



e PS	R	06:41:22.9									
e SS	R	06:47:34.4									
e SSS	R	06:51:22.7									
e LR	R	07:06:04.2									
e L	Z	07:21:22.2			22.0		2286		5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/03/01											
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
	GRA1	e PKP	Z 09:00:17.5								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/03/01	10:38:45.0	9.627N	83.209W	33.0N	4.7			SZGRF			
2003/03/01	10:38:23.5	6.113N	80.894W	2	4.8			NEIC			
Costa Rica											
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
	GRA1	e P	Z 10:51:20.0	86.7	275.6						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/03/01	13:16:25.9	43.464N	150.216E	33.0N	5.1			SZGRF			
2003/03/01	13:16:31.6	44.421N	148.198E	39	4.9			NEIC			
East of Kuril Islands, Russia											
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
	GRA1	e P	Z 13:28:33.4	78.7	29.8	1.2	24	5.1			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/03/01	18:45:41.2	26.887N	58.450E	33.0N	4.7			SZGRF			
Southern Iran											
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
	GRA1	e P	Z 18:53:34.1	42.6	104.5	1.1	19	4.7			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source			
2003/03/01											
	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	

GRA1 e PKP Z 23:04:26.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/02	13:07:18.6	35.044S	178.806W	33N	5.3	4.9		NEIC

E of the N. Isl, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPab	Z 13:27:53.1	160.1	22.4					
RUE	e PKPab	Z 13:27:55.4	160.4	32.3					
CLL	e PKPdf	Z 13:27:15.4	161.6	32.2	2.3	60			
	e PKPab	Z 13:28:00.6			1.2	21			
	e L	Z 14:38:43.9			20.0	227		5.0	
CLZ	e PKPab	Z 13:28:02.0	162.0	25.0					
IBBN	e PKPab	Z 13:28:02.6	162.1	17.8					
MOX	e PKPab	Z 13:28:04.4	162.7	29.9					
GRA1	e PKPab	Z 13:28:10.0	163.6	30.4					
TNS	e PKPab	Z 13:28:10.8	163.9	22.0					
FUR	e PKPab	Z 13:28:14.9	164.9	33.5					
STU	e PKPab	Z 13:28:16.2	165.1	26.3					
BFO	e PKPab	Z 13:28:17.9	165.7	24.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/02	16:43:12.2	35.030S	18.590W	33.0N	5.8	5.6		SZGRF
2003/03/02	16:42:56.7	36.868S	20.801W	10G	5.6	5.5		NEIC

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 16:55:51.5	89.1	202.9	1.4	68	5.6		
STU	e P	Z 16:55:54.7	89.7	203.6	1.6	188	6.0		
FUR	e P	Z 16:55:55.1	89.7	205.1	1.4	208	6.1		
WLF	e P	Z 16:55:55.4	89.8	201.3	1.2	116	5.9		
TNS	e P	Z 16:56:00.5	90.8	203.0	1.9	121	5.9		
GEC2	e P	Z 16:56:00.7	91.0	207.0	1.4	60	5.7		
WET	e P	Z 16:56:01.1	91.0	206.3	1.4	148	6.1		
GRA1	e P	Z 16:56:01.5	91.1	205.1	1.3	144	6.1		
	e PP	Z 16:59:37.3							
	e S	N 17:06:41.8							
	e SS	N 17:12:50.4							
	e L	Z 17:30:26.4			20.2	2211		5.6	
BUG	e P	Z 16:56:04.3	91.7	202.1	1.4	85	5.8		
MOX	e P	Z 16:56:05.7	92.0	205.4	1.3	25	5.3		
IBBN	e P	Z 16:56:08.7	92.6	202.5	1.5	65	5.6		
BRG	e P	Z 16:56:10.1	92.9	207.2	1.8	50	5.5		
CLL	e P	Z 16:56:09.7	93.0	206.5	1.4	28	5.4		

e PP	Z	16:59:50.4									
e PPP	R	17:01:53.2									
e S	T	17:07:13.1									
e PS	R	17:08:34.4									
e SS	R	17:13:30.2									
e SSS	Z	17:17:12.5									
e LR	Z	17:27:25.5									
e L	Z	17:35:46.3				18.0		1786		5.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/02	17:57:36.2	16.619N	120.697E	33.0N	5.0			SZGRF
2003/03/02	17:57:25.4	15.528N	121.865E	33N	5.0	5.0		NEIC

Luzon, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:10:29.7	90.9	64.4	1.5	16	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/02	22:46:51.1	38.320N	142.000E	45.6	6.1	5.7		SZGRF
2003/03/02	22:46:46.6	37.677N	141.710E	42D	5.7	5.3		NEIC

Near east coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 22:58:50.3	79.1	39.5	1.3	245	6.1		
	e pP	Z 22:59:03.1							
BSEG	e P	Z 22:58:51.0	79.3	37.2	1.0	184	6.1		
	e pP	Z 22:59:04.2							
BRG	e P	Z 22:58:56.5	80.3	39.4	1.0	121	5.8		
CLL	i P	+ Z 22:58:56.6	80.3	38.8	1.0	190	6.1		
	e pP	Z 22:59:09.6							
	e PP	Z 23:02:02.7							
	e S	T 23:09:00.7							
	e SSS	T 23:17:48.9							
	e LR	Z 23:25:50.7							
	e L	Z 23:37:49.0			18.0	4113		5.8	
CLZ	e P	Z 22:59:00.0	80.9	37.0	1.4	359	6.2		
	e pP	Z 22:59:12.9							
TANN	e P	Z 22:59:01.7	81.3	38.3	1.4	132	5.8		
MOX	e P	Z 22:59:02.3	81.4	37.8	1.4	150	5.8		
IBBN	e P	Z 22:59:02.6	81.5	35.2	0.9	203	6.2		
	e pP	Z 22:59:15.6							
GEC2	e P	Z 22:59:05.3	82.0	39.0	1.1	84	5.8		
WET	i P	+ Z 22:59:06.3	82.1	38.5	1.2	130	5.9		
GRA1	e P	Z 22:59:07.8	82.3	37.4	1.6	567	6.4		
	e pP	Z 22:59:20.9							

	e L	Z	23:39:01.4			18.8	2839		5.7
BUG	e P	Z	22:59:07.0	82.4	34.8	1.0	98	5.9	
TNS	e P	Z	22:59:10.4	83.0	35.5	1.0	80	5.9	
FUR	e P	Z	22:59:13.5	83.5	37.3	0.9	250	6.4	
	e pP	Z	22:59:26.7						
STU	e P	Z	22:59:15.0	83.8	35.9	1.4	290	6.3	
	e pP	Z	22:59:28.0						
WLF	e P	Z	22:59:17.4	84.3	33.8	1.4	193	6.1	
BFO	e P	Z	22:59:18.3	84.5	35.3	1.2	274	6.4	
	e pP	Z	22:59:32.1						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/04	19:32:29.8	33.542N	9.203E	10.0G		3.6		SZGRF
2003/03/04	19:32:36.4	34.360N	8.937E	33N	4.0			NEIC

Tunisia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e Pn	Z 19:35:57.4	13.9	188.1					
	e L	Z 19:41:13.7			21.0	432		3.6	
WET	e Pn	Z 19:36:08.6	15.1	192.6					
	e L	Z 19:42:47.5			18.1	257		3.4	
GRA1	e Pn	Z 19:36:15.7	15.4	187.1					
	e L	Z 19:42:17.9			20.0	662		3.8	
WLF	e Pn	Z 19:36:18.5	15.4	171.3					
TNS	e Pn	Z 19:36:23.0	15.9	178.5					
	e L	Z 19:41:38.9			20.5	215		3.3	
TANN	e Pn	Z 19:36:26.6	16.3	190.4					
MOX	e Pn	Z 19:36:30.1	16.4	187.9					
	e L	Z 19:42:47.4			21.5	645		3.8	
BRG	e Pn	Z 19:36:33.9	16.9	194.3					
CLL	e Pn	Z 19:36:39.6	17.2	191.4					
CLZ	e Pn	Z 19:36:43.4	17.5	183.9					
	e L	Z 19:43:17.8			21.0	312		3.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/04	23:57: 6.9	35.064N	87.492E	33.0N	4.6			SZGRF
2003/03/04	23:58:06.0	39.608N	77.779E	10G	4.6			NEIC

Xizang

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:06:40.3	46.8	75.8	0.9	6	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/05	02:36:39.9	48.817N	161.468E	41.7	5.0				SZGRF
2003/03/05	02:36:42.8	49.056N	155.860E	33N	4.3				NEIC

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:48:35.4	76.7	22.9	1.1	18	5.0		
	e pP	Z 02:48:47.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/05	16:07: 9.7	50.617N	170.329W	33.0N	4.9			SZGRF
2003/03/05	16:07:09.8	51.453N	171.851W	33N	4.3			NEIC

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:19:14.5	78.8	2.0	1.0	14	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/05	19:10:57.1	41.312N	139.989E	33.0N	5.2			SZGRF
2003/03/05	19:11:50.3	43.516N	135.208E	367	4.6			NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	i P	Z 19:22:55.5	74.8	38.6	0.9	22	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/06	10:24:45.4	23.663S	175.832W	33N	5.5	5.8		NEIC

Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 10:44:32.3	151.6	17.2					
	e	10:44:37.4							
	e PKPbc	Z 10:44:40.5							
	e	10:44:51.4							
	e PP	Z 10:48:15.9							
	e SS	T 11:07:44.9							
	e	11:16:16.1							
	e LR	Z 11:36:58.1							
	e L	Z 11:54:11.0			22.0	1319		5.7	
GRA1	e PKP	Z 10:44:32.9	153.4	14.5					
	e L	Z 11:59:51.4			19.5	2428		6.0	

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/06	13:35:57.3	18.364S	173.217E	33N	4.8			NEIC

Fiji Island Region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 13:55:35.0	145.5	31.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/06	18:47:03.3	24.729S	179.821E	500D	4.9			NEIC

South of the Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	Z 19:06:00.7	151.6	25.8	0.8	35			
	i PKPab	Z 19:06:11.9			1.1	34			
	e	19:06:28.2							
GRA1	e PKP	Z 19:06:20.7	153.5	23.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/06								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 19:45:28.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/06	20:55:23.9	37.897N	82.850E	33.0N	5.1			SZGRF
2003/03/06	20:55:51.2	39.544N	77.464E	10G	4.4			NEIC

Southern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:04:22.8	46.6	76.1	1.4	39	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/07	12:23: 6.8	0.044N	27.540W	33.0N	5.0	4.8		SZGRF
2003/03/07	12:23:10.3	0.525N	27.157W	10G	4.9			NEIC

Central Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:33:08.2	59.1	226.4	1.4	23	5.0		
	e S	N 12:41:30.5							
	e L	Z 12:56:02.2			20.5	822		4.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/07	12:54:46.0	20.861S	176.028W	33.0N				SZGRF
2003/03/07	12:55:50.3	20.247S	178.379W	548?	4.7			NEIC

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	13:14:29.2	145.7	14.6					
RUE	e PKPbc	Z	13:14:31.2	146.4	20.9					
CLZ	e PKPbc	Z	13:14:34.6	147.7	15.5					
CLL	e PKPbc	Z	13:14:34.3	147.7	20.3					
	e PKPab	Z	13:14:38.6							
BRG	e PKPbc	Z	13:14:35.0	147.9	22.1					
	e PKPab	Z	13:14:39.6							
BUG	e PKPbc	Z	13:14:36.4	148.5	10.2					
MOX	e PKPdf	Z	13:14:32.0	148.6	18.2					
	e PKPbc	Z	13:14:36.7							
	e PKPab	Z	13:14:42.4							
TNS	e PKPbc	Z	13:14:39.0	149.5	12.7					
	e PKPab	Z	13:14:46.3							
GRA1	e PKPbc	Z	13:14:38.6	149.6	18.0					
	e PKPab	Z	13:14:47.1							
WET	e PKPbc	Z	13:14:39.8	149.7	21.3					
	e PKPab	Z	13:14:47.5							
WLF	e PKPbc	Z	13:14:41.4	150.4	8.6					
STU	e PKPbc	Z	13:14:42.1	150.8	14.7					
FUR	e PKPbc	Z	13:14:43.1	151.0	18.9					
	e PKPab	Z	13:14:53.2							
BFO	e PKPab	Z	13:14:54.0	151.4	13.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/08	06:19:32.0	51.624N	178.550E	33.0N	5.0			SZGRF
2003/03/08	06:19:51.9	52.768N	174.398W	203	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	06:31:28.1	77.4	3.5	1.1	14	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/08	09:28: 5.5	27.426N	56.220E	33.0N	4.7			SZGRF
2003/03/08	09:28:06.4	28.327N	56.735E	33N	4.5			NEIC

Southern Iran

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GRA1	e P	Z	09:35:43.9	40.5	104.6	0.8	14	4.7
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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/08	14:57:19.7	45.834N	11.788E	10.0G			3.4	SZGRF
2003/03/08	14:57:17.9	45.747N	11.756E	10G				NEIC

Northern Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WITA	e Pg	Z	14:57:45.0	1.5	176.8					
	e Sg	E	14:58:04.6							
KBA	e Pn	Z	14:57:48.9	1.7	220.0					2.9
	e Sg	E	14:58:12.9							
FUR	e Pg	Z	14:58:02.3	2.4	172.1					3.5
	e Sg	N	14:58:34.2							
MOA	e Pn	Z	14:58:02.7	2.7	220.2					
ARSA	e Pn	Z	14:58:06.0	3.0	241.3					
WET	e Pn	Z	14:58:12.0	3.5	193.0					3.3
	e Sg	E	14:59:05.2							
BFO	e Pn	Z	14:58:14.1	3.5	136.6					3.3
	e Sn	N	14:58:53.6							
GRA1	e Sg	N	14:59:25.1	4.0	174.6					3.7
MOX	e Pn	Z	14:58:31.0	4.9	178.9					3.6
	e Sn	E	14:59:24.9							
BRG	e Sn	N	14:59:38.4	5.3	196.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/08	23:12:37.5	40.947N	142.237E	33.0N	5.0	4.6		SZGRF
2003/03/08	23:12:52.8	42.089N	140.624E	123	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	23:24:42.2	78.1	35.9	0.8	15	5.0		
	e L	Z	00:17:19.5			18.8	257		4.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/09	00:23:17.5	26.738N	134.128E	33.0N	4.8			SZGRF

West of Bonin Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	00:36:06.1	88.3	48.6	1.1	6	4.8		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/09	00:31:22.4	39.092N	80.838E	33.0N	5.0			SZGRF
2003/03/09	00:32:08.4	41.370N	72.890E	33N	4.7	4.4		NEIC

Southern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:40:06.3	42.7	76.7	0.9	16	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/09	10:36:21.1	6.806S	130.982E	33N	5.9	5.5		NEIC

Banda Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 10:51:00.8	112.6	71.8	1.3	11			
	i PKiKP	Z 10:54:56.0			1.0	21			
	e PP	Z 10:55:50.0							
	e PS	Z 11:05:10.9							
	e PPS	Z 11:06:40.3							
	e L	Z 11:49:59.8			22.0	923		5.3	
GRA1	e PKPdf	Z 10:54:58.9	114.2	70.9					
	e L	Z 11:47:56.5			21.2	804		5.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/09	16:54:39.7	33.850S	176.385W	33N	5.1			NEIC

South of the Kermadec Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:15:44.6	163.2	22.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/10	02:09:37.7	1.696N	127.354E	102*	6.2			NEIC

Northern Molucca Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e Pdiff	Z 02:23:24.1	102.2	69.1					
	e PP	Z 02:27:39.1							
RUE	e Pdiff	Z 02:23:24.9	102.7	69.9					
	e PP	Z 02:27:42.1							
BRG	e Pdiff	Z 02:23:26.9	103.2	70.4					
	e PP	Z 02:27:45.1							
CLL	e Pdiff	Z 02:23:28.9	103.6	69.5	1.3	22			
	e sPdiff	Z 02:24:02.9							
	e PP	Z 02:27:46.8							

	e sPP	Z	02:28:19.3								
	e PPP	Z	02:29:57.4								
	e SKSac	R	02:33:59.5								
	e SP	Z	02:36:39.8								
	e SS	R	02:42:27.3								
	e SSS	Z	02:46:31.3								
	e LQ	T	02:57:28.1								
	e LR	Z	02:59:31.4								
	e L	Z	03:13:34.7			20.0		4936			
GEC2	e Pdiff	Z	02:23:32.0	104.0	70.7						
	e PP	Z	02:27:53.7								
BSEG	e Pdiff	Z	02:23:33.5	104.1	66.6						
	e PP	Z	02:27:53.2								
WET	e Pdiff	Z	02:23:36.0	104.4	69.9						
	e PP	Z	02:27:56.1								
MOX	e Pdiff	Z	02:23:34.4	104.6	68.5						
	e PP	Z	02:27:56.6								
CLZ	e Pdiff	Z	02:23:36.3	104.9	67.2						
	e PP	Z	02:27:50.4								
GRB1	e Pdiff	Z	02:23:37.0	105.1	68.9						
GRA1	e Pdiff	Z	02:23:44.6	105.2	68.4						
	e PP	Z	02:28:00.7								
	e SKSac	E	02:34:08.7								
	e L	Z	03:15:16.6			21.0		4781		6.0	
FUR	e PP	Z	02:28:05.2	105.7	68.9						
IBBN	e PP	Z	02:28:08.8	106.2	64.8						
TNS	e PP	Z	02:28:07.5	106.6	66.0						
STU	e PP	Z	02:28:13.3	106.8	67.0						
BUG	e PP	Z	02:28:13.7	106.8	64.6						
BFO	e PP	Z	02:28:19.5	107.5	66.4						
WLF	e PP	Z	02:27:58.0	108.2	64.2						

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/10 10:02:43.7 27.356S 177.902W 148D 5.5  
 Kermadec Islands region NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PKPbc	Z	10:22:20.5	151.6	21.3					
	e PKPab	Z	10:22:32.3							
BSEG	e PKPbc	Z	10:22:23.7	152.7	16.1					
	e PKPab	Z	10:22:35.0							
RUE	e PKPdf	Z	10:22:17.3	153.4	23.7					
	e PKPbc	Z	10:22:25.4							
CLL	e PKPdf	Z	10:22:18.6	154.7	23.1	1.4	25			
	i PKPbc	- Z	10:22:28.1			1.0	61			
	i PKPab	Z	10:22:43.4			0.9	71			
	e PP	Z	10:26:18.1							

IBBN	e	PKPbc	Z	10:22:27.6	154.7	11.8
	e	PKPab	Z	10:22:43.2		
CLZ	e	PKPdf	Z	10:22:18.9	154.7	17.4
	e	PKPbc	Z	10:22:28.3		
BRG	e	PKPab	Z	10:22:44.0		
	e	PKPdf	Z	10:22:19.3	154.8	25.4
BUG	e	PKPbc	Z	10:22:27.8		
	e	PKPab	Z	10:22:43.8		
MOX	e	PKPdf	Z	10:22:20.1	155.6	11.2
	e	PKPbc	Z	10:22:29.5		
GRA1	e	PKPab	Z	10:22:46.3		
	e	PKPdf	Z	10:22:20.0	155.6	20.8
TNS	e	PKPbc	Z	10:22:29.8		
	e	PKPab	Z	10:22:47.7		
WET	e	PKPab	Z	10:22:51.9	156.6	20.8
	e	PKPdf	Z	10:22:21.5	156.6	14.3
GEC2	e	PKPab	Z	10:22:52.9		
	e	PKPdf	Z	10:22:21.6	156.7	26.9
WLF	e	PKPbc	Z	10:22:32.2		
	e	PKPab	Z	10:22:52.3		
STU	e	PKPdf	Z	10:22:22.9	157.5	9.4
	e	PKPbc	Z	10:22:34.3		
FUR	e	PKPab	Z	10:22:55.3		
	e	PKPdf	Z	10:22:23.4	157.9	16.9
BFO	e	PKPbc	Z	10:22:35.1		
	e	PKPab	Z	10:22:57.0		
BFO	e	PKPab	Z	10:22:57.8	158.0	22.2
	e	PKPbc	Z	10:22:36.2	158.5	15.2
	e	PKPab	Z	10:22:59.2		

Date 2003/03/10 Origin Time 19:37:46.6 Lat 16.682S Long 173.836W Depth 33N mb 4.8 Ms ML Source NEIC  
TONGA ISLANDS

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 19:57:28.8	146.7	8.9					

Date 2003/03/10 Origin Time 19:41:16.7 Lat 21.645S Long 179.481W Depth 570? mb 4.6 Ms ML Source NEIC  
Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z 20:00:00.9	148.8	22.9	1.1	41			
	e PKPab	Z 20:00:07.2			0.6	10			

GRA1	e PKP	Z	20:00:05.2	150.7	20.7
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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/10	20:14:15.8	23.309S	176.044W	33N	4.8			NEIC

SOUTH OF THE FIJI ISLANDS

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKP	Z	20:34:02.2	149.0	11.4					
RUE	e PKP	Z	20:34:04.1	149.9	18.2					
CLZ	e PKP	Z	20:34:07.0	151.0	12.2					
	e		20:34:19.5							
CLL	i PKPbc	Z	20:34:07.2	151.4	17.4	0.9	20			
	e PKPab	Z	20:34:14.0							
	e pPKPbc	Z	20:34:19.1							
BRG	e PKP	Z	20:34:08.1	151.4	19.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/11	07:27:31.6	4.656S	153.131E	33N	6.3	6.8		NEIC

New Ireland, Papua New Guinea, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKPdf	Z	07:46:24.4	121.7	49.7					
BSEG	e PKPdf	Z	07:46:25.6	122.2	45.4					
BRG	e PKPdf	Z	07:46:26.5	122.6	50.7					
CLL	i PKPdf	Z	07:46:25.8	122.8	49.5	0.8	123			
	e PP	Z	07:48:06.1							
	e		07:49:37.6							
	e SKSac	R	07:53:28.1							
	e SKKSac	R	07:54:55.2							
	e PS	R	07:58:16.8							
	e PPS	Z	07:59:34.1							
	e SS	R	08:04:40.5							
	e SSS	R	08:09:11.1							
	e LQ	T	08:19:01.9							
	e LR	Z	08:23:36.9							
	e L	Z	08:44:38.6			20.0	42950		7.1	
CLZ	e PKPdf	Z	07:46:28.6	123.6	46.4					
MOX	e PKPdf	Z	07:46:28.5	123.9	48.3					
GEC2	e PKPdf	Z	07:46:29.1	124.0	51.4					
WET	e PKPdf	Z	07:46:29.5	124.2	50.4					
IBBN	e PKPdf	Z	07:46:29.7	124.5	43.4					
GRA1	e PKPdf	Z	07:46:20.6	124.7	48.4					
	e PP	Z	07:48:29.0							
	e L	Z	08:46:35.1			20.0	32578		7.0	
BUG	e PKPdf	Z	07:46:31.8	125.3	43.3					

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TNS	e	PKPdf	Z	07:46:32.4	125.6	45.2
FUR	e	PKPdf	Z	07:46:32.5	125.7	49.3
STU	e	PKPdf	Z	07:46:33.6	126.3	46.7
BFO	e	PKPdf	Z	07:46:34.6	127.0	46.0
WLF	e	PKPdf	Z	07:46:35.7	127.1	42.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/11	07:35:42.8	4.599S	153.130E	33N	5.7			NEIC
New Ireland, Papua New Guinea, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e	PKPdf	Z	07:54:35.5	121.6	49.7			
BSEG	e	PKPdf	Z	07:54:36.4	122.2	45.4			
BRG	e	PKPdf	Z	07:54:37.0	122.6	50.6			
CLL	e	PKPdf	Z	07:54:37.1	122.7	49.4			
CLZ	e	PKPdf	Z	07:54:39.3	123.6	46.4			
MOX	e	PKPdf	Z	07:54:38.7	123.8	48.3			
GEC2	e	PKPdf	Z	07:54:39.7	124.0	51.4			
WET	e	PKPdf	Z	07:54:40.4	124.2	50.4			
IBBN	e	PKPdf	Z	07:54:41.1	124.4	43.3			
GRA1	e	PKPdf	Z	07:54:41.1	124.7	48.4			
BUG	e	PKPdf	Z	07:54:42.9	125.2	43.2			
TNS	e	PKPdf	Z	07:54:43.0	125.6	45.1			
FUR	e	PKPdf	Z	07:54:44.1	125.6	49.2			
STU	e	PKPdf	Z	07:54:44.3	126.3	46.7			
BFO	e	PKPdf	Z	07:54:45.7	127.0	46.0			
WLF	e	PKPdf	Z	07:54:46.4	127.0	42.9			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e	P	Z	22:16:42.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/12	23:41:38.5	26.481N	111.604W	33.0N	5.6	6.6		SZGRF
2003/03/12	23:41:30.8	26.335N	110.643W	10G	5.5	6.4		NEIC
Gulf of California, Mexico								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e	P	Z	23:54:10.9	84.8	307.7	1.8	174	6.0
BSEG	e	P	Z	23:54:10.4	85.0	309.5	1.3	114	5.8
WLF	e	P	Z	23:54:14.1	85.6	306.6	1.2	49	5.5

CLZ	e P	Z	23:54:16.9	86.4	309.7	1.3	50	5.5		
TNS	e P	Z	23:54:18.3	86.4	308.3	1.6	80	5.6		
BFO	e P	Z	23:54:21.5	87.5	308.3	1.5	22	5.3		
STU	e P	Z	23:54:23.4	87.7	308.9	1.5	45	5.6		
MOX	e P	Z	23:54:24.3	87.7	310.7	1.6	42	5.5		
CLL	i P	Z	23:54:25.1	87.9	311.7	1.6	60	5.7		
	e S	T	00:05:11.2							
	e PS	Z	00:06:06.7							
	e PPS	R	00:06:37.5							
	e SS	T	00:10:55.7							
	e SSS	T	00:14:29.1							
	e LQ	T	00:17:41.6							
	e LR	Z	00:22:34.6							
	e L	Z	00:33:05.6			20.0	20292		6.5	
GRA1	e P	Z	23:54:28.0	88.2	310.4	1.5	122	5.9		
TANN	e P	Z	23:54:26.2	88.3	311.3					
BRG	e P	Z	23:54:29.4	88.7	312.4	1.8	68	5.6		
FUR	e P	Z	23:54:27.6	89.2	310.5	1.4	79	5.7		
WET	e P	Z	23:54:31.7	89.3	311.7	2.1	82	5.6		
GRA1	e S	N	00:05:12.0	88.2	310.4					
	e SS	N	00:11:08.9							
	e L	Z	00:33:50.6			20.5	22386		6.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/12	04:47:52.3	38.529N	77.947E	33.0N	5.6	5.1		SZGRF
2003/03/12	04:47:54.7	39.493N	77.389E	33N	5.4	5.7		NEIC

Southern Xinjiang, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	04:56:07.0	44.5	82.3	0.9	157	6.0		
RUE	e P	Z	04:56:06.4	44.5	80.5	1.4	149	5.8		
BRG	e P	Z	04:56:08.5	44.7	79.0	0.9	39	5.4		
CLL	i P	- Z	04:56:11.6	45.2	78.8	1.0	90	5.6		
	e PP	Z	04:58:00.1							
	e S	T	05:02:54.1							
	e SS	T	05:06:16.0							
	e LQ	T	05:08:10.9							
	e LR	Z	05:09:42.6							
	e L	Z	05:16:43.0			18.0	11232		5.8	
GEC2	e P	Z	04:56:13.5	45.3	76.9	0.9	66	5.7		
WET	e P	Z	04:56:17.0	45.7	76.7	0.9	39	5.5		
MOX	e P	Z	04:56:20.3	46.2	77.3	0.9	26	5.4		
BSEG	e P	Z	04:56:21.6	46.3	79.5	0.8	57	5.7		
GRA1	e P	Z	04:56:24.9	46.6	76.2	0.9	97	6.0		
	e PP	Z	04:58:20.1							
	e S	N	05:03:25.5							
	e SS	N	05:06:46.2							

	e L	Z	05:18:54.8			19.9	2222		5.1
GRFO	e P	Z	04:56:24.8	46.6	76.2	0.9	80	5.9	
CLZ	e P	Z	04:56:24.3	46.7	77.6	1.1	50	5.5	
FUR	e P	Z	04:56:27.3	47.0	74.8	0.8	106	6.0	
IBBN	e P	Z	04:56:35.5	48.1	76.3	0.9	50	5.6	
STU	e P	Z	04:56:35.9	48.1	74.1	0.9	52	5.6	
TNS	e P	Z	04:56:36.4	48.2	74.9	0.9	20	5.2	
BUG	e P	Z	04:56:39.5	48.6	75.2	0.9	30	5.2	
BFO	e P	Z	04:56:40.6	48.8	73.3	0.9	28	5.2	
WLF	e P	Z	04:56:48.8	49.8	73.1	0.9	62	5.5	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/12	04:44:28.5	16.239S	174.163W	33N	4.3			NEIC
Tonga Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z	05:04:03.2	144.5	11.9					
MOX	e PKP	Z	05:04:05.7	145.3	9.8					
TNS	e PKP	Z	05:04:08.3	146.0	4.5					
GRA1	e PKP	Z	05:04:09.3	146.3	9.3					
WLF	e PKP	Z	05:04:09.8	146.6	0.5					
GEC2	e PKP	Z	05:04:10.5	146.8	13.9					
BFO	e PKP	Z	05:04:13.0	147.8	4.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/12	18:04:34.2	25.928N	129.768E	150.0	5.5			SZGRF
2003/03/12	18:04:42.6	27.336N	127.042E	146D	5.0			NEIC
Southeast of Ryukyu Islands, Japan								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	18:16:46.1	81.3	55.6	0.9	37	5.6		
BRG	e P	Z	18:16:50.9	82.2	55.6	1.4	28	5.3		
BSEG	e P	Z	18:16:50.6	82.2	53.2	1.0	32	5.5		
CLL	e P	Z	18:16:51.7	82.4	54.9	0.6	30	5.7		
CLZ	e P	Z	18:16:57.2	83.4	53.0	0.9	70	5.8		
GEC2	e P	Z	18:16:57.2	83.4	55.2	0.8	19	5.3		
MOX	e P	Z	18:16:57.2	83.5	53.8	1.6	42	5.3		
WET	e P	Z	18:16:58.7	83.7	54.6	1.7	54	5.4		
GRA1	e P	Z	18:17:01.6	84.3	53.5	1.6	144	5.8		
	e pP	Z	18:17:39.3							
IBBN	e P	Z	18:17:01.6	84.4	51.1	1.0	75	5.8		
FUR	e P	Z	18:17:05.9	85.1	53.4	0.9	77	5.8		
BUG	e P	Z	18:17:05.6	85.2	50.7	1.1	23	5.2		
TNS	e P	Z	18:17:06.5	85.4	51.5	1.0	16	5.3		
STU	e P	Z	18:17:08.9	85.9	52.0	0.7	24	5.6		



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BFO	e P	Z	18:17:12.4	86.6	51.3	1.0	13	5.1
WLF	e P	Z	18:17:13.6	86.9	49.8	1.0	28	5.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/13	00:02: 8.2	11.075N	122.474E	33.0N				SZGRF
Panay, Philippine Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:15:26.8	94.8	66.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/13	03:12:48.5	35.466N	142.558E	33.0N	5.3			SZGRF
2003/03/13	03:12:53.8	36.108N	139.625E	33N	5.0	4.5		NEIC
Off east coast of Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 03:25:01.7	79.7	41.7	1.1	30	5.3		
BSEG	e P	Z 03:25:02.9	79.9	39.4	1.2	33	5.3		
BRG	e P	Z 03:25:07.6	80.8	41.7	0.8	12	5.2		
CLL	e P	Z 03:25:07.6	80.9	41.1	1.0	36	5.5		
CLZ	e P	Z 03:25:11.0	81.5	39.2	1.4	37	5.4		
MOX	e P	Z 03:25:13.6	81.9	40.0	0.9	11	5.1		
IBBN	e P	Z 03:25:14.3	82.1	37.4	0.5	31	5.8		
GEC2	e P	Z 03:25:16.0	82.4	41.3	1.1	8	4.9		
WET	e P	Z 03:25:17.2	82.6	40.8	1.3	17	5.1		
GRA1	e P	Z 03:25:18.8	82.8	39.7	1.1	36	5.5		
BUG	e P	Z 03:25:18.2	83.0	37.0	1.1	17	5.2		
TNS	e P	Z 03:25:21.3	83.5	37.7					
FUR	e P	Z 03:25:23.9	84.0	39.6	0.7	30	5.5		
STU	e P	Z 03:25:25.4	84.4	38.2	0.7	25	5.4		
WLF	e P	Z 03:25:28.1	84.9	36.1	1.4	30	5.2		
BFO	e P	Z 03:25:29.0	85.1	37.5	1.7	42	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/13	15:06:58.9	40.388N	90.584E	33.0N	5.3			SZGRF
2003/03/13	15:07:07.3	41.773N	89.080E	33N	4.8			NEIC
Southern Xinjiang, China								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:16:21.4	52.4	66.9	1.3	39	5.3		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/14	02:55:46.2	62.307S	160.179E	10G	5.3	5.6		NEIC

Balleny Islands Region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPab	Z 03:16:27.0	158.8	138.2	2.6	91			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/14	07:06:16.3	1.530N	135.590E	33.0N		6.3		SZGRF
2003/03/14	07:06:13.2	0.361S	132.887E	33N	5.9	6.1		NEIC

Irian Jaya, Indonesia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e Pdiff	Z 07:20:33.4	108.1	67.0					
CLL	e Pdiff	Z 07:20:34.8	108.4	66.1	1.7	48			
	e PKiKP	Z 07:24:41.7							
	e PP	Z 07:25:11.4							
	e PPP	R 07:27:27.6							
	e Sdiff	T 07:32:43.5							
	e PS	R 07:34:28.7							
	e PPS	Z 07:35:32.7							
	e SS	T 07:40:23.9							
	e SSS	T 07:44:28.3							
	e L	Z 08:14:48.3			22.0	7022		6.2	
BSEG	e Pdiff	Z 07:20:36.5	108.8	62.9					
TANN	e Pdiff	Z 07:20:38.2	109.1	65.9					
	e PP	Z 07:25:12.2							
CLZ	e Pdiff	Z 07:20:41.2	109.7	63.6					
GRA1	e Pdiff	Z 07:20:43.8	110.1	65.0					
	e PP	Z 07:25:17.7							
	e L	Z 08:15:44.4			20.8	8119		6.3	
IBBN	e Pdiff	Z 07:20:46.6	110.9	61.1					
BUG	e Pdiff	Z 07:20:50.7	111.6	61.0					
STU	e PP	Z 07:25:33.2	111.7	63.6					
BFO	e PP	Z 07:25:37.3	112.4	63.0					
WLF	e Pdiff	Z 07:20:57.7	113.1	60.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/14	12:54:11.9	17.388S	175.214W	275D	5.7			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 13:13:19.6	146.0	13.2					
	e PKPbc	Z 13:13:20.7			0.8	172			
	e	13:13:24.2			1.0	1302			

```

e          13:13:44.3
e pPKPbc  Z 13:14:29.6
e sPKPbc  Z 13:14:51.5
e PP      Z 13:16:43.6
e pPP     Z 13:17:52.2
e SKKSac  R 13:23:17.3
e SKKP    Z 13:24:29.7
e SS      T 13:35:09.1
e sSS     T 13:37:10.5
e SSS     T 13:40:32.8
e sSSS    T 13:42:31.3
GRA1     e PKP      Z 13:13:23.2 147.3 11.4
          e pPKP     Z 13:14:33.8
    
```

```

Date      Origin Time      Lat      Long      Depth      mb      Ms      ML      Source
2003/03/14 14:54:22.0 17.813S 174.687W 134D      4.5
Tonga Islands
    
```

```

Sta      Phase      Time      Dist      BAz      T[s]      A[nm]      mb      MS      ML
CLL      i PKPbc  + Z 15:13:47.6 146.0 13.2 1.1 22
          e pPKPbc  Z 15:14:21.2
GRA1     e PKP      Z 15:13:53.5 147.8 10.6
    
```

```

Date      Origin Time      Lat      Long      Depth      mb      Ms      ML      Source
2003/03/14 22:13:23.0 2.190S 14.540W 33.0N     4.9
North of Ascension Island
    
```

```

Sta      Phase      Time      Dist      BAz      T[s]      A[nm]      mb      MS      ML
BFO      e P        Z 22:22:44.4 54.3 208.6 1.4 13 4.8
FUR      e P        Z 22:22:51.3 55.1 212.0
TNS      e P        Z 22:22:57.4 56.0 208.1 1.9 24 4.9
GRA1     e P        Z 22:23:00.3 56.4 211.4 1.2 11 4.8
WET      e P        Z 22:23:01.2 56.5 213.5
TANN     e P        Z 22:23:07.7 57.5 212.6
CLZ      e P        Z 22:23:11.7 58.0 209.8
CLL      e P        Z 22:23:13.9 58.4 212.9
BSEG     e P        Z 22:23:24.0 59.8 209.1 1.5 29 5.1
    
```

```

Date      Origin Time      Lat      Long      Depth      mb      Ms      ML      Source
2003/03/15 06:39: 5.5 15.118N 91.823W 33.0N     4.6
2003/03/15 06:38:59.6 13.794N 90.971W 33N      4.7
Mexico-Guatemala border region
    
```



Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z 15:13:47.6			1.1	22			
	e pPKPbc	Z 15:14:21.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/15	19:41:35.0	52.980N	159.340E	33.0N	6.1	6.0		SZGRF
2003/03/15	19:41:28.4	52.349N	160.241E	33N	5.4	5.8		NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 19:52:39.1	69.6	20.8	2.2	765	6.5		
BSEG	e P	Z 19:52:46.1	70.8	18.9	3.1	1465	6.6		
HLG	e P	Z 19:52:48.4	71.0	17.4	1.6	222	6.0		
RUE	e P	Z 19:52:50.0	71.5	20.9	2.3	718	6.4		
CLL	i P	+ Z 19:52:57.2	72.7	20.3	1.2	108	5.8		
	e	19:53:10.7							
	e PP	Z 19:55:43.3							
	e PPP	R 19:57:29.9							
	e S	T 20:02:24.2							
	e SS	T 20:07:01.7							
	e (SSS)	T 20:10:50.7							
	e LQ	T 20:13:47.0							
	e LR	Z 20:16:51.6							
	e L	Z 20:32:02.5			18.0	8114		6.1	
CLZ	e P	Z 19:52:58.2	72.8	18.7	1.4	155	5.9		
IBBN	e P	Z 19:52:58.3	72.8	17.2	1.7	286	6.1		
BRG	e P	Z 19:52:58.7	72.9	20.8	2.5	419	6.1		
TANN	e P	Z 19:53:03.4	73.7	19.8	2.1	222	5.9		
BUG	e P	Z 19:53:03.2	73.7	16.8	1.8	227	6.0		
GRA1	e P	Z 19:53:09.2	74.6	19.0	3.6	2058	6.6		
	e L	Z 20:28:02.4			20.1	8321		6.0	
GRFO	e P	Z 19:53:09.1	74.6	19.0	2.2	468	6.1		
TNS	e P	Z 19:53:09.1	74.7	17.4	1.5	118	5.7		
WET	e P	Z 19:53:10.0	74.8	20.0	1.9	234	5.9		
WLF	e P	Z 19:53:15.4	75.6	16.0	2.4	628	6.2		
STU	e P	Z 19:53:17.0	75.9	17.7	1.7	151	5.9		
FUR	e P	Z 19:53:17.6	76.1	18.9	1.5	127	5.8		
BFO	e P	Z 19:53:19.4	76.5	17.2	1.5	118	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/15	20:08: 6.1	52.056N	161.970E	37.9	4.8			SZGRF
2003/03/15	20:05:32.6	52.410N	160.596E	33N	4.4			NEIC

Off east coast of Kamchatka Peninsula, Russia



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BSEG	e P	Z	23:07:39.1	69.9	17.8				
CLZ	e P	Z	23:07:50.9	71.9	17.6	1.2	15	5.0	
IBBN	e P	Z	23:07:50.1	71.9	16.1				
BUG	e P	Z	23:07:55.7	72.9	15.7	1.1	10	4.9	
GRA1	e P	Z	23:08:00.8	73.8	17.9				
WET	e P	Z	23:08:02.3	74.0	18.8	1.0	10	4.8	
BFO	e P	Z	23:08:12.9	75.7	16.1				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/15

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:39:44.1			1.7	15			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	04:49:32.2	49.331N	174.466E	33.0N	4.4			SZGRF

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:01:38.4	79.9	11.0	1.0	4	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	05:35:19.8	42.930N	143.920E	33.0N	5.2			SZGRF
2003/03/16	05:35:24.0	42.420N	142.923E	93D	4.8			NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 05:47:01.3	75.5	36.3	1.1	38	5.4		
BSEG	e P	Z 05:47:01.4	75.5	34.1	0.9	28	5.4		
CLL	e P	Z 05:47:07.8	76.7	35.6	0.9	34	5.5		
BRG	e P	Z 05:47:08.2	76.7	36.1	1.0	11	5.0		
CLZ	e P	Z 05:47:11.3	77.2	33.9	1.2	46	5.5		
IBBN	e P	Z 05:47:13.5	77.7	32.2	1.0	30	5.4		
MOX	e P	Z 05:47:14.0	77.7	34.6	1.3	18	5.0		
WET	e P	Z 05:47:18.8	78.5	35.2	1.2	21	5.1		
BUG	e P	Z 05:47:18.4	78.6	31.8	1.0	22	5.2		
GRA1	e P	Z 05:47:19.8	78.7	34.2	0.8	34	5.4		
GRFO	e P	Z 05:47:19.8	78.7	34.2	0.9	29	5.3		
TNS	e P	Z 05:47:22.2	79.2	32.4	1.0	13	4.9		
FUR	e P	Z 05:47:26.2	79.9	34.1	0.8	30	5.3		
STU	e P	Z 05:47:27.3	80.2	32.8	0.8	23	5.1		
BFO	e P	Z 05:47:30.9	80.8	32.2	1.5	29	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	05:42:35.4	30.988N	50.479E	33.0N	5.0			SZGRF
Northern and central Iran								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:49:22.6	34.7	107.7	0.8	15	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	07:22:52.4	8.591N	94.384E	33.0N	4.5			SZGRF
Nicobar Islands, India, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:34:53.6	79.0	89.6	1.6	8	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	08:43:13.2	55.600N	154.460E	33.0N	5.0			SZGRF
2003/03/16	08:42:44.1	52.159N	160.768E	33N	4.9			NEIC
Sea of Okhotsk								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 08:54:02.5	71.1	18.7	1.2	12	5.0		
CLL	e P	Z 08:54:13.2	73.0	20.0	1.0	15	5.2		
CLZ	e P	Z 08:54:14.3	73.1	18.5	1.1	19	5.2		
IBBN	e P	Z 08:54:15.2	73.1	16.9					
BRG	e P	Z 08:54:14.8	73.2	20.5	0.8	4	4.8		
MOX	e P	Z 08:54:19.3	73.9	19.1	1.1	8	4.8		
TANN	e P	Z 08:54:20.2	74.0	19.6	1.4	13	4.9		
GRA1	e P	Z 08:54:25.3	74.9	18.8	0.8	15	5.2		
WET	e P	Z 08:54:26.9	75.1	19.7	0.8	9	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	09:06:13.4	35.960N	45.280E	33.0N	4.7			SZGRF
Iran-Iraq border region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 09:11:52.9	26.9	111.5	1.4	19	4.6		
WET	e P	Z 09:11:52.0	27.0	107.0	1.5	16	4.5		
CLL	e P	Z 09:11:58.5	27.6	111.1	1.1	20	4.8		
	e S	Z 09:16:54.8							
	e LR	Z 09:19:32.6							
	e L	Z 09:26:45.5			18.0	366		4.0	



FUR	e P	Z	09:11:59.9	27.7	103.4				
GRA1	e P	Z	09:12:03.5	28.2	106.2	1.2	36	5.1	
TNS	e P	Z	09:12:21.0	30.0	104.1	1.5	15	4.6	
BSEG	e P	Z	09:12:20.3	30.1	112.3				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	09:01: 9.3	19.203N	120.750E	33.0N				SZGRF
2003/03/16	09:00:27.3	12.165N	125.805E	33.0N	5.1	4.7		NEIC

Philippine Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 09:13:44.8	85.8	64.5	1.3	20	5.3		
	e	09:13:54.2							
	e L	Z 10:00:50.7			18.0	619		5.1	
GRA1	e P	Z 09:13:53.2	87.5	63.1					
	e	09:14:03.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	10:32:39.7	52.300N	157.500E	33.0N	4.9			SZGRF
2003/03/16	10:32:32.1	52.192N	160.652E	33N	4.5			NEIC

Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 10:43:52.8	71.0	18.7	1.3	17	5.0		
CLL	e P	Z 10:44:03.3	73.0	20.1	1.0	13	5.0		
CLZ	e P	Z 10:44:03.9	73.0	18.5	1.1	16	5.0		
BRG	e P	Z 10:44:04.6	73.2	20.6	0.8	4	4.6		
MOX	e P	Z 10:44:09.4	73.9	19.2					
GRA1	e P	Z 10:44:14.7	74.9	18.8	1.0	13	4.9		
TNS	e P	Z 10:44:15.5	74.9	17.2					
WET	e P	Z 10:44:16.2	75.0	19.8	0.8	6	4.7		
STU	e P	Z 10:44:22.7	76.2	17.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16	13:05: 7.7	52.440N	153.930E	33.0N	4.9			SZGRF

Northwest of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 13:16:14.9	69.4	22.7					
CLL	e P	Z 13:16:25.4	71.2	24.0	1.1	13	5.0		
CLZ	e P	Z 13:16:26.4	71.3	22.5	1.0	8	4.8		
MOX	e P	Z 13:16:31.8	72.1	23.1					
GRA1	e P	Z 13:16:37.1	73.1	22.7					

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TNS	e P	Z	13:16:38.2	73.3	21.1
FUR	e P	Z	13:16:45.3	74.5	22.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/16								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:59:48.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	04:10: 6.4	58.141S	11.273W	10.0G	5.5	5.3		NEIC
East of the South Sandwich Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PP	Z 04:29:33.0	110.9	193.5					
	e SKSP	Z 04:39:14.0							
	e PPS	Z 04:40:03.7							
	e SS	T 04:44:53.0							
	e LQ	T 04:55:43.4							
	e L	Z 05:12:43.9			18.0	404		5.0	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	08:32:42.9	52.131N	162.428E	33.0N	4.9			SZGRF
2003/03/17	08:32:43.2	52.460N	160.190E	33N	5.0			NEIC
Off east coast of Kamchatka Peninsula, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:44:23.1	74.5	19.0	1.0	11	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	10:28:32.0	71.280N	10.440W	33.0N	4.5			SZGRF
Jan Mayen Island region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e P	Z 10:33:09.9	20.6	343.5					
CLZ	e P	Z 10:33:18.9	21.6	341.9	1.0	13	4.3		
CLL	e P	Z 10:33:31.9	22.6	340.6	1.3	23	4.6		
TNS	e P	Z 10:33:33.6	22.8	344.4	1.5	33	4.7		
TANN	e P	Z 10:33:38.4	23.3	341.6	1.3	18	4.5		
GRA1	e P	Z 10:33:42.8	23.8	342.9	1.0	9	4.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	16:19:18.6	50.333N	177.601E	33.0N	4.9			SZGRF
2003/03/17	16:19:19.9	51.361N	177.945E	33N	4.8			NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:31:21.2	78.3	8.4	1.3	20	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	16:36:18.3	51.230N	175.540E	33.0N	6.2	7.0		SZGRF
2003/03/17	16:36:16.6	51.400N	177.939E	33N	5.8	6.6		NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 16:47:49.2	73.3	10.0	0.7	738	6.8		
HLG	e P	Z 16:47:54.3	74.1	6.4	0.9	529	6.5		
	e S	T 16:57:27.6							
BSEG	e P	Z 16:47:53.9	74.2	8.0	0.9	549	6.6		
RUE	e P	Z 16:48:00.3	75.3	10.1	1.1	289	6.3		
	e S	T 16:57:39.8							
IBBN	e P	Z 16:48:03.8	76.0	6.3	0.9	784	6.8		
CLZ	e P	Z 16:48:05.9	76.2	7.9	0.9	384	6.5		
	e S	T 16:57:52.0							
CLL	e P	Z 16:48:06.7	76.5	9.6	1.1	76	5.8		
	e PP	Z 16:51:07.2							
	e PPP	Z 16:52:46.3							
	e S	T 16:57:48.2							
	e PS	R 16:58:38.6							
	e SS	R 17:02:55.4							
	e SSS	R 17:06:25.1							
	e LQ	T 17:11:42.4							
	e LR	Z 17:13:27.4							
	e PKPPKP	Z 17:15:25.2							
	e L	Z 17:19:58.3			20.0	56630			
BRG	e P	Z 16:48:07.4	76.8	10.2	0.9	112	6.0		
BUG	e P	Z 16:48:08.8	76.9	6.0	1.0	214	6.2		
	e S	T 16:57:58.1							
MOX	e P	Z 16:48:11.1	77.3	8.7	0.9	135	6.1		
	e S	T 16:58:01.2							
TANN	e P	Z 16:48:12.7	77.4	9.2	1.3	206	6.1		
TNS	e P	Z 16:48:15.8	78.0	6.7	0.8	266	6.3		
GRA1	e P	Z 16:48:17.5	78.3	8.4	0.8	169	6.1		
	e S	T 16:58:11.4							
	e L	Z 17:29:19.1			18.5	69200		7.0	
GRFO	e P	Z 16:48:17.7	78.3	8.4	1.0	167	6.0		

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WET	e P	Z	16:48:19.4	78.7	9.4	1.6	255	6.0
WLF	e P	Z	16:48:19.6	78.7	5.2	1.0	206	6.0
STU	e P	Z	16:48:23.5	79.4	7.1	0.9	233	6.1
FUR	e P	Z	16:48:24.7	79.8	8.4	0.9	276	6.3
BFO	e P	Z	16:48:25.6	79.9	6.6	1.2	165	5.9
	e S	T	16:58:26.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:18:38.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	18:37:26.4	51.990N	160.460E	33.0N	5.6			SZGRF
2003/03/17	18:37:29.3	52.423N	160.213E	48*	5.3	5.1		NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 18:48:37.9	69.6	20.8	1.2	216	6.2		
BSEG	e P	Z 18:48:45.1	70.7	18.9	1.4	66	5.6		
RUE	e P	Z 18:48:48.7	71.4	20.8	0.9	92	5.9		
CLL	i P	+ Z 18:48:55.8	72.7	20.2	1.0	49	5.6		
	e pP	Z 18:49:07.0							
	e sP	Z 18:49:13.2							
CLZ	e P	Z 18:48:56.5	72.7	18.7	1.0	121	5.9		
IBBN	e P	Z 18:48:56.7	72.8	17.2	1.0	69	5.7		
BRG	e P	Z 18:48:57.4	72.9	20.8					
MOX	e P	Z 18:49:01.6	73.6	19.3	0.9	47	5.5		
TANN	e P	Z 18:49:02.3	73.6	19.8					
BUG	e P	Z 18:49:01.9	73.7	16.8	1.2	50	5.4		
GRA1	e P	Z 18:49:07.6	74.6	19.0	1.1	75	5.6		
GRFO	e P	Z 18:49:07.8	74.6	19.0	1.1	64	5.6		
TNS	e P	Z 18:49:08.2	74.6	17.4	0.9	38	5.4		
WET	e P	Z 18:49:08.3	74.7	20.0	1.0	44	5.5		
WLF	e P	Z 18:49:13.6	75.6	16.0	1.7	75	5.5		
FUR	e P	Z 18:49:15.9	76.0	18.9	0.9	43	5.6		
BFO	e P	Z 18:49:17.5	76.4	17.2	1.1	33	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	18:55:52.6	52.010N	177.350E	33.0N	5.8	5.7		SZGRF
2003/03/17	18:55:47.0	51.362N	177.816E	33N	5.7	5.8		NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 19:07:19.7	73.3	10.0	0.9	212	6.3		
BSEG	e P	Z 19:07:24.5	74.2	8.1	1.0	171	6.0		
RUE	e P	Z 19:07:31.1	75.3	10.2	1.2	103	5.7		
IBBN	e P	Z 19:07:35.1	76.0	6.4	1.4	273	6.2		
CLZ	e P	Z 19:07:36.8	76.3	8.0	1.2	147	6.0		
CLL	i P	Z 19:07:37.5	76.5	9.7	1.2	45	5.5		
	e PP	Z 19:10:30.1							
	e PS	R 19:18:05.3							
	e SS	R 19:22:32.1							
	e LR	Z 19:33:24.8							
	e L	Z 19:39:33.2			22.0	3386		5.6	
BRG	e P	Z 19:07:39.3	76.9	10.3	1.0	39	5.5		
BUG	e P	Z 19:07:40.2	76.9	6.0	1.2	65	5.6		
MOX	e P	Z 19:07:42.4	77.3	8.8	1.3	90	5.7		
TANN	e P	Z 19:07:43.3	77.5	9.3	1.5	92	5.7		
TNS	e P	Z 19:07:46.8	78.0	6.8	0.9	43	5.6		
GRA1	e P	Z 19:07:48.7	78.3	8.5	1.2	163	6.0		
	e L	Z 19:41:57.1			21.0	3675		5.7	
WET	e P	Z 19:07:50.1	78.7	9.5	1.2	58	5.6		
WLF	e P	Z 19:07:50.5	78.7	5.3	1.6	99	5.7		
STU	e P	Z 19:07:53.9	79.4	7.2	1.1	53	5.5		
BFO	e P	Z 19:07:57.3	79.9	6.6	1.5	121	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	19:37:53.7	51.280N	179.510W	33.0N	5.1			SZGRF
2003/03/17	19:37:53.5	51.395N	177.936E	33N	5.2	4.7		NEIC

Andreanof Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 19:49:31.3	74.2	8.0	0.9	28	5.3		
IBBN	e P	Z 19:49:41.5	76.0	6.3	0.9	33	5.4		
CLZ	e P	Z 19:49:43.4	76.2	8.0	1.0	23	5.2		
BUG	e P	Z 19:49:46.4	76.9	6.0	1.4	26	5.2		
MOX	e P	Z 19:49:48.8	77.3	8.7	1.2	11	4.9		
TANN	e P	Z 19:49:49.9	77.4	9.2	1.5	14	4.9		
TNS	e P	Z 19:49:52.6	78.0	6.7	1.1	14	4.9		
GRA1	e P	Z 19:49:55.0	78.3	8.4	1.3	27	5.1		
STU	e P	Z 19:50:00.1	79.4	7.1	1.0	18	4.9		
FUR	e P	Z 19:50:03.4	79.8	8.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	20:14:15.6	50.390N	175.712E	33.0N	5.2			SZGRF
2003/03/17	20:14:15.8	51.414N	177.953E	33N	5.1			NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:26:16.9	78.3	8.4	1.0	25	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	20:55: 8.1	50.063N	176.270E	33.0N	4.5			SZGRF
2003/03/17	20:55:10.6	51.448N	177.930E	33N	4.9	4.6		NEIC

Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:07:11.5	78.2	8.4	1.0	6	4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	21:49: 2.8	50.900N	172.241E	33.0N	4.8			SZGRF
2003/03/17	21:49:17.1	52.200N	160.480E	33N	4.7	4.1		NEIC

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:00:59.0	74.8	18.9	0.9	6	4.8		
	e	22:01:10.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/17	22:31:59.4	50.468N	174.122E	33.0N	4.9			SZGRF
2003/03/17	22:31:57.5	51.320N	177.782E	33N	5.0	4.4		NEIC

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:43:59.2	78.3	8.5	1.4	19	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/18	00:32:56.5	36.402N	79.133E	33.0N	4.7			SZGRF
2003/03/18	00:33:32.6	39.203N	73.229E	33N	4.7	4.2		NEIC

Southern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:41:44.7	44.2	79.1	1.2	12	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/18 05:37:36.5 52.950N 159.150E 33.0N 5.4 4.9 SZGRF  
 2003/03/18 05:37:29.5 52.482N 160.159E 33N 4.8 4.7 NEIC  
 Off east coast of Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	05:48:47.3	70.7	18.9	1.3	43	5.4		
RUE	e P	Z	05:48:51.1	71.3	20.9	0.9	81	5.9		
CLL	i P	+ Z	05:48:58.2	72.6	20.3	0.9	64	5.7		
	e S	T	05:58:25.9							
	e SS	T	06:03:02.2							
	e LQ	T	06:12:06.5							
	e L	Z	06:21:58.1			22.0	330		4.6	
CLZ	e P	Z	05:48:59.4	72.6	18.7	0.9	54	5.7		
IBBN	e P	Z	05:48:59.4	72.7	17.2	0.8	61	5.8		
BRG	e P	Z	05:48:59.4	72.8	20.8	1.0	18	5.1		
MOX	e P	Z	05:49:04.0	73.5	19.4	0.9	32	5.5		
TANN	e P	Z	05:49:04.4	73.5	19.8	1.1	15	5.0		
BUG	e P	Z	05:49:04.6	73.6	16.8	1.0	36	5.4		
GRA1	e P	Z	05:49:10.4	74.5	19.0	0.9	52	5.5		
	e L	Z	06:24:00.3			20.2	567		4.9	
TNS	e P	Z	05:49:10.4	74.5	17.4	0.9	28	5.3		
WET	e P	Z	05:49:11.1	74.6	20.0	1.0	36	5.3		
GEC2	e P	Z	05:49:11.2	74.7	20.4	1.0	19	5.1		
STU	e P	Z	05:49:17.4	75.8	17.8	1.1	34	5.3		
FUR	e P	Z	05:49:18.3	75.9	18.9	1.0	40	5.5		
BFO	e P	Z	05:49:20.7	76.4	17.2	1.1	28	5.3		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/18 08:19:21.7 19.584N 101.829E 33.0N 4.7  
 Off east coast of Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	08:31:03.5	75.6	76.6	0.8	5	4.7		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/18 13:31:07.8 4.807S 151.779E 107D 5.2  
 New Britain, Papua New Guinea, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	13:49:56.3	124.2	49.9					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/18 16:43: 9.5 40.580N 136.980E 33.0N 5.4  
 SZGRF

2003/03/18 16:43:52.1  
Eastern Sea of Japan

41.539N 135.358E 362 5.3 NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	16:54:48.5	73.3	41.7	1.4	84	5.6		
BSEG	e P	Z	16:54:50.0	73.6	39.7	0.9	50	5.6		
BRG	e P	Z	16:54:55.0	74.4	41.5	0.7	20	5.4		
CLL	i P	+ Z	16:54:55.0	74.5	41.0	0.8	36	5.5		
	e PcP	Z	16:55:04.6							
	i		16:55:52.4							
	e PP	Z	16:57:45.6							
CLZ	e P	Z	16:54:59.0	75.2	39.4	1.0	42	5.5		
TANN	e P	Z	16:55:00.4	75.4	40.5	1.1	14	5.0		
MOX	e P	Z	16:55:01.3	75.6	40.0	1.1	18	5.1		
IBBN	e P	Z	16:55:02.3	75.8	37.7	1.4	76	5.6		
GEC2	e P	Z	16:55:04.1	76.1	41.0	1.2	20	5.1		
WET	e P	Z	16:55:04.9	76.2	40.6	1.0	27	5.3		
GRA1	e P	Z	16:55:07.1	76.5	39.6	0.7	56	5.8		
	e PP	Z	16:58:03.8							
BUG	e P	Z	16:55:07.2	76.7	37.3	0.9	34	5.5		
TNS	e P	Z	16:55:10.3	77.2	37.9	1.5	44	5.3		
WLF	e P	Z	16:55:17.5	78.5	36.3	0.8	22	5.2		
BFO	e P	Z	16:55:18.3	78.7	37.5	1.0	55	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/18	17:25:14.8	52.113N	176.597W	33.0N	4.8			SZGRF
2003/03/18	17:25:09.7	51.455N	177.632E	33N	4.6			NEIC

Andreanof Islands, Aleutian Islands, United States

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	17:37:10.2	78.2	8.6	1.3	10	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	00:03:42.7	9.345S	156.481E	33N	5.8	5.9		NEIC

Bougainville - Solomon Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z	00:22:48.2	128.6	48.7	3.0	335			
	e PP	Z	00:24:53.7							
	e SKSac	R	00:29:53.7							
	e Sdiff	T	00:32:56.2							
	e PS	E	00:35:02.4							
	e SS	T	00:42:08.5							
	e SSS	T	00:46:45.6							
	e LQ	T	00:59:31.2							



	e L	Z	01:19:03.7			22.0	3369	6.0		
GRA1	e PKP	Z	00:22:52.7	130.4	47.6					
	e PP	Z	00:25:03.8							
	e		00:25:33.1							
	e L	Z	01:22:21.7			20.3	1542	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	05:38:51.2	24.668N	46.166W	33.0N	4.8			SZGRF
2003/03/19	05:38:49.4	25.003N	45.610W	10G	5.1	4.6		NEIC

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:47:47.0	50.0	262.1	1.2	14	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	11:07:56.8	15.831S	174.773W	33N	4.6			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 11:27:33.0	145.8	10.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	12:01:51.3	53.010N	159.750E	33.0N	5.6	5.1		SZGRF
2003/03/19	12:01:44.6	52.251N	160.579E	33N	5.2	5.0		NEIC

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 12:13:03.6	71.0	18.7	1.2	55	5.6		
RUE	e P	Z 12:13:07.4	71.6	20.7	1.5	119	5.8		
CLL	i P	+ Z 12:13:14.9	72.9	20.1	1.3	76	5.6		
	e	12:13:36.8							
	e PP	Z 12:15:51.8							
	e PPP	R 12:17:30.9							
	e S	T 12:22:42.0							
	e PS	Z 12:23:24.8							
	e (SS)	Z 12:27:58.9							
	e LR	Z 12:36:46.7							
	e LQ	T 12:38:59.7							
	e L	Z 12:53:23.3			18.0	1197		5.2	
CLZ	e P	Z 12:13:15.6	72.9	18.6	1.3	122	5.9		
IBBN	e P	Z 12:13:15.6	73.0	17.0	1.5	128	5.8		
BRG	e P	Z 12:13:15.8	73.1	20.6	1.4	47	5.4		
MOX	e P	Z 12:13:20.3	73.8	19.2	1.6	70	5.5		
TANN	e P	Z 12:13:20.8	73.9	19.7	1.7	54	5.4		

BUG	e P	Z	12:13:20.7	73.9	16.6	1.2	73	5.7	
GRA1	e P	Z	12:13:26.7	74.8	18.9	1.4	128	5.8	
	e L	Z	12:46:23.2			21.9	1049		5.1
TNS	e P	Z	12:13:26.5	74.8	17.2	1.4	62	5.4	
WET	e P	Z	12:13:27.5	75.0	19.8	1.4	78	5.5	
GEC2	e P	Z	12:13:27.6	75.1	20.3	1.4	39	5.3	
WLF	e P	Z	12:13:32.3	75.8	15.8	2.0	133	5.6	
STU	e P	Z	12:13:33.5	76.1	17.6	1.8	122	5.7	
FUR	e P	Z	12:13:34.5	76.2	18.8	1.3	94	5.7	
BFO	e P	Z	12:13:36.8	76.7	17.0	1.4	54	5.5	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	12:18:0.2	52.450N	159.650E	33.0N	5.1			SZGRF
2003/03/19	12:17:56.2	52.150N	160.764E	33N	5.0			NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	12:29:14.8	71.1	18.7	1.3	30	5.3		
CLL	e P	Z	12:29:26.2	73.0	20.0	1.2	30	5.3		
CLZ	e P	Z	12:29:27.4	73.1	18.5	1.2	38	5.4		
BRG	e P	Z	12:29:27.2	73.2	20.5	1.3	14	4.9		
MOX	e P	Z	12:29:32.0	73.9	19.1	1.1	15	4.9		
GRA1	e P	Z	12:29:37.9	74.9	18.8	1.2	32	5.2		
TNS	e P	Z	12:29:38.1	75.0	17.2	0.8	10	4.9		
WET	e P	Z	12:29:38.8	75.1	19.7	1.0	15	5.0		
GEC2	e P	Z	12:29:39.1	75.2	20.2	0.8	6	4.7		
BFO	e P	Z	12:29:48.0	76.8	17.0	1.2	13	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	14:30:50.7	51.530N	158.880E	33.0N	5.0			SZGRF
2003/03/19	14:30:50.9	52.264N	160.554E	33N	4.8			NEIC

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	14:42:10.0	70.9	18.7	1.4	23	5.1		
CLL	e P	Z	14:42:20.4	72.9	20.1	1.0	21	5.1		
CLZ	e P	Z	14:42:21.8	72.9	18.6	1.2	40	5.3		
BRG	e P	Z	14:42:22.0	73.1	20.6	1.1	11	4.8		
MOX	e P	Z	14:42:26.3	73.8	19.2	1.0	9	4.8		
TANN	e P	Z	14:42:26.4	73.8	19.7	1.0	8	4.7		
GRA1	e P	Z	14:42:32.5	74.8	18.9	0.8	22	5.2		
TNS	e P	Z	14:42:32.8	74.8	17.3	1.2	16	5.0		
WET	e P	Z	14:42:33.4	74.9	19.8	1.4	21	5.1		
GEC2	e P	Z	14:42:33.6	75.0	20.3	1.3	13	4.9		
BFO	e P	Z	14:42:42.6	76.7	17.0	1.5	22	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	14:43:39.9	52.160N	159.950E	45.6	5.9	5.3		SZGRF
2003/03/19	14:43:35.6	52.307N	160.553E	33N	5.4	5.3		NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	14:54:48.1	69.7	20.7	1.1	258	6.3		
BSEG	e P	Z	14:54:54.0	70.9	18.7	1.2	136	5.9		
RUE	e P	Z	14:54:58.5	71.6	20.7	1.0	142	6.0		
CLL	i P	+ Z	14:55:05.2	72.8	20.1	1.1	135	5.9		
	e pP	Z	14:55:16.9							
	e sP	Z	14:55:24.5							
	e PP	Z	14:57:41.4							
	e S	T	15:04:30.5							
	e PS	Z	15:05:12.6							
	e SS	T	15:09:10.1							
	e SSS	T	15:12:28.3							
	e LQ	T	15:15:57.3							
	e LR	Z	15:18:35.6							
	e L	Z	15:33:28.2			18.0	3024		5.6	
CLZ	e P	Z	14:55:06.5	72.9	18.6	1.2	221	6.2		
IBBN	e P	Z	14:55:06.7	72.9	17.0	1.2	180	6.1		
BRG	e P	Z	14:55:07.0	73.0	20.6	1.4	71	5.6		
MOX	e P	Z	14:55:11.7	73.8	19.2	1.5	116	5.7		
TANN	e P	Z	14:55:11.6	73.8	19.7	1.6	116	5.7		
BUG	e P	Z	14:55:12.0	73.8	16.6	1.3	163	5.9		
GRA1	e P	Z	14:55:17.3	74.7	18.9	1.1	172	6.0		
	e pP	Z	14:55:29.4							
	e sP	Z	14:55:37.0							
	e L	Z	15:28:24.0			22.0	1519		5.3	
TNS	e P	Z	14:55:17.4	74.8	17.2	1.2	102	5.7		
WET	e P	Z	14:55:18.5	74.9	19.8	1.2	107	5.7		
GEC2	e P	Z	14:55:18.5	75.0	20.3	1.2	60	5.5		
WLF	e P	Z	14:55:23.6	75.7	15.8	1.3	84	5.7		
STU	e P	Z	14:55:24.6	76.0	17.6	1.2	118	5.9		
FUR	e P	Z	14:55:25.5	76.2	18.8	1.1	122	6.0		
BFO	e P	Z	14:55:28.0	76.6	17.0	1.4	114	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	17:43:38.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	18:33:27.6	16.323S	69.452W	33.0N	5.3			SZGRF
Peru-Bolivia border region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:46:54.0	96.5	252.4	1.0	12	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19	21:13:07.0	9.541N	93.362E	111?	4.5			NEIC
Nicobar Islands, India, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PcP	Z 21:25:21.6	77.7	89.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/19								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:55:14.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/20	00:21: 2.7	50.415N	160.433E	37.4	4.9			SZGRF
2003/03/20	00:21:08.8	52.437N	160.354E	33N	4.7			NEIC
East of Kuril Islands, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:32:49.1	74.6	18.9	1.1	10	4.9		
	e pP	Z 00:32:59.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/20								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:12:32.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/20	04:39:52.3	17.966S	178.524W	550G	4.2			NEIC

## Fiji Islands Region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z	04:58:29.7	145.5	19.6	1.1	25			
GRA1	e PKP	Z	04:58:35.0	147.3	17.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/20	06:15:20.2	2.970S	30.240E	33.0N	5.3	4.2		SZGRF
2003/03/20	06:15:20.5	2.433S	29.467E	10G	5.2	4.9		NEIC

Lake Tanganyika region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e P	Z	06:24:37.6	53.0	157.0	0.6	56	5.7		
GEC2	e P	Z	06:24:38.5	53.1	160.1	0.9	29	5.3		
WET	e P	Z	06:24:41.6	53.5	159.2	1.6	47	5.3		
BFO	e P	Z	06:24:45.2	54.0	153.6	1.5	57	5.4		
STU	e P	Z	06:24:46.5	54.1	154.7					
GRA1	e P	Z	06:24:48.5	54.4	157.4	1.1	54	5.5		
	e PP	Z	06:26:51.9							
	e L	Z	06:48:33.5			20.9	220		4.2	
TANN	e P	Z	06:24:51.5	54.8	159.1	1.7	57	5.3		
BRG	e P	Z	06:24:51.4	54.9	160.9	1.6	32	5.1		
MOX	e P	Z	06:24:54.1	55.2	158.1	1.1	20	5.1		
CLL	i P	- Z	06:24:55.9	55.5	159.9	0.9	18	5.1		
	e PcP	Z	06:25:57.6							
	e S	Z	06:32:52.1							
	e L	Z	06:50:24.8			18.0	298		4.4	
TNS	e P	Z	06:24:57.4	55.7	154.3	1.0	46	5.4		
WLF	e P	Z	06:24:58.7	55.8	151.5	1.4	52	5.4		
RUE	e P	Z	06:25:02.7	56.5	161.1					
CLZ	e P	Z	06:25:04.6	56.6	157.0	1.2	30	5.2		
BUG	e P	Z	06:25:08.0	57.1	153.3	1.4	72	5.5		
BSEG	e P	Z	06:25:18.2	58.6	157.4	1.3	92	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/20	15:08:14.4	19.225S	167.620E	39D	5.7	5.0		NEIC

Vanuatu Islands Region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPpre	Z	15:27:41.9	142.2	41.4					
	e PKPdf	Z	15:27:44.4							
GRA1	e PKP	Z	15:27:46.1	144.2	40.3					

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/20	22:16:41.7	8.800N	120.500E	33.0N				SZGRF
2003/03/20	22:15:55.2	0.105S	125.125E	33N	5.5	4.8		NEIC

Sulu Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e Pdiff	Z	22:29:54.6	103.3	73.3					
CLL	e Pdiff	Z	22:29:56.2	103.7	72.5					
GEC2	e Pdiff	Z	22:29:57.9	104.0	73.6					
TANN	e Pdiff	Z	22:29:59.3	104.3	72.2					
BSEG	e Pdiff	Z	22:29:59.2	104.4	69.6					
MOX	e Pdiff	Z	22:30:01.9	104.7	71.5					
GRA1	e Pdiff	Z	22:30:03.6	105.3	71.4					
TNS	e Pdiff	Z	22:30:10.3	106.8	69.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/21	01:09:56.6	19.451N	69.633W	94.8	5.0			SZGRF
2003/03/21	01:09:54.5	18.209N	68.089W	91D	5.0			NEIC

Dominican Republic region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	01:20:33.9	66.1	270.4					
IBBN	e P	Z	01:20:41.0	67.1	270.5					
	e pP	Z	01:21:04.1							
TNS	e P	Z	01:20:43.2	67.6	271.9	1.2	10	4.9		
	e pP	Z	01:21:07.8							
BSEG	e P	Z	01:20:48.9	68.6	271.8	1.0	11	5.1		
CLZ	e P	Z	01:20:50.4	68.7	272.7	0.9	13	5.1		
	e pP	Z	01:21:15.0							
GRA1	e P	Z	01:20:54.7	69.4	274.2	1.3	10	4.8		
	e pP	Z	01:21:20.3							
FUR	e P	Z	01:20:55.5	69.5	274.8					
	e pP	Z	01:21:20.9							
TANN	e P	Z	01:20:59.2	70.1	274.8					
	e pP	Z	01:21:24.4							
CLL	e P	Z	01:21:00.5	70.4	274.9					
	e pP	Z	01:21:25.3							
WET	e P	Z	01:21:01.5	70.5	275.6	1.0	12	5.0		
BRG	e P	Z	01:21:04.3	71.0	275.8					
	e pP	Z	01:21:28.9							
GEC2	e P	Z	01:21:04.5	71.1	276.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/21	10:35:07.6	17.713S	178.728W	569D	4.5			NEIC

Fiji Islands Region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z	10:53:48.3	147.0	17.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/21	18:43:44.5	31.614N	142.396E	31.8		4.9		SZGRF
2003/03/21	18:43:27.7	28.153N	142.448E	33N	5.0	5.0		NEIC

Southeast of Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	18:56:17.4	88.1	40.9	1.2	27			
BRG	e P	Z	18:56:21.0	88.9	43.6	1.8	43			
CLL	i P	+ Z	18:56:21.5	89.0	42.9	1.2	27	5.3		
	e pP	Z	18:56:30.7							
	e PP	Z	18:59:54.2							
	e pPP	Z	19:00:02.8							
	e S	T	19:07:15.7							
	e L	Z	19:41:35.0			18.0	995		5.3	
CLZ	e P	Z	18:56:24.9	89.7	40.9	1.5	46			
TANN	e P	Z	18:56:25.9	89.9	42.5					
MOX	e P	Z	18:56:26.6	90.0	41.8	1.4	19			
IBBN	e P	Z	18:56:27.8	90.3	38.8					
GEC2	e P	Z	18:56:28.3	90.5	43.4	1.3	17			
WET	e P	Z	18:56:29.4	90.6	42.8	1.8	35			
GRA1	e P	Z	18:56:31.2	90.9	41.5	1.7	94			
	e pP	Z	18:56:40.5							
	e PP	Z	19:00:09.1							
	e L	Z	19:45:07.1			19.3	484		4.9	
BUG	e P	Z	18:56:31.7	91.2	38.4					
TNS	e P	Z	18:56:34.3	91.7	39.4	2.2	33			
FUR	e P	Z	18:56:36.1	92.0	41.6					
STU	e P	Z	18:56:38.0	92.5	40.0					
WLF	e P	Z	18:56:40.9	93.0	37.6					
BFO	e P	Z	18:56:41.0	93.2	39.3	1.2	30			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/21	19:42:27.0	15.435S	179.974W	33N	5.0	5.3		NEIC

Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	20:02:02.3	144.6	18.8					
	e L	Z	21:05:01.2			21.5	554		5.3	

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/22	02:53:20.3	24.182S	179.768E	600G	4.4			NEIC

South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	03:12:04.4	149.2	19.0					
	e PKPab	Z	03:12:10.9							
CLL	i PKPbc	+ Z	03:12:08.5	151.0	25.5	0.8	29			
	e PKPab	Z	03:12:17.5							
	e pPKPbc	Z	03:14:12.4							
BRG	e PKPbc	Z	03:12:09.2	151.2	27.6					
CLZ	e PKPbc	Z	03:12:09.1	151.2	20.4					
IBBN	e PKPbc	Z	03:12:09.5	151.2	15.3					
	e PKPab	Z	03:12:19.5							
TANN	e PKPbc	Z	03:12:10.6	152.0	25.3					
MOX	e PKPbc	Z	03:12:10.5	152.0	23.5					
	e PKPab	Z	03:12:23.0							
TNS	e PKPbc	Z	03:12:13.3	153.1	17.7					
	e PKPab	Z	03:12:27.8							
FUR	e PKPbc	Z	03:12:16.2	154.3	24.9					
	e PKPab	Z	03:12:33.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/22	18:12:34.2	45.040N	152.833E	33.0N	4.7			SZGRF
2003/03/22	18:12:32.7	44.381N	149.198E	33N	4.2			NEIC

East of Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	18:24:38.2	79.1	29.2	0.8	8	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/22	19:45:43.4	44.210N	148.589E	56D	4.7			NEIC

Kuril Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	19:57:26.2	75.6	29.5					
CLL	i P	+ Z	19:57:33.6	77.0	31.0	1.0	20	5.2		
	e pP	Z	19:57:48.9							
CLZ	e P	Z	19:57:36.2	77.4	29.3	1.1	17	5.1		
IBBN	e P	Z	19:57:38.1	77.8	27.6					
TANN	e P	Z	19:57:39.3	78.0	30.5					
MOX	e P	Z	19:57:39.8	78.1	30.0					
GEC2	e P	Z	19:57:44.3	78.9	31.2					
WET	e P	Z	19:57:45.0	78.9	30.7	0.9	7	4.7		
GRA1	e P	Z	19:57:45.6	79.0	29.6	0.8	13	5.0		



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FUR	e P	Z	19:57:52.8	80.3	29.5
BFO	e P	Z	19:57:56.2	81.1	27.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/22	20:38:40.8	35.600N	130.077E	33.0N	5.2	4.6		SZGRF
2003/03/22	20:38:39.6	34.954N	124.396E	10G	4.9	4.6		NEIC

Sea of Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:50:42.1	76.8	50.7	1.4	32	5.2		
	e	20:50:46.9							
	e L	Z 21:28:49.6			20.2	315		4.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/22	21:26:57.9	16.822S	173.544W	87D	4.5			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e PKP	Z 21:46:28.3	144.5	2.1					
CLZ	e PKP	Z 21:46:26.7	144.8	6.5					
CLL	e PKP	Z 21:46:27.5	145.1	11.0					
BUG	e PKP	Z 21:46:27.9	145.4	1.4					
BRG	e PKP	Z 21:46:28.2	145.4	12.7					
MOX	e PKP	Z 21:46:29.9	145.9	8.8					
TANN	e PKP	Z 21:46:30.5	146.1	10.3					
TNS	e PKP	Z 21:46:32.0	146.6	3.5					
GRA1	e PKP	Z 21:46:33.5	146.9	8.4					
	e	21:46:58.8							
WLF	e PKP	Z 21:46:34.1	147.2	359.5					
FUR	e PKP	Z 21:46:38.3	148.4	8.8					
BFO	e PKP	Z 21:46:37.5	148.5	3.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/23	13:52:17.8	40.830N	62.803E	33.0N	4.8			SZGRF
2003/03/23	13:51:31.9	37.776N	68.007E	33N	4.5			NEIC

Northwestern Uzbekistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:59:21.3	41.6	84.3	1.8	40	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/23

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:13:24.8			2.3	70			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/23	18:10: 6.0	7.927S	9.260E	33.0N	4.9			SZGRF
2003/03/23	18:09:22.0	13.838S	14.015E	10G	4.8	4.0		NEIC

South Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:19:53.3	63.6	177.0	1.3	15	4.9		
	e	18:20:09.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/23								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 19:14:33.1							
BSEG	e PKP	Z 19:14:28.3							
CLL	e PKP	Z 19:14:32.7							
CLZ	e PKP	Z 19:14:33.1							
GRA1	e PKP	Z 19:14:37.6							
IBBN	e PKP	Z 19:14:33.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/23	22:34: 3.7	36.602N	91.601E	33.0N	4.9			SZGRF
2003/03/23	22:34:52.8	41.417N	81.653E	33N	4.4			NEIC

Qinghai, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:43:48.0	48.2	71.5	0.9	12	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/24	01:46:33.3	30.846N	139.543E	33.0N	5.2			SZGRF
2003/03/24	01:47:13.6	30.010N	138.706E	435D	5.1			NEIC

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 01:59:04.0	85.0	42.9	1.2	16	5.1		
BRG	e P	Z 01:59:07.0	85.6	45.5	1.0	12	5.0		

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CLL	i P	- Z	01:59:07.3	85.7	44.8	1.1	19	5.1
	i pP	Z	02:00:50.1					
CLZ	e P	Z	01:59:11.1	86.5	42.9	1.2	14	4.9
GEC2	e P	Z	01:59:14.1	87.2	45.2	0.9	8	4.8
GRA1	e P	Z	01:59:17.2	87.7	43.4	1.1	25	5.4
BUG	e P	Z	01:59:18.4	88.1	40.5	1.0	10	5.1
FUR	e P	Z	01:59:22.2	88.8	43.5	0.9	39	5.7
STU	e P	Z	01:59:24.1	89.3	41.9	0.8	22	5.4
WLF	e P	Z	01:59:27.5	89.9	39.6	1.4	30	5.3
BFO	e P	Z	01:59:27.2	90.0	41.3	1.1	23	5.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/24	07:22:53.0	54.695N	161.397W	33.0N	5.1			SZGRF
2003/03/24	07:22:48.6	54.552N	161.465W	37D	4.7	4.0		NEIC

Alaska Peninsula, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:34:34.0	75.6	355.6	0.6	10	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/25	02:53:24.1	8.876S	120.282E	33.0N		6.2		SZGRF
2003/03/25	02:53:25.2	8.231S	120.803E	33N	6.1	6.1		NEIC

Flores, Indonesia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 03:07:47.7	107.7	82.0					
	e PKiKP	Z 03:11:47.8							
	e PP	Z 03:12:17.5							
	e PPP	Z 03:14:25.4							
	e SKSac	R 03:18:23.9							
	e Sdiff	T 03:19:36.5							
	e PS	R 03:21:31.6							
	e PPS	R 03:22:41.1							
	e PKKPbc	Z 03:23:06.5							
	e PKKPab	Z 03:23:20.5							
	e PcPPKP	Z 03:27:14.3							
	e SS	T 03:27:18.5							
	e SSS	T 03:31:23.5							
	e LR	Z 03:48:00.5							
	e L	Z 04:04:40.7			22.0	8136		6.2	
GRA1	e Pdiff	Z 03:07:56.2	108.9	80.2					
	e PP	Z 03:12:18.7							
	e PPP	Z 03:14:29.2							
	e SKSac	E 03:18:23.8							
	e Sdiff	N 03:19:52.3							

e SP	Z	03:21:55.1								
e PKKPbc	Z	03:23:03.7								
e PKKPab	Z	03:23:16.2								
e PKKPdf	Z	03:23:28.5								
e SS	N	03:27:25.5								
e L	Z	04:02:34.1			21.8		7510		6.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/25	13:24:25.5	51.117N	157.882E	38.5		4.6		SZGRF
2003/03/25	13:24:23.1	52.028N	160.576E	37D	4.9	4.6		NEIC

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 13:35:52.6	73.7	22.2	1.1	30	5.2		
	e pP	Z 13:36:03.6							
	e PP	Z 13:38:28.1							
	e S	Z 13:45:18.7							
	e (SS)	Z 13:50:43.8							
	e L	Z 14:10:16.3			18.0	364		4.7	
GRA1	i P	+ Z 13:36:04.7	75.0	18.9					
	e pP	Z 13:36:15.8							
	e S	E 13:45:45.3							
	e L	Z 14:09:24.8			19.5	280		4.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/25								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 15:02:35.4							
	e	15:02:46.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/25	18:51:12.6	25.293N	90.688E	33.0N	5.5	4.9		SZGRF
2003/03/25	18:51:24.5	27.277N	89.215E	33N	5.0	4.8		NEIC

India-Bangladesh border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:01:45.6	62.0	79.9	1.4	42	5.5		
	e L	Z 19:30:11.2			21.7	909		4.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/25

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 20:20:00.1							
	e	20:20:10.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/25	20:47:9.8	38.968N	80.077E	33.0N	5.0			SZGRF
2003/03/25	20:47:18.5	39.541N	77.497E	10G	4.1			NEIC

Southern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:55:50.7	46.7	76.1	1.0	16	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/25	23:13:56.1	20.768S	168.469E	34D	5.2	4.7		NEIC

Loyalty Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 23:33:27.2	143.9	43.0					
CLL	i PKP	- Z 23:33:27.1	144.0	41.3	1.1	24			
	i pPKP	Z 23:33:37.9							
CLZ	e PKP	Z 23:33:29.8	144.6	37.0					
TANN	e PKP	Z 23:33:30.8	144.8	41.3					
WERD	e PKP	Z 23:33:30.9	144.9	41.1					
GUNZ	e PKP	Z 23:33:31.2	144.9	41.2					
MOX	e PKP	Z 23:33:31.1	145.0	39.9					
IBBN	e PKP	Z 23:33:31.3	145.1	32.7					
GEC2	e PKP	Z 23:33:32.7	145.4	44.7					
WET	e PKP	Z 23:33:33.4	145.6	43.2					
GRA1	e PKP	Z 23:33:34.2	145.9	40.2					
	e	23:33:44.8							
BUG	e PKP	Z 23:33:34.1	146.0	32.6					
TNS	e PKP	Z 23:33:36.2	146.6	35.5					
FUR	e PKP	Z 23:33:37.6	147.0	41.8					
STU	e PKP	Z 23:33:38.5	147.5	38.0					
WLF	e PKP	Z 23:33:40.1	147.9	32.3					
BFO	e PKP	Z 23:33:40.1	148.2	37.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/26	02:36:38.6	4.129S	153.009E	33N	4.9			NEIC

New Ireland region, P.N.G.

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	02:55:37.0	124.2	48.2					
	e		02:55:59.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/26	04:22:29.6	12.100N	92.150E	33.0N	5.9	5.2		SZGRF
2003/03/26	04:22:29.9	12.520N	92.635E	33N	5.8	5.3		NEIC

Andaman Islands, India, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	04:33:58.7	73.2	90.7	1.2	135	5.9		
RUE	e P	Z	04:33:59.2	73.3	91.1	0.9	275	6.4		
GEC2	e P	Z	04:33:59.5	73.3	89.9	0.9	110	6.0		
RGN	e P	Z	04:34:01.4	73.6	91.3	1.5	294	6.1		
CLL	i P	- Z	04:34:03.2	73.8	90.1	1.2	118	5.8		
	e pP	Z	04:34:14.7							
	e PP	Z	04:37:05.5							
	e PPP	Z	04:38:36.9							
	e S	T	04:43:31.6							
	e sS	T	04:43:51.3							
	e SS	T	04:48:42.5							
	e SSS	T	04:51:54.6							
	e L	Z	05:11:05.7			20.0	2327		5.5	
WET	e P	Z	04:34:02.7	73.9	89.4	1.3	117	5.8		
TANN	e P	Z	04:34:04.2	74.1	89.4	1.3	86	5.6		
GUNZ	e P	Z	04:34:04.8	74.2	89.3	1.3	136	5.8		
WERD	e P	Z	04:34:04.6	74.2	89.3	1.1	86	5.7		
MOX	e P	Z	04:34:07.2	74.7	88.8	1.7	225	5.9		
GRA1	e P	Z	04:34:09.4	75.0	88.3	1.5	213	6.0		
	e		04:34:22.1							
	e PP	Z	04:37:16.3							
	e S	T	04:44:13.5							
	e L	Z	05:18:39.9			20.0	1127		5.2	
FUR	e P	Z	04:34:08.5	75.0	87.9	1.4	167	5.9		
CLZ	e P	Z	04:34:11.5	75.4	88.2	0.8	134	6.1		
NRDL	e P	Z	04:34:12.8	75.6	88.1	1.5	250	6.1		
STU	e P	Z	04:34:16.3	76.3	86.5	0.9	58	5.7		
TNS	e P	Z	04:34:18.9	76.7	86.3	1.0	55	5.7		
BFO	e P	Z	04:34:19.4	76.9	85.8	1.4	78	5.6		
IBBN	e P	Z	04:34:20.6	77.0	86.3	0.9	194	6.2		
BUG	e P	Z	04:34:22.5	77.4	85.7	1.5	206	6.0		
WLF	e P	Z	04:34:27.8	78.2	84.5	2.1	349	6.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/26	06:30:17.2	73.075N	6.061W	33.0N	5.0			SZGRF

./2003/bul0303.txt

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2003/03/26 06:30:26.5  
Greenland Sea

71.642N

3.671W

10G

4.3

NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLZ	e P	Z	06:35:08.8	20.8	347.5	1.1	10	4.9		
TNS	e P	Z	06:35:23.0	22.1	349.9	0.8	10	5.0		
GRA1	e P	Z	06:35:33.3	23.0	348.0	1.2	25	5.1		
WET	e P	Z	06:35:41.5	23.7	347.1	1.3	11	4.8		
BFO	e P	Z	06:35:43.3	24.0	350.7	1.5	31	5.2		
GEC2	e P	Z	06:35:44.5	24.2	346.7	1.0	8	4.8		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/26 13:21:14.9 7.183S 155.692E 33N 5.3 5.5 NEIC  
 Bougainville - Solomon Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML							
CLL	i PKPdf	+ Z	13:40:16.2	126.3	48.3	0.7	24										
	e pPKPdf	Z	13:40:24.8														
	e PP	Z	13:42:14.7														
	e PPP	Z	13:44:53.9														
	e PS	Z	13:52:14.4														
	e PPS	Z	13:53:44.4														
	e SS	T	13:59:24.2														
	e L	Z	14:37:58.4														
	CLZ	e PKP	Z								13:40:18.9	127.0	45.0				
	GEC2	e PKP	Z								13:40:18.7	127.5	50.4				
WET	e PKP	Z	13:40:20.1	127.7	49.3												
GRA1	e PKP	Z	13:40:19.8	128.1	47.2												
	e PP	Z	13:42:27.8														
	e L	Z	14:37:59.7			21.8	546		5.2								
TNS	e PKP	Z	13:40:22.5	129.0	43.7												
BFO	e PKP	Z	13:40:24.7	130.5	44.7												

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/26

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	23:11:35.0							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/26 23:02:50.8 51.967N 176.541E 33.0N 5.0 SZGRF  
 2003/03/26 23:02:26.0 51.992N 178.531E 103D 5.1 NEIC  
 Rat Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:14:44.0	77.7	8.0	1.7	21	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:21:32.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	01:10:22.0	37.520N	143.860E	33.0N	4.8			SZGRF
2003/03/27	01:10:38.7	40.297N	142.277E	50D	4.6			NEIC

Near the East Coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 01:22:24.1	78.9	38.0	1.0	36	5.4		
BSEG	e P	Z 01:22:31.2	80.5	35.8	1.1	10	4.7		
CLL	e P	Z 01:22:36.2	81.6	37.4	0.8	6	4.6		
BRG	e P	Z 01:22:36.4	81.6	38.1	0.9	4	4.3		
CLZ	e P	Z 01:22:40.2	82.2	35.6	0.9	6	4.5		
WERD	e P	Z 01:22:42.2	82.5	36.3	2.5	28	4.9		
MOX	e P	Z 01:22:42.6	82.7	36.4	1.3	6	4.5		
BUG	e P	Z 01:22:47.2	83.6	33.4	1.5	23	5.1		
GRA1	e P	Z 01:22:47.3	83.6	36.1	1.1	16	5.0		
GRFO	e P	Z 01:22:47.6	83.6	36.1	1.2	14	5.0		
GEC2	e P	Z 01:22:45.9	83.3	37.7	1.0	4	4.4		
WET	e P	Z 01:22:47.3	83.4	37.2	1.2	8	4.7		
TNS	e P	Z 01:22:50.7	84.2	34.1	1.2	6	4.6		
STU	e P	Z 01:22:55.5	85.1	34.6	0.8	12	5.1		
FUR	e P	Z 01:22:54.4	84.8	36.0	0.9	18	5.3		
BFO	e P	Z 01:22:58.8	85.8	34.0	0.9	4	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	04:35:36.2	39.895N	20.077E	10.0G				SZGRF
2003/03/27	04:35:40.4	40.410N	19.710E	15	4.1			NEIC

Greece-Albania border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 04:37:59.3	9.4	151.0					
	e Sn	N 04:39:46.0							
BFO	e Pn	Z 04:38:26.5	11.3	130.1					
	e Sn	N 04:40:31.5							



MOX	e Pn	Z	04:38:30.5	11.7	148.0
TNS	e Pn	Z	04:38:39.8	12.6	136.9
	e Sn	N	04:40:58.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	06:37:06.1	23.818S	179.061e	600G	4.3			NEIC

South of the Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 06:55:47.1							
	i PKPbc	+ Z 06:55:52.3			0.7	20			
	e PKPab	Z 06:56:01.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	07:44:41.2	19.721N	101.299W	33.0N	5.4			SZGRF
2003/03/27	07:44:19.6	18.135N	101.421W	33N	4.8			NEIC

Michoacan, Mexico

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 07:57:18.9	87.5	297.9					
TNS	e P	Z 07:57:21.9	88.1	296.6					
CLZ	e P	Z 07:57:23.9	88.5	298.0					
BFO	e P	Z 07:57:25.1	88.9	296.5					
GRA1	e P	Z 07:57:31.3	90.0	298.7	1.4	25	5.4		
WET	e P	Z 07:57:36.5	91.2	300.0					
GEC2	e P	Z 07:57:39.4	91.8	300.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	10:01:06.0	7.196S	155.759E	33N	4.9			NEIC

Bougainville - Solomon Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 10:20:10.2	128.2	47.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	12:35:58.3	7.199S	155.748E	33N	5.2	4.5		NEIC

Solomon Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPdf	- Z 12:54:59.9	126.3	48.2	1.0	21			
GRA1	e PKP	Z 12:55:03.9	128.2	47.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	14:55:17.6	43.130N	15.119E	10.0G				SZGRF
2003/03/27	14:55:15.0	43.106N	15.182E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 14:56:42.9	5.8	169.3					
	e Sn	N 14:57:47.4							
WET	e Pn	Z 14:56:48.5	6.2	164.3					
	e Sn	N 14:57:57.8							
GRA1	e Sn	N 14:58:17.6	7.1	156.0					
GUNZ	e Pn	Z 14:57:06.2	7.5	163.9					
TANN	e Pn	Z 14:57:06.5	7.5	164.7					
WERD	e Pn	Z 14:57:07.4	7.6	163.9					
BRG	e Pn	Z 14:57:09.1	7.8	173.3					
MOX	e Pn	Z 14:57:11.1	7.9	160.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	16:10:38.3	43.141N	15.498E	10.0G				SZGRF
2003/03/27	16:10:36.4	43.160N	15.380E	10G	4.6			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e Pn	Z 16:12:04.4	5.8	148.7					
GEC2	e Pn	Z 16:12:04.3	5.8	167.8					
	e Sn	N 16:13:10.3							
WET	e Pn	Z 16:12:10.0	6.2	162.9					
	e Sn	E 16:13:18.9							
GRA1	e Pn	Z 16:12:21.8	7.1	154.8					
BFO	e Pn	Z 16:12:21.9	7.1	133.8					
GUNZ	e Pn	Z 16:12:27.7	7.5	162.7					
TANN	e Pn	Z 16:12:27.7	7.5	163.5					
WERD	e Pn	Z 16:12:29.0	7.6	162.8					
BRG	e Pn	Z 16:12:30.7	7.8	172.2					
MOX	e Pn	Z 16:12:32.2	7.9	159.6					
	e Sn	N 16:13:58.9							
CLL	e Pn	Z 16:12:38.1	8.3	167.9					
TNS	e Pn	Z 16:12:40.8	8.5	143.5					
WLF	e Pn	Z 16:12:51.1	9.1	132.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	16:20:37.1	43.162N	15.150E	10.0G				SZGRF

Adriatic Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	16:22:01.9	5.8	169.4					
	e Sn	N	16:23:07.1							
WET	e Pn	Z	16:22:07.5	6.2	164.4					
	e Sn	N	16:23:16.0							
BFO	e Pn	Z	16:22:19.8	7.0	134.9					
GRA1	e Sn	E	16:23:36.8	7.1	156.0					
GUNZ	e Pn	Z	16:22:25.1	7.5	164.0					
TANN	e Pn	Z	16:22:25.1	7.5	164.8					
	e Sn	N	16:23:47.8							
WERD	e Pn	Z	16:22:26.5	7.5	164.0					
BRG	e Pn	Z	16:22:28.3	7.8	173.5					
MOX	e Pn	Z	16:22:29.7	7.9	160.8					
	e Sn	N	16:23:54.8							
CLL	e Pn	Z	16:22:36.8	8.3	169.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	20:43: 6.4	19.997N	67.057W	33.0N	4.7			SZGRF
2003/03/27	20:43:11.6	20.191N	64.565W	10G	4.6			NEIC

Mona Passage

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	20:53:58.9	65.7	273.0	1.6	11	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/27	21:27: 5.1	43.080N	14.926E	10.0G				SZGRF

Adriatic Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	21:28:30.6	5.8	171.2					
	e Sn	N	21:29:35.5							
WET	e Pn	Z	21:28:36.1	6.2	166.1					
	e Sn	E	21:29:45.2							
BFO	e Sn	N	21:30:03.2	7.0	136.3					
GUNZ	e Pn	Z	21:28:53.8	7.5	165.3					
TANN	e Pn	Z	21:28:54.5	7.5	166.1					
WERD	e Pn	Z	21:28:54.8	7.6	165.3					
MOX	e Pn	Z	21:28:58.4	7.9	162.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/28	03:21:13.6	32.283S	15.105W	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 03:33:47.4	85.2	202.1	1.3	11	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/28	17:31:47.7	15.283S	173.538W	41D	5.9	5.9		NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPdf	Z 17:51:16.7	143.7	10.7	0.9	17			
	e pPKPdf	Z 17:51:33.4							
	e	17:51:42.9							
	e PP	Z 17:54:44.8							
	e SKPbc	Z 17:54:52.1							
	e PPP	Z 17:57:48.3							
	e SKKSac	R 18:01:20.5							
	e SKSP	R 18:04:40.0							
	e PPS	Z 18:07:16.6							
	e SS	T 18:13:12.0							
	e SSS	T 18:18:32.5							
	e LR	Z 18:39:15.0							
	e L	Z 18:50:07.6			22.0	3056		6.0	
MOX	e PKPbc	Z 17:51:20.2	144.4	8.6					
	e pPKPbc	Z 17:51:33.5							
WERD	e PKPbc	Z 17:51:20.7	144.5	9.7					
	e pPKPbc	Z 17:51:34.1							
TANN	e PKPbc	Z 17:51:20.9	144.5	10.0					
	e pPKPbc	Z 17:51:34.2							
GUNZ	e PKPbc	Z 17:51:21.0	144.6	9.8					
	e pPKPbc	Z 17:51:34.5							
TNS	e PKPbc	Z 17:51:21.9	145.0	3.3					
	e pPKPbc	Z 17:51:35.8							
GRA1	e PKPbc	Z 17:51:23.8	145.4	8.1					
	e pPKPbc	Z 17:51:37.4							
	e sPKPbc	Z 17:51:42.5							
	e	17:51:48.2							
	e PP	Z 17:54:53.6							
	e SKKSdf	N 18:07:33.7							
	e SS	E 18:13:46.0							
	e SSS	E 18:19:12.6							
	e L	Z 18:54:51.9			21.8	2792		6.0	
WLF	e PKPbc	Z 17:51:24.4	145.6	359.5					
	e pPKPbc	Z 17:51:38.6							
WET	e PKPbc	Z 17:51:24.4	145.7	11.0					
	e pPKPbc	Z 17:51:38.6							
GEC2	e PKPbc	Z 17:51:25.1	145.9	12.5					

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	e pPKPbc	Z	17:51:38.9									
STU	e PKPbc	Z	17:51:26.6	146.4	4.8							
	e pPKPbc	Z	17:51:40.8									
FUR	e PKPbc	Z	17:51:28.1	146.9	8.5							
	e pPKPbc	Z	17:51:41.8									
BFO	e PKPbc	Z	17:51:28.0	146.9	3.3							
	e pPKPbc	Z	17:51:42.4									

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 20:40:27.0							
	e	20:40:37.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/28								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:47:10.1							
	e	23:47:19.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	02:28:54.7	18.309S	178.818W	500G	4.3			NEIC

Fiji Islands Region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKP	Z 02:47:31.9	143.7	14.7					
IBBN	e PKP	Z 02:47:38.2	145.6	11.1					
CLZ	e PKP	Z 02:47:38.6	145.7	15.6					
CLL	e PKP	Z 02:47:38.3	145.7	20.2					
BRG	e PKP	Z 02:47:39.1	145.9	22.0					
MOX	e PKP	Z 02:47:40.6	146.6	18.2					
TANN	e PKP	Z 02:47:41.3	146.7	19.7					
TNS	e PKP	Z 02:47:43.5	147.6	12.9					
GRA1	e PKP	Z 02:47:44.0	147.6	18.0					
GEC2	e PKP	Z 02:47:44.3	147.8	22.7					
WLF	e PKP	Z 02:47:46.2	148.4	9.0					
FUR	e PKP	Z 02:47:47.3	149.0	18.9					
BFO	e PKP	Z 02:47:47.9	149.4	13.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	11:46:54.8	36.700N	70.670E	119.9	5.9	5.0		SZGRF
2003/03/29	11:46:48.9	35.966N	70.606E	115D	5.9			NEIC

Hindu Kush, Afghanistan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	11:54:36.2	42.6	87.8	0.8	207	5.9		
RUE	e P	Z	11:54:36.3	42.6	89.5	0.9	181	5.8		
	e PP	Z	11:56:16.4							
GEC2	e P	Z	11:54:38.4	42.9	85.5	1.3	133	5.5		
	e PP	Z	11:56:20.3							
RGN	e P	Z	11:54:38.4	42.9	91.3	1.0	718	6.4		
	e pP	Z	11:55:04.6							
CLL	i P	+ Z	11:54:40.6	43.2	87.6	0.9	116	5.6		
	e pP	Z	11:55:07.0							
	e sP	Z	11:55:18.9							
	e PP	Z	11:56:24.9							
	e sPP	Z	11:56:58.3							
	e S	T	12:00:59.2							
	e SS	Z	12:04:26.8							
	e LR	Z	12:07:29.7							
	e L	Z	12:17:04.4			18.0	1926		5.0	
WET	e P	Z	11:54:42.9	43.4	85.2	1.7	99	5.3		
TANN	e P	Z	11:54:44.5	43.5	86.3	1.3	133	5.5		
GUNZ	e P	Z	11:54:44.9	43.6	86.1	1.2	140	5.6		
WERD	e P	Z	11:54:44.9	43.6	86.2	1.0	100	5.5		
MOX	e P	Z	11:54:48.3	44.1	85.9	1.0	121	5.6		
GRA1	e P	Z	11:54:51.6	44.4	84.6	1.5	556	6.1		
	e pP	Z	11:55:19.8							
	e PP	Z	11:56:36.2							
	e S	T	12:01:18.8							
	e SS	T	12:04:32.8							
	e LR	Z	12:07:54.3							
	e L	Z	12:16:48.8			18.9	1586		5.0	
FUR	e P	Z	11:54:52.3	44.5	83.1	1.8	824	6.2		
BSEG	e P	Z	11:54:53.2	44.7	88.2	1.0	181	5.8		
CLZ	e P	Z	11:54:54.0	44.8	86.2	1.4	348	5.9		
STU	e P	Z	11:55:02.4	45.8	82.3	0.9	152	6.0		
HLG	e P	Z	11:55:04.6	46.1	86.6	1.2	312	6.2		
TNS	e P	Z	11:55:04.2	46.1	83.2	1.1	112	5.8		
IBBN	e P	Z	11:55:06.2	46.3	84.7	1.1	384	6.3		
	e pP	Z	11:55:33.7							
BFO	e P	Z	11:55:06.4	46.4	81.3	1.2	160	5.9		
BUG	e P	Z	11:55:09.3	46.7	83.5	1.1	242	6.1		
WLF	e P	Z	11:55:17.1	47.7	81.1	1.1	371	6.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/29 17:18:47.3 52.583N 175.054W 29.9 5.1 SZGRF  
 2003/03/29 17:18:38.6 51.856N 170.813W 33N 4.6 NEIC  
 Andreanof Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:30:40.9	78.4	1.3	1.8	32	5.1		
	e pP	Z 17:30:49.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	17:42:17.3	43.152N	15.221E	10.0G		4.6		SZGRF
2003/03/29	17:42:17.9	43.262N	15.494E	33N	5.5	5.2		NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FUR	e Pn	Z 17:43:42.1	5.7	147.5					
	e L	Z 17:46:16.2			18.4	16071		4.5	
GEC2	e Pn	Z 17:43:42.8	5.7	166.8					
	e Sn	Z 17:44:47.7							
	e Sn	E 17:44:48.4							
	e L	Z 17:46:08.2			18.2	34527		4.8	
WET	e Pn	Z 17:43:48.3	6.2	161.9					
	e Sn	Z 17:44:57.2							
	e L	Z 17:46:39.8			20.6	15564		4.5	
STU	e Pn	Z 17:43:59.0	7.0	139.2					
GRA1	e Pn	Z 17:43:59.8	7.1	153.8					
	e L	Z 17:46:49.5			21.8	7461		4.2	
BFO	e Pn	Z 17:43:59.9	7.1	132.8					
BRG	e Pn	Z 17:44:08.9	7.7	171.5					
	e L	Z 17:47:19.6			18.8	33461		5.0	
MOX	e Pn	Z 17:44:10.4	7.8	158.8					
	e Sn	Z 17:45:37.1							
CLL	e Pn	Z 17:44:16.3	8.2	167.2					
	e L	Z 17:47:36.6			18.4	26443		5.0	
TNS	e Pn	Z 17:44:18.9	8.5	142.6					
	e L	Z 17:47:51.2			19.8	5905		4.3	
CLZ	e Pn	Z 17:44:30.0	9.2	156.1					
	e L	Z 17:48:08.6			21.8	7344		4.4	
BUG	e Pn	Z 17:44:38.6	9.9	142.6					
BSEG	e Pn	Z 17:44:56.9	11.2	160.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pn	Z 18:41:00.4							

GEC2	e Pn	Z	18:40:25.9
GRA1	e Pn	Z	18:40:44.3
MOX	e Pn	Z	18:40:53.4
TANN	e Pn	Z	18:40:49.6
WERD	e Pn	Z	18:40:49.5
WET	e Pn	Z	18:40:31.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	18:40:16.5	43.106N	15.416E	10.0G				SZGRF
2003/03/29	18:40:14.3	43.169N	15.225E	10G	5.3			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 18:41:43.0	5.8	168.9					
	e Sn	Z 18:42:48.4							
WET	e Pn	Z 18:41:48.5	6.2	163.9					
	e Sn	Z 18:42:58.5							
BFO	e Pn	Z 18:42:01.2	7.1	134.5					
	e Sn	Z 18:43:19.7							
GRA1	e Pn	Z 18:42:00.0	7.1	155.6					
GUNZ	e Pn	Z 18:42:06.5	7.5	163.5					
TANN	e Pn	Z 18:42:06.3	7.5	164.3					
WERD	e Pn	Z 18:42:07.3	7.5	163.6					
BRG	e Pn	Z 18:42:08.5	7.8	173.1					
MOX	e Pn	Z 18:42:10.8	7.9	160.4					
	e Sn	Z 18:43:37.0							
CLL	e Pn	Z 18:42:17.3	8.3	168.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	19:13:47.8	43.149N	15.387E	10.0G		3.0		SZGRF
2003/03/29	19:13:43.9	43.030N	15.234E	10G	4.3			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 19:15:13.5	5.9	169.1					
	e Sn	Z 19:16:18.3							
WET	e Pn	Z 19:15:19.1	6.3	164.2					
	e Sn	Z 19:16:28.0							
BFO	e Pn	Z 19:15:31.0	7.2	135.2					
	e Sn	Z 19:16:49.7							
GRA1	e Pn	Z 19:15:30.8	7.2	156.0					
GUNZ	e Pn	Z 19:15:37.2	7.6	163.7					
TANN	e Pn	Z 19:15:36.4	7.6	164.5					
WERD	e Pn	Z 19:15:37.3	7.7	163.8					
BRG	e Pn	Z 19:15:39.9	7.9	173.1					



	e L	Z	19:18:57.9			14.3	257	3.0
MOX	e Pn	Z	19:15:41.3	8.0	160.7			
	e L	Z	19:19:02.6			14.1	265	3.1
CLL	e Pn	Z	19:15:47.7	8.4	168.8			
TNS	e Pn	Z	19:15:51.8	8.6	144.5			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	19:20:38.7	43.140N	15.121E	10.0G				SZGRF
2003/03/29	19:20:34.6	43.104N	15.239E	10G	3.7			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 19:22:03.7	5.8	168.9					
	e Sn	Z 19:23:08.1							
WET	e Pn	Z 19:22:09.1	6.3	164.0					
	e Sn	Z 19:23:18.3							
BFO	e Pn	Z 19:22:20.6	7.1	134.8					
GRA1	e Pn	Z 19:22:22.4	7.1	155.7					
GUNZ	e Pn	Z 19:22:27.2	7.5	163.6					
TANN	e Pn	Z 19:22:27.1	7.6	164.4					
WERD	e Pn	Z 19:22:28.4	7.6	163.6					
MOX	e Pn	Z 19:22:31.2	7.9	160.5					
CLL	e Pn	Z 19:22:38.1	8.3	168.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	19:56:19.0	43.188N	15.444E	10.0G		3.0		SZGRF
2003/03/29	19:56:15.9	43.095N	15.244E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 19:57:44.3	5.8	168.9					
	e Sn	Z 19:58:49.0							
	e L	Z 20:00:16.2			14.9	298		2.9	
WET	e Pn	Z 19:57:49.6	6.3	164.0					
	e Sn	Z 19:58:59.1							
BFO	e Pn	Z 19:58:03.3	7.1	134.8					
GRA1	e Pn	Z 19:58:02.5	7.2	155.7					
	e Sn	Z 19:59:18.7							
GUNZ	e Pn	Z 19:58:07.8	7.5	163.6					
TANN	e Pn	Z 19:58:07.6	7.6	164.4					
	e L	Z 20:01:22.4			14.0	224		3.0	
WERD	e Pn	Z 19:58:08.8	7.6	163.6					
BRG	e Pn	Z 19:58:10.0	7.8	173.0					
MOX	e Pn	Z 19:58:12.5	7.9	160.5					
	e Sn	Z 19:59:39.6							

CLL e Pn Z 19:58:18.0 8.4 168.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	19:58:15.0	25.494S	179.558W	33.0N				SZGRF
2003/03/29	19:59:19.1	25.303S	179.429E	525D	5.0			NEIC

South of Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 20:18:07.9	152.0	26.9	1.5	15			
	i PKPbc	Z 20:18:15.1			1.0	64			
	i PKPab	Z 20:18:27.1			0.7	36			
BRG	e pPKPbc	Z 20:20:15.4							
	e PKPdf	Z 20:18:08.2	152.1	29.0					
	e PKPbc	Z 20:18:15.3							
CLZ	e PKPab	Z 20:18:27.8							
	e PKPdf	Z 20:18:08.4	152.2	21.6					
	e PKPbc	Z 20:18:15.6							
IBBN	e PKPab	Z 20:18:28.0							
	e PKPbc	Z 20:18:15.9	152.3	16.3					
	e PKPab	Z 20:18:28.0							
TANN	e PKPdf	Z 20:18:09.2	153.0	26.6					
	e PKPab	Z 20:18:31.2							
MOX	e PKPdf	Z 20:18:09.2	153.0	24.8					
	e PKPab	Z 20:18:31.1							
GEC2	e PKPdf	Z 20:18:10.8	153.9	30.5					
	e PKPab	Z 20:18:35.7							
GRA1	e PKPdf	Z 20:18:10.7	154.0	24.9					
	e PKPab	Z 20:18:35.7							
WET	e PKPdf	Z 20:18:10.7	154.0	28.6					
	e PKPab	Z 20:18:35.9							
TNS	e PKPdf	Z 20:18:10.7	154.1	18.9					
	e PKPab	Z 20:18:35.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	20:21:14.1	20.030S	178.206W	600G	4.1			NEIC

Fiji Islands Region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 20:39:58.7	149.4	17.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	20:58:16.2	43.232N	15.230E	10.0G				SZGRF
2003/03/29	20:58:10.5	43.070N	15.260E	10G	3.5			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 20:59:40.0	5.9	168.8					
	e Sn	Z 21:00:44.6							
WET	e Pn	Z 20:59:45.9	6.3	163.9					
	e Sn	Z 21:00:53.4							
GRA1	e Pn	Z 20:59:58.8	7.2	155.7					
TANN	e Pn	Z 21:00:03.6	7.6	164.3					
WERD	e Pn	Z 21:00:05.3	7.6	163.6					
MOX	e Pn	Z 21:00:08.2	8.0	160.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	21:45:31.9			G				SZGRF

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 21:45:31.9							
	e Sn	Z 21:46:37.0							
WET	e Pn	Z 21:45:37.4							
	e Sn	Z 21:46:46.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	22:39:46.0	43.062N	14.967E	10.0G				SZGRF
2003/03/29	22:39:39.9	42.767N	14.816E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:41:11.8	6.1	172.3					
	e Sn	N 22:42:17.1							
WET	e Pn	Z 22:41:17.5	6.5	167.4					
	e Sn	N 22:42:27.0							
WERD	e Pn	Z 22:41:35.7	7.9	166.4					
MOX	e Pn	Z 22:41:40.6	8.2	163.2					
	e Sn	N 22:43:05.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:46:57.7							
	e Sn	E 22:48:01.6							
WET	e Pn	Z 22:47:02.8							

e Sn E 22:48:11.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/29	22:51:29.0	43.088N	14.646E	10.0G				SZGRF
2003/03/29	22:51:24.4	43.053N	15.267E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:52:53.9	5.9	168.8					
	e Sn	N 22:53:59.1							
WET	e Pn	Z 22:52:59.4	6.3	163.9					
	e Sn	E 22:54:07.2							
TANN	e Pn	Z 22:53:17.6	7.6	164.3					
WERD	e Pn	Z 22:53:18.2	7.7	163.6					
MOX	e Pn	Z 22:53:21.8	8.0	160.4					
	e Sn	N 22:54:47.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	N 00:35:09.7							
	e Sn	N 00:36:15.6							
WET	e Pn	Z 00:35:15.1							
	e Sn	N 00:36:24.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	00:56:25.1	43.060N	15.270E	10.0G		3.6		SZGRF
2003/03/30	00:56:23.0	43.119N	15.158E	10G	4.3			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 00:57:51.9	5.8	169.4					
	e Sn	Z 00:58:56.9							
WET	e Pn	Z 00:57:57.4	6.2	164.5					
	e Sn	Z 00:59:06.9							
BFO	e Pn	Z 00:58:08.7	7.1	135.1					
	e Sn	Z 00:59:27.5							
GRA1	e Pn	Z 00:58:09.0	7.1	156.1					
	e L	Z 01:01:14.5			15.1	535		3.3	
GUNZ	e Pn	Z 00:58:14.9	7.5	164.0					
TANN	e Pn	Z 00:58:15.1	7.5	164.8					
	e L	Z 01:01:28.5			14.1	1207		3.7	

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WERD	e Pn	Z	00:58:16.0	7.6	164.0						
BRG	e Pn	Z	00:58:18.0	7.8	173.4						
	e L	Z	01:01:37.8			14.9	1208			3.7	
MOX	e Pn	Z	00:58:19.4	7.9	160.9						
CLL	e Pn	Z	00:58:26.0	8.3	169.1						
	e L	Z	01:01:54.0			16.2	966			3.6	
TNS	e Pn	Z	00:58:28.1	8.5	144.6						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	02:06:26.2	43.063N	15.149E	10G			3.4	NEIC (LDG)

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 02:07:55.2							
	e Sn	Z 02:08:59.1							
WET	e Pn	Z 02:08:00.6							
	e Sn	Z 02:09:10.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 02:37:00.9							
	e Sn	Z 02:38:05.0							
WET	e Pn	Z 02:37:06.7							
	e Sn	Z 02:38:14.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	03:08: 2.3	43.099N	15.548E	10.0G				SZGRF
2003/03/30	03:08:00.3	43.150N	15.236E	10G	3.4			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 03:09:29.0	5.8	168.8					
	e Sn	Z 03:10:34.6							
WET	e Pn	Z 03:09:34.0	6.2	163.9					
	e Sn	Z 03:10:44.2							
GRFO	e Pn	Z 03:09:47.7	7.1	155.6					
GRA1	e Pn	Z 03:09:47.8	7.1	155.6					
GUNZ	e Pn	Z 03:09:52.2	7.5	163.5					
TANN	e Pn	Z 03:09:52.3	7.5	164.3					
WERD	e Pn	Z 03:09:53.0	7.6	163.6					
MOX	e Pn	Z 03:09:56.5	7.9	160.4					

CLL	e Pn	Z	03:10:03.3	8.3	168.6
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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	03:14:23.4	42.959N	14.215E	10.0G				SZGRF
2003/03/30	03:14:21.7	43.167N	15.143E	10G	3.4			NEIC

Central Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	03:15:49.9	5.8	169.5					
	e Sn	Z	03:16:54.8							
WET	e Pn	Z	03:15:55.1	6.2	164.5					
	e Sn	Z	03:17:04.8							
GRA1	e Pn	Z	03:16:04.0	7.1	156.1					
GUNZ	e Pn	Z	03:16:12.9	7.4	164.0					
TANN	e Pn	Z	03:16:13.4	7.5	164.8					
WERD	e Pn	Z	03:16:14.0	7.5	164.0					
MOX	e Pn	Z	03:16:17.4	7.9	160.8					
CLL	e Pn	Z	03:16:23.1	8.3	169.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	03:52:40.5	43.062N	14.792E	10.0G				SZGRF
2003/03/30	03:52:37.3	43.086N	15.151E	10G				NEIC

Adriatic Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	03:54:05.8	5.8	169.6					
	e Sn	Z	03:55:11.2							
WET	e Pn	Z	03:54:11.6	6.3	164.6					
	e Sn	Z	03:55:20.4							
GRA1	e Pn	Z	03:54:23.1	7.1	156.3					
GUNZ	e Pn	Z	03:54:29.0	7.5	164.1					
TANN	e Pn	Z	03:54:29.3	7.6	164.9					
WERD	e Pn	Z	03:54:30.3	7.6	164.1					
MOX	e Pn	Z	03:54:34.1	7.9	161.0					
CLL	e Pn	Z	03:54:40.6	8.3	169.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	04:11:23.9							
	e Sn	Z	04:12:29.2							
WET	e Pn	Z	04:11:29.5							

e Sn Z 04:12:38.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	04:23:39.7	43.569N	14.576E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 04:25:00.1	5.3	173.1					
	e Sn	Z 04:26:05.2							
WET	e Pn	Z 04:25:05.6	5.7	167.5					
	e Sn	Z 04:26:15.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	04:34:42.4	43.126N	15.289E	10.0G				SZGRF
2003/03/30	04:34:39.2	43.141N	15.188E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 04:36:08.2	5.8	169.2					
	e Sn	Z 04:37:12.8							
WET	e Pn	Z 04:36:13.6	6.2	164.2					
	e Sn	Z 04:37:22.8							
GUNZ	e Pn	Z 04:36:31.4	7.5	163.8					
TANN	e Pn	Z 04:36:32.1	7.5	164.6					
WERD	e Pn	Z 04:36:32.5	7.6	163.8					
BRG	e Pn	Z 04:36:34.4	7.8	173.3					
MOX	e Pn	Z 04:36:35.7	7.9	160.7					
CLL	e Pn	Z 04:36:42.1	8.3	168.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 06:09:48.3							
	e Sn	N 06:10:53.0							
WET	e Pn	Z 06:09:53.8							
	e Sn	E 06:11:01.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	06:55:45.5	43.080N	14.786E	10.0G				SZGRF
2003/03/30	06:55:41.9	43.059N	15.210E	10G	3.5			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 06:57:10.7	5.9	169.2					
	e Sn	N 06:58:16.0							
WET	e Pn	Z 06:57:16.2	6.3	164.3					
	e Sn	N 06:58:25.2							
GRA1	e Sn	E 06:58:45.6	7.2	156.0					
GUNZ	e Pn	Z 06:57:34.1	7.6	163.8					
TANN	e Sn	E 06:58:55.8	7.6	164.6					
WERD	e Pn	Z 06:57:35.5	7.7	163.9					
MOX	e Pn	Z 06:57:38.4	8.0	160.7					
	e Sn	N 06:59:03.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e PKP	Z 10:40:05.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	11:10: 1.8	43.051N	15.271E	10.0G		4.1		SZGRF
2003/03/30	11:09:59.9	43.114N	15.223E	10G	4.5			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 11:11:28.0	5.8	169.0					
	e Sn	Z 11:12:34.2							
	e L	Z 11:14:01.1							
WET	e Pn	Z 11:11:33.7	6.2	164.1				4.1	
	e Sn	Z 11:12:44.0							
	e L	Z 11:14:16.4							
BFO	e Pn	Z 11:11:46.5	7.1	134.8				4.1	
	e Sn	Z 11:13:03.9							
GRA1	e Pn	Z 11:11:46.7	7.1	155.8				3.9	
	e L	Z 11:14:51.6							
GUNZ	e Pn	Z 11:11:51.5	7.5	163.6					
TANN	e Pn	Z 11:11:52.1	7.5	164.5					
	e L	Z 11:15:05.5							
WERD	e Pn	Z 11:11:52.7	7.6	163.7					
BRG	e L	Z 11:15:10.6	7.8	173.1	15.0	4997		4.3	
MOX	e Pn	Z 11:11:56.1	7.9	160.5				4.1	
	e L	Z 11:15:18.5							
CLL	e Pn	Z 11:12:02.7	8.3	168.7				4.2	
	e L	Z 11:15:29.2							



WLF	e L	Z	11:16:10.4	9.0	132.9	16.0	1188	3.8
CLZ	e L	Z	11:16:11.8	9.3	157.6	13.8	3353	4.3
RUE	e L	Z	11:16:10.4	9.4	173.5	15.7	3685	4.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	12:02:16.3	43.131N	15.236E	10.0G				SZGRF
2003/03/30	12:02:14.7	43.223N	15.370E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 12:03:42.1	5.7	167.8					
	e Sn	Z 12:04:47.1							
WET	e Pn	Z 12:03:47.5	6.2	162.8					
	e Sn	Z 12:04:55.7							
GUNZ	e Pn	Z 12:04:05.4	7.4	162.6					
TANN	e Pn	Z 12:04:05.2	7.5	163.5					
WERD	e Pn	Z 12:04:06.0	7.5	162.7					
BRG	e Pn	Z 12:04:07.7	7.7	172.2					
MOX	e Pn	Z 12:04:09.9	7.8	159.6					
CLL	e Pn	Z 12:04:16.1	8.2	167.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	12:16:00.8	43.150N	15.298E	10G	3.4			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 12:17:28.2	5.8	168.4					
	e Sn	Z 12:18:33.0							
WET	e Pn	Z 12:17:33.8	6.2	163.5					
	e Sn	Z 12:18:43.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 13:03:01.8							
	e Sn	Z 13:04:06.5							
WET	e Pn	Z 13:03:07.4							
	e Sn	Z 13:04:16.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/30	13:04:26.3	51.698N	155.661E	33.0N	5.8	5.6		SZGRF
2003/03/30	13:04:09.7	49.324N	156.137E	40*	5.2	5.1		NEIC

Northwest of Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	13:15:38.3	72.8	22.5	1.3	82	5.7		
RUE	e P	Z	13:15:41.1	73.3	24.6	1.2	111	5.9		
CLL	i P	+ Z	13:15:48.0	74.6	23.9	1.2	132	5.8		
	e pP	Z	13:15:58.6							
	e S	T	13:25:26.1							
	e (SS)	R	13:31:03.9							
	e SSS	T	13:33:52.6							
	e LQ	T	13:37:46.4							
	e LR	Z	13:45:07.5							
	e L	Z	13:52:57.9			18.0	3330		5.7	
CLZ	e P	Z	13:15:49.8	74.7	22.3	1.2	152	6.0		
BRG	e P	Z	13:15:49.1	74.7	24.5	1.3	55	5.5		
IBBN	e P	Z	13:15:50.3	74.9	20.7	1.3	104	5.8		
TANN	e P	Z	13:15:54.2	75.5	23.5	1.7	109	5.6		
MOX	e P	Z	13:15:54.0	75.5	23.0	1.1	69	5.6		
WERD	e P	Z	13:15:54.3	75.5	23.4	1.3	96	5.7		
GUNZ	e P	Z	13:15:54.7	75.6	23.4	1.2	75	5.6		
BUG	e P	Z	13:15:55.5	75.8	20.3	1.2	103	5.7		
GRA1	e P	Z	13:16:00.2	76.5	22.7	1.2	197	6.0		
	e L	Z	13:56:15.4			20.6	2858		5.6	
WET	e P	Z	13:16:00.6	76.6	23.6	1.2	120	5.8		
GEC2	e P	Z	13:16:00.4	76.6	24.1	1.1	49	5.4		
TNS	e P	Z	13:16:00.7	76.7	21.0	1.2	83	5.7		
STU	e P	Z	13:16:07.2	77.9	21.3	1.1	93	5.8		
FUR	e P	Z	13:16:07.8	77.9	22.6	1.4	190	6.1		
BFO	e P	Z	13:16:10.6	78.5	20.8	1.1	73	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	13:11:26.1	49.527N	156.430E	33.0N	5.3			SZGRF
2003/03/30	13:11:22.3	49.310N	156.109E	42*	4.4			NEIC

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	13:23:12.6	76.5	22.7	1.0	25	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	13:29:50.4	49.719N	155.005E	33.0N	5.1			SZGRF
2003/03/30	13:29:43.7	49.339N	156.086E	34*	4.4	5.8		NEIC

Kuril Islands, Russia

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:41:33.9	76.5	22.7	1.0	17	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	13:41:43.5	66.055N	147.740W	33.0N	4.7			SZGRF
2003/03/30	13:41:21.0	63.528N	147.894W	3	4.9			NEIC

Northern Alaska, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:52:08.4	65.6	350.0	0.9	6	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	14:08:05.6	43.122N	15.171E	10G	3.4			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 14:09:34.1	5.8	169.4					
	e Sn	Z 14:10:38.8							
WET	e Pn	Z 14:09:39.8	6.2	164.4					
	e Sn	Z 14:10:48.6							
MOX	e Pn	Z 14:10:02.3	7.9	160.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	14:40:56.7	42.995N	15.039E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 14:42:26.1	5.9	170.5					
	e Sn	Z 14:43:30.6							
WET	e Pn	Z 14:42:31.1	6.3	165.5					
	e Sn	Z 14:43:40.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 15:26:40.3							
	e Sn	Z 15:27:48.4							
WET	e Pn	Z 15:26:48.6							
	e Sn	Z 15:27:58.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	15:33:56.8			G				SZGRF
2003/03/30	15:33:55.0	43.218N	15.252E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 15:35:21.8	5.7	168.6					
	e Sn	Z 15:36:26.8							
WET	e Pn	Z 15:35:27.4	6.1	163.6					
	e Sn	Z 15:36:36.3							
GUNZ	e Pn	Z 15:35:45.2	7.4	163.3					
TANN	e Pn	Z 15:35:45.5	7.4	164.1					
WERD	e Pn	Z 15:35:46.7	7.5	163.3					
MOX	e Pn	Z 15:35:49.4	7.8	160.2					
CLL	e Pn	Z 15:35:56.5	8.2	168.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 16:13:14.1							
	e Sn	Z 16:14:19.5							
WET	e Pn	Z 16:13:19.4							
	e Sn	Z 16:14:28.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 16:49:15.0							
	e Sn	Z 16:50:20.2							
WET	e Pn	Z 16:49:20.4							
	e Sn	Z 16:50:28.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 17:01:57.2							
	e Sn	Z 17:03:02.6							
WET	e Pn	Z 17:02:03.7							

e Sn Z 17:03:12.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	17:22:44.2	43.054N	14.402E	10.0G				SZGRF
2003/03/30	17:22:41.8	43.170N	15.358E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 17:24:09.2	5.8	167.9					
	e Sn	Z 17:25:14.4							
WET	e Pn	Z 17:24:14.8	6.2	163.1					
	e Sn	Z 17:25:23.0							
GUNZ	e Pn	Z 17:24:32.0	7.5	162.8					
TANN	e Pn	Z 17:24:32.4	7.5	163.6					
WERD	e Pn	Z 17:24:33.3	7.6	162.9					
MOX	e Pn	Z 17:24:36.7	7.9	159.7					
CLL	e Pn	Z 17:24:43.9	8.3	168.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 18:06:55.3							
	e Sn	Z 18:08:00.8							
WET	e Pn	Z 18:07:01.1							
	e Sn	Z 18:08:10.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	18:13: 3.1	3.221S	133.977E	33.0N		5.9		SZGRF
2003/03/30	18:13:33.4	3.260S	127.543E	33N	5.8	6.0		NEIC

Irian Jaya, Indonesia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 18:27:55.5	111.5	66.9					
	e PKiKP	Z 18:32:02.6							
	e PP	Z 18:32:15.7							
	e Sdiff	T 18:39:56.6							
	e PS	Z 18:41:31.8							
	e PPS	R 18:42:34.5							
	e SS	R 18:47:40.2							
	e SSS	R 18:51:36.7							
	e LR	Z 19:06:14.5							
	e L	Z 19:23:54.8			22.0	6012		6.1	

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GRA1	e Pdiff	Z	18:28:00.2	113.2	66.0					
	e PP	Z	18:32:26.8							
	e Sdiff	N	18:40:11.2							
	e SS	E	18:48:06.0							
	e L	Z	19:28:06.7			18.9	2949		5.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	18:36:39.1	46.734N	155.159E	33.0N	4.9			SZGRF
2003/03/30	18:36:50.2	47.578N	153.076E	97*	4.6			NEIC

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:48:38.2	77.3	25.3	1.2	16	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	19:23:37.2	4.721S	155.057E	482?	4.7			NEIC

Bougainville Region, P.N.G.

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 19:41:40.5	123.6	48.7					
CLL	e PKP	Z 19:41:41.0	123.7	47.5					
GEC2	e PKP	Z 19:41:43.5	125.0	49.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	20:00:43.2	51.680N	160.358E	33.0N	5.4			SZGRF
2003/03/30	20:00:31.5	49.164N	156.250E	33N	4.6			NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:12:23.4	76.7	22.7	1.0	31	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/30	21:43:32.8	49.684N	156.492E	33.0N	5.1			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:55:18.6	76.3	22.3	1.4	21	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2003/03/30 23:15:55.0 40.384N 77.845E 33.0N 5.5 5.0 SZGRF  
 2003/03/30 23:15:46.2 39.513N 77.319E 10G 5.4 5.0 NEIC

Kyrgyzstan-Xinjiang border region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	23:24:02.3	44.6	79.1	1.3	60	5.4		
CLL	i P	+ Z	23:24:05.8	45.1	78.9	1.2	56	5.4		
	e PcP	Z	23:25:43.4							
	e PP	Z	23:25:55.2							
	e S	T	23:30:50.6							
	e SS	T	23:34:05.4							
	e LQ	T	23:37:34.4							
	e LR	Z	23:38:42.3							
	e L	Z	23:43:35.0			22.0	815		4.6	
GEC2	e P	Z	23:24:07.2	45.2	76.9	1.2	97	5.6		
TANN	e P	Z	23:24:10.4	45.6	77.7	1.4	56	5.4		
WET	e P	Z	23:24:10.7	45.7	76.7	1.3	64	5.5		
WERD	e P	Z	23:24:11.1	45.7	77.6	1.2	39	5.3		
GUNZ	e P	Z	23:24:11.2	45.7	77.5	1.2	49	5.4		
MOX	e P	Z	23:24:14.1	46.1	77.3	1.5	62	5.4		
BSEG	e P	Z	23:24:15.2	46.2	79.6	1.2	73	5.6		
GRA1	e P	Z	23:24:18.6	46.6	76.2	1.1	110	5.9		
	e L	Z	23:45:46.5			21.6	1800		5.0	
CLZ	e P	Z	23:24:18.1	46.6	77.6	1.5	61	5.5		
FUR	e P	Z	23:24:21.0	46.9	74.8	1.2	151	6.0		
IBBN	e P	Z	23:24:29.3	48.1	76.3	1.5	112	5.8		
STU	e P	Z	23:24:29.6	48.1	74.2	1.2	76	5.7		
TNS	e P	Z	23:24:30.2	48.2	75.0	1.8	70	5.5		
BUG	e P	Z	23:24:33.4	48.6	75.3	1.4	68	5.5		
BFO	e P	Z	23:24:34.4	48.8	73.3	1.3	55	5.4		
WLF	e P	Z	23:24:42.5	49.7	73.1	1.2	64	5.4		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/31

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	00:52:25.9							
	e Sn	N	00:53:31.8							
WET	e Pn	Z	00:52:31.8							
	e Sn	E	00:53:40.9							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2003/03/31

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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GEC2	e Pn	Z	01:20:39.9
	e Sn	N	01:21:44.7
WET	e Pn	Z	01:20:44.7
	e Sn	N	01:21:53.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	01:06:51.4	6.195S	151.304E	33N	6.0			NEIC
New Britain, Papua New Guinea, region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z	01:25:46.0	122.8	48.1					
BRG	e PKPdf	Z	01:25:46.2	123.0	53.4					
CLL	i PKPdf	+ Z	01:25:46.1	123.2	52.3	1.1	35			
	e pPKPdf	Z	01:25:52.7							
	e		01:26:02.9							
	e PP	Z	01:27:33.1							
	e PPP	Z	01:30:11.1							
	e PKKPbc	Z	01:35:35.7							
	e pPKKPbc	Z	01:35:41.7							
	e		01:35:53.6							
	e PKKPdf	Z	01:36:13.6							
	e PS	R	01:37:25.1							
	e PPS	Z	01:38:53.9							
	e (SS)	R	01:44:58.1							
	e SSS	R	01:49:12.3							
	e SSSS	R	01:52:58.6							
	e LR	Z	02:06:28.4							
	e L	Z	02:18:43.7			22.0	4885		6.1	
TANN	e PKPdf	Z	01:25:48.2	124.1	52.2					
WERD	e PKPdf	Z	01:25:48.3	124.1	52.0					
GUNZ	e PKPdf	Z	01:25:48.7	124.2	52.1					
CLZ	e PKPdf	Z	01:25:48.7	124.2	49.2					
MOX	e PKPdf	Z	01:25:48.6	124.3	51.2					
GEC2	e PKPdf	Z	01:25:48.8	124.4	54.3					
WET	e PKPdf	Z	01:25:49.5	124.6	53.3					
IBBN	e PKPdf	Z	01:25:50.7	125.1	46.2					
GRA1	e PKPdf	Z	01:25:50.5	125.1	51.3					
	e pPKPdf	Z	01:25:56.7							
	e		01:26:06.3							
	e PP	Z	01:27:37.8							
	e PPP	Z	01:30:25.0							
	e SP	R	01:37:49.4							
	e SS	R	01:45:22.9							
	e SSS	R	01:49:25.6							
	e L	Z	02:22:50.8			21.5	4626		6.1	
GRFO	e PKPdf	Z	01:25:50.5	125.1	51.3					
BUG	e PKPdf	Z	01:25:52.2	125.9	46.1					



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FUR	e	PKPdf	Z	01:25:52.3	126.1	52.2
TNS	e	PKPdf	Z	01:25:52.5	126.2	48.0
STU	e	PKPdf	Z	01:25:53.4	126.7	49.6
BFO	e	PKPdf	Z	01:25:55.2	127.5	49.0
WLF	e	PKPdf	Z	01:25:55.7	127.6	45.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 01:37:34.0							
	e Sn	N 01:38:39.3							
WET	e Pn	Z 01:37:39.5							
	e Sn	N 01:38:48.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	01:32: 8.5	51.084N	156.076E	33.0N	5.0			SZGRF
2003/03/31	01:31:55.0	49.228N	156.051E	33N	4.8			NEIC

Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 01:43:34.5	74.6	24.0	0.8	14	5.1		
BRG	e P	Z 01:43:35.4	74.8	24.6	1.2	10	4.8		
CLZ	e P	Z 01:43:35.9	74.8	22.4	0.9	17	5.1		
IBBN	e P	Z 01:43:36.8	75.0	20.8					
TANN	e P	Z 01:43:40.5	75.6	23.6	0.1	15	5.9		
MOX	e P	Z 01:43:40.3	75.6	23.1	1.4	18	4.9		
WERD	e P	Z 01:43:40.5	75.6	23.5	1.1	9	4.7		
BUG	e P	Z 01:43:41.7	75.9	20.4	1.2	15	4.9		
GRA1	e P	Z 01:43:46.3	76.6	22.8	0.8	21	5.2		
WET	e P	Z 01:43:46.9	76.7	23.7	0.9	14	5.0		
GEC2	e P	Z 01:43:46.6	76.7	24.2	0.8	6	4.7		
TNS	e P	Z 01:43:47.1	76.7	21.1	0.8	18	5.2		
FUR	e P	Z 01:43:54.1	78.0	22.7	1.0	16	5.1		
BFO	e P	Z 01:43:56.6	78.5	20.8	0.8	7	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 01:45:14.1							
	e Sn	Z 01:46:18.3							
WET	e Pn	Z 01:45:19.5							



GEC2	e Pn	Z	10:08:51.2
	e Sn	N	10:09:55.7
WET	e Pn	Z	10:08:56.5
	e Sn	N	10:10:05.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	12:05:43.2	39.283N	67.921E	33N	4.8			NEIC

Sotheastern Uzbekistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:13:24.6	40.7	82.5					
	e	12:13:30.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	14:13:49.7	17.901S	178.616W	600G	4.0			NEIC

Fiji Islands Region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 14:32:28.6	147.2	17.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	15:08:27.4	43.132N	15.175E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 15:09:55.1	5.8	169.3					
	e Sn	N 15:11:00.3							
WET	e Pn	Z 15:10:00.6	6.2	164.3					
	e Sn	N 15:11:10.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	16:04:34.4	43.128N	14.956E	10.0G				SZGRF
2003/03/31	16:04:31.1	43.077N	15.149E	10G	3.5			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 16:05:59.2	5.9	169.6					
	e Sn	E 16:07:04.0							
WET	e Pn	Z 16:06:04.6	6.3	164.6					
	e Sn	N 16:07:14.2							
GUNZ	e Pn	Z 16:06:23.0	7.5	164.1					

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TANN	e Pn	Z	16:06:22.5	7.6	164.9
	e Sn	N	16:07:44.2		
WERD	e Pn	Z	16:06:23.7	7.6	164.2
BRG	e Pn	Z	16:06:25.7	7.8	173.5
MOX	e Pn	Z	16:06:27.8	7.9	161.0
	e Sn	N	16:07:53.5		
CLL	e Pn	Z	16:06:34.1	8.4	169.2

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	17:17:14.0	7.286S	129.073E	156D	4.9			NEIC

Banda Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:35:35.2	113.4	72.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 18:11:49.2							
	e Sn	N 18:12:53.7							
WET	e Pn	Z 18:11:55.1							
	e Sn	N 18:13:03.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 18:32:07.0							
	e Sn	N 18:33:11.6							
WET	e Pn	Z 18:32:13.3							
	e Sn	N 18:33:21.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	19:36:29.6	43.133N	15.593E	10.0G				SZGRF
2003/03/31	19:36:26.6	43.055N	15.255E	10G	4.2			NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 19:37:55.6	5.9	168.9					
	e Sn	N 19:39:02.4							

WET	e Pn	Z	19:38:01.1	6.3	164.0
	e Sn	E	19:39:11.4		
BFO	e Pn	Z	19:38:14.2	7.2	135.0
GRA1	e Pn	Z	19:38:15.7	7.2	155.8
GUNZ	e Pn	Z	19:38:19.2	7.6	163.6
TANN	e Pn	Z	19:38:18.8	7.6	164.4
	e Sn	E	19:39:42.2		
WERD	e Pn	Z	19:38:20.1	7.7	163.6
BRG	e Pn	Z	19:38:21.9	7.9	173.0
MOX	e Pn	Z	19:38:24.2	8.0	160.5
	e Sn	E	19:39:49.6		
CLL	e Pn	Z	19:38:29.5	8.4	168.7
TNS	e Pn	Z	19:38:34.3	8.5	144.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	19:51:16.8	43.124N	15.478E	10.0G				SZGRF
2003/03/31	19:51:12.9	43.018N	15.295E	10G				NEIC

Adriatic Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	19:52:42.7	5.9	168.7					
	e Sn	N	19:53:48.3							
WET	e Pn	Z	19:52:48.3	6.4	163.8					
	e Sn	E	19:53:57.8							
GRA1	e Pn	Z	19:53:01.8	7.2	155.7					
GUNZ	e Pn	Z	19:53:06.5	7.6	163.4					
TANN	e Pn	Z	19:53:06.7	7.6	164.2					
	e Sn	E	19:54:29.2							
WERD	e Pn	Z	19:53:06.7	7.7	163.5					
MOX	e Pn	Z	19:53:11.2	8.0	160.4					
	e Sn	N	19:54:37.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	20:11:59.6	43.108N	15.083E	10.0G				SZGRF
2003/03/31	20:12:00.5	43.389N	14.920E	10G				NEIC

Adriatic Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	20:13:24.8	5.5	170.8					
	e Sn	N	20:14:29.9							
WET	e Pn	Z	20:13:30.5	5.9	165.5					
	e Sn	N	20:14:39.8							
TANN	e Pn	Z	20:13:49.1	7.2	165.6					
WERD	e Pn	Z	20:13:50.0	7.3	164.8					
MOX	e Pn	Z	20:13:52.9	7.6	161.5					

e Sn N 20:15:19.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 20:29:27.5							
	e Sn	N 20:30:32.4							
WET	e Pn	Z 20:29:32.9							
	e Sn	N 20:30:42.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:22:38.0							
	e Sn	N 22:23:43.0							
WET	e Sn	E 22:23:52.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2003/03/31	22:56:53.8	43.107N	14.863E	10.0G				SZGRF
2003/03/31	22:56:55.1	43.363N	14.869E	10G				NEIC

Adriatic Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 22:58:18.8	5.5	171.2					
	e Sn	N 22:59:23.8							
WET	e Pn	Z 22:58:24.1	5.9	165.9					
	e Sn	N 22:59:32.7							
WERD	e Pn	Z 22:58:43.7	7.3	165.2					
MOX	e Pn	Z 22:58:47.2	7.6	161.8					

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