

MONTHLY TELESEISMIC BULLETIN of SZGRF-ERLANGEN - April 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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1999-04-01      D 39.5  AZ   6
  GRA1 10:50:54.3 i P      Z  T1.6  A47      mb4.9
  GRA1 10:51:01.5 e pP     Z
  GRA1 11:09:23.7 e L      Z  T26.2 A1268    MS4.6
SZGRF: OT 10:43:28.0 86N   85E  dep 27km
  NORTH OF SEVERNAYA ZEMLYA
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1999-04-01      D 39.6  AZ   6
  GRA1 10:55:26.4 i P      Z  T1.1  A52      mb5.1
  GRA1 10:55:33.1 e pP     Z
  GRA1 10:55:38.5 e sP     Z
SZGRF: OT 10:47:59.5 86N   86E  dep 28km
  NORTH OF SEVERNAYA ZEMLYA
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1999-04-01
  GRA1 22:41:04.8 e L      E  T20.9 A3502
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1999-04-01
  GRA1 22:05:03.8 e (P)    Z
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1999-04-01
  GRA1 22:09:00.5 e (P)    Z
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1999-04-02      D 54.3
  GRA1 16:49:07.5 e P      Z  T2.0  A57      mb5.2
  GRA1 17:14:51.8 e L      Z  T18.9 A361    MS4.5
SZGRF: OT 16:39:46.0 57N  110E  dep 33km
  LAKE BAIKAL REGION
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1999-04-02

GRA1 17:25:25.6 e PKP Z
GRA1 18:34:14.9 e L Z T19.8 A2702

NEIC: OT 17:05:50.2 20S 168E dep 33km mb6.1
VANUATU ISLANDS

1999-04-02

GRA1 17:39:46.4 e (P) Z

1999-04-02

GRA1 18:57:54.1 e PKP Z
NEIC: OT 18:38:20.2 20S 168E dep 33km mb5.4
VANUATU ISLANDS REGION

1999-04-02

GRA1 20:15:48.1 e PKP Z
GRA1 20:16:00.1 e Z
NEIC: OT 19:56:14.1 20S 168E dep 33km mb5.1
LOYALTY ISLANDS

1999-04-02

GRA1 20:36:11.5 e PKP Z
GRA1 20:36:22.7 e Z
NEIC: OT 20:16:35.7 20S 168E dep 33km mb4.7
LOYALTY ISLANDS

1999-04-02 D103.5

GRA1 21:51:26.3 e Pdiff Z
GRA1 21:55:43.1 e PP Z
NEIC: OT 21:37:40.9 N 122E dep138km mb5.4
MINAHASSA PENINSULA, SULAWESI

1999-04-03 D 86.6 AZ286

GRA1 04:35:04.1 e P Z T1.1 A20 mb5.2
SZGRF: OT 04:22:24.4 13N 89W dep 33km
EL SALVADOR

1999-04-03 D 97.0 AZ255

GRA1 06:30:49.1 e P Z T1.0 A62 mb6.2
GRA1 06:31:12.2 e pP Z
GRA1 06:34:48.4 e PP Z
GRA1 06:41:16.2 e SKSac E
GRA1 06:43:27.6 e SP Z
GRA1 07:11:35.2 e L Z T21.7 A16342 MS6.5
SZGRF: OT 06:17:19.9 15S 72W dep 86km
SOUTHERN PERU

1999-04-03 D 86.6 AZ286

GRA1 10:23:07.3 e P Z T1.5 A142 mb5.9
GRA1 10:33:36.1 e S E
GRA1 10:57:10.9 e L Z T19.7 A6058 MS6.0
SZGRF: OT 10:10:27.6 13N 89W dep 33km
EL SALVADOR

1999-04-04

GRA1 03:59:34.8 e PKP Z

1999-04-04 D 85.1 AZ 58

GRA1 05:11:21.0 e P Z T1.2 A5 mb4.6
SZGRF: OT 04:58:49.0 24N 123E dep 33km
SOUTHWESTERN RYUKYU ISLANDS

1999-04-04

GRA1 07:01:53.1 e PKP Z

1999-04-04 D 89.0 AZ295

GRA1 10:49:55.5 e P Z T1.4 A22 mb5.2
GRA1 10:53:25.4 e PP Z
GRA1 11:00:31.7 e S E
GRA1 11:06:46.2 e SS E
GRA1 11:27:31.4 e L Z T21.9 A433 MS4.8
SZGRF: OT 10:37:04.3 17N 97W dep 33km
OAXACA, MEXICO

1999-04-04 D 52.3

GRA1 17:59:00.0 e P Z T0.9 A9 mb4.7
SZGRF: OT 17:49:50.7 S 31E dep 33km
UGANDA

1999-04-04

GRA1 20:52:52.4 e PKP Z
GRA1 20:54:23.2 e Z
NEIC: OT 20:33:45.8 19S 178W dep362km mb4.8
FIJI ISLANDS REGION

1999-04-05

GRA1 00:37:25.9 e PKP Z
NEIC: OT 00:18:28.5 15S 176W dep350km mb4.6
FIJI ISLANDS REGION

1999-04-05 D 8.6

GRC1 07:54:00.7 e Pn Z
GRA1 07:54:13.5 e Pn Z
GRA1 07:55:49.6 e Sn N
SZGRF: OT 07:51:59.3 41N 16E dep 10km

SOUTHERN ITALY

1999-04-05

GRA1 08:05:33.8 e (P) Z

1999-04-05

D 39.5 AZ 6

GRA1 08:16:08.1 e P Z T1.2 A36 mb4.9

SZGRF: OT 08:08:41.9 86N 85E dep 33km

NORTH OF SEVERNAYA ZEMLYA

1999-04-05

D 79.5 AZ 36

GRA1 10:40:00.1 e P Z T1.1 A7 mb4.6

SZGRF: OT 10:27:58.2 41N 141E dep 33km

HOKKAIDO, JAPAN REGION

1999-04-05

D123.7

GRA1 11:26:49.8 e PKPdf Z

GRA1 11:28:34.9 e PP Z

GRA1 11:31:16.0 e Z

GRA1 11:36:35.6 e Z

GRA1 11:38:35.8 e PS E

GRA1 11:45:20.6 e SS N

GRA1 12:17:06.7 e L Z T29.0 A67378 MS7.1

NEIC: OT 11:08:04.0 6S 150E dep150km mb6.2

NEW BRITAIN REGION, P.N.G.

1999-04-05

GRA1 14:44:46.0 e PKP Z

1999-04-05

D 80.5 AZ 28

GRA1 18:19:45.9 e P Z T0.8 A5 mb4.6

GRA1 18:19:57.2 e Z

SZGRF: OT 18:07:38.4 44N 151E dep 33km

KURIL ISLANDS REGION

1999-04-05

GRA1 19:21:12.4 e PKP Z

1999-04-05

D 67.4

GRA1 22:43:43.0 e P Z T1.2 A55 mb5.7

GRA1 22:43:59.8 e Z

SZGRF: OT 22:32:51.3 24N 94E dep 33km

BURMA-INDIA BORDER REGION

1999-04-06

D 21.9

GRA1 00:13:16.3 i P c Z T1.2 A306 mb5.6

GRA1 00:17:16.1 e S N
GRA1 00:23:06.7 e L Z T18.5 A1659 MS4.5
NEIC: OT 00:08:26.1 39N 38E dep 33km mb5.1
TURKEY

1999-04-06

GRA1 00:52:51.8 e PKP Z
GRA1 00:53:03.4 e Z

1999-04-06 D 65.0 AZ148

GRA1 04:27:13.2 e P Z T1.0 A15 mb5.2
GRA1 04:27:18.3 e pP Z
SZGRF: OT 04:16:34.7 10S 41E dep 18km
TANZANIA

1999-04-06 D 50.8 AZ262

GRA1 05:00:07.8 e P Z T1.8 A114 mb5.5
GRA1 05:07:28.2 e S E
GRA1 05:16:31.5 e L Z T25.1 A3882 MS5.3
SZGRF: OT 04:51:10.7 24N 46W dep 33km
NORTH ATLANTIC RIDGE

1999-04-06

GRA1 05:36:23.5 e PKP Z
NEIC: OT 05:16:31.4 21S 174W dep 33km mb4.7
TONGA ISLANDS

1999-04-06 D123.3

GRA1 08:41:10.1 e PKP Z
GRA1 08:42:55.3 e PP Z
GRA1 08:50:44.5 e Sdiff N
GRA1 08:52:47.1 e PS E
GRA1 08:59:32.1 e SS N
GRA1 09:36:26.8 e L Z T22.0 A9606 MS6.4
NEIC: OT 08:22:14.1 7S 147E dep 33km mb5.8
EASTERN NEW GUINEA REG., P.N.G.

1999-04-06 D 39.5 AZ 6

GRA1 10:12:57.8 e P Z T1.2 A23 mb4.7
SZGRF: OT 10:05:31.4 86N 85E dep 33km
NORTH OF SEVERNAYA ZEMLYA

1999-04-06

GRA1 11:45:16.8 e PKP Z

1999-04-06 D 53.5 AZ 84

GRA1 19:46:49.1 e P Z T1.0 A21 mb5.0

SZGRF: OT 19:37:32.6 31N 79E dep 33km
TIBET-INDIA BORDER REGION

1999-04-06 D 53.9 AZ 86
GRA1 20:56:05.7 e P Z mb4.5
BEAM 20:56:05.7 T0.9 A5
SZGRF: OT 20:46:46.2 29N 78E dep 33km

NORTHERN INDIA

1999-04-07 D 54.7
GRA1 04:27:54.1 e P Z T2.1 A55
SZGRF: OT 04:18:29.6 56N 110E dep 33km

LAKE BAIKAL REGION

1999-04-07 D 76.2
GRA1 06:54:24.7 e P Z T0.7 A6 mb4.9
GRA1 06:54:32.7 e pP Z
SZGRF: OT 06:42:39.9 13N 95E dep 27km

ANDAMAN ISLANDS REGION

1999-04-07 D 51.8
GRB3 15:58:35.7 e P Z T1.0 A24 mb5.1
GRA1 15:58:38.3 e P Z T1.5 A29 mb5.0
SZGRF: OT 15:49:32.2 32N 79E dep 33km

KASHMIR-TIBET BORDER REGION

1999-04-08 D 17.3
GRB5 00:16:56.6 e P Z
GRA1 00:17:02.3 e P Z T0.8 A11 mb4.0
SZGRF: OT 00:12:55.4 37N 28E dep 33km

DODECANESE ISLANDS

1999-04-08 D 75.5 AZ 40
GRA1 13:21:08.4 i P d Z T0.8 A6371 mb7.8
GRA1 13:23:05.3 e pP Z
GRA1 13:24:05.0 e PP Z
GRA1 13:29:49.6 e S E
GRA1 13:48:32.2 e PKPPKP Z
GRA1 13:51:18.7 e Z
SZGRF: OT 13:09:25.4 42N 134E dep563km

SEA OF JAPAN

1999-04-08
GRA1 16:22:42.0 e PKP Z

1999-04-08
GRA1 21:10:33.2 e PKP Z
GRA1 21:10:43.2 e Z

1999-04-09

GRA1 00:25:37.9 e PKP Z

1999-04-09

D 39.5 AZ 6

GRA1 01:13:31.8 e P Z T1.5 A38 mb4.8

GRA1 01:13:40.9 e Z

SZGRF: OT 01:06:05.5 86N 85E dep 33km

NORTH OF SEVERNAYA ZEMLYA

1999-04-09

GRA1 02:25:04.3 e PKP Z

NEIC: OT 02:06:10.8 20S 178W dep500km mb4.2

FIJI ISLANDS REGION

1999-04-09

D155.3

GRA1 12:34:44.5 e PKPdf Z

GRA1 12:35:13.7 e PKPab Z

NEIC: OT 12:16:02.0 26S 178E dep621km mb5.5

SOUTH OF FIJI ISLANDS

1999-04-10

GRB5 09:26:12.1 e PKP Z

NEIC: OT 09:07:31.7 18S 179W dep600km mb4.4

FIJI ISLANDS REGION

1999-04-10

D 76.2

GRA1 15:28:45.9 e P Z T1.3 A17 mb5.0

1999-04-10

GRA1 18:25:56.6 e PKP Z

GRA1 18:26:04.8 e Z

NEIC: OT 18:06:51.5 21S 178W dep400km mb3.9

FIJI ISLANDS REGION

1999-04-11

GRA1 07:00:33.7 e P Z

1999-04-11

GRB5 07:02:42.0 e PKP Z

1999-04-11

GRA1 11:00:47.7 e (P) Z

1999-04-11 D 39.6 AZ 6
GRA1 12:00:19.1 e P Z T1.4 A16 mb4.5
GRA1 12:00:26.6 e pP Z
SZGRF: OT 11:52:52.3 86N 86E dep 28km
NORTH OF SEVERNAYA ZEMLYA

1999-04-11 D123.7
GRA1 17:09:31.8 e PKP Z
GRA1 17:09:47.2 e Z
GRA1 17:11:16.0 e PP Z
GRA1 17:21:11.1 e PS E
GRA1 17:28:18.7 e SS N
GRA1 18:03:23.1 e L Z T22.0 A2640 MS5.9
NEIC: OT 16:50:36.4 6S 148E dep 33km mb5.6
NEW BRITAIN REGION, P.N.G.

1999-04-11
GRA1 17:19:21.2 e PKP Z

1999-04-12 AZ 37
GRA1 00:35:01.8 e P Z
GRA1 00:35:13.8 e Z

1999-04-12
GRA1 01:02:05.2 e PKP Z

1999-04-12 D145.3
GRA1 10:00:52.5 e PKP Z
GRA1 11:08:28.4 e L Z T20.6 A773 MS5.5
NEIC: OT 09:41:12.2 20S 169E dep 14km mb5.5
LOYALTY ISLANDS

1999-04-13 D 22.8
GRA1 02:14:35.9 e P Z T1.9 A76 mb4.9
GRA1 02:14:41.4 e pP Z
GRA1 02:24:47.0 e L Z T16.7 A654 MS4.1
SZGRF: OT 02:09:36.1 72N 8E dep 23km
NORWEGIAN SEA

1999-04-13 D151.1
GRA1 10:58:17.6 e PKPdf Z
GRA1 10:58:24.9 e PKPbc Z
GRA1 10:58:33.0 e pPKPdf Z
GRA1 10:59:07.9 e pPKPbc Z
GRA1 11:01:58.1 e PP Z


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GRA1 11:08:38.8 e SKKSac N
GRA1 11:20:58.9 e SS E
GRA1 11:22:02.2 e SKSSKS E
SZGRF: OT 10:38:47.0 21S 177W dep105km
TONGA ISLANDS REGION
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1999-04-13 D 74.3
GRA1 20:16:06.1 e P Z T1.1 A26 mb5.2
SZGRF: OT 20:04:33.7 56N 161W dep 33km
ALASKA PENINSULA
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1999-04-13 D 3.7 407km
GRA1 21:25:05.9 e Pn Z M13.6
GRA1 21:26:05.1 e Sg E
SZGRF: OT 21:24:08.5 52N 16E dep 1km
POLAND
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1999-04-14 D 80.2
GRA1 07:37:03.6 e P Z T1.3 A14 mb4.7
SZGRF: OT 07:24:56.1 7N 72W dep 33km
VENEZUELA
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1999-04-14 D 45.1
GRA1 17:33:54.4 e P Z
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1999-04-15 D 15.0 AZ149
GRA1 00:38:21.4 e P Z
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1999-04-15 D 25.2
GRA1 11:22:16.5 e P Z mb4.3
BEAM 11:22:16.5 T1.3 A9
GRA1 11:32:17.1 e L Z T21.9 A147 MS3.5
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1999-04-15 D123.0
GRA1 14:13:40.4 e PKPdf Z
GRA1 14:13:47.3 e pPKPdf Z
GRA1 15:09:17.3 e L Z T21.1 A1034 MS5.5
NEIC: OT 13:54:45.4 6S 147E dep 48km mb5.2
EASTERN NEW GUINEA REG., P.N.G.
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1999-04-15 D 3.3 362km
GRA1 17:20:53.0 e Pn Z
GRA1 17:21:40.8 e Sg Z
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1999-04-15 D 4.5 503km

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GRA1 20:00:28.6 e Pn Z M14.1
 GRA1 20:01:45.1 e Sg N
 SZGRF: OT 19:59:21.1 50N 18E dep 10km
 CZECHOSLOVAKIA

 1999-04-16

GRA1 03:02:06.8 e PKPdf Z

 1999-04-16 D127.9

GRA1 11:08:07.2 e PKPdf Z
 GRA1 12:07:00.6 e L Z T20.7 A400 MS5.1
 NEIC: OT 10:49:03.3 9S 151E dep 33km mb5.1
 EASTERN NEW GUINEA REG., P.N.G.

 1999-04-16 D143.2

GRA1 13:33:19.8 e PKPdf Z
 GRA1 13:33:31.6 e pPKPdf Z

 1999-04-16 D159.5

GRA1 15:40:04.8 e PKPab Z
 GRA1 15:40:08.3 e pPKPab Z
 GRA1 16:46:51.7 e L Z T21.4 A113 MS4.7
 NEIC: OT 15:19:59.2 31S 179W dep300km mb4.9
 KERMADEC ISLANDS, NEW ZEALAND

 1999-04-16 D 45.3

GRA1 22:19:41.4 e P Z mb4.3
 BEAM 22:19:41.4 T1.1 A5

 1999-04-17 D110.7

GRA1 01:10:41.0 e Pdiff Z
 GRA1 01:15:36.6 e PP Z
 GRA1 01:21:43.8 e SKS R
 GRA1 01:25:02.0 e (PS) R
 GRA1 01:30:59.5 e SS T
 GRA1 01:42:15.9 e T
 GRA1 01:59:37.6 e L T T18.4 A499 MS5.1
 NEIC: OT 00:56:25.0 19N 155W dep 11km mb5.6
 HAWAII

 1999-04-17 D145.6

GRA1 03:39:13.0 e PKPdf Z

 1999-04-17 D 15.7

GRA1 05:56:09.4 e P Z

GRA1 06:03:38.0 e L Z T19.1 A488 MS3.7

 1999-04-17 D 46.4
 GRA1 07:29:10.3 e P Z mb5.1
 ALIGN 07:29:10.3 T1.0 A18
 GRA1 07:29:15.2 e (pP) Z
 GRA1 07:29:58.5 e Z
 NEIC: OT 07:20:54.5 38N 75E dep131km mb5.0
 SOUTHERN XINJIANG, CHINA

 1999-04-17 D 15.8
 GRA1 08:21:35.8 e P Z
 GRA1 08:21:41.3 e Z
 GRA1 08:24:31.8 e (S) Z
 GRA1 08:29:04.8 e L Z T18.9 A11136 MS5.1

 1999-04-17
 GRA1 15:45:28.5 e P Z

 1999-04-17 D 3.7 407km
 GRA1 19:46:33.8 e Pn Z M14.0
 GRA1 19:47:32.6 e Sg N
 SZGRF: OT 19:45:35.8 52N 16E dep 1km
 POLAND

 1999-04-17 D148.2
 GRA1 23:44:59.3 e PKPbc Z
 GRA1 23:45:02.5 e PKPab Z

 1999-04-18 D 15.7
 GRA1 05:58:40.4 e P Z
 GRA1 06:06:09.0 e L Z T19.4 A496 MS3.7
 NEIC: OT 05:55:00.1 36N 22E dep 50km mb4.6
 SOUTHERN GREECE

 1999-04-18 D 68.1
 GRA1 15:17:00.1 e P d Z mb5.4
 ALIGN 15:17:00.1 T0.8 A20
 GRA1 15:42:49.2 e L Z T18.7 A73 MS3.9
 SZGRF: OT 15:06:05.0 61N 150W dep 33km
 SOUTHERN ALASKA

 1999-04-18 D 54.1 AZ 84
 GRA1 17:26:02.5 i P c Z mb5.0
 ALIGN 17:26:02.5 T1.0 A17

GRA1 17:26:06.7 e pP Z
NEIC: OT 17:16:36.3 30N 79E dep 10km mb4.9
XIZANG-INDIA BORDER REGION

1999-04-18 D 81.3 AZ 36
GRA1 18:56:31.7 i P c Z mb4.8
ALIGN 18:56:31.7 T1.1 A11

1999-04-18 D 82.6
GRA1 20:53:34.3 e P Z mb4.8
BEAM 20:53:34.3 T1.1 A7

1999-04-18 D 83.0 AZ 39
GRA1 23:26:40.7 i P c Z mb5.1
ALIGN 23:26:40.7 T1.0 A14
GRA1 23:27:11.9 e pP Z
SZGRF: OT 23:14:30.8 36N 140E dep123km
HONSHU, JAPAN

1999-04-19 D 75.7 AZ 23
GRA1 09:24:20.1 i P c Z mb5.7
ALIGN 09:24:20.1 T1.5 A96
GRA1 09:24:25.3 e Z
NEIC: OT 09:12:47.5 51N 156E dep118km mb5.4
KURIL ISLANDS

1999-04-19 D145.5
GRA1 09:58:16.3 e PKPpdf Z
GRA1 09:58:26.4 e (pPKPpdf) Z
NEIC: OT 09:38:37.5 21S 169E dep 37km
LOYALTY ISLANDS

1999-04-19 D145.8
GRA1 10:34:17.5 e PKPpdf Z
GRA1 10:34:25.1 e PKPbc Z
GRA1 10:34:28.5 e PKPab Z
GRA1 10:34:39.5 e (pPKPpdf) Z
GRA1 11:51:44.9 e L Z T19.0 A346 MS5.2

1999-04-19 D145.4
GRA1 14:46:15.9 e PKPpdf Z

1999-04-20 D150.2
GRA1 02:04:54.9 e PKPpdf Z
GRA1 02:04:59.7 e PKPbc Z

GRA1 02:05:04.6 e PKPab Z
GRA1 02:07:12.4 e pPKPbc Z

1999-04-20 D163.3
GRA1 06:35:49.8 e PKPab Z
GRA1 06:36:47.9 e pPKPab Z
NEIC: OT 06:15:21.9 36S 178E dep226km mb5.3
OFF E. COAST OF N. ISLAND, N.Z.

1999-04-20 D 13.7
GRA1 16:04:26.3 e P Z
GRA1 16:11:14.9 e L Z T21.1 A455 MS3.5
NEIC: OT 16:01:13.9 40N 24E dep 23km mb4.5
AEGEAN SEA

1999-04-20 D 47.4
GRA1 19:21:54.2 e P Z mb5.0
BEAM 19:21:54.2 T2.1 A29
GRA1 19:22:09.2 e pP Z
NEIC: OT 19:13:19.4 13N 48E dep 10km mb4.7
EASTERN GULF OF ADEN

1999-04-20 D160.6
GRA1 19:23:56.8 e PKPdf Z
GRA1 19:24:11.4 e Z
GRA1 19:24:22.9 e pPKPdf Z
GRA1 19:24:34.5 e sPKPdf Z
GRA1 19:24:38.2 e PKPab Z
GRA1 19:25:02.8 e pPKPab Z
GRA1 19:28:21.7 e PP Z
GRA1 20:38:57.1 e L Z T22.0 A2481 MS6.0
NEIC: OT 19:04:08.6 32S 179W dep 96km mb6.2
KERMADEC ISLANDS REGION

1999-04-21 D 74.2
GRA1 08:35:48.2 i P c Z mb5.1
ALIGN 08:35:48.2 T0.8 A15

1999-04-21 D159.6
GRA1 11:28:36.0 e PKPab Z
NEIC: OT 11:08:25.2 30S 178W dep209km mb4.8
KERMADEC ISLANDS, NEW ZEALAND

1999-04-21 D 39.8
GRA1 16:52:07.0 e P Z mb4.4
BEAM 16:52:07.0 T1.8 A17
GRA1 17:07:09.0 e L Z T21.1 A121 MS3.7

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1999-04-22      D 87.2  AZ 90
  GRA1 07:03:18.5 e P      Z      mb4.8
  BEAM 07:03:18.5          T0.9  A7
SZGRF: OT 06:50:35.1 2N   100E  dep 33km
  NORTHERN SUMATERA
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1999-04-22      D 4.5  504km
  GRA1 08:36:34.0 e Pn     Z      M13.8
  GRA1 08:36:49.4 e Pg     Z
  GRA1 08:37:51.2 e Sg     Z
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1999-04-22      D 79.6  AZ167
  GRA1 22:31:41.1 i P      d Z   T1.2  A191  mb5.9
  GRA1 22:34:17.4 e          Z
  GRA1 22:34:31.6 e PP     Z
SZGRF: OT 22:19:35.0 29S   26E   dep 33km
  REPUBLIC OF SOUTH AFRICA
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1999-04-23      D 92.4  AZ302
  GRA1 09:12:06.5 i P      d Z      mb5.2
  ALIGN 09:12:06.5          T1.4  A16
  GRA1 09:12:15.9 e pP     Z
  GRA1 09:12:20.3 e sP     Z
  GRA1 09:52:47.4 e L      Z   T21.2  A262  MS4.7
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1999-04-23      D125.0
  GRA1 10:17:05.5 e PKPdf  Z
  GRA1 11:12:26.6 e L      Z   T20.7  A195  MS4.8
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1999-04-23      D 79.4
  GRA1 14:03:49.6 i P      d Z      mb4.6
  BEAM 14:03:49.6          T0.9  A6
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1999-04-23      D147.5
  GRA1 16:01:13.0 e PKPbc  Z
  GRA1 16:01:18.8 e PKPab  Z
  GRA1 16:01:28.5 e (pPKPbc) Z
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1999-04-23      D 19.7
  GRA1 18:24:14.0 e P      Z      mb4.7
  ALIGN 18:24:14.0          T1.0  A54
  GRA1 18:27:53.1 e (S)    Z
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GRA1 18:32:10.1 e L Z T20.4 A236 MS3.5

1999-04-23 D105.6

GRA1 19:10:39.8 e Pdiff Z

GRA1 19:14:50.6 e PP Z

GRA1 20:06:55.4 e L Z T18.7 A2385 MS5.8

NEIC: OT 18:56:28.5 13N 145E dep 65km mb5.5

MARIANA ISLANDS

1999-04-23 D 83.4

GRA1 20:51:37.9 i P c Z mb5.1

ALIGN 20:51:37.9 T1.0 A12

1999-04-23 D 71.2

GRA1 22:29:44.2 e P Z mb4.8

BEAM 22:29:44.2 T1.1 A8

1999-04-24 D148.0

GRA1 09:03:57.5 e PKPdf Z

GRA1 09:03:58.7 i PKPbc c Z

GRA1 09:04:02.2 e PKPab Z

GRA1 09:06:15.3 e pPKPbc Z

1999-04-24 D 94.0

GRA1 15:55:14.9 e P Z T1.6 A24 mb5.3

GRA1 15:55:31.9 e pP Z

NEIC: OT 15:41:58.3 4S 102E dep 33km mb5.2

SOUTHERN SUMATERA, INDONESIA

1999-04-25 D 39.3 AZ 6

GRA1 00:02:21.3 e P Z mb4.3

BEAM 00:02:21.3 T1.3 A10

GRA1 00:02:27.9 e pP Z

NEIC: OT 23:54:48.3 86N 86E dep 10km mb4.1

NORTH OF SEVERNAYA Z EMLYA

1999-04-25 D 83.6 AZ 90

GRA1 01:31:52.1 i P c Z mb5.2

ALIGN 01:31:52.1 T1.1 A16

GRA1 01:32:13.3 e pP Z

SZGRF: OT 01:19:32.6 5N 97E dep 79km

NORTHERN SUMATERA

1999-04-25 D 84.4 AZ 38

GRA1 09:25:33.1 i P d Z mb5.0

ALIGN 09:25:33.1 T1.0 A11
 SZGRF: OT 09:13:05.4 36N 142E dep 33km
 NEAR EAST COAST OF HONSHU, JAPAN

 1999-04-25 D 3.5 394km
 GRA1 09:52:23.6 e Pn Z M13.7
 GRA1 09:53:04.7 e Sn N
 GRA1 09:53:21.6 e Sg E
 SZGRF: OT 09:51:28.5 46N 13E dep 10km
 NORTHERN ITALY

 1999-04-25 D 24.9 AZ134
 GRA1 12:37:19.7 e P Z mb3.8
 BEAM 12:37:19.7 T1.1 A2

 1999-04-25 D 82.2 AZ 39
 GRA1 12:39:24.9 i P c Z mb6.0
 ALIGN 12:39:24.9 T0.9 A105
 GRA1 12:39:54.3 e (pP) Z
 GRA1 13:18:10.2 e L Z T20.9 A144 MS4.3
 SZGRF: OT 12:27:18.5 37N 140E dep115km
 HONSHU, JAPAN

 1999-04-25 D 78.2 AZ126
 GRA1 22:09:52.7 i P c Z mb4.9
 ALIGN 22:09:52.7 T1.2 A13
 GRA1 22:09:58.8 e (pP) Z
 SZGRF: OT 21:57:53.3 13S 66E dep 21km
 MID-INDIAN RISE

 1999-04-26 D 90.5 AZ 59
 GRA1 01:15:41.2 e P Z mb4.7
 BEAM 01:15:41.2 T1.5 A7
 GRA1 01:16:07.7 e (pP) Z
 NEIC: OT 01:02:43.4 17N 121E dep 33km mb4.8
 LUZON, PHILIPPINE ISLANDS

 1999-04-26 D 15.0 AZ169
 GRA1 01:54:58.0 e P Z

 1999-04-26 D 3.8 421km
 GRA1 02:54:45.8 e Pn Z M13.7
 GRA1 02:55:47.2 e Sg N
 SZGRF: OT 02:53:47.2 46N 11E dep 10km
 NORTHERN ITALY

 1999-04-26 D 73.7

GRA1 07:18:21.9 e P Z mb4.6
 BEAM 07:18:21.9 T1.3 A7

 1999-04-26 D 3.6 402km
 GRA1 11:44:04.6 e Pn Z M13.8
 GRA1 11:45:04.0 e Sg N
 SZGRF: OT 11:43:08.7 51N 16E dep 1km
 POLAND

 1999-04-26 D 79.1 AZ201
 GRA1 12:22:14.6 i P d Z mb4.8
 BEAM 12:22:14.6 T1.1 A10
 GRA1 12:54:34.8 e L Z T21.7 A237 MS4.5
 SZGRF: OT 12:10:11.5 27S 12W dep 33km
 SOUTH ATLANTIC RIDGE

 1999-04-26 D 38.7 AZ 6
 GRA1 13:27:40.7 e P Z mb5.5
 ALIGN 13:27:40.7 T2.5 A281
 GRA1 13:27:47.6 e pP Z
 GRA1 13:27:52.7 e sP Z
 GRA1 13:29:20.2 e PP Z
 GRA1 13:33:41.6 e S Z
 GRA1 13:41:37.5 e L Z T26.7 A1124 MS4.6
 NEIC: OT 13:20:07.5 86N 85E dep 10km mb5.2
 NORTH OF SEVERNAYA Z EMLYA

 1999-04-26 D 90.2 AZ269
 GRA1 18:30:09.7 i P c Z mb6.1
 ALIGN 18:30:09.7 T1.5 A172
 GRA1 18:30:54.1 i pP d Z
 GRA1 18:34:25.2 e PP Z
 GRA1 18:40:28.8 e SKS Z
 GRA1 18:40:54.9 e (S) Z
 GRA1 19:05:01.7 e L Z T21.1 A878 MS5.2
 SZGRF: OT 18:17:29.6 1S 78W dep178km
 ECUADOR

 1999-04-27 D 3.6 404km
 GRA1 00:15:54.0 e Pn Z M13.4
 GRA1 00:16:51.4 e Sg E
 SZGRF: OT 00:14:56.2 51N 16E dep 1km
 POLAND

 1999-04-27 D146.5
 GRA1 03:26:09.4 e PKPdf Z

1999-04-27 D 85.0 AZ 38
GRA1 03:38:01.8 i P c Z mb5.0
ALIGN 03:38:01.8 T0.9 A8

1999-04-27 D125.9
GRA1 04:36:45.3 e PKPbc Z
GRA1 04:37:07.7 e PKPab Z
GRA1 05:29:44.4 e L Z T20.4 A155 MS4.7
NEIC: OT 04:17:31.6 5S 154E dep 61km mb5.3
NEW IRELAND REGION, P.N.G.

1999-04-27 D145.5
GRA1 17:12:33.3 e PKPdf Z

1999-04-28 D132.6
GRA1 06:54:12.0 e PKPdf Z
GRA1 07:43:35.0 e L Z T20.2 A74 MS4.4
NEIC: OT 06:34:55.6 35S 106W dep 10km mb5.2
SOUTHERN EAST PACIFIC RISE

1999-04-28 D 89.9
GRA1 08:10:55.5 e P Z

1999-04-28 D 11.0
GRA1 08:50:28.8 e P Z
GRA1 08:54:59.1 e L Z T18.8 A1018 MS3.8

1999-04-28 D151.9
GRA1 09:34:43.3 e PKPbc Z
NEIC: OT 09:14:57.3 22S 176W dep 91km mb4.8
SOUTH OF FIJI ISLANDS

1999-04-28 D 48.0
GRA1 13:09:28.2 i P c Z mb5.3
ALIGN 13:09:28.2 T1.1 A25
GRA1 13:39:10.5 e L Z T21.4 A98 MS3.8

1999-04-28 D 3.7 409km
GRA1 14:23:15.9 e Pn Z M14.2
GRA1 14:24:14.9 e Sg E
SZGRF: OT 14:22:17.8 52N 16E dep 1km
POLAND

1999-04-28 D 39.0
GRA1 18:19:08.3 e P Z T1.2 A21 mb4.6

GRA1 18:40:59.7 e L Z T19.3 A64 MS3.5

 1999-04-28 D 74.9 AZ355
 GRA1 22:21:56.8 i P c Z mb5.3
 ALIGN 22:21:56.8 T1.0 A30
 GRA1 22:22:08.9 e pP Z
 GRA1 22:57:30.0 e L Z T20.0 A206 MS4.4
 NEIC: OT 22:10:04.7 54N 163W dep 26km mb5.1
 UNIMAK ISL REGION

 1999-04-29 D 3.6 399km
 GRA1 00:49:15.8 e Pn Z M13.7
 GRA1 00:50:13.9 e Sg E
 SZGRF: OT 00:48:19.2 51N 16E dep 1km
 POLAND

 1999-04-29 D 85.1 AZ 50
 GRA1 07:58:44.5 e P Z mb6.4
 ALIGN 07:58:44.5 T1.2 A298
 GRA1 07:58:55.7 e pP Z
 GRA1 08:40:34.2 e L Z T20.4 A7402 MS6.1
 SZGRF: OT 07:46:13.7 29N 131E dep 39km
 RYUKYU ISLANDS

 1999-04-29 D 14.1
 GRA1 10:32:35.6 e P Z
 GRA1 10:32:49.9 e Z
 GRA1 10:39:11.8 e L Z T18.7 A340 MS3.5
 NEIC: OT 10:29:20.7 37N 20E dep 36km mb4.7
 IONIAN SEA

 1999-04-29 D 84.8 AZ 50
 GRA1 11:15:11.1 i P d Z mb5.3
 ALIGN 11:15:11.1 T1.1 A19
 GRA1 11:15:20.8 e pP Z
 GRA1 11:56:47.8 e L Z T18.0 A252 MS4.6
 SZGRF: OT 11:02:40.8 29N 131E dep 33km
 RYUKYU ISLANDS

 1999-04-29 D 85.5
 GRA1 12:08:44.8 e P Z mb4.7
 BEAM 12:08:44.8 T1.4 A7

 1999-04-29 D 87.8 AZ 50
 GRA1 14:20:15.4 e P Z mb5.3
 ALIGN 14:20:15.4 T0.9 A13
 GRA1 14:20:26.6 e pP Z

GRA1 14:48:51.1 e L Z T22.0 A206 MS4.5
SZGRF: OT 14:07:31.2 27N 133E dep 38km
EAST OF RYUKYU ISLANDS

1999-04-29 D132.5
GRA1 15:20:35.5 e PKPdf Z
GRA1 16:11:03.2 e L Z T20.8 A217 MS4.8

1999-04-29 D 84.3 AZ 50
GRA1 16:40:00.5 e P Z mb5.1
ALIGN 16:40:00.5 T1.1 A14
GRA1 16:40:10.4 e pP Z
GRA1 17:21:46.8 e L Z T19.9 A146 MS4.4
SZGRF: OT 16:27:33.0 30N 130E dep 34km
RYUKYU ISLANDS

1999-04-29 D 39.4
GRA1 18:02:01.7 e P Z mb4.1
BEAM 18:02:01.7 T1.1 A6
GRA1 18:02:30.7 e Z

1999-04-29 D130.5
GRA1 18:45:55.2 e PKPdf Z
GRA1 18:49:17.2 e PP Z
GRA1 19:39:07.8 e L Z T20.3 A450 MS5.2

1999-04-29 D 85.0
GRA1 20:07:12.9 e P Z mb4.5
ALIGN 20:07:12.9 T0.8 A3
GRA1 20:07:23.7 e pP Z
GRA1 20:48:58.5 e L Z T19.1 A222 MS4.6
NEIC: OT 19:54:35.7 29N 131E dep 33km mb4.8
SOUTHEAST OF RYUKYU ISLANDS

1999-04-29 D148.1
GRA1 20:47:00.9 e PKP Z

1999-04-30 D 8.4
GRA1 03:32:37.6 e Pn Z
GRA1 03:35:59.4 e L Z T21.2 A3115 MS4.0

1999-04-30 D 39.0
GRA1 04:27:26.4 i P c Z mb4.9
BEAM 04:27:26.4 T1.4 A44

GRA1 04:27:43.8 e pP Z
GRA1 04:49:35.1 e L Z T18.3 A361 MS4.2

1999-04-30 D 85.8
GRA1 05:23:45.0 e P Z mb5.3
BEAM 05:23:45.0 T1.0 A28
GRA1 05:23:55.5 e pP Z
GRA1 05:24:00.6 e (sP) Z
GRA1 05:24:16.2 e Z
GRA1 06:05:32.1 e L Z T18.3 A1145 MS5.3
NEIC: OT 05:11:08.6 29N 131E dep 34km mb5.0
SOUTHEAST OF RYUKYU ISLANDS

1999-04-30 D145.0
GRA1 05:47:36.2 e PKP Z
GRA1 05:47:51.2 e pPKP Z

1999-04-30 D 8.2
GRA1 07:43:02.4 e Pn Z
GRA1 07:46:35.0 e L Z T13.0 A721 MS3.6

1999-04-30 D 77.1
GRA1 16:47:23.4 i P c Z mb5.1
BEAM 16:47:23.4 T1.3 A18

1999-04-30
GRA1 21:01:09.2 e Pn Z
