

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

December

2015

Prepared by  
The National Centre for Geophysical Research  
Bhannes

*P.o.b. : 165432  
Ashrafyeh Beirut 1100-2040*

*Tel : +9614-981885  
Fax : +9614-981886  
Email : [geophys@cnrs.edu.lb](mailto:geophys@cnrs.edu.lb)*

## 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 ( $0.5 \times (\text{peak to peak})$ ), (nm) at period PERI

PERI: Period where amplitude is measured

BAZ: Back azimuth (station to event)

ARES: Back azimuth residual

VELO: Apparent phase velocity (km/sec)

WT: Weight of phase in the location

\*: An asterisk before the phase arrival time implies a potential timing error. If an S phase is read, differential S-P times will be used in the hypocenter location.

December 2 2015 Hour: 23:27 6.3

Agency: REL Regional

EMSC OT=23:27:06.3 39.27N 40.22E 5Km M=5.3 EASTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ			EP		2328	45.70								
BHL	BZ			EP		2328	45.26								
DQRL	SZ			EP		2328	48.72								
QRWL	SZ			EP		2328	50.25								
RCY	SZ			EP		2328	49.90								
SHBL	BZ			EP		2328	51.88								

December 3 2015 Hour: 7:45 39.8 Lat: 33.79N Lon: 35.78E Depth: 9 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	52	EP		745	42.54	-0.01							1.0
BHL	BZ	17	318	EP		745	43.11	-0.03	30						1.0
DQRL	SZ	21	244	EP		745	43.77	0.05							1.0
DQRL	SN	21	244	ES		745	46.60	0.01							1.0
QRWL	SZ	28	199	EP		745	44.65	-0.07							1.0
RCY	SZ	33	171	EP		745	45.46	0.00							1.0
RCY	SN	33	171	ES		745	49.63	0.03							1.0
HWQ	SZ	56	16	EP		745	49.15	0.03							1.0

December 3 2015 Hour: 15:20 8.8 Lat: 33.79N Lon: 35.79E Depth: 11 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	51	EP		1520	11.58	0.01							1.0
BHL	BZ	17	316	EP		1520	12.22	-0.01	33						1.0
DQRL	SZ	22	244	EP		1520	12.92	0.05							1.0
DQRL	SN	22	244	ES		1520	15.88	-0.02							1.0
RCY	SZ	33	172	EP		1520	14.46	-0.04							1.0
RCY	SN	33	172	ES		1520	18.75	0.02							1.0
HWQ	SZ	56	15	EP		1520	18.02	-0.00							1.0

December 4 2015 Hour: 0:0 39.5 Lat: 33.81N Lon: 35.82E Depth: 19 Agency: REL Local  
Magnitudes: 2.4MC REL Rms: 0.0 secs

ZAHLE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	8	51	EP		0	0	43.02	0.06	27					1.0
ZAHL	SN	8	51	ES		0	0	45.50	-0.04						1.0
BHL	BZ	18	303	EP		0	0	43.80	0.00						1.0
DQRL	SZ	26	243	EP		0	0	44.62	-0.06						1.0
DQRL	SN	26	243	ES		0	0	48.58	0.04						1.0

December 4 2015 Hour: 8:0 6.3 Lat: 33.87N Lon: 35.84E Depth: 0 Agency: REL Local  
Magnitudes: 3.0MC REL Rms: 0.0 secs

ZAHLE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	4	109	EP		8	0	7.00	-0.02						1.0
BHL	BZ	18	282	EP		8	0	9.17	-0.04	58					1.0
BHL	BE	18	282	ES		8	0	11.37	0.02						1.0
DQRL	SZ	31	234	EP		8	0	11.37	0.02						1.0
DQRL	SN	31	234	ES		8	0	15.08	0.01						1.0
QRWL	SZ	39	203	EP		8	0	12.52	-0.05						1.0
QRWL	SN	39	203	ES		8	0	17.17	-0.02						1.0
RCY	SZ	41	181	EP		8	0	13.08	0.07						1.0
HWQ	SZ	46	12	EP		8	0	13.79	0.01						1.0

**December 4 2015 Hour: 15:05.9 Lat: 33.81N Lon: 35.78E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.0 secs**

**ZAHLE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	11	63	EP		15	0	54.10	-0.02						1.0
BHL	BZ	15	312	EP		15	0	54.51	0.01	33					1.0
BHL	BE	15	312	ES		15	0	57.20	0.02						1.0
DQRL	SZ	23	239	EP		15	0	55.32	-0.03						1.0
RCY	SZ	35	171	EP		15	0	57.16	0.02						1.0
RCY	SN	35	171	ES		15	1	1.78	0.01						1.0
HWQ	SZ	54	17	EP		15	0	59.90	0.05						0.2

**December 4 2015 Hour: 15:6 4.0 Lat: 33.79N Lon: 35.78E Depth: 7 Agency: REL Local**  
**Magnitudes: 2.3MC REL Rms: 0.0 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	317	EP		15	6	6.99	-0.06	24					1.0
BHL	BN	17	317	ES		15	6	9.30	0.03						1.0
DQRL	SZ	21	242	EP		15	6	7.77	0.01						1.0
RCY	SZ	34	170	EP		15	6	9.69	0.04						1.0
RCY	SE	34	170	ES		15	6	13.78	-0.02						1.0
HWQ	SZ	56	16	EP		15	6	13.18	0.01						1.0

**December 4 2015 Hour: 15:22 11.5 Lat: 33.79N Lon: 35.76E Depth: 8 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.1 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	55	EP		1522	14.11	-0.04							1.0
BHL	BZ	17	322	EP		1522	14.42	-0.10	27						1.0
BHL	BE	17	322	ES		1522	16.81	0.05							1.0
DQRL	SZ	20	243	EP		1522	15.08	0.02							1.0
RCY	SZ	33	168	EP		1522	16.95	-0.07							1.0
RCY	SN	33	168	ES		1522	21.18	0.06							1.0
HWQ	SZ	57	17	EP		1522	20.87	0.08							1.0

**December 5 2015 Hour: 10:29 1.2 Lat: 33.47N Lon: 35.69E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.6MC 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	355	EP		1029	2.45	-0.06							1.0
RCY	SZ	14	79	EP		1029	3.41	0.02	33						1.0
SHBL	BZ	15	160	EP		1029	3.49	-0.05							1.0
SHBL	BN	15	160	ES		1029	5.33	0.03							1.0
DQRL	SZ	28	337	EP		1029	5.76	0.06							1.0
DQRL	SN	28	337	ES		1029	9.07	0.01							1.0

**December 5 2015 Hour: 13:15 16.9 Lat: 34.03N Lon: 35.68E Depth: 11 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**KESROUAN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	14	189	EP		1315	19.90	-0.04	28						1.0
BHL	BN	14	189	ES		1315	22.18	0.01							1.0
HWQ	SZ	37	42	EP		1315	23.20	-0.02							1.0
HWQ	SN	37	42	ES		1315	27.90	0.02							1.0
DQRL	SZ	37	195	EP		1315	23.29	0.04							1.0
RCY	SZ	61	166	EP		1315	26.95	-0.01							1.0

**December 6 2015 Hour: 11:29 27.5 Lat: 33.42N Lon: 35.63E Depth: 3 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	14	128	EP		1129	29.80	0.00							1.0
SHBL	BN	14	128	ES		1129	31.52	0.01							1.0
QRWL	SZ	15	20	EP		1129	29.97	0.00							1.0
RCY	SZ	21	67	EP		1129	30.92	-0.03	30						1.0
DQRL	SZ	32	350	EP		1129	32.63	-0.05							1.0
DQRL	SN	32	350	ES		1129	36.53	0.01							1.0
BHL	BZ	54	2	EP		1129	36.20	0.06							1.0

**December 6 2015 Hour: 11:53 28.4 Lat: 33.53N Lon: 35.71E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.1 secs**

**RACHAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	3	300	EP		1153	28.78	-0.11							1.0
RCY	SZ	13	110	EP		1153	30.33	-0.14							1.0
RCY	SN	13	110	ES		1153	32.00	0.02							1.0
SHBL	BZ	21	171	EP		1153	31.90	0.09							1.0
DQRL	SZ	23	326	EP		1153	32.16	0.06	50						1.0
DQRL	SN	23	326	ES		1153	34.78	-0.05							1.0
BHL	BZ	41	353	EP		1153	35.20	0.13							1.0

**December 6 2015 Hour: 15:0 43.1 Lat: 33.80N Lon: 35.78E Depth: 13 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**ZAHLE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	55	EP		15 0	46.06	-0.01							1.0
BHL	BZ	17	315	EP		15 0	46.58	-0.01	39						1.0
DQRL	SZ	22	242	EP		15 0	47.28	0.00							1.0
DQRL	SN	22	242	ES		15 0	50.41	0.00							1.0
RCY	SZ	34	171	EP		15 0	48.97	-0.02							1.0
RCY	SN	34	171	ES		15 0	53.41	0.03							1.0
HWQ	SZ	56	16	EP		15 0	52.31	0.05							0.2

**December 6 2015 Hour: 17:9 28.2**

**Agency: REL Distant**

**EMSC OT=17:09:28.2 18.17S 178.67W 545Km M=5.5 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1728	5.95								
RCY	SZ			EP		1728	7.03								
BHL	BZ			EP		1728	6.69								
SHBL	BZ			EP		1728	7.43								
DQRL	SZ			EP		1728	8.04								

**December 6 2015 Hour: 23:34 16.0**

**Agency: REL Regional**

**EMSC OT=23:34:16.0 35.66N 29.49E 30Km M=3.7 EASTERN MEDITERRANEAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ			EP		2335	32.14								
BHL	BZ			EP		2335	32.64								
DQRL	SZ			EP		2335	33.18								
HWQ	SZ			EP		2335	35.49								
ZAHL	SZ			EP		2335	36.33								
RCY	SZ			EP		2335	37.95								
SHBL	BZ			EP		2335	38.31								

**December 7 2015 Hour: 7:50 7.2**

**Agency: REL Distant**

**EMSC OT=07:50:07.2 38.18N 72.91E 30Km M=7.2 TAJIKISTAN**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		756	15.01								
BHL	BZ			EP		756	16.92								
RCY	SZ			EP		756	17.45								
QRWL	SZ			EP		756	18.30								

DQRL SZ EP 756 18.62  
 SHBL BZ EP 756 18.52

**December 7 2015 Hour: 23:27 16.6**

**Agency: REL Regional**

**EMSC OT=23:27:16.6 39.28N 40.23E 5Km M=4.3 EASTERN TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		2328	49.79								
BHL	BZ			EP		2328	56.47								
SHBL	BZ			EP		2329	3.15								

**December 8 2015 Hour: 16:15 13.6 Lat: 33.79N Lon: 35.78E Depth: 11**

**Agency: REL Local**

**Magnitudes: 2.6MC REL**

**Rms: 0.0 secs**

**ZAHLE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	54	EP		1615	16.42	0.00							1.0
BHL	BZ	17	317	EP		1615	16.95	-0.01	32						1.0
DQRL	SZ	22	243	EP		1615	17.59	-0.02							1.0
DQRL	SN	22	243	ES		1615	20.60	0.01							1.0
RCY	SZ	33	171	EP		1615	19.32	-0.03							1.0
SHBL	BZ	50	184	EP		1615	21.85	0.02							1.0
SHBL	BN	50	184	ES		1615	27.95	0.01							1.0
HWQ	SZ	56	16	EP		1615	22.83	0.01							1.0

**December 9 2015 Hour: 9:3 34.1**

**Agency: REL Regional**

**EMSC OT=09:03:34.1 38.83N 37.84E 17Km M=4.5 CENTRAL TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		9 4	50.70								
BHL	BZ			EP		9 4	57.05								
DQRL	SZ			EP		9 5	0.74								
RCY	SZ			EP		9 5	2.21								

**December 9 2015 Hour: 10:32 15.6 Lat: 34.39N Lon: 36.76E Depth: 3**

**Agency: REL Local**

**Magnitudes: 3.1MC 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	76	260	EP		1032	27.91	-0.01	65						1.0
HWQ	SN	76	260	ES		1032	37.01	-0.03							1.0
BHL	BZ	116	242	EP		1032	34.36	0.06							1.0
RCY	SZ	131	221	EP		1032	36.58	-0.09							1.0
DQRL	SZ	134	236	EP		1032	37.09	0.05							1.0
DQRL	SE	134	236	ES		1032	52.92	0.02							1.0

**December 9 2015 Hour: 10:21 47.9**

**Agency: REL Distant**

**EMSC OT=10:21:47.9 4.07S 129.58E 16Km M=6.8 BANDA SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1035	9.11								
SHBL	BZ			EP		1035	10.17								

**December 9 2015 Hour: 13:32 55.4**

**Agency: REL Distant**

**EMSC OT=13:32:55.4 15.26S 177.72W 400Km M=5.4 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1351	44.48								
BHL	BZ			EP		1351	46.09								
SHBL	BZ			EP		1351	46.77								
DQRL	SZ			EP		1351	46.77								

**December 9 2015 Hour: 23:33 9.6**

**Agency: REL Regional**

**EMSC OT=23:33:09.6 35.65N 31.36E 10Km M=3.8 CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2334	12.96								
DQRL	SZ			EP		2334	12.21								
HWQ	SZ			EP		2334	14.27								
SHBL	BZ			EP		2334	17.01								
RCY	SZ			EP		2334	16.34								



December 10 2015 Hour: 11:04 45.4 Lat: 33.88N Lon: 36.12E Depth: 25 Agency: REL Local  
Magnitudes: 2.9MC 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	44	273	EP		11 0	53.30	-0.02							1.0
HWQ	SZ	47	340	EP		11 0	53.78	0.01							1.0
RCY	SZ	50	212	EP		11 0	54.25	-0.03	47						1.0
RCY	SN	50	212	ES		11 1	0.83	0.01							1.0
DQRL	SZ	55	249	EP		11 0	54.88	0.03							1.0
DQRL	SN	55	249	ES		11 1	1.80	-0.01							1.0

December 10 2015 Hour: 15:59 15.4 Lat: 33.79N Lon: 35.78E Depth: 9 Agency: REL Local  
Magnitudes: 2.3MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	318	EP		1559	18.63	-0.02	22						1.0
DQRL	SZ	22	245	EP		1559	19.25	0.00							1.0
DQRL	SN	22	245	ES		1559	22.11	0.01							1.0
RCY	SZ	33	171	EP		1559	20.93	-0.02							1.0
RCY	SN	33	171	ES		1559	25.07	0.01							1.0
HWQ	SZ	56	16	EP		1559	24.67	0.02							1.0

December 11 2015 Hour: 18:54 25.5 Agency: REL Regional

EMSC OT=18:54:25.5 35.09N 33.15E 20Km M=3.6 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1855	4.87								
DQRL	SZ			EP		1855	6.29								
HWQ	SZ			EP		1855	6.36								
RCY	SZ			EP		1855	9.64								
SHBL	BZ			EP		1855	10.57								

December 12 2015 Hour: 14:26 57.7 Lat: 33.34N Lon: 35.38E Depth: 6 Agency: REL Local  
Magnitudes: 2.9MC REL Rms: 0.0 secs

NABATIYE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	44	24	EP		1427	4.93	0.04							1.0
DQRL	SE	44	24	ES		1427	10.20	-0.01							1.0
RCY	SZ	46	68	EP		1427	5.15	-0.01	53						1.0
RCY	SE	46	68	ES		1427	10.69	0.01							1.0
BHL	BZ	67	22	EP		1427	8.58	-0.04							1.0
HWQ	SZ	116	27	EP		1427	16.33	0.00							1.0

December 13 2015 Hour: 1:52 17.7 Agency: REL Distant

EMSC OT=01:52:17.7 46.68N 152.66E 60Km M=5.4 KURIL ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2 4	30.11								
DQRL	SZ			EP		2 4	31.66								
RCY	SZ			EP		2 4	31.77								

December 13 2015 Hour: 9:38 49.3 Lat: 33.42N Lon: 35.67E Depth: 0 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.0 secs

HASBAYA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	140	EP		938	51.04	0.01							1.0
QRWL	SZ	14	5	EP		938	51.50	-0.04							1.0
RCY	SZ	18	62	EP		938	52.12	0.01	39						1.0
RCY	SE	18	62	ES		938	54.21	-0.00							1.0
DQRL	SZ	33	344	EP		938	54.55	-0.02							1.0
DQRL	SE	33	344	ES		938	58.52	0.03							1.0
BHL	BZ	54	358	EP		938	57.92	0.01							1.0

December 13 2015 Hour: 11:32 36.9 Lat: 33.78N Lon: 35.78E Depth: 5 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.0 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	50	EP		1132	39.28	-0.02							1.0
BHL	BZ	18	321	EP		1132	39.94	-0.01	40						1.0
DQRL	SZ	21	247	EP		1132	40.42	0.01							1.0
DQRL	SN	21	247	ES		1132	43.00	-0.00							1.0
RCY	SZ	32	170	EP		1132	42.09	-0.09							1.0
RCY	SE	32	170	ES		1132	46.14	0.06							1.0
HWQ	SZ	57	16	EP		1132	46.26	0.04							1.0

December 14 2015 Hour: 12:9 52.6 Lat: 33.43N Lon: 35.67E Depth: 7 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.0 secs

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	143	EP		12 9	54.91	-0.01							1.0
SHBL	BN	11	143	ES		12 9	56.64	0.01							1.0
QRWL	SZ	13	5	EP		12 9	55.11	-0.01							1.0
RCY	SZ	17	64	EP		12 9	55.71	0.00	30						1.0
RCY	SN	17	64	ES		12 9	58.00	-0.01							1.0
DQRL	SZ	32	343	EP		12 9	57.95	0.01							1.0

December 14 2015 Hour: 13:44 37.9 Lat: 33.80N Lon: 35.47E Depth: 6 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.0 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	9	17	EP		1344	39.70	0.03							1.0
DQRL	SZ	14	136	EP		1344	40.43	-0.04	43						1.0
DQRL	SE	14	136	ES		1344	42.36	0.00							1.0
BHL	BZ	21	56	EP		1344	41.52	-0.02							1.0
RCY	SZ	48	134	EP		1344	45.74	0.01							1.0
RCY	SN	48	134	ES		1344	51.53	0.02							1.0

December 15 2015 Hour: 11:6 37.5 Lat: 33.47N Lon: 35.68E Depth: 0 Agency: REL Local  
Magnitudes: 2.6MC 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	0	EP		11 6	38.82	-0.06							1.0
RCY	SZ	15	79	EP		11 6	39.86	-0.00	36						1.0
RCY	SN	15	79	ES		11 6	41.63	0.02							1.0
SHBL	BZ	15	157	EP		11 6	39.87	-0.03							1.0
SHBL	BN	15	157	ES		11 6	41.69	0.02							1.0
DQRL	SZ	28	338	EP		11 6	42.07	0.05							1.0

December 15 2015 Hour: 13:36 9.7 Lat: 33.79N Lon: 35.46E Depth: 5 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.1 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	10	22	EP		1336	11.49	0.02							1.0
DQRL	SZ	14	131	EP		1336	12.10	-0.09	40						1.0
DQRL	SE	14	131	ES		1336	14.11	0.06							1.0
BHL	BZ	22	56	EP		1336	13.33	-0.09							1.0
RCY	SZ	48	133	EP		1336	17.55	0.05							1.0
RCY	SN	48	133	ES		1336	23.28	-0.02							1.0
HWQ	SZ	71	40	EP		1336	21.18	0.07							1.0

December 15 2015 Hour: 23:55 29.2 Lat: 33.78N Lon: 35.79E Depth: 1 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	46	EP		2355	31.17	-0.05							1.0
ZAHL	SN	12	46	ES		2355	32.71	0.02							1.0
BHL	BZ	19	316	EP		2355	32.10	-0.17	44						1.0
BHL	BN	19	316	ES		2355	34.61	0.09							1.0
DQRL	SZ	22	248	EP		2355	32.88	0.01							1.0
RCY	SZ	32	173	EP		2355	34.41	-0.00							1.0
RCY	SN	32	173	ES		2355	38.25	-0.00							1.0
SHBL	BZ	48	185	EP		2355	37.08	0.03							1.0
HWQ	SZ	57	14	EP		2355	38.46	0.07							1.0

December 16 2015 Hour: 15:34 2.9 Lat: 33.79N Lon: 35.76E Depth: 10 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	323	EP		1534	6.12	-0.03	35						1.0
DQRL	SZ	20	242	EP		1534	6.65	-0.01							1.0
DQRL	SN	20	242	ES		1534	9.44	0.02							1.0
RCY	SZ	33	168	EP		1534	8.66	-0.00							1.0
SHBL	BZ	49	182	EP		1534	11.08	-0.00							1.0
SHBL	BN	49	182	ES		1534	17.11	-0.00							1.0
HWQ	SZ	57	18	EP		1534	12.33	0.02							1.0

December 17 2015 Hour: 13:53 13.8 Lat: 33.88N Lon: 35.84E Depth: 0 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

**ZAHLE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	4	116	EP		1353	14.46	-0.10							1.0
ZAHL	SN	4	116	ES		1353	15.13	0.01							1.0
BHL	BZ	18	280	EP		1353	16.58	-0.08	44						1.0
BHL	BN	18	280	ES		1353	18.80	0.04							1.0
DQRL	SZ	31	233	EP		1353	18.83	-0.05							1.0
RCY	SZ	42	181	EP		1353	20.65	0.06							1.0
RCY	SN	42	181	ES		1353	25.66	0.04							1.0
HWQ	SZ	46	12	EP		1353	21.25	0.07							1.0

December 18 2015 Hour: 1:20 14.1 Lat: 33.87N Lon: 36.08E Depth: 10 Agency: REL Local  
Magnitudes: 3.2MC REL Rms: 0.2 secs

**Earthquake was felt**

**BAALBECK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	18	265	EP		120	17.62	0.09							1.0
ZAHL	SN	18	265	ES		120	20.10	0.03							1.0
BHL	BZ	39	275	EP		120	20.43	-0.25							1.0
BHL	BE	39	275	ES		120	25.59	0.04							1.0
HWQ	SZ	47	345	EP		120	21.87	0.01							1.0
HWQ	SE	47	345	ES		120	27.61	0.01							1.0
RCY	SZ	47	208	EP		120	21.87	-0.09							1.0
RCY	SN	47	208	ES		120	27.76	-0.00							1.0
DQRL	SZ	50	249	EP		120	22.57	0.15	82						1.0
DQRL	SE	50	249	ES		120	28.53	-0.04							1.0
BEYL	SZ	54	270	EP		120	22.79	-0.16							0.2

December 18 2015 Hour: 8:51 33.7 Lat: 33.78N Lon: 35.77E Depth: 5 Agency: REL Local  
Magnitudes: 2.4MC REL Rms: 0.0 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	322	EP		851	36.73	-0.04	26						1.0
BHL	BN	18	322	ES		851	39.01	0.00							1.0
DQRL	SZ	20	246	EP		851	37.21	0.03							1.0

RCY	SZ	32	169	EP		851	38.96	-0.05									1.0
RCY	SN	32	169	ES		851	42.94	0.03									1.0
HWQ	SZ	58	16	EP		851	43.13	0.03									1.0

**December 18 2015 Hour: 15:20 3.8 Lat: 33.37N Lon: 35.68E Depth: 17 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	7	112	EP		1520	6.97	0.03							1.0
RCY	SZ	20	47	EP		1520	8.10	-0.05	39						1.0
RCY	SN	20	47	ES		1520	11.40	0.01							1.0
DQRL	SZ	38	345	EP		1520	10.43	-0.07							1.0
DQRL	SN	38	345	ES		1520	15.48	0.01							1.0
BHL	BZ	59	358	EP		1520	13.57	0.07							1.0

**December 19 2015 Hour: 8:3 3.8 Lat: 33.83N Lon: 35.74E Depth: 32 Agency: REL Local**  
**Magnitudes: 2.6MC 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	11	318	EP		8 3	9.30	0.06	35						1.0
DQRL	SZ	21	228	EP		8 3	9.83	-0.01							1.0
DQRL	SN	21	228	ES		8 3	14.28	-0.02							1.0
RCY	SZ	38	166	EP		8 3	11.64	0.01							1.0
RCY	SN	38	166	ES		8 3	17.40	-0.00							1.0
HWQ	SZ	53	21	EP		8 3	13.45	-0.03							1.0

**December 19 2015 Hour: 14:43 52.6 Lat: 33.80N Lon: 35.76E Depth: 13 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.1 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	60	EP		1443	55.64	-0.11							1.0
ZAHL	SE	13	60	ES		1443	58.13	0.06							1.0
BHL	BZ	16	319	EP		1443	56.01	-0.00	32						1.0
DQRL	SZ	21	240	EP		1443	56.78	0.10							1.0
DQRL	SN	21	240	ES		1443	59.63	-0.06							1.0
HWQ	SZ	56	17	EP		1444	1.86	0.00							1.0

**December 20 2015 Hour: 1:43 19.2 Agency: REL Regional**  
**EMSC OT=01:43:19.2 34.46N 33.24E 15Km M=3.6 CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		143	58.41								
DQRL	SZ			EP		143	54.54								

**December 20 2015 Hour: 6:36 35.7 Lat: 33.41N Lon: 35.66E Depth: 2 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.0 secs**

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	130	EP		636	37.53	0.01							1.0
RCY	SZ	19	60	EP		636	38.83	-0.03	36						1.0
RCY	SN	19	60	ES		636	41.20	0.01							1.0
DQRL	SZ	34	346	EP		636	41.18	0.01							1.0
DQRL	SN	34	346	ES		636	45.21	-0.01							1.0
BHL	BZ	55	360	EP		636	44.55	-0.01							0.2
HWQ	SZ	100	15	EP		636	52.05	0.22							0.2

**December 20 2015 Hour: 9:38 49.1 Lat: 33.01N Lon: 35.42E Depth: 5 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.0 secs**

**DEAD SEA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	64	23	EP		938	59.56	0.01							1.0
QRWL	SN	64	23	ES		939	7.28	0.01							1.0
RCY	SZ	66	36	EP		938	59.94	0.05	32						1.0
RCY	SN	66	36	ES		939	7.83	-0.04							1.0
DQRL	SZ	78	11	EP		939	1.74	-0.04							1.0

DQRL	SN	78	11	ES	939	11.17	0.02									1.0
BHL	BZ	101	13	EP	939	5.48	-0.02									1.0
HWQ	SZ	149	19	EP	939	12.55	0.00									1.0

**December 20 2015 Hour: 12:13 31.2 Lat: 33.45N Lon: 35.62E Depth: 5 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	27	EP		1213	33.31	-0.12		27					1.0
SHBL	BZ	16	135	EP		1213	34.03	0.02							1.0
RCY	SZ	20	75	EP		1213	34.61	-0.07							1.0
RCY	SN	20	75	ES		1213	37.34	0.07							1.0
DQRL	SZ	29	350	EP		1213	36.07	0.11							1.0
DQRL	SN	29	350	ES		1213	39.50	0.01							1.0
BHL	BZ	51	3	EP		1213	39.36	-0.04							1.0

**December 20 2015 Hour: 13:24 25.0 Lat: 33.43N Lon: 35.67E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.0MC 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	143	EP		1324	26.91	0.04							1.0
QRWL	SZ	13	5	EP		1324	27.05	-0.10							1.0
RCY	SZ	17	64	EP		1324	27.71	-0.07							1.0
RCY	SN	17	64	ES		1324	29.85	0.02							1.0
DQRL	SZ	32	343	EP		1324	30.12	-0.06		63					1.0
DQRL	SN	32	343	ES		1324	34.05	0.05							1.0
ZAHL	SZ	52	23	EP		1324	33.32	-0.01							1.0
BEYL	SZ	52	342	EP		*1324	32.19	-1.17							0.0
BHL	BZ	53	358	EP		1324	33.56	0.04							1.0
HWQ	SZ	98	15	EP		1324	40.84	0.09							1.0

**December 20 2015 Hour: 18:47 36.0 Agency: REL Distant**  
**EMSC OT=18:47:36.0 3.68N 117.69E 10Km M=6.1 KALIMANTAN, INDONESIA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1859	53.69								
SHBL	BZ			EP		1859	53.69								

**December 22 2015 Hour: 10:10 8.0 Lat: 33.48N Lon: 35.67E Depth: 8 Agency: REL Local**  
**Magnitudes: 2.7MC 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	8	EP		1010	9.92	-0.08							1.0
RCY	SZ	16	82	EP		1010	10.94	-0.03		39					1.0
RCY	SN	16	82	ES		1010	13.22	0.04							1.0
SHBL	BZ	16	155	EP		1010	11.06	0.04							1.0
SHBL	BN	16	155	ES		1010	13.25	-0.02							1.0
DQRL	SZ	27	340	EP		1010	12.66	0.05							1.0
DQRL	SN	27	340	ES		1010	16.06	0.02							1.0
BHL	BZ	47	358	EP		1010	15.76	-0.02							0.2
HWQ	SZ	92	16	EP		1010	22.61	-0.30							0.2

**December 22 2015 Hour: 14:41 21.7 Lat: 33.80N Lon: 35.77E Depth: 14 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	60	EP		1441	24.89	-0.03							1.0
ZAHL	SN	13	60	ES		1441	27.33	0.03							1.0
BHL	BZ	16	317	EP		1441	25.19	-0.02		39					1.0
DQRL	SZ	21	240	EP		1441	25.93	0.03							1.0
DQRL	SN	21	240	ES		1441	29.01	-0.01							1.0
RCY	SZ	34	169	EP		1441	27.73	-0.06							1.0
SHBL	BZ	50	183	EP		1441	30.17	0.05							1.0
HWQ	SZ	55	17	EP		1441	31.01	0.16							0.2

**December 22 2015 Hour: 15:30 1.9 Lat: 33.79N Lon: 35.76E Depth: 11 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.0 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	58	EP		1530	4.76	-0.02							1.0
ZAHL	SN	13	58	ES		1530	6.96	0.01							1.0
BHL	BZ	16	320	EP		1530	5.09	-0.00	37						1.0
DQRL	SZ	21	241	EP		1530	5.73	0.01							1.0
DQRL	SN	21	241	ES		1530	8.59	-0.00							1.0
RCY	SZ	34	169	EP		1530	7.69	0.02							1.0
RCY	SE	34	169	ES		1530	11.97	-0.01							1.0
HWQ	SZ	56	17	EP		1530	11.12	0.00							0.2

**December 22 2015 Hour: 15:55 0.7 Lat: 33.42N Lon: 35.67E Depth: 1 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.0 secs**

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	137	EP		1555	2.51	0.03							1.0
SHBL	BN	11	137	ES		1555	3.79	0.02							1.0
RCY	SZ	18	61	EP		1555	3.55	-0.09							1.0
RCY	SN	18	61	ES		1555	5.78	-0.01							1.0
DQRL	SZ	33	344	EP		1555	6.04	-0.03	48						1.0
DQRL	SN	33	344	ES		1555	10.02	-0.01							1.0
BHL	BZ	54	359	EP		1555	9.41	-0.01							1.0
HWQ	SZ	99	15	EP		1555	16.69	0.03							1.0
HWQ	SN	99	15	ES		1555	28.51	0.06							1.0

**December 23 2015 Hour: 14:43 43.8 Lat: 33.43N Lon: 35.69E Depth: 9 Agency: REL Local**  
**Magnitudes: 2.9MC 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	10	150	EP		1443	46.15	-0.07							1.0
SHBL	BN	10	150	ES		1443	48.03	0.02							1.0
RCY	SZ	16	61	EP		1443	46.90	0.03	53						1.0
RCY	SN	16	61	ES		1443	49.14	0.00							1.0
DQRL	SZ	33	340	EP		1443	49.35	0.01							1.0
DQRL	SN	33	340	ES		1443	53.44	-0.00							1.0
BHL	BZ	53	356	EP		1443	52.48	-0.02							1.0
BHL	BN	53	356	ES		1443	58.94	0.00							1.0
HWQ	SZ	97	14	EP		1443	59.39	-0.00							1.0

**December 23 2015 Hour: 23:59 7.3 Lat: 33.79N Lon: 35.79E Depth: 4 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.0 secs**

**ZAHLE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	52	EP		2359	9.45	0.02							1.0
ZAHL	SE	12	52	ES		2359	10.99	-0.01							1.0
BHL	BZ	17	315	EP		2359	10.25	-0.01	33						1.0
BHL	BE	17	315	ES		2359	12.46	0.02							1.0
DQRL	SZ	22	244	EP		2359	11.00	-0.02							1.0
HWQ	SZ	56	15	EP		2359	16.42	0.05							1.0
HWQ	SN	56	15	ES		2359	23.02	-0.04							1.0

**December 24 2015 Hour: 10:43 53.7 Lat: 33.47N Lon: 35.68E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.8MC 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	3	EP		1043	55.00	-0.04							1.0
RCY	SZ	15	80	EP		1043	56.13	0.02	48						1.0
RCY	SN	15	80	ES		1043	57.89	-0.01							1.0
SHBL	BZ	15	156	EP		1043	56.17	0.00							1.0
SHBL	BN	15	156	ES		1043	57.99	-0.00							1.0
DQRL	SZ	28	339	EP		1043	58.28	0.12							0.2

DQRL	SN	28	339	ES		1044	1.72	0.26										0.2
HWQ	SZ	93	15	EP		1044	8.73	0.09										0.2

**December 25 2015 Hour: 2:24 35.1**

**Agency: REL Regional**

**EMSC OT=02:24:35.1 34.66N 25.47E 51Km M=4.6 CRETE, GREECE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		226	31.22								
BHL	BZ			EP		226	31.27								
RCY	SZ			EP		226	35.03								
ZAHL	SZ			EP		226	35.09								
HWQ	SZ			EP		226	35.55								

**December 25 2015 Hour: 10:23 13.4 Lat: 33.47N Lon: 35.69E Depth: 4**

**Agency: REL Local**

**Magnitudes: 2.7MC 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	357	EP		1023	14.88	-0.11							1.0
RCY	SZ	14	79	EP		1023	15.90	0.04	38						1.0
RCY	SN	14	79	ES		1023	17.70	0.01							1.0
SHBL	BZ	15	159	EP		1023	15.97	-0.00							1.0
SHBL	BN	15	159	ES		1023	17.90	0.01							1.0
DQRL	SZ	28	337	EP		1023	18.01	0.02							1.0
DQRL	SN	28	337	ES		1023	21.49	0.10							1.0
BHL	BZ	48	356	EP		1023	21.09	-0.07							1.0

**December 25 2015 Hour: 19:14 47.5**

**Agency: REL Distant**

**EMSC OT=19:14:47.5 36.54N 71.29E 212Km M=6.3 HINDU KUSH REGION, AFGHANISTAN**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1920	26.56								
ZAHL	SZ			EP		1920	28.19								
RCY	SZ			EP		1920	29.25								
BHL	BZ			EP		1920	29.38								
SHBL	BZ			EP		1920	30.22								
DQRL	SZ			EP		1920	30.66								

**December 26 2015 Hour: 4:51 48.2**

**Agency: REL Regional**

**EMSC OT=04:51:48.2 35.58N 31.32E 5Km M=4.1 CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		452	47.78								
HWQ	SZ			EP		452	50.22								
SHBL	BZ			EP		452	52.83								
RCY	SZ			EP		452	52.41								

**December 26 2015 Hour: 11:0 52.4**

**Agency: REL Regional**

**EMSC OT=11:00:52.4 35.39N 27.43E 44Km M=5.1 DODECANESE ISLANDS, GREECE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		11	2	28.97							
BHL	BZ			EP		11	2	28.29							
HWQ	BZ			EP		11	2	31.66							
ZAHL	SZ			EP		11	2	32.75							
SHBL	BZ			EP		11	2	32.44							
RCY	SZ			EP		11	2	32.75							

**December 26 2015 Hour: 14:52 37.1 Lat: 33.41N Lon: 35.66E Depth: 5**

**Agency: REL Local**

**Magnitudes: 2.8MC REL**

**Rms: 0.0 secs**

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	133	EP		1452	39.14	0.02							1.0
RCY	SZ	19	60	EP		1452	40.25	-0.05	47						1.0
RCY	SE	19	60	ES		1452	42.67	0.00							1.0
DQRL	SZ	34	345	EP		1452	42.54	-0.05							1.0
DQRL	SE	34	345	ES		1452	46.68	0.02							1.0
BHL	BZ	54	359	EP		1452	45.92	-0.01							1.0
HWQ	SZ	100	15	EP		1452	53.23	0.06							1.0



**December 27 2015 Hour: 22:51 45.8 Lat: 34.96N Lon: 36.34E Depth: 2 Agency: REL Local**  
**Magnitudes: 3.2MC 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	83	205	EP		2251	59.19	-0.04	70						1.0
HWQ	SN	83	205	ES		2252	9.18	-0.02							1.0
ZAHL	SZ	129	199	EP		2252	6.54	0.07							1.0
ZAHL	SN	129	199	ES		2252	21.83	0.04							1.0
BHL	BZ	133	208	EP		2252	7.11	0.10							1.0
BHL	BN	133	208	ES		2252	22.70	-0.03							1.0
DQRL	SZ	156	207	EP		2252	10.42	0.01							1.0
RCY	SZ	168	196	EP		2252	12.34	0.02							1.0
RCY	SN	168	196	ES		2252	31.96	-0.00							1.0
SHBL	BZ	187	197	EP		2252	14.72	-0.14							1.0

**December 28 2015 Hour: 11: 8 32.5 Lat: 33.46N Lon: 35.66E Depth: 0 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	10	10	EP		11 8	34.00	-0.08	27						1.0
SHBL	BZ	14	149	EP		11 8	34.82	0.03							1.0
SHBL	BN	14	149	ES		11 8	36.48	-0.03							1.0
RCY	SZ	17	75	EP		11 8	35.19	0.05							1.0
RCY	SN	17	75	ES		11 8	37.12	-0.00							1.0
DQRL	SZ	29	343	EP		11 8	37.12	0.03							1.0

**December 28 2015 Hour: 11:50 44.2 Lat: 33.48N Lon: 35.68E Depth: 2 Agency: REL Local**  
**Magnitudes: 2.7MC 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		1150	45.56	-0.01							1.0
RCY	SZ	14	81	EP		1150	46.57	0.00	40						1.0
SHBL	BZ	15	159	EP		1150	46.71	-0.02							1.0
SHBL	BN	15	159	ES		1150	48.63	0.02							1.0
DQRL	SZ	28	337	EP		1150	48.68	0.02							1.0
DQRL	SN	28	337	ES		1150	51.97	-0.00							1.0

**December 28 2015 Hour: 14:53 52.5 Lat: 33.80N Lon: 35.77E Depth: 12 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.0 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	60	EP		1453	55.46	0.04							1.0
ZAHL	SN	13	60	ES		1453	57.61	-0.01							1.0
BHL	BZ	16	317	EP		1453	55.81	0.05	49						1.0
DQRL	SZ	21	240	EP		1453	56.49	-0.01							1.0
DQRL	SN	21	240	ES		1453	59.46	-0.03							1.0
RCY	SZ	34	170	EP		1453	58.41	-0.01							1.0
HWQ	SZ	55	17	EP		1454	1.58	-0.06							1.0

**December 28 2015 Hour: 15: 7 56.1 Lat: 33.96N Lon: 36.28E Depth: 13 Agency: REL Local**  
**Magnitudes: 2.9MC REL Rms: 0.1 secs**

**BAALBECK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	38	253	EP		15 8	2.57	-0.06							1.0
ZAHL	SN	38	253	ES		15 8	7.49	0.02							1.0
HWQ	SZ	47	319	EP		15 8	4.12	0.14	52						1.0
HWQ	SE	47	319	ES		15 8	9.78	-0.05							1.0
BHL	BZ	58	264	EP		15 8	5.48	-0.14							1.0
RCY	SZ	66	219	EP		15 8	6.77	0.00							1.0
DQRL	SZ	71	247	EP		15 8	7.60	0.03							1.0
DQRL	SN	71	247	ES		15 8	16.15	0.07							1.0



**December 29 2015 Hour: 15:33 2.8 Lat: 33.78N Lon: 35.76E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.1 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	15	53	EP		1533	5.17	-0.06							1.0
ZAHL	SN	15	53	ES		1533	7.00	-0.02							1.0
BHL	BZ	17	326	EP		1533	5.52	-0.03							1.0
DQRL	SZ	19	245	EP		1533	6.00	0.12	44						1.0
DQRL	SN	19	245	ES		1533	8.07	-0.08							1.0
RCY	SZ	32	167	EP		1533	7.98	0.00							1.0
HWQ	SZ	58	17	EP		1533	12.27	0.06							1.0

**December 29 2015 Hour: 15:41 55.8 Lat: 33.80N Lon: 35.77E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	60	EP		1541	59.16	0.01							1.0
ZAHL	SN	13	60	ES		1542	1.59	-0.01							1.0
BHL	BZ	16	317	EP		1541	59.44	0.00	28						1.0
DQRL	SZ	21	240	EP		1542	0.09	-0.02							1.0
DQRL	SN	21	240	ES		1542	3.27	0.01							1.0
RCY	SZ	34	169	EP		1542	1.95	0.00							1.0

**December 30 2015 Hour: 15:17 25.5 Lat: 33.78N Lon: 35.77E Depth: 5 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.1 secs**

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	52	EP		1517	27.99	0.01							1.0
ZAHL	SN	14	52	ES		1517	29.79	0.01							1.0
BHL	BZ	17	322	EP		1517	28.32	-0.13	37						1.0
DQRL	SZ	20	245	EP		1517	28.93	0.02							1.0
DQRL	SN	20	245	ES		1517	31.48	0.06							1.0
RCY	SZ	32	169	EP		1517	30.79	-0.05							1.0
HWQ	SZ	57	17	EP		1517	34.94	0.09							1.0

**December 31 2015 Hour: 7:30 27.9 Lat: 33.43N Lon: 35.68E Depth: 3 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.0 secs**

**HASBAYA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	11	147	EP		730	29.82	0.01							1.0
SHBL	BN	11	147	ES		730	31.22	-0.00							1.0
RCY	SZ	16	63	EP		730	30.60	-0.01	31						1.0
DQRL	SZ	32	341	EP		730	33.10	-0.03							1.0
DQRL	SN	32	341	ES		730	37.02	0.01							1.0
BHL	BZ	53	357	EP		730	36.42	0.02							1.0

**December 31 2015 Hour: 9:9 3.4 Lat: 34.25N Lon: 34.77E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.2 secs**

**OFFSHORE NORTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	90	115	EP		9 9	17.38	-0.24	38						1.0
BHL	BN	90	115	ES		9 9	27.99	-0.17							1.0
DQRL	SZ	95	129	EP		9 9	18.34	-0.04							1.0
HWQ	SZ	108	88	EP		9 9	20.54	0.21							1.0
RCY	SZ	129	130	EP		9 9	23.40	0.02							1.0
RCY	SE	129	130	ES		9 9	38.39	0.21							1.0

December 31 2015 Hour: 12:26 45.4 Lat: 33.71N Lon: 36.20E Depth: 26 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.3 secs

ZAHLE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	33	299	EP		1226	52.24	0.20	30						1.0
ZAHL	SN	33	299	ES		1226	57.00	0.04							1.0
BHL	BZ	55	293	EP		1226	54.97	0.16							1.0
DQRL	SZ	58	269	EP		1226	55.16	-0.15							1.0
DQRL	SE	58	269	ES		1227	2.45	-0.19							1.0
HWQ	SZ	67	340	EP		1226	55.56	-0.94							0.2

# Epicentral Map of Lebanon

## December 2015

