

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

January

2015

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	Nov2000-Sep2012
FKH	3414.69N	3624.61E	1152	FAKEHEH	Opened Dec 2004
RCY	3329.79N	3550.14E	1370	RACHAYA	Opened Jun 2006
BEYL	3352.30N	3529.59E	49	BEIRUT	Opened Jul 2006
NAQL	3307.02N	3508.46E	83	NAQOURA	Jul2008-Jan2012
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
ZAHL	3351.48N	3553.12E	1211	ZAHLE	Opened Aug 2015

## 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 1 2015 Hour: 11:4 8.0 Lat: 33.38N Lon: 36.56E Depth: 7 Agency: REL Local  
Magnitudes: 2.9MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	69	281	EP		11	4	19.22	0.01		48				1.0
RCY	SE	69	281	ES		11	4	27.48	-0.00						1.0
DQRL	SZ	99	292	EP		11	4	24.07	0.09						1.0
DQRL	SN	99	292	ES		11	4	35.81	0.02						1.0
BHL	BZ	102	305	EP		11	4	24.31	-0.18						1.0
HWQ	SZ	115	330	EP		11	4	26.40	0.07						1.0

January 2 2015 Hour: 15:27 43.8 Lat: 33.86N Lon: 35.82E Depth: 6 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

BAABDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	287	EP		1527	46.62	-0.10			44				1.0
BHL	BN	16	287	ES		1527	48.90	0.04							1.0
DQRL	SZ	29	234	EP		1527	48.76	0.10							1.0
QRWL	SZ	37	201	EP		1527	49.79	-0.14							1.0
RCY	SZ	41	178	EP		1527	50.60	0.13							1.0
RCY	SE	41	178	ES		1527	55.36	-0.03							1.0
HWQ	SZ	48	14	EP		1527	51.60	0.00							1.0

January 4 2015 Hour: 9:19 35.1 Lat: 33.20N Lon: 34.77E Depth: 18 Agency: REL Local  
Magnitudes: 3.0MC REL Rms: 0.0 secs

OFFSHORE SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	93	65	EP		919	49.76	-0.05							1.0
QRWL	SE	93	65	ES		920	0.71	0.01							1.0
RCY	SZ	104	71	EP		919	51.52	0.02							1.0
BHL	BZ	113	46	EP		919	52.78	0.02			52				1.0
BHL	BE	113	46	ES		920	5.82	-0.01							1.0
HWQ	SZ	162	42	EP		919	59.51	-0.00							1.0

January 4 2015 Hour: 13:38 29.6 Agency: REL Regional  
EMSC OT=13:38:29.6 35.97N 31.74E 60Km M=3.2 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1339	31.74								
BHL	BZ			EP		1339	26.90								

January 4 2015 Hour: 18:27 51.1 Agency: REL Regional  
EMSC OT=18:27:51.1 35.08N 33.82E 30Km M=2.9 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1828	25.03								

January 6 2015 Hour: 22:16 44.4 Agency: REL Regional  
EMSC OT=22:16:44.4 36.97N 34.40E 5Km M=4.0 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		2217	32.73								
BHL	BZ			EP		2217	36.14								
RCY	SZ			EP		2217	42.25								

January 8 2015 Hour: 18:44 46.8 Agency: REL Regional  
EMSC OT=18:44:46.8 37.05N 36.89E 2Km M=4.6 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1845	34.66								
BHL	BZ			EP		1845	40.89								
RCY	SZ			EP		1845	44.94								

January 12 2015 Hour: 10:15 53.4 Lat: 33.31N Lon: 36.53E Depth: 11 Agency: REL Local  
Magnitudes: 2.9MC REL Rms: 0.2 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	68	288	EP		1016	4.36	-0.24	47						1.0
RCY	SE	68	288	ES		1016	12.99	0.14							1.0
DQRL	SZ	100	296	EP		1016	9.47	0.24							1.0
DQRL	SN	100	296	ES		1016	20.78	-0.14							1.0
BHL	BZ	105	309	EP		1016	9.99	0.00							1.0

January 13 2015 Hour: 10:58 18.9 Lat: 34.12N Lon: 36.33E Depth: 0 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.0 secs

BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	66	250	EP		1058	29.56	-0.03	36						1.0
BHL	BE	66	250	ES		1058	37.52	-0.00							1.0
RCY	SZ	82	214	EP		1058	32.14	-0.02							1.0
RCY	SE	82	214	ES		1058	41.99	-0.00							1.0
DQRL	SZ	83	237	EP		1058	32.40	0.06							1.0

January 18 2015 Hour: 10:12 46.9 Lat: 32.63N Lon: 35.72E Depth: 0 Agency: REL Local  
Magnitudes: 3.1MC REL Rms: 0.2 secs

JORDAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	80	2	EP		1012	59.74	-0.16							1.0
QRWL	SZ	102	358	EP		1013	3.34	-0.13							1.0
QRWL	SN	102	358	ES		1013	15.68	-0.01							1.0
DQRL	SZ	121	354	EP		1013	6.58	0.17	65						1.0
DQRL	SN	121	354	ES		1013	20.87	0.06							1.0
BHL	BZ	142	358	EP		1013	9.54	-0.21							1.0
HWQ	SZ	185	7	EP		1013	16.30	0.27							1.0

January 18 2015 Hour: 10:49 1.3 Lat: 33.39N Lon: 35.63E Depth: 1 Agency: REL Local  
Magnitudes: 2.4MC REL Rms: 0.1 secs

HASBAYA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	112	EP		1049	3.21	0.01							1.0
QRWL	SZ	19	15	EP		1049	4.27	-0.07	27						1.0
RCY	SZ	23	57	EP		1049	4.94	-0.06							1.0
RCY	SN	23	57	ES		1049	7.76	0.05							1.0
DQRL	SZ	36	351	EP		1049	7.23	0.10							1.0
DQRL	SN	36	351	ES		1049	11.40	-0.02							1.0

January 18 2015 Hour: 12:45 9.9 Lat: 33.45N Lon: 35.64E Depth: 0 Agency: REL Local  
Magnitudes: 2.4MC REL Rms: 0.1 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	12	22	EP		1245	11.66	-0.13	27						1.0
SHBL	BZ	15	138	EP		1245	12.36	0.02							1.0
RCY	SZ	19	74	EP		1245	13.01	-0.01							1.0
RCY	SN	19	74	ES		1245	15.37	0.04							1.0
DQRL	SZ	29	348	EP		1245	14.62	0.03							1.0
DQRL	SN	29	348	ES		1245	18.10	0.05							1.0

January 18 2015 Hour: 13:5 31.4 Lat: 33.26N Lon: 35.59E Depth: 11 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

MARJAAYOUN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	17	56	EP		13 5	34.87	0.00							1.0
SHBL	BN	17	56	ES		13 5	37.47	-0.00							1.0
QRWL	SZ	33	15	EP		13 5	37.03	-0.01							1.0
RCY	SZ	35	41	EP		13 5	37.34	0.00	33						1.0
RCY	SE	35	41	ES		13 5	41.77	0.00							1.0

DQRL SZ 49 358 EP 13 5 39.58 0.01 1.0  
 DQRL SE 49 358 ES 13 5 45.65-0.00 1.0

**January 19 2015 Hour: 1:27 42.2 Lat: 33.90N Lon: 35.85E Depth: 8 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.0 secs**

**METN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	270	EP		127	45.50	-0.01	26						1.0
BHL	BN	18	270	ES		127	47.99	0.02							1.0
DQRL	SZ	34	230	EP		127	47.94	0.04							1.0
DQRL	SE	34	230	ES		127	52.09	-0.04							1.0
HWQ	SZ	42	12	EP		127	49.19	-0.01							1.0
QRWL	SZ	43	201	EP		127	49.24	0.01							1.0

**January 19 2015 Hour: 17:19 46.4 Agency: REL Distant**  
**EMSC OT=17:19:46.4 4.71N 119.85E 10Km M=5.5 ARCHIPELAGO, PHILIPPINES**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1732	9.67								
QRWL	SZ			EP		1732	9.12								

**January 20 2015 Hour: 12: 2 18.2 Lat: 33.48N Lon: 35.67E Depth: 9 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	8	12	EP		12 2	20.22	-0.03	29						1.0
RCY	SZ	16	84	EP		12 2	21.26	-0.03							1.0
RCY	SN	16	84	ES		12 2	23.59	0.02							1.0
SHBL	BZ	16	154	EP		12 2	21.37	0.01							1.0
DQRL	SZ	27	340	EP		12 2	22.80	0.01							1.0
DQRL	SN	27	340	ES		12 2	26.29	0.12							0.2

**January 20 2015 Hour: 13:43 55.3 Lat: 33.83N Lon: 35.75E Depth: 26 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.1 secs**

**BAABDA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	12	313	EP		1343	59.96	0.02	36						1.0
DQRL	SZ	22	231	EP		1344	0.76	0.06							1.0
DQRL	SN	22	231	ES		1344	4.63	-0.02							1.0
QRWL	SZ	32	191	EP		1344	1.69	-0.10							1.0
RCY	SZ	38	168	EP		1344	2.63	0.07							1.0
RCY	SE	38	168	ES		1344	7.89	-0.00							1.0
HWQ	SZ	53	20	EP		1344	4.11	-0.43							0.2

**January 21 2015 Hour: 9: 6 15.3 Lat: 33.38N Lon: 35.60E Depth: 3 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**MARJAAYOUN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	14	104	EP		9 6	17.60	0.00							1.0
QRWL	SZ	20	22	EP		9 6	18.58	-0.03							1.0
RCY	SZ	26	59	EP		9 6	19.42	-0.03	42						1.0
RCY	SN	26	59	ES		9 6	22.56	0.02							1.0
DQRL	SZ	37	356	EP		9 6	21.24	0.04							1.0
DQRL	SN	37	356	ES		9 6	25.57	-0.01							1.0

**January 21 2015 Hour: 10: 6 12.4 Lat: 33.47N Lon: 35.69E Depth: 1 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.1 secs**

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	9	357	EP		10 6	13.86	-0.05	30						1.0
RCY	SN	14	77	ES		10 6	16.54	0.04							1.0
SHBL	BZ	14	158	EP		10 6	14.71	-0.04							1.0
SHBL	BN	14	158	ES		10 6	16.52	0.03							1.0
RCY	SZ	14	77	EP		10 6	14.70	-0.06							1.0
DQRL	SZ	29	338	EP		10 6	17.11	0.07							1.0

January 21 2015 Hour: 13:58 3.4 Agency: REL Regional  
**EMSC OT=13:58:03.4 38.25N 42.86E 4Km M=4.7 EASTERN TURKEY**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ EP 1359 46.35  
 RCY SZ EP 1359 55.07  
 SHBL BZ EP 1359 57.16

January 22 2015 Hour: 4:46 58.5 Agency: REL Regional  
**EMSC OT=04:46:58.5 36.49N 26.57E 150Km M=4.1 DODECANESE ISLANDS**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 DQRL SZ EP 448 46.00  
 QRWL SZ EP 448 49.76  
 RCY SZ EP 448 50.87

January 22 2015 Hour: 10:41 36.2 Lat: 33.47N Lon: 35.69E Depth: 0 Agency: REL Local  
**Magnitudes: 2.9MC REL Rms: 0.1 secs**  
**WEST BEKAA REGION**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 QRWL SZ 8 356 EP 1041 37.46-0.05 1.0  
 QRWL SN 8 356 ES 1041 38.50-0.00 1.0  
 RCY SZ 14 80 EP 1041 38.48 0.04 54 1.0  
 RCY SN 14 80 ES 1041 40.14 0.02 1.0  
 SHBL BZ 15 160 EP 1041 38.56-0.03 1.0  
 DQRL SZ 28 337 EP 1041 40.78 0.10 1.0  
 HWQ SZ 92 15 EP 1041 50.98-0.08 1.0

January 22 2015 Hour: 13:4 25.4 Lat: 33.35N Lon: 35.49E Depth: 21 Agency: REL Local  
**Magnitudes: 2.6MC REL Rms: 0.0 secs**  
**NABATIYE REGION**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 SHBL BZ 23 90 EP 13 4 30.46-0.06 1.0  
 SHBL BN 23 90 ES 13 4 34.35 0.03 1.0  
 RCY SZ 36 63 EP 13 4 32.02 0.00 1.0  
 DQRL SZ 40 10 EP 13 4 32.63 0.06 34 1.0  
 DQRL SN 40 10 ES 13 4 37.86-0.03 1.0  
 HWQ SZ 111 22 EP 13 4 42.76-0.02 0.2

January 22 2015 Hour: 19:27 46.1 Agency: REL Regional  
**EMSC OT=19:27:46.1 37.44N 36.31E 7Km M=4.1 CENTRAL TURKEY**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ SZ EP 1928 37.45  
 BHL BZ EP 1928 42.37  
 DQRL SZ EP 1928 45.49  
 QRWL SZ EP 1928 47.88

January 23 2015 Hour: 3:47 26.9 Agency: REL Distant  
**EMSC OT=03:47:26.9 17.02S 168.57E 216Km M=6.7 VANUATU**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BHL BZ EP 4 6 20.27  
 HWQ SZ EP 4 6 20.71

January 23 2015 Hour: 10:59 12.7 Lat: 33.47N Lon: 35.68E Depth: 0 Agency: REL Local  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**  
**WEST BEKAA REGION**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 QRWL SZ 9 360 EP 1059 13.98-0.08 1.0  
 QRWL SN 9 360 ES 1059 15.10-0.00 1.0  
 RCY SZ 15 78 EP 1059 15.04 0.03 32 1.0  
 SHBL BZ 15 157 EP 1059 15.02 0.00 1.0  
 DQRL SZ 28 338 EP 1059 17.20-0.01 1.0  
 DQRL SN 28 338 ES 1059 20.63 0.05 1.0



January 23 2015 Hour: 11:43 52.5 Lat: 33.82N Lon: 35.76E Depth: 19 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.0 secs

**BAABDA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	14	314	EP		1143	56.34	-0.02	30						1.0
BHL	BN	14	314	ES		1143	59.25	0.01							1.0
DQRL	SZ	22	235	EP		1143	57.14	-0.00							1.0
RCY	SZ	36	169	EP		1143	59.04	0.03							1.0
RCY	SN	36	169	ES		1144	3.85	-0.01							1.0
HWQ	SZ	54	18	EP		1144	1.48	-0.00							1.0

January 23 2015 Hour: 15:10 40.1 Agency: REL Regional

**EMSC OT=15:10:40.1 36.04N 31.07E 87Km M=3.8 WESTERN TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1511	41.98								
HWQ	SZ			EP		1511	43.50								
DQRL	SZ			EP		1511	42.60								
QRWL	SZ			EP		1511	45.53								
RCY	SZ			EP		1511	47.76								

January 25 2015 Hour: 10: 6 34.0 Lat: 33.54N Lon: 35.72E Depth: 1 Agency: REL Local  
Magnitudes: 2.4MC REL Rms: 0.1 secs

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	3	275	EP		10 6	34.48	-0.17							1.0
QRWL	SN	3	275	ES		10 6	35.21	0.08							1.0
RCY	SZ	12	116	EP		10 6	36.06	0.05	26						1.0
DQRL	SZ	23	322	EP		10 6	37.76	0.12							1.0
DQRL	SN	23	322	ES		10 6	40.36	0.02							1.0
BHL	BZ	40	352	EP		10 6	40.41	-0.09							1.0

January 25 2015 Hour: 20:11 20.6 Agency: REL Distant

**EMSC OT=20:11:20.6 27.43N 56.26E 10Km M=4.9 SOUTHERN IRAN**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2015	39.53								
QRWL	SZ			EP		2015	38.84								

January 25 2015 Hour: 22:21 51.9 Agency: REL Regional

**EMSC OT=22:21:51.9 36.96N 36.34E 10Km M=3.5 TURKEY-SYRIA BORDER REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2222	41.00								
DQRL	SZ			EP		2222	43.45								
QRWL	SZ			EP		2222	45.32								

January 26 2015 Hour: 7:48 32.0 Lat: 33.85N Lon: 35.83E Depth: 0 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.1 secs

**ZAHLE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	289	EP		748	34.77	0.01	29						1.0
BHL	BN	17	289	ES		748	36.73	-0.04							1.0
DQRL	SZ	29	235	EP		748	36.79	0.08							1.0
RCY	SZ	40	179	EP		748	38.54	0.07							1.0
HWQ	SZ	48	13	EP		748	39.78	-0.03							1.0
SHBL	BZ	57	188	EP		748	41.20	0.00							1.0
SHBL	BN	57	188	ES		748	47.88	-0.10							1.0

January 26 2015 Hour: 11: 4 11.5 Lat: 33.54N Lon: 35.71E Depth: 0 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.1 secs

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	2	276	EP		11 4	11.75	-0.10							1.0
RCY	SZ	13	114	EP		11 4	13.47	-0.11	29						1.0
RCY	SN	13	114	ES		11 4	15.20	0.04							1.0

DQRL	SZ	22	325	EP		11	4	15.09	0.11								1.0
SHBL	BZ	22	171	EP		11	4	15.05	0.02								1.0
SHBL	BN	22	171	ES		11	4	17.72	0.04								1.0

**January 26 2015 Hour: 11:39 24.2 Lat: 33.48N Lon: 35.69E Depth: 14 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.0 secs**

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	8	358	EP		1139	26.82	-0.08	26						1.0
RCY	SZ	14	81	EP		1139	27.57	0.02							1.0
SHBL	BZ	15	159	EP		1139	27.69	0.01							1.0
SHBL	BN	15	159	ES		1139	30.28	0.01							1.0
DQRL	SZ	28	337	EP		1139	29.23	-0.00							1.0
DQRL	SN	28	337	ES		1139	33.02	0.04							1.0
HWQ	SZ	92	15	EP		1139	38.64	-0.08							0.2

**January 26 2015 Hour: 13:45 4.1 Lat: 33.27N Lon: 36.38E Depth: 11 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.1 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	57	297	EP		1345	13.31	-0.10	52						1.0
RCY	SE	57	297	ES		1345	20.39	0.06							1.0
QRWL	SZ	72	296	EP		1345	15.93	0.12							1.0
DQRL	SZ	90	303	EP		1345	18.35	-0.06							1.0
DQRL	SN	90	303	ES		1345	28.96	-0.05							1.0
BHL	BZ	98	317	EP		1345	19.60	0.01							1.0
HWQ	SZ	119	340	EP		1345	22.78	0.02							1.0

**January 27 2015 Hour: 11:20 41.8 Lat: 33.47N Lon: 35.67E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	9	6	EP		1120	43.23	-0.03							1.0
SHBL	BZ	15	154	EP		1120	44.24	0.00							1.0
RCY	SZ	16	78	EP		1120	44.33	-0.00	32						1.0
RCY	SE	16	78	ES		1120	46.20	0.01							1.0
DQRL	SZ	28	340	EP		1120	46.35	0.01							1.0
DQRL	SN	28	340	ES		1120	49.70	0.01							1.0

**January 28 2015 Hour: 2:43 19.5 Agency: REL Distant**  
**EMSC OT=02:43:19.5 21.01S 178.27W 485Km M=6.2 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		3	2	3.82							
BHL	BZ			EP		3	2	4.93							
RCY	SZ			EP		3	2	5.25							

**January 28 2015 Hour: 15:54 37.8 Agency: REL Regional**  
**EMSC OT=15:54:37.8 34.30N 25.04E 30Km M=5.1 CRETE, GREECE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1556	42.79								
QRWL	SZ			EP		1556	40.93								
RCY	SZ			EP		1556	43.51								
HWQ	SZ			EP		1556	44.59								

**January 29 2015 Hour: 10:14 51.5 Lat: 33.52N Lon: 35.69E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	3	342	EP		1014	51.91	-0.06							1.0
RCY	SZ	14	102	EP		1014	53.66	-0.00	30						1.0
RCY	SN	14	102	ES		1014	55.31	0.01							1.0
DQRL	SZ	23	331	EP		1014	55.26	0.03							1.0
DQRL	SN	23	331	ES		1014	58.03	0.02							1.0

**January 29 2015 Hour: 10:41 30.5 Lat: 33.25N Lon: 35.36E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.1 secs**

**SOUR REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	53	58	EP		1041	38.97	-0.04							1.0
RCY	SE	53	58	ES		1041	45.30	0.01							1.0
DQRL	SZ	55	21	EP		1041	39.29	-0.06	49						1.0
DQRL	SN	55	21	ES		1041	45.86	-0.02							1.0
BHL	BZ	78	21	EP		1041	43.18	0.07							0.2
HWQ	SZ	127	25	EP		1041	51.07	0.09							1.0

**January 30 2015 Hour: 6:33 13.8 Lat: 35.84N Lon: 36.52E Depth: 15 Agency: REL Regional**  
**Magnitudes: 3.6MC REL Rms: 0.1 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	181	197	EP		633	40.76	-0.12	107						1.0
HWQ	SE	181	197	ES		634	0.79	-0.13							1.0
BHL	BZ	229	200	EP		633	46.95	0.14							1.0
BHL	BE	229	200	ES		634	11.36	0.13							1.0
DQRL	SZ	252	200	EP		633	49.62	-0.08							1.0
DQRL	SN	252	200	ES		634	16.27	-0.00							1.0
RCY	SZ	267	194	EP		633	51.70	0.07							1.0

**January 31 2015 Hour: 20:3 41.2 Lat: 32.53N Lon: 34.16E Depth: 6 Agency: REL Regional**  
**Magnitudes: 3.2MC REL Rms: 0.1 secs**

**EASTERN MEDITERRANEAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	182	51	EP		20 4	9.14	-0.09							1.0
QRWL	SE	182	51	ES		20 4	29.79	-0.16							1.0
DQRL	SZ	186	45	EP		20 4	9.64	-0.06							1.0
RCY	SZ	190	55	EP		20 4	10.30	0.00	64						1.0
RCY	SN	190	55	ES		20 4	31.98	0.17							1.0
BHL	BZ	207	42	EP		20 4	12.54	0.19							0.2
HWQ	SZ	256	40	EP		20 4	18.57	0.14							1.0



# Epicentral Map of Lebanon

## JANUARY 2015

