

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

April

2005

Prepared by
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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:

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

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*(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.

April 1 2005 Hour: 4:34 57.2 TURKEY M=4.6 **Agency: REL Regional**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EPN 437 42.61

April 1 2005 Hour: 11:44 33.1 Lat: 33.86N Lon: 35.10E Depth: 0 Agency: REL Local Magnitudes: 2.5MC REL Rms: 0.9 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ46.63 153 IPG 1144 41.38 0.7 1.0
 BHL SZ51.36 85 IPG 1144 39.59 -1.8 29 1.0
 BHL SN51.36 85 ISG 1144 47.60 0.1 1.0
 HWQ SZ90.58 59 IPG 1144 47.97 0.2 1.0
 HWQ SE90.58 59 ISG 1144 59.32 0.8 1.0

April 2 2005 Hour: 7:11 15.7 Lat: 33.75N Lon: 35.79E Depth: 15 Agency: REL Local Magnitudes: 2.7MC REL Rms: 0.4 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ21.47 323 IPG 711 20.55 0.6 38 313 170 9.0 1.0
 BHL SN21.47 323 ISG 711 23.10 0.0 1.0
 HWQ SZ60.40 14 IPG 711 25.37 -0.2 1.0
 HWQ SE60.40 14 ISG 711 32.54 -0.3 1.0

April 2 2005 Hour: 8:9 38.3 **Agency: REL Distant**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 8 9 41.98

April 3 2005 Hour: 3:18 0.5 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 321 41.29
 HWQ SZ EP 321 40.41

April 3 2005 Hour: 15:7 0.4 **Agency: REL Local**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 15 7 59.39
 BHL SN ISG 15 8 0.46
 HWQ SN ISG 15 8 8.47
 BHL SZ IPG 15 7 55.14

April 4 2005 Hour: 8:16 26.3 FIJI M=5.2 **Agency: REL Distant**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 FKH SZ EP 835 4.03
 HWQ SZ EP 835 4.35
 BHL BZ EP 835 5.48

April 4 2005 Hour: 9:17 0.5 **Agency: REL Local**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 917 15.07
 BHL SZ IPG 917 14.17

April 5 2005 Hour: 12:52 3.0 **Agency: REL Local**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ IPG 1253 10.26 42
 BHL SN ISG 1253 18.61
 HWQ SE ISG 1253 31.90

April 7 2005 Hour: 5:21 0.8 **Agency: REL Local**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 521 22.48
 BHL SZ IPG 521 28.42

April 7 2005 Hour: 11:49 53.3 INDONESIA 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 1156 54.41

April 7 2005 Hour: 14:26 51.9 Lat: 34.45N Lon: 33.29E Depth: 17 Agency: REL Regional Magnitudes: 3.7MC REL Rms: 1.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SZAC	SZ50.59	312	EP			1427	00.4	0.1							1.0
CSS	SZ56.92	4	EP			1426	59.2	-2.0							1.0
MAMC	SZ80.28	355	EP			1427	02.5	-2.1							1.0
PHNC	SZ91.51	48	EP			1427	07.8	1.5							1.0
PHNC	SZ91.51	48	ES			1427	17.8	0.9							1.0
PPCY	SZ99.31	299	EP			1427	08.7	1.3							1.0
PPCY	SZ99.31	299	ES			1427	19.3	0.4							1.0
ALFC	SZ100.9	321	EP			1427	07.5	-0.2							1.0
AKMC	SZ108.9	306	EP			1427	09.6	0.8							1.0
MATL	SZ216.4	119	EPN			1427	22.17	-0.9							1.0
BHL	SZ226.0	105	EPN			1427	22.67	-1.7							1.0
BHL	SE226.0	105	SN			1427	47.92	-0.5							1.0
HWQ	SZ244.9	94	EPN			1427	28.02	1.3	121						1.0
HWQ	SE244.9	94	SN			1427	53.53	1.0							1.0

April 7 2005 Hour: 19:52 28.1 MOLUCCA SEA 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 1956 3.73

April 7 2005 Hour: 19:59 36.1 XIZANG 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 2012 22.31

April 8 2005 Hour: 13:57 6.7 Lat: 33.71N Lon: 35.76E Depth: 0 Agency: REL Local Magnitudes: 2.9MC REL Rms: 0.4 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ24.04	337	IPG			1357	10.23	-0.4	52						1.0
BHL	SN24.04	337	ISG			1357	13.51	0.0							1.0
MATL	SZ46.25	239	IPG			1357	14.48	0.3							1.0
HWQ	SZ65.97	15	IPG			1357	16.87	-0.5							1.0
HWQ	SE65.97	15	ISG			1357	25.80	0.6							1.0

April 10 2005 Hour: 10:22 16.9 INDONESIA M=6.8 **Agency: REL Distant**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1040 19.37

April 10 2005 Hour: 17:22 16.9 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 1735 49.19

April 10 2005 Hour: 22:20 59.2 HONSHU 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 2234 25.59
 HWQ SZ EP 2234 26.60
 BHL BZ EP 2234 28.56

April 11 2005 Hour: 8:27 0.4 **Agency: REL Local**
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 827 40.13
 BHL SZ IPG 827 44.64
 BHL SE ISG 827 51.41
 HWQ SN ISG 827 42.47

April 11 2005 Hour: 12:40 1.1

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1241	22.97								
HWQ	SE			ISG		1241	32.09								
BHL	SZ			IPG		1241	29.60								
BHL	SE			ISG		1241	44.10								

April 11 2005 Hour: 13:56 52.9

Lat: 34.52N Lon: 36.48E Depth: 13 Agency: REL Local

Magnitudes: 3.0MC REL

Rms: 1.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWKV	SZ7.003	273		IPG		1356	53.82	-1.6							1.0
HWKV	SZ7.003	273		ISG		1356	58.20	0.9							1.0
HWQ	SZ55.91	242		IPG		1357	1.25	-0.9	61			40	-21	43.6	1.0
HWQ	SE55.91	242		ISG		1357	10.46	1.4							1.0
BHL	SZ102.2	229		IPG		1357	8.20	-1.3							1.0
BHL	SE102.2	229		ISG		1357	23.28	1.4							1.0
WRDH	SZ110.1	357		IPG		1357	09.09	-1.7							1.0
WRDH	SZ110.1	357		ISG		1357	24.55	0.5							1.0
SLNF	SZ121.9	349		IPG		1357	11.84	-0.9							1.0
SLNF	SZ121.9	349		ISG		1357	30.20	2.8							1.0
ARNV	SZ153.9	17		IPG		1357	16.15	-1.7							1.0
ARNV	SZ153.9	17		ISG		1357	37.26	1.0							1.0

April 11 2005 Hour: 16:51 48.9

LOYALTY 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		1728	13.14								

April 12 2005 Hour: 8:20 0.3

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPG		821	30.82								
BHL	SE			ISG		821	35.22								
HWQ	SZ			IPG		821	38.34								

April 12 2005 Hour: 10:50 0.7

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1050	33.84								
BHL	SZ			IPG		1050	34.36								
BHL	SE			ISG		1050	48.39								
HWQ	SN			ISG		1050	45.95								

April 12 2005 Hour: 12:56 9.3

Lat: 34.46N Lon: 36.88E Depth: 0

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
FKH	SZ50.69	241		IPG		1256	16.71	-0.8	49						1.0
FKH	SE50.69	241		ISG		1256	22.25	-1.3							1.0
HWQ	SZ88.46	257		IPG		1256	23.95	0.4							1.0
HWQ	SN88.46	257		ISG		1256	33.64	-0.5							1.0
BHL	SZ128.9	242		IPG		1256	31.11	1.0							1.0
BHL	SE128.9	242		ISG		1256	47.23	1.8							1.0
MATL	SZ179.3	234		IPG		1256	37.66	-0.6							1.0

April 12 2005 Hour: 14:13 0.7

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1414	19.70								
BHL	SE			ISG		1414	16.56								
HWQ	SE			ISG		1414	29.57								
BHL	SZ			IPG		1414	13.15		40						

April 13 2005 Hour: 4:14 54.3 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 418 6.48

April 13 2005 Hour: 8:41 58.8 Lat: 33.18N Lon: 35.27E Depth: 0 Agency: REL Local Magnitudes: 2.8MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	34.81	8	IPG		842	4.42	0.0	43						1.0
BHL	BZ	87.91	24	IPG		842	12.27	-0.7							1.0
BHL	BE	87.91	24	ISG		842	23.76	0.3							1.0
HWQ	SZ	137.0	27	IPG		842	21.53	0.7							1.0
HWQ	SN	137.0	27	ISG		842	36.91	-0.3							1.0

April 13 2005 Hour: 10:2 1.4 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 10 3 17.23
 BHL SZ IPG 10 3 18.30
 HWQ SE ISG 10 3 30.64
 BHL SN ISG 10 3 35.35

April 13 2005 Hour: 11:59 0.1 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ IPG 1159 55.39
 HWQ SZ IPG 1159 55.58
 HWQ SN ISG 12 0 4.05
 BHL SN ISG 12 0 1.60

April 13 2005 Hour: 15:36 0.2 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 1538 31.38
 HWQ SE ISG 1538 39.22
 BHL SE ISG 1538 39.63

April 14 2005 Hour: 14:18 1.4 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 1418 57.05
 BHL SN ISG 1419 23.78
 HWQ SE ISG 1419 10.79
 BHL SZ IPG 1419 4.84

April 14 2005 Hour: 14:30 8.6 Lat: 35.55N Lon: 37.10E Depth: 0 Agency: REL Regional Magnitudes: 3.8MC REL Rms:14.4 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MNKR	SZ			EP		1430	50.78								
TOTH	SZ			EP		1430	53.33								
DRBT	SZ			EP		1430	44.0								
SALM	SZ			EP		1430	36.02								
RABV	SZ			EP		1430	40.08								
ARNV	SZ	34.47	340	EP		1430	18.45	4.2							1.0
WRDH	SZ	62.99	266	EP		1430	18.65	-0.2							1.0
BTCH	SZ	79.41	313	EP		1430	16.52	-4.9							1.0
SLNF	SZ	80.06	274	EP		1430	17.54	-4.0							1.0
JHLN	SZ	121.9	83	EP		1430	41.06	12.8							1.0
DRWC	SZ	125.0	342	EP		1430	27.43	-1.4							1.0
HWKV	SZ	131.0	209	EP		1430	35.55	5.8							1.0
FKH	SZ	159.5	204	EPN		1430	39.92	5.3							1.0
FKH	SN	159.5	204	SN		1431	1.94	8.1							1.0
HWQ	SZ	176.5	217	EPN		1430	40.44	3.7							1.0
HWQ	SE	176.5	217	SN		1431	2.17	4.7							1.0
BHL	BZ	225.9	216	EPN		1430	46.03	3.2	148						1.0
BHL	BN	225.9	216	SN		1431	14.24	6.1							1.0
QASN	SZ	236.5	199	EP		1430	50.21	6.1							1.0
MATL	SZ	280.9	216	EPN		1430	53.34	3.8							1.0

SALA SZ316.9 186 EP

1430 00.98-53.2

1.0

April 15 2005 Hour: 6:24 40.2 Lat: 33.17N Lon: 32.85E Depth: 14 Agency: REL Regional Magnitudes: 4.1MC REL

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SZAC	SZ	176.2	1	IPG		625	08.5	1.4							1.0
PPCY	SZ	196.0	346	IPG		625	10.2	0.3							1.0
CSS	SZ	204.0	13	IPG		625	11.4	0.3							1.0
AKMC	SZ	211.6	347	IPG		625	12.1	-0.2							1.0
ALFC	SZ	221.8	354	IPG		625	13.1	-0.7							1.0
MAMC	SZ	224.8	9	IPG		625	13.7	-0.5							1.0
PHNC	SZ	231.2	28	IPG		625	14.5	-0.6							1.0
MATL	SZ	234.0	81	EPN		625	14.27	0.4							1.0
BHL	SZ	273.4	72	EPN		625	18.28	-0.5							1.0
BHL	SN	273.4	72	SN		625	47.91	0.5							1.0
HWQ	SZ	312.6	66	EPN		625	23.46	-0.3	191						1.0
HWQ	SN	312.6	66	SN		625	55.59	-0.3							1.0

April 15 2005 Hour: 13:16 53.7 INDONESIA 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		1319	27.29								

April 15 2005 Hour: 18:55 0.7

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPN		1855	29.95								
HWQ	SE			SN		1855	42.79								
BHL	BZ			EPN		1855	36.92								
BHL	BE			SN		1855	56.70								

April 15 2005 Hour: 19:20 0.2

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EPN		1920	49.52								
HWQ	SZ			EPN		1920	42.10								
BHL	BE			SN		1921	9.19								
HWQ	SE			SN		1920	55.28								

April 15 2005 Hour: 23:10 52.0 Lat: 34.86N Lon: 37.02E Depth: 0 Agency: REL Local Magnitudes: 3.1MC REL

Agency: REL Regional Rms: 0.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	118.0	237	IPG		2311	11.17	0.1	65			57	1	25.4	1.0
HWQ	SE	118.0	237	ISG		2311	24.77	-0.4							1.0
BHL	SZ	164.7	230	IPG		2311	18.47	-0.1							1.0
BHL	SE	164.7	230	ISG		2311	38.62	0.4							1.0

April 16 2005 Hour: 3:13 1.6

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SE			ISG		313	34.61								
HWQ	SE			ISG		313	48.86								
BHL	SZ			IPG		313	30.94								

April 16 2005 Hour: 19:51 39.8

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ			EPN		1956	25.25								
BHL	BZ			EPN		1956	32.59								
HWQ	SZ			EPN		1956	38.38								

April 16 2005 Hour: 23:44 54.6 Lat: 35.14N Lon: 32.59E Depth: 30 Agency: REL Regional Magnitudes: 3.8MC REL

Agency: REL Regional Rms: 1.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BCK	SZ			EPN		2345	34.9								
ALFC	SZ	22.096	20	IPG		2344	59.4	0.0							1.0
AKMC	SZ	26.87	242	IPG		2345	00.8	-0.1							1.0
PPCY	SZ	36.06	219	IPG		2345	02.0	0.1							1.0
SZAC	SZ	50.19	148	IPG		2345	04.4	0.7							1.0

MAMC	SZ57.23	86	IPG	2345	04.3	-0.3		1.0
CSS	SZ70.31	106	IPG	2345	05.9	-0.5		1.0
PHNC	SZ132.3	96	IPG	2345	15.3	0.1		1.0
MATL	SZ311.5	125	EPN	2345	40.01	3.4		1.0
BHL	BZ312.8	115	EPN	2345	34.98	-1.9		1.0
BHL	BE312.8	115	SN	2346	5.85	-2.2		1.0
HWQ	SZ321.9	106	EPN	2345	37.83	-0.2	127	1.0
HWQ	SN321.9	106	SN	2346	10.49	0.4		1.0
FKH	SZ363.3	105	EPN	2345	43.17	0.0		1.0
FKH	SE363.3	105	SN	2346	20.70	1.7		1.0

April 17 2005 Hour: 15:54 0.7 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ IPG 1554 36.53
 HWQ SE ISG 1554 44.65
 BHL BN ISG 1554 43.85
 HWQ SZ IPG 1554 37.22

April 18 2005 Hour: 13:21 40.5 Lat: 34.63N Lon: 34.92E Depth: 15 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 1.5 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ102.0 112 IPG 1321 58.23 1.7 48 4 71 74.5 1.0
 HWQ SE102.0 112 ISG 1322 8.63 0.2
 BHL SE105.0 140 ISG 1322 7.20 -1.9

April 19 2005 Hour: 1:44 47.0 Lat: 33.77N Lon: 35.55E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 1.0 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ18.02 33 IPG 144 48.31 -1.6 36 1.0
 BHL BE18.02 33 ISG 144 51.89 -0.2
 MATL SZ37.02 213 IPG 144 53.09 0.1
 HWQ SZ67.48 33 IPG 144 59.28 1.4
 HWQ SE67.48 33 ISG 145 6.40 0.4 1.0

April 19 2005 Hour: 1:45 1.6 HONSHU M=5.6 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 FKH SZ EP 158 37.81
 HWQ SZ EP 158 38.68
 BHL BZ EP 158 40.46

April 19 2005 Hour: 2:7 30.8 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 2 8 21.90

April 21 2005 Hour: 12:16 1.6 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 1217 37.21
 HWQ SN ISG 1217 44.52
 BHL SN ISG 1217 43.26

April 22 2005 Hour: 7:34 1.4 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPG 734 35.16
 HWQ SE ISG 734 42.03
 BHL SE ISG 734 41.81

April 23 2005 Hour: 10:5 37.0 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 FKH SZ IPG 10 6 4.69
 HWQ SZ IPG 10 6 11.66
 FKH SE ISG 10 6 10.54
 HWQ SE ISG 10 6 22.88

April 23 2005 Hour: 10:28 46.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPG		1029	19.41								
BHL	SN			ISG		1029	27.96								
HWQ	SE			ISG		1029	30.15								

April 23 2005 Hour: 11: 8 10.7 Lat: 34.42N Lon: 36.96E 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
FKH	SZ55.20	248		IPG		11 8	19.00	-0.6	45						1.0
FKH	SE55.20	248		ISG		11 8	24.25	-1.9							1.0
HWQ	SZ94.42	261		IPG		11 8	26.45	0.5							1.0
HWQ	SE94.42	261		ISG		11 8	37.34	0.2							1.0
BHL	SE133.2	245		ISG		11 8	49.85	1.8							1.0

April 23 2005 Hour: 14:39 58.3 IRAN M=4.8 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1444	26.21								

April 24 2005 Hour: 3:49 46.7 Lat: 34.65N Lon: 34.24E Depth: 15 Agency: REL Regional
Magnitudes: 3.2MC REL Rms: 1.0 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SAZC	SZ			IPG		350	07.20								
SAZC	SZ			ISG		350	22.00								
PHNC	SZ44.12	335		IPG		349	53.70	-0.4							1.0
PHNC	SZ44.12	335		ISG		349	58.70	-0.9							1.0
CSS	SZ90.24	293		IPG		350	01.40	0.5							1.0
CSS	SZ90.24	293		ISG		350	12.50	1.1							1.0
MAMC	SZ110.1	302		IPG		350	04.20	0.4							1.0
BHL	SZ154.0	122		ESG		350	25.69	-2.1							1.0
BHL	SE154.0	122		SN		350	27.90	-0.1							1.0
ALFC	SZ160.3	291		IPG		350	11.10	-0.1							1.0
ALFC	SZ160.3	291		ISG		350	28.50	-0.9							1.0
HWQ	SZ162.1	104		EPN		350	12.53	1.1	66						1.0
HWQ	SN162.1	104		SN		350	31.34	1.6							1.0
PPCY	SZ175.4	279		IPG		350	13.10	-0.3							1.0

April 24 2005 Hour: 14:20 1.6 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1421	20.13								
HWQ	SE			ISG		1421	29.04								
BHL	SE			ISG		1421	41.79								

April 25 2005 Hour: 2:49 20.3 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		252	37.12								

April 25 2005 Hour: 10:11 0.8 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SE			ISG		1013	4.82								
HWQ	SZ			IPG		1012	54.38								
HWQ	SE			ISG		1013	7.69								

April 25 2005 Hour: 13:15 30.8 Lat: 33.68N Lon: 35.94E 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	SZ35.72	313		IPG		1315	34.28	-2.3	42						1.0
BHL	SE35.72	313		ISG		1315	41.24	0.4							1.0
MATL	SZ60.34	249		IPG		1315	41.87	1.3							1.0
HWQ	SZ65.84	1		IPG		1315	40.76	-0.7							1.0
HWQ	SE65.84	1		ISG		1315	50.62	1.3							1.0

April 25 2005 Hour: 16:48 31.9 MOLUCCA 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	1718 10.82	

April 26 2005 Hour: 22:14 32.4 **Agency: REL Regional**

STAT CO DIST AZI PHASE P	HRMN SECON TRES CODA AMPL PERI	BAZ ARES VELO WT
MATL SZ EPN	2219 42.46	
BHL BZ EPN	2219 44.25	
HWQ SZ EPN	2219 47.11	

April 26 2005 Hour: 23:10 55.6 Lat: 33.90N Lon: 35.58E Depth: 12 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
BHL SZ6.758 86 IPG	2310 56.26 -1.7 36	248 -18 21.0 1.0
BHL SN6.758 86 ISG	2310 59.59 -0.2	38 131 24.2 1.0
MATL SZ51.27 207 IPG	2311 4.96 0.9	1.0
HWQ SZ53.76 39 IPG	2311 4.15 -0.3	1.0
HWQ SE53.76 39 ISG	2311 12.51 1.4	1.0

April 27 2005 Hour: 5:6 21.1 Lat: 33.70N Lon: 35.49E Depth: 22 Agency: REL Local Magnitudes: 2.6MC REL Rms: 1.0 secs

STAT CO DIST AZI PHASE P	HRMN SECON TRES CODA AMPL PERI	BAZ ARES VELO WT
BHL SZ27.42 34 IPG	5 6 28.28 1.5 33	1.0
BHL SE27.42 34 ISG	5 6 30.82 -0.2	1.0
MATL SZ27.62 212 IPG	5 6 26.00 -0.7	1.0
HWQ SZ76.88 33 IPG	5 6 34.30 0.7	1.0
HWQ SE76.88 33 ISG	5 6 41.49 -1.3	1.0

April 27 2005 Hour: 5:36 55.6 Lat: 34.33N Lon: 35.26E Depth: 15 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
BHL SZ60.34 142 IPG	537 5.50 0.0	1.0
BHL SN60.34 142 ISG	537 12.89 0.1	1.0
HWQ SZ63.91 96 IPG	537 6.12 0.1 54	109 -99 87.2 1.0
HWQ SE63.91 96 ISG	537 13.62 -0.1	1.0

April 27 2005 Hour: 10:6 1.2 **Agency: REL Local**

STAT CO DIST AZI PHASE P	HRMN SECON TRES CODA AMPL PERI	BAZ ARES VELO WT
BHL SZ IPG	10 7 35.75	
HWQ SZ IPG	10 7 38.16	
BHL SN ISG	10 7 46.67	
HWQ SE ISG	10 7 48.49	

April 27 2005 Hour: 11:22 52.3 Lat: 33.91N Lon: 36.67E Depth: 0 Agency: REL Local Magnitudes: 2.8MC REL Rms: 0.8 secs

STAT CO DIST AZI PHASE P	HRMN SECON TRES CODA AMPL PERI	BAZ ARES VELO WT
FKH SZ44.23 326 IPG	1122 58.19 -1.2 44	149 4 52.4 1.0
FKH SE44.23 326 ISG	1123 4.33 -0.4	1.0
HWQ SZ78.70 302 IPG	1123 5.79 0.8	1.0
HWQ SN78.70 302 ISG	1123 15.12 0.8	1.0

April 28 2005 Hour: 7:13 10.7 Lat: 33.24N Lon: 35.14E 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
MATL SZ32.57 33 IPG	713 15.07 -0.9 37	1.0
BHL SN87.61 33 ISG	713 34.37 -0.9	1.0
HWQ SZ137.1 33 IPG	713 33.72 0.9	1.0
HWQ SE137.1 33 ISG	713 50.11 0.9	1.0

April 28 2005 Hour: 10:12 35.8 Lat: 33.76N Lon: 35.52E Depth: 28 Agency: REL Local
Magnitudes: 2.6MC REL

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	20.18	37	IPG		1012	41.45	0.2							1.0
BHL	SN	20.18	37	ISG		1012	45.30	-0.1							1.0
MATL	SZ	34.94	211	IPG		1012	42.69	0.0							1.0
HWQ	SZ	69.60	34	IPG		1012	47.27	-0.1	32						1.0
HWQ	SN	69.60	34	ISG		1012	56.02	0.0							1.0

April 28 2005 Hour: 11:25 0.6 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1126	2.86								
HWQ	SN			ISG		1126	7.78								
BHL	SE			ISG		1126	5.88								

April 28 2005 Hour: 11:41 1.6 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPG		1142	2.90								
HWQ	SN			ISG		1142	22.20								
BHL	SE			ISG		1142	21.32								

April 28 2005 Hour: 14: 7 19.8 INDONESIA 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		1418	13.93								

April 29 2005 Hour: 7:13 49.7 Lat: 33.60N Lon: 35.84E 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
BHL	SZ	38.05	333	IPG		713	55.87	0.1	56						1.0
BHL	SE	38.05	333	ISG		714	0.31	0.0							1.0
MATL	SZ	49.32	256	IPG		713	57.63	0.0							1.0
HWQ	SZ	75.82	7	IPG		714	1.82	-0.1							1.0
HWQ	SN	75.82	7	ISG		714	11.00	0.1							1.0

April 29 2005 Hour: 22:18 16.9 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EPN		2229	46.75								

April 30 2005 Hour: 16:56 47.4 Lat: 33.66N Lon: 35.86E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.7 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	32.72	325	IPG		1656	51.73	-0.9	60						1.0
BHL	SE	32.72	325	ISG		1656	56.62	0.0							1.0
MATL	SZ	52.50	249	IPG		1656	56.50	0.6							1.0
HWQ	SZ	68.84	7	IPG		1656	57.78	-0.7							1.0
HWQ	SE	68.84	7	ISG		1657	7.66	1.0							1.0

April 30 2005 Hour: 19: 1 47.7 Lat: 33.65N Lon: 35.80E Depth: 0 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 0.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	30.94	335	IPG		19 1	52.62	0.0	24						1.0
BHL	SE	30.94	335	ISG		19 1	56.32	0.0							1.0
MATL	SZ	46.90	247	IPG		19 1	55.27	0.0							1.0
HWQ	SZ	70.86	11	IPG		19 1	58.99	-0.1							1.0
HWQ	SN	70.86	11	ISG		19 2	7.65	0.1							1.0

Epicentral Map of Lebanon

APRIL 2005

Magnitudes

- MI = 2
- MI = 3
- MI = 4
- MI = 5

