

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

=====

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

MAY 2002      UPDATED 19.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	
2002/05/01	05:56: 5.3	42.250N	143.490E	33.0N	5.1			SZGRF	
2002/05/01	05:56:28.5	43.370N	139.997E	194*	4.5			NEIC	
Hokkaido, Japan, region									
Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 06:08:06.4	76.8	35.6	0.7	14	5.1		
	e	06:08:12.0							
Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source	
2002/05/02	03:31:30.0	41.870N	21.450E	10.0G			4.1	SZGRF	
2002/05/02	03:31:29.3	42.417N	21.375E	10G	4.0			NEIC	
Northwestern Balkan Peninsula									
Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pn	Z 03:33:07.5	6.4	137.3					4.0
	e Sn	N 03:34:22.9							
KBA	e Pn	Z 03:33:22.0	7.4	126.4					
MOA	e Pn	Z 03:33:22.7	7.4	134.7					4.2
	e Sn	N 03:34:49.3							
GEC2	e Pn	Z 03:33:37.6	8.4	137.3					
WET	e Pn	Z 03:33:47.6	9.0	135.5					
BFO	e Pn	Z 03:34:09.4	10.9	118.0					
TNS	e Sn	E 03:36:35.0	11.8	126.3					
Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source	
2002/05/02	18:25:28.5	51.8S	139.8E	10		4.8		NEIC	

W Indian-Antarctic ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:45:21.2							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/03	02:14:05.8	22.7S	63.7W	531	4.7			NEIC

Salta province, Argentina

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:26:45.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/03	03:04:21.2	52.620N	162.660E	33.0N	5.0	4.6		SZGRF
2002/05/03	03:04:20.9	52.481N	160.465E	63*	4.8			NEIC

Off east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 03:15:46.8			1.0	15	5.1		
	e pP	Z 03:15:59.1							
	e S	T 03:25:13.4							
	e SS	T 03:29:49.1							
	e LQ	T 03:38:09.1							
	e L	Z 03:54:54.1			18.0	323		4.7	
GRA1	e P	Z 03:15:59.0	74.6	18.9	1.0	17	5.0		
	e L	Z 03:50:48.9			18.9	285		4.6	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/03	11:21:12.3	84.590N	13.040E	33.0N	5.5			SZGRF
2002/05/03	11:20:51.3	85.975N	30.910E	10G	5.3	5.4		NEIC

North of Svalbard

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 11:27:45.7			2.0	111	5.5		
	e	11:27:51.8							
	e PP	Z 11:29:03.5							
	e S	T 11:33:20.8							
	e SS	T 11:35:50.8							
	e LQ	T 11:36:33.7							
	e LR	Z 11:37:01.0							
	e L	Z 11:50:22.9			18.0	4091		5.2	
GRA1	e P	Z 11:28:01.2	36.5	2.3	1.5	98	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/03	15:33:46.5	85.650N	7.340E	33.0N	5.1			SZGRF
2002/05/03	15:33:34.4	85.867N	29.992E	10G	5.1	5.1		NEIC

North of Svalbard

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z	15:40:29.3			1.5	42	5.1		
	e		15:40:35.9							
	e PP	Z	15:41:42.3							
	e PcP	Z	15:43:01.2							
	e S	R	15:46:02.1							
	e SS	T	15:48:33.0							
	e LQ	T	15:49:17.7							
	e LR	Z	15:49:46.9							
	e L	Z	16:03:14.5			18.0	2030			
GRA1	e P	Z	15:40:44.5	36.4	2.2	1.1	36	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/03	16:03:49.3	22.881S	169.499E	33N	5.2	5.0		NEIC

Southeast of Loyalty Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e PKP	Z	16:23:24.9	145.1	41.4					
BSEG	e PKP	Z	16:23:25.2	145.2	35.0					
BRG	e PKP	Z	16:23:28.6	146.2	43.2					
CLL	i PKPbc	Z	16:23:28.1	146.3	41.4	1.5	93			
	e pPKPbc	Z	16:23:38.4							
	e		16:23:55.5							
CLZ	e PKP	Z	16:23:30.6	146.9	36.9					
MOX	e PKP	Z	16:23:31.6	147.3	40.0					
GEC2	e PKP	Z	16:23:32.9	147.8	45.1					
WET	e PKP	Z	16:23:33.5	147.9	43.5					
GRA1	e PKP	Z	16:23:34.5	148.2	40.4					
BUG	e PKP	Z	16:23:34.0	148.3	32.4					
TNS	e PKP	Z	16:23:36.0	148.9	35.4					
FUR	e PKP	Z	16:23:37.3	149.4	42.1					
STU	e PKP	Z	16:23:37.9	149.8	38.1					
BFO	e PKP	Z	16:23:39.3	150.5	37.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/03	22:32:04.0	18.161S	178.356W	619D	4.9			NEIC

Fiji Islands region

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

4

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z	22:50:36.4	145.7	13.9	0.6	98			
	e pPKPbc	Z	22:52:28.4							
	e SKPbc	Z	22:53:17.9							
GRA1	e PKP	Z	22:50:41.8	147.5	17.1					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/04	07:00:48.2	17.799S	178.841W	557D	5.3			NEIC

Fiji Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPdf	+ Z	07:19:23.8							
	i PKPbc	+ Z	07:19:25.1			0.8	112			
	e pPKP	Z	07:21:36.7							
	i SKPbc	Z	07:22:12.2							
	e PP	Z	07:22:54.1							
	e SKKSac	N	07:28:43.2							
	e SKSP	Z	07:32:10.8							
	e		07:34:39.2							
	e SS	E	07:40:59.4							
	e sSS	E	07:44:24.5							
GRA1	e PKP	Z	07:19:30.5	147.1	17.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/04	08:08:27.8	7.018S	155.823E	33N	5.3	5.0		NEIC

Bougainville - Solomon Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPdf	+ Z	08:27:28.2			0.8	34			
	e pPKPdf	Z	08:27:41.6							
	e		08:27:58.5							
	e L	Z	09:25:05.1			22.0	196		4.7	
GRA1	e PKP	Z	08:27:31.9	128.1	46.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/04	10:52:57.3	5.2N	124.3E	33	5.2			NEIC

Mindanao, Philippines

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i Pdiff	Z	11:06:36.4			1.5	14	5.5		
	e pP	Z	11:06:46.7							
	e PP	Z	11:10:45.7							
	e Sdiff	N	11:18:10.0							

e PS	Z	11:19:30.3										
e		11:21:07.9										
e LQ	N	11:39:19.1										
e LR	Z	11:41:15.8										
e L	Z	11:59:56.8			20.0		986			5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/04	13:00:00.5	41.3S	172.9E	96	5.1			NEIC

South Island, New Zealand

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 13:20:51.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/04	16:07:14.6	20.026S	173.790W	33N	5.0	5.0		NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 16:26:55.6							
	e PKPbc	Z 16:26:59.7							
	e PKPab	Z 16:27:03.3							
	e PP	Z 16:30:33.0							
	e L	Z 17:32:27.8			20.0	149		4.8	
GRA1	e PKP	Z 16:27:04.4	150.1	9.5					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/05	01:40:47.4	46.470N	152.840E	33.0N	5.0			SZGRF
2002/05/05	01:40:41.5	44.483N	149.179E	43D	4.6			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 01:52:43.6	79.0	29.1	1.2	19	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/05	02:04:52.4	46.670N	154.430E	33.0N	4.9			SZGRF
2002/05/05	02:06:07.3	49.282N	147.675E	555	4.1			NEIC

East of Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 02:16:50.8	74.2	27.8	0.8	9	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/05	16:49:55.1	19.755S	178.350W	600G	4.7			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	Z 17:08:33.0			0.9	46			
	e PKPab	Z 17:08:36.8			0.8	23			
GRA1	e PKP	Z 17:08:38.2	149.1	17.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/06	08:12:15.7	40.530N	141.950E	33.0N	5.3	4.6		SZGRF
2002/05/06	08:12:03.4	38.632N	142.016E	33N	5.0	4.5		NEIC

Near east coast of eastern Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 08:24:04.0	78.4	38.8	1.1	49	5.5		
BSEG	e P	Z 08:24:04.7	78.5	36.5	0.9	47	5.6		
CLL	i P	+ Z 08:24:10.7	79.6	38.1	0.9	49	5.4		
	e pP	Z 08:24:23.2							
	e L	Z 09:02:40.8			18.0	241		4.6	
CLZ	e P	Z 08:24:13.8	80.2	36.3	0.9	42	5.4		
MOX	e P	Z 08:24:16.2	80.7	37.1	1.3	31	5.2		
GEC2	e P	Z 08:24:19.2	81.3	38.3	1.1	14	4.8		
WET	e P	Z 08:24:20.2	81.4	37.8	1.2	26	5.0		
GRA1	e P	Z 08:24:21.8	81.6	36.7	0.9	57	5.5		
	e L	Z 09:03:50.5			18.7	231		4.6	
TNS	e P	Z 08:24:24.2	82.2	34.8	1.4	26	5.1		
FUR	e P	Z 08:24:27.5	82.8	36.6	0.9	55	5.6		
BFO	e P	Z 08:24:32.4	83.8	34.6	1.0	40	5.5		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/06	17:47:35.0	18.011S	179.286W	600G	4.2			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 18:06:14.6	147.2	18.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/07	15:16:08.4	19.100S	168.666E	50D	5.7	5.4		NEIC

Vanuatu Islands

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

7

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKP	Z 15:35:33.4							
	e PP	Z 15:38:51.9							
	e SS	T 15:57:10.5							
	e LR	Z 16:25:54.1							
	e L	Z 16:39:37.8			22.0	1157			
	GRA1	e PKP	Z 15:35:39.7	144.5	38.6				

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/08	04:13:4.7	54.440N	158.620E	33.0N	5.7	5.4		SZGRF
2002/05/08	04:12:50.4	52.450N	159.973E	58*	5.1	5.1		NEIC

Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML	
RGN	e P	Z 04:23:57.4	69.5	21.0	1.4	299	6.3			
BSEG	e P	Z 04:24:04.5	70.7	19.0	2.4	338	6.2			
RUE	e P	Z 04:24:08.1	71.3	21.0	1.9	318	6.1			
CLL	i P	+ Z 04:24:15.6	72.6	20.4	1.2	79	5.7			
	e PP	Z 04:26:59.1								
	e S	T 04:33:39.9								
	e SS	T 04:38:23.0								
	e LQ	T 04:44:46.7								
	e LR	Z 04:48:32.1								
	e L	Z 05:02:06.4			18.0	2112		5.5		
	CLZ	e P	Z 04:24:16.5	72.6	18.9	1.2	110	5.9		
	BRG	e P	Z 04:24:16.6	72.8	20.9	1.7	59	5.4		
	MOX	e P	Z 04:24:21.2	73.5	19.5	1.3	44	5.4		
GRA1	BUG	e P	Z 04:24:21.8	73.6	16.9	1.2	76	5.7		
	e P	Z 04:24:27.6	74.5	19.2	1.1	94	5.8			
	e L	Z 04:59:30.2			20.5	1894		5.4		
	TNS	e P	Z 04:24:27.5	74.5	17.5	1.0	40	5.5		
	WET	e P	Z 04:24:28.2	74.6	20.1	1.3	64	5.6		
	GEC2	e P	Z 04:24:28.4	74.7	20.5	1.2	28	5.3		
	STU	e P	Z 04:24:34.5	75.8	17.9	1.3	74	5.5		
	FUR	e P	Z 04:24:35.3	75.9	19.1	0.9	55	5.6		
	BFO	e P	Z 04:24:37.7	76.4	17.3	1.3	54	5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/08	05:17:50.1	52.3N	160.0E	59	4.5			NEIC

off E coast of Kamchatka

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	Z 05:29:16.1			0.7	13	5.1		
	e pP	Z 05:29:27.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/08	05:26:00.3	17.916S	174.652W	131D	5.4			NEIC
Tonga Islands								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	Z 05:45:26.4			0.9	187			
	e pPKPbc	Z 05:46:02.4							
	e PP	Z 05:48:49.0							
	e SS	T 06:07:25.7							
	e sSS	T 06:08:17.2							
	e SSS	T 06:13:06.2							
	e LQ	T 06:26:23.8							
	e LR	Z 06:35:15.5							
	e L	Z 06:47:42.8			22.0	1114		5.6	
GRA1	e PKP	Z 05:45:32.5	147.9	10.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/08	08:30:14.1	52.890N	159.960E	33.0N	4.7			SZGRF
2002/05/08	08:30:07.8	52.493N	159.867E	33N	4.5	4.1		NEIC
Off east coast of Kamchatka Peninsula, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:41:47.2	74.4	19.2			4.7		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/08	18:39:39.1	55.3N	159.7E	164	4.6			NEIC
Kamchatka peninsula, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 18:50:47.4					4.9		
BEAM		18:50:47.4			1.1	10			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/08	19:45:34.3	55.950N	160.100E	33.0N	6.4	5.6		SZGRF
2002/05/08	19:45:21.7	53.888N	160.618E	69	5.6			NEIC
Kamchatka Peninsula, Russia								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z 19:56:19.8	68.3	20.0	1.1	640	6.8		
BSEG	e P	Z 19:56:26.9	69.4	18.2	1.2	260	6.3		
RUE	e P	Z 19:56:31.0	70.1	20.0	1.2	527	6.6		



CLL	i P	+ Z	19:56:38.7	71.4	19.5	1.2	523	6.5	
	e PP	Z	19:59:14.3						
	e S	R	20:05:54.5						
	e SS	R	20:10:40.5						
	e LQ	T	20:16:57.3						
	e LR	Z	20:19:21.6						
	e L	Z	20:31:34.4			22.0	3106		5.5
CLZ	e P	Z	19:56:39.1	71.4	18.0	1.2	569	6.6	
BRG	e P	Z	19:56:39.6	71.6	20.0	1.2	232	6.2	
MOX	e P	Z	19:56:44.2	72.3	18.6	1.3	311	6.3	
BUG	e P	Z	19:56:44.2	72.3	16.1	1.3	318	6.3	
GRA1	e P	Z	19:56:50.5	73.3	18.3	1.3	614	6.6	
	e L	Z	20:32:41.7			21.6	3275		5.6
TNS	e P	Z	19:56:50.3	73.3	16.7	1.3	231	6.2	
WET	e P	Z	19:56:51.4	73.4	19.2	1.3	339	6.3	
GEC2	e P	Z	19:56:51.6	73.5	19.6				
STU	e P	Z	19:56:57.3	74.5	17.0	1.3	271	6.2	
FUR	e P	Z	19:56:58.5	74.7	18.2	1.2	361	6.4	
BFO	e P	Z	19:57:00.7	75.1	16.5	1.4	252	6.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/09	01:49:39.5	36.040N	23.010E	5.2			3.8	SZGRF
2002/05/09	01:49:42.7	36.600N	23.213E	51	4.2			NEIC

Southern Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
MOA	e Pn	Z 01:52:47.9	13.0	146.4					
DAVA	e Pn	Z 01:53:08.8	14.5	132.5					
WET	e Pn	Z 01:53:13.6	14.6	145.2					
GRA1	e Pn	Z 01:53:25.9	15.7	142.0					
BRG	e Pn	Z 01:53:25.7	15.7	151.5					
MOX	e Pn	Z 01:53:33.1	16.3	144.9					
CLL	e Pn	Z 01:53:33.6	16.4	149.7					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/09	05:19:45.6	53.476N	160.626E	86*	4.3			NEIC

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:31:14.3	73.7	18.4			4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/09	10:03:45.4	26.020N	129.430E	33.0N	5.4			SZGRF

2002/05/09 10:03:59.6 27.068N 127.323E 101D 4.8 NEIC  
Ryukyu Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e P	Z	10:16:14.9	82.5	55.5	1.7	31	5.3		
BSEG	e P	Z	10:16:14.8	82.5	53.1	1.0	25	5.4		
CLL	e P	Z	10:16:15.7	82.8	54.9	1.0	20	5.3		
CLZ	e P	Z	10:16:21.3	83.8	53.0	0.9	58	5.7		
GEC2	e P	Z	10:16:21.2	83.8	55.1	1.1	11	4.9		
MOX	e P	Z	10:16:21.3	83.9	53.8	1.1	18	5.1		
WET	e P	Z	10:16:22.8	84.1	54.6	1.6	25	5.1		
GRA1	e P	Z	10:16:25.6	84.6	53.4	1.1	48	5.5		
GRFO	e P	Z	10:16:25.6	84.6	53.4	1.1	40	5.5		
IBBN	e P	Z	10:16:25.6	84.8	51.1	0.9	46	5.6		
FUR	e P	Z	10:16:30.0	85.5	53.4	1.2	62	5.8		
BUG	e P	Z	10:16:29.5	85.5	50.6	1.2	20	5.3		
TNS	e P	Z	10:16:30.8	85.7	51.4					
STU	e P	Z	10:16:33.1	86.2	51.9	0.7	18	5.5		
WLF	e P	Z	10:16:37.6	87.2	49.7	0.9	12	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/09	14:50:56.9	49.240N	173.730E	33.0N	4.4			SZGRF
2002/05/09	14:51:19.2	51.900N	160.409E	33N	4.5			NEIC

South of Aleutian Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z	15:03:03.1	75.1	19.1			4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/09	16:37:46.3	29.010N	129.820E	33.0N	5.4			SZGRF
2002/05/09	16:37:34.3	26.448N	128.754E	33N	5.1	4.3		NEIC

Ryukyu Islands, Japan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	16:50:00.7	82.9	54.9	0.9	47	5.6		
BSEG	e P	Z	16:50:04.1	83.7	52.4	1.1	51	5.6		
BRG	e P	Z	16:50:04.2	83.8	54.8	1.4	33	5.3		
CLL	i P	+ Z	16:50:05.1	84.0	54.2	0.9	35	5.6		
	e		16:50:15.2							
	e S	R	17:00:27.9							
	e LQ	T	17:18:34.3							
	e LR	Z	17:18:47.7							
	e L	Z	17:32:27.3			18.0	1162		5.3	
CLZ	e P	Z	16:50:10.9	85.0	52.3	1.1	38	5.5		
GEC2	e P	Z	16:50:11.3	85.1	54.5	1.2	15	5.1		

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

11

MOX	e P	Z	16:50:10.9	85.1	53.1	1.4	15	5.0
WET	e P	Z	16:50:12.4	85.3	53.9			
GRA1	e P	Z	16:50:15.5	85.9	52.8	1.4	41	5.5
GRFO	e P	Z	16:50:15.4	85.9	52.7	1.4	32	5.4
IBBN	e P	Z	16:50:15.0	86.0	50.3	1.0	34	5.5
FUR	e P	Z	16:50:19.8	86.8	52.7	1.1	59	5.6
STU	e P	Z	16:50:22.7	87.5	51.2			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/10	04:17:22.1	22.760N	119.270E	33.0N	5.4	4.7		SZGRF
2002/05/10	04:17:10.4	22.155N	121.476E	33N	4.8			NEIC

Taiwan region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 04:29:47.9	85.4	60.7	1.7	42	5.4		
	e L	Z 05:12:07.4			21.6	368		4.7	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/10	10:59:50.5	19.970S	173.771W	33N	5.0			NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z 11:19:35.4			1.2	31			
	e SS	Z 11:41:58.3							
	e L	Z 12:03:07.0			18.0	556		5.4	
GRA1	e PKP	Z 11:19:39.9	150.0	9.4					
	e	11:21:30.3							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/11	02:27:5.8	36.940N	28.140E	33.0N	4.3			SZGRF
2002/05/11	02:26:59.1	35.844N	28.438E	63	4.3			NEIC

Dodecanese Islands, Greece

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 02:30:53.0	16.9	134.8	1.2	11	3.9		
WET	e P	Z 02:30:59.9	17.5	133.7	0.8	7	3.8		
FUR	e P	Z 02:31:01.4	17.7	127.9	0.9	50	4.7		
BRG	e P	Z 02:31:09.1	18.3	139.7	0.8	19	4.3		
GRA1	e P	Z 02:31:10.3	18.7	131.4	1.2	30	4.3		
CLL	e P	Z 02:31:16.7	19.0	138.5	0.8	28	4.5		
MOX	e P	Z 02:31:19.0	19.1	134.3	2.0	78	4.5		
STU	e P	Z 02:31:18.1	19.1	125.4					
BFO	e P	Z 02:31:21.4	19.4	122.8	1.1	25	4.3		

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

12

TNS	e P	Z	02:31:31.9	20.4	127.3	0.8	18	4.3
BSEG	e P	Z	02:31:49.0	22.0	137.8	0.8	19	4.5

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/11								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 10:38:16.9							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/11	12:05:48.1	17.926S	178.528W	550G	4.4			NEIC
Fiji Islands region								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 12:24:24.0			1.1	7			
	i PKPbc	- Z 12:24:25.6			0.9	43			
GRA1	e PKP	Z 12:24:30.9	147.3	17.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/12	01:29:28.5	39.310N	142.270E	33.0N	5.8			SZGRF
2002/05/12	01:29:35.5	39.281N	140.940E	95D	5.2			NEIC
Near east coast of eastern Honshu, Japan								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 01:41:23.9	77.6	37.0	1.1	134	6.0		
BRG	e P	Z 01:41:29.5	78.6	39.1	1.0	51	5.5		
CLL	i P	- Z 01:41:30.0	78.7	38.5	1.0	111	5.9		
	e pP	Z 01:41:55.7							
	e PP	Z 01:44:28.8							
	e LR	Z 02:07:19.5							
	e L	Z 02:17:57.7			18.0	136		4.3	
CLZ	e P	Z 01:41:33.1	79.2	36.8	1.3	154	5.8		
MOX	e P	Z 01:41:35.5	79.7	37.5	1.3	72	5.5		
IBBN	e P	Z 01:41:35.7	79.8	35.0	0.8	110	5.9		
GEC2	e P	Z 01:41:38.5	80.3	38.7	1.1	31	5.2		
WET	e P	Z 01:41:39.5	80.4	38.2	1.3	81	5.6		
GRA1	i P	Z 01:41:41.0	80.6	37.1	1.4	219	6.0		
BUG	e P	Z 01:41:40.2	80.7	34.6	1.1	75	5.6		
TNS	e P	Z 01:41:43.6	81.3	35.3	1.2	62	5.6		
FUR	e P	Z 01:41:46.9	81.8	37.0	1.0	134	6.1		
STU	e P	Z 01:41:48.3	82.2	35.7	0.9	82	6.0		
WLF	e P	Z 01:41:50.6	82.6	33.6	2.0	92	5.7		
BFO	e P	Z 01:41:51.9	82.8	35.0	1.1	128	6.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/12	03:08:28.2	41.460N	146.350E	33.0N	5.2			SZGRF
2002/05/12	03:08:29.8	41.782N	144.149E	33N	4.6			NEIC

Off southeast coast of Hokkaido, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:20:38.5	79.7	33.7	1.4	33	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/12								

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:49:21.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/12	17:53:19.5	45.500N	9.320E	10.0G			2.7	SZGRF

Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 17:54:07.1	2.9	166.2					2.7
	e Sn	E 17:54:37.0							
	e Sg	N 17:54:52.3							
GRC1	e Sg	E 17:55:20.9	3.8	204.0					
WET	e Pn	Z 17:54:27.1	4.4	214.8					
	e Sn	N 17:55:13.4							
GRA1	e Sg	E 17:55:41.3	4.4	197.7					
GEC2	e Pn	Z 17:54:28.8	4.5	223.3					
	e Sn	N 17:55:15.9							
TNS	e Sg	E 17:55:51.7	4.8	172.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/12	22:14:55.1	49.450N	173.350E	33.0N	4.8			SZGRF
2002/05/12	22:15:25.0	53.413N	160.805E	33N	4.6			NEIC

South of Aleutian Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:26:59.8	73.8	18.3	0.8	10	4.8		

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

14

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/12	23:12:52.9	1.2S	127.1E	33	5.8			NEIC

Halmahera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 23:27:24.6							
	e PP	Z 23:31:44.3							
CLL	e Pdiff	Z 23:27:05.7							
	e PP	Z 23:31:20.0							
	e SKSac	R 23:37:36.0							
	e Sdiff	T 23:38:57.8							
	e PS	Z 23:40:30.2							
	e PPS	Z 23:41:18.9							
	e SS	T 23:46:22.6							
	e SSS	N 23:50:23.6							
	e LQ	T 00:01:46.5							
	e L	Z 00:30:08.4				20.0	1080.4		5.4

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/13	03:11:25.5	5.580S	151.244E	33N	4.9	4.6		NEIC

New Britain, Papua New Guinea, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 03:30:24.0	124.6	51.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/13	13:20:26.1	17.150S	13.900W	33.0N	5.3			SZGRF
2002/05/13	13:20:48.6	12.436S	14.739W	10G	4.9	4.4		NEIC

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 13:31:37.5	66.2	207.9	0.7	19	5.3		
	e	13:31:43.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/13	19:54:47.7	19.980N	121.450E	27.0	5.4			SZGRF
2002/05/13	19:54:42.0	19.168N	121.196E	25D	5.4			NEIC

Philippine Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 20:07:17.5	84.9	64.8	1.1	71	5.8		
	e pP	Z 20:07:25.6							

	e sP	Z	20:07:28.9						
BRG	e P	Z	20:07:20.7	85.5	64.8	1.3	43	5.5	
CLL	i P	+ Z	20:07:21.7	85.9	64.1	1.4	42	5.4	
	e pP	Z	20:07:29.9						
	e PP	Z	20:10:41.6						
	e SKSac	R	20:17:48.4						
	e PS	Z	20:18:45.3						
BSEG	e P	Z	20:07:23.6	86.1	62.2	1.2	46	5.5	
	e sP	Z	20:07:34.9						
GEC2	e P	Z	20:07:25.4	86.5	64.5	1.2	15	5.0	
WET	e P	Z	20:07:27.5	86.9	63.9	1.7	32	5.2	
MOX	e P	Z	20:07:27.4	87.0	63.0	1.9	59	5.4	
CLZ	e P	Z	20:07:28.5	87.1	62.1	1.9	63	5.4	
GRB1	e P	Z	20:07:30.3	87.5	63.0	1.2	27	5.2	
GRA1	e P	Z	20:07:30.6	87.6	62.7	1.9	54	5.4	
	e pP	Z	20:07:37.8						
FUR	e P	Z	20:07:34.4	88.3	62.7	1.1	32	5.6	
TNS	e P	Z	20:07:37.1	88.9	60.6	1.3	11	5.0	
WLF	e P	Z	20:07:44.4	90.5	58.8	1.2	21	5.2	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/13	19:57:30.0	20.080N	120.830E	33.0G	5.4			SZGRF
2002/05/13	19:57:22.8	19.137N	121.213E	33N	5.5	5.3		NEIC

Philippine Islands region

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z	20:09:57.2	85.0	64.8	0.8	68	5.9		
	e		20:10:07.8							
BRG	e P	Z	20:10:00.2	85.6	64.8	1.1	38	5.5		
CLL	i P	Z	20:10:01.6	85.9	64.1	1.3	39	5.4		
	e pP	Z	20:10:11.0							
	e PP	Z	20:13:25.7							
	e SKSac	R	20:20:24.4							
	e PS	Z	20:21:28.1							
	e SS	R	20:26:13.2							
	e LR	Z	20:38:22.9							
	e L	Z	20:53:51.1			22.0	2323		5.5	
BSEG	e P	Z	20:10:03.7	86.2	62.2	1.0	35	5.5		
GEC2	e P	Z	20:10:05.4	86.6	64.5	1.1	19	5.1		
WET	e P	Z	20:10:07.5	86.9	63.9	1.6	29	5.1		
MOX	e P	Z	20:10:07.1	87.0	63.0	2.0	61	5.4		
GRA1	e P	Z	20:10:10.8	87.6	62.7	1.8	43	5.3		
	e SKSac	E	20:20:39.0							
IBBN	e P	Z	20:10:13.8	88.3	60.1	1.2	43	5.7		
FUR	e P	Z	20:10:13.9	88.3	62.7	1.0	36	5.6		
	e		20:10:24.7							
TNS	e P	Z	20:10:16.9	89.0	60.6	1.6	35	5.4		

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

16

STU	e P	Z	20:10:04.1	89.2	61.2						
WLF	e P	Z	20:10:24.4	90.5	58.9	0.9		19	5.3		
	e		20:10:35.0								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/14	16:56:10.0	36.612S	78.840E	10G	5.6	6.1		NEIC

Mid-Indian Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 17:10:27.1							
	e PP	Z 17:14:47.5							
	e Sdiff	T 17:22:10.4							
	e PS	Z 17:23:54.8							
	e SS	T 17:29:27.3							
	e SSS	N 17:33:41.4							
	e SSSS	N 17:37:00.5							
	e LQ	T 17:39:18.2							
	e LR	Z 17:46:03.7							
	e L	Z 18:07:35.0			20.0	3624		5.9	
GRA1	e SS	N 17:29:11.0	104.9	129.8					
	e L	Z 18:06:20.9			18.4	3194		5.9	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/15	03:27:38.9	21.394S	174.313W	33N	5.4	5.7		NEIC

Tonga Islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z 03:47:22.3							
	i PKPbc	Z 03:47:26.4			2.2	325			
	e PKPab	Z 03:47:31.7			1.1	37			
	e SKP	Z 03:50:55.5			1.4	14			
GRA1	e PKPdf	Z 03:47:25.1	151.4	10.8					
	e PKPbc	Z 03:47:31.7							
	e PKPab	Z 03:47:39.7							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/15	03:46:10.5	24.090N	121.570E	33.0N	5.8	6.6		SZGRF
2002/05/15	03:46:05.2	24.596N	121.938E	10G	5.5	6.2		NEIC

Taiwan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 03:58:22.7	80.9	61.0	2.2	329	6.0		
BRG	e P	Z 03:58:26.4	81.6	60.9	2.0	123	5.7		



CLL	i P	+ Z	03:58:27.7	81.9	60.3	1.4	41				
	i		03:58:35.0								
	e PP	Z	04:01:36.0								
	e S	T	04:08:41.7								
	e SS	R	04:14:11.1								
	e SSS	E	04:17:56.6								
	e LQ	T	04:24:34.8								
	e LR	Z	04:25:58.1								
	e L	Z	04:39:44.7				20.0	25922		6.6	
BSEG	e P	Z	03:58:28.6	82.0	58.6	1.9	107	5.7			
GEC2	e P	Z	03:58:32.1	82.8	60.5	1.9	76	5.6			
MOX	e P	Z	03:58:33.4	83.0	59.2	1.8	89	5.7			
CLZ	e P	Z	03:58:34.2	83.1	58.4	1.9	149	5.9			
WET	e P	Z	03:58:33.2	83.1	60.0	2.0	152	5.9			
GRA1	e P	Z	03:58:37.6	83.7	58.8	1.5	135	5.9			
	e PP	Z	04:01:53.8								
	e S	E	04:09:02.6								
	e SS	N	04:14:31.1								
	e L	Z	04:40:24.6				20.2	23982		6.6	
IBBN	e P	Z	03:58:39.5	84.2	56.5	2.1	225	6.0			
FUR	e P	Z	03:58:41.4	84.5	58.7	1.1	158	6.2			
BUG	e P	Z	03:58:42.9	84.9	56.1	1.6	98	5.8			
TNS	e P	Z	03:58:43.5	85.0	56.8	2.3	127	5.7			
STU	e P	Z	03:58:45.0	85.3	57.3	1.9	131	5.7			
BFO	e P	Z	03:58:48.7	86.1	56.6	1.9	105	5.7			
WLF	e P	Z	03:58:51.4	86.5	55.1	2.0	135	5.7			

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/16 01:28:13.5 20.632S 178.853W 600G 4.3 NEIC  
 Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 01:46:57.9	149.9	19.0					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/16 01:55: 2.7 44.180N 9.900E 10.0G SZGRF  
 Northern Italy

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BFO	e Pn	Z 01:56:07.8	4.3	164.8					
	e Sn	N 01:56:55.3							
GEC2	e Pn	Z 01:56:22.3	5.3	210.7					
	e Sn	N 01:57:22.5							
WET	e Sn	E 01:57:21.7	5.4	203.5					
TNS	e Sn	E 01:57:42.3	6.1	170.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/16	03:46:04.9	53.743N	160.224E	88*	4.4			NEIC

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 03:57:32.1	73.3	18.5	0.8	8			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/16	11:00:53.9			N				SZGRF
2002/05/16	11:00:11.1	29.685N	51.786E	33N	4.5			NEIC

Southern Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:07:16.3	36.4	107.9	1.8	79			
CLZ	e P	Z 11:07:26.5	37.6	109.8	0.9	31			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/17	10:40:12.4	48.500N	28.430W	33.0N	6.0	5.3		SZGRF
2002/05/17	10:40:10.5	48.100N	27.829W	10G	5.6	5.4		NEIC

Northern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
WLF	i P	+ Z 10:45:09.0	22.2	279.1	1.8	790	5.7		
BUG	i P	+ Z 10:45:13.9	22.7	275.5	1.2	560	5.9		
IBBN	i P	+ Z 10:45:16.9	22.9	273.7	1.8	950	5.9		
TNS	i P	+ Z 10:45:24.4	23.6	279.0	2.8	4229	6.5		
	e S	N 10:49:42.8							
	e L	Z 10:54:27.1			21.9	7122		5.1	
BFO	i P	+ Z 10:45:26.3	23.9	283.2	2.8	1706	6.1		
	e S	N 10:49:44.3							
	e L	Z 10:53:46.7			19.7	14256		5.5	
STU	i P	+ Z 10:45:30.8	24.3	282.6	1.7	621	5.9		
BSEG	i P	+ Z 10:45:31.1	24.4	271.9	1.6	1304	6.2		
	e S	N 10:49:49.8							
	e L	Z 10:55:29.2			18.5	7168		5.2	
CLZ	i P	+ Z 10:45:33.3	24.6	276.5	1.3	771	6.1		
GRA1	i P	+ Z 10:45:41.3	25.4	281.6	1.8	954	6.0		
	e S	E 10:50:08.4							
	e L	Z 10:54:08.9			20.6	7888		5.2	
MOX	i P	+ Z 10:45:41.2	25.5	279.8	1.4	155	5.5		
FUR	i P	+ Z 10:45:44.8	25.8	284.7	2.2	1760	6.4		
CLL	i P	+ Z 10:45:47.9	26.3	279.2	1.8	464	5.8		

	e S	T	10:50:21.3								
	e LQ	T	10:52:10.2								
	e LR	Z	10:52:32.7								
	e L	Z	10:55:01.7			20.0	6109		5.1		
RUE	i P	+ Z	10:45:50.7	26.6	277.4	2.6	1420	6.1			
WET	i P	+ Z	10:45:51.4	26.6	283.4	1.4	220	5.7			
BRG	i P	+ Z	10:45:54.0	26.9	280.6	3.1	1750	6.2			
	e S	N	10:50:32.7								
	e L	N	10:53:59.0			18.9	6366		5.2		
GEC2	i P	+ Z	10:45:57.0	27.2	284.4	1.3	160	5.5			
	e S	N	10:50:36.5								
	e L	Z	10:56:20.8			19.9	9654		5.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/17	15:52:34.2	31.000N	51.430E	33.0N	5.2			SZGRF
2002/05/17	15:52:19.4	29.408N	51.983E	33N	4.8			NEIC

Northern and central Iran

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:59:26.4	36.7	108.1	0.8	25	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/17	23:05:47.6	11.758N	92.451E	21D	4.8			NEIC

Andaman Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 23:17:34.3	75.4	88.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/18	15:15:36.3	0.860N	34.690E	33.0N	5.2	5.2		SZGRF
2002/05/18	15:15:08.9	2.829S	33.554E	10G	5.3	5.5		NEIC

Lake Victoria region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e P	Z 15:24:37.7	54.5	155.4	1.9	108	5.4		
FUR	e P	Z 15:24:38.4	54.6	152.3	1.1	37	5.2		
WET	e P	Z 15:24:40.9	55.0	154.5	1.0	17	4.9		
BFO	e P	Z 15:24:46.9	55.7	149.0	1.5	62	5.3		
STU	e P	Z 15:24:47.9	55.8	150.1	1.5	67	5.3		
GRA1	e P	Z 15:24:48.6	55.9	152.7	1.6	61	5.3		
	e L	Z 15:50:25.8			19.3	2005		5.2	
BRG	e P	Z 15:24:49.5	56.3	156.2	2.1	44	5.0		
MOX	e P	Z 15:24:53.2	56.7	153.5	1.2	18	4.9		



GRA1 e PKP Z 11:22:39.6 125.9 49.4

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/19 18:58:39.5 5.185S 151.924E 33N 4.8  
 New Britain, Papua New Guinea, region

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 GRA1 e PKP Z 19:17:37.2 124.6 50.0

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/19 22:06:01.0 19.132S 175.508W 70G 5.4  
 Tonga Islands

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 CLL e PKPdf Z 22:25:34.5 1.0 5  
 i PKPbc - Z 22:25:36.4 0.6 20  
 e PKPab Z 22:25:38.6  
 e 22:26:36.8  
 GRA1 e PKPbc Z 22:25:42.1 149.0 12.4  
 e PKPab Z 22:25:46.8

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/21 06:03: 6.2 18.010N 82.040W 33.0N 5.2  
 2002/05/21 06:02:59.9 17.785N 81.906W 10G 5.3 5.0  
 Caribbean Sea

Sta Phase Time Dist BAz T[s] A[nm] mb MS ML  
 GRA1 e P Z 06:15:04.0 78.5 284.0 1.9 46 5.2  
 CLL i P Z 06:15:07.5 1.2 18 4.9  
 e PcP Z 06:15:12.6  
 e PP Z 06:18:05.0  
 e S T 06:25:09.1  
 e SKSac R 06:25:16.9  
 e SS T 06:30:15.2  
 e LQ T 06:36:21.0  
 e LR Z 06:39:55.6  
 e L Z 06:51:39.0 18.0 674 5.0

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/21 18:21:06.2 24.369S 177.337W 33N 5.1 4.5  
 South of Fiji Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e PKPdf	Z	18:40:52.0			1.2	9			
	i PKPbc	- Z	18:40:59.0			0.9	22			
	e PKPab	Z	18:41:08.3			1.1	26			
GRA1	e PKP	Z	18:41:16.7	153.8	17.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/21	20:04:7.8	44.960N	147.040E	33.0N	6.3			SZGRF
2002/05/21	20:04:16.9	44.534N	146.623E	153D	5.5			NEIC

Kuril Islands, Russia

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z	20:15:43.1	74.7	30.7	1.1	290	6.2		
RUE	e P	Z	20:15:43.8	74.9	32.8	1.1	398	6.4		
CLL	i P	+ Z	20:15:50.6	76.1	32.1	0.9	446	6.6		
	e sP	Z	20:16:43.7							
	e PP	Z	20:18:42.6							
	e S	Z	20:25:14.4							
	e sS	Z	20:26:23.3							
	e SS	Z	20:31:01.7							
	e (SSSS)	Z	20:35:56.4							
	e LQ	T	20:38:03.9							
	e LR	Z	20:40:27.5							
	e L	Z	20:51:22.9			22.0	282		4.5	
BRG	e P	Z	20:15:51.0	76.2	32.7	0.9	129	6.0		
CLZ	e P	Z	20:15:53.4	76.5	30.5	0.8	434	6.6		
IBBN	e P	Z	20:15:55.2	76.9	28.8	1.0	393	6.5		
MOX	e P	Z	20:15:56.6	77.1	31.1	1.3	290	6.3		
BUG	e P	Z	20:16:00.2	77.8	28.4	1.0	322	6.4		
GEC2	e P	Z	20:16:01.2	78.0	32.3	1.2	100	5.8		
WET	e P	Z	20:16:01.9	78.0	31.8	1.1	277	6.3		
GRA1	i P	+ Z	20:16:02.5	78.1	30.8	0.8	492	6.7		
TNS	e P	Z	20:16:04.3	78.5	29.0	0.9	197	6.1		
FUR	e P	Z	20:16:09.3	79.4	30.6	1.1	328	6.3		
STU	e P	Z	20:16:09.8	79.5	29.4	0.9	227	6.1		
WLF	e P	Z	20:16:11.1	79.7	27.5	2.2	566	6.1		
BFO	e P	Z	20:16:13.3	80.2	28.8	1.1	156	5.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/21	20:53:23.8	36.870N	24.740E	33.0N	5.5			SZGRF
2002/05/21	20:53:30.0	36.571N	24.330E	96D	5.4			NEIC

Southern Greece

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

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

23

FUR	e P	Z	20:56:53.5	15.0	135.6	1.3	506	
	e S	Z	20:59:46.1					
WET	e P	Z	20:56:56.7	15.1	142.2	2.1	1092	
	e S	Z	20:59:51.2					
BRG	e P	Z	20:57:09.6	16.1	148.6	2.0	660	5.4
GRA1	e P	Z	20:57:10.2	16.2	139.2	1.5	1359	
	e S	Z	21:00:12.0					
STU	e P	Z	20:57:13.6	16.5	132.2	2.6	1168	
	e S	Z	21:00:16.5					
BFO	e P	Z	20:57:15.5	16.6	129.2	2.4	960	5.5
	e S	Z	21:00:17.6					
MOX	e P	Z	20:57:17.6	16.8	142.2	2.2	281	5.0
	e S	Z	21:00:26.0					
CLL	e P	Z	20:57:18.6	16.8	146.9	2.1	683	5.4
	e S	Z	21:00:26.0					
RUE	e P	Z	20:57:27.9	17.6	150.8	1.9	1314	5.7
	e S	Z	21:00:40.6					
TNS	e P	Z	20:57:30.8	17.8	134.0	1.9	770	5.5
	e S	Z	21:00:48.5					
CLZ	e P	Z	20:57:35.3	18.2	141.6	2.2	752	5.4
	e S	Z	21:00:57.4					
BUG	e P	Z	20:57:47.7	19.2	134.2	2.2	1259	5.8
	e S	Z	21:01:21.0					
RGN	e P	Z	20:57:48.7	19.5	152.7	1.6	1391	5.9
	e S	Z	21:01:21.0					
BSEG	e P	Z	20:57:53.5	19.9	145.1	2.2	1451	5.8

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/22 02:26:06.6 16.073S 172.170W 41D 5.0 4.3 ML NEIC  
 Samoa Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 02:45:45.3	146.3	5.9					
	e	02:45:58.2							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/22 18:57:18.8 36.398S 97.706W 10G 5.3 5.2 ML NEIC  
 West Chile Rise

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 19:16:27.3	128.4	256.4					

Date Origin Time Lat Long Depth mb Ms ML Source

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

24

2002/05/23 15:52:15.5 30.57S 70.99W 52 5.5 NEIC  
Chile-Argentina border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 16:06:33.4							
	e PP	Z 16:11:02.9							
	e SKSdf	E 16:17:16.7							
	e SP	Z 16:20:19.9							
	e L	Z 16:53:36.0			21.9	1543		5.5	
CLL	e Pdiff	Z 16:06:35.6							
	e PP	Z 16:11:13.9							
	e pPP	Z 16:11:32.3							
	e PS	E 16:20:43.0							
	e	16:22:09.9							
	e L	Z 16:54:41.1			22.0	2352		5.7	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/23	22:06:3.8	5.380S	100.050E	33.0N	5.0			SZGRF
2002/05/23	22:05:54.7	5.836S	102.080E	33N	5.5	5.4		NEIC

Southwest of Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:19:15.8	95.0	93.1			5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/23	23:33:15.1			N				SZGRF
2002/05/23	23:33:02.9	35.568S	16.214W	10G	4.7			NEIC

Southern Mid-Atlantic Ridge

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 23:45:58.5	88.7	202.0					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/24	09:59:13.5	25.3S	179.5E	554	4.5			NEIC

South of Fiji islands

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	Z 10:18:07.5			0.8	22			
	e PKPab	Z 10:18:18.9			0.6	10			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
------	-------------	-----	------	-------	----	----	----	--------



2002/05/24	20:42:28.7	44.750N	21.890E	10.0G		4.8	SZGRF
2002/05/24	20:42:26.8	44.760N	21.693E	10G	4.6		NEIC

Northwestern Balkan Peninsula

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
ARSA	e Pn	Z	20:43:44.4	5.0	117.9					4.6
MOA	e Pn	Z	20:43:57.6	6.0	118.3					
KBA	e Pn	Z	20:44:02.0	6.2	108.7					
GEC2	e Pn	Z	20:44:09.3	6.8	123.8					
WET	e Pn	Z	20:44:18.3	7.4	122.8					
FUR	e Pn	Z	20:44:26.3	7.9	111.5					5.1
	e Sg	E	20:46:44.8							
BRG	e Pn	Z	20:44:26.2	8.0	136.7					
DAVA	e Pn	Z	20:44:33.6	8.6	102.8					
GRA1	e Pn	Z	20:44:34.5	8.6	120.8					5.0
	e Sg	E	20:47:06.6							
CLL	e Pn	Z	20:44:36.0	8.7	135.1					
MOX	e Pn	Z	20:44:38.4	9.0	127.1					
BFO	e Pn	Z	20:44:51.7	9.8	106.3					
TNS	e Pn	Z	20:44:59.4	10.5	116.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/25	02:35:40.1	21.503S	174.300W	33N	5.0			NEIC

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z	02:55:39.6	151.5	10.8					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/25	05:36:42.0	54.880N	159.510W	33.0N	6.0	6.2		SZGRF
2002/05/25	05:36:31.9	53.932N	161.275W	33N	5.4	6.0		NEIC

South of Alaska

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RGN	e P	Z	05:47:54.4	71.4	356.6	1.4	394	6.4		
BSEG	e P	Z	05:47:57.1	71.9	354.8	2.2	573	6.3		
IBBN	e P	Z	05:48:05.4	73.4	353.3	1.4	195	6.0		
RUE	e P	Z	05:48:06.5	73.5	357.0	1.5	285	6.2		
CLZ	e P	Z	05:48:09.3	74.0	354.9	1.4	166	6.0		
BUG	e P	Z	05:48:10.2	74.2	353.0	1.7	176	5.9		
CLL	i P	- Z	05:48:12.2	74.7	356.5	1.5	46	5.3		
	e		05:48:51.3							
	e S	T	05:57:48.9							
	e SS	Z	06:02:41.0							
	e (SSS)	Z	06:06:24.4							

	e LQ	T	06:08:43.1								
	e LR	Z	06:12:51.6								
	e L	Z	06:27:18.7			20.0	9175		6.1		
BRG	e P	Z	05:48:15.6	75.1	357.1	2.3	582		6.2		
MOX	e P	Z	05:48:16.5	75.3	355.7	1.4	125		5.8		
TNS	e P	Z	05:48:17.7	75.5	353.8	2.2	441		6.1		
WLF	e P	Z	05:48:19.6	75.9	352.4	2.0	268		5.9		
GRA1	e P	Z	05:48:21.4	76.2	355.5	2.8	466		6.1		
	e L	Z	06:30:38.7			18.0	10713		6.2		
WET	e P	Z	05:48:25.7	76.8	356.5	1.9	155		5.8		
GEC2	e P	Z	05:48:27.2	77.1	357.0	1.6	60		5.5		
FUR	e P	Z	05:48:30.5	77.7	355.5	1.8	250		6.1		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/25 14:23:51.1 21.191S 177.919W 393D 4.5 NEIC  
 Fiji Islands region

	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	GRA1	e PKP	Z 14:42:58.4	150.6	17.6					

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/25 15:08:10.5 53.270N 160.130W 33.0N 5.1 SZGRF  
 2002/05/25 15:08:06.7 53.976N 161.008W 10G 4.9 NEIC  
 South of Alaska

	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	GRA1	e P	Z 15:19:59.2	76.1	355.3	1.3	20	5.1		

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/25

	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	CLL	i PKPbc	+ Z 18:24:56.5			1.0	22			
	GRA1	e PKP	Z 18:25:03.0							

Date Origin Time Lat Long Depth mb Ms ML Source  
 2002/05/25

	Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
	GRA1	e PKP	Z 20:05:17.0							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/26	00:10:21.3	1.828N	127.286E	111D	5.8			NEIC

Halmahera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	e Pdiff	Z 00:24:10.4			1.3	11			
	e PP	Z 00:28:29.8							
	e PPP	Z 00:30:38.8							
	e SKSac	R 00:34:37.6							
	e	00:36:23.4							
	e SP	Z 00:37:23.2							
	e SS	R 00:43:03.8							
	e LQ	T 00:57:02.9							
	e LR	Z 01:00:09.8							
	e L	Z 01:16:30.7			18.0	831		5.3	
GRA1	e Pdiff	Z 00:24:19.0	105.1	68.4					
	e PP	Z 00:28:43.0							
	e SKSac	E 00:34:50.3							
	e SS	E 00:43:33.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/26	01:26:39.0	43.570N	16.640E	10.0G			4.3	SZGRF
2002/05/26	01:26:42.0	43.910N	16.387E	10G				NEIC

Northwestern Balkan Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 01:28:02.4	5.3	158.4					3.7
	e Sn	E 01:29:05.0							
FUR	e Pn	Z 01:28:06.2	5.5	138.3					4.6
	e Sg	E 01:29:46.7							
WET	e Pn	Z 01:28:09.2	5.8	154.0					
GRA1	e Pn	Z 01:28:22.3	6.8	146.6					4.5
	e Sn	N 01:29:43.0							
BFO	e Pn	Z 01:28:27.2	7.1	125.4					
MOX	e Pn	Z 01:28:32.4	7.5	152.5					
TNS	e Pn	Z 01:28:44.1	8.3	136.4					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/26	19:37:59.7	45.790N	11.650E	10.0G			3.5	SZGRF
2002/05/26	19:38:00.6	45.934N	11.760E	10G				NEIC

Northern Italy

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

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

28

FUR	e Pn	Z	19:38:39.6	2.3	171.4						
	e Sg	E	19:39:14.2								
GRC1	e Pn	Z	19:38:50.9	3.1	176.9						
	e Sg	E	19:39:42.0			0.5					
WET	e Pn	Z	19:38:52.5	3.3	193.6					3.2	
	e Sn	E	19:39:32.7								
	e Sg	E	19:39:49.3								
BFO	e Pn	Z	19:38:53.1	3.3	134.5					3.3	
GRB1	e Pn	Z	19:38:55.1	3.5	178.8					3.8	
	e Sg	E	19:39:54.9								
GRA1	e Pg	Z	19:39:11.2	3.8	174.3					3.7	
	e Sg	N	19:40:04.9								
MOX	e Pn	Z	19:39:11.4	4.7	178.8						
	e Sn	E	19:40:06.1								
	e Sg	E	19:40:33.0								
BRG	e Sg	E	19:40:49.3	5.1	197.2						
CLL	e Pn	Z	19:39:23.5	5.4	189.2						
	e Sg	E	19:40:58.6								

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/27	06:58:50.2	78.830N	5.670E	33.0N	4.8			SZGRF
2002/05/27	06:58:47.9	78.398N	8.107E	10G	4.8			NEIC

Svalbard, Norway, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:04:49.2	28.7	358.7	1.0	14	4.8		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/27	16:22:52.6	24.210S	29.750E	33.0N	5.0			SZGRF
2002/05/27	16:22:36.6	26.981S	26.764E	5G	4.9			NEIC

South Africa

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 16:34:35.3	77.9	165.9	1.2	22	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	00:24:36.8	33.970N	140.670E	33.0N	5.3			SZGRF
2002/05/28	00:24:35.0	34.254N	139.269E	33N	4.6			NEIC

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:37:09.9	84.3	40.9	1.0	20	5.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	00:32:59.5	33.440N	140.210E	33.0N	5.2			SZGRF
2002/05/28	00:33:02.6	34.247N	139.138E	33N	4.6			NEIC

Southeast of Honshu, Japan

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 00:45:33.9	84.2	41.0	1.1	21	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	04:04:21.8	28.938S	66.571W	23D	6.1	5.7		NEIC

Catamarca Province, Argentina

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e Pdiff	Z 04:18:27.7	104.4	242.0					
	e PP	Z 04:22:36.9							
	e SKSac	E 04:29:08.2							
	e Sdiff	N 04:30:22.0							
	e SP	Z 04:31:52.5							
	e SS	N 04:37:29.5							
	e L	Z 05:06:13.0			19.9	2838		5.8	
CLL	e Pdiff	Z 04:18:33.9			1.4	14			
	e	04:18:43.6							
	e PP	Z 04:22:57.7							
	e SKSac	R 04:29:11.0							
	e Sdiff	T 04:30:33.2							
	e SP	Z 04:32:10.1							
	e SS	T 04:37:55.3							
	e (SSS)	N 04:43:00.6							
	e LQ	T 04:50:48.2							
	e LR	Z 04:59:46.9							
	e L	Z 05:05:24.4			20.0	5311		6.1	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	07:18:53.0	15.144S	177.268W	33N	4.8			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 07:38:27.1	144.8	14.3					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	08:26:24.9	34.490N	26.900E	33.0N	4.5			SZGRF

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

30

2002/05/28 08:26:40.9  
Crete, Greece

36.021N 27.354E 104 4.5 NEIC

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:30:44.9	18.0	133.3	1.5	53	4.5		

Date Origin Time Lat Long Depth mb Ms ML Source  
2002/05/28 11:24:42.9 45.130N 85.450E 33.0N 5.3 SZGRF  
2002/05/28 11:24:37.7 43.916N 84.584E 33N 4.8 NEIC  
Northern Xinjiang, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:33:21.7	48.5	67.1	0.6	18	5.3		

Date Origin Time Lat Long Depth mb Ms ML Source  
2002/05/28 15:38:48.9 86.173N 35.545E 10G 5.0 4.7 NEIC  
2002/05/28 15:39:01.0 86.173N 35.545E 10G 5.0 4.7 NEIC  
North of Franz Josef Land

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 15:46:13.5	36.8	2.6	1.2	18	4.6		

Date Origin Time Lat Long Depth mb Ms ML Source  
2002/05/28 16:45:15.6 22.540N 121.500E 33.0N 6.0 6.4 SZGRF  
2002/05/28 16:45:17.5 24.065N 122.212E 38D 5.8 5.9 NEIC  
Taiwan region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
RUE	e P	Z 16:57:34.0	81.5	61.1	1.2	174	6.2		
BRG	e P	Z 16:57:37.3	82.2	61.1	2.5	356	6.2		
CLL	i P	+ Z 16:57:38.5	82.5	60.4	2.0	208	6.0		
	e pP	Z 16:57:51.4							
	e PP	Z 17:00:48.0							
	e PPP	Z 17:02:44.3							
	e PPPP	Z 17:04:26.4							
	e S	T 17:07:59.0							
	e SS	R 17:13:20.5							
	e SSS	R 17:17:41.0							
	e LQ	T 17:22:45.5							
	e LR	Z 17:27:06.2							
	e L	Z 17:39:23.4			20.0	21218			6.5
BSEG	e P	Z 16:57:39.3	82.6	58.7	1.6	92	5.8		
GEC2	e P	Z 16:57:43.4	83.3	60.7	1.1	93	5.9		

MOX	e P	Z	16:57:44.7	83.6	59.3	1.4	86	5.8		
CLZ	e P	Z	16:57:44.8	83.6	58.5	1.3	167	6.1		
WET	e P	Z	16:57:45.1	83.6	60.1	1.5	127	5.9		
GRA1	e P	Z	16:57:48.6	84.3	59.0	1.3	205	6.2		
	e PP	Z	17:01:02.5							
	e S	N	17:08:13.3							
	e SS	N	17:13:52.3							
	e L	Z	17:39:53.2			20.1	17416		6.4	
IBBN	e P	Z	16:57:50.8	84.7	56.6	1.5	216	6.1		
FUR	e P	Z	16:57:52.3	85.1	58.9	1.1	318	6.4		
BUG	e P	Z	16:57:54.4	85.5	56.2	1.3	157	6.0		
TNS	e P	Z	16:57:54.7	85.5	57.0	1.6	120	5.8		
STU	e P	Z	16:57:56.2	85.9	57.4	1.2	90	5.8		
BFO	e P	Z	16:57:59.6	86.6	56.8	1.8	148	6.0		
WLF	e P	Z	16:58:02.2	87.1	55.2	1.2	190	6.3		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	19:04:58.7	11.950N	41.240E	33.0N	4.9			SZGRF
2002/05/28	19:05:39.1	27.751N	56.749E	118?	4.7			NEIC

Ethiopia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 19:13:12.0	40.9	105.2	0.8	12	4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	19:45:11.5	42.020N	19.920E	10.0G				SZGRF
2002/05/28	19:45:14.4	42.438N	19.760E	33N	4.3			NEIC

Northwestern Balkan Peninsula

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GEC2	e Pn	Z 19:47:08.5	7.7	144.3					
	e Sn	N 19:48:34.7							
WET	e Pn	Z 19:47:15.9	8.2	141.9					
	e Sg	E 19:49:47.4							
FUR	e Sg	N 19:49:48.8	8.3	130.7					
GRA1	e Pn	Z 19:47:30.2	9.4	137.6					
	e Sg	E 19:50:21.3							
MOX	e Pn	Z 19:47:38.3	9.9	142.6					
BFO	e Pn	Z 19:47:38.1	9.9	122.1					
	e Sn	E 19:49:28.2							
	e Sg	E 19:50:38.4							
TNS	e Pn	Z 19:47:53.4	11.0	130.7					

./2002/bul0205.txt

Thu Apr 23 08:38:25 2020

32

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/28	21:29:55.6	49.570N	156.030E	33.0N	5.0			SZGRF
2002/05/28	21:29:49.6	49.106N	155.967E	33N	4.3	4.7		NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:41:41.3	76.7	22.9	0.9	11	5.0		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/29	06:35:27.2	47.720N	151.680E	33.0G	5.5	4.5		SZGRF
2002/05/29	06:35:12.7	45.105N	149.981E	33N	4.8			NEIC

Kuril Islands, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 06:47:04.2			0.8	40	5.6		
	e pP	Z 06:47:17.0							
	e L	Z 07:25:19.6			20.0	240		4.5	
GRA1	e P	Z 06:47:15.9	78.6	28.3	1.1	42	5.5		
	e	06:47:29.1							
	e L	Z 07:25:46.2			20.7	245		4.5	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/29	07:33:10.2			N				SZGRF
2002/05/29	07:33:34.5	53.924N	160.692E	83*	4.7			NEIC

Near east coast of Kamchatka Peninsula, Russia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 07:45:02.0	73.2	18.2					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/29	11:11:16.2	7.000S	28.240E	33.0N	4.9			SZGRF
2002/05/29	11:11:29.0	3.114S	33.935E	10G	4.9			NEIC

Zaire

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 11:21:10.2	56.3	152.4			4.9		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/29	14:29:57.9	43.960N	151.140E	33.0N	5.2			SZGRF
2002/05/29	14:30:02.6	43.588N	147.123E	57D	4.8			NEIC

East of Kuril Islands, Russia



Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z 14:41:53.2			0.9	30	5.4		
	e pP	Z 14:42:06.2							
GRA1	e P	Z 14:42:04.5	79.1	30.9	0.9	26	5.2		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	05:07:41.1	42.230N	145.190E	33.0N	5.1			SZGRF
2002/05/30	05:07:42.9	41.766N	141.991E	43*	4.7	4.0		NEIC

Hokkaido, Japan, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 05:19:45.6	78.9	35.1	1.1	26	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	08:38:57.9	8.720N	96.110E	86.6	4.6			SZGRF
2002/05/30	08:39:16.5	9.737N	93.268E	81D	4.7			NEIC

Nicobar Islands, India, region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 08:51:04.8	77.5	89.7	1.4	12	4.6		
	e pP	Z 08:51:27.5							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	10:44:58.2	3.750N	96.850E	33.0N	5.1			SZGRF
2002/05/30	10:44:22.2	2.447N	99.208E	177?	4.9			NEIC

Northern Sumatera, Indonesia

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 10:57:27.2	86.8	90.0	1.0	12	5.1		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	12:15:39.3	19.596S	178.301W	600G	4.1			NEIC

Fiji Islands region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e PKP	Z 12:34:21.6	149.0	17.6					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
------	-------------	-----	------	-------	----	----	----	--------

2002/05/30 14:41:40.6  
Vanuatu Islands

19.148S 169.016E 159D 5.6

NEIC

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BRG	e PKPdf	Z	15:00:52.0	142.7	41.0					
CLL	e PKP	Z	15:00:52.3	142.7	39.3					
	e pPKP	Z	15:01:32.8							
	e PP	Z	15:04:06.2							
	e SS	T	15:21:48.8							
CLZ	e PKPdf	Z	15:00:54.6	143.3	35.1					
MOX	e PKPdf	Z	15:00:56.1	143.8	37.9					
GEC2	e PKPdf	Z	15:00:57.8	144.3	42.5					
WET	e PKPdf	Z	15:00:58.6	144.4	41.0					
BUG	e PKPdf	Z	15:00:58.8	144.7	30.8					
GRA1	e PKPdf	Z	15:00:59.4	144.7	38.1					
	e pPKPdf	Z	15:01:40.7							
	e PP	Z	15:04:18.4							
TNS	e PKPdf	Z	15:01:01.2	145.3	33.5					
FUR	e PKPdf	Z	15:01:03.0	145.8	39.6					
	e pPKPdf	Z	15:01:43.9							
STU	e PKPdf	Z	15:01:04.4	146.2	35.9					
BFO	e PKPdf	Z	15:01:05.5	146.9	34.9					

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	18:14:34.2	40.670N	72.210E	33.0N	4.8	4.7		SZGRF
2002/05/30	18:14:20.6	39.491N	73.655E	55*	4.8			NEIC

Kyrgyzstan

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i P	+ Z	18:22:15.9			0.8	8	4.5		
	e PP	Z	18:23:56.1							
	e PcS	R	18:27:57.7							
	e S	T	18:28:39.8							
	e SS	T	18:31:52.3							
	e LQ	T	18:34:03.0							
	e L	Z	18:40:51.2			20.0	801		4.6	
GRA1	e P	Z	18:22:28.3	44.3	78.5	0.8	18	4.8		
	e L	Z	18:41:47.7			19.7	905		4.7	

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30								

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	- Z	21:05:27.6			0.8	22			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	21:11:26.2	33.140N	93.670E	33.0N	4.5			SZGRF
2002/05/30	21:11:39.5	33.517N	90.679E	55*	4.7			NEIC

Qinghai, China

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 21:21:35.3	58.7	73.6	1.2	10	4.5		
	e	21:21:37.6							

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/30	22:24:34.4	34.650N	79.410E	33.0N	4.4			SZGRF

Kashmir-Xizang border region

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
GRA1	e P	Z 22:33:32.3	50.9	80.0	1.1	6	4.4		

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/31	06:09:30.0	53.940N	172.280E	33.0N	5.9	5.1		SZGRF
2002/05/31	06:09:20.5	52.782N	171.733E	33N	5.3	5.1		NEIC

Near Islands, Aleutian Islands, United States

Sta	Phase	Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
BSEG	e P	Z 06:20:45.5	72.2	11.7					
RUE	e P	Z 06:20:51.0	73.1	13.7					
IBBN	e P	Z 06:20:56.6	74.1	10.0					
CLZ	e P	Z 06:20:57.7	74.2	11.6					
CLL	i P	Z 06:20:58.4	74.4	13.2	1.4	97	5.6		
	e PP	Z 06:23:42.4							
	e PPP	Z 06:25:29.5							
	e S	T 06:30:25.9							
	e PS	N 06:31:08.7							
	e SS	R 06:35:27.9							
	e LQ	T 06:41:57.8							
	e LR	Z 06:45:18.2							
	e L	Z 06:54:17.8			22.0	1434		5.2	
BRG	e P	Z 06:20:59.7	74.7	13.7					
BUG	e P	Z 06:21:01.4	75.0	9.7					
MOX	e P	Z 06:21:03.2	75.2	12.3					
TNS	e P	Z 06:21:07.8	76.0	10.3					
GRA1	e P	Z 06:21:09.4	76.2	12.0	1.5	142	5.9		
	e PP	Z 06:23:57.5							
	e S	E 06:30:49.0							
	e SS	N 06:35:50.7							

	e L	Z	06:52:18.8			25.1	1265	5.1
WET	e P	Z	06:21:11.0	76.5	13.0			
GEC2	e P	Z	06:21:11.7	76.7	13.4			
WLF	e P	Z	06:21:12.6	76.8	8.9			
STU	e P	Z	06:21:15.1	77.4	10.7			
FUR	e P	Z	06:21:17.5	77.7	12.0			
BFO	e P	Z	06:21:18.3	77.9	10.2			

Date	Origin Time	Lat	Long	Depth	mb	Ms	ML	Source
2002/05/31	18:28:51.9	21.261S	174.316W	33N	5.2	4.7		NEIC

Tonga Islands

Sta	Phase		Time	Dist	BAz	T[s]	A[nm]	mb	MS	ML
CLL	i PKPbc	+ Z	18:48:39.7			1.1	13			
	e PKPab	Z	18:48:44.0			0.9	22			
GRA1	e PKPbc	Z	18:48:44.4	151.2	10.8					
	e PKPab	Z	18:48:52.9							

## Format description

=====

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

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

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

## EPICENTER LINES:

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

Date	Date of the event
Origin Time	Origin time of the event
Lat	Geographic latitude (N/S) of epicenter in degree
Long	Geographic longitude (E/W) of epicenter in degree
Depth	Depth of the hypocenter beneath the surface in kilometer

Appended flag indicates the method by which the depth was determined:

BLANK - free

N - preset depth of 33 kilometer

G - geophysicist preset depth

mb, Ms, ML

Magnitudes of the event and magnitude type

Source

Abbreviations for the authority (e.g. SZGRF, NEIC, PIDC, SED)

COMMENT LINE:

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

REGION LINE:

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

PHASE LINE:

Sta Station code of the reported phase

Phase Preceded flag for the sharpness of the onset of the phase

e - emergent

i - impulsive

w - weak

ISC phase code

Flag for the direction of the first motion

'+' - compression

'-' - dilatation

Component where the phase was picked

Time Arrival time of the reported phase

Dist Distance from the epicenter location with the highest priority to the station in kilometer

BAz Backazimuth from the epicenter location with the highest priority to the station in degree

T[s] Phase Period

A[nm] Phase Amplitude

mb Body wave magnitude

MS Surface wave magnitude

ML Local Richter magnitude