

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

January

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 (km/sec)	depth to top of layer (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.ifjf.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.

January 1 2005 Hour: 1:52 1.1 NICOBAR M=5.6 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 214 32.72

January 1 2005 Hour: 3:52 34.9 NICOBAR M=6.0 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 413 24.16
 HWQ SZ EP 413 23.22

January 1 2005 Hour: 6:23 14.9 NICOBAR 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 635 51.23
 HWQ SZ EP 635 50.42

January 1 2005 Hour: 14:26 45.2 Lat: 33.88N Lon: 35.15E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.6 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ46.28 159 IPG 1426 53.01 0.4 1.0
 BHL SZ46.75 86 IPG 1426 51.50 -1.2 55 1.0
 BHL SE46.75 86 ISG 1426 58.55 0.3 1.0
 HWQ SZ85.88 59 IPG 1426 59.42 0.4 1.0
 HWQ SE85.88 59 ISG 1427 9.49 0.2 1.0

January 1 2005 Hour: 18:55 54.9 NICOBAR M=5.6 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1918 11.29
 HWQ SZ EP 1918 10.01

January 1 2005 Hour: 22:25 54.9 NICOBAR M=5.6 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 2238 6.54

January 1 2005 Hour: 23:25 13.7 Lat: 33.14N Lon: 35.87E Depth: 15 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.6 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ63.19 308 IPG 2325 24.46 0.5 1.0
 BHL SZ87.18 347 IPG 2325 26.96 -0.6 51 1.0
 BHL SN87.18 347 ISG 2325 37.14 -0.6 1.0
 HWQ SZ126.7 3 IPG 2325 33.11 -0.2 1.0
 HWQ SE126.7 3 ISG 2325 48.68 0.8 1.0

January 2 2005 Hour: 1:26 0.9 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 126 27.55 40
 HWQ SE ISG 126 30.29
 BHL SZ IPG 126 34.54
 BHL SE ISG 126 47.07

January 2 2005 Hour: 8:25 54.9 SUMATRA M=5.9 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 838 14.35

January 2 2005 Hour: 11:16 1.4 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SE ISG 1116 26.43
 BHL SZ IPG 1116 25.05
 BHL SN ISG 1116 39.38
 HWQ SZ IPG 1116 17.95 51

January 2 2005 Hour: 15:28 17.9 NICOBAR M=5.9 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1545 57.31

January 3 2005 Hour: 21:46 1.0 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 2147 1.17

January 4 2005 Hour: 18:59 58.0 ANDAMAN M=5.7 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1924 30.52

January 6 2005 Hour: 1:15 6.9 NICOBAR M=6.2 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 FKH SZ EP 1 6 40.60
 BHL BZ EP 1 6 44.18

January 7 2005 Hour: 4:14 3.6 Lat: 32.90N Lon: 35.66E Depth: 14 Agency: REL Local
Magnitudes: 3.5MC REL Rms: 0.4 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ72.81 335 IPG 414 15.20 -0.3 1.0
 BHL SZ111.9 360 IPG 414 21.31 -0.5 1.0
 BHL SE111.9 360 ISG 414 34.92 -0.4 1.0
 HWQ SZ155.7 10 IPG 414 28.44 -0.4 104 1.0
 HWQ SE155.7 10 ISG 414 48.51 1.0 1.0
 FKH SZ163.8 25 IPG 414 29.80 -0.3 1.0
 FKH SN163.8 25 ISG 414 50.06 0.3 1.0

January 7 2005 Hour: 6:27 1.2 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 628 35.24

January 9 2005 Hour: 22:11 45.9 INDONESIA 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 2223 14.63

January 10 2005 Hour: 12:13 0.9 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 1214 29.73
 BHL SZ IPG 1214 31.86
 HWQ SE ISG 1214 43.94
 BHL SE ISG 1214 46.04

January 10 2005 Hour: 12:59 1.4 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 13 0 9.86
 HWQ SE ISG 13 0 22.83
 BHL SZ IPG 13 0 14.76

January 10 2005 Hour: 18:48 10.9 IRAN-TURKMENISTAN Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1851 11.10

January 10 2005 Hour: 19:16 1.7 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 1916 26.00
 BHL SE SN 1917 0.38
 HWQ SE SN 1916 49.57

January 10 2005 Hour: 23:48 51.2 Lat: 36.96N Lon: 28.00E Depth: 0 Agency: REL Regional
 Magnitudes: 5.5MC REL Rms: 0.7 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	770.2	118	EPN		2350	32.46	-0.5							1.0
BHL	BZ	773.1	114	EPN		2350	31.94	-1.5	813						1.0
BHL	BN	773.1	114	SN		2351	48.58	-0.4							1.0
HWQ	SZ	778.8	110	EPN		2350	34.62	0.5							1.0
HWQ	SE	778.8	110	SN		2351	50.68	0.4							1.0

January 11 2005 Hour: 4:34 10.9 DODECANESE ISLANDS Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		437	39.77								
HWQ	SZ			EP		437	42.32								
FKH	SZ			EP		437	47.34								

January 11 2005 Hour: 12:58 0.7 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1258	33.86								
BHL	SZ			IPG		1258	35.28								
HWQ	SE			ISG		1258	48.06								
BHL	SN			ISG		1258	51.17								

January 12 2005 Hour: 8:46 50.9 MID-ATLANTIC RIDGE Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		850	34.66								

January 12 2005 Hour: 13:42 28.3 Lat: 34.15N Lon: 36.95E Depth: 14 Agency: REL Local
 Magnitudes: 3.0MC REL Rms: 0.8 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	51.30	281	IPG		1342	36.97	0.0				333	128	20.8	1.0
FKH	SE	51.30	281	ISG		1342	42.33	-1.0							1.0
HWQ	SZ	93.46	279	IPG		1342	44.84	1.3	52						1.0
HWQ	SE	93.46	279	ISG		1342	54.53	-0.3							1.0

January 12 2005 Hour: 14: 0 0.9 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPN		14 0	59.25								
HWQ	SE			SN		14 1	27.74								
BHL	SN			SN		14 1	21.90								

January 12 2005 Hour: 13:46 50.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		14 8	32.90								

January 13 2005 Hour: 1:54 0.7 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			IPG		154	46.78								
BHL	BN			ISG		154	50.01								
HWQ	SE			ISG		154	57.13								

January 17 2005 Hour: 16: 6 41.1 Lat: 33.85N Lon: 36.79E Depth: 0 Agency: REL Local
 Magnitudes: 2.8MC REL Rms: 0.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	56.24	320	IPG		16 6	49.56	-0.6	42						1.0
FKH	SN	56.24	320	ISG		16 6	57.00	0.2							1.0
HWQ	SZ	91.57	302	IPG		16 6	56.25	0.4							1.0
HWQ	SE	91.57	302	ISG		16 7	6.79	0.0							1.0
BHL	SZ	105.4	274	IPG		16 6	58.27	0.2							1.0
BHL	SN	105.4	274	ISG		16 7	10.41	-0.2							1.0

January 17 2005 Hour: 17:34 0.5 TURKEY Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 1735 12.87
 BHL SZ EPN 1735 19.20

January 17 2005 Hour: 23:50 45.3 Lat: 33.51N Lon: 35.61E Depth: 13 Agency: REL Local
 Magnitudes: 3.1MC REL Rms: 0.8 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ26.09 264 IPG 2350 50.96 0.9 1.0
 BHL SZ43.32 6 IPG 2350 51.28 -1.4 1.0
 BHL SE43.32 6 ISG 2350 58.05 -0.1 1.0
 HWQ SZ90.17 20 IPG 2350 59.72 -0.3 63 1.0
 HWQ SE90.17 20 ISG 2351 11.75 0.8 1.0

January 18 2005 Hour: 21:29 43.9 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 2139 5.54

January 19 2005 Hour: 21:24 1.4 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 2125 34.61
 HWQ SE ISG 2125 38.12
 BHL SN ISG 2125 53.86

January 19 2005 Hour: 23:52 51.6 Lat: 34.48N Lon: 36.15E Depth: 13 Agency: REL Local
 Magnitudes: 2.8MC REL Rms: 1.3 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ29.69 220 IPG 2352 56.30 -0.7 44 142 102 45.6 1.0
 HWQ SE29.69 220 ISG 2352 59.22 -1.7 1.0
 BHL SZ79.02 216 IPG 2353 5.81 1.2 1.0
 BHL SE79.02 216 ISG 2353 15.36 1.2 1.0

January 20 2005 Hour: 19:45 17.4 Lat: 34.47N Lon: 36.23E Depth: 0 Agency: REL Local
 Magnitudes: 2.8MC REL Rms: 1.2 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ33.79 231 IPG 1945 22.35 -0.5 43 75 25 16.5 1.0
 HWQ SE33.79 231 ISG 1945 25.20 -1.7 1.0
 BHL SZ82.30 220 IPG 1945 31.62 1.0 1.0
 BHL SN82.30 220 ISG 1945 41.69 1.2 1.0

January 21 2005 Hour: 13:54 38.2 Lat: 34.47N Lon: 32.14E Depth: 18 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
 PPCY SZ49.58 22 IPG 1354 46.3 -0.1 1.0
 AKMC SZ64.03 16 IPG 1354 48.4 -0.2 1.0
 SZAC SZ75.18 65 IPG 1354 50.8 0.6 1.0
 ALFC SZ86.90 29 IPG 1354 51.6 -0.3 1.0
 CSS SZ122.0 63 IPG 1354 56.8 -0.3 1.0
 MAMC SZ125.6 52 IPG 1354 57.5 -0.1 1.0
 MATL SZ314.3 109 EPN 1355 21.43 0.0 1.0
 BHL SN330.1 100 SN 1355 54.70 -2.4 1.0
 HWQ SZ350.8 92 EPN 1355 27.11 1.0 148 1.0
 HWQ SN350.8 92 SN 1356 3.47 1.8 1.0

January 22 2005 Hour: 4:33 1.7 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 433 41.75
 HWQ SE SN 434 11.73
 BHL SE SN 434 29.40

January 22 2005 Hour: 11:38 23.9 **BALTIC REGION** Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1147 35.90

January 23 2005 Hour: 22:36 9.4 Lat: 35.94N Lon: 30.02E Depth: 0 Agency: REL Regional
 Magnitudes: 5.6MC REL Rms: 0.7 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ556.9 118 EPN 2237 25.03 0.4 1.0
 BHL BZ561.8 112 EPN 2237 24.47 -0.8 1264 1.0
 BHL BE561.8 112 SN 2238 20.18 -1.3 1.0
 HWQ SZ570.5 107 EPN 2237 26.94 0.5 1.0
 HWQ SE570.5 107 SN 2238 24.11 0.7 1.0

January 23 2005 Hour: 22:41 1.2 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EPN 2241 40.28
 HWQ SZ EPN 2241 43.57
 HWQ SE SN 2242 41.16
 BHL BN SN 2242 35.97

January 25 2005 Hour: 0:3 54.8 **IRAN-IRAK BORDER** Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 0 6 41.79

January 25 2005 Hour: 8:6 5.3 **IRAN-IRAK BORDER** Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 8 9 25.71
 HWQ SZ EP 8 9 24.28

January 25 2005 Hour: 11:39 57.4 **IRAN-IRAK BORDER** Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EP 1141 18.71
 BHL BZ EP 1141 23.02

January 25 2005 Hour: 12:1 0.8 **TURKEY** Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 12 2 17.84

January 25 2005 Hour: 14:54 1.4 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 1454 28.32

January 25 2005 Hour: 15:23 26.4 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 FKH SZ EP 1526 7.91
 HWQ SZ EP 1526 12.35
 BHL BZ EP 1526 17.67

January 25 2005 Hour: 16:5 54.5 Lat: 34.29N Lon: 38.82E Depth: 0 Agency: REL Regional
 Magnitudes: 4.0MC REL Rms: 0.3 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ264.5 270 EPN 16 6 33.17 -0.4 179 1.0
 HWQ SE264.5 270 SN 16 7 2.66 0.3 1.0
 BHL BZ295.2 263 EPN 16 6 37.54 0.2 1.0
 BHL BN295.2 263 SN 16 7 8.72 -0.3 1.0
 MATL SZ334.8 256 EPN 16 6 42.28 0.1 1.0

January 25 2005 Hour: 16:28 31.5 **IRAN** Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1634 48.63
 HWQ SZ EP 1634 36.47

January 25 2005 Hour: 16:40 9.1 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 1645 58.97
 HWQ SE SN 1647 59.43
 BHL BZ EPN 1646 4.13
 BHL BN SN 1648 0.08

January 25 2005 Hour: 17:51 28.9 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1754 3.39

January 26 2005 Hour: 22:12 1.0 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 2212 19.12

January 27 2005 Hour: 11:20 1.5 Agency: REL Regional
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ EPN 1121 9.42
 BHL SZ EPN 1121 13.55
 HWQ SE SN 1121 34.78
 BHL SN SN 1121 46.13

January 27 2005 Hour: 12:16 55.0 Lat: 34.99N Lon: 37.57E Depth: 14 Agency: REL Local
 Magnitudes: 4.0MC REL Rms: 0.6 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ168.4 243 IPG 1217 21.14 0.3 219 1.0
 HWQ SE168.4 243 ISG 1217 39.86 0.0 1.0
 BHL BZ213.1 236 IPG 1217 26.57 -0.8 1.0
 BHL BE213.1 236 ISG 1217 51.58 0.3 1.0
 MATL SZ264.9 232 IPG 1217 34.07 -0.8 1.0

January 27 2005 Hour: 12:22 1.3 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 1222 57.17
 HWQ SE ISG 1223 16.21
 BHL SZ IPG 1222 59.01

January 27 2005 Hour: 13:47 20.8 Lat: 35.04N Lon: 37.24E Depth: 34 Agency: REL Local
 Magnitudes: 3.4MC REL Rms: 0.5 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ146.1 235 IPG 1347 43.33 -0.2 1.0
 HWQ SE146.1 235 ISG 1348 0.77 0.4 1.0
 BHL BZ193.0 230 IPG 1347 49.73 -0.6 84 1.0
 BHL BN193.0 230 ISG 1348 11.82 -0.4 1.0
 MATL SZ246.5 226 IPG 1347 58.91 0.8 1.0

January 27 2005 Hour: 20:15 9.4 **INDONESIA M=5.8** Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 2020 4.80

January 28 2005 Hour: 14:40 52.0 Lat: 33.73N Lon: 35.11E Depth: 17 Agency: REL Local
 Magnitudes: 2.9MC REL Rms: 0.0 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ33.88 142 IPG 1440 58.02 0.0 1.0
 BHL SZ54.31 69 IPG 1441 1.01 0.0 1.0
 BHL SE54.31 69 ISG 1441 7.63 0.0 1.0
 HWQ SZ98.60 52 IPG 1441 7.43 -0.1 48 1.0
 HWQ SE98.60 52 ISG 1441 19.03 0.1 1.0

January 28 2005 Hour: 17: 9 57.9 Lat: 36.53N Lon: 33.98E Depth: 0 Agency: REL Regional
 Magnitudes: 3.6MC REL Rms: 0.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ307.5	144	EPN			1710	42.25	0.0	103						1.0
HWQ	SE307.5	144	SN			1711	15.00	-0.1							1.0
BHL	SZ329.1	152	EPN			1710	45.01	0.1							1.0
FKH	SZ336.8	138	EPN			1710	45.87	0.0							1.0
FKH	SN336.8	138	SN			1711	21.51	0.1							1.0

January 29 2005 Hour: 12:22 30.6 Lat: 34.44N Lon: 36.74E Depth: 0 Agency: REL Local
 Magnitudes: 2.9MC REL Rms: 0.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ75.71	256	IPG			1222	42.55	-0.3	52			76	0	22.1	1.0
HWQ	SN75.71	256	ISG			1222	51.86	0.0							1.0
BHL	SZ116.9	240	IPG			1222	49.70	0.2							1.0

January 30 2005 Hour: 16:23 51.8 Lat: 35.84N Lon: 29.79E Depth: 22 Agency: REL Regional
 Magnitudes: 4.3MC REL Rms: 0.7 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ571.1	116	EPN			1625	6.25	-0.4							1.0
BHL	BZ577.8	110	EPN			1625	5.93	-1.7							1.0
BHL	BN577.8	110	SN			1626	2.27	-1.4							1.0
HWQ	SZ587.9	105	EPN			1625	8.79	-0.1	197						1.0
HWQ	SE587.9	105	SN			1626	5.95	0.0							1.0
FKH	SZ629.2	105	EPN			1625	14.04	0.0							1.0
FKH	SE629.2	105	SN			1626	16.20	1.4							1.0

January 31 2005 Hour: 0:53 22.9 IONIAN SEA M=5.7 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ		EPN			1	8	34.42							

Epicentral Map of Lebanon

JANUARY 2005

