

MONTHLY TELESEISMIC BULLETIN of SZGRF-ERLANGEN - November 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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1999-11-01      D 85.3  AZ 58
  GRA1 08:10:05.9 e P      Z                mb4.8
  BEAM 08:10:05.9                T1.2  A7
  GRA1 08:10:16.7 e pP     Z
NEIC: OT 07:57:32.1 24N 123E dep 33km mb4.8
  TAIWAN REGION
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1999-11-01      D144.4
  GRA1 11:23:57.7 e PKPdf  Z
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1999-11-01      D 68.1  AZ 51
  GRA1 13:36:18.0 i P      c Z                mb5.4
  ALIGN 13:36:18.0                T1.8  A49
  GRA1 14:09:10.7 e L      Z T18.1 A2355  MS5.5
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1999-11-01      D 83.3  AZ 59
  GRA1 18:05:32.5 i P      c Z                mb6.4
  ALIGN 18:05:32.5                T1.1  A278
  GRA1 18:05:39.1 e        Z
  GRA1 18:05:48.0 e pP     Z
  GRA1 18:05:57.5 e sP     Z
  GRA1 18:06:11.1 e        Z
  GRA1 18:08:57.0 e PP     Z
  GRA1 18:47:42.4 e L      Z T19.1 A16548  MS6.4
SZGRF: OT 17:53:13.2 25N 121E dep 59km
  TAIWAN
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1999-11-01      D112.6
  GRA1 23:32:06.9 e (PP)   Z
NEIC: OT 23:13:48.2 8S 128E dep166km mb4.9
  BANDA SEA

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 1999-11-02 D 11.9
 GRA1 03:45:47.8 e Pn Z
 GRA1 03:51:00.1 e L Z T18.0 A645 MS3.6

1999-11-02 D 47.8
 GRA1 13:23:34.0 e P c Z mb5.1
 BEAM 13:23:34.0 T1.4 A24
 GRA1 13:49:15.9 e L Z T18.7 A92 MS3.8

1999-11-03 D 49.9 AZ 79
 GRA1 00:27:34.8 e P d Z mb4.6
 BEAM 00:27:34.8 T1.1 A8
 GRA1 00:27:39.3 e (pP) Z
 SZGRF: OT 00:18:42.7 36N 79E dep 17km
 EASTERN KASHMIR

1999-11-03 D151.8
 GRA1 01:06:23.6 e PKPdf Z
 SZGRF: OT 00:46:30.4 22S 172W dep 33km
 TONGA ISLANDS REGION

1999-11-03
 GRA1 07:45:55.5 e PKPdf Z
 GRA1 07:45:57.8 e PKPbc Z
 GRA1 07:46:00.4 e PKPab Z
 GRA1 07:46:16.1 e pPKPdf Z
 NEIC: OT 07:26:18.0 18S 174W dep 87km mb4.9
 TONGA ISLANDS

1999-11-03 D120.1
 GRA1 21:56:59.5 e PKPdf Z
 GRA1 22:56:46.3 e L Z T20.8 A599 MS5.2
 SZGRF: OT 21:38:08.3 45S 96E dep 10km
 SOUTHEAST INDIAN RISE

1999-11-04 D146.1
 GRA1 00:10:03.0 e PKPdf Z
 GRA1 00:10:12.2 e (pPKPdf) Z
 GRA1 01:15:19.0 e L Z T20.9 A481 MS5.3
 NEIC: OT 23:50:24.7 16S 173W dep 33km mb5.3
 SAMOA ISLANDS REGION

1999-11-04 D 14.4
 GRA1 02:11:29.8 e Pn Z
 GRA1 02:11:40.7 e P Z
 NEIC: OT 02:08:09.4 37N 22E dep 33km mb4.8

SOUTHERN GREECE

 1999-11-04 D 81.9
 GRA1 02:44:16.5 e P Z
 SZGRF: OT 02:31:47.9 5N 94E dep 63km
 OFF W. COAST OF NORTHERN SUMATERA

1999-11-04 D 2.9 327km
 GRA1 05:50:36.9 e Pg Z M13.3
 GRA1 05:51:15.1 e Sg N
 SZGRF: OT 05:49:42.5 48N 8E dep 10km
 Freiburg i. Breisgau/Upper Rhine Graben

1999-11-04 D144.9
 GRA1 08:30:33.2 e PKPdf Z
 SZGRF: OT 08:10:57.1 15S 176W dep 33km
 FIJI ISLANDS REGION

1999-11-04 D 14.1
 GRA1 23:12:16.8 e (Pn) Z
 GRA1 23:12:25.7 e P Z
 GRA1 23:19:19.1 e L Z T18.4 A217 MS3.3
 NEIC: OT 23:08:59.2 37N 21E dep 33km mb4.6
 SOUTHERN GREECE

1999-11-04 D 51.7 AZ 51
 GRA1 23:46:37.0 e P d Z mb4.8
 BEAM 23:46:37.0 T1.2 A13
 GRA1 23:46:40.2 e pP Z
 GRA1 23:46:42.2 e sP Z
 GRA1 23:48:42.0 e (PP) Z
 SZGRF: OT 23:37:31.7 53N 99E dep 12km
 USSR-MONGOLIA BORDER REGION

1999-11-05 D146.0
 GRA1 01:38:19.7 e PKPdf Z
 NEIC: OT 01:18:40.0 16S 173W dep 33km mb4.5
 TONGA ISLANDS

1999-11-05 D 46.1
 GRA1 12:08:42.0 e P Z mb5.2
 BEAM 12:08:42.0 T2.0 A53
 GRA1 12:23:54.3 e L Z T21.6 A492
 NEIC: OT 12:00:10.3 29N 44W dep 10km mb5.1
 NORTHERN MID-ATLANTIC RIDGE

1999-11-05 D124.4
 GRA1 19:32:46.9 e PKPdf Z
 SZGRF: OT 19:14:09.3 5S 152E dep175km

NEW BRITAIN REGION

 1999-11-05 D145.9
 GRA1 21:51:42.1 e PKPdf Z
 GRA1 21:51:53.3 e pPKPdf Z
 NEIC: OT 21:32:03.9 16S 173W dep 33km mb5.0
 SAMOA ISLANDS REGION

 1999-11-06
 GRA1 08:12:57.6 e (PKPab) Z

 1999-11-07 D151.1
 GRA1 12:17:15.3 e PKPdf Z
 GRA1 12:17:19.8 e PKPbc Z
 GRA1 12:17:25.4 e (pPKPab) Z
 GRA1 13:29:22.6 e L Z T20.1 A170 MS4.8
 NEIC: OT 11:57:23.6 21S 174W dep 33km mb5.0
 TONGA ISLANDS

 1999-11-07 D 83.2 AZ 38
 GRA1 13:05:52.3 i P d Z mb4.8
 ALIGN 13:05:52.3 T0.8 A6
 GRA1 13:06:12.4 e pP Z
 SZGRF: OT 12:53:36.0 37N 142E dep 74km
 NEAR EAST COAST OF HONSHU, JAPAN

 1999-11-07 D 18.6
 GRA1 14:47:56.6 e P Z mb3.9
 BEAM 14:47:56.6 T1.0 A9
 GRA1 14:59:45.8 e L Z T18.4 A229 MS3.5
 NEIC: OT 14:43:36.7 33N 21E dep 10km
 NEAR COAST OF LIBYA

 1999-11-07 D 16.3
 GRA1 16:58:37.3 e P Z mb4.0
 BEAM 16:58:37.3 T1.4 A19
 GRA1 17:04:59.6 e L Z T22.0 A602 MS3.8
 NEIC: OT 16:54:41.9 41N 31E dep 10km mb4.8
 TURKEY

 1999-11-07 D131.5
 GRA1 21:32:19.6 e (PKPdf) Z
 SZGRF: OT 21:13:12.9 9S 159E dep148km
 SOLOMON ISLANDS

 1999-11-08 D148.3
 GRA1 01:25:23.2 e PKPdf Z
 GRA1 01:25:32.4 e pPKPdf Z

SZGRF: OT 01:05:36.0 23S 170E dep 30km
LOYALTY ISLANDS REGION

1999-11-08 D 81.1 AZ270
GRA1 06:03:18.5 e P Z mb5.1
ALIGN 06:03:18.5 T0.9 A19
GRA1 06:03:25.1 e pP Z
GRA1 06:35:41.6 e L Z T18.9 A105 MS4.2
SZGRF: OT 05:51:04.7 7N 73W dep 23km
NORTHERN COLOMBIA

1999-11-08 D 76.1 AZ356
GRA1 11:09:07.8 e P Z mb5.2
ALIGN 11:09:07.8 T0.9 A17
GRA1 11:09:11.9 e Z
GRA1 11:09:17.6 e pP Z
GRA1 11:09:21.3 e (sP) Z
GRA1 11:52:00.9 e L Z T18.4 A317 MS4.7
SZGRF: OT 10:57:25.0 54N 162W dep 34km
ALASKA PENINSULA

1999-11-08 D 46.7
GRA1 16:53:35.1 e P Z T1.5 A3150 mb7.2
GRA1 16:54:47.7 e sP Z
SZGRF: OT 16:46:13.9 34N 72E dep360km
PAKISTAN

1999-11-08 D 77.2 AZ 15
GRA1 18:40:16.1 e P Z mb5.0
ALIGN 18:40:16.1 T1.4 A18
GRA1 18:40:21.4 e (pP) Z
NEIC: OT 18:28:46.9 55N 162E dep 33km mb4.5
NEAR EAST COAST OF KAMCHATKA

1999-11-08 D 11.0
GRA1 19:25:27.4 e P Z
BEAM 19:25:27.4 T1.3 A17
NEIC: OT 19:22:52.2 46N 26E dep137km mb4.4
ROMANIA

1999-11-08 D139.4
GRA1 19:38:46.5 e PKPdf Z
GRA1 19:38:50.5 e pPKPdf Z
NEIC: OT 19:19:19.0 14S 167E dep 33km mb4.9
VANUATU ISLANDS

1999-11-08 D 38.6
GRA1 21:44:46.6 i P c Z mb5.0
ALIGN 21:44:46.6 T1.1 A43

GRA1 22:02:54.3 e L Z T21.3 A860 MS4.5
NEIC: OT 21:37:24.0 36N 61E dep 33km mb5.5
TURKMENISTAN-AFGHANISTAN BRD REG

1999-11-09 D 38.9
GRA1 05:28:20.0 e P Z mb4.5
BEAM 05:28:20.0 T1.1 A13
GRA1 05:46:16.9 e L Z T19.0 A123 MS3.8
NEIC: OT 05:20:58.8 36N 61E dep 50km mb5.1
TURKMENISTAN-AFGHANISTAN BRD REG

1999-11-09 D 80.1 AZ 26
GRA1 05:50:56.1 i P c Z mb5.2
ALIGN 05:50:56.1 T1.0 A30
GRA1 05:51:07.3 e pP Z
GRA1 06:30:39.2 e L Z T18.0 A202 MS4.5
NEIC: OT 05:38:49.3 44N 148E dep 33km mb4.9
EAST OF KURIL ISLANDS

1999-11-09 D 80.1 AZ 26
GRA1 09:45:47.3 e P Z mb4.8
BEAM 09:45:47.3 T1.5 A19
GRA1 09:46:00.9 e pP Z
GRA1 10:20:57.9 e L Z T21.8 A69 MS4.0
NEIC: OT 09:33:30.6 45N 154E dep 33km mb4.7
EAST OF KURIL ISLANDS

1999-11-09 D 38.7
GRA1 11:56:45.7 i P c Z mb4.8
BEAM 11:56:45.7 T1.4 A36
GRA1 12:14:55.0 e L Z T20.1 A166 MS3.9
NEIC: OT 11:49:23.6 36N 61E dep 33km mb5.3
TURKMENISTAN-AFGHANISTAN BRD REG

1999-11-09 D101.1
GRA1 12:16:18.8 e PP Z
NEIC: OT 11:59:04.8 18N 145E dep463km mb4.8
MARIANA ISLANDS

1999-11-09 D 45.6 AZ 66
GRA1 16:34:05.3 e P d Z mb4.8
BEAM 16:34:05.3 T1.0 A10
GRA1 16:50:24.4 e L Z T18.5 A106 MS3.8
NEIC: OT 16:25:39.5 47N 82E dep 33km mb4.7
KAZAKHSTAN-XINJIANG BORDER REG.

1999-11-09 D 74.4 AZ 87
GRA1 16:47:12.5 i P d Z mb5.2
ALIGN 16:47:12.5 T1.1 A31

GRA1 16:47:23.5 e pP Z
 NEIC: OT 16:35:35.4 13N 92E dep 33km mb5.1
 ANDAMAN ISLANDS, INDIA

 1999-11-10 D 47.9
 GRA1 00:07:43.7 e P Z mb4.6
 ALIGN 00:07:43.7 T0.9 A5
 GRA1 00:07:49.4 e pP Z
 NEIC: OT 23:59:08.8 32N 72E dep 33km mb5.0
 PAKISTAN

 1999-11-10 D150.0
 GRA1 04:50:16.7 e PKPdf Z
 SZGRF: OT 04:30:33.7 53S 143E dep 33km
 WEST OF MACQUARIE ISLAND

 1999-11-10 D 18.0 AZ229
 GRA1 13:14:18.3 e P Z mb4.1
 ALIGN 13:14:18.3 T0.9 A15

 1999-11-11 D 77.1 AZ 19
 GRA1 02:52:54.1 e P Z mb6.1
 ALIGN 02:52:54.1 T1.2 A212
 GRA1 02:53:19.8 e sP Z
 GRA1 03:32:03.2 e L Z T19.0 A8408 MS6.1
 NEIC: OT 02:41:05.2 49N 156E dep 33km mb5.7
 KURIL ISLANDS

 1999-11-11 D 55.8 AZ235
 GRA1 06:07:49.5 e P Z mb4.8
 BEAM 06:07:49.5 T1.1 A10
 GRA1 06:07:52.1 e pP Z
 GRA1 06:15:47.0 e S Z
 GRA1 06:25:52.0 e L Z T30.5 A258 MS4.1
 SZGRF: OT 05:58:15.1 7N 32W dep 33km
 NORTH ATLANTIC OCEAN

 1999-11-11 D151.1
 GRA1 14:04:16.3 e PKPdf Z
 SZGRF: OT 13:44:23.3 21S 174W dep 33km
 TONGA ISLANDS

 1999-11-11 D 16.1
 GRA1 14:45:09.3 e P Z
 GRA1 14:52:05.1 e L Z T18.9 A12137 MS5.1
 NEIC: OT 14:41:23.9 41N 30E dep 10km mb5.6
 TURKEY

1999-11-11 D 88.4
GRA1 18:18:14.7 i P c Z mb6.5
ALIGN 18:18:14.7 T1.6 A419
GRA1 18:19:05.7 e pP Z
GRA1 18:21:18.7 e PP Z
GRA1 18:21:40.4 e pPP Z
GRA1 18:28:16.8 e SKS Z
GRA1 18:58:12.8 e L Z T21.7 A628 MS5.0
NEIC: OT 18:05:43.3 1N 100E dep206km mb6.2
NORTHERN SUMATERA, INDONESIA

1999-11-12 D 16.7 AZ101
GRA1 17:01:11.5 i P c Z mb5.7
ALIGN 17:01:11.5 T1.6 A1042
GRA1 17:04:35.9 e S Z
GRA1 17:07:06.1 e L Z T26.0 A782617 MS6.8
NEIC: OT 16:57:19.7 41N 31E dep 10km mb6.3
TURKEY

1999-11-12 D 14.2
GRA1 17:21:51.3 e P Z
NEIC: OT 17:16:51.2 41N 31E dep 10km mb5.0
TURKEY

1999-11-12 D 16.9
GRA1 17:33:29.6 e P Z
NEIC: OT 17:29:31.8 40N 31E dep 10km mb5.3
TURKEY

1999-11-12 D 16.6
GRA1 17:50:51.8 e P Z
NEIC: OT 17:46:57.6 41N 31E dep 10km mb5.0
TURKEY

1999-11-12 D 16.6
GRA1 18:18:31.6 e P Z
NEIC: OT 18:14:30.5 41N 31E dep 10km mb5.0
TURKEY

1999-11-12 D 16.3
GRA1 20:08:43.1 e P Z
SZGRF: OT 20:05:00.0 41N 31E dep 10km
TURKEY

1999-11-13 D 16.8
GRA1 00:18:47.8 e P Z mb4.0
BEAM 00:18:47.8 T1.3 A17
GRA1 00:25:48.2 e L Z T20.7 A112 MS3.1
SZGRF: OT 00:14:51.4 41N 31E dep 10km

TURKEY

 1999-11-13 D 16.6 AZ103
 GRA1 00:58:50.4 e P Z mb4.0
 BEAM 00:58:50.4 T1.7 A24
 GRA1 01:04:21.8 e L Z T26.7 A778 MS3.8
 NEIC: OT 00:54:55.2 41N 31E dep 10km mb4.7

TURKEY

 1999-11-13 D 76.6 AZ 12
 GRA1 19:42:57.8 i P d Z mb5.4
 ALIGN 19:42:57.8 T1.1 A34
 GRA1 19:43:03.8 e pP Z
 GRA1 19:43:06.2 e sP Z
 GRA1 20:21:34.0 e L Z T19.2 A1956 MS5.4
 SZGRF: OT 19:31:10.7 53N 171E dep 21km
 NEAR ISLANDS, ALEUTIAN ISLANDS

 1999-11-13 D 87.3 AZ 58
 GRA1 20:06:27.1 e P Z mb4.7
 BEAM 20:06:27.1 T0.9 A6
 SZGRF: OT 19:53:44.2 22N 125E dep 33km
 SOUTHEAST OF TAIWAN

 1999-11-13 D 76.0 AZ 19
 GRA1 21:36:24.1 i P c Z mb5.3
 ALIGN 21:36:24.1 T1.3 A35
 GRA1 21:36:30.8 e (pP) Z
 GRA1 22:12:32.4 e L Z T20.8 A276 MS4.5
 SZGRF: OT 21:24:40.5 51N 161E dep 24km
 OFF EAST COAST OF KAMCHATKA

 1999-11-14 D 11.2
 GRA1 09:08:32.8 e P d Z T1.3 A39
 NEIC: OT 09:05:58.8 46N 26E dep135km mb4.6
 ROMANIA

 1999-11-15 D 80.8 AZ 35
 GRA1 01:46:54.3 i P c Z mb6.1
 ALIGN 01:46:54.3 T1.4 A282
 GRA1 01:47:09.0 i pP d Z
 GRA1 01:47:18.9 e sP Z
 GRA1 01:50:03.5 e PP Z
 GRA1 02:26:36.7 e L Z T19.2 A1574 MS5.4
 SZGRF: OT 01:34:48.5 40N 143E dep 57km
 NEAR EAST COAST OF HONSHU, JAPAN

 1999-11-15 D146.8
 GRA1 01:59:02.4 e PKPdf Z

GRA1 01:59:33.3 e (pPKPdf)Z
NEIC: OT 01:39:27.6 21S 170E dep 77km mb5.2
LOYALTY ISLANDS REGION

1999-11-15 D 83.2 AZ101
GRA1 05:55:11.5 i P c Z mb6.2
ALIGN 05:55:11.5 T1.0 A176
GRA1 05:55:24.0 e Z
GRA1 05:55:39.9 e Z
GRA1 05:56:44.1 e Z
GRA1 05:57:02.1 e Z
GRA1 05:58:25.5 e PP Z
GRA1 06:05:31.2 e S Z
GRA1 06:10:49.9 e SS Z
GRA1 06:36:52.3 e L Z T21.5 A51608 MS6.9
NEIC: OT 05:42:43.1 1S 89E dep 10km mb6.3
SOUTH INDIAN OCEAN

1999-11-15 D 44.1 AZ 83
GRA1 19:13:08.3 e P Z mb4.8
ALIGN 19:13:08.3 T1.6 A32
GRA1 19:35:03.8 e L Z T18.0 A188 MS4.0
SZGRF: OT 19:05:03.8 37N 71E dep 33km
HINDU KUSH REGION

1999-11-16 D 78.6
GRA1 10:48:34.6 i P d Z mb4.9
ALIGN 10:48:34.6 T0.9 A12
NEIC: OT 10:36:48.9 46N 151E dep147km mb4.5
KURIL ISLANDS

1999-11-16 D130.3
GRA1 13:53:31.1 e PKPdf Z
GRA1 13:55:45.2 e PP Z
NEIC: OT 13:34:23.7 9S 157E dep 33km mb5.1
SOLOMON ISLANDS

1999-11-16 D 17.9
GRA1 17:32:27.0 e P Z mb4.4
ALIGN 17:32:27.0 T0.7 A25
GRA1 17:40:57.8 e L Z T20.9 A321 MS3.6
NEIC: OT 17:28:17.1 34N 24E dep 33km mb4.4
CRETE

1999-11-16 D 17.0 AZ106
GRA1 17:55:16.8 e P Z mb4.7
ALIGN 17:55:16.8 T1.5 A102
GRA1 18:02:12.8 e L Z T21.8 A654 MS3.8
NEIC: OT 17:51:18.2 41N 32E dep 10km mb5.1

TURKEY

 1999-11-16 D 79.4 AZ 34
 GRA1 23:06:14.1 i P d Z mb5.0
 ALIGN 23:06:14.1 T0.9 A14
 GRA1 23:06:22.1 e pP Z
 SZGRF: OT 22:54:11.7 42N 143E dep 28km
 HOKKAIDO, JAPAN REGION

1999-11-16 D147.4
 GRA1 23:40:37.3 i PKPdf d Z
 NEIC: OT 23:21:59.7 18S 179W dep612km mb4.3
 FIJI ISLANDS REGION

1999-11-17 D123.8
 GRA1 03:46:35.7 e PKPdf Z
 GRA1 03:48:20.4 e PP Z
 GRA1 03:51:04.3 e (PPP) Z
 GRA1 04:41:49.0 e L Z T21.1 A22657 MS6.8
 NEIC: OT 03:27:40.3 6S 149E dep 33km mb5.9
 NEW BRITAIN REGION, P.N.G.

1999-11-17 D147.3
 GRA1 05:38:04.4 e PKPdf Z
 NEIC: OT 05:19:21.8 18S 179W dep550km mb4.7
 FIJI ISLANDS REGION

1999-11-17 D 83.9 AZ 59
 GRA1 07:47:40.0 e P Z mb5.1
 BEAM 07:47:40.0 T1.3 A15
 GRA1 07:47:45.7 e pP Z
 NEIC: OT 07:35:12.2 24N 121E dep 9km mb4.8
 TAIWAN

1999-11-17 D 16.8
 GRA1 08:19:20.6 e P Z mb4.3
 BEAM 08:19:20.6 T1.2 A32
 GRA1 08:26:48.7 e L Z T19.1 A1000 MS4.1
 NEIC: OT 08:15:26.2 41N 31E dep 9km mb4.8
 TURKEY

1999-11-17 D123.9
 GRA1 11:55:30.0 i PKPdf d Z
 GRA1 12:50:20.0 e L Z T21.6 A4942 MS6.1
 NEIC: OT 11:36:33.7 6S 149E dep 33km mb5.8
 NEW BRITAIN REGION, P.N.G.

1999-11-18 D124.5
 GRA1 03:39:20.1 e PKPdf Z

GRA1 04:36:16.8 e L Z T19.4 A1238 MS5.6
NEIC: OT 03:20:20.8 7S 149E dep 33km mb5.0
NEW BRITAIN REGION, P.N.G.

1999-11-18 D124.6
GRA1 10:28:35.1 e PKPdf Z
NEIC: OT 10:10:07.4 4S 154E dep277km mb5.0
NEW IRELAND REGION, P.N.G.

1999-11-18 D105.8
GRA1 14:41:51.0 e Pdiff Z
GRA1 14:46:16.2 e (PP) Z
GRA1 15:32:11.3 e L Z T21.7 A2303 MS5.7
NEIC: OT 14:27:42.8 N 126E dep 33km mb5.9
NORTHERN MOLUCCA SEA

1999-11-18 D148.0
GRA1 18:43:02.5 e PKPdf Z
GRA1 18:43:12.9 e PKPab Z
GRA1 18:43:22.6 e pPKPab Z
NEIC: OT 18:23:24.6 22S 170E dep 33km mb4.6
LOYALTY ISLANDS REGION

1999-11-18 D 19.0 AZ134
GRA1 21:09:36.9 e P Z mb3.9
BEAM 21:09:36.9 T1.0 A7
GRA1 21:17:43.5 e L Z T20.4 A128 MS3.2
SZGRF: OT 21:05:17.9 35N 28E dep 33km
DODECANESE ISLANDS

1999-11-19 D 33.1 AZ 94
GRA1 04:47:00.6 e P Z mb5.1
ALIGN 04:47:00.6 T1.0 A25
GRA1 04:47:10.1 e pP Z
GRA1 04:47:15.8 e sP Z
GRA1 04:49:42.8 e PcP Z
GRA1 04:49:52.3 e pPcP Z
GRA1 04:52:22.9 e S Z
GRA1 05:03:34.5 e L Z T18.2 A1134 MS4.6
SZGRF: OT 04:40:29.0 38N 55E dep 38km
TURKMEN SSR

1999-11-19 D 84.8
GRA1 06:49:04.1 e P Z mb4.7
BEAM 06:49:04.1 T1.1 A6
NEIC: OT 06:36:41.6 34N 140E dep114km mb4.4
NR E CST HONSHU, JAPAN

1999-11-19 D118.6

GRA1 11:40:24.9 e PKPdf Z
 GRA1 11:40:38.5 e (pPKPdf)Z
 GRA1 12:37:21.2 e L Z T19.4 A2329 MS5.8
 NEIC: OT 11:21:27.9 6S 148E dep 33km mb5.2
 NEW BRITAIN REGION, P.N.G.

1999-11-19 D124.2
 GRA1 14:15:42.8 e PKPdf Z
 GRA1 14:17:32.0 e PP Z
 GRA1 15:12:28.0 e L Z T20.2 A24691 MS6.9
 NEIC: OT 13:56:46.6 6S 149E dep 33km mb6.0
 NEW BRITAIN REGION, P.N.G.

1999-11-19 D 16.5
 GRA1 20:03:02.6 e P Z mb4.3
 ALIGN 20:03:02.6 T1.1 A25
 GRA1 20:12:43.0 e L Z T18.8 A352 MS3.6
 NEIC: OT 19:59:07.9 41N 31E dep 7km mb4.8
 TURKEY

1999-11-19 D148.4
 GRA1 20:24:44.2 e PKPdf Z
 SZGRF: OT 20:05:22.9 19S 178W dep190km
 FIJI ISLANDS REGION

1999-11-19 D124.2
 GRA1 14:51:17.7 e PKPdf Z
 GRA1 14:51:30.1 e pPKPdf Z
 SZGRF: OT 14:24:30.8 6S 149E dep 41km
 NEW BRITAIN REGION

1999-11-20 D 28.8
 GRA1 23:20:49.6 e P c Z mb4.2
 BEAM 23:20:49.6 T1.1 A4
 GRA1 23:20:54.5 e (pP) Z
 GRA1 23:31:20.4 e L Z T18.6 A980 MS4.4
 NEIC: OT 23:39:45.9 54N 35W dep 10km mb4.5
 NORTH ATLANTIC OCEAN

1999-11-21 D 84.5 AZ 91
 GRA1 01:21:12.8 e P Z mb4.6
 BEAM 01:21:12.8 T1.5 A5
 SZGRF: OT 01:08:50.0 3N 97E dep 81km
 NORTHERN SUMATERA

1999-11-21 D 17.5 AZ122
 GRA1 02:53:43.3 e (P) Z mb3.0
 BEAM 02:53:43.3 T0.8 A1

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1999-11-21      D 99.8
  GRA1 04:04:49.7 e Pdiff  Z
  GRA1 04:04:59.7 e          Z
  GRA1 04:05:17.3 e pPdiff Z
  GRA1 04:05:29.4 e sPdiff Z
  GRA1 04:08:51.5 e PP      Z
  GRA1 04:46:30.0 e L       Z  T21.8  A507      MS5.0
NEIC:  OT 03:51:13.9 22S   69W  dep101km  mb5.9
      CHILE-BOLIVIA BORDER REGION
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1999-11-21      D156.3
  GRA1 04:21:08.6 e PKPdf  Z
  GRA1 04:21:35.6 e PKPab  Z
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1999-11-21      D160.3
  GRA1 06:59:46.6 e PKPab  Z
  GRA1 07:03:33.3 e PP      Z
NEIC:  OT 06:38:35.5 63S   164W  dep 10km  mb5.1
      PACIFIC-ANTARCTIC RIDGE
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-----
1999-11-21      D145.6
  GRA1 12:35:26.0 e PKPdf  Z
NEIC:  OT 12:15:53.1 15S   173W  dep 67km  mb4.6
      TONGA ISLANDS
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-----
1999-11-21      D 93.2
  GRA1 14:58:57.8 e Pdiff  Z
NEIC:  OT 14:45:57.9 8S    74W  dep149km  mb5.0
      PERU-BRAZIL BORDER REGION
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-----
1999-11-21      D 4.9 542km
  GRC1 16:47:24.2 e Pn     Z          M13.7
SZGRF: OT 16:46:12.4 46N   17E  dep 10km
      YUGOSLAVIA
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-----
1999-11-21      D 16.9
  GRA1 22:31:33.0 e P      Z
  BEAM 22:31:33.0          T1.2  A11
  GRA1 22:38:12.8 e L      Z  T20.2  A133      MS3.2
NEIC:  OT 22:27:32.3 41N   31E  dep 10km  mb4.4
      TURKEY
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-----
1999-11-22      D146.4
  GRA1 02:04:59.6 i PKPdf  d Z
  GRA1 02:05:06.8 e pPKPdf Z
  GRA1 03:13:55.1 e L      Z  T20.1  A676      MS5.4
NEIC:  OT 01:45:19.8 16S   173W  dep 33km  mb5.3
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TONGA ISLANDS

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-----
1999-11-22      D  3.6  395km
  GRA1  19:10:14.5 e Pn      Z          M13.9
  GRA1  19:11:11.7 e Sg      N
SZGRF: OT 19:09:18.9 51N    16E    dep  1km
POLAND

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-----
1999-11-22      D 18.1
  GRA1  20:27:22.9 e P      Z  T1.1   A100   mb4.8
  GRA1  20:31:04.2 e S      Z
  GRA1  20:35:23.7 e PcS    Z
  GRA1  20:36:59.9 e L      Z  T18.1  A1533  MS4.3
SZGRF: OT 20:23:13.7 35N    26E    dep 33km
CRETE

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-----
1999-11-22      D  7.9
  GRA1  23:13:03.8 e Pn      Z          M14.6
  GRA1  23:15:21.0 e Sg      E
NEIC:  OT 23:11:09.9 44N    18E    dep 10km
NW BALKAN REGION

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-----
1999-11-23      D  3.5  394km
  GRA1  13:36:49.8 e Pn      Z          M14.0
  GRA1  13:37:48.0 e Sg      N
SZGRF: OT 13:35:54.5 51N    16E    dep  1km
POLAND

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-----
1999-11-23      D 55.2  AZ116
  GRA1  14:47:29.8 i P      c Z          mb5.7
  ALIGN 14:47:29.8          T1.4   A103
  GRA1  14:48:33.2 e PcP    Z
  GRA1  15:16:34.3 e L      Z  T20.7  A567   MS4.6
NEIC:  OT 14:37:56.2 10N    57E    dep 10km  mb5.7
CARLSBERG RIDGE

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1999-11-23
  GRA1  17:45:28.0 e (PKPab) Z

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-----
1999-11-24      D 11.9
  GRA1  03:41:43.1 e Pn      Z
  GRA1  03:47:10.6 e L      Z  T19.3  A970   MS3.8
NEIC:  OT 03:38:54.8 40N    21E    dep 18km  mb5.0
GREECE-ALBANIA BORDER REGION

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1999-11-24      D 72.8  AZ 72
  GRA1  16:51:51.3 e P      Z          mb4.8
  BEAM  16:51:51.3          T1.4   A11

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GRA1 16:51:54.8 e (pP) Z
GRA1 17:24:17.7 e L Z T20.5 A280 MS4.5
SZGRF: OT 16:40:23.7 25N 103E dep 12km
YUNNAN PROVINCE, CHINA

1999-11-24 D 81.1 AZ 92
GRA1 20:03:49.9 i P c Z
GRA1 20:04:08.2 e (pP) Z
NEIC: OT 19:51:43.6 6N 94E dep100km mb5.0
NICOBAR ISLANDS, INDIA

1999-11-24 D 11.3
GRA1 21:13:31.6 e Pn Z
GRA1 21:18:55.3 e L Z T13.0 A545 MS3.7
NEIC: OT 21:10:50.0 40N 20E dep 10km mb4.6
ALBANIA

1999-11-25 D151.1
GRA1 03:24:50.4 e PKPdf Z
GRA1 03:25:01.7 e PKPab Z
NEIC: OT 03:06:03.5 22S 180W dep612km mb4.8
SOUTH OF FIJI ISLANDS

1999-11-25 D103.7
GRA1 04:18:19.8 e PP Z
GRA1 04:59:52.9 e L Z T30.4 A1148 MS5.2
NEIC: OT 04:00:09.1 1S 122E dep 33km mb5.6
MINAHASSA PENINSULA, SULAWESI

1999-11-25 D151.4
GRA1 08:28:26.1 e PKPdf Z
NEIC: OT 08:08:31.4 21S 174W dep 33km mb4.8
TONGA ISLANDS

1999-11-25 D151.3
GRA1 09:10:13.7 e PKPdf Z
GRA1 09:10:22.3 e PKPbc Z
GRA1 09:10:27.0 e PKPab Z
NEIC: OT 08:50:19.6 21S 174W dep 33km mb5.1
TONGA ISLANDS

1999-11-25 D135.2
GRA1 20:00:01.9 e PKPdf Z
SZGRF: OT 19:40:44.8 48S 121E dep 33km
SOUTH OF AUSTRALIA

1999-11-25 D 63.9 AZ 68
GRA1 21:01:46.9 i P c Z mb5.2
ALIGN 21:01:46.9 T1.2 A19

GRA1 21:30:47.7 e L Z T18.4 A277 MS4.5
NEIC: OT 20:51:16.2 35N 100E dep 33km mb5.1
QINGHAI, CHINA

1999-11-26 D 73.2 AZ 16
GRA1 00:40:29.6 e P Z mb5.6
ALIGN 00:40:29.6 T1.2 A55
GRA1 00:40:40.1 e (pP) Z
GRA1 00:43:19.8 e PP Z
GRA1 00:50:00.5 e S Z
GRA1 01:15:06.9 e L Z T18.1 A6948 MS6.0
NEIC: OT 00:29:00.3 55N 165E dep 33km mb5.7
KOMANDORSKY ISLANDS REGION

1999-11-26 D 73.4 AZ 14
GRA1 01:05:47.3 i P d Z mb5.0
ALIGN 01:05:47.3 T0.9 A11
SZGRF: OT 00:54:20.1 55N 167E dep 33km
KOMANDORSKY ISLANDS REGION

1999-11-26 D159.4
GRA1 03:16:03.4 e PKPdf Z
GRA1 03:16:42.4 e PKPab Z
GRA1 03:20:21.9 e PP Z
NEIC: OT 02:56:07.6 30S 178W dep 33km mb5.8
KERMADEC ISLANDS, NEW ZEALAND

1999-11-26 D147.5
GRA1 03:28:21.8 e PKPdf Z
GRA1 03:28:25.9 i PKPbc d Z
GRA1 03:30:52.2 e pPKPbc Z
GRA1 03:30:54.9 e pPKPdf Z
NEIC: OT 03:09:51.2 18S 179W dep646km mb4.6
FIJI ISLANDS REGION

1999-11-26 D 73.7
GRA1 03:37:01.7 i P c Z mb5.1
ALIGN 03:37:01.7 T1.1 A23
GRA1 03:37:10.6 e pP Z
NEIC: OT 03:25:31.0 55N 165E dep 33km mb5.1
KOMANDORSKY ISLANDS REGION

1999-11-26 D 33.9
GRA1 04:34:06.3 i P c Z mb5.3
ALIGN 04:34:06.3 T1.2 A47
NEIC: OT 04:27:24.6 37N 55E dep 33km mb5.2
NORTHERN IRAN

1999-11-26 D 73.7

GRA1 05:41:50.4 i P c Z mb5.1
BEAM 05:41:50.4 T1.5 A28
GRA1 05:41:59.6 e pP Z
NEIC: OT 05:30:19.9 55N 165E dep 33km mb5.2
KOMANDORSKY ISLANDS REGION

1999-11-26 D142.1
GRA1 13:40:45.7 e PKPdf Z
GRA1 13:44:06.6 e PP Z
GRA1 14:43:55.9 e L Z T20.7 A45134 MS7.2
NEIC: OT 13:21:15.4 16S 168E dep 33km mb6.5
VANUATU ISLANDS

1999-11-26 D 73.8
GRA1 16:09:05.1 i P c Z mb5.6
BEAM 16:09:05.1 T1.2 A74
GRA1 16:09:15.6 e pP Z
NEIC: OT 15:57:34.5 55N 165E dep 33km mb5.7
KOMANDORSKY ISLANDS REGION

1999-11-26 D142.0
GRA1 19:55:34.7 e PKPdf Z
NEIC: OT 19:36:09.4 16S 168E dep 33km mb5.5
VANUATU ISLANDS

1999-11-26 D 78.9 AZ 28
GRA1 19:58:35.9 e P Z mb4.6
BEAM 19:58:35.9 T0.9 A6
NEIC: OT 19:46:33.5 45N 150E dep 56km mb4.8
EAST OF KURIL ISLANDS

1999-11-26 D141.1
GRA1 22:22:53.3 e PKPdf Z
GRA1 23:25:29.2 e L Z T21.7 A896 MS5.5
NEIC: OT 22:03:20.0 16S 168E dep 33km mb5.5
VANUATU ISLANDS

1999-11-27 D146.5
GRA1 00:23:18.9 e PKPdf Z
SZGRF: OT 00:03:38.0 17S 177W dep 33km
FIJI ISLANDS REGION

1999-11-27 D 55.1
GRA1 01:01:47.7 e P Z mb4.9
BEAM 01:01:47.7 T1.7 A19
GRA1 01:01:53.2 e (pP) Z
NEIC: OT 00:52:14.4 10N 57E dep 10km mb5.1
CARLSBERG RIDGE

1999-11-27 D 95.8 AZ255
GRA1 02:45:05.6 e P Z mb5.9
ALIGN 02:45:05.6 T1.4 A61
GRA1 02:45:37.6 e pP Z
NEIC: OT 02:31:49.8 14S 71W dep126km mb5.9
CENTRAL PERU

1999-11-27
GRA1 12:11:41.1 e PKPdf Z

1999-11-27 D 85.4
GRA1 12:59:51.1 e P Z mb4.8
BEAM 12:59:51.1 T1.4 A8
NEIC: OT 12:47:16.2 34N 141E dep 33km mb4.6
NEAR EAST COAST OF HONSHU, JAPAN

1999-11-27 D 60.1 AZ160
GRA1 14:02:20.9 i P c Z mb4.6
ALIGN 14:02:20.9 T0.8 A5
SZGRF: OT 13:52:15.1 9S 29E dep 33km
ZAIRE REPUBLIC

1999-11-27 D 93.8 AZ 46
GRA1 22:56:38.8 i P d Z mb4.7
ALIGN 22:56:38.8 T0.8 A3
SZGRF: OT 22:43:25.8
VOLCANO ISLANDS REGION

1999-11-27 D125.0
GRA1 23:00:02.6 e PKPdf Z
NEIC: OT 22:41:10.3 5S 153E dep 90km mb5.7
NEW IRELAND REGION, P.N.G.

1999-11-27 D 74.1 AZ 46
GRA1 23:10:15.0 e P Z mb4.5
BEAM 23:10:15.0 T1.3 A7
GRA1 23:10:22.4 e Z
SZGRF: OT 22:59:16.9
VOLCANO ISLANDS REGION

1999-11-27 D 73.8 AZ 14
GRA1 23:24:00.2 i P d Z mb5.6
ALIGN 23:24:00.2 T1.6 A102
GRA1 23:24:08.9 e pP Z
GRA1 23:27:08.8 e PP Z
GRA1 23:57:10.7 e L Z T21.9 A1449 MS5.2
SZGRF: OT 23:12:28.0 55N 167E dep 30km
KOMANDORSKY ISLANDS REGION

 1999-11-28 D 10.2
 GRA1 01:02:09.4 e Pn Z
 GRA1 01:06:44.8 e L Z T20.2 A1601 MS3.9
 NEIC: OT 00:59:47.4 42N 19E dep 56km mb5.3
 ALBANIA

 1999-11-28 D 74.3
 GRA1 06:02:07.4 e P Z mb4.7
 BEAM 06:02:07.4 T1.5 A12
 GRA1 06:02:15.3 e pP Z
 NEIC: OT 05:50:36.9 55N 166E dep 33km mb4.6
 KOMANDORSKY ISLANDS REGION

 1999-11-28 D 73.9
 GRA1 06:26:29.2 e P Z mb3.9
 BEAM 06:26:29.2 T1.0 A1
 NEIC: OT 06:14:57.7 55N 166E dep 33km mb4.4
 KOMANDORSKY ISLANDS REGION

 1999-11-28 D 74.7
 GRA1 08:21:02.8 e P Z mb4.6
 BEAM 08:21:02.8 T1.3 A8
 NEIC: OT 08:09:31.3 55N 166E dep 33km mb4.4
 KOMANDORSKY ISLANDS REGION

 1999-11-28 D 73.9
 GRA1 09:21:58.8 e P Z mb5.4
 ALIGN 09:21:58.8 T1.3 A58
 GRA1 09:55:00.5 e L Z T18.8 A182 MS4.4
 NEIC: OT 09:10:28.1 55N 166E dep 33km mb5.3
 KOMANDORSKY ISLANDS REGION

 1999-11-28 D 73.9 AZ 14
 GRA1 09:54:09.9 e P Z mb4.3
 BEAM 09:54:09.9 T1.3 A5
 NEIC: OT 09:42:38.0 55N 165E dep 33km mb4.4
 KOMANDORSKY ISLANDS REGION

 1999-11-28 D 81.7 AZ101
 GRA1 10:29:46.6 i P d Z mb5.4
 ALIGN 10:29:46.6 T1.2 A36
 GRA1 10:29:56.3 e pP Z
 GRA1 10:30:01.6 e sP Z
 GRA1 11:11:22.9 e L Z T20.6 A341 MS4.7
 NEIC: OT 10:17:18.6 1S 89E dep 10km mb5.2
 SOUTH INDIAN OCEAN

 1999-11-28 D 84.7 AZ 56

GRA1 20:54:57.7 e P Z mb4.3
 BEAM 20:54:57.7 T0.8 A2
 GRA1 21:36:45.1 e L Z T20.3 A147 MS4.4
 SZGRF: OT 20:42:28.5 25N 124E dep 26km
 NORTHEAST OF TAIWAN

 1999-11-29 D 6.3
 GRC1 03:22:07.1 e Pn Z M14.5
 GRA1 03:22:18.5 e Pn Z
 GRA1 03:23:32.0 e Sn N
 SZGRF: OT 03:20:34.8 43N 13E dep 10km
 CENTRAL ITALY

 1999-11-29 D 81.0 AZ103
 GRA1 03:58:58.5 i P d Z mb5.9
 ALIGN 03:58:58.5 T1.4 A189
 GRA1 03:59:04.0 e (pP) Z
 GRA1 03:59:24.4 e Z
 GRA1 03:59:58.8 e Z
 GRA1 04:41:01.2 e L Z T19.7 A8277 MS6.1
 SZGRF: OT 03:46:44.5 1S 86E dep 19km
 SOUTH INDIAN OCEAN

 1999-11-29 D 82.0 AZ101
 GRA1 04:08:06.6 i P c Z mb5.5
 ALIGN 04:08:06.6 T1.0 A45
 GRA1 04:08:15.1 e pP Z
 SZGRF: OT 03:55:48.8 1S 88E dep 29km
 SOUTH INDIAN OCEAN

 1999-11-29 D 72.4
 GRA1 04:22:06.6 e P Z mb4.7
 BEAM 04:22:06.6 T0.9 A6
 GRA1 04:22:10.6 e (pP) Z
 NEIC: OT 04:10:40.8 40N 123E dep 10km mb4.9
 NORTHEASTERN CHINA

 1999-11-29 D147.0
 GRA1 07:06:29.7 e PKPbc Z
 SZGRF: OT 06:47:02.6 17S 174W dep130km
 TONGA ISLANDS

 1999-11-29 D142.6
 GRA1 10:55:46.4 e PKPdf Z
 SZGRF: OT 10:36:07.9 13S 176W dep 33km
 SAMOA ISLANDS REGION

 1999-11-29
 GRA1 11:23:13.3 e P Z

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1999-11-29      D151.6
  GRA1 19:57:13.1 i PKPbc d Z
  GRA1 19:57:22.0 e PKPab  Z
NEIC:  OT 19:37:34.7 22S  177W  dep148km  mb4.8
  FIJI ISLANDS REGION
-----
1999-11-29      D 81.1  AZ107
  GRA1 20:40:36.7 e P      Z      mb4.6
  BEAM 20:40:36.7          T1.2  A7
  GRA1 20:40:44.2 e (pP)   Z
NEIC:  OT 20:28:06.0 1S   89E  dep 10km  mb4.9
  SOUTH INDIAN OCEAN
-----
1999-11-30      D 97.9
  GRA1 04:15:16.5 i Pdiff c Z
  GRA1 04:15:22.6 e          Z
  GRA1 04:15:27.1 e          Z
  GRA1 04:15:30.2 e          Z
  GRA1 04:15:49.4 e pP      Z
  GRA1 04:15:54.4 e sP      Z
  GRA1 04:19:12.9 e PP      Z
  GRA1 04:25:37.1 e SKS     Z
  GRA1 04:28:02.6 e S       Z
  GRA1 04:31:47.4 e PKKP    Z
  GRA1 04:59:07.6 e L       Z  T20.5  A4638  MS6.0
NEIC:  OT 04:01:53.1 19S   69W  dep128km  mb6.2
  NORTHERN CHILE
-----
1999-11-30      D151.4
  GRA1 05:00:17.7 e PKPbc   Z
  GRA1 05:00:25.3 e PKPab   Z
  GRA1 05:00:37.3 e (pPKPbc)Z
  GRA1 05:00:43.0 e (pPKPab)Z
NEIC:  OT 04:40:24.7 21S   174W  dep 33km  mb5.0
  TONGA ISLANDS
-----
1999-11-30      D 68.8
  GRA1 08:36:02.0 e P      Z      mb4.7
  BEAM 08:36:02.0          T0.9  A5
NEIC:  OT 08:24:53.0 31N   104E  dep 33km  mb4.7
  SICHUAN, CHINA
-----
1999-11-30      D 31.3  AZ357
  GRA1 09:30:54.6 e P      Z      mb5.0
  BEAM 09:30:54.6          T1.4  A26
SZGRF: OT 09:24:35.2 81N   1E    dep 10km
  NORTH OF SVALBARD

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1999-11-30 D 51.4
GRA1 10:17:11.3 i P c Z mb5.0
ALIGN 10:17:11.3 T0.9 A18
GRA1 10:17:14.5 e (pP) Z
NEIC: OT 10:08:08.0 36N 81E dep 33km mb5.0
SOUTHERN XINJIANG, CHINA

1999-11-30 D146.7
GRA1 16:43:15.2 e PKPdf Z
NEIC: OT 16:23:34.6 21S 169E dep 33km mb5.7
LOYALTY ISLANDS REGION

1999-11-30 D150.7
GRA1 20:29:07.6 i PKPdf c Z
GRA1 20:29:14.3 i PKPbc d Z
GRA1 20:29:23.4 e PKPab Z
GRA1 20:31:24.9 e pPKPab Z
NEIC: OT 20:10:22.8 21S 179W dep548km mb5.3
FIJI ISLANDS REGION
