

MONTHLY TELESEISMIC BULLETIN of SZGRF-ERLANGEN - May 1999

H. Aichele, K. Klinge, R. Hohl

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date           distance backazimut
station time   phase   comp per[s] ampl[nm] magn
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SZGRF or NEIC-QED LOCATION

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1999-05-01      D 22.1  AZ 59
  GRA1 03:59:54.7 e (P)      Z                mb3.3
  BEAM 03:59:54.7                T0.8  A1

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1999-05-01      D 77.4
  GRA1 11:34:21.6 e P        Z                mb4.2
  BEAM 11:34:21.6                T0.9  A2
NEIC: OT 11:22:44.2 47N 151E dep183km mb4.2
      KURIL ISLANDS

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1999-05-01      D 19.4
  GRA1 14:42:53.5 e P        Z                mb4.0
  BEAM 14:42:53.5                T1.1  A11
  GRA1 14:51:37.6 e L        Z T18.0  A107

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1999-05-01      D 93.6
  GRA1 22:58:34.2 e P        Z                mb4.4
  BEAM 22:58:34.2                T1.2  A2
  GRA1 23:46:20.6 e L        Z T18.4  A366  MS4.9
NEIC: OT 22:45:17.8 12N 122E dep 33km mb4.9
      MINDORO, PHILIPPINE ISLANDS

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1999-05-02      D 1.8  202km
  GRC3 04:50:18.1 e Pg       Z                M13.2
  GRA1 04:50:34.4 e Pg       Z
  GRA1 04:51:09.0 e Sg       N
SZGRF: OT 04:49:44.0 48N 14E dep 10km
      E Salzkammergut/A, Totes Gebirge

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1999-05-02      D 59.4  AZ245
  GRA1 08:21:05.0 e P        Z                mb4.4

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BEAM 08:21:05.0 T1.1 A4  
 GRA1 08:21:13.3 e (pP) Z  
 GRA1 08:29:16.6 e S Z  
 GRA1 08:41:13.4 e L Z T21.3 A93 MS3.9  
 SZGRF: OT 08:11:04.9 9N 41W dep 30km  
 CENTRAL MID-ATLANTIC RIDGE

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1999-05-02 D 29.9 AZ108  
 GRA1 10:59:18.9 e P Z mb4.1  
 BEAM 10:59:18.9 T1.2 A4  
 GRA1 10:59:22.9 e pP Z  
 NEIC: OT 10:52:37.9 32N 50E dep 33km mb4.2  
 WESTERN IRAN

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1999-05-02 D149.6  
 GRA1 13:21:15.1 e PKPdf Z  
 GRA1 13:21:25.0 i PKPbc d Z  
 GRA1 13:21:33.4 e PKPab Z

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1999-05-02 D 25.0 AZ301  
 GRA1 14:31:50.4 e P Z mb4.6  
 BEAM 14:31:50.4 T1.3 A15  
 GRA1 14:31:54.9 e (pP) Z  
 GRA1 14:36:33.3 e S Z  
 GRA1 14:42:41.1 e L Z T18.4 A358 MS4.0  
 SZGRF: OT 14:26:27.9 56N 29W dep 18km  
 NORTH ATLANTIC OCEAN

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1999-05-02  
 GRA1 15:07:27.5 e PKPdf Z  
 GRA1 15:07:35.2 e pPKPdf Z

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1999-05-02 D 27.7  
 GRA1 16:19:41.1 e P Z mb5.7  
 ALIGN 16:19:41.1 T2.7 A338  
 GRA1 16:24:18.6 e S Z  
 GRA1 16:29:56.7 e L Z T18.3 A7532 MS5.3

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1999-05-02 D 15.0 AZ214  
 GRA1 20:05:58.6 e P Z  
 BEAM 20:05:58.6 T1.5 A4

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1999-05-02 D 88.8 AZ 48  
 GRA1 20:07:44.5 e P Z mb4.6  
 BEAM 20:07:44.5 T0.9 A4

GRA1 20:07:52.9 e pP Z  
SZGRF: OT 19:54:54.3 27N 135E dep 29km  
EAST OF RYUKYU ISLANDS

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1999-05-02 D 85.2 AZ 50  
GRA1 20:52:02.5 e P Z mb5.7  
ALIGN 20:52:02.5 T1.0 A48  
GRA1 21:33:49.3 e L Z T18.5 A665 MS5.1  
SZGRF: OT 20:39:30.1 29N 131E dep 33km  
RYUKYU ISLANDS

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1999-05-02 D 80.3 AZ 27  
GRA1 21:10:09.1 e P Z mb4.4  
BEAM 21:10:09.1 T1.0 A6  
GRA1 21:10:17.4 e (pP) Z  
SZGRF: OT 20:58:02.2 45N 153E dep 29km  
KURIL ISLANDS REGION

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1999-05-02  
GRA1 21:16:16.6 e PKPdf Z

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1999-05-02 D 3.2 351km  
GRB5 00:28:33.5 e Pn Z  
GRA1 00:28:42.4 e Pn Z M13.7  
GRA1 00:28:51.5 e Pg Z  
GRA1 00:29:41.4 e Sg E  
GRA1 00:29:41.6 e Sg Z  
SZGRF: OT 00:27:44.3 48N 16E dep 10km  
AUSTRIA

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1999-05-03 D 95.1  
GRA1 02:37:23.0 e Pdiff Z  
GRA1 02:37:38.8 e pPdiff Z

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1999-05-03 D144.0  
GRA1 06:23:43.3 e PKPdf Z  
GRA1 06:23:54.7 e (pPKPdf) Z

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1999-05-03 D156.5  
GRA1 08:22:40.7 e PKPab Z

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1999-05-03 D150.2  
GRA1 16:41:02.9 e PKPdf Z  
GRA1 16:41:05.7 i PKPbc d Z  
GRA1 16:41:13.6 e PKPab Z

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1999-05-03      D132.0
  GRA1 19:10:40.9 e PKPdf  Z
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1999-05-03      D145.3
  GRA1 19:25:11.2 i PKPbc d Z
  GRA1 19:25:22.0 e pPKPbc Z
  GRA1 20:17:19.3 e L      Z T19.6 A257      MS5.0
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1999-05-03      D145.0
  GRA1 20:21:54.1 e PKPbc  Z
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1999-05-03      D 54.1
  GRA1 21:04:19.5 e P      Z      mb4.5
  BEAM 21:04:19.5          T0.9  A4
  GRA1 21:04:43.8 e pP      Z
NEIC: OT 20:54:45.1 56N 110E dep 10km mb4.7
  LAKE BAYKAL REGION, RUSSIA
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1999-05-03      D144.8
  GRA1 23:26:17.1 e PKP      Z
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1999-05-04      D156.1
  GRA1 14:04:01.6 e PKPab  Z
  GRA1 14:05:28.6 e (pPKPab)Z
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1999-05-04      D 16.4
  GRA1 19:31:42.3 e P      Z T1.0  A26      mb4.3
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1999-05-05      D 69.6  AZ349
  GRA1 10:41:12.0 i P      c Z      mb5.6
  ALIGN 10:41:12.0          T1.3  A69
  GRA1 10:41:19.9 e          Z
  GRA1 10:41:29.5 e pP      Z
  GRA1 10:41:37.3 e sP      Z
  GRA1 10:44:11.5 e PP      Z
  GRA1 10:50:21.5 e S      Z
  GRA1 11:11:41.4 e L      Z T21.7 A551      MS4.8
SZGRF: OT 10:30:12.2 60N 149W dep 65km
  KENAI PENINSULA, ALASKA
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1999-05-05      D147.0
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GRA1 19:46:58.3 e PKP Z  
NEIC: OT 19:27:24.1 17S 174W dep 85km mb4.5  
TONGA ISLANDS

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1999-05-05 D 86.6 AZ293  
GRA1 22:54:25.4 e P Z mb6.1  
ALIGN 22:54:25.4 T1.3 A212  
GRA1 22:54:37.2 e pP Z  
GRA1 22:54:44.0 e sP Z  
GRA1 22:57:55.3 e pPP Z  
GRA1 23:03:51.5 e SKS Z  
GRA1 23:05:03.7 e SKKS Z  
GRA1 23:06:17.9 e S Z  
GRA1 23:31:42.2 e L Z T21.4 A6122 MS6.0  
SZGRF: OT 22:41:47.1 18N 95W dep 43km  
CHIAPAS, MEXICO

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1999-05-06 D 73.6  
GRA1 03:45:32.1 e P Z mb4.7  
ALIGN 03:45:32.1 T0.7 A6  
GRA1 03:45:39.9 e pP Z  
GRA1 04:23:46.8 e L Z T19.1 A171 MS4.4  
NEIC: OT 03:34:02.8 57N 153W dep 33km mb4.7  
KODIAK ISLAND REGION

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1999-05-06 D 73.6  
GRA1 04:30:57.9 e P Z mb5.1  
BEAM 04:30:57.9 T1.6 A30  
GRA1 04:31:05.7 e Z  
GRA1 04:31:09.9 e pP Z  
GRA1 04:31:14.9 e sP Z  
GRA1 05:04:57.0 e L Z T20.9 A153 MS4.3

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1999-05-06 D 77.0 AZ127  
GRA1 07:06:42.5 i P d Z mb5.5  
ALIGN 07:06:42.5 T1.3 A48  
GRA1 07:06:50.7 e pP Z  
SZGRF: OT 06:54:50.8 12S 64E dep 29km  
SOUTH INDIAN OCEAN

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1999-05-06 D162.7  
GRA1 13:42:19.7 e PKPab Z  
GRA1 13:42:31.3 e pPKPab Z  
GRA1 15:01:48.9 e L Z T18.8 A493 MS5.4

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1999-05-06 D 44.6 AZ 78  
GRA1 18:46:38.6 e P Z

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1999-05-06          D 36.6
  GRA1 23:07:58.5  i P      c Z          mb5.3
  ALIGN 23:07:58.5                T0.9   A53
  GRA1 23:08:06.5  e          Z
  GRA1 23:09:32.9  e PP     Z
  GRA1 23:13:49.2  e S      Z
  GRA1 23:25:21.8  e L      Z  T19.5  A20794  MS5.9
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1999-05-06          D 36.8
  GRA1 23:20:31.0  i P      c Z          mb4.8
  BEAM 23:20:31.0                T0.9   A16
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1999-05-07          D 36.9
  GRA1 00:34:56.9  e P      Z          mb3.9
  BEAM 00:34:56.9                T0.7   A2
  NEIC: OT 00:27:51.0 29N    52E  dep 33km  mb4.5
  SOUTHERN IRAN
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1999-05-07          D 84.0
  GRA1 01:15:53.6  e P      Z          mb4.7
  BEAM 01:15:53.6                T1.2   A6
  GRA1 01:15:59.1  e pP     Z
  GRA1 01:16:03.5  e sP     Z
  GRA1 01:56:49.2  e L      Z  T18.6  A782  MS5.1
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1999-05-07          D 59.5
  GRA1 02:20:48.9  i P      d Z          mb5.4
  BEAM 02:20:48.9                T1.4   A54
  GRA1 02:20:56.1  i pP     c Z
  GRA1 02:21:00.9  e sP     Z
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1999-05-07          D 37.0
  GRA1 03:43:41.5  e P      Z  T0.6   A8          mb4.6
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1999-05-07          D 36.9
  GRA1 04:33:54.1  e P      Z          mb4.4
  BEAM 04:33:54.1                T1.3   A10
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1999-05-07
  GRA1 07:20:12.0  e (P)    Z
  GRA1 07:39:22.0  e L      Z  T19.0  A404  MS4.0
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1999-05-07      D144.2
  GRA1 10:31:23.1 e PKPdf  Z
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1999-05-07      D 2.8 312km
  GRC1 10:52:29.0 e Sg      N      M13.1
SZGRF: OT 10:51:00.6 46N    13E    dep 10km
  NORTHERN ITALY
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1999-05-07      D 83.1 AZ 39
  GRA1 13:00:59.5 e P      Z      mb4.9
  BEAM 13:00:59.5          T1.2  A9
  GRA1 13:42:00.4 e L      Z      T19.7 A132  MS4.3
SZGRF: OT 12:48:38.1 37N    141E    dep 33km
  NEAR EAST COAST OF HONSHU, JAPAN
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1999-05-07      D 59.5 AZ163
  GRA1 14:17:35.7 i P      d Z      mb5.9
  ALIGN 14:17:35.7          T1.5  A211
  GRA1 14:17:43.4 e pP     Z
  GRA1 14:17:46.2 e sP     Z
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1999-05-07      D 73.6 AZ351
  GRA1 14:25:25.0 i P      c Z      mb5.7
  ALIGN 14:25:25.0          T1.1  A85
  GRA1 14:25:38.7 e pP     Z
  GRA1 14:25:43.3 e sP     Z
  GRA1 14:28:08.4 e PP     Z
  GRA1 14:34:56.2 e S      Z
  GRA1 15:03:42.5 e L      Z      T20.0 A8455  MS6.0
SZGRF: OT 14:13:58.7 56N    153W    dep 47km
  KODIAK ISLAND REGION
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1999-05-07      D 73.7
  GRA1 16:28:32.4 e P      Z      mb4.5
  BEAM 16:28:32.4          T1.2  A6
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1999-05-07
  GRA1 16:53:35.3 e P      Z
NEIC:  OT 16:42:05.0 56N    153W    dep 33km  mb4.3
  KODIAK ISL REG
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1999-05-07      D 73.4
  GRA1 16:55:43.8 e P      Z      mb4.3
  BEAM 16:55:43.8          T1.0  A3

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1999-05-07      D 73.8
  GRA1 17:00:10.3 e P      Z
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1999-05-07      D 41.1
  GRA1 22:49:03.7 e P      Z      mb4.3
  BEAM 22:49:03.7      T1.5  A10
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1999-05-07      D 12.3
  GRA1 23:07:13.9 e Pn     Z
  GRA1 23:12:43.2 e L     Z  T20.0  A491  MS3.5
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1999-05-07      D 82.2
  GRA1 23:32:06.4 i P     c Z      mb5.0
  BEAM 23:32:06.4      T1.0  A12
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1999-05-08      D 86.6  AZ281
  GRA1 00:10:39.6 e P     c Z      mb4.5
  BEAM 00:10:39.6      T0.8  A3
  GRA1 00:45:05.8 e L     Z  T20.1  A495  MS4.9
NEIC: OT 23:58:03.6 12N 87W  dep 77km  mb5.0
  NEAR COAST OF NICARAGUA
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1999-05-08      D160.2
  GRA1 00:35:50.7 e PKPab  Z
  GRA1 00:36:02.7 e (pPKPab)Z
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1999-05-08      D 3.7  408km
  GRA1 03:18:45.9 e Pn     Z      M14.2
  GRA1 03:19:44.6 e Sg     E
SZGRF: OT 03:17:47.9 51N 16E  dep 1km
  POLAND
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1999-05-08
  GRA1 03:35:40.8 e PKPab  Z
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1999-05-08      D117.4
  GRA1 04:24:37.3 e PKPdf  Z
  GRA1 05:15:42.9 e L     Z  T19.8  A248  MS4.8
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1999-05-08      D 36.4

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GRA1 06:35:03.6 e P Z mb4.1  
 BEAM 06:35:03.6 T1.1 A4

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 1999-05-08 D 74.1  
 GRA1 09:47:35.9 i P c Z mb4.8  
 BEAM 09:47:35.9 T1.1 A12  
 GRA1 09:47:42.4 e pP Z  
 GRA1 09:47:46.7 e sP Z  
 GRA1 10:25:58.6 e L Z T18.6 A129 MS4.2

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 1999-05-08 D 37.0  
 GRA1 15:54:45.3 e P Z mb4.1  
 BEAM 15:54:45.3 T1.5 A6

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 1999-05-08 D134.6  
 GRA1 18:16:01.9 e PKPdf Z  
 GRA1 19:17:48.8 e L Z T20.8 A199 MS4.8

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 1999-05-08 D 79.6 AZ 27  
 GRA1 19:56:36.3 i P c Z mb6.6  
 ALIGN 19:56:36.3 T1.0 A692  
 GRA1 19:56:52.1 e pP Z  
 GRA1 19:59:34.4 e PP Z  
 GRA1 20:34:37.3 e L Z T22.0 A2333 MS5.5  
 SZGRF: OT 19:44:37.2 45N 152E dep 56km  
 KURIL ISLANDS REGION

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 1999-05-08 D147.5  
 GRA1 20:08:15.9 e PKPdf Z  
 GRA1 20:08:32.1 e pPKPdf Z  
 GRA1 21:11:30.9 e L Z T21.7 A907 MS5.5

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 1999-05-08 D 17.6  
 GRA1 21:21:46.6 e P Z mb3.8  
 BEAM 21:21:46.6 T1.3 A10

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 1999-05-08 D 85.2 AZ289  
 GRA1 22:25:32.1 i P c Z mb5.6  
 ALIGN 22:25:32.1 T1.2 A46  
 GRA1 22:26:22.6 e pP Z  
 GRA1 22:26:48.3 e sP Z  
 GRA1 22:28:57.1 e PP Z  
 GRA1 23:04:06.7 e L Z T20.3 A3001 MS5.7

SZGRF: OT 22:13:20.4 16N 90W dep213km  
MEXICO-GUATEMALA BORDER REGION

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1999-05-09 D146.3  
GRA1 00:54:43.8 e PKPdf Z  
GRA1 00:54:53.9 e (pPKPdf)Z

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1999-05-09 D139.9  
GRA1 05:28:42.4 e PKPdf Z  
SZGRF: OT 05:09:57.9 15S 165E dep400km  
VANUATU ISLANDS

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1999-05-09 D 76.8 AZ125  
GRA1 12:40:07.7 e P Z mb4.9  
ALIGN 12:40:07.7 T1.3 A12  
GRA1 12:40:13.7 e Z  
GRA1 12:40:18.5 e pP Z  
GRA1 12:40:22.2 e sP Z  
SZGRF: OT 12:28:18.3 11S 65E dep 37km  
MID-INDIAN RISE

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1999-05-09 D152.8  
GRA1 12:49:51.8 e PKPdf Z

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1999-05-09 D 87.9  
GRA1 15:16:35.4 e P Z mb4.9  
BEAM 15:16:35.4 T1.1 A8  
NEIC: OT 15:04:00.0 N 99E dep148km mb4.6  
NORTHERN SUMATERA, INDONESIA

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1999-05-09 D111.3  
GRA1 19:14:40.3 e PKPdf Z  
GRA1 20:03:04.1 e L Z T20.4 A173 MS4.6

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1999-05-09 D 92.0  
GRA1 20:48:04.0 e Pdiff Z  
BEAM 20:48:04.0 T1.0 A13  
GRA1 20:51:50.7 e PP Z

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1999-05-09 D 45.8  
GRA1 21:46:24.8 e P Z mb5.1  
BEAM 21:46:24.8 T1.5 A31  
GRA1 21:53:11.1 e S Z  
GRA1 22:05:16.2 e L Z T21.8 A419 MS4.3  
NEIC: OT 21:38:06.4 37N 73E dep 51km mb4.9

## NORTHWESTERN KASHMIR

1999-05-10 D 83.3 AZ 37  
 GRA1 07:21:51.3 i P c Z mb5.3  
 ALIGN 07:21:51.3 T1.2 A24  
 GRA1 07:22:04.2 e pP Z  
 GRA1 07:22:07.6 e sP Z  
 GRA1 08:03:26.5 e L Z T20.2 A119 MS4.3  
 SZGRF: OT 07:09:30.3 37N 143E dep 42km  
 OFF EAST COAST OF HONSHU, JAPAN

1999-05-10 D148.8  
 GRA1 19:17:00.3 i PKPbc c Z  
 GRA1 19:17:03.7 e PKPab Z  
 NEIC: OT 18:57:17.6 19S 173W dep 68km mb4.6  
 TONGA ISLANDS REGION

1999-05-10 D124.3  
 GRA1 20:48:21.5 e Pdiff Z  
 GRA1 20:51:45.6 e PKPdf Z  
 GRA1 21:01:33.0 e PKKP Z  
 GRA1 21:02:08.5 e Z  
 GRA1 21:04:58.6 e Z  
 GRA1 21:44:17.3 e L Z T21.8 A26561 MS6.9  
 NEIC: OT 20:33:02.1 5S 151E dep137km mb6.5  
 NEW BRITAIN REGION, P.N.G.

1999-05-10 D145.3  
 GRA1 21:46:28.2 i PKPdf d Z  
 GRA1 21:46:39.2 e pPKPdf Z  
 NEIC: OT 21:26:53.6 20S 168E dep 33km mb4.9  
 VANUATU ISLANDS

1999-05-11 D 77.2 AZ358  
 GRA1 04:33:51.1 i P c Z mb5.5  
 ALIGN 04:33:51.1 T1.2 A45  
 GRA1 04:33:55.6 e Z  
 GRA1 04:34:02.3 e pP Z  
 GRA1 04:34:06.3 e sP Z  
 GRA1 05:15:23.4 e L Z T20.2 A184 MS4.4  
 SZGRF: OT 04:22:03.1 53N 165W dep 38km  
 FOX ISLANDS, ALEUTIAN ISLANDS

1999-05-11 D136.2  
 GRA1 16:24:31.9 e PKPdf Z  
 GRA1 17:12:26.7 e L Z T21.3 A463 MS5.2  
 NEIC: OT 16:05:11.3 36S 110W dep 10km mb5.2  
 SOUTHERN EAST PACIFIC RISE

1999-05-11 \*\*\*\*\*km  
 GRA1 18:29:59.0 e P Z

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 1999-05-11 D 80.9 AZ 36  
 GRA1 20:33:39.9 e P Z T1.7 A36 mb5.1  
 GRA1 20:34:04.7 e (pP) Z  
 SZGRF: OT 20:21:37.7  
 NEAR EAST COAST OF HONSHU, JAPAN

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 1999-05-11  
 GRA1 22:22:20.9 e Pn Z  
 GRA1 22:24:34.8 e (Sn) E  
 NEIC: OT 22:20:15.1 43N 18E dep 10km  
 ADRIATIC SEA

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 1999-05-11 D 26.7  
 GRA1 23:52:47.7 e P Z mb4.3  
 BEAM 23:52:47.7 T1.5 A9  
 GRA1 23:52:52.4 e pP Z  
 GRA1 00:02:12.3 e L Z T22.0 A236 MS3.7

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 1999-05-12 D 26.1 AZ309  
 GRA1 00:08:13.6 e P c Z mb4.1  
 BEAM 00:08:13.6 T1.0 A5  
 GRA1 00:08:17.6 e pP Z  
 GRA1 00:17:26.9 e L Z T21.8 A137 MS3.5  
 SZGRF: OT 00:02:41.1 60N 31W dep 16km  
 NORTH ATLANTIC OCEAN

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 1999-05-12 D 3.0 332km  
 GRC1 03:42:48.3 e Pn Z M13.3  
 GRA1 03:42:58.9 e Pn Z M13.3  
 GRA1 03:43:08.4 e Pg Z  
 GRA1 03:43:58.2 e Sg N  
 GRA1 03:44:01.6 e Sg Z  
 SZGRF: OT 03:42:01.3 46N 14E dep 10km  
 AUSTRIA/N. ITALY

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 1999-05-12 D162.8  
 GRA1 10:02:24.0 e PKPab Z  
 GRA1 10:02:34.1 e pPKPab Z  
 GRA1 11:27:19.4 e L Z T18.2 A260 MS5.1  
 NEIC: OT 09:41:35.5 34S 179W dep 33km mb5.0  
 SOUTH OF KERMADEC ISLANDS

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 1999-05-12 D 79.1 AZ 33  
 GRA1 18:11:15.2 i P c Z mb6.5

ALIGN 18:11:15.2 T1.6 A719  
 GRA1 18:11:42.5 e pP Z  
 GRA1 18:11:55.0 e Z  
 GRA1 18:12:03.2 e sP Z  
 GRA1 18:14:16.6 e PP Z  
 GRA1 18:21:03.2 e S Z  
 GRA1 18:48:22.1 e L Z T18.0 A1696 MS5.4

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 1999-05-13 D149.2  
 GRA1 04:51:40.4 e PKPdf Z  
 GRA1 04:51:49.0 e (pPKPdf) Z  
 GRA1 04:51:54.3 e PKPab Z

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 1999-05-13 D 74.3  
 GRA1 14:58:46.3 e P Z T0.9 A9 mb4.8  
 GRA1 14:58:55.3 e (pP) Z

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 1999-05-13 D 3.2 353km  
 GRC1 16:07:43.0 e Pn Z M14.3  
 GRA1 16:07:53.2 e Pn Z M14.4  
 GRA1 16:08:39.1 e Sn Z  
 GRA1 16:08:57.7 e Sg Z  
 SZGRF: OT 16:06:52.8 46N 14E dep 10km  
 AUSTRIA/SLOVENIA

-----  
 1999-05-13 D 74.9  
 GRA1 23:51:06.9 i P c Z mb4.6  
 ALIGN 23:51:06.9 T0.9 A5  
 GRA1 23:51:18.4 e (pP) Z

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 1999-05-13 D 1.9 208km  
 GRA1 17:59:54.1 e Pg Z M12.2

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 1999-05-14 D 83.7 AZ 40  
 GRA1 03:15:46.1 i P d Z mb5.0  
 ALIGN 03:15:46.1 T1.1 A12  
 GRA1 03:15:49.9 e pP Z  
 SZGRF: OT 03:03:19.0 36N 140E dep 13km  
 NEAR S. COAST OF HONSHU, JAPAN

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 1999-05-14 D 85.1  
 GRA1 09:05:31.1 e P Z mb4.7  
 BEAM 09:05:31.1 T0.8 A4

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 1999-05-14 D 3.1 348km  
 GRC1 18:26:31.2 e Pg Z M14.1  
 GRA1 18:26:38.0 e Pg Z M14.2  
 GRA1 18:27:28.4 e Sg N  
 SZGRF: OT 18:25:35.0 47N 8E dep 10km  
 SWITZERLAND

-----  
 1999-05-14 D 84.4 AZ 53  
 GRA1 18:35:39.7 i P c Z mb4.9  
 ALIGN 18:35:39.7 T0.9 A8  
 GRA1 18:35:43.8 e pP Z  
 GRA1 18:35:46.6 e sP Z  
 GRA1 19:17:50.3 e L Z T18.3 A116 MS4.3  
 SZGRF: OT 18:23:08.7 28N 128E dep 16km  
 RYUKYU ISLANDS

-----  
 1999-05-15 D 46.7  
 GRA1 04:59:52.3 i P Z mb4.7  
 ALIGN 04:59:52.3 T1.1 A8  
 GRA1 05:00:03.8 e pP Z  
 GRA1 05:00:24.5 e Z  
 GRA1 05:18:18.3 e L Z T18.1 A  
 NEIC: OT 04:51:25.1 40N 77E dep 33km mb4.7  
 SOUTHERN XINJIANG, CHINA

-----  
 1999-05-15 D 1.5 170km  
 GRC1 05:34:56.0 e Pg Z M13.1  
 GRA1 05:35:11.0 e Pg Z M13.2  
 GRA1 05:35:39.8 e Sg E  
 SZGRF: OT 05:34:29.4 48N 13E dep 10km  
 Bad Reichenhall, SW of Salzburg/A, Austrian-German bord

-----  
 1999-05-15 D 93.8  
 GRA1 10:18:37.8 e Pdiff Z  
 NEIC: OT 10:05:21.2 4S 103E dep 33km mb5.3  
 SOUTHERN SUMATERA, INDONESIA

-----  
 1999-05-15 D 82.7  
 GRA1 13:34:38.5 e P Z mb5.4  
 BEAM 13:34:38.5 T2.0 A54  
 GRA1 14:09:25.2 e L Z T18.2 A1991 MS5.5

-----  
 1999-05-15 D 82.9  
 GRA1 18:06:38.7 e P Z mb4.7  
 BEAM 18:06:38.7 T1.3 A7

-----

1999-05-15 D147.0  
GRA1 20:08:26.0 e PKPbc Z  
GRA1 20:08:29.0 e PKPab Z  
NEIC: OT 19:49:44.7 18S 179W dep561km mb4.4  
FIJI ISLANDS REGION

---

1999-05-16 D 4.8 530km  
GRC1 00:14:17.8 e Pn Z M13.9  
GRA1 00:14:26.8 e Pn Z M14.1  
GRA1 00:15:25.4 e Sn N  
GRA1 00:15:57.6 e Sg E  
SZGRF: OT 00:13:06.9 46N 16E dep 10km  
YUGOSLAVIA

---

1999-05-16 D124.6  
GRA1 01:06:50.4 e Pdiff Z  
GRA1 01:06:57.5 e (pPdiff) Z  
GRA1 01:10:12.8 e PKPdf Z  
GRA1 01:10:16.2 e PKiKP Z  
GRA1 01:12:02.7 e PP Z  
GRA1 02:09:31.6 e L Z T21.8 A14488 MS6.6

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1999-05-16 D 91.5  
GRA1 03:32:31.8 i P c Z mb5.3  
ALIGN 03:32:31.8 T1.5 A23  
GRA1 03:32:49.3 e pP Z  
GRA1 03:32:55.4 e (sP) Z  
NEIC: OT 03:19:38.4 28N 141E dep116km mb5.0  
BONIN ISLANDS REGION

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1999-05-16 D145.8  
GRA1 04:29:15.0 e PKP Z

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1999-05-16 D146.0  
GRA1 05:07:40.2 e PKPbc Z  
GRA1 05:09:10.7 e pPKPbc Z

---

1999-05-16 D150.7  
GRA1 05:54:23.1 e PKPdf Z

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1999-05-16  
GRA1 07:47:37.3 e PKPab Z

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1999-05-16 D145.4

GRA1 08:22:23.6 e PKPbc Z  
 GRA1 08:22:36.2 e pPKPbc Z

-----  
 1999-05-16 D 46.4  
 GRA1 10:04:06.2 e P Z mb4.6  
 BEAM 10:04:06.2 T1.0 A6

-----  
 1999-05-16 D115.3  
 GRA1 15:40:41.8 e Pdiff Z  
 GRA1 15:40:56.9 e pPdiff Z  
 GRA1 15:41:05.7 e sPdiff Z  
 GRA1 15:45:10.6 e PKPdf Z  
 GRA1 15:45:16.5 e (PKiKP) Z  
 GRA1 15:47:56.3 e PP Z  
 GRA1 15:55:13.4 e PKKP Z  
 GRA1 16:39:12.3 e L Z T20.7 A4191 MS6.0

-----  
 1999-05-16 D 80.2 AZ 32  
 GRA1 21:32:00.5 i P c Z mb4.8  
 ALIGN 21:32:00.5 T0.8 A9  
 GRA1 21:32:20.9 e pP Z  
 GRA1 21:32:27.1 e sP Z  
 SZGRF: OT 21:19:59.9 43N 147E dep 72km  
 OFF COAST OF HOKKAIDO, JAPAN

-----  
 1999-05-16 D 36.8 AZ107  
 GRA1 23:43:10.2 e P Z mb4.1  
 BEAM 23:43:10.2 T1.2 A5  
 GRA1 23:43:21.2 e pP Z  
 SZGRF: OT 23:36:06.5 30N 53E dep 42km  
 SOUTHERN IRAN

-----  
 1999-05-17 D124.7  
 GRA1 09:25:35.3 e PKPdf Z  
 NEIC: OT 02:48:58.6 54N 163W dep 36km mb4.7  
 SOUTH OF ALASKA

-----  
 1999-05-17 D124.7  
 GRA1 10:26:56.7 i PKPdf c Z  
 GRA1 11:26:53.9 e L Z T20.0 A21569 MS6.8  
 NEIC: OT 10:07:56.7 5S 153E dep 33km mb5.5  
 NEW BRITAIN REGION, P.N.G.

-----  
 1999-05-17 D125.3  
 GRA1 17:23:13.5 e PKPdf Z  
 GRA1 18:23:07.7 e L Z T19.5 A577 MS5.3



NEIC: OT 17:04:14.5 5S 153E dep 33km mb5.0  
NEW BRITAIN REGION, P.N.G.

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1999-05-17 D 66.0  
GRA1 17:43:00.5 i P c Z mb4.7  
BEAM 17:43:00.5 T1.6 A9  
GRA1 17:43:11.3 e (pP) Z  
NEIC: OT 17:32:14.1 64N 158W dep 18km mb4.5  
CENTRAL ALASKA

---

1999-05-17 D125.2  
GRA1 18:52:12.3 e PKPdf Z  
NEIC: OT 18:33:13.1 5S 153E dep 33km mb5.0  
NEW BRITAIN REGION, P.N.G.

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1999-05-18 D 76.5  
GRA1 03:00:47.2 e P Z mb4.5  
BEAM 03:00:47.2 T1.2 A5

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1999-05-18 D 85.8 AZ 55  
GRA1 03:55:50.3 e P c Z mb4.6  
BEAM 03:55:50.3 T1.2 A6  
NEIC: OT 03:43:12.6 22N 121E dep 33km mb4.9  
TAIWAN REGION

---

1999-05-18 D123.4  
GRA1 04:38:36.3 e PKPbc Z  
GRA1 05:32:31.0 e L Z T22.0 A1102 MS5.5  
NEIC: OT 04:19:53.7 6S 148E dep126km mb5.4  
NEW BRITAIN REGION, P.N.G.

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1999-05-18 D124.9  
GRA1 06:35:09.0 e PKPdf Z  
GRA1 06:35:22.5 e pPKPdf Z  
GRA1 07:35:02.2 e L Z T19.7 A1734 MS5.7  
NEIC: OT 06:16:10.1 5S 153E dep 33km mb5.2  
NEW BRITAIN REGION, P.N.G.

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1999-05-18 D164.4  
GRA1 09:39:59.8 e PKPab Z  
GRA1 09:43:58.0 e PP Z  
GRA1 10:43:02.9 e L Z T19.4 A118 MS4.8  
NEIC: OT 09:19:35.0 39S 175E dep283km mb5.5  
NORTH ISLAND, NEW ZEALAND

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1999-05-18 D125.6  
GRA1 15:16:55.6 e PKPdf Z  
GRA1 16:17:05.0 e L Z T19.8 A478 MS5.2

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1999-05-18      D100.2
  GRA1 20:06:44.0 i P      c Z
  GRA1 20:06:50.9 e pP     Z
  GRA1 20:10:49.8 e PP     Z
  GRA1 20:52:45.2 e L      Z T19.1 A1433 MS5.5
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-----
1999-05-18      D 39.3 AZ 7
  GRA1 20:27:48.9 i P      d Z      mb5.1
  ALIGN 20:27:48.9                T1.4 A62
  GRA1 20:27:58.9 e pP     Z
  GRA1 20:28:03.5 e sP     Z
  GRA1 20:41:49.1 e L      Z T27.0 A1918 MS4.8
SZGRF: OT 20:20:25.3 86N 82E dep 38km
  NORTH OF SEVERNAYA ZEMLYA
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-----
1999-05-19      D 43.4 AZ 83
  GRA1 04:55:58.7 i P      c Z      mb5.1
  ALIGN 04:55:58.7                T1.3 A55
  GRA1 04:56:47.4 e pP     Z
  GRA1 04:56:54.3 e sP     Z
  GRA1 04:57:38.2 e PP     Z
  GRA1 05:01:09.3 e PcP    Z
  GRA1 05:07:18.4 e L      Z T20.8 A81 MS3.6
SZGRF: OT 04:48:16.7 38N 70E dep198km
  AFGHANISTAN-USSR BORDER REGION
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1999-05-19      D 72.6
  GRA1 22:31:43.1 i P      c Z      mb4.6
  BEAM 22:31:43.1                T1.1 A5
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1999-05-20      D125.1
  GRA1 07:19:22.1 e PKPdf   Z
  GRA1 08:19:22.9 e L      Z T20.3 A158 MS4.7
NEIC: OT 07:00:22.8 5S 154E dep 33km mb4.8
  NEW IRELAND REGION, P.N.G.
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-----
1999-05-20      D 82.4 AZ 35
  GRA1 08:55:58.0 i P      c Z      mb5.1
  ALIGN 08:55:58.0                T1.5 A26
  GRA1 08:56:14.0 e (pP)   Z
  GRA1 09:35:36.9 e L      Z T18.0 A311 MS4.7
SZGRF: OT 08:43:43.5 39N 144E dep 56km
  OFF EAST COAST OF HONSHU, JAPAN
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-----
1999-05-20      D 3.6 401km
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GRA1 11:51:38.7 e Pn Z M13.4  
 GRA1 11:52:36.6 e Sg N  
 SZGRF: OT 11:50:42.6 51N 16E dep 1km  
 POLAND

-----  
 1999-05-20 D 4.1 452km  
 GRA1 13:12:51.3 e Pg Z M14.2  
 GRA1 13:13:43.4 e Sg E  
 SZGRF: OT 13:11:48.5 47N 7E dep 10km  
 SWITZERLAND

-----  
 1999-05-20 D 39.1  
 GRA1 16:31:45.1 e P Z mb4.3  
 ALIGN 16:31:45.1 T1.3 A11  
 GRA1 16:31:51.8 e pP Z  
 GRA1 16:46:45.8 e L Z T21.5 A110 MS3.6

-----  
 1999-05-20 D147.0  
 GRA1 16:46:25.5 e PKPbc Z  
 SZGRF: OT 16:27:37.5 18S 179W dep476km  
 FIJI ISLANDS REGION

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 1999-05-20  
 GRA1 17:30:37.3 e PKPdf Z

-----  
 1999-05-20 D144.3  
 GRA1 17:46:29.2 e PKPbc Z

-----  
 1999-05-20 D 67.5  
 GRA1 23:05:19.5 e P Z mb4.5  
 BEAM 23:05:19.5 T1.2 A4  
 NEIC: OT 22:53:55.5 11N 63W dep 10km mb4.6  
 NEAR COAST OF VENEZUELA

-----  
 1999-05-21 D144.2  
 GRA1 06:59:42.8 e (PKPdf) Z  
 GRA1 06:59:49.2 e Z  
 GRA1 06:59:58.4 e pPKPdf Z  
 SZGRF: OT 06:40:18.0 14S 176W dep 88km  
 FIJI ISLANDS REGION

-----  
 1999-05-21 D148.4  
 GRA1 12:02:25.6 e PKPbc Z  
 GRA1 12:02:33.6 e PKPab Z  
 GRA1 12:02:43.7 e (pPKPbc) Z  
 GRA1 12:02:48.9 e (pPKPab) Z

SZGRF: OT 11:43:02.1 23S 169E dep200km  
LOYALTY ISLANDS REGION

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1999-05-21 D125.7  
GRA1 16:12:41.0 e PKPdf Z

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1999-05-22 D145.8  
GRA1 00:12:38.9 e PKPbc Z  
GRA1 00:12:42.4 e (PKPab) Z

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1999-05-22 D 3.6 402km  
GRA1 01:18:24.5 e Pn Z M13.6  
GRA1 01:19:22.9 e Sg E  
SZGRF: OT 01:17:27.4 51N 16E dep 1km  
POLAND

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1999-05-22 D148.3  
GRA1 04:20:05.3 e PKPbc Z  
GRA1 04:20:13.9 e (pPKPbc) Z

---

1999-05-22 D 99.3  
GRA1 06:18:31.6 e Pdiff Z  
NEIC: OT 06:04:52.0 9N 126E dep 33km mb5.0  
MINDANAO, PHILIPPINE ISLANDS

---

1999-05-22 D146.2  
GRA1 10:28:33.5 e PKPbc Z  
GRA1 10:28:39.0 e PKPab Z

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1999-05-22 D146.4  
GRA1 10:36:25.0 e PKPbc Z  
GRA1 10:36:31.6 e PKPab Z

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1999-05-22 D 23.0  
GRA1 14:24:25.4 e P Z mb4.0  
BEAM 14:24:25.4 T1.3 A7

---

1999-05-22 D125.5  
GRA1 23:15:24.1 e PKPdf Z  
GRA1 23:15:34.0 e pPKPdf Z  
NEIC: OT 22:56:24.4 6S 153E dep 33km mb5.5  
NEW BRITAIN REGION, P.N.G.

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1999-05-23 D149.3  
GRA1 07:42:49.5 e PKPdf Z  
NEIC: OT 07:23:57.4 20S 178W dep500km mb4.6  
FIJI ISLANDS REGION

---

1999-05-23 D125.6  
GRA1 09:38:56.0 e PKPdf Z  
NEIC: OT 09:19:53.0 5S 153E dep 33km mb4.7  
NEW BRITAIN REGION, P.N.G.

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1999-05-23 D 3.0 338km  
GRC1 14:24:18.6 e Pn Z M13.4  
GRA1 14:24:29.2 e Pn Z M13.5  
GRA1 14:24:40.9 e Pg Z  
GRA1 14:25:31.3 e Sg N  
SZGRF: OT 14:23:31.3 46N 14E dep 10km  
AUSTRIA/SLOVENIA

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1999-05-23 D145.1  
GRA1 14:37:47.4 e PKPbc Z

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1999-05-23 D 79.2  
GRA1 17:48:47.2 e P Z mb4.7  
BEAM 17:48:47.2 T1.1 A8  
GRA1 18:27:36.4 e L Z T18.1 A88 MS4.1

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1999-05-23 D145.1  
GRA1 22:49:50.1 e PKPdf Z  
GRA1 22:50:28.7 e pPKPdf Z

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1999-05-24 D 39.2  
GRA1 00:33:20.5 e P Z mb3.9  
BEAM 00:33:20.5 T1.1 A3  
GRA1 00:33:28.9 e pP Z

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1999-05-24 D150.3  
GRA1 01:44:49.9 e PKPdf Z  
GRA1 01:44:56.3 i PKPbc c Z  
GRA1 01:46:35.2 e pPKPbc Z  
NEIC: OT 01:25:49.0 21S 178W dep388km mb4.5  
FIJI ISLANDS REGION

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1999-05-24 D145.0  
GRA1 09:44:47.2 e PKPbc Z

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1999-05-24      D 75.7
  GRA1 14:49:59.3 i P      c Z      mb5.4
  ALIGN 14:49:59.3              T1.3   A38
  GRA1 14:50:04.7 e pP      Z
  GRA1 15:20:21.8 e L      Z   T18.3  A171   MS4.4
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1999-05-24      D 44.7
  GRA1 15:10:58.4 e P      Z      mb4.0
  BEAM 15:10:58.4              T1.3   A3
  GRA1 15:11:24.4 e pP      Z
  GRA1 15:11:38.1 e sP      Z
  NEIC: OT 15:02:55.2 36N   71E   dep150km  mb4.2
  HINDU KUSH REGION, AFGHANISTAN
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-----
1999-05-25      D 95.2
  GRA1 03:52:17.0 i P      d Z      mb5.4
  BEAM 03:52:17.0              T1.4   A24
  GRA1 03:52:29.7 e pP      Z
  GRA1 03:52:37.0 e sP      Z
  GRA1 04:39:17.8 e L      Z   T20.7  A243   MS4.7
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1999-05-25      D144.9
  GRA1 07:53:49.5 e PKPbc   Z
  GRA1 07:54:52.1 e pPKPbc  Z
  GRA1 07:55:04.0 e pPKiKP  Z
  GRA1 07:55:12.4 e sPKPdf  Z
  GRA1 07:55:25.7 e sPKiKP  Z
  GRA1 07:57:05.8 e SKPdf   Z
  NEIC: OT 07:34:40.6 19S   169E   dep242km  mb5.6
  VANUATU ISLANDS
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-----
1999-05-25      D 41.2
  GRA1 11:25:10.1 e P      Z      mb4.2
  BEAM 11:25:10.1              T1.1   A5
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-----
1999-05-25      D 55.8
  GRA1 13:31:25.9 e P      Z      mb4.9
  BEAM 13:31:25.9              T1.3   A16
  GRA1 13:57:08.3 e L      Z   T18.4  A890   MS4.9
  NEIC: OT 13:21:48.7 56N   110E   dep 10km  mb4.8
  LAKE BAYKAL REGION, RUSSIA
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-----
1999-05-25      D 79.2  AZ 24
  GRA1 14:30:38.2 e P      Z      mb4.6
  BEAM 14:30:38.2              T0.9   A6
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SZGRF: OT 14:18:38.1 47N 155E dep 33km  
KURIL ISLANDS REGION

---

1999-05-25 D 80.0  
GRA1 16:12:34.4 e P Z mb4.7  
BEAM 16:12:34.4 T1.1 A10  
GRA1 16:51:01.9 e L Z T21.4 A362 MS4.7

---

1999-05-25 D103.0  
GRA1 16:55:48.9 e Pdiff Z  
GRA1 16:56:30.4 e pPdiff Z  
GRA1 16:58:43.3 e Z  
GRA1 16:59:59.2 e PP Z  
GRA1 17:20:17.3 e L Z T21.0 A248 MS4.7  
NEIC: OT 16:42:05.2 28S 67W dep169km mb5.3  
CATAMARCA PROVINCE, ARGENTINA

---

1999-05-25 D 21.5  
GRA1 17:20:13.8 e P Z  
GRA1 17:24:09.4 e S Z  
GRA1 17:29:27.9 e L Z T18.9 A1374 MS4.4  
NEIC: OT 17:15:21.7 35N 32E dep 10km mb5.1  
CYPRUS REGION

---

1999-05-25 D124.6  
GRA1 18:30:27.5 e PKPdf Z  
NEIC: OT 18:11:32.1 5S 152E dep 33km mb5.1  
NEW BRITAIN REGION, P.N.G.

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1999-05-25 D 63.1  
GRA1 21:38:56.5 e P Z mb4.4  
BEAM 21:38:56.5 T0.9 A3

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1999-05-25 D 81.3  
GRA1 23:52:01.1 e P Z mb4.1  
BEAM 23:52:01.1 T1.1 A2

---

1999-05-26  
GRA1 00:55:11.3 e PKPdf Z

---

1999-05-26 D145.3  
GRA1 00:56:49.0 e PKPbc Z  
GRA1 00:56:52.4 e PKPab Z  
GRA1 01:56:02.3 e L Z T19.0 A171 MS4.8

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1999-05-26      D 39.4  AZ  6
  GRA1 01:31:35.9 e P      Z      mb4.6
  BEAM 01:31:35.9                T1.7  A26
  GRA1 01:31:43.1 e pP     Z
  GRA1 01:45:34.9 e L      Z  T28.0  A119  MS3.6
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1999-05-26      D  3.6  403km
  GRA1 03:42:32.2 e Pn     Z      M13.5
  GRA1 03:43:31.4 e Sg     E
SZGRF: OT 03:41:35.0 51N   16E   dep 1km
  POLAND
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1999-05-26      D 18.5
  GRA1 12:47:21.5 e P      Z      mb4.4
  ALIGN 12:47:21.5                T1.3  A30
  GRA1 12:55:27.7 e L      Z  T21.7  A59  MS2.8
NEIC:  OT 12:43:03.5 36N   28E   dep 33km  mb4.2
  EASTERN MEDITERRANEAN SEA
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-----
1999-05-26      D160.6
  GRA1 14:38:42.9 e PKPab  Z
NEIC:  OT 14:17:58.5 33S  179W  dep 33km  mb4.8
  SOUTH OF KERMADEC ISLANDS
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1999-05-26      D 40.0  AZ  5
  GRA1 19:13:50.7 e P      Z      mb4.1
  BEAM 19:13:50.7                T1.6  A8
  GRA1 19:13:56.2 e pP     Z
  GRA1 19:27:19.1 e L      Z  T22.0  A32  MS3.1
-----

```

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-----
1999-05-26      D146.2
  GRA1 21:47:08.1 e PKP    Z
-----

```

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-----
1999-05-27      D 39.5
  GRA1 00:04:05.1 e P      Z      mb4.9
  ALIGN 00:04:05.1                T1.7  A58
  GRA1 00:04:12.6 e pP     Z
  GRA1 00:04:18.0 e sP     Z
  GRA1 00:18:06.5 e L      Z  T27.0  A388  MS4.1
-----

```

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-----
1999-05-27      D 57.7
  GRA1 01:44:41.0 e P      Z      mb5.1
  BEAM 01:44:41.0                T2.1  A39
  GRA1 01:44:47.1 e pP     Z
-----

```



GRA1 01:52:36.1 e S Z  
 GRA1 02:03:16.5 e L Z T26.8 A316 MS4.3

-----  
 1999-05-27 D 90.3  
 GRA1 06:31:19.3 i P d Z mb5.6  
 ALIGN 06:31:19.3 T1.0 A37  
 GRA1 06:31:25.0 e Z  
 GRA1 06:31:39.1 e (pP) Z  
 GRA1 07:14:22.2 e L Z T20.6 A347 MS4.8

-----  
 1999-05-27 D 69.2  
 GRA1 08:20:06.0 i P c Z mb5.7  
 ALIGN 08:20:06.0 T1.5 A72  
 GRA1 08:22:21.3 e PP Z  
 GRA1 08:29:16.0 e S Z  
 GRA1 08:33:25.4 e (SS) Z  
 GRA1 08:53:01.8 e L Z T18.1 A1617 MS5.3

-----  
 1999-05-27 D 55.5 AZ 42  
 GRA1 16:10:57.9 i P d Z mb5.0  
 ALIGN 16:10:57.9 T1.5 A26  
 GRA1 16:36:41.8 e L Z T19.1 A692 MS4.8

-----  
 1999-05-27 D 3.4 381km  
 GRA1 16:50:47.8 e Pg Z M13.8  
 GRA1 16:51:33.0 e Sg E  
 SZGRF: OT 16:49:45.0 47N 13E dep 10km  
 AUSTRIA/N. ITALY

-----  
 1999-05-27 D146.9  
 GRA1 19:45:33.1 e PKP Z  
 NEIC: OT 19:25:58.2 21S 170E dep 72km mb4.6  
 VANUATU ISLANDS

-----  
 1999-05-27 D 25.4 AZ281  
 GRA1 22:36:48.5 e P Z mb4.5  
 BEAM 22:36:48.5 T1.5 A16  
 GRA1 22:45:54.6 e L Z T20.0 A179 MS3.6

-----  
 1999-05-27 D 40.9  
 GRA1 22:46:22.5 e P Z mb4.1  
 BEAM 22:46:22.5 T1.5 A6  
 GRA1 22:46:29.5 e pP Z  
 GRA1 23:00:19.7 e L Z T21.8 A49 MS3.3

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1999-05-28      D 77.1  AZ235
  GRA1  00:34:26.4  e P      Z
-----

1999-05-28      D 86.2  AZ287
  GRA1  05:05:47.7  e P      Z      mb5.1
  BEAM  05:05:47.7                T1.2   A17
  GRA1  05:05:52.7  e pP     Z
  GRA1  05:38:41.5  e L      Z      T21.9  A244  MS4.6
NEIC:  OT 04:52:55.9 13N    87W   dep 87km  mb5.3
NR CST NICARAGUA
-----

1999-05-28      D 84.9  AZ 36
  GRA1  11:31:57.6  i P      Z      mb5.0
  BEAM  11:31:57.6                T1.4   A13
  GRA1  12:12:03.8  e L      Z      T20.6  A81   MS4.1
SZGRF: OT 11:19:27.3 36N    144E  dep 33km
OFF EAST COAST OF HONSHU, JAPAN
-----

1999-05-28      D 77.7
  GRA1  12:48:43.8  e P      Z      mb4.9
  BEAM  12:48:43.8                T1.2   A11
NEIC:  OT 12:36:44.0 46N    151E  dep 59km  mb4.5
KURIL ISLANDS
-----

1999-05-28      D 39.5  AZ  4
  GRA1  18:13:20.5  e P      Z      mb4.0
  BEAM  18:13:20.5                T1.1   A5
  GRA1  18:27:58.3  e L      Z      T21.4  A68   MS3.4
-----

1999-05-28      D 77.0
  GRA1  20:02:30.4  i P      c Z     mb5.0
  BEAM  20:02:30.4                T1.2   A15
  GRA1  20:40:58.1  e L      Z      T19.4  A71   MS4.0
-----

1999-05-28      D 78.0  AZ 86
  GRA1  23:04:12.4  e P      Z      mb4.8
  BEAM  23:04:12.4                T1.4   A12
  GRA1  23:04:19.9  e pP     Z
  GRA1  23:38:22.6  e L      Z      T21.0  A65   MS3.9
SZGRF: OT 22:52:16.3 12N    96E   dep 26km
ANDAMAN ISLANDS REGION
-----

1999-05-29      D 49.4
  GRA1  06:11:53.7  e P      Z      mb4.5

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BEAM 06:11:53.7 T1.1 A6  
 GRA1 06:11:57.6 e Z  
 GRA1 06:12:01.7 e Z  
 GRA1 06:30:39.3 e L Z T21.3 A74 MS3.7

-----  
 1999-05-29 D149.3

GRA1 12:06:09.7 e PKPdf Z  
 GRA1 12:06:12.6 e PKPbc Z  
 GRA1 12:06:20.2 e PKPab Z

-----  
 1999-05-29

GRA1 12:59:56.5 e PKPdf Z  
 GRA1 13:00:14.1 e (pPKPdf) Z

-----  
 1999-05-29 D 38.8

GRA1 13:38:42.0 e P Z mb4.3  
 BEAM 13:38:42.0 T1.5 A12  
 GRA1 13:38:49.2 e pP Z

-----  
 1999-05-29 D 35.6

GRA1 14:18:50.7 e P Z mb4.1  
 BEAM 14:18:50.7 T0.7 A2  
 GRA1 14:35:19.9 e L Z T19.1 A143 MS3.8  
 NEIC: OT 14:11:49.7 37N 57E dep 33km mb4.5  
 NORTHERN IRAN

-----  
 1999-05-29 D169.1

GRA1 17:00:47.4 e PKPab Z

-----  
 1999-05-29 D 61.4

GRA1 20:20:59.7 e P Z mb5.0  
 ALIGN 20:20:59.7 T1.2 A33  
 GRA1 20:23:17.2 e Z  
 GRA1 20:47:53.8 e L Z T21.1 A784 MS4.8  
 NEIC: OT 20:10:44.9 33N 94E dep 33km mb5.2  
 XIZANG

-----  
 1999-05-29 D 86.1

GRA1 22:26:52.3 e P Z mb4.5  
 BEAM 22:26:52.3 T0.9 A4  
 GRA1 22:27:02.1 e pP Z

-----  
 1999-05-30 D 37.3 AZ106

GRA1 00:22:44.7 e P Z mb4.3  
 BEAM 00:22:44.7 T0.9 A5  
 GRA1 00:39:59.4 e L Z T18.6 A137 MS3.8  
 SZGRF: OT 00:15:36.2 30N 53E dep 33km  
 IRAN

-----  
 1999-05-30 D101.1  
 GRA1 01:00:22.1 e PP Z  
 GRA1 01:45:31.0 e L Z T20.5 A78  
 NEIC: OT 00:42:27.7 19N 146E dep 33km mb4.8  
 MARIANA ISLANDS REGION

-----  
 1999-05-30 D124.6  
 GRA1 05:00:32.4 e PKPdf Z  
 NEIC: OT 04:41:33.4 5S 152E dep 33km mb5.0  
 NEW BRITAIN REGION, P.N.G.

-----  
 1999-05-30 D151.0  
 GRA1 10:12:28.9 e PKPdf Z  
 GRA1 10:12:40.1 e PKPab Z

-----  
 1999-05-30 D 74.7  
 GRA1 12:08:28.7 e P Z mb4.7  
 BEAM 12:08:28.7 T1.1 A8  
 GRA1 12:28:37.7 e L Z T20.3 A82 MS4.0

-----  
 1999-05-30 D 84.9  
 GRA1 13:29:46.1 e P Z mb4.5  
 BEAM 13:29:46.1 T1.0 A3

-----  
 1999-05-30 D153.2  
 GRA1 14:49:12.8 e (PKPdf) Z  
 GRA1 14:49:20.6 i PKPbc d Z  
 GRA1 14:49:34.6 e PKPab Z

-----  
 1999-05-30  
 GRA1 15:57:20.4 i PKPdf d Z

-----  
 1999-05-30 D 55.4  
 GRA1 16:06:20.7 i P d Z mb5.4  
 BEAM 16:06:20.7 T1.3 A53  
 GRA1 16:13:32.7 e (S) Z  
 GRA1 16:32:03.0 e L Z T20.5 A1288  
 NEIC: OT 15:56:45.4 56N 110E dep 10km mb5.4

## LAKE BAYKAL REGION, RUSSIA

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-----
1999-05-30      D165.4
  GRA1 19:19:48.2 e PKPdf  Z
  GRA1 19:20:44.6 e PKPab  Z
NEIC:  OT 19:00:29.9 16S  175W  dep185km  mb4.7
  TONGA ISLANDS

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1999-05-31      D 79.4
  GRA1 03:34:59.3 e P      Z      mb4.3
  BEAM 03:34:59.3      T0.9  A3

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-----
1999-05-31      D150.5
  GRA1 04:16:20.0 e PKPbc  Z
  GRA1 04:16:29.9 e PKPab  Z
NEIC:  OT 19:34:50.5 56N  110E  dep 10km  mb4.5
  LAKE BAYKAL REGION, RUSSIA

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-----
1999-05-31      D 55.5
  GRA1 19:44:25.7 e P      Z      mb5.1
  ALIGN 19:44:25.7      T1.9  A39
  GRA1 20:10:09.9 e L      Z  T18.8  A831  MS4.8

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-----
1999-05-31      D 69.5  AZ 72
  GRA1 20:10:15.8 i P      d Z      mb5.3
  BEAM 20:10:15.8      T1.1  A27
  GRA1 20:44:04.0 e L      Z  T19.3  A174  MS4.3
NEIC:  OT 19:59:24.1 29N   99E  dep 33km  mb4.9
  XIZANG

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1999-05-31      D 4.9  548km
  GRA1 23:19:55.1 e Sg     E      M13.3
SZGRF: OT 23:17:18.8 50N   19E  dep 1km
  POLAND
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