

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

January

2018

Prepared by
The National Centre for Geophysical Research
Bhannes

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

*Tel : +9614-981885
Fax : +9614-981886
Email : geophys@cnrs.edu.lb*

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

PERI: Period where amplitude is measured

BAZ: Back azimuth (station to event)

ARES: Back azimuth residual

VELO: Apparent phase velocity (km/sec)

WT: Weight of phase in the location

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

January 1 2018 Hour: 11:27 35.0 Lat: 34.28N Lon: 36.18E Depth: 31 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

HERMEL REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	21	269	EP		1127	40.99	-0.03	37						1.0
HWQ	BN	21	269	ES		1127	45.50	0.01							1.0
BEIL	SZ	29	1	EP		1127	41.60	-0.01							1.0
BEIL	SN	29	1	ES		1127	46.55	0.02							1.0
ZAHL	SZ	54	210	EP		1127	44.73	0.01							1.0
BHL	BZ	64	229	EP		1127	46.11	0.11							0.2
DQRL	SZ	85	221	EP		1127	48.93	0.09							0.2

January 2 2018 Hour: 14:57 18.7 Agency: REL Distant

EMSC OT=14:57:18.7 24.94S 178.51E 580Km M=5.9 SOUTH OF FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1515	54.97								
HWQ	BZ			EP		1515	55.33								
BHL	BZ			EP		1515	56.35								

January 3 2018 Hour: 13:45 42.1 Lat: 34.94N Lon: 36.10E Depth: 22 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	45	170	EP		1345	49.93	-0.04	82						1.0
BEIL	SN	45	170	ES		1345	55.84	0.05							1.0
HWQ	BZ	75	191	EP		1345	54.15	-0.08							1.0
HWQ	BN	75	191	ES		1346	3.15	-0.05							1.0
BHL	BZ	122	200	EP		1346	1.20	0.11							1.0
DQRL	SZ	145	200	EP		1346	4.16	-0.00							1.0

January 6 2018 Hour: 0:20 17.0 Lat: 34.34N Lon: 35.94E Depth: 21 Agency: REL Local
Magnitudes: 2.3MC REL Rms: 0.1 secs

ZGHARTA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	32	44	EP		020	22.99	-0.06	22						1.0
BEIL	SN	32	44	ES		020	27.56	0.05							1.0
ZAHL	SZ	53	186	EP		020	25.99	-0.02							1.0
BHL	BZ	55	209	EP		020	26.15	-0.06							1.0
BHL	BN	55	209	ES		020	33.00	-0.01							1.0
DQRL	SZ	78	206	EP		020	29.65	0.11							1.0

January 6 2018 Hour: 14:14 28.1 Lat: 33.87N Lon: 35.84E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.6 secs

ZAHLE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	4	107	EP		1414	28.59	-0.20	62						1.0
BHL	BZ	18	283	EP		1414	30.93	-0.03							1.0
BHL	BN	18	283	ES		1414	33.05	-0.03							1.0
DQRL	SZ	31	234	EP		1414	33.03	-0.05							1.0
DQRL	SN	31	234	ES		1414	36.79	0.00							1.0
QRWL	SZ	39	203	EP		1414	34.29	-0.02							1.0
HWQ	BZ	46	12	EP		1414	35.56	-0.01							1.0
BEIL	SZ	81	23	EP		1414	42.95	1.80							0.2

January 6 2018 Hour: 19:21 13.6 Lat: 33.66N Lon: 35.62E Depth: 8 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.2 secs

CHOUF REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	7	321	EP		1921	15.49	0.03	39						1.0
DQRL	SN	7	321	ES		1921	16.86	0.06							1.0
QRWL	SZ	14	153	EP		1921	16.13	-0.14							1.0
BHL	BZ	28	7	EP		1921	18.35	0.03							1.0
BHL	BN	28	7	ES		1921	21.60	-0.18							1.0

ZAHL	SZ	33	48	EP	1921	19.28	0.05										1.0
ZAHL	SN	33	48	ES	1921	23.45	0.09										1.0
HWQ	BZ	75	24	EP	1921	26.05	0.18										0.2
BEIL	SZ	111	28	EP	1921	31.36	0.01										0.2

January 7 2018 Hour: 0:38 29.1 Lat: 33.89N Lon: 35.36E Depth: 24 Agency: REL Local
Magnitudes: 3.4MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	12	99	EP		038	33.62	0.28							0.2
BHL	BZ	27	86	EP		038	34.72	-0.14	97						1.0
DQRL	SZ	28	136	EP		038	34.89	-0.07							1.0
DQRL	SN	28	136	ES		038	39.35	0.06							1.0
QRWL	SZ	48	142	EP		038	37.54	0.04							1.0
ZAHL	SZ	48	94	EP		038	37.77	0.17							1.0
ZAHL	SN	48	94	ES		038	43.91	0.03							1.0
SHBL	SZ	70	149	EP		038	40.61	0.05							1.0
SHBL	SN	70	149	ES		038	48.88	-0.15							1.0
BEIL	SZ	105	46	EP		038	45.53	-0.07							1.0

January 7 2018 Hour: 2:11 20.6 Lat: 33.73N Lon: 35.10E Depth: 26 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	40	67	EP		211	28.04	0.07							1.0
DQRL	SZ	44	93	EP		211	28.46	-0.12							1.0
BHL	BZ	55	69	EP		211	29.95	-0.12	48						1.0
BHL	BN	55	69	ES		211	37.12	0.02							1.0
QRWL	SZ	58	110	EP		211	30.52	0.06							1.0
QRWL	SE	58	110	ES		211	37.75	-0.02							1.0
SHBL	SZ	74	125	EP		211	32.67	-0.02							1.0
ZAHL	SZ	75	79	EP		211	32.92	0.13							1.0
ZAHL	SN	75	79	ES		211	41.83	0.00							1.0
BEIL	SZ	135	48	EP		211	41.00	-0.02							1.0

January 7 2018 Hour: 6:47 15.2 Agency: REL Distant
EMSC OT=06:47:15.2 24.75N 94.88E 30Km M=5.5 MYANMAR-INDIA BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		656	17.26								
HWQ	BZ			EP		656	19.16								
ZAHL	SZ			EP		656	20.08								
SHBL	SZ			EP		656	21.10								
BHL	BZ			EP		656	21.37								
QRWL	SZ			EP		656	21.24								

January 7 2018 Hour: 12:52 5.1 Lat: 35.02N Lon: 36.66E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	69	219	EP		1252	16.16	0.04	53						1.0
BEIL	SN	69	219	ES		1252	24.35	0.05							1.0
HWQ	SZ	105	218	EP		1252	21.85	-0.16							1.0
HWQ	SN	105	218	ES		1252	34.52	-0.03							1.0
ZAHL	SZ	147	209	EP		1252	28.61	-0.04							1.0
BHL	BZ	154	217	EP		1252	29.76	0.07							1.0
DQRL	SZ	177	215	EP		1252	33.08	0.08							1.0
RCY	SZ	185	204	EP		1252	34.26	0.01							1.0

January 7 2018 Hour: 13: 4 42.0 Lat: 33.62N Lon: 35.66E Depth: 4 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.0 secs

CHOUF REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	9	166	EP		13	4	43.58	-0.06						1.0
QRWL	SN	9	166	ES		13	4	44.87	0.01						1.0
DQRL	SZ	12	318	EP		13	4	44.20	0.04	32					1.0
RCY	SZ	22	131	EP		13	4	45.66	0.06						1.0
RCY	SN	22	131	ES		13	4	48.25	-0.02						1.0
BHL	BZ	31	359	EP		13	4	47.01	-0.07						1.0
BHL	BN	31	359	ES		13	4	50.86	0.00						1.0
ZAHL	SZ	33	39	EP		13	4	47.48	0.03						1.0

January 9 2018 Hour: 0:15 41.0 Lat: 33.78N Lon: 35.79E Depth: 2 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	43	EP		015		43.04	-0.01						1.0
DQRL	SZ	22	249	EP		015		44.60	0.02	40					1.0
DQRL	SN	22	249	ES		015		47.26	0.01						1.0
QRWL	SZ	27	202	EP		015		45.30	-0.12						1.0
RCY	SZ	31	173	EP		015		46.15	0.10						1.0
RCY	SN	31	173	ES		015		49.80	-0.01						1.0

January 9 2018 Hour: 12:33 2.0 Lat: 34.51N Lon: 36.78E Depth: 13 Agency: REL Local
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	55	274	EP		1233		11.00	-0.12	47					1.0
BEIL	SN	55	274	ES		1233		17.92	0.09						1.0
HWQ	BZ	81	252	EP		1233		15.01	0.03						1.0
HWQ	BN	81	252	ES		1233		24.47	-0.09						1.0
RCY	SZ	142	218	EP		1233		23.92	-0.08						1.0
DQRL	SZ	143	232	EP		1233		24.25	0.17						1.0

January 10 2018 Hour: 3: 9 13.6 Lat: 35.03N Lon: 33.90E Depth: 16 Agency: REL Regional
Magnitudes: 3.2MC 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	204	127	EP		3	9	43.42	0.07						1.0
HWQ	BZ	205	113	EP		3	9	43.65	0.10	60					1.0
HWQ	BN	205	113	ES		310		5.64	-0.07						1.0
DQRL	SZ	212	133	EP		3	9	44.19	-0.23						1.0
BEIL	SZ	216	104	EP		3	9	44.90	0.07						1.0
BEIL	SN	216	104	ES		310		7.90	-0.04						1.0
ZAHL	SZ	224	125	EP		3	9	45.83	-0.04						1.0
RCY	SZ	246	133	EP		3	9	48.70	0.04						1.0
RCY	SE	246	133	ES		310		14.72	0.11						1.0
SHBL	SZ	252	137	EP		3	9	49.39	-0.01						1.0

January 10 2018 Hour: 13: 7 14.4 Lat: 34.68N Lon: 36.15E Depth: 3 Agency: REL Local
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	168	EP		13	7	16.94	-0.12	53					1.0
BEIL	SN	16	168	ES		13	7	19.14	0.11						1.0
HWQ	BZ	49	203	EP		13	7	22.20	-0.08						1.0
HWQ	BN	49	203	ES		13	7	28.03	-0.09						1.0
BHL	BZ	98	208	EP		13	7	30.34	0.17						1.0
DQRL	SZ	121	206	EP		13	7	34.01	0.12						1.0
RCY	SZ	135	192	EP		13	7	35.85	-0.11						1.0

January 13 2018 Hour: 12:13 10.7 Lat: 34.67N Lon: 35.61E Depth: 48 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.3 secs

OFFSHORE NORTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	54	145	EP		1213	21.17	0.00							1.0
HWQ	BN	54	145	ES		1213	28.94	0.01							1.0
BEIL	SZ	55	105	EP		1213	21.22	0.02	47						1.0
BEIL	SN	55	105	ES		1213	28.98	-0.01							1.0
ZAHL	SZ	94	164	EP		1213	24.56	-1.18							0.2
RCY	SZ	132	171	EP		1213	30.45	0.06							1.0

January 13 2018 Hour: 13:55 31.8 Lat: 33.46N Lon: 35.67E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC 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	6	EP		1355	33.19	-0.13							1.0
SHBL	SZ	14	152	EP		1355	34.18	0.07							1.0
RCY	SZ	16	76	EP		1355	34.20	-0.13	63						1.0
RCY	SN	16	76	ES		1355	36.23	0.02							1.0
DQRL	SZ	29	341	EP		1355	36.40	0.01							1.0
DQRL	SN	29	341	ES		1355	39.75	-0.05							1.0
ZAHL	SZ	48	24	EP		1355	39.55	0.00							1.0
BHL	BZ	49	358	EP		1355	39.66	-0.03							1.0
BHL	BN	49	358	ES		1355	45.61	0.08							1.0
HWQ	BZ	94	16	EP		1355	47.26	0.33							0.2
BEIL	SZ	129	21	EP		1355	52.67	0.13							1.0

January 13 2018 Hour: 14:36 16.3 Lat: 33.54N Lon: 35.71E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

RACHAYA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	12	111	EP		1436	18.18	-0.10	42						1.0
RCY	SE	12	111	ES		1436	19.80	0.03							1.0
SHBL	SZ	21	172	EP		1436	19.71	0.05							1.0
DQRL	SZ	23	325	EP		1436	19.94	-0.04							1.0
DQRL	SN	23	325	ES		1436	22.76	0.03							1.0
ZAHL	SZ	39	24	EP		1436	22.69	0.10							1.0
BHL	BZ	41	353	EP		1436	22.84	-0.07							1.0

January 14 2018 Hour: 17:54 57.2 Lat: 33.60N Lon: 34.95E Depth: 30 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 0.1 secs

OFFSHORE SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	59	78	EP		1755	7.33	-0.08	24						1.0
DQRL	SN	59	78	ES		1755	15.02	0.03							1.0
QRWL	SZ	69	94	EP		1755	8.80	0.12							1.0
BHL	BZ	74	62	EP		1755	9.51	0.06							1.0
RCY	SZ	83	97	EP		1755	10.75	-0.04							1.0
RCY	SE	83	97	ES		1755	20.86	-0.02							1.0
ZAHL	SZ	92	71	EP		1755	11.88	-0.10							1.0
HWQ	BZ	120	50	EP		1755	15.47	0.02							1.0

January 15 2018 Hour: 11:59 10.5 Lat: 34.56N Lon: 36.83E Depth: 17 Agency: REL Local
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	59	268	EP		1159	20.20	-0.01	50						1.0
BEIL	SN	59	268	ES		1159	27.48	0.09							1.0
HWQ	BZ	87	249	EP		1159	24.17	-0.17							1.0
HWQ	BN	87	249	ES		1159	34.51	-0.07							1.0
RCY	SZ	150	218	EP		1159	33.55	-0.00							1.0
DQRL	SZ	150	231	EP		1159	33.74	0.16							1.0

January 16 2018 Hour: 4:43 10.5 Lat: 35.44N Lon: 36.69E Depth: 2 Agency: REL Regional
Magnitudes: 3.0MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	110	205	EP		443	28.32	0.01	52						1.0
BEIL	SN	110	205	ES		443	41.52	0.03							1.0
HWQ	BZ	146	208	EP		443	33.64	-0.13							1.0
HWQ	BN	146	208	ES		443	50.99	-0.01							1.0
ZAHL	SZ	191	203	EP		443	40.28	0.18							1.0
BHL	BZ	196	209	EP		443	40.72	0.06							1.0
RCY	SZ	230	200	EP		443	44.84	-0.13							1.0
RCY	SN	230	200	ES		444	10.48	-0.00							1.0

January 16 2018 Hour: 13:48 37.6 Lat: 33.58N Lon: 36.97E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	106	265	EP		1348	54.05	-0.18							1.0
RCY	SN	106	265	ES		1349	6.55	0.02							1.0
HWQ	BZ	123	310	EP		1348	56.50	-0.17							1.0
BEIL	SZ	129	326	EP		1348	57.74	0.13	50						1.0
BEIL	SN	129	326	ES		1349	12.39	-0.02							1.0
DQRL	SZ	131	277	EP		1348	58.09	0.22							1.0

January 16 2018 Hour: 19:57 17.4

Agency: REL Distant

EMSC OT=19:57:17.4 19.36S 179.22W 664Km M=5.9 FIJI REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2015	43.55								
HWQ	BZ			EP		2015	44.00								
BHL	BZ			EP		2015	45.03								
RCY	SZ			EP		2015	45.03								
DQRL	SZ			EP		2015	45.69								

January 17 2018 Hour: 19: 5 3.8 Lat: 33.50N Lon: 31.62E Depth: 14 Agency: REL Regional
Magnitudes: 3.8MC REL Rms: 0.3 secs

EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	367	85	EP		19 5	53.96	-0.09							1.0
DQRL	SN	367	85	ES		19 6	31.51	0.26							1.0
BHL	BZ	376	82	EP		19 5	55.12	-0.07	114						1.0
BHL	BN	376	82	ES		19 6	32.91	-0.32							1.0
QRWL	SZ	377	88	EP		19 5	55.28	0.02							1.0
RCY	SZ	391	89	EP		19 5	57.65	0.60							1.0
RCY	SN	391	89	ES		19 6	36.21	-0.25							1.0
ZAHL	SZ	397	83	EP		19 5	57.57	-0.16							1.0
HWQ	BZ	409	77	EP		19 5	59.05	-0.12							1.0
BEIL	SZ	437	73	EP		19 6	2.29	-0.19							1.0
BEIL	SN	437	73	ES		19 6	46.22	0.31							1.0

January 17 2018 Hour: 22:56 56.9

Agency: REL Distant

EMSC OT=22:56:56.9 30.28S 177.63W 30Km M=5.9 KERMADEC ISLANDS, NEW ZEALAND

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2316	48.02								
HWQ	BZ			EP		2316	47.94								
RCY	SZ			EP		2316	48.41								
BHL	BZ			EP		2316	48.72								
QRWL	SZ			EP		2316	48.87								

January 20 2018 Hour: 11:16 6.3 Lat: 34.21N Lon: 36.40E Depth: 10 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
BEIL	SZ	42	332	EP		1116	13.29	0.02							1.0
BEIL	SN	42	332	ES		1116	18.40	-0.00							1.0
HWQ	BZ	42	280	EP		1116	13.36	-0.06	40						1.0
HWQ	BN	42	280	ES		1116	18.67	0.01							1.0
ZAHL	SZ	62	230	EP		1116	16.70	0.25							0.2
BHL	BZ	77	244	EP		1116	18.86	0.03							1.0
DQRL	SZ	95	234	EP		1116	21.52	0.01							1.0
RCY	SZ	95	213	EP		1116	21.52	-0.02							1.0

January 21 2018 Hour: 12: 2 39.2 Lat: 35.00N Lon: 36.55E Depth: 0 Agency: REL Local
Magnitudes: 3.1MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	61	213	EP		12 2	48.95	-0.09	69						1.0
BEIL	SN	61	213	ES		12 2	56.37	0.02							1.0
HWQ	BZ	98	215	EP		12 2	54.86	-0.06							1.0
HWQ	BN	98	215	ES		12 3	6.65	0.06							1.0
ZAHL	SZ	141	206	EP		12 3	1.87	0.10							1.0
ZAHL	SN	141	206	ES		12 3	18.42	-0.09							1.0
BHL	BZ	147	214	EP		12 3	2.69	0.03							1.0
DQRL	SZ	170	212	EP		12 3	5.98	-0.02							1.0
RCY	SZ	180	202	EP		12 3	7.51	0.04							1.0

January 21 2018 Hour: 12:39 30.2 Lat: 33.47N Lon: 35.69E Depth: 0 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.1 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	9	356	EP		1239	31.61	-0.06							1.0
RCY	SZ	14	77	EP		1239	32.43	-0.08	31						1.0
RCY	SN	14	77	ES		1239	34.21	0.02							1.0
SHBL	SZ	14	159	EP		1239	32.57	0.02							1.0
DQRL	SZ	29	337	EP		1239	34.82	-0.02							1.0
DQRL	SN	29	337	ES		1239	38.24	-0.01							1.0
ZAHL	SZ	47	23	EP		1239	37.88	0.07							1.0
BHL	BZ	49	356	EP		1239	38.12	0.06							1.0

January 21 2018 Hour: 14:13 26.7 Lat: 34.09N Lon: 33.77E Depth:203 Agency: REL Regional
Magnitudes: 3.4MC REL Rms: 0.3 secs

EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	171	104	EP		1413	59.53	-0.36							1.0
BHL	BZ	175	96	EP		1414	0.55	0.38							1.0
ZAHL	SZ	197	97	EP		1414	2.49	0.49							1.0
HWQ	BZ	201	83	EP		1414	2.13	-0.26							1.0
RCY	SZ	202	108	EP		1414	2.51	0.05							1.0
RCY	SN	202	108	ES		1414	28.73	-0.15							1.0
BEIL	SZ	228	76	EP		1414	4.33	-0.30	75						1.0
BEIL	SN	228	76	ES		1414	32.80	0.14							1.0

January 21 2018 Hour: 14:36 35.3 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1437	11.64								
RCY	SZ			EP		1437	13.42								
BEIL	SZ			EP		1437	14.10								

January 25 2018 Hour: 19:58 40.6 Lat: 32.87N Lon: 35.64E Depth: 0 Agency: REL Regional
Magnitudes: 2.8MC REL Rms: 0.1 secs

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	72	14	EP		1958	51.92	-0.21	43						1.0
RCY	SE	72	14	ES		1959	0.79	0.10							1.0
DQRL	SZ	93	356	EP		1958	55.67	0.12							1.0
DQRL	SN	93	356	ES		1959	6.60	-0.03							1.0
ZAHL	SZ	112	12	EP		1958	58.45	-0.15							1.0
BHL	BZ	115	1	EP		1958	58.99	-0.07							1.0
BEIL	SZ	192	15	EP		1959	10.74	0.23							1.0

January 26 2018 Hour: 3:25 51.7 Lat: 35.48N Lon: 35.56E Depth: 5 Agency: REL Regional
Magnitudes: 3.1MC REL Rms: 0.0 secs

OFFSHORE SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	119	151	EP		326	10.63	-0.00	65						1.0
BEIL	SN	119	151	ES		326	24.65	-0.00							1.0
BHL	BZ	175	177	EP		326	18.95	0.01							1.0
ZAHL	SZ	182	170	EP		326	19.93	0.04							1.0
DQRL	SZ	197	180	EP		326	21.64	-0.02							1.0
RCY	SZ	221	173	EP		326	24.74	-0.02							1.0
RCY	SN	221	173	ES		326	49.24	0.00							1.0

January 26 2018 Hour: 22:9 23.0

Agency: REL Regional

EMSC OT=22:09:23.0 35.83N 24.10E 87Km M=4.1 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ			EP		2211	37.87								
ZAHL	SZ			EP		2211	39.85								
RCY	SZ			EP		2211	39.90								
BEIL	SZ			EP		2211	40.81								

January 27 2018 Hour: 13:8 33.9 Lat: 34.80N Lon: 34.13E Depth: 87 Agency: REL Regional
Magnitudes: 3.0MC REL Rms: 0.7 secs

EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	172	125	EP		13 8	59.41	0.08							0.2
BHL	BN	172	125	ES		13 9	17.29	-0.84							1.0
HWQ	BZ	176	109	EP		13 9	0.13	0.25	51						1.0
HWQ	BN	176	109	ES		13 9	20.71	1.62							1.0
BEIL	SZ	191	98	EP		13 9	1.03	-0.38							1.0
BEIL	SN	191	98	ES		13 9	20.90	-0.85							1.0
ZAHL	SZ	192	122	EP		13 9	1.76	0.07							1.0
RCY	SZ	214	132	EP		13 9	4.29	0.15							1.0
RCY	SN	214	132	ES		13 9	26.48	-0.02							1.0

January 27 2018 Hour: 13:15 57.0 Lat: 33.80N Lon: 36.01E Depth: 3 Agency: REL Local
Magnitudes: 2.8MC 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	13	297	EP		1315	59.18	0.00	43						1.0
BHL	BZ	35	289	EP		1316	2.52	-0.08							1.0
RCY	SZ	38	205	EP		1316	3.04	-0.05							1.0
RCY	SN	38	205	ES		1316	7.65	0.02							1.0
DQRL	SZ	42	255	EP		1316	3.86	0.07							1.0
DQRL	SN	42	255	ES		1316	8.87	0.01							1.0
HWQ	BZ	53	354	EP		1316	5.55	0.04							1.0

January 27 2018 Hour: 13:46 26.2 Lat: 33.46N Lon: 35.67E 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	10	7	EP		1346	27.63	-0.15	33						1.0
SHBL	SZ	14	150	EP		1346	28.48	0.06							1.0
RCY	SZ	16	75	EP		1346	28.58	-0.17							1.0
RCY	SN	16	75	ES		1346	30.76	0.09							1.0
DQRL	SZ	29	341	EP		1346	30.85	0.02							1.0
DQRL	SN	29	341	ES		1346	34.34	0.05							1.0
ZAHL	SZ	49	24	EP		1346	34.11	0.10							1.0

January 29 2018 Hour: 15:12 3.1 Lat: 33.47N Lon: 35.70E 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	352	EP		1512	4.44	-0.15							1.0
RCY	SZ	13	76	EP		1512	5.32	0.02	49						1.0
RCY	SN	13	76	ES		1512	6.90	-0.00							1.0
SHBL	SZ	14	161	EP		1512	5.38	0.00							1.0
DQRL	SZ	29	336	EP		1512	7.82	0.02							1.0
DQRL	SN	29	336	ES		1512	11.29	0.04							1.0
ZAHL	SZ	47	22	EP		1512	10.69	0.02							1.0
BHL	BZ	49	355	EP		1512	11.05	0.08							1.0
HWQ	BZ	93	14	EP		1512	17.69	-0.42							0.2

January 30 2018 Hour: 14: 4 33.4 Lat: 33.87N Lon: 35.84E 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	4	105	EP		14	4	33.90	-0.17						1.0
BHL	BZ	18	283	EP		14	4	36.16	-0.09						1.0
BHL	BN	18	283	ES		14	4	38.39	0.01						1.0
DQRL	SZ	31	235	EP		14	4	38.33	-0.03						1.0
QRWL	SZ	38	203	EP		14	4	39.55	-0.02						1.0
RCY	SZ	41	181	EP		14	4	40.06	0.05	51					1.0
RCY	SN	41	181	ES		14	4	45.05	0.13						1.0
HWQ	BZ	47	12	EP		14	4	40.86	-0.02						1.0
HWQ	BN	47	12	ES		14	4	46.57	0.14						1.0

January 30 2018 Hour: 15:44 3.2 Lat: 34.66N Lon: 36.11E Depth: 1 Agency: REL Local
Magnitudes: 3.0MC 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	14	153	EP		1544	5.47	-0.01	64						1.0
BEIL	SN	14	153	ES		1544	7.22	0.01							1.0
HWQ	BZ	45	200	EP		1544	10.43	0.04							1.0
ZAHL	SZ	91	193	EP		1544	17.84	-0.02							1.0
BHL	BZ	94	207	EP		1544	18.23	-0.04							1.0
DQRL	SZ	117	206	EP		1544	22.02	0.01							1.0
RCY	SZ	131	191	EP		1544	24.35	0.02							1.0
RCY	SN	131	191	ES		1544	40.00	-0.01							1.0

January 30 2018 Hour: 16:20 18.7 Lat: 33.46N Lon: 35.67E Depth: 0 Agency: REL Local
Magnitudes: 2.9MC 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	10	5	EP		1620	20.09	-0.30							1.0
SHBL	SZ	14	151	EP		1620	20.99	0.06							1.0
RCY	SZ	16	73	EP		1620	21.10	-0.18	51						1.0
RCY	SN	16	73	ES		1620	23.23	0.06							1.0
DQRL	SZ	29	341	EP		1620	23.49	0.03							1.0
DQRL	SN	29	341	ES		1620	27.00	0.03							1.0

ZAHL	SZ	49	24	EP	1620	26.58	-0.02										1.0
BHL	BZ	50	358	EP	1620	26.75	-0.01										1.0
HWQ	BZ	95	15	EP	1620	34.16	0.16										1.0
BEIL	SZ	129	21	EP	1620	39.76	0.16										1.0

January 31 2018 Hour: 7: 6 59.7 Agency: REL Distant
EMSC OT=07:06:59.7 36.55N 70.87E 189Km M=6.1 HINDU KUSH REGION, AFGHANISTAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		712	38.09								
RCY	SZ			EP		712	40.59								
BHL	BZ			EP		712	41.02								
QRWL	SZ			EP		712	41.88								

January 31 2018 Hour: 13: 3 19.4 Lat: 34.03N Lon: 35.74E Depth: 1 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

KESROUAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	210	EP		13	3	22.01	-0.07	44					1.0
BHL	BN	16	210	ES		13	3	24.07	0.02						1.0
ZAHL	SZ	23	146	EP		13	3	23.09	-0.10						1.0
HWQ	BZ	33	34	EP		13	3	24.61	-0.16						1.0
HWQ	BN	33	34	ES		13	3	28.85	0.12						1.0
DQRL	SZ	40	204	EP		13	3	25.87	0.07						1.0
RCY	SZ	60	172	EP		13	3	29.11	0.02						1.0
RCY	SN	60	172	ES		13	3	36.31	0.06						1.0
BEIL	SZ	70	36	EP		13	3	30.68	0.03						1.0

January 31 2018 Hour: 19:25 26.2 Lat: 33.36N Lon: 35.63E Depth: 9 Agency: REL Local
Magnitudes: 2.9MC 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	21	13	EP		1925	29.76	-0.23							1.0
RCY	SZ	24	51	EP		1925	30.52	0.07	52						1.0
RCY	SN	24	51	ES		1925	33.60	-0.01							1.0
DQRL	SZ	39	351	EP		1925	32.70	0.05							1.0
DQRL	SN	39	351	ES		1925	37.39	-0.04							1.0
ZAHL	SZ	60	23	EP		1925	36.07	0.06							1.0
BHL	BZ	60	2	EP		1925	36.19	0.13							1.0
BHL	BN	60	2	ES		1925	43.41	0.04							1.0
HWQ	BZ	106	16	EP		1925	43.12	0.06							1.0
BEIL	SZ	141	21	EP		1925	48.00	-0.14							1.0

Epicentral Map of Lebanon

JANUARY 2018

