

MONTHLY BULLETIN of REGIONAL and TELESEISMIC EVENTS RECORDED with GRF- and GRSN-STATIONS in GERMANY
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(produced by SZGRF/BGR - HANNOVER)

December 2008 UPDATED 28.MAY.2009

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
2008/12/01	10:18:34.6	34.253N	45.351E	33.0G	5.1			SZGRF
Iran-Iraq border region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:24:38.8	29.3	108.8	1.4	44	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/01	17:29:27.0	52.079N	177.155E	33.0G	5.1			SZGRF
Rat Islands, Aleutian Islands, United States								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 17:41:24.5	77.5	8.8	0.8	12	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/01	20:21:36.4	20.950S	175.460W	33.0G				SZGRF
Tonga Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z 20:41:16.3	146.7	9.9					
RUE	e PKPdf	Z 20:41:19.4	147.7	16.3					
	e PKPab	Z 20:41:24.8							
IBBN	e PKPdf	Z 20:41:22.0	148.5	5.8					
	e PKPab	Z 20:41:28.4							
CLZ	e PKPdf	Z 20:41:22.3	148.8	10.5					
CLL	e PKPdf	Z 20:41:22.5	148.9	15.4					
BRG	e PKPdf	Z 20:41:23.3	149.2	17.3					

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NEUB	e PKPdf	Z	20:41:23.3	149.2	13.3
	e PKPab	Z	20:41:30.5		
FBE	e PKPab	Z	20:41:31.2	149.2	16.2
BUG	e PKPab	Z	20:41:31.3	149.4	5.0
MOX	e PKPdf	Z	20:41:24.4	149.8	13.2
UBBA	e PKPab	Z	20:41:32.7	149.8	10.2
TANN	e PKPdf	Z	20:41:24.5	149.9	14.9
	e PKPab	Z	20:41:33.3		
GUNZ	e PKPab	Z	20:41:33.6	150.0	14.6
WERN	e PKPab	Z	20:41:34.4	150.0	14.8
TNS	e PKPab	Z	20:41:36.5	150.6	7.4
GRA1	e PKPab	Z	20:41:37.4	150.8	12.9
GEC2	e PKPab	Z	20:41:39.2	151.2	18.0
WLF	e PKPab	Z	20:41:40.4	151.3	3.1
FUR	e PKPab	Z	20:41:44.1	152.3	13.6
BFO	e PKPab	Z	20:41:44.0	152.5	7.7

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/02	03:15: 1.6	43.636N	13.581E	10.0G			3.7	SZGRF
Central Italy								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
OBKA	e Pn	Z	03:15:48.9	3.0	193.7					3.7
KBA	e Pn	Z	03:15:55.3	3.4	177.2					
	e Sn	N	03:16:35.5							
ARSA	e Pn	Z	03:16:01.1	3.9	201.4					
WTTA	e Pn	Z	03:16:01.4	3.9	158.7					3.6
	e Sn	N	03:16:47.5							
RJOB	e Pn	Z	03:16:05.0	4.1	172.1					
	e Sn	Z	03:16:52.7							
MOA	e Pn	Z	03:16:06.5	4.2	186.7					
	e Sn	N	03:16:54.7							
DAVA	e Pn	Z	03:16:09.5	4.5	143.3					
	e Sn	N	03:16:59.7							
GEC2	e Pn	Z	03:16:18.7	5.2	181.0					
WET	e Pn	Z	03:16:22.4	5.5	174.7					
	e Sn	Z	03:17:23.3							
TNS	e Pn	Z	03:16:49.1	7.5	150.1					
	e Sn	N	03:18:10.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/02	03:17: 0.1	25.449N	122.635E	33.0N	5.5	4.9		SZGRF
Taiwan region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
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BRG	e P	Z	03:29:13.5	81.3	59.9	0.8	14	5.1	
CLL	e P	Z	03:29:14.8	81.6	59.3	0.9	32	5.4	
BSEG	e P	Z	03:29:15.9	81.6	57.6	1.1	41	5.5	
TANN	e P	Z	03:29:19.0	82.4	58.8	1.0	16	5.2	
GEC2	e P	Z	03:29:19.3	82.5	59.5	0.9	30	5.5	
MOX	e P	Z	03:29:20.7	82.7	58.2	0.9	18	5.3	
CLZ	e P	Z	03:29:21.5	82.7	57.4	0.9	43	5.7	
WET	e P	Z	03:29:21.2	82.8	58.9	1.2	18	5.2	
ROTZ	e P	Z	03:29:21.7	82.8	58.5	1.0	27	5.4	
GRA1	e P	Z	03:29:24.7	83.4	57.8	1.6	73	5.7	
	e L	Z	04:11:01.4			20.8	504		4.9
RJOB	e P	Z	03:29:24.7	83.6	58.7	0.8	23	5.5	
IBBN	e P	Z	03:29:26.8	83.8	55.5	1.0	59	5.8	
FUR	e P	Z	03:29:28.4	84.2	57.7	0.9	47	5.7	
BUG	e P	Z	03:29:30.3	84.6	55.0	1.2	51	5.6	
TNS	e P	Z	03:29:30.7	84.6	55.8	1.5	30	5.3	
STU	e P	Z	03:29:32.2	85.0	56.3	0.8	15	5.3	
WLF	e P	Z	03:29:38.5	86.2	54.1	1.4	54	5.5	

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/02 12:31:51.4 20.860N 146.680E 33.0G 5.3
 Mariana Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 12:45:37.9	96.3	40.5					
	e PP	Z 12:49:15.2							
BRG	e P	Z 12:45:41.1	97.1	43.8					
	e PP	Z 12:49:20.9							
CLL	e P	Z 12:45:41.7	97.2	42.9					
	e PP	Z 12:49:21.5							
CLZ	e P	Z 12:45:44.8	97.9	40.7					
	e PP	Z 12:49:27.3							
TANN	e P	Z 12:45:46.2	98.1	42.6					
	e PP	Z 12:49:28.5							
MOX	e P	Z 12:45:47.7	98.3	41.8					
	e PP	Z 12:49:29.9							
IBBN	e P	Z 12:45:49.6	98.6	38.4					
	e PP	Z 12:49:32.0							
ROTZ	e P	Z 12:45:48.2	98.7	42.4					
	e PP	Z 12:49:33.7							
GEC2	e P	Z 12:45:48.0	98.7	43.8					
	e PP	Z 12:49:32.6							
UBBA	e P	Z 12:45:49.6	98.8	40.5					
	e PP	Z 12:49:34.2							
WET	e P	Z 12:45:50.1	98.8	43.0					
	e PP	Z 12:49:34.7							
GRA1	e P	Z 12:45:51.2	99.2	41.6	17.8	107			

	e PP	Z	12:49:36.8						
	e PPP	Z	12:51:55.5						
	e PS	Z	12:58:40.5						
	e SS	Z	13:04:07.6						
	e L	Z	13:33:34.6			19.6	1039	5.3	
BUG	e PP	Z	12:49:38.6	99.4	38.0				
RJOB	e P	Z	12:45:53.7	99.9	43.1				
	e PP	Z	12:49:42.3						
TNS	e P	Z	12:45:55.1	99.9	39.2				
	e PP	Z	12:49:42.6						
FUR	e P	Z	12:45:55.1	100.3	41.8				
	e PP	Z	12:49:45.4						
STU	e P	Z	12:45:58.5	100.7	40.0				
	e PP	Z	12:49:48.6						
WLF	e P	Z	12:46:00.1	101.3	37.3				
	e PP	Z	12:49:53.3						
BFO	e P	Z	12:46:01.7	101.4	39.3				
	e PP	Z	12:49:53.5						

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/02 17:05:47.9 23.130S 168.180E 124.3 SZGRF
 New Caledonia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 17:25:07.8	145.0	37.2					
BRG	e PKPbc	Z 17:25:11.6	145.8	45.4					
CLL	e PKPbc	Z 17:25:11.5	145.9	43.6					
CLZ	e PKPbc	Z 17:25:13.7	146.6	39.1					
TANN	e PKPbc	Z 17:25:14.9	146.8	43.7					
MOX	e PKPbc	Z 17:25:15.2	147.0	42.2					
IBBN	e PKPbc	Z 17:25:14.9	147.2	34.7					
GEC2	e PKPbc	Z 17:25:16.9	147.3	47.2					
ROTZ	e PKPbc	Z 17:25:16.9	147.4	44.0					
WET	e PKPbc	Z 17:25:17.5	147.5	45.7					
UBBA	e PKPbc	Z 17:25:16.8	147.5	39.6					
GRA1	e PKPbc	Z 17:25:17.8	147.9	42.6					
	e pPKPbc	Z 17:25:50.8							
BUG	e PKPbc	Z 17:25:17.8	148.1	34.7					
RJOB	e PKPab	Z 17:25:22.7	148.5	47.2					
TNS	e PKPbc	Z 17:25:19.9	148.6	37.7					
FUR	e PKPbc	Z 17:25:21.4	149.0	44.4					
	e PKPab	Z 17:25:24.3							
STU	e PKPbc	Z 17:25:22.4	149.5	40.5					
	e PKPab	Z 17:25:25.4							
WLF	e PKPbc	Z 17:25:23.7	150.0	34.5					
BFO	e PKPbc	Z 17:25:24.2	150.2	39.5					
	e PKPab	Z 17:25:28.0							

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/03 11:37:10.7 53.130N 159.303E 33.0G 5.7 4.2
 Near east coast of Kamchatka Peninsula, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	11:48:25.5	71.8	20.5	0.9	120	6.0		
CLZ	e P	Z	11:48:26.8	71.8	19.0	1.1	164	6.1		
IBBN	e P	Z	11:48:26.7	71.9	17.5	1.3	207	6.1		
BRG	e P	Z	11:48:26.8	72.0	21.0	1.2	52	5.6		
MOX	e P	Z	11:48:31.4	72.7	19.6	1.1	73	5.7		
TANN	e P	Z	11:48:31.8	72.8	20.1	1.5	64	5.5		
BUG	e P	Z	11:48:31.9	72.8	17.1	1.0	86	5.8		
UBBA	e P	Z	11:48:32.5	72.9	18.7	1.6	106	5.7		
ROTZ	e P	Z	11:48:35.9	73.4	19.9	1.0	56	5.5		
GRA1	e P	Z	11:48:37.7	73.7	19.3	0.9	134	6.0		
	e L	Z	12:23:14.0			19.7	126		4.2	
TNS	e P	Z	11:48:37.7	73.8	17.7	0.9	71	5.7		
WET	e P	Z	11:48:38.5	73.9	20.2	0.9	73	5.7		
GEC2	e P	Z	11:48:38.6	73.9	20.7	1.2	64	5.5		
WLF	e P	Z	11:48:43.5	74.7	16.3	1.1	30	5.2		
STU	e P	Z	11:48:44.7	75.0	18.0	1.0	78	5.7		
FUR	e P	Z	11:48:45.6	75.1	19.2	1.1	113	5.8		
RJOB	e P	Z	11:48:46.2	75.2	20.0	0.9	57	5.7		
BFO	e P	Z	11:48:48.0	75.6	17.5	1.0	52	5.6		

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/03 23:17: 0.4 39.270N 143.907E 38.9 6.1 5.8
 Off east coast of Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	23:28:58.8	78.6	34.9	2.3	608	6.2		
BRG	e P	Z	23:29:04.7	79.8	37.1					
CLL	e P	Z	23:29:04.4	79.8	36.5	2.3	422	6.0		
CLZ	e P	Z	23:29:07.9	80.3	34.7	2.3	444	6.1		
TANN	e P	Z	23:29:09.9	80.7	36.0	2.8	380	5.9		
IBBN	e P	Z	23:29:10.3	80.8	32.9	2.2	394	6.1		
MOX	e P	Z	23:29:10.4	80.8	35.5	1.6	102	5.6		
UBBA	e P	Z	23:29:12.6	81.3	34.4	2.3	177	5.8		
ROTZ	e P	Z	23:29:13.5	81.3	35.8	2.3	358	6.1		
GEC2	e P	Z	23:29:13.8	81.5	36.7	2.4	242	5.9		
WET	e P	Z	23:29:14.6	81.6	36.2	2.3	327	6.0		
BUG	e P	Z	23:29:14.9	81.7	32.5	3.3	675	6.2		
GRA1	e P	Z	23:29:15.7	81.8	35.1	2.3	734	6.4		
	e pP	Z	23:29:26.6							

	e sP	Z	23:29:32.1							
	e PP	Z	23:32:27.3							
	e S	E	23:39:30.3							
TNS	e P	Z	23:29:18.4	82.3	33.2	3.3	619	6.3		
RJOB	e P	Z	23:29:20.7	82.8	36.0	2.4	605	6.4		
FUR	e P	Z	23:29:21.8	83.0	35.0	2.4	806	6.5		
STU	e P	Z	23:29:23.1	83.3	33.6	2.2	393	6.3		
WLF	e P	Z	23:29:25.2	83.6	31.6	1.8	211	6.1		
BFO	e P	Z	23:29:26.5	84.0	33.0	2.1	337	6.2		
GRA1	e L	Z	00:06:13.1	81.8	35.1	20.8	4522		5.8	

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/04 03:10:59.8 39.098N 143.883E 33.0G 5.4 5.1
 Off east coast of Honshu, Japan SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	03:22:58.7	78.7	37.3	1.3	75	5.6		
BSEG	e P	Z	03:22:59.4	78.8	35.0	1.1	87	5.7		
CLL	e P	Z	03:23:05.0	79.9	36.6	1.0	54	5.4		
FBE	e P	Z	03:23:06.5	80.1	36.8	1.0	50	5.4		
CLZ	e P	Z	03:23:08.6	80.5	34.8	1.0	53	5.5		
NEUB	e P	Z	03:23:08.1	80.5	35.7	1.0	60	5.6		
TANN	e P	Z	03:23:10.2	80.9	36.1	1.1	16	4.9		
WERD	e P	Z	03:23:10.4	80.9	36.0	1.2	33	5.2		
PLN	e P	Z	03:23:10.4	80.9	35.9	1.6	241	6.0		
GUNZ	e P	Z	03:23:10.9	81.0	36.0	1.1	33	5.3		
IBBN	e P	Z	03:23:11.0	81.0	33.0	0.9	47	5.5		
MOX	e P	Z	03:23:10.9	81.0	35.6	1.1	38	5.3		
WERN	e P	Z	03:23:11.1	81.0	36.0	1.0	31	5.3		
UBBA	e P	Z	03:23:12.9	81.4	34.4	1.7	31	5.2		
ROTZ	e P	Z	03:23:14.0	81.5	35.9	1.3	41	5.4		
GEC2	e P	Z	03:23:14.2	81.6	36.8	1.1	25	5.2		
WET	e P	Z	03:23:15.0	81.7	36.3	1.2	34	5.4		
BUG	e P	Z	03:23:15.4	81.9	32.6	1.0	28	5.3		
GRA1	e P	Z	03:23:16.4	81.9	35.2	1.0	65	5.7		
	e L	Z	04:00:11.9			20.5	918		5.1	
TNS	e P	Z	03:23:18.7	82.5	33.3	1.0	21	5.3		
RJOB	e P	Z	03:23:21.2	82.9	36.1	1.0	52	5.7		
FUR	e P	Z	03:23:22.3	83.1	35.1	1.1	62	5.7		
STU	e P	Z	03:23:23.6	83.4	33.7	1.1	47	5.6		
BFO	e P	Z	03:23:27.0	84.1	33.1	1.2	64	5.7		

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/04 17:30:55.1 21.500S 178.010W 33.0N
 Fiji Islands region SZGRF

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	17:50:34.6	147.0	14.3					
CLZ	e PKPbc	Z	17:50:39.4	149.0	15.3					
CLL	e PKPbc	Z	17:50:39.5	149.0	20.2					
	e PKPab	Z	17:50:43.6							
BRG	e PKPbc	Z	17:50:40.1	149.2	22.1					
	e PKPab	Z	17:50:44.7							
FBE	e PKPbc	Z	17:50:40.5	149.3	21.0					
	e PKPab	Z	17:50:45.4							
NEUB	e PKPbc	Z	17:50:40.4	149.3	18.1					
BUG	e PKPab	Z	17:50:46.8	149.8	9.8					
MOX	e PKPbc	Z	17:50:41.8	149.9	18.1					
PLN	e PKPbc	Z	17:50:42.0	149.9	19.1					
WERD	e PKPbc	Z	17:50:42.1	149.9	19.4					
	e PKPab	Z	17:50:47.9							
GUNZ	e PKPbc	Z	17:50:42.4	150.0	19.5					
	e PKPab	Z	17:50:48.3							
WERN	e PKPbc	Z	17:50:42.7	150.1	19.6					
ROTZ	e PKPbc	Z	17:50:43.8	150.6	19.6					
TNS	e PKPbc	Z	17:50:44.2	150.8	12.4					
WET	e PKPbc	Z	17:50:44.7	151.0	21.3					
GEC2	e PKPbc	Z	17:50:44.9	151.1	23.0					
STU	e PKPbc	Z	17:50:47.2	152.1	14.5					
FUR	e PKPab	Z	17:50:58.2	152.3	18.9					
RJOB	e PKPab	Z	17:50:58.8	152.4	22.1					
BFO	e PKPbc	Z	17:50:49.0	152.7	12.9					
	e PKPab	Z	17:50:59.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/04	19:13:30.4	16.720S	176.172W	33.0G				SZGRF
Fiji Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
FBE	e PKPbc	Z	19:33:03.2	145.0	16.0					
MOX	e PKPbc	Z	19:33:04.7	145.5	13.2					
PLN	e PKPbc	Z	19:33:05.1	145.6	14.2					
WERD	e PKPbc	Z	19:33:05.2	145.6	14.5					
GUNZ	e PKPbc	Z	19:33:05.6	145.7	14.5					
WERN	e PKPbc	Z	19:33:05.9	145.7	14.6					
ROTZ	e PKPbc	Z	19:33:07.8	146.3	14.6					
TNS	e PKPbc	Z	19:33:07.9	146.3	8.0					
GRA3	e PKPbc	Z	19:33:08.3	146.4	13.0					
GRB1	e PKPbc	Z	19:33:09.0	146.7	13.7					
GRB3	e PKPbc	Z	19:33:09.0	146.7	14.0					
GRB2	e PKPbc	Z	19:33:09.2	146.8	13.8					
GRB5	e PKPbc	Z	19:33:09.6	147.0	13.9					

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WLF	e	PKPbc	Z	19:33:10.0	147.0	4.1			
GRC4	e	PKPbc	Z	19:33:09.7	147.0	13.6			
FUR	e	PKPbc	Z	19:33:12.4	148.0	13.5			
RJOB	e	PKPbc	Z	19:33:12.9	148.1	16.4			
BFO	e	PKPbc	Z	19:33:12.8	148.2	8.2			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/05	20:03:12.9	38.935N	143.853E	33.0N	5.1	5.4		SZGRF

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 20:15:13.4	78.9	35.1	1.4	66	5.5		
BRG	e P	Z 20:15:19.3	80.1	37.3	1.1	17	4.9		
CLL	e P	Z 20:15:19.0	80.1	36.7	1.3	41	5.2		
FBE	e P	Z 20:15:20.5	80.2	36.9	0.9	20	5.1		
CLZ	e P	Z 20:15:22.6	80.6	34.9	1.1	22	5.1		
WERD	e P	Z 20:15:24.5	81.0	36.1	1.3	12	4.8		
GUNZ	e P	Z 20:15:24.9	81.1	36.1	1.1	16	4.9		
IBBN	e P	Z 20:15:25.0	81.1	33.1	1.0	20	5.1		
MOX	e P	Z 20:15:24.9	81.1	35.7	1.2	14	4.9		
WERN	e P	Z 20:15:25.2	81.1	36.1	1.1	13	4.9		
ROTZ	e P	Z 20:15:28.1	81.6	36.0	1.0	12	5.0		
WET	e P	Z 20:15:29.1	81.9	36.4	1.2	14	4.9		
GRA1	e P	Z 20:15:30.3	82.0	35.3	1.4	61	5.6		
	e S	E 20:25:50.0							
	e L	Z 20:52:48.9			21.5	1698		5.4	
RJOB	e P	Z 20:15:35.1	83.0	36.2	1.2	30	5.4		
BFO	e P	Z 20:15:41.0	84.2	33.2	1.3	36	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/05	23:24:50.5	12.160N	94.646E	33.0	5.4			SZGRF

Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:36:37.7	76.5	87.0	1.9	65	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/06	00:43:4.4	7.787N	94.036E	33.0G	5.3			SZGRF

Nicobar Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 00:54:58.0	77.7	92.7	1.5	34	5.3		
GEC2	e P	Z 00:54:58.6	77.8	92.1	1.1	22	5.2		

RUE	e P	Z	00:54:58.9	77.9	93.0	1.1	62	5.6
FBE	e P	Z	00:55:00.4	78.1	92.3	1.5	47	5.4
CLL	e P	Z	00:55:01.0	78.3	92.1	1.4	20	5.1
WET	e P	Z	00:55:01.6	78.3	91.6	1.3	21	5.1
GUNZ	e P	Z	00:55:03.7	78.7	91.4	1.5	31	5.1
WERD	e P	Z	00:55:03.6	78.7	91.4	1.3	14	4.8
ROTZ	e P	Z	00:55:04.5	78.8	91.2	1.3	23	5.1
GRA1	e P	Z	00:55:07.8	79.4	90.4	1.5	60	5.4
CLZ	e P	Z	00:55:10.5	80.0	90.1	1.3	36	5.2
BSEG	e P	Z	00:55:10.8	80.0	90.5	1.2	96	5.6
NRDL	e P	Z	00:55:11.6	80.1	90.0	1.6	74	5.4
STU	e P	Z	00:55:14.8	80.8	88.7	1.6	48	5.3
TNS	e P	Z	00:55:17.1	81.2	88.4	1.5	32	5.1
BFO	e P	Z	00:55:17.5	81.3	88.0	1.3	20	5.0
IBBN	e P	Z	00:55:19.2	81.6	88.1	1.1	56	5.6
BUG	e P	Z	00:55:20.9	81.9	87.6	1.4	53	5.5
WLF	e P	Z	00:55:25.5	82.7	86.5	1.6	55	5.5

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/06 09:24:57.4 44.138N 86.055E 33.0G 5.1
 Northern Xinjiang, China SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 09:33:43.3	49.3	66.1	0.7	12	5.1		

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/06 10:55:27.2 7.480S 124.730E 406.0G
 Northern Xinjiang, China EMSC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKiKP	Z 11:13:09.5	108.8	78.4					
CLL	e PKiKP	Z 11:13:10.1	109.3	77.4					
GEC2	e PKiKP	Z 11:13:10.4	109.4	78.9					
WET	e PKiKP	Z 11:13:11.6	109.9	78.1					
RJOB	e PKiKP	Z 11:13:11.7	110.2	78.5					
BSEG	e PKiKP	Z 11:13:12.5	110.3	74.3					
MOX	e PKiKP	Z 11:13:12.1	110.3	76.5					
NRDL	e PKiKP	Z 11:13:13.4	110.8	74.6					
CLZ	e PKiKP	Z 11:13:13.5	110.8	75.1					
GRA1	e PKiKP	Z 11:13:13.1	110.8	76.6					
IBBN	e PKiKP	Z 11:13:15.9	112.2	72.6					
TNS	e PKiKP	Z 11:13:16.4	112.4	74.0					
BUG	e PKiKP	Z 11:13:16.8	112.8	72.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/06	23:36:47.1	19.400S	175.900W	265.0				NEIC

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	23:55:53.7	145.1	10.3					
NRDL	e PKPbc	Z	23:55:57.9	146.6	10.3					
IBBN	e PKPbc	Z	23:55:59.1	147.0	6.3					
CLZ	e PKPbc	Z	23:56:00.0	147.2	11.0					
CLL	e PKPbc	Z	23:56:00.2	147.3	15.7					
BRG	e PKPbc	Z	23:56:00.8	147.6	17.5					
BUG	e PKPbc	Z	23:56:01.4	147.9	5.6					
MOX	e PKPbc	Z	23:56:02.4	148.2	13.5					
UBBA	e PKPbc	Z	23:56:02.1	148.2	10.6					
ROTZ	e PKPbc	Z	23:56:04.7	148.9	14.9					
TNS	e PKPbc	Z	23:56:04.5	149.0	8.0					
GRA1	e PKPbc	Z	23:56:05.2	149.2	13.2					
GEC2	e PKPbc	Z	23:56:06.0	149.6	18.1					
WLF	e PKPbc	Z	23:56:06.7	149.7	3.8					
STU	e PKPbc	Z	23:56:07.9	150.3	9.7					
FUR	e PKPbc	Z	23:56:08.6	150.7	13.9					
RJOB	e PKPbc	Z	23:56:08.7	150.8	17.0					
BFO	e PKPbc	Z	23:56:09.0	150.9	8.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/07	06:23:20.6	13.378N	43.326W	33.0N	5.6	5.2		SZGRF

Northern Mid-Atlantic Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z	06:32:42.6	54.2	245.8	2.2	158	5.7		
BFO	e P	Z	06:32:49.2	55.0	248.7	1.7	91	5.5		
BUG	e P	Z	06:32:52.9	55.5	245.7	1.5	78	5.5		
STU	e P	Z	06:32:53.7	55.7	249.2	1.9	98	5.5		
TNS	e P	Z	06:32:54.5	55.7	247.6	1.7	56	5.3		
IBBN	e P	Z	06:32:57.4	56.2	245.7	1.8	181	5.8		
FUR	e P	Z	06:33:02.1	56.8	251.5	2.0	350	6.0		
UBBA	e P	Z	06:33:02.4	56.9	248.7	2.0	91	5.5		
GRA1	e P	Z	06:33:04.9	57.2	250.5	1.9	99	5.5		
	e S	N	06:41:08.1							
	e L	Z	06:53:01.6			21.6	1989		5.2	
CLZ	e P	Z	06:33:06.4	57.5	248.4	1.8	91	5.5		
NRDL	e P	Z	06:33:07.4	57.6	247.8	1.6	150	5.8		
RJOB	e P	Z	06:33:07.6	57.6	253.1	1.9	71	5.4		
MOX	e P	Z	06:33:08.9	57.8	250.3	1.9	85	5.5		
ROTZ	e P	Z	06:33:09.5	57.8	251.3	2.0	90	5.5		
WET	e P	Z	06:33:10.6	58.1	252.3	1.8	73	5.4		

BSEG	e P	Z	06:33:11.5	58.2	247.2	1.8	444	6.2
GEC2	e P	Z	06:33:13.6	58.5	253.2	1.8	78	5.4
CLL	e P	Z	06:33:15.7	58.8	251.2	1.8	87	5.5
BRG	e P	Z	06:33:19.1	59.2	252.2	2.1	138	5.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/07	13:36:33.4	26.711N	53.732E	33.0G	5.5	4.8		SZGRF

Southern Iran

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	13:43:48.1	37.9	110.9	2.3	304	5.6		
RJOB	e P	Z	13:43:50.3	38.1	108.6	1.6	197	5.6		
WET	e P	Z	13:43:52.7	38.6	110.4	2.5	362	5.6		
BRG	e P	Z	13:43:52.5	38.6	113.5	1.0	70	5.2		
ROTZ	e P	Z	13:43:58.6	39.2	110.4	1.4	111	5.3		
FUR	e P	Z	13:43:59.0	39.2	107.6	1.8	365	5.7		
CLL	e P	Z	13:43:58.7	39.3	113.0	1.4	148	5.4		
GRA1	e P	Z	13:44:03.3	39.8	109.3	1.6	287	5.7		
	e S	E	13:50:11.8							
	e L	Z	14:06:40.6			18.5	1383		4.8	
MOX	e P	Z	13:44:03.6	39.8	110.8	1.5	77	5.1		
STU	e P	Z	13:44:10.4	40.7	106.2	1.0	36	5.0		
UBBA	e P	Z	13:44:12.5	40.9	109.3	1.8	167	5.5		
CLZ	e P	Z	13:44:13.4	41.0	110.8	1.0	156	5.7		
BFO	e P	Z	13:44:14.6	41.2	104.9	1.5	62	5.1		
NRDL	e P	Z	13:44:16.6	41.4	111.2	1.1	130	5.6		
TNS	e P	Z	13:44:18.9	41.6	107.1	1.7	305	5.7		
BSEG	e P	Z	13:44:19.0	41.8	112.9	1.4	155	5.6		
IBBN	e P	Z	13:44:27.1	42.7	108.6	1.3	156	5.6		
BUG	e P	Z	13:44:27.6	42.7	107.2	1.2	173	5.6		
WLF	e P	Z	13:44:28.8	42.9	104.3	1.4	122	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/07	15:30:30.1	50.519N	153.468E	33.0G	5.5			SZGRF

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e P	Z	15:41:57.7	72.4	23.5	0.8	24	5.4		
CLL	e P	Z	15:41:59.5	72.8	25.1	0.9	67	5.8		
BRG	e P	Z	15:42:00.3	72.9	25.6	0.6	20	5.5		
CLZ	e P	Z	15:42:01.4	73.0	23.5	0.8	40	5.6		
IBBN	e P	Z	15:42:02.2	73.2	22.0	0.8	50	5.6		
MOX	e P	Z	15:42:05.5	73.8	24.1	0.7	26	5.4		
UBBA	e P	Z	15:42:06.7	74.0	23.2	0.6	11	5.1		
BUG	e P	Z	15:42:07.5	74.1	21.6	0.6	35	5.6		

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ROTZ	e P	Z	15:42:09.5	74.4	24.4	0.8	30	5.4
GRA1	e P	Z	15:42:11.6	74.7	23.8	0.5	94	6.1
WET	e P	Z	15:42:11.9	74.8	24.7	0.6	49	5.7
GEC2	e P	Z	15:42:11.7	74.8	25.2	0.5	35	5.6
TNS	e P	Z	15:42:12.6	74.9	22.2	0.6	51	5.7
WLF	e P	Z	15:42:18.6	76.0	20.7	0.6	18	5.4
RJOB	e P	Z	15:42:19.3	76.1	24.5	0.7	22	5.4
STU	e P	Z	15:42:18.9	76.1	22.5	0.7	27	5.5
FUR	e P	Z	15:42:19.3	76.1	23.7	0.9	44	5.6
BFO	e P	Z	15:42:22.3	76.7	21.9	0.6	24	5.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/07	15:49:57.9	29.900S	177.900W	56.0				NEIC
Kermadec Islands, New Zealand								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPab	Z	16:10:10.0	155.2	17.2					
CLL	e PKPab	Z	16:10:17.7	157.1	24.9					
IBBN	e PKPab	Z	16:10:18.5	157.2	12.7					
CLZ	e PKPab	Z	16:10:18.7	157.2	18.8					
BRG	e PKPab	Z	16:10:18.7	157.2	27.4					
MOX	e PKPab	Z	16:10:22.2	158.1	22.6					
GRA1	e PKPab	Z	16:10:26.9	159.0	22.6					
WET	e PKPab	Z	16:10:27.1	159.1	27.0					
GEC2	e PKPab	Z	16:10:26.8	159.1	29.2					
TNS	e PKPab	Z	16:10:26.8	159.1	15.6					
RJOB	e PKPab	Z	16:10:32.9	160.4	28.6					
FUR	e PKPab	Z	16:10:33.1	160.4	24.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/07	21:18:49.3	25.758N	120.564E	33.0G	5.2			SZGRF
Taiwan region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	21:30:55.5	79.9	61.2	1.4	24	4.9		
CLL	e P	Z	21:30:56.7	80.3	60.6	1.4	32	5.1		
BSEG	e P	Z	21:30:57.7	80.3	59.0	1.3	28	5.1		
GEC2	e P	Z	21:31:01.3	81.1	60.7	1.3	29	5.1		
MOX	e P	Z	21:31:02.8	81.3	59.5	1.5	34	5.2		
WET	e P	Z	21:31:03.2	81.4	60.2	1.5	26	5.1		
CLZ	e P	Z	21:31:03.4	81.4	58.8	1.4	41	5.4		
ROTZ	e P	Z	21:31:03.7	81.5	59.8	1.5	43	5.4		
GRA1	e P	Z	21:31:06.6	82.0	59.1	1.4	54	5.5		
UBBA	e P	Z	21:31:06.7	82.1	58.4	1.2	11	4.9		
RJOB	e P	Z	21:31:07.0	82.1	60.0	1.1	17	5.1		

IBBN	e P	Z	21:31:08.8	82.5	56.9	1.4	46	5.5
FUR	e P	Z	21:31:10.5	82.8	59.0	0.9	36	5.6

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/07	23:49:59.1	5.995N	94.539E	33.0G	5.0			SZGRF

Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 00:02:02.3	79.4	93.5	1.1	14	4.8		
GEC2	e P	Z 00:02:02.4	79.5	92.9	1.0	26	5.1		
RUE	e P	Z 00:02:03.4	79.6	93.7	0.6	24	5.3		
FBE	e P	Z 00:02:04.5	79.8	93.1	1.0	16	4.9		
WET	e P	Z 00:02:05.4	80.0	92.4	1.3	19	4.9		
CLL	e P	Z 00:02:05.3	80.0	92.8	1.1	9	4.6		
GUNZ	e P	Z 00:02:07.6	80.4	92.2	1.1	11	4.8		
ROTZ	e P	Z 00:02:08.4	80.5	92.0	1.1	13	4.9		
NEUB	e P	Z 00:02:09.5	80.8	91.9	1.1	16	5.0		
GRA1	e P	Z 00:02:11.5	81.1	91.2	0.9	12	4.9		
CLZ	e P	Z 00:02:14.5	81.7	90.9	1.1	15	5.1		
TNS	e P	Z 00:02:20.7	82.9	89.1	0.9	12	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/08	01:51: 6.2	13.092N	43.896W	33.0G	5.7	5.0		SZGRF

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e P	Z 02:00:38.6	55.5	249.0	2.3	251	5.8		
BUG	e P	Z 02:00:42.2	56.1	246.1	2.0	142	5.6		
STU	e P	Z 02:00:43.2	56.2	249.5	2.1	133	5.6		
TNS	e P	Z 02:00:44.3	56.3	247.9	2.2	127	5.6		
IBBN	e P	Z 02:00:46.7	56.7	246.0	2.2	247	5.9		
FUR	e P	Z 02:00:51.8	57.3	251.8	2.3	549	6.2		
UBBA	e P	Z 02:00:52.1	57.4	249.0	2.5	180	5.7		
GRA1	e P	Z 02:00:54.5	57.8	250.8	1.8	87	5.5		
	e L	Z 02:20:51.4			21.7	1369		5.0	
CLZ	e P	Z 02:00:56.0	58.0	248.8	1.9	102	5.5		
NRDL	e P	Z 02:00:56.9	58.1	248.1	2.0	228	5.8		
RJOB	e P	Z 02:00:57.3	58.2	253.3	2.3	132	5.6		
MOX	e P	Z 02:00:58.5	58.3	250.6	2.3	153	5.6		
ROTZ	e P	Z 02:00:59.1	58.4	251.6	1.9	78	5.4		
WET	e P	Z 02:01:00.4	58.6	252.6	2.2	138	5.6		
BSEG	e P	Z 02:01:00.9	58.8	247.5	2.2	532	6.2		
GEC2	e P	Z 02:01:03.4	59.1	253.5	2.1	128	5.6		
CLL	e P	Z 02:01:05.5	59.4	251.5	2.3	163	5.7		
BRG	e P	Z 02:01:08.9	59.8	252.5	1.7	76	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/08	02:58:33.4	52.016N	152.712E	33.0G	5.0			SZGRF

Northwest of Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	03:09:39.6	69.5	23.6	1.0	20	5.2		
NRDL	e P	Z	03:09:47.3	70.9	23.3	1.0	13	5.0		
CLL	e P	Z	03:09:49.2	71.2	24.9	0.9	18	5.2		
BRG	e P	Z	03:09:50.1	71.4	25.3	0.8	5	4.7		
CLZ	e P	Z	03:09:51.0	71.4	23.4	1.1	26	5.3		
IBBN	e P	Z	03:09:51.5	71.6	21.9	1.0	32	5.4		
MOX	e P	Z	03:09:55.1	72.2	24.0	1.2	14	5.0		
ROTZ	e P	Z	03:09:59.4	72.8	24.2	1.0	13	5.0		
GRA1	e P	Z	03:10:01.2	73.2	23.6	1.0	24	5.2		
WET	e P	Z	03:10:01.7	73.2	24.5	1.2	19	5.0		
GEC2	e P	Z	03:10:01.6	73.3	24.9	1.5	10	4.6		
TNS	e P	Z	03:10:01.9	73.4	22.0	0.9	11	4.9		
RJOB	e P	Z	03:10:09.0	74.5	24.3	1.1	7	4.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/08	08:59: 4.5	28.799N	82.674E	33.0N	5.4	4.6		SZGRF

Nepal

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	09:08:31.9	54.9	86.0	1.0	31	5.3		
GEC2	e P	Z	09:08:34.5	55.3	84.4	1.4	22	5.0		
CLL	e P	Z	09:08:35.3	55.5	85.6	1.2	16	4.9		
WET	e P	Z	09:08:38.2	55.8	84.0	2.1	63	5.3		
ROTZ	e P	Z	09:08:41.5	56.2	84.0	1.0	44	5.4		
MOX	e P	Z	09:08:42.7	56.4	84.1	1.4	30	5.2		
GRA1	e P	Z	09:08:45.8	56.8	83.2	1.5	87	5.6		
	e L	Z	09:33:03.8			19.0	487		4.6	
BSEG	e P	Z	09:08:46.2	56.9	85.3	1.1	90	5.7		
FUR	e P	Z	09:08:46.8	57.0	82.2	1.0	56	5.5		
CLZ	e P	Z	09:08:47.4	57.1	84.0	1.0	50	5.5		
NRDL	e P	Z	09:08:48.2	57.2	84.2	1.1	75	5.6		
STU	e P	Z	09:08:55.5	58.2	81.2	0.9	35	5.4		
TNS	e P	Z	09:08:57.3	58.5	81.6	1.2	39	5.3		
IBBN	e P	Z	09:08:58.1	58.6	82.3	1.1	49	5.4		
BUG	e P	Z	09:09:01.1	59.0	81.4	1.1	64	5.6		
WLF	e P	Z	09:09:08.5	60.0	79.6	1.1	44	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/08	14:42: 5.4	27.325N	52.889E	33.0G		4.4		SZGRF

Southern Iran

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z	14:49:12.1	37.0	111.1	2.2	68			
WET	e P	Z	14:49:16.8	37.6	110.6	1.4	25			
BRG	e P	Z	14:49:16.6	37.6	113.8	1.0	31			
ROTZ	e P	Z	14:49:22.7	38.2	110.6	1.2	35			
CLL	e P	Z	14:49:22.8	38.3	113.3	1.2	45			
GRA1	e P	Z	14:49:27.3	38.8	109.5	1.4	81			
	e L	Z	15:10:42.3			18.1	476		4.4	
MOX	e P	Z	14:49:27.7	38.9	111.0	1.0	10			
CLZ	e P	Z	14:49:37.5	40.0	111.1	1.0	75			
NRDL	e P	Z	14:49:40.6	40.4	111.5	1.1	70			
TNS	e P	Z	14:49:42.9	40.7	107.3	1.4	56			
IBBN	e P	Z	14:49:51.2	41.7	108.9	1.2	49			
BUG	e P	Z	14:49:51.5	41.7	107.5	1.1	64			
WLF	e P	Z	14:49:53.0	41.9	104.5	1.0	32			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/08	18:39: 9.8	53.000S	106.800E	10.0		5.6		NEIC

Southeast Indian Ridge

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e PKPdf	Z	18:58:14.0	128.3	130.1					
GEC2	e PKPdf	Z	18:58:14.4	128.5	129.8					
WET	e PKPdf	Z	18:58:15.8	129.1	129.3					
FUR	e PKPdf	Z	18:58:16.3	129.3	129.3					
BRG	e PKPdf	Z	18:58:17.0	129.7	128.7					
ROTZ	e PKPdf	Z	18:58:17.4	129.9	128.6					
GRA1	e PKPdf	Z	18:58:18.4	130.3	128.2					
	e L	Z	19:44:09.1			20.9	1430		5.6	
CLL	e PKPdf	Z	18:58:18.2	130.4	127.9					
MOX	e PKPdf	Z	18:58:18.8	130.7	127.8					
STU	e PKPdf	Z	18:58:18.9	130.8	128.0					
BFO	e PKPdf	Z	18:58:19.4	131.0	128.0					
UBBA	e PKPdf	Z	18:58:20.7	131.6	126.9					
CLZ	e PKPdf	Z	18:58:21.8	132.0	126.4					
TNS	e PKPdf	Z	18:58:22.0	132.0	126.7					
NRDL	e PKPdf	Z	18:58:22.7	132.6	125.8					
WLF	e PKPdf	Z	18:58:23.8	132.9	126.2					
BUG	e PKPdf	Z	18:58:24.4	133.4	125.3					
IBBN	e PKPdf	Z	18:58:24.8	133.6	124.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	02:46:32.8	30.198N	68.036E	33.0G	5.4	4.6		SZGRF

Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 02:54:44.1	44.7	93.9	2.3	107	5.4		
BRG	e P	Z 02:54:44.9	44.8	96.2	1.9	79	5.3		
RJOB	e P	Z 02:54:49.9	45.3	92.1	1.1	23	5.0		
ROTZ	e P	Z 02:54:52.8	45.8	93.7	1.8	45	5.2		
MOX	e P	Z 02:54:56.5	46.2	94.0	1.9	80	5.4		
GRA1	e P	Z 02:54:56.4	46.4	92.8	2.2	98	5.6		
	e L	Z 03:17:10.3			20.7	656		4.6	
CLZ	e P	Z 02:55:03.1	47.1	94.1	1.5	32	5.2		
STU	e P	Z 02:55:07.2	47.7	90.4	2.0	112	5.7		
TNS	e P	Z 02:55:13.5	48.2	91.1	2.4	84	5.4		
BUG	e P	Z 02:55:17.5	49.0	91.3	1.7	34	5.1		
WLF	e P	Z 02:55:23.6	49.7	88.9	2.6	193	5.6		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	05:53:42.6	29.295N	67.566E	33.0G	5.3	4.8		SZGRF

Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 06:01:54.7	45.0	95.3	1.6	34	5.0		
BRG	e P	Z 06:01:55.4	45.1	97.5	1.4	45	5.2		
RJOB	e P	Z 06:01:58.6	45.5	93.5	1.6	40	5.2		
MOX	e P	Z 06:02:06.9	46.5	95.3	1.0	35	5.5		
GRA1	e P	Z 06:02:08.5	46.7	94.1	1.6	56	5.5		
	e L	Z 06:24:20.2			20.9	1080		4.8	
CLZ	e P	Z 06:02:13.5	47.4	95.4	1.0	27	5.3		
NRDL	e P	Z 06:02:15.1	47.6	95.8	1.0	20	5.2		
STU	e P	Z 06:02:17.8	48.0	91.7	1.0	46	5.6		
BFO	e P	Z 06:02:22.7	48.5	90.6	1.1	20	5.0		
IBBN	e P	Z 06:02:26.0	49.1	93.6	1.0	53	5.5		
BUG	e P	Z 06:02:28.2	49.3	92.5	0.9	30	5.3		
WLF	e P	Z 06:02:34.2	50.0	90.1	1.3	38	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	06:23:59.3	31.100S	177.000W	14.0		6.9		NEIC

Kermadec Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPdf	Z 06:43:54.5	158.0	16.4					
	e PKPab	Z 06:44:28.1							
CLL	e PKPdf	Z 06:43:55.2	158.5	23.9					

	e PKPab	Z	06:44:30.4									
	e PP	Z	06:48:09.9									
IBBN	e PKPdf	Z	06:43:55.3	158.5	11.2							
	e PKPab	Z	06:44:30.6									
	e PP	Z	06:48:10.1									
CLZ	e PKPdf	Z	06:43:55.6	158.6	17.5							
	e PKPab	Z	06:44:31.1									
BRG	e PKPdf	Z	06:43:55.5	158.6	26.5							
	e PKPab	Z	06:44:31.3									
BUG	e PKPdf	Z	06:43:56.1	159.4	10.4							
	e PKPab	Z	06:44:34.2									
	e PP	Z	06:48:15.0									
MOX	e PKPdf	Z	06:43:56.4	159.4	21.4							
	e PKPab	Z	06:44:34.6									
	e PP	Z	06:48:15.6									
UBBA	e PKPdf	Z	06:43:56.4	159.6	17.4							
	e PKPab	Z	06:44:35.2									
	e PP	Z	06:48:15.1									
ROTZ	e PKPdf	Z	06:43:56.9	160.1	23.7							
	e PKPab	Z	06:44:38.4									
	e PP	Z	06:48:17.7									
GRA1	e PKPdf	Z	06:43:57.5	160.4	21.4							
	e PKPab	Z	06:44:39.5									
	e L	Z	07:58:05.6			21.1	17565			6.9		
TNS	e PKPdf	Z	06:43:57.7	160.4	14.1							
	e PKPab	Z	06:44:39.1									
WET	e PKPdf	Z	06:43:57.5	160.5	26.1							
	e PKPab	Z	06:44:40.1									
GEC2	e PKPdf	Z	06:43:57.5	160.5	28.4							
	e PKPab	Z	06:44:39.8									
WLF	e PKPdf	Z	06:43:59.1	161.3	8.4							
	e PKPab	Z	06:44:43.1									
	e PP	Z	06:48:25.3									
STU	e PKPdf	Z	06:43:58.7	161.7	17.1							
	e PKPab	Z	06:44:44.6									
RJOB	e PKPdf	Z	06:43:58.5	161.8	27.7							
	e PKPab	Z	06:44:45.8									
FUR	e PKPdf	Z	06:43:58.6	161.8	23.3							
	e PKPab	Z	06:44:45.7									
BFO	e PKPdf	Z	06:43:59.3	162.3	15.2							
	e PKPab	Z	06:44:47.0									

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/09 15:09:48.6 27.720N 52.854E 33.0G 4.7 3.9 SZGRF
 Southern Iran

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML

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GEC2	e P	Z	15:16:52.7	36.7	110.7	1.2	8	4.3		
WET	e P	Z	15:16:57.4	37.3	110.2	1.0	6	4.3		
BRG	e P	Z	15:16:57.3	37.3	113.4	1.2	20	4.7		
ROTZ	e P	Z	15:17:03.4	37.9	110.2	1.1	17	4.7		
CLL	e P	Z	15:17:03.4	38.0	112.9	1.2	17	4.7		
GRA1	e P	Z	15:17:07.9	38.5	109.1	1.2	34	4.9		
	e L	Z	15:35:15.2			21.7	202		3.9	
CLZ	e P	Z	15:17:18.2	39.7	110.7	1.0	35	4.9		
NRDL	e P	Z	15:17:21.0	40.1	111.2	1.0	27	4.8		
TNS	e P	Z	15:17:23.5	40.4	106.9	1.4	28	4.7		
IBBN	e P	Z	15:17:31.8	41.4	108.5	1.0	33	5.0		
BUG	e P	Z	15:17:32.4	41.4	107.1	1.3	42	5.0		

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/09 17:28:59.9 16.000S 168.100E 229.0 NEIC
 Vanuatu Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e pPKPdf	Z 17:48:57.4	141.5	37.3					
GRB5	e PKPdf	Z 17:48:00.0	141.7	38.4					

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/09 18:53:11.3 32.173N 105.584E 33.0 5.5 4.3 SZGRF
 Sichuan, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 19:03:58.3	66.6	67.2	1.0	25	5.4		
CLL	e P	Z 19:04:00.5	66.9	66.8	1.2	37	5.5		
GEC2	e P	Z 19:04:04.5	67.5	66.3	1.1	35	5.5		
TANN	e P	Z 19:04:05.1	67.6	66.1	1.2	36	5.5		
WET	e P	Z 19:04:06.9	67.9	65.9	1.2	23	5.3		
MOX	e P	Z 19:04:07.4	68.0	65.6	1.2	23	5.3		
ROTZ	e P	Z 19:04:08.0	68.0	65.7	1.2	50	5.6		
NRDL	e P	Z 19:04:08.4	68.1	65.3	1.1	58	5.7		
CLZ	e P	Z 19:04:09.1	68.2	65.2	1.0	56	5.7		
RJOB	e P	Z 19:04:10.5	68.5	65.3	1.5	32	5.3		
GRA1	e P	Z 19:04:11.6	68.6	65.0	1.1	62	5.8		
	e L	Z 19:34:57.4			21.3	200		4.3	
FUR	e P	Z 19:04:16.1	69.2	64.5	1.1	130	6.1		
IBBN	e P	Z 19:04:16.6	69.5	63.6	1.1	45	5.5		
TNS	e P	Z 19:04:19.9	70.0	63.3	1.1	17	5.1		
BUG	e P	Z 19:04:20.8	70.1	63.0	1.1	46	5.5		
BFO	e P	Z 19:04:25.4	70.9	62.7	1.3	40	5.4		
WLF	e P	Z 19:04:30.2	71.6	61.7	1.1	84	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	18:51:14.1	20.800S	178.900W	585.0				NEIC
Fiji Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z	19:09:52.4	147.5	15.8					
IBBN	e PKPbc	Z	19:09:53.8	148.1	11.8					
CLL	e PKPbc	Z	19:09:53.9	148.1	21.4					
CLZ	e PKPbc	Z	19:09:54.3	148.1	16.6					
BRG	e PKPbc	Z	19:09:54.5	148.3	23.3					
BUG	e PKPbc	Z	19:09:55.9	149.0	11.2					
MOX	e PKPbc	Z	19:09:56.3	149.0	19.4					
TANN	e PKPbc	Z	19:09:56.6	149.1	21.0					
UBBA	e PKPbc	Z	19:09:56.4	149.2	16.4					
ROTZ	e PKPbc	Z	19:09:58.2	149.7	20.9					
TNS	e PKPbc	Z	19:09:58.7	150.0	13.8					
	e PKPab	Z	19:10:07.2							
GRA1	e PKPbc	Z	19:09:58.6	150.0	19.2					
WET	e PKPbc	Z	19:09:59.0	150.1	22.5					
	e PKPab	Z	19:10:08.3							
GEC2	e PKPbc	Z	19:09:59.0	150.2	24.2					
	e PKPab	Z	19:10:08.6							
WLF	e PKPbc	Z	19:10:00.9	150.9	9.7					
	e PKPab	Z	19:10:11.0							
STU	e PKPbc	Z	19:10:01.6	151.3	15.9					
FUR	e PKPbc	Z	19:10:01.8	151.4	20.2					
	e PKPab	Z	19:10:13.6							
RJOB	e PKPab	Z	19:10:14.4	151.5	23.4					
BFO	e PKPbc	Z	19:10:02.4	151.9	14.4					
	e PKPab	Z	19:10:14.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	20:08:49.4	20.200S	178.700W	617.0				NEIC
Fiji Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z	20:27:23.8	147.0	15.3					
IBBN	e PKPbc	Z	20:27:25.2	147.5	11.3					
CLL	e PKPbc	Z	20:27:25.5	147.6	20.8					
CLZ	e PKPbc	Z	20:27:25.8	147.6	16.0					
BRG	e PKPbc	Z	20:27:26.0	147.8	22.6					
BUG	e PKPbc	Z	20:27:27.3	148.4	10.7					
MOX	e PKPbc	Z	20:27:27.7	148.5	18.8					
TANN	e PKPbc	Z	20:27:28.0	148.5	20.4					
UBBA	e PKPbc	Z	20:27:27.8	148.6	15.8					

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ROTZ	e	PKPbc	Z	20:27:29.7	149.2	20.3
TNS	e	PKPbc	Z	20:27:30.2	149.4	13.3
	e	PKPab	Z	20:27:37.6		
GRA1	e	PKPbc	Z	20:27:30.3	149.5	18.6
	e	PKPab	Z	20:27:38.3		
WET	e	PKPbc	Z	20:27:30.4	149.6	21.9
	e	PKPab	Z	20:27:39.0		
GEC2	e	PKPbc	Z	20:27:30.7	149.7	23.5
	e	PKPab	Z	20:27:39.0		
WLF	e	PKPbc	Z	20:27:32.6	150.3	9.2
	e	PKPab	Z	20:27:41.4		
STU	e	PKPbc	Z	20:27:33.1	150.7	15.3
	e	PKPab	Z	20:27:43.0		
FUR	e	PKPbc	Z	20:27:33.3	150.9	19.5
	e	PKPab	Z	20:27:44.3		
RJOB	e	PKPbc	Z	20:27:33.2	150.9	22.6
	e	PKPab	Z	20:27:44.6		
BFO	e	PKPbc	Z	20:27:34.1	151.3	13.8
	e	PKPab	Z	20:27:45.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	21:00:56.3	8.233N	91.687E	36.7	5.5			SZGRF

Nicobar Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:12:48.9	77.6	91.9	1.3	37	5.5		
	e pP	Z 21:12:59.4							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/09	22:52:36.8	29.396N	67.439E	33.0G	5.6	5.3		SZGRF

Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 23:00:47.5	44.9	95.3	1.4	51	5.3		
BRG	e P	Z 23:00:48.4	44.9	97.5	2.0	215	5.7		
RJOB	e P	Z 23:00:51.7	45.4	93.5	1.7	88	5.4		
CLL	e P	Z 23:00:52.9	45.6	97.1	1.4	35	5.2		
TANN	e P	Z 23:00:55.4	45.8	95.8	1.4	64	5.4		
ROTZ	e P	Z 23:00:56.2	45.9	95.0	1.7	80	5.5		
MOX	e P	Z 23:01:00.1	46.4	95.3	1.5	141	5.8		
FUR	e P	Z 23:00:59.8	46.4	92.7	1.3	70	5.6		
GRA1	e P	Z 23:01:01.6	46.6	94.1	1.5	137	5.9		
	e L	Z 23:23:14.8			20.8	3711		5.3	
CLZ	e P	Z 23:01:06.5	47.3	95.4	1.2	74	5.7		
NRDL	e P	Z 23:01:08.2	47.5	95.8	1.1	45	5.5		

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STU	e P	Z	23:01:10.8	47.8	91.7	1.3	121	5.9
IBBN	e P	Z	23:01:19.0	48.9	93.6	1.2	102	5.7
BUG	e P	Z	23:01:21.0	49.2	92.5	1.2	60	5.5
WLF	e P	Z	23:01:27.2	49.8	90.1	1.3	76	5.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/10	13:15:36.7	12.300S	166.500E	72.0				NEIC
Santa Cruz Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPdf	Z 13:34:53.5	137.4	37.2					
	e PKS	Z 13:38:24.1							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/11	05:35:20.7	28.079N	126.825E	33.0G	5.4	4.4		SZGRF
Northwest of Ryukyu Islands, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 05:47:35.0	81.5	53.0	1.1	76	5.8		
BRG	e P	Z 05:47:34.9	81.5	55.3	2.1	42	5.2		
CLL	e P	Z 05:47:35.9	81.7	54.7	1.1	24	5.2		
NRDL	e P	Z 05:47:40.0	82.4	52.7	1.0	24	5.4		
TANN	e P	Z 05:47:40.2	82.5	54.2	1.0	11	5.0		
CLZ	e P	Z 05:47:41.8	82.7	52.8	1.0	64	5.8		
GEC2	e P	Z 05:47:41.6	82.7	54.9	1.3	17	5.1		
MOX	e P	Z 05:47:41.7	82.8	53.6	1.0	16	5.2		
ROTZ	e P	Z 05:47:43.4	83.0	53.9	1.1	34	5.5		
WET	e P	Z 05:47:42.6	83.0	54.3	1.5	24	5.2		
GRA1	e P	Z 05:47:45.9	83.6	53.2	1.1	37	5.5		
	e L	Z 06:29:43.9			19.4	157		4.4	
IBBN	e P	Z 05:47:45.9	83.7	50.9	0.9	51	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/11	16:29:14.5	19.100S	175.500W	272.0				NEIC
Tonga Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z 16:48:23.3	146.3	9.6					
CLZ	e PKPbc	Z 16:48:25.4	146.9	10.2					
CLL	e PKPbc	Z 16:48:25.8	147.1	14.9					
BRG	e PKPbc	Z 16:48:26.7	147.4	16.7					
BUG	e PKPbc	Z 16:48:26.8	147.6	4.9					
MOX	e PKPbc	Z 16:48:28.1	148.0	12.7					

TANN	e	PKPbc	Z	16:48:28.6	148.1	14.3
TNS	e	PKPbc	Z	16:48:30.1	148.7	7.2
ROTZ	e	PKPbc	Z	16:48:30.5	148.7	14.1
GRA1	e	PKPbc	Z	16:48:31.0	148.9	12.4
GEC2	e	PKPbc	Z	16:48:31.9	149.3	17.2
WLF	e	PKPbc	Z	16:48:32.2	149.4	3.1
FUR	e	PKPbc	Z	16:48:34.5	150.4	13.1
RJOB	e	PKPbc	Z	16:48:34.3	150.6	16.1
BFO	e	PKPbc	Z	16:48:34.6	150.6	7.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/11	17:05:52.5	6.820S	101.970E	30.2	5.7	5.2		SZGRF

Southwest of Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 17:19:10.3	94.0	95.8	1.5	80	5.8		
	e pP	Z 17:19:19.2							
BRG	e P	Z 17:19:10.4	94.0	95.8	1.6	65	5.7		
	e pP	Z 17:19:19.2							
RJOB	e P	Z 17:19:11.8	94.5	95.2	1.1	16	5.3		
WET	e P	Z 17:19:12.9	94.6	95.2	1.3	51	5.8		
	e pP	Z 17:19:21.5							
CLL	e P	Z 17:19:12.8	94.7	95.1	1.2	27	5.6		
	e pP	Z 17:19:21.4							
TANN	e P	Z 17:19:14.3	94.9	94.7	1.5	28	5.5		
	e pP	Z 17:19:23.3							
ROTZ	e P	Z 17:19:15.3	95.0	94.6	1.4	33	5.6		
MOX	e P	Z 17:19:16.7	95.5	94.1	1.4	32	5.5		
	e pP	Z 17:19:26.0							
GRA1	e P	Z 17:19:18.3	95.7	93.9	1.4	44	5.8		
	e L	Z 18:12:29.7			19.2	733		5.2	
CLZ	e P	Z 17:19:20.6	96.3	93.0	1.3	26	5.6		
NRDL	e P	Z 17:19:21.6	96.5	92.7	1.3	24	5.6		
TNS	e P	Z 17:19:25.9	97.5	91.7	1.0	27	5.8		
BFO	e P	Z 17:19:25.8	97.5	91.8	1.7	33	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/11	20:55: 1.4	5.900S	105.300E	16.0	5.7			NEIC

Sunda Strait, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:08:33.2	97.1	90.7	1.7	37	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/11	21:41:12.6	4.664N	117.605E	33.0G	5.8	5.1		SZGRF

Borneo

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	21:54:31.6	94.9	76.4	1.4	72	5.9		
CLL	e P	Z	21:54:33.3	95.4	75.6	1.3	36	5.6		
GEC2	e P	Z	21:54:34.1	95.5	76.4	1.4	34	5.7		
TANN	e P	Z	21:54:36.1	95.9	75.3	1.5	44	5.8		
WET	e P	Z	21:54:36.2	96.0	75.7	1.5	30	5.6		
ROTZ	e P	Z	21:54:38.0	96.2	75.2	1.9	64	5.8		
RJOB	e P	Z	21:54:37.9	96.4	75.8	1.7	37	5.6		
MOX	e P	Z	21:54:38.2	96.4	74.6	1.5	42	5.7		
NRDL	e P	Z	21:54:40.1	96.8	73.2	1.2	60	6.1		
CLZ	e P	Z	21:54:40.3	96.8	73.5	1.3	72	6.1		
GRA1	e P	Z	21:54:40.6	96.9	74.4	1.6	34	5.7		
	e L	Z	22:44:28.1			21.5	709		5.1	
UBBA	e P	Z	21:54:42.1	97.3	73.3	1.6	28	5.6		
IBBN	e P	Z	21:54:46.6	98.2	71.3	1.8	117	6.3		
STU	e P	Z	21:54:47.5	98.4	72.9	1.2	17	5.7		
TNS	e P	Z	21:54:47.4	98.4	72.1	1.5	27	5.8		
BUG	e P	Z	21:54:48.6	98.8	71.0	1.4	32	5.9		
WLF	e P	Z	21:54:54.8	100.0	70.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/13	08:27:13.8	38.052N	22.658E	10.0G		4.8		SZGRF

Greece

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e Pn	Z	08:30:04.0	12.1	139.8					
GEC2	e Pn	Z	08:30:10.5	12.6	145.7					
WET	e Pn	Z	08:30:16.1	13.1	143.9					
ROTZ	e Pn	Z	08:30:30.0	13.9	143.5					
BRG	e Pn	Z	08:30:32.2	14.2	151.0					
	e L	Z	08:37:30.7			16.5	3128		4.5	
GRA1	e Pn	Z	08:30:33.4	14.2	140.6					
	e L	Z	08:36:35.3			15.9	9643		5.0	
TANN	e Pn	Z	08:30:33.4	14.3	145.7					
STU	e Pn	Z	08:30:35.7	14.5	132.8					
BFO	e Pn	Z	08:30:36.9	14.6	129.4					
MOX	e Pn	Z	08:30:40.3	14.8	143.9					
	e L	Z	08:37:04.8			17.7	6500		4.8	
UBBA	e Pn	Z	08:30:52.5	15.6	140.1					
TNS	e Pn	Z	08:30:55.8	15.8	134.9					
CLZ	e Pn	Z	08:31:03.6	16.3	143.2					
NRDL	e Pn	Z	08:31:09.0	16.9	143.9					
BUG	e Pn	Z	08:31:16.5	17.2	135.1					

RJOB	e P	Z	09:52:56.0	55.9	160.0				
FUR	e P	Z	09:53:01.8	56.6	158.3				
GEC2	e P	Z	09:53:02.5	56.7	161.3	1.4	34	5.2	
WET	e P	Z	09:53:05.4	57.2	160.4	1.4	15	4.8	
ROTZ	e P	Z	09:53:10.9	57.9	159.7	1.5	29	5.1	
GRA1	e P	Z	09:53:12.2	58.1	158.6	1.2	36	5.3	
TANN	e P	Z	09:53:14.8	58.5	160.2	1.5	30	5.1	
BRG	e P	Z	09:53:15.1	58.6	161.9	1.3	12	4.8	
MOX	e P	Z	09:53:17.8	58.9	159.3	1.5	27	5.1	
UBBA	e P	Z	09:53:21.0	59.4	157.5	1.6	35	5.1	
CLZ	e P	Z	09:53:27.7	60.3	158.1	1.3	17	4.9	
BUG	e P	Z	09:53:29.9	60.7	154.6				
NRDL	e P	Z	09:53:32.4	60.9	158.0				
BSEG	e P	Z	09:53:40.5	62.2	158.5	1.4	60	5.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/14	10:25:43.9	37.457N	140.428E	33.0G	4.8			SZGRF
Eastern Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 10:37:54.8	80.0	40.4	0.9	7	4.6		
CLL	e P	Z 10:37:54.7	80.0	39.8	0.8	11	4.8		
CLZ	e P	Z 10:37:58.5	80.6	38.0					
TANN	e P	Z 10:37:59.7	80.9	39.3					
MOX	e P	Z 10:38:00.6	81.1	38.8	1.7	18	4.8		
IBBN	e P	Z 10:38:01.5	81.2	36.2					
ROTZ	e P	Z 10:38:03.2	81.5	39.1	0.8	6	4.8		
UBBA	e P	Z 10:38:02.7	81.6	37.7					
GEC2	e P	Z 10:38:03.1	81.6	40.0	1.1	6	4.6		
WET	e P	Z 10:38:04.1	81.7	39.5	0.9	5	4.6		
GRA1	e P	Z 10:38:05.6	82.0	38.4	1.2	26	5.2		
BUG	e P	Z 10:38:06.0	82.1	35.8					
RJOB	e P	Z 10:38:10.0	82.9	39.3					
STU	e P	Z 10:38:13.1	83.5	36.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/14	20:29:40.8	40.575N	144.151E	34.4	5.3	4.7		SZGRF
Off east coast of Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 20:41:33.7	77.5	34.1	1.2	92	5.8		
CLL	e P	Z 20:41:39.7	78.7	35.7	1.1	50	5.5		
	e pP	Z 20:41:49.6							
BRG	e P	Z 20:41:40.0	78.7	36.3	1.3	31	5.2		
NRDL	e P	Z 20:41:40.2	78.8	33.8					

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CLZ	e P	Z	20:41:43.1	79.2	33.9	1.2	52	5.3	
TANN	e P	Z	20:41:45.1	79.7	35.2	2.0	52	5.1	
IBBN	e P	Z	20:41:45.4	79.7	32.2				
MOX	e P	Z	20:41:45.7	79.8	34.7	1.5	36	5.1	
	e pP	Z	20:41:55.9						
UBBA	e P	Z	20:41:47.7	80.2	33.6				
ROTZ	e P	Z	20:41:48.9	80.3	35.0	1.0	25	5.2	
GEC2	e P	Z	20:41:49.1	80.5	35.9	0.8	13	5.0	
WET	e P	Z	20:41:50.0	80.5	35.4	1.1	22	5.1	
	e pP	Z	20:42:00.0						
BUG	e P	Z	20:41:49.8	80.6	31.7	0.9	19	5.1	
GRA1	e P	Z	20:41:51.0	80.7	34.3	1.3	88	5.6	
	e pP	Z	20:42:00.6						
	e		20:42:09.6						
	e L	Z	21:20:39.1			20.8	320		4.7
TNS	e P	Z	20:41:53.4	81.3	32.5	1.7	48	5.3	
RJOB	e P	Z	20:41:56.2	81.7	35.2				
FUR	e P	Z	20:41:57.2	82.0	34.2	0.7	34	5.6	
STU	e P	Z	20:41:58.3	82.2	32.9				
WLF	e P	Z	20:42:00.5	82.5	30.8				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/15	05:31:16.9	26.862N	131.216E	33.0N	5.2			SZGRF
Southeast of Ryukyu Islands, Japan								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	05:43:47.3	84.5	50.3	1.4	63	5.7		
BRG	e P	Z	05:43:48.1	84.7	52.8	1.3	14	5.0		
CLL	e P	Z	05:43:49.4	84.9	52.1	1.2	13	5.0		
NRDL	e P	Z	05:43:52.2	85.5	50.0	1.3	24	5.2		
TANN	e P	Z	05:43:53.0	85.7	51.7	1.5	13	4.8		
CLZ	e P	Z	05:43:53.9	85.8	50.2	1.2	39	5.4		
MOX	e P	Z	05:43:54.5	86.0	51.0	1.5	14	4.9		
GEC2	e P	Z	05:43:54.6	86.0	52.5	1.3	11	4.8		
ROTZ	e P	Z	05:43:55.5	86.2	51.4	1.7	49	5.4		
WET	e P	Z	05:43:55.8	86.3	51.9	2.2	55	5.3		
UBBA	e P	Z	05:43:57.4	86.7	49.8	1.6	14	4.8		
IBBN	e P	Z	05:43:58.2	86.7	48.2	1.1	40	5.5		
GRA1	e P	Z	05:43:58.2	86.8	50.7	1.5	42	5.4		
RJOB	e P	Z	05:44:00.6	87.2	51.8	1.2	18	5.1		
BUG	e P	Z	05:44:02.1	87.5	47.8	1.8	48	5.5		
FUR	e P	Z	05:44:03.1	87.7	50.7	1.5	54	5.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/15	21:18:30.2	3.275N	101.458E	33.0N	5.3	4.5		SZGRF

Malay Peninsula

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	21:31:07.2	85.9	89.9	2.1	84	5.5		
GEC2	e P	Z	21:31:07.3	86.1	89.5	1.5	38	5.3		
CLL	e P	Z	21:31:09.6	86.5	89.2	1.2	17	5.0		
WET	e P	Z	21:31:09.9	86.6	88.9	1.3	24	5.2		
RJOB	e P	Z	21:31:10.2	86.7	88.8	1.7	31	5.2		
TANN	e P	Z	21:31:11.3	86.8	88.7	1.6	22	5.1		
ROTZ	e P	Z	21:31:12.4	87.0	88.5	1.4	19	5.0		
MOX	e P	Z	21:31:13.8	87.4	88.0	1.6	28	5.1		
GRA1	e P	Z	21:31:15.0	87.7	87.7	1.3	17	5.2		
	e L	Z	22:19:43.5			22.0	186		4.5	
BSEG	e P	Z	21:31:17.4	88.0	87.1	1.8	52	5.6		
CLZ	e P	Z	21:31:17.5	88.1	87.1	3.0	116	5.7		
NRDL	e P	Z	21:31:17.4	88.2	86.9	1.1	14	5.2		
STU	e P	Z	21:31:22.8	89.0	86.1	1.1	16	5.1		
TNS	e P	Z	21:31:23.4	89.4	85.6	1.1	15	5.2		
IBBN	e P	Z	21:31:24.8	89.7	85.1	2.4	148	5.8		
BUG	e P	Z	21:31:26.5	90.0	84.7	0.9	8	5.0		

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/16 20:32:2.1 30.770S 177.450W 33.0N
 Kermadec Islands, New Zealand

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPab	Z	20:52:28.5	158.1	24.6					
CLZ	e PKPab	Z	20:52:29.3	158.2	18.3					
BRG	e PKPab	Z	20:52:29.5	158.2	27.2					
MOX	e PKPab	Z	20:52:32.9	159.0	22.2					
BUG	e PKPab	Z	20:52:34.2	159.0	11.4					
GRA1	e PKPab	Z	20:52:37.7	160.0	22.2					
WET	e PKPab	Z	20:52:38.2	160.0	26.8					
GEC2	e PKPab	Z	20:52:37.9	160.0	29.1					
TNS	e PKPab	Z	20:52:37.9	160.1	15.0					
RJOB	e PKPab	Z	20:52:44.0	161.3	28.5					

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/16 22:14:13.5 19.761S 178.212W 33.0G
 Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
NRDL	e PKPbc	Z	22:33:56.7	146.6	14.3					
CLZ	e PKPbc	Z	22:33:58.9	147.2	15.0					
CLL	e PKPbc	Z	22:33:58.7	147.2	19.8					

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BRG	e	PKPbc	Z	22:33:59.5	147.4	21.6
BUG	e	PKPbc	Z	22:34:02.0	148.0	9.8
MOX	e	PKPbc	Z	22:34:01.3	148.2	17.7
TANN	e	PKPbc	Z	22:34:01.7	148.2	19.3
ROTZ	e	PKPbc	Z	22:34:03.5	148.9	19.2
TNS	e	PKPbc	Z	22:34:04.3	149.1	12.3
WET	e	PKPbc	Z	22:34:03.8	149.3	20.8
GEC2	e	PKPbc	Z	22:34:04.8	149.4	22.4
WLF	e	PKPbc	Z	22:34:06.2	149.9	8.2
STU	e	PKPbc	Z	22:34:07.1	150.4	14.2
FUR	e	PKPbc	Z	22:34:07.7	150.6	18.4
RJOB	e	PKPbc	Z	22:34:08.6	150.6	21.5
BFO	e	PKPbc	Z	22:34:08.3	150.9	12.8

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/16	22:39:45.8	35.861N	71.376E	33.0N	4.7			SZGRF
Pakistan								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	22:47:43.4	43.1	87.4	0.9	12	4.6		
GEC2	e P	Z	22:47:45.7	43.4	85.1	0.9	3	4.0		
CLL	e P	Z	22:47:47.5	43.7	87.1	0.8	7	4.4		
TANN	e P	Z	22:47:51.2	44.1	85.8	1.3	10	4.4		
ROTZ	e P	Z	22:47:53.6	44.3	85.0	0.9	5	4.2		
MOX	e P	Z	22:47:55.2	44.6	85.4	0.9	7	4.6		
CLZ	e P	Z	22:48:00.5	45.3	85.7	1.4	17	4.8		
NRDL	e P	Z	22:48:01.7	45.4	86.2	0.9	8	4.7		
TNS	e P	Z	22:48:11.9	46.7	82.8	0.8	4	4.6		
IBBN	e P	Z	22:48:12.8	46.9	84.2	0.8	18	5.3		
BUG	e P	Z	22:48:15.9	47.3	83.1	1.1	14	5.0		
WLF	e P	Z	22:48:23.9	48.2	80.7	1.1	11	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/17	10:56:00.0	18.490S	178.240W	545.0				SZGRF
Fiji Islands region								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e	PKPbc	Z	11:14:31.4	143.9	13.9				
NRDL	e	PKPbc	Z	11:14:36.0	145.4	14.0				
IBBN	e	PKPbc	Z	11:14:37.9	145.9	10.2				
CLZ	e	PKPbc	Z	11:14:38.4	146.0	14.7				
CLL	e	PKPbc	Z	11:14:38.1	146.0	19.3				
BRG	e	PKPbc	Z	11:14:39.0	146.2	21.1				
BUG	e	PKPbc	Z	11:14:40.2	146.8	9.6				
MOX	e	PKPpdf	Z	11:14:38.8	146.9	17.3				

	e	PKPbc	Z	11:14:41.0		
TANN	e	PKPbc	Z	11:14:41.2	147.0	18.8
UBBA	e	PKPdf	Z	11:14:38.8	147.0	14.5
	e	PKPbc	Z	11:14:41.0		
ROTZ	e	PKPbc	Z	11:14:43.2	147.6	18.7
TNS	e	PKPdf	Z	11:14:40.3	147.8	12.0
	e	PKPbc	Z	11:14:43.4		
GRA1	e	PKPdf	Z	11:14:40.7	147.9	17.1
	e	PKPbc	Z	11:14:44.0		
	e	PKPab	Z	11:14:47.1		
	e	pPKPbc	Z	11:16:48.7		
WET	e	PKPbc	Z	11:14:44.5	148.1	20.2
GEC2	e	PKPdf	Z	11:14:40.5	148.1	21.8
	e	PKPbc	Z	11:14:44.3		
WLF	e	PKPdf	Z	11:14:41.9	148.6	8.0
	e	PKPbc	Z	11:14:46.0		
STU	e	PKPdf	Z	11:14:42.2	149.1	13.8
	e	PKPbc	Z	11:14:46.9		
FUR	e	PKPdf	Z	11:14:42.6	149.3	17.9
	e	PKPbc	Z	11:14:47.2		
	e	PKPab	Z	11:14:53.2		
RJOB	e	PKPdf	Z	11:14:42.4	149.4	20.9
	e	PKPbc	Z	11:14:47.4		
	e	PKPab	Z	11:14:53.2		
	e	pPKPbc	Z	11:16:54.0		
BFO	e	PKPdf	Z	11:14:42.9	149.7	12.4
	e	PKPbc	Z	11:14:48.1		

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/17 13:47:59.5 6.269N 94.696E 33.0G 5.2
 Nicobar Islands, India, region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	13:59:48.2	79.3	93.2	0.9	16	5.1		
GEC2	e P	Z	13:59:48.7	79.4	92.6	0.9	23	5.2		
WET	e P	Z	13:59:51.6	79.9	92.1	0.8	16	5.0		
CLL	e P	Z	13:59:51.0	79.9	92.6	1.1	11	4.7		
ROTZ	e P	Z	13:59:54.4	80.4	91.7	0.6	14	5.0		
MOX	e P	Z	13:59:55.9	80.8	91.4	0.7	9	4.9		
GRA1	e P	Z	13:59:57.6	81.0	90.9	3.6	627	6.0		
CLZ	e P	Z	14:00:00.2	81.6	90.6	1.1	33	5.4		
BSEG	e P	Z	14:00:00.9	81.6	90.8	0.8	34	5.6		
NRDL	e P	Z	14:00:01.2	81.7	90.5	0.9	14	5.1		
UBBA	e P	Z	14:00:01.7	81.8	90.1					
STU	e P	Z	14:00:04.6	82.3	89.2	0.8	13	5.1		
TNS	e P	Z	14:00:06.9	82.8	88.9	0.9	11	5.1		
BFO	e P	Z	14:00:07.1	82.9	88.5	0.8	9	5.0		

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IBBN	e P	Z	14:00:08.8	83.2	88.6	1.3	40	5.5
BUG	e P	Z	14:00:10.5	83.5	88.1	0.8	19	5.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/17	16:07:2.3	3.957S	104.486E	33.0N	5.5			SZGRF

Southern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:20:22.4	95.1	90.1	1.4	28	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/17	21:57:35.0	38.391N	15.503E	225.8			4.9	SZGRF

Sicily, Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RJOB	e P	Z 21:59:46.4	9.6	167.1					
FUR	e P	Z 21:59:55.3	10.2	161.0					
GEC2	e P	Z 21:59:58.4	10.5	172.3					
WET	e P	Z 22:00:03.0	10.9	169.1					
	e S	E 22:02:07.1							
BFO	e P	Z 22:00:07.7	11.2	149.8					
STU	e P	Z 22:00:09.1	11.3	154.0					
ROTZ	e P	Z 22:00:12.8	11.6	167.1					
GRA1	e P	Z 22:00:13.6	11.7	163.2	0.9	385			
TANN	e P	Z 22:00:21.0	12.2	168.7					
	e S	E 22:02:33.8							
BRG	e P	Z 22:00:24.3	12.5	174.4					
MOX	e P	Z 22:00:25.0	12.6	165.9	1.0	533			
TNS	e P	Z 22:00:28.7	12.8	154.3					
UBBA	e P	Z 22:00:31.1	13.0	160.5					
	e S	N 22:02:52.4							
CLL	e P	Z 22:00:30.5	13.0	171.3					
WLF	e P	Z 22:00:32.8	13.1	145.8					
CLZ	e P	Z 22:00:41.9	13.9	163.1					
BUG	e P	Z 22:00:46.2	14.3	152.9					
NRDL	e P	Z 22:00:50.4	14.6	163.0					
IBBN	e P	Z 22:00:54.4	14.9	155.8					
BSEG	e P	Z 22:01:04.0	15.9	165.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/18	03:19:23.6	20.480S	169.307E	33.0G				SZGRF

Vanuatu Islands

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Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ROTZ	e PKPbc	Z	03:39:02.7	145.5	40.1					
GEC2	e PKPbc	Z	03:39:02.7	145.6	43.2					
WET	e PKPbc	Z	03:39:02.9	145.7	41.7					
GRA1	e PKPbc	Z	03:39:04.4	146.0	38.7					
RJOB	e PKPbc	Z	03:39:07.1	146.8	43.0					
FUR	e PKPbc	Z	03:39:08.3	147.2	40.3					
STU	e PKPbc	Z	03:39:09.4	147.5	36.4					
WLF	e PKPbc	Z	03:39:10.8	147.9	30.7					
BFO	e PKPbc	Z	03:39:11.5	148.2	35.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/18	03:22:33.0	25.160S	172.440E	33.0N				SZGRF

Southeast of Loyalty Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	03:42:15.5	148.3	31.9					
BRG	e PKPbc	Z	03:42:18.7	149.5	40.8					
CLL	e PKPbc	Z	03:42:18.6	149.5	38.8					
NRDL	e PKPbc	Z	03:42:18.7	149.6	32.9					
CLZ	e PKPbc	Z	03:42:20.4	150.0	33.9					
TANN	e PKPbc	Z	03:42:21.2	150.4	38.9					
IBBN	e PKPbc	Z	03:42:21.2	150.5	29.0					
MOX	e PKPbc	Z	03:42:21.3	150.6	37.2					
ROTZ	e PKPbc	Z	03:42:22.9	151.0	39.2					
GEC2	e PKPbc	Z	03:42:22.9	151.1	42.7					
WET	e PKPbc	Z	03:42:23.2	151.2	41.0					
RJOB	e PKPbc	Z	03:42:25.4	152.3	42.6					
STU	e PKPbc	Z	03:42:27.2	153.0	35.1					
WLF	e PKPbc	Z	03:42:28.5	153.3	28.5					
BFO	e PKPbc	Z	03:42:28.4	153.7	34.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/18	06:47:13.0	39.323N	143.578E	32.0	5.5	5.3		SZGRF

Off east coast of Honshu, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	06:59:15.8	78.5	35.1	1.2	103	5.7		
BRG	e P	Z	06:59:21.6	79.6	37.3	1.3	45	5.3		
CLL	e P	Z	06:59:21.4	79.6	36.7	1.1	58	5.4		
NRDL	e P	Z	06:59:22.3	79.7	34.8	1.8	77	5.3		
CLZ	e P	Z	06:59:25.1	80.2	34.9	1.4	95	5.5		
TANN	e P	Z	06:59:26.9	80.5	36.2	1.8	72	5.4		
IBBN	e P	Z	06:59:27.4	80.7	33.1	1.8	134	5.7		
MOX	e P	Z	06:59:27.4	80.7	35.7	1.5	59	5.4		

	e pP	Z	06:59:36.7							
UBBA	e P	Z	06:59:29.6	81.1	34.6	1.4		32	5.1	
ROTZ	e P	Z	06:59:30.6	81.2	36.0	1.5		84	5.5	
GEC2	e P	Z	06:59:30.7	81.3	36.9	1.3		28	5.2	
WET	e P	Z	06:59:31.6	81.4	36.4	1.7		78	5.6	
BUG	e P	Z	06:59:31.9	81.6	32.7	1.4		61	5.5	
GRA1	e P	Z	06:59:32.8	81.6	35.3	1.2		88	5.8	
	e pP	Z	06:59:42.0							
	e L	Z	07:41:28.5			18.2		1194		5.3
TNS	e P	Z	06:59:35.4	82.2	33.4	1.6		43	5.3	
RJOB	e P	Z	06:59:37.6	82.6	36.2	1.1		53	5.7	
FUR	e P	Z	06:59:38.8	82.8	35.2	1.2		94	5.9	
STU	e P	Z	06:59:40.2	83.1	33.8	1.5		93	5.8	
WLF	e P	Z	06:59:42.5	83.4	31.8	1.5		96	5.8	
BFO	e P	Z	06:59:43.6	83.8	33.2	1.3		101	5.9	

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/18 17:13:52.4 18.128N 67.828W 104.9 5.3
 Mona Passage SZGRF

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 17:24:27.8	66.0	270.1	0.9	29	5.5		
BUG	e P	Z 17:24:32.0	66.7	270.2	1.0	21	5.3		
IBBN	e P	Z 17:24:34.2	67.0	270.2	1.6	112	5.8		
BFO	e P	Z 17:24:36.7	67.4	272.3	1.8	37	5.3		
TNS	e P	Z 17:24:37.4	67.5	271.6	1.5	53	5.5		
STU	e P	Z 17:24:40.5	68.0	272.8	1.4	40	5.5		
UBBA	e P	Z 17:24:42.3	68.4	272.5	1.9	43	5.4		
NRDL	e P	Z 17:24:43.0	68.4	272.0	1.4	46	5.5		
BSEG	e P	Z 17:24:43.0	68.5	271.6	1.1	32	5.5		
CLZ	e P	Z 17:24:44.2	68.6	272.4	1.5	41	5.4		
GRA1	e P	Z 17:24:48.1	69.3	273.9	1.4	19	5.0		
	e pP	Z 17:25:13.5							
	e sP	Z 17:25:26.4							
MOX	e P	Z 17:24:49.3	69.5	273.8	1.7	18	4.9		
	e pP	Z 17:25:16.2							
ROTZ	e P	Z 17:24:52.6	69.9	274.6	1.4	37	5.3		
	e pP	Z 17:25:18.7							
TANN	e P	Z 17:24:52.8	70.0	274.6	1.3	34	5.3		
CLL	e P	Z 17:24:54.3	70.3	274.6	1.8	43	5.3		
WET	e P	Z 17:24:55.3	70.4	275.3	0.9	15	5.1		
	e pP	Z 17:25:21.5							
BRG	e P	Z 17:24:58.2	70.9	275.5	1.3	30	5.3		
	e pP	Z 17:25:24.6							
GEC2	e P	Z 17:24:58.4	70.9	276.0	1.1	25	5.2		
	e pP	Z 17:25:25.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/18	17:39:27.8	36.094N	96.010E	10.1	4.8			SZGRF

Qinghai, China

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	17:49:18.2	58.2	70.4	0.9	9	4.8		
CLL	e P	Z	17:49:20.6	58.6	70.0	0.8	7	4.7		
GEC2	e P	Z	17:49:24.5	59.0	69.1	1.0	6	4.6		
BSEG	e P	Z	17:49:25.6	59.2	69.7	1.1	27	5.2		
TANN	e P	Z	17:49:25.6	59.2	69.2	0.9	5	4.5		
WET	e P	Z	17:49:27.3	59.4	68.7	1.3	9	4.6		
ROTZ	e P	Z	17:49:28.8	59.6	68.7	0.9	11	4.9		
MOX	e P	Z	17:49:28.4	59.6	68.8	1.3	9	4.7		
NRDL	e P	Z	17:49:30.0	59.8	68.8	1.0	20	5.1		
CLZ	e P	Z	17:49:30.4	59.9	68.6	0.8	12	5.0		
GRA1	e P	Z	17:49:33.0	60.2	68.0	0.8	14	5.0		
	e pP	Z	17:49:35.8							
FUR	e P	Z	17:49:37.0	60.8	67.2	0.9	17	4.9		
STU	e P	Z	17:49:43.2	61.8	66.3	0.6	4	4.8		
BFO	e P	Z	17:49:47.9	62.5	65.5	0.9	3	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/18	20:57:40.7	23.410S	179.360W	557.8				SZGRF

South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z	21:16:25.2	148.6	17.2					
	e PKPab	Z	21:16:30.8							
NRDL	e PKPbc	Z	21:16:28.4	150.0	17.6					
	e PKPab	Z	21:16:36.2							
CLL	e PKPbc	Z	21:16:29.5	150.5	23.5					
	e PKPab	Z	21:16:38.4							
IBBN	e PKPbc	Z	21:16:29.9	150.6	13.4					
	e PKPab	Z	21:16:39.2							
CLZ	e PKPbc	Z	21:16:30.1	150.6	18.4					
	e PKPab	Z	21:16:39.2							
BRG	e PKPbc	Z	21:16:29.9	150.7	25.5					
	e PKPab	Z	21:16:39.6							
	e pPKPbc	Z	21:18:38.3							
MOX	e PKPbc	Z	21:16:31.6	151.5	21.5					
	e PKPab	Z	21:16:42.4							
	e pPKPbc	Z	21:18:41.5							
TANN	e PKPbc	Z	21:16:31.9	151.5	23.2					
	e PKPab	Z	21:16:42.9							
	e pPKPbc	Z	21:18:41.5							

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UBBA	e PKPab	Z	21:16:42.9	151.6	18.3
	e pPKPbc	Z	21:18:42.7		
ROTZ	e PKPbc	Z	21:16:33.3	152.1	23.2
	e PKPab	Z	21:16:45.8		
GRA1	e PKPbc	Z	21:16:33.4	152.4	21.4
	e PKPab	Z	21:16:47.0		
TNS	e PKPbc	Z	21:16:34.4	152.5	15.7
	e PKPab	Z	21:16:47.0		
WET	e PKPab	Z	21:16:47.5	152.5	24.9
GEC2	e PKPbc	Z	21:16:34.1	152.6	26.7
	e PKPab	Z	21:16:47.1		
WLF	e PKPbc	Z	21:16:36.5	153.4	11.4
	e PKPab	Z	21:16:51.0		
STU	e PKPab	Z	21:16:52.5	153.8	18.0
RJOB	e PKPab	Z	21:16:53.3	153.8	26.0
FUR	e PKPab	Z	21:16:53.2	153.8	22.6
BFO	e PKPab	Z	21:16:54.9	154.3	16.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/18	21:19:38.4	31.915S	67.312W	33.0N		6.3		SZGRF

San Juan Province, Argentina

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 21:33:59.6	107.1	240.5					
	e PP	Z 21:38:18.7							
	e L	Z 22:22:27.7			20.5	5983		6.1	
MOX	e Pdiff	Z 21:34:01.7	107.8	241.0					
	e PP	Z 21:38:25.9							
	e L	Z 22:24:14.6			19.2	11751		6.5	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/19	08:32: 8.1	47.350N	25.350W	33.0G	5.7	5.7		SZGRF

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	e P	Z 08:36:49.0	20.8	275.8	1.3	397	5.6		
BUG	e P	Z 08:36:55.3	21.4	271.9	1.3	404	5.7		
IBBN	e P	Z 08:36:58.1	21.7	270.1	1.4	795	6.0		
TNS	e P	Z 08:37:04.3	22.3	275.7	1.4	151	5.2		
BFO	e P	Z 08:37:05.3	22.4	280.2	2.3	400	5.5		
STU	e P	Z 08:37:10.1	22.9	279.6	1.2	188	5.5		
NRDL	e P	Z 08:37:12.3	23.2	271.5	1.2	309	5.7		
UBBA	e P	Z 08:37:13.4	23.2	275.3					
BSEG	e P	Z 08:37:14.4	23.3	268.3	1.2	786	6.1		
CLZ	e P	Z 08:37:14.7	23.3	273.2	1.4	381	5.7		

GRA1	e P	Z	08:37:22.3	24.1	278.6	1.2	248	5.6		
	e L	Z	08:46:35.5			19.8	26675	5.7		
MOX	e P	Z	08:37:23.1	24.2	276.7	1.2	109	5.3		
FUR	e P	Z	08:37:23.4	24.4	281.9	2.2	874	5.9		
ROTZ	e P	Z	08:37:28.4	24.7	278.9	4.8	2753	6.3		
TANN	e P	Z	08:37:28.8	24.8	277.7	2.3	347	5.7		
CLL	e P	Z	08:37:30.9	25.0	276.1	1.6	236	5.7		
WET	e P	Z	08:37:33.0	25.2	280.6	1.8	299	5.7		
RJOB	e P	Z	08:37:36.3	25.5	283.5					
BRG	e P	Z	08:37:36.2	25.7	277.6	2.0	538	5.8		
GEC2	e P	Z	08:37:38.0	25.8	281.6	2.6	724	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/20	00:06:50.3	70.751N	9.568W	33.0G	4.4	3.6		SZGRF
Jan Mayen Island region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:11:58.3	23.2	342.7	1.3	14	4.4		
	e L	Z 00:20:54.6			20.5	204		3.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/20	10:29:28.2	37.109N	142.975E	33.0G	6.2	6.8		SZGRF
Off east coast of Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 10:41:35.8	80.2	36.5	1.3	485	6.4		
BRG	e P	Z 10:41:41.2	81.3	38.8	1.5	168	5.9		
CLL	e P	Z 10:41:41.0	81.3	38.2	1.4	336	6.3		
NRDL	e P	Z 10:41:42.1	81.5	36.2	1.5	204	6.0		
CLZ	e P	Z 10:41:44.6	81.9	36.4	1.3	427	6.4		
TANN	e P	Z 10:41:46.2	82.3	37.7	1.8	136	5.9		
MOX	e P	Z 10:41:46.9	82.4	37.1	1.5	179	6.1		
IBBN	e P	Z 10:41:47.2	82.5	34.5	1.4	412	6.5		
ROTZ	e P	Z 10:41:49.9	82.9	37.5	1.5	384	6.4		
UBBA	e P	Z 10:41:49.1	82.9	36.0					
GEC2	e P	Z 10:41:49.7	83.0	38.5	1.5	153	6.0		
WET	e P	Z 10:41:50.7	83.1	37.9	1.4	233	6.2		
GRA1	e P	Z 10:41:52.1	83.3	36.8					
	e L	Z 11:23:32.0			18.3	37520		6.8	
BUG	e P	Z 10:41:51.7	83.3	34.1					
TNS	e P	Z 10:41:54.9	83.9	34.9	1.5	218	6.2		
RJOB	e P	Z 10:41:56.5	84.2	37.8					
FUR	e P	Z 10:41:57.8	84.5	36.7	1.4	458	6.5		
STU	e P	Z 10:41:59.3	84.8	35.3	1.5	469	6.5		
WLF	e P	Z 10:42:01.8	85.2	33.2	1.5	361	6.3		

BFO e P Z 10:42:02.6 85.5 34.7 1.4 379 6.3

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/20 10:48:25.3 35.179N 143.033E 33.0G 5.4 5.6
 Off east coast of Honshu, Japan

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e P Z 11:00:54.0 85.0 37.7 1.4 32 5.4
 e L Z 11:39:27.3 21.7 2982 5.6

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/20 12:22: 3.8 35.998N 141.058E 33.0G 5.6 4.8
 Near east coast of eastern Honshu, Japan

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e P Z 12:34:32.8 83.5 38.7 1.5 55 5.6
 e L Z 13:14:59.9 21.4 448 4.8

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/20 15:43:56.5 16.746N 118.368E 33.0N 5.2
 Philippine Islands region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e P Z 15:56:43.1 87.9 66.3 1.4 18 5.2

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/20 17:37:17.7 35.766N 142.210E 33.0N 5.3
 Off east coast of Honshu, Japan

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e P Z 17:49:46.0 84.2 38.0 1.2 21 5.3

Date Origin Time Lat Long Depth mb Ms ML Source
 2008/12/20 19:13:49.2 36.686N 143.127E 33.0G 5.5
 Off east coast of Honshu, Japan

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML
 GRA1 e P Z 19:26:07.2 83.7 36.9 1.2 37 5.5

2008/12/21 16:09:54.8

33.0G

SZGRF

Southwest of Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKPbc	Z 16:09:54.8							
	e PKPab	Z 16:10:01.5							
GRA2	e PKPbc	Z 16:09:54.5							
	e PKPab	Z 16:10:02.0							
GRA3	e PKPbc	Z 16:09:53.6							
	e PKPab	Z 16:10:01.6							
GRA4	e PKPdf	Z 16:09:48.7							
	e PKPbc	Z 16:09:54.3							
	e PKPab	Z 16:10:02.1							
GRB1	e PKPbc	Z 16:09:54.5							
	e PKPab	Z 16:10:02.8							
GRB2	e PKPbc	Z 16:09:54.7							
	e PKPab	Z 16:10:03.4							
GRB3	e PKPbc	Z 16:09:54.6							
	e PKPab	Z 16:10:02.9							
GRB4	e PKPbc	Z 16:09:54.3							
	e PKPab	Z 16:10:02.5							
GRB5	e PKPbc	Z 16:09:55.1							
GRC1	e PKPbc	Z 16:09:55.3							
	e PKPab	Z 16:10:04.4							
GRC2	e PKPbc	Z 16:09:55.9							
	e PKPab	Z 16:10:04.5							
GRC4	e PKPbc	Z 16:09:55.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/21	22:39: 5.0	37.134N	70.862E	61.3N	4.9			SZGRF

Afghanistan-Tajikistan border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:47:05.0	43.9	83.1	1.4	36	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/22	13:25:41.1	47.166N	152.061E	33.0G	5.5	4.6		SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:37:37.6	77.4	26.1	0.9	38	5.5		
	e L	Z 14:09:30.9			21.9	355		4.6	

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Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/22	18:06:31.9	17.300S	172.600W	35.0				NEIC

Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:26:13.3	147.5	6.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/24	09:27: 3.5			33.0G				SZGRF

Tonga Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 09:31:17.0			1.2	206			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/24	20:32: 3.7	43.336N	146.976E	33.0G	4.9			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 20:44:10.7	79.3	31.1	1.1	16	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	00:29:54.5			33.0N				SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 00:30:28.5			1.4	42			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	03:20:57.3	14.744N	117.892E	33.0G	5.5			SZGRF

Philippine Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:33:54.6	89.2	67.9	1.5	48	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	08:11:58.8	49.963N	131.742W	33.0G	5.4			SZGRF

Vancouver Island, Canada, region

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Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:23:44.3	75.4	336.4	1.5	47	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	10:43:4.8	34.523N	141.393E	33.0G	5.4			SZGRF

Off east coast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:55:41.6	84.9	39.2	1.1	30	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	12:39:35.7	42.830N	143.381E	33.0G	5.1			SZGRF

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 12:51:38.4	78.5	33.7	1.2	22	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	18:11:36.5	7.726N	122.545E	33.0G	5.9			SZGRF

Mindanao, Philippine Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:25:07.3	97.5	68.6	1.0	23	5.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/25	22:40:44.8	25.758N	62.649E	33.0G	5.8	5.1		SZGRF

Southwestern Pakistan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:49:09.7	46.0	101.8	1.8	185	5.8		
	e L	Z 23:14:08.5			20.8	2358		5.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/26	16:38:45.1	69.140N	60.410W	10.0G	4.3			SZGRF

Baffin Bay

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e P	Z 16:45:39.5	34.9	324.7	0.7	7	4.7		
BUG	e P	Z 16:45:44.0	35.4	325.4	0.8	13	4.8		

CLZ	e P	Z	16:45:50.5	36.2	325.3	0.6	2	4.0
TNS	e P	Z	16:45:56.4	36.8	326.4	0.8	8	4.5
UBBA	e P	Z	16:45:56.4	36.9	326.0	0.7	4	4.2
CLL	e P	Z	16:46:01.8	37.5	325.9	0.7	5	4.4
MOX	e P	Z	16:46:02.3	37.6	326.3	0.7	6	4.5
TANN	e P	Z	16:46:07.1	38.1	326.5	0.7	2	3.9
BRG	e P	Z	16:46:08.2	38.2	326.4			
BFO	e P	Z	16:46:08.8	38.4	327.7	2.0	78	5.0
ROTZ	e P	Z	16:46:10.4	38.5	327.0	0.7	3	4.1
WET	e P	Z	16:46:16.9	39.3	327.4	0.7	2	3.9
GEC2	e P	Z	16:46:21.8	39.8	327.7	0.7	4	4.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/26	16:37:3.4	30.140N	160.430E	33.0N	5.0			SZGRF
North Pacific Ocean								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 16:50:18.2	93.7	27.8	0.6	10	5.3		
BRG	e P	Z 16:50:18.7	93.8	28.6	0.7	5	4.9		
CLZ	e P	Z 16:50:19.8	93.9	25.6	1.4	18	5.2		
IBBN	e P	Z 16:50:20.2	94.2	23.5	0.7	10	5.3		
TANN	e P	Z 16:50:22.8	94.6	27.4	0.8	2	4.6		
MOX	e P	Z 16:50:22.8	94.6	26.7	0.7	3	4.9		
ROTZ	e P	Z 16:50:26.1	95.3	27.2	1.0	5	5.0		
WET	e P	Z 16:50:27.0	95.6	27.8	1.0	3	4.8		
GRA1	e P	Z 16:50:27.6	95.6	26.4	1.1	5	5.0		
GEC2	e P	Z 16:50:26.6	95.6	28.5	0.9	3	4.9		
TNS	e P	Z 16:50:28.1	95.9	24.1	0.7	3	4.9		
RJOB	e P	Z 16:50:32.5	96.9	27.8	0.8	2	4.9		
BFO	e P	Z 16:50:36.0	97.6	24.1	0.7	3	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/27	14:50:28.7	54.190N	164.060W	33.0G	5.1	4.7		SZGRF
Unimak Island, Alaska, United States, region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
IBBN	e P	Z 15:02:05.6	73.3	355.0	0.9	25	5.2		
CLZ	e P	Z 15:02:09.3	73.9	356.6	0.9	21	5.2		
BUG	e P	Z 15:02:10.0	74.1	354.7	1.1	24	5.1		
CLL	e P	Z 15:02:11.9	74.5	358.2	0.9	17	5.1		
BRG	e P	Z 15:02:14.8	74.9	358.8	0.9	13	5.0		
MOX	e P	Z 15:02:16.0	75.1	357.4	0.2	20	5.8		
TANN	e P	Z 15:02:17.6	75.4	357.9	0.8	5	4.7		
TNS	e P	Z 15:02:17.6	75.4	355.5	1.1	23	5.2		
WLF	e P	Z 15:02:20.4	75.8	354.1	1.0	21	5.2		

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ROTZ	e P	Z	15:02:21.3	76.0	357.7	1.0	8	4.8		
GRA1	e P	Z	15:02:21.7	76.0	357.2	0.8	21	5.3		
	e L	Z	15:37:43.0			21.3	394		4.7	
WET	e P	Z	15:02:25.0	76.6	358.2	1.0	9	4.9		
STU	e P	Z	15:02:25.9	76.9	356.0	1.0	20	5.2		
GEC2	e P	Z	15:02:26.5	76.9	358.7	0.9	10	4.9		
BFO	e P	Z	15:02:28.1	77.3	355.4	0.9	6	4.7		
RJOB	e P	Z	15:02:32.5	78.0	358.1	1.1	10	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/27	18:51:21.4	48.860N	152.300E	33.0N	4.7			SZGRF
Kuril Islands, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 19:02:55.2	74.0	26.5	1.5	20	4.9		
BRG	e P	Z 19:02:56.0	74.1	27.0	1.5	8	4.6		
CLZ	e P	Z 19:02:57.3	74.2	24.9	0.9	2	4.1		
IBBN	e P	Z 19:02:58.4	74.4	23.3	1.7	39	5.2		
TANN	e P	Z 19:03:01.0	74.9	26.1	0.7	0	3.7		
MOX	e P	Z 19:03:01.2	75.0	25.6	2.2	67	5.3		
UBBA	e P	Z 19:03:01.9	75.2	24.6	0.7	1	3.9		
ROTZ	e P	Z 19:03:05.2	75.6	25.8	0.9	2	4.1		
GRA1	e P	Z 19:03:07.1	75.9	25.2	1.2	11	4.8		
WET	e P	Z 19:03:07.2	76.0	26.2	5.3	7329	7.0		
GEC2	e P	Z 19:03:06.8	76.0	26.6	0.6	1	4.1		
TNS	e P	Z 19:03:08.3	76.2	23.6	0.6	2	4.4		
RJOB	e P	Z 19:03:14.3	77.2	26.0	1.8	25	5.1		
BFO	e P	Z 19:03:17.8	77.9	23.3	0.9	3	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/27	21:20: 8.8	22.320S	178.840W	33.0N				SZGRF
South of Fiji Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPbc	Z 21:39:49.3	147.6	16.0					
CLL	e PKPbc	Z 21:39:54.7	149.6	22.0					
CLZ	e PKPbc	Z 21:39:55.1	149.6	17.0					
BRG	e PKPbc	Z 21:39:55.4	149.8	24.0					
MOX	e PKPbc	Z 21:39:57.2	150.5	19.9					
TANN	e PKPbc	Z 21:39:57.3	150.5	21.6					
UBBA	e PKPbc	Z 21:39:57.4	150.7	16.9					
ROTZ	e PKPbc	Z 21:39:59.2	151.2	21.6					
GRA1	e PKPbc	Z 21:40:00.1	151.5	19.8					
TNS	e PKPbc	Z 21:39:59.7	151.5	14.2					
GEC2	e PKPbc	Z 21:40:00.1	151.7	25.0					

WLF	e	PKPbc	Z	21:40:02.1	152.4	10.0
RJOB	e	PKPbc	Z	21:40:02.7	152.9	24.2
BFO	e	PKPbc	Z	21:40:03.5	153.4	14.9

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/28	13:31:40.1	49.660N	152.700E	33.0G	5.8	5.0		SZGRF

Northwest of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 13:43:07.1	71.7	24.6	2.0	246	6.0		
CLL	e P	Z 13:43:16.3	73.4	25.9	0.9	68	5.7		
BRG	e P	Z 13:43:17.2	73.5	26.4	3.6	488	5.9		
CLZ	e P	Z 13:43:18.4	73.6	24.4	1.4	95	5.6		
IBBN	e P	Z 13:43:19.1	73.8	22.8	0.9	70	5.7		
TANN	e P	Z 13:43:22.3	74.3	25.5	1.0	31	5.3		
MOX	e P	Z 13:43:22.3	74.3	25.0	1.0	52	5.5		
UBBA	e P	Z 13:43:23.7	74.6	24.0	1.1	41	5.4		
BUG	e P	Z 13:43:24.2	74.7	22.4	1.0	73	5.7		
ROTZ	e P	Z 13:43:26.4	75.0	25.2	1.6	116	5.7		
GRA1	e P	Z 13:43:28.3	75.3	24.6	0.9	134	6.1		
	e L	Z 14:20:12.6			18.8	756		5.0	
WET	e P	Z 13:43:28.6	75.3	25.6	1.0	79	5.8		
GEC2	e P	Z 13:43:28.3	75.4	26.0	38.3	764066	8.2		
TNS	e P	Z 13:43:29.3	75.5	23.0	1.7	144	5.8		
WLF	e P	Z 13:43:36.6	76.6	21.5	0.9	32	5.4		
RJOB	e P	Z 13:43:35.8	76.6	25.4	0.9	56	5.7		
STU	e P	Z 13:43:35.5	76.7	23.3	1.0	110	6.0		
BFO	e P	Z 13:43:38.9	77.3	22.7	1.0	78	5.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/28	18:03:39.7	49.400N	154.290E	33.0G	4.7			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 18:15:18.4	74.0	25.0	0.8	4	4.5		
BRG	e P	Z 18:15:19.3	74.2	25.6					
CLZ	e P	Z 18:15:20.5	74.2	23.5	0.8	2	4.3		
IBBN	e P	Z 18:15:21.5	74.4	21.9	1.5	43	5.3		
TANN	e P	Z 18:15:24.3	75.0	24.6	1.2	2	4.0		
MOX	e P	Z 18:15:24.4	75.0	24.1	2.7	248	5.8		
UBBA	e P	Z 18:15:25.6	75.2	23.1	0.8	1	4.1		
ROTZ	e P	Z 18:15:28.5	75.6	24.4	1.0	4	4.5		
GRA1	e P	Z 18:15:30.4	76.0	23.8	2.9	728	6.3		
WET	e P	Z 18:15:30.7	76.0	24.7	1.5	26	5.2		
GEC2	e P	Z 18:15:30.4	76.1	25.2					

TNS	e P	Z	18:15:31.3	76.2	22.1	0.9	5	4.6
RJOB	e P	Z	18:15:38.1	77.3	24.5	0.8	4	4.5
STU	e P	Z	18:15:37.6	77.3	22.4	0.7	2	4.3
BFO	e P	Z	18:15:41.0	78.0	21.9	1.0	2	4.3

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/28	21:40:17.2	48.972N	153.879E	33.0G	5.6	5.5		SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 21:51:46.5	72.6	24.1	0.6	29	5.5		
CLL	e P	Z 21:51:55.7	74.3	25.5	0.6	56	5.8		
BRG	e P	Z 21:51:56.6	74.4	26.0	0.6	21	5.4		
CLZ	e P	Z 21:51:57.7	74.5	23.9					
IBBN	e P	Z 21:51:58.4	74.7	22.3					
TANN	e P	Z 21:52:01.5	75.3	25.0					
MOX	e P	Z 21:52:01.6	75.3	24.5					
UBBA	e P	Z 21:52:02.8	75.5	23.6	0.6	13	5.2		
BUG	e P	Z 21:52:03.5	75.6	21.9	0.7	38	5.7		
ROTZ	e P	Z 21:52:05.4	75.9	24.8	0.7	13	5.2		
GRA1	e P	Z 21:52:07.7	76.3	24.2	0.6	74	6.0		
	e L	Z 23:07:19.6			18.8	2422		5.5	
WET	e P	Z 21:52:07.9	76.3	25.2	0.6	46	5.8		
GEC2	e P	Z 21:52:07.6	76.3	25.6					
TNS	e P	Z 21:52:08.6	76.5	22.5	0.6	41	5.7		
WLF	e P	Z 21:52:14.5	77.5	21.0					
RJOB	e P	Z 21:52:15.1	77.6	25.0	0.6	30	5.6		
STU	e P	Z 21:52:14.9	77.6	22.9	0.7	40	5.7		
BFO	e P	Z 21:52:18.3	78.2	22.3	0.7	31	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/28	22:39:41.9	48.860N	154.120E	33.0G	5.1			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 22:51:15.0	72.8	24.0	0.5	9	5.2		
CLL	e P	Z 22:51:24.3	74.5	25.4	0.5	10	5.1		
BRG	e P	Z 22:51:25.1	74.6	25.9	0.5	9	5.0		
CLZ	e P	Z 22:51:26.2	74.7	23.8	0.6	2	4.4		
TANN	e P	Z 22:51:30.1	75.4	24.9	0.7	6	4.8		
MOX	e P	Z 22:51:30.2	75.4	24.4	0.6	10	5.1		
UBBA	e P	Z 22:51:31.2	75.7	23.4	0.1	3	5.6		
BUG	e P	Z 22:51:32.1	75.8	21.8	1.0	20	5.2		
ROTZ	e P	Z 22:51:34.0	76.1	24.7	0.5	4	4.8		
GRA1	e P	Z 22:51:36.2	76.4	24.1	0.4	25	5.7		

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WET	e P	Z	22:51:36.2	76.5	25.1	0.9	10	5.0
GEC2	e P	Z	22:51:36.2	76.5	25.5	0.6	10	5.2
TNS	e P	Z	22:51:37.2	76.6	22.4	1.2	25	5.2
RJOB	e P	Z	22:51:43.6	77.8	24.9	0.6	10	5.1
BFO	e P	Z	22:51:46.8	78.4	22.2	0.6	11	5.1

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/29	01:45:41.2	52.620N	152.810E	33.0G	4.5			SZGRF
Northwest of Kuril Islands, Russia								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	01:56:02.6	70.7	24.5	0.7	4	4.7		
BRG	e P	Z	01:56:03.5	70.9	25.0	1.4	6	4.5		
CLZ	e P	Z	01:56:04.6	70.9	23.1	0.8	2	4.3		
IBBN	e P	Z	01:56:05.0	71.1	21.6	0.8	2	4.3		
UBBA	e P	Z	01:56:09.6	71.9	22.7	1.7	12	4.6		
BUG	e P	Z	01:56:10.4	72.0	21.2	0.6	3	4.4		
ROTZ	e P	Z	01:56:12.8	72.3	23.9	1.0	3	4.3		
GRA1	e P	Z	01:56:14.6	72.6	23.3	0.7	4	4.6		
WET	e P	Z	01:56:14.9	72.7	24.2					
GEC2	e P	Z	01:56:14.5	72.8	24.6	0.6	1	3.9		
TNS	e P	Z	01:56:15.5	72.8	21.7	1.5	15	4.8		
STU	e P	Z	01:56:21.5	74.0	22.0	0.7	1	4.0		
RJOB	e P	Z	01:56:22.4	74.0	23.9	1.2	10	4.8		
BFO	e P	Z	01:56:25.2	74.6	21.5	1.5	19	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/29	03:37: 8.2	34.500N	73.500E	157.5	6.4			SZGRF
Pakistan								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	03:45:23.5	45.3	87.3	1.0	771	6.6		
GEC2	e P	Z	03:45:25.9	45.6	85.1	1.2	213	6.0		
CLL	e P	Z	03:45:27.6	45.9	87.0	1.0	461	6.5		
WET	e P	Z	03:45:30.1	46.1	84.8	1.4	166	5.9		
TANN	e P	Z	03:45:31.5	46.3	85.8	1.2	397	6.3		
RJOB	e P	Z	03:45:31.4	46.3	83.5	1.3	198	6.0		
ROTZ	e P	Z	03:45:33.8	46.5	85.0	1.3	633	6.6		
	e pP	Z	03:46:09.1							
MOX	e P	Z	03:45:35.5	46.8	85.4	1.1	514	6.6		
GRA1	e P	Z	03:45:39.0	47.2	84.2	1.6	1051	6.7		
CLZ	e P	Z	03:45:40.8	47.5	85.6	1.2	880	6.8		
UBBA	e P	Z	03:45:43.1	47.8	84.4	1.7	660	6.5		
STU	e P	Z	03:45:49.4	48.6	82.0	1.1	368	6.3		
TNS	e P	Z	03:45:51.7	48.9	82.7	1.1	335	6.3		

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BFO	e P	Z	03:45:53.7	49.2	81.0	1.2	206	6.0
BUG	e P	Z	03:45:56.0	49.5	82.9	1.1	653	6.5
WLF	e P	Z	03:46:03.9	50.4	80.7	1.3	723	6.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/29	23:36:49.2	49.240N	154.350E	33.0N	4.4			SZGRF

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z 23:48:24.8	74.2	25.1	0.7	4	4.5		
BRG	e P	Z 23:48:25.6	74.3	25.6	0.7	2	4.2		
CLZ	e P	Z 23:48:26.5	74.4	23.5	0.7	2	4.2		
TANN	e P	Z 23:48:30.8	75.1	24.6	0.6	1	4.0		
MOX	e P	Z 23:48:30.4	75.2	24.1	0.7	2	4.4		
ROTZ	e P	Z 23:48:34.5	75.8	24.4					
GRA1	e P	Z 23:48:36.4	76.1	23.8	0.6	8	5.0		
WET	e P	Z 23:48:36.7	76.2	24.8					
GEC2	e P	Z 23:48:36.4	76.2	25.2					
RJOB	e P	Z 23:48:44.0	77.5	24.6	0.8	3	4.4		
STU	e P	Z 23:48:43.6	77.5	22.5	0.8	2	4.3		
FUR	e P	Z 23:48:44.2	77.5	23.7					
BFO	e P	Z 23:48:47.1	78.1	21.9	0.8	3	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/30	15:48:44.1	35.820N	139.820E	33.0G	4.7			SZGRF

Near south coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z 16:00:49.8	81.1	41.7	0.7	2	4.3		
CLL	e P	Z 16:00:49.8	81.2	41.1	0.8	7	4.7		
CLZ	e P	Z 16:00:53.8	81.8	39.2	0.9	5	4.7		
MOX	e P	Z 16:00:55.7	82.3	40.0	0.7	2	4.4		
ROTZ	e P	Z 16:00:58.4	82.7	40.4	0.7	3	4.6		
GEC2	e P	Z 16:00:58.2	82.8	41.3	0.8	2	4.5		
UBBA	e P	Z 16:00:59.1	82.8	38.9	0.7	2	4.3		
WET	e P	Z 16:00:59.1	82.9	40.8	1.0	3	4.4		
GRA1	e P	Z 16:01:00.8	83.2	39.7	0.8	8	5.0		
FUR	e P	Z 16:01:06.7	84.3	39.6	0.7	10	5.1		
STU	e P	Z 16:01:08.0	84.7	38.2	0.7	8	5.1		
BFO	e P	Z 16:01:11.3	85.4	37.5	0.7	4	4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/31	08:48:12.1	48.560N	152.090E	33.0G	4.2			SZGRF

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e P	Z	08:59:51.5	74.2	26.8	0.8	3	4.3		
BRG	e P	Z	08:59:52.6	74.3	27.3	0.7	1	3.8		
CLZ	e P	Z	08:59:54.2	74.4	25.2					
TANN	e P	Z	08:59:57.7	75.1	26.3	0.8	1	3.7		
MOX	e P	Z	08:59:57.6	75.2	25.8	0.9	1	4.1		
UBBA	e P	Z	08:59:59.2	75.5	24.8	1.0	1	3.8		
ROTZ	e P	Z	09:00:01.5	75.8	26.1	0.9	2	4.1		
WET	e P	Z	09:00:03.6	76.2	26.4	0.9	2	4.2		
GEC2	e P	Z	09:00:03.5	76.2	26.9	1.1	1	3.8		
TNS	e P	Z	09:00:05.2	76.4	23.8					
RJOB	e P	Z	09:00:11.0	77.4	26.2	0.7	1	4.0		
BFO	e P	Z	09:00:14.2	78.2	23.6	0.8	2	4.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2008/12/31	14:02:0.3	29.500S	176.500W	33.0				SZGRF

Kermadec Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e PKPdf	Z	14:21:56.1	155.1	14.2					
IBBN	e PKPdf	Z	14:21:58.3	157.0	9.5					
CLL	e PKPdf	Z	14:21:58.7	157.1	21.6					
CLZ	e PKPdf	Z	14:21:59.0	157.1	15.5					
BRG	e PKPdf	Z	14:21:59.0	157.2	24.1					
MOX	e PKPdf	Z	14:21:59.9	158.0	19.1					
TANN	e PKPdf	Z	14:22:00.1	158.0	21.2					
UBBA	e PKPdf	Z	14:22:00.0	158.1	15.3					
ROTZ	e PKPdf	Z	14:22:01.0	158.7	21.3					
GRA1	e PKPdf	Z	14:22:01.3	159.0	19.0					
WET	e PKPdf	Z	14:22:01.1	159.1	23.4					
GEC2	e PKPdf	Z	14:22:01.6	159.1	25.7					
WLF	e PKPdf	Z	14:22:02.2	159.7	6.7					

Format description

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(T. Plenefisch, Email: plene@szgrf.bgr.de)

In general all regional and teleseismic events clearly recorded with stations of the Gräfenberg-Array (GRF) and stronger events recorded with stations of the German Regional Seismological Network (GRSN) are included in this bulletin. Each event is reported by an EPICENTER LINE, a REGION LINE and a block of PHASE LINES.

EPICENTER LINE:

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, SED, MAD)

REGION LINE:

The region name of the epicenter location.

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
	Component where the phase was picked
Time	Arrival time of the reported phase
Dist	Distance from the epicenter location to the station in degree
BAz	Backazimuth from the epicenter location 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