

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

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

DECEMBER 2002 UPDATED 18.JULY.2002

Please note that local events recorded in Germany are part of the "LOCAL BULLETIN".

(Format description at the end of the bulletin)

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source	
2002/12/01	02:27:55.6	35.187S	179.963W	33N	5.6	5.7		NEIC	
East of the North Island, New Zealand									
Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKP	Z 02:47:51.7	161.4	38.0					
CLL	i PKPdf	Z 02:47:52.1	161.4	35.1	2.8	204			
	e pPKPdf	Z 02:48:04.0							
	e PKPab	Z 02:48:36.6			1.4	60			
	e pPKPab	Z 02:48:48.5							
	e PP	Z 02:52:20.6							
	e SKKSac	R 02:59:12.0							
	e SS	T 03:12:35.3							
	e LQ	T 03:37:20.3							
	e LR	Z 03:47:14.9							
	e L	Z 04:00:04.0			22.0	1559		5.8	
GEC2	e PKP	Z 02:47:53.0	163.0	41.4					
WET	e PKP	Z 02:47:53.5	163.2	38.8					
GRA1	e PKP	Z 02:47:54.6	163.4	33.6					
	e	02:48:06.3							
	e	02:48:45.8							
	e L	Z 04:08:52.7			21.4	1395			
Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source	
2002/12/01	06:27:53.0	49.700N	150.740E	33.0N	5.8			SZGRF	
2002/12/01	06:28:44.0	50.649N	150.147E	493D	5.0			NEIC	
Northwest of Kuril Islands, Russia									
Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML

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BSEG	e P	Z	06:39:08.9	70.1	25.8	1.1	78	5.8
RUE	e P	Z	06:39:10.8	70.5	27.7	1.0	160	6.1
CLL	i P	- Z	06:39:18.0	71.8	27.0	0.8	172	6.2
	e pP	Z	06:41:04.4					
	e PP	Z	06:42:14.5					
BRG	e P	Z	06:39:18.6	71.9	27.5	1.1	70	5.7
IBBN	e P	Z	06:39:21.1	72.3	24.0	1.0	91	5.8
MOX	e P	Z	06:39:23.9	72.7	26.1	1.0	82	5.7
BUG	e P	Z	06:39:26.3	73.2	23.6	1.2	108	5.8
GRA1	e P	Z	06:39:30.0	73.7	25.7	0.9	161	6.1
WET	i P	- Z	06:39:30.0	73.7	26.6	1.1	92	5.7
GEC2	e P	Z	06:39:29.7	73.8	27.1	1.6	77	5.5
TNS	e P	Z	06:39:31.2	74.0	24.1	0.9	80	5.8
WLF	e P	Z	06:39:38.1	75.1	22.7	1.2	45	5.5
STU	e P	Z	06:39:37.3	75.1	24.4	1.0	89	5.8
BFO	e P	Z	06:39:40.8	75.7	23.9	1.0	74	5.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/01	07:56:01.1	16.030S	173.019W	33N	5.3	5.5		NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e PKP	Z 08:15:34.6	143.7	1.3					
CLL	e PKP	Z 08:15:35.7	144.4	10.0	1.0	22			
	e PP	Z 08:18:52.6							
	e PSKS	N 08:29:06.3							
	e SS	T 08:37:39.9							
	e PSPS	N 08:38:58.6							
	e SSS	T 08:43:22.2							
	e LR	Z 09:03:53.4							
	e L	Z 09:17:26.2			22.0	810		5.5	
MOX	e PKP	Z 08:15:36.5	145.2	7.8					
TNS	e PKP	Z 08:15:38.7	145.8	2.5					
GRA1	e PKP	Z 08:15:40.4	146.2	7.3					
WLF	e PKP	Z 08:15:40.9	146.4	358.6					
WET	e PKP	Z 08:15:41.5	146.5	10.3					
GEC2	e PKP	Z 08:15:41.7	146.7	11.8					
STU	e PKP	Z 08:15:42.8	147.2	3.9					
BFO	e PKP	Z 08:15:44.1	147.7	2.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/01	09:57: 3.5	44.850N	144.460E	33.0N	5.6	4.7		SZGRF
2002/12/01	09:56:59.8	42.683N	143.954E	94D	5.4			NEIC

Hokkaido, Japan region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	10:08:37.2	75.6	33.3	0.9	51	5.5		
	e		10:08:41.4							
	e		10:09:03.9							
RUE	e P	Z	10:08:37.4	75.6	35.4	0.8	66	5.7		
CLL	i P	+ Z	10:08:43.8	76.8	34.8	1.1	108	5.9		
	e		10:08:49.2							
	e pP	Z	10:09:07.5							
	e LQ	Z	10:34:15.3							
	e L	Z	10:42:49.1			22.0	550		4.8	
BRG	e P	Z	10:08:44.2	76.8	35.3	1.0	31	5.3		
IBBN	e P	Z	10:08:49.5	77.8	31.4	1.3	102	5.8		
MOX	e P	Z	10:08:50.1	77.9	33.8	1.0	33	5.4		
GEC2	e P	Z	10:08:54.2	78.6	34.9	0.7	27	5.5		
WET	e P	Z	10:08:55.0	78.7	34.4	0.9	55	5.7		
BUG	e P	Z	10:08:54.2	78.7	31.0	0.9	55	5.7		
	e		10:08:59.2							
	e		10:09:20.8							
GRA1	i P	+ Z	10:08:55.9	78.8	33.4	0.8	84	5.9		
	e		10:09:01.2							
	e		10:09:22.6							
	e L	Z	10:47:40.4			19.3	352		4.7	
TNS	e P	Z	10:08:58.0	79.3	31.6	1.1	41	5.5		
STU	e P	Z	10:09:03.3	80.3	32.0	0.9	61	5.6		
WLF	e		10:09:32.6	80.5	30.0					
BFO	e P	Z	10:09:06.8	81.0	31.4	0.9	28	5.2		
	e		10:09:33.9							

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/01 14:27:53.8 20.706S 178.733W 600G 4.5 NEIC
 Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z	14:46:34.5	148.1	21.1	0.8	28			
	i PKPab	Z	14:46:39.4			0.7	16			
GRA1	e PKP	Z	14:46:39.4	150.0	18.8					
	e		14:46:48.0							

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/01 16:18:05.1 38.993N 14.689E 324 4.6 NEIC
 Sicily, Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	16:20:22.2	9.9	175.5					

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WET	e Pn	Z	16:20:26.5	10.2	172.1
BFO	e Pn	Z	16:20:29.5	10.4	151.5
GRA1	e Pn	Z	16:20:36.5	11.0	165.7
TNS	e Pn	Z	16:20:49.8	12.1	156.2
CLL	e Pn	Z	16:20:53.9	12.4	173.9
BUG	e Pn	Z	16:21:06.0	13.5	154.5
RUE	e Pn	Z	16:21:05.9	13.5	177.0

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/01	19:44:46.1	23.144S	178.854E	600G	4.7			NEIC
South of the Fiji Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z	20:03:30.9	149.8	26.6	0.9	44			
GRA1	e PKP	Z	20:03:35.8	151.7	24.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/01	21:08:16.9	20.698S	178.617W	600G	4.6			NEIC
Fiji Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z	21:26:56.7	148.1	20.9	0.8	12			
	i PKPab	Z	21:27:01.7			0.8	9			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/01	23:29:26.1	41.810N	14.980E	10.0G				SZGRF
Southern Italy								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
KBA	e Pn	Z	23:30:46.5	5.4	166.9					
	e Sn	Z	23:31:47.4							
ARSA	e Pn	Z	23:30:46.0	5.5	184.3					
MOA	e Pn	Z	23:30:55.4	6.1	175.0					
	e Sn	N	23:32:03.7							
DAVA	e Pn	Z	23:31:03.6	6.6	144.6					
GEC2	e Pn	Z	23:31:08.1	7.1	172.3					
	e Sn	E	23:32:26.3							
WET	e Pn	Z	23:31:13.3	7.5	167.9					
	e Sn	N	23:32:35.1							
GRA1	e Sn	N	23:32:53.0	8.3	160.2					

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/02	04:58:57.5	37.680N	21.000E	10.0G		4.9	5.8	SZGRF
2002/12/02	04:58:55.4	37.762N	21.066E	10G	5.2	5.4		NEIC

Southern Greece

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	05:01:50.0	12.3	151.6					
	e Sn	E	05:04:02.6							
WET	e Pn	Z	05:01:56.3	12.8	149.5					
	e L	Z	05:08:24.0							
GRA1	e Pn	Z	05:02:12.1	13.9	145.7					
	e L	Z	05:02:15.7							
	e Pn	Z	05:02:15.7							
BFO	e Pn	Z	05:02:15.7	14.0	134.1					
	e Sn	E	05:04:45.8							
	e L	Z	05:07:55.0							
MOX	e Pn	Z	05:02:20.0	14.5	148.8					
	e L	Z	05:08:33.8							
TNS	e Pn	Z	05:02:34.6	15.4	139.3					
	e Sn	E	05:05:15.0							
WLF	e Pn	Z	05:02:43.6	16.0	132.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/02	13:43:34.3	9.910N	124.900E	33.0N		5.5		SZGRF
2002/12/02	13:42:13.6	1.479N	126.325E	33N	5.7	5.6		NEIC

Mindanao, Philippine Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PP	R	14:00:37.7	103.2	70.6					
	e SKSac	R	14:06:52.5							
	e PS	R	14:09:31.2							
	e PPS	R	14:10:26.3							
	e SS	R	14:15:15.0							
	e L	Z	14:48:22.1							
GRA1	e PP	Z	14:00:49.8	104.8	69.4					
	e SP	Z	14:09:47.0							
	e L	Z	14:49:58.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/02	18:21:57.8	5.990S	71.000E	33.0N	5.0			SZGRF
2002/12/02	18:21:49.7	6.511S	71.397E	10G	4.6	4.8		NEIC

Chagos Archipelago region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	18:33:41.3	76.5	117.6			5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/02	20:53:1.5	41.870N	14.940E	10.0G		2.9		SZGRF
2002/12/02	20:52:57.7	41.732N	14.819E	10G				NEIC

Southern Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	20:54:43.9	7.2	173.3					
	e Sn	E	20:56:01.3							
WET	e Pn	Z	20:54:48.5	7.5	168.9					
	e Sn	N	20:56:09.0							
BFO	e Sn	E	20:56:21.7	8.0	142.9					
	e L	Z	20:58:45.3			19.2	326		3.0	
GRA1	e Sn	E	20:56:27.5	8.3	161.2					
	e L	Z	20:58:07.1			21.0	258		2.9	
MOX	e Sn	N	20:56:49.4	9.2	164.9					
TNS	e Sn	N	20:57:01.9	9.6	150.1					
	e L	Z	20:59:43.8			20.8	213		2.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/03	05:21:46.0	50.900N	163.160W	33.0N	4.7			SZGRF
2002/12/03	05:21:57.1	53.571N	163.596W	33N	4.8			NEIC

South of Alaska

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	05:33:48.7	76.6	356.8			4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/03	17:03:04.6	20.607S	178.607W	600G	4.5			NEIC

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z	17:21:41.2	148.0	20.9	1.4	14			
	i PKPbc	- Z	17:21:45.5			0.8	54			
	i PKPab	Z	17:21:50.5			0.7	26			
GRA1	e PKPbc	Z	17:21:50.2	149.9	18.6					
	e PKPab	Z	17:21:58.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/03	20:13:55.0	17.544S	178.948W	566D	5.3			NEIC

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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CLL	e	PKPdf	Z	20:32:29.4	145.0	20.1	0.7	7
	i	PKPbc	Z	20:32:30.1			0.8	301
	e	PKPab	Z	20:32:33.3			0.7	72
	e	pPKPbc	Z	20:34:42.5				
GRA1	e	PKPdf	Z	20:32:33.3	146.8	17.9		
	e	PKPbc	Z	20:32:36.0				
	e	PKPab	Z	20:32:40.1				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/04	05:16:52.7	40.290N	147.870E	39.7	5.1			SZGRF
2002/12/04	05:17:03.7	41.746N	143.266E	33N	4.7			NEIC

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:29:10.3	79.4	34.3			5.1		
	e pP	Z 05:29:21.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/04	06:08:59.1	49.710N	165.880W	38.9	4.7			SZGRF
2002/12/04	06:09:15.5	53.517N	163.662W	33N	4.5			NEIC

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:21:07.8	76.7	356.9			4.7		
	e pP	Z 06:21:19.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/04	10:49: 7.9			33.0N	4.8			SZGRF
2002/12/04	10:48:47.8	24.889N	123.696E	99D	4.9			NEIC

Near coast of southeastern China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:01:12.6	84.5	57.4			4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/04	11:30:46.5	19.010N	94.700E	33.0G	5.9	4.9		SZGRF
2002/12/04	11:30:54.0	19.387N	94.555E	54D	5.7			NEIC

Myanmar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 11:41:57.5	69.2	85.0	0.7	163	6.3		

BRG	e P	Z	11:41:57.9	69.2	84.5	0.7	97	6.1
GEC2	e P	Z	11:42:00.2	69.6	83.5	0.8	96	6.0
CLL	i P	- Z	11:42:00.8	69.8	83.9	0.9	50	5.6
	e pP	Z	11:42:14.6					
	e sP	Z	11:42:20.8					
	e PP	Z	11:44:31.6					
	e S	T	11:51:06.1					
	e PS	T	11:51:34.2					
	e SS	T	11:55:36.0					
	e SSS	T	11:59:06.8					
	e LQ	T	12:03:57.4					
	e L	Z	12:17:26.9			22.0	855	5.0
WET	e P	Z	11:42:03.4	70.1	83.0	0.9	62	5.7
MOX	e P	Z	11:42:07.0	70.7	82.6	0.8	55	5.7
BSEG	e P	Z	11:42:09.5	71.1	82.8	0.8	92	6.0
GRA1	e P	Z	11:42:09.7	71.1	82.0	1.1	105	5.9
	e L	Z	12:18:24.8			21.1	684	4.9
CLZ	e P	Z	11:42:10.9	71.3	82.1	0.9	78	5.9
STU	e P	Z	11:42:18.0	72.5	80.3	0.9	89	5.9
TNS	e P	Z	11:42:19.5	72.8	80.2	0.8	64	5.8
BFO	e P	Z	11:42:21.4	73.2	79.5	0.9	33	5.5
BUG	e P	Z	11:42:22.5	73.3	79.7	0.9	62	5.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/04	15:50:51.6	38.850N	139.820E	33.0G	5.5	4.9		SZGRF
2002/12/04	15:50:42.2	38.724N	142.189E	41D	5.0	5.0		NEIC

Near west coast of eastern Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z	16:02:48.2	78.9	39.6	1.1	35	5.2		
	e pP	Z	16:03:00.6							
	e		16:03:09.4							
	e S	T	16:12:54.6							
	e SS	Z	16:18:59.5							
	e LR	Z	16:29:17.8							
	e L	Z	16:41:40.4			18.0	873		5.1	
GRA1	e P	Z	16:02:59.5	81.6	36.5			5.5		
	e		16:03:12.0							
	e		16:03:22.1							
	e		16:05:18.9							
	e L	Z	16:40:09.1			21.5	532		4.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/04	15:53:02.9	39.031N	141.956E	41*	4.8			NEIC

Near west coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 16:05:07.4	79.6	38.0	0.9	34	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/05	11:14:27.8	6.431S	153.438E	33N	5.4	5.2		NEIC

New Britain region, Papua New Guinea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 11:33:30.8	126.4	49.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/05	17:28:06.9	18.980S	174.909W	126D	5.2			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z 17:47:36.6	147.1	13.9	1.0	37			
	e pPKPbc	Z 17:48:15.8							
	e sPKPbc	Z 17:48:31.5							
GRA1	e PKP	Z 17:47:41.5	148.9	11.3					
	e pPKP	Z 17:48:21.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/06	01:52: 3.8	45.610N	17.230E	10.0G			3.9	SZGRF
2002/12/06	01:52:10.6	46.118N	16.712E	10G	3.8			NEIC

Northwestern Balkan Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pn	Z 01:52:36.8	1.4	143.8					
MOA	e Pn	N 01:52:51.7	2.4	135.2					
KBA	e Pn	Z 01:52:52.4	2.5	111.3					
	e Pg	Z 01:52:59.1							
GEC2	e Pn	Z 01:53:05.7	3.4	142.2					3.8
WET	e Pn	Z 01:53:13.2	4.0	138.1					4.1
BRG	e Pn	Z 01:53:28.2	5.1	157.9					
GRA1	e Pn	Z 01:53:28.1	5.1	132.1					
TANN	e Pn	Z 01:53:29.4	5.1	145.0					
WERD	e Pn	Z 01:53:30.4	5.2	144.2					
MOX	e Pn	Z 01:53:36.1	5.6	141.3					
CLL	e Pn	Z 01:53:37.0	5.7	153.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/06	03:12:54.7	46.220N	16.390E	10.0G			3.1	SZGRF
2002/12/06	03:12:50.7	46.170N	16.740E	10G				NEIC

Northwestern Balkan Peninsula

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pg	Z	03:13:15.9	1.4	141.9					
MOA	e Pn	Z	03:13:31.0	2.4	134.0					
	e Sn	N	03:13:59.2							
GEC2	e Pn	Z	03:13:45.4	3.4	141.4					2.9
	e Sn	N	03:14:23.1							
WET	e Pn	Z	03:13:52.7	3.9	137.4					3.2
	e Sn	N	03:14:34.7							
TANN	e Pn	Z	03:14:08.5	5.1	144.5					
WERD	e Pn	Z	03:14:09.7	5.2	143.7					
MOX	e Pn	Z	03:14:15.7	5.6	140.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/06	05:04:46.4	19.290N	95.500E	33.0N	5.1			SZGRF
2002/12/06	05:04:41.1	19.380N	95.684E	33N	4.5			NEIC

Myanmar

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	05:16:05.9	71.8	81.2			5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/06	08:52:37.7	26.630S	60.530E	33.0N	5.2			SZGRF
2002/12/06	08:52:23.2	28.182S	62.846E	10G	4.9			NEIC

South Indian Ocean

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	09:05:24.8	90.4	136.3			5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/06	13:04:27.3	17.372S	172.317W	33N	4.9			NEIC

Tonga Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z	13:24:05.4	145.9	9.1	1.3	32			
GRA1	e PKP	Z	13:24:11.2	147.6	6.3					

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/06	23:50: 9.8	28.040N	128.250E	30.9	5.0	4.7		SZGRF
2002/12/06	23:50:04.7	28.534N	129.973E	37*	5.0	4.7		NEIC

Ryukyu Islands, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:02:39.2	84.8	50.7			5.0		
	e pP	Z 00:02:48.2							
	e L	Z 00:47:06.1			19.5	336		4.7	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/07								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:04:14.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/08	05:58:46.2	43.940N	147.709E	33N	4.7			NEIC

Kuril Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 06:10:38.3	77.3	31.8	0.9	24	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/08	20:53:41.7	50.840N	140.890E	33.0N	4.8			SZGRF

Primorye, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:04:54.7	70.7	31.0			4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/08								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 22:17:46.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/09	09:35: 7.5	37.790N	20.280E	10.0G				SZGRF
2002/12/09	09:35:06.6	37.919N	19.927E	21	5.0	4.0		NEIC

Ionian Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 09:37:55.1	11.8	155.3					
WET	e Pn	Z 09:38:01.7	12.3	153.0					
BFO	e Pn	Z 09:38:17.3	13.4	136.8					
BRG	e Pn	Z 09:38:19.9	13.6	159.6					
MOX	e Pn	Z 09:38:25.6	14.0	151.9					
CLL	e Pn	Z 09:38:33.8	14.3	157.3					
TNS	e Pn	Z 09:38:40.8	14.8	142.0					
CLZ	e Pn	Z 09:38:49.1	15.5	150.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/09								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:16:45.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	00:10:07.4	33.791S	72.077W	25				NEIC
Off the coast of Central Chile								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:28:29.4	111.2	242.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:33:13.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	01:28:33.9	49.983S	114.037W	10G	5.3	5.7		NEIC
Southern East Pacific Rise								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:48:15.1	145.5	248.0					
CLL	e PKPdf	Z 01:48:17.0	147.0	251.1	1.0	7			
	e PKPbc	Z 01:48:20.1							
	e PP	Z 01:51:51.9							
	e SS	R 02:10:37.6							

e SSS	R	02:16:14.9									
e LQ	T	02:29:31.5									
e LR	Z	02:38:56.7									
e L	Z	02:46:27.2			22.0			1480			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	02:44:56.0	5.511N	94.799E	150G	4.4			NEIC

Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:57:00.3	81.6	91.3			5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	03:09:39.9	17.842N	100.883W	89*	5.1			NEIC

Jalisco, Mexico

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:22:32.5	89.9	298.1			4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	04:27:55.1	24.007S	179.157E	531D	5.5			NEIC

South of Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 04:46:41.2	150.7	26.6	1.3	74			
	i PKPbc	- Z 04:46:48.2			0.8	675			
	i PKPab	Z 04:46:57.3			1.1	184			
	e pPKPbc	Z 04:48:50.1							
	e pPKPab	Z 04:48:55.3							
GRA1	e PKPdf	Z 04:46:44.1	152.6	24.5					
	e PKPbc	Z 04:46:52.6							
	e PKPab	Z 04:47:07.0							
	e pPKP	Z 04:48:56.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	11:25:10.5	41.080N	142.130E	42.7	4.8			SZGRF
2002/12/10	11:25:07.7	42.365N	144.546E	34*	4.8			NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:37:13.0	79.3	33.2			4.8		

e pP Z 11:37:25.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	13:51:34.8	36.370N	7.080W	33.0N	4.6			SZGRF
2002/12/10	13:51:29.2	36.224N	7.401W	28	5.1	4.4		NEIC

Strait of Gibraltar

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 13:55:27.0	16.7	229.4	1.5	38	4.3		
TNS	e P	Z 13:55:42.6	18.1	225.3	0.8	33	4.5		
BUG	e P	Z 13:55:45.7	18.5	220.2	1.1	28	4.3		
GRA1	e P	Z 13:55:53.3	19.1	232.1	1.3	56	4.6		
WET	e P	Z 13:55:58.8	19.6	236.4	1.8	97	4.7		
MOX	e P	Z 13:56:02.0	19.9	230.7	1.1	20	4.3		
GEC2	e P	Z 13:56:01.9	19.9	238.5	1.4	56	4.6		
CLZ	e P	Z 13:56:04.8	20.1	225.9	1.6	62	4.6		
CLL	e P	Z 13:56:13.9	20.9	231.9	1.1	74	4.9		
BRG	e P	Z 13:56:16.1	21.2	234.4	1.1	49	4.7		
BSEG	e P	Z 13:56:20.2	21.6	221.9	1.1	76	4.9		
RUE	e P	Z 13:56:26.0	22.1	230.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:22:40.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 17:53:15.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/10	21:02:21.1	32.940N	141.510E	33.0N	5.2			SZGRF
2002/12/10	21:02:23.0	34.303N	141.452E	33N	5.1	5.7		NEIC

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 21:14:49.2	84.7	41.4	0.9	12	5.1		
	e PP	Z 21:18:08.6							

	e S	T	21:25:16.9							
	e SS	T	21:30:42.5							
	e SSS	R	21:34:30.1							
	e L	Z	22:00:10.8			18.0	7000		6.1	
GRA1	e P	Z	21:15:00.3	85.1	39.3				5.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/11	03:50: 9.9	1.680S	134.770E	33.0N				SZGRF
2002/12/11	03:49:39.9	3.777S	135.162E	10G	5.9	6.0		NEIC

Irian Jaya, Indonesia, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PP	Z 04:09:05.5	111.0	65.3					
RUE	e PP	Z 04:09:09.3	111.6	66.4					
BRG	e PP	Z 04:09:15.0	112.2	67.1					
	e SP	Z 04:18:40.1							
CLL	e Pdiff	Z 04:04:29.9	112.5	66.2					
	e PKiKP	Z 04:08:23.6			0.8	6			
	e PP	Z 04:09:09.2							
	e SKSac	R 04:15:01.4							
	e Sdiff	T 04:16:41.8							
	e PS	R 04:18:37.8							
	e PPS	Z 04:19:42.7							
	e SS	R 04:24:52.7							
	e	04:30:11.2							
	e SSSS	Z 04:32:11.3							
	e LQ	T 04:41:09.1							
	e LR	Z 04:44:21.3							
	e L	Z 04:59:46.9			22.0	7224		6.2	
BSEG	e PP	Z 04:09:19.2	112.9	62.7					
GEC2	e PP	Z 04:09:21.6	113.1	67.7					
WET	e PP	Z 04:09:23.9	113.5	66.9					
MOX	e PP	Z 04:09:24.9	113.6	65.2					
CLZ	e PP	Z 04:09:26.3	113.8	63.6					
GRA1	e PP	Z 04:09:28.9	114.2	65.2					
	e SP	Z 04:19:00.4							
FUR	e PP	Z 04:09:33.4	114.8	65.9					
IBBN	e PP	Z 04:09:34.3	115.0	61.0					
TNS	e PP	Z 04:09:40.0	115.6	62.5					
BUG	e PP	Z 04:09:39.1	115.7	60.9					
STU	e PP	Z 04:09:39.5	115.8	63.8					
BFO	e PP	Z 04:09:45.7	116.5	63.2					
WLF	e PP	Z 04:09:49.5	117.2	60.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
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2002/12/11	10:00:58.4	2.380S	132.210E	33.0N						SZGRF
2002/12/11	10:00:34.6	3.686S	135.165E	33N	5.6	5.7				NEIC

Irian Jaya, Indonesia, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e PP	Z	10:19:48.5	111.0	65.2					
RUE	e PP	Z	10:19:51.9	111.6	66.4					
BRG	e PP	Z	10:19:56.9	112.1	67.1					
CLL	e PP	Z	10:19:56.7	112.5	66.1					
BSEG	e PP	Z	10:20:00.9	112.8	62.7					
GEC2	e PP	Z	10:20:03.1	113.0	67.7					
	e SP	Z	10:29:26.4							
WET	e PP	Z	10:20:04.0	113.4	66.8					
MOX	e PP	Z	10:20:06.1	113.5	65.1					
CLZ	e PP	Z	10:20:06.8	113.7	63.5					
GRA1	e PP	Z	10:20:10.5	114.2	65.2					
	e SP	Z	10:29:41.5							
FUR	e PP	Z	10:20:14.0	114.8	65.8					
IBBN	e PP	Z	10:20:16.8	114.9	60.9					
BUG	e PP	Z	10:20:20.5	115.6	60.8					
STU	e PP	Z	10:20:20.8	115.8	63.7					
BFO	e PP	Z	10:20:26.4	116.5	63.2					
WLF	e PP	Z	10:20:31.4	117.1	60.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/11	12:41:57.2	51.260N	169.560W	33.0N	5.1			SZGRF
2002/12/11	12:41:58.4	52.337N	168.805W	33N	4.5			NEIC

Fox Islands, Aleutian Islands, United States

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	12:53:58.5	78.0	0.0			5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/11	21:15:27.2	22.459S	179.727W	600G	4.5			NEIC

South of the Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	21:36:34.8	151.4	21.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/12	04:03:15.9	31.722S	67.056W	126D	5.0			NEIC

La Rioja Province, Argentina

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PP	Z 04:21:43.7	106.8	240.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/12	08:30:43.2	4.660S	153.051E	33N	6.0	6.6		NEIC

New Ireland, Papua New Guinea, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 08:46:08.4	122.8	49.6					
	e PKPdf	Z 08:49:36.4			0.6	69			
	e	08:49:58.7							
	e PP	Z 08:51:25.3							
	e PKS	Z 08:52:33.7							
	e SKSac	R 08:56:35.4							
	e SKKSac	R 08:58:10.3							
	e Sdiff	T 08:59:10.5							
	e PS	Z 09:01:17.0							
	e PPS	Z 09:02:44.9							
	e SKKSdf	Z 09:07:01.3							
	e SS	R 09:07:54.3							
	e LR	Z 09:30:03.0							
	e L	Z 09:47:56.4			20.0	22944		6.8	
GRA1	e PKPdf	Z 08:49:40.7	124.7	48.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/12	10:19:40.4	7.691S	156.139E	33N	5.6	5.3		NEIC

Bougainville - Solomon Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 10:38:46.7	128.8	47.0					
	e PP	Z 10:40:51.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/12	17:59:50.7	43.150N	0.350W	10.0G				SZGRF
2002/12/12	17:59:51.9	43.024N	0.357W	0G				NEIC

Pyrenees

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e Pn	Z 18:01:44.5	8.0	216.5					
BFO	e Pn	Z 18:01:45.5	8.1	232.0					

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/12	22:44:05.5	41.799S	83.523W	10G	5.6			NEIC

West Chile Rise

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:03:02.2	123.2	242.7					
	e	23:03:08.8							
	e	23:03:14.6							
	e	23:03:20.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/12	23:34:54.4	24.580N	46.740W	33.0N	4.9			SZGRF
2002/12/12	23:35:09.9	26.568N	44.648W	10G	5.0			NEIC

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:43:53.4	48.3	262.8			4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/13	01:19:46.7	37.800N	21.090E	9				NEIC

Southern Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:23:17.2	13.8	145.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/13	01:45: 8.2	3.470N	96.310E	33.0N	4.9			SZGRF
2002/12/13	01:45:35.4	8.839N	94.027E	33N	4.9			NEIC

Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:57:36.5	78.6	89.7	1.0	7	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/13								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 05:30:45.4							

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/13	09:30:2.5	45.260N	155.890E	33.0N	5.1			SZGRF
2002/12/13	09:30:17.9	47.680N	153.209E	55D	4.7			NEIC

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:42:10.1	77.2	25.2	0.7	13	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/13	15:51:33.1	50.429N	129.880W	10G	5.1	5.1		NEIC

Vancouver Isl, Canada region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PP	Z 16:05:56.2	73.8	336.3					
	e S	T 16:12:38.2							
	e SKSac	R 16:13:16.7							
	e SS	R 16:17:43.1							
	e LQ	T 16:21:50.7							
	e LR	Z 16:26:38.4							
	e L	Z 16:34:41.0			20.0	869		5.0	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/14	01:02:33.2	36.920N	37.620E	10.0G	4.8			SZGRF
2002/12/14	01:02:43.6	37.518N	36.206E	10G	4.9	4.8		NEIC

Jordan - Syria region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WET	e P	Z 01:07:22.4	20.4	115.9	1.3	26	4.5		
BRG	e P	Z 01:07:24.7	20.7	121.6	1.2	26	4.5		
CLL	e P	Z 01:07:34.3	21.4	121.1	1.2	23	4.6		
GRA1	e P	Z 01:07:37.1	21.6	114.7	1.8	68	4.9		
BFO	e P	Z 01:07:48.7	22.9	107.8	1.2	60	5.0		
CLZ	e P	Z 01:07:50.0	23.1	118.2	1.0	30	4.8		
TNS	e P	Z 01:07:54.4	23.5	112.1	1.4	24	4.7		
BSEG	e P	Z 01:08:00.6	24.2	122.2	1.1	37	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/14	13:27:33.1	38.620N	96.340E	33.0N	5.7	5.4		SZGRF
2002/12/14	13:27:30.8	39.759N	97.424E	33N	5.6	5.3		NEIC

Qinghai, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 13:37:13.2	56.5	66.3	1.1	81	5.7		

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CLL	i P	+ Z	13:37:15.3	56.9	65.9	1.0	94	5.8		
	e		13:37:22.5							
	e PcP	Z	13:38:09.3							
	e PP	Z	13:39:24.1							
	e S	T	13:45:07.3							
	e SS	R	13:49:11.9							
	e LQ	T	13:52:40.1							
	e L	Z	14:03:13.4			18.0	3421		5.5	
BSEG	e P	Z	13:37:19.2	57.3	65.8	0.9	134	6.0		
WET	e P	Z	13:37:22.9	57.9	64.6	1.1	66	5.6		
MOX	e P	Z	13:37:23.6	58.0	64.7	1.2	65	5.5		
CLZ	e P	Z	13:37:24.9	58.2	64.6	1.0	141	6.0		
GRA1	e P	Z	13:37:28.1	58.6	64.0	1.0	158	6.0		
	e L	Z	14:04:06.7			18.0	2338		5.4	
TNS	e P	Z	13:37:37.2	60.0	62.6	1.1	44	5.4		
BUG	e P	Z	13:37:38.1	60.1	62.5	1.0	104	5.8		
STU	e P	Z	13:37:38.4	60.2	62.3	1.1	70	5.4		
BFO	e P	Z	13:37:44.0	60.9	61.6	1.0	63	5.4		
WLF	e P	Z	13:37:48.5	61.5	60.9	1.1	156	6.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/14	14:25:42.8	39.601N	98.152E	33N	4.9			NEIC

Gansu, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:35:45.2	59.2	63.7	0.7	8			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/14	20:10:57.2	51.887N	160.280E	33N	4.7			NEIC

Off the east coast of Kamchatka, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:22:40.0	75.1	19.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/15	02:28:38.7	55.440N	165.820W	33.0N	5.0			SZGRF
2002/12/15	02:28:19.6	52.711N	166.892W	33N	4.9			NEIC

Fox Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:40:16.4	77.6	358.8	1.3	21	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/15	04:08:43.4	48.370N	153.800E	33.0N	5.3			SZGRF
2002/12/15	04:08:37.2	48.520N	154.837E	16*	5.0	4.4		NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:20:32.1	76.9	23.8	1.4	39	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/15	05:56:38.6	11.360N	41.650W	33.0N	5.4			SZGRF
2002/12/15	05:56:23.8	10.824N	43.226W	10G	4.9	4.7		NEIC

North Atlantic Ocean

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 06:06:10.6	56.9	246.7					
STU	e P	Z 06:06:17.6	57.6	247.2					
TNS	e P	Z 06:06:17.8	57.7	245.7					
IBBN	e P	Z 06:06:20.0	58.2	243.9					
FUR	e P	Z 06:06:25.0	58.6	249.5					
GRC1	e P	Z 06:06:26.3	59.1	249.2	2.8	120	5.4		
GRC3	e P	Z 06:06:26.7	59.1	249.3					
GRC4	e P	Z 06:06:27.4	59.1	249.2					
GRA1	e P	Z 06:06:26.5	59.2	248.5					
MOX	e P	Z 06:06:30.8	59.7	248.4					
BSEG	e P	Z 06:06:34.8	60.3	245.4					
CLL	e P	Z 06:06:38.3	60.8	249.3					
BRG	e P	Z 06:06:42.2	61.2	250.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/15	07:54:54.4	51.150N	177.090W	33.0N				SZGRF
2002/12/15	07:55:08.0	52.000N	179.797W	132	4.8			NEIC

Andreanof Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:06:55.0	77.9	6.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/15								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 13:22:04.5							
	e	13:22:08.9							

e SKKSac	Z	04:59:09.7										
e Sdiff	T	04:59:54.6										
e PS	R	05:01:50.8										
e SS	R	05:08:10.1										
e SSS	E	05:12:14.7										
e LQ	T	05:18:45.8										
e LR	Z	05:26:41.7										
e L	Z	05:43:30.0				18.0		8748		6.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/17	17:18:32.6	34.950N	24.670E	42	3.9			NEIC

Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:22:38.5	17.7	141.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/17	22:33:25.8	35.008N	24.240E	33N	4.0			NEIC

Crete, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:37:32.1	17.5	142.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/18	00:37:31.8	41.920N	14.530E	10.0G			4.0	SZGRF
2002/12/18	00:37:29.5	42.002N	14.287E	10G				NEIC

Southern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
KBA	e Pn	Z 00:38:49.5	5.1	172.1					
ARSA	e Pn	Z 00:38:51.5	5.3	190.0					
MOA	e Pn	Z 00:38:59.5	5.8	179.8					
	e Sn	N 00:40:06.1							
DAVA	e Pn	Z 00:39:03.0	6.1	147.7					
	e Sn	N 00:40:15.5							
GEC2	e Pn	Z 00:39:12.4	6.9	176.4					
	e Sn	E 00:40:29.0							
WET	e Pn	Z 00:39:18.5	7.2	171.6					
	e Sn	E 00:40:36.5							
GRA1	e Sn	E 00:40:54.9	8.0	163.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/18								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA3	e PKP	Z 03:35:22.4							
	e	03:35:26.4							
	e	03:35:28.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/18	09:04:42.0	45.840N	15.800E	10.0G			3.2	SZGRF
2002/12/18	09:04:39.2	45.728N	15.872E	10G				NEIC

Northwestern Balkan Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pg	Z 09:05:07.4	1.5	170.9					2.5
MOA	e Pn	Z 09:05:20.2	2.4	152.0					
	e Sn	Z 09:05:48.8							
GEC2	e Pn	Z 09:05:34.1	3.4	153.9					3.3
	e Sn	N 09:06:12.5							
	e Sg	N 09:06:26.3							
WET	e Pn	Z 09:05:40.9	4.0	148.2					
	e Sn	N 09:06:25.3							
GRA1	e Sn	E 09:06:49.9	5.0	140.0					
	e Sg	N 09:07:21.3							
BRG	e Pn	Z 09:05:59.3	5.3	165.3					
MOX	e Sg	E 09:07:37.8	5.7	148.4					
BFO	e Sn	E 09:07:07.7	5.8	114.0					
CLL	e Pn	Z 09:06:07.5	5.9	160.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/18	11:09:17.6	52.680N	159.390E	33.0G	5.5			SZGRF
2002/12/18	11:09:19.1	52.866N	159.643E	57	5.1			NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 11:20:29.9	70.2	19.1	1.2	61	5.6		
RUE	e P	Z 11:20:33.6	70.9	21.0	0.9	61	5.7		
CLL	e P	Z 11:20:40.7	72.1	20.4	0.9	57	5.7		
CLZ	e P	Z 11:20:42.0	72.2	18.9	1.0	71	5.7		
IBBN	e P	Z 11:20:41.9	72.2	17.4	0.7	42	5.7		
BRG	e P	Z 11:20:42.0	72.3	20.9	1.0	20	5.2		
MOX	e P	Z 11:20:46.6	73.0	19.5	1.1	31	5.4		
BUG	e P	Z 11:20:47.1	73.1	17.0	1.0	41	5.5		
GRA1	e P	Z 11:20:53.0	74.0	19.2	1.0	73	5.7		
TNS	e P	Z 11:20:52.9	74.1	17.6	0.9	32	5.3		

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WET	e P	Z	11:20:53.7	74.2	20.1	0.9	30	5.3
GEC2	e P	Z	11:20:53.8	74.3	20.6	0.7	17	5.2
STU	e P	Z	11:20:59.8	75.3	17.9	1.1	34	5.4
FUR	e P	Z	11:21:00.8	75.5	19.1	1.2	63	5.6
BFO	e P	Z	11:21:03.2	75.9	17.4	1.1	34	5.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/18	14:12:21.1	57.043S	24.941W	10G	5.7	6.0		NEIC

South Sandwich Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PP	Z 14:31:28.4	110.8	200.1					
	e SKSac	R 14:37:39.8							
	e S	T 14:39:15.4							
	e SP	Z 14:40:56.9							
	e SS	R 14:47:07.9							
CLL	e L	Z 15:14:34.5	112.4	201.3	19.7	2847		5.8	
	e PP	Z 14:31:42.2							
	e	14:35:06.5							
	e SKSac	R 14:37:41.2							
	e Sdiff	T 14:39:30.7							
	e PS	R 14:41:20.4							
	e SS	R 14:47:24.4							
	e SSS	T 14:51:45.5							
e LR	Z 15:06:23.6								
e L	Z 15:11:58.5	22.0	2660	5.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/18	21:49:12.5	35.730N	85.110E	33.0N	4.6			SZGRF
2002/12/18	21:50:14.0	39.806N	75.547E	33N	4.4			NEIC

Xizang

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:58:32.0	45.3	77.0			4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/19	12:19:18.2	40.040N	142.910E	33.0N	4.9			SZGRF
2002/12/19	12:19:18.5	40.935N	143.084E	33N	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 12:31:28.6	80.0	34.8	0.7	10	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/19	15:23:33.0	47.880N	146.230E	33.0N	5.2			SZGRF
2002/12/19	15:23:31.2	45.499N	147.662E	178*	4.7			NEIC

Northwest of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 15:34:59.2	75.6	31.0	1.2	29	5.3		
BRG	e P	Z 15:34:59.7	75.7	31.5					
CLZ	e P	Z 15:35:02.2	76.0	29.3	1.1	30	5.2		
MOX	e P	Z 15:35:05.2	76.6	30.0	1.2	17	5.0		
WET	e P	Z 15:35:10.7	77.5	30.6	1.0	24	5.2		
GRA1	e P	Z 15:35:11.5	77.6	29.6	1.0	32	5.3		
TNS	e P	Z 15:35:13.3	78.0	27.9	1.4	25	5.2		
FUR	e P	Z 15:35:18.4	78.9	29.5					
STU	e P	Z 15:35:19.0	79.0	28.3	0.7	17	5.3		
BFO	e P	Z 15:35:22.3	79.7	27.7	1.0	12	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/19	18:59: 9.9	35.050N	73.990E	33.0N	5.1			SZGRF
2002/12/19	18:59:04.8	35.288N	74.584E	33N	4.8			NEIC

Northwestern Kashmir

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:07:39.2	47.4	82.6	1.1	17	5.1		
	e PP	Z 19:09:30.8							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/19	22:21:38.9	35.210N	74.520E	33.0N	5.4			SZGRF
2002/12/19	22:21:35.6	35.283N	74.530E	33N	5.0	4.1		NEIC

Northwestern Kashmir

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:30:10.1	47.3	82.7	1.3	42	5.4		
	e PP	Z 22:32:02.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/20	14:14:41.9	2.948S	147.674E	33N	5.8	6.4		NEIC

Bismarck Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 14:29:49.5	118.7	54.1					

	i PKPdf	Z	14:33:29.1			1.0	11		
	e PP	Z	14:34:47.2						
	e PPP	Z	14:37:28.2						
	e SKKSac	R	14:41:48.6						
	e Sdiff	T	14:42:43.8						
	e PS	R	14:44:38.0						
	e PPS	R	14:46:27.2						
	e SS	R	14:51:08.3						
	e SSS	E	14:55:35.6						
	e LQ	T	15:07:33.7						
	e LR	Z	15:11:59.3						
	e L	Z	15:24:57.4			22.0	20035	6.7	
GRA1	e PKP	Z	14:33:35.2	120.5	53.0				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/20	21:06:56.2	15.508S	173.047W	60D	5.2			NEIC
Tonga Islands								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLZ	e PKP	Z	21:26:24.4	143.6	5.6					
CLL	e PKP	Z	21:26:24.8	143.9	9.9					
BRG	e PKP	Z	21:26:25.7	144.2	11.6					
MOX	e PKP	Z	21:26:26.2	144.7	7.8					
	e pPKP	Z	21:26:43.5							
TNS	e PKP	Z	21:26:28.7	145.3	2.5					
	e pPKP	Z	21:26:45.8							
GRA1	e PKP	Z	21:26:29.8	145.6	7.3					
	e pPKP	Z	21:26:47.2							
GRFO	e PKP	Z	21:26:30.6	145.6	7.3					
	e pPKP	Z	21:26:46.8							
WLF	e PKP	Z	21:26:30.8	145.8	358.6					
	e pPKP	Z	21:26:47.8							
WET	e PKP	Z	21:26:30.8	146.0	10.3					
	e pPKP	Z	21:26:46.5							
GEC2	e PKP	Z	21:26:31.1	146.2	11.7					
	e pPKP	Z	21:26:47.1							
STU	e PKP	Z	21:26:33.6	146.7	3.9					
FUR	e PKP	Z	21:26:34.8	147.2	7.7					
	e pPKP	Z	21:26:49.7							
BFO	e PKP	Z	21:26:34.4	147.2	2.4					
	e pPKP	Z	21:26:50.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/21	00:46:23.3	5.020N	77.130W	33.0N	5.4			SZGRF
2002/12/21	00:46:07.7	3.729N	79.024W	10G	5.4			NEIC

Near west coast of Colombia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 00:58:39.7	84.0	268.7	0.9	25	5.4		
BUG	e P	Z 00:58:43.4	84.8	269.4	1.7	62	5.6		
IBBN	e P	Z 00:58:45.1	85.1	269.7	1.0	24	5.4		
BFO	e P	Z 00:58:46.3	85.5	270.5	1.5	27	5.3		
TNS	e P	Z 00:58:47.3	85.5	270.4	1.2	45	5.6		
STU	e P	Z 00:58:49.4	86.0	271.1	1.0	39	5.6		
BSEG	e P	Z 00:58:52.6	86.6	271.7	0.9	22	5.4		
CLZ	e P	Z 00:58:53.3	86.7	271.8	1.0	30	5.5		
GRA1	e P	Z 00:58:56.4	87.3	272.6	1.0	29	5.4		
FUR	e P	Z 00:58:56.7	87.4	272.7	1.4	51	5.6		
MOX	e P	Z 00:58:57.1	87.5	272.9	1.2	19	5.2		
CLL	e P	Z 00:59:01.1	88.4	273.9	1.2	28	5.3		
WET	e P	Z 00:59:01.8	88.4	273.9	1.4	46	5.4		
BRG	e P	Z 00:59:04.2	89.0	274.7	1.2	23	5.2		
GEC2	e P	Z 00:59:04.2	89.0	274.5	1.4	26	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/21	06:09:18.7	20.360N	120.470E	33.0N	5.4	5.1		SZGRF
2002/12/21	06:09:17.7	21.763N	121.587E	25?	5.0	5.1		NEIC

Philippine Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:21:57.3	85.8	60.8	1.7	58	5.4		
	e L	Z 07:02:58.6			20.3	788		5.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/21	14:12:15.6	14.810S	11.970W	33.0N	5.4	4.6		SZGRF
2002/12/21	14:12:35.5	10.645S	13.252W	10G	5.0	4.4		NEIC

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 14:23:09.8	64.0	206.9	1.8	47	5.4		
	e	14:23:15.6							
	e L	Z 14:49:34.7			21.5	384		4.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/21	17:40:50.5	11.910N	119.260E	33.0G	5.5			SZGRF
2002/12/21	17:41:13.2	4.963N	123.126E	598?	5.4			NEIC

Palawan, Philippine Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	17:53:46.3	97.6	71.5	1.5	134	6.0		
BRG	e P	Z	17:53:47.9	98.0	71.8	1.0	27	5.4		
	e PP	Z	17:58:00.0							
CLL	i P	- Z	17:53:49.3	98.4	71.0	1.3	22	5.7		
	e PP	Z	17:58:01.5							
	e PPP	Z	18:00:12.4							
	e sPP	Z	18:00:49.2							
	e sPPP	Z	18:02:51.0							
GEC2	e P	Z	17:53:51.4	98.8	71.9	1.1	20	5.3		
	e PP	Z	17:58:04.1							
BSEG	e P	Z	17:53:52.9	99.1	68.4	1.1	32	5.5		
	e PP	Z	17:58:06.4							
WET	e P	Z	17:53:53.5	99.2	71.2	1.4	26	5.4		
	e PP	Z	17:58:08.8							
MOX	e P	Z	17:53:54.6	99.5	70.0	1.3	19	5.3		
	e PP	Z	17:58:10.2							
CLZ	e P	Z	17:53:56.4	99.8	68.8	1.5	50	5.6		
	e PP	Z	17:58:14.8							
GRA1	e P	Z	17:53:57.5	100.0	69.8	1.6	43	5.5		
	e PP	Z	17:58:16.2							
FUR	e P	Z	17:53:59.2	100.5	70.1	1.5	26	5.5		
	e PP	Z	17:58:17.1							
IBBN	e P	Z	17:54:02.2	101.1	66.5	1.4	74	5.9		
TNS	e P	Z	17:54:03.1	101.5	67.5	1.4	16	5.2		
STU	e P	Z	17:54:04.0	101.6	68.4	1.2	18	5.3		
BUG	e P	Z	17:54:04.6	101.7	66.3	1.8	32	5.3		
WLF	e P	Z	17:54:10.4	103.1	65.7	1.4	20	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/22	07:29:32.5	7.667S	156.138E	33N	5.2	4.4		NEIC

Solomon Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	07:48:39.9	128.8	46.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/22	07:40:29.4	47.010N	113.460E	33.0N	5.4			SZGRF

Mongolia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	07:50:49.0	62.3	48.8	1.8	63	5.4		

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/22	21:43:51.4	13.890N	123.390E	33.0N	5.3	5.1		SZGRF
2002/12/22	21:44:10.7	17.018N	119.977E	33N	5.3	5.0		NEIC

Luzon, Philippine Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	Z	21:56:54.3	91.5	65.6	0.6	9	5.1		
	e		21:57:04.2							
	e PP	Z	22:00:19.4							
	e SKSac	R	22:07:05.6							
	e PS	Z	22:08:36.7							
	e SS	Z	22:13:26.0							
	e L	Z	22:39:13.4			18.0	884		5.2	
GRA1	e L	Z	22:41:56.7	88.6	64.9	19.0	720		5.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/23	00:12:54.2	35.450N	72.320E	33.0G	4.9			SZGRF
2002/12/23	00:13:12.7	36.360N	71.342E	156D	4.6			NEIC

Pakistan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	00:21:13.0	44.6	83.7	1.1	14	4.9		
	e pP	Z	00:21:19.9							
	e		00:21:48.3			1.1	14			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/23	02:50:26.1	4.230S	34.290E	33.0N	5.1	4.4		SZGRF
2002/12/23	02:50:38.1	1.728S	34.946E	10G	5.0	4.4		NEIC

Tanzania

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	03:00:12.4	55.3	150.7	1.4	28	5.1		
	e L	Z	03:31:00.2			18.1	301		4.4	
CLL	i P	+ Z	03:00:18.5	58.2	154.8	1.0	8	4.7		
	e S	Z	03:08:17.1							
	e SS	Z	03:11:53.1							
	e LR	Z	03:18:42.3							
	e L	Z	03:27:57.5			18.0	474			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/23	11:55:23.7	15.025S	66.763E	10G	4.7	4.4		NEIC

Mid-Indian Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:07:39.8	81.0	126.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/23	13:46:25.9	18.340N	83.440W	33.0N	5.3	5.5		SZGRF
2002/12/23	13:46:08.2	16.933N	85.629W	10G	5.6	5.2		NEIC

Caribbean Sea

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 13:58:10.1	78.3	282.5	1.2	37	5.4		
BUG	e P	Z 13:58:10.8	78.6	282.9	1.0	19	5.2		
IBBN	e P	Z 13:58:11.6	78.7	283.1	1.2	72	5.7		
TNS	e P	Z 13:58:16.8	79.6	284.0	1.1	28	5.3		
BSEG	e P	Z 13:58:18.0	79.8	284.8	1.1	52	5.6		
BFO	e P	Z 13:58:18.4	80.0	284.3	1.3	20	5.1		
CLZ	e P	Z 13:58:21.2	80.4	285.2	1.1	36	5.4		
STU	e P	Z 13:58:21.0	80.4	284.8	0.8	26	5.4		
MOX	e P	Z 13:58:26.7	81.4	286.3	1.1	22	5.1		
GRA1	e P	Z 13:58:27.2	81.5	286.2	1.1	36	5.3		
	e sP	Z 13:58:39.7							
	e PP	Z 14:01:44.8							
	e S	R 14:08:42.0							
	e SS	R 14:13:53.0							
	e L	Z 14:32:11.4			18.7	1968		5.5	
FUR	e P	Z 13:58:29.3	81.9	286.4	1.1	37	5.2		
CLL	i P	Z 13:58:29.5	82.1	287.3	1.1	38	5.2		
	e pP	Z 13:58:42.5							
	e PP	Z 14:01:37.1							
	e	14:01:51.0							
	e S	T 14:08:49.4							
	e PS	R 14:09:30.1							
	e SS	R 14:14:01.8							
	e SSS	E 14:17:40.1							
	e LR	Z 14:24:17.2							
	e L	Z 14:30:57.7			20.0	1429		5.3	
RUE	e P	Z 13:58:31.1	82.2	287.7	0.8	36	5.3		
WET	e P	Z 13:58:33.6	82.7	287.5	1.1	41	5.2		
BRG	e P	Z 13:58:33.9	82.8	288.0	1.1	30	5.2		
GEC2	e P	Z 13:58:36.6	83.3	288.1	1.2	34	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/23	21:45:32.7	37.480N	74.000E	33.0N	5.1			SZGRF
2002/12/23	21:45:44.9	38.420N	74.058E	154D	4.6			NEIC

Tajikistan-Xinjiang border region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	21:53:33.4	43.2	84.1	0.5	22	5.1		
BRG	e P	Z	21:53:34.6	43.2	82.5	0.8	24	5.0		
GEC2	e P	Z	21:53:38.5	43.7	80.2	1.1	18	4.7		
CLL	e P	Z	21:53:38.4	43.8	82.3	0.9	20	4.9		
WET	e P	Z	21:53:41.8	44.2	80.0	1.1	14	4.8		
MOX	e P	Z	21:53:46.6	44.7	80.7	0.8	11	4.8		
BSEG	e P	Z	21:53:49.1	45.1	83.1	0.7	18	5.2		
GRA1	e P	Z	21:53:50.6	45.1	79.5	1.0	31	5.3		
CLZ	e P	Z	21:53:50.9	45.3	81.0	0.9	11	4.9		
FUR	e P	Z	21:53:51.7	45.4	78.0	0.9	40	5.5		
STU	e P	Z	21:54:01.5	46.6	77.3	1.1	23	5.2		
IBBN	e P	Z	21:54:03.0	46.8	79.7	0.9	18	5.2		
BUG	e P	Z	21:54:06.6	47.3	78.5	1.1	22	5.2		
BFO	e P	Z	21:54:06.2	47.3	76.4	1.3	19	5.0		
WLF	e P	Z	21:54:14.8	48.4	76.3	0.9	18	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/24	11:32:00.1	6.889S	154.711E	33N	5.2			NEIC

Bougainville - Solomon Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	11:51:12.7	127.4	48.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/24	12:49: 5.5	50.440N	153.200E	33.0N	5.8	5.4		SZGRF
2002/12/24	12:48:45.2	47.735N	154.434E	33N	5.7	5.4		NEIC

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	13:00:13.6	72.6	26.3	1.0	239	6.3		
BSEG	e P	Z	13:00:21.2	73.9	24.2	0.9	55	5.7		
RUE	e P	Z	13:00:23.5	74.3	26.3	0.9	117	6.0		
CLL	i P	+ Z	13:00:30.3			0.9	143	6.1		
	e PP	Z	13:03:20.1	75.6	25.7	0.9	145	6.1		
	e S	Z	13:10:12.6							
	e LQ	T	13:24:19.5							
	e LR	Z	13:26:05.7							
	e L	Z	13:35:54.2			22.0	2736		5.5	
BRG	e P	Z	13:00:31.2	75.7	26.2	1.4	85	5.7		
CLZ	e P	Z	13:00:32.5	75.8	24.0	1.2	131	5.9		
IBBN	e P	Z	13:00:33.1	76.0	22.4	1.0	97	5.8		
MOX	e P	Z	13:00:36.4	76.6	24.7	1.0	66	5.6		
BUG	e P	Z	13:00:38.3	76.9	22.0	1.0	73	5.7		
GRA1	e P	Z	13:00:42.5	77.5	24.4	0.8	115	5.9		

	e L	Z	13:38:14.8				21.5	2298		5.4
WET	e P	Z	13:00:42.5	77.6	25.4	0.8		76	5.8	
GEC2	e P	Z	13:00:42.2	77.6	25.8	0.8		34	5.5	
TNS	e P	Z	13:00:43.3	77.8	22.6	1.1		77	5.6	
WLF	e P	Z	13:00:49.5	78.8	21.1	4.5		1381	6.4	
STU	e P	Z	13:00:49.5	78.9	23.0	1.1		64	5.7	
FUR	e P	Z	13:00:49.8	78.9	24.3	1.0		102	5.9	
BFO	e P	Z	13:00:52.9	79.5	22.4	1.1		79	5.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/24	14:43:17.1	52.090N	156.070E	33.0N	5.5	4.6		SZGRF
2002/12/24	14:43:09.1	50.050N	156.085E	88D	5.5			NEIC

Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	14:54:27.6	72.1	22.3	1.0	30	5.4		
RUE	e P	Z	14:54:30.8	72.6	24.3	1.1	64	5.7		
CLL	e P	Z	14:54:37.8	73.9	23.7	1.0	42	5.5		
CLZ	e P	Z	14:54:39.5	74.0	22.1	1.0	50	5.6		
BRG	e P	Z	14:54:38.9	74.1	24.2	2.2	94	5.5		
IBBN	e P	Z	14:54:39.9	74.2	20.5	0.9	41	5.5		
MOX	e P	Z	14:54:43.8	74.8	22.7	1.1	27	5.3		
BUG	e P	Z	14:54:45.1	75.1	20.1	1.1	46	5.4		
GRA1	e P	Z	14:54:49.5	75.8	22.4	0.9	73	5.7		
	e L	Z	15:28:42.2			21.6	367		4.6	
WET	e P	Z	14:54:50.3	75.9	23.4	1.0	43	5.4		
GEC2	e P	Z	14:54:50.2	76.0	23.8	0.9	18	5.1		
TNS	e P	Z	14:54:50.5	76.0	20.7	1.0	34	5.3		
STU	e P	Z	14:54:57.1	77.2	21.1	1.0	47	5.6		
FUR	e P	Z	14:54:57.6	77.2	22.3	1.1	81	5.8		
BFO	e P	Z	14:54:59.9	77.8	20.5	1.0	49	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/24	17:03:30.2	35.690N	44.060E	33.0G	5.2	4.2		SZGRF
2002/12/24	17:03:02.6	34.527N	47.371E	33N	5.0	4.4		NEIC

Iraq

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	17:08:58.3	28.6	107.4	2.8	152	5.1		
BRG	e P	Z	17:09:01.9	29.1	111.2	2.0	43	4.7		
WET	e P	Z	17:09:03.4	29.2	107.0	2.6	129	5.1		
CLL	e P	Z	17:09:11.3	29.8	110.8					
FUR	e P	Z	17:09:09.7	30.0	103.7	1.6	159	5.5		
GRA1	e P	Z	17:09:14.8	30.4	106.1	2.7	277	5.6		
	e L	E	17:24:28.2			18.1	546		4.2	

MOX	e P	Z	17:09:13.1	30.4	108.1				
CLZ	e P	Z	17:09:23.8	31.5	108.6	1.0	21	4.9	
BFO	e P	Z	17:09:28.5	31.9	101.0				
TNS	e P	Z	17:09:30.8	32.3	104.1	1.6	75	5.3	
BSEG	e P	Z	17:09:31.2	32.3	111.7				
IBBN	e P	Z	17:09:40.2	33.2	106.5				
WLF	e P	Z	17:09:40.9	33.6	101.0	1.5	52	5.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/25	05:09:01.0	54.686S	118.613W	10G	4.9			NEIC
Southern East Pacific Rise								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z	05:28:47.1	151.1	244.1					
	i PKPbc	Z	05:28:54.7			1.4	20			
	e PKPab	Z	05:29:00.2							
GRA1	e PKP	Z	05:28:50.7	149.5	241.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/25	08:54:25.5	17.770S	178.939W	572D	4.8			NEIC
Fiji Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKP	Z	09:12:54.2	143.1	14.8					
RUE	e PKP	Z	09:12:56.7	143.9	20.8					
IBBN	e PKP	Z	09:13:00.9	145.1	11.2					
CLZ	e PKP	Z	09:13:01.2	145.1	15.6					
CLL	i PKPbc	+ Z	09:13:00.6	145.1	20.2	0.7	83			
	e PKPab	Z	09:13:02.5			0.9	50			
	e pPKPbc	Z	09:15:14.8							
BRG	e PKP	Z	09:13:01.9	145.3	21.9					
BUG	e PKP	Z	09:13:04.2	146.0	10.6					
MOX	e PKPbc	Z	09:13:04.0	146.1	18.2					
	e PKPab	Z	09:13:07.0							
TNS	e PKPbc	Z	09:13:06.4	147.0	13.0					
	e PKPab	Z	09:13:09.8							
GRA1	e PKP	Z	09:13:06.9	147.0	18.0					
	e PKPab	Z	09:13:10.1							
GRFO	e PKPbc	Z	09:13:06.9	147.0	18.0					
	e PKPab	Z	09:13:10.2							
WET	e PKPbc	Z	09:13:07.2	147.2	21.1					
	e PKPab	Z	09:13:10.8							
GEC2	e PKPbc	Z	09:13:07.4	147.3	22.7					
	e PKPab	Z	09:13:11.2							
WLF	e PKPbc	Z	09:13:08.7	147.8	9.1					

	e PKPab	Z	09:13:13.3						
STU	e PKPbc	Z	09:13:09.9	148.3	14.9				
	e PKPab	Z	09:13:15.1						
FUR	e PKPbc	Z	09:13:10.5	148.5	18.8				
	e PKPab	Z	09:13:15.8						

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/25	12:57:3.4	38.560N	75.680E	33.0N	5.8	5.8		SZGRF
2002/12/25	12:57:07.0	39.677N	75.192E	33N	5.4	5.5		NEIC

Southern Xinjiang, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	13:05:06.5	43.1	81.8	1.3	102	5.4		
RGN	e P	Z	13:05:07.2	43.1	83.7	1.2	459	6.1		
BRG	e P	Z	13:05:08.2	43.2	80.3	1.3	119	5.5		
CLL	i P	+ Z	13:05:12.1	43.7	80.1	1.3	101	5.4		
	e PP	Z	13:06:52.8							
	e S	R	13:11:39.8							
	e SS	R	13:15:00.3							
	e LQ	T	13:17:24.8							
	e LR	Z	13:19:05.7							
	e L	Z	13:25:04.0			18.0	12544		5.9	
GEC2	e P	Z	13:05:12.8	43.7	78.0	1.2	177	5.9		
WET	e P	Z	13:05:16.4	44.2	77.8	1.3	115	5.7		
MOX	e P	Z	13:05:20.2	44.7	78.5	1.5	125	5.7		
BSEG	e P	Z	13:05:22.0	44.9	80.9	1.2	144	5.9		
GRA1	e P	Z	13:05:24.6	45.1	77.3	1.2	185	6.0		
	e PP	Z	13:07:16.6							
	e S	E	13:12:09.1							
	e SS	N	13:15:35.2							
	e L	Z	13:26:02.3			18.5	9416		5.8	
CLZ	e P	Z	13:05:24.4	45.2	78.9	1.4	96	5.6		
FUR	e P	Z	13:05:26.7	45.5	75.9	1.2	232	6.2		
STU	e P	Z	13:05:35.6	46.6	75.2	1.3	142	5.9		
IBBN	e P	Z	13:05:35.9	46.7	77.6	1.5	215	6.1		
TNS	e P	Z	13:05:35.9	46.8	76.1	1.3	71	5.6		
BUG	e P	Z	13:05:39.9	47.2	76.5	1.3	122	5.9		
WLF	e P	Z	13:05:48.9	48.3	74.2	1.1	139	5.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/25	19:13:41.0	35.500N	69.550E	33.0G	5.3	4.6		SZGRF
2002/12/25	19:13:42.7	35.706N	69.874E	92D	5.2			NEIC

Hindu Kush, Afghanistan, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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BRG	e P	Z	19:21:29.9	42.3	88.7	0.9	54	5.3		
RUE	e P	Z	19:21:30.0	42.4	90.3	1.0	73	5.4		
GEC2	e P	Z	19:21:31.9	42.5	86.3	1.0	26	4.9		
RGN	e P	Z	19:21:33.4	42.7	92.2	1.1	211	5.8		
CLL	i P	Z	19:21:34.5	42.9	88.4	1.0	33	5.0		
	e		19:21:39.2							
	e pP	Z	19:21:55.2							
	e sP	Z	19:22:06.5							
	e PP	Z	19:23:16.4							
	e S	Z	19:27:48.6							
	e SS	N	19:31:10.7							
	e LQ	T	19:32:34.9							
	e LR	Z	19:34:10.0							
	e L	Z	19:41:49.5			20.0	917		4.7	
WET	e P	Z	19:21:36.3	43.0	86.0	1.8	29	4.7		
MOX	e P	Z	19:21:42.1	43.8	86.7	1.0	40	5.1		
GRA1	e P	Z	19:21:45.5	44.1	85.4	1.5	148	5.5		
	e		19:21:50.7							
	e L	Z	19:32:40.9			20.7	801		4.6	
FUR	e P	Z	19:21:45.6	44.2	83.9	1.0	57	5.3		
BSEG	e P	Z	19:21:47.3	44.4	89.1	0.9	50	5.4		
CLZ	e P	Z	19:21:47.6	44.5	87.0	1.4	99	5.5		
STU	e P	Z	19:21:55.8	45.5	83.1	0.9	45	5.5		
TNS	e P	Z	19:21:58.2	45.8	84.0	1.1	26	5.2		
IBBN	e P	Z	19:21:59.9	46.1	85.5	0.9	96	5.8		
BUG	e P	Z	19:22:02.9	46.4	84.3	1.0	56	5.5		
WLF	e P	Z	19:22:10.6	47.3	81.9	1.0	69	5.7		

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/25 20:47:12.8 18.210S 178.320W 600G 3.9 NEIC
 Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKP	Z	21:05:40.2	143.7	13.9					
CLZ	e PKP	Z	21:05:46.8	145.7	14.8					
CLL	e PKP	Z	21:05:46.7	145.7	19.3					
BRG	e PKP	Z	21:05:47.3	145.9	21.1					
GRA1	e PKP	Z	21:05:52.0	147.6	17.1					
GEC2	e PKP	Z	21:05:52.4	147.9	21.8					
WLF	e PKP	Z	21:05:54.5	148.3	8.1					
FUR	e PKP	Z	21:05:55.7	149.0	17.9					

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/25 21:07:45.6 30.689S 178.436W 200G 4.5 NEIC
 Kermadec Isl, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 21:28:01.0	159.7	24.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/27	13:28:28.7	4.210N	96.980E	33.0N	6.2			SZGRF
2002/12/27	13:28:36.5	4.184N	97.647E	139D	5.6			NEIC

Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 13:40:47.2	82.8	92.2	1.0	159	6.1		
GEC2	e P	Z 13:40:47.8	82.9	91.8	1.4	206	6.1		
RUE	e P	Z 13:40:47.9	82.9	92.3	0.8	677	6.9		
RGN	e P	Z 13:40:49.9	83.3	92.2	1.3	262	6.3		
CLL	i P	+ Z 13:40:49.9	83.4	91.6	1.1	137	6.1		
	e pP	Z 13:41:24.9							
WET	e P	Z 13:40:50.4	83.4	91.2	0.9	105	6.1		
MOX	e P	Z 13:40:54.6	84.3	90.4	1.1	95	6.0		
FUR	e P	Z 13:40:55.2	84.5	89.9	0.9	111	6.1		
GRA1	e P	Z 13:40:56.4	84.5	90.0	1.0	181	6.3		
CLZ	e P	Z 13:40:58.7	85.0	89.6	0.9	272	6.5		
BSEG	e P	Z 13:40:58.9	85.0	89.7	1.0	256	6.4		
STU	e P	Z 13:41:02.3	85.8	88.4	0.9	70	5.9		
TNS	e P	Z 13:41:05.0	86.3	87.9	1.0	112	6.0		
IBBN	e P	Z 13:41:06.7	86.6	87.5	1.0	405	6.5		
BUG	e P	Z 13:41:08.3	87.0	87.1	1.0	285	6.4		
WLF	e P	Z 13:41:12.7	87.8	86.2	1.1	173	6.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/27	15:51:27.0	2.770N	95.923E	33N	4.9			NEIC

Off the W coast of N Sumatra

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:03:59.2	84.5	92.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/28	03:20:43.3	18.239S	178.610W	625D	5.1			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKP	Z 03:39:08.1	143.6	14.4					
RUE	e PKP	Z 03:39:10.8	144.4	20.5					
IBBN	e PKP	Z 03:39:14.1	145.6	10.7					

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CLZ	e	PKP	Z	03:39:14.2	145.7	15.2					
CLL	e	PKP	Z	03:39:13.7	145.7	19.8					
	i	PKP	Z	03:39:15.2			0.6	234			
	i	PKP	Z	03:39:16.7			0.7	138			
	e	pPKP	Z	03:41:38.4							
	e	pPKP	Z	03:41:44.0							
BRG	e	PKP	Z	03:39:14.9	145.9	21.6					
BUG	e	PKP	Z	03:39:17.1	146.5	10.1					
MOX	e	PKP	Z	03:39:17.9	146.6	17.8					
TNS	e	PKP	Z	03:39:20.4	147.5	12.6					
GRA1	e	PKP	Z	03:39:20.8	147.6	17.6					
WET	e	PKP	Z	03:39:21.1	147.7	20.8					
GEC2	e	PKP	Z	03:39:21.1	147.8	22.3					
WLF	e	PKP	Z	03:39:22.8	148.3	8.6					
STU	e	PKP	Z	03:39:23.5	148.8	14.4					
FUR	e	PKP	Z	03:39:24.0	149.0	18.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/28	04:00:48.7	35.340N	72.210E	33.0N	5.2			SZGRF
2002/12/28	04:01:12.4	36.509N	70.933E	189D	4.5			NEIC

Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:09:07.7	44.3	83.8	1.6	37	5.2		
	e	04:09:48.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/28	07:44:32.8	15.082S	173.805W	33N	5.0	4.5		NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 08:04:23.0	145.1	8.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/28	09:36:26.7	53.390N	167.960W	33.0N	6.0	4.7		SZGRF
2002/12/28	09:36:11.9	51.607N	168.517W	33N	5.7	4.9		NEIC

Fox Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 09:47:48.2	73.8	1.2	1.1	317	6.4		
BSEG	e P	Z 09:47:51.7	74.5	359.2	1.1	144	6.0		
RUE	e P	Z 09:47:59.8	75.9	1.5	1.1	192	6.0		
IBBN	e P	Z 09:48:00.7	76.0	357.6	1.0	214	6.1		

CLZ	e P	Z	09:48:03.9	76.5	359.3	1.0	161	6.0	
BUG	e P	Z	09:48:05.1	76.9	357.3	0.9	114	5.9	
CLL	i P	- Z	09:48:06.1	77.1	1.0	1.1	114	5.9	
	e PP	Z	09:51:06.4						
	e S	Z	09:58:24.2						
	e SS	Z	10:03:10.6						
	e SSS	Z	10:06:34.6						
	e LR	Z	10:13:08.9						
	e L	Z	10:22:13.8			22.0	571		4.9
BRG	e P	Z	09:48:08.7	77.5	1.6	1.1	124	6.0	
MOX	e P	Z	09:48:10.3	77.7	0.1	1.0	131	6.0	
TNS	e P	Z	09:48:12.5	78.1	358.1	0.9	88	5.9	
WLF	e P	Z	09:48:15.4	78.6	356.6	1.0	101	5.9	
GRA1	e P	Z	09:48:16.1	78.7	359.8	0.9	220	6.3	
	e L	Z	10:22:33.0			21.9	414		4.7
WET	e P	Z	09:48:18.8	79.2	0.9	1.3	98	5.8	
GEC2	e P	Z	09:48:20.1	79.5	1.4	1.0	86	5.8	
STU	e P	Z	09:48:20.4	79.6	358.6	0.9	127	6.0	
FUR	e P	Z	09:48:24.1	80.2	359.9	1.4	238	6.0	

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/28 16:13:11.1 20.503S 178.636W 600G 4.1 NEIC
 Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	Z 16:31:51.5	147.9	20.9	0.7	23			
	e PKPab	Z 16:31:56.0			0.6	8			
GRA1	e PKP	Z 16:31:56.7	149.8	18.6					

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/29 07:31:18.4 14.390N 97.700W 33.0N 4.6 SZGRF
 2002/12/29 07:31:45.7 17.721N 94.820W 131D 4.8 NEIC
 Off coast of Oaxaca, Mexico

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:44:18.5	86.5	293.5			4.6		

Date Origin Time Lat Long Depth mb Ms ML Source
 2002/12/29 16:01:33.2 24.454S 178.658E 600G 4.4 NEIC
 South of the Fiji Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 16:20:39.2	152.9	25.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/29	22:54:55.0	46.550N	10.710E	10.0G			3.0	SZGRF
2002/12/29	22:54:54.3	46.572N	10.541E	10G				NEIC

Northern Italy

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
SQTA	e Pg	Z	22:55:07.9	0.8	215.4					
	e Sg	Z	22:55:18.8							
MOTA	e Pg	Z	22:55:09.5	0.9	206.6					
	e Sg	Z	22:55:22.3							
WATA	e Pg	Z	22:55:12.2	1.0	223.2					
FUR	e Pg	Z	22:55:25.7	1.7	197.6					3.2
	e Sg	N	22:55:49.0							
BFO	e Pn	Z	22:55:34.7	2.3	138.8					
GRC1	e Sg	N	22:56:13.2	2.5	195.6					2.8
GRB1	e Sg	N	22:56:27.7	2.9	195.2					3.2
WET	e Pn	Z	22:55:41.8	3.0	212.2					2.9
	e Sn	E	22:56:18.2							
GEC2	e Pn	Z	22:55:43.6	3.1	224.3					2.8
	e Sn	N	22:56:21.2							
GRA1	e Sg	E	22:56:35.6	3.2	188.5					3.3
MOX	e Sn	E	22:56:45.9	4.1	190.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/30	04:49:16.0	7.250N	123.410E	33.0N	6.2	6.2		SZGRF
2002/12/30	04:49:08.5	7.494N	123.489E	10G	5.8	6.2		NEIC

Mindanao, Philippine Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	05:02:40.9	96.9	69.5	1.6	76	6.1		
	e PP	Z	05:07:02.4							
	e SKSac	R	05:13:14.4							
	e Sdiff	T	05:14:04.0							
	e PS	Z	05:15:27.3							
	e SS	R	05:20:44.6							
	e LQ	T	05:32:35.3							
	e LR	Z	05:36:42.6							
	e L	Z	05:53:47.7			20.0	20283		6.6	
	GRA1	e P	Z	05:02:50.9	98.3	68.0	1.7	84	6.2	
e PP		Z	05:06:50.2							
e SKSac		E	05:13:22.2							
e SP		Z	05:15:40.6							
e SS		E	05:21:12.9							
e L		Z	05:47:52.2			20.8	8121		6.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/30	21:22:44.5	47.960N	17.400E	10.0G			2.7	SZGRF

Hungary

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	21:23:27.7	2.6	108.4					
	e Sg	N	21:24:06.5							
WET	e Sg	N	21:24:26.4	3.2	109.9					3.1
BRG	e Sg	N	21:24:42.5	3.7	141.0					
TANN	e Sg	E	21:24:52.9	4.1	125.4					
WERD	e Sg	N	21:24:56.3	4.2	124.8					
CLL	e Sg	N	21:25:06.1	4.4	137.9					
GRA1	e Sg	N	21:25:06.3	4.4	110.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31	06:02:34.9	54.790N	165.400E	33.0N	4.5			SZGRF
2002/12/31	06:02:34.0	55.531N	166.360E	33N	4.9	4.9		NEIC

Komandorsky Islands, Russia, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	06:14:03.5	72.8	14.4			4.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31	10:11:12.8	36.200N	142.190E	33.0N	5.2			SZGRF
2002/12/31	10:11:19.5	37.254N	141.321E	53*	4.8			NEIC

Off east coast of Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	10:23:24.5	79.5	37.7					
BRG	e P	Z	10:23:29.7	80.5	39.9					
CLL	e P	Z	10:23:29.5	80.6	39.3					
CLZ	e P	Z	10:23:33.1	81.2	37.5					
GRA1	e P	Z	10:23:40.5	82.5	37.9	1.1	18	5.2		
STU	e P	Z	10:23:47.6	84.1	36.4					
BFO	e P	Z	10:23:50.6	84.8	35.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31	20:28:37.4	38.680N	19.880E	10.0G		4.0		SZGRF
2002/12/31	20:28:33.4	39.079N	21.088E	33N	4.6			NEIC

Ionian Sea

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	20:31:13.4	11.1	148.8					
	e Sn	N	20:33:14.4							
WET	e Pn	Z	20:31:20.9	11.6	146.7					
	e Pn	Z	20:31:34.9	12.7	142.8					
GRA1	e L	Z	20:37:21.4			20.3	984		3.8	
	e Pn	Z	20:31:38.9	12.8	154.2					
BRG	e L	Z	20:36:30.1			18.1	1078		3.9	
	e Pn	Z	20:31:38.5	12.9	148.5					
TANN	e Pn	Z	20:31:39.5	12.9	148.1					
	e Pn	Z	20:31:37.8	13.0	130.5					
BFO	e Sn	N	20:33:53.3							
	e Pn	Z	20:31:43.6	13.3	146.4					
MOX	e L	Z	20:37:37.3	13.5	152.1	20.1	1905		4.2	
	e Pn	Z	20:31:55.9	14.3	136.5					
CLL	e Sn	E	20:34:22.7							
	e Sn	E	20:34:22.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31	20:47: 7.1	38.750N	20.310E	10.0G		3.7		SZGRF
2002/12/31	20:47:04.9	39.070N	21.239E	33N	4.5			NEIC

Greece

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	20:49:44.3	11.2	148.3					
	e Sn	E	20:51:45.1							
WET	e Pn	Z	20:49:51.4	11.7	146.2					
	e Pn	Z	20:50:06.9	12.8	142.4					
GRA1	e L	Z	20:56:00.2			20.4	428		3.5	
	e Pn	Z	20:50:09.0	13.1	130.1					
BFO	e Sn	N	20:52:26.4							
	e Pn	Z	20:50:14.7	13.4	146.0					
MOX	e L	Z	20:56:08.1	13.5	151.6	21.2	843		3.8	
	e Pn	Z	20:50:26.8	14.4	136.1					
CLL	e Sn	E	20:52:56.0							
	e L	N	20:55:27.4			21.6	929		3.8	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31	21:22:26.4	38.730N	20.150E	10.0G		3.6		SZGRF
2002/12/31	21:22:22.9	39.045N	21.091E	33N	4.2			NEIC

Greece

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z	21:25:03.2	11.1	148.9					
	e Sn	E	21:27:04.4							

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WET	e Pn	Z	21:25:11.4	11.7	146.8				
GRA1	e Sn	N	21:27:38.6	12.7	142.9				
	e L	Z	21:31:29.3			20.9	418	3.4	
BFO	e Pn	Z	21:25:27.3	13.1	130.6				
	e Sn	E	21:27:45.5						
MOX	e Pn	Z	21:25:34.2	13.4	146.5				
CLL	e L	Z	21:31:36.9	13.5	152.1	19.3	928	3.9	
TNS	e Pn	Z	21:25:44.8	14.3	136.5				
	e Sn	N	21:28:13.4						
	e L	Z	21:32:48.8			19.8	433	3.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pn	Z 22:28:53.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/12/31	22:29:35.2	46.580N	146.600E	33.0N	5.6			SZGRF
2002/12/31	22:29:48.2	45.443N	146.052E	224	5.2			NEIC

Northwest of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 22:41:01.6	73.7	30.7	1.1	37	5.4		
RUE	e P	Z 22:41:02.2	73.9	32.7	1.2	53	5.5		
CLL	i P	+ Z 22:41:09.1	75.1	32.0	1.1	81	5.8		
	e PcP	Z 22:41:20.3							
	e pP	Z 22:42:00.7							
BRG	e P	Z 22:41:09.5	75.2	32.6	1.0	18	5.0		
CLZ	e P	Z 22:41:12.0	75.5	30.4	1.2	74	5.6		
IBBN	e P	Z 22:41:13.7	75.9	28.8	0.9	55	5.6		
MOX	e P	Z 22:41:15.1	76.1	31.1	1.2	36	5.4		
BUG	e P	Z 22:41:18.6	76.8	28.3	1.0	69	5.7		
GEC2	e P	Z 22:41:19.7	77.0	32.2	0.8	23	5.4		
WET	e P	Z 22:41:20.4	77.0	31.7	0.9	62	5.7		
GRA1	e P	Z 22:41:21.0	77.1	30.7	0.8	112	6.0		
TNS	e P	Z 22:41:22.8	77.5	29.0	0.8	50	5.7		
FUR	e P	Z 22:41:27.8	78.4	30.6	0.9	102	6.0		
STU	e P	Z 22:41:28.4	78.6	29.3	0.8	74	5.9		
BFO	e P	Z 22:41:31.9	79.2	28.7	0.9	32	5.4		

Format description

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

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

EPICENTER LINES:

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

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

COMMENT LINE:

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

REGION LINE:

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

PHASE LINE:

Sta	Station code of the reported phase
Phase	Preceded flag for the sharpness of the onset of the phase
	e - emergent
	i - impulsive
	w - weak
	ISC phase code
	Flag for the direction of the first motion
	'+' - compression
	'-' - dilatation
	Component where the phase was picked

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