

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

September

2021

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
SAIL	3334.52N	3524.09E	159	SAIDA	Opened Jan 2020
CPTL	3353.47N	3528.60E	32	QRAYTEM	Opened Mar 2020

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.

September 1 2021 Hour: 22:23 15.6

Agency: Regional

EMSC OT=22:23:15.6 37.14N 36.20E 11Km M=2.9 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2223	58.36								
FKH	SZ			EP		2224	3.28								
HWQ	BZ			EP		2224	2.74								
BHL	BZ			EP		2224	7.60								

September 5 2021 Hour: 17:51 44.4

Agency: Distant

EMSC OT=17:51:44.4 21.93S 174.71W 10Km M=5.9 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1811	31.62								
BEIL	SZ			EP		1811	32.39								
ZAHL	SZ			EP		1811	32.31								
FKH	SZ			EP		1811	31.87								
BHL	BZ			EP		1811	31.89								
QRWL	SZ			EP		1811	32.99								
RCY	SZ			EP		1811	32.80								
SHBL	SZ			EP		1811	32.67								
DQRL	SZ			EP		1811	32.68								

September 5 2021 Hour: 21:27 52.0

Agency: Regional

EMSC OT=21:27:52.0 35.96N 27.53E 10Km M=4.1 DODECANESE IS- TURKEY BORDER REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2129	36.46								
BHL	BZ			EP		2129	32.64								
DQRL	SZ			EP		2129	33.06								
HWQ	BZ			EP		2129	34.96								
QRWL	SZ			EP		2129	35.82								
RCY	SZ			EP		2129	37.32								
SHBL	SZ			EP		2129	37.07								
ZAHL	SZ			EP		2129	35.36								
FKH	SZ			EP		2129	40.03								

September 6 2021 Hour: 15: 4 39.5

Agency: Regional

EMSC OT=15:04:39.5 36.44N 27.06E 16Km M=4.2 DODECANESE IS-TURKEY BORDER REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		15 6	30.38								
RCY	SZ			EP		15 6	32.32								
SHBL	SZ			EP		15 6	32.96								

September 6 2021 Hour: 22:33 1.8 Lat: 33.72N Lon: 35.69E Depth: 13 Agency: REL Local
Magnitudes: 2.3MC 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	260	EP		2233	4.75-0.04	21							1.0
DQRL	SN	12	260	ES		2233	6.96-0.01								1.0
QRWL	SZ	20	183	EP		2233	5.74 0.02								1.0
QRWL	SN	20	183	ES		2233	8.63 0.03								1.0
BHL	BZ	20	349	EP		2233	5.87 0.05								1.0
ZAHL	SZ	23	50	EP		2233	6.20-0.02								1.0
RCY	SZ	29	153	EP		2233	6.95-0.04								1.0
SHBL	SZ	42	174	EP		2233	9.01 0.01								1.0

September 7 2021 Hour: 11:15 1.4

Agency: Regional

EMSC OT=11:15:01.4 36.06N 31.01E 60Km M=4.5 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1116	5.67								
DQRL	SZ			EP		1116	7.29								
SHBL	SZ			EP		1116	10.96								
RCY	SZ			EP		1116	9.51								
QRWL	SZ			EP		1116	8.51								
HWQ	BZ			EP		1116	4.91								

BHL BZ EP 1116 4.14
FKH SZ EP 1116 10.33

September 7 2021 Hour: 21:55 23.0

Agency: Regional

EMSC OT=21:55:23.0 36.49N 27.09E 10Km M=3.9 DODECANESE IS.-TURKEY BORDER REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2157	12.54								
BHL	BZ			EP		2157	9.41								
DQRL	SZ			EP		2157	10.45								
FKH	SZ			EP		2157	16.89								
HWQ	BZ			EP		2157	12.02								
QRWL	SZ			EP		2157	12.54								
RCY	SZ			EP		2157	14.51								
SHBL	SZ			EP		2157	15.03								
ZAHL	SZ			EP		2157	12.54								

September 8 2021 Hour: 1:40 2.3

Agency: Regional

EMSC OT=01:40:02.3 36.49N 27.13E 10Km M=4.5 DODECANESE IS.-TURKEY BORDER REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		141	49.88								
BEIL	SZ			EP		141	52.77								
DQRL	SZ			EP		141	49.61								
FKH	SZ			EP		141	56.46								
HWQ	BZ			EP		141	51.05								
QRWL	SZ			EP		141	52.41								
RCY	SZ			EP		141	54.21								
SHBL	SZ			EP		141	54.84								
ZAHL	SZ			EP		141	52.41								

September 9 2021 Hour: 1:42 41.7

Agency: Regional

EMSC OT=01:42:41.7 36.30N 35.87E 19Km M=3.9 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		143	18.99								
DQRL	SZ			EP		143	21.69								
FKH	SZ			EP		143	15.72								
BEIL	SZ			EP		143	10.74								
RCY	SZ			EP		143	24.90								
SAIL	SZ			EP		143	29.47								
ZAHL	SZ			EP		143	20.03								
HWQ	BZ			EP		143	13.99								
QRWL	SZ			EP		143	24.06								
SHBL	SZ			EP		143	26.79								

September 12 2021 Hour: 0:49 8.9 Lat: 33.56N Lon: 35.55E Depth: 1 Agency: REL Local

Magnitudes: 2.6MC REL

Rms: 0.1 secs

JEZZINE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
QRWL	SZ	13	96	EP		049	10.94-0.07		35						1.0
QRWL	SN	13	96	ES		049	12.56 0.03								1.0
SAIL	SZ	14	277	EP		049	11.15-0.01								1.0
DQRL	SZ	16	7	EP		049	11.67 0.07								1.0
RCY	SZ	28	105	EP		049	13.48 0.05								1.0
RCY	SN	28	105	ES		049	16.74-0.01								1.0
SHBL	SZ	30	142	EP		049	13.76 0.00								1.0
BHL	BZ	40	15	EP		049	15.29-0.03								1.0
ZAHL	SZ	46	43	EP		049	16.24-0.07								1.0
HWQ	BZ	88	25	EP		049	23.25 0.14								0.2
BEIL	SZ	124	28	EP		049	29.27 0.35								0.2

September 12 2021 Hour: 2:32 25.1

Agency: Distant

EMSC OT=02:32:25.1 47.22N 146.78E 354Km M=5.3 NORTHWEST OF KURIL

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		243	43.40								
BHL	BZ			EP		243	46.76								
DQRL	SZ			EP		243	48.93								
FKH	SZ			EP		243	44.10								
HWQ	BZ			EP		243	44.24								
QRWL	SZ			EP		243	48.93								
RCY	SZ			EP		243	49.00								
SAIL	SZ			EP		243	49.91								
SHBL	SZ			EP		243	49.42								
ZAHL	SZ			EP		243	47.11								

September 12 2021 Hour: 22:53 10.7 Lat: 35.42N Lon: 36.57E Depth: 0 Agency: REL Regional
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	103	200	EP		2253	27.25-0.11		64						1.0
BEIL	SN	103	200	ES		2253	39.68-0.03								1.0
HWQ	BZ	139	204	EP		2253	32.93-0.08								1.0
HWQ	BN	139	204	ES		2253	49.63 0.09								1.0
ZAHL	SZ	184	200	EP		2253	39.60-0.08								1.0
BHL	BZ	188	207	EP		2253	40.17 0.05								1.0
DQRL	SZ	211	206	EP		2253	42.96-0.04								1.0
QRWL	SZ	223	202	EP		2253	44.47-0.02								1.0
RCY	SZ	224	198	EP		2253	44.78 0.16								1.0
SHBL	SZ	242	198	EP		2253	46.95 0.06								1.0

September 13 2021 Hour: 3:22 33.6 Lat: 33.54N Lon: 35.43E Depth: 16 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.1 secs

JEZZINE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SAIL	SZ	4	324	EP		322	36.40 0.05								1.0
DQRL	SZ	22	36	EP		322	38.01-0.08		31						1.0
DQRL	SN	22	36	ES		322	41.43-0.00								1.0
QRWL	SZ	24	89	EP		322	38.16-0.09								1.0
QRWL	SN	24	89	ES		322	41.76 0.05								1.0
SHBL	SZ	37	126	EP		322	40.04-0.00								1.0
RCY	SZ	38	98	EP		322	40.30 0.02								1.0
BHL	BZ	45	28	EP		322	41.19-0.05								1.0
ZAHL	SZ	55	50	EP		322	42.68 0.01								1.0
HWQ	BZ	94	30	EP		322	48.58 0.10								1.0

September 14 2021 Hour: 14: 7 41.1 Lat: 34.55N Lon: 35.91E Depth: 0 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.3 secs

OFFSHORE NORTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ	25	92	EP		14 7	44.97-0.14		47						1.0
BEIL	SN	25	92	ES		14 7	48.28 0.19								1.0
HWQ	BZ	30	174	EP		14 7	45.06-0.90								1.0
HWQ	BN	30	174	ES		14 7	49.68 0.10								1.0
FKH	SZ	57	126	EP		14 7	50.26 0.01								1.0
BHL	BZ	75	198	EP		14 7	53.34 0.10								1.0
ZAHL	SZ	77	182	EP		14 7	53.66 0.21								1.0
DQRL	SZ	99	199	EP		14 7	57.21 0.20								1.0
QRWL	SZ	113	191	EP		14 7	59.44 0.12								1.0
RCY	SZ	117	184	EP		14 8	0.02 0.07								1.0
SHBL	SZ	134	187	EP		14 8	2.76 0.05								1.0

September 15 2021 Hour: 20:33 32.2

Agency: Distant

EMSC OT=20:33:32.2 29.21N 105.36E 10Km M=5.4 SICHUAN-CHONGQING, CHINA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2043	25.38								
BHL	BZ			EP		2043	29.07								
DQRL	SZ			EP		2043	30.47								
FKH	SZ			EP		2043	24.64								
HWQ	BZ			EP		2043	27.02								
RCY	SZ			EP		2043	29.24								
SHBL	SZ			EP		2043	30.14								
ZAHL	SZ			EP		2043	28.25								

September 16 2021 Hour: 9:36 5.7

Agency: Regional

EMSC OT=09:36:05.7 36.27N 37.04E 8Km M=2.7 TURKEY-SYRIA BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		936	38.43								
FKH	SZ			EP		936	42.06								
HWQ	BZ			EP		936	43.69								

September 16 2021 Hour: 19:42 32.5

Agency: Distant

EMSC OT=19:42:32.5 23.86S 179.73W 540Km M=4.9 SOUTH OF FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		20	1	16.12							
BHL	BZ			EP		20	1	17.34							
DQRL	SZ			EP		20	1	18.13							
FKH	SZ			EP		20	1	16.01							
HWQ	BZ			EP		20	1	16.44							
QRWL	SZ			EP		20	1	17.92							
RCY	SZ			EP		20	1	17.34							
SHBL	SZ			EP		20	1	17.97							
ZAHL	SZ			EP		20	1	17.28							

September 16 2021 Hour: 21:44 48.6 Lat: 34.10N Lon: 36.25E Depth: 23 Agency: REL Local
Magnitudes: 3.1MC REL Rms: 0.1 secs

BAALBECK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	22	43	EP		2144	53.78	0.09							1.0
FKH	SN	22	43	ES		2144	57.43	-0.04							1.0
HWQ	BZ	34	305	EP		2144	55.12	0.02	71						1.0
HWQ	BN	34	305	ES		2144	59.94	0.03							1.0
ZAHL	SZ	43	231	EP		2144	56.32	0.05							1.0
BEIL	SZ	49	353	EP		2144	57.18	0.12							1.0
BEIL	SN	49	353	ES		2145	3.20	-0.14							1.0
BHL	BZ	59	248	EP		2144	58.35	-0.11							1.0
DQRL	SZ	77	235	EP		2145	1.11	0.15							1.0
RCY	SZ	77	210	EP		2145	1.01	-0.08							1.0
QRWL	SZ	81	221	EP		2145	1.56	0.00							1.0
SHBL	SZ	96	209	EP		2145	3.68	-0.09							1.0

September 17 2021 Hour: 19: 0 21.5 Lat: 35.09N Lon: 37.07E Depth: 0 Agency: REL Regional
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	102	233	EP		19	0	38.03	59						1.0
BEIL	SN	102	233	ES		19	0	50.11	0.02						1.0
FKH	SZ	112	213	EP		19	0	39.57	-0.02						1.0
FKH	SN	112	213	ES		19	0	52.99	0.02						1.0
HWQ	BZ	137	229	EP		19	0	43.27	-0.32						1.0
HWQ	BN	137	229	ES		19	0	59.94	0.01						1.0
ZAHL	SZ	175	219	EP		19	0	49.16	-0.01						1.0
ZAHL	SN	175	219	ES		19	1	9.62	-0.02						1.0
BHL	BZ	185	225	EP		19	0	50.75	0.14						1.0
DQRL	SZ	207	222	EP		19	0	53.39	0.12						1.0

RCY	SZ	211	213	EP		19	0	53.87	0.09									1.0
SHBL	SZ	229	213	EP		19	0	55.95	-0.12									1.0

September 18 2021 Hour: 1:51 54.9 Lat: 35.19N Lon: 37.86E Depth: 9 Agency: REL Regional
Magnitudes: 3.4MC REL Rms: 0.1 secs

SYRIA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	169	232	EP		152	21.05	0.03							1.0
FKH	SN	169	232	ES		152	40.33	-0.02							1.0
BEIL	SZ	169	245	EP		152	21.05	0.05	83						1.0
BEIL	SN	169	245	ES		152	40.33	0.03							1.0
HWQ	BZ	202	241	EP		152	24.99	-0.18							1.0
ZAHL	SZ	233	231	EP		152	29.09	0.00							1.0
BHL	BZ	247	235	EP		152	30.84	0.06							1.0
SHBL	SZ	282	224	EP		152	35.15	0.03							1.0

September 18 2021 Hour: 14:25 40.3 Lat: 33.65N Lon: 35.56E Depth: 6 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

CHOUF REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	6	10	EP		1425	41.80	-0.10	49						1.0
DQRL	SN	6	10	ES		1425	43.10	0.04							1.0
QRWL	SZ	16	135	EP		1425	43.14	-0.09							1.0
SAIL	SZ	17	240	EP		1425	43.33	0.05							1.0
BHL	BZ	29	18	EP		1425	45.19	-0.03							1.0
BHL	BN	29	18	ES		1425	48.88	0.04							1.0
RCY	SZ	31	124	EP		1425	45.59	0.09							1.0
RCY	SN	31	124	ES		1425	49.34	0.02							1.0
SHBL	SZ	38	153	EP		1425	46.57	-0.01							1.0
ZAHL	SZ	38	53	EP		1425	46.57	-0.01							1.0
HWQ	BZ	78	27	EP		1425	52.99	-0.01							0.2

September 19 2021 Hour: 0:31 49.1

Agency: Distant

EMSC OT=00:31:49.1 35.47N 3.60W 20Km M=3.8 STRAIT OF GIBRALTAR

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		038	30.53								
BHL	BZ			EP		038	31.95								
DQRL	SZ			EP		038	32.62								
FKH	SZ			EP		038	30.64								
HWQ	BZ			EP		038	30.91								
QRWL	SZ			EP		038	32.51								
RCY	SZ			EP		038	32.07								
SHBL	SZ			EP		038	32.56								
ZAHL	SZ			EP		038	31.72								

September 20 2021 Hour: 18: 8 16.6

Agency: Distant

EMSC OT=18:08:16.6 31.80S 179.65E 400Km M=5.2 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1827	18.63								
BHL	BZ			EP		1827	19.52								
DQRL	SZ			EP		1827	20.06								
FKH	SZ			EP		1827	18.35								
HWQ	BZ			EP		1827	18.66								
QRWL	SZ			EP		1827	19.56								
RCY	SZ			EP		1827	19.32								
SAIL	SZ			EP		1827	19.98								
SHBL	SZ			EP		1827	19.60								
ZAHL	SZ			EP		1827	19.13								

September 20 2021 Hour: 18:34 50.2

Agency: Distant

EMSC OT=18:34:50.2 21.09S 173.78W 10Km M=5.8 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ			EP		1854	39.26								
HWQ	BZ			EP		1854	37.56								
BHL	BZ			EP		1854	38.01								
BEIL	SZ			EP		1854	37.83								
RCY	SZ			EP		1854	39.08								
DQRL	SZ			EP		1854	39.17								

September 20 2021 Hour: 20:25 23.0

Agency: Distant

EMSC OT=20:25:23.0 46.38N 152.43E 9Km M=6.0 KURIL ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2037	43.11								
HWQ	BZ			EP		2037	40.32								
DQRL	SZ			EP		2037	43.81								
FKH	SZ			EP		2037	40.41								
QRWL	SZ			EP		2037	44.50								
RCY	SZ			EP		2037	43.98								
SHBL	SZ			EP		2037	45.29								
ZAHL	SZ			EP		2037	42.41								

September 21 2021 Hour: 21:10 42.1 Lat: 33.74N Lon: 34.88E Depth: 31 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	64	94	EP		2110	53.26	0.16	39						1.0
DQRL	SN	64	94	ES		2111	1.17	-0.04							1.0
BHL	BZ	74	76	EP		2110	54.29	-0.15							1.0
QRWL	SZ	77	106	EP		2110	54.99	0.04							1.0
SHBL	SZ	91	118	EP		2110	56.76	-0.12							1.0
SHBL	SN	91	118	ES		2111	7.80	0.01							1.0
RCY	SZ	93	107	EP		2110	57.01	-0.04							1.0
ZAHL	SZ	94	82	EP		2110	57.36	0.19							1.0
HWQ	BZ	115	59	EP		2110	59.78	0.00							1.0
BEIL	SZ	149	53	EP		2111	3.95	-0.05							1.0

September 22 2021 Hour: 19:57 23.7

Agency: Distant

EMSC OT=19:57:23.7 27.63S 178.80W 356Km M=5.0 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2016	32.76								
BHL	BZ			EP		2016	32.97								
DQRL	SZ			EP		2016	34.16								
FKH	SZ			EP		2016	32.33								
QRWL	SZ			EP		2016	33.78								
RCY	SZ			EP		2016	33.57								
SHBL	SZ			EP		2016	34.10								
ZAHL	SZ			EP		2016	33.46								

September 24 2021 Hour: 16:3 51.8

Agency: Regional

EMSC OT=16:03:51.8 36.20N 36.05E 12Km M=2.7 TURKEY-SYRIA BORDER REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		16 4	26.75								
BEIL	SZ			EP		16 4	21.89								
HWQ	BZ			EP		16 4	25.02								

September 24 2021 Hour: 23:43 11.7

Agency: Regional

EMSC OT=23:43:11.7 36.60N 42.32E 10Km M=4.3 IRAQ

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		2344	45.82								
FKH	SZ			EP		2344	33.21								
HWQ	BZ			EP		2344	37.54								
QRWL	SZ			EP		2344	46.50								

RCY	SZ			EP		2344	45.15										
SHBL	SZ			EP		2344	46.69										
ZAHL	SZ			EP		2344	41.20										
BEIL	SZ			EP		2344	33.37										
BHL	BZ			EP		2344	43.14										

September 25 2021 Hour: 11:28 12.3 Lat: 34.00N Lon: 34.51E Depth: 12 Agency: REL Local
 Magnitudes: 2.7MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ	103	108	EP		1128	28.56	-0.01							0.2
DQRL	SN	103	108	ES		1128	40.80	0.19							1.0
BHL	BZ	106	95	EP		1128	29.04	0.03	35						1.0
QRWL	SZ	119	114	EP		1128	31.06	0.11							1.0
QRWL	SN	119	114	ES		1128	44.66	-0.08							1.0
SHBL	SZ	135	122	EP		1128	33.14	-0.15							1.0
RCY	SZ	135	114	EP		1128	33.14	-0.09							1.0
HWQ	BZ	136	76	EP		1128	33.50	0.10							1.0
HWQ	BN	136	76	ES		1128	48.88	-0.13							1.0
BEIL	SZ	165	68	EP		1128	37.71	0.03							1.0

September 25 2021 Hour: 23:15 7.4 Lat: 32.83N Lon: 35.63E Depth: 0 Agency: REL Regional
 Magnitudes: 3.0MC REL Rms: 0.1 secs

SEA OF GALILEE REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHBL	SZ	59	10	EP		23	2	6.84	-0.10	59					1.0
RCY	SZ	77	14	EP		23	2	9.85	0.03						1.0
RCY	SN	77	14	ES		23	2	18.95	-0.04						1.0
QRWL	SZ	80	3	EP		23	2	10.31	-0.07						1.0
DQRL	SZ	98	357	EP		23	2	13.15	-0.06						1.0
DQRL	SN	98	357	ES		23	2	24.97	0.08						1.0
ZAHL	SZ	117	11	EP		23	2	16.31	0.02						1.0
BHL	BZ	120	1	EP		23	2	16.68	-0.06						1.0
HWQ	BZ	164	10	EP		23	2	23.51	0.07						1.0
FKH	SZ	173	24	EP		23	2	24.81	-0.02						1.0
BEIL	SZ	197	15	EP		23	2	28.13	0.13						1.0

September 26 2021 Hour: 17:12 5.8

Agency: Distant

EMSC OT=17:12:05.8 13.88N 120.63E 96Km M=5.7 MINDORO, PHILIPPINES

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		1723	52.01								
BHL	BZ			EP		1723	53.17								
DQRL	SZ			EP		1723	53.68								
FKH	SZ			EP		1723	52.14								
HWQ	BZ			EP		1723	54.52								
QRWL	SZ			EP		1723	53.36								
RCY	SZ			EP		1723	53.30								
SHBL	SZ			EP		1723	53.62								
ZAHL	SZ			EP		1723	53.49								

September 27 2021 Hour: 6:17 22.2

Agency: Regional

EMSC OT=06:17:22.2 35.11N 25.22E 10Km M=6.0 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		619	29.68								
FKH	SZ			EP		619	33.37								
HWQ	BZ			EP		619	28.78								
SHBL	SZ			EP		619	28.18								
ZAHL	SZ			EP		619	29.61								
QRWL	SZ			EP		619	26.29								
DQRL	SZ			EP		619	24.79								
BHL	BZ			EP		619	24.56								
RCY	SZ			EP		619	28.40								

September 27 2021 Hour: 11: 2 25.9

Agency: Regional

EMSC OT=11:02:25.9 35.06N 25.22E 10Km M=4.8 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		11	4	32.89							
BEIL	SZ			EP		11	4	34.43							
FKH	SZ			EP		11	4	38.92							
RCY	SZ			EP		11	4	33.03							
QRWL	SZ			EP		11	4	31.72							

September 28 2021 Hour: 4:48 9.1

Agency: Regional

EMSC OT=04:48:09.1 35.11N 25.19E 10Km M=5.3 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		450	17.67								
BHL	BZ			EP		450	13.80								
FKH	SZ			EP		450	21.25								
HWQ	BZ			EP		450	15.35								
QRWL	SZ			EP		450	14.50								
RCY	SZ			EP		450	16.47								
SHBL	SZ			EP		450	15.70								
DQRL	SZ			EP		450	14.01								

September 28 2021 Hour: 6: 1 5.9

Agency: Regional

EMSC OT=06:01:05.9 36.36N 28.47E 60Km M=4.2 DODECANESE IS.-TURKEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		6	2	37.54							
FKH	SZ			EP		6	2	43.60							
HWQ	BZ			EP		6	2	37.89							
QRWL	SZ			EP		6	2	39.25							
RCY	SZ			EP		6	2	40.87							
SHBL	SZ			EP		6	2	41.13							

September 29 2021 Hour: 7:23 40.6

Agency: Distant

EMSC OT=07:23:40.6 18.36S 177.76W 505Km M=4.8 FIJI REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		742	23.68								
BHL	BZ			EP		742	25.23								
DQRL	SZ			EP		742	25.94								
FKH	SZ			EP		742	23.73								
HWQ	BZ			EP		742	24.06								
QRWL	SZ			EP		742	25.47								
RCY	SZ			EP		742	25.28								
SHBL	SZ			EP		742	25.94								

September 29 2021 Hour: 8:37 5.2

Agency: Distant

EMSC OT=08:37:05.2 38.93N 135.38E 362Km M=6.1 SEA OF JAPAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		848	11.13								
BHL	BZ			EP		848	14.88								
DQRL	SZ			EP		848	16.17								
FKH	SZ			EP		848	11.42								
HWQ	BZ			EP		848	12.43								
QRWL	SZ			EP		848	16.39								
RCY	SZ			EP		848	16.17								
SAIL	SZ			EP		848	17.40								
SHBL	SZ			EP		848	16.75								
ZAHL	SZ			EP		848	15.02								

September 29 2021 Hour: 22:22 17.3

Agency: Regional

EMSC OT=22:22:17.3 36.47N 27.12E 10Km M=4.5 DODECANESE IS.-TURKEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2224	8.08								
BHL	BZ			EP		2224	5.08								
DQRL	SZ			EP		2224	5.39								
FKH	SZ			EP		2224	12.20								
HWQ	BZ			EP		2224	7.05								
QRWL	SZ			EP		2224	7.29								
RCY	SZ			EP		2224	9.67								
SHBL	SZ			EP		2224	9.51								
ZAHL	SZ			EP		2224	7.61								

September 29 2021 Hour: 23:27 38.7

Agency: Regional

EMSC OT=23:27:38.7 36.52N 27.17E 16Km M=4.1 DODECANESE IS.-TURKEY REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEIL	SZ			EP		2329	29.58								
HWQ	BZ			EP		2329	28.88								
SHBL	SZ			EP		2329	31.03								
ZAHL	SZ			EP		2329	29.15								
RCY	SZ			EP		2329	31.09								

Epicentral Map of Lebanon

SEPTEMBER 2021

