

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

November

2018

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
Z AHL	3351.48N	3553.12E	1211	ZAHLE	Opened Aug 2015
BEIL	3432.50N	3611.08E	572	BEINO	Opened Jan 2017

## 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 2 2018 Hour: 0:37 40.5 Lat: 33.82N Lon: 35.82E Depth: 16 Agency: REL Local  
Magnitudes: 2.7MC 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	7	56	EP		037	43.57	-0.02	38						1.0
BHL	BZ	18	301	EP		037	44.56	0.03							1.0
BHL	BN	18	301	ES		037	47.55	0.05							1.0
DQRL	SZ	27	241	EP		037	45.49	-0.10							1.0
QRWL	SZ	33	203	EP		037	46.39	-0.07							1.0
RCY	SZ	36	178	EP		037	46.91	-0.02							1.0
SHBL	SZ	53	188	EP		037	49.46	0.10							1.0
SHBL	SN	53	188	ES		037	55.95	0.04							1.0

November 2 2018 Hour: 11:6 2.3 Agency: REL Distant

EMSC OT=11:06:02.3 57.34N 33.08W 10Km M=5.3 REYKJANES RIDGE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1112	24.17								
HWQ	SZ			EP		1112	24.94								
BHL	BZ			EP		1112	27.86								
DQRL	SZ			EP		1112	29.29								
RCY	SZ			EP		1112	29.54								
QRWL	SZ			EP		1112	29.66								

November 2 2018 Hour: 15:21 55.5 Lat: 33.78N Lon: 35.77E Depth: 5 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	14	53	EP		1521	57.94	-0.01							1.0
BHL	BZ	17	321	EP		1521	58.38	-0.08	33						1.0
BHL	BN	17	321	ES		1522	0.65	0.04							1.0
DQRL	SZ	20	245	EP		1521	59.03	0.05							1.0
QRWL	SZ	28	197	EP		1522	0.01	-0.08							1.0
RCY	SZ	33	169	EP		1522	0.98	0.08							1.0
SHBL	SZ	49	183	EP		1522	3.45	0.02							1.0
SHBL	SN	49	183	ES		1522	9.25	-0.02							1.0
HWQ	SZ	57	17	EP		1522	4.83	0.02							1.0

November 3 2018 Hour: 10:59 57.8 Lat: 33.78N Lon: 35.76E Depth: 0 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	15	52	EP		11 0	0.15	-0.01							1.0
BHL	BZ	17	326	EP		11 0	0.51	-0.03	38						1.0
BHL	BN	17	326	ES		11 0	2.54	-0.05							1.0
DQRL	SZ	19	246	EP		11 0	0.93	0.07							1.0
QRWL	SZ	26	196	EP		11 0	2.03	0.01							1.0
RCY	SZ	32	167	EP		11 0	2.84	-0.07							1.0
RCY	SN	32	167	ES		11 0	6.73	0.01							1.0
HWQ	BZ	58	17	EP		11 0	7.25	0.08							1.0

November 3 2018 Hour: 17:35 24.7 Lat: 33.71N Lon: 35.05E Depth: 25 Agency: REL Local  
Magnitudes: 3.3MC REL Rms: 0.0 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	49	91	EP		1735	33.26	-0.05							1.0
DQRL	SN	49	91	ES		1735	39.58	-0.07							1.0
BHL	BZ	60	69	EP		1735	34.92	0.02	83						1.0
QRWL	SZ	62	107	EP		1735	35.09	-0.03							1.0
QRWL	SE	62	107	ES		1735	42.84	0.05							1.0
SHBL	SZ	76	122	EP		1735	37.21	-0.02							1.0
RCY	SZ	77	108	EP		1735	37.35	0.03							1.0
ZAHL	SZ	79	78	EP		1735	37.72	0.09							1.0
HWQ	BZ	104	53	EP		1735	41.22	0.01							1.0

BEIL SZ 140 49 EP 1735 45.78-0.04 1.0

November 3 2018 Hour: 17:42 51.9 Lat: 33.69N Lon: 35.07E Depth: 28 Agency: REL Local  
Magnitudes: 3.8MC REL Rms: 0.1 secs

**Earthquake was felt**  
**OFFSHORE CENTRAL LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	44	63	EP		1742	59.99	0.09							1.0
DQRL	SZ	47	88	EP		1743	0.28-0.03								1.0
DQRL	SN	47	88	ES		1743	6.65	0.08							1.0
BHL	BZ	59	67	EP		1743	1.83-0.15		171						1.0
QRWL	SZ	59	106	EP		1743	1.93-0.07								1.0
SHBL	SZ	74	121	EP		1743	4.08	0.05							1.0
SHBL	SN	74	121	ES		1743	12.93-0.11								1.0
RCY	SZ	75	107	EP		1743	4.29	0.12							1.0
ZAHL	SZ	78	76	EP		1743	4.73	0.11							1.0
HWQ	BZ	104	51	EP		1743	8.21-0.13								1.0
BEIL	SZ	139	47	EP		1743	12.75	0.03							1.0

November 3 2018 Hour: 18:1 56.4 Lat: 33.70N Lon: 35.05E Depth: 19 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

**OFFSHORE CENTRAL LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	49	89	EP		18 2	4.79	0.09	41						1.0
DQRL	SN	49	89	ES		18 2	10.82-0.00								1.0
BHL	BZ	61	68	EP		18 2	6.34-0.08								1.0
QRWL	SZ	62	106	EP		18 2	6.43-0.11								1.0
SHBL	SZ	76	121	EP		18 2	8.64-0.02								1.0
RCY	SZ	77	107	EP		18 2	8.88	0.08							1.0
RCY	SN	77	107	ES		18 2	17.94-0.01								1.0
ZAHL	SZ	80	77	EP		18 2	9.25	0.05							1.0

November 4 2018 Hour: 3:12 45.4 Agency: REL Regional

**EMSC OT=03:12:45.4 37.40N 20.50E 10Km M=4.9 IONIAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		315	44.31								
QRWL	SZ			EP		315	45.15								
HWQ	BZ			EP		315	45.54								
ZAHL	SZ			EP		315	46.31								
SHBL	SZ			EP		315	46.83								
RCY	SZ			EP		315	46.25								
BEIL	SZ			EP		315	46.64								

November 4 2018 Hour: 7:55 29.6 Agency: REL Distant

**EMSC OT=07:55:29.6 7.79N 123.85E 609Km M=6.0 MINDANAO, PHILIPPINES**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		8 6	57.47								
BHL	BZ			EP		8 6	58.79								

November 4 2018 Hour: 14:41 9.6 Lat: 33.68N Lon: 35.06E Depth: 28 Agency: REL Local  
Magnitudes: 2.9MC REL Rms: 0.1 secs

**OFFSHORE CENTRAL LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	47	87	EP		1441	18.30	0.12	48						1.0
DQRL	SN	47	87	ES		1441	24.49-0.04								1.0
QRWL	SZ	60	105	EP		1441	19.76-0.06								1.0
BHL	BZ	60	66	EP		1441	19.86-0.04								1.0
BHL	BN	60	66	ES		1441	27.48-0.03								1.0
SHBL	SZ	74	120	EP		1441	21.77-0.03								1.0
RCY	SZ	75	106	EP		1441	21.93-0.05								1.0
RCY	SN	75	106	ES		1441	31.18	0.05							1.0
ZAHL	SZ	79	76	EP		1441	22.61	0.10							1.0
HWQ	BZ	105	51	EP		1441	26.20-0.01								1.0

November 4 2018 Hour: 19:20 52.1 Lat: 33.40N Lon: 34.54E Depth: 26 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.0 secs

OFFSHORE SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	101	70	EP		1921	8.04	-0.05	40						1.0
DQRL	SN	101	70	ES		1921	19.97	0.01							1.0
SHBL	SZ	112	92	EP		1921	9.68	0.03							1.0
BHL	BZ	117	61	EP		1921	10.42	0.08							1.0
RCY	SZ	120	84	EP		1921	10.76	-0.02							1.0
RCY	SN	120	84	ES		1921	24.62	-0.01							1.0
ZAHL	SZ	134	67	EP		1921	12.51	0.01							1.0
HWQ	BZ	162	53	EP		1921	15.92	-0.05							1.0
BEIL	SZ	198	50	EP		1921	20.36	0.07							0.2

November 4 2018 Hour: 19:26 3.6 Agency: REL Distant

EMSC OT=19:26:03.6 44.55N 145.63E 10Km M=5.9 HOKKAIDO, JAPAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1938	7.12								
BHL	BZ			EP		1938	9.34								

November 5 2018 Hour: 21:59 49.2 Lat: 33.69N Lon: 35.04E Depth: 28 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.0 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	49	88	EP		2159	58.03	-0.02	33						1.0
DQRL	SN	49	88	ES		22 0	4.58	-0.00							1.0
BHL	BZ	61	67	EP		2159	59.75	0.05							1.0
QRWL	SZ	62	105	EP		2159	59.71	-0.01							1.0
SHBL	SZ	76	120	EP		22 0	1.74	0.02							1.0
RCY	SZ	77	106	EP		22 0	1.89	0.00							1.0
ZAHL	SZ	80	77	EP		22 0	2.31	-0.05							1.0
ZAHL	SN	80	77	ES		22 0	12.09	0.01							1.0
HWQ	BZ	106	52	EP		22 0	5.91	0.00							1.0

November 6 2018 Hour: 17:16 41.7 Lat: 33.79N Lon: 35.78E Depth: 5 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
ZAHL	SZ	12	50	EP		1716	44.02	0.03							1.0
BHL	BZ	18	317	EP		1716	44.73	-0.06	45						1.0
DQRL	SZ	22	246	EP		1716	45.44	0.02							1.0
DQRL	SN	22	246	ES		1716	48.19	0.06							1.0
QRWL	SZ	28	200	EP		1716	46.36	-0.05							1.0
QRWL	SN	28	200	ES		1716	49.80	-0.07							1.0
RCY	SZ	33	172	EP		1716	47.15	0.03							1.0
RCY	SN	33	172	ES		1716	51.09	-0.01							1.0
SHBL	SZ	49	184	EP		1716	49.76	0.06							1.0
HWQ	BZ	56	15	EP		1716	50.85	-0.06							1.0
BEIL	SZ	91	24	EP		1716	56.58	0.05							1.0

November 7 2018 Hour: 12:33 40.9 Lat: 33.83N Lon: 35.78E Depth: 35 Agency: REL Local  
Magnitudes: 2.9MC REL Rms: 0.1 secs

BAABDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	10	73	EP		1233	46.82	0.07							1.0
BHL	BZ	14	305	EP		1233	46.88	-0.03							1.0
DQRL	SZ	24	235	EP		1233	47.56	-0.01							1.0
QRWL	SZ	33	196	EP		1233	48.43	0.06	48						1.0
RCY	SZ	37	172	EP		1233	48.99	0.07							1.0
RCY	SN	37	172	ES		1233	54.73	-0.10							1.0
HWQ	BZ	52	17	EP		1233	50.51	-0.04							1.0
SHBL	SZ	54	184	EP		1233	50.75	-0.03							1.0
SHBL	SN	54	184	ES		1233	58.10	0.02							1.0

November 7 2018 Hour: 15: 8 20.8 Lat: 33.78N Lon: 35.78E 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	14	49	EP		15	8	22.91-0.03							1.0
BHL	BZ	18	321	EP		15	8	23.57-0.07							1.0
DQRL	SZ	21	247	EP		15	8	24.15 0.07	48						1.0
QRWL	SZ	27	199	EP		15	8	25.04-0.07							1.0
RCY	SZ	32	170	EP		15	8	25.84-0.04							1.0
SHBL	SZ	48	183	EP		15	8	28.47 0.01							1.0
SHBL	SN	48	183	ES		15	8	34.23 0.06							1.0
HWQ	BZ	58	16	EP		15	8	30.06 0.01							1.0
HWQ	BN	58	16	ES		15	8	36.99 0.06							1.0

November 8 2018 Hour: 14:21 43.2 Lat: 33.47N Lon: 35.68E Depth: 0 Agency: REL Local  
Magnitudes: 2.9MC 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	1	EP		1421		44.58-0.02	52						1.0
SHBL	SZ	15	156	EP		1421		45.55-0.00							1.0
SHBL	SN	15	156	ES		1421		47.31 0.01							1.0
RCY	SZ	15	78	EP		1421		45.55-0.02							1.0
DQRL	SZ	28	339	EP		1421		47.73-0.01							1.0
DQRL	SN	28	339	ES		1421		51.12 0.01							1.0
HWQ	BZ	93	15	EP		1421		58.15-0.04							1.0
BEIL	SZ	128	21	EP		1422		3.87 0.08							1.0

November 8 2018 Hour: 21: 4 9.1 Lat: 34.04N Lon: 35.72E Depth: 1 Agency: REL Local  
Magnitudes: 2.9MC 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	17	201	EP		21	4	11.75 0.02	50						1.0
BHL	BN	17	201	ES		21	4	13.71-0.01							1.0
ZAHL	SZ	26	143	EP		21	4	13.17-0.02							1.0
HWQ	BZ	34	39	EP		21	4	14.51 0.05							1.0
HWQ	BN	34	39	ES		21	4	18.43-0.04							1.0
DQRL	SZ	40	200	EP		21	4	15.50 0.02							1.0
QRWL	SZ	55	184	EP		21	4	17.90-0.02							1.0
RCY	SZ	62	170	EP		21	4	18.97-0.01							1.0
RCY	SN	62	170	ES		21	4	26.39 0.07							1.0
BEIL	SZ	70	38	EP		21	4	20.38 0.03							1.0
SHBL	SZ	77	178	EP		21	4	21.40-0.08							1.0

November 8 2018 Hour: 22: 7 43.8 Lat: 34.82N Lon: 34.24E Depth: 0 Agency: REL Regional  
Magnitudes: 3.0MC REL Rms: 0.1 secs

**CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	165	128	EP		22	8	9.81-0.13	48						1.0
BHL	BN	165	128	ES		22	8	29.36 0.03							1.0
HWQ	BZ	168	111	EP		22	8	10.37 0.02							1.0
DQRL	SZ	174	135	EP		22	8	11.16-0.10							1.0
BEIL	SZ	181	99	EP		22	8	12.21-0.02							1.0
ZAHL	SZ	185	125	EP		22	8	13.02 0.11							1.0
ZAHL	SN	185	125	ES		22	8	34.47-0.02							1.0
RCY	SZ	208	135	EP		22	8	15.81 0.07							1.0
RCY	SN	208	135	ES		22	8	39.44 0.03							1.0
SHBL	SZ	214	139	EP		22	8	16.56 0.01							1.0



November 9 2018 Hour: 1:49 39.7

Agency: REL Regional

EMSC OT=01:49:39.7 71.60N 11.33W 10Km M=6.8 JAN MAYEN ISLAND REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		157	51.57								
HWQ	BZ			EP		157	53.96								
BHL	BZ			EP		157	54.76								
ZAHL	SZ			EP		157	57.15								
DQRL	SZ			EP		157	56.89								
QRWL	SZ			EP		157	58.22								
RCY	SZ			EP		157	59.54								
SHBL	SZ			EP		158	0.61								

November 9 2018 Hour: 14:48 15.6 Lat: 33.78N Lon: 35.77E Depth: 7

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	14	52	EP		1448	18.17	0.02							1.0
BHL	BZ	17	322	EP		1448	18.63	-0.02	36						1.0
DQRL	SZ	20	245	EP		1448	19.16	0.05							1.0
QRWL	SZ	27	197	EP		1448	20.08	-0.09							1.0
RCY	SZ	32	169	EP		1448	20.99	0.02							1.0
SHBL	SZ	48	183	EP		1448	23.52	0.04							1.0
SHBL	SN	48	183	ES		1448	29.31	-0.02							1.0
HWQ	BZ	57	17	EP		1448	24.95	0.03							1.0
HWQ	BN	57	17	ES		1448	31.80	-0.03							1.0

November 10 2018 Hour: 5:22 25.8 Lat: 33.64N Lon: 35.00E Depth: 38

Agency: REL Local

Magnitudes: 2.4MC REL

Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	54	82	EP		522	35.71	0.07	26						1.0
DQRL	SN	54	82	ES		522	42.92	-0.03							1.0
QRWL	SZ	64	99	EP		522	36.90	-0.02							1.0
QRWL	SN	64	99	ES		522	45.15	-0.01							1.0
SHBL	SZ	76	115	EP		522	38.36	-0.10							1.0
RCY	SZ	79	101	EP		522	38.92	0.11							1.0
RCY	SN	79	101	ES		522	48.48	0.02							1.0
HWQ	BZ	113	51	EP		522	42.89	-0.04							1.0

November 10 2018 Hour: 8:33 17.8

Agency: REL Distant

EMSC OT=08:33:17.8 20.34S 174.23W 10Km M=6.2 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		853	3.06								
BHL	BZ			EP		853	4.35								

November 10 2018 Hour: 15: 2 1.3 Lat: 33.47N Lon: 35.69E Depth: 3

Agency: REL Local

Magnitudes: 2.6MC 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	352	EP		15	2	2.72	-0.09	37					1.0
QRWL	SN	8	352	ES		15	2	3.97	0.02						1.0
RCY	SZ	13	79	EP		15	2	3.62	0.05						1.0
RCY	SN	13	79	ES		15	2	5.29	0.01						1.0
SHBL	SZ	15	162	EP		15	2	3.74	-0.01						1.0
DQRL	SZ	28	336	EP		15	2	5.99	0.10						1.0
ZAHL	SZ	46	22	EP		15	2	8.72	-0.04						1.0
BHL	BZ	48	356	EP		15	2	9.01	-0.03						1.0

**November 10 2018 Hour: 16:24 4.2 Lat: 32.77N Lon: 35.70E Depth: 7 Agency: REL Regional**  
**Magnitudes: 3.0MC REL Rms: 0.0 secs**

**DEAD SEA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	65	3	EP		1624	14.60	-0.09	61						1.0
SHBL	SN	65	3	ES		1624	22.47	0.01							1.0
RCY	SZ	82	9	EP		1624	17.52	0.07							1.0
QRWL	SZ	87	359	EP		1624	18.21	0.00							1.0
DQRL	SZ	105	353	EP		1624	21.06	0.02							1.0
DQRL	SN	105	353	ES		1624	33.50	-0.01							1.0
ZAHL	SZ	122	8	EP		1624	23.64	0.03							1.0
BHL	BZ	126	358	EP		1624	24.21	0.03							1.0
HWQ	SZ	169	8	EP		1624	30.43	-0.07							1.0

**November 11 2018 Hour: 4:41 52.4 Lat: 33.18N Lon: 35.80E Depth: 1 Agency: REL Regional**  
**Magnitudes: 3.3MC REL Rms: 0.1 secs**

**GOLAN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	19	343	EP		441	55.62	0.11	87						1.0
RCY	SZ	35	5	EP		441	58.02	-0.01							1.0
RCY	SN	35	5	ES		442	2.20	-0.01							1.0
QRWL	SZ	42	344	EP		441	59.16	-0.00							1.0
DQRL	SZ	62	340	EP		442	2.34	-0.03							1.0
DQRL	SN	62	340	ES		442	9.79	0.02							1.0
ZAHL	SZ	75	6	EP		442	4.59	0.07							1.0
BHL	BZ	81	350	EP		442	5.31	-0.17							1.0
HWQ	SZ	122	6	EP		442	12.07	-0.02							1.0
BEIL	SZ	155	13	EP		442	16.95	0.03							1.0

**November 13 2018 Hour: 0:7 51.9 Lat: 33.79N Lon: 35.79E Depth: 3 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	11	48	EP		0 7	53.89	0.02							1.0
BHL	BZ	18	314	EP		0 7	54.89	-0.00	49						1.0
DQRL	SZ	23	246	EP		0 7	55.64	0.01							1.0
QRWL	SZ	29	201	EP		0 7	56.53	-0.06							1.0
RCY	SZ	33	173	EP		0 7	57.20	-0.03							1.0
SHBL	SZ	49	185	EP		0 7	59.90	0.04							1.0
SHBL	SN	49	185	ES		0 8	5.78	0.01							1.0
HWQ	SZ	56	15	EP		0 8	0.94	0.01							1.0
BEIL	SZ	91	23	EP		0 8	6.61	0.07							1.0
BEIL	SN	91	23	ES		0 8	17.33	-0.06							1.0

**November 13 2018 Hour: 12:30 11.7 Lat: 34.27N Lon: 36.38E Depth: 15 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.1 secs**

**BAALBECK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	35	329	EP		1230	17.98	0.05	46						1.0
HWQ	BZ	40	272	EP		1230	18.52	-0.12							1.0
HWQ	BN	40	272	ES		1230	23.77	0.03							1.0
BHL	BZ	78	239	EP		1230	24.29	0.06							1.0
RCY	SZ	99	211	EP		1230	27.41	0.06							1.0
RCY	SN	99	211	ES		1230	38.93	0.03							1.0
QRWL	SZ	103	219	EP		1230	27.78	-0.04							1.0
SHBL	SZ	118	210	EP		1230	30.01	-0.06							1.0

November 14 2018 Hour: 10:41 42.3 Lat: 34.55N Lon: 36.78E Depth: 11 Agency: REL Regional  
Magnitudes: 3.1MC REL Rms: 0.0 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	55	269	EP		1041	51.35	0.04							1.0
BEIL	SN	55	269	ES		1041	57.95	-0.02							1.0
HWQ	BZ	82	249	EP		1041	55.57	0.01	65						1.0
BHL	BN	82	249	ES		1042	5.40	0.03							1.0
BHL	BZ	126	236	EP		1042	1.90	-0.08							1.0
RCY	SZ	146	217	EP		1042	4.93	0.02							1.0
QRWL	SZ	150	223	EP		1042	5.50	-0.05							1.0
SHBL	SZ	164	216	EP		1042	7.66	0.06							1.0

November 15 2018 Hour: 10: 5 2.3 Lat: 33.74N Lon: 35.43E Depth: 15 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
DQRL	SZ	14	105	EP		10 5	5.79	-0.02	29						1.0
DQRL	SN	14	105	ES		10 5	8.34	-0.04							1.0
BHL	BZ	28	49	EP		10 5	7.60	0.06							1.0
QRWL	SZ	32	132	EP		10 5	7.98	-0.09							1.0
QRWL	SE	32	132	ES		10 5	12.40	0.10							1.0
RCY	SZ	47	125	EP		10 5	10.21	-0.01							1.0
SHBL	SZ	52	146	EP		10 5	11.04	-0.04							1.0

November 15 2018 Hour: 14:49 45.7 Lat: 33.79N Lon: 35.76E Depth: 8 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	13	58	EP		1449	48.38	0.02	41						1.0
BHL	BZ	16	320	EP		1449	48.63	-0.05							1.0
DQRL	SZ	20	241	EP		1449	49.38	0.05							1.0
QRWL	SZ	28	195	EP		1449	50.51	0.00							1.0
RCY	SZ	34	169	EP		1449	51.29	-0.06							1.0
RCY	SN	34	169	ES		1449	55.58	0.04							1.0
SHBL	SZ	50	182	EP		1449	53.89	0.07							1.0
SHBL	SN	50	182	ES		1449	59.78	-0.07							1.0

November 18 2018 Hour: 12:24 42.4 Lat: 33.76N Lon: 35.77E Depth: 0 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	15	45	EP		1224	44.44	-0.31							0.2
BHL	BZ	19	324	EP		1224	45.24	-0.22	35						0.2
DQRL	SZ	20	251	EP		1224	45.61	-0.01							1.0
QRWL	SZ	26	199	EP		1224	46.52	-0.00							1.0
RCY	SZ	30	169	EP		1224	47.33	0.04							1.0
SHBL	SZ	46	183	EP		1224	49.95	0.08							1.0
SHBL	SN	46	183	ES		1224	55.31	-0.09							1.0
FKH	SZ	79	48	EP		1224	55.15	-0.03							1.0
BEIL	SZ	94	24	EP		1224	57.64	0.07							1.0
BEIL	SN	94	24	ES		1225	8.76	-0.04							1.0

November 19 2018 Hour: 3:27 33.9 Lat: 33.79N Lon: 35.79E Depth: 0 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	12	50	EP		327	35.79	-0.06							1.0
BHL	BZ	18	317	EP		327	36.73	-0.04							1.0
DQRL	SZ	22	246	EP		327	37.45	0.00	40						1.0
QRWL	SZ	28	200	EP		327	38.53	0.06							1.0
RCY	SZ	33	172	EP		327	39.16	-0.01							1.0
SHBL	SZ	49	185	EP		327	41.82	0.03							1.0

SHBL	SN	49	185	ES		327	47.60	-0.03									1.0
HWQ	BZ	56	15	EP		327	42.98	-0.01									1.0
HWQ	BN	56	15	ES		327	49.75	0.04									1.0
FKH	SZ	77	49	EP		327	46.32	0.04									1.0

**November 19 2018 Hour: 12:55 41.9 Lat: 34.41N Lon: 36.67E Depth: 0 Agency: REL Regional**  
**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
FKH	SZ	30	233	EP		1255	46.56	-0.09	51						1.0
BEIL	SZ	47	289	EP		1255	49.32	-0.08							1.0
BEIL	SN	47	289	ES		1255	55.06	0.08							1.0
HWQ	BZ	68	258	EP		1255	52.75	-0.05							1.0
RCY	SZ	127	217	EP		1256	2.43	0.11							1.0
SHBL	SZ	145	216	EP		1256	5.19	0.08							1.0
SHBL	SN	145	216	ES		1256	22.26	-0.05							1.0

**November 19 2018 Hour: 13: 5 57.0 Agency: REL Regional**

**EMSC OT=13:05:57.0 37.27N 20.63E 10Km M=5.1 IONIAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		13 8	55.51								
QRWL	SZ			EP		13 8	56.62								
SHBL	SZ			EP		13 8	58.16								
RCY	SZ			EP		13 8	57.06								
FKH	SZ			EP		13 8	59.77								

**November 19 2018 Hour: 13:25 9.7 Lat: 33.65N Lon: 37.15E Depth: 13 Agency: REL Regional**  
**Magnitudes: 3.2MC REL Rms: 0.0 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	95	314	EP		1325	24.61	-0.06	77						1.0
RCY	SZ	123	262	EP		1325	28.82	-0.03							1.0
HWQ	BZ	131	302	EP		1325	30.06	0.06							1.0
BEIL	SZ	133	318	EP		1325	30.18	-0.05							1.0
BEIL	SN	133	318	ES		1325	45.46	0.04							1.0
SHBL	SZ	135	256	EP		1325	30.56	-0.02							1.0
SHBL	SN	135	256	ES		1325	46.05	0.02							1.0
QRWL	SZ	136	265	EP		1325	30.86	0.06							1.0
DQRL	SZ	146	273	EP		1325	32.30	0.04							1.0
DQRL	SN	146	273	ES		1325	48.89	-0.06							1.0

**November 19 2018 Hour: 14:53 49.6 Lat: 34.04N Lon: 35.74E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.1 secs**

**KESROUAN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	209	EP		1453	52.21	-0.11	42						1.0
BHL	BN	17	209	ES		1453	54.37	0.05							1.0
ZAHL	SZ	24	146	EP		1453	53.33	-0.11							1.0
HWQ	BZ	33	35	EP		1453	54.91	0.01							1.0
DQRL	SZ	40	204	EP		1453	56.04	-0.02							1.0
RCY	SZ	60	172	EP		1453	59.47	0.11							1.0
RCY	SN	60	172	ES		1454	6.61	0.03							1.0
BEIL	SZ	69	36	EP		1454	0.82	0.03							1.0

**November 20 2018 Hour: 10: 0 14.3 Lat: 34.38N Lon: 36.79E Depth: 0 Agency: REL Regional**  
**Magnitudes: 3.1MC REL Rms: 0.0 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	38	246	EP		10 0	20.52	0.03	64						1.0
BEIL	SZ	58	288	EP		10 0	23.75	0.02							1.0
BEIL	SN	58	288	ES		10 0	30.71	-0.00							1.0
HWQ	BZ	79	262	EP		10 0	26.97	-0.02							1.0
BHL	BZ	118	243	EP		10 0	33.24	-0.04							1.0
RCY	SZ	132	222	EP		10 0	35.66	0.02							1.0

DQRL	SZ	136	237	EP	10	0	36.18	0.07									1.0
QRWL	SZ	138	228	EP	10	0	36.43	-0.07									1.0
SHBL	SZ	150	220	EP	10	0	38.31	-0.00									1.0
SHBL	SN	150	220	ES	10	0	56.08	0.01									1.0

**November 20 2018 Hour: 11:22 40.6 Lat: 34.39N Lon: 36.62E Depth: 0 Agency: REL Regional**  
**Magnitudes: 3.0MC REL Rms: 0.1 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	25	230	EP		1122	44.50	-0.16	61						1.0
BEIL	SZ	44	293	EP		1122	47.59	-0.00							1.0
HWQ	BZ	63	259	EP		1122	50.76	-0.04							1.0
HWQ	BN	63	259	ES		1122	58.41	0.05							1.0
DQRL	SZ	123	232	EP		1123	0.48	0.03							1.0
RCY	SZ	123	216	EP		1123	0.44	0.04							1.0
QRWL	SZ	128	223	EP		1123	1.17	0.02							1.0
SHBL	SZ	141	215	EP		1123	3.39	0.10							1.0
SHBL	SN	141	215	ES		1123	20.07	-0.03							1.0

**November 20 2018 Hour: 14:11 33.1 Lat: 33.34N Lon: 35.27E Depth: 2 Agency: REL Local**  
**Magnitudes: 2.7MC REL Rms: 0.1 secs**

**SAIDA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	44	88	EP		1411	40.36	0.08							1.0
SHBL	SN	44	88	ES		1411	45.61	0.00							1.0
QRWL	SZ	45	59	EP		1411	40.36	-0.04	39						1.0
QRWL	SN	45	59	ES		1411	45.83	0.02							1.0
DQRL	SZ	50	34	EP		1411	41.18	0.05							1.0
DQRL	SN	50	34	ES		1411	47.07	-0.01							1.0
RCY	SZ	56	71	EP		1411	42.00	-0.11							1.0
HWQ	BZ	122	31	EP		1411	52.77	0.01							1.0

**November 20 2018 Hour: 17: 9 50.0 Lat: 34.04N Lon: 35.94E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.8MC REL Rms: 0.1 secs**

**KESROUAN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	21	193	EP		17 9	53.31	-0.03							1.0
HWQ	BZ	26	2	EP		17 9	54.21	-0.06	44						1.0
BHL	BZ	30	240	EP		17 9	54.89	0.04							1.0
FKH	SZ	49	62	EP		17 9	57.89	-0.05							1.0
FKH	SN	49	62	ES		1710	3.89	0.06							1.0
DQRL	SZ	50	223	EP		17 9	58.12	0.03							1.0
QRWL	SZ	59	203	EP		17 9	59.62	0.04							1.0
BEIL	SZ	60	22	EP		17 9	59.69	-0.01							1.0
RCY	SZ	61	189	EP		17 9	59.95	0.12							1.0
RCY	SN	61	189	ES		1710	7.01	-0.09							1.0
SHBL	SZ	79	193	EP		1710	2.64	-0.05							1.0

**November 22 2018 Hour: 5:50 52.4 Agency: REL Regional**  
**EMSC OT=05:50:52.4 37.23N 42.43E 5Km M=4.2 TURKEY-SYRIA-IRAQ BORDER REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		552	19.15								
FKH	SZ			EP		552	18.99								
HWQ	BZ			EP		552	23.47								
RCY	SZ			EP		552	31.62								
QRWL	SZ			EP		552	32.42								
SHBL	SZ			EP		552	33.30								

November 22 2018 Hour: 6:53 24.6 Lat: 32.32N Lon: 35.73E Depth: 0 Agency: REL Regional  
 Magnitudes: 3.0MC REL Rms: 0.1 secs

**JORDAN REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	114	1	EP		653	42.89	-0.09	53						1.0
SHBL	SN	114	1	ES		653	56.59	0.00							1.0
RCY	SZ	131	4	EP		653	45.79	0.10							1.0
RCY	SN	131	4	ES		654	1.25	-0.05							1.0
QRWL	SZ	136	358	EP		653	46.59	0.06							1.0
DQRL	SZ	154	354	EP		653	49.14	-0.07							1.0
DQRL	SN	154	354	ES		654	7.49	0.06							1.0
BHL	BZ	176	358	EP		653	52.32	-0.05							1.0
HWQ	BZ	218	5	EP		653	57.87	0.04							1.0

November 22 2018 Hour: 8: 8 16.2 Lat: 33.84N Lon: 36.09E 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	19	275	EP		8 8	20.07	0.02							1.0
BHL	BZ	41	280	EP		8 8	23.10	-0.09							1.0
BHL	BN	41	280	ES		8 8	28.38	0.04							1.0
RCY	SZ	45	211	EP		8 8	23.75	-0.13	50						1.0
RCY	SN	45	211	ES		8 8	29.62	0.08							1.0
HWQ	BZ	50	345	EP		8 8	24.60	-0.00							1.0
QRWL	SZ	50	229	EP		8 8	24.52	-0.10							1.0
DQRL	SZ	50	252	EP		8 8	24.76	0.08							1.0
FKH	SZ	53	34	EP		8 8	25.22	0.07							1.0
SHBL	SZ	64	210	EP		8 8	26.76	0.07							1.0
BEIL	SZ	78	6	EP		8 8	28.70	-0.03							1.0

November 25 2018 Hour: 1: 5 49.1 Lat: 34.43N Lon: 34.81E Depth: 19 Agency: REL Local  
 Magnitudes: 3.1MC REL Rms: 0.1 secs

**OFFSHORE NORTH LEBANON**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	97	127	EP		1 6	4.31	-0.03	59						1.0
BHL	BN	97	127	ES		1 6	15.61	-0.00							1.0
HWQ	BZ	105	99	EP		1 6	5.74	0.11							1.0
DQRL	SZ	106	139	EP		1 6	5.67	-0.04							1.0
DQRL	SN	106	139	ES		1 6	17.91	-0.09							1.0
ZAHL	SZ	117	122	EP		1 6	7.38	0.03							1.0
BEIL	SZ	126	84	EP		1 6	8.62	-0.07							1.0
QRWL	SZ	126	140	EP		1 6	8.65	-0.00							1.0
RCY	SZ	140	137	EP		1 6	10.70	0.02							1.0
RCY	SN	140	137	ES		1 6	26.74	0.08							1.0
SHBL	SZ	147	144	EP		1 6	11.70	0.03							1.0
FKH	SZ	148	97	EP		1 6	11.73	-0.04							1.0

November 25 2018 Hour: 2:40 13.5 Agency: REL Regional  
 EMSC OT=02:40:13.5 35.88N 28.48E 10Km M=4.6 EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		241	42.11								
HWQ	BZ			EP		241	45.10								
QRWL	SZ			EP		241	46.29								
ZAHL	SZ			EP		241	45.80								
BEIL	SZ			EP		241	46.01								
SHBL	SZ			EP		241	47.25								
RCY	SZ			EP		241	47.06								
FKH	SZ			EP		241	51.10								

November 25 2018 Hour: 6:14 32.3

Agency: REL Distant

EMSC OT=06:14:32.3 29.11S 177.46W 44Km M=5.6 KERMADEC ISLANDS, NEW ZEALAND

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		634	17.88								
HWQ	BZ			EP		634	18.68								

November 25 2018 Hour: 11:31 30.3 Lat: 33.84N Lon: 36.09E Depth: 10

Agency: REL Local

Magnitudes: 2.8MC 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	19	275	EP		1131	33.81	-0.02	47						1.0
BHL	BZ	41	280	EP		1131	37.03	-0.05							1.0
BHL	BN	41	280	ES		1131	42.14	0.01							1.0
RCY	SZ	45	211	EP		1131	37.66	-0.11							1.0
RCY	SN	45	211	ES		1131	43.38	0.05							1.0
QRWL	SZ	50	229	EP		1131	38.59	0.07							1.0
HWQ	BZ	50	345	EP		1131	38.57	0.04							1.0
DQRL	SZ	50	252	EP		1131	38.59	0.00							1.0
FKH	SZ	54	34	EP		1131	39.10	0.01							1.0
SHBL	SZ	64	210	EP		1131	40.70	0.01							1.0

November 25 2018 Hour: 16:37 31.7

Agency: REL Regional

EMSC OT=16:37:31.7 34.33N 45.71E 10Km M=6.3 IRAN-IRAQ BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1639	26.33								
RCY	SZ			EP		1639	31.22								
ZAHL	SZ			EP		1639	31.54								
HWQ	BZ			EP		1639	38.28								
SHBL	SZ			EP		1639	32.98								
QRWL	SZ			EP		1639	33.46								
BHL	BZ			EP		1639	43.07								
DQRL	SZ			EP		1639	35.59								
BEYL	SZ			EP		1639	36.95								

November 26 2018 Hour: 0:38 35.8

Agency: REL Regional

EMSC OT=00:38:35.8 34.23N 45.68E 10Km M=4.9 IRAN-IRAQ BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		040	31.03								
HWQ	BZ			EP		040	34.97								
ZAHL	SZ			EP		040	36.32								
RCY	SZ			EP		040	36.27								
SHBL	SZ			EP		040	37.41								
BHL	BZ			EP		040	38.87								
QRWL	SZ			EP		040	38.46								
DQRL	SZ			EP		040	39.97								

November 27 2018 Hour: 15:14 37.5 Lat: 33.79N Lon: 35.78E Depth: 6

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	52	EP		1514	39.82	-0.01							1.0
BHL	BZ	17	317	EP		1514	40.48	-0.05	34						1.0
DQRL	SZ	22	244	EP		1514	41.22	0.02							1.0
DQRL	SN	22	244	ES		1514	43.96	0.02							1.0
QRWL	SZ	28	199	EP		1514	42.20	-0.03							1.0
QRWL	SN	28	199	ES		1514	45.77	0.03							1.0
RCY	SZ	33	171	EP		1514	42.95	-0.01							1.0
SHBL	SZ	49	184	EP		1514	45.50	-0.02							1.0
HWQ	BZ	56	16	EP		1514	46.71	0.07							1.0
FKH	SZ	77	49	EP		1514	49.99	0.03							1.0
BEIL	SZ	91	24	EP		1514	52.20	-0.05							1.0

November 27 2018 Hour: 15:49 38.0 Lat: 33.47N Lon: 35.69E Depth: 0 Agency: REL Local  
Magnitudes: 2.6MC 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	353	EP		1549	39.43	-0.06	37						1.0
RCY	SZ	14	77	EP		1549	40.29	0.04							1.0
SHBL	SZ	14	161	EP		1549	40.29	-0.05							1.0
SHBL	SN	14	161	ES		1549	42.05	0.02							1.0
DQRL	SZ	29	337	EP		1549	42.74	0.06							1.0
DQRL	SN	29	337	ES		1549	46.08	-0.03							1.0
ZAHL	SZ	47	22	EP		1549	45.51	-0.08							1.0
BHL	BZ	49	356	EP		1549	45.96	0.09							1.0

November 27 2018 Hour: 23:16 11.2 Agency: REL Regional  
EMSC OT=23:16:11.2 36.68N 25.71E 8Km M=4.9 DODECANESE ISLANDS, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		2318	16.40								
QRWL	SZ			EP		2318	16.88								
ZAHL	SZ			EP		2318	16.73								
BEIL	SZ			EP		2318	16.95								
SHBL	SZ			EP		2318	17.99								
RCY	SZ			EP		2318	18.05								
FKH	SZ			EP		2318	21.49								

November 28 2018 Hour: 10:17 5.9 Agency: REL Distant  
EMSC OT=10:17:05.9 27.18N 97.03E 10Km M=5.3 MYANMAR-INDIA BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1026	21.09								
HWQ	BZ			EP		1026	18.71								

November 28 2018 Hour: 21:59 31.6 Lat: 33.63N Lon: 35.80E Depth: 22 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	14	232	EP		2159	35.84	0.01	29						1.0
RCY	SZ	15	168	EP		2159	36.03	0.09							1.0
RCY	SN	15	168	ES		2159	39.12	-0.01							1.0
DQRL	SZ	23	292	EP		2159	36.76	0.03							1.0
ZAHL	SZ	27	16	EP		2159	37.22	0.06							1.0
ZAHL	SN	27	16	ES		2159	41.20	-0.06							1.0
SHBL	SZ	31	190	EP		2159	37.62	-0.10							1.0
BHL	BZ	34	336	EP		2159	37.97	-0.02							1.0

November 29 2018 Hour: 2:35 37.0 Lat: 33.68N Lon: 35.00E Depth: 23 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.0 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	53	87	EP		235	46.08	0.00	38						1.0
DQRL	SN	53	87	ES		235	52.80	-0.01							1.0
QRWL	SZ	65	103	EP		235	47.78	0.01							1.0
QRWL	SN	65	103	ES		235	55.80	0.04							1.0
BHL	BZ	66	68	EP		235	47.82	-0.02							1.0
SHBL	SZ	79	118	EP		235	49.72	0.01							1.0
SHBL	SN	79	118	ES		235	59.11	-0.04							1.0
RCY	SZ	81	104	EP		235	49.99	0.00							1.0
ZAHL	SZ	85	76	EP		235	50.57	0.00							1.0



November 29 2018 Hour: 14:57 46.1 Lat: 33.78N Lon: 35.77E Depth: 4 Agency: REL Local  
 Magnitudes: 2.9MC 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	51	EP		1457	48.41	0.01							1.0
BHL	BZ	17	321	EP		1457	48.86	-0.13							1.0
DQRL	SZ	21	245	EP		1457	49.56	0.06							1.0
DQRL	SN	21	245	ES		1457	52.11	0.07							1.0
QRWL	SZ	27	198	EP		1457	50.47	-0.10	52						1.0
RCY	SZ	32	170	EP		1457	51.36	0.00							1.0
RCY	SN	32	170	ES		1457	55.27	-0.01							1.0
SHBL	SZ	48	183	EP		1457	53.91	0.00							1.0
HWQ	BZ	57	16	EP		1457	55.35	0.02							1.0
FKH	SZ	78	49	EP		1457	58.73	0.04							1.0
BEIL	SZ	92	24	EP		1458	1.00	0.02							1.0

November 30 2018 Hour: 0:15 59.3 Lat: 33.68N Lon: 35.89E Depth: 11 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
ZAHL	SZ	20	358	EP		016	3.27	0.04							1.0
RCY	SZ	21	195	EP		016	3.27	-0.04	30						1.0
RCY	SN	21	195	ES		016	6.36	0.11							1.0
QRWL	SZ	24	234	EP		016	3.74	-0.04							1.0
DQRL	SZ	30	276	EP		016	4.63	-0.01							1.0
DQRL	SN	30	276	ES		016	8.55	-0.00							1.0
BHL	BZ	34	319	EP		016	5.06	-0.10							1.0
SHBL	SZ	39	201	EP		016	5.98	-0.01							1.0
SHBL	SN	39	201	ES		016	10.89	-0.02							1.0
HWQ	BZ	67	4	EP		016	10.58	0.25							1.0
FKH	SZ	79	37	EP		016	11.94	-0.18							1.0

November 30 2018 Hour: 15:4 37.4

Agency: REL Regional

**EMSC OT=15:04:37.4 34.12N 26.15E 10Km M=4.1 CRETE, GREECE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ			EP		15 6	31.12								
SHBL	SZ			EP		15 6	32.29								
RCY	SZ			EP		15 6	32.83								
HWQ	BZ			EP		15 6	34.46								
BEIL	SZ			EP		15 6	36.32								
FKH	SZ			EP		15 6	39.57								

November 30 2018 Hour: 15:18 39.2 Lat: 33.98N Lon: 36.19E Depth: 14 Agency: REL Local  
 Magnitudes: 2.8MC 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	31	244	EP		1518	44.81	-0.04							1.0
FKH	SZ	36	35	EP		1518	45.34	-0.11	44						1.0
FKH	SN	36	35	ES		1518	50.15	0.08							1.0
HWQ	BZ	40	326	EP		1518	46.05	0.01							1.0
BHL	BZ	50	260	EP		1518	47.59	0.01							1.0
RCY	SZ	63	211	EP		1518	49.45	-0.07							1.0
RCY	SN	63	211	ES		1518	57.17	0.03							1.0
QRWL	SZ	67	224	EP		1518	50.12	0.02							1.0
SHBL	SZ	82	210	EP		1518	52.30	0.06							1.0

November 30 2018 Hour: 17:29 27.8

Agency: REL Distant

**EMSC OT=17:29:27.8 61.33N 149.92W 57Km M=7.0 SOUTHERN ALASKA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1741	55.89								
BHL	BZ			EP		1741	57.73								

# Epicentral Map of Lebanon

## NOVEMBER 2018

