

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

January

2010

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:

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

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  $V_p/V_s$  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	3414.69N	3624.61E	1152	FAKEHEH	Opened Dec 2004
RCY	3329.79N	3550.14E	1370	RACHAYA	Opened Jun 2006
DWR	3323.13N	3524.08E	420	DWEIR	Scheduled 2003
BEYL	3352.30N	3529.59E	49	BEIRUT	Opened Jul 2006
NAQL	3307.02N	3508.46E	83	NAQOURA	Opened Jul 2008

## REGIONAL AND DISTANT EARTHQUAKES

Because regional events and teleseisms are not localized, but simply identified, EMSC determination data are given along with phase arrivals (in general first arrival) at the stations of our network.

## 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: REL throughout the bulletin, aka. REsearch Lebanon

MAGNITUDES: Up to 3 different magnitudes can be given followed by type and reporting agency, e.g. 3.1 MC REL - coda magnitude calculated according to above mentioned formula.

EMSC: Euro-Mediterranean Seismological Centre.

OT: Origin Time

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 ( $0.5 * (\text{peak to peak})$ ), (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 2 2010 Hour: 10:51 8.2

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1051	40.64								
HWQ	BZ			EP		1051	47.53								

January 3 2010 Hour: 14:51 33.2

Lat: 33.78N

Lon: 35.68E

Depth: 15

Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.0 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	14	350	EP		1451	36.62	0.00							1.0
RCY	SZ	35	155	EP		1451	39.31	-0.04	48						1.0
RCY	SN	35	155	ES		1451	43.92	0.02							1.0
MATL	SZ	46	225	EP		1451	40.91	0.01							1.0
HWQ	BZ	60	24	EP		1451	43.07	-0.02							1.0
HWQ	BN	60	24	ES		1451	50.42	0.02							1.0

January 5 2010 Hour: 2:46 7.6

Agency: REL Regional

EMSC OT=02:47:16.1 36.04N 25.45E 115Km mb=4.5 DODECANESE ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		249	16.47								
HWQ	BZ			EP		249	18.77								
RCY	SZ			EP		249	20.68								

January 5 2010 Hour: 11:35 24.2

Lat: 34.39N

Lon: 36.72E

Depth: 0

Agency: REL Local

Magnitudes: 3.1MC REL

Rms: 0.1 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	33	240	EP		1135	29.26	-0.22	70						1.0
FKH	SN	33	240	ES		1135	33.31	-0.05							1.0
HWQ	BZ	72	260	EP		1135	35.87	0.03							1.0
HWQ	BN	72	260	ES		1135	44.50	0.08							1.0
BHL	BZ	112	241	EP		1135	42.27	-0.01							1.0
RCY	SZ	128	220	EP		1135	45.12	0.17							1.0

January 5 2010 Hour: 12:31 55.4

Agency: REL Distant

EMSC OT=12:15:35.1 09.05S 157.48E 32Km Mw=6.8 SOLOMON ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1235	53.90								
BHL	BZ			EP		1235	46.98								

January 5 2010 Hour: 14:45 8.9

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1445	59.79								
FKH	SZ			EP		1445	57.33								

January 7 2010 Hour: 10: 5 42.4

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		10 6	24.21								
HWQ	BZ			EP		10 6	31.05								

January 7 2010 Hour: 10:51 52.4

Lat: 33.73N

Lon: 35.88E

Depth: 40

Agency: REL Local

Magnitudes: 3.0MC REL

Rms: 0.0 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	26	190	EP		1051	59.72	0.01	55						1.0
RCY	SE	26	190	ES		1052	5.08	-0.01							1.0
BHL	BZ	29	313	EP		1051	59.88	0.00							1.0
HWQ	BZ	61	6	EP		1052	3.40	0.07							1.0
HWQ	BN	61	6	ES		1052	11.36	-0.04							1.0
FKH	SZ	75	40	EP		1052	4.93	-0.08							1.0
FKH	SN	75	40	ES		1052	14.36	0.04							1.0

**January 7 2010 Hour: 14:30 25.2 Lat: 33.48N Lon: 35.56E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.0 secs**

**SAIDA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	26	86	EP		1430	29.35	0.01	49						1.0
RCY	SE	26	86	ES		1430	32.41	-0.01							1.0
BHL	BZ	48	11	EP		1430	32.85	-0.04							1.0
BHL	BN	48	11	ES		1430	38.60	0.00							1.0
HWQ	BZ	95	22	EP		1430	40.62	0.04							1.0

**January 8 2010 Hour: 13:27 5.2 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1327	29.55								
FKH	SZ			EP		1327	27.73								

**January 9 2010 Hour: 6:10 14.4 Agency: REL Distant**

**EMSC OT=05:51:32.6 09.13S 157.68E 20Km Mw=6.2 SOLOMON ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		611	50.40								

**January 9 2010 Hour: 11:14 46.5 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1115	26.03								
FKH	SZ			EP		1115	19.02								

**January 9 2010 Hour: 11:37 51.7 Lat: 34.45N Lon: 36.82E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.1MC REL Rms: 0.0 secs**

**NEBEK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	44	239	EP		1137	58.79	-0.02	70						1.0
FKH	SN	44	239	ES		1138	4.12	0.02							1.0
HWQ	BZ	83	257	EP		1138	5.08	0.06							1.0
HWQ	BN	83	257	ES		1138	14.90	-0.02							1.0
BHL	BZ	124	241	EP		1138	11.53	-0.07							1.0
RCY	SZ	140	221	EP		1138	14.17	0.02							1.0

**January 9 2010 Hour: 12:46 27.8 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1247	7.73								
FKH	SZ			EP		1247	5.86								

**January 10 2010 Hour: 0:40 24.1 Agency: REL Distant**

**EMSC OT=00:27:42.5 40.70N 124.41W 20Km Mw=6.5 OFF N CALIFORNIA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		044	30.77								
HWQ	BZ			EP		044	44.20								

**January 10 2010 Hour: 1:11 59.6 Lat: 34.42N Lon: 36.32E Depth: 5 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**HERMEL BAALBEK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	22	158	EP		112	3.18	-0.01	41						1.0
FKH	SN	22	158	ES		112	5.86	0.00							1.0
HWQ	BZ	38	245	EP		112	5.86	0.01							1.0
HWQ	BN	38	245	ES		112	10.49	0.00							1.0
BHL	BZ	85	227	EP		112	13.26	0.00							1.0

January 10 2010 Hour: 10:17 59.7 Lat: 33.39N Lon: 35.57E Depth: 7 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	27	64	EP		1018	4.28	-0.03	35						1.0
RCY	SE	27	64	ES		1018	7.73	0.02							1.0
BHL	BZ	58	7	EP		1018	9.14	0.03							1.0
BHL	BN	58	7	ES		1018	16.03	-0.02							1.0
HWQ	BZ	104	19	EP		1018	16.54	0.00							1.0

January 10 2010 Hour: 11:42 33.2 Lat: 33.83N Lon: 36.84E Depth: 5 Agency: REL Local  
Magnitudes: 3.0MC REL Rms: 0.0 secs

DAMASCUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	61	320	EP		1142	43.11	-0.03	55						1.0
FKH	SN	61	320	ES		1142	50.48	-0.02							1.0
HWQ	SZ	97	302	EP		1142	48.90	0.07							1.0
RCY	SZ	100	249	EP		1142	49.36	-0.02							1.0
RCY	SE	100	249	ES		1143	1.35	0.00							1.0
BHL	BZ	110	275	EP		1142	50.94	-0.01							1.0

January 11 2010 Hour: 4: 5 28.3 Lat: 33.64N Lon: 35.56E Depth: 11 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	30	122	EP		4 5	33.54	0.01	34						1.0
RCY	SE	30	122	ES		4 5	37.42	-0.01							1.0
BHL	BZ	30	16	EP		4 5	33.57	0.00							1.0
BHL	BE	30	16	ES		4 5	37.48	-0.01							1.0
HWQ	SZ	79	27	EP		4 5	41.08	0.01							1.0

January 11 2010 Hour: 16: 2 45.9 Lat: 33.82N Lon: 35.72E Depth: 23 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.0 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	11	326	EP		16 2	50.13	0.02							1.0
BHL	BN	11	326	ES		16 2	53.21	-0.01							1.0
RCY	SZ	37	164	EP		16 2	52.88	-0.02	40						1.0
RCY	SE	37	164	ES		16 2	58.07	0.01							1.0
HWQ	SZ	55	22	EP		16 2	55.24	0.00							1.0

January 12 2010 Hour: 14: 3 22.5 Lat: 33.92N Lon: 35.76E Depth: 18 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	10	262	EP		14 3	25.98	-0.02	36						1.0
BHL	BN	10	262	ES		14 3	28.59	0.01							1.0
HWQ	SZ	44	23	EP		14 3	30.03	0.00							1.0
RCY	SZ	47	172	EP		14 3	30.58	0.02							1.0
RCY	SE	47	172	ES		14 3	36.50	-0.01							1.0

January 12 2010 Hour: 22: 4 38.4 Agency: REL Distant

EMSC OT=21:53:10.3 18.47N 72.55W 10Km Mw=7.1 HAITI REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	BZ			EP		22 6	29.46								
BHL	BZ			EP		22 6	30.40								

**January 13 2010 Hour: 10:43 19.5 Lat: 34.37N Lon: 36.65E Depth: 2 Agency: REL Local**  
**Magnitudes: 3.0MC REL Rms: 0.1 secs**

**NEBEK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	26	240	EP		1043	23.77	0.03	59						1.0
FKH	SN	26	240	ES		1043	26.85	-0.03							1.0
HWQ	SZ	66	262	EP		1043	30.12	-0.01							1.0
HWQ	SN	66	262	ES		1043	38.04	0.04							1.0
BHL	BZ	105	241	EP		1043	36.40	-0.10							1.0
RCY	SZ	122	218	EP		1043	39.31	0.06							1.0

**January 13 2010 Hour: 13:44 33.9 Lat: 33.91N Lon: 35.71E Depth: 27 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**BEIRUT REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	5	263	EP		1344	38.43	0.01	29						1.0
BHL	BE	5	263	ES		1344	41.73	0.00							1.0
HWQ	SZ	46	28	EP		1344	42.31	0.00							1.0
RCY	SZ	47	166	EP		1344	42.47	-0.01							1.0
RCY	SN	47	166	ES		1344	48.79	0.00							1.0

**January 14 2010 Hour: 15:43 46.8 Lat: 33.74N Lon: 35.59E Depth: 10 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**BEIRUT REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	19	17	EP		1543	50.31	-0.01							1.0
BHL	BN	19	17	ES		1543	52.91	0.00							1.0
RCY	SZ	35	141	EP		1543	52.82	0.01	38						1.0
RCY	SN	35	141	ES		1543	57.24	0.00							1.0
HWQ	SZ	68	29	EP		1543	57.88	0.00							0.2

**January 15 2010 Hour: 15:16 33.4 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1517	18.23								
HWQ	SZ			EP		1517	19.60								

**January 16 2010 Hour: 10:27 21.0 Lat: 34.36N Lon: 36.66E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.0MC REL Rms: 0.1 secs**

**NEBEK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	26	241	EP		1027	25.13	-0.14	61						1.0
FKH	SN	26	241	ES		1027	28.42	0.02							1.0
HWQ	SZ	66	262	EP		1027	31.75	0.04							1.0
HWQ	SN	66	262	ES		1027	39.61	0.00							1.0
BHL	BZ	106	242	EP		1027	38.09	0.03							1.0
RCY	SZ	122	219	EP		1027	40.83	0.06							1.0
RCY	SE	122	219	ES		1027	55.37	-0.01							1.0

**January 16 2010 Hour: 12: 2 20.2 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		12 2	47.20								
FKH	SZ			EP		12 2	40.74								

**January 17 2010 Hour: 12:49 6.0 Lat: 34.79N Lon: 36.59E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.0 secs**

**HOMS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	63	195	EP		1249	16.15	-0.02	41						1.0
FKH	SN	63	195	ES		1249	23.69	0.01							1.0
HWQ	BZ	82	226	EP		1249	19.20	-0.05							1.0
HWQ	BE	82	226	ES		1249	29.03	-0.01							1.0
BHL	BZ	131	221	EP		1249	27.19	0.08							1.0



**January 17 2010 Hour: 13:7 55.9 Lat: 33.79N Lon: 36.71E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.2MC REL Rms: 0.1 secs**

**DAMASCUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	57	331	EP		13 8	5.12	0.01	79						1.0
FKH	SN	57	331	ES		13 8	11.93	-0.02							1.0
RCY	SZ	87	248	EP		13 8	9.80	-0.15							1.0
RCY	SE	87	248	ES		13 8	20.40	0.02							1.0
HWQ	BZ	89	308	EP		13 8	10.17	0.01							1.0
HWQ	BE	89	308	ES		13 8	20.69	-0.05							1.0
BHL	BZ	98	278	EP		13 8	11.91	0.18							1.0

**January 17 2010 Hour: 20:14 29.7 Agency: REL Regional**

**EMSC OT=20:16:06.9 35.20N 27.71E 52Km mb=5.0 DODECANESE ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2017	40.70								
HWQ	BZ			EP		2017	42.85								
RCY	SZ			EP		2017	44.37								
FKH	SZ			EP		2017	48.64								

**January 17 2010 Hour: 20:57 35.2 Agency: REL Regional**

**EMSC OT=20:59:09.9 35.28N 27.76E 2Km ML=4.0 DODECANESE ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		21 0	43.89								
HWQ	BZ			EP		21 0	46.36								
RCY	SZ			EP		21 0	47.85								

**January 17 2010 Hour: 22:12 33.0 Agency: REL Regional**

**EMSC OT=22:16:03.2 34.37N 32.18E 2Km ML=3.6 CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2216	51.65								
HWQ	BZ			EP		2216	53.43								
RCY	SZ			EP		2216	54.36								

**January 17 2010 Hour: 22:18 51.4 Agency: REL Regional**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		2219	3.87								
HWQ	BZ			EP		2219	7.87								
BHL	BZ			EP		2219	17.17								

**January 18 2010 Hour: 11:44 18.1 Lat: 32.99N Lon: 35.32E Depth: 4 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.1 secs**

**NORTH GALILEE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	74	40	EP		1144	30.01	-0.09	47						1.0
RCY	SE	74	40	ES		1144	39.00	0.05							1.0
BHL	BZ	106	17	EP		1144	35.28	0.00							1.0
HWQ	BZ	154	22	EP		1144	42.56	0.09							1.0
HWQ	BN	154	22	ES		1145	0.43	-0.05							1.0

**January 18 2010 Hour: 13:23 57.0 Lat: 33.25N Lon: 35.44E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.1 secs**

**SOUTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	28	339	EP		1324	1.42	-0.06							1.0
RCY	SZ	46	54	EP		1324	4.37	-0.02	34						1.0
RCY	SE	46	54	ES		1324	9.84	-0.04							1.0
BHL	BZ	75	16	EP		1324	8.89	-0.19							0.2
HWQ	BZ	123	22	EP		1324	16.97	0.13							1.0
HWQ	BN	123	22	ES		1324	31.54	0.00							1.0

**January 18 2010 Hour: 13:38 55.2 Lat: 33.56N Lon: 35.53E Depth: 26 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.0 secs**

**SAIDA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	29	103	EP		1339	1.36	-0.03	50						1.0
RCY	SN	29	103	ES		1339	5.99	0.02							1.0
BHL	BZ	40	16	EP		1339	2.76	0.04							1.0
BHL	BE	40	16	ES		1339	8.27	-0.02							1.0
HWQ	BZ	89	25	EP		1339	9.45	0.00							1.0
HWQ	BN	89	25	ES		1339	20.00	0.00							1.0

**January 18 2010 Hour: 14:26 11.3 Agency: REL Regional**  
**EMSC OT=14:25:02.2 35.36N 27.82E 70Km mb=4.3 DODECANESE ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1426	38.06								

**January 19 2010 Hour: 14:41 39.8 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1442	21.16								
HWQ	BZ			EP		1442	34.29								

**January 20 2010 Hour: 23: 6 52.0 Agency: REL Regional**  
**EMSC OT=23:06:31.9 34.92N 34.09E 10Km ML=3.2 CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		23 6	55.85								
HWQ	SZ			EP		23 6	59.64								
RCY	SZ			EP		23 7	3.44								

**January 24 2010 Hour: 10:21 0.9 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1021	20.58								
FKH	SZ			EP		1021	10.31								

**January 25 2010 Hour: 11:27 30.6 Lat: 35.75N Lon: 36.94E Depth: 63 Agency: REL Regional**  
**Magnitudes: 3.3MC REL Rms: 0.0 secs**

**SYRIA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	174	196	EP		1127	55.50	-0.02	77						1.0
FKH	SN	174	196	ES		1128	14.00	0.01							1.0
HWQ	BZ	187	209	EP		1127	57.08	0.02							1.0
HWQ	BN	187	209	ES		1128	16.66	-0.01							1.0
BHL	BZ	236	210	EP		1128	2.97	0.00							1.0

**January 25 2010 Hour: 18:59 3.8 Agency: REL Regional**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1859	10.15								
BHL	BZ			EP		1859	17.75								
HWQ	BZ			EP		1859	23.90								

**January 26 2010 Hour: 10:46 13.2 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1046	45.20								
FKH	SZ			EP		1046	38.64								

**January 26 2010 Hour: 13:28 50.8 Agency: REL Regional**  
**EMSC OT=13:31:14.8 35.11N 26.94E 2Km mb=4.6 CRETE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1333	4.99								
HWQ	BZ			EP		1333	5.52								
FKH	SZ			EP		1333	9.89								

**January 27 2010 Hour: 10:16 23.2 Lat: 34.47N Lon: 36.82E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.0MC REL Rms: 0.1 secs**

**NEBEK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	45	237	EP		1016	30.44	-0.07	62						1.0
FKH	SN	45	237	ES		1016	35.91	0.02							1.0
HWQ	BZ	83	255	EP		1016	36.69	0.07							1.0
HWQ	BE	83	255	ES		1016	46.52	-0.01							1.0
BHL	BZ	124	240	EP		1016	43.21	-0.07							1.0
RCY	SZ	141	220	EP		1016	45.97	0.06							1.0

**January 27 2010 Hour: 11:27 4.8 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1127	54.10								
FKH	SZ			EP		1127	47.50								

**January 27 2010 Hour: 12:12 36.1 Lat: 33.66N Lon: 36.86E Depth: 4 Agency: REL Local**  
**Magnitudes: 3.2MC REL Rms: 0.0 secs**

**DAMASCUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	78	327	EP		1212	48.61	-0.04	70						1.0
FKH	SN	78	327	ES		1212	57.97	0.04							1.0
RCY	SZ	97	260	EP		1212	51.75	-0.02							1.0
RCY	SE	97	260	ES		1213	3.37	0.01							1.0
HWQ	BZ	109	309	EP		1212	53.76	0.01							1.0
HWQ	BN	109	309	ES		1213	6.76	-0.05							1.0
BHL	BZ	115	284	EP		1212	54.76	0.04							1.0

**January 27 2010 Hour: 12:43 1.5 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1243	33.02								
HWQ	BZ			EP		1243	37.95								

**January 27 2010 Hour: 19:05 0.9 Agency: REL Distant**

**EMSC OT=18:49:30.8 13.61N 125.54E 10Km Mw=6.1 PHILIPPINE ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		19 1	54.34								

**January 28 2010 Hour: 10:26 2.2 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1026	37.96								
FKH	SZ			EP		1026	31.49								

**January 28 2010 Hour: 20:58 27.7 Lat: 35.02N Lon: 36.60E Depth: 1 Agency: REL Regional**  
**Magnitudes: 3.2MC REL Rms: 0.1 secs**

**EMSC OT=20:58:28.0 35.54N 36.93E 12Km MD=3.5 SYRIA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	87	191	EP		2058	41.85	0.03	77						1.0
FKH	SN	87	191	ES		2058	52.21	-0.05							1.0
HWQ	BZ	101	216	EP		2058	44.15	0.08							1.0
BHL	BZ	151	215	EP		2058	51.57	-0.15							1.0
RCY	SZ	183	203	EP		2058	56.46	0.03							1.0
RCY	SN	183	203	ES		2059	17.74	0.06							1.0

**January 30 2010 Hour: 4:38 4.3 Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		438	53.60								
FKH	SZ			EP		438	47.08								

January 30 2010 Hour: 11:123.4 Lat: 34.35N Lon: 36.69E Depth: 3 Agency: REL Local  
 Magnitudes: 3.0MC REL Rms: 0.2 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	28	245	EP		11	1	27.24-0.75	57						0.2
HWQ	BZ	69	263	EP		11	1	34.48-0.01							1.0
HWQ	BN	69	263	ES		11	1	42.64-0.04							1.0
BHL	BZ	107	243	EP		11	1	40.85 0.11							1.0
RCY	SZ	123	220	EP		11	1	43.30 0.02							1.0
RCY	SN	123	220	ES		11	1	57.95-0.03							1.0

January 31 2010 Hour: 2:19 22.5 Agency: REL Distant

EMSC OT=02:01:10.3 20.90S 178.58W 552Km mb=5.0 FIJI REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		219	51.12								
BHL	BZ			EP		219	50.89								

January 31 2010 Hour: 21:48 42.7 Lat: 33.28N Lon: 35.43E Depth: 0 Agency: REL Local  
 Magnitudes: 2.9MC REL Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	26	338	EP		2148	46.74-0.05								1.0
NAQL	SZ	32	237	EP		2148	47.87 0.01								1.0
RCY	SZ	45	57	EP		2148	49.93 0.00	49							1.0
RCY	SE	45	57	ES		2148	55.27-0.03								1.0
BHL	BZ	73	16	EP		2148	54.45 0.03								1.0
BHL	BN	73	16	ES		2149	3.12 0.01								1.0
HWQ	SZ	121	23	EP		2149	2.22 0.02								1.0

# Epicentral Map of Lebanon

## January 2010

