Turkey

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	13:35:20.8	15.4	128.9	1.1	24	4.2		
WET	e P	Z	13:35:27.2	16.0	127.9	1.0	34	4.4		
FUR	e P	Z	13:35:29.8	16.3	121.8	1.3	35	4.3		
BRG	e P	Z	13:35:33.6	16.7	134.7	1.4	22	4.1		
WERD	e P	Z	13:35:39.5	17.1	130.1	1.1	9	3.8		
GRA1	e P	Z	13:35:40.2	17.2	126.0	1.4	25	4.1		
CLL	e P	Z	13:35:41.4	17.4	133.6	1.8	28	4.1		
MOX	e P	Z	13:35:43.4	17.6	129.2	1.6	30	4.2		
STU	e P	Z	13:35:46.0	17.8	119.7	0.9	20	4.3		
BFO	e P	Z	13:35:52.3	18.1	117.0	1.2	30	4.4		
UBBA	e P	Z	13:35:55.2	18.5	126.4	1.7	24	4.1		
CLZ	e P	Z	13:35:59.1	19.0	129.5	0.8	6	3.9		
TNS	e P	Z	13:35:59.9	19.0	122.1	1.0	9	3.9		
NRDL	e P	Z	13:36:05.0	19.5	130.4	1.4	31	4.3		
WLF	e P	Z	13:36:11.3	20.0	116.9	1.0	20	4.4		
BUG	e P	Z	13:36:12.8	20.3	123.0	1.3	23	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	13:45:27.3	18.250S	173.687W	244.4				SZGRF
2003/07/26	13:45:25.8	17.579S	175.087W	227D	5.3			NEIC

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKP	Z	14:04:35.2	144.4	14.6					
NRDL	e PKP	Z	14:04:36.8	144.8	8.6					
CLZ	e PKP	Z	14:04:39.0	145.5	9.2					
CLL	e PKPpdf	Z	14:04:38.6	145.7	13.8					
	e PKPbc	Z	14:04:39.7							
BRG	e PKPpdf	Z	14:04:39.0	145.9	15.5					
	e PKPbc	Z	14:04:40.7							
	e pPKPbc	Z	14:05:41.6							
BUG	e PKPbc	Z	14:04:40.6	146.1	4.0					
MOX	e PKPpdf	Z	14:04:39.9	146.5	11.6					
	e PKPbc	Z	14:04:42.1							
UBBA	e PKPpdf	Z	14:04:39.8	146.5	8.8					
	e PKPbc	Z	14:04:41.7							
WERD	e PKPpdf	Z	14:04:40.0	146.6	12.9					
	e PKPbc	Z	14:04:42.6							
TNS	e PKPbc	Z	14:04:44.4	147.2	6.2					
	e pPKPbc	Z	14:05:46.5							
GRA1	e PKPpdf	Z	14:04:41.9	147.5	11.2					
	e PKPbc	Z	14:04:45.4							
	e PKPab	Z	14:04:47.9							
WET	e PKPpdf	Z	14:04:42.0	147.8	14.3					
	e PKPbc	Z	14:04:45.9							
	e PKPab	Z	14:04:49.0							
WLF	e PKPpdf	Z	14:04:43.6	147.9	2.2					
	e PKPbc	Z	14:04:46.6							
GEC2	e PKPpdf	Z	14:04:42.2	147.9	15.9					
	e PKPbc	Z	14:04:46.3							
	e PKPab	Z	14:04:50.1							
STU	e PKPpdf	Z	14:04:43.9	148.6	7.9					
	e PKPbc	Z	14:04:48.0							
	e PKPab	Z	14:04:52.1							
FUR	e PKPpdf	Z	14:04:44.1	149.0	11.8					
	e PKPbc	Z	14:04:48.9							
	e PKPab	Z	14:04:54.0							
BFO	e PKPpdf	Z	14:04:44.1	149.1	6.4					
	e PKPbc	Z	14:04:49.2							
	e PKPab	Z	14:04:54.0							
	e pPKPbc	Z	14:05:50.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	14:10:15.7	28.167S	70.754W	36D	5.2	4.7		NEIC

Central Chile

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 14:24:28.1	106.3	245.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	14:18:55.4	8.351N	38.451W	33.0N	5.0			SZGRF

Central Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:28:47.5	58.3	242.4	2.0	29	5.0		
	e	14:29:04.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	16:04:23.2	23.923S	178.829E	600G	4.3			NEIC

South of the Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z 16:23:10.1	150.6	27.1	0.8	26			
	i PKPab	Z 16:23:19.1			1.0	12			
	e pPKPbc	Z 16:25:22.1							
GRA1	e PKP	Z 16:23:13.9	152.5	25.1					
	e pPKP	Z 16:23:28.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	23:18:27.4	22.910N	91.520E	33.0N	5.7	5.5		SZGRF
2003/07/26	23:18:17.6	22.821N	92.320E	10G	5.5	5.5		NEIC

Bangladesh

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 23:29:02.4	65.2	84.2	1.4	146	6.0		
BRG	e P	Z 23:29:02.9	65.3	83.6	0.9	30	5.5		
RGN	e P	Z 23:29:03.3	65.3	84.8	1.2	112	6.0		
GEC2	e P	Z 23:29:05.5	65.7	82.5	0.8	31	5.6		
CLL	e P	Z 23:29:05.9	65.8	83.1	2.0	112	5.8		
WET	e P	Z 23:29:08.8	66.2	82.1	1.3	45	5.5		
WERD	e P	Z 23:29:09.9	66.4	82.2	1.3	43	5.5		
MOX	e P	Z 23:29:12.5	66.8	81.8	1.3	46	5.5		
GRA1	e P	Z 23:29:15.7	67.2	81.1	1.6	152	6.0		
	e S	N 23:38:12.2							

	e SS	N	23:42:30.8								
GRFO	e PP	Z	23:31:51.0	67.2	81.1						
	e S	N	23:38:13.2								
	e SS	N	23:42:30.6								
CLZ	e P	Z	23:29:16.5	67.4	81.4	1.4	110	5.9			
FUR	e P	Z	23:29:16.3	67.4	80.5	1.4	64	5.7			
NRDL	e P	Z	23:29:17.2	67.4	81.5	1.4	168	6.1			
UBBA	e P	Z	23:29:18.6	67.8	80.7	1.9	88	5.7			
STU	e P	Z	23:29:24.1	68.6	79.3	1.4	72	5.7			
TNS	e P	Z	23:29:25.5	68.8	79.3	1.2	47	5.6			
BFO	e P	Z	23:29:27.7	69.3	78.5	1.7	42	5.4			
BUG	e P	Z	23:29:28.7	69.3	78.9	1.9	132	5.8			
WLF	e P	Z	23:29:35.8	70.4	77.5	1.9	249	6.0			
GRFO	e L	Z	00:02:48.7	67.2	81.1	19.0	2584	5.5			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/26	23:19:35.3	18.552S	168.547E	33N	5.1	4.8		NEIC

Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 23:39:05.2	142.0	39.7					
	e PP	Z 23:42:11.7							
	i SKPbc	Z 23:42:40.8			1.4	17			
GRA1	e PKPdf	Z 23:39:07.9	144.0	38.4					
	e pPKPdf	Z 23:39:16.4							
	e SKPbc	Z 23:42:44.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	01:09:27.8	17.655S	179.000W	551?	4.2			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKP	Z 01:28:00.6	143.8	20.9					
NRDL	e PKP	Z 01:28:02.4	144.4	15.0					
CLZ	e PKPbc	Z 01:28:04.9	145.0	15.7					
CLL	e PKPbc	Z 01:28:04.6	145.0	20.2					
	e PKPab	Z 01:28:06.0							
BRG	e PKPbc	Z 01:28:05.4	145.2	22.0					
	e PKPab	Z 01:28:07.0							
BUG	e PKPab	Z 01:28:09.1	145.9	10.7					
WERD	e PKPbc	Z 01:28:07.8	146.0	19.5					
	e PKPab	Z 01:28:09.6							
UBBA	e PKPbc	Z 01:28:07.7	146.1	15.5					
	e PKPab	Z 01:28:10.1							
TNS	e PKPbc	Z 01:28:10.3	146.9	13.1					

	e PKPab	Z	01:28:13.5		
GRA1	e PKPbc	Z	01:28:10.7	146.9	18.0
WET	e PKPbc	Z	01:28:10.8	147.1	21.2
	e PKPab	Z	01:28:14.4		
GEC2	e PKPbc	Z	01:28:11.1	147.2	22.7
	e PKPab	Z	01:28:14.7		
WLF	e PKPbc	Z	01:28:12.9	147.7	9.2
	e PKPab	Z	01:28:17.2		
STU	e PKPbc	Z	01:28:13.6	148.2	14.9
	e PKPab	Z	01:28:18.4		
FUR	e PKPbc	Z	01:28:14.3	148.4	18.9
	e PKPab	Z	01:28:19.5		
BFO	e PKPbc	Z	01:28:14.8	148.7	13.6
	e PKPab	Z	01:28:20.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	02:04: 8.9	22.173S	175.327W	199.3				SZGRF
2003/07/27	02:04:11.4	21.119S	176.601W	214D	5.9			NEIC

Tonga Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PKP	Z	02:23:26.5	145.7	16.6					
HLG	e PKP	Z	02:23:29.8	146.8	7.6					
RUE	e PKPdf	Z	02:23:29.1	147.6	18.3					
	e PKPbc	Z	02:23:32.2							
NRDL	e PKPdf	Z	02:23:29.8	148.2	11.9					
	e PKPbc	Z	02:23:33.6							
	e PKPab	Z	02:23:36.7							
CLZ	e PKPdf	Z	02:23:31.1	148.8	12.6					
	e PKPbc	Z	02:23:35.5							
	e PKPab	Z	02:23:39.7							
CLL	e PKPdf	Z	02:23:30.7	148.9	17.5	1.7	187			
	i PKPbc	- Z	02:23:35.5			1.4	1785			
	e pPKPbc	Z	02:24:29.3							
	e sPKPbc	Z	02:24:51.3							
	e PP	Z	02:27:04.7							
	e sPP	Z	02:28:20.3							
	e sPPP	Z	02:31:43.5							
	e SKKSac	N	02:33:40.1							
	e sSKSac	N	02:35:09.1							
	e PSKS	N	02:37:24.2							
	e sPSKS	N	02:38:39.4							
	e SS	E	02:46:01.4							
	e sSS	E	02:47:27.9							
	e SSS	E	02:51:37.6							
	e sSSS	E	02:53:13.4							
	e SSSS	E	02:55:52.2							

	e LR	Z	03:14:57.1			
BRG	e PKPpdf	Z	02:23:31.4	149.1	19.4	
	e PKPbc	Z	02:23:36.1			
	e PKPab	Z	02:23:41.0			
BUG	e PKPpdf	Z	02:23:31.8	149.5	7.1	
	e PKPbc	Z	02:23:36.8			
	e PKPab	Z	02:23:42.3			
	e pPKPab	Z	02:24:33.2			
WERD	e PKPpdf	Z	02:23:32.7	149.8	16.7	
	e PKPbc	Z	02:23:38.0			
	e PKPab	Z	02:23:44.0			
UBBA	e PKPpdf	Z	02:23:32.3	149.9	12.3	
	e PKPbc	Z	02:23:37.6			
	e PKPab	Z	02:23:43.4			
TNS	e PKPpdf	Z	02:23:33.8	150.6	9.6	
	e PKPbc	Z	02:23:39.7			
	e PKPab	Z	02:23:47.5			
GRA1	e PKPpdf	Z	02:23:33.9	150.8	15.1	
	e PKPbc	Z	02:23:40.2			
	e PKPab	Z	02:23:48.5			
WET	e PKPpdf	Z	02:23:34.1	151.0	18.5	
	e PKPbc	Z	02:23:40.6			
	e PKPab	Z	02:23:49.0			
GEC2	e PKPpdf	Z	02:23:34.2	151.1	20.2	
	e PKPbc	Z	02:23:40.8			
	e PKPab	Z	02:23:49.1			
WLF	e PKPpdf	Z	02:23:35.2	151.4	5.4	
	e PKPbc	Z	02:23:41.8			
	e PKPab	Z	02:23:50.6			
STU	e PKPpdf	Z	02:23:35.9	152.0	11.6	
	e PKPbc	Z	02:23:42.7			
	e PKPab	Z	02:23:52.6			
FUR	e PKPpdf	Z	02:23:36.2	152.2	15.9	
	e PKPbc	Z	02:23:43.1			
	e PKPab	Z	02:23:53.9			
BFO	e PKPpdf	Z	02:23:36.2	152.5	10.0	
	e PKPbc	Z	02:23:43.6			
	e PKPab	Z	02:23:55.0			
	e pPKPab	Z	02:24:43.5			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	03:20:11.4	16.243S	175.016W	33.0N				SZGRF
2003/07/27	03:20:48.7	16.174S	176.255W	366D	5.2			NEIC

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKP	Z	03:39:36.9	142.8	16.1					

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NRDL	e	PKP	Z	03:39:38.3	143.3	10.3		
CLZ	e	PKP	Z	03:39:41.0	143.9	10.9		
CLL	i	PKPbc	+ Z	03:39:41.3	144.1	15.3	0.8	133
	i	SKPbc	Z	03:42:49.6				
BRG	e	PKP	Z	03:39:42.3	144.3	17.0		
BUG	e	PKPbc	Z	03:39:43.0	144.6	5.9		
UBBA	e	PKPbc	Z	03:39:44.1	145.0	10.5		
	e	PKPab	Z	03:39:45.4				
WERD	e	PKPbc	Z	03:39:44.8	145.0	14.4		
TNS	e	PKPbc	Z	03:39:46.8	145.7	8.0		
	e	PKPab	Z	03:39:48.3				
GRA1	e	PKPbc	Z	03:39:47.8	145.9	12.9		
	e	PKPab	Z	03:39:49.5				
WET	e	PKPbc	Z	03:39:48.0	146.2	15.9		
GEC2	e	PKPbc	Z	03:39:48.5	146.3	17.4		
WLF	e	PKPbc	Z	03:39:49.4	146.5	4.2		
STU	e	PKPbc	Z	03:39:50.8	147.1	9.7		
	e	PKPab	Z	03:39:53.3				
FUR	e	PKPbc	Z	03:39:51.6	147.4	13.5		
	e	PKPab	Z	03:39:54.8				
BFO	e	PKPbc	Z	03:39:52.1	147.6	8.2		
	e	PKPab	Z	03:39:55.3				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	06:25:37.4	47.980N	139.920E	487.4	6.4			SZGRF
2003/07/27	06:25:33.1	47.173N	139.244E	481D	6.5			NEIC

Primorye, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	06:35:49.4	68.5	36.3	1.2	577	6.7		
RUE	e P	Z	06:35:58.3	70.0	36.1	1.1	416	6.5		
HLG	e P	Z	06:36:02.6	70.6	32.7	0.8	560	6.7		
CLL	i P	+ Z	06:36:05.3	71.3	35.4	0.7	555	6.8		
	e pP	Z	06:37:48.2							
	e sP	Z	06:38:37.3							
	e PP	Z	06:38:54.3							
	e PPP	Z	06:40:38.1							
	e S	E	06:44:44.4							
	e SKSac	N	06:45:19.4							
	e sS	N	06:47:43.2							
	e SS	E	06:49:29.4							
	e SSS	E	06:52:45.1							
	e		06:55:01.0							
	e PKPPKPbc	Z	07:03:44.1							
BRG	e P	Z	06:36:05.5	71.3	35.9	0.9	143	6.1		
NRDL	e P	Z	06:36:05.8	71.3	33.8	1.1	258	6.3		
CLZ	e P	Z	06:36:08.8	71.8	33.9	0.7	437	6.7		

WERD	e P	Z	06:36:11.3	72.2	34.8	1.0	170	6.1
UBBA	e P	Z	06:36:13.9	72.7	33.5	1.2	172	6.1
GEC2	e P	Z	06:36:15.9	73.0	35.3	1.0	175	6.1
	e pP	Z	06:37:59.0					
WET	e P	Z	06:36:16.7	73.1	34.9	1.1	368	6.4
BUG	e P	Z	06:36:16.4	73.1	31.9	1.1	389	6.4
GRA1	e P	Z	06:36:17.7	73.2	34.0	1.2	814	6.7
	e pP	Z	06:38:02.0					
	e S	T	06:45:10.6					
TNS	e P	Z	06:36:20.2	73.8	32.4	1.1	260	6.2
FUR	e P	Z	06:36:24.7	74.5	33.8	1.1	908	6.7
STU	e P	Z	06:36:25.7	74.7	32.6	1.0	562	6.6
WLF	e P	Z	06:36:27.1	75.0	30.9	1.1	154	5.9
BFO	e P	Z	06:36:29.4	75.4	32.1	1.0	400	6.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	11:41:38.9	18.850S	63.030W	350.5	6.2			SZGRF
2003/07/27	11:41:26.6	20.194S	65.165W	345D	5.9			NEIC

Central Bolivia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	11:54:05.9	93.9	243.0	1.2	416	6.6		
BFO	e P	Z	11:54:08.5	94.6	244.5	1.2	57	5.8		
STU	e P	Z	11:54:12.1	95.3	245.2	1.0	170	6.4		
TNS	e P	Z	11:54:13.1	95.5	244.8	1.5	250	6.4		
FUR	e P	Z	11:54:17.0	96.3	246.6	1.3	251	6.4		
	e PP	Z	11:58:12.6							
UBBA	e P	Z	11:54:18.0	96.6	246.0	1.5	100	5.9		
	e PP	Z	11:58:13.8							
GRA1	e P	Z	11:54:19.7	96.9	246.8	1.1	112	6.1		
	e PP	Z	11:58:16.2							
	e SKSac	R	12:04:27.7							
	e S	T	12:05:08.8							
CLZ	e P	Z	11:54:21.2	97.3	246.4	1.4	158	6.2		
NRDL	e P	Z	11:54:22.0	97.4	246.2	1.3	142	6.3		
	e pP	Z	11:55:43.9							
	e PP	Z	11:58:20.3							
WET	e P	Z	11:54:22.9	97.7	247.9	1.1	99	6.1		
WERD	e P	Z	11:54:24.0	97.8	247.6	1.3	54	5.8		
	e PP	Z	11:58:23.4							
GEC2	e P	Z	11:54:24.6	98.1	248.5	1.1	66	6.1		
	e pP	Z	11:55:46.8							
CLL	i P	+ Z	11:54:27.1	98.6	248.3	1.4	114	6.4		
	e pP	Z	11:55:48.6							
	e PP	Z	11:58:30.7							
	e SKSac	Z	12:04:28.4							
	e SKSac	R	12:04:33.6							



e Sdiff	T	12:05:22.7								
e SP	Z	12:06:54.3								
e sS	T	12:07:47.0								
e PKKPbc	Z	12:10:58.2			0.9		15			
e		12:11:27.3								
BRG	e P	Z 11:54:28.6	99.0	248.9	1.5		75	6.0		
RUE	e P	Z 11:54:31.3	99.4	249.0	1.5		127	6.3		
	e PP	Z 11:58:35.9								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	12:07:34.6	22.192N	91.768E	21.8	5.6			SZGRF
2003/07/27	12:07:32.7	22.825N	92.359E	33N	5.1			NEIC

Bangladesh

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:18:26.3	67.2	81.1	1.6	72	5.6		
	e pP	Z 12:18:32.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	19:08:3.5	37.718N	142.403E	33.0N	5.2			SZGRF
2003/07/27	19:08:07.6	38.675N	140.959E	33N	4.8	4.1		NEIC

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:20:23.5	81.2	37.4	1.0	17	5.2		
	e	19:20:27.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/27	22:50:53.9	0.990N	65.930E	33.0N	5.4			SZGRF
2003/07/27	22:50:25.9	1.007S	69.636E	10G	5.1	4.7		NEIC

Carlsberg Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 23:01:32.9	69.2	117.6	2.3	20	4.9		
WET	e P	Z 23:01:36.6	69.8	117.0	1.8	18	5.0		
FUR	e P	Z 23:01:40.3	70.3	115.3	1.2	66	5.8		
WERD	e P	Z 23:01:43.9	70.7	116.9	2.0	29	5.2		
CLL	e P	Z 23:01:43.7	70.7	117.8	1.2	43	5.6		
RUE	e P	Z 23:01:44.4	70.9	118.8	1.1	60	5.7		
GRA1	e P	Z 23:01:45.0	71.0	115.7	1.0	63	5.8		
MOX	e P	Z 23:01:46.6	71.2	116.4	1.5	28	5.3		
STU	e P	Z 23:01:49.5	71.8	113.7	1.1	27	5.4		
BFO	e P	Z 23:01:52.2	72.2	112.9	1.2	31	5.4		

UBBA	e P	Z	23:01:52.6	72.2	115.0	1.8	65	5.6
CLZ	e P	Z	23:01:54.1	72.4	115.6	1.2	29	5.4
TNS	e P	Z	23:01:56.6	72.9	113.5	1.0	27	5.4
NRDL	e P	Z	23:01:56.8	72.9	115.6	1.2	26	5.3
WLF	e P	Z	23:02:03.1	74.0	111.5	1.0	26	5.3

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/27

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:31:41.0							
	e	23:31:55.6							

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/28 03:28:43.8 2.183S 66.023E 16.9 5.1 4.6 SZGRF  
2003/07/28 03:28:41.3 1.160S 67.552E 10G 5.1 5.1 NEIC  
South Indian Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:39:52.0	69.9	117.6	1.0	17	5.1		
	e pP	Z 03:39:56.8							
CLL	e P	Z 03:39:52.5	69.6	119.7	1.1	8	4.7		
	e PP	Z 03:42:27.4							
	e S	E 03:48:57.2							
	e SS	E 03:53:33.1							
	e SSS	E 03:56:57.3							
	e L	Z 04:10:03.1			22.0	500		4.7	
GRFO	e S	T 03:49:01.1	69.9	117.6					
	e SS	R 03:53:43.6							
	e L	Z 04:13:48.4			20.9	358		4.6	

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/28 16:09:13.1 7.385S 128.247E 103? 4.8 NEIC  
Kepulauan Barat Daya, Ind

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 16:27:38.2	112.9	73.6					

Date Origin Time Lat Long Depth mb Ms ML Source  
2003/07/29 03:31:01.2 17.858S 178.678W 500G 4.1 NEIC

Fiji region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:49:48.5	147.2	17.6					
	e	03:49:52.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/29	05:31:32.5	35.430N	10.030W	33.0N	4.9	4.4		SZGRF
2003/07/29	05:31:26.9	35.738N	10.542W	10G	5.1	4.8		NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 05:35:46.9	18.5	227.4	1.0	298	5.5		
BFO	e P	Z 05:35:49.1	18.7	234.8	1.2	40	4.5		
STU	e P	Z 05:35:57.4	19.5	235.3	0.8	59	4.9		
TNS	e P	Z 05:36:02.6	20.0	230.7	1.1	68	4.8		
BUG	e P	Z 05:36:05.4	20.2	225.9	1.3	142	5.0		
FUR	e P	Z 05:36:06.3	20.3	240.3	1.8	246	5.1		
GRFO	e S	R 05:40:08.8	21.1	236.8					
	e L	Z 05:45:44.7			18.0	1359		4.4	
GRA1	e P	Z 05:36:14.4	21.1	236.8	0.9	85	5.1		
UBBA	e P	Z 05:36:14.6	21.1	232.3	1.4	32	4.5		
WET	e P	Z 05:36:20.9	21.7	240.7	1.6	228	5.3		
MOX	e P	Z 05:36:22.1	21.8	235.4	1.4	68	4.9		
CLZ	e P	Z 05:36:23.9	21.9	230.9	1.5	49	4.7		
GEC2	e P	Z 05:36:24.0	22.1	242.6	1.1	95	5.2		
WERD	e P	Z 05:36:23.9	22.1	237.0	1.0	14	4.4		
NRDL	e P	Z 05:36:27.1	22.2	229.2	1.2	25	4.5		
CLL	e P	Z 05:36:33.2	22.9	236.4	1.4	75	5.0		
RUE	e P	Z 05:36:45.4	24.0	235.4	0.6	30	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/29	06:25:22.3	23.881N	97.846E	33.0N	4.8			SZGRF
2003/07/29	06:25:36.7	26.154N	95.972E	33N	4.8			NEIC

Myanmar-China border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:36:30.4	67.1	76.0	0.9	7	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/29	23:34: 4.3	32.707N	48.323E	33.0N	4.4			SZGRF
2003/07/29	23:34:00.4	32.542N	47.700E	33N	4.4			NEIC

Western Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:40:29.6	31.9	108.6	1.0	4	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/30	05:43:36.0	27.287S	60.812E	33.0N	5.2			SZGRF
2003/07/30	05:43:18.6	31.995S	57.474E	10G	5.0	4.9		NEIC

South Indian Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:56:26.3	91.4	142.2	2.1	28	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/30	11:32:40.4	57.963S	157.514E	10G	4.7			NEIC

Macquarie Island, Australia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WET	e PKPab	Z 11:53:13.0	157.5	126.5					
FUR	e PKPab	Z 11:53:15.5	157.8	128.8					
CLL	e PKPab	Z 11:53:19.1	158.7	122.1					
GRA1	e PKPab	Z 11:53:19.5	158.7	125.7					
MOX	e PKPab	Z 11:53:20.7	159.1	123.6					
CLZ	e PKPab	Z 11:53:26.8	160.4	121.1					
TNS	e PKPab	Z 11:53:27.4	160.5	125.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/30	12:15:16.6	20.408S	168.803E	33N	5.0	4.8		NEIC

Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 12:35:18.8	143.7	42.3					
CLL	e PKP	Z 12:34:48.6	143.8	40.5					
CLZ	e PKP	Z 12:34:49.5	144.4	36.3					
MOX	e PKP	Z 12:34:51.1	144.8	39.1					
	e pPKP	Z 12:34:59.0							
WET	e PKP	Z 12:34:53.4	145.4	42.4					
	e pPKP	Z 12:35:01.0							
GRA1	e PKP	Z 12:34:54.6	145.7	39.4					
BUG	e PKP	Z 12:34:53.7	145.8	31.9					
	e pPKP	Z 12:35:01.6							
TNS	e PKP	Z 12:34:56.1	146.4	34.7					
STU	e PKP	Z 12:34:58.4	147.3	37.2					
	e pPKP	Z 12:35:06.6							

BFO e PKP Z 12:35:00.3 148.0 36.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/30	18:36:25.5	23.663N	124.793E	33.0N	4.9			SZGRF
2003/07/30	18:36:30.0	24.075N	122.727E	33N	4.8	4.6		NEIC

Southwestern Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:49:03.2	84.6	58.6	0.6	7	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/31	09:47:19.9	5.155N	127.012E	33N	5.2	5.2		NEIC

Philippine Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRFO	e Pdiff	Z 10:01:35.3	102.2	66.6					
	e PP	Z 10:05:43.7							
	e SKSac	R 10:12:07.6							
	e Sdiff	T 10:12:57.1							
	e PS	R 10:15:21.3							
	e SKKSdf	T 10:25:10.3							
	e L	Z 10:51:19.4			20.5	1423		5.5	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/07/31	22:08:41.6	53.200N	161.250E	33.0N	4.8			SZGRF
2003/07/31	22:08:53.3	54.127N	160.656E	93*	4.7			NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 22:19:47.6	68.0	19.9	1.4	86	5.8		
NRDL	e P	Z 22:20:03.2	70.6	17.8	0.9	3	4.5		
CLL	e P	Z 22:20:05.7	71.2	19.3	1.0	11	5.0		
CLZ	e P	Z 22:20:06.6	71.2	17.9	1.0	11	4.9		
MOX	e P	Z 22:20:11.6	72.1	18.5	1.0	6	4.7		
WERD	e P	Z 22:20:11.9	72.1	18.9	1.8	19	4.9		
UBBA	e P	Z 22:20:12.3	72.2	17.6	1.2	5	4.4		
GRA1	e P	Z 22:20:18.0	73.1	18.2	0.7	11	5.0		
TNS	e P	Z 22:20:17.6	73.1	16.6	0.9	6	4.6		
WET	e P	Z 22:20:18.9	73.2	19.0	0.9	6	4.6		
GEC2	e P	Z 22:20:19.1	73.3	19.5	0.9	4	4.5		
BFO	e P	Z 22:20:28.1	74.9	16.4	0.8	4	4.6		

## Format description

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

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

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

## EPICENTER LINES:

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

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

## COMMENT LINE:

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

## REGION LINE:

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

## PHASE LINE:

Sta	Station code of the reported phase
Phase	Preceded flag for the sharpness of the onset of the phase
	e - emergent
	i - impulsive
	w - weak
	ISC phase code
	Flag for the direction of the first motion

'+' - compression

'-' - dilatation

Component where the phase was picked

Time	Arrival time of the reported phase
Dist	Distance from the epicenter location with the highest priority to the station in kilometer
BAz	Backazimuth from the epicenter location with the highest priority to the station in degree
T[s]	Phase Period
A[nm]	Phase Amplitude
mb	Body wave magnitude
MS	Surface wave magnitude
ML	Local Richter magnitude