

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

November

2019

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 1 2019 Hour: 10:17 4.4

Agency: REL Regional

EMSC OT=10:17:04.4 36.50N 31.44E 91Km M=4.0 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1018	6.97								
BEIL	SZ			EP		1018	7.44								
BHL	BZ			EP		1018	6.38								
ZAHL	SZ			EP		1018	9.66								
QRWL	SZ			EP		1018	10.71								
FKH	SZ			EP		1018	12.08								
RCY	SZ			EP		1018	12.70								
SHBL	SZ			EP		1018	13.72								

November 1 2019 Hour: 18:40 43.0 Lat: 32.90N

Lon: 35.64E Depth: 1 Agency: REL Local

Magnitudes: 3.5MC REL

Rms: 0.1 secs

Earthquake was felt

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	50	11	EP		1840	51.18	0.07	122						1.0
SHBL	SN	50	11	ES		1840	57.04	-0.08							1.0
RCY	SZ	68	15	EP		1840	53.94	-0.06							1.0
RCY	SN	68	15	ES		1841	2.22	0.07							1.0
QRWL	SZ	72	3	EP		1840	54.44	-0.10							1.0
ZAHL	SZ	108	12	EP		1841	0.52	0.07							1.0
BHL	BZ	111	1	EP		1841	0.92	0.02							1.0
HWQ	BZ	155	10	EP		1841	7.65	0.03							1.0
HWQ	BN	155	10	ES		1841	25.82	-0.03							1.0
FKH	SZ	165	25	EP		1841	9.18	0.11							1.0
BEIL	SZ	189	15	EP		1841	12.26	-0.07							1.0

November 3 2019 Hour: 16:34 43.6

Agency: REL Regional

EMSC OT=16:34:43.6 38.35N 38.93E 11Km M=3.7 EASTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1635	50.81								
FKH	SZ			EP		1635	52.84								
HWQ	BZ			EP		1635	55.59								
ZAHL	SZ			EP		1636	1.02								
BHL	BZ			EP		1636	1.85								
RCY	SZ			EP		1636	5.67								
QRWL	SZ			EP		1636	6.21								
SHBL	SZ			EP		1636	8.48								

November 4 2019 Hour: 18:32 47.0

Agency: REL Distant

EMSC OT=18:32:47.0 22.25S 176.39W 100Km M=5.4 SOUTH OF FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1852	23.53								
FKH	SZ			EP		1852	23.57								
HWQ	BZ			EP		1852	23.81								
ZAHL	SZ			EP		1852	24.83								
BHL	BZ			EP		1852	24.87								
RCY	SZ			EP		1852	25.07								
QRWL	SZ			EP		1852	25.31								
SHBL	SZ			EP		1852	25.52								

November 4 2019 Hour: 23:0 2.4 Lat: 35.85N

Lon: 35.43E Depth: 12 Agency: REL Regional

Magnitudes: 3.2MC REL

Rms: 0.1 secs

OFFSHORE SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	161	154	EP		23 0	27.10	-0.10	68						1.0
BEIL	SN	161	154	ES		23 0	45.60	0.06							1.0
HWQ	BZ	181	165	EP		23 0	29.67	-0.13							1.0
HWQ	BN	181	165	ES		23 0	50.02	-0.06							1.0
FKH	SZ	200	153	EP		23 0	32.20	0.08							1.0
BHL	BZ	217	174	EP		23 0	34.30	0.02							1.0

ZAHL	SZ	225	169	EP		23	0	35.32	0.02								1.0
QRWL	SZ	257	175	EP		23	0	39.19	0.00								1.0
RCY	SZ	264	172	EP		23	0	40.29	0.15								1.0
SHBL	SZ	280	174	EP		23	0	42.00	-0.04								1.0

November 4 2019 Hour: 23:43 32.1

Agency: REL Distant

EMSC OT=22:43:32.1 18.53S 175.31W 10Km M=6.6 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		23	3	17.34							
HWQ	BZ			EP		23	3	16.79							

November 5 2019 Hour: 3:29 38.2 Lat: 33.59N Lon: 34.68E Depth: 5 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.1 secs

OFFSHORE SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	94	92	EP		329	53.44	0.10							1.0
BHL	BZ	97	68	EP		329	53.90	-0.04							1.0
SHBL	SZ	103	105	EP		329	54.74	-0.09							1.0
SHBL	SN	103	105	ES		330	7.00	-0.11							1.0
RCY	SZ	108	95	EP		329	55.77	0.07	37						1.0
RCY	SN	108	95	ES		330	8.72	0.08							1.0
HWQ	BZ	140	56	EP		330	0.39	-0.02							1.0
BEIL	SZ	175	52	EP		330	5.40	-0.08							1.0
FKH	SZ	176	65	EP		330	5.78	0.09							1.0

November 5 2019 Hour: 21:1 25.9 Lat: 35.50N Lon: 31.80E Depth: 17 Agency: REL Regional  
Magnitudes: 3.7MC REL Rms: 0.2 secs

EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	395	115	EP		21	2	19.32	-0.05						1.0
HWQ	BZ	403	108	EP		21	2	20.28	-0.03						1.0
HWQ	BN	403	108	ES		21	3	0.93	0.40						1.0
BEIL	SZ	414	104	EP		21	2	21.78	0.14	97					1.0
BEIL	SN	414	104	ES		21	3	2.78	-0.08						1.0
ZAHL	SZ	417	115	EP		21	2	21.79	-0.19						1.0
QRWL	SZ	417	120	EP		21	2	22.06	0.03						1.0
RCY	SZ	432	120	EP		21	2	23.91	0.00						1.0
SHBL	SZ	434	122	EP		21	2	24.17	0.03						1.0
FKH	SZ	444	107	EP		21	2	25.39	0.07						1.0
FKH	SN	444	107	ES		21	3	8.94	-0.32						1.0

November 6 2019 Hour: 7:40 43.4

Agency: REL Distant

EMSC OT=07:40:43.4 27.28N 55.08E 10Km M=5.4 SOUTHERN IRAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		744	46.89								
RCY	SZ			EP		744	49.93								
BEIL	SZ			EP		744	50.18								
SHBL	SZ			EP		744	50.42								
HWQ	BZ			EP		744	50.67								
QRWL	SZ			EP		744	51.66								
BHL	BZ			EP		744	52.72								

November 6 2019 Hour: 18:0 28.3 Lat: 34.28N Lon: 33.75E Depth: 2 Agency: REL Regional  
Magnitudes: 3.4MC REL Rms: 0.1 secs

CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	180	110	EP		18	0	56.65	0.09						1.0
BHL	BZ	181	103	EP		18	0	56.61	-0.05						1.0
QRWL	SZ	197	114	EP		18	0	58.58	-0.01						1.0
HWQ	BZ	203	89	EP		18	0	59.32	-0.06						1.0
HWQ	BN	203	89	ES		18	1	22.37	0.02						1.0
ZAHL	SZ	203	103	EP		18	0	59.41	-0.01						1.0
RCY	SZ	212	114	EP		18	1	0.41	-0.14						1.0
RCY	SN	212	114	ES		18	1	24.36	-0.03						1.0

SHBL	SZ	212	119	EP	18	1	0.68	0.14									1.0
BEIL	SZ	226	82	EP	18	1	2.23	-0.00	84								1.0
BEIL	SN	226	82	ES	18	1	27.34	0.02									1.0
FKH	SZ	245	90	EP	18	1	4.73	0.04									1.0

November 6 2019 Hour: 23:37 21.8

Agency: REL Distant

EMSC OT=23:37:21.8 20.93S 174.05W 10Km M=5.0 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2357	14.26								
FKH	SZ			EP		2357	14.77								
BHL	BZ			EP		2357	15.76								
DQRL	SZ			EP		2357	16.74								
QRWL	SZ			EP		2357	16.59								
SHBL	SZ			EP		2357	16.22								

November 7 2019 Hour: 14:15 57.9 Lat: 34.26N Lon: 36.44E 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	4	236	EP		1415	58.23	-0.26	63						1.0
BEIL	SZ	39	323	EP		1416	4.22	0.05							1.0
BEIL	SN	39	323	ES		1416	8.79	-0.03							1.0
HWQ	BZ	46	272	EP		1416	5.28	0.02							1.0
HWQ	BN	46	272	ES		1416	10.74	0.02							1.0
ZAHL	SZ	68	229	EP		1416	8.87	-0.03							1.0
BHL	BZ	83	242	EP		1416	11.33	0.07							1.0
RCY	SZ	102	214	EP		1416	14.31	-0.01							1.0
DQRL	SZ	102	233	EP		1416	14.41	0.14							1.0
QRWL	SZ	106	222	EP		1416	14.89	-0.09							1.0
SHBL	SZ	120	213	EP		1416	17.42	0.13							1.0

November 7 2019 Hour: 15:34 17.9 Lat: 34.15N Lon: 36.44E Depth: 0 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
FKH	SZ	11	348	EP		1534	19.63	-0.06	55						1.0
HWQ	BZ	48	288	EP		1534	25.39	-0.12							1.0
BEIL	SZ	50	332	EP		1534	25.75	-0.12							1.0
BEIL	SN	50	332	ES		1534	31.94	0.14							1.0
ZAHL	SZ	60	238	EP		1534	27.39	-0.14							1.0
ZAHL	SN	60	238	ES		1534	34.56	-0.14							1.0
BHL	BZ	77	250	EP		1534	30.40	0.13							1.0
RCY	SZ	91	218	EP		1534	32.50	-0.02							1.0
DQRL	SZ	94	239	EP		1534	33.20	0.23							1.0
QRWL	SZ	96	227	EP		1534	33.61	0.24							1.0
SHBL	SZ	109	216	EP		1534	35.34	-0.12							1.0

November 7 2019 Hour: 21:28 47.9

Agency: REL Regional

EMSC OT=21:28:47.9 37.66N 38.56E 8Km M=3.7 EASTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2129	46.29								
FKH	SZ			EP		2129	49.03								
HWQ	BZ			EP		2129	50.56								
ZAHL	SZ			EP		2129	56.47								
BHL	BZ			EP		2129	57.67								
DQRL	SZ			EP		2130	2.10								
RCY	SZ			EP		2130	0.11								
QRWL	SZ			EP		2130	3.44								
SHBL	SZ			EP		2130	3.22								

November 7 2019 Hour: 23: 7 18.3

Agency: REL Distant

EMSC OT=23:07:18.3 36.63N 45.44E 10Km M=4.4 IRAN-IRAQ BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		23 9	9.12								
BEIL	SZ			EP		23 9	10.15								
HWQ	BZ			EP		23 9	14.16								
ZAHL	SZ			EP		23 9	17.49								
BHL	BZ			EP		23 9	18.95								
RCY	SZ			EP		23 9	19.86								
QRWL	SZ			EP		23 9	21.62								
DQRL	SZ			EP		23 9	21.34								
SHBL	SZ			EP		23 9	21.41								

November 8 2019 Hour: 9:41 10.8

Agency: REL Distant

EMSC OT=09:41:10.8 15.80S 172.85W 10Km M=5.9 SAMOA ISLANDS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		10 0	54.04								
HWQ	BZ			EP		10 0	53.69								
BHL	BZ			EP		10 0	54.13								
QRWL	SZ			EP		10 0	55.64								
SHBL	SZ			EP		10 0	55.95								

November 8 2019 Hour: 10:44 47.3

Agency: REL Distant

EMSC OT=10:44:47.3 22.05S 179.59W 610Km M=6.5 SOUTH OF FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		11 5	37.40								
HWQ	BZ			EP		11 5	35.50								

November 8 2019 Hour: 11:17 40.9 Lat: 34.24N Lon: 36.43E Depth: 0

Agency: REL Local

Magnitudes: 2.6MC 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	2	276	EP		1117	41.15-0.12	36							1.0
BEIL	SZ	40	326	EP		1117	47.40 0.02								1.0
BEIL	SN	40	326	ES		1117	52.20 0.04								1.0
HWQ	BZ	45	275	EP		1117	48.11-0.02								1.0
HWQ	BN	45	275	ES		1117	53.49 0.02								1.0
BHL	BZ	81	243	EP		1117	53.96-0.00								1.0
RCY	SZ	99	214	EP		1117	56.93-0.02								1.0
QRWL	SZ	104	222	EP		1117	57.62-0.01								1.0
SHBL	SZ	118	213	EP		1118	0.02 0.09								1.0

November 8 2019 Hour: 15:52 46.0

Agency: REL Distant

EMSC OT=15:52:46.0 15.66S 172.81W 48Km M=5.4 SAMOA ISLANDS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1612	28.78								
FKH	SZ			EP		1612	28.88								
HWQ	BZ			EP		1612	29.09								
ZAHL	SZ			EP		1612	30.47								
BHL	BZ			EP		1612	30.40								
DQRL	SZ			EP		1612	31.35								
RCY	SZ			EP		1612	30.92								
QRWL	SZ			EP		1612	31.10								
SHBL	SZ			EP		1612	31.49								

November 9 2019 Hour: 7:19 44.9 Lat: 36.07N Lon: 36.14E Depth: 3

Agency: REL Regional

Magnitudes: 3.6MC REL

Rms: 0.1 secs

TURKEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	170	179	EP		720	11.63 0.01	122							1.0
BEIL	SN	170	179	ES		720	31.36-0.01								1.0
HWQ	BZ	200	185	EP		720	15.58-0.03								1.0
HWQ	BN	200	185	ES		720	38.39 0.09								1.0



FKH	SZ	204	173	EP		720	16.15-0.00								1.0
BHL	BZ	245	191	EP		720	21.24 0.09								1.0
DQRL	SZ	268	191	EP		720	23.92-0.09								1.0
QRWL	SZ	283	189	EP		720	25.98 0.05								1.0
RCY	SZ	287	186	EP		720	26.47 0.00								1.0
RCY	SN	287	186	ES		720	57.12-0.08								1.0
SHBL	SZ	304	187	EP		720	28.59-0.03								1.0

**November 9 2019 Hour: 14:31 6.3 Lat: 34.68N Lon: 36.35E Depth: 9 Agency: REL Local**  
**Magnitudes: 2.6MC REL Rms: 0.1 secs**

**LEBANON - SYRIA BORDER REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	22	225	EP		1431	10.11 0.00		33						1.0
BEIL	SN	22	225	ES		1431	12.88-0.05								1.0
FKH	SZ	49	173	EP		1431	14.41 0.11								1.0
FKH	SN	49	173	ES		1431	20.15-0.08								1.0
HWQ	BZ	58	220	EP		1431	15.74-0.04								1.0
HWQ	BN	58	220	ES		1431	22.92 0.11								1.0
BHL	BZ	107	217	EP		1431	23.37 0.01								1.0
DQRL	SZ	130	214	EP		1431	26.53-0.13								1.0
QRWL	SZ	140	206	EP		1431	28.10-0.04								1.0
RCY	SZ	140	200	EP		1431	28.19 0.06								1.0
SHBL	SZ	158	201	EP		1431	30.90 0.06								1.0

**November 11 2019 Hour: 4:55 2.9 Lat: 33.55N Lon: 35.71E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.4MC REL Rms: 0.1 secs**

**WEST BEKAA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	3	258	EP		455	3.30-0.00		25						1.0
RCY	SZ	13	118	EP		455	4.98-0.05								1.0
RCY	SN	13	118	ES		455	6.56-0.07								1.0
DQRL	SZ	21	323	EP		455	6.36 0.05								1.0
DQRL	SN	21	323	ES		455	8.74-0.11								1.0
SHBL	SZ	23	172	EP		455	6.64 0.07								1.0
ZAHL	SZ	38	26	EP		455	9.06 0.12								1.0

**November 11 2019 Hour: 11:29 22.6 Lat: 34.58N Lon: 36.37E Depth: 5 Agency: REL Local**  
**Magnitudes: 3.1MC REL Rms: 0.1 secs**

**AKKAR REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	17	256	EP		1129	25.62-0.01		65						1.0
BEIL	SN	17	256	ES		1129	28.02 0.19								1.0
FKH	SZ	37	174	EP		1129	28.61-0.16								1.0
FKH	SN	37	174	ES		1129	33.46 0.15								1.0
HWQ	BZ	51	229	EP		1129	30.80-0.18								1.0
HWQ	BN	51	229	ES		1129	36.96-0.18								1.0
BHL	BZ	100	221	EP		1129	38.78 0.02								1.0
DQRL	SZ	122	217	EP		1129	42.21 0.15								1.0
RCY	SZ	130	202	EP		1129	43.46 0.18								1.0
QRWL	SZ	131	209	EP		1129	43.27-0.13								1.0
SHBL	SZ	148	203	EP		1129	45.96-0.04								1.0

**November 14 2019 Hour: 16:17 42.4 Agency: REL Distant**

**EMSC OT=16:17:42.4 1.62N 126.42E 52Km M=7.1 MOLUCCA SEA**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1630	34.29								
BEIL	SZ			EP		1630	34.54								
HWQ	BZ			EP		1630	35.51								
ZAHL	SZ			EP		1630	35.99								
RCY	SZ			EP		1630	36.36								
SHBL	SZ			EP		1630	36.84								
BHL	BZ			EP		1630	36.66								
QRWL	SZ			EP		1630	36.78								
DQRL	SZ			EP		1630	37.33								

November 14 2019 Hour: 18:45 41.5 Agency: REL Distant

EMSC OT=18:45:41.5 1.46N 126.46E 46Km M=5.8 MOLUCCA SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1858	33.42								
BEIL	SZ			EP		1858	33.79								
HWQ	BZ			EP		1858	35.02								
SHBL	SZ			EP		1858	35.53								
BHL	BZ			EP		1858	36.04								

November 14 2019 Hour: 21:12 55.4 Agency: REL Distant

EMSC OT=21:12:55.4 1.61N 126.50E 30Km M=6.0 MOLUCCA SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		2125	49.68								
BEIL	SZ			EP		2125	50.53								
HWQ	BZ			EP		2125	50.53								
RCY	SZ			EP		2125	52.93								
BHL	BZ			EP		2125	52.93								
SHBL	SZ			EP		2125	52.59								
DQRL	SZ			EP		2125	53.02								

November 14 2019 Hour: 23:11 31.8Lat: 33.40N Lon: 35.60E Depth: 9 Agency: REL Local  
Magnitudes: 2.5MC REL Rms: 0.0 secs

MARJAAYOUN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	14	112	EP		2311	34.66	-0.03							1.0
QRWL	SZ	18	23	EP		2311	35.21	-0.01							1.0
QRWL	SN	18	23	ES		2311	37.71	-0.02							1.0
RCY	SZ	24	63	EP		2311	36.18	0.06	31						1.0
RCY	SN	24	63	ES		2311	39.30	0.01							1.0
DQRL	SZ	35	355	EP		2311	37.69	0.04							1.0
DQRL	SN	35	355	ES		2311	41.95	0.01							1.0
ZAHL	SZ	58	27	EP		2311	41.21	-0.07							1.0

November 15 2019 Hour: 01:17 38.8 Agency: REL Distant

EMSC OT=01:17:38.8 1.61N 126.34E 47Km M=5.9 MOLUCCA SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		130	29.99								
HWQ	BZ			EP		130	30.67								
ZAHL	SZ			EP		130	32.00								
RCY	SZ			EP		130	32.05								
BHL	BZ			EP		130	32.11								
SHBL	SZ			EP		130	32.60								

November 16 2019 Hour: 18:14 10.9 Agency: REL Regional

EMSC OT=18:14:10.9 36.77N 30.00E 70Km M=4.3 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1815	26.74								
HWQ	BZ			EP		1815	27.88								
BEIL	SZ			EP		1815	28.09								
ZAHL	SZ			EP		1815	30.05								
QRWL	SZ			EP		1815	30.19								
RCY	SZ			EP		1815	32.54								
SHBL	SZ			EP		1815	32.68								
FKH	SZ			EP		1815	33.44								

November 16 2019 Hour: 19:14 13.6Lat: 33.92N Lon: 34.74E Depth: 20 Agency: REL Local  
Magnitudes: 3.2MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	70	94	EP		1914	25.12	0.21							1.0
BHL	BZ	84	91	EP		1914	26.94	-0.17	78						1.0
QRWL	SZ	97	115	EP		1914	28.97	0.09							1.0
ZAHL	SZ	106	94	EP		1914	30.35	0.07							1.0

RCY	SZ	112	115	EP	1914	31.20	0.04										1.0
RCY	SN	112	115	ES	1914	44.06	-0.06										1.0
SHBL	SZ	113	124	EP	1914	31.16	-0.12										1.0
HWQ	BZ	118	70	EP	1914	31.95	-0.07										1.0
HWQ	BN	118	70	ES	1914	45.63	0.00										1.0
BEIL	SZ	150	62	EP	1914	36.25	-0.11										1.0
BEIL	SN	150	62	ES	1914	53.19	0.02										1.0
FKH	SZ	158	76	EP	1914	37.55	0.08										1.0

**November 17 2019 Hour: 7:22 55.5 Lat: 34.80N Lon: 37.15E Depth: 4 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
FKH	SZ	92	228	EP		723	10.28	-0.03							1.0
BEIL	SZ	93	252	EP		723	10.68	0.15	69						1.0
BEIL	SN	93	252	ES		723	21.62	-0.06							1.0
HWQ	BZ	125	243	EP		723	15.48	-0.02							1.0
ZAHL	SZ	157	229	EP		723	20.16	0.01							1.0
ZAHL	SN	157	229	ES		723	38.49	0.07							1.0
BHL	BZ	170	235	EP		723	21.94	-0.16							1.0
RCY	SZ	189	220	EP		723	24.72	0.06							1.0
QRWL	SZ	194	225	EP		723	25.31	0.05							1.0
SHBL	SZ	207	219	EP		723	26.84	-0.08							1.0

**November 17 2019 Hour: 12:13 28.0 Agency: REL Distant**

**EMSC OT=12:13:28.0 20.81S 177.81W 505Km M=5.8 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1232	12.43								
HWQ	BZ			EP		1232	12.80								
BHL	BZ			EP		1232	12.90								

**November 17 2019 Hour: 21:26 34.2 Lat: 33.23N Lon: 35.67E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.5MC REL Rms: 0.1 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	14	28	EP		2126	36.38	-0.13	29						1.0
SHBL	SN	14	28	ES		2126	38.19	-0.04							1.0
RCY	SZ	33	27	EP		2126	39.46	-0.03							1.0
RCY	SN	33	27	ES		2126	43.47	0.05							1.0
QRWL	SZ	35	2	EP		2126	39.86	0.06							1.0
ZAHL	SZ	72	16	EP		2126	45.74	-0.06							1.0
BHL	BZ	74	359	EP		2126	46.04	-0.14							1.0
HWQ	BZ	119	12	EP		2126	53.41	0.10							1.0
BEIL	SZ	153	18	EP		2126	58.70	0.18							1.0

**November 18 2019 Hour: 5:54 4.7 Lat: 34.27N Lon: 36.36E Depth: 19 Agency: REL Local**  
**Magnitudes: 2.4MC 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	123	EP		554	7.88	-0.15	25						1.0
FKH	SN	5	123	ES		554	10.57	0.08							1.0
BEIL	SZ	34	332	EP		554	10.99	0.09							1.0
BEIL	SN	34	332	ES		554	15.48	-0.01							1.0
HWQ	BZ	38	271	EP		554	11.44	-0.07							1.0
BHL	BZ	77	238	EP		554	17.05	-0.00							1.0
RCY	SZ	99	210	EP		554	20.26	-0.01							1.0
QRWL	SZ	102	218	EP		554	20.77	0.07							1.0

November 18 2019 Hour: 15:31 37.9Lat: 34.04N Lon: 35.96E Depth: 4 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	21	200	EP		1531	41.41	-0.06							1.0
ZAHL	SN	21	200	ES		1531	44.10	-0.00							1.0
HWQ	BZ	27	357	EP		1531	42.34	-0.01	54						1.0
HWQ	BN	27	357	ES		1531	45.62	0.00							1.0
BHL	BZ	32	243	EP		1531	43.21	0.02							1.0
BHL	BN	32	243	ES		1531	47.13	0.04							1.0
FKH	SZ	47	61	EP		1531	45.68	0.07							1.0
BEIL	SZ	60	20	EP		1531	47.52	-0.05							1.0
QRWL	SZ	60	206	EP		1531	47.57	-0.11							1.0
RCY	SZ	61	191	EP		1531	47.84	0.00							1.0
SHBL	SZ	79	195	EP		1531	50.82	0.10							1.0

November 19 2019 Hour: 0:14 11.9

Agency: REL Regional

**EMSC OT=00:14:11.9 38.43N 44.51E 10Km M=4.7 TURKEY-IRAN BORDER REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		016	6.99								
BEIL	SZ			EP		016	7.31								
HWQ	BZ			EP		016	13.73								
ZAHL	SZ			EP		016	17.62								
RCY	SZ			EP		016	18.95								
BHL	BZ			EP		016	20.81								
QRWL	SZ			EP		016	19.21								
SHBL	SZ			EP		016	16.83								

November 20 2019 Hour: 8:26 6.9

Agency: REL Distant

**EMSC OT=08:26:06.9 53.15N 153.68E 486Km M=6.3 SEA OF OKHOTSK**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		837	10.37								
FKH	SZ			EP		837	11.24								
HWQ	BZ			EP		837	11.50								
BHL	BZ			EP		837	13.85								
QRWL	SZ			EP		837	15.77								
RCY	SZ			EP		837	15.51								
SHBL	SZ			EP		837	16.38								

November 20 2019 Hour: 21:3 58.5

Agency: REL Distant

**EMSC OT=21:03:58.5 19.44N 101.32E 10Km M=5.7 LAOS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		2113	58.20								
BHL	BZ			EP		2113	59.93								

November 20 2019 Hour: 23:50 44.2

Agency: REL Distant

**EMSC OT=23:50:44.2 19.47N 101.41E 12Km M=6.1 LAOS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		24	0	44.40							
BEIL	SZ			EP		24	0	44.66							
HWQ	BZ			EP		24	0	46.76							
ZAHL	SZ			EP		24	0	47.69							
RCY	SZ			EP		24	0	48.11							
BHL	BZ			EP		24	0	48.70							
SHBL	SZ			EP		24	0	48.78							
QRWL	SZ			EP		24	0	48.78							
DQRL	SZ			EP		24	0	49.71							

November 21 2019 Hour: 3:25 9.5

Agency: REL Regional

EMSC OT=03:25:09.5 36.44N 26.79E 116Km M=3.2 DODECANESE ISLANDS, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		326	57.53								
ZAHL	SZ			EP		326	58.32								
QRWL	SZ			EP		326	58.76								
BEIL	SZ			EP		326	58.87								
RCY	SZ			EP		327	0.17								
SHBL	SZ			EP		327	0.17								

November 22 2019 Hour: 1:49 42.1

Agency: REL Regional

EMSC OT=01:49:42.1 37.23N 36.36E 7Km M=2.9 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		150	24.38								
BEIL	SZ			EP		150	25.83								
HWQ	BZ			EP		150	29.46								

November 22 2019 Hour: 3:37 26.8 Lat: 33.54N Lon: 35.71E 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	2	290	EP		337	27.09-0.10		34						1.0
RCY	SZ	13	112	EP		337	28.75-0.14								1.0
RCY	SN	13	112	ES		337	30.47 0.01								1.0
SHBL	SZ	22	171	EP		337	30.39 0.12								1.0
DQRL	SZ	22	326	EP		337	30.45 0.08								1.0
DQRL	SN	22	326	ES		337	33.03 0.01								1.0
ZAHL	SZ	39	25	EP		337	33.18 0.12								1.0
BHL	BZ	41	353	EP		337	33.23-0.10								1.0

November 22 2019 Hour: 3:47 2.5 Lat: 32.12N Lon: 35.32E Depth: 7

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	142	16	EP		347	24.84-0.02		55						1.0
SHBL	SN	142	16	ES		347	41.46 0.04								1.0
RCY	SZ	160	17	EP		347	27.67 0.13								1.0
RCY	SN	160	17	ES		347	46.17 0.09								1.0
QRWL	SZ	162	12	EP		347	27.82 0.05								1.0
DQRL	SZ	178	8	EP		347	29.66-0.29								1.0

November 22 2019 Hour: 9:21 14.9

Agency: REL Distant

EMSC OT=09:21:14.9 31.37S 177.94W 10Km M=5.1 KERMADEC ISLANDS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		941	8.36								
BEIL	SZ			EP		941	8.78								
HWQ	BZ			EP		941	9.02								
RCY	SZ			EP		941	9.32								
SHBL	SZ			EP		941	9.38								
QRWL	SZ			EP		941	9.44								
BHL	BZ			EP		941	9.62								
DQRL	SZ			EP		941	9.98								

November 23 2019 Hour: 15:44 50.8 Lat: 32.79N Lon: 35.60E Depth: 0

Agency: REL Regional

Magnitudes: 3.2MC 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	64	12	EP		1545	0.91-0.10		71						1.0
SHBL	SN	64	12	ES		1545	8.66 0.06								1.0
RCY	SZ	82	15	EP		1545	3.82-0.10								1.0
RCY	SN	82	15	ES		1545	13.64-0.02								1.0
QRWL	SZ	85	5	EP		1545	4.48 0.08								1.0
DQRL	SZ	102	358	EP		1545	7.07-0.11								1.0

DQRL	SE	102	358	ES		1545	19.38	0.04									1.0
ZAHL	SZ	122	12	EP		1545	10.22	-0.15									1.0
HWQ	BZ	168	11	EP		1545	17.44	-0.01									1.0
FKH	SZ	178	25	EP		1545	19.01	0.11									1.0
BEIL	SZ	202	15	EP		1545	22.10	0.18									1.0

November 23 2019 Hour: 16:34 45.4

Agency: REL Distant

EMSC OT=16:34:45.4 37.55S 177.29E 128Km M=5.8 OFF E. COAST OF N. ISLAND N.Z

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1654	10.52								
HWQ	BZ			EP		1654	10.71								
BHL	BZ			EP		1654	11.07								
ZAHL	SZ			EP		1654	11.32								
QRWL	SZ			EP		1654	11.23								
SHBL	SZ			EP		1654	11.32								

November 24 2019 Hour: 1: 5 0.0

Agency: REL Distant

EMSC OT=00:54:03.7 51.53N 175.62W 40Km M=6.3 ANDREANOF ISLANDS, ALEUTIAN IS.

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1 6	55.63								
BHL	BZ			EP		1 6	58.89								

November 24 2019 Hour: 13:33 22.4

Agency: REL Regional

EMSC OT=13:33:22.4 37.65N 35.65E 5Km M=3.9 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1334	12.56								
HWQ	BZ			EP		1334	16.54								
FKH	SZ			EP		1334	17.81								
BHL	BZ			EP		1334	20.40								
SHBL	SZ			EP		1334	26.94								

November 24 2019 Hour: 16:56 50.8 Lat: 34.21N

Lon: 36.44E

Depth: 5

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
FKH	SZ	5	329	EP		1656	51.98	-0.16	48						1.0
FKH	SN	5	329	ES		1656	53.31	0.17							1.0
BEIL	SZ	44	328	EP		1656	57.88	-0.02							1.0
BEIL	SN	44	328	ES		1657	3.18	0.01							1.0
HWQ	BZ	46	280	EP		1656	58.19	-0.08							1.0
BHL	BZ	80	245	EP		1657	3.76	0.07							1.0
RCY	SZ	97	215	EP		1657	6.33	-0.07							1.0
RCY	SN	97	215	ES		1657	17.95	-0.01							1.0
QRWL	SZ	101	224	EP		1657	7.04	-0.10							1.0
SHBL	SZ	115	214	EP		1657	9.46	0.21							1.0

November 25 2019 Hour: 8: 7 44.3 Lat: 31.38N

Lon: 35.06E

Depth: 3

Agency: REL Regional

Magnitudes: 3.5MC REL

Rms: 0.2 secs

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	228	16	EP		8 8	18.46	0.10	89						1.0
SHBL	SE	228	16	ES		8 8	43.73	0.16							1.0
RCY	SZ	246	17	EP		8 8	20.11	-0.51							1.0
QRWL	SZ	247	14	EP		8 8	20.99	0.23							1.0
QRWL	SN	247	14	ES		8 8	47.60	-0.16							1.0
DQRL	SN	262	10	ES		8 8	50.99	-0.01							1.0
BHL	BZ	286	11	EP		8 8	25.52	0.02							1.0
HWQ	BZ	332	14	EP		8 8	31.50	0.20							1.0
FKH	SZ	342	21	EP		8 8	32.85	0.31							1.0
BEIL	SZ	366	16	EP		8 8	35.11	-0.37							1.0

November 25 2019 Hour: 11:39 31.6Lat: 31.31N Lon: 35.57E Depth: 3 Agency: REL Regional  
 Magnitudes: 3.9MC REL Rms: 0.4 secs

**DEAD SEA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	227	4	EP		1140	5.04	-0.53							1.0
RCY	SZ	244	6	EP		1140	7.58	-0.11							1.0
RCY	SN	244	6	ES		1140	34.89	0.45							1.0
QRWL	SZ	249	2	EP		1140	8.35	0.13	161						1.0
QRWL	SN	249	2	ES		1140	35.62	0.28							1.0
DQRL	SZ	266	0	EP		1140	11.09	0.71							1.0
DQRL	SN	266	0	ES		1140	38.21	-0.89							1.0
ZAHL	SZ	285	6	EP		1140	12.80	0.11							1.0
BHL	BZ	288	2	EP		1140	13.20	0.07							1.0
HWQ	BZ	332	6	EP		1140	18.88	0.36							1.0
FKH	SZ	335	13	EP		1140	19.22	0.23							1.0
BEIL	SZ	364	9	EP		1140	22.89	0.47							1.0

November 25 2019 Hour: 11:48 46.8Lat: 31.33N Lon: 35.57E Depth: 0 Agency: REL Regional  
 Magnitudes: 3.7MC REL Rms: 0.3 secs

**DEAD SEA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	225	4	EP		1149	20.47	-0.38							1.0
RCY	SZ	242	6	EP		1149	22.90	-0.07							1.0
RCY	SN	242	6	ES		1149	49.72	-0.04							1.0
QRWL	SZ	246	2	EP		1149	23.35	-0.15	123						1.0
DQRL	SZ	264	360	EP		1149	26.05	0.39							1.0
ZAHL	SZ	282	6	EP		1149	27.48	-0.49							1.0
BHL	BZ	286	2	EP		1149	28.75	0.34							1.0
HWQ	BZ	329	6	EP		1149	34.07	0.27							1.0
FKH	SZ	333	13	EP		1149	34.39	0.12							1.0
BEIL	SZ	361	9	EP		1149	38.12	0.42							1.0

November 25 2019 Hour: 14:37 47.9Lat: 33.49N Lon: 35.52E Depth: 7 Agency: REL Local  
 Magnitudes: 2.7MC REL Rms: 0.1 secs

**NABATIYE REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	17	67	EP		1437	50.86	-0.03	37						1.0
QRWL	SN	17	67	ES		1437	53.12	0.01							1.0
DQRL	SZ	24	12	EP		1437	52.15	0.10							1.0
DQRL	SN	24	12	ES		1437	55.11	-0.03							1.0
SHBL	SZ	26	127	EP		1437	52.35	-0.02							1.0
SHBL	SN	26	127	ES		1437	55.72	0.03							1.0
RCY	SZ	30	89	EP		1437	52.85	-0.03							1.0
BHL	BZ	48	15	EP		1437	55.60	-0.09							1.0
ZAHL	SZ	53	40	EP		1437	56.65	0.06							1.0
HWQ	BZ	96	24	EP		1438	3.45	0.02							1.0

November 25 2019 Hour: 21:14 21.1Lat: 34.18N Lon: 35.73E Depth: 26 Agency: REL Local  
 Magnitudes: 3.1MC 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	23	62	EP		2114	26.76	0.10	64						1.0
HWQ	BN	23	62	ES		2114	30.79	-0.01							1.0
BHL	BZ	31	192	EP		2114	27.43	-0.11							1.0
ZAHL	SZ	39	158	EP		2114	28.39	-0.05							1.0
DQRL	SZ	55	195	EP		2114	30.54	0.04							1.0
DQRL	SN	55	195	ES		2114	37.54	0.04							1.0
BEIL	SZ	58	46	EP		2114	30.92	-0.03							1.0
QRWL	SZ	70	183	EP		2114	32.69	0.01							1.0
RCY	SZ	77	172	EP		2114	33.56	-0.04							1.0
RCY	SN	77	172	ES		2114	42.90	0.02							1.0
SHBL	SZ	92	179	EP		2114	35.90	0.04							1.0

November 26 2019 Hour: 2:54 11.6

Agency: REL Distant

EMSC OT=02:54:11.6 41.38N 19.47E 10Km M=6.4 ALBANIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		257	39.61								
HWQ	BZ			EP		257	41.47								

November 26 2019 Hour: 9:19 26.2

Agency: REL Distant

EMSC OT=09:19:26.2 43.20N 17.96E 10Km M=5.4 BOSNIA AND HERZEGOVINA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		923	17.92								
HWQ	BZ			EP		923	18.49								
BHL	BZ			EP		923	19.49								
FKH	SZ			EP		923	22.02								
QRWL	SZ			EP		923	21.54								

November 27 2019 Hour: 5:52 19.5 Lat: 33.64N Lon: 35.82E Depth: 11 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
RCY	SZ	16	176	EP		552	22.72	-0.04	33						1.0
RCY	SN	16	176	ES		552	25.23	0.02							1.0
QRWL	SZ	17	231	EP		552	22.81	0.03							1.0
DQRL	SZ	24	287	EP		552	23.86	-0.00							1.0
DQRL	SN	24	287	ES		552	27.16	0.03							1.0
ZAHL	SZ	25	14	EP		552	23.96	0.04							1.0
BHL	BZ	33	332	EP		552	25.03	-0.11							1.0
SHBL	SZ	33	193	EP		552	25.19	-0.02							1.0
HWQ	BZ	72	9	EP		552	31.19	0.04							1.0

November 27 2019 Hour: 18:37 28.2 Lat: 33.74N Lon: 35.60E Depth: 6 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
DQRL	SZ	5	214	EP		1837	29.58	-0.05	23						1.0
BHL	BZ	19	16	EP		1837	31.53	0.04							1.0
BHL	BN	19	16	ES		1837	33.97	0.04							1.0
QRWL	SZ	23	160	EP		1837	32.06	0.01							1.0
QRWL	SN	23	160	ES		1837	34.95	0.04							1.0
ZAHL	SZ	30	64	EP		1837	33.06	-0.08							1.0
RCY	SZ	35	141	EP		1837	33.97	0.01							1.0
SHBL	SZ	46	163	EP		1837	35.64	-0.00							1.0

November 28 2019 Hour: 2:59 39.8 Lat: 33.53N Lon: 35.71E Depth: 0 Agency: REL Local  
Magnitudes: 2.3MC 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	305	EP		259	40.18	-0.09	23						1.0
RCY	SZ	13	109	EP		259	41.74	-0.13							1.0
RCY	SN	13	109	ES		259	43.45	0.06							1.0
SHBL	SZ	21	170	EP		259	43.24	0.06							1.0
DQRL	SZ	23	327	EP		259	43.56	0.05							1.0
DQRL	SN	23	327	ES		259	46.27	0.03							1.0
ZAHL	SZ	40	25	EP		259	46.20	-0.00							1.0
BHL	BZ	41	353	EP		259	46.51	0.02							1.0

November 29 2019 Hour: 17:20 15.5

Agency: REL Distant

EMSC OT=17:20:15.5 32.02N 49.87E 20Km M=5.0 WESTERN IRAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1722	56.89								
BEIL	SZ			EP		1722	59.59								
HWQ	BZ			EP		1723	0.94								
ZAHL	SZ			EP		1723	2.92								
RCY	SZ			EP		1723	2.19								



SHBL	SZ	EP	1723	3.23
QRWL	SZ	EP	1723	4.27
BHL	BZ	EP	1723	5.72
DQRL	SZ	EP	1723	6.35

**November 30 2019 Hour: 3:24 55.5 Lat: 33.53N Lon: 35.71E Depth: 0 Agency: REL Local**  
**Magnitudes: 2.6MC 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	301	EP		324	55.84	-0.21	35						1.0
QRWL	SN	3	301	ES		324	56.53	0.06							1.0
RCY	SZ	12	109	EP		324	57.41	-0.04							1.0
RCY	SN	12	109	ES		324	58.86	-0.03							1.0
SHBL	SZ	21	172	EP		324	58.91	0.10							1.0
DQRL	SZ	23	326	EP		324	59.28	0.01							1.0
ZAHL	SZ	40	24	EP		325	1.87	-0.00							1.0
BHL	BZ	42	352	EP		325	2.33	0.12							1.0

**November 30 2019 Hour: 19:52 40.3**

**Agency: REL Distant**

**EMSC OT=19:52:40.3 26.68S 178.46E 624Km M=5.5 SOUTH OF FIJI ISLANDS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2011	12.64								
HWQ	BZ			EP		2011	11.68								



# Epicentral Map of Lebanon

## NOVEMBER 2019

