

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

January

2017

Prepared by
The National Centre for Geophysical Research
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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.

January 1 2017 Hour: 13:4 3.4 Agency: REL Regional
EMSC OT=13:04:03.4 34.81N 27.03E 30Km M=4.8 EASTERN MEDITERRANEAN SEA
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 DQRL SZ EP 13 5 45.72
 BHL BZ EP 13 5 45.11
 ZAHL SZ EP 13 5 46.85
 HWQ BZ EP 13 5 47.90

January 2 2017 Hour: 2:56 13.3 Lat: 34.24N Lon: 36.32E Depth: 12 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
HWQ	BZ	35	278	EP		256	19.24	-0.06	56						1.0
HWQ	BN	35	278	ES		256	23.79	0.05							1.0
ZAHL	SZ	58	224	EP		256	22.97	0.08							1.0
ZAHL	SN	58	224	ES		256	30.11	0.12							1.0
BHL	BZ	71	239	EP		256	24.76	-0.12							1.0
BHL	BN	71	239	ES		256	33.42	-0.03							1.0
DQRL	SZ	91	230	EP		256	27.80	0.09							1.0
RCY	SZ	93	209	EP		256	27.94	-0.18							1.0
RCY	SN	93	209	ES		256	39.11	0.02							1.0

January 2 2017 Hour: 13:14 3.0 Agency: REL Distant

EMSC OT=13:14:03.0 23.34S 179.33E 561Km M=6.3 SOUTH OF FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1332	38.95								
HWQ	BZ			EP		1332	39.79								
RCY	SZ			EP		1332	40.60								

January 3 2017 Hour: 13:27 8.0 Lat: 34.29N Lon: 36.63E Depth: 6 Agency: REL Local
 Magnitudes: 2.7MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	63	269	EP		1327	18.23	-0.08	38						1.0
HWQ	BN	63	269	ES		1327	25.94	0.02							1.0
BHL	BZ	100	245	EP		1327	24.34	0.13							1.0
RCY	SZ	115	220	EP		1327	26.44	0.01							1.0
RCY	SN	115	220	ES		1327	40.01	-0.04							1.0
DQRL	SZ	118	237	EP		1327	26.77	-0.04							1.0

January 4 2017 Hour: 1:35 6.0 Agency: REL Regional

EMSC OT=01:35:06.0 36.05N 29.34E 10Km M=3.4 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		136	26.27								
DQRL	SZ			EP		136	27.04								
ZAHL	SZ			EP		136	30.43								
RCY	SZ			EP		136	31.94								

January 5 2017 Hour: 14:5 7.1 Agency: REL Regional

EMSC OT=14:05:07.1 36.47N 26.80E 98Km M=4.3 DODECANESE ISLANDS, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		14	6	50.69							
BHL	BZ			EP		14	6	50.51							
HWQ	SZ			EP		14	6	53.12							
RCY	SZ			EP		14	6	55.56							

January 6 2017 Hour: 5:15 49.2 Lat: 32.35N Lon: 35.69E Depth: 0 Agency: REL Regional
 Magnitudes: 3.6MC REL Rms: 0.3 secs

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	128	6	EP		516	9.23	-0.50							1.0
RCY	SN	128	6	ES		516	24.71	-0.25							1.0
DQRL	SZ	150	356	EP		516	12.95	-0.24	123						1.0

DQRL	SN	150	356	ES		516	31.33	0.35									1.0
ZAHL	SZ	168	6	EP		516	15.86	0.08									1.0
BEYL	SZ	169	354	EP		516	15.02	-0.90									0.2
BHL	BZ	172	359	EP		516	16.34	-0.04									1.0
BHL	BN	172	359	ES		516	36.56	0.03									1.0
HWQ	SZ	215	6	EP		516	22.63	0.64									1.0
HWQ	SN	215	6	ES		516	46.49	0.20									1.0

January 8 2017 Hour: 9:22 19.0 Lat: 33.63N Lon: 33.47E Depth: 15 Agency: REL Regional
Magnitudes: 3.9MC REL Rms: 0.2 secs

CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ	190	81	EP		922	47.16	0.07							0.2
DQRL	SZ	195	87	EP		922	47.55	-0.33	184						1.0
DQRL	SN	195	87	ES		923	9.12	-0.11							1.0
BHL	BZ	205	81	EP		922	48.96	-0.13							1.0
BHL	BN	205	81	ES		923	11.24	-0.09							1.0
RCY	SZ	220	93	EP		922	51.16	0.11							1.0
RCY	SN	220	93	ES		923	14.78	0.04							1.0
ZAHL	SZ	225	83	EP		922	51.95	0.28							1.0
HWQ	BZ	240	72	EP		922	53.46	-0.03							1.0
HWQ	BN	240	72	ES		923	19.03	0.04							1.0

January 9 2017 Hour: 23:39 29.1 Lat: 34.18N Lon: 35.75E Depth: 26 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

JBEIL REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	22	58	EP		2339	34.58	-0.02	35						1.0
HWQ	SE	22	58	ES		2339	38.62	-0.02							1.0
BHL	BZ	31	196	EP		2339	35.62	-0.01							1.0
BHL	BN	31	196	ES		2339	40.42	-0.00							1.0
ZAHL	SZ	38	160	EP		2339	36.48	0.10							1.0
RCY	SZ	76	174	EP		2339	41.62	0.04							1.0
RCY	SN	76	174	ES		2339	50.73	-0.06							1.0

January 10 2017 Hour: 6:13 47.9 Agency: REL Distant
EMSC OT=06:13:47.9 4.48N 122.59E 630Km M=7.3 CELEBES SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		625	17.41								
RCY	SZ			EP		625	18.40								
BHL	BZ			EP		625	18.64								

January 11 2017 Hour: 23:49 23.3 Lat: 33.79N Lon: 35.77E Depth: 11 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.3 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	55	EP		2349	26.05	-0.21							1.0
ZAHL	SN	14	55	ES		2349	28.43	-0.00							1.0
BHL	BZ	16	321	EP		2349	26.85	0.24	34						1.0
BHL	BE	16	321	ES		2349	29.05	0.01							1.0
DQRL	SZ	20	243	EP		2349	27.48	0.34							1.0
BEYL	SZ	27	290	EP		2349	27.47	-0.54							1.0
RCY	SZ	33	169	EP		2349	28.98	-0.05							1.0
RCY	SN	33	169	ES		2349	33.25	0.01							1.0
HWQ	SZ	57	17	EP		2349	32.91	0.22							1.0

January 12 2017 Hour: 15:14 6.4 Agency: REL Regional
EMSC OT=15:14:06.4 35.83N 28.62E 20Km M=3.4 EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1515	37.51								
HWQ	SZ			EP		1515	34.95								

January 13 2017 Hour: 21:43 35.6 Lat: 35.01N Lon: 32.41E Depth: 46 Agency: REL Regional
Magnitudes: 4.2MC REL Rms: 0.4 secs

CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	322	111	EP		2144	17.85	-0.54							1.0
BHL	BN	322	111	ES		2144	49.88	-0.19							1.0
DQRL	SZ	324	116	EP		2144	18.37	-0.30							1.0
DQRL	SN	324	116	ES		2144	50.08	-0.49							1.0
HWQ	BZ	334	103	EP		2144	19.54	-0.30	218						1.0
HWQ	BN	334	103	ES		2144	52.78	0.18							1.0
ZAHL	SZ	344	111	EP		2144	21.23	0.19							1.0
ZAHL	SN	344	111	ES		2144	55.17	0.49							1.0
RCY	SZ	357	117	EP		2144	23.62	0.94							1.0
RCY	SN	357	117	ES		2144	57.55	0.02							1.0

January 14 2017 Hour: 0:15 8.3 Agency: REL Regional

EMSC OT=00:15:08.3 35.60N 32.46E 60Km M=3.0 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		015	53.93								
HWQ	BZ			EP		015	54.86								
ZAHL	SZ			EP		015	56.80								
RCY	SZ			EP		015	59.03								

January 14 2017 Hour: 10:3 34.0 Lat: 34.68N Lon: 36.10E Depth: 8 Agency: REL Local

Magnitudes: 2.7MC 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	18	153	EP		10 3	37.19	-0.00							1.0
BEIL	SN	18	153	ES		10 3	39.57	0.00							1.0
HWQ	BZ	47	197	EP		10 3	41.73	0.00	37						1.0
HWQ	BN	47	197	ES		10 3	47.46	-0.00							1.0
BHL	BZ	96	205	EP		10 3	49.35	-0.04							1.0
DQRL	SZ	119	204	EP		10 3	52.84	0.04							1.0

January 15 2017 Hour: 4:13 14.9 Lat: 34.12N Lon: 36.23E Depth: 12 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
HWQ	BZ	32	304	EP		413	20.46	0.03	43						1.0
HWQ	BN	32	304	ES		413	24.51	-0.03							1.0
ZAHL	SZ	43	228	EP		413	22.26	0.08							1.0
ZAHL	SN	43	228	ES		413	27.61	0.03							1.0
BEIL	SZ	47	355	EP		413	22.62	-0.13							0.2
BHL	BZ	58	246	EP		413	24.39	-0.15							1.0
BEYL	SZ	74	248	EP		413	27.24	0.53							0.2
DQRL	SZ	76	233	EP		413	27.31	0.11							1.0
RCY	SZ	78	208	EP		413	27.44	-0.05							1.0
RCY	SN	78	208	ES		413	36.78	-0.05							1.0

January 17 2017 Hour: 4:37 20.1 Lat: 33.90N Lon: 36.13E Depth: 3 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
ZAHL	SZ	23	259	EP		437	23.85	-0.05	24						1.0
ZAHL	SN	23	259	ES		437	26.76	0.03							1.0
BHL	BZ	44	271	EP		437	27.36	0.12							1.0
BHL	BN	44	271	ES		437	32.50	-0.05							1.0
HWQ	BZ	45	338	EP		437	27.42	-0.01							1.0
DQRL	SZ	56	248	EP		437	29.15	-0.04							1.0

January 17 2017 Hour: 15:44.5 Lat: 33.79N Lon: 35.79E Depth: 5 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	49	EP		15	4	46.63-0.09	40						1.0
BHL	BZ	18	316	EP		15	4	47.38-0.18							1.0
BHL	BN	18	316	ES		15	4	50.01 0.16							1.0
DQRL	SZ	22	246	EP		15	4	48.11-0.10							1.0
RCY	SZ	33	172	EP		15	4	49.99 0.12							1.0
RCY	SN	33	172	ES		15	4	53.86 0.01							1.0
HWQ	BZ	56	15	EP		15	4	53.71 0.08							1.0

January 17 2017 Hour: 15:49 52.0

Agency: REL Regional

EMSC OT=15:49:52.0 30.36N 31.95E 10Km M=4.0 EGYPT

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1551	2.01								
BHL	BZ			EP		1551	6.67								
ZAHL	SZ			EP		1551	12.98								
HWQ	BZ			EP		1551	10.89								

January 18 2017 Hour: 9:42 21.9 Lat: 34.03N Lon: 35.74E Depth: 2 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

KESROUAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	211	EP		942	24.50-0.06								1.0
BHL	BN	16	211	ES		942	26.58 0.03								1.0
ZAHL	SZ	23	146	EP		942	25.60-0.06								1.0
HWQ	BZ	33	34	EP		942	27.24-0.04	45							1.0
HWQ	BN	33	34	ES		942	31.31 0.03								1.0
DQRL	SZ	39	204	EP		942	28.28 0.02								1.0
RCY	SZ	60	172	EP		942	31.54-0.00								1.0
RCY	SN	60	172	ES		942	38.73 0.04								1.0
BEIL	SZ	70	35	EP		942	33.18 0.03								1.0

January 18 2017 Hour: 10:14 10.8

Agency: REL Distant

EMSC OT=10:14:10.8 42.53N 13.28E 9Km M=5.7 CENTRAL ITALY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1018	40.07								
HWQ	BZ			EP		1018	41.01								
BEIL	SZ			EP		1018	41.44								
RCY	SZ			EP		1018	44.27								

January 18 2017 Hour: 10:25 25.0

Agency: REL Distant

EMSC OT=10:25:25.0 42.49N 13.31E 9Km M=5.6 CENTRAL ITALY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1029	53.75								
HWQ	BZ			EP		1029	54.46								
BEIL	SZ			EP		1029	55.85								

January 18 2017 Hour: 15:0 8.6 Lat: 34.03N Lon: 35.75E Depth: 5 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

KESROUAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	17	211	EP		15	0	11.36-0.06	39						1.0
BHL	BN	17	211	ES		15	0	13.55 0.03							1.0
ZAHL	SZ	23	146	EP		15	0	12.48 0.02							1.0
ZAHL	SN	23	146	ES		15	0	15.31-0.01							1.0
HWQ	BZ	33	34	EP		15	0	13.97-0.03							1.0
HWQ	BN	33	34	ES		15	0	18.02 0.02							1.0
DQRL	SZ	40	204	EP		15	0	15.09 0.03							1.0
BEIL	SZ	70	35	EP		15	0	19.85 0.01							1.0

January 19 2017 Hour: 21:48 40.1 Lat: 35.43N Lon: 36.81E 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	114	210	EP		2148	58.59	0.11	63						1.0
BEIL	SN	114	210	ES		2149	12.12	0.02							1.0
HWQ	BZ	150	212	EP		2149	4.00	-0.11							1.0
HWQ	BN	150	212	ES		2149	21.75	-0.14							1.0
ZAHL	SZ	194	206	EP		2149	10.24	-0.06							1.0
BHL	BZ	200	212	EP		2149	10.91	-0.09							1.0
BHL	BE	200	212	ES		2149	34.02	0.14							1.0
DQRL	SZ	223	211	EP		2149	13.95	0.12							1.0

January 19 2017 Hour: 23:4 16.5 Agency: REL Distant

EMSC OT=23:04:16.5 10.32S 161.30E 6Km M=6.7 SOLOMON ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		2323	14.66								
BEIL	SZ			EP		2323	15.02								
BHL	BZ			EP		2323	15.36								
DQRL	SZ			EP		2323	14.84								
ZAHL	SZ			EP		2323	22.25								

January 21 2017 Hour: 1:2 57.2 Lat: 35.30N Lon: 36.23E Depth: 17 Agency: REL Regional
Magnitudes: 2.9MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	84	183	EP		1 3	10.71	0.10	45						1.0
BEIL	SN	84	183	ES		1 3	20.56	0.05							1.0
HWQ	BZ	116	193	EP		1 3	15.16	-0.19							1.0
ZAHL	SZ	163	191	EP		1 3	21.97	0.07							1.0
ZAHL	SN	163	191	ES		1 3	39.95	-0.20							1.0
BHL	BZ	164	199	EP		1 3	21.88	-0.06							1.0
DQRL	SZ	187	199	EP		1 3	24.89	0.06							1.0
DQRL	SN	187	199	ES		1 3	45.42	0.16							1.0

January 21 2017 Hour: 16:54 24.2 Agency: REL Regional

EMSC OT=16:54:24.2 30.31N 31.90E 5Km M=4.3 EGYPT

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1655	34.58								
RCY	SZ			EP		1655	34.93								
BHL	BZ			EP		1655	36.59								
ZAHL	SZ			EP		1655	38.80								
HWQ	BZ			EP		1655	43.92								
BEIL	SZ			EP		1655	48.07								

January 22 2017 Hour: 4:30 23.8 Agency: REL Distant

EMSC OT=04:30:23.8 6.20S 155.10E 150Km M=7.9 BOUGAINVILLE REGION P.N.G

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		448	52.02								
ZAHL	SZ			EP		448	53.30								
BEIL	SZ			EP		448	51.38								
HWQ	SZ			EP		448	53.62								
HWQ	BZ			EP		448	53.70								
BHL	BZ			EP		448	52.10								

January 23 2017 Hour: 14:43 2.4 Lat: 33.87N Lon: 35.85E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC 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	4	114	EP		1443	3.00	-0.04	61						1.0
BHL	BZ	18	281	EP		1443	5.24	-0.07							1.0
BHL	BN	18	281	ES		1443	7.51	0.03							1.0
DQRL	SZ	32	234	EP		1443	7.48	0.00							1.0

RCY	SZ	42	181	EP		1443	9.15	0.04									1.0
RCY	SN	42	181	ES		1443	14.09	0.00									1.0
HWQ	BZ	46	12	EP		1443	9.82	0.04									1.0

January 23 2017 Hour: 20:38 30.2

Agency: REL Regional

EMSC OT=20:38:30.2 30.53N 31.86E 5Km M=3.9 EGYPT

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		2039	40.13								
BHL	BZ			EP		2039	42.49								
ZAHL	SZ			EP		2039	43.96								
HWQ	SZ			EP		2039	48.70								
BEIL	SZ			EP		2039	52.80								

January 24 2017 Hour: 0:15 3.0

Lat: 33.30N

Lon: 35.40E

Depth: 12

Agency: REL

Local

Magnitudes: 2.4MC REL

Rms: 0.0 secs

NABATIYE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	45	62	EP		015	10.64	-0.06	26						1.0
RCY	SN	45	62	ES		015	16.40	0.03							1.0
DQRL	SZ	47	19	EP		015	10.96	0.01							1.0
BHL	BZ	71	19	EP		015	14.55	0.04							1.0
BHL	BN	71	19	ES		015	22.96	-0.03							1.0
ZAHL	SZ	76	36	EP		015	15.34	0.02							1.0

January 24 2017 Hour: 23:59 5.2

Lat: 33.79N

Lon: 35.79E

Depth: 2

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	12	47	EP		2359	7.18	-0.00							1.0
BHL	BZ	18	316	EP		2359	8.18	-0.03							1.0
DQRL	SZ	23	247	EP		2359	8.87	0.00	51						1.0
DQRL	SN	23	247	ES		2359	11.61	0.03							1.0
QRWL	SZ	28	201	EP		2359	9.74	-0.07							1.0
QRWL	SN	28	201	ES		2359	13.25	0.03							1.0
HWQ	BZ	56	15	EP		2359	14.25	-0.07							1.0
BEIL	SZ	91	23	EP		2359	20.04	0.10							1.0

January 25 2017 Hour: 1:19 32.4

Agency: REL Regional

EMSC OT=01:19:32.4 36.79N 27.66E 2Km M=4.1 DODECANESE-TURKEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		121	18.06								
DQRL	SZ			EP		121	18.31								
HWQ	BZ			EP		121	20.65								
BEIL	SZ			EP		121	19.87								
ZAHL	SZ			EP		121	21.07								

January 25 2017 Hour: 18:50 52.4

Agency: REL Regional

EMSC OT=18:50:52.4 35.35N 26.43E 70Km M=5.2 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	SZ			EP		1852	37.17								
DQRL	SZ			EP		1852	38.47								
BHL	BZ			EP		1852	38.24								
QRWL	SZ			EP		1852	40.86								
ZAHL	SZ			EP		1852	41.98								
HWQ	SZ			EP		1852	41.60								
RCY	SZ			EP		1852	42.61								

January 26 2017 Hour: 9:45 1.2

Lat: 33.86N

Lon: 35.85E

Depth: 1

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	94	EP		945	1.86	-0.00							1.0
BHL	BZ	18	285	EP		945	4.00	-0.12	49						1.0
DQRL	SZ	31	236	EP		945	6.07	-0.04							1.0

DQRL	SN	31	236	ES		945	9.94	0.16									1.0
QRWL	SZ	38	203	EP		945	7.16	-0.11									1.0
RCY	SZ	40	181	EP		945	7.68	-0.00									1.0
RCY	SN	40	181	ES		945	12.54	0.03									1.0
HWQ	BZ	47	11	EP		945	8.78	-0.00									1.0
HWQ	BN	47	11	ES		945	14.46	0.03									1.0
BEIL	SZ	82	22	EP		945	14.42	0.07									1.0

January 27 2017 Hour: 20:51 29.7

Agency: REL Regional

EMSC OT=20:51:29.7 35.90N 28.82E 60Km M=4.8 EASTERN MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2052	52.75								
HWQ	BZ			EP		2052	55.49								
QRWL	SZ			EP		2052	55.66								
ZAHL	SZ			EP		2052	55.89								
BEIL	SZ			EP		2052	56.86								
RCY	SZ			EP		2052	58.17								

January 28 2017 Hour: 14:55 47.2 Lat: 33.26N Lon: 35.42E Depth: 2

Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.1 secs

BENT JBEIL REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	41	37	EP		1455	53.61	-0.16							1.0
QRWL	SN	41	37	ES		1455	58.70	0.06							1.0
RCY	SZ	47	55	EP		1455	54.97	0.15							1.0
RCY	SN	47	55	ES		1456	0.47	0.01							1.0
BHL	BZ	75	17	EP		1455	59.50	0.16							1.0
ZAHL	SZ	80	33	EP		1455	59.93	-0.13	51						1.0
ZAHL	SE	80	33	ES		1456	9.50	-0.07							1.0
HWQ	SZ	124	23	EP		1456	7.18	0.06							1.0
HWQ	SN	124	23	ES		1456	21.87	0.00							1.0
BEIL	SZ	159	26	EP		1456	12.29	-0.06							1.0

January 29 2017 Hour: 14:59 50.9

Agency: REL Distant

EMSC OT=14:59:50.9 30.32S 177.50W 20Km M=5.8 KERMADEC ISLANDS, NEW ZEALAND

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1519	44.54								
HWQ	SZ			EP		1519	44.87								
ZAHL	SZ			EP		1519	45.20								
RCY	SZ			EP		1519	45.40								
BHL	BZ			EP		1519	45.60								
QRWL	SZ			EP		1519	45.93								
DQRL	SZ			EP		1519	46.06								

January 30 2017 Hour: 20:33 37.6 Lat: 34.25N Lon: 32.64E Depth: 72

Agency: REL Regional

Magnitudes: 3.6MC REL

Rms: 0.2 secs

CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	277	102	EP		2034	15.21	0.13							1.0
BHL	BZ	281	97	EP		2034	15.38	-0.12							1.0
ZAHL	SZ	303	97	EP		2034	18.48	0.32							1.0
ZAHL	SN	303	97	ES		2034	47.98	-0.21							1.0
BEIL	SZ	328	83	EP		2034	20.75	-0.33	96						1.0
BEIL	SN	328	83	ES		2034	53.48	0.21							1.0

January 31 2017 Hour: 16:26 59.7 Lat: 33.25N Lon: 35.42E Depth: 5

Agency: REL Local

Magnitudes: 3.1MC REL

Rms: 0.1 secs

BENT JBEIL REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	41	36	EP		1627	6.26	-0.06							1.0
RCY	SZ	47	55	EP		1627	7.37	0.03							1.0
RCY	SN	47	55	ES		1627	13.02	0.03							1.0
BHL	BZ	75	16	EP		1627	11.97	0.08							1.0
ZAHL	SZ	80	32	EP		1627	12.57	-0.01	68						1.0

ZAHL	SN	80	32	ES	1627	22.06-0.05	1.0
HWQ	SZ	123	23	EP	1627	19.39-0.05	1.0
HWQ	SE	123	23	ES	1627	34.20 0.16	1.0
BEIL	SZ	159	26	EP	1627	24.60-0.06	1.0
BEIL	SN	159	26	ES	1627	43.02-0.10	1.0

Epicentral Map of Lebanon

JANUARY 2017

