

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

November

2012

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
DQRL	3342.34N	3534.21E	963	DEIR QAMAR	Opened Mar 2010
QRWL	3332.86N	3540.93E	875	QARAOUN	Opened Oct 2011
SHBL	3320.90N	3544.63E	1422	CHEBAA	Opened Oct 2011

## 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.

November 1 2012 Hour: 14:12 2.0

Agency: REL Distant

EMSC OT=14:12:02.0 06.85S 107.49E 146Km M=5.7 JAVA,INDONESIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		1423	49.37								
HWQ	SZ			EP		1423	49.59								
BHL	BZ			EP		1423	50.07								
DQRL	SZ			EP		1423	50.98								

November 1 2012 Hour: 18: 9 46.2

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		18 9	49.06								
DQRL	SZ			EP		18 9	49.85								
SHBL	BZ			EP		18 9	55.34								

November 2 2012 Hour: 11:12 15.2 Lat: 33.42N Lon: 35.52E Depth: 7 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	31	73	EP		1112	20.42	0.01	43						1.0
RCY	SN	31	73	ES		1112	24.23	-0.01							1.0
DQRL	SZ	33	8	EP		1112	20.63	-0.05							1.0
DQRL	SN	33	8	ES		1112	24.72	0.01							1.0
BHL	BZ	56	13	EP		1112	24.38	0.05							1.0
HWQ	SZ	104	22	EP		1112	31.87	-0.01							1.0

November 2 2012 Hour: 13: 8 37.7 Lat: 33.79N Lon: 35.78E Depth: 3 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.1 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	318	EP		13 8	40.59	0.02							1.0
BHL	BN	17	318	ES		13 8	42.66	-0.05							1.0
DQRL	SZ	22	245	EP		13 8	41.13	-0.09							1.0
DQRL	SN	22	245	ES		13 8	43.93	0.09							1.0
RCY	SZ	33	171	EP		13 8	43.06	0.04	38						1.0
RCY	SN	33	171	ES		13 8	46.94	-0.03							1.0
HWQ	SZ	57	16	EP		13 8	46.87	0.04							1.0

November 2 2012 Hour: 16: 9 52.1 Lat: 33.74N Lon: 35.85E Depth: 11 Agency: REL Local  
Magnitudes: 2.2MC REL Rms: 0.0 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	25	315	EP		16 9	56.61	-0.01							1.0
DQRL	SZ	26	260	EP		16 9	56.73	-0.02	20						1.0
DQRL	SE	26	260	ES		1610	0.17	0.01							1.0

November 2 2012 Hour: 18:17 36.6

Agency: REL Distant

EMSC OT=18:17:36.0 09.33N 126.29E 60Km M=6.0 MINDANAO

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1830	5.74								
BHL	BZ			EP		1830	6.78								
SHBL	BZ			EP		1830	7.82								
BEYL	BZ			EP		1830	7.71								
DQRL	SZ			EP		1830	8.17								

November 3 2012 Hour: 9: 1 49.0 Lat: 33.79N Lon: 35.75E Depth: 17 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	15	326	EP		9 1	52.71	-0.06	36						1.0
DQRL	SZ	19	240	EP		9 1	53.21	0.06							1.0
DQRL	SE	19	240	ES		9 1	56.22	0.00							1.0
RCY	SZ	34	166	EP		9 1	55.10	-0.00							1.0
RCY	SN	34	166	ES		9 1	59.61	0.00							1.0

HWQ SZ 57 19 EP 9 1 58.48 0.03 1.0

November 3 2012 Hour: 19:57 16.9 Lat: 33.07N Lon: 34.92E Depth: 17 Agency: REL Local  
Magnitudes: 3.4MC REL Rms: 0.1 secs

**OFFSHORE SOUTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	82	68	EP		1957	30.01	-0.02							1.0
DQRL	SZ	92	40	EP		1957	31.58	0.10							1.0
DQRL	SE	92	40	ES		1957	42.27	-0.01							1.0
BEYL	BZ	103	31	EP		1957	33.03	0.03							1.0
BEYL	BE	103	31	ES		1957	44.98	0.06							1.0
BHL	BZ	114	36	EP		1957	34.65	-0.07	96						1.0
BHL	BN	114	36	ES		1957	47.86	-0.06							1.0
HWQ	SZ	164	35	EP		1957	41.66	-0.03							1.0

November 3 2012 Hour: 20:49 10.1 Agency: REL Distant

**EMSC OT=20:49:10.0 21.97S 176.25W 100Km M=5.1 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		21 8	47.82								
SHBL	BZ			EP		21 8	48.26								
DQRL	SZ			EP		21 8	48.36								

November 3 2012 Hour: 21:56 50.6 Agency: REL Regional

**EMSC OT=21:55:50.6 36.31N 39.09E 3Km M=3.6 TURKEY-SYRIA REG**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		2156	50.68								
BHL	BZ			EP		2156	57.01								
SHBL	BZ			EP		2156	54.11								
DQRL	SZ			EP		2157	1.04								

November 4 2012 Hour: 9:53 4.5 Lat: 33.31N Lon: 35.66E Depth: 2 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.0 secs

**MOUNT HERMON REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	9	63	EP		953	6.02	-0.04							1.0
SHBL	BN	9	63	ES		953	7.20	-0.00							1.0
RCY	SZ	26	39	EP		953	8.87	0.09	28						1.0
RCY	SN	26	39	ES		953	11.95	0.01							1.0
DQRL	SZ	44	349	EP		953	11.63	-0.06							1.0
DQRL	SN	44	349	ES		953	17.05	0.05							1.0
BHL	BZ	66	360	EP		953	15.11	0.00							1.0
HWQ	SZ	110	14	EP		953	22.24	-0.08							1.0

November 4 2012 Hour: 14: 9 20.2 Lat: 33.50N Lon: 35.70E Depth: 9 Agency: REL Local  
Magnitudes: 2.2MC 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	13	91	EP		14 9	22.84	-0.00	20						1.0
RCY	SN	13	91	ES		14 9	24.79	-0.01							1.0
DQRL	SZ	26	332	EP		14 9	24.68	-0.00							1.0
DQRL	SN	26	332	ES		14 9	28.00	0.00							1.0
BHL	BZ	45	355	EP		14 9	27.67	0.01							1.0

November 4 2012 Hour: 17:38 4.0 Agency: REL Regional

**EMSC OT=17:37:04.0 36.07N 31.49E 40Km M=3.4 WESTERN TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1738	5.64								
DQRL	SZ			EP		1738	6.03								
SHBL	BZ			EP		1738	9.96								

November 5 2012 Hour: 4:30 25.0

Agency: REL Distant

EMSC OT=04:30:25.0 37.84N 143.64E 10Km M=5.6 COAST OF HONSHU

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		442	49.12								
BHL	BZ			EP		442	46.89								

November 5 2012 Hour: 10:21 44.0 Lat: 33.86N Lon: 35.85E

Depth: 6 Agency: REL Local

Magnitudes: 2.8MC 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	18	284	EP		1021	47.27	0.06	44						1.0
BHL	BN	18	284	ES		1021	49.54	-0.02							1.0
DQRL	SZ	31	236	EP		1021	49.13	-0.04							1.0
DQRL	SN	31	236	ES		1021	52.97	0.01							1.0
RCY	SZ	41	181	EP		1021	50.77	0.05	47						1.0
RCY	SN	41	181	ES		1021	55.69	0.02							1.0
HWQ	SZ	47	11	EP		1021	51.68	-0.01							1.0
SHBL	BZ	58	189	EP		1021	53.43	-0.03							1.0
SHBL	BN	58	189	ES		1022	0.42	-0.02							1.0

November 7 2012 Hour: 12:56 51.6 Lat: 33.47N Lon: 35.71E

Depth: 0 Agency: REL Local

Magnitudes: 2.6MC 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	12	76	EP		1256	53.63	0.05	35						1.0
RCY	SN	12	76	ES		1256	55.09	0.01							1.0
SHBL	BZ	14	165	EP		1256	53.77	-0.06							1.0
SHBL	BN	14	165	ES		1256	55.45	-0.05							1.0
DQRL	SZ	29	334	EP		1256	56.22	-0.02							1.0
DQRL	SN	29	334	ES		1256	59.68	-0.02							1.0
HWQ	SZ	92	14	EP		1257	6.43	-0.02							1.0

November 7 2012 Hour: 23:23 48.5 Lat: 33.95N Lon: 35.50E

Depth: 16 Agency: REL Local

Magnitudes: 2.5MC REL

Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	15	110	EP		2323	52.29	0.02	30						1.0
DQRL	SZ	28	166	EP		2323	53.73	-0.08							1.0
DQRL	SN	28	166	ES		2323	57.74	0.03							1.0
HWQ	SZ	55	49	EP		2323	57.63	-0.02							1.0
SHBL	BZ	71	161	EP		2324	0.06	0.09							1.0
SHBL	BN	71	161	ES		2324	8.38	-0.04							1.0

November 12 2012 Hour: 20:42 13.0

Agency: REL Distant

EMSC OT=20:42:13.0 57.78N 142.78W 2Km M=6.3 GULF OF ALASKA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2055	8.50								
DQRL	SZ			EP		2055	9.48								
SHBL	BZ			EP		2055	11.33								

November 13 2012 Hour: 17:48 53.5 Lat: 33.99N Lon: 36.92E

Depth: 10 Agency: REL Local

Magnitudes: 3.1MC REL

Rms: 0.1 secs

DAMASCUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	96	290	EP		1749	8.89	0.16	66						1.0
HWQ	SN	96	290	ES		1749	19.90	-0.12							1.0
BHL	BZ	117	266	EP		1749	11.98	0.03							1.0
DQRL	SZ	129	256	EP		1749	13.52	-0.11							1.0
DQRL	SN	129	256	ES		1749	28.65	0.11							1.0
SHBL	BZ	130	237	EP		1749	13.76	-0.09							1.0

November 14 2012 Hour: 12: 8 10.2 Lat: 33.27N Lon: 35.68E Depth: 20 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

**MOUNT HERMON REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	10	34	EP		12 8	13.94	-0.01							1.0
SHBL	BN	10	34	ES		12 8	16.81	0.05							1.0
RCY	SZ	29	30	EP		12 8	15.74	-0.05	33						1.0
RCY	SN	29	30	ES		12 8	19.94	-0.03							1.0
DQRL	SZ	49	348	EP		12 8	18.56	0.04							1.0
DQRL	SN	49	348	ES		12 8	24.69	-0.03							1.0
HWQ	SZ	114	12	EP		12 8	28.03	0.06							1.0

November 15 2012 Hour: 8:32 42.2 Lat: 33.17N Lon: 35.54E Depth: 16 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

**SOUTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	27	44	EP		832	47.34	-0.06							1.0
SHBL	BN	27	44	ES		832	51.32	0.04							1.0
RCY	SZ	46	37	EP		832	50.00	0.09	46						1.0
RCY	SE	46	37	ES		832	55.58	-0.07							1.0
DQRL	SZ	60	3	EP		832	51.83	-0.09							1.0
DQRL	SN	60	3	ES		832	59.17	0.03							1.0
BHL	BZ	82	7	EP		832	55.29	0.05							1.0
HWQ	SZ	129	17	EP		833	2.09	0.02							1.0

November 15 2012 Hour: 13:40 55.0 Lat: 33.42N Lon: 35.39E Depth: 24 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

**SOUTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	36	28	EP		1341	1.83	0.04	35						1.0
DQRL	SN	36	28	ES		1341	6.79	-0.02							1.0
RCY	SZ	43	79	EP		1341	2.69	-0.01							1.0
RCY	SN	43	79	ES		1341	8.42	0.01							1.0
HWQ	SZ	108	28	EP		1341	11.98	-0.01							1.0

November 15 2012 Hour: 13:41 39.8 Lat: 33.80N Lon: 35.76E Depth: 21 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	15	318	EP		1341	43.96	-0.04	39						1.0
DQRL	SZ	21	238	EP		1341	44.62	0.06							1.0
DQRL	SN	21	238	ES		1341	48.10	-0.01							1.0
RCY	SZ	35	168	EP		1341	46.29	0.00							1.0
RCY	SN	35	168	ES		1341	51.11	-0.00							1.0
HWQ	SZ	55	18	EP		1341	49.08	0.01							1.0

November 16 2012 Hour: 15:29 5.1 Lat: 33.81N Lon: 35.69E Depth: 5 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.1 secs

**BEIRUT REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	11	340	EP		1529	7.19	0.05	38						1.0
BHL	BE	11	340	ES		1529	8.65	0.02							1.0
DQRL	SZ	17	224	EP		1529	7.86	-0.12							1.0
DQRL	SN	17	224	ES		1529	10.09	-0.00							1.0
HWQ	SZ	57	24	EP		1529	14.26	-0.06							1.0

November 16 2012 Hour: 16:28 30.8 Lat: 33.79N Lon: 35.73E Depth: 1 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	14	331	EP		1628	33.24	0.06	38						1.0
BHL	BN	14	331	ES		1628	34.91	-0.01							1.0
DQRL	SZ	18	237	EP		1628	33.65	-0.05							1.0



DQRL	SN	18	237	ES		1628	35.81	-0.00										1.0
HWQ	SZ	58	20	EP		1628	40.11	-0.03										1.0

**November 16 2012 Hour: 18:12 36.0**

**Agency: REL Distant**

**EMSC OT=18:12:36.0 49.36N 155.39E 5Km M=6.5 KURIL ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1824	55.07								
BEYL	BZ			EP		1824	55.53								
DQRL	SZ			EP		1824	56.41								
SHBL	BZ			EP		1824	57.40								

**November 18 2012 Hour: 3:54 5.5 Lat: 33.12N Lon: 35.44E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.4MC REL Rms: 0.0 secs**

**SOUTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	66	11	EP		354	16.05	-0.08							1.0
DQRL	SN	66	11	ES		354	24.01	0.03							1.0
BEYL	BZ	83	4	EP		354	18.93	-0.01							1.0
BHL	BZ	89	13	EP		354	19.85	-0.02	102						1.0
BHL	BN	89	13	ES		354	30.49	0.01							1.0
HWQ	SZ	137	20	EP		354	27.59	0.06							1.0

**November 18 2012 Hour: 12: 5 10.3 Lat: 33.33N Lon: 35.68E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.0 secs**

**MOUNT HERMON REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	6	70	EP		12	5	13.08	-0.06						1.0
SHBL	BN	6	70	ES		12	5	15.29	0.03						1.0
RCY	SZ	24	38	EP		12	5	14.91	0.02	25					1.0
RCY	SN	24	38	ES		12	5	18.32	0.00						1.0
DQRL	SZ	43	346	EP		12	5	17.60	-0.00						1.0

**November 18 2012 Hour: 13:42 0.0**

**Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1343	27.94								
SHBL	BZ			EP		1343	24.84								

**November 19 2012 Hour: 11:48 0.0**

**Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1148	30.60								
SHBL	BZ			EP		1148	28.87								

**November 20 2012 Hour: 13:44 41.3 Lat: 33.37N Lon: 35.68E Depth: 8 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.0 secs**

**MOUNT HERMON REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	6	114	EP		1344	43.19	-0.04							1.0
SHBL	BN	6	114	ES		1344	44.65	0.02							1.0
RCY	SZ	20	45	EP		1344	44.94	0.02	32						1.0
RCY	SN	20	45	ES		1344	47.57	-0.00							1.0
DQRL	SZ	39	344	EP		1344	47.76	-0.00							1.0

**November 20 2012 Hour: 15:16 27.3 Lat: 34.05N Lon: 35.68E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.0 secs**

**KESROUANE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	188	EP		1516	29.87	-0.08	44						1.0
BHL	BN	17	188	ES		1516	31.91	-0.01							1.0
HWQ	SZ	35	44	EP		1516	32.97	0.01							1.0
DQRL	SZ	40	195	EP		1516	33.68	0.00							1.0
DQRL	SN	40	195	ES		1516	38.45	0.04							1.0

November 20 2012 Hour: 16:17 2.8 Lat: 33.80N Lon: 35.70E Depth: 12 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	12	340	EP		1617	5.70	-0.06	39						1.0
BHL	BN	12	340	ES		1617	7.91	-0.03							1.0
DQRL	SZ	16	228	EP		1617	6.28	0.05							1.0
DQRL	SN	16	228	ES		1617	8.79	0.04							1.0
HWQ	SZ	57	23	EP		1617	12.43	0.08							1.0

November 20 2012 Hour: 18:16 7.1 Lat: 33.80N Lon: 35.72E Depth: 21 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.1 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	13	334	EP		1816	11.11	-0.08	31						1.0
BHL	BE	13	334	ES		1816	14.17	-0.03							1.0
DQRL	SZ	17	232	EP		1816	11.59	0.05							1.0
DQRL	SN	17	232	ES		1816	14.84	0.04							1.0
BEYL	BZ	22	291	EP		1816	11.98	0.03							1.0
HWQ	SZ	57	22	EP		1816	16.76	0.06							1.0

November 21 2012 Hour: 11: 8 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		11 9	14.23								
HWQ	SZ			EP		11 9	15.85								

November 21 2012 Hour: 12: 4 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		12 5	46.69								
SHBL	BZ			EP		12 5	44.81								

November 21 2012 Hour: 15:41 54.1 Lat: 33.78N Lon: 35.78E Depth: 7 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	320	EP		1541	57.13	-0.08							1.0
DQRL	SZ	21	246	EP		1541	57.69	0.01	48						1.0
DQRL	SN	21	246	ES		1542	0.39	0.04							1.0
BEYL	BZ	28	291	EP		1541	58.76	0.03							0.2
SHBL	BZ	48	184	EP		1542	1.93	-0.03							1.0
SHBL	BN	48	184	ES		1542	7.81	0.01							1.0
HWQ	SZ	57	16	EP		1542	3.47	0.06							1.0

November 21 2012 Hour: 16:16 36.2 Lat: 34.59N Lon: 36.26E Depth: 8 Agency: REL Local  
Magnitudes: 3.1MC REL Rms: 0.1 secs

AKKAR

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	45	219	EP		1616	43.71	0.06	70						1.0
HWQ	SE	45	219	ES		1616	49.13	-0.01							1.0
BHL	BZ	94	216	EP		1616	51.38	-0.05							1.0
BHL	BN	94	216	ES		1617	2.63	-0.05							1.0
BEYL	BZ	106	221	EP		1616	52.79	-0.36							0.2
DQRL	SZ	117	213	EP		1616	54.73	-0.02							1.0
DQRL	SN	117	213	ES		1617	8.51	0.06							1.0
SHBL	BZ	146	199	EP		1616	58.93	-0.11							1.0
SHBL	BE	146	199	ES		1617	15.93	0.01							1.0

November 22 2012 Hour: 9:46 13.6 Lat: 33.41N Lon: 35.54E Depth: 6 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.0 secs

**SOUTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	20	109	EP		946	17.05	-0.05	43						1.0
SHBL	BN	20	109	ES		946	19.75	0.03							1.0
DQRL	SZ	33	5	EP		946	19.07	0.05							1.0
DQRL	SN	33	5	ES		946	23.07	0.01							1.0
BHL	BZ	56	11	EP		946	22.59	-0.07							1.0
HWQ	SZ	104	21	EP		946	30.30	0.02							1.0

November 23 2012 Hour: 15:33 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1533	51.16								
SHBL	BZ			EP		1533	47.39								

November 24 2012 Hour: 8:49 40.8 Lat: 33.84N Lon: 35.79E Depth: 2 Agency: REL Local  
Magnitudes: 2.4MC 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	15	299	EP		849	43.17	-0.04	25						1.0
DQRL	SZ	26	234	EP		849	44.90	-0.01							1.0
DQRL	SN	26	234	ES		849	48.02	0.04							1.0
RCY	SZ	38	174	EP		849	46.95	-0.02							1.0
RCY	SN	38	174	ES		849	51.56	0.01							1.0
HWQ	SZ	51	16	EP		849	48.98	0.03							1.0

November 25 2012 Hour: 8:51 47.0

Agency: REL Regional

**EMSC OT=08:51:47.0 36.62N 27.95E 5Km M=4.0 DODECANESE ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		853	28.66								
RCY	SZ			EP		853	31.41								

November 25 2012 Hour: 12:26 15.0 Lat: 33.79N Lon: 35.78E Depth: 8 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	18	316	EP		1226	18.23	-0.00	36						1.0
DQRL	SZ	22	245	EP		1226	18.87	0.00							1.0
DQRL	SE	22	245	ES		1226	21.73	0.00							1.0
RCY	SZ	33	172	EP		1226	20.52	-0.02							1.0
RCY	SN	33	172	ES		1226	24.65	0.01							1.0
HWQ	SZ	56	15	EP		1226	24.21	0.01							1.0

November 26 2012 Hour: 13:8 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		138	42.00								
SHBL	BZ			EP		138	41.83								

November 27 2012 Hour: 10:48 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1049	23.36								
SHBL	BZ			EP		1049	21.55								

November 27 2012 Hour: 11:42 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1143	32.96								
SHBL	BZ			EP		1143	32.50								

**November 27 2012 Hour: 12:24 0.0**

**Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1224	53.94								
RCY	SZ			EP		1224	51.55								

**November 28 2012 Hour: 9:3 0.0**

**Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		9 4	15.20								
SHBL	BZ			EP		9 4	13.56								

**November 30 2012 Hour: 13:31 0.0**

**Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		1331	45.14								
RCY	SZ			EP		1331	47.41								

# Epicentral Map of Lebanon

## NOVEMBER 2012

