

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

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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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1997-09-01      D151.8
  GRA1 00:23:53.4 e PKPdf  Z
  GRA1 00:23:59.9 i PKPbc d Z
  GRA1 00:24:06.9 e PKPab  Z
NEIC: OT 00:05:04.0 20.4S 177.8W dep485km mb4.4
  FIJI ISLANDS REGION
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1997-09-01      D 81.3  AZ 22
  GRA1 00:34:55.0 e P      Z          mb4.2
  BEAM 00:34:55.0          T1.2   A4
  GRA1 00:35:09.3 e (pP)   Z
SZGRF: OT 00:22:46.0
  KURIL ISLANDS REGION
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1997-09-01      D 85.1  AZ 54
  GRA1 03:49:23.2 e P      Z          mb4.8
  ALIGN 03:49:23.2          T1.1   A7
  GRA1 03:49:32.3 e pP     Z
SZGRF: OT 03:36:51.3 26.4N 126.7E dep 31km
  RYUKYU ISLANDS
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1997-09-01      D 37.1  AZ226
  GRA1 05:28:18.2 e P      Z
  GRA1 05:35:59.1 e (S)    Z
  GRA1 05:52:17.0 e L      Z  T18.7  A123  MS3.7
SZGRF: OT 05:21:10.8
  NORTHWEST AFRICA
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1997-09-01      D 77.3  AZ 6
  GRA1 07:52:27.3 e P      Z          mb5.0
  BEAM 07:52:27.3          T1.2   A14
  GRA1 07:52:43.1 e (pP)   Z
  GRA1 08:31:42.8 e L      Z  T20.2  A212  MS4.5
SZGRF: OT 07:40:40.6 53.0N 178.2W dep 56km

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## ANDREANOF ISLANDS, ALEUTIAN IS.

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1997-09-01      D 57.4  AZ212
  GRA1 12:46:09.5 e P      Z      mb5.2
  ALIGN 12:46:09.5          T1.2  A31
  GRA1 12:48:22.5 e PP     Z
  GRA1 12:54:05.7 e (S)   Z
  GRA1 13:11:50.5 e L     Z T18.5 A2668  MS5.4
SZGRF: OT 12:36:19.3 3.2S 15.3W dep 10km
  NORTH OF ASCENSION ISLAND
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1997-09-01      D 78.5  AZ 12
  GRA1 14:18:33.9 i P      c Z      mb5.3
  ALIGN 14:18:33.9          T1.1  A36
  GRA1 14:54:27.8 e L     Z T21.7 A87  MS4.1
SZGRF: OT 14:06:37.6 50.9N 172.3E dep 33km
  ALEUTIAN ISLANDS REGION
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1997-09-01
  GRA1 15:07:33.6 e PKPab  Z
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1997-09-01          AZ 78
  GRA1 16:02:23.5 e (P)   Z
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1997-09-01      D 58.0  AZ217
  GRA1 23:09:01.6 i P      d Z T2.2  A84  mb5.4
  GRA1 23:10:58.2 e PP     Z
  GRA1 23:32:59.6 e L     Z T19.2 A1099 MS5.0
SZGRF: OT 22:59:10.5 2.1S 19.5W dep 33km
  CENTRAL MID-ATLANTIC RIDGE
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1997-09-02      D 2.9  321km
  GRC1 00:32:22.8 e Sg     N
  GRA1 00:32:31.9 e Sg     E      M13.1
SZGRF: OT 00:30:50.0 47.6N 7.8E dep 10km
  Saecingen, NE of Liestal/CH, Swiss-German border
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1997-09-02      D 80.0  AZ 30
  GRA1 00:31:53.0 e P      Z T1.0  A57  mb5.5
  GRA1 01:10:02.0 e L     Z T21.3 A239 MS4.5
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1997-09-02      D 83.0  AZ 46
  GRA1 00:51:45.2 i P      c Z      mb5.0
  ALIGN 00:51:45.2          T0.8  A8
  GRA1 01:43:55.4 e L     Z T19.1 A66  MS4.0
SZGRF: OT 00:39:24.5 33.0N 133.4E dep 33km
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## SHIKOKU, JAPAN

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1997-09-02 D 47.2 AZ 39  
GRA1 00:55:28.4 e P Z mb4.4  
BEAM 00:55:28.4 T1.2 A4  
SZGRF: OT 00:47:00.0 62.3N 100.0E dep 33km  
CENTRAL SIBERIA

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1997-09-02 D 66.0 AZ269  
GRA1 02:59:36.0 e P Z mb4.8  
BEAM 02:59:36.0 T2.0 A13  
NEIC: OT 02:41:36.2 29.1S 71.3W dep 33km mb4.8  
NEAR COAST OF CENTRAL CHILE

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1997-09-02 D150.5  
GRA1 10:06:35.1 e (PKPdf) Z  
GRA1 10:06:38.2 e PKPbc Z  
GRA1 10:06:46.4 e PKPab Z  
NEIC: OT 09:46:58.9 21.7S 176.3W dep139km mb4.7  
FIJI ISLANDS REGION

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1997-09-02 D 95.3 AZ270  
GRA1 12:25:38.2 i P c Z mb7.3  
ALIGN 12:25:38.2 T1.3 A1607  
GRA1 12:26:31.8 e pP Z  
GRA1 12:28:15.5 e Z  
GRA1 12:28:56.6 e PP Z  
GRA1 12:51:46.9 e P'P' Z  
GRA1 12:58:26.2 e L Z T20.6 A13245 MS6.4  
SZGRF: OT 12:12:39.3 3.8S 82.5W dep218km  
OFF COAST OF NORTHERN PERU

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1997-09-02 D 84.8 AZ 50  
GRA1 13:23:08.3 e P Z mb4.8  
BEAM 13:23:08.3 T0.8 A6  
NEIC: OT 13:10:30.0 30.1N 131.2E dep 33km mb4.5  
KYUSHU, JAPAN

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1997-09-02 D 94.6 AZ 59  
GRA1 19:28:18.9 e P Z mb4.8  
BEAM 19:28:18.9 T1.0 A4  
SZGRF: OT 19:15:01.8  
EAST OF PHILIPPINE ISLANDS

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1997-09-02 D 18.5 AZ251  
GRA1 20:51:52.7 e P Z mb3.6  
BEAM 20:51:52.7 T1.8 A9  
GRA1 21:35:14.7 e L Z T20.4 A100 MS3.1  
SZGRF: OT 20:47:39.8

## NORTH ATLANTIC OCEAN

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 1997-09-02 D 4.4 495km  
 GRA1 00:24:22.6 e Sg N M13.2  
 SZGRF: OT 00:22:00.4 50.2N 18.1E dep 1km  
 POLAND  
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1997-09-03 D 20.0 AZ140  
 GRA1 04:40:32.0 e PnI Z  
 SZGRF: OT 04:35:59.7  
 EASTERN MEDITERRANEAN SEA  
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1997-09-03 D155.1  
 GRA1 06:42:39.1 e PKPdf Z  
 GRA1 06:42:48.6 e PKPbc Z  
 GRA1 06:42:58.8 e PKPab Z  
 GRA1 06:46:41.7 e PP Z  
 NEIC: OT 06:22:43.6 55.1S 129.0W dep 10km mb5.1  
 PACIFIC-ANTARCTIC RIDGE  
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1997-09-03 D149.8  
 GRA1 14:54:16.4 e PKPdf Z  
 GRA1 14:54:20.0 e PKPbc Z  
 GRA1 14:55:17.7 e (pPKPbc)Z  
 NEIC: OT 14:35:38.3 17.3S 178.1W dep600km mb4.3  
 FIJI ISLANDS REGION  
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1997-09-03  
 GRA1 19:43:09.5 e PKP Z  
 NEIC: OT 19:24:30.6 17.7S 178.8W dep600km mb4.7  
 FIJI ISLANDS REGION  
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1997-09-03 D 87.2 AZ 42  
 GRA1 20:27:59.7 e P Z mb4.8  
 BEAM 20:27:59.7 T1.7 A14  
 GRA1 21:03:51.8 e L Z T18.7 A911 MS5.2  
 NEIC: OT 20:15:46.5 35.2N 133.1E dep 33km mb4.8  
 WESTERN HONSHU, JAPAN  
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1997-09-03 D 72.4 AZ294  
 GRA1 21:33:00.3 e P Z  
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1997-09-03 D 3.0 332km  
 GRA1 21:50:24.3 e Sg N M13.2  
 SZGRF: OT 21:48:50.4 49.1N 6.7E dep 1km  
 Lauterbach, SW of Saarbruecken, French-German border  
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1997-09-03 D 6.8

GRA1 22:09:12.9 e PnI Z  
GRA1 22:10:39.8 e SnI Z  
GRA1 22:12:31.4 e L Z T15.1 A2321 MS3.9

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1997-09-03

GRA1 22:28:31.8 e (PnI) Z  
GRA1 22:30:49.4 e SnI E

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1997-09-03 D 16.1

GRA1 23:18:37.6 e P Z  
GRA1 23:18:47.8 e Z  
GRA1 23:23:58.1 e L Z T18.0 A165 MS3.3  
NEIC: OT 23:15:41.4 38.4N 16.3E dep 10km  
SOUTHERN ITALY

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1997-09-04 D 16.5 AZ160

GRA1 00:08:56.6 e PnI Z  
GRA1 00:15:25.6 e L Z T20.0 A41 MS2.6  
SZGRF: OT 00:05:06.8  
MEDITERRANEAN SEA

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1997-09-04 D 19.3 AZ310

GRA1 00:11:00.2 e PnI Z  
GRA1 00:23:58.7 e L Z T18.3 A34 MS2.7  
SZGRF: OT 00:06:36.6  
NORTH ATLANTIC OCEAN

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1997-09-04 D 67.4 AZ228

GRA1 01:02:50.9 e P Z mb4.9  
BEAM 01:02:50.9 T2.3 A18

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1997-09-04 D 3.6 405km

GRA1 01:46:42.8 e Pn Z M13.1  
GRA1 01:47:39.0 e Sg E  
SZGRF: OT 01:45:43.9 48.0N 16.1E dep 10km  
AUSTRIA

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1997-09-04 D157.3

GRA1 04:42:19.8 i PKPdf c Z  
GRA1 04:42:31.6 e PKPbc Z  
GRA1 04:42:49.6 e PKPab Z  
GRA1 04:44:56.9 e pPKPdf Z  
GRA1 04:45:02.8 e pPKPbc Z  
GRA1 04:45:14.4 e pPKPab Z  
GRA1 04:46:03.3 e SKP Z  
GRA1 04:46:26.4 e PP Z

GRA1 04:48:28.6 e pPP Z  
 GRA1 04:49:33.8 e sPP Z  
 GRA1 04:51:52.4 e PPP Z  
 GRA1 04:52:40.3 e (pPPP) Z  
 GRA1 04:53:20.0 e sPPP Z  
 NEIC: OT 04:23:36.5 26.5S 178.3E dep618km mb6.3  
 SOUTH OF FIJI ISLANDS

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1997-09-04

GRA1 05:19:14.6 e PKPab Z

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1997-09-04 D157.0

GRA1 06:21:06.4 i PKPdf d Z  
 GRA1 06:21:16.0 i PKPbc d Z  
 GRA1 06:21:35.2 i PKPab c Z  
 GRA1 06:23:50.8 e pPKPab Z  
 NEIC: OT 06:02:24.7 26.1S 178.2E dep628km mb5.2  
 SOUTH OF FIJI ISLANDS

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1997-09-04 D 75.5 AZ 41

GRA1 14:31:40.6 e P Z mb4.6  
 BEAM 14:31:40.6 T0.7 A4  
 GRA1 14:31:56.1 e pP Z  
 SZGRF: OT 14:20:04.0  
 SEA OF JAPAN

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1997-09-04 D123.0

GRA1 21:11:13.0 i PKPdf c Z  
 GRA1 21:12:58.7 e PP Z  
 NEIC: OT 20:52:58.0 3.5S 151.4E dep362km mb5.2  
 NEW IRELAND REGION, P.N.G.

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1997-09-04

GRA1 21:14:00.7 e PKP Z

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1997-09-04

GRA1 21:14:11.9 i PKPdf d Z

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1997-09-04

GRA1 21:24:19.7 e PKPab Z

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1997-09-04 D 4.2 461km

GRA1 22:22:22.6 e Pn Z M13.3  
 GRA1 22:23:30.9 e Sg N  
 SZGRF: OT 22:21:18.6 46.0N 14.1E dep 10km

## YUGOSLAVIA

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1997-09-05

GRA1 01:22:46.7 e PKPdf Z

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1997-09-05

D 3.6 405km

GRA1 01:27:31.5 e Pn Z

M13.9

GRA1 01:28:29.3 e Sg E

SZGRF: OT 01:26:33.9 51.4N 16.3E dep 1km

POLAND

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1997-09-05

D149.0

GRA1 01:31:59.3 e PKPdf Z

GRA1 01:32:06.2 e PKPab Z

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1997-09-05

D 56.4 AZ218

GRA1 07:10:24.7 e P Z

mb4.6

BEAM 07:10:24.7 T0.9 A5

GRA1 07:32:43.7 e L Z T20.8 A59 MS3.7

SZGRF: OT 07:00:45.4 .3S 19.6W dep 33km

CENTRAL MID-ATLANTIC RIDGE

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1997-09-05

D 79.2 AZ 29

GRA1 10:43:39.8 i P c Z mb5.9

ALIGN 10:43:39.8 T1.2 A137

GRA1 10:43:54.3 e pP Z

GRA1 10:43:58.2 e sP Z

GRA1 11:21:33.5 e L Z T20.9 A1207 MS5.2

SZGRF: OT 10:31:41.5 44.8N 149.8E dep 48km

KURIL ISLANDS

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1997-09-05

D 3.5 392km

GRA1 19:29:22.8 e Pn Z M13.2

GRA1 19:30:20.7 e Sg E

SZGRF: OT 19:28:26.7 51.4N 16.0E dep 1km

POLAND

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1997-09-06

D 39.5 AZ320

GRA1 01:50:03.8 e P Z

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1997-09-06

D 20.0 AZ142

GRA1 03:36:08.1 e PnI Z

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1997-09-06

D 20.1 AZ343

GRA1 04:25:12.1 e PnI Z

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1997-09-06      D 87.8  AZ295
  GRA1 09:07:34.6 e P      c Z      mb5.3
  ALIGN 09:07:34.6          T1.3   A19
  GRA1 09:07:47.2 e pP     Z
  GRA1 09:07:55.3 e sP     Z
  GRA1 09:49:14.2 e L      Z T20.9 A70      MS4.1
SZGRF: OT 08:54:51.4 17.8N 96.9W dep 47km
  OAXACA, MEXICO
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1997-09-06      D 96.2
  GRA1 11:10:09.0 e P      Z      mb4.9
  BEAM 11:10:09.0          T1.2   A4
  GRA1 11:13:21.9 e PP     Z
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1997-09-06      D 3.7  413km
  GRA1 12:55:43.6 e Pn     Z      M13.6
  GRA1 12:56:43.3 e Sg     E
SZGRF: OT 12:54:45.2 51.6N 16.2E dep 1km
  POLAND
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1997-09-06      D 49.2  AZ 98
  GRA1 15:49:27.8 e P      Z
SZGRF: OT 15:40:42.7
  PAKISTAN
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1997-09-06
  GRA1 18:15:41.4 e PKPab  Z
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1997-09-07      D 87.5  AZ272
  GRA1 02:58:55.5 i P      d Z      mb4.8
  ALIGN 02:58:55.5          T1.3   A11
  GRA1 02:59:03.0 e pP     Z
  GRA1 03:29:25.5 e L      Z T21.1 A34      MS3.7
SZGRF: OT 02:46:10.0 3.3N 78.7W dep 26km
  SOUTH OF PANAMA
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1997-09-07      D 45.6  AZ 92
  GRA1 10:23:51.7 i P      c Z      mb5.6
  ALIGN 10:23:51.7          T2.2   A145
  GRA1 10:23:60.0 e pP     Z
  GRA1 10:25:46.8 e PP     Z
  GRA1 10:49:31.0 e L      Z T21.1 A507      MS4.4
SZGRF: OT 10:15:34.6 31.2N 67.7E dep 31km
  AFGHANISTAN
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1997-09-07

GRA1 12:47:18.2 e PKPdf Z

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1997-09-07 D129.8

GRA1 13:15:13.0 e PKPdf Z

GRA1 13:15:23.0 i PKiKP d Z

GRA1 13:16:54.0 e pPKPdf Z

GRA1 13:17:02.7 e pPKiKP Z

GRA1 13:17:24.2 e PP Z

GRA1 13:18:03.7 e Z

GRA1 13:18:20.1 e (SKPdf) Z

GRA1 14:08:56.9 e L Z T21.2 A149 MS4.7

NEIC: OT 12:57:06.7 6.0S 154.4E dep421km mb5.6

SOLOMON ISLANDS

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1997-09-07 D 90.5 AZ 65

GRA1 14:44:59.2 i P d Z mb5.0

ALIGN 14:44:59.2 T1.0 A9

GRA1 14:45:35.9 e pP Z

GRA1 14:48:35.0 e PP Z

SZGRF: OT 14:32:33.8 15.4N 120.7E dep145km

LUZON, PHILIPPINE ISLANDS

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1997-09-07

GRA1 22:29:12.5 e PKPdf Z

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1997-09-07 D 6.6

GRA1 23:29:47.5 e Pn Z M14.6

GRA1 23:30:58.8 e Sn E

GRA1 23:33:11.1 e L Z T15.9 A343 MS3.0

SZGRF: OT 23:28:09.9 43.3N 13.3E dep 10km

CENTRAL ITALY

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1997-09-07 D 85.3 AZ 40

GRA1 23:52:56.8 i P c Z mb5.8

ALIGN 23:52:56.8 T1.1 A74

GRA1 23:53:28.2 e pP Z

GRA1 23:55:56.8 e PP Z

GRA1 00:32:06.8 e L Z T18.2 A85 MS4.2

SZGRF: OT 23:40:35.0 34.0N 140.5E dep123km

SOUTH OF HONSHU, JAPAN

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1997-09-08 AZ145

GRA1 01:21:46.0 e P Z

GRA1 01:28:22.1 e L Z T20.8 A56

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1997-09-08

GRA1 01:53:47.5 e PKPdf Z  
GRA1 01:54:01.2 e pPKPdf Z  
GRA1 02:48:06.5 e L Z T19.2 A66

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1997-09-08

GRA1 04:10:17.7 e PKPdf Z  
GRA1 04:10:26.1 e pPKPdf Z

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1997-09-08

GRA1 04:19:27.6 e PKPdf Z  
NEIC: OT 03:59:52.4 50.1S 131.3E dep 10km  
SOUTH OF AUSTRALIA

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1997-09-08 D 41.7 AZ103

GRA1 06:40:12.2 e P Z mb4.3  
BEAM 06:40:12.2 T0.7 A5  
SZGRF: OT 06:32:26.5  
SOUTHERN IRAN

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1997-09-08

GRA1 09:01:24.7 i PKPab c Z

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1997-09-08 D149.4

GRA1 11:59:51.2 e PKPdf Z  
GRA1 11:59:59.4 e PKPab Z

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1997-09-08

GRA1 15:04:14.6 e (P) Z

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1997-09-08

GRA1 17:14:46.3 e (P) Z

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1997-09-08 D 90.1 AZ139

GRA1 18:10:15.0 e P d Z mb5.1  
ALIGN 18:10:15.0 T1.2 A15  
GRA1 18:10:25.8 e pP Z  
GRA1 18:10:33.0 e sP Z  
GRA1 18:45:39.0 e L Z T25.4 A155 MS4.3  
SZGRF: OT 17:57:17.6 29.5S 60.3E dep 40km  
ATLANTIC-INDIAN RISE

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1997-09-08

GRA1 23:55:20.4 e PKPdf Z

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 1997-09-09 D150.3  
 GRA1 00:09:23.9 e PKPdf Z  
 GRA1 00:09:34.2 e PKPab Z  
 GRA1 01:21:32.1 e L Z T18.2 A347 MS5.2  
 NEIC: OT 23:49:32.5 20.7S 174.5W dep 33km mb5.1  
 TONGA ISLANDS

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 1997-09-09 D 5.0  
 GRA1 00:50:05.9 e PnI Z  
 GRA1 00:50:59.1 e SnI Z

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 1997-09-09 D 86.3 AZ274  
 GRA1 05:58:22.0 i P c Z mb5.2  
 ALIGN 05:58:22.0 T1.3 A24  
 GRA1 05:58:30.0 e pP Z  
 GRA1 06:31:53.3 e L Z T20.0 A117 MS4.3  
 SZGRF: OT 05:45:42.6 5.2N 79.1W dep 27km  
 SOUTH OF PANAMA

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 1997-09-09 D 51.7 AZ 75  
 GRA1 08:24:53.7 e P Z mb4.8  
 ALIGN 08:24:53.7 T1.0 A13  
 GRA1 08:45:29.6 e L Z T19.5 A340 MS4.4  
 SZGRF: OT 08:15:51.0 37.4N 83.2E dep 33km  
 SOUTHERN SINKIANG PROV., CHINA

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 1997-09-09 D 1.1 122km  
 GRB1 09:57:56.9 e Pg Z M12.6  
 GRA1 09:57:57.0 e Pg Z M12.1  
 GRA1 09:58:11.0 e Sg E  
 SZGRF: OT 09:57:36.7 50.3N 12.7E dep 1km  
 Karlovy Vary/CR

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 1997-09-09 D 76.8 AZ 21  
 GRA1 23:28:25.9 e P Z mb5.1  
 ALIGN 23:28:25.9 T1.3 A19  
 GRA1 23:28:54.3 e (pP) Z  
 GRA1 00:02:45.3 e L Z T21.7 A75 MS4.0  
 SZGRF: OT 23:16:48.6 50.1N 158.8E dep112km  
 KURIL ISLANDS REGION

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 1997-09-10 D 6.7  
 GRA1 06:48:25.9 e Pn Z M14.2  
 GRA1 06:49:42.7 e Sn N

SZGRF: OT 06:46:52.0

CENTRAL ITALY

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1997-09-10 D152.5  
GRA1 13:16:56.9 i PKPdf c Z  
GRA1 13:17:03.4 e PKPbc Z  
GRA1 13:17:11.2 e PKPab Z  
GRA1 13:17:25.7 e (pPKPab)Z  
GRA1 13:20:45.6 e PP Z  
GRA1 14:25:52.7 e L Z T21.0 A4610 MS6.3

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1997-09-10 D101.9 AZ169  
GRA1 22:43:24.7 e Pdiff Z  
GRA1 22:47:33.3 e PP Z  
GRA1 23:29:34.2 e L Z T20.1 A1349 MS5.5  
NEIC: OT 22:29:26.4 52.8S 19.6E dep 10km mb5.3  
SOUTHWEST OF AFRICA

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1997-09-10 D 76.4 AZ353  
GRA1 22:55:26.6 e P Z mb4.4  
BEAM 22:55:26.6 T0.8 A3  
GRA1 22:55:41.8 e pP Z  
NEIC: OT 22:43:59.0 56.9N 154.0W dep102km mb4.3  
KODIAK ISLAND REGION

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1997-09-11 D101.8  
GRA1 01:29:11.6 e PP Z  
GRA1 01:29:21.2 e pPP Z  
GRA1 02:11:09.3 e L Z T21.3 A208 MS4.6  
NEIC: OT 01:11:02.3 52.7S 19.6E dep 10km mb5.0  
SOUTHWEST OF AFRICA

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1997-09-11  
GRA1 21:07:52.9 e PKPab Z  
GRA1 21:08:04.1 e pPKPab Z

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1997-09-11 D130.1  
GRA1 22:39:21.6 e PKPdf Z  
GRA1 23:28:17.6 e L Z T21.8 A242 MS4.9

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1997-09-12 D148.6  
GRA1 01:04:44.4 e (PKPdf) Z  
GRA1 01:04:47.0 i PKPbc d Z  
GRA1 01:04:50.3 e PKPab Z  
NEIC: OT 00:46:11.4 17.9S 178.6W dep600km mb4.4  
FIJI ISLANDS REGION

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1997-09-12      D 4.2  471km
  GRA1 03:51:08.7 e Pn      Z          M13.7
  GRA1 03:52:02.7 e Sn      E
  GRA1 03:52:20.8 e Sg      E
SZGRF: OT 03:50:06.2 45.6N 12.7E dep 10km
  NORTHERN ITALY
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1997-09-12
  GRA1 09:36:25.0 e PKPdf  Z
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-----
1997-09-12      D 3.7  411km
  GRA1 16:21:24.5 e Pn      Z          M14.1
  GRA1 16:22:24.2 e Sg      E
SZGRF: OT 16:20:26.7 51.5N 16.3E dep 1km
  POLAND
-----

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-----
1997-09-12      D 85.1  AZ110
  GRA1 17:00:40.8 e P        Z          mb5.0
  BEAM 17:00:40.8                T1.3  A11
SZGRF: OT 16:48:07.1  9.1S  82.6E dep 33km
  SOUTH INDIAN OCEAN
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-----
1997-09-12      D 79.1  AZ 25
  GRA1 22:48:27.6 i P        c Z          mb5.0
  ALIGN 22:48:27.6                T1.0  A16
SZGRF: OT 22:36:27.9 46.3N 154.3E dep 33km
  KURIL ISLANDS REGION
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1997-09-13
  GRA1 05:31:32.4 e PKPdf  Z
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1997-09-13
  GRA1 06:59:13.4 e (PKPab) Z
  GRA1 06:59:26.7 e pPKPab Z
NEIC:  OT 06:46:03.0  4.4S 102.8E dep100km  mb5.0
  SOUTHERN SUMATERA, INDONESIA
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-----
1997-09-13
  GRA2 07:09:41.8 e PKPdf  Z
  GRA1 07:10:44.5 e pPKPdf Z
NEIC:  OT 06:50:34.6 15.8S 174.9W dep300km  mb4.5
  TONGA ISLANDS
-----

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-----
1997-09-13
  GRA1 17:48:51.8 e PKPab  Z
  GRA1 17:49:03.0 e pPKPab Z
-----

```

NEIC: OT 17:28:51.8 21.4S 174.6W dep 33km mb4.4  
TONGA ISLANDS

-----  
1997-09-13 D 3.5 388km  
GRA1 18:38:56.8 e Pn Z M13.1  
GRA1 18:39:54.2 e Sg E  
SZGRF: OT 18:38:03.1 51.3N 16.0E dep 1km  
POLAND

-----  
1997-09-13  
GRA1 23:50:19.4 e PKPdf Z  
GRA1 23:50:29.1 e pPKPdf Z  
GRA1 00:43:19.0 e L Z T21.6 A505  
NEIC: OT 23:31:22.1 6.1S 149.9E dep 33km mb5.0  
NEW BRITAIN REGION, P.N.G.

-----  
1997-09-14 AZ134  
GRA1 02:01:49.0 e P Z  
GRA1 02:01:51.4 e Z  
NEIC: OT 01:56:52.9 34.3N 32.2E dep 10km mb4.1  
CYPRUS REGION

-----  
1997-09-14 D 79.3 AZ 6  
GRA1 10:02:20.5 i P d Z mb4.8  
ALIGN 10:02:20.5 T0.9 A9  
GRA1 10:41:09.0 e L Z T21.0 A77 MS4.0  
NEIC: OT 09:50:20.9 51.6N 178.4W dep 53km mb4.9  
ANDREANOF ISLANDS, ALEUTIAN IS.

-----  
1997-09-14 D150.0  
GRA1 14:37:42.9 e PKPbc Z  
GRA1 14:37:50.7 e PKPab Z

-----  
1997-09-14 D 2.6 291km  
GRA1 15:47:34.3 e Pg Z M13.0  
GRA1 15:47:60.0 e Sn N  
GRA1 15:48:09.5 e Sg N  
SZGRF: OT 15:46:46.6 47.1N 11.5E dep 10km  
Southern Tuxer Alps/A, S of Inssbruck

-----  
1997-09-14  
GRA1 18:30:46.0 e PKPdf Z  
GRA1 18:30:54.9 e (pPKPdf)Z  
GRA1 19:25:53.0 e L Z T19.7 A131  
NEIC: OT 18:11:56.1 5.6S 151.6E dep100km mb4.8  
NEW BRITAIN REGION, P.N.G.

-----  
1997-09-14

GRA1 22:14:28.3 e PKPdf Z  
NEIC: OT 21:55:32.1 4.8S 152.9E dep 33km mb4.8  
NEW BRITAIN REGION, P.N.G.

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1997-09-15 D152.5  
GRA1 00:27:18.0 e PKPdf Z  
GRA1 00:27:25.0 e PKPbc Z  
GRA1 00:27:33.6 e PKPab Z

---

1997-09-15 D 83.9 AZ 42  
GRA1 01:20:45.2 e P Z mb4.8  
BEAM 01:20:45.2 T1.1 A6  
GRA1 01:20:49.7 e pP Z  
NEIC: OT 01:07:53.5 34.3N 141.2E dep 68km mb4.8  
OFF EAST COAST OF HONSHU, JAPAN

---

1997-09-15 D 80.5 AZ 42  
GRA1 01:27:44.1 e P Z mb4.5  
BEAM 01:27:44.1 T1.7 A10  
SZGRF: OT 01:15:36.6  
SEA OF JAPAN

---

1997-09-15  
GRA1 04:08:32.1 e PKPdf Z  
NEIC: OT 03:49:50.2 17.7S 178.6W dep550km mb4.6  
FIJI ISLANDS REGION

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1997-09-15 D 99.7  
GRA1 13:19:23.7 e Pdiff Z  
GRA1 13:19:35.5 e pPdiff Z  
GRA1 14:07:31.5 e L Z T21.9 A5478 MS6.0  
NEIC: OT 13:05:42.5 8.1N 126.6E dep 51km mb5.6  
MINDANAO, PHILIPPINE ISLANDS

---

1997-09-15 D 90.4 AZ296  
GRA1 15:51:21.3 e P Z mb5.3  
BEAM 15:51:21.3 T2.2 A47  
GRA1 16:29:15.6 e L Z T18.1 A147 MS4.5  
SZGRF: OT 15:38:23.5 16.1N 99.2W dep 33km  
NEAR COAST OF GUERRERO, MEXICO

---

1997-09-15 D 50.3 AZ262  
GRA1 17:01:37.7 e P Z  
GRA1 17:01:44.2 e pP Z  
GRA1 17:18:07.6 e L Z T18.5 A325 MS4.4  
SZGRF: OT 16:52:43.7 24.7N 45.6W dep 24km  
NORTH ATLANTIC RIDGE

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1997-09-16 D 39.4 AZ 96  
 GRA1 12:22:09.1 e P Z mb4.3  
 BEAM 12:22:09.1 T1.1 A8  
 GRA1 12:39:28.8 e L Z T20.7 A119 MS3.7  
 SZGRF: OT 12:14:43.2 33.4N 60.3E dep 33km  
 IRAN

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 1997-09-16 D 73.1 AZ 57  
 GRA1 17:10:40.5 e P Z mb4.5  
 BEAM 17:10:40.5 T0.8 A3

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 1997-09-17 D 89.1 AZ 92  
 GRA1 04:28:58.7 e P Z mb5.1  
 BEAM 04:28:58.7 T2.0 A25  
 GRA1 04:29:04.8 e pP Z  
 GRA1 05:12:22.8 e L Z T19.0 A133 MS4.4  
 NEIC: OT 04:16:35.5 4.3N 96.6E dep 70km mb4.9  
 NORTHERN SUMATERA, INDONESIA

-----  
 1997-09-17  
 GRA1 09:21:10.0 e PKPdf Z  
 NEIC: OT 09:00:55.1 17.5S 174.8W dep177km mb4.9  
 TONGA ISLANDS

-----  
 1997-09-17 D104.6  
 GRA1 15:04:38.9 e Pdiff Z  
 BEAM 15:04:38.9 T1.1 A15  
 GRA1 15:05:04.3 e pPdiff Z  
 GRA1 15:08:58.6 e PP Z  
 GRA1 15:56:59.5 e L Z T21.0 A2037 MS5.6  
 NEIC: OT 14:50:36.6 2.1N 126.6E dep 47km mb5.7  
 NORTHERN MOLUCCA SEA

-----  
 1997-09-17 D 85.5 AZ 60  
 GRA1 15:39:49.4 e P Z  
 NEIC: OT 15:26:53.9 19.3N 121.2E dep 33km mb5.5  
 PHILIPPINE ISLANDS REGION

-----  
 1997-09-17 D 3.7 409km  
 GRA1 19:12:48.8 e Pn Z M13.4  
 GRA1 19:13:47.0 e Sg N  
 SZGRF: OT 19:11:50.5 51.5N 16.2E dep 1km  
 POLAND

-----  
 1997-09-17 D150.2  
 GRA1 23:48:39.1 e (PKPdf) Z  
 GRA1 23:48:43.7 i PKPbc c Z  
 GRA1 23:48:49.2 e PKPab Z

GRA1 00:58:18.4 e L Z T20.1 A152 MS4.8

-----  
1997-09-18

GRA1 04:29:07.6 e PKPab Z

GRA1 04:29:22.6 e pPKPab Z

-----  
1997-09-18 D 27.1 AZ346

GRA1 06:46:49.6 e P Z mb4.2

BEAM 06:46:49.6 T1.1 A5

GRA1 06:46:56.0 e Z

GRA1 06:47:01.5 e Z

GRA1 06:53:22.9 e L Z T19.7 A52 MS3.1

-----  
1997-09-18 D 78.4 AZ 8

GRA1 09:22:36.1 i P c Z mb5.2

ALIGN 09:22:36.1 T1.0 A21

GRA1 10:08:14.2 e L Z T20.6 A331 MS4.7

-----  
1997-09-18 D 78.5 AZ 8

GRA1 09:30:34.9 i P c Z mb5.2

ALIGN 09:30:34.9 T0.9 A22

GRA1 09:30:50.3 e (pP) Z

GRA1 10:12:58.7 e L Z T19.0 A408 MS4.8

-----  
1997-09-18 D 86.1 AZ 39

GRA1 10:44:21.3 e P Z mb4.8

BEAM 10:44:21.3 T1.1 A10

-----  
1997-09-18 D 46.5 AZ 56

GRA1 14:40:05.1 e P c Z mb5.0

BEAM 14:40:05.1 T0.9 A15

GRA1 14:40:08.4 e (pP) Z

GRA1 14:41:53.9 e PP Z

GRA1 15:19:56.5 e L Z T19.7 A177 MS4.0

-----  
1997-09-18 D 39.2 AZ109

GRA1 15:00:24.3 e P Z mb4.7

ALIGN 15:00:24.3 T1.7 A35

GRA1 15:23:57.9 e L Z T19.8 A133 MS3.8

-----  
1997-09-18

GRA1 18:49:02.6 e PKPab Z

-----  
1997-09-18 D138.7

GRA1 23:22:31.7 e PKPdf Z

GRA1 23:25:47.0 e SKPdf Z

NEIC: OT 23:03:28.2 13.1S 167.1E dep204km mb4.9

VANUATU ISLANDS

-----  
1997-09-19 D 78.6 AZ 26

GRA1 02:14:07.4 i P c Z mb4.8

BEAM 02:14:07.4 T0.9 A9

-----  
1997-09-19 D 3.7 410km

GRA1 02:36:08.9 e Pn Z M13.8

GRA1 02:37:08.1 e Sg N

SZGRF: OT 02:35:10.5 51.5N 16.3E dep 1km

POLAND

-----  
1997-09-19

GRA1 09:35:11.9 e PKPab Z

-----  
1997-09-19 D 14.1

GRA1 12:03:30.3 e PnI Z

GRA1 12:06:06.9 e (SnI) Z

GRA1 12:09:05.1 e L Z T18.4 A2425 MS4.3

-----  
1997-09-19 D 49.3 AZ115

GRA1 23:23:41.5 e P Z mb4.8

BEAM 23:23:41.5 T2.0 A20

GRA1 23:48:10.7 e L Z T21.8 A53 MS3.5

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1997-09-20 D 6.8

GRA1 03:21:48.2 e PnI Z

GRA1 03:23:06.0 e SnI Z

-----  
1997-09-20 D 75.7 AZ334

GRA1 04:51:36.6 e P Z mb4.9

BEAM 04:51:36.6 T1.7 A18

GRA1 04:51:41.0 e (pP) Z

GRA1 05:24:25.8 e L Z T18.8 A257 MS4.6

SZGRF: OT 04:39:53.4 49.0N 128.3W dep 16km

VANCOUVER ISLAND REGION

1997-09-20 D 75.4 AZ336  
 GRA1 07:21:42.0 e P Z mb5.3  
 ALIGN 07:21:42.0 T1.6 A46  
 GRA1 07:21:45.3 e pP Z  
 GRA1 07:54:29.8 e L Z T19.0 A468 MS4.8  
 SZGRF: OT 07:09:59.8 50.0N 130.4W dep 11km  
 VANCOUVER ISLAND REGION

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1997-09-20 D147.4  
 GRA1 09:54:31.6 i PKPdf d Z  
 GRA1 09:54:35.1 e PKPab Z  
 NEIC: OT 09:35:45.6 18.0S 178.4W dep524km mb4.6  
 FIJI ISLANDS REGION

---

1997-09-20  
 GRA1 12:50:49.4 e PKPdf Z  
 GRA1 12:51:09.7 e (pPKPdf)Z  
 GRA1 13:41:56.1 e L Z T19.9 A52  
 NEIC: OT 12:31:51.2 4.4S 153.3E dep 33km mb5.0  
 NEW IRELAND REGION, P.N.G.

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1997-09-20 D 1.9 206km  
 GRA1 14:06:30.9 e Pn Z M12.3  
 GRA1 14:06:56.0 e Sg E  
 SZGRF: OT 14:05:56.8 50.6N 13.8E dep 1km  
 S of Teplice/CR

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1997-09-20 D 23.9 AZ330  
 GRA1 15:43:19.8 i P c Z mb4.5  
 ALIGN 15:43:19.8 T1.2 A19  
 GRA1 15:43:24.4 e (pP) Z  
 GRA1 15:53:44.3 e L Z T18.3 A324 MS3.8  
 SZGRF: OT 15:38:09.7 67.3N 20.7W dep 33km  
 ICELAND REGION

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1997-09-20 D 24.1 AZ331  
 GRA1 15:56:51.3 e P c Z mb4.5  
 ALIGN 15:56:51.3 T1.2 A22  
 GRA1 15:56:54.8 e (pP) Z  
 GRA1 16:07:14.9 e L Z T19.0 A592 MS4.1  
 SZGRF: OT 15:51:36.7 67.9N 20.6W dep 14km  
 ICELAND REGION

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1997-09-20 D158.0  
 GRA1 16:31:26.4 e PKPdf Z  
 GRA1 16:32:00.5 e PKPab Z  
 GRA1 16:35:36.3 e PP Z  
 GRA1 17:47:08.0 e L Z T21.8 A20728 MS6.9  
 NEIC: OT 16:11:32.5 28.7S 177.6W dep 33km mb6.1

## KERMADEC ISLANDS REGION

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1997-09-20 D157.9  
 GRA1 18:30:50.5 e PKPdf Z  
 GRA1 18:31:25.1 e PKPab Z  
 GRA1 18:31:40.9 e pPKPab Z  
 GRA1 19:18:53.2 e L Z T21.1 A837 MS5.5

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1997-09-20 D 3.6 397km  
 GRA1 18:45:13.6 e Pn Z M13.7  
 GRA1 18:46:11.2 e Sg N  
 SZGRF: OT 18:44:17.8 51.4N 16.1E dep 1km  
 POLAND

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1997-09-20 D163.9  
 GRA1 20:37:59.5 e PKPdf Z  
 GRA1 20:38:50.4 e PKPab Z

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1997-09-20 D147.8  
 GRA1 22:33:51.7 e PKPdf Z  
 GRA1 22:33:55.8 e (PKPab) Z  
 GRA1 23:45:41.5 e L Z T20.4 A288 MS5.1  
 NEIC: OT 22:14:13.0 16.4S 177.5W dep 33km mb5.1  
 FIJI ISLANDS REGION

---

1997-09-21 D 82.3 AZ 23  
 GRA1 05:37:48.2 e P Z mb4.5  
 BEAM 05:37:48.2 T1.0 A4  
 GRA1 05:38:26.4 e (pP) Z  
 SZGRF: OT 05:25:45.5  
 NORTH PACIFIC OCEAN

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1997-09-21 D 74.8 AZ 19  
 GRA1 07:57:09.7 e P Z mb4.8  
 ALIGN 07:57:09.7 T0.8 A8  
 GRA1 08:29:33.1 e L Z T19.0 A42  
 SZGRF: OT 07:45:34.4 52.4N 159.5E dep 33km  
 OFF EAST COAST OF KAMCHATKA

---

1997-09-21  
 GRA1 12:37:09.3 e PKPdf Z  
 NEIC: OT 12:17:27.1 11.0S 163.0E dep 33km mb5.0  
 SOLOMON ISLANDS

---

1997-09-21 D 82.7 AZ329  
 GRA1 12:48:50.1 e P Z mb5.0  
 BEAM 12:48:50.1 T1.9 A19

GRA1 12:48:56.4 e pP Z  
GRA1 13:26:17.5 e L Z T19.8 A753 MS5.1  
SZGRF: OT 12:36:29.6 40.7N 126.7W dep 22km  
OFF COAST OF NORTHERN CALIFORNIA

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1997-09-21 D 59.9 AZ159  
GRA1 18:23:25.8 i P d Z mb5.8  
ALIGN 18:23:25.8 T1.2 A138  
GRA1 18:23:35.5 e Z  
GRA1 18:23:38.1 e pP Z  
GRA1 18:31:36.2 e S Z  
GRA1 18:52:27.6 e L Z T18.1 A4473 MS5.6  
SZGRF: OT 18:13:28.5 8.3S 29.5E dep 44km  
LAKE TANGANYIKA REGION

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1997-09-21  
GRA1 20:20:09.1 e PKP Z

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1997-09-21  
GRA1 20:30:08.5 i PKPab c Z  
GRA1 20:30:17.8 e (pPKPab) Z

---

1997-09-21  
GRA1 20:32:31.6 e PKPdf Z

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1997-09-21 D151.8  
GRA1 21:14:01.9 e PKPdf Z  
GRA1 21:14:16.3 e PKPab Z  
NEIC: OT 20:55:01.8 23.9S 179.9W dep500km mb4.8  
SOUTH OF FIJI ISLANDS

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1997-09-21 D 78.8  
GRA1 22:15:05.8 i P c Z mb5.7  
ALIGN 22:15:05.8 T1.0 A79  
GRA1 22:15:22.1 i pP d Z  
GRA1 22:54:23.4 e L Z T20.2 A194 MS4.4  
SZGRF: OT 22:03:11.5 51.9N 170.1W dep 58km  
FOX ISLANDS, ALEUTIAN ISLANDS

---

1997-09-21 D 56.8 AZ159  
GRA1 22:58:09.7 e P Z mb4.5  
BEAM 22:58:09.7 T1.1 A6  
GRA1 22:58:22.4 e pP Z  
SZGRF: OT 22:48:28.6 5.2S 29.0E dep 46km  
LAKE TANGANYIKA REGION

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1997-09-21 D153.4

GRA1	23:58:15.3	e	PKPdf	Z				
GRA1	23:58:22.3	e	PKPbc	Z				
GRA1	23:58:33.7	e	PKPab	Z				
GRA1	00:00:39.5	e	pPKPbc	Z				
NEIC:	OT 23:39:34.3		22.4S 180.0W	dep600km		mb4.7		
SOUTH OF FIJI ISLANDS								
-----								
1997-09-22		D	78.1	AZ	31			
GRA1	02:09:03.7	e	P		Z			mb5.0
ALIGN	02:09:03.7					T0.9	A10	
GRA1	02:09:16.7	e	pP		Z			
GRA1	02:48:48.7	e	L		Z	T20.7	A55	MS3.9
SZGRF:	OT 01:57:11.0		44.6N 146.0E	dep	45km			
KURIL ISLANDS								
-----								
1997-09-22		D	78.2	AZ	26			
GRA1	06:53:53.3	i	P		c Z			mb5.4
ALIGN	06:53:53.3					T0.9	A30	
GRA1	07:31:48.3	e	L		Z	T21.1	A57	MS3.9
SZGRF:	OT 06:41:58.8		46.9N 152.6E	dep	33km			
KURIL ISLANDS								
-----								
1997-09-22		D	32.2	AZ	292			
GRA1	07:45:13.4	e	P		Z			mb4.9
BEAM	07:45:13.4					T1.2	A17	
GRA1	07:54:27.2	e	L		Z	T19.4	A159	MS3.7
NEIC:	OT 07:39:39.3		52.2N 30.0W	dep	10km	mb4.7		
NORTHERN MID-ATLANTIC RIDGE								
-----								
1997-09-22		D	88.1					
GRA1	12:19:18.4	e	P		Z			mb5.3
BEAM	12:19:18.4					T2.3	A41	
GRA1	12:55:11.3	e	L		Z	T20.5	A1091	MS5.3
-----								
1997-09-22		D	87.9					
GRA1	13:33:16.7	e	(P)		Z			
GRA1	14:09:03.8	e	L		Z	T20.6	A309	MS4.7
-----								
1997-09-22		D	87.9	AZ	287			
GRA1	16:41:41.2	e	P		Z			mb5.0
ALIGN	16:41:41.2					T1.2	A10	
GRA1	16:41:51.7	e	(pP)		Z			
GRA1	17:18:34.1	e	L		Z	T20.5	A154	MS4.4
NEIC:	OT 16:28:50.0		14.6N 92.9W	dep	33km	mb4.7		
NEAR COAST OF CHIAPAS, MEXICO								
-----								
1997-09-23		D	40.9	AZ	96			

GRA1 03:13:13.8 e P Z mb4.2  
 BEAM 03:13:13.8 T1.5 A8  
 GRA1 03:34:05.3 e L Z T18.3 A212 MS4.0  
 NEIC: OT 03:06:14.1 35.7N 57.0E dep 33km  
 NORTHERN IRAN

-----  
 1997-09-23

GRA1 06:38:03.7 e PKPdf Z  
 NEIC: OT 06:19:13.4 19.0S 177.8W dep500km  
 FIJI ISLANDS REGION

-----  
 1997-09-23 D 80.6 AZ 2

GRA1 07:42:25.3 e P c Z mb4.7  
 BEAM 07:42:25.3 T1.0 A8  
 GRA1 08:14:00.0 e L Z T18.2 A64  
 SZGRF: OT 07:30:17.8 50.1N 172.0W dep 33km  
 ANDREANOF ISLANDS, ALEUTIAN IS.

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 1997-09-23 D154.4

GRA1 08:14:23.3 e PKPdf Z  
 GRA1 08:14:30.8 e PKPbc Z  
 GRA1 08:14:44.7 e PKPab Z  
 NEIC: OT 07:54:47.9 24.1S 177.2W dep140km mb4.9  
 SOUTH OF FIJI ISLANDS

-----  
 1997-09-23

GRA1 18:11:26.4 e PKPdf Z  
 GRA1 19:36:06.6 e L Z T21.2 A1373  
 NEIC: OT 17:51:23.7 65.5S 178.8E dep 10km  
 BALLENY ISLANDS REGION

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 1997-09-23

GRA1 20:50:23.3 i PKPab c Z  
 GRA1 20:51:18.7 e pPKPab Z  
 NEIC: OT 20:37:54.3 1.3N 100.4E dep230km mb4.8  
 NORTHERN SUMATERA, INDONESIA

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 1997-09-23 D 78.8 AZ 3

GRA1 20:56:57.5 e P c Z mb5.1  
 ALIGN 20:56:57.5 T1.5 A32  
 GRA1 20:57:04.2 e pP Z  
 GRA1 20:57:09.1 e (sP) Z  
 GRA1 21:00:50.8 e Z  
 GRA1 21:07:30.6 e S Z  
 GRA1 21:12:26.9 e (SS) Z  
 GRA1 21:34:49.8 e L Z T19.4 A79 MS4.1  
 SZGRF: OT 20:44:58.5 51.8N 173.5W dep 26km  
 ANDREANOF ISLANDS, ALEUTIAN IS.

1997-09-24 D 20.0 AZ167  
GRA1 00:19:10.7 e PnI Z  
GRA1 00:27:37.2 e L Z T18.1 A146 MS3.4  
SZGRF: OT 00:14:38.5 30.0N 16.2E dep 33km  
NEAR COAST OF LIBYA

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1997-09-24 D 5.4  
GRA1 01:41:19.9 e Pn Z  
GRA1 01:42:13.4 e Sn Z  
NEIC: OT 03:27:33.1 18.8S 178.0W dep400km mb4.0  
FIJI ISLANDS REGION

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1997-09-24 D148.3  
GRA1 03:46:33.5 e (PKPdf) Z  
GRA1 03:46:38.9 e PKPab Z

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1997-09-24  
GRA1 07:53:32.0 e PKPab Z

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1997-09-24  
GRA1 09:33:55.5 e PKPdf Z  
GRA1 09:35:32.2 e (pPKPdf) Z  
NEIC: OT 09:14:50.8 19.2S 178.0W dep386km mb4.6  
FIJI ISLANDS REGION

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1997-09-24 D151.0  
GRA1 15:36:15.5 e (PKPdf) Z  
GRA1 15:36:20.3 i PKPbc c Z  
GRA1 15:36:27.3 e (PKPab) Z  
NEIC: OT 15:16:28.4 21.0S 174.3W dep 33km mb4.8  
TONGA ISLANDS

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1997-09-24  
GRA1 18:41:23.0 e PKPdf Z  
GRA1 18:41:28.6 e (pPKPdf) Z  
GRA1 19:51:56.3 e L Z T18.0 A155  
NEIC: OT 18:21:47.3 15.4S 175.1W dep 33km mb4.5  
TONGA ISLANDS

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1997-09-24 D 38.4 AZ 95  
GRA1 22:34:33.5 e P c Z mb4.4  
BEAM 22:34:33.5 T1.6 A12  
GRA1 22:50:32.8 e L Z T21.3 A88 MS3.5  
SZGRF: OT 22:27:15.5 34.2N 59.5E dep 33km  
IRAN

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1997-09-25 D 78.6 AZ164

GRA1 00:17:19.7 i P d Z mb5.0  
 ALIGN 00:17:19.7 T1.4 A19  
 SZGRF: OT 00:05:19.1 27.6S 29.2E dep 33km  
 REPUBLIC OF SOUTH AFRICA

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 1997-09-25 D 78.1 AZ 3  
 GRA1 01:37:35.2 i P c Z mb5.4  
 ALIGN 01:37:35.2 T1.2 A35  
 GRA1 01:37:49.6 e pP Z  
 GRA1 02:22:00.3 e L Z T19.5 A108 MS4.2  
 SZGRF: OT 01:25:43.6 52.5N 173.4W dep 50km  
 ANDREANOF ISLANDS, ALEUTIAN IS.

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 1997-09-25  
 GRA1 08:02:20.7 e PKPdf Z  
 GRA1 08:03:07.9 e pPKPdf Z  
 NEIC: OT 07:43:43.8 17.6S 179.6E dep600km mb4.8  
 FIJI ISLANDS

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 1997-09-25 D 16.7  
 GRA1 11:17:46.3 e PnI Z  
 ALIGN 11:17:46.3 T0.9 A14  
 SZGRF: OT 11:13:54.3  
 SOUTHERN GREECE

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 1997-09-25 D 79.2 AZ126  
 GRA1 14:32:58.5 e P Z mb5.3  
 BEAM 14:32:58.5 T2.6 A82  
 GRA1 14:43:01.5 e S Z  
 GRA1 15:09:05.9 e L Z T21.4 A1008 MS5.1  
 NEIC: OT 14:20:48.9 13.7S 66.3E dep 10km mb5.3  
 MID-INDIAN RIDGE

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 1997-09-25 D149.1  
 GRA1 20:13:21.9 e PKPdf Z  
 GRA1 20:13:27.6 e PKPbc Z  
 GRA1 20:13:35.7 e PKPab Z  
 GRA1 20:16:24.0 e PP Z  
 GRA1 21:17:30.3 e L Z T19.9 A453 MS5.3  
 NEIC: OT 19:54:03.0 12.4S 166.5E dep 33km mb5.2  
 SANTA CRUZ ISLANDS

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 1997-09-25  
 GRA1 21:35:45.7 e (PKPbc) Z  
 GRA1 21:35:53.4 e PKPab Z  
 NEIC: OT 21:16:12.9 21.4S 174.9W dep200km mb4.1  
 TONGA ISLANDS

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 1997-09-25 D156.6

GRA1 23:46:44.6 e PKPdf Z  
 GRA1 23:47:13.7 e PKPab Z  
 GRA1 23:47:27.7 e pPKPab Z  
 NEIC: OT 23:26:53.5 27.1S 176.8W dep 42km mb5.2  
 KERMADEC ISLANDS REGION

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1997-09-26 371km  
 GRA1 00:14:57.3 e Pg Z  
 GRA1 00:15:40.4 e Sg Z

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1997-09-26 D 6.9  
 GRA1 00:34:51.6 e PnI Z  
 GRA1 00:36:10.9 e SnI Z  
 GRA1 00:36:54.5 e Sg E M16.5  
 GRA1 00:38:16.4 e L Z T14.9 A142214 MS5.7  
 NEIC: OT 00:33:12.2 43.0N 12.9E dep 10km mb5.5  
 CENTRAL ITALY

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1997-09-26 D 6.9  
 GRA1 01:55:41.7 e PnI Z  
 GRA1 01:56:49.5 e SnI Z  
 GRA1 01:57:30.9 e Sg N M14.4  
 NEIC: OT 01:53:47.0 42.6N 13.6E dep 10km  
 CENTRAL ITALY

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1997-09-26 D 6.8  
 GRA1 02:09:00.0 e PnI Z  
 GRA1 02:10:09.7 e SnI Z  
 GRA1 02:11:08.3 e Sg Z M14.4  
 NEIC: OT 02:07:17.4 43.0N 12.9E dep 10km  
 CENTRAL ITALY

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1997-09-26  
 GRA1 02:42:00.8 e PnI Z

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1997-09-26 D 7.2  
 GRA1 02:56:15.8 e PnI Z  
 GRA1 02:57:16.3 e SnI Z  
 GRA1 02:58:04.6 e Sg Z M14.5

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1997-09-26 D 6.8  
 GRA1 04:16:02.1 e PnI Z  
 GRA1 04:17:12.1 e SnI Z  
 GRA1 04:17:52.8 e Sg Z M14.4  
 NEIC: OT 04:14:15.8 43.0N 12.8E dep 10km  
 CENTRAL ITALY

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1997-09-26

GRA1	04:25:10.5	e PnI	Z	
GRA1	04:26:13.1	e SnI	Z	
GRA1	04:26:44.8	e Sg	Z	

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1997-09-26 D 6.8

GRA1	04:46:33.9	e PnI	Z	
GRA1	04:47:39.6	e SnI	Z	
GRA1	04:48:40.1	e Sg	Z	M14.7

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1997-09-26

GRA1	07:00:02.0	e PKPab	Z	
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1997-09-26 D 6.9

GRA1	07:37:25.2	e PnI	Z	
GRA1	07:38:33.2	e SnI	Z	
GRA1	07:39:19.5	e Sg	Z	M14.4

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1997-09-26 D 7.0

GRA1	08:14:00.7	e PnI	Z	
GRA1	08:15:01.9	e SnI	Z	
GRA1	08:15:42.2	e Sg	Z	M14.2

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1997-09-26 D 6.9

GRA1	08:32:12.4	e PnI	Z	
GRA1	08:33:18.1	e SnI	Z	
GRA1	08:33:54.5	e Sg	Z	

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1997-09-26 D 6.8

GRA1	09:35:28.3	e PnI	Z	
GRA1	09:35:53.0	e Pg	Z	M15.2
GRA1	09:36:45.3	e SnI	Z	
GRA1	09:37:33.3	e Sg	Z	
NEIC: OT	09:33:48.5	43.0N 12.7E	dep 10km	mb4.5
CENTRAL ITALY				

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1997-09-26 D 6.8

GRA1	09:42:08.3	e PnI	Z	
GRA1	09:43:24.7	e SnI	Z	
GRA1	09:44:03.1	e Sg	Z	M17.0
GRA1	09:45:27.5	e L	Z T15.5	A348427 MS6.0
NEIC: OT	09:40:26.2	43.1N 12.8E	dep 10km	mb5.7

## CENTRAL ITALY

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1997-09-26

GRA1	09:49:42.0	e PnI	Z	
GRA1	09:50:30.3	e SnI	Z	

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1997-09-26 D 6.8

GRA1	11:13:31.1	e PnI	Z	
GRA1	11:14:39.0	e SnI	Z	
GRA1	11:15:27.2	e Sg	Z	M14.3

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1997-09-26 D 6.9

GRA1	13:12:01.0	e PnI	Z	
GRA1	13:13:08.1	e SnI	Z	
GRA1	13:13:59.0	e Sg	Z	

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1997-09-26 D 7.2

GRA1	13:28:49.7	e PnI	Z	
GRA1	13:29:58.3	e SnI	Z	
GRA1	13:30:36.0	e Sg	Z	M14.4

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1997-09-26 D 7.0

GRA1	13:32:35.6	e PnI	Z	
GRA1	13:33:46.3	e SnI	Z	
GRA1	13:34:32.4	e Sg	Z	M15.2

NEIC: OT 13:30:52.1 43.0N 13.0E dep 10km mb4.7  
CENTRAL ITALY

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1997-09-26 D 6.8

GRA1	13:54:47.2	e PnI	Z	
GRA1	13:56:00.7	e SnI	Z	
GRA1	13:56:41.6	e Sg	Z	M14.4

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1997-09-26 D 55.8 AZ216

GRA1	14:09:38.3	e P	Z	mb5.3
ALIGN	14:09:38.3		T2.0 A70	
GRA1	14:09:45.3	e (pP)	Z	
GRA1	14:10:03.9	e	Z	
GRA1	14:33:36.5	e L	Z T19.0 A1312	MS5.0

SZGRF: OT 14:00:01.8 .3S 18.1W dep 26km  
CENTRAL MID-ATLANTIC RIDGE

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1997-09-26

GRA1	14:13:51.6	e PnI	Z	
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GRA1 14:15:03.8 e Sn Z

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1997-09-26 D 6.9

GRA1 14:56:10.0 e PnI Z

GRA1 14:57:32.4 e SnI Z

GRA1 14:58:08.5 e Sg Z M14.9

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1997-09-26 D111.7

GRA1 16:06:40.6 i PKPdf c Z

GRA1 16:07:23.7 e PP Z

GRA1 16:09:50.4 e pPKPdf Z

GRA1 16:17:36.9 e PKKPbc Z

GRA1 16:17:44.5 e PKKPab Z

GRA1 16:56:43.3 e L Z T18.1 A627 MS5.2

NEIC: OT 15:48:32.6 5.4S 129.0E dep237km mb5.8

BANDA SEA

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1997-09-26

GRA1 16:20:26.4 e PnI Z

GRA1 16:21:30.8 e SnI Z

NEIC: OT 16:18:38.2 43.1N 12.9E dep 10km

CENTRAL ITALY

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1997-09-26

GRA1 17:07:48.4 e PKPab Z

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1997-09-26

GRA1 18:46:25.9 e PnI Z

GRA1 18:47:43.2 e SnI Z

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1997-09-26

GRA1 19:18:09.9 e PnI Z

GRA1 19:19:14.7 e SnI Z

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1997-09-26

GRA1 19:35:48.0 e Pn Z

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1997-09-26 D 90.6 AZ 64

GRA1 20:58:00.3 i P c Z mb5.1

BEAM 20:58:00.3 T1.1 A12

SZGRF: OT 20:45:01.8 16.2N 121.9E dep 33km

LUZON, PHILIPPINE ISLANDS

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1997-09-26

GRA1 21:18:35.8 i PKPab c Z

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1997-09-26

GRA1 23:59:59.3 e PnI Z

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1997-09-27 D 6.8

GRA1 02:14:28.2 e PnI Z

GRA1 02:15:37.6 e (Sg) Z M13.9

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1997-09-27 D 6.9

GRA1 02:19:06.9 e PnI Z

GRA1 02:20:16.8 e SnI Z

GRA1 02:21:02.2 e (Sg) Z M14.5

GRA1 02:22:20.6 e L Z T15.0 A295 MS3.0

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1997-09-27 D 7.0

GRA1 03:05:03.9 e PnI Z

GRA1 03:06:16.6 e SnI Z

GRA1 03:07:06.9 e Sg Z M14.2

GRA1 03:08:22.1 e L Z T19.3 A87 MS2.4

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1997-09-27 D 6.8

GRA1 04:58:57.5 e PnI Z

GRA1 05:00:10.4 e SnI Z

GRA1 05:00:59.0 e Sg Z M14.5

GRA1 05:02:14.4 e L Z T15.9 A192 MS2.8

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1997-09-27 D148.9

GRA1 05:39:57.7 e PKPdf Z

GRA1 05:40:00.2 e PKPbc Z

GRA1 05:40:04.4 e PKPab Z

NEIC: OT 05:20:09.9 18.9S 173.7W dep 33km mb4.4

TONGA ISLANDS

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1997-09-27 D 6.9

GRA1 06:04:43.7 e PnI Z

GRA1 06:05:59.2 e SnI Z

GRA1 06:06:23.8 e Sg Z M14.5

GRA1 06:08:03.5 e L Z T14.7 A289 MS3.0

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1997-09-27

GRA1 07:26:56.5 e PKPdf Z

GRA1 07:27:05.5 e pPKPdf Z  
NEIC: OT 07:07:10.6 22.9S 169.7E dep 33km mb4.2  
LOYALTY ISLANDS REGION

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1997-09-27 D158.9  
GRA1 07:42:46.4 e PKPdf Z  
GRA1 07:43:24.4 e PKPab Z  
GRA1 08:55:50.4 e L Z T20.3 A461 MS5.3

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1997-09-27 D 6.8  
GRA1 07:52:26.6 e PnI Z  
GRA1 07:53:25.9 e SnI Z  
GRA1 07:54:16.9 e Sg Z M14.1

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1997-09-27 D 6.8  
GRA1 08:09:48.9 e PnI Z  
GRA1 08:11:00.7 e SnI Z  
GRA1 08:11:44.3 e Sg Z M15.1  
GRA1 08:13:05.3 e L Z T15.0 A1368 MS3.6  
NEIC: OT 08:08:08.0 43.2N 12.8E dep 10km mb4.8  
CENTRAL ITALY

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1997-09-27  
GRA1 10:36:32.2 e PKPdf Z  
GRA1 10:36:40.5 e Z  
GRA1 10:36:56.7 e Z  
GRA1 10:37:04.0 e Z  
GRA1 10:37:11.8 e Z  
GRA1 10:37:40.1 e Z  
GRA1 10:37:51.9 e Z  
GRA1 10:38:00.2 e Z

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1997-09-27 D 6.8  
GRA1 10:51:58.0 e PnI Z  
GRA1 10:53:13.8 e SnI Z  
GRA1 10:53:45.1 e Sg Z M14.1

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1997-09-27 D 6.8  
GRA1 11:28:41.7 e PnI Z  
GRA1 11:29:44.9 e SnI Z  
GRA1 11:30:27.5 e Sg Z M14.0

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1997-09-27 D135.8  
GRA1 11:47:34.1 e PKPdf Z

GRA1 11:47:45.3 e pPKPdf Z  
 GRA1 12:51:00.0 e L Z T19.1 A360 MS5.1

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 1997-09-27 D 7.1

GRA1 13:25:50.1 e PnI Z  
 GRA1 13:26:48.8 e SnI Z  
 GRA1 13:27:42.5 e Sg Z M14.8  
 GRA1 13:28:48.6 e L Z T14.6 A547 MS3.3  
 NEIC: OT 13:23:47.7 42.9N 12.9E dep 10km  
 CENTRAL ITALY

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 1997-09-27 D 6.8

GRA1 13:37:07.3 e PnI Z  
 GRA1 13:38:05.3 e SnI Z  
 GRA1 13:38:55.2 e Sg Z M14.2  
 GRA1 13:40:06.5 e L Z T15.3 A178 MS2.7

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 1997-09-27 D 6.7

GRA1 17:14:45.0 e PnI Z  
 GRA1 17:16:01.4 e SnI Z  
 GRA1 17:16:49.0 e Sg Z M14.6  
 GRA1 17:18:04.8 e L Z T14.5 A869 MS3.4

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 1997-09-27 D 7.0

GRA1 19:58:23.7 e PnI Z  
 GRA1 19:59:36.5 e SnI Z  
 GRA1 20:00:32.6 e Sg Z M14.9  
 GRA1 20:01:40.9 e L Z T15.5 A986 MS3.5  
 NEIC: OT 19:56:43.3 43.1N 12.9E dep 10km mb4.4  
 CENTRAL ITALY

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 1997-09-28 D104.6

GRA1 01:56:47.2 e PP Z  
 GRA1 02:08:36.3 e PKKP Z  
 GRA1 02:08:43.7 e (pPKKP) Z  
 GRA1 02:44:32.4 e L Z T20.2 A796 MS5.2  
 NEIC: OT 01:38:27.8 3.7S 119.7E dep 33km mb5.6  
 SULAWESI, INDONESIA

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 1997-09-28 D 3.4 381km

GRA1 02:59:08.5 e Pn Z M13.2  
 GRA1 03:00:02.7 e Sg E  
 SZGRF: OT 02:58:14.4 51.4N 6.6E dep 1km  
 Moers

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 1997-09-28 D 6.7

GRA1	03:53:13.1	e PnI	Z			
GRA1	03:54:27.7	e SnI	Z			
GRA1	03:55:11.2	e Sg	Z			M14.5

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1997-09-28	D 6.7					
GRA1	11:26:18.2	e PnI	Z			
GRA1	11:27:25.0	e SnI	Z			
GRA1	11:28:08.5	e Sg	Z			M14.5
GRA1	11:29:31.5	e L	Z	T15.0	A507	MS3.2

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1997-09-28	D131.8					
GRA1	12:19:01.4	e PKPdf	Z			
GRA1	12:21:21.6	e PP	Z			

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1997-09-28	D 56.8	AZ236				
GRA1	14:07:58.0	e P	Z			mb4.6
BEAM	14:07:58.0			T1.8	A6	
GRA1	14:08:08.1	e pP	Z			
GRA1	14:08:14.2	e sP	Z			
GRA1	14:15:50.1	e S	Z			
GRA1	14:29:04.2	e L	Z	T19.3	A274	MS4.4
SZGRF: OT	13:57:11.4	6.4N	33.0W	dep 38km		
CENTRAL MID-ATLANTIC RIDGE						

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1997-09-28	D 28.7	AZ150				
GRA1	16:52:52.3	e P	Z			mb4.2
BEAM	16:52:52.3			T1.0	A4	
GRA1	16:53:18.7	e (PP)	Z			

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1997-09-28	D 88.8	AZ 66				
GRA1	22:23:07.3	e P	Z			mb4.7
BEAM	22:23:07.3			T1.2	A6	
GRA1	23:08:22.7	e L	Z	T18.6	A136	MS4.4
SZGRF: OT	22:10:17.0	16.0N	118.7E	dep 33km		
PHILIPPINE ISLANDS REGION						

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1997-09-28	D 93.3	AZ 60				
GRA1	22:26:45.4	e P	Z			mb4.5
BEAM	22:26:45.4			T1.0	A2	
SZGRF: OT	22:13:34.6					
EAST OF PHILIPPINE ISLANDS						

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1997-09-28	D 79.6	AZ 29				
GRA1	22:44:20.1	i P	c Z			mb4.7
ALIGN	22:44:20.1			T0.9	A10	

SZGRF: OT 22:32:17.5 44.4N 150.1E dep 33km  
KURIL ISLANDS REGION

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1997-09-28 D100.1 AZ249  
GRA1 23:26:50.1 i P d Z mb5.7  
ALIGN 23:26:50.1 T1.4 A31  
GRA1 23:27:18.9 e pP Z  
GRA1 00:11:08.5 e L Z T19.2 A175 MS4.6

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1997-09-28  
GRA1 23:43:05.1 e PKPdf Z  
GRA1 23:43:31.1 e pPKPdf Z

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1997-09-28 D 6.9  
GRA1 23:59:39.5 e PnI Z  
GRA1 00:00:48.7 e SnI Z  
GRA1 00:01:33.2 e Sg Z M14.1  
NEIC: OT 23:57:49.5 42.7N 13.0E dep 10km  
CENTRAL ITALY

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1997-09-29  
GRA1 02:37:36.2 e PKPdf Z

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1997-09-29 D 15.1 AZ 47  
GRA1 13:20:20.4 e P Z  
BEAM 13:20:20.4 T0.7 A3

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1997-09-29 D 99.4  
GRA1 17:49:28.5 e Pdiff Z  
GRA1 17:49:50.0 e pPdiff Z  
GRA1 18:36:46.3 e L Z T21.4 A358 MS4.8

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1997-09-29 D 6.9  
GRA1 18:12:00.7 e PnI Z  
GRA1 18:13:37.3 e SnI Z  
GRA1 18:13:57.7 e Sg Z M14.2

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1997-09-29 D 3.0 329km  
GRA1 21:02:22.5 e Pn Z M13.9  
GRA1 21:02:57.6 e Sn E  
GRA1 21:03:10.1 e Sg E  
SZGRF: OT 21:01:35.5 46.8N 12.3E dep 10km  
NORTHERN ITALY

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1997-09-30

GRA1 04:47:04.4 i PKPab d Z

NEIC: OT 04:26:32.5 30.1S 177.7W dep 49km mb4.9

KERMADEC ISLANDS, NEW ZEALAND

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1997-09-30 D 87.1 AZ 40

GRA1 06:40:16.1 i P d Z mb5.6

ALIGN 06:40:16.1 T1.9 A97

GRA1 06:40:23.0 e Z

GRA1 06:40:31.1 e pP Z

GRA1 06:43:41.5 e PP Z

GRA1 06:43:58.8 e pPP Z

GRA1 07:27:34.6 e L Z T19.6 A14120 MS6.4

SZGRF: OT 06:27:37.2 32.7N 142.1E dep 52km

SOUTH OF HONSHU, JAPAN

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1997-09-30 D 87.2 AZ 40

GRA1 20:35:12.3 e P c Z mb5.3

BEAM 20:35:12.3 T2.2 A54

GRA1 20:38:37.5 e PP Z

GRA1 21:21:17.9 e L Z T18.5 A360 MS4.8

SZGRF: OT 20:22:30.5 32.3N 141.5E dep 33km

SOUTH OF HONSHU, JAPAN

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