

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

June

2005

Prepared by  
The National Centre for Geophysical Research  
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## GENERAL BULLETIN INFORMATION

The National Centre for Geophysical Research is a governmental agency established 1975 in Lebanon by the National Council for Scientific Research (CNRS). The mission of the Centre, among other assignments, is the monitoring of seismic activity within the national territory. Currently, the national seismic network is under deployment; it has been officially registered as GRAL, an acronym for Geophysical Research Arrays of Lebanon. Station coordinates and status are given below.

Since 1993, the Centre has been participating in a regional initiative by the UNESCO and the USGS known as RELEMR, i.e. Reducing Earthquake Losses in the Eastern Mediterranean Region.

Within this framework, the Centre routinely contributes to the database set up for this purpose and maintained by the Euro-Mediterranean Seismological Centre (EMSC). For coherence, the Centre has adopted the recommended seismic analysis system SEISAN developed by Jens Havskov and Lars Ottemoller from the University of Bergen, Norway.

The localization program currently used for locating earthquakes is Hypocenter (Lienert et al., 1986). Plane parallel layers are assumed for local and regional events, while the IASPEI travel time tables are used for distant events.

The velocity model used for all local and regional events is the one currently adopted by the RELEMR initiative.

| P-wave velocity<br>(km/sec) | depth to top of layer<br>(km) |
|-----------------------------|-------------------------------|
| 6.2                         | 0.0                           |
| 6.8                         | 14.0                          |
| 8.05                        | 34.0                          |
| 8.25                        | 50.0                          |
| 8.5                         | 80.0                          |

Magnitudes are calculated from the coda duration. The coda wave magnitude is estimated via the formula:

$$M_c = 0.08 + 1.63 * \log_{10}(T) + 0.0009 * D.$$

where T is the coda duration (sec) and D is the epicentral distance (km). The coefficients above were adopted at the outset of our Centre in 1980 and thus are still in use for the sake of continuity.

All available coda values are used for magnitude calculations. No station corrections are used for either travel times or magnitudes calculations. The Vp/Vs velocity ratio used in both layered models above is 1.74.

As a general policy, neither depths, nor epicenters, are fixed unless stated otherwise since this might restrict later use of the data. Consequently, some event locations might be unrealistic such as zero depth earthquakes or teleseismic locations off by 1000 km. However, the locations are based on the available data and reflect the localization procedure and the models used.

## STATIONS USED

The stations listed below are operated by the National Centre for Geophysical Research. They constitute the basic setup of the National Seismic Network of Lebanon.

However, readings from other cooperating agencies are also used in locating the events and thus more stations may appear in the event lists than in the station list; it is worth mentioning the systematic use of arrival times from the Cypriot seismic network CSS in order to constrain events corresponding to an active zone off the Lebanese shorelines.

| STATION | LATITUDE | LONGITUDE | HEIGHT (m) | NAME    | COMMENTS        |
|---------|----------|-----------|------------|---------|-----------------|
| BHL     | 3354.25N | 3539.25E  | 1000       | BHANNES | Opened May 1980 |
| HWQ     | 3416.68N | 3556.78E  | 1161       | HAWQA   | Opened Jan 2001 |
| MATL    | 3329.32N | 3519.78E  | 5          | MATARIH | Opened Nov 2000 |
| FKH     | 3414.13N | 3624.11E  | 1170       | FAKEHEH | Opened Dec 2004 |
| RCY     | 3329.08N | 3549.13E  | 1360       | RACHAYA | Scheduled 2003  |
| DWR     | 3323.13N | 3524.08E  | 420        | DWEIR   | Scheduled 2003  |

## MACROSEISMIC DATA

Macroseismic data, if available, are included in the bulletin.

## MONTHLY EPICENTER MAPS

Maps will be found on the last page.

## ELECTRONIC PUBLICATION

This provisional bulletin is available for download in pdf format on:  
<http://www.cnrs.edu.lb/grdownload.html>

## REFERENCES

- Havskov, J. and Ottemoller, L.(2001). SEISAN: The Earthquake Analysis Software.  
-version 7.2-  
Institute of Solid Earth Physics, University of Bergen.  
<http://www.ifjff.uib.no/seismo/software/seisan.html>
- Lienert, B.R., Berg, E. and Frazer, L.N.(1986). Hypocenter: An earthquake location method using centered, scaled, and adaptively least squares. Bull. Seism. Soc. Am., 76., pp 771-783.

## Abbreviations:

TIME: Origin time in UTC (hr. min. and sec.) or data file onset time if event is not located.

LAT: Latitude of epicenter

LON: Longitude of epicenter

DEPTH: Focal depth in kilometer (trailing F indicates fixed depth)

AGENCY: GRL throughout the bulletin, aka. Geophysical Research Lebanon

MAGNITUDES: Up to 3 different magnitudes can be given followed by type and reporting agency, e.g. 3.1 MC GRL - coda magnitude calculated according to GRL standard parameters.

RMS: Root mean square value of travel time residuals

STAT: Station code

CO: Component; S:short period, L:long period, B:broadband.

DIST: Epicenter distance (km)

AZI: Azimuth from source to station

PHAS: Phase; The first letter characterizes onset E(mergent) or I(mpulsive)

P: Polarity ( C for compression, D for dilatation )

HR: Hour

MN: Minute

SECON: Seconds

TRES: Residual (seconds)

CODA: Signal duration in seconds

AMPL: Ground Amplitude ( $0.5 \times (\text{peak to peak})$ ), (nm) at period PERI

PERI: Period where amplitude is measured

BAZ: Back azimuth (station to event)

ARES: Back azimuth residual

VELO: Apparent phase velocity (km/sec)

WT: Weight of phase in the location

\*: An asterisk before the phase arrival time implies a potential timing error. If an S phase is read, differential S-P times will be used in the hypocenter location.

**June 1 2005 Hour: 3:27 30.7 Lat: 31.14N Lon: 35.36E Depth: 0 Agency: REL Regional**  
**Magnitudes: 3.9MC REL Rms: 2.8 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| MATL | SZ | 261  | 359 | EPN   |   | 328  | 6.17  | -3.0 |      |      |      |     |      |      | 1.0 |
| MATL | SZ | 261  | 359 | SN    |   | 328  | 37.68 | 0.1  |      |      |      |     |      |      | 1.0 |
| BHL  | BZ | 308  | 5   | EPN   |   | 328  | 12.64 | -2.5 |      |      |      |     |      |      | 1.0 |
| BHL  | BN | 308  | 5   | SN    |   | 328  | 51.06 | 3.0  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 353  | 9   | EPN   |   | 328  | 20.60 | -0.1 | 133  |      |      |     |      |      | 1.0 |
| HWQ  | SE | 353  | 9   | SN    |   | 329  | 3.83  | 6.2  |      |      |      |     |      |      | 1.0 |

**June 1 2005 Hour: 18:56 0.3 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 1857 | 8.55  |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | ISg   |   | 1857 | 28.28 |      |      |      |      |     |      |      |    |
| BHL  | SE |      |     | ISg   |   | 1857 | 21.90 |      |      |      |      |     |      |      |    |

**June 1 2005 Hour: 21:32 0.3 Dead Sea Region Agency: REL Regional**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BN |      |     | Sn    |   | 2133 | 17.65 |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | Sn    |   | 2133 | 28.35 |      |      |      |      |     |      |      |    |

**June 2 2005 Hour: 15:12 1.1 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | SZ |      |     | IPg   |   | 1512 | 58.64 |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 1513 | 16.49 |      |      |      |      |     |      |      |    |
| HWQ  | SZ |      |     | IPg   |   | 1513 | 2.74  |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | ISg   |   | 1513 | 25.29 |      |      |      |      |     |      |      |    |

**June 2 2005 Hour: 21:48 10.8 Lat: 35.80N Lon: 31.37E Depth: 25 Agency: REL Regional**  
**Magnitudes: 3.9MC REL Rms: 1.0 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| AKMC | SZ | 122  | 134 | EP    |   | 2148 | 29.90 | 0.1  |      |      |      |     |      |      | 1.0 |
| ALFC | SZ | 133  | 122 | EP    |   | 2148 | 30.10 | -0.9 |      |      |      |     |      |      | 1.0 |
| PPCY | SZ | 135  | 138 | EP    |   | 2148 | 32.10 | 0.8  |      |      |      |     |      |      | 1.0 |
| SZAC | SZ | 180  | 129 | EP    |   | 2148 | 37.10 | 0.2  |      |      |      |     |      |      | 1.0 |
| MAMC | SZ | 182  | 112 | EP    |   | 2148 | 35.90 | -1.2 |      |      |      |     |      |      | 1.0 |
| CSS  | SZ | 201  | 117 | EP    |   | 2148 | 38.20 | -1.3 |      |      |      |     |      |      | 1.0 |
| PHNC | SZ | 258  | 109 | EP    |   | 2148 | 46.00 | -0.5 |      |      |      |     |      |      | 1.0 |
| BHL  | BZ | 445  | 117 | EPn   |   | 2149 | 10.75 | 0.9  |      |      |      |     |      |      | 1.0 |
| BHL  | BN | 445  | 117 | Sn    |   | 2149 | 52.66 | -0.9 |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 451  | 111 | EPn   |   | 2149 | 12.58 | 2.0  | 124  |      |      |     |      |      | 1.0 |
| HWQ  | SN | 451  | 111 | Sn    |   | 2149 | 54.69 | -0.2 |      |      |      |     |      |      | 1.0 |
| FKH  | SN | 491  | 109 | Sn    |   | 2150 | 4.83  | 1.2  |      |      |      |     |      |      | 1.0 |

**June 3 2005 Hour: 16:16 1.6 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 1617 | 10.86 |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | ISg   |   | 1617 | 20.01 |      |      |      |      |     |      |      |    |
| BHL  | SZ |      |     | IPg   |   | 1617 | 11.87 |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 1617 | 23.12 |      |      |      |      |     |      |      |    |

**June 3 2005 Hour: 22:21 22.4 Lat: 34.25N Lon: 35.57E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.2 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| HWQ  | SZ | 35   | 84  | IPg   |   | 2221 | 28.78 | 0.2  | 24   |      |      | 325 | 61   | 55.2 | 1.0 |
| HWQ  | SE | 35   | 84  | ISg   |   | 2221 | 32.91 | -0.2 |      |      |      |     |      |      | 1.0 |
| BHL  | SZ | 39   | 169 | IPg   |   | 2221 | 29.31 | 0.2  |      |      |      |     |      |      | 1.0 |
| BHL  | SE | 39   | 169 | ISg   |   | 2221 | 33.89 | -0.2 |      |      |      |     |      |      | 1.0 |

**June 4 2005 Hour: 13:26 47.2 Lat: 33.80N Lon: 35.70E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 1.1 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 13   | 340 | IPg   |   | 1326 | 47.51 | -1.7 | 28   |      |      | 159 | -1   | 15.5 | 1.0 |
| BHL  | SE | 13   | 340 | ISg   |   | 1326 | 50.78 | 0.0  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 58   | 23  | IPg   |   | 1326 | 57.50 | 0.9  |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 58   | 23  | ISg   |   | 1327 | 4.31  | 0.8  |      |      |      |     |      |      | 1.0 |

**June 6 2005 Hour: 1:51 0.1 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 151  | 51.98 |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | ISg   |   | 152  | 11.71 |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 152  | 9.30  |      |      |      |      |     |      |      |    |

**June 6 2005 Hour: 2:22 21.3 Lat: 33.74N Lon: 35.76E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 1.4 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 21   | 333 | IPg   |   | 222  | 23.09 | -1.6 | 31   |      |      | 141 | -11  | 13.4 | 1.0 |
| BHL  | SN | 21   | 333 | ISg   |   | 222  | 26.00 | -1.2 |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 63   | 16  | IPg   |   | 222  | 32.49 | 1.1  |      |      |      |     |      |      | 1.0 |
| HWQ  | SN | 63   | 16  | ISg   |   | 222  | 40.53 | 1.7  |      |      |      |     |      |      | 1.0 |

**June 6 2005 Hour: 2:53 1.5 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | SZ |      |     | IPg   |   | 254  | 10.16 |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 254  | 12.74 |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | ISg   |   | 254  | 20.22 |      |      |      |      |     |      |      |    |

**June 6 2005 Hour: 2:57 32.4 Lat: 33.79N Lon: 35.49E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.9 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 20   | 50  | IPg   |   | 257  | 34.88 | -0.8 | 34   |      |      |     |      |      | 1.0 |
| BHL  | SN | 20   | 50  | ISg   |   | 257  | 37.67 | -0.4 |      |      |      |     |      |      | 1.0 |
| MATL | SZ | 36   | 204 | IPg   |   | 257  | 38.86 | 0.7  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 69   | 38  | IPg   |   | 257  | 43.13 | -0.4 |      |      |      |     |      |      | 1.0 |
| HWQ  | SN | 69   | 38  | ISg   |   | 257  | 52.93 | 1.2  |      |      |      |     |      |      | 1.0 |
| FKH  | SZ | 98   | 59  | IPg   |   | 257  | 46.91 | -1.3 |      |      |      |     |      |      | 1.0 |
| FKH  | SN | 98   | 59  | ISg   |   | 258  | 0.88  | 1.0  |      |      |      |     |      |      | 1.0 |

**June 6 2005 Hour: 7:41 59.8 Lat: 38.10N Lon: 38.35E Depth: 15 Agency: REL Regional**  
**Magnitudes: 4.9MC REL Rms: 1.8 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| MYA  | SZ | 26   | 15  | EPn   |   | 742  | 06.50 |      |      |      |      |     |      |      |     |
| GAZ  | SZ | 144  | 225 | EPn   |   | 742  | 19.11 | -3.1 |      |      |      |     |      |      | 1.0 |
| HTY  | SZ | 295  | 223 | EPn   |   | 742  | 41.61 | 0.7  |      |      |      |     |      |      | 1.0 |
| NIG  | SZ | 328  | 271 | EPn   |   | 742  | 45.70 | 0.4  |      |      |      |     |      |      | 1.0 |
| FKH  | SZ | 463  | 203 | EPn   |   | 743  | 2.71  | 0.8  |      |      |      |     |      |      | 1.0 |
| IKL  | SZ | 463  | 245 | EPn   |   | 743  | 04.30 | 2.5  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 476  | 208 | EPn   |   | 743  | 5.25  | 1.7  |      |      |      |     |      |      | 1.0 |
| BHL  | SZ | 525  | 208 | EPn   |   | 743  | 10.45 | 0.9  | 448  |      |      |     |      |      | 1.0 |
| MATL | SZ | 580  | 209 | EPn   |   | 743  | 13.58 | -2.7 |      |      |      |     |      |      | 1.0 |
| ISP  | SZ | 688  | 270 | EPn   |   | 743  | 28.66 | -1.2 |      |      |      |     |      |      | 1.0 |

**June 6 2005 Hour: 10:14 0.9 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | SN |      |     | ISg   |   | 1015 | 2.01  |      |      |      |      |     |      |      |    |
| HWQ  | SZ |      |     | IPg   |   | 1014 | 49.14 |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | ISg   |   | 1015 | 3.76  |      |      |      |      |     |      |      |    |
| BHL  | SZ |      |     | IPg   |   | 1014 | 48.60 |      |      |      |      |     |      |      |    |

**June 6 2005 Hour: 11:32 1.7** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ IPg 1132 52.55  
 HWQ SN ISg 1133 1.71  
 BHL SN ISg 1133 11.59

**June 7 2005 Hour: 4:40 46.7** **North Pacific Ocean** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 441 15.57

**June 7 2005 Hour: 9:17 1.3** **Turkey** **Agency: REL Regional**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ EPn 918 10.30

**June 7 2005 Hour: 11:34 1.3** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ IPg 1135 33.81  
 HWQ SE ISg 1135 43.49  
 BHL SZ IPg 1135 40.69

**June 7 2005 Hour: 16:16 0.1** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 FKH SZ IPg 1617 26.46  
 FKH SN ISg 1617 31.51  
 HWQ SE ISg 1617 41.33

**June 8 2005 Hour: 21:43 55.1** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 2144 24.31

**June 9 2005 Hour: 10:29 1.5** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ IPg 1030 30.10  
 HWQ SN ISg 1030 40.69  
 BHL SZ IPg 1030 27.36  
 BHL SE ISg 1030 39.24

**June 9 2005 Hour: 16:46 15.5** **Lat: 35.60N Lon: 37.92E Depth: 15** **Agency: REL Regional**  
**Magnitudes: 3.4MC REL Rms: 1.2 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 FKH SZ 206 223 IPg 1646 46.09 -0.7 1.0  
 FKH SN 206 223 ISg 1647 9.58 -0.4 1.0  
 HWQ SZ 233 231 IPg 1646 49.75 -1.1 76 1.0  
 HWQ SE 233 231 ISg 1647 15.97 -1.0 1.0  
 BHL BZ 281 228 EPn 1646 55.78 0.8 1.0  
 BHL BN 281 228 Sn 1647 26.62 2.4 1.0

**June 9 2005 Hour: 22:49 0.4** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ IPg 2249 47.89  
 HWQ SN ISg 2250 7.85  
 BHL SZ IPg 2249 57.23  
 BHL SN ISg 2250 20.10

**June 10 2005 Hour: 3:40 43.1** **Kermadec Islands M=5.4** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 342 21.04

**June 11 2005 Hour: 10:10 47.1 Lat: 33.86N Lon: 35.50E Depth: 14 Agency: REL Local**  
**Magnitudes: 3.0MC REL Rms: 0.9 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 15   | 71  | IPg   |   | 1010 | 49.55 | -0.9 | 58   |      |      | 251 | 0    | 20.7 | 1.0 |
| BHL  | SE | 15   | 71  | ISg   |   | 1010 | 53.29 | 0.3  |      |      |      |     |      |      | 1.0 |
| MATL | SZ | 44   | 201 | IPg   |   | 1010 | 55.25 | 0.7  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 62   | 41  | IPg   |   | 1010 | 56.17 | -1.2 |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 62   | 41  | ISg   |   | 1011 | 6.15  | 1.2  |      |      |      |     |      |      | 1.0 |

**June 11 2005 Hour: 17:30 2.4 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BZ |      |     | IPg   |   | 1730 | 59.77 |      |      |      |      |     |      |      |    |
| BHL  | BN |      |     | ISg   |   | 1731 | 6.81  |      |      |      |      |     |      |      |    |
| HWQ  | SZ |      |     | IPg   |   | 1731 | 6.14  |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | ISg   |   | 1731 | 16.40 |      |      |      |      |     |      |      |    |

**June 12 2005 Hour: 10:57 42.7 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 1058 | 35.04 |      |      |      |      |     |      |      |    |
| BHL  | SZ |      |     | IPg   |   | 1058 | 36.27 |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | ISg   |   | 1058 | 48.60 |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 1058 | 52.19 |      |      |      |      |     |      |      |    |

**June 13 2005 Hour: 7:13 10.6 Sumatra M=5.2 Agency: REL Distant**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BZ |      |     | EP    |   | 715  | 32.41 |      |      |      |      |     |      |      |    |

**June 13 2005 Hour: 12:50 10.7 Lat: 34.20N Lon: 35.48E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.2 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 37   | 155 | IPg   |   | 1250 | 17.30 | 0.2  | 40   |      |      | 302 | -32  | 23.5 | 1.0 |
| BHL  | SE | 37   | 155 | ISg   |   | 1250 | 21.67 | -0.1 |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 43   | 79  | IPg   |   | 1250 | 18.18 | 0.1  |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 43   | 79  | ISg   |   | 1250 | 23.33 | -0.2 |      |      |      |     |      |      | 1.0 |

**June 13 2005 Hour: 13:35 1.0 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 1336 | 23.12 |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | ISg   |   | 1336 | 31.61 |      |      |      |      |     |      |      |    |
| BHL  | SZ |      |     | IPg   |   | 1336 | 29.76 |      |      |      |      |     |      |      |    |

**June 13 2005 Hour: 15:53 0.6 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 1554 | 15.44 |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | ISg   |   | 1554 | 25.39 |      |      |      |      |     |      |      |    |
| BHL  | SZ |      |     | IPg   |   | 1554 | 21.59 |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 1554 | 38.70 |      |      |      |      |     |      |      |    |

**June 13 2005 Hour: 20: 3 2.4 Agency: REL Distant**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BZ |      |     | EP    |   | 2010 | 19.30 |      |      |      |      |     |      |      |    |

**June 13 2005 Hour: 22:24 1.0 Agency: REL Regional**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SE |      |     | Sn    |   | 2225 | 28.40 |      |      |      |      |     |      |      |    |
| BHL  | BZ |      |     | EPn   |   | 2225 | 19.43 |      |      |      |      |     |      |      |    |
| BHL  | BE |      |     | Sn    |   | 2225 | 31.05 |      |      |      |      |     |      |      |    |



**June 13 2005 Hour: 22:33 32.4** **Agency: REL Regional**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EPn 2234 10.53

**June 13 2005 Hour: 22:47 4.9** **Chile M=7.8** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 23 2 59.89

**June 14 2005 Hour: 1:38 28.0** **Tonga Islands M=6.1** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 141 39.53  
 FKH SZ EP 141 38.41

**June 14 2005 Hour: 8:27 23.4** **Lat: 33.26N Lon: 35.14E Depth: 3** **Agency: REL Local**  
**Magnitudes: 3.0MC REL** **Rms: 0.3 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 MATL SZ 31 35 IPg 827 28.38 -0.1 59 1.0  
 BHL SZ 86 34 IPg 827 37.19 -0.2 1.0  
 BHL SN 86 34 ISg 827 48.10 0.4 1.0  
 HWQ SZ 136 33 IPg 827 45.64 0.3 1.0  
 HWQ SN 136 33 ISg 828 1.12 -0.4 1.0

**June 14 2005 Hour: 10:41 0.9** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ IPg 1041 44.21  
 BHL SN ISg 1041 59.39  
 HWQ SN ISg 1041 59.88

**June 14 2005 Hour: 17:17 4.9** **Aleutian Islands M=6.7** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 1723 7.00  
 FKH SZ EP 1723 5.70

**June 14 2005 Hour: 22:17 30.5** **Iran M=4.7** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 2218 34.63

**June 15 2005 Hour: 2:47 4.9** **California M=7.1** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 3 4 41.26

**June 15 2005 Hour: 12:58 1.1** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL SZ IPg 1259 23.98  
 HWQ SZ IPg 1259 25.27  
 BHL SN ISg 1259 28.77  
 HWQ SN ISg 1259 31.27

**June 17 2005 Hour: 2:46 11.8** **Nicobar Islands M=5.5** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 247 51.08

**June 17 2005 Hour: 6: 0 8.9** **California M=6.6** **Agency: REL Distant**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 639 51.37

**June 17 2005 Hour: 19:22 8.9** **Lat: 35.66N Lon: 26.88E Depth: 0** **Agency: REL Regional**  
**Magnitudes: 4.6MC REL** **Rms: 1.3 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 ISP SZ 404 52 EPn 1923 05.22 0.0 1.0  
 IKL SZ 617 82 EPn 1923 32.66 1.0 1.0  
 MATL SZ 812 105 Sn 1925 17.38 2.6 1.0  
 BHL BZ 826 101 EPn 1923 56.49 -1.2 209 1.0

|     |    |     |     |     |  |      |       |      |  |  |  |  |  |  |  |  |     |
|-----|----|-----|-----|-----|--|------|-------|------|--|--|--|--|--|--|--|--|-----|
| BHL | BN | 826 | 101 | Sn  |  | 1925 | 15.89 | -2.2 |  |  |  |  |  |  |  |  | 1.0 |
| HWQ | SZ | 842 | 98  | EPn |  | 1923 | 59.74 | 0.1  |  |  |  |  |  |  |  |  | 1.0 |
| HWQ | SN | 842 | 98  | Sn  |  | 1925 | 20.75 | -0.8 |  |  |  |  |  |  |  |  | 1.0 |
| FKH | SZ | 884 | 98  | EPn |  | 1924 | 4.84  | 0.0  |  |  |  |  |  |  |  |  | 1.0 |
| FKH | SN | 884 | 98  | Sn  |  | 1925 | 31.18 | 0.6  |  |  |  |  |  |  |  |  | 1.0 |

**June 18 2005 Hour: 13:49 10.6 Agency: REL Regional**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BZ |      |     | EPn   |   | 1349 | 21.33 |      |      |      |      |     |      |      |    |

**June 19 2005 Hour: 4:37 43.1 Iran M=5 Agency: REL Distant**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BZ |      |     | EP    |   | 450  | 28.53 |      |      |      |      |     |      |      |    |

**June 19 2005 Hour: 10:21 28.4 Lat: 33.63N Lon: 35.71E Depth: 10 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.4 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 31   | 350 | IPg   |   | 1021 | 33.38 | -0.5 | 25   |      |      | 170 | 0    | 19.2 | 1.0 |
| BHL  | BE | 31   | 350 | ISg   |   | 1021 | 38.14 | 0.3  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 76   | 17  | IPg   |   | 1021 | 41.27 | 0.5  |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 76   | 17  | ISg   |   | 1021 | 49.66 | -0.3 |      |      |      |     |      |      | 1.0 |

**June 19 2005 Hour: 12:41 43.9 Lat: 33.52N Lon: 35.80E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.7 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| MATL | SZ | 44   | 266 | IPg   |   | 1241 | 51.57 | 0.5  |      |      |      |     |      |      | 1.0 |
| BHL  | BZ | 45   | 342 | IPg   |   | 1241 | 49.98 | -1.1 | 37   |      |      |     |      |      | 1.0 |
| BHL  | BN | 45   | 342 | ISg   |   | 1241 | 56.46 | 0.0  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 85   | 9   | IPg   |   | 1241 | 57.50 | -0.1 |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 85   | 9   | ISg   |   | 1242 | 8.54  | 0.8  |      |      |      |     |      |      | 1.0 |

**June 20 2005 Hour: 14:20 38.4 Lat: 33.72N Lon: 35.52E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.3MC REL Rms: 0.5 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 23   | 31  | IPg   |   | 1420 | 41.53 | -0.7 | 22   |      |      | 211 | 0    | 11.1 | 1.0 |
| BHL  | SE | 23   | 31  | ISg   |   | 1420 | 45.26 | 0.3  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 73   | 32  | IPg   |   | 1420 | 50.84 | 0.7  |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 73   | 32  | ISg   |   | 1420 | 58.58 | -0.3 |      |      |      |     |      |      | 1.0 |

**June 20 2005 Hour: 15:24 0.4 Agency: REL Regional**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | SZ |      |     | EPn   |   | 1525 | 5.36  |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | Sn    |   | 1525 | 23.56 |      |      |      |      |     |      |      |    |
| HWQ  | SZ |      |     | EPn   |   | 1525 | 15.21 |      |      |      |      |     |      |      |    |
| HWQ  | SN |      |     | Sn    |   | 1525 | 35.85 |      |      |      |      |     |      |      |    |

**June 20 2005 Hour: 16:13 30.3 Lat: 34.30N Lon: 36.61E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 1.1 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| HWQ  | SZ | 61   | 268 | IPg   |   | 1613 | 41.48 | 1.3  | 32   |      |      | 88  | 0    | 14.5 | 1.0 |
| HWQ  | SN | 61   | 268 | ISg   |   | 1613 | 46.73 | -0.7 |      |      |      |     |      |      | 1.0 |
| BHL  | SZ | 98   | 244 | IPg   |   | 1613 | 44.89 | -1.3 |      |      |      |     |      |      | 1.0 |
| BHL  | SN | 98   | 244 | ISg   |   | 1613 | 58.68 | 0.7  |      |      |      |     |      |      | 1.0 |

**June 22 2005 Hour: 6:56 21.0 Agency: REL Regional**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BE |      |     | Sn    |   | 7    | 0     | 3.72 |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | Sn    |   | 659  | 58.06 |      |      |      |      |     |      |      |    |
| BHL  | BZ |      |     | EPn   |   | 659  | 29.91 |      |      |      |      |     |      |      |    |

**June 22 2005 Hour: 13:30 36.2 Lat: 33.89N Lon: 36.66E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.0MC REL Rms: 0.1 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| FKH  | SZ | 45   | 328 | IPg   |   | 1330 | 43.50 | 0.1  |      |      |      |     |      |      | 1.0 |
| FKH  | SN | 45   | 328 | ISg   |   | 1330 | 48.58 | -0.2 |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 79   | 303 | IPg   |   | 1330 | 48.87 | 0.0  | 56   |      |      |     |      |      | 1.0 |
| HWQ  | SN | 79   | 303 | ISg   |   | 1330 | 58.42 | 0.2  |      |      |      |     |      |      | 1.0 |
| BHL  | SZ | 93   | 271 | IPg   |   | 1330 | 51.16 | 0.0  |      |      |      |     |      |      | 1.0 |
| BHL  | SE | 93   | 271 | ISg   |   | 1331 | 2.23  | -0.1 |      |      |      |     |      |      | 1.0 |

**June 22 2005 Hour: 21: 0 5.4 Lat: 35.01N Lon: 33.90E Depth: 53 Agency: REL Regional**  
**Magnitudes: 3.4MC REL Rms: 0.7 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| PHNC | SZ | 12   | 96  | EP    |   | 21 0 | 13.10 | -0.2 |      |      |      |     |      |      | 1.0 |
| PHNC | SZ | 12   | 96  | ES    |   | 21 0 | 19.40 | 0.4  |      |      |      |     |      |      | 1.0 |
| CSS  | SZ | 52   | 264 | EP    |   | 21 0 | 15.70 | -0.3 |      |      |      |     |      |      | 1.0 |
| CSS  | SZ | 52   | 264 | ES    |   | 21 0 | 23.80 | -0.1 |      |      |      |     |      |      | 1.0 |
| MAMC | SZ | 64   | 286 | EP    |   | 21 0 | 17.20 | -0.1 |      |      |      |     |      |      | 1.0 |
| MAMC | SZ | 64   | 286 | ES    |   | 21 0 | 25.80 | -0.2 |      |      |      |     |      |      | 1.0 |
| ALFC | SZ | 119  | 278 | EP    |   | 21 0 | 23.20 | -0.4 |      |      |      |     |      |      | 1.0 |
| ALFC | SZ | 119  | 278 | ES    |   | 21 0 | 37.50 | 0.4  |      |      |      |     |      |      | 1.0 |
| PPCY | SZ | 143  | 265 | EP    |   | 21 0 | 26.70 | 0.4  |      |      |      |     |      |      | 1.0 |
| AKMC | SZ | 143  | 271 | EP    |   | 21 0 | 26.30 | -0.1 |      |      |      |     |      |      | 1.0 |
| BHL  | BZ | 203  | 127 | EP    |   | 21 0 | 32.86 | -0.9 |      |      |      |     |      |      | 1.0 |
| BHL  | BN | 203  | 127 | ES    |   | 21 0 | 53.46 | -1.3 |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 205  | 113 | EP    |   | 21 0 | 34.00 | 0.0  | 79   |      |      |     |      |      | 1.0 |
| HWQ  | SE | 205  | 113 | ES    |   | 21 0 | 55.84 | 0.7  |      |      |      |     |      |      | 1.0 |
| MATL | SZ | 215  | 142 | EP    |   | 21 0 | 36.70 | 1.6  |      |      |      |     |      |      | 1.0 |

**June 23 2005 Hour: 11:53 35.2 Lat: 33.59N Lon: 35.53E Depth: 7 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 1.0 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| MATL | SZ | 22   | 240 | IPg   |   | 1153 | 39.40 | 0.5  |      |      |      |     |      |      | 1.0 |
| BHL  | SZ | 37   | 18  | IPg   |   | 1153 | 39.91 | -1.3 | 53   |      |      |     |      |      | 1.0 |
| BHL  | SN | 37   | 18  | ISg   |   | 1153 | 45.42 | -0.3 |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 86   | 26  | IPg   |   | 1153 | 48.59 | -0.4 |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 86   | 26  | ISg   |   | 1154 | 0.89  | 1.6  |      |      |      |     |      |      | 1.0 |

**June 25 2005 Hour: 3: 7 0.7 Agency: REL Local**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 3 7  | 45.22 |      |      |      |      |     |      |      |    |
| FKH  | SZ |      |     | IPg   |   | 3 7  | 50.96 |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | ISg   |   | 3 7  | 50.74 |      |      |      |      |     |      |      |    |
| FKH  | SE |      |     | ISg   |   | 3 8  | 0.64  |      |      |      |      |     |      |      |    |

**June 25 2005 Hour: 8:52 45.3 Lat: 33.75N Lon: 35.73E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.1MC REL Rms: 0.9 secs**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 19   | 337 | IPg   |   | 852  | 47.40 | -0.9 | 67   |      |      |     |      |      | 1.0 |
| BHL  | SN | 19   | 337 | ISg   |   | 852  | 50.65 | 0.2  |      |      |      |     |      |      | 1.0 |
| MATL | SZ | 47   | 232 | IPg   |   | 852  | 53.56 | 0.6  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 62   | 19  | IPg   |   | 852  | 54.04 | -1.2 |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 62   | 19  | ISg   |   | 853  | 3.78  | 1.2  |      |      |      |     |      |      | 1.0 |

**June 26 2005 Hour: 8:32 35.8 Molucca Sea M=6 Agency: REL Distant**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL  | BZ |      |     | EP    |   | 835  | 50.36 |      |      |      |      |     |      |      |    |

**June 26 2005 Hour: 22: 8 1.1** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ IPg 22 8 46.70  
 BHL BE ISg 22 8 49.38  
 HWQ SN ISg 22 8 58.59

**June 27 2005 Hour: 14: 3 0.8** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SE ISg 14 4 10.18  
 BHL SZ IPg 14 4 8.74  
 BHL SN ISg 14 4 23.67  
 HWQ SZ IPg 14 4 0.16 73

**June 27 2005 Hour: 14:22 0.8** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ IPg 1422 29.08  
 HWQ SE ISg 1422 38.63  
 BHL SE ISg 1422 45.88

**June 29 2005 Hour: 1:14 1.1** **Agency: REL Local**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 FKH SZ IPg 115 8.23  
 FKH SN ISg 115 17.79  
 HWQ SZ IPg 115 13.48  
 HWQ SE ISg 115 26.74

**June 29 2005 Hour: 7: 8 57.9 Lat: 33.27N Lon: 35.17E Depth: 1 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.4 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 MATL SZ 28 31 IPg 7 9 2.11 -0.3 47 1.0  
 BHL SN 83 32 ISg 7 9 21.61 0.4 1.0  
 HWQ SZ 133 32 IPg 7 9 19.55 0.3 1.0  
 HWQ SN 133 32 ISg 7 9 34.66 -0.4 1.0

**June 29 2005 Hour: 15:41 36.0 Lat: 33.73N Lon: 35.78E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.9 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL SZ 23 329 IPg 1541 38.24 -1.4 37 1.0  
 BHL SN 23 329 ISg 1541 42.84 0.4 1.0  
 MATL SZ 50 238 IPg 1541 44.75 0.7 1.0  
 HWQ SZ 63 14 IPg 1541 45.53 -0.6 1.0  
 HWQ SE 63 14 ISg 1541 54.55 0.9 1.0

**June 30 2005 Hour: 10:17 18.4 Lat: 34.48N Lon: 36.70E Depth: 14 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.7 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 FKH SZ 39 225 IPg 1017 24.18 -1.0 44 358 47 22.6 1.0  
 FKH SN 39 225 ISg 1017 29.86 -0.3 1.0  
 HWQ SZ 73 252 IPg 1017 31.40 0.9 1.0  
 HWQ SN 73 252 ISg 1017 39.71 0.3 1.0

**June 30 2005 Hour: 12:59 20.6 Lat: 33.68N Lon: 35.96E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 1.4 secs**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL SZ 38 312 IPg 1259 24.46 -2.3 46 1.0  
 BHL SE 38 312 ISg 1259 31.52 0.3 1.0  
 MATL SZ 62 250 IPg 1259 32.03 1.4 1.0  
 HWQ SZ 67 359 IPg 1259 30.56 -0.8 1.0  
 HWQ SE 67 359 ISg 1259 40.73 1.4 1.0

**June 30 2005 Hour: 13: 5 35.2 Lat: 34.15N Lon: 35.42E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.7 secs**  

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT  |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|-----|
| BHL  | SZ | 34   | 141 | IPg   |   | 13 5 | 42.15 | 0.8  | 40   |      |      | 289 | -32  | 12.7 | 1.0 |
| BHL  | SN | 34   | 141 | ISg   |   | 13 5 | 46.25 | 0.5  |      |      |      |     |      |      | 1.0 |
| HWQ  | SZ | 51   | 73  | IPg   |   | 13 5 | 43.15 | -0.5 |      |      |      |     |      |      | 1.0 |
| HWQ  | SE | 51   | 73  | ISg   |   | 13 5 | 49.15 | -0.8 |      |      |      |     |      |      | 1.0 |

**June 30 2005 Hour: 16:33 1.2 Agency: REL Local**  

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ  | SZ |      |     | IPg   |   | 1633 | 55.64 |      |      |      |      |     |      |      |    |
| HWQ  | SE |      |     | ISg   |   | 1634 | 5.42  |      |      |      |      |     |      |      |    |
| BHL  | SZ |      |     | IPg   |   | 1634 | 3.02  |      |      |      |      |     |      |      |    |
| BHL  | SN |      |     | ISg   |   | 1634 | 18.52 |      |      |      |      |     |      |      |    |



# Epicentral Map of Lebanon

## JUNE 2005

### Magnitudes

- Ml = 2
- Ml = 3
- Ml = 4
- Ml = 5

