

Republic of Lebanon  
National Council for Scientific Research

# Provisional Seismological Bulletin

from the

## NATIONAL SEISMIC NETWORK

May

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
ZAHL	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.

May 1 2019 Hour: 0:41 21.7 Agency: REL Distant

EMSC OT=00:41:21.7 20.25S 175.76W 195Km M=5.0 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1 0	46.09								
HWQ	BZ			EP		1 0	46.52								
BHL	BZ			EP		1 0	47.59								
DQRL	SZ			EP		1 0	48.35								
RCY	SZ			EP		1 0	48.06								
QRWL	SZ			EP		1 0	48.35								
SHBL	SZ			EP		1 0	48.27								

May 1 2019 Hour: 16:41 52.9 Lat: 33.78N Lon: 35.77E Depth: 4 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
BHL	BZ	17	322	EP		1641	55.81-0.04		41						1.0
DQRL	SZ	20	246	EP		1641	56.36 0.06								1.0
DQRL	SN	20	246	ES		1641	58.80-0.01								1.0
QRWL	SZ	27	197	EP		1641	57.35-0.02								1.0
RCY	SZ	32	169	EP		1641	58.24 0.06								1.0
RCY	SN	32	169	ES		1642	2.08-0.00								1.0
SHBL	SZ	48	183	EP		1642	0.67-0.05								1.0
HWQ	BZ	58	16	EP		1642	2.28 0.05								1.0
FKH	SZ	78	49	EP		1642	5.57-0.02								1.0
BEIL	SZ	93	24	EP		1642	7.86-0.02								1.0

May 2 2019 Hour: 17:16 36.0 Lat: 33.78N Lon: 35.78E Depth: 4 Agency: REL Local  
Magnitudes: 2.4MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	49	EP		1716	38.23-0.03								1.0
BHL	BZ	18	319	EP		1716	38.92-0.12		27						1.0
DQRL	SZ	21	246	EP		1716	39.67 0.07								1.0
DQRL	SN	21	246	ES		1716	42.29 0.06								1.0
QRWL	SZ	28	199	EP		1716	40.47-0.12								1.0
RCY	SZ	32	171	EP		1716	41.33 0.02								1.0
RCY	SE	32	171	ES		1716	45.29 0.07								1.0
SHBL	SZ	48	184	EP		1716	43.82-0.08								1.0
HWQ	BZ	57	15	EP		1716	45.32 0.07								1.0
BEIL	SZ	92	24	EP		1716	50.94 0.06								1.0

May 2 2019 Hour: 19:38 23.5 Lat: 34.88N Lon: 35.65E Depth: 82 Agency: REL Regional  
Magnitudes: 3.0MC REL Rms: 0.2 secs

OFFSHORE SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	62	127	EP		1938	37.63 0.23		56						1.0
BEIL	SN	62	127	ES		1938	47.64-0.07								1.0
HWQ	BZ	73	158	EP		1938	38.43 0.08								1.0
HWQ	BN	73	158	ES		1938	49.19-0.17								1.0
BHL	BZ	109	180	EP		1938	41.51-0.27								1.0
BHL	BN	109	180	ES		1938	55.59 0.26								1.0
ZAHL	SZ	116	169	EP		1938	42.55-0.02								1.0
DQRL	SZ	131	183	EP		1938	44.11-0.03								1.0
RCY	SZ	155	173	EP		1938	46.95 0.10								1.0
SHBL	SZ	171	177	EP		1938	48.52-0.11								1.0

May 4 2019 Hour: 13:39 38.1 Agency: REL Regional  
EMSC OT=13:39:38.1 35.36N 26.43E 60Km M=3.5 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ			EP		1341	25.83								
HWQ	BZ			EP		1341	27.20								
RCY	SZ			EP		1341	27.75								
BEIL	SZ			EP		1341	28.68								

FKH SZ EP 1341 32.70

May 5 2019 Hour: 12:15 7.2 Lat: 33.97N Lon: 36.15E Depth: 12 Agency: REL Local  
Magnitudes: 3.1MC REL Rms: 0.1 secs

Earthquake was felt  
BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	27	244	EP		1215	12.19	0.08							1.0
FKH	SZ	39	38	EP		1215	13.96	0.06	71						1.0
HWQ	BZ	39	332	EP		1215	13.67	-0.25							1.0
HWQ	BN	39	332	ES		1215	19.00	0.13							1.0
BHL	BZ	46	262	EP		1215	14.87	-0.11							1.0
RCY	SZ	60	209	EP		1215	17.00	-0.09							1.0
RCY	SN	60	209	ES		1215	24.52	0.14							1.0
DQRL	SZ	61	242	EP		1215	17.50	0.23							0.2
QRWL	SZ	63	223	EP		1215	17.69	0.02							1.0
BEIL	SZ	64	3	EP		1215	17.56	-0.17							1.0
BEIL	SN	64	3	ES		1215	25.68	0.18							1.0
SHBL	SZ	78	209	EP		1215	19.88	0.00							1.0

May 6 2019 Hour: 12:4 8.1 Lat: 34.63N Lon: 36.44E Depth: 15 Agency: REL Local  
Magnitudes: 2.8MC 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	25	247	EP		12 4	12.98	0.05	45						1.0
BEIL	SN	25	247	ES		12 4	16.49	0.00							1.0
FKH	SZ	43	183	EP		12 4	15.41	-0.06							1.0
FKH	SN	43	183	ES		12 4	20.90	-0.00							1.0
HWQ	BZ	60	229	EP		12 4	17.77	-0.16							1.0
HWQ	BN	60	229	ES		12 4	25.18	-0.00							1.0
ZAHL	SZ	100	211	EP		12 4	23.91	0.11							1.0
RCY	SZ	138	204	EP		12 4	29.37	-0.01							1.0
QRWL	SZ	139	210	EP		12 4	29.60	0.06							1.0
SHBL	SZ	156	204	EP		12 4	32.19	0.10							0.2

May 6 2019 Hour: 21:46 33.2 Lat: 34.63N Lon: 35.90E Depth: 13 Agency: REL Local  
Magnitudes: 2.6MC REL Rms: 0.1 secs

OFFSHORE NORTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	28	110	EP		2146	38.36	0.04	33						1.0
BEIL	SN	28	110	ES		2146	42.13	0.03							1.0
HWQ	BZ	39	173	EP		2146	39.84	-0.13							1.0
HWQ	BN	39	173	ES		2146	45.01	0.03							1.0
FKH	SZ	64	132	EP		2146	43.53	-0.07							1.0
FKH	SN	64	132	ES		2146	51.28	-0.01							1.0
BHL	BZ	83	195	EP		2146	46.47	-0.01							1.0
DQRL	SZ	107	196	EP		2146	49.85	-0.05							1.0
QRWL	SZ	122	189	EP		2146	52.19	0.11							1.0
SHBL	SZ	143	186	EP		2146	55.30	0.07							1.0

May 7 2019 Hour: 19:2 59.8 Lat: 33.78N Lon: 35.78E Depth: 5 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	13	50	EP		19 3	2.18	0.01							1.0
BHL	BZ	18	319	EP		19 3	2.86	-0.02							1.0
BHL	BN	18	319	ES		19 3	5.09	-0.04							1.0
DQRL	SZ	21	246	EP		19 3	3.57	0.15							1.0
QRWL	SZ	28	199	EP		19 3	4.32	-0.10	43						1.0
RCY	SZ	32	171	EP		19 3	5.03	-0.13							1.0
RCY	SN	32	171	ES		19 3	9.20	0.10							1.0
SHBL	SZ	48	184	EP		19 3	7.69	-0.03							1.0
HWQ	BZ	57	16	EP		19 3	8.98	-0.10							1.0
BEIL	SZ	92	24	EP		19 3	14.86	0.15							1.0

May 8 2019 Hour: 1:58 34.1

Agency: REL Regional

EMSC OT=01:58:34.1 37.29N 36.26E 3Km M=3.8 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		159	19.46								
HWQ	BZ			EP		159	23.32								
BHL	BZ			EP		159	29.14								
ZAHL	SZ			EP		159	29.24								
DQRL	SZ			EP		159	31.09								
QRWL	SZ			EP		159	33.53								
RCY	SZ			EP		159	34.11								
SHBL	SZ			EP		159	37.01								

May 8 2019 Hour: 16:21 56.7

Lat: 33.98N Lon: 36.17E Depth: 12 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	30	244	EP		1622	2.00	0.08	41						1.0
ZAHL	SN	30	244	ES		1622	5.77	-0.04							1.0
FKH	SZ	37	36	EP		1622	2.95	-0.01							1.0
HWQ	BZ	39	328	EP		1622	3.30	-0.05							1.0
HWQ	BN	39	328	ES		1622	8.34	0.03							1.0
BHL	BZ	49	260	EP		1622	4.73	-0.06							1.0
RCY	SZ	62	211	EP		1622	6.71	-0.16							1.0
RCY	SN	62	211	ES		1622	14.57	0.14							1.0
BEIL	SZ	63	1	EP		1622	7.24	0.30							0.2
DQRL	SZ	64	242	EP		1622	7.29	0.18							0.2
QRWL	SZ	66	224	EP		1622	7.38	-0.09							1.0
SHBL	SZ	80	210	EP		1622	9.74	0.11							1.0

May 9 2019 Hour: 16:1 59.0

Lat: 34.28N 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	5	210	EP		16	1	59.48	-0.26	54					1.0
BEIL	SZ	37	322	EP		16	2	4.99	0.04						1.0
BEIL	SN	37	322	ES		16	2	9.38	0.01						1.0
HWQ	BZ	45	270	EP		16	2	6.34	0.10						1.0
HWQ	BN	45	270	ES		16	2	11.59	-0.02						1.0
ZAHL	SZ	69	227	EP		16	2	10.10	-0.02						1.0
BHL	BZ	83	240	EP		16	2	12.13	-0.28						1.0
DQRL	SZ	102	232	EP		16	2	15.55	0.08						1.0
RCY	SZ	103	213	EP		16	2	15.78	0.17						1.0
RCY	SN	103	213	ES		16	2	28.02	0.10						1.0
QRWL	SZ	107	221	EP		16	2	16.19	-0.05						1.0
SHBL	SZ	122	212	EP		16	2	18.71	0.12						1.0

May 9 2019 Hour: 23:6 54.4

Agency: REL Distant

EMSC OT=23:06:54.4 17.06S 174.09W 133Km M=5.2 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2326	24.76								
FKH	SZ			EP		2326	24.98								
HWQ	BZ			EP		2326	25.20								
ZAHL	SZ			EP		2326	26.25								
BHL	BZ			EP		2326	26.62								
DQRL	SZ			EP		2326	27.29								
RCY	SZ			EP		2326	27.06								
QRWL	SZ			EP		2326	27.06								
SHBL	SZ			EP		2326	27.59								

May 10 2019 Hour: 3:23 32.1 Agency: REL Distant  
**EMSC OT=03:23:32.1 28.84S 176.71W 10Km M=5.8 KERMADEC ISLANDS REGION**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 BEIL SZ EP 343 27.27  
 BHL BZ EP 343 27.51  
 DQRL SZ EP 343 28.66  
 RCY SZ EP 343 28.15  
 QRWL SZ EP 343 27.92  
 SHBL SZ EP 343 28.52  
 HWQ BZ EP 343 26.56

May 11 2019 Hour: 16: 6 17.3 Agency: REL Distant  
**EMSC OT=16:06:17.3 34.78S 179.53E 71Km M=6.3 SOUTH OF KERMADEC ISLANDS**  
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT  
 FKH SZ EP 1625 56.98  
 BEIL SZ EP 1625 57.22  
 HWQ BZ EP 1625 57.10  
 BHL BZ EP 1625 57.47  
 RCY SZ EP 1625 58.06  
 QRWL SZ EP 1625 57.94  
 DQRL SZ EP 1625 58.66  
 SHBL SZ EP 1625 58.00

May 11 2019 Hour: 20:27 24.7 Lat: 33.78N 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  
 Z AHL SZ 14 51 EP 2027 26.99-0.09 74 1.0  
 BHL BZ 18 324 EP 2027 27.44-0.14 68 1.0  
 DQRL SZ 20 247 EP 2027 28.00 0.09 1.0  
 DQRL SN 20 247 ES 2027 30.30 0.04 1.0  
 QRWL SZ 26 197 EP 2027 28.91-0.10 1.0  
 RCY SZ 32 168 EP 2027 29.88 0.02 1.0  
 RCY SN 32 168 ES 2027 33.62-0.02 1.0  
 SHBL SZ 47 182 EP 2027 32.42 0.02 1.0  
 HWQ BZ 58 17 EP 2027 34.18 0.05 1.0  
 FKH SZ 79 49 EP 2027 37.65 0.14 1.0  
 BEIL SZ 93 24 EP 2027 39.80-0.01 1.0

May 13 2019 Hour: 13:34 47.9 Lat: 34.59N Lon: 36.38E Depth: 0 Agency: REL Local  
**Magnitudes: 2.8MC 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 19 254 EP 1334 51.04 0.06 48 1.0  
 BEIL SN 19 254 ES 1334 53.25 0.01 1.0  
 FKH SZ 38 176 EP 1334 54.05-0.04 1.0  
 FKH SN 38 176 ES 1334 58.68 0.03 1.0  
 HWQ BZ 53 229 EP 1334 56.31-0.14 1.0  
 HWQ BN 53 229 ES 1335 2.75-0.02 1.0  
 DQRL SZ 123 218 EP 1335 7.90 0.09 1.0  
 RCY SZ 131 203 EP 1335 9.09 0.00 1.0  
 QRWL SZ 132 209 EP 1335 9.20-0.05 1.0  
 SHBL SZ 150 203 EP 1335 11.90 0.06 1.0

May 13 2019 Hour: 18:13 43.9 Lat: 34.27N Lon: 36.47E 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 6 240 EP 1813 44.72-0.23 1.0  
 BEIL SZ 40 319 EP 1813 50.28-0.02 48 1.0  
 BEIL SN 40 319 ES 1813 55.05 0.01 1.0  
 HWQ BZ 48 271 EP 1813 51.75 0.06 1.0  
 HWQ BN 48 271 ES 1813 57.46 0.00 1.0



ZAHL	SZ	71	230	EP	1813	55.42	0.07										1.0
BHL	BZ	86	242	EP	1813	57.78	0.05										1.0
DQRL	SZ	104	233	EP	1814	0.72	-0.01										1.0
RCY	SZ	104	214	EP	1814	0.69	-0.03										1.0
QRWL	SZ	109	222	EP	1814	1.45	0.03										1.0
SHBL	SZ	123	213	EP	1814	3.74	0.05										1.0

May 14 2019 Hour: 16:17 53.4 Lat: 34.63N Lon: 34.22E Depth: 6 Agency: REL Regional  
Magnitudes: 3.0MC REL Rms: 0.3 secs

CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	155	121	EP		1618	17.79	0.14							1.0
DQRL	SZ	161	129	EP		1618	17.97	-0.64							1.0
HWQ	BZ	163	103	EP		1618	19.44	0.48							1.0
QRWL	SZ	180	131	EP		1618	21.06	-0.24							1.0
BEIL	SZ	181	92	EP		1618	21.55	0.27	47						1.0
BEIL	SN	181	92	ES		1618	41.53	-0.37							1.0
RCY	SZ	195	130	EP		1618	23.16	0.02							1.0
SHBL	SZ	200	135	EP		1618	23.75	-0.02							1.0
SHBL	SE	200	135	ES		1618	46.58	0.36							1.0

May 14 2019 Hour: 18:58 7.1 Lat: 33.78N Lon: 35.78E Depth: 3 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		1858	9.31	-0.05							1.0
BHL	BZ	18	321	EP		1858	9.95	-0.08	52						1.0
BHL	BN	18	321	ES		1858	12.26	0.06							1.0
DQRL	SZ	21	246	EP		1858	10.58	0.08							1.0
QRWL	SZ	27	199	EP		1858	11.40	-0.13							1.0
RCY	SZ	32	170	EP		1858	12.26	-0.04							1.0
RCY	SN	32	170	ES		1858	16.22	0.06							1.0
SHBL	SZ	48	183	EP		1858	14.91	0.04							1.0
HWQ	BZ	57	16	EP		1858	16.28	-0.09							1.0
FKH	SZ	78	49	EP		1858	19.80	0.11							1.0
BEIL	SZ	93	24	EP		1858	22.05	0.04							1.0

May 14 2019 Hour: 20:55 26.8 Agency: REL Distant  
EMSC OT=20:55:26.8 43.79N 148.11E 44Km M=5.7 EAST OF KURIL ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		21 7	34.28								
HWQ	BZ			EP		21 7	34.01								
FKH	SZ			EP		21 7	34.73								
BHL	BZ			EP		21 7	34.10								
ZAHL	SZ			EP		21 7	37.96								
DQRL	SZ			EP		21 7	39.39								
QRWL	SZ			EP		21 7	39.66								
RCY	SZ			EP		21 7	39.66								
SHBL	SZ			EP		21 7	40.47								

May 14 2019 Hour: 21:32 57.5 Lat: 33.65N Lon: 35.45E Depth: 5 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

CHOUF REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	12	62	EP		2132	59.65	-0.08	45						1.0
DQRL	SN	12	62	ES		2133	1.46	0.06							1.0
QRWL	SZ	24	119	EP		2133	1.42	-0.12							1.0
QRWL	SN	24	119	ES		2133	4.53	-0.01							1.0
BHL	BZ	34	34	EP		2133	3.00	0.01							1.0
RCY	SZ	40	116	EP		2133	3.93	-0.04							1.0
RCY	SN	40	116	ES		2133	8.77	0.01							1.0
SHBL	SZ	43	141	EP		2133	4.70	0.14							1.0
ZAHL	SZ	46	60	EP		2133	5.03	0.03							1.0

May 15 2019 Hour: 10:58 37.2 Lat: 34.56N Lon: 36.39E Depth: 0 Agency: REL Local  
Magnitudes: 3.0MC REL Rms: 0.2 secs

AKKAR REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	19	263	EP		1058	40.23	-0.05	58						1.0
BEIL	SN	19	263	ES		1058	42.54	-0.02							1.0
FKH	SZ	35	177	EP		1058	42.76	-0.13							1.0
HWQ	BZ	52	233	EP		1058	45.48	-0.05							1.0
HWQ	BN	52	233	ES		1058	51.63	-0.07							1.0
DQRL	SZ	122	219	EP		1058	57.19	0.39							1.0
RCY	SZ	129	204	EP		1058	57.87	-0.11							1.0
QRWL	SZ	130	210	EP		1058	58.24	0.04							1.0

May 15 2019 Hour: 16:53 50.5 Lat: 33.14N Lon: 32.73E Depth: 10 Agency: REL Regional  
Magnitudes: 4.5MC REL Rms: 0.1 secs

EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	269	72	EP		1654	28.86	0.01							1.0
DQRL	SZ	271	76	EP		1654	29.22	0.00							1.0
QRWL	SZ	278	80	EP		1654	30.04	-0.04							1.0
SHBL	SZ	282	85	EP		1654	30.51	-0.05							1.0
BHL	BZ	284	72	EP		1654	30.80	-0.04	355						1.0
RCY	SZ	292	81	EP		1654	31.79	-0.01							1.0
RCY	SN	292	81	ES		1655	2.41	0.07							1.0
ZAHL	SZ	303	74	EP		1654	33.20	-0.06							1.0
HWQ	BZ	323	66	EP		1654	35.40	-0.33							1.0
HWQ	BN	323	66	ES		1655	9.24	0.06							1.0
BEIL	SZ	355	63	EP		1654	39.92	0.31							1.0
BEIL	SN	355	63	ES		1655	15.81	-0.13							1.0
FKH	SZ	362	69	EP		1654	40.75	0.21							1.0

May 15 2019 Hour: 18:20 59.2 Lat: 33.81N 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	10	57	EP		1821	2.35	0.01							1.0
BHL	BZ	17	310	EP		1821	3.00	0.03	32						1.0
DQRL	SZ	24	241	EP		1821	3.69	-0.12							1.0
DQRL	SN	24	241	ES		1821	7.29	0.07							1.0
QRWL	SZ	31	200	EP		1821	4.67	-0.08							1.0
RCY	SZ	35	174	EP		1821	5.36	-0.01							1.0
RCY	SN	35	174	ES		1821	9.92	-0.01							1.0
SHBL	SZ	51	185	EP		1821	7.87	0.12							1.0

May 16 2019 Hour: 16:46 35.6 Lat: 33.78N Lon: 35.76E Depth: 0 Agency: REL Local  
Magnitudes: 2.8MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	15	55	EP		1646	37.88	-0.05							1.0
BHL	BZ	16	325	EP		1646	38.18	-0.04	44						1.0
BHL	BN	16	325	ES		1646	40.12	-0.05							1.0
DQRL	SZ	19	243	EP		1646	38.86	0.18							1.0
BEYL	SZ	26	292	EP		1646	40.06	0.26							0.2
QRWL	SZ	27	195	EP		1646	39.81	-0.12							1.0
RCY	SZ	33	167	EP		1646	40.84	-0.01							1.0
RCY	SN	33	167	ES		1646	44.76	0.01							1.0
SHBL	SZ	48	181	EP		1646	43.24	-0.12							1.0
SHBL	SN	48	181	ES		1646	49.18	0.06							1.0
HWQ	BZ	58	18	EP		1646	44.87	0.00							1.0
FKH	SZ	79	50	EP		1646	48.50	0.15							1.0
BEIL	SZ	93	25	EP		1646	50.53	-0.03							1.0

May 16 2019 Hour: 20:37 8.5 Lat: 35.86N Lon: 39.83E Depth: 6 Agency: REL Regional  
Magnitudes: 4.0MC REL Rms: 0.4 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	360	241	EP		2037	59.05	0.37							1.0
FKH	SN	360	241	ES		2038	35.83	0.02							1.0
BEIL	SZ	363	247	EP		2037	59.36	0.37	155						1.0
BEIL	SN	363	247	ES		2038	36.10	-0.24							1.0
HWQ	BZ	396	245	EP		2038	3.01	-0.03							1.0
HWQ	BN	396	245	ES		2038	42.84	-0.54							1.0
ZAHL	SZ	424	239	EP		2038	6.24	-0.23							1.0
BHL	BZ	439	242	EP		2038	8.04	-0.28							1.0
DQRL	SZ	457	240	EP		2038	10.38	-0.15							1.0
DQRL	SN	457	240	ES		2038	57.41	1.00							1.0
QRWL	SZ	459	237	EP		2038	10.56	-0.10							1.0
SHBL	SZ	467	235	EP		2038	11.73	-0.02							1.0
SHBL	SN	467	235	ES		2038	58.33	-0.22							1.0

May 16 2019 Hour: 23:23 15.7 Lat: 34.44N Lon: 34.80E Depth: 23 Agency: REL Local  
Magnitudes: 3.3MC 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	98	127	EP		2323	31.15	-0.08							1.0
BHL	BN	98	127	ES		2323	42.66	-0.09							1.0
HWQ	BZ	107	99	EP		2323	32.60	0.13							1.0
HWQ	BN	107	99	ES		2323	44.99	0.08							1.0
DQRL	SZ	108	139	EP		2323	32.59	-0.01							1.0
ZAHL	SZ	119	122	EP		2323	34.21	-0.02							1.0
BEIL	SN	128	84	ES		2323	50.08	0.00							1.0
QRWL	SZ	128	140	EP		2323	35.56	0.05							1.0
BEIL	SZ	128	84	EP		2323	35.29	-0.15	75						1.0
RCY	SZ	142	137	EP		2323	37.36	0.11							1.0
SHBL	SZ	149	144	EP		2323	38.20	0.02							1.0
FKH	SZ	150	98	EP		2323	38.20	-0.03							1.0

May 17 2019 Hour: 12:36 27.3 Lat: 33.85N Lon: 36.10E Depth: 8 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
ZAHL	SZ	20	274	EP		1236	30.71	-0.15							1.0
RCY	SZ	46	213	EP		1236	34.69	-0.15	34						1.0
HWQ	BZ	50	343	EP		1236	35.63	0.15							1.0
QRWL	SZ	51	230	EP		1236	35.66	0.02							1.0
QRWL	SN	51	230	ES		1236	41.89	0.05							1.0
DQRL	SZ	52	253	EP		1236	35.70	-0.03							1.0
FKH	SZ	53	33	EP		1236	35.75	-0.14							1.0
FKH	SN	53	33	ES		1236	42.38	0.11							1.0
SHBL	SZ	64	211	EP		1236	37.69	-0.09							1.0
SHBL	SN	64	211	ES		1236	45.78	0.22							1.0
BEIL	SZ	78	6	EP		1236	40.06	0.20							0.2

May 17 2019 Hour: 15:31 44.1 Lat: 33.78N Lon: 35.77E Depth: 6 Agency: REL Local  
Magnitudes: 2.7MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	51	EP		1531	46.58	-0.08							1.0
BHL	BZ	17	321	EP		1531	47.08	-0.12	40						1.0
DQRL	SZ	21	246	EP		1531	47.73	0.07							1.0
DQRL	SN	21	246	ES		1531	50.38	0.11							1.0
QRWL	SZ	27	198	EP		1531	48.49	-0.20							1.0
BEYL	SZ	28	291	EP		1531	48.88	0.16							0.2
RCY	SZ	32	169	EP		1531	49.41	-0.08							1.0
RCY	SN	32	169	ES		1531	53.57	0.12							1.0

SHBL	SZ	48	183	EP		1531	51.97	-0.04									1.0
HWQ	BZ	57	16	EP		1531	53.51	0.03									1.0
FKH	SZ	78	49	EP		1531	56.99	0.17									1.0
BEIL	SZ	93	24	EP		1531	59.02	-0.08									0.2

May 17 2019 Hour: 17: 9 58.6 Lat: 34.04N Lon: 35.96E Depth: 1 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
ZAHL	SZ	21	199	EP		1710	1.91	-0.12							1.0
ZAHL	SN	21	199	ES		1710	4.68	0.08							1.0
HWQ	BZ	26	357	EP		1710	2.73	-0.11	40						1.0
HWQ	BN	26	357	ES		1710	6.08	0.07							1.0
BHL	BZ	32	242	EP		1710	3.58	-0.15							1.0
FKH	SZ	47	61	EP		1710	6.19	-0.02							1.0
DQRL	SZ	52	224	EP		1710	7.05	0.15							1.0
BEIL	SZ	59	20	EP		1710	8.18	0.04							1.0
QRWL	SZ	60	205	EP		1710	8.34	0.04							1.0
RCY	SZ	61	191	EP		1710	8.49	0.02							1.0
RCY	SN	61	191	ES		1710	15.74	-0.06							1.0
SHBL	SZ	79	195	EP		1710	11.39	0.04							1.0

May 18 2019 Hour: 1:51 29.6 Agency: REL Distant  
 EMSC OT=01:51:29.6 9.49S 108.66E 10Km M=5.6 SOUTH OF JAVA, INDONESIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		2 3	45.71								
BEIL	SZ			EP		2 3	47.01								
RCY	SZ			EP		2 3	46.94								
SHBL	SZ			EP		2 3	47.01								
ZAHL	SZ			EP		2 3	47.40								
HWQ	BZ			EP		2 3	46.94								
QRWL	SZ			EP		2 3	47.66								
BHL	BZ			EP		2 3	47.66								

May 18 2019 Hour: 12: 7 50.9 Lat: 33.99N Lon: 36.24E Depth: 11 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	32	29	EP		12 7	56.41	-0.07	49						1.0
ZAHL	SZ	36	246	EP		12 7	57.01	-0.01							1.0
ZAHL	SN	36	246	ES		12 8	1.62	0.06							1.0
HWQ	BZ	42	320	EP		12 7	58.16	0.25							1.0
HWQ	BN	42	320	ES		12 8	3.02	-0.09							1.0
BHL	BZ	55	260	EP		12 7	59.78	-0.17							1.0
BEIL	SZ	61	355	EP		12 8	0.94	-0.01							1.0
RCY	SZ	66	214	EP		12 8	1.90	0.11							1.0
RCY	SN	66	214	ES		12 8	9.80	-0.06							1.0
DQRL	SZ	69	243	EP		12 8	2.10	-0.13							0.2
QRWL	SZ	71	226	EP		12 8	2.47	-0.02							1.0
SHBL	SZ	85	213	EP		12 8	4.68	0.17							0.2

May 18 2019 Hour: 13:58 49.7 Lat: 33.79N Lon: 35.76E Depth: 5 Agency: REL Local  
 Magnitudes: 2.8MC REL Rms: 0.2 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	56	EP		1358	52.10	-0.08							1.0
BHL	BZ	16	322	EP		1358	52.54	-0.00	48						1.0
DQRL	SZ	20	243	EP		1358	53.21	0.08							1.0
DQRL	SN	20	243	ES		1358	55.53	-0.13							1.0
QRWL	SZ	28	196	EP		1358	54.23	-0.09							1.0
QRWL	SN	28	196	ES		1358	58.00	0.26							1.0
RCY	SZ	33	168	EP		1358	54.96	-0.22							1.0
RCY	SN	33	168	ES		1358	59.32	0.09							1.0
SHBL	SZ	49	182	EP		1358	57.60	-0.09							1.0

HWQ	BZ	57	17	EP		1358	59.17	0.23										1.0
BEIL	SZ	92	25	EP		1359	3.81	-0.78										0.2

**May 18 2019 Hour: 20:54 3.8 Lat: 33.66N Lon: 35.82E Depth: 10 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	18	226	EP		2054	7.25	0.03	48						1.0
RCY	SZ	18	176	EP		2054	7.20	-0.08							1.0
RCY	SN	18	176	ES		2054	9.85	-0.02							1.0
ZAHL	SZ	23	15	EP		2054	7.99	0.11							1.0
DQRL	SZ	24	282	EP		2054	8.08	0.01							1.0
DQRL	SN	24	282	ES		2054	11.26	0.03							1.0
BHL	BZ	31	330	EP		2054	8.99	-0.15							1.0
SHBL	SZ	35	192	EP		2054	9.88	0.07							1.0
HWQ	BZ	69	9	EP		2054	15.24	0.10							0.2

**May 19 2019 Hour: 21:13 7.7 Agency: REL Regional**  
**EMSC OT=21:13:07.7 36.80N 37.13E 9Km M=2.6 TURKEY-SYRIA BORDER REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2113	46.72								
FKH	SZ			EP		2113	49.94								
HWQ	BZ			EP		2113	52.04								
BHL	BZ			EP		2113	55.06								
SHBL	SZ			EP		2113	59.23								

**May 20 2019 Hour: 12:31 18.0 Lat: 34.56N Lon: 36.37E Depth: 0 Agency: REL Local**  
**Magnitudes: 3.0MC REL Rms: 0.2 secs**

**AKKAR REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	17	262	EP		1231	20.80	-0.01	58						1.0
BEIL	SN	17	262	ES		1231	22.93	0.03							1.0
FKH	SZ	36	174	EP		1231	23.35	-0.39							1.0
FKH	SN	36	174	ES		1231	28.11	0.11							1.0
HWQ	BZ	51	231	EP		1231	25.95	-0.18							1.0
HWQ	BN	51	231	ES		1231	31.94	-0.22							1.0
BHL	BZ	99	222	EP		1231	34.05	0.14							1.0
DQRL	SZ	121	218	EP		1231	37.63	0.18							1.0
RCY	SZ	128	203	EP		1231	38.77	0.07							1.0
QRWL	SZ	130	210	EP		1231	39.18	0.30							1.0
SHBL	SZ	147	203	EP		1231	41.44	-0.04							1.0

**May 21 2019 Hour: 15: 4 34.8 Lat: 33.68N Lon: 37.03E Depth: 4 Agency: REL Regional**  
**Magnitudes: 3.3MC REL Rms: 0.2 secs**

**SYRIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	85	318	EP		15 4	48.43	-0.13	81						1.0
FKH	SN	85	318	ES		15 4	58.64	-0.09							1.0
ZAHL	SZ	108	281	EP		15 4	52.59	0.37							1.0
RCY	SZ	113	260	EP		15 4	52.78	-0.20							1.0
HWQ	BZ	120	304	EP		15 4	54.24	0.11							1.0
BEIL	SZ	124	321	EP		15 4	54.59	0.01							1.0
BEIL	SN	124	321	ES		15 5	9.11	-0.10							1.0
SHBL	SZ	125	253	EP		15 4	54.38	-0.44							1.0
QRWL	SZ	126	264	EP		15 4	55.19	0.26							0.2
BHL	BZ	130	282	EP		15 4	55.77	0.25							1.0
DQRL	SZ	135	272	EP		15 4	56.53	0.20							1.0

May 21 2019 Hour: 21:53 58.3 Lat: 33.72N Lon: 35.39E Depth: 3 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	17	96	EP		2154	1.21	0.12	46						1.0
DQRL	SN	17	96	ES		2154	3.13	-0.05							1.0
BHL	BZ	32	50	EP		2154	3.40	-0.05							1.0
QRWL	SZ	33	126	EP		2154	3.62	-0.09							1.0
QRWL	SN	33	126	ES		2154	7.77	0.05							1.0
ZAHL	SZ	48	72	EP		2154	6.03	-0.07							1.0
RCY	SZ	48	121	EP		2154	6.19	0.07							1.0
SHBL	SZ	53	142	EP		2154	6.81	-0.05							1.0
HWQ	BZ	80	40	EP		2154	11.31	0.07							1.0
BEIL	SZ	117	39	EP		2154	17.09	0.00							1.0

May 21 2019 Hour: 22:26 5.0 Agency: REL Regional

**EMSC OT=22:26:05.0 35.76N 24.65E 57Km M=3.6 CRETE, GREECE**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ			EP		2228	11.89								
SHBL	SZ			EP		2228	13.27								
RCY	SZ			EP		2228	13.86								
BEIL	SZ			EP		2228	14.75								

May 22 2019 Hour: 0:39 31.6 Agency: REL Distant

**EMSC OT=00:39:31.6 13.83N 92.98E 10Km M=5.6 ANDAMAN ISLANDS, INDIA REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		049	3.97								
RCY	SZ			EP		049	5.13								
HWQ	BZ			EP		049	4.78								
SHBL	SZ			EP		049	5.42								
QRWL	SZ			EP		049	5.31								
BHL	BZ			EP		049	6.41								
DQRL	SZ			EP		049	7.05								

May 23 2019 Hour: 8:45 20.5 Agency: REL Distant

**EMSC OT=08:45:20.5 51.45N 178.31W 56Km M=6.1 ANDREANOF ISLANDS, ALEUTIAN IS**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		858	9.73								
HWQ	BZ			EP		858	10.38								
FKH	SZ			EP		858	11.03								
BHL	BZ			EP		858	12.33								
QRWL	SZ			EP		858	15.09								
RCY	SZ			EP		858	14.77								
SHBL	SZ			EP		858	15.58								

May 23 2019 Hour: 16:51 25.5 Lat: 33.79N Lon: 35.78E Depth: 3 Agency: REL Local

Magnitudes: 3.1MC REL

Rms: 0.2 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	52	EP		1651	27.65	0.01							1.0
BHL	BZ	17	319	EP		1651	28.28	-0.06	70						1.0
BHL	BN	17	319	ES		1651	30.46	-0.01							1.0
DQRL	SZ	21	245	EP		1651	29.02	0.06							1.0
QRWL	SZ	28	198	EP		1651	29.86	-0.17							1.0
QRWL	SE	28	198	ES		1651	33.56	0.14							1.0
RCY	SZ	33	171	EP		1651	30.71	-0.08							1.0
SHBL	SZ	49	184	EP		1651	33.39	0.02							1.0
HWQ	BZ	57	16	EP		1651	34.64	0.02							1.0
FKH	SZ	77	49	EP		1651	37.95	-0.01							1.0
BEIL	SZ	92	24	EP		1651	41.54	1.28							0.2

May 25 2019 Hour: 12:47 20.2 Lat: 33.97N Lon: 36.15E Depth: 10 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
ZAHL	SZ	28	242	EP		1247	24.90	-0.10							1.0
ZAHL	SN	28	242	ES		1247	28.66	0.10							1.0
HWQ	BZ	38	331	EP		1247	26.52	-0.14	55						1.0
HWQ	BN	38	331	ES		1247	31.46	0.01							1.0
FKH	SZ	39	39	EP		1247	26.65	-0.03							1.0
BHL	BZ	46	260	EP		1247	27.84	-0.04							1.0
RCY	SZ	60	209	EP		1247	30.02	-0.09							1.0
DQRL	SZ	61	241	EP		1247	30.25	0.02							1.0
BEIL	SZ	63	3	EP		1247	30.66	0.16							1.0
QRWL	SZ	64	222	EP		1247	30.74	0.06							1.0
QRWL	SN	64	222	ES		1247	38.41	-0.03							1.0
SHBL	SZ	79	208	EP		1247	33.13	0.07							1.0

May 26 2019 Hour: 12: 7 11.8 Agency: REL Regional

**EMSC OT=12:07:11.8 37.27N 28.04E 15Km M=4.2 WESTERN TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		12 8	55.52								
ZAHL	SZ			EP		12 8	56.71								
QRWL	SZ			EP		12 8	57.55								
RCY	SZ			EP		12 8	59.59								
SHBL	SZ			EP		12 8	59.52								

May 27 2019 Hour: 1:56 18.1 Agency: REL Distant

**EMSC OT=01:56:18.1 21.09S 178.71W 586Km M=4.9 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		214	55.38								
FKH	SZ			EP		214	55.18								
HWQ	BZ			EP		214	55.38								
ZAHL	SZ			EP		214	56.21								
BHL	BZ			EP		214	56.70								
RCY	SZ			EP		214	57.00								
DQRL	SZ			EP		214	57.29								
SHBL	SZ			EP		214	56.87								

May 28 2019 Hour: 2:29 1.0 Lat: 33.73N Lon: 34.97E Depth: 32 Agency: REL Local  
Magnitudes: 2.7MC 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	56	92	EP		229	10.87	-0.10	35						1.0
DQRL	SN	56	92	ES		229	18.38	0.04							1.0
BHL	BZ	67	73	EP		229	12.39	-0.00							1.0
QRWL	SZ	69	106	EP		229	12.76	0.01							1.0
SHBL	SZ	84	120	EP		229	14.45	-0.26							1.0
RCY	SZ	85	107	EP		229	14.83	-0.01							1.0
RCY	SN	85	107	ES		229	25.22	0.13							1.0
ZAHL	SZ	86	80	EP		229	15.26	0.22							1.0
HWQ	BZ	109	56	EP		229	17.94	0.06							1.0
HWQ	BN	109	56	ES		229	30.13	-0.23							1.0
BEIL	SZ	144	51	EP		229	22.31	0.15							1.0

May 28 2019 Hour: 5:27 47.1 Agency: REL Regional

**EMSC OT=05:27:47.1 36.95N 27.59E 10Km M=4.5 DODECANESE IS-TURKEY BORDER REG**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		529	32.57								
HWQ	BZ			EP		529	33.33								
BEIL	SZ			EP		529	34.30								
QRWL	SZ			EP		529	35.68								
RCY	SZ			EP		529	37.27								
SHBL	SZ			EP		529	36.99								

FKH SZ EP 529 38.52

May 29 2019 Hour: 14:258.9 Lat: 33.78N Lon: 35.78E Depth: 0 Agency: REL Local  
Magnitudes: 3.1MC REL Rms: 0.2 secs

**ALEY REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	49	EP		14	3	1.01-0.07							1.0
BHL	BZ	18	321	EP		14	3	1.74-0.09	73						1.0
DQRL	SZ	21	247	EP		14	3	2.34 0.04							1.0
DQRL	SN	21	247	ES		14	3	4.86 0.06							1.0
QRWL	SZ	27	199	EP		14	3	3.19-0.13							1.0
BEYL	SZ	28	291	EP		14	3	3.54 0.05							1.0
RCY	SZ	32	170	EP		14	3	3.99-0.09							1.0
RCY	SN	32	170	ES		14	3	7.94 0.06							1.0
SHBL	SZ	48	184	EP		14	3	6.70 0.03							1.0
HWQ	BZ	57	16	EP		14	3	8.07-0.13							1.0
FKH	SZ	78	48	EP		14	3	11.70 0.19							1.0
BEIL	SZ	93	24	EP		14	3	15.07 1.22							0.2

May 29 2019 Hour: 19:4226.4 Agency: REL Regional  
**EMSC OT=19:42:26.4 39.27N 39.89E 2Km M=4.4 EASTERN TURKEY**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1943	50.57								
FKH	SZ			EP		1943	52.72								
HWQ	BZ			EP		1943	54.82								
ZAHL	SZ			EP		1944	1.11								
BHL	BZ			EP		1944	1.39								
DQRL	SZ			EP		1944	5.49								
RCY	SZ			EP		1944	5.86								
QRWL	SZ			EP		1944	6.50								
SHBL	SZ			EP		1944	8.87								

May 30 2019 Hour: 15:382.9 Agency: REL Distant  
**EMSC OT=15:38:02.9 21.85S 176.52W 189Km M=6.0 FIJI REGION**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1557	24.78								
HWQ	BZ			EP		1557	24.24								
FKH	SZ			EP		1557	24.82								
BHL	BZ			EP		1557	24.99								
RCY	SZ			EP		1557	25.57								
SHBL	SZ			EP		1557	25.88								

May 30 2019 Hour: 21:4345.7 Agency: REL Regional  
**EMSC OT=21:43:45.7 36.98N 27.65E 7Km M=4.3 DODECANESE IS-TURKEY BORDER REG**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2145	31.11								
DQRL	SZ			EP		2145	31.66								
HWQ	BZ			EP		2145	31.11								
BEIL	SZ			EP		2145	32.39								
QRWL	SZ			EP		2145	33.49								
ZAHL	SZ			EP		2145	33.30								
RCY	SZ			EP		2145	35.58								
SHBL	SZ			EP		2145	35.31								
FKH	SZ			EP		2145	36.77								

May 31 2019 Hour: 0:954.3 Lat: 33.96N Lon: 34.43E Depth: 13 Agency: REL Local  
Magnitudes: 3.0MC 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	109	105	EP		010	11.32-0.02								1.0
BHL	BZ	113	93	EP		010	11.81-0.13								1.0
QRWL	SZ	124	111	EP		010	13.81 0.20								1.0
QRWL	SN	124	111	ES		010	27.98 0.09								1.0
ZAHL	SZ	135	94	EP		010	15.14-0.01								1.0



SHBL	SZ	139	119	EP		010	15.75-0.07									1.0
SHBL	SN	139	119	ES		010	31.65-0.09									1.0
RCY	SZ	140	111	EP		010	15.90 0.00									1.0
HWQ	BZ	144	75	EP		010	16.52 0.02									1.0
BEIL	SZ	174	68	EP		010	20.57 0.01		52							1.0

May 31 2019 Hour: 0:12 44.8 Lat: 33.92N Lon: 34.45E Depth: 21 Agency: REL Local  
 Magnitudes: 2.8MC REL Rms: 0.2 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	107	103	EP		013	1.33-0.16								1.0
DQRL	SN	107	103	ES		013	13.91 0.04								1.0
QRWL	SZ	122	110	EP		013	3.82 0.13		38						1.0
QRWL	SN	122	110	ES		013	17.67-0.02								1.0
ZAHL	SZ	133	93	EP		013	5.51 0.11								1.0
RCY	SZ	137	110	EP		013	5.53-0.36								1.0
BEIL	SZ	174	66	EP		013	10.45 0.02								1.0
SHBL	SZ			EP		013	5.18								

May 31 2019 Hour: 10:12 31.9 Agency: REL Distant  
 EMSC OT=10:12:31.9 6.30N 126.48E 91Km M=6.1 MINDANAO, PHILIPPINES

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1025	5.61								
BEIL	SZ			EP		1025	5.87								
HWQ	BZ			EP		1025	6.83								
RCY	SZ			EP		1025	7.79								
BHL	BZ			EP		1025	8.32								
SHBL	SZ			EP		1025	8.58								
QRWL	SZ			EP		1025	8.49								
DQRL	SZ			EP		1025	8.67								

May 31 2019 Hour: 17: 6 57.9 Lat: 34.04N Lon: 35.94E Depth: 6 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	21	194	EP		17 7	1.45-0.04								1.0
HWQ	BZ	26	1	EP		17 7	2.19-0.16		62						1.0
HWQ	BN	26	1	ES		17 7	5.81 0.17								1.0
BHL	BZ	31	241	EP		17 7	2.83-0.15								1.0
FKH	SZ	49	62	EP		17 7	5.75-0.14								1.0
DQRL	SZ	51	223	EP		17 7	6.12-0.03								1.0
QRWL	SZ	60	204	EP		17 7	7.62 0.02								1.0
BEIL	SZ	60	22	EP		17 7	7.72 0.06								1.0
RCY	SZ	61	189	EP		17 7	7.93 0.09								1.0
RCY	SN	61	189	ES		17 7	15.16-0.02								1.0
SHBL	SZ	79	194	EP		17 7	10.88 0.19								1.0



# Epicentral Map of Lebanon

## MAY 2019

