

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

October

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.

October 1 2018 Hour: 12:124.1 Lat: 34.36N Lon: 36.63E Depth: 1 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	25	238	EP		12	1	28.05	0.01						1.0
FKH	SN	25	238	ES		12	1	30.98	-0.00						1.0
BEIL	SZ	46	296	EP		12	1	31.50	0.03	71					1.0
BEIL	SN	46	296	ES		12	1	36.95	0.00						1.0
HWQ	BZ	64	262	EP		12	1	34.34	-0.07						1.0
HWQ	BN	64	262	ES		12	1	42.08	0.02						1.0
BHL	BZ	104	241	EP		12	1	40.76	-0.05						1.0
RCY	SZ	121	218	EP		12	1	43.65	0.03						1.0
QRWL	SZ	126	224	EP		12	1	44.45	0.02						1.0

October 1 2018 Hour: 15:252.9 Lat: 33.78N Lon: 35.77E Depth: 8 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	51	EP		15	2	55.57	-0.03						1.0
BHL	BZ	17	323	EP		15	2	56.01	-0.05	33					1.0
DQRL	SZ	20	246	EP		15	2	56.50	0.05						1.0
DQRL	SN	20	246	ES		15	2	59.13	0.02						1.0
QRWL	SZ	27	197	EP		15	2	57.39	-0.08						1.0
RCY	SZ	32	169	EP		15	2	58.30	0.02						1.0
RCY	SN	32	169	ES		15	3	2.30	0.01						1.0
HWQ	BZ	58	17	EP		15	3	2.33	0.04						1.0
FKH	SZ	79	49	EP		15	3	5.67	0.04						1.0
BEIL	SZ	93	24	EP		15	3	7.82	-0.02						1.0

October 1 2018 Hour: 16:5547.1 Lat: 33.42N Lon: 35.65E Depth: 0 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.1 secs

HASBAYA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	15	13	EP		1655	49.42	-0.08	36						1.0
RCY	SZ	20	64	EP		1655	50.32	0.02							1.0
RCY	SN	20	64	ES		1655	52.65	0.00							1.0
DQRL	SZ	33	348	EP		1655	52.41	0.02							1.0
DQRL	SN	33	348	ES		1655	56.30	0.02							1.0
ZAHL	SZ	54	24	EP		1655	56.10	0.33							0.2
HWQ	BZ	99	16	EP		1656	3.12	-0.02							1.0
BEIL	SZ	134	22	EP		1656	8.77	0.02							1.0

October 1 2018 Hour: 22:4516.1 Lat: 33.71N Lon: 35.66E Depth: 7 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.0 secs

CHOUF REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	8	265	EP		2245	17.99	0.02							1.0
QRWL	SZ	18	172	EP		2245	19.34	-0.01	37						1.0
QRWL	SN	18	172	ES		2245	21.73	-0.03							1.0
BHL	BZ	21	359	EP		2245	19.75	-0.05							1.0
BHL	BN	21	359	ES		2245	22.55	0.02							1.0
ZAHL	SZ	27	53	EP		2245	20.62	-0.00							1.0
RCY	SZ	29	145	EP		2245	21.05	0.04							1.0

October 1 2018 Hour: 23:3339.6 Lat: 33.79N Lon: 35.79E Depth: 3 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
ZAHL	SZ	11	49	EP		2333	41.58	-0.03							1.0
ZAHL	SN	11	49	ES		2333	43.09	0.01							1.0
BHL	BZ	18	314	EP		2333	42.54	-0.08	30						1.0
DQRL	SZ	23	245	EP		2333	43.39	0.01							1.0
DQRL	SN	23	245	ES		2333	46.24	0.08							1.0

QRWL	SZ	29	201	EP		2333	44.29-0.06									1.0
RCY	SZ	33	173	EP		2333	44.99-0.01									1.0
HWQ	BZ	56	15	EP		2333	48.64-0.01									1.0
FKH	SZ	76	48	EP		2333	52.00 0.10									1.0

**October 2 2018 Hour: 12:20 25.7 Lat: 33.47N Lon: 35.70E Depth: 2 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	352	EP		1220	27.08-0.11		34						1.0
QRWL	SN	9	352	ES		1220	28.28-0.04								1.0
RCY	SZ	13	76	EP		1220	27.91 0.03								1.0
SHBL	SZ	14	161	EP		1220	27.96-0.01								1.0
DQRL	SZ	29	336	EP		1220	30.43 0.08								1.0
DQRL	SN	29	336	ES		1220	33.84 0.02								1.0
HWQ	BZ	93	14	EP		1220	40.77 0.13								1.0
BEIL	SZ	127	21	EP		1220	46.05-0.09								1.0

**October 2 2018 Hour: 15:29 4.1 Agency: REL Regional**  
**EMSC OT=15:29:04.1 37.70N 37.42E 5Km M=4.6 CENTRAL TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1529	56.92								
FKH	SZ			EP		1529	59.82								
HWQ	BZ			EP		1530	0.87								
ZAHL	SZ			EP		1530	7.71								
BHL	BZ			EP		1530	7.30								
DQRL	SZ			EP		1530	10.54								
QRWL	SZ			EP		1530	12.81								
RCY	SZ			EP		1530	12.17								
SHBL	SZ			EP		1530	14.20								

**October 3 2018 Hour: 14:57 53.1 Lat: 33.78N Lon: 35.77E Depth: 1 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	50	EP		1457	55.34-0.03								1.0
BHL	BZ	18	321	EP		1457	56.04 0.01		29						1.0
DQRL	SZ	21	246	EP		1457	56.51 0.01								1.0
QRWL	SZ	27	198	EP		1457	57.50-0.04								1.0
RCY	SZ	32	170	EP		1457	58.27-0.05								1.0
RCY	SN	32	170	ES		1458	2.21 0.06								1.0
SHBL	SZ	48	183	EP		1458	0.89-0.00								1.0
HWQ	BZ	58	16	EP		1458	2.45 0.02								1.0
HWQ	BN	58	16	ES		1458	9.29-0.01								1.0
FKH	SZ	78	49	EP		1458	5.78 0.02								1.0

**October 3 2018 Hour: 15:54 9.0 Lat: 33.77N Lon: 35.77E Depth: 1 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	48	EP		1554	11.37 0.03								1.0
BHL	BZ	18	324	EP		1554	11.83-0.13		33						1.0
DQRL	SZ	20	249	EP		1554	12.27 0.04								1.0
QRWL	SZ	26	198	EP		1554	13.29 0.07								1.0
RCY	SZ	31	169	EP		1554	13.95-0.07								1.0
SHBL	SZ	47	183	EP		1554	16.59 0.01								1.0
SHBL	SN	47	183	ES		1554	22.20 0.01								1.0
HWQ	BZ	59	16	EP		1554	18.53 0.09								1.0
HWQ	BN	59	16	ES		1554	25.50 0.07								1.0
FKH	SZ	79	48	EP		1554	21.67-0.09								1.0
BEIL	SZ	94	24	EP		1554	24.07-0.03								1.0

October 3 2018 Hour: 18:017.3 Lat: 33.78N Lon: 35.76E Depth: 10 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	14	55	EP		18	0	20.24	0.03						1.0
BHL	BZ	17	323	EP		18	0	20.44	-0.08	40					1.0
DQRL	SZ	20	244	EP		18	0	21.01	0.05						1.0
QRWL	SZ	27	196	EP		18	0	22.05	0.00						1.0
RCY	SZ	33	168	EP		18	0	22.87	-0.02						1.0
SHBL	SZ	48	182	EP		18	0	25.37	0.04						1.0
SHBL	SN	48	182	ES		18	0	31.25	-0.02						1.0
HWQ	BZ	57	17	EP		18	0	26.73	-0.00						1.0
HWQ	BN	57	17	ES		18	0	33.75	0.05						1.0
FKH	SZ	79	49	EP		18	0	30.09	-0.04						1.0
BEIL	SZ	93	25	EP		18	0	32.20	0.04						0.2

October 3 2018 Hour: 21:4715.4 Lat: 34.96N Lon: 34.10E Depth: 17 Agency: REL Regional  
Magnitudes: 3.4MC REL Rms: 0.0 secs

CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	185	129	EP		2147		42.71	-0.06						1.0
BHL	BN	185	129	ES		2148		2.98	-0.06						1.0
HWQ	BZ	186	113	EP		2147		42.89	-0.01	92					1.0
HWQ	BN	186	113	ES		2148		3.29	0.03						1.0
DQRL	SZ	194	135	EP		2147		43.97	0.05						1.0
BEIL	SZ	197	103	EP		2147		44.20	-0.02						1.0
ZAHL	SZ	205	126	EP		2147		45.31	0.03						1.0
QRWL	SZ	214	136	EP		2147		46.39	0.01						1.0
FKH	SZ	227	110	EP		2147		48.00	0.02						1.0
RCY	SZ	228	135	EP		2147		48.21	0.05						1.0
RCY	SN	228	135	ES		2148		12.44	0.03						1.0
SHBL	SZ	234	139	EP		2147		48.91	-0.06						1.0

October 3 2018 Hour: 22:239.3 Lat: 33.84N Lon: 35.26E Depth: 14 Agency: REL Local  
Magnitudes: 2.4MC 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	32	118	EP		2223		15.04	-0.00						1.0
DQRL	SN	32	118	ES		2223		19.30	0.01						1.0
BHL	BZ	37	79	EP		2223		15.68	-0.02	27					1.0
QRWL	SZ	51	130	EP		2223		17.74	-0.02						1.0
ZAHL	SZ	58	88	EP		2223		18.77	-0.00						1.0
RCY	SZ	66	126	EP		2223		19.96	0.00						1.0
SHBL	SZ	71	141	EP		2223		20.74	0.01						1.0
SHBL	SN	71	141	ES		2223		29.19	0.01						1.0
HWQ	BZ	79	52	EP		2223		21.99	0.02						1.0

October 3 2018 Hour: 23:1728.7 Lat: 34.11N Lon: 35.63E Depth: 25 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.0 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	23	174	EP		2317		34.06	-0.07						1.0
BHL	BN	23	174	ES		2317		38.15	-0.00						1.0
HWQ	BZ	35	57	EP		2317		35.58	0.06	45					1.0
HWQ	BN	35	57	ES		2317		40.58	0.01						1.0
ZAHL	SZ	36	139	EP		2317		35.68	-0.02						1.0
DQRL	SZ	45	187	EP		2317		36.80	0.04						1.0
QRWL	SZ	62	175	EP		2317		39.19	0.07						1.0
RCY	SZ	70	164	EP		2317		40.27	-0.03						1.0
BEIL	SZ	70	46	EP		2317		40.17	-0.07						1.0
RCY	SN	70	164	ES		2317		48.89	-0.00						1.0
FKH	SZ	74	78	EP		2317		40.77	0.02						1.0
SHBL	SZ	85	173	EP		2317		42.35	-0.02						1.0

**October 4 2018 Hour: 4:16 20.4 Agency: REL Distant**  
**EMSC OT=04:16:20.4 17.87S 178.53W 584Km M=5.5 FIJI REGION**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BEIL SZ EP 434 53.42  
 FKH SZ EP 434 53.53  
 HWQ BZ EP 434 53.74  
 BHL BZ EP 434 54.93

**October 4 2018 Hour: 13:12 39.0 Lat: 32.80N Lon: 35.04E Depth: 5 Agency: REL Regional**  
**Magnitudes: 3.0MC REL Rms: 0.1 secs**

**DEAD SEA REGION**

STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 SHBL SZ 90 47 EP 1312 53.51-0.02 54 1.0  
 QRWL SZ 103 36 EP 1312 55.57-0.02 1.0  
 RCY SZ 108 44 EP 1312 56.48 0.11 1.0  
 RCY SN 108 44 ES 1313 9.18-0.04 1.0  
 DQRL SZ 112 26 EP 1312 57.16 0.11 1.0  
 DQRL SN 112 26 ES 1313 10.46 0.04 1.0  
 BHL BZ 136 25 EP 1313 0.35-0.12 1.0  
 HWQ BZ 185 27 EP 1313 7.44-0.05 1.0

**October 4 2018 Hour: 15:11 28.4 Lat: 34.02N Lon: 35.74E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.6MC 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 15 211 EP 1511 30.75-0.05 36 1.0  
 ZAHL SZ 23 143 EP 1511 31.98-0.04 1.0  
 HWQ BZ 35 34 EP 1511 33.98 0.04 1.0  
 DQRL SZ 38 204 EP 1511 34.45-0.08 1.0  
 QRWL SZ 53 186 EP 1511 36.93 0.06 1.0  
 QRWL SN 53 186 ES 1511 43.14-0.01 1.0  
 RCY SZ 59 171 EP 1511 37.96 0.10 1.0  
 FKH SZ 67 68 EP 1511 39.09-0.07 1.0  
 SHBL SZ 75 180 EP 1511 40.48 0.09 1.0  
 SHBL SN 75 180 ES 1511 49.25-0.04 1.0

**October 4 2018 Hour: 15:14 1.8 Lat: 36.37N Lon: 36.01E Depth: 14 Agency: REL Regional**  
**Magnitudes: 3.6MC REL Rms: 0.0 secs**

**TURKEY REGION**

STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BEIL SZ 203 175 EP 1514 31.48-0.10 107 1.0  
 BEIL SN 203 175 ES 1514 53.59-0.02 1.0  
 HWQ BZ 232 181 EP 1514 35.23 0.03 1.0  
 FKH SZ 238 171 EP 1514 36.07 0.07 1.0  
 FKH SN 238 171 ES 1515 1.30-0.00 1.0  
 BHL BZ 275 187 EP 1514 40.57 0.01 1.0  
 ZAHL SZ 278 182 EP 1514 41.01-0.00 1.0  
 DQRL SZ 298 188 EP 1514 43.32-0.07 1.0  
 QRWL SZ 314 186 EP 1514 45.43 0.03 1.0  
 RCY SZ 319 183 EP 1514 46.01-0.02 1.0  
 RCY SN 319 183 ES 1515 18.79 0.03 1.0  
 SHBL SZ 335 184 EP 1514 48.18 0.05 1.0

**October 5 2018 Hour: 11:32 14.0 Lat: 35.90N Lon: 32.37E Depth:286 Agency: REL Regional**  
**Magnitudes: 4.0MC REL Rms: 0.0 secs**

**CYPRUS REGION**

STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 HWQ BZ 373 118 EP 1133 11.51 0.02 1.0  
 HWQ BN 373 118 ES 1133 54.06 0.02 1.0  
 BEIL SZ 379 112 EP 1133 11.95-0.06 146 1.0  
 BEIL SN 379 112 ES 1133 54.94 0.01 1.0  
 QRWL SZ 400 130 EP 1133 14.13 0.00 1.0  
 FKH SZ 412 115 EP 1133 15.33 0.02 1.0



RCY	SZ	415	129	EP		1133	15.61	-0.00									1.0
RCY	SN	415	129	ES		1134	1.19	-0.02									1.0
SHBL	SZ	419	131	EP		1133	16.10	0.02									1.0

**October 5 2018 Hour: 16: 6 35.8 Lat: 33.78N Lon: 35.78E Depth: 0 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	50	EP		16	6	37.88	-0.07	55					1.0
BHL	BZ	18	320	EP		16	6	38.55	-0.12						1.0
DQRL	SZ	21	246	EP		16	6	39.35	0.14						1.0
QRWL	SZ	28	198	EP		16	6	40.18	-0.09						1.0
RCY	SZ	32	170	EP		16	6	41.02	-0.02						1.0
SHBL	SZ	48	184	EP		16	6	43.65	0.03						1.0
SHBL	SN	48	184	ES		16	6	49.39	-0.00						1.0
HWQ	BZ	57	16	EP		16	6	45.00	-0.05						1.0
FKH	SZ	78	49	EP		16	6	48.43	0.05						1.0
BEIL	SZ	92	24	EP		16	6	50.83	0.13						1.0
BEIL	SN	92	24	ES		16	7	1.71	0.00						1.0

**October 5 2018 Hour: 19:50 40.2 Lat: 33.79N Lon: 35.76E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.1MC 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	56	EP		1950	42.41	-0.09	71						1.0
BHL	BZ	16	324	EP		1950	42.76	-0.05							1.0
BHL	BN	16	324	ES		1950	44.75	-0.00							1.0
DQRL	SZ	20	243	EP		1950	43.41	0.07							1.0
BEYL	SZ	26	291	EP		1950	44.36	-0.06							1.0
QRWL	SZ	27	195	EP		1950	44.63	0.03							1.0
RCY	SZ	33	167	EP		1950	45.49	-0.01							1.0
RCY	SN	33	167	ES		1950	49.38	-0.05							1.0
SHBL	SZ	49	182	EP		1950	48.03	0.01							1.0
HWQ	BZ	57	18	EP		1950	49.34	-0.09							1.0
FKH	SZ	79	50	EP		1950	52.96	0.05							1.0
BEIL	SZ	93	25	EP		1950	55.29	0.17							1.0

**October 6 2018 Hour: 17:55 14.7 Lat: 34.89N Lon: 34.21E Depth: 3 Agency: REL Regional**  
**Magnitudes: 3.3MC 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	172	129	EP		1755	41.74	0.13							1.0
HWQ	SZ	173	112	EP		1755	41.66	-0.15	75						1.0
HWQ	SN	173	112	ES		1756	1.91	0.02							1.0
DQRL	SZ	181	136	EP		1755	42.96	0.01							1.0
BEIL	SZ	185	101	EP		1755	43.29	-0.08							1.0
BEIL	SN	185	101	ES		1756	4.67	0.05							1.0
ZAHL	SZ	192	126	EP		1755	44.21	-0.08							1.0
QRWL	SZ	201	137	EP		1755	45.30	-0.12							1.0
FKH	SZ	214	109	EP		1755	47.18	0.12							1.0
RCY	SZ	215	135	EP		1755	47.26	0.07							1.0
RCY	SN	215	135	ES		1756	11.20	-0.06							1.0
SHBL	SZ	222	140	EP		1755	48.13	0.11							1.0

**October 6 2018 Hour: 20:23 40.0 Lat: 34.63N Lon: 36.73E Depth: 0 Agency: REL Regional**  
**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
BEIL	SZ	51	259	EP		2023	48.26	0.04	69						1.0
BEIL	SN	51	259	ES		2023	54.25	-0.03							1.0
FKH	SZ	52	214	EP		2023	48.29	-0.12							1.0
FKH	SN	52	214	ES		2023	54.63	0.01							1.0
HWQ	BZ	82	241	EP		2023	53.27	0.04							1.0
HWQ	BN	82	241	ES		2024	2.98	-0.02							1.0

ZAHL	SZ	116	222	EP		2023	58.65	-0.05									1.0
BHL	BZ	128	231	EP		2024	0.66	0.04									1.0
DQRL	SZ	148	226	EP		2024	3.75	0.01									1.0
RCY	SZ	151	213	EP		2024	4.05	-0.06									1.0
RCY	SN	151	213	ES		2024	21.99	0.06									1.0
QRWL	SZ	154	219	EP		2024	4.65	0.03									1.0
SHBL	SZ	169	213	EP		2024	6.88	0.05									1.0

**October 7 2018 Hour: 11: 8 37.3 Lat: 33.61N Lon: 37.22E Depth: 15 Agency: REL Regional**  
**Magnitudes: 3.4MC 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	103	314	EP		11	8	53.38	-0.02						1.0
ZAHL	SZ	126	283	EP		11	8	57.03	0.15						1.0
RCY	SZ	129	265	EP		11	8	57.30	0.07						1.0
HWQ	BZ	139	303	EP		11	8	58.81	0.08						1.0
HWQ	BN	139	303	ES		11	9	14.50	-0.10						1.0
SHBL	SZ	140	259	EP		11	8	58.84	-0.01						1.0
BEIL	SZ	141	318	EP		11	8	58.93	-0.03	94					1.0
QRWL	SZ	142	268	EP		11	8	58.88	-0.34						1.0
BHL	BZ	148	283	EP		11	9	0.25	0.15						1.0
DQRL	SZ	153	275	EP		11	9	0.76	-0.02						1.0
DQRL	SN	153	275	ES		11	9	18.23	0.07						1.0

**October 8 2018 Hour: 16: 2 6.1 Lat: 34.04N Lon: 35.92E Depth: 1 Agency: REL Local**  
**Magnitudes: 2.6MC 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	190	EP		16	2	9.36	-0.12	36					1.0
ZAHL	SE	21	190	ES		16	2	12.01	0.05						1.0
HWQ	BZ	26	4	EP		16	2	10.46	0.07						1.0
HWQ	BN	26	4	ES		16	2	13.50	-0.06						1.0
BHL	BZ	29	239	EP		16	2	10.96	0.10						1.0
DQRL	SZ	50	222	EP		16	2	14.09	-0.04						1.0
QRWL	SZ	59	202	EP		16	2	15.56	-0.11						1.0
BEIL	SZ	60	23	EP		16	2	15.87	-0.00						1.0
SHBL	SZ	79	192	EP		16	2	18.81	0.00						1.0
FKH	SZ			EP		16	2	13.93							
FKH	SN			ES		16	2	19.95							
RCY	SZ	61	188	EP		16	2	15.97							

**October 9 2018 Hour: 7:45 13.5 Agency: REL Distant**  
**EMSC OT=07:45:13.5 49.40N 156.25E 35Km M=6.0 KURIL ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		757	28.67								
HWQ	BZ			EP		757	25.67								

**October 9 2018 Hour: 8:51 33.3 Lat: 32.95N Lon: 34.09E Depth: 15 Agency: REL Regional**  
**Magnitudes: 3.3MC REL Rms: 0.0 secs**

**MEDITERRANEAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	160	73	EP		851	57.84	-0.01	78						1.0
SHBL	SN	160	73	ES		852	16.05	0.02							1.0
DQRL	SZ	161	58	EP		851	57.90	-0.01							1.0
QRWL	SZ	162	65	EP		851	58.00	-0.05							1.0
QRWL	SN	162	65	ES		852	16.36	-0.02							1.0
RCY	SZ	174	69	EP		851	59.51	0.03							1.0
HWQ	BZ	227	49	EP		852	6.10	0.04							1.0
BEIL	SZ	262	47	EP		852	10.24	-0.20							0.2

**October 9 2018 Hour: 23:48 46.5 Lat: 33.79N Lon: 35.80E Depth: 8 Agency: REL Local**  
**Magnitudes: 2.5MC 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	46	EP		2348	48.82	0.02							1.0
BHL	BZ	19	312	EP		2348	49.81	-0.06	31						1.0
DQRL	SZ	24	246	EP		2348	50.66	0.06							1.0
QRWL	SZ	29	203	EP		2348	51.44	-0.01							1.0
RCY	SZ	33	175	EP		2348	52.02	-0.01							1.0
SHBL	SZ	49	186	EP		2348	54.71	0.08							1.0
SHBL	SN	49	186	ES		2349	0.58	-0.06							1.0
HWQ	BZ	56	14	EP		2348	55.56	-0.04							1.0
HWQ	BN	56	14	ES		2349	2.35	0.02							1.0

**October 10 2018 Hour: 18:44 55.2 Agency: REL Distant**

**EMSC OT=18:44:55.2 7.38S 114.43E 10Km M=6.0 BALI SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1857	30.63								
HWQ	BZ			EP		1857	29.74								

**October 10 2018 Hour: 23:16 0.6 Agency: REL Distant**

**EMSC OT=23:16:00.6 49.31N 156.27E 10Km M=6.4 KURIL ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2328	19.63								
HWQ	BZ			EP		2328	16.98								

**October 12 2018 Hour: 12: 7 41.4 Lat: 33.86N Lon: 35.83E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.9MC 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	5	96	EP		12 7	42.10	-0.10							1.0
BHL	BZ	17	286	EP		12 7	44.12	-0.01	51						1.0
BHL	BN	17	286	ES		12 7	46.19	0.03							1.0
DQRL	SZ	30	234	EP		12 7	46.06	-0.12							1.0
QRWL	SZ	38	202	EP		12 7	47.38	-0.05							1.0
RCY	SZ	41	179	EP		12 7	47.97	0.05							1.0
RCY	SN	41	179	ES		12 7	52.79	0.02							1.0
HWQ	BZ	47	13	EP		12 7	48.98	-0.02							1.0
SHBL	SZ	58	188	EP		12 7	50.68	0.02							1.0
SHBL	SN	58	188	ES		12 7	57.61	0.07							1.0
FKH	SZ	68	51	EP		12 7	52.37	-0.01							1.0
BEIL	SZ	82	23	EP		12 7	54.74	0.13							1.0

**October 13 2018 Hour: 8:36 29.9 Lat: 34.68N Lon: 33.93E Depth: 47 Agency: REL Regional**  
**Magnitudes: 3.1MC REL Rms: 0.0 secs**

**CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	180	118	EP		836	55.48	0.00							1.0
HWQ	BZ	190	103	EP		836	56.67	-0.04	57						1.0
HWQ	BN	190	103	ES		837	16.57	0.00							1.0
QRWL	SZ	204	127	EP		836	58.37	-0.02							1.0
BEIL	SZ	207	94	EP		836	58.63	-0.06							1.0
BEIL	SN	207	94	ES		837	20.08	0.06							1.0
RCY	SZ	219	126	EP		837	0.24	0.01							1.0
RCY	SN	219	126	ES		837	22.64	-0.05							1.0
SHBL	SZ	223	131	EP		837	0.80	0.10							1.0
FKH	SZ	233	101	EP		837	1.85	0.00							1.0

October 13 2018 Hour: 11:10 22.9

Agency: REL Distant

EMSC OT=11:10:22.9 52.90N 153.30E 469Km M=6.7 NORTHWEST OF KURIL ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1121	31.55								
HWQ	BZ			EP		1121	30.28								

October 14 2018 Hour: 0:19 30.1

Lat: 33.24N

Lon: 35.43E

Depth: 10

Agency: REL Local

Magnitudes: 2.7MC REL

Rms: 0.1 secs

MARJAAYOUN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	32	67	EP		019	35.55	0.00	37						1.0
SHBL	SN	32	67	ES		019	39.67	0.06							1.0
QRWL	SZ	42	34	EP		019	36.68	-0.37							0.2
RCY	SZ	48	52	EP		019	37.88	-0.09							1.0
RCY	SN	48	52	ES		019	43.81	-0.02							1.0
DQRL	SZ	54	14	EP		019	38.99	0.07							1.0
DQRL	SN	54	14	ES		019	45.46	-0.02							1.0
BHL	BZ	77	16	EP		019	42.57	0.00							1.0
ZAHL	SZ	81	31	EP		019	43.18	0.02							1.0

October 14 2018 Hour: 7:57 34.9

Lat: 33.46N

Lon: 35.68E

Depth: 0

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	9	1	EP		757	36.26	-0.10							1.0
SHBL	SZ	14	155	EP		757	37.17	0.01	42						1.0
RCY	sZ	15	76	EP		757	37.26	-0.02							1.0
DQRL	SZ	29	339	EP		757	39.48	-0.01							1.0
ZAHL	SZ	48	23	EP		757	42.58	0.03							1.0
ZAHL	SN	48	23	ES		757	48.23	-0.01							1.0
BHL	BZ	49	357	EP		757	42.80	0.06							1.0
BHL	BN	49	357	ES		757	48.61	0.04							1.0

October 14 2018 Hour: 11:49 58.3

Lat: 33.99N

Lon: 36.10E

Depth: 14

Agency: REL Local

Magnitudes: 2.7MC 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	25	232	EP		1150	3.01	-0.01							1.0
ZAHL	SN	25	232	ES		1150	6.52	0.02							1.0
HWQ	BZ	34	336	EP		1150	4.34	-0.03	39						1.0
HWQ	BN	34	336	ES		1150	8.81	-0.04							1.0
FKH	SZ	40	46	EP		1150	5.26	0.07							1.0
BHL	BZ	42	256	EP		1150	5.47	-0.05							1.0
BHL	BN	42	256	ES		1150	10.89	0.04							1.0
DQRL	SZ	58	237	EP		1150	8.01	0.11							1.0
RCY	SZ	60	204	EP		1150	8.05	-0.17							1.0
QRWL	SZ	63	218	EP		1150	8.31	-0.23							0.2
SHBL	SZ	79	205	EP		1150	11.01	0.07							1.0

October 15 2018 Hour: 15:54 26.6

Lat: 33.79N

Lon: 35.78E

Depth: 6

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	53	EP		1554	28.94	0.03							1.0
BHL	BZ	17	318	EP		1554	29.53	-0.04	43						1.0
DQRL	SZ	22	244	EP		1554	30.31	0.06							1.0
DQRL	SN	22	244	ES		1554	32.94	-0.01							1.0
QRWL	SZ	28	198	EP		1554	31.23	-0.08							1.0
RCY	SZ	33	171	EP		1554	32.03	-0.03							1.0
RCY	SN	33	171	ES		1554	36.11	-0.00							1.0
SHBL	SZ	49	184	EP		1554	34.70	0.08							1.0
HWQ	BZ	56	16	EP		1554	35.81	0.07							1.0
FKH	SZ	77	49	EP		1554	39.06	-0.02							1.0

BEIL SZ 91 24 EP 1554 41.31-0.05 1.0

**October 18 2018 Hour: 10:18 9.8 Lat: 33.63N Lon: 36.32E Depth: 12 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
RCY	SZ	48	252	EP		1018	17.77	-0.02	53						1.0
QRWL	SZ	60	261	EP		1018	19.80	0.07							1.0
SHBL	SZ	62	240	EP		1018	20.03	-0.05							1.0
BHL	BZ	69	296	EP		1018	20.99	-0.02							1.0
DQRL	SZ	70	277	EP		1018	21.25	0.04							1.0
HWQ	BZ	80	334	EP		1018	22.45	-0.14							1.0
HWQ	BN	80	334	ES		1018	32.10	0.03							1.0
BEIL	SZ	102	353	EP		1018	25.92	0.13							1.0
BEIL	SN	102	353	ES		1018	37.61	-0.03							1.0

**October 18 2018 Hour: 12:20 26.8 Lat: 34.23N Lon: 36.46E Depth: 0 Agency: REL Local  
Magnitudes: 3.0MC REL Rms: 0.1 secs**

**BAALBECK REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	5	293	EP		1220	27.46	-0.20	59						0.2
BEIL	SZ	43	324	EP		1220	33.79	0.01							1.0
BEIL	SN	43	324	ES		1220	38.96	0.04							1.0
HWQ	BZ	48	277	EP		1220	34.42	-0.10							1.0
HWQ	BN	48	277	ES		1220	40.22	0.02							1.0
RCY	SZ	100	216	EP		1220	42.83	-0.07							1.0
RCY	SN	100	216	ES		1220	54.79	0.01							1.0
QRWL	SZ	104	224	EP		1220	43.73	0.08							1.0
SHBL	SZ	118	214	EP		1220	45.90	0.04							1.0

**October 18 2018 Hour: 16:11 30.6 Lat: 33.49N Lon: 35.55E Depth: 6 Agency: REL Local  
Magnitudes: 3.0MC REL Rms: 0.1 secs**

**JEZZINE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	14	60	EP		1611	33.08	-0.04	62						1.0
QRWL	SN	14	60	ES		1611	35.05	0.04							1.0
SHBL	SZ	24	130	EP		1611	34.54	-0.02							1.0
DQRL	SZ	25	4	EP		1611	34.79	0.09							1.0
DQRL	SN	25	4	ES		1611	37.80	0.04							1.0
RCY	SZ	27	87	EP		1611	35.07	0.04							1.0
RCY	SN	27	87	ES		1611	38.32	-0.01							1.0
BHL	BZ	48	12	EP		1611	38.21	-0.11							1.0
BHL	BN	48	12	ES		1611	44.00	-0.06							1.0
ZAHL	SZ	52	37	EP		1611	38.98	-0.03							1.0
HWQ	BZ	95	23	EP		1611	45.99	-0.00							1.0
FKH	SZ	116	43	EP		1611	49.13	-0.01							1.0
BEIL	SZ	131	26	EP		1611	51.40	0.07							1.0

**October 20 2018 Hour: 11:19 9.1 Lat: 33.47N Lon: 35.69E 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	9	357	EP		1119	10.43	-0.10	49						1.0
SHBL	SZ	14	158	EP		1119	11.38	-0.00							1.0
RCY	SZ	14	77	EP		1119	11.39	0.01							1.0
RCY	SN	14	77	ES		1119	13.09	0.01							1.0
DQRL	SZ	29	338	EP		1119	13.70	0.00							1.0
DQRL	SN	29	338	ES		1119	17.12	0.01							1.0
BHL	BZ	49	356	EP		1119	17.01	0.09							1.0
FKH	SZ	109	38	EP		1119	26.60	-0.09							0.2
BEIL	SZ	128	21	EP		1119	29.67	-0.02							1.0

October 22 2018 Hour: 11:33 42.3 Lat: 34.54N Lon: 36.87E Depth: 12 Agency: REL Regional  
Magnitudes: 3.3MC 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	63	270	EP		1133	52.64	0.04	93						1.0
BEIL	SN	63	270	ES		1134	0.19	-0.02							1.0
HWQ	BZ	90	251	EP		1133	56.57	-0.02							1.0
HWQ	BN	90	251	ES		1134	7.19	0.03							1.0
RCY	SZ	150	220	EP		1134	5.57	0.07							1.0
DQRL	SZ	151	233	EP		1134	5.60	-0.07							1.0
QRWL	SZ	155	225	EP		1134	6.21	-0.03							1.0
SHBL	SZ	168	218	EP		1134	8.09	-0.01							1.0

October 23 2018 Hour: 9:1 49.1 Lat: 34.16N Lon: 36.32E Depth: 30 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.1 secs

BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	37	292	EP		9 1	56.47	-0.08							1.0
HWQ	BN	37	292	ES		9 2	2.06	-0.01							1.0
BEIL	SZ	45	344	EP		9 1	57.36	-0.06	36						1.0
BEIL	SN	45	344	ES		9 2	3.67	0.09							1.0
ZAHL	SZ	52	231	EP		9 1	58.52	0.10							0.2
BHL	BZ	67	246	EP		9 2	0.52	0.04							1.0
RCY	SZ	86	212	EP		9 2	3.06	-0.01							1.0
QRWL	SZ	90	221	EP		9 2	3.60	0.03							1.0
SHBL	SZ	104	211	EP		9 2	5.49	0.01							1.0

October 23 2018 Hour: 14:55 47.5 Lat: 33.80N Lon: 35.78E Depth: 24 Agency: REL Local  
Magnitudes: 2.9MC 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	12	58	EP		1455	51.88	0.04							1.0
BHL	BZ	16	314	EP		1455	52.18	0.04							1.0
DQRL	SZ	22	241	EP		1455	52.69	-0.02	55						1.0
QRWL	SZ	30	198	EP		1455	53.49	-0.04							1.0
RCY	SZ	34	171	EP		1455	54.15	-0.00							1.0
SHBL	SZ	51	184	EP		1455	56.26	-0.02							1.0
SHBL	SN	51	184	ES		1456	2.79	0.01							1.0
HWQ	BZ	55	16	EP		1455	56.95	0.10							1.0
HWQ	BN	55	16	ES		1456	3.67	-0.10							1.0

October 24 2018 Hour: 2:36 13.9 Agency: REL Regional  
EMSC OT=02:36:13.9 36.35N 28.78E 2Km M=4.4 DODECANESE-TURKEY BORDER REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		237	46.38								
QRWL	SZ			EP		237	47.82								
ZAHL	SZ			EP		237	47.36								
BEIL	SZ			EP		237	48.14								
RCY	SZ			EP		237	49.12								
SHBL	SZ			EP		237	49.39								

October 24 2018 Hour: 13:6 23.5 Lat: 34.68N Lon: 36.16E Depth: 5 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
BEIL	SZ	16	171	EP		13 6	26.19	-0.05	56						1.0
BEIL	SN	16	171	ES		13 6	28.28	0.04							1.0
HWQ	BZ	49	204	EP		13 6	31.40	-0.05							1.0
HWQ	BN	49	204	ES		13 6	37.27	-0.04							1.0
BHL	BZ	98	208	EP		13 6	39.43	0.10							1.0
DQRL	SZ	121	207	EP		13 6	42.90	0.05							1.0
QRWL	SZ	133	199	EP		13 6	44.53	-0.10							1.0
RCY	SZ	135	193	EP		13 6	44.87	-0.02							1.0

RCY	SN	135	193	ES		13	7	0.70	0.00									1.0
SHBL	SZ	153	195	EP		13	6	47.61	0.07									1.0

**October 25 2018 Hour: 1:45 19.8 Lat: 34.71N Lon: 33.74E Depth: 25 Agency: REL Regional**  
**Magnitudes: 3.2MC REL Rms: 0.0 secs**

**CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	198	116	EP		145	48.08	-0.02							1.0
DQRL	SZ	202	123	EP		145	48.62	-0.03							1.0
HWQ	BZ	209	103	EP		145	49.48	0.02	65						1.0
HWQ	BN	209	103	ES		146	11.43	0.00							1.0
ZAHL	SZ	219	115	EP		145	50.77	-0.01							1.0
QRWL	SZ	221	125	EP		145	50.96	0.01							1.0
BEIL	SZ	225	94	EP		145	51.41	-0.07							1.0
BEIL	SN	225	94	ES		146	14.99	0.03							1.0
RCY	SZ	236	124	EP		145	52.96	0.11							1.0
RCY	SN	236	124	ES		146	17.30	-0.04							1.0
SHBL	SZ	239	129	EP		145	53.24	-0.01							1.0

**October 25 2018 Hour: 20:51 34.3 Lat: 34.02N Lon: 35.85E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.0MC 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	19	168	EP		2051	37.05	-0.28	59						0.2
BHL	BZ	22	234	EP		2051	37.88	-0.00							1.0
HWQ	BZ	30	18	EP		2051	39.19	0.02							1.0
HWQ	BN	30	18	ES		2051	42.71	-0.03							1.0
DQRL	SZ	43	216	EP		2051	41.37	0.04							1.0
DQRL	SN	43	216	ES		2051	46.48	-0.02							1.0
QRWL	SZ	55	196	EP		2051	43.12	-0.04							1.0
RCY	SZ	58	181	EP		2051	43.76	0.02							1.0
RCY	SN	58	181	ES		2051	50.70	0.01							1.0
BEIL	SZ	66	28	EP		2051	44.94	0.02							1.0

**October 25 2018 Hour: 22:54 51.5 Agency: REL Regional**

**EMSC OT=22:54:51.5 37.53N 20.62E 10Km M=6.8 IONIAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2257	51.52								
DQRL	SZ			EP		2257	50.19								
HWQ	BZ			EP		2257	51.97								
QRWL	SZ			EP		2257	51.06								
ZAHL	SZ			EP		2257	51.65								
BEIL	SZ			EP		2257	51.94								
SHBL	SZ			EP		2257	53.39								
RCY	SZ			EP		2257	52.81								

**October 26 2018 Hour: 18:37 44.7 Agency: REL Regional**

**EMSC OT=18:37:44.7 36.08N 31.13E 66Km M=4.3 WESTERN TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1838	48.88								
HWQ	BZ			EP		1838	48.18								
BHL	BZ			EP		1838	48.59								
DQRL	SZ			EP		1838	49.93								
ZAHL	SZ			EP		1838	50.45								
QRWL	SZ			EP		1838	51.99								
RCY	SZ			EP		1838	52.51								
SHBL	SZ			EP		1838	53.55								



**October 27 2018 Hour: 9:29 12.7 Lat: 33.70N Lon: 35.36E Depth: 6 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	20	88	EP		929	16.13	0.02	35						1.0
DQRL	SN	20	88	ES		929	18.63	-0.02							1.0
QRWL	SZ	35	119	EP		929	18.39	-0.01							1.0
BHL	BZ	36	51	EP		929	18.58	0.01							1.0
RCY	SZ	50	117	EP		929	20.76	-0.07							1.0
RCY	SN	50	117	ES		929	26.89	0.03							1.0
SHBL	SZ	53	137	EP		929	21.37	0.03							1.0

**October 27 2018 Hour: 17:27 42.8 Lat: 34.27N Lon: 36.18E Depth: 16 Agency: REL Local**  
**Magnitudes: 3.1MC REL Rms: 0.1 secs**

**HERMEL REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	22	273	EP		1727	47.37	0.07	68						1.0
HWQ	BN	22	273	ES		1727	50.62	-0.01							1.0
BEIL	SZ	30	0	EP		1727	48.43	0.09							1.0
BEIL	SN	30	0	ES		1727	52.37	-0.08							1.0
ZAHL	SZ	53	211	EP		1727	51.26	-0.39							0.2
BHL	BZ	63	231	EP		1727	53.13	-0.00							1.0
DQRL	SZ	84	222	EP		1727	56.14	-0.05							1.0
RCY	SZ	91	201	EP		1727	57.20	-0.07							1.0
QRWL	SZ	92	210	EP		1727	57.38	0.01							1.0
SHBL	SZ	110	202	EP		1728	0.05	0.08							1.0

**October 27 2018 Hour: 19:18 11.9 Lat: 33.79N Lon: 35.78E Depth: 7 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	12	52	EP		1918	14.31	0.04							1.0
BHL	BZ	17	316	EP		1918	14.90	-0.08	39						1.0
DQRL	SZ	22	244	EP		1918	15.77	0.09							1.0
DQRL	SN	22	244	ES		1918	18.50	0.02							1.0
QRWL	SZ	29	199	EP		1918	16.60	-0.11							1.0
RCY	SZ	33	172	EP		1918	17.35	-0.08							1.0
RCY	SN	33	172	ES		1918	21.52	0.00							1.0
SHBL	SZ	49	184	EP		1918	20.09	0.11							1.0
HWQ	BZ	56	16	EP		1918	21.04	0.02							1.0

**October 28 2018 Hour: 0:38 10.8 Agency: REL Distant**  
**EMSC OT=00:38:10.8 45.60N 26.40E 151Km M=5.5 ROMANIA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		041	18.93								
HWQ	BZ			EP		041	15.75								

**October 28 2018 Hour: 10:56 37.0 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	48	EP		1056	39.35	-0.00							1.0
BHL	BZ	18	319	EP		1056	40.10	-0.04	41						1.0
DQRL	SZ	21	247	EP		1056	40.70	0.07							1.0
QRWL	SZ	28	200	EP		1056	41.48	-0.10							1.0
RCY	SZ	32	171	EP		1056	42.29	-0.01							1.0
SHBL	SZ	48	184	EP		1056	44.90	0.03							1.0
SHBL	SN	48	184	ES		1056	50.70	0.04							1.0
HWQ	BZ	57	15	EP		1056	46.31	-0.02							1.0
HWQ	BN	57	15	ES		1056	53.23	0.03							1.0
BEIL	SZ	92	24	EP		1056	51.92	-0.02							0.2



October 28 2018 Hour: 13:24 35.5 Lat: 34.10N Lon: 35.99E Depth: 3 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

**JBEIL REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	20	349	EP		1324	38.78	-0.08	46						1.0
HWQ	BN	20	349	ES		1324	41.35	0.00							1.0
ZAHL	SZ	28	200	EP		1324	40.13	-0.01							1.0
ZAHL	SN	28	200	ES		1324	43.63	0.05							1.0
BHL	BZ	38	235	EP		1324	41.68	0.04							1.0
BHL	BN	38	235	ES		1324	46.18	-0.00							1.0
BEIL	SZ	52	20	EP		1324	44.05	0.09							1.0
DQRL	SZ	58	222	EP		1324	44.97	0.02							1.0
RCY	SZ	68	192	EP		1324	46.46	-0.09							1.0
SHBL	SZ	86	195	EP		1324	49.43	-0.01							1.0

October 28 2018 Hour: 13:37 31.7 Lat: 33.58N Lon: 37.19E Depth: 15 Agency: REL Regional  
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
ZAHL	SZ	124	285	EP		1337	51.05	0.11							1.0
RCY	SZ	126	266	EP		1337	51.12	-0.03							1.0
RCY	SN	126	266	ES		1338	5.55	-0.03							1.0
SHBL	SZ	136	259	EP		1337	52.66	-0.08							1.0
HWQ	BZ	138	304	EP		1337	52.93	-0.05							1.0
QRWL	SZ	140	269	EP		1337	53.15	-0.02							1.0
BEIL	SZ	141	319	EP		1337	53.36	0.00	71						1.0
BEIL	SN	141	319	ES		1338	9.39	-0.02							1.0
BHL	BZ	146	285	EP		1337	54.12	-0.04							1.0
DQRL	SZ	150	276	EP		1337	54.90	0.13							1.0
DQRL	SN	150	276	ES		1338	11.90	0.03							1.0

October 29 2018 Hour: 4:32 39.7 Agency: REL Regional  
EMSC OT=04:32:39.7 36.44N 28.74E 2Km M=4.3 DODECANESE-TURKEY BORDER REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		434	11.05								
BEIL	SZ			EP		434	12.04								
QRWL	SZ			EP		434	12.71								
ZAHL	SZ			EP		434	12.15								
RCY	SZ			EP		434	14.12								
SHBL	SZ			EP		434	13.95								

October 29 2018 Hour: 12:9 15.5 Lat: 34.54N Lon: 33.50E Depth: 27 Agency: REL Regional  
Magnitudes: 4.3MC 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	211	109	EP		12 9	45.27	-0.04							1.0
DQRL	SZ	212	115	EP		12 9	45.64	0.14							1.0
HWQ	BZ	227	97	EP		12 9	47.28	-0.06							1.0
HWQ	BN	227	97	ES		1210	10.93	0.03							1.0
QRWL	SZ	230	118	EP		12 9	47.66	0.01							1.0
ZAHL	SZ	233	108	EP		12 9	48.06	0.01							1.0
RCY	SZ	245	117	EP		12 9	49.47	-0.12							1.0
SHBL	SZ	246	122	EP		12 9	49.73	-0.00							1.0
BEIL	SZ	247	89	EP		12 9	49.79	0.06	297						1.0
BEIL	SN	247	89	ES		1210	15.03	-0.03							1.0

October 29 2018 Hour: 14:42 24.4 Lat: 33.47N Lon: 35.68E Depth: 0 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	9	360	EP		1442	25.82	-0.02	42						1.0
RCY	SZ	15	78	EP		1442	26.77	-0.03							1.0
SHBL	SZ	15	157	EP		1442	26.85	0.02							1.0

DQRL	SZ	28	338	EP		1442	28.96	-0.02									1.0
DQRL	SN	28	338	ES		1442	32.34	0.00									1.0
ZAHL	SZ	47	24	EP		1442	32.05	0.03									1.0
ZAHL	SN	47	24	ES		1442	37.64	0.02									1.0

**October 30 2018 Hour: 0:25 43.9**

**Agency: REL Regional**

**EMSC OT=00:25:43.9 36.37N 28.68E 2Km M=4.5 DODECANESE -TURKEY BORDER REG**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		027	13.54								
DQRL	SZ			EP		027	13.86								
HWQ	BZ			EP		027	14.81								
BEIL	SZ			EP		027	15.40								
QRWL	SZ			EP		027	16.83								
ZAHL	SZ			EP		027	15.82								
RCY	SZ			EP		027	17.71								
SHBL	SZ			EP		027	18.59								

**October 30 2018 Hour: 0:46 37.0**

**Lat: 33.81N**

**Lon: 35.81E**

**Depth: 13**

**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	9	52	EP		046	39.73	-0.00							1.0
BHL	BZ	18	307	EP		046	40.63	-0.01	36						1.0
BHL	BN	18	307	ES		046	43.38	0.02							1.0
DQRL	SZ	25	243	EP		046	41.50	-0.05							1.0
QRWL	SZ	31	202	EP		046	42.48	0.03							1.0
RCY	SZ	35	176	EP		046	42.97	-0.04							1.0
SHBL	SZ	51	187	EP		046	45.60	0.05							1.0
SHBL	SN	51	187	ES		046	51.90	-0.00							1.0

**October 30 2018 Hour: 2:13 39.6**

**Agency: REL Regional**

**EMSC OT=02:13:39.6 39.06S 175.00E 225Km M=6.1 NORTH ISLAND OF NEW ZEALAND**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		232	51.12								
HWQ	SZ			EP		232	53.47								
DQRL	SZ			EP		232	54.70								
BEIL	SZ			EP		232	53.63								
QRWL	SZ			EP		232	54.78								
ZAHL	SZ			EP		232	54.90								
RCY	SZ			EP		232	53.80								
SHBL	SZ			EP		232	54.29								

**October 30 2018 Hour: 2:59 58.1**

**Agency: REL Regional**

**EMSC OT=02:59:58.1 37.52N 20.43E 10Km M=5.6 IONIAN SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		3 3	1.54								
SHBL	SZ			EP		3 3	1.24								
ZAHL	SZ			EP		3 3	2.15								
BEIL	SZ			EP		3 3	0.50								
QRWL	SZ			EP		3 3	0.53								
HWQ	SZ			EP		3 3	5.10								

**October 30 2018 Hour: 14:46 28.1**

**Agency: REL Regional**

**EMSC OT=14:46:28.1 34.80N 32.99E 51Km M=2.9 CYPRUS REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1447	5.73								
ZAHL	SZ			EP		1447	6.52								
BEIL	SZ			EP		1447	7.38								
RCY	SZ			EP		1447	8.51								
SHBL	SZ			EP		1447	9.08								

October 30 2018 Hour: 15:12 0.6

Agency: REL Regional

EMSC OT=15:12:00.6 37.47N 20.51E 10Km M=5.7 IONIAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ			EP		1515	1.85								
HWQ	BZ			EP		1515	3.00								
ZAHL	SZ			EP		1515	6.41								
SHBL	SZ			EP		1515	4.56								
RCY	SZ			EP		1515	4.10								
BEIL	SZ			EP		1515	4.00								

October 31 2018 Hour: 14:48 5.6

Lat: 33.80N

Lon: 35.79E

Depth: 15

Agency: REL Local

Magnitudes: 2.6MC 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	11	56	EP		1448	8.67-0.04								1.0
BHL	BZ	17	312	EP		1448	9.31 0.02		36						1.0
BHL	BN	17	312	ES		1448	12.12 0.08								1.0
DQRL	SZ	23	242	EP		1448	9.94-0.13								1.0
QRWL	SZ	30	199	EP		1448	10.96-0.07								1.0
RCY	SZ	34	173	EP		1448	11.72 0.04								1.0
SHBL	SZ	51	185	EP		1448	14.19 0.13								1.0
SHBL	SN	51	185	ES		1448	20.33-0.00								1.0
HWQ	BZ	55	15	EP		1448	14.60-0.02								1.0



# Epicentral Map of Lebanon

## OCTOBER 2018

