

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

July

2016

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

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.

July 1 2016 Hour: 13:50 48.4 Lat: 34.02N Lon: 35.75E Depth: 10 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.1 secs

KESROUAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	214	EP		1350	51.47	0.01	34						1.0
BHL	BN	16	214	ES		1350	53.71	-0.02							1.0
HWQ	BZ	34	33	EP		1350	54.06	-0.09							1.0
HWQ	BN	34	33	ES		1350	58.47	0.06							1.0
DQRL	SZ	39	205	EP		1350	54.92	0.05							1.0
RCY	SZ	59	172	EP		1350	58.03	-0.01							1.0

July 1 2016 Hour: 14: 3 10.2 Lat: 34.04N Lon: 35.97E Depth: 9 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	22	201	EP		14 3	14.03	-0.06							1.0
HWQ	BZ	26	355	EP		14 3	14.74	0.03	47						1.0
BHL	BZ	33	242	EP		14 3	15.69	-0.05							1.0
BHL	BN	33	242	ES		14 3	19.88	0.03							1.0
DQRL	SZ	53	225	EP		14 3	18.89	0.07							1.0
DQRL	SN	53	225	ES		14 3	25.17	-0.03							1.0
QRWL	SZ	61	206	EP		14 3	20.12	-0.04							1.0
RCY	SZ	62	192	EP		14 3	20.27	-0.03							1.0
RCY	SN	62	192	ES		14 3	27.86	0.07							1.0

July 1 2016 Hour: 15: 9 39.8 Lat: 33.78N Lon: 35.78E Depth: 5 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	49	EP		15 9	42.15	-0.01							1.0
ZAHL	SN	14	49	ES		15 9	43.96	0.01							1.0
BHL	BZ	18	322	EP		15 9	42.73	-0.07							1.0
DQRL	SZ	21	247	EP		15 9	43.24	0.03	42						1.0
DQRL	SN	21	247	ES		15 9	45.78	0.02							1.0
RCY	SZ	32	170	EP		15 9	44.93	-0.04							1.0
RCY	SN	32	170	ES		15 9	48.84	0.01							1.0
HWQ	BZ	58	16	EP		15 9	49.17	0.05							1.0

July 1 2016 Hour: 15:40 5.2 Lat: 32.46N Lon: 35.47E Depth: 6 Agency: REL Regional
Magnitudes: 3.4MC REL Rms: 0.0 secs

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	102	14	EP		1540	21.62	-0.06							1.0
SHBL	BN	102	14	ES		1540	33.89	0.03							1.0
RCY	SZ	120	16	EP		1540	24.37	-0.01							1.0
DQRL	SZ	138	4	EP		1540	27.12	0.03	90						1.0
DQRL	SN	138	4	ES		1540	43.29	0.02							1.0
BHL	BZ	161	6	EP		1540	30.39	-0.03							1.0
BHL	BN	161	6	ES		1540	49.03	-0.03							1.0
HWQ	BZ	206	12	EP		1540	36.37	0.01							1.0

July 2 2016 Hour: 12:59 28.5 Lat: 34.48N Lon: 36.49E Depth: 6 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
HWQ	BZ	54	246	EP		1259	37.24	-0.10	68						1.0
HWQ	BN	54	246	ES		1259	43.95	0.04							1.0
ZAHL	SZ	88	219	EP		1259	42.79	0.01							1.0
BHL	BZ	100	231	EP		1259	44.76	0.16							1.0
DQRL	SZ	120	225	EP		1259	47.58	-0.06							1.0
DQRL	SN	120	225	ES		13 0	1.78	-0.05							1.0

July 2 2016 Hour: 13: 9 43.0 Lat: 33.79N Lon: 35.76E Depth: 4 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	55	EP		13	9	45.43	0.02						1.0
ZAHL	SN	14	55	ES		13	9	47.20	0.02						1.0
BHL	BZ	16	322	EP		13	9	45.78-0.00		41					1.0
BHL	BE	16	322	ES		13	9	47.77-0.06							1.0
DQRL	SZ	20	243	EP		13	9	46.44	0.10						1.0
RCY	SZ	33	168	EP		13	9	48.33-0.08							1.0
RCY	SN	33	168	ES		13	9	52.39-0.01							1.0
HWQ	BZ	57	17	EP		13	9	52.27	0.01						1.0

July 2 2016 Hour: 13:16 52.4 Lat: 33.79N Lon: 35.78E Depth: 18 Agency: REL Local
Magnitudes: 2.5MC 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	54	EP		1316		56.15-0.01							1.0
BHL	BZ	17	318	EP		1316		56.38-0.15		29					1.0
DQRL	SZ	21	244	EP		1316		57.06	0.05						1.0
DQRL	SN	21	244	ES		1317		0.45	0.06						1.0
HWQ	BZ	56	16	EP		1317		1.72-0.06							1.0
HWQ	BN	56	16	ES		1317		8.81	0.12						1.0

July 2 2016 Hour: 16:49 46.5 Lat: 33.79N Lon: 35.77E Depth: 2 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	55	EP		1649		48.61	0.01						1.0
BHL	BZ	17	319	EP		1649		49.11-0.08		29					1.0
BHL	BN	17	319	ES		1649		51.22	0.01						1.0
DQRL	SZ	21	243	EP		1649		49.93	0.05						1.0
DQRL	SN	21	243	ES		1649		52.41	0.00						1.0
RCY	SZ	33	170	EP		1649		51.79-0.05							1.0
RCY	SN	33	170	ES		1649		55.85	0.02						1.0
HWQ	BZ	56	17	EP		1649		55.60	0.04						1.0

July 3 2016 Hour: 1:15 6.2 Agency: REL Regional

EMSC OT=01:15:06.2 35.00N 33.91E 45Km M=2.5 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		115		35.81							
QRWL	SZ			EP		115		38.31							
RCY	SZ			EP		115		40.05							
SHBL	BZ			EP		115		41.21							

July 3 2016 Hour: 1:32 7.6 Agency: REL Regional

EMSC OT=01:32:07.6 36.09N 29.72E 5Km M=3.8 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		133		26.24							
HWQ	BZ			EP		133		27.39							
ZAHL	SZ			EP		133		32.03							
SHBL	BZ			EP		133		30.25							

July 4 2016 Hour: 1: 4 56.7 Lat: 33.37N Lon: 35.86E Depth: 0 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
SHBL	BZ	11	257	EP		1	4	58.51-0.00							1.0
RCY	SZ	14	352	EP		1	4	58.90-0.15							1.0
RCY	SN	14	352	ES		1	5	0.74-0.01							1.0
QRWL	SZ	26	320	EP		1	5	0.85-0.03							1.0
DQRL	SZ	46	324	EP		1	5	4.25	0.11		52				1.0
DQRL	SN	46	324	ES		1	5	9.64	0.03						1.0

ZAHL	SZ	54	3	EP	1	5	5.58	0.09										1.0
BHL	BZ	62	342	EP	1	5	6.66	-0.12										1.0
HWQ	BZ	101	5	EP	1	5	13.13	0.08										1.0

July 4 2016 Hour: 6:15 34.4 Lat: 33.49N Lon: 35.66E Depth: 14 Agency: REL Local
Magnitudes: 2.7MC 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	7	14	EP		615	37.09	-0.10							1.0
RCY	SZ	16	85	EP		615	38.09	0.02	37						1.0
RCY	SN	16	85	ES		615	40.78	0.00							1.0
SHBL	BZ	17	154	EP		615	38.23	0.05							1.0
SHBL	BN	17	154	ES		615	40.97	0.00							1.0
DQRL	SZ	26	340	EP		615	39.22	-0.08							1.0
DQRL	SN	26	340	ES		615	43.00	0.10							1.0

July 4 2016 Hour: 10:10 28.6 Lat: 33.54N Lon: 35.71E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	3	278	EP		1010	28.98	-0.11							1.0
RCY	SZ	12	115	EP		1010	30.58	-0.01							1.0
RCY	SN	12	115	ES		1010	32.09	0.01							1.0
SHBL	BZ	22	173	EP		1010	32.18	0.07							1.0
DQRL	SZ	22	323	EP		1010	32.20	0.01	39						1.0
DQRL	SN	22	323	ES		1010	34.97	0.10							1.0
ZAHL	SZ	38	24	EP		1010	34.75	-0.01							1.0
BHL	BZ	40	352	EP		1010	35.03	-0.06							1.0
HWQ	BZ	84	15	EP		1010	42.16	-0.00							1.0

July 4 2016 Hour: 15:9 14.3 Lat: 33.78N Lon: 35.77E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	14	52	EP		15	9	16.54	-0.03						1.0
ZAHL	SN	14	52	ES		15	9	18.26	0.03						1.0
BHL	BZ	17	322	EP		15	9	17.11	0.01	33					1.0
BHL	BN	17	322	ES		15	9	19.07	-0.08						1.0
DQRL	SZ	20	245	EP		15	9	17.74	0.16						1.0
QRWL	SZ	27	197	EP		15	9	18.60	-0.11						1.0
RCY	SZ	32	169	EP		15	9	19.44	-0.10						1.0
RCY	SN	32	169	ES		15	9	23.46	0.06						1.0
HWQ	BZ	57	17	EP		15	9	23.64	0.05						1.0

July 6 2016 Hour: 5:45 9.7 Agency: REL Regional
EMSC OT=05:45:09.7 36.98N 36.00E 5Km M=3.6 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		546		2.97							
HWQ	BZ			EP		545		53.47							

July 7 2016 Hour: 12:53 56.9 Lat: 33.86N Lon: 35.67E Depth: 0 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 0.1 secs

BAABDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	5	340	EP		1253	57.68	-0.05	27						1.0
BHL	BN	5	340	ES		1253	58.36	-0.02							1.0
ZAHL	SZ	20	90	EP		1253	59.97	-0.04							1.0
DQRL	SZ	20	210	EP		1254	0.06	0.05							1.0
RCY	SZ	43	160	EP		1254	3.66	-0.11							1.0
RCY	SN	43	160	ES		1254	8.96	0.06							1.0
HWQ	BZ	53	28	EP		1254	5.48	0.11							1.0

July 8 2016 Hour: 19:46 27.8 Lat: 33.11N Lon: 35.63E Depth: 11 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ	28	21	EP		1946	32.79	0.08							1.0
RCY	SZ	46	24	EP		1946	35.44	-0.07							1.0
RCY	SN	46	24	ES		1946	41.23	-0.02							1.0
QRWL	SZ	48	5	EP		1946	35.81	0.02							1.0
DQRL	SZ	66	355	EP		1946	38.58	0.02	47						1.0
DQRL	SN	66	355	ES		1946	46.56	-0.01							1.0
BHL	BZ	88	1	EP		1946	41.72	-0.06							1.0
BHL	BN	88	1	ES		1946	52.18	0.01							1.0
HWQ	BZ	132	13	EP		1946	49.20	0.84							0.2

July 9 2016 Hour: 7:15 32.4 Agency: REL Regional

EMSC OT=07:15:32.4 36.99N 30.45E 100Km M=4.3 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		716	46.76								
DQRL	SZ			EP		716	46.56								
QRWL	SZ			EP		716	49.58								
RCY	SZ			EP		716	51.64								
SHBL	BZ			EP		716	51.79								

July 9 2016 Hour: 8:15 26.3 Lat: 33.51N Lon: 35.29E Depth: 7 Agency: REL Local
Magnitudes: 2.8MC 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	34	50	EP		815	31.77	-0.16	42						1.0
SHBL	BZ	46	113	EP		815	33.80	-0.03							1.0
SHBL	BN	46	113	ES		815	39.41	0.02							1.0
RCY	SZ	51	92	EP		815	34.72	0.12							1.0
BHL	BZ	55	37	EP		815	35.38	0.07							1.0
HWQ	BZ	105	35	EP		815	43.36	0.25							1.0
HWQ	BN	105	35	ES		815	55.37	-0.17							1.0

July 9 2016 Hour: 13:11 45.5 Lat: 33.89N Lon: 35.76E Depth: 28 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

METN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	10	281	EP		1311	50.54	0.24	37						1.0
BHL	BN	10	281	ES		1311	53.81	-0.07							1.0
ZAHL	SZ	12	106	EP		1311	50.42	0.02							1.0
DQRL	SZ	27	222	EP		1311	51.63	0.00							1.0
DQRL	SE	27	222	ES		1311	56.11	-0.08							1.0
HWQ	BZ	47	21	EP		1311	53.81	-0.16							1.0
HWQ	BE	47	21	ES		1312	0.30	0.04							1.0

July 9 2016 Hour: 14: 3 24.3 Agency: REL Regional

EMSC OT=14:03:24.3 31.90N 30.55E 10Km M=4.0 EGYPT

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		14 4	33.50								
QRWL	SZ			EP		14 4	33.28								
BHL	BZ			EP		14 4	34.76								
RCY	SZ			EP		14 4	35.13								
HWQ	BZ			EP		14 4	39.36								

July 9 2016 Hour: 19:35 57.8 Agency: REL Regional

EMSC OT=19:35:57.8 36.40N 29.19E 15Km M=3.5 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1937	22.45								
SHBL	BZ			EP		1937	26.39								

July 10 2016 Hour: 2:11 42.2 Agency: REL Regional
EMSC OT=02:11:42.2 38.24N 38.78E 2Km M=3.3 EASTERN TURKEY
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ BZ EP 212 53.98
 BHL BZ EP 213 0.63

July 10 2016 Hour: 3:31 17.1 Agency: REL Regional
EMSC OT=03:31:17.1 36.71N 36.05E 5Km M=2.8 TURKEY-SYRIA BORDER
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ BZ EP 331 58.15
 BHL BZ EP 332 1.67

July 10 2016 Hour: 13:41 52.5 Agency: REL Distant
EMSC OT=13:41:52.5 15.13S 172.97W 10Km M=5.8 SAMOA ISLANDS REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ BZ EP 14 1 34.39
 BHL BZ EP 14 1 37.02
 SHBL BZ EP 14 1 39.15

July 10 2016 Hour: 20: 3 37.4 Lat: 33.61N Lon: 35.63E Depth: 2 Agency: REL Local
 Magnitudes: 2.6MC REL Rms: 0.0 secs
CHOUF REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 DQRL SZ 12 334 EP 20 3 39.47 0.01 36 1.0
 DQRL SN 12 334 ES 20 3 40.99 0.00 1.0
 RCY SZ 23 122 EP 20 3 41.15 0.01 1.0
 RCY SN 23 122 ES 20 3 43.90-0.01 1.0
 SHBL BZ 31 159 EP 20 3 42.37-0.00 1.0
 BHL BZ 33 4 EP 20 3 42.72-0.06 1.0
 BHL BN 33 4 ES 20 3 46.76 0.00 1.0
 HWQ BZ 80 21 EP 20 3 50.38 0.04 1.0

July 11 2016 Hour: 3:26 12.2 Lat: 33.65N Lon: 35.78E Depth: 5 Agency: REL Local
 Magnitudes: 2.4MC REL Rms: 0.0 secs
WEST BEKAA REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 QRWL SZ 14 218 EP 326 14.65 0.01 25 1.0
 RCY SZ 18 162 EP 326 15.17-0.03 1.0
 RCY SN 18 162 ES 326 17.44-0.01 1.0
 DQRL SZ 20 289 EP 326 15.56-0.00 1.0
 DQRL SN 20 289 ES 326 18.09 0.02 1.0
 ZAHL SZ 25 23 EP 326 16.45 0.05 1.0
 BHL BZ 31 338 EP 326 17.14-0.06 1.0
 SHBL BZ 33 185 EP 326 17.68 0.03 1.0

July 11 2016 Hour: 5:58 25.9 Lat: 33.87N Lon: 35.84E Depth: 0 Agency: REL Local
 Magnitudes: 2.6MC REL Rms: 0.0 secs
BAABDA REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 ZAHL SZ 5 112 EP 558 26.61-0.07 1.0
 BHL BZ 17 281 EP 558 28.66-0.03 34 1.0
 BHL BN 17 281 ES 558 30.77 0.01 1.0
 DQRL SZ 31 233 EP 558 30.86-0.04 1.0
 RCY SZ 42 180 EP 558 32.63-0.01 1.0
 RCY SN 42 180 ES 558 37.71 0.07 1.0
 HWQ BZ 46 13 EP 558 33.37 0.07 1.0

July 11 2016 Hour: 10:18 27.0 Lat: 33.54N Lon: 35.71E Depth: 0 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 0.1 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	3	281	EP		1018	27.36	-0.07	28						1.0
RCY	SZ	13	114	EP		1018	28.95	-0.07							1.0
RCY	SN	13	114	ES		1018	30.57	0.02							1.0
SHBL	BZ	22	172	EP		1018	30.55	0.06							1.0
DQRL	SZ	22	324	EP		1018	30.61	0.05							1.0
DQRL	SN	22	324	ES		1018	33.24	0.02							1.0

July 11 2016 Hour: 20:16 46.6 Lat: 34.57N Lon: 35.76E Depth: 19 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
HWQ	BZ	37	151	EP		2016	53.24	0.09	35						1.0
HWQ	BN	37	151	ES		2016	57.97	-0.05							1.0
BHL	BZ	74	187	EP		2016	58.41	-0.12							1.0
BHL	BN	74	187	ES		2017	7.42	0.05							1.0
DQRL	SZ	97	190	EP		2017	1.91	0.03							1.0
SHBL	BZ	135	180	EP		2017	7.50	-0.00							1.0

July 12 2016 Hour: 2:20 3.5 Lat: 33.75N Lon: 35.85E Depth: 13 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	25	314	EP		220	8.07	-0.03							1.0
BHL	BN	25	314	ES		220	11.54	0.02							1.0
DQRL	SZ	26	260	EP		220	8.30	0.03							1.0
DQRL	SN	26	260	ES		220	11.83	0.01							1.0
QRWL	SZ	27	215	EP		220	8.30	-0.09	29						1.0
QRWL	SN	27	215	ES		220	12.02	-0.01							1.0
RCY	SZ	28	182	EP		220	8.59	0.02							1.0
SHBL	BZ	45	192	EP		220	11.22	0.05							1.0

July 12 2016 Hour: 11:39 30.5 Lat: 34.28N Lon: 36.55E Depth: 6 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	56	270	EP		1139	39.40	-0.12	60						1.0
HWQ	BN	56	270	ES		1139	46.26	0.04							1.0
BHL	BZ	92	244	EP		1139	45.47	0.04							1.0
RCY	SZ	109	218	EP		1139	48.06	0.09							1.0
RCY	SN	109	218	ES		1140	0.83	-0.09							1.0
DQRL	SZ	110	235	EP		1139	48.19	0.01							1.0
DQRL	SN	110	235	ES		1140	1.31	0.03							1.0

July 12 2016 Hour: 13:47 17.8 Lat: 33.57N Lon: 35.40E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	21	47	EP		1347	21.27	0.01	61						1.0
QRWL	SZ	26	96	EP		1347	21.93	-0.10							1.0
QRWL	SN	26	96	ES		1347	25.16	0.01							1.0
BEYL	SZ	34	14	EP		1347	23.38	0.06							1.0
SHBL	BZ	40	128	EP		1347	24.36	0.02							1.0
RCY	SZ	41	102	EP		1347	24.48	0.03							1.0
RCY	SN	41	102	ES		1347	29.37	0.01							1.0
BHL	BZ	43	32	EP		1347	24.72	-0.10							1.0
BHL	BN	43	32	ES		1347	30.00	-0.00							1.0
ZAHL	SZ	55	55	EP		1347	26.72	0.07							1.0
HWQ	BZ	93	33	EP		1347	32.79	-0.01							1.0

July 13 2016 Hour: 7:10 17.6 Lat: 34.04N Lon: 35.73E Depth: 6 Agency: REL Local
Magnitudes: 3.1MC 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	17	205	EP		710	20.45	-0.12	67						1.0
HWQ	BZ	33	37	EP		710	23.04	0.00							1.0
HWQ	BN	33	37	ES		710	27.11	0.03							1.0
DQRL	SZ	40	202	EP		710	24.15	-0.01							1.0
DQRL	SN	40	202	ES		710	29.21	0.17							1.0
QRWL	SZ	55	185	EP		710	26.45	-0.07							1.0
QRWL	SN	55	185	ES		710	33.08	-0.06							1.0
RCY	SZ	61	171	EP		710	27.60	0.07							1.0

July 13 2016 Hour: 10:31 33.7 Lat: 33.47N Lon: 35.67E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	9	8	EP		1031	35.04	-0.07							1.0
QRWL	SN	9	8	ES		1031	36.20	0.04							1.0
SHBL	BZ	15	153	EP		1031	36.16	0.03							1.0
SHBL	BN	15	153	ES		1031	37.93	-0.00							1.0
RCY	SZ	16	79	EP		1031	36.19	-0.04	33						1.0
DQRL	SZ	28	341	EP		1031	38.17	0.00							1.0
DQRL	SN	28	341	ES		1031	41.47	-0.02							1.0
HWQ	BZ	93	16	EP		1031	48.79	0.06							1.0

July 13 2016 Hour: 11:56 58.5 Agency: REL Distant
EMSC OT=11:56:58.5 28.35S 76.41W 15Km M=6.0 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1216	45.50								
SHBL	BZ			EP		1216	46.52								

July 13 2016 Hour: 12:11 13.4 Agency: REL Distant
EMSC OT=12:11:13.4 28.10S 176.42W 15Km M=6.3 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1230	59.60								
RCY	SZ			EP		1231	1.57								
QRWL	SZ			EP		1231	1.57								
SHBL	BZ			EP		1231	0.46								

July 13 2016 Hour: 13: 4 25.4 Agency: REL Distant
EMSC OT=13:04:25.4 27.97S 176.48W 10Km M=5.8 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	BZ			EP		1324	12.70								
HWQ	BZ			EP		1324	17.08								

July 13 2016 Hour: 14:22 23.8 Lat: 33.78N Lon: 35.79E Depth: 7 Agency: REL Local
Magnitudes: 3.1MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	44	EP		1422	26.34	0.02							1.0
BHL	BZ	19	318	EP		1422	27.01	-0.17	67						1.0
DQRL	SZ	22	249	EP		1422	27.64	0.03							1.0
DQRL	SN	22	249	ES		1422	30.49	0.07							1.0
RCY	SZ	31	172	EP		1422	29.01	-0.06							1.0
SHBL	BZ	48	185	EP		1422	31.61	-0.03							1.0
SHBL	BN	48	185	ES		1422	37.46	0.03							1.0
HWQ	BZ	58	14	EP		1422	33.31	0.12							1.0

July 13 2016 Hour: 18:36 5.4 Agency: REL Regional
EMSC OT=18:36:05.4 35.96N 31.11E 104Km M=4.7 CYPRUS REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ BZ EP 1837 12.47
 DQRL SZ EP 1837 12.84
 RCY SZ EP 1837 16.25
 SHBL BZ EP 1837 16.75

July 13 2016 Hour: 20:22 28.3 Agency: REL Regional
EMSC OT=20:22:28.3 36.26N 35.69E 2Km M=2.7 CENTRAL TURKEY
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ BZ EP 2022 56.84
 BHL BZ EP 2023 2.05
 DQRL SZ EP 2023 4.97
 SHBL BZ EP 2023 10.14

July 14 2016 Hour: 10:40 24.4 Lat: 33.55N Lon: 35.72E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs
WEST BEKAA REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 QRWL SZ 3 269 EP 1040 24.86-0.04 1.0
 RCY SZ 12 117 EP 1040 26.41 0.02 35 1.0
 RCY SN 12 117 ES 1040 27.85-0.03 1.0
 DQRL SZ 22 322 EP 1040 27.96 0.02 1.0
 SHBL BZ 22 173 EP 1040 28.00 0.03 1.0
 SHBL BN 22 173 ES 1040 30.63-0.00 1.0

July 14 2016 Hour: 15:13 37.5 Lat: 33.78N Lon: 35.78E Depth: 10 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.0 secs
ALEY REGION
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 ZAHL SZ 13 51 EP 1513 40.27 0.03 1.0
 BHL BZ 18 319 EP 1513 40.77-0.05 1.0
 DQRL SZ 21 246 EP 1513 41.42 0.09 56 1.0
 DQRL SN 21 246 ES 1513 44.15-0.02 1.0
 RCY SZ 32 170 EP 1513 42.96-0.07 1.0
 RCY SN 32 170 ES 1513 47.15 0.02 1.0
 HWQ BZ 57 16 EP 1513 46.85 0.02 1.0
 HWQ BN 57 16 ES 1513 53.75-0.01 1.0

July 14 2016 Hour: 17:15 48.6 Lat: 33.79N Lon: 35.77E Depth: 3 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
 BHL BZ 17 321 EP 1715 51.32-0.10 38 1.0
 BHL BN 17 321 ES 1715 53.51 0.02 1.0
 DQRL SZ 20 244 EP 1715 52.01 0.02 1.0
 DQRL SN 20 244 ES 1715 54.52 0.03 1.0
 RCY SZ 33 169 EP 1715 53.91-0.06 1.0
 RCY SN 33 169 ES 1715 57.95 0.02 1.0
 HWQ BZ 57 17 EP 1715 57.90 0.07 1.0

July 15 2016 Hour: 21:43 8.7 Lat: 33.74N Lon: 35.49E Depth: 14 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
 DQRL SZ 8 119 EP 2143 11.57 0.05 25 1.0
 DQRL SN 8 119 ES 2143 13.67 0.07 1.0
 BHL BZ 24 40 EP 2143 13.12-0.10 1.0
 BHL BN 24 40 ES 2143 16.40-0.17 1.0
 ZAHL SZ 39 70 EP 2143 15.70 0.29 1.0
 SHBL BZ 50 152 EP 2143 17.03 0.01 1.0
 SHBL BN 50 152 ES 2143 23.02-0.15 1.0

July 16 2016 Hour: 12:32 18.1 Lat: 33.48N Lon: 35.69E Depth: 1 Agency: REL Local
Magnitudes: 2.7MC 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	8	353	EP		1232	19.32	-0.07							1.0
QRWL	SN	8	353	ES		1232	20.36	-0.02							1.0
RCY	SZ	14	81	EP		1232	20.36	0.07	42						1.0
SHBL	BZ	15	162	EP		1232	20.48	-0.06							1.0
SHBL	BN	15	162	ES		1232	22.43	0.05							1.0
DQRL	SZ	28	336	EP		1232	22.54	-0.01							1.0
DQRL	SN	28	336	ES		1232	25.99	0.11							1.0
HWQ	BZ	92	15	EP		1232	32.82	-0.06							1.0

July 16 2016 Hour: 14:30 46.0 Lat: 33.79N Lon: 35.78E Depth: 6 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	55	EP		1430	48.29	-0.06							1.0
ZAHL	SN	12	55	ES		1430	50.11	0.03							1.0
BHL	BZ	17	317	EP		1430	48.86	-0.10	43						1.0
DQRL	SZ	21	243	EP		1430	49.57	-0.10							1.0
DQRL	SN	21	243	ES		1430	52.49	0.11							1.0
HWQ	BZ	56	16	EP		1430	55.25	0.12							1.0

July 16 2016 Hour: 15:22 35.8 Lat: 34.04N Lon: 35.96E Depth: 4 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.0 secs

KESROUAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	21	199	EP		1522	39.31	-0.01							1.0
HWQ	BZ	27	358	EP		1522	40.25	0.00	55						1.0
BHL	BZ	32	242	EP		1522	40.98	-0.03							1.0
BHL	BN	32	242	ES		1522	44.85	0.02							1.0
DQRL	SZ	51	224	EP		1522	44.12	-0.03							1.0
QRWL	SZ	60	205	EP		1522	45.58	0.05							1.0
RCY	SZ	61	191	EP		1522	45.71	0.00							1.0
RCY	SN	61	191	ES		1522	53.00	-0.01							1.0

July 17 2016 Hour: 22:55 11.3 Lat: 33.79N Lon: 35.80E Depth: 11 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	10	48	EP		2255	13.86	-0.02	47						1.0
BHL	BZ	18	312	EP		2255	14.77	-0.04	42						1.0
BHL	BN	18	312	ES		2255	17.47	0.03							1.0
DQRL	SZ	24	245	EP		2255	15.53	-0.03							1.0
DQRL	SN	24	245	ES		2255	18.75	0.01							1.0
RCY	SZ	33	175	EP		2255	16.98	-0.01							1.0
RCY	SN	33	175	ES		2255	21.24	0.01							1.0
SHBL	BZ	50	186	EP		2255	19.57	0.02							1.0
HWQ	BZ	55	14	EP		2255	20.42	0.03							1.0

July 18 2016 Hour: 9:32 31.7 Lat: 33.89N Lon: 35.85E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC 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	5	133	EP		932	32.47	-0.04							1.0
BHL	BZ	18	276	EP		932	34.68	-0.00	37						1.0
BHL	BN	18	276	ES		932	36.86	0.01							1.0
DQRL	SZ	33	232	EP		932	37.01	-0.01							1.0
RCY	SZ	43	182	EP		932	38.74	0.02							1.0
RCY	SN	43	182	ES		932	43.90	0.02							1.0
HWQ	BZ	44	12	EP		932	39.00	0.10							0.2

July 18 2016 Hour: 10:56 32.2 Lat: 34.03N Lon: 35.74E Depth: 8 Agency: REL Local
Magnitudes: 2.9MC 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		1056	34.96	-0.12	56						1.0
BHL	BN	16	210	ES		1056	37.26	0.04							1.0
ZAHL	SZ	23	144	EP		1056	36.10	-0.08							1.0
HWQ	BZ	34	34	EP		1056	37.88	0.03							1.0
HWQ	BN	34	34	ES		1056	42.07	0.03							1.0
DQRL	SZ	39	204	EP		1056	38.69	0.10							1.0
QRWL	SZ	53	186	EP		1056	40.89	-0.00							1.0
RCY	SZ	59	171	EP		1056	41.77	-0.11							1.0
RCY	SN	59	171	ES		1056	49.17	0.11							1.0

July 18 2016 Hour: 17:25 59.8 Lat: 33.80N Lon: 35.78E Depth: 12 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	12	56	EP		1726	2.73	-0.02							1.0
BHL	BZ	16	317	EP		1726	3.19	-0.01	30						1.0
DQRL	SZ	21	242	EP		1726	3.83	-0.04							1.0
DQRL	SN	21	242	ES		1726	6.90	0.03							1.0
RCY	SZ	34	170	EP		1726	5.67	-0.01							1.0
RCY	SN	34	170	ES		1726	10.02	0.01							1.0
HWQ	BZ	56	16	EP		1726	9.10	0.03							1.0

July 19 2016 Hour: 4:24 30.9 Agency: REL Regional

EMSC OT=04:24:30.9 34.99N 33.64E 50Km M=2.9 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		425	6.93								
HWQ	BZ			EP		425	2.72								

July 19 2016 Hour: 12: 2 47.2 Agency: REL Regional

EMSC OT=12:02:47.2 36.88N 34.33E 14Km M=3.5 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		12 3	32.83								
DQRL	SZ			EP		12 3	38.43								
RCY	SZ			EP		12 3	42.34								
SHBL	BZ			EP		12 3	43.58								

July 19 2016 Hour: 23:51 19.4 Lat: 33.71N Lon: 35.88E Depth: 7 Agency: REL Local
Magnitudes: 3.1MC REL Rms: 0.1 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	17	2	EP		2351	22.58	0.13	65						1.0
RCY	SZ	24	190	EP		2351	23.28	-0.16							1.0
RCY	SN	24	190	ES		2351	26.45	0.02							1.0
DQRL	SZ	29	270	EP		2351	24.30	0.09	69						1.0
DQRL	SN	29	270	ES		2351	27.71	-0.06							1.0
BHL	BZ	30	317	EP		2351	24.48	0.01							1.0
SHBL	BZ	42	198	EP		2351	26.30	0.05							1.0
HWQ	BZ	64	6	EP		2351	29.85	0.07							1.0
HWQ	BN	64	6	ES		2351	37.32	-0.14							1.0

July 20 2016 Hour: 0: 3 27.5 Lat: 33.79N Lon: 35.80E Depth: 13 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	11	49	EP		0 3	30.47	0.00							1.0
ZAHL	SE	11	49	ES		0 3	32.64	0.01							1.0
BHL	BZ	18	313	EP		0 3	31.21	-0.04	36						1.0
DQRL	SZ	23	245	EP		0 3	31.92	-0.01							1.0
DQRL	SN	23	245	ES		0 3	35.20	0.03							1.0

QRWL	SZ	29	201	EP		0	3	32.79	-0.00							1.0
RCY	SZ	33	174	EP		0	3	33.36	-0.04							1.0
SHBL	BZ	50	186	EP		0	3	35.93	0.03							1.0
HWQ	BZ	55	14	EP		0	3	36.77	0.02							1.0

July 20 2016 Hour: 3:44 8.6 Lat: 33.80N Lon: 35.58E Depth: 0 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	10	183	EP		344	10.28	0.03	31						1.0
DQRL	SN	10	183	ES		344	11.42	-0.03							1.0
BEYL	SZ	11	317	EP		344	10.45	-0.00							1.0
BHL	BZ	14	31	EP		344	10.89	0.01							1.0
BHL	BN	14	31	ES		344	12.52	-0.03							1.0
ZAHL	SZ	29	76	EP		344	13.38	0.02							1.0
HWQ	BZ	63	32	EP		344	18.87	0.02							0.2

July 20 2016 Hour: 11:48 42.0 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1148	45.18								
DQRL	SZ			EP		1148	49.59								
HWQ	BZ			EP		1148	57.12								

July 20 2016 Hour: 15:13 15.8 Agency: REL Distant

EMSC OT=15:13:15.8 18.88S 169.05E 163Km M=6.1 VANUATU

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1535	33.70								
SHBL	BZ			EP		1535	35.32								
BHL	BZ			EP		1535	35.26								

July 20 2016 Hour: 16:34 50.2 Lat: 33.99N Lon: 36.10E Depth: 27 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	25	233	EP		1634	56.08	-0.04	47						1.0
ZAHL	SN	25	233	ES		1635	0.49	0.00							1.0
HWQ	BZ	35	336	EP		1634	57.19	0.02							1.0
BHL	BZ	42	256	EP		1634	58.14	0.02							1.0
BHL	BE	42	256	ES		1635	3.96	0.00							1.0
DQRL	SZ	59	237	EP		1635	0.23	-0.03							1.0
RCY	SZ	60	204	EP		1635	0.54	-0.00							1.0
RCY	SN	60	204	ES		1635	8.21	0.03							1.0

July 22 2016 Hour: 12: 8 13.8 Lat: 33.29N Lon: 35.33E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

SOUR REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	43	49	EP		12	8	20.78	0.04						1.0
QRWL	SN	43	49	ES		12	8	25.86	-0.03						1.0
DQRL	SZ	51	25	EP		12	8	21.94	-0.06						1.0
DQRL	SN	51	25	ES		12	8	28.12	0.03						1.0
RCY	SZ	52	64	EP		12	8	22.16	-0.00	37					1.0
RCY	SN	52	64	ES		12	8	28.38	0.01						1.0
HWQ	BZ	123	27	EP		12	8	33.69	0.02						1.0

July 22 2016 Hour: 13:53 43.3 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	108	EP		1353	43.94	-0.06							1.0
BHL	BZ	18	283	EP		1353	46.10	-0.11	51						1.0
BHL	BN	18	283	ES		1353	48.35	-0.00							1.0
DQRL	SZ	31	234	EP		1353	48.35	0.01							1.0
DQRL	SN	31	234	ES		1353	52.10	0.04							1.0

RCY	SZ	41	181	EP		1353	49.97	-0.01									1.0
RCY	SN	41	181	ES		1353	54.95	0.03									1.0
HWQ	BZ	46	12	EP		1353	50.88	0.10									1.0

July 22 2016 Hour: 15:12 27.3 Lat: 33.78N Lon: 35.80E Depth: 9 Agency: REL Local
Magnitudes: 2.4MC 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	19	315	EP		1512	30.67	-0.09	26						1.0
BHL	BN	19	315	ES		1512	33.37	0.03							1.0
DQRL	SZ	23	248	EP		1512	31.37	0.04							1.0
RCY	SZ	32	174	EP		1512	32.74	-0.02							1.0
RCY	SN	32	174	ES		1512	36.82	0.01							1.0
HWQ	BZ	57	14	EP		1512	36.59	0.03							1.0

July 22 2016 Hour: 22:55 3.5 Lat: 33.81N Lon: 35.83E Depth: 21 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	7	45	EP		2255	7.32	0.07	53						1.0
ZAHL	SN	7	45	ES		2255	10.01	-0.03							1.0
BHL	BZ	19	301	EP		2255	8.27	0.10	46						1.0
BHL	BN	19	301	ES		2255	11.62	-0.02							1.0
DQRL	SZ	27	244	EP		2255	8.98	-0.06							1.0
HWQ	BZ	52	11	EP		2255	12.35	-0.05							1.0

July 23 2016 Hour: 13:55 55.2 Lat: 33.79N Lon: 35.77E Depth: 3 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	54	EP		1355	57.45	0.02							1.0
BHL	BZ	17	321	EP		1355	57.87	-0.08	36						1.0
DQRL	SZ	21	244	EP		1355	58.58	0.02							1.0
DQRL	SN	21	244	ES		1356	1.09	0.03							1.0
RCY	SZ	33	169	EP		1356	0.49	-0.05							1.0
RCY	SN	33	169	ES		1356	4.52	0.01							1.0
HWQ	BZ	57	17	EP		1356	4.40	0.05							1.0

July 24 2016 Hour: 18: 3 32.3 Agency: REL Distant
EMSC OT=18:03:32.3 46.10N 150.79E 94Km M=5.2 KURIL ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1815	38.43								
HWQ	BZ			EP		1815	36.06								

July 24 2016 Hour: 20:30 1.3 Lat: 34.74N Lon: 38.48E Depth: 0 Agency: REL Regional
Magnitudes: 3.8MC REL Rms: 0.3 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	238	258	EP		2030	36.87	-0.17							1.0
HWQ	BN	238	258	ES		2031	3.61	0.11							1.0
ZAHL	SZ	258	249	EP		2030	39.68	0.18							1.0
ZAHL	SE	258	249	ES		2031	7.13	-0.66							1.0
BHL	BZ	276	251	EP		2030	41.68	-0.04	141						1.0
BHL	BE	276	251	ES		2031	12.01	0.37							1.0
RCY	SZ	280	241	EP		2030	42.17	-0.09							1.0
RCY	SN	280	241	ES		2031	12.78	0.19							1.0
DQRL	SZ	292	248	EP		2030	43.75	0.11							1.0

July 24 2016 Hour: 20:33 38.3 Lat: 35.22N Lon: 38.49E Depth: 37 Agency: REL Regional
Magnitudes: 3.9MC REL Rms: 0.3 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	255	246	EP		2034	13.33	0.12							1.0
HWQ	BN	255	246	ES		2034	38.71	-0.30							1.0
ZAHL	SZ	283	238	EP		2034	17.09	0.45							1.0
ZAHL	SN	283	238	ES		2034	45.21	0.22							1.0
BHL	BZ	299	241	EP		2034	18.35	-0.20							1.0
BHL	BN	299	241	ES		2034	48.36	0.06							1.0
RCY	SZ	310	233	EP		2034	19.69	-0.36							1.0
BEYL	SZ	313	242	EP		2034	20.61	0.35	156						1.0
DQRL	SZ	317	239	EP		2034	20.50	-0.28							1.0
QRWL	SZ	318	235	EP		2034	20.87	-0.07							1.0

July 25 2016 Hour: 7:22 38.7 Lat: 35.05N Lon: 38.42E Depth: 33 Agency: REL Regional
Magnitudes: 3.8MC 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	242	250	EP		723	11.95	0.06	145						1.0
HWQ	BN	242	250	ES		723	36.39	-0.09							1.0
ZAHL	SZ	268	241	EP		723	15.12	0.07							1.0
BHL	BZ	284	244	EP		723	17.21	0.16							1.0
BHL	BN	284	244	ES		723	45.41	-0.06							1.0
RCY	SZ	294	235	EP		723	17.98	-0.31							1.0
RCY	SN	294	235	ES		723	47.74	0.11							1.0
DQRL	SZ	301	241	EP		723	19.25	0.03							1.0
DQRL	SN	301	241	ES		723	49.27	0.04							1.0

July 25 2016 Hour: 15:10 4.1 Lat: 33.78N Lon: 35.77E Depth: 8 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.1 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	51	EP		1510	6.71	-0.04							1.0
BHL	BZ	18	321	EP		1510	7.24	-0.08	36						1.0
DQRL	SZ	21	246	EP		1510	7.80	0.02							1.0
DQRL	SN	21	246	ES		1510	10.53	0.05							1.0
QRWL	SZ	27	198	EP		1510	8.69	-0.08							1.0
RCY	SZ	32	170	EP		1510	9.43	-0.10							1.0
RCY	SN	32	170	ES		1510	13.65	0.11							1.0
HWQ	BZ	57	16	EP		1510	13.61	0.13							1.0

July 25 2016 Hour: 23:29 23.1 Agency: REL Regional
EMSC OT=23:29:23.1 35.42N 31.59E 10Km M=3.7 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		2330	21.31								
HWQ	BZ			EP		2330	22.88								
QRWL	SZ			EP		2330	23.40								
ZAHL	SZ			EP		2330	25.56								
RCY	SZ			EP		2330	25.82								

July 27 2016 Hour: 1:39 35.9 Lat: 35.28N Lon: 34.96E Depth: 16 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

OFFSHORE SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	143	141	EP		139	57.88	0.00	47						1.0
HWQ	BN	143	141	ES		140	14.15	-0.00							1.0
BHL	BZ	165	157	EP		140	0.94	0.11							1.0
ZAHL	SZ	179	151	EP		140	2.51	-0.05							1.0
DQRL	SZ	183	162	EP		140	3.00	-0.06							1.0
DQRL	SN	183	162	ES		140	23.18	0.00							1.0

July 27 2016 Hour: 15:37 54.4 Lat: 33.80N Lon: 35.77E Depth: 14 Agency: REL Local
Magnitudes: 2.3MC REL Rms: 0.0 secs

ALEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	13	57	EP		1537	57.61	-0.01							1.0
BHL	BZ	16	318	EP		1537	57.94	-0.02	22						1.0
BHL	BN	16	318	ES		1538	0.56	-0.03							1.0
DQRL	SZ	21	242	EP		1537	58.53	-0.04							1.0
DQRL	SN	21	242	ES		1538	1.72	0.07							1.0
HWQ	BZ	56	17	EP		1538	3.59	-0.04							1.0
HWQ	BN	56	17	ES		1538	10.52	0.06							1.0

July 27 2016 Hour: 23: 7 1.9 Agency: REL Regional

EMSC OT=23:07:01.9 36.05N 31.37E 10Km M=3.7 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		23 8	4.10								
HWQ	BZ			EP		23 8	6.51								
DQRL	SZ			EP		23 8	6.98								
RCY	SZ			EP		23 8	10.82								

July 28 2016 Hour: 15:31 25.9 Lat: 33.99N Lon: 36.19E Depth: 17 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	31	243	EP		1531	31.64	-0.01							1.0
HWQ	BZ	39	326	EP		1531	32.69	-0.02	41						1.0
HWQ	BN	39	326	ES		1531	37.79	0.02							1.0
BHL	BZ	50	259	EP		1531	34.24	-0.04							1.0
RCY	SZ	64	211	EP		1531	36.27	0.01							1.0
RCY	SN	64	211	ES		1531	43.94	0.00							1.0
DQRL	SZ	65	241	EP		1531	36.49	0.03							1.0

July 28 2016 Hour: 16:13 28.6 Lat: 36.00N Lon: 39.24E Depth: 21 Agency: REL Regional
Magnitudes: 4.7MC REL Rms: 0.2 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	356	239	EP		1614	16.87	-0.09	406						1.0
HWQ	BN	356	239	ES		1614	52.81	0.08							1.0
ZAHL	SZ	388	233	EP		1614	20.81	-0.04							1.0
BHL	BZ	402	236	EP		1614	22.62	0.12							1.0
BEYL	SZ	416	237	EP		1614	24.16	0.04							0.2
RCY	SZ	418	229	EP		1614	24.18	-0.27							1.0
RCY	SN	418	229	ES		1615	6.07	0.31							1.0
DQRL	SZ	421	234	EP		1614	24.91	0.05							1.0
DQRL	SN	421	234	ES		1615	6.38	-0.10							1.0
QRWL	SZ	424	231	EP		1614	25.47	0.24							1.0
QRWL	SN	424	231	ES		1615	6.83	-0.29							1.0

July 29 2016 Hour: 21:18 30.2 Agency: REL Distant

EMSC OT=21:18:30.2 18.58N 145.51E 267Km M=7.7 PAGAN REG. N. MARIANA ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2131	22.71								
HWQ	BZ			EP		2131	21.40								

July 30 2016 Hour: 0:13 1.4 Lat: 33.11N Lon: 35.51E Depth: 3 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

DEAD SEA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	52	18	EP		013	9.70	-0.04							1.0
RCY	SZ	53	35	EP		013	10.00	0.03							1.0
RCY	SN	53	35	ES		013	16.36	0.03							1.0
DQRL	SZ	67	5	EP		013	12.06	-0.12	46						1.0
DQRL	SN	67	5	ES		013	20.29	0.12							1.0

BHL	BZ	90	9	EP	013	15.74	-0.11										1.0
ZAHL	SZ	91	23	EP	013	16.02	0.01										1.0
HWQ	BZ	136	17	EP	013	23.16	0.05										1.0

July 30 2016 Hour: 15:11 20.4 Lat: 33.79N Lon: 35.77E Depth: 7 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	14	55	EP		1511	22.88	-0.05	49						1.0
ZAHL	SE	14	55	ES		1511	24.85	0.04							1.0
BHL	BZ	16	321	EP		1511	23.33	0.00							1.0
DQRL	SZ	20	243	EP		1511	24.01	0.11							1.0
DQRL	SE	20	243	ES		1511	26.44	-0.06							1.0
RCY	SZ	33	169	EP		1511	25.84	-0.04							1.0
RCY	SN	33	169	ES		1511	29.96	0.01							1.0
HWQ	BZ	57	17	EP		1511	29.67	0.03							1.0
HWQ	BN	57	17	ES		1511	36.44	-0.04							1.0

July 30 2016 Hour: 17:26 19.3 Agency: REL Regional
EMSC OT=17:26:19.3 35.13N 22.80E 10Km M=5.1 CENTRAL MEDITERRANEAN SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1728	49.78								
RCY	SZ			EP		1728	51.98								
HWQ	BZ			EP		1728	52.13								

July 31 2016 Hour: 21:6 47.2 Lat: 33.69N Lon: 35.88E Depth: 6 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
ZAHL	SZ	19	1	EP		21 6	50.58	0.10							1.0
RCY	SZ	22	191	EP		21 6	50.81	-0.08							1.0
RCY	SN	22	191	ES		21 6	53.64	0.00							1.0
QRWL	SZ	24	230	EP		21 6	51.28	0.02							1.0
QRWL	SN	24	230	ES		21 6	54.27	0.00							1.0
DQRL	SZ	29	274	EP		21 6	52.10	0.10	55						1.0
DQRL	SN	29	274	ES		21 6	55.55	-0.02							1.0
BHL	BZ	32	319	EP		21 6	52.37	-0.11							1.0
HWQ	BZ	66	5	EP		21 6	57.94	0.07							1.0
HWQ	BN	66	5	ES		21 7	5.69	-0.08							1.0

July 31 2016 Hour: 22:55 1.9 Lat: 33.69N Lon: 35.82E Depth: 20 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.2 secs

WEST BEKAA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZAHL	SZ	20	18	EP		2255	6.58	0.05							1.0
RCY	SZ	22	176	EP		2255	6.69	-0.09	30						1.0
RCY	SN	22	176	ES		2255	10.39	0.03							1.0
DQRL	SZ	23	274	EP		2255	7.04	0.13							1.0
DQRL	SN	23	274	ES		2255	10.52	-0.08							1.0
BHL	BZ	28	327	EP		2255	7.51	0.00							1.0
HWQ	BZ	66	10	EP		2255	12.09	-0.67							0.2

Epicentral Map of Lebanon

July 2016

