

## MONTHLY TELESEISMIC BULLETIN of SZGRF-ERLANGEN - November 1997

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H. Aichele, K. Klinge, R. Hohl, U. Mundl

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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1997-11-01            D146.7  
 GRA1    00:22:33.1    e PKPdf    Z  
 GRA1    01:28:14.5    e L            Z    T19.6    A600            MS5.4

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1997-11-01            D 42.6    AZ 84  
 GRA1    03:54:26.0    i P            c Z                                    mb5.1  
 ALIGN    03:54:26.0                                    T0.9    A32  
 GRA1    03:55:19.6    e (pP)        Z  
 SZGRF: OT 03:46:56.3    37.6N    69.1E    dep257km  
 AFGHANISTAN-USSR BORDER REGION

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1997-11-01  
 GRA1    03:59:37.2    e PKPdf    Z

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1997-11-01  
 GRA1    04:25:14.1    e PKPdf    Z

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1997-11-01            D 88.2    AZ128  
 GRA1    06:38:52.0    i P            d Z                                    mb5.3  
 ALIGN    06:38:52.0                                    T1.4    A23  
 GRA1    06:39:00.2    e pP            Z  
 GRA1    06:42:19.7    e PP            Z  
 GRA1    07:12:18.3    e L            Z    T19.0    A125            MS4.3  
 SZGRF: OT 06:26:25.7    22.0S    69.6E    dep 28km  
 MID-INDIAN RISE

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1997-11-01  
 GRA1    09:51:29.6    e PKPdf    Z  
 GRA1    09:51:39.1    e PKPab    Z

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1997-11-01 D 62.5 AZ 90  
GRA1 13:44:09.2 e P Z T0.8 A8 mb5.0  
GRA1 13:44:22.6 e pP Z  
SZGRF: OT 13:33:51.2  
INDIA

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1997-11-01 D 15.1 AZ 69  
GRA1 13:55:56.3 e (P) Z

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1997-11-01 D 80.9 AZ 26  
GRA1 16:20:40.1 e P Z mb4.4  
BEAM 16:20:40.1 T0.9 A4  
SZGRF: OT 16:08:30.5 44.2N 153.7E dep 33km  
KURIL ISLANDS REGION

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1997-11-01 D 3.6 401km  
GRA1 18:48:38.1 e Pn Z M13.7  
GRA1 18:49:35.7 e Sg N  
SZGRF: OT 18:47:41.5 51.6N 16.1E dep 1km  
POLAND

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1997-11-01  
GRA1 19:16:19.8 e PKPdf Z

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1997-11-01  
GRA1 19:30:45.0 e PKPab Z

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1997-11-01 D 83.6 AZ 39  
GRA1 22:25:27.2 e P Z  
NEIC: OT 22:13:01.1 36.0N 140.0E dep 33km mb4.5  
NEAR EAST COAST OF HONSHU, JAPAN

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1997-11-02 D 23.2 AZ107  
GRA1 00:31:27.4 i P c Z mb4.6  
ALIGN 00:31:27.4 T1.1 A24  
GRA1 00:31:33.1 e (pP) Z  
SZGRF: OT 00:26:23.4 38.8N 40.1E dep 24km  
TURKEY

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1997-11-02 D 92.4 AZ138  
GRA1 03:07:21.3 e P Z

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1997-11-02 D 20.2 AZ141  
GRA1 06:36:16.9 e P Z mb3.8  
BEAM 06:36:16.9 T1.1 A8

GRA1 06:43:23.1 e L Z T18.8 A444 MS3.8  
NEIC: OT 06:32:30.2 36.4N 22.1E dep 33km mb3.9  
SOUTHERN GREECE

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1997-11-02 D 82.4 AZ322  
GRA1 09:04:17.0 e P Z mb5.4  
ALIGN 09:04:17.0 T2.4 A81  
GRA1 09:04:40.9 e Z  
GRA1 09:04:54.2 e Z  
GRA1 09:40:33.3 e L Z T20.1 A1404 MS5.3

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1997-11-02  
GRA1 12:59:10.4 i PKPab d Z  
NEIC: OT 12:39:33.2 28.4S 180.0E dep450km mb4.8  
KERMADEC ISLANDS REGION

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1997-11-02 D 83.2 AZ129  
GRA1 14:57:16.7 e P Z mb5.0  
ALIGN 14:57:16.7 T1.4 A13  
GRA1 14:57:24.1 e pP Z  
GRA1 15:51:32.9 e L Z T20.6 A188 MS4.4  
NEIC: OT 14:44:11.4 27.7S 65.8E dep 10km mb4.9  
SOUTH INDIAN OCEAN

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1997-11-02 D 85.2  
GRA1 22:06:40.0 e P Z mb5.0  
BEAM 22:06:40.0 T2.3 A24  
GRA1 22:35:22.7 e L Z T21.1 A110 MS4.2

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1997-11-03 D 83.0 AZ 87  
GRA1 00:53:31.4 e P Z mb4.6  
ALIGN 00:53:31.4 T0.8 A3  
NEIC: OT 00:41:47.7 9.7N 93.9E dep150km mb4.3  
NICOBAR ISLANDS, INDIA

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1997-11-03 D 58.6 AZ 81  
GRA1 02:39:48.0 i P c Z mb5.0  
ALIGN 02:39:48.0 T1.0 A14  
GRA1 03:07:28.8 e L Z T19.0 A2011 MS5.3  
NEIC: OT 02:29:51.6 29.1N 85.4E dep 33km mb5.4  
XIZANG

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1997-11-03 D151.6  
GRA1 05:56:27.1 i PKPdf d Z  
GRA1 05:56:33.0 i PKPbc d Z  
GRA1 05:56:40.6 e PKPab Z  
GRA1 05:58:57.4 e pPKPbc Z

NEIC: OT 05:37:49.2 20.4S 178.7W dep600km mb5.1  
FIJI ISLANDS REGION

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1997-11-03

GRA1 06:48:47.0 e PKPdf Z

GRA1 07:49:18.1 e L Z T22.0 A416

NEIC: OT 06:29:16.6 13.2S 174.9E dep 33km mb5.1  
FIJI ISLANDS REGION

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1997-11-03 D 33.2 AZ 97

GRA1 07:06:15.1 e P Z mb4.6

BEAM 07:06:15.1 T1.0 A9

NEIC: OT 06:59:30.7 36.3N 54.5E dep 33km mb4.8  
NORTHERN IRAN

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1997-11-03 D 37.0 AZ107

GRA1 08:13:20.0 i P c Z mb5.3

ALIGN 08:13:20.0 T1.3 A89

SZGRF: OT 08:06:13.6 29.6N 52.5E dep 33km  
SOUTHERN IRAN

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1997-11-03

GRA1 08:21:28.0 e PKP Z

NEIC: OT 08:02:50.7 17.9S 178.6W dep600km mb4.2  
FIJI ISLANDS REGION

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1997-11-03 D 33.5 AZ108

GRA1 08:52:08.2 e P Z T0.9 A55 mb5.5

SZGRF: OT 08:45:32.1 31.6N 49.0E dep 33km  
WESTERN IRAN

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1997-11-03 D 82.3 AZ 60

GRA1 09:36:39.7 e P Z mb4.9

BEAM 09:36:39.7 T1.8 A18

NEIC: OT 09:24:03.7 24.2N 124.0E dep 33km mb4.7  
SOUTHWESTERN RYUKYU ISLANDS

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1997-11-03 D108.0

GRA1 19:31:53.1 e Pdiff c Z

GRA1 19:35:16.3 e Z

GRA1 19:36:19.0 e PP Z

GRA1 19:37:07.9 e pPP Z

GRA1 20:25:04.5 e L Z T19.6 A2279 MS5.7

NEIC: OT 19:17:33.8 30.8S 71.1W dep 47km mb6.2  
NEAR COAST OF CENTRAL CHILE

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1997-11-03 AZ252

GRA1 19:47:00.0 e Pdiff Z

GRA1 19:47:10.3 e pPdiff Z

GRA1 19:47:22.6 e (sPdiffer)Z

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1997-11-03 D149.8

GRA1 21:56:49.0 e PKPdf Z

GRA1 21:56:49.3 e PKPbc Z

GRA1 21:56:54.2 e PKPab Z

NEIC: OT 21:37:15.2 19.9S 175.4W dep152km mb5.2

TONGA ISLANDS

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1997-11-04 D151.8

GRA1 10:59:20.6 e PKP Z

GRA1 10:59:26.5 e PKPbc Z

GRA1 10:59:35.3 e PKPab Z

GRA1 11:01:50.5 e pPKPbc Z

GRA1 11:02:03.0 e (pPKPab)Z

GRA1 11:02:16.4 e (sPKPbc)Z

NEIC: OT 10:40:43.2 21.0S 179.2W dep621km mb5.1

FIJI ISLANDS REGION

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1997-11-04 D 87.3 AZ 54

GRA1 23:13:54.0 e P Z mb4.9

BEAM 23:13:54.0 T1.7 A17

SZGRF: OT 23:01:11.1 25.0N 128.9E dep 33km

RYUKYU ISLANDS

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1997-11-05 D 45.2 AZ101

GRA1 00:46:56.3 e P Z

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1997-11-05 D 86.6 AZ 38

GRA1 01:38:19.5 e P Z

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1997-11-05 D 65.6 AZ353

GRA1 01:53:22.4 e P Z mb4.7

ALIGN 01:53:22.4 T0.8 A4

GRA1 01:53:25.0 e pP Z

NEIC: OT 01:42:37.7 64.8N 155.0W dep 10km mb4.7

CENTRAL ALASKA

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1997-11-05 D 47.9

GRA1 06:39:32.7 e P Z

GRA1 06:46:28.5 e (S) Z

GRA1 07:21:30.1 e L Z T18.4 A858 MS4.8

SZGRF: OT 06:30:46.6

NORTH ATLANTIC OCEAN

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1997-11-05 D 74.3 AZ113

GRA1 10:10:44.0 i P c Z mb5.5  
ALIGN 10:10:44.0 T1.0 A54  
GRA1 10:11:01.8 e pP Z  
GRA1 10:11:06.2 e sP Z  
NEIC: OT 09:59:04.4 2.1S 73.8E dep 10km mb5.4  
MALDIVE ISLANDS REGION

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1997-11-05 D 15.0 AZ152  
GRA1 10:31:24.4 e P Z  
BEAM 10:31:24.4 T1.0 A9  
NEIC: OT 10:27:53.0 38.3N 23.5E dep 33km mb5.8  
GREECE

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1997-11-05  
GRB1 11:04:16.3 e P Z

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1997-11-05 D 17.4  
GRB1 12:26:56.6 e P Z T1.3 A381 mb5.4

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1997-11-05  
GRB1 12:35:10.5 e PKP Z

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1997-11-05  
GRB1 12:58:15.8 e (PKP) Z  
NEIC: OT 12:37:56.0 13.2S 175.2E dep 33km mb4.9  
FIJI ISLANDS REGION

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1997-11-05 D 79.1 AZ 31  
GRA1 20:16:27.9 i P c Z mb5.4  
ALIGN 20:16:27.9 T1.2 A48  
GRA1 20:16:32.3 e Z  
GRA1 20:16:34.2 e Z  
GRA1 20:16:59.7 e pP Z  
GRA1 20:44:04.1 e L Z T46.2 A114 MS3.8  
SZGRF: OT 20:04:39.2 43.6N 146.3E dep127km  
KURIL ISLANDS

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1997-11-05 D 13.8  
GRA1 21:13:46.4 e P Z  
GRA1 21:19:49.2 e L Z T18.0 A28702 MS5.4

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1997-11-05  
GRA1 21:22:39.2 e (PKP) Z

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1997-11-05      D 4.8  536km
  GRA1 23:24:07.2 e Pn      Z
  GRA1 23:25:25.0 e Sg      E
SZGRF: OT 23:22:54.9 50.4N 18.6E dep 5km
  POLAND
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1997-11-05      D 91.5
  GRA1 23:58:39.4 i P      c Z      mb5.7
  BEAM 23:58:39.4          T1.9    A85
  GRA1 00:02:19.0 e PP      Z
  GRA1 00:43:28.6 e L      Z T18.0 A3519 MS5.8
NEIC:  OT 23:45:33.9 27.9N 142.5E dep 33km mb5.4
  BONIN ISLANDS REGION
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1997-11-06      D 7.8
  GRA1 02:22:23.0 e PnI    Z
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1997-11-06      D 52.6
  GRA1 02:43:45.5 i P      c Z      mb4.9
  ALIGN 02:43:45.5          T1.2    A18
  GRA1 03:04:48.2 e L      Z T20.3 A113 MS3.9
NEIC:  OT 02:34:30.2 46.7N 71.4W dep 10km mb4.9
  SOUTHERN QUEBEC, CANADA
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1997-11-06      D 43.5  AZ 63
  GRA1 02:57:38.0 i P      c Z      mb4.5
  ALIGN 02:57:38.0          T0.9    A9
  GRA1 02:57:46.7 e (pP)   Z
  GRA1 03:17:14.1 e L      Z T18.8 A144 MS3.9
SZGRF: OT 02:49:39.1 49.0N 80.2E dep 33km
  EASTERN KAZAKH SSR
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1997-11-06      D150.8
  GRA1 11:02:18.0 e PKPdf   Z
  GRA1 11:02:22.3 e PKPbc   Z
  GRA1 11:02:29.5 e PKPab   Z
  GRA1 11:02:38.9 e (pPKPab)Z
  GRA1 12:01:16.1 e L      Z T21.8 A60 MS4.4
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1997-11-06      D 6.5
  GRA1 12:41:46.1 e PnI    Z
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1997-11-06      D 85.9  AZ284
  GRA1 17:41:34.8 i P      c Z      mb5.2
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ALIGN 17:41:34.8 T1.1 A24  
 GRA1 17:42:06.4 e pP Z  
 GRA1 18:17:29.8 e L Z T21.4 A170 MS4.4  
 SZGRF: OT 17:29:09.4 12.1N 86.6W dep124km  
 NICARAGUA

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 1997-11-06 D 91.4 AZ202  
 GRA1 20:19:29.4 e P Z mb4.9  
 BEAM 20:19:29.4 T1.3 A8  
 GRA1 20:56:00.3 e L Z T20.4 A107 MS4.3  
 SZGRF: OT 20:06:24.7 38.5S 17.5W dep 33km  
 SOUTH ATLANTIC RIDGE

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 1997-11-06 D141.3  
 GRA1 22:03:20.6 e PKPdf Z  
 GRA1 23:04:52.7 e L Z T21.5 A250 MS4.9

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 1997-11-06 D 77.9 AZ 26  
 GRA1 22:57:51.0 i P c Z mb5.6  
 ALIGN 22:57:51.0 T1.2 A61  
 GRA1 23:35:34.9 e L Z T20.1 A172 MS4.4  
 NEIC: OT 22:46:02.6 46.9N 152.3E dep108km mb4.8  
 KURIL ISLANDS

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 1997-11-07 D 78.3  
 GRA1 04:36:22.5 e P Z mb5.2  
 ALIGN 04:36:22.5 T1.6 A31  
 GRA1 04:36:33.2 e pP Z  
 GRA1 05:04:49.5 e L Z T21.9 A63 MS3.9  
 NEIC: OT 04:24:24.1 52.3N 164.8W dep 39km mb4.8  
 SOUTH OF ALASKA

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 1997-11-07  
 GRA1 14:00:35.9 e (PKPdf) Z  
 GRA1 14:00:46.2 e PKPab Z

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 1997-11-07  
 GRA1 22:51:04.7 e PKPab Z  
 GRA1 00:07:15.9 e L Z T21.9 A307

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 1997-11-08 D 4.7 527km  
 GRA1 01:57:36.7 e Pn Z  
 GRA1 01:58:43.5 e Sn E  
 NEIC: OT 01:56:05.7 44.1N 8.1E dep 10km  
 NORTHERN ITALY



1997-11-08 D 70.2 AZ 77  
GRA1 09:15:45.6 e P Z

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1997-11-08 D 58.9 AZ 71  
GRA1 10:12:27.4 e P Z mb6.9  
ALIGN 10:12:27.4 T2.9 A3685  
GRA1 10:12:42.0 e Z  
GRA1 10:12:51.5 e pP Z  
GRA1 10:14:44.3 e PP Z  
GRA1 10:20:21.0 e S Z  
GRA1 10:38:23.3 e L Z T19.2 A1742587 MS8.2  
SZGRF: OT 10:02:46.4 35.2N 92.5E dep 98km  
TSINGHAI PROVINCE, CHINA

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1997-11-08 D 3.7 409km  
GRA1 12:20:31.1 e Pn Z M14.3  
GRA1 12:21:29.7 e Sg E  
SZGRF: OT 12:19:32.9 51.5N 16.3E dep 1km  
POLAND

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1997-11-08 D 77.7 AZ 23  
GRA1 12:26:31.1 i P c Z mb5.6  
BEAM 12:26:31.1 T1.1 A52  
GRA1 12:27:10.7 e pP Z  
SZGRF: OT 12:14:54.4 48.5N 156.3E dep162km  
KURIL ISLANDS REGION

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1997-11-08 D 58.5 AZ 73  
GRA1 13:05:01.5 e P Z  
SZGRF: OT 12:55:09.3  
TSINGHAI PROVINCE, CHINA

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1997-11-08 D149.9  
GRA1 14:28:09.2 e PKPdf Z  
GRA1 14:28:18.4 e PKPab Z

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1997-11-08 D 7.0  
GRA1 15:33:37.6 e PnI Z  
GRA1 15:34:51.7 e SnI N  
GRA1 15:35:24.5 e Sg N M15.1

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1997-11-08 D 68.8 AZ 72  
GRA1 18:41:10.4 e P Z mb4.8  
BEAM 18:41:10.4 T1.2 A7  
SZGRF: OT 18:30:10.1 27.3N 99.8E dep 33km  
YUNNAN PROVINCE, CHINA

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1997-11-09 D 57.0 AZ 74  
GRA1 00:34:41.8 i P d Z mb5.3  
ALIGN 00:34:41.8 T1.3 A38  
GRA1 00:34:46.0 i pP c Z  
GRA1 01:00:57.3 e L Z T19.4 A852 MS4.9  
NEIC: OT 00:24:54.2 33.7N 88.3E dep 33km mb5.1  
XIZANG

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1997-11-09 D 65.0 AZ 72  
GRA1 04:28:32.0 i P d Z mb5.2  
ALIGN 04:28:32.0 T1.4 A20  
GRA1 04:28:40.3 e pP Z  
GRA1 04:54:10.1 e L Z T20.7 A311 MS4.5  
SZGRF: OT 04:17:55.7 30.1N 96.8E dep 30km  
TIBET

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1997-11-09 D 50.9 AZ114  
GRA1 04:42:49.3 e P Z mb4.5  
BEAM 04:42:49.3 T1.4 A9  
GRA1 04:42:55.5 e (pP) Z  
SZGRF: OT 04:33:49.7 15.9N 58.6E dep 23km  
ARABIAN SEA

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1997-11-09 D 30.1 AZ 90  
GRA1 05:32:45.6 e P Z

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1997-11-09 D 6.8  
GRA1 16:36:32.1 e PnI Z  
GRA1 16:37:49.2 e SnI Z  
GRA1 16:38:07.6 e Sg Z M14.5

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1997-11-09  
GRA1 17:35:55.1 i PKPdf d Z

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1997-11-09 D150.1  
GRA1 19:00:47.3 e PKPdf Z  
GRA1 19:00:52.8 e PKPbc Z  
GRA1 19:00:56.6 e (PKPab) Z

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1997-11-09 D150.3  
GRA1 19:01:36.0 e (PKPdf) Z  
GRA1 19:01:39.5 i PKP d Z  
GRA1 19:01:46.4 e PKPab Z

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1997-11-09 D 6.9  
 GRA1 19:09:17.0 e PnI Z  
 GRA1 19:10:34.9 e SnI Z  
 GRA1 19:11:16.6 e Sg Z M15.6

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 1997-11-09 D107.3 AZ243  
 GRA1 20:42:27.3 e PP Z  
 GRA1 21:25:22.1 e L Z T19.7 A265 MS4.8  
 NEIC: OT 20:23:40.4 30.0S 71.7W dep 28km mb5.2  
 NEAR COAST OF CENTRAL CHILE

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 1997-11-09 D 86.7 AZ288  
 GRA1 23:09:05.3 i P c Z mb5.9  
 ALIGN 23:09:05.3 T1.1 A122  
 GRA1 23:09:52.7 i pP d Z  
 GRA1 23:10:06.7 e Z  
 GRA1 23:10:11.0 e sP Z  
 GRA1 23:12:33.4 e PP Z  
 GRA1 23:13:15.6 e (pPP) Z  
 GRA1 23:27:04.6 e PKKP Z  
 GRA1 23:27:53.4 e (PKKS) Z  
 GRA1 23:35:04.4 e P'P' Z  
 GRA1 23:35:53.9 e (pP'P') Z  
 GRA1 23:44:43.0 e L Z T18.7 A3290 MS5.8  
 SZGRF: OT 22:56:43.7 14.0N 90.1W dep189km  
 NEAR COAST OF GUATEMALA

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 1997-11-09 D148.1  
 GRA1 23:26:59.9 e PKPdf Z  
 GRA1 23:27:05.1 e (PKPab) Z  
 GRA1 23:27:45.3 e pPKPdf Z  
 GRA1 23:27:53.4 e pPKPab Z

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 1997-11-10 D 59.7 AZ 72  
 GRA1 01:19:22.5 e P Z mb4.4  
 BEAM 01:19:22.5 T1.1 A4  
 SZGRF: OT 01:09:22.0 33.7N 92.3E dep 33km  
 TSINGHAI PROVINCE, CHINA

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 1997-11-10 D 71.7  
 GRA1 02:18:53.4 i P d Z mb4.7  
 BEAM 02:18:53.4 T1.3 A8

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 1997-11-10 D 54.6 AZ215  
 GRA1 12:57:07.0 i P c Z mb5.7  
 ALIGN 12:57:07.0 T1.9 A146

GRA1 12:57:13.6 e pP Z  
 GRA1 12:57:26.0 e Z  
 GRA1 12:58:12.2 e PcP Z  
 GRA1 12:59:06.7 e PP Z  
 GRA1 13:04:50.4 e S Z  
 GRA1 13:18:52.0 e L Z T22.0 A1419 MS5.0  
 SZGRF: OT 12:47:40.3 .5N 17.0W dep 24km  
 NORTH OF ASCENSION ISLAND

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1997-11-10 D 6.0  
 GRA1 17:10:41.5 e PnI Z  
 GRA1 17:11:50.4 e SnI Z  
 GRA1 17:13:50.1 e L Z T15.8 A164 MS2.6  
 NEIC: OT 17:08:53.1 43.2N 12.7E dep 10km  
 CENTRAL ITALY

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1997-11-10 D106.8  
 GRA1 20:09:08.3 e L Z T21.6 A420 MS5.0  
 NEIC: OT 19:04:20.8 12.3N 145.7E dep 33km mb5.3  
 SOUTH OF MARIANA ISLANDS

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1997-11-10 D 85.7 AZ 39  
 GRA1 23:19:25.0 i P d Z mb6.1  
 BEAM 23:19:25.0 T1.7 A248  
 GRA1 23:20:00.9 e pP Z  
 GRA1 23:22:50.7 i PP c Z  
 GRA1 23:23:26.2 e pPP Z  
 GRA1 00:05:50.0 e L Z T19.5 A2815 MS5.7  
 SZGRF: OT 23:07:03.9 34.0N 141.4E dep142km  
 OFF EAST COAST OF HONSHU, JAPAN

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1997-11-11  
 GRA1 01:03:56.5 e PKP Z

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1997-11-11 D141.0  
 GRA1 02:20:04.2 e PKPdf Z  
 GRA1 03:20:49.4 e L Z T21.6 A297 MS5.0

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1997-11-11 D 87.6  
 GRA1 03:55:37.0 e (P) Z  
 GRA1 03:56:09.3 e pP Z  
 GRA1 03:59:14.0 e PP Z  
 NEIC: OT 03:43:06.0 31.1N 140.4E dep 82km mb5.0  
 SOUTH OF HONSHU, JAPAN

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1997-11-11 D149.9  
 GRA1 08:33:32.4 e PKPdf Z

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GRA1 08:33:34.9 e PKPbc Z
GRA1 08:33:42.0 e PKPab Z
GRA1 08:34:07.4 e (pPKPbc)Z
NEIC: OT 08:13:56.6 16.0S 174.0W dep 33km mb4.8
TONGA ISLANDS
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1997-11-11 D 90.6
GRA1 10:22:01.5 e P Z mb5.1
BEAM 10:22:01.5 T1.5 A15
GRA1 11:14:51.2 e L Z T19.2 A245 MS4.7
NEIC: OT 10:09:00.1 28.7N 142.4E dep 33km mb5.0
BONIN ISLANDS REGION
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1997-11-11 D 87.6
GRA1 17:44:59.8 e (P) Z
GRA1 17:48:24.3 e PP Z
GRA1 18:25:55.4 e L Z T19.7 A73 MS4.1
NEIC: OT 17:32:16.2 31.2N 140.4E dep 84km mb5.0
SOUTH OF HONSHU, JAPAN
-----
1997-11-11 D 79.7 AZ 28
GRA1 20:11:47.8 i P c Z mb5.2
ALIGN 20:11:47.8 T1.0 A36
GRA1 20:12:11.2 e (pP) Z
GRA1 20:12:17.3 e sP Z
GRA1 20:52:58.0 e L Z T19.8 A64 MS4.0
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1997-11-11 D 83.4 AZ 50
GRA1 21:58:54.3 i P c Z mb5.0
ALIGN 21:58:54.3 T0.9 A10
GRA1 22:38:22.8 e L Z T21.8 A88 MS4.1
SZGRF: OT 21:46:31.0 30.0N 129.3E dep 33km
KYUSHU, JAPAN
-----
1997-11-11 D 55.9 AZ 72
GRA1 22:32:20.5 i P d Z mb4.7
ALIGN 22:32:20.5 T1.1 A9
GRA1 22:56:08.9 e L Z T21.7 A476 MS4.5
SZGRF: OT 22:22:47.2 36.2N 88.7E dep 33km
SOUTHERN SINKIANG PROV., CHINA
-----
1997-11-12 D 84.5 AZ 63
GRA1 00:22:08.6 e P Z mb4.8
BEAM 00:22:08.6 T1.0 A6
GRA1 01:05:07.8 e L Z T21.0 A99 MS4.2
NEIC: OT 00:09:29.0 21.6N 121.5E dep 33km mb5.0
TAIWAN REGION
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1997-11-12 D132.5  
GRA1 03:45:52.9 e PKPdf Z  
GRA1 03:46:07.9 e (pPKPdf)Z  
GRA1 04:38:27.1 e L Z T21.1 A291 MS5.0

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1997-11-12 D151.1  
GRA1 14:38:36.4 e PKPdf Z  
GRA1 14:38:39.0 i PKPbc c Z  
GRA1 14:38:50.0 e PKPab Z  
GRA1 14:39:31.8 e (pPKPbc)Z  
NEIC: OT 14:19:52.3 21.9S 179.7W dep600km mb4.7  
FIJI ISLANDS REGION

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1997-11-12 D 11.8  
GRA1 16:29:50.0 e PnI Z  
GRA1 16:32:02.0 e SnI Z  
GRA1 16:34:10.7 e Lg Z  
GRA1 16:35:54.0 e L Z T15.9 A2222 MS4.2  
NEIC: OT 16:26:59.7 39.4N 20.2E dep 34km mb5.1  
GREECE-ALBANIA BORDER REGION

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1997-11-12 D 59.4  
GRA1 21:42:21.5 e (P) Z  
GRA1 21:44:32.7 e PP Z  
GRA1 22:00:24.1 e L Z T18.2 A205 MS4.3

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1997-11-12 D 89.2 AZ288  
GRA1 22:06:50.3 i P d Z mb5.1  
ALIGN 22:06:50.3 T1.3 A18  
GRA1 22:07:06.4 e pP Z  
GRA1 22:07:12.0 e sP Z  
SZGRF: OT 21:54:00.9 12.1N 92.0W dep 55km  
OFF COAST OF CENTRAL AMERICA

---

1997-11-12 D 92.1 AZ287  
GRA1 22:07:23.9 e P Z mb5.4  
ALIGN 22:07:23.9 T1.3 A28  
GRA1 22:41:28.8 e L Z T21.6 A400 MS4.8  
SZGRF: OT 21:54:18.1 9.1N 92.8W dep 33km  
EAST CENTRAL PACIFIC OCEAN

---

1997-11-12 D 76.7 AZ 35  
GRA1 22:14:26.9 i P d Z mb5.6  
ALIGN 22:14:26.9 T1.0 A52  
NEIC: OT 22:03:06.6 43.3N 137.5E dep277km mb4.9  
EASTERN SEA OF JAPAN

---

1997-11-13 D 9.7  
GRA1 00:50:59.3 e PnI Z  
GRA1 00:52:48.1 e SnI Z  
GRA1 00:53:52.6 e Sg Z  
GRA1 00:54:43.1 e L Z T13.7 A562 MS3.6  
NEIC: OT 00:48:50.1 43.5N 20.4E dep 33km mb4.2  
NORTHWESTERN BALKAN REGION

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1997-11-13 D146.1  
GRA1 01:10:15.6 e (PKPdf) Z  
GRA1 01:10:17.0 i PKPbc c Z  
GRA1 01:10:24.0 e PKPab Z  
GRA1 02:08:47.1 e L Z T21.4 A76 MS4.4

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1997-11-13 D 15.0 AZ132  
GRA1 02:20:08.3 e P Z  
GRA1 02:26:52.4 e (L) Z

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1997-11-13 D 80.7 AZ 30  
GRA1 03:33:33.7 i P c Z mb5.1  
ALIGN 03:33:33.7 T0.9 A20  
GRA1 03:33:50.4 e pP Z  
SZGRF: OT 03:21:28.9 42.7N 148.6E dep 60km  
OFF COAST OF HOKKAIDO, JAPAN

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1997-11-13 D127.2  
GRA1 05:52:56.2 e PKPdf c Z  
GRA1 06:54:26.2 e L Z T21.4 A317 MS5.0

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1997-11-13 D 79.4  
GRA1 06:24:15.6 e P Z mb4.9  
ALIGN 06:24:15.6 T1.3 A15

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1997-11-13 D 56.3 AZ 73  
GRA1 10:08:10.7 e P Z mb4.7  
ALIGN 10:08:10.7 T1.0 A8  
GRA1 10:33:05.2 e L Z T20.2 A295 MS4.4  
SZGRF: OT 09:58:34.4  
TIBET

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1997-11-13 D 85.5 AZ 39  
GRA1 18:08:45.8 i P d Z mb5.2  
ALIGN 18:08:45.8 T0.9 A16  
GRA1 18:09:15.4 e pP Z  
SZGRF: OT 17:56:22.3 34.3N 141.6E dep115km

OFF EAST COAST OF HONSHU, JAPAN

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1997-11-13 D 28.3  
GRA1 18:04:44.4 e P Z  
GRA1 18:08:08.4 e (S) Z  
GRA1 18:14:39.5 e L Z T19.4 A903 MS4.4  
NEIC: OT 17:58:44.2 43.1N 29.3W dep 10km mb5.1  
NORTHERN MID-ATLANTIC RIDGE

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1997-11-13 D152.5  
GRA1 20:09:19.4 e PKPdf Z  
GRA1 20:09:27.5 e PKPbc Z  
GRA1 20:09:35.2 e PKPab Z

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1997-11-13  
GRA1 22:08:19.5 e PKPdf Z

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1997-11-13 D 74.4  
GRA1 22:13:48.0 e P Z mb4.7  
BEAM 22:13:48.0 T1.6 A14  
GRA1 22:14:06.8 e pP Z

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1997-11-14  
GRA1 00:22:41.0 e PnI Z  
GRA1 00:23:57.7 e SnI Z

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1997-11-14 D 84.4  
GRA1 04:42:23.3 e P c Z mb5.2  
BEAM 04:42:23.3 T1.6 A25  
GRA1 04:42:38.5 e (pP) Z  
GRA1 05:30:33.1 e L Z T20.0 A236 MS4.6

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1997-11-14 D127.9  
GRA1 07:41:08.4 e PKPdf Z  
GRA1 07:41:18.4 e pPKPdf Z  
GRA1 08:37:20.4 e L Z T20.4 A86

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1997-11-14  
GRA1 09:55:26.8 e PKPdf Z  
NEIC: OT 09:36:23.4 6.8S 155.2E dep 33km mb4.9  
SOLOMON ISLANDS

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1997-11-14 D 58.1 AZ227



GRA1 10:28:19.5 e P Z mb5.0  
 ALIGN 10:28:19.5 T0.9 A15  
 GRA1 10:36:26.6 e S Z  
 GRA1 10:51:11.6 e L Z T20.3 A933 MS4.9  
 SZGRF: OT 10:18:28.3 1.5N 27.1W dep 33km  
 CENTRAL MID-ATLANTIC RIDGE

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1997-11-14 D 90.4 AZ 40  
 GRA1 10:40:44.8 e P Z mb5.1  
 ALIGN 10:40:44.8 T1.3 A17  
 GRA1 10:42:09.3 e pP Z  
 NEIC: OT 10:27:38.4 27.7N 142.9E dep 33km mb4.8  
 BONIN ISLANDS REGION

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1997-11-14  
 GRA1 12:29:28.2 e PKPdf Z  
 GRA1 12:29:33.9 i pPKPdf Z

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1997-11-14 AZ149  
 GRA1 15:16:41.1 e P Z  
 NEIC: OT 15:12:32.1 35.5N 25.0E dep 33km  
 CRETE

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1997-11-14 D 81.1 AZ 26  
 GRA1 15:49:15.3 i P c Z mb5.1  
 ALIGN 15:49:15.3 T1.0 A18  
 SZGRF: OT 15:37:04.9 44.2N 154.3E dep 33km  
 KURIL ISLANDS REGION

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1997-11-14 D 29.2 AZ102  
 GRA1 16:48:58.5 e P Z mb4.3  
 BEAM 16:48:58.5 T1.7 A17  
 SZGRF: OT 16:43:00.6  
 NORTHWESTERN IRAN

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1997-11-14  
 GRA1 19:18:47.5 e P Z

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1997-11-14 D 15.0  
 GRA1 21:42:22.8 e P Z  
 GRA1 21:45:11.4 e (S) Z  
 GRA1 21:48:19.2 e L Z T15.2 A43806 MS5.7

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1997-11-14 D 48.7 AZ 73  
 GRA1 22:33:37.3 e P Z mb4.7  
 BEAM 22:33:37.3 T1.3 A9

SZGRF: OT 22:24:57.4

SOUTHERN SINKIANG PROV., CHINA

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1997-11-14      D149.3
  GRA1 23:03:17.2 e PKPdf  Z
  GRA1 23:03:20.1 e PKPbc d Z
  GRA1 23:03:25.0 e PKPab  Z
  GRA1 23:03:31.0 e (pPKPab)Z
  GRA1 23:57:58.1 e L      Z T20.5 A83      MS4.5
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1997-11-15      D 70.5 AZ265
  GRA1 02:45:54.2 e P      Z      mb4.8
  ALIGN 02:45:54.2      T1.3 A10
  GRA1 02:46:00.1 e pP     Z
  SZGRF: OT 02:34:40.7 11.6N 62.2W dep 21km
  WINDWARD ISLANDS
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1997-11-15      D 82.7 AZ 40
  GRA1 04:54:55.4 i P      c Z      mb5.5
  ALIGN 04:54:55.4      T1.2 A38
  GRA1 04:55:12.5 e pP     Z
  GRA1 05:35:42.2 e L      Z T20.4 A124 MS4.3
  NEIC: OT 04:42:34.1 36.9N 141.4E dep 64km mb4.9
  NEAR EAST COAST OF HONSHU, JAPAN
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1997-11-15      D 82.8
  GRA1 06:12:42.8 e P      Z      mb5.1
  ALIGN 06:12:42.8      T1.4 A18
  GRA1 06:48:12.0 e L      Z T19.3 A371 MS4.8
  NEIC: OT 06:00:20.0 37.2N 117.8W dep 5km mb4.7
  CALIFORNIA-NEVADA BORDER REGION
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1997-11-15      D 79.0 AZ 30
  GRA1 07:17:01.8 e P      Z      mb6.4
  ALIGN 07:17:01.8      T0.8 A314
  GRA1 07:17:41.2 e pP     Z
  GRA1 07:17:55.5 e sP     Z
  GRA1 07:19:45.2 e      Z
  GRA1 07:19:55.5 e      Z
  GRA1 07:20:00.0 e PP     Z
  GRA1 07:20:38.5 e pPP    Z
  GRA1 07:20:57.6 e (sPP) Z
  GRA1 07:55:24.7 e L      Z T19.1 A2362 MS5.5
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1997-11-15      D146.0
  GRA1 11:15:42.7 i PKPbc c Z
  GRA1 11:17:12.6 e pPKPbc Z
-----

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NEIC: OT 10:56:43.5 16.0S 176.0W dep362km mb4.9  
FIJI ISLANDS REGION

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1997-11-15

GRA1 12:28:44.5 e (PKPbc) Z

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1997-11-15 D 91.1 AZ 41

GRA1 13:21:20.0 e P Z mb4.6

BEAM 13:21:20.0 T0.8 A3

NEIC: OT 13:09:15.8 30.6N 138.7E dep404km mb4.5  
SOUTH OF HONSHU, JAPAN

---

1997-11-15 D140.4

GRA1 19:18:33.7 e PKPdf d Z

GRA1 19:19:15.2 e pPKPdf Z

GRA1 19:19:38.0 e sPKPdf Z

GRA1 19:21:42.3 e PP Z

GRA1 19:22:11.6 e pPP Z

GRA1 20:25:16.6 e L Z T21.5 A13202 MS6.7

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1997-11-15 AZ140

GRA1 22:48:12.6 e P Z

GRA1 22:48:17.2 e Z

NEIC: OT 22:44:37.3 38.9N 25.7E dep 10km mb4.5  
AEGEAN SEA

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1997-11-15 D 88.4 AZ 43

GRA1 23:12:03.7 i P d Z mb5.1

ALIGN 23:12:03.7 T1.1 A11

SZGRF: OT 22:59:15.9 29.8N 139.4E dep 33km  
SOUTH OF HONSHU, JAPAN

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1997-11-15 D 86.3 AZ 54

GRA1 23:30:07.6 e P Z T1.1 A10 mb4.8

GRA1 23:30:16.0 e pP Z

SZGRF: OT 23:17:29.3 25.8N 128.1E dep 29km  
RYUKYU ISLANDS

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1997-11-15

GRA1 23:41:58.1 e PKPdf Z

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1997-11-16 D 61.6 AZ 39

GRA1 03:06:05.3 e P Z mb4.7

BEAM 03:06:05.3 T1.1 A5

SZGRF: OT 02:55:52.4  
E. USSR-N.E. CHINA BORDER REGION

-----  
 1997-11-16 D 78.4 AZ 3  
 GRA1 05:01:42.7 i P c Z mb5.5  
 ALIGN 05:01:42.7 T1.1 A43  
 GRA1 05:01:55.7 i pP Z  
 GRA1 05:46:06.5 e L Z T18.2 A207 MS4.5  
 SZGRF: OT 04:49:48.8 52.2N 173.4W dep 45km  
 ANDREANOF ISLANDS, ALEUTIAN IS.

-----  
 1997-11-16 D 95.0  
 GRA1 08:31:34.8 i P c Z mb5.4  
 ALIGN 08:31:34.8 T1.2 A18  
 GRA1 08:31:50.4 e pP Z  
 GRA1 08:35:22.8 e PP Z  
 GRA1 09:16:41.5 e L Z T21.0 A283 MS4.7  
 NEIC: OT 08:18:16.4 4.9S 103.3E dep 58km mb5.5  
 SOUTHERN SUMATERA, INDONESIA

-----  
 1997-11-16  
 GRA1 12:12:51.0 e (PKPab) Z

-----  
 1997-11-16 D 87.2 AZ127  
 GRA1 20:22:52.5 e P d Z mb5.0  
 ALIGN 20:22:52.5 T1.3 A16  
 GRA1 20:22:58.9 e pP Z  
 GRA1 20:23:03.5 e sP Z  
 SZGRF: OT 20:10:06.7 21.0S 69.4E dep 24km  
 MID-INDIAN RISE

-----  
 1997-11-16  
 GRA1 23:43:22.4 e PKPdf Z  
 NEIC: OT 23:24:36.3 6.5S 147.4E dep100km mb4.8  
 EASTERN NEW GUINEA REG., P.N.G.

-----  
 1997-11-17 D 95.0 AZ 61  
 GRA1 00:27:32.2 e P Z mb4.8  
 BEAM 00:27:32.2 T0.8 A3  
 GRA1 00:27:42.8 e pP Z  
 GRA1 00:27:58.0 e Z  
 SZGRF: OT 00:14:13.8 14.5N 127.3E dep 36km  
 PHILIPPINE ISLANDS REGION

-----  
 1997-11-17 D150.7  
 GRA1 00:38:21.8 e PKPdf Z  
 GRA1 00:38:26.1 i PKPbc c Z  
 GRA1 00:38:33.1 e PKPab Z  
 GRA1 00:38:57.4 e (pPKPbc)Z  
 NEIC: OT 00:18:53.8 20.8S 174.7W dep200km mb4.3

## TONGA ISLANDS

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 1997-11-17 554km  
 GRA1 00:53:58.8 e PnI Z  
 GRA1 00:54:56.5 e (SnI) Z  
 GRA1 00:55:20.2 e Sg Z M13.7  
 NEIC: OT 00:52:29.9 44.3N 12.0E dep 10km  
 NORTHERN ITALY

-----  
 1997-11-17  
 GRA1 05:50:28.3 e PKP Z  
 NEIC: OT 05:31:15.6 9.4S 160.9E dep 33km mb4.8  
 SOLOMON ISLANDS

-----  
 1997-11-17 D150.4  
 GRA1 06:45:24.5 e PKPdf Z  
 GRA1 07:54:46.3 e L Z T18.5 A449 MS5.3  
 NEIC: OT 06:25:33.1 20.8S 174.3W dep 33km mb4.8  
 TONGA ISLANDS

-----  
 1997-11-17 D 78.7 AZ359  
 GRA1 10:39:56.0 i P c Z mb5.2  
 BEAM 10:39:56.0 T1.4 A34  
 GRA1 10:40:09.8 e (pP) Z  
 GRA1 11:20:33.7 e L Z T20.6 A254 MS4.5

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 1997-11-17 D 78.7  
 GRA1 14:10:54.0 i P d Z mb5.0  
 ALIGN 14:10:54.0 T1.2 A18  
 GRA1 14:51:42.7 e L Z T18.7 A184 MS4.4  
 NEIC: OT 13:58:53.9 52.2N 170.1W dep 33km mb4.8  
 FOX ISLANDS, ALEUTIAN ISLANDS

-----  
 1997-11-17  
 GRA1 14:35:13.8 e PKPab Z  
 NEIC: OT 14:16:22.0 15.1S 177.9W dep400km mb4.7  
 FIJI ISLANDS REGION

-----  
 1997-11-17 D 83.6 AZ 92  
 GRA1 17:08:02.1 e P Z mb5.2  
 ALIGN 17:08:02.1 T1.2 A17  
 GRA1 17:08:20.3 e pP Z  
 SZGRF: OT 16:55:41.1 3.7N 95.6E dep 66km  
 OFF W. COAST OF NORTHERN SUMATERA

-----  
 1997-11-17 D 15.0 AZ145  
 GRA1 18:33:03.7 e P Z  
 NEIC: OT 18:28:44.7 35.2N 27.6E dep 33km mb4.1

## DODECANESE ISLANDS

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 1997-11-17 D 3.6 397km  
 GRA1 20:17:18.6 e Pn Z M13.7  
 GRA1 20:18:16.5 e Sg E  
 SZGRF: OT 20:16:23.2 51.5N 16.1E dep 10km  
 POLAND

-----  
 1997-11-17 D 2.9 318km  
 GRC1 17:10:17.3 e Pg Z M13.4  
 GRA1 17:10:21.5 e Pg Z M13.6  
 GRA1 17:11:01.6 e Sg N  
 SZGRF: OT 17:09:24.9 47.7N 7.7E dep 39km  
 Schopfheim, NE of Basel/CH

-----  
 1997-11-18 D 3.6 400km  
 GRA1 01:35:00.6 e Pn Z M14.3  
 GRA1 01:35:57.6 e Sg N  
 SZGRF: OT 01:34:03.5 51.5N 16.1E dep 1km  
 POLAND

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 1997-11-18 D 11.2 AZ 99  
 GRA1 11:25:48.7 e P Z  
 ALIGN 11:25:48.7 T1.5 A39

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 1997-11-18 D 14.2  
 GRA1 13:10:57.0 i P Z  
 GRA1 13:13:59.6 e S Z  
 GRA1 13:18:07.1 e L Z T20.0 A128462 MS6.0

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 1997-11-18  
 GRA1 13:17:14.4 e P Z  
 NEIC: OT 13:13:45.9 37.3N 20.9E dep 33km mb5.3  
 IONIAN SEA

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 1997-11-18  
 GRA1 13:26:16.7 e P Z  
 NEIC: OT 13:27:21.6 37.4N 20.9E dep 33km  
 IONIAN SEA

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 1997-11-18  
 GRA1 13:47:32.2 e P Z  
 NEIC: OT 13:44:04.1 37.4N 21.1E dep 33km mb4.4  
 SOUTHERN GREECE

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 1997-11-18  
 GRA1 13:59:51.1 e P Z

NEIC: OT 13:56:20.8 37.3N 21.2E dep 33km mb4.9  
SOUTHERN GREECE

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1997-11-18

GRA1 14:07:04.1 e P Z  
NEIC: OT 14:03:32.5 37.3N 21.1E dep 33km mb4.2  
SOUTHERN GREECE

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1997-11-18

GRA1 14:28:54.7 e P Z  
NEIC: OT 14:25:27.8 37.4N 21.1E dep 33km mb4.4  
SOUTHERN GREECE

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1997-11-18

GRA1 15:13:50.7 e P Z

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1997-11-18 D 14.5

GRA1 15:26:50.5 e P Z

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1997-11-18 D159.4

GRA1 16:01:21.6 e PKPdf c Z  
GRA1 16:01:36.9 e pPKPdf Z  
GRA1 16:01:58.0 e PKPab Z  
GRA1 16:02:10.5 e pPKPab Z  
NEIC: OT 15:41:29.6 29.0S 177.6W dep 52km mb5.8  
KERMADEC ISLANDS, NEW ZEALAND

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1997-11-18

GRA1 16:23:32.2 e P Z  
NEIC: OT 16:20:03.8 37.3N 21.2E dep 33km mb4.2  
SOUTHERN GREECE

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1997-11-18

GRA1 18:23:48.7 e PKPdf Z  
NEIC: OT 18:04:11.4 21.7S 176.5W dep152km mb4.6  
FIJI ISLANDS REGION

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1997-11-18

GRA1 19:25:16.0 e P Z  
NEIC: OT 19:21:48.8 37.5N 20.9E dep 33km mb4.2  
IONIAN SEA

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1997-11-18

GRA1 20:09:48.4 e P Z  
NEIC: OT 20:06:17.8 37.3N 21.3E dep 33km mb4.1  
SOUTHERN GREECE

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1997-11-18

GRA1 20:54:57.2 e P Z  
NEIC: OT 20:51:28.8 37.4N 21.1E dep 33km mb4.2  
SOUTHERN GREECE

---

1997-11-18

GRA1 21:06:15.6 e P Z  
NEIC: OT 21:02:47.6 37.5N 20.7E dep 33km  
IONIAN SEA

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1997-11-18

GRA1 23:03:11.0 e P Z  
NEIC: OT 22:59:41.1 37.4N 21.2E dep 33km mb4.5  
SOUTHERN GREECE

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1997-11-18

D 2.5 277km  
GRC1 12:24:34.0 e Pg Z M13.2  
GRA1 12:24:43.1 e Pg Z M13.3  
GRA1 12:25:23.3 e Sg E  
SZGRF: OT 12:23:48.9 47.1N 9.1E dep 35km  
Glarus, Walenstadt/CH, Walensee

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1997-11-19

GRA1 00:36:32.8 e P Z  
NEIC: OT 00:33:07.1 37.5N 20.8E dep 33km mb5.4  
IONIAN SEA

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1997-11-19

GRA1 02:05:00.3 e PnI Z  
GRA1 02:06:03.1 e SnI Z

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1997-11-19

GRA1 02:52:02.9 e P Z  
NEIC: OT 02:48:34.7 37.5N 21.0E dep 33km mb4.7  
SOUTHERN GREECE

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1997-11-19

GRA1 03:36:30.9 e (P) Z

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1997-11-19

GRA1 06:14:01.8 e P Z  
NEIC: OT 06:10:29.8 37.2N 21.2E dep 33km mb5.2  
SOUTHERN GREECE

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1997-11-19

GRA1 11:58:45.5 e P Z



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1997-11-19 D144.1  
GRA1 12:28:59.0 e PKPdf c Z  
GRA1 12:29:03.2 e pPKPdf Z  
GRA1 13:36:18.0 e L Z T21.1 A639 MS5.4  
NEIC: OT 12:09:25.6 14.5S 175.9W dep 33km mb5.1  
SAMOA ISLANDS REGION

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1997-11-19  
GRA1 15:11:30.8 e PnI Z  
GRA1 15:12:48.1 e SnI Z  
NEIC: OT 15:09:47.4 42.9N 12.9E dep 10km  
CENTRAL ITALY

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1997-11-19 D 83.9 AZ 40  
GRA1 17:19:45.4 i P d Z mb5.0  
ALIGN 17:19:45.4 T0.8 A8  
GRA1 17:19:58.7 e (pP) Z  
SZGRF: OT 17:07:21.7 35.3N 139.9E dep 46km  
NEAR S. COAST OF HONSHU, JAPAN

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1997-11-19 D 59.7 AZ 72  
GRA1 22:08:05.0 e P d Z mb4.6  
BEAM 22:08:05.0 T0.9 A7  
SZGRF: OT 21:58:04.5 34.0N 92.6E dep 33km  
TSINGHAI PROVINCE, CHINA

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1997-11-19 D 23.7 AZ308  
GRA1 22:46:59.6 e P Z mb4.1  
BEAM 22:46:59.6 T1.3 A9  
SZGRF: OT 22:41:51.1  
NORTH ATLANTIC OCEAN

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1997-11-19  
GRA1 23:56:59.7 e P Z

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1997-11-20  
GRA1 01:54:48.1 e P Z

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1997-11-20 D 80.2 AZ 33  
GRA1 02:08:27.7 e P Z mb4.7  
BEAM 02:08:27.7 T1.4 A14  
GRA1 02:08:38.5 e (pP) Z  
NEIC: OT 01:56:19.5 41.0N 142.5E dep 33km mb4.9  
NEAR EAST COAST OF HONSHU, JAPAN

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1997-11-20

GRA1 04:00:42.1 e PnI Z  
GRA1 04:01:59.2 e SnI Z  
NEIC: OT 03:58:43.1 41.9N 13.4E dep 10km  
SOUTHERN ITALY

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1997-11-20

GRA1 05:09:34.1 i P c Z  
NEIC: OT 05:06:02.3 37.3N 21.3E dep 33km mb5.2  
SOUTHERN GREECE

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1997-11-20

GRA1 16:41:35.2 e PKPdf Z  
GRA1 16:41:41.8 e pPKPdf Z

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1997-11-20

D 94.6 AZ138  
GRA1 16:54:56.3 e P Z mb4.9  
BEAM 16:54:56.3 T0.9 A4  
GRA1 16:55:02.4 e pP Z  
SZGRF: OT 16:41:35.3 32.9S 64.1E dep 21km  
SOUTH INDIAN OCEAN

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1997-11-20

GRA1 23:46:47.2 e P Z

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1997-11-21

D 24.5 AZ309  
GRA1 04:37:10.1 e P Z T1.4 A34 mb4.7  
GRA1 04:37:19.9 e pP Z  
GRA1 04:46:35.5 e L Z T20.1 A1088 MS4.3  
SZGRF: OT 04:31:55.1 59.7N 28.1W dep 38km  
NORTH ATLANTIC OCEAN

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1997-11-21

D 98.8 AZ255  
GRA1 07:17:09.0 e (Pdiff) Z  
GRA1 07:17:23.2 e pPdiff Z  
GRA1 07:17:29.2 e sPdiff Z  
GRA1 07:56:48.5 e L Z T20.2 A191 MS4.6  
NEIC: OT 07:03:30.9 15.6S 74.4W dep 47km mb5.1  
NEAR COAST OF PERU

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1997-11-21

GRA1 08:20:55.6 e PKPdf Z  
GRA1 08:21:00.4 e pPKPdf Z

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1997-11-21

D 68.2 AZ 81  
GRA1 11:34:02.1 i P d Z mb6.1  
ALIGN 11:34:02.1 T1.4 A196

GRA1 11:34:16.1 e pP Z  
 GRA1 11:36:34.3 e PP Z  
 GRA1 11:36:49.6 e pPP Z  
 GRA1 12:06:47.3 e L Z T20.6 A6285 MS5.8  
 NEIC: OT 11:23:06.5 22.2N 92.7E dep 56km mb6.0  
 INDIA-BANGLADESH BORDER REGION

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1997-11-21

GRA1 12:20:34.1 e P Z

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1997-11-21

GRA1 17:26:10.3 e P Z

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1997-11-21

GRA1 17:51:04.9 e P Z

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1997-11-21

GRA1 20:29:11.5 e PKPdf Z

GRA1 20:29:23.4 e (pPKPdf)Z

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1997-11-22 D 72.8 AZ 82

GRA1 02:45:40.1 i P c Z mb5.1

ALIGN 02:45:40.1 T1.5 A21

GRA1 02:45:54.4 e pP Z

SZGRF: OT 02:34:17.6 18.0N 95.5E dep 50km

BURMA

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1997-11-22 D147.8

GRA1 04:33:15.1 e (PKPdf) Z

GRA1 04:33:15.9 i PKPbc c Z

GRA1 04:33:19.4 e PKPab Z

NEIC: OT 04:14:28.2 17.8S 178.7W dep500km mb4.4

FIJI ISLANDS REGION

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1997-11-22 D 2.9 320km

GRA1 04:56:55.3 e Pn Z M14.1

GRA1 04:57:05.5 e Pg Z

GRA1 04:57:44.9 e Sg E

SZGRF: OT 04:56:12.7 47.2N 9.2E dep 31km

Glarus, Walenstadt/CH, Walensee

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1997-11-22

GRA1 07:16:37.4 e P Z

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1997-11-22

GRA1 08:14:51.9 e PKPdf Z  
 GRA1 08:15:02.7 e pPKPdf Z  
 NEIC: OT 07:55:48.0 6.8S 155.3E dep 33km mb4.8  
 SOLOMON ISLANDS

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 1997-11-22 AZ150  
 GRA1 08:48:17.3 e P Z  
 GRA1 08:48:27.0 e P1 Z  
 NEIC: OT 08:44:54.4 37.4N 21.0E dep 10km mb4.1  
 SOUTHERN GREECE

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 1997-11-22  
 GRA1 21:50:22.9 e PKPdf Z

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 1997-11-22  
 GRA1 23:32:35.1 e PKPdf Z

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 1997-11-23  
 GRA1 00:16:05.7 e PKPdf Z  
 NEIC: OT 23:56:52.7 15.1S 167.5E dep100km mb5.0  
 VANUATU ISLANDS

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 1997-11-23  
 GRA1 00:37:28.6 i PKPdf d Z  
 GRA1 00:37:39.0 e pPKPdf Z  
 GRA1 01:42:53.7 e L Z T21.5 A708  
 NEIC: OT 00:17:46.1 21.7S 170.3E dep 33km mb5.2  
 LOYALTY ISLANDS REGION

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 1997-11-23  
 GRA1 01:18:08.0 e PKPab Z

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 1997-11-23 D 79.9 AZ 37  
 GRA1 04:03:07.3 i P c Z mb5.9  
 ALIGN 04:03:07.3 T1.0 A178  
 GRA1 04:03:14.9 e pP Z  
 GRA1 04:06:04.0 e PP Z  
 GRA1 04:37:32.5 e L Z T18.1 A1775 MS5.4  
 SZGRF: OT 03:51:02.1 40.3N 140.5E dep 26km  
 HONSHU, JAPAN

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 1997-11-23 D 79.1 AZ\*\*\*  
 GRA1 07:10:09.0 e P Z mb5.2  
 ALIGN 07:10:09.0 T1.2 A31  
 GRA1 07:10:19.9 e pP Z  
 GRA1 07:56:11.6 e L Z T19.1 A282 MS4.6

SZGRF: OT 06:58:10.4 51.6N 170.2W dep 38km  
FOX ISLANDS, ALEUTIAN ISLANDS

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1997-11-23

GRA1 07:44:09.3 e PKPab Z  
NEIC: OT 07:24:23.8 51.2S 139.5E dep 10km mb4.4  
SOUTH OF AUSTRALIA

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1997-11-23 D 95.1

GRA1 08:49:09.3 e Pdiff Z  
BEAM 08:49:09.3 T1.0 A4  
GRA1 08:49:17.1 e pPdiff Z  
NEIC: OT 08:35:55.5 5.3S 102.8E dep100km mb5.1  
SOUTHERN SUMATERA, INDONESIA

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1997-11-23 D 95.1 AZ 46

GRA1 10:43:04.3 e P Z mb4.9  
BEAM 10:43:04.3 T0.8 A4  
SZGRF: OT 10:29:45.4 22.4N 140.1E dep 33km  
VOLCANO ISLANDS REGION

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1997-11-23 D 69.8 AZ 77

GRA1 13:08:48.0 e P Z mb5.0  
BEAM 13:08:48.0 T1.9 A22  
SZGRF: OT 12:57:41.6 23.8N 97.3E dep 33km  
BURMA-CHINA BORDER REGION

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1997-11-23

GRA1 15:47:18.1 e P Z  
GRA1 15:47:27.6 e P1 Z  
GRA1 15:47:38.0 e P2 Z

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1997-11-23 D 85.7 AZ 49

GRA1 17:36:18.7 e P Z mb4.4  
BEAM 17:36:18.7 T1.1 A3  
GRA1 17:36:38.2 e pP Z  
GRA1 17:36:46.4 e sP Z  
NEIC: OT 17:23:45.5 24.1N 123.0E dep 33km mb4.9  
TAIWAN REGION

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1997-11-23

GRA1 18:55:26.6 e PKPdf Z  
GRA1 18:55:31.1 e pPKPdf Z  
GRA1 19:48:45.3 e L Z T21.0 A194  
NEIC: OT 18:36:37.2 3.4S 145.9E dep 33km mb5.1  
NEAR N COAST OF NEW GUINEA, PNG.

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1997-11-23

GRA1 19:27:55.2 e PKP d Z  
NEIC: OT 19:08:20.3 19.1S 169.9E dep 33km mb4.8  
VANUATU ISLANDS

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1997-11-23 D 68.9 AZ113  
GRA1 12:05:29.9 e P Z mb4.9  
ALIGN 12:05:29.9 T1.1 A9  
GRA1 12:05:33.5 e pP Z  
GRA1 12:39:29.5 e L Z T21.4 A222 MS4.4  
NEIC: OT 11:54:13.6 1.3S 67.7E dep 10km mb5.0  
CARLSBERG RIDGE

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1997-11-24 D 79.7 AZ359  
GRA1 01:21:31.4 e P Z mb5.4  
ALIGN 01:21:31.4 T1.2 A66  
GRA1 01:21:42.7 e pP Z  
GRA1 01:57:24.7 e L Z T20.7 A145 MS4.3  
SZGRF: OT 01:09:29.4 51.0N 166.8W dep 39km  
ALEUTIAN ISLANDS REGION

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1997-11-24 D 60.7 AZ 73  
GRA1 02:10:41.5 e P Z mb4.3  
BEAM 02:10:41.5 T1.3 A6  
SZGRF: OT 02:00:34.3  
TIBET

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1997-11-24  
GRA1 05:34:01.4 e P Z  
GRA1 05:34:04.7 e P1 Z  
NEIC: OT 05:30:31.1 37.4N 21.3E dep 10km mb4.3  
SOUTHERN GREECE

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1997-11-24 D 42.1 AZ 61  
GRA1 23:22:15.7 i P d Z mb4.4  
ALIGN 23:22:15.7 T1.2 A10  
NEIC: OT 23:13:26.3 49.0N 89.6E dep 10km mb4.7  
MONGOLIA

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1997-11-25 AZ142  
GRA1 06:20:36.0 e (P) Z  
GRA1 06:26:12.8 e L Z T18.3 A274  
NEIC: OT 06:17:47.0 40.3N 20.3E dep 10km  
GREECE-ALBANIA BORDER REGION

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1997-11-25 AZ 63  
GRA1 07:06:29.8 e P Z

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1997-11-25 D 22.8 AZ346

GRA1 08:34:13.8 e P Z mb4.2  
 BEAM 08:34:13.8 T1.5 A11  
 GRA1 08:42:41.0 e L Z T21.0 A394 MS3.8  
 SZGRF: OT 08:29:13.9  
 JAN MAYEN ISLAND REGION

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1997-11-25 D102.7  
 GRA1 12:28:29.7 e Pdiff Z  
 GRA1 12:31:23.9 e Z  
 GRA1 12:32:32.2 e PP Z  
 GRA1 13:22:43.0 e L Z T19.5 A29580 MS6.8  
 NEIC: OT 12:14:34.6 1.2N 122.5E dep 33km mb6.1  
 MINAHASSA PENINSULA, SULAWESI

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1997-11-25 D 23.7 AZ252  
 GRA1 14:20:50.1 i P c Z mb5.1  
 ALIGN 14:20:50.1 T1.2 A79  
 GRA1 14:20:58.3 e pP Z  
 SZGRF: OT 14:15:41.5 38.4N 18.0W dep 33km  
 NORTH ATLANTIC OCEAN

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1997-11-25 D 80.2 AZ 25  
 GRA1 17:13:36.9 i P c Z mb5.6  
 ALIGN 17:13:36.9 T1.1 A98  
 GRA1 17:13:44.5 e pP Z  
 GRA1 17:13:51.7 e sP Z  
 GRA1 17:52:02.0 e L Z T18.4 A642 MS5.0  
 SZGRF: OT 17:01:31.1 45.4N 154.9E dep 31km  
 KURIL ISLANDS REGION

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1997-11-25 D 63.3 AZ340  
 GRA1 22:38:44.0 e P Z mb4.5  
 BEAM 22:38:44.0 T0.9 A3  
 GRA1 22:38:46.8 e pP Z  
 NEIC: OT 22:28:11.9 64.2N 133.2W dep 10km mb4.9  
 SOUTHERN YUKON TERRITORY, CANADA

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1997-11-26  
 GRA1 04:13:55.8 e (PKPab) Z

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1997-11-26  
 GRA1 04:24:30.3 e PKPab Z  
 GRA1 04:24:36.6 e pPKPab Z

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1997-11-26 D 80.5 AZ 27  
 GRA1 14:57:43.6 i P d Z mb5.1  
 ALIGN 14:57:43.6 T0.8 A16

SZGRF: OT 14:45:36.1 44.2N 152.4E dep 33km  
KURIL ISLANDS REGION

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1997-11-26 D 87.5 AZ318  
GRA1 15:51:41.0 e P Z  
GRA1 15:51:54.3 e (pP) Z  
GRA1 16:29:23.6 e L Z T20.1 A2164 MS5.6

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1997-11-26 D 82.4 AZ 53  
GRA1 15:55:57.0 e P Z mb5.2  
ALIGN 15:55:57.0 T1.1 A21  
GRA1 15:56:06.0 e pP Z  
SZGRF: OT 15:43:38.7 29.1N 125.8E dep 31km  
OFF COAST OF EASTERN CHINA

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1997-11-26 D 7.2  
GRA1 19:16:58.5 e PnI Z  
GRA1 19:18:21.0 e SnI Z  
GRA1 19:18:41.3 e Sg Z M14.3

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1997-11-27  
GRA1 00:33:46.0 e PKPab Z  
GRA1 00:33:54.7 e pPKPab Z  
GRA1 01:19:32.2 e L Z T19.4 A150

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1997-11-27 D 14.3  
GRA1 02:30:29.7 e P Z  
GRA1 02:30:41.2 i P1 c Z  
GRA1 02:30:47.9 e pP1 Z  
GRA1 02:33:10.6 e (S) Z  
GRA1 02:36:02.1 e L Z T18.4 A249 MS3.4  
NEIC: OT 02:27:12.3 37.3N 20.7E dep 33km mb4.7  
IONIAN SEA

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1997-11-27 D 4.5 501km  
GRA1 04:05:11.7 e Pg Z  
GRA1 04:06:13.5 e Sg E  
SZGRF: OT 04:03:49.5 46.2N 7.0E dep 5km  
SWITZERLAND

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1997-11-27 D 14.4  
GRA1 04:32:50.4 e PnI Z  
GRA1 04:33:02.5 e P Z  
GRA1 04:35:46.1 e S Z  
GRA1 04:39:57.3 e L Z T15.9 A1426 MS4.2  
NEIC: OT 04:29:32.1 37.2N 21.0E dep 33km mb4.9



## SOUTHERN GREECE

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 1997-11-27 D 3.7 408km  
 GRA1 06:39:17.5 e Pn Z M14.2  
 GRA1 06:40:15.9 e Sg E  
 SZGRF: OT 06:38:19.7 51.5N 16.2E dep 1km  
 POLAND

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 1997-11-27 D 4.4 493km  
 GRA1 07:04:36.9 e PnI Z  
 GRA1 07:05:41.0 e SnI Z  
 GRA1 07:06:13.4 e Sg Z M14.0  
 GRA1 07:07:35.3 e L Z T15.1 A314 MS2.7

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 1997-11-27 D158.4  
 GRA1 07:41:21.3 e PKPab Z  
 GRA1 07:44:59.3 e PP Z  
 NEIC: OT 07:21:13.8 29.6S 179.0W dep229km mb5.0  
 KERMADEC ISLANDS, NEW ZEALAND

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 1997-11-27 D 61.1 AZ 81  
 GRA1 16:22:08.3 i P d Z mb4.9  
 ALIGN 16:22:08.3 T1.0 A21  
 GRA1 16:22:16.9 e pP Z  
 GRA1 16:51:01.2 e L Z T18.9 A188 MS4.3  
 SZGRF: OT 16:11:57.9 27.4N 87.7E dep 31km  
 NEPAL

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 1997-11-27 D 24.0 AZ 94  
 GRA1 17:39:50.9 e P c Z mb5.2  
 ALIGN 17:39:50.9 T0.9 A81  
 GRA1 17:39:53.9 e Z  
 GRA1 17:40:00.1 e pP Z  
 GRA1 17:44:20.7 e S Z  
 GRA1 17:51:38.8 e L Z T18.3 A3180 MS4.8  
 SZGRF: OT 17:34:39.7 42.7N 44.6E dep 37km  
 WESTERN CAUCASUS

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 1997-11-27 D 14.7  
 GRA1 19:28:08.6 e P Z

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 1997-11-27 D 4.6 513km  
 GRA1 19:31:35.7 e PnI Z  
 GRA1 19:32:26.1 e SnI Z  
 GRA1 19:32:49.4 e Sg Z M13.6  
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1997-11-27 D151.0

GRA1 22:32:36.8 e PKPdf Z  
GRA1 22:32:41.9 i PKPbc c Z  
GRA1 22:32:48.7 e PKPab Z  
GRA1 22:33:14.3 e (pPKPbc)Z

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1997-11-27

GRA1 23:28:03.4 e PKP Z

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1997-11-28 D 91.4 AZ 42

GRA1 00:15:27.2 e P Z mb5.3  
ALIGN 00:15:27.2 T1.5 A23  
GRA1 00:19:16.9 e PP Z  
GRA1 01:00:12.5 e L Z T19.1 A270 MS4.7

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1997-11-28 D 14.8 AZ153

GRA1 06:00:41.1 e PnI Z  
GRA1 06:00:51.6 e P Z  
GRA1 06:03:25.1 e SnI Z  
GRA1 06:07:40.8 e L Z T18.6 A297 MS3.4

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1997-11-28 D 75.7 AZ 28

GRA1 06:21:52.8 i P d Z mb6.2  
ALIGN 06:21:52.8 T1.2 A250  
GRA1 06:23:22.8 i pP c Z  
NEIC: OT 06:10:47.8 47.2N 145.6E dep393km mb5.4  
SEA OF OKHOTSK

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1997-11-28

GRA1 07:15:25.1 e PKPdf Z  
GRA1 07:15:29.8 e pPKPdf Z

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1997-11-28

GRA1 14:24:47.1 e PKPdf Z  
GRA1 14:24:56.3 e pPKPdf Z  
NEIC: OT 14:06:04.5 21.1S 179.2W dep635km mb4.3  
FIJI ISLANDS REGION

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1997-11-28 D 62.9 AZ 78

GRA1 15:15:51.9 e P Z mb4.5  
BEAM 15:15:51.9 T0.6 A3  
SZGRF: OT 15:05:29.7  
TIBET

1997-11-28 D149.0  
GRA1 20:37:15.8 e (PKPdf) Z  
GRA1 20:37:17.8 i PKPbc d Z  
GRA1 20:37:22.8 e PKPab Z  
NEIC: OT 20:18:26.0 19.6S 178.4W dep500km mb4.6  
FIJI ISLANDS REGION

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1997-11-28 D 92.5 AZ254  
GRA1 23:05:59.1 i P d Z mb6.9  
ALIGN 23:05:59.1 T0.9 A446  
GRA1 23:08:09.5 e pP Z  
GRA1 23:08:53.5 e (sP) Z  
GRA1 23:09:53.5 e PP Z  
GRA1 23:30:59.2 e (PKKP) Z  
GRA1 23:33:34.6 e pPKKP Z  
GRA1 23:46:31.0 e L Z T20.6 A2255 MS5.6  
SZGRF: OT 22:53:48.0 12.0S 68.5W dep573km  
PERU-BOLIVIA BORDER REGION

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1997-11-29 D152.4  
GRA1 03:01:08.4 e PKPdf Z  
GRA1 03:01:14.6 i PKPbc d Z  
GRA1 03:01:23.7 e PKPab Z  
GRA1 03:03:36.5 e (pPKPbc)Z  
NEIC: OT 02:42:28.0 20.8S 178.9W dep581km mb5.1  
FIJI ISLANDS REGION

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1997-11-29 D 91.3 AZ 65  
GRA1 03:56:05.7 e P Z mb4.6  
BEAM 03:56:05.7 T1.0 A4  
GRA1 03:56:21.6 e (pP) Z  
GRA1 03:56:32.9 e (sP) Z  
GRA1 04:49:55.7 e L Z T22.0 A1052 MS5.2  
SZGRF: OT 03:43:07.7 14.7N 121.2E dep 63km  
LUZON, PHILIPPINE ISLANDS

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1997-11-29  
GRA1 08:43:34.1 e PKPab Z

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1997-11-29 D 69.6  
GRA1 09:11:05.2 e (P) Z

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1997-11-29  
GRA1 09:32:50.8 e PKPab Z  
NEIC: OT 09:13:40.0 24.4S 179.8E dep550km mb4.7  
SOUTH OF FIJI ISLANDS

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1997-11-29 D 2.0 217km  
 GRA1 10:55:12.7 e Pn Z M13.5  
 GRA1 10:55:40.4 e Sg N  
 SZGRF: OT 10:54:38.2 50.3N 8.3E dep 10km  
 Limburg/Lahn

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 1997-11-29 D 2.5 280km  
 GRA1 18:55:37.1 e Pg Z  
 SZGRF: OT 18:54:50.3 50.3N 7.4E dep 10km  
 Koblenz

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 1997-11-29 D 2.0 217km  
 GRA1 20:06:43.7 e Pn Z M14.0  
 GRA1 20:07:11.9 e Sg E  
 SZGRF: OT 20:06:09.3 50.3N 8.4E dep 7km  
 Bad Homburg/Taunus

-----  
 1997-11-29 D 2.0 217km  
 GRA1 23:01:56.0 e Pg Z  
 GRA1 23:02:20.9 e Sg E  
 SZGRF: OT 23:01:19.0 50.3N 8.3E dep 10km  
 Limburg/Lahn

-----  
 1997-11-29 D 86.4 AZ286  
 GRA1 14:31:55.9 e P Z mb5.0  
 BEAM 14:31:55.9 T2.0 A25  
 GRA1 14:32:07.9 e (pP) Z  
 GRA1 14:32:19.1 e (sP) Z  
 GRA1 15:06:16.9 e L Z T20.6 A4915 MS5.9  
 NEIC: OT 14:18:57.0 11.2N 86.2W dep 50km mb5.1  
 NEAR COAST OF NICARAGUA

-----  
 1997-11-29  
 GRA1 15:36:20.2 e PKPdf Z  
 NEIC: OT 15:17:43.5 8.3S 128.2E dep 39km mb5.2  
 TIMOR SEA

-----  
 1997-11-29 D 7.0  
 GRA1 19:17:08.3 e PnI Z  
 GRA1 19:18:14.5 e Sn Z M14.5  
 GRA1 19:18:48.3 e Sg Z

-----  
 1997-11-29 D 96.2 AZ 58  
 GRA1 21:24:22.4 e P Z mb5.6  
 ALIGN 21:24:22.4 T1.4 A26  
 GRA1 21:24:46.0 e pP Z  
 GRA1 21:24:54.4 e sP Z  
 SZGRF: OT 21:11:04.9

## EAST OF PHILIPPINE ISLANDS

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-----
1997-11-30      D  3.6  405km
  GRA1  01:10:29.5  e Pn      Z      M14.0
  GRA1  01:11:27.8  e Sg      N
SZGRF: OT 01:09:32.5  51.6N  16.1E dep  1km
  POLAND
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1997-11-30
  GRA1  07:11:11.8  e PKPdf  Z
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1997-11-30
  GRA1  07:24:20.5  e PKPdf  Z
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1997-11-30      D  7.3
  GRA1  11:26:26.1  e PnI     Z
  GRA1  11:27:42.5  e SnI     Z
  GRA1  11:28:27.0  e Sg      Z      M15.0
  GRA1  11:29:50.1  e L       Z  T16.4  A926  MS3.5
-----

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1997-11-30      D 24.0  AZ277
  GRA1  16:05:20.6  e P       Z      mb4.1
  BEAM  16:05:20.6                T1.5   A9
  GRA1  16:05:27.6  e pP     Z
  GRA1  16:14:32.8  e L       Z  T18.7  A173  MS3.6
SZGRF: OT 16:00:08.4  46.9N  24.8W dep 28km
  NORTH ATLANTIC RIDGE
-----

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-----
1997-11-30      D 44.1  AZ264
  GRA1  18:05:44.1  i P       c Z      mb4.8
  ALIGN 18:05:44.1                T1.2   A22
  GRA1  18:05:50.6  e pP     Z
  GRA1  18:12:19.3  e S       Z
  GRA1  18:21:13.5  e L       Z  T18.3  A1046  MS4.8
SZGRF: OT 17:57:38.0  30.0N  41.8W dep 24km
  NORTH ATLANTIC RIDGE
-----

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-----
1997-11-30      D 79.3  AZ  4
  GRA1  18:31:34.9  e P       Z      mb4.5
  BEAM  18:31:34.9                T1.1   A5
SZGRF: OT 18:19:34.1  51.2N 175.0W dep 33km
  ANDREANOF ISLANDS, ALEUTIAN IS.
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1997-11-30      D149.2
  GRA1  19:22:43.3  i PKPdf  d Z
  GRA1  19:22:50.7  e PKPab  Z
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NEIC: OT 19:03:59.3 20.0S 178.3W dep600km mb4.4  
FIJI ISLANDS REGION

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1997-11-30 D 7.6  
GRA1 19:49:38.4 e PnI Z  
GRA1 19:50:50.3 e (SnI) Z

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1997-11-30 D 56.8 AZ256  
GRA1 19:57:21.0 e P Z mb4.5  
BEAM 19:57:21.0 T1.0 A5  
GRA1 20:12:37.8 e L Z T20.1 A169 MS4.1  
SZGRF: OT 19:47:39.7 16.9N 47.0W dep 33km  
NORTH ATLANTIC RIDGE

---

1997-11-30 D 42.7 AZ263  
GRA1 20:30:26.7 e P Z mb4.4  
ALIGN 20:30:26.7 T1.0 A8  
GRA1 20:30:32.5 e pP Z  
GRA1 20:45:15.8 e L Z T19.4 A136 MS3.9  
SZGRF: OT 20:22:31.9 30.6N 40.1W dep 22km  
NORTH ATLANTIC RIDGE

---

1997-11-30 D148.9  
GRA1 21:19:48.8 e PKPdf Z  
GRA1 21:19:55.6 e PKPab Z  
GRA1 22:08:19.9 e L Z T18.0 A579 MS5.4  
NEIC: OT 21:01:05.8 20.0S 178.5W dep600km mb4.4  
FIJI ISLANDS REGION

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1997-11-30 D 44.7 AZ265  
GRA1 22:25:48.1 i P c Z mb5.4  
ALIGN 22:25:48.1 T1.9 A89  
GRA1 22:25:54.2 i pP d Z  
GRA1 22:25:58.7 e sP Z  
GRA1 22:41:07.0 e L Z T18.8 A307 MS4.3  
SZGRF: OT 22:17:37.9 30.4N 42.9W dep 25km  
NORTH ATLANTIC RIDGE

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