

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

June

2021

Prepared by
The National Centre for Geophysical Research
Bhannes

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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 |
| 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.

June 2 2021 Hour: 6:14 28.3 Agency: REL Regional

EMSC OT=06:14:28.3 37.56N 36.17E 6Km M=4.3 CENTRAL TURKEY

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 615 | 16.68 | | | | | | | | |
| FKH | SZ | | | EP | | 615 | 20.52 | | | | | | | | |
| HWQ | BZ | | | EP | | 615 | 21.36 | | | | | | | | |
| BHL | BZ | | | EP | | 615 | 28.07 | | | | | | | | |
| QRWL | SZ | | | EP | | 615 | 32.13 | | | | | | | | |
| RCY | SZ | | | EP | | 615 | 31.64 | | | | | | | | |
| SHBL | SZ | | | EP | | 615 | 34.72 | | | | | | | | |

June 3 2021 Hour: 4:26 44.9 Agency: REL Regional

EMSC OT=04:26:44.9 37.40N 35.05E 7Km M=3.8 CENTRAL TURKEY

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 427 | 33.29 | | | | | | | | |
| HWQ | BZ | | | EP | | 427 | 35.82 | | | | | | | | |
| FKH | SZ | | | EP | | 427 | 38.73 | | | | | | | | |
| BHL | BZ | | | EP | | 427 | 39.76 | | | | | | | | |
| QRWL | SZ | | | EP | | 427 | 44.55 | | | | | | | | |
| RCY | SZ | | | EP | | 427 | 45.74 | | | | | | | | |
| SHBL | SZ | | | EP | | 427 | 47.36 | | | | | | | | |

June 3 2021 Hour: 10: 9 55.8 Agency: REL Distant

EMSC OT=10:09:55.8 0.33N 126.23E 10Km M=6.1 MOLUCCA SEA

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| FKH | SZ | | | EP | | 1022 | 55.26 | | | | | | | | |
| BEIL | SZ | | | EP | | 1022 | 55.64 | | | | | | | | |
| HWQ | BZ | | | EP | | 1022 | 55.93 | | | | | | | | |
| BHL | BZ | | | EP | | 1022 | 56.83 | | | | | | | | |
| RCY | SZ | | | EP | | 1022 | 57.31 | | | | | | | | |
| SHBL | SZ | | | EP | | 1022 | 56.69 | | | | | | | | |

June 4 2021 Hour: 13:36 9.7 Lat: 35.26N Lon: 36.50E Depth: 5 Agency: REL Regional
Magnitudes: 2.9MC 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 | 85 | 200 | EP | | 1336 | 23.44 | 0.01 | 51 | | | | | | 1.0 |
| BEIL | SN | 85 | 200 | ES | | 1336 | 33.61 | 0.01 | | | | | | | 1.0 |
| FKH | SZ | 113 | 184 | EP | | 1336 | 27.87 | -0.02 | | | | | | | 1.0 |
| HWQ | BZ | 120 | 205 | EP | | 1336 | 28.85 | -0.08 | | | | | | | 1.0 |
| HWQ | BN | 120 | 205 | ES | | 1336 | 43.17 | -0.01 | | | | | | | 1.0 |
| ZAHL | SZ | 166 | 200 | EP | | 1336 | 35.59 | -0.01 | | | | | | | 1.0 |
| BHL | BZ | 169 | 207 | EP | | 1336 | 36.15 | 0.01 | | | | | | | 1.0 |
| QRWL | SZ | 204 | 202 | EP | | 1336 | 40.68 | 0.07 | | | | | | | 1.0 |
| RCY | SZ | 205 | 197 | EP | | 1336 | 40.72 | -0.03 | | | | | | | 1.0 |
| SHBL | SZ | 223 | 198 | EP | | 1336 | 43.05 | 0.03 | | | | | | | 1.0 |

June 4 2021 Hour: 20:23 9.6 Agency: REL Regional

EMSC OT=20:23:09.6 36.44N 27.16E 17Km M=4.1 DODECANESE -TURKEY BORDER REG

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BHL | BZ | | | EP | | 2024 | 56.08 | | | | | | | | |
| HWQ | BZ | | | EP | | 2024 | 58.26 | | | | | | | | |
| QRWL | SZ | | | EP | | 2024 | 59.13 | | | | | | | | |
| BEIL | SZ | | | EP | | 2024 | 59.01 | | | | | | | | |
| RCY | SZ | | | EP | | 2025 | 0.75 | | | | | | | | |
| SHBL | SZ | | | EP | | 2025 | 0.94 | | | | | | | | |
| FKH | SZ | | | EP | | 2025 | 3.06 | | | | | | | | |

June 6 2021 Hour: 4:54 23.1

Agency: REL Regional

EMSC OT=04:54:23.1 33.38N 46.08E 10Km M=5.3 IRAN-IRAQ BORDER REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| FKH | SZ | | | EP | | 456 | 20.94 | | | | | | | | |
| BEIL | SZ | | | EP | | 456 | 22.71 | | | | | | | | |
| HWQ | BZ | | | EP | | 456 | 26.69 | | | | | | | | |
| RCY | SZ | | | EP | | 456 | 26.77 | | | | | | | | |
| SHBL | SZ | | | EP | | 456 | 28.15 | | | | | | | | |
| BHL | BZ | | | EP | | 456 | 29.76 | | | | | | | | |

June 6 2021 Hour: 18:24 29.4

Agency: REL Distant

EMSC OT=18:24:29.4 15.92S 177.38W 431Km M=5.6 FIJI REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 1843 | 17.09 | | | | | | | | |
| FKH | SZ | | | EP | | 1843 | 16.91 | | | | | | | | |
| HWQ | BZ | | | EP | | 1843 | 17.57 | | | | | | | | |
| ZAHL | SZ | | | EP | | 1843 | 18.41 | | | | | | | | |
| BHL | BZ | | | EP | | 1843 | 18.77 | | | | | | | | |
| RCY | SZ | | | EP | | 1843 | 19.01 | | | | | | | | |
| DQRL | SZ | | | EP | | 1843 | 19.31 | | | | | | | | |
| QRWL | SZ | | | EP | | 1843 | 19.31 | | | | | | | | |
| SHBL | SZ | | | EP | | 1843 | 19.01 | | | | | | | | |

June 6 2021 Hour: 23:16 39.2

Agency: REL Distant

EMSC OT=23:16:39.2 27.71S 176.30W 10Km M=5.7 KERMADEC ISLANDS

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 2336 | 31.63 | | | | | | | | |
| HWQ | BZ | | | EP | | 2336 | 33.41 | | | | | | | | |
| FKH | SZ | | | EP | | 2336 | 34.19 | | | | | | | | |
| BHL | BZ | | | EP | | 2336 | 33.41 | | | | | | | | |
| DQRL | SZ | | | EP | | 2336 | 35.51 | | | | | | | | |
| QRWL | SZ | | | EP | | 2336 | 35.90 | | | | | | | | |
| RCY | SZ | | | EP | | 2336 | 35.43 | | | | | | | | |
| SHBL | SZ | | | EP | | 2336 | 34.89 | | | | | | | | |

June 7 2021 Hour: 18:11 31.6

Lat: 33.99N

Lon: 35.98E

Depth: 7

Agency: REL

Local

Magnitudes: 2.7MC REL

Rms: 0.1 secs

KEŠROUAN REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| ZAHL | SZ | 18 | 211 | EP | | 1811 | 34.56 | -0.20 | 37 | | | | | | 1.0 |
| ZAHL | SN | 18 | 211 | ES | | 1811 | 37.25 | 0.15 | | | | | | | 1.0 |
| HWQ | BZ | 32 | 354 | EP | | 1811 | 36.87 | -0.04 | | | | | | | 1.0 |
| HWQ | BN | 32 | 354 | ES | | 1811 | 40.86 | 0.02 | | | | | | | 1.0 |
| BHL | BZ | 32 | 252 | EP | | 1811 | 36.93 | -0.01 | | | | | | | 1.0 |
| BHL | BN | 32 | 252 | ES | | 1811 | 40.81 | -0.08 | | | | | | | 1.0 |
| FKH | SZ | 48 | 55 | EP | | 1811 | 39.38 | -0.13 | | | | | | | 1.0 |
| DQRL | SZ | 50 | 230 | EP | | 1811 | 39.81 | 0.06 | | | | | | | 1.0 |
| QRWL | SZ | 57 | 210 | EP | | 1811 | 40.87 | 0.02 | | | | | | | 1.0 |
| RCY | SZ | 57 | 194 | EP | | 1811 | 40.89 | 0.02 | | | | | | | 1.0 |
| BEIL | SZ | 64 | 17 | EP | | 1811 | 42.11 | 0.17 | | | | | | | 1.0 |
| SHBL | SZ | 75 | 197 | EP | | 1811 | 43.79 | 0.02 | | | | | | | 1.0 |

June 7 2021 Hour: 20:27 57.0

Lat: 34.66N

Lon: 33.42E

Depth: 27

Agency: REL

Regional

Magnitudes: 3.4MC REL

Rms: 0.1 secs

CYPRUS REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| DQRL | SZ | 224 | 118 | EP | | 2028 | 28.47 | 0.01 | | | | | | | 1.0 |
| HWQ | BZ | 236 | 100 | EP | | 2028 | 29.86 | -0.02 | | | | | | | 1.0 |
| HWQ | BN | 236 | 100 | ES | | 2028 | 54.15 | -0.06 | | | | | | | 1.0 |
| QRWL | SZ | 242 | 120 | EP | | 2028 | 30.64 | -0.02 | | | | | | | 1.0 |
| BEIL | SZ | 254 | 92 | EP | | 2028 | 31.91 | -0.15 | 83 | | | | | | 1.0 |
| BEIL | SN | 254 | 92 | ES | | 2028 | 58.05 | 0.06 | | | | | | | 1.0 |
| RCY | SZ | 257 | 119 | EP | | 2028 | 32.52 | -0.07 | | | | | | | 1.0 |

| | | | | | | | | | | | | | | | | | | |
|------|----|-----|-----|----|--|------|-------|------|--|--|--|--|--|--|--|--|--|-----|
| SHBL | SZ | 259 | 123 | EP | | 2028 | 32.88 | 0.07 | | | | | | | | | | 1.0 |
| FKH | SZ | 278 | 99 | EP | | 2028 | 35.37 | 0.19 | | | | | | | | | | 1.0 |

June 11 2021 Hour: 19:22 10.0 Lat: 33.12N Lon: 35.60E Depth: 4 Agency: REL Regional
Magnitudes: 3.2MC REL Rms: 0.1 secs

GOLAN REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| SHBL | SZ | 29 | 28 | EP | | 1922 | 14.91 | 0.17 | | | | | | | 1.0 |
| RCY | SZ | 47 | 27 | EP | | 1922 | 17.59 | -0.10 | 82 | | | | | | 1.0 |
| RCY | SN | 47 | 27 | ES | | 1922 | 23.38 | 0.02 | | | | | | | 1.0 |
| QRWL | SZ | 48 | 9 | EP | | 1922 | 17.75 | -0.08 | | | | | | | 1.0 |
| QRWL | SN | 48 | 9 | ES | | 1922 | 23.60 | 0.00 | | | | | | | 1.0 |
| DQRL | SZ | 65 | 357 | EP | | 1922 | 20.56 | 0.00 | | | | | | | 1.0 |
| DQRL | SN | 65 | 357 | ES | | 1922 | 28.40 | 0.05 | | | | | | | 1.0 |
| BHL | BZ | 87 | 3 | EP | | 1922 | 23.92 | -0.19 | | | | | | | 1.0 |
| HWQ | BZ | 132 | 14 | EP | | 1922 | 31.17 | 0.02 | | | | | | | 1.0 |
| FKH | SZ | 146 | 31 | EP | | 1922 | 33.26 | 0.17 | | | | | | | 1.0 |
| BEIL | SZ | 167 | 19 | EP | | 1922 | 36.08 | -0.08 | | | | | | | 1.0 |

June 12 2021 Hour: 2:32 40.7 Lat: 32.04N Lon: 35.52E Depth: 0 Agency: REL Regional
Magnitudes: 3.1MC REL Rms: 0.3 secs

DEAD SEA REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| SHBL | SZ | 146 | 8 | EP | | 233 | 3.62 | -0.51 | 61 | | | | | | 1.0 |
| SHBL | SN | 146 | 8 | ES | | 233 | 21.71 | 0.22 | | | | | | | 1.0 |
| RCY | SZ | 164 | 10 | EP | | 233 | 6.41 | -0.30 | | | | | | | 1.0 |
| QRWL | SZ | 168 | 5 | EP | | 233 | 7.18 | -0.04 | | | | | | | 1.0 |
| DQRL | SZ | 185 | 1 | EP | | 233 | 9.77 | 0.06 | | | | | | | 1.0 |
| DQRL | SN | 185 | 1 | ES | | 233 | 31.36 | 0.15 | | | | | | | 1.0 |
| BHL | BZ | 207 | 3 | EP | | 233 | 12.85 | 0.36 | | | | | | | 1.0 |
| HWQ | BZ | 251 | 9 | EP | | 233 | 18.10 | 0.10 | | | | | | | 1.0 |

June 14 2021 Hour: 2:44 58.6 Agency: REL Regional

EMSC OT=02:44:58.6 12.72N 48.56E 10Km M=5.5 GULF OF ADEN

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| SHBL | SZ | | | EP | | 250 | 11.08 | | | | | | | | |
| RCY | SZ | | | EP | | 250 | 11.90 | | | | | | | | |
| QRWL | SZ | | | EP | | 250 | 14.23 | | | | | | | | |
| DQRL | SZ | | | EP | | 250 | 15.05 | | | | | | | | |
| FKH | SZ | | | EP | | 250 | 15.87 | | | | | | | | |
| BHL | BZ | | | EP | | 250 | 14.91 | | | | | | | | |
| HWQ | BZ | | | EP | | 250 | 17.78 | | | | | | | | |
| BEIL | SZ | | | EP | | 250 | 19.69 | | | | | | | | |

June 14 2021 Hour: 18:55 55.9 Lat: 35.08N Lon: 37.28E Depth: 0 Agency: REL Regional
Magnitudes: 3.3MC REL Rms: 0.2 secs

SYRIA REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| BEIL | SZ | 117 | 239 | EP | | 1856 | 14.99 | 0.22 | | | | | | | 1.0 |
| BEIL | SN | 117 | 239 | ES | | 1856 | 28.56 | -0.18 | | | | | | | 1.0 |
| FKH | SZ | 123 | 221 | EP | | 1856 | 15.33 | -0.35 | 80 | | | | | | 1.0 |
| HWQ | BZ | 152 | 234 | EP | | 1856 | 19.95 | -0.16 | | | | | | | 1.0 |
| HWQ | BN | 152 | 234 | ES | | 1856 | 38.14 | 0.10 | | | | | | | 1.0 |
| BHL | BZ | 199 | 229 | EP | | 1856 | 26.49 | -0.22 | | | | | | | 1.0 |
| BHL | BN | 199 | 229 | ES | | 1856 | 49.77 | 0.26 | | | | | | | 1.0 |
| DQRL | SZ | 219 | 226 | EP | | 1856 | 29.36 | 0.08 | | | | | | | 1.0 |
| RCY | SZ | 221 | 217 | EP | | 1856 | 29.55 | 0.06 | | | | | | | 1.0 |
| QRWL | SZ | 225 | 221 | EP | | 1856 | 30.16 | 0.17 | | | | | | | 1.0 |
| SHBL | SZ | 239 | 217 | EP | | 1856 | 31.79 | 0.02 | | | | | | | 1.0 |

June 15 2021 Hour: 23: 8 53.9 Lat: 30.14N Lon: 35.26E Depth: 0 Agency: REL Regional
Magnitudes: 4.5MC REL Rms: 0.4 secs

JORDAN REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| SHBL | SZ | 358 | 7 | EP | | 23 9 | 44.97 | 0.39 | 318 | | | | | | 1.0 |
| RCY | SZ | 376 | 8 | EP | | 23 9 | 46.76 | 0.01 | | | | | | | 1.0 |
| RCY | SN | 376 | 8 | ES | | 2310 | 26.31 | 0.45 | | | | | | | 1.0 |
| QRWL | SZ | 380 | 6 | EP | | 23 9 | 46.92 | -0.25 | | | | | | | 1.0 |
| DQRL | SZ | 396 | 4 | EP | | 23 9 | 48.94 | -0.25 | | | | | | | 1.0 |
| BHL | BZ | 419 | 5 | EP | | 23 9 | 51.69 | -0.24 | | | | | | | 1.0 |
| BHL | BN | 419 | 5 | ES | | 2310 | 34.79 | -0.10 | | | | | | | 1.0 |
| HWQ | BZ | 463 | 8 | EP | | 23 9 | 57.08 | -0.25 | | | | | | | 1.0 |
| FKH | SZ | 468 | 13 | EP | | 23 9 | 58.68 | 0.80 | | | | | | | 1.0 |
| BEIL | SZ | 496 | 10 | EP | | 2310 | 1.81 | 0.62 | | | | | | | 1.0 |

June 16 2021 Hour: 20: 5 20.9 Lat: 33.69N Lon: 35.83E Depth: 6 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 |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| ZAHL | SZ | 20 | 16 | EP | | 20 5 | 24.41 | 0.08 | | | | | | | 1.0 |
| QRWL | SZ | 20 | 221 | EP | | 20 5 | 24.35 | -0.02 | 26 | | | | | | 1.0 |
| RCY | SZ | 21 | 178 | EP | | 20 5 | 24.45 | -0.05 | | | | | | | 1.0 |
| RCY | SN | 21 | 178 | ES | | 20 5 | 27.16 | -0.01 | | | | | | | 1.0 |
| DQRL | SZ | 24 | 276 | EP | | 20 5 | 25.08 | 0.16 | | | | | | | 1.0 |
| DQRL | SN | 24 | 276 | ES | | 20 5 | 27.90 | -0.00 | | | | | | | 1.0 |
| BHL | BZ | 29 | 327 | EP | | 20 5 | 25.52 | -0.21 | | | | | | | 1.0 |
| SHBL | SZ | 38 | 192 | EP | | 20 5 | 27.19 | 0.02 | | | | | | | 1.0 |
| HWQ | BZ | 67 | 10 | EP | | 20 5 | 32.01 | 0.30 | | | | | | | 0.2 |
| FKH | SZ | 82 | 41 | EP | | 20 5 | 34.40 | 0.19 | | | | | | | 0.2 |

June 17 2021 Hour: 0:15 26.0 Lat: 33.17N Lon: 35.62E Depth: 10 Agency: REL Regional
Magnitudes: 2.4MC REL Rms: 0.0 secs

GOLAN REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| SHBL | SZ | 23 | 30 | EP | | 015 | 30.23 | 0.06 | 26 | | | | | | 1.0 |
| SHBL | SN | 23 | 30 | ES | | 015 | 33.28 | -0.00 | | | | | | | 1.0 |
| RCY | SZ | 42 | 29 | EP | | 015 | 32.88 | -0.07 | | | | | | | 1.0 |
| RCY | SN | 42 | 29 | ES | | 015 | 38.13 | 0.01 | | | | | | | 1.0 |
| QRWL | SZ | 43 | 8 | EP | | 015 | 33.07 | -0.01 | | | | | | | 1.0 |
| DQRL | SZ | 60 | 355 | EP | | 015 | 35.79 | -0.01 | | | | | | | 1.0 |
| ZAHL | SZ | 80 | 18 | EP | | 015 | 38.99 | -0.02 | | | | | | | 1.0 |
| BHL | BZ | 82 | 2 | EP | | 015 | 39.22 | 0.03 | | | | | | | 1.0 |
| HWQ | BZ | 127 | 14 | EP | | 015 | 45.99 | 0.16 | | | | | | | 0.2 |

June 17 2021 Hour: 0:35 15.4

Agency: REL Regional

EMSC OT=00:35:15.4 35.60N 24.89E 56Km M=4.3 CRETE, GREECE

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| DQRL | SZ | | | EP | | 037 | 17.73 | | | | | | | | |
| BHL | BZ | | | EP | | 037 | 17.87 | | | | | | | | |
| QRWL | SZ | | | EP | | 037 | 19.59 | | | | | | | | |
| HWQ | BZ | | | EP | | 037 | 20.48 | | | | | | | | |
| SHBL | SZ | | | EP | | 037 | 20.80 | | | | | | | | |
| ZAHL | SZ | | | EP | | 037 | 20.89 | | | | | | | | |
| RCY | SZ | | | EP | | 037 | 21.09 | | | | | | | | |
| BEIL | SZ | | | EP | | 037 | 22.39 | | | | | | | | |
| FKH | SZ | | | EP | | 037 | 25.89 | | | | | | | | |

June 17 2021 Hour: 6: 2 10.5

Lat: 33.71N Lon: 35.51E 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 |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| DQRL | SZ | 5 | 98 | EP | | 6 2 | 11.71 | -0.02 | 39 | | | | | | 1.0 |
| DQRL | SN | 5 | 98 | ES | | 6 2 | 12.72 | 0.05 | | | | | | | 1.0 |
| BEYL | SZ | 18 | 353 | EP | | 6 2 | 13.43 | -0.00 | | | | | | | 1.0 |
| SAIL | SZ | 19 | 215 | EP | | 6 2 | 13.58 | 0.02 | | | | | | | 1.0 |
| QRWL | SZ | 24 | 140 | EP | | 6 2 | 14.36 | -0.07 | | | | | | | 1.0 |
| QRWL | SN | 24 | 140 | ES | | 6 2 | 17.27 | -0.10 | | | | | | | 1.0 |
| BHL | BZ | 25 | 31 | EP | | 6 2 | 14.49 | -0.09 | | | | | | | 1.0 |
| ZAHL | SZ | 38 | 65 | EP | | 6 2 | 16.78 | 0.14 | | | | | | | 1.0 |
| RCY | SZ | 38 | 129 | EP | | 6 2 | 16.75 | 0.06 | | | | | | | 1.0 |
| SHBL | SZ | 46 | 152 | EP | | 6 2 | 17.95 | 0.07 | | | | | | | 1.0 |
| HWQ | BZ | 74 | 32 | EP | | 6 2 | 22.39 | -0.09 | | | | | | | 1.0 |
| BEIL | SZ | 111 | 34 | EP | | 6 2 | 28.33 | 0.03 | | | | | | | 1.0 |

June 17 2021 Hour: 6:20 20.9

Lat: 33.71N Lon: 35.52E Depth: 4 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 |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| DQRL | SZ | 5 | 98 | EP | | 620 | 22.08 | 0.00 | 53 | | | | | | 1.0 |
| DQRL | SN | 5 | 98 | ES | | 620 | 22.97 | 0.01 | | | | | | | 1.0 |
| BEYL | SZ | 18 | 352 | EP | | 620 | 23.93 | 0.05 | | | | | | | 1.0 |
| SAIL | SZ | 19 | 216 | EP | | 620 | 24.04 | 0.04 | | | | | | | 1.0 |
| QRWL | SZ | 24 | 140 | EP | | 620 | 24.73 | -0.09 | | | | | | | 1.0 |
| QRWL | SN | 24 | 140 | ES | | 620 | 27.69 | -0.03 | | | | | | | 1.0 |
| BHL | BZ | 25 | 30 | EP | | 620 | 24.88 | -0.11 | | | | | | | 1.0 |
| ZAHL | SZ | 38 | 64 | EP | | 620 | 27.11 | 0.07 | | | | | | | 1.0 |
| RCY | SZ | 38 | 129 | EP | | 620 | 27.12 | 0.04 | | | | | | | 1.0 |
| RCY | SN | 38 | 129 | ES | | 620 | 31.75 | 0.09 | | | | | | | 1.0 |
| SHBL | SZ | 45 | 153 | EP | | 620 | 28.22 | -0.06 | | | | | | | 1.0 |
| HWQ | BZ | 74 | 32 | EP | | 620 | 32.91 | 0.01 | | | | | | | 1.0 |
| FKH | SZ | 101 | 54 | EP | | 620 | 37.20 | -0.08 | | | | | | | 1.0 |
| BEIL | SZ | 111 | 34 | EP | | 620 | 38.80 | 0.04 | | | | | | | 1.0 |

June 18 2021 Hour: 9:38 17.1

Agency: REL Regional

EMSC OT=09:38:17.1 37.11N 30.79E 100Km M=3.4 WESTERN TURKEY

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ | BZ | | | EP | | 939 | 29.86 | | | | | | | | |
| BEIL | SZ | | | EP | | 939 | 29.82 | | | | | | | | |
| BHL | BZ | | | EP | | 939 | 30.27 | | | | | | | | |
| DQRL | SZ | | | EP | | 939 | 31.14 | | | | | | | | |
| ZAHL | SZ | | | EP | | 939 | 33.11 | | | | | | | | |
| QRWL | SZ | | | EP | | 939 | 34.01 | | | | | | | | |
| FKH | SZ | | | EP | | 939 | 34.77 | | | | | | | | |
| RCY | SZ | | | EP | | 939 | 36.15 | | | | | | | | |
| SHBL | SZ | | | EP | | 939 | 36.77 | | | | | | | | |

June 18 2021 Hour: 16:51 27.8 **Agency: REL Regional**
EMSC OT=16:51:27.8 35.70N 28.10E 72Km M=4.3 EASTERN MEDITERRANEAN SEA
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 DQRL SZ EP 1652 56.74
 BHL BZ EP 1652 56.28
 HWQ BZ EP 1652 59.05
 QRWL SZ EP 1652 58.93
 ZAHL SZ EP 1652 59.60
 SHBL SZ EP 1653 0.82
 BEIL SZ EP 1653 0.40
 RCY SZ EP 1653 0.61
 FKH SZ EP 1653 3.89

June 18 2021 Hour: 21:38 39.0 Lat: 33.56N Lon: 35.56E Depth: 4 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 |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| QRWL | SZ | 12 | 97 | EP | | 2138 | 40.93 | -0.08 | 32 | | | | | | 1.0 |
| QRWL | SN | 12 | 97 | ES | | 2138 | 42.51 | 0.01 | | | | | | | 1.0 |
| SAIL | SZ | 15 | 277 | EP | | 2138 | 41.46 | -0.01 | | | | | | | 1.0 |
| DQRL | SZ | 16 | 4 | EP | | 2138 | 41.75 | 0.03 | | | | | | | 1.0 |
| DQRL | SN | 16 | 4 | ES | | 2138 | 43.78 | 0.03 | | | | | | | 1.0 |
| RCY | SZ | 27 | 105 | EP | | 2138 | 43.41 | 0.04 | | | | | | | 1.0 |
| SHBL | SZ | 29 | 144 | EP | | 2138 | 43.79 | 0.03 | | | | | | | 1.0 |
| SHBL | SN | 29 | 144 | ES | | 2138 | 47.29 | -0.00 | | | | | | | 1.0 |
| BHL | BZ | 39 | 13 | EP | | 2138 | 45.27 | -0.08 | | | | | | | 1.0 |
| HWQ | BZ | 87 | 24 | EP | | 2138 | 53.62 | 0.53 | | | | | | | 0.2 |

June 19 2021 Hour: 16:38 10.1 Lat: 33.29N Lon: 35.57E Depth: 8 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.1 secs

NABATIYE REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| SHBL | SZ | 18 | 69 | EP | | 1638 | 13.45 | 0.10 | 29 | | | | | | 1.0 |
| SHBL | SN | 18 | 69 | ES | | 1638 | 15.78 | 0.02 | | | | | | | 1.0 |
| QRWL | SZ | 30 | 20 | EP | | 1638 | 15.15 | -0.08 | | | | | | | 1.0 |
| RCY | SZ | 34 | 47 | EP | | 1638 | 15.54 | -0.23 | | | | | | | 1.0 |
| RCY | SN | 34 | 47 | ES | | 1638 | 19.99 | 0.02 | | | | | | | 1.0 |
| SAIL | SZ | 35 | 334 | EP | | 1638 | 16.05 | 0.10 | | | | | | | 0.2 |
| DQRL | SZ | 46 | 0 | EP | | 1638 | 17.73 | 0.05 | | | | | | | 1.0 |
| BHL | BZ | 69 | 7 | EP | | 1638 | 21.22 | -0.04 | | | | | | | 1.0 |
| ZAHL | SZ | 69 | 25 | EP | | 1638 | 21.54 | 0.13 | | | | | | | 1.0 |
| HWQ | BZ | 115 | 18 | EP | | 1638 | 28.78 | 0.42 | | | | | | | 0.2 |

June 20 2021 Hour: 12:24 8.2 **Agency: REL Regional**

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| ZAHL | SZ | | | EP | | 1224 | 26.83 | | | | | | | | |
| RCY | SZ | | | EP | | 1224 | 27.25 | | | | | | | | |
| HWQ | BZ | | | EP | | 1224 | 27.70 | | | | | | | | |
| BEIL | SZ | | | EP | | 1224 | 28.28 | | | | | | | | |
| QRWL | SZ | | | EP | | 1224 | 28.38 | | | | | | | | |
| SHBL | SZ | | | EP | | 1224 | 28.58 | | | | | | | | |
| BHL | BZ | | | EP | | 1224 | 28.56 | | | | | | | | |

June 20 2021 Hour: 13:56 41.4 **Agency: REL Regional**

EMSC OT=13:56:41.4 37.44N 37.98E 7Km M=4.1 CENTRAL TURKEY

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 1357 | 26.60 | | | | | | | | |
| FKH | SZ | | | EP | | 1357 | 28.26 | | | | | | | | |
| HWQ | BZ | | | EP | | 1357 | 37.71 | | | | | | | | |
| ZAHL | SZ | | | EP | | 1357 | 47.05 | | | | | | | | |
| BHL | BZ | | | EP | | 1357 | 45.70 | | | | | | | | |
| DQRL | SZ | | | EP | | 1357 | 44.85 | | | | | | | | |
| RCY | SZ | | | EP | | 1357 | 51.83 | | | | | | | | |

QRWL SZ EP 1357 52.45

June 20 2021 Hour: 16:34 33.8 Lat: 34.22N Lon: 36.39E Depth: 10 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.1 secs

BAALBECK REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| FKH | SZ | 3 | 31 | EP | | 1634 | 35.61 | -0.11 | 37 | | | | | | 1.0 |
| FKH | SN | 3 | 31 | ES | | 1634 | 37.21 | 0.05 | | | | | | | 1.0 |
| BEIL | SZ | 40 | 332 | EP | | 1634 | 40.58 | 0.07 | | | | | | | 1.0 |
| HWQ | BZ | 42 | 279 | EP | | 1634 | 40.65 | -0.09 | | | | | | | 1.0 |
| HWQ | BN | 42 | 279 | ES | | 1634 | 45.89 | -0.02 | | | | | | | 1.0 |
| ZAHL | SZ | 62 | 229 | EP | | 1634 | 44.05 | 0.12 | | | | | | | 1.0 |
| BHL | BZ | 77 | 243 | EP | | 1634 | 46.21 | -0.07 | | | | | | | 1.0 |
| DQRL | SZ | 95 | 233 | EP | | 1634 | 49.16 | 0.17 | | | | | | | 1.0 |
| RCY | SZ | 96 | 213 | EP | | 1634 | 48.99 | -0.08 | | | | | | | 1.0 |
| RCY | SN | 96 | 213 | ES | | 1635 | 0.37 | -0.02 | | | | | | | 1.0 |
| SHBL | SZ | 114 | 212 | EP | | 1634 | 51.77 | -0.02 | | | | | | | 1.0 |

June 20 2021 Hour: 17: 5 48.1 Agency: REL Distant
EMSC OT=17:05:48.1 30.40S 177.81W 10Km M=6.3 KERMADEC ISLANDS

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| ZAHL | SZ | | | EP | | 1725 | 34.92 | | | | | | | | |
| BHL | BZ | | | EP | | 1725 | 34.43 | | | | | | | | |
| HWQ | BZ | | | EP | | 1725 | 34.27 | | | | | | | | |
| RCY | SZ | | | EP | | 1725 | 35.73 | | | | | | | | |
| QRWL | SZ | | | EP | | 1725 | 35.08 | | | | | | | | |
| FKH | SZ | | | EP | | 1725 | 34.92 | | | | | | | | |
| BEIL | SZ | | | EP | | 1725 | 36.55 | | | | | | | | |
| SHBL | SZ | | | EP | | 1725 | 35.90 | | | | | | | | |

June 20 2021 Hour: 17:24 33.7 Agency: REL Distant
EMSC OT=17:24:33.7 30.24S 177.51W 10Km M=5.5 KERMADEC ISLANDS

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| FKH | SZ | | | EP | | 1744 | 27.81 | | | | | | | | |
| BEIL | SZ | | | EP | | 1744 | 28.28 | | | | | | | | |
| HWQ | BZ | | | EP | | 1744 | 28.22 | | | | | | | | |
| ZAHL | SZ | | | EP | | 1744 | 29.00 | | | | | | | | |
| RCY | SZ | | | EP | | 1744 | 28.82 | | | | | | | | |
| SHBL | SZ | | | EP | | 1744 | 29.00 | | | | | | | | |
| BHL | BZ | | | EP | | 1744 | 28.88 | | | | | | | | |
| QRWL | SZ | | | EP | | 1744 | 29.06 | | | | | | | | |
| DQRL | SZ | | | EP | | 1744 | 29.77 | | | | | | | | |

June 21 2021 Hour: 20: 2 37.2 Lat: 34.32N Lon: 35.65E Depth: 0 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 | 27 | 100 | EP | | 20 2 | 41.58 | -0.06 | 32 | | | | | | 1.0 |
| HWQ | BN | 27 | 100 | ES | | 20 2 | 44.86 | -0.04 | | | | | | | 1.0 |
| BHL | BZ | 46 | 180 | EP | | 20 2 | 44.68 | -0.06 | | | | | | | 1.0 |
| BEIL | SZ | 54 | 63 | EP | | 20 2 | 46.12 | 0.10 | | | | | | | 1.0 |
| DQRL | SZ | 69 | 187 | EP | | 20 2 | 48.30 | -0.06 | | | | | | | 1.0 |
| RCY | SZ | 93 | 170 | EP | | 20 2 | 52.29 | 0.02 | | | | | | | 1.0 |
| RCY | SN | 93 | 170 | ES | | 20 3 | 3.49 | 0.10 | | | | | | | 1.0 |
| SHBL | SZ | 108 | 176 | EP | | 20 2 | 54.73 | 0.00 | | | | | | | 1.0 |

June 21 2021 Hour: 22:14 14.9 Agency: REL Regional
EMSC OT=22:14:14.9 36.38N 27.10E 11Km M=5.5 DODECANESE-TURKEY BORDER REG

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEYL | SZ | | | EP | | 2216 | 0.64 | | | | | | | | |
| BHL | BZ | | | EP | | 2216 | 1.41 | | | | | | | | |
| HWQ | BZ | | | EP | | 2216 | 3.02 | | | | | | | | |
| DQRL | SZ | | | EP | | 2216 | 1.64 | | | | | | | | |
| ZAHL | SZ | | | EP | | 2216 | 4.02 | | | | | | | | |

| | | | | | |
|------|----|--|----|------|-------|
| SAIL | SZ | | EP | 2216 | 7.40 |
| QRWL | SZ | | EP | 2216 | 4.32 |
| BEIL | SZ | | EP | 2216 | 5.17 |
| RCY | SZ | | EP | 2216 | 10.62 |
| FKH | SZ | | EP | 2216 | 9.09 |
| SHBL | SZ | | EP | 2216 | 6.32 |

June 21 2021 Hour: 23:47 26.8

Agency: REL Regional

EMSC OT=23:47:26.8 36.37N 27.08E 16Km M=3.9 DODECANESE-TURKEY BORDER REG

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ | BZ | | | EP | | 2349 | 16.40 | | | | | | | | |
| QRWL | SZ | | | EP | | 2349 | 16.49 | | | | | | | | |
| ZAHL | SZ | | | EP | | 2349 | 17.17 | | | | | | | | |
| BEIL | SZ | | | EP | | 2349 | 17.34 | | | | | | | | |
| SHBL | SZ | | | EP | | 2349 | 18.71 | | | | | | | | |
| RCY | SZ | | | EP | | 2349 | 18.71 | | | | | | | | |

June 22 2021 Hour: 15:44 27.3

Agency: REL Regional

EMSC OT=15:44:27.3 36.38N 27.11E 15Km M=4.2 DODECANESE -TURKEY BORDER REG

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| HWQ | BZ | | | EP | | 1546 | 17.28 | | | | | | | | |
| QRWL | SZ | | | EP | | 1546 | 18.28 | | | | | | | | |
| BEIL | SZ | | | EP | | 1546 | 18.43 | | | | | | | | |
| SHBL | SZ | | | EP | | 1546 | 19.97 | | | | | | | | |
| RCY | SZ | | | EP | | 1546 | 19.43 | | | | | | | | |

June 22 2021 Hour: 22:21 2.0

Lat: 33.99N

Lon: 35.74E

Depth: 0

Agency: REL

Local

Magnitudes: 2.8MC REL

Rms: 0.1 secs

KESROUAN REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|------------|------|------|------|------|-----|------|------|-----|
| BHL | BZ | 12 | 221 | EP | | 2221 | 3.81-0.14 | | 47 | | | | | | 1.0 |
| ZAHL | SZ | 20 | 137 | EP | | 2221 | 4.91-0.24 | | | | | | | | 1.0 |
| ZAHL | SN | 20 | 137 | ES | | 2221 | 7.60 0.11 | | | | | | | | 1.0 |
| DQRL | SZ | 35 | 207 | EP | | 2221 | 7.62-0.00 | | | | | | | | 1.0 |
| DQRL | SN | 35 | 207 | ES | | 2221 | 11.90 0.10 | | | | | | | | 1.0 |
| HWQ | BZ | 37 | 30 | EP | | 2221 | 8.19 0.17 | | | | | | | | 1.0 |
| QRWL | SZ | 49 | 186 | EP | | 2221 | 10.04 0.15 | | | | | | | | 1.0 |
| QRWL | SN | 49 | 186 | ES | | 2221 | 15.65-0.10 | | | | | | | | 1.0 |
| RCY | SZ | 55 | 171 | EP | | 2221 | 10.84-0.04 | | | | | | | | 1.0 |
| SHBL | SZ | 71 | 180 | EP | | 2221 | 13.52 0.11 | | | | | | | | 1.0 |
| BEIL | SZ | 74 | 33 | EP | | 2221 | 13.79-0.11 | | | | | | | | 1.0 |

June 23 2021 Hour: 14:58 10.0

Lat: 33.66N

Lon: 35.49E

Depth: 7

Agency: REL

Local

Magnitudes: 2.3MC 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 | 9 | 57 | EP | | 1458 | 11.92-0.07 | | | | | | | | 1.0 |
| DQRL | SN | 9 | 57 | ES | | 1458 | 13.56 0.07 | | | | | | | | 1.0 |
| SAIL | SZ | 12 | 220 | EP | | 1458 | 12.32-0.01 | | 24 | | | | | | 1.0 |
| QRWL | SZ | 22 | 125 | EP | | 1458 | 13.58-0.20 | | | | | | | | 1.0 |
| BHL | BZ | 31 | 30 | EP | | 1458 | 15.19 0.03 | | | | | | | | 1.0 |
| RCY | SZ | 37 | 119 | EP | | 1458 | 16.12-0.01 | | | | | | | | 1.0 |
| SHBL | SZ | 42 | 145 | EP | | 1458 | 17.11 0.20 | | | | | | | | 1.0 |

June 23 2021 Hour: 15:35 23.1

Lat: 33.66N

Lon: 35.49E

Depth: 6

Agency: REL

Local

Magnitudes: 2.4MC 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 | 9 | 52 | EP | | 1535 | 24.99 0.01 | | 27 | | | | | | 1.0 |
| DQRL | SN | 9 | 52 | ES | | 1535 | 26.38 0.00 | | | | | | | | 1.0 |
| SAIL | SZ | 12 | 224 | EP | | 1535 | 25.39 0.02 | | | | | | | | 1.0 |
| QRWL | SZ | 21 | 124 | EP | | 1535 | 26.65-0.06 | | | | | | | | 1.0 |
| BHL | BZ | 31 | 28 | EP | | 1535 | 28.25-0.04 | | | | | | | | 1.0 |
| RCY | SZ | 36 | 119 | EP | | 1535 | 29.16 0.08 | | | | | | | | 1.0 |

| | | | | | | | | | | | | | | | | | |
|------|----|----|-----|----|--|------|-------|-------|--|--|--|--|--|--|--|--|-----|
| RCY | SN | 36 | 119 | ES | | 1535 | 33.52 | 0.00 | | | | | | | | | 1.0 |
| SHBL | SZ | 41 | 146 | EP | | 1535 | 29.84 | -0.03 | | | | | | | | | 1.0 |
| ZAHL | SZ | 43 | 58 | EP | | 1535 | 30.15 | 0.07 | | | | | | | | | 0.2 |
| HWQ | BZ | 81 | 31 | EP | | 1535 | 36.45 | 0.28 | | | | | | | | | 0.2 |

June 24 2021 Hour: 6:45 39.9 Lat: 33.57N Lon: 35.51E Depth: 2 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

JEZZINE REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| DQRL | SZ | 16 | 20 | EP | | 645 | 42.50 | -0.05 | 35 | | | | | | 1.0 |
| DQRL | SN | 16 | 20 | ES | | 645 | 44.47 | -0.01 | | | | | | | 1.0 |
| QRWL | SZ | 16 | 99 | EP | | 645 | 42.57 | -0.01 | 36 | | | | | | 1.0 |
| QRWL | SN | 16 | 99 | ES | | 645 | 44.53 | 0.01 | | | | | | | 1.0 |
| RCY | SZ | 31 | 105 | EP | | 645 | 45.00 | -0.01 | | | | | | | 1.0 |
| SHBL | SZ | 33 | 139 | EP | | 645 | 45.27 | 0.00 | | | | | | | 1.0 |
| BHL | BZ | 39 | 20 | EP | | 645 | 46.37 | 0.08 | | | | | | | 1.0 |
| HWQ | BZ | 88 | 27 | EP | | 645 | 54.17 | 0.00 | | | | | | | 1.0 |
| BEIL | SZ | 124 | 30 | EP | | 645 | 59.97 | -0.01 | | | | | | | 1.0 |

June 24 2021 Hour: 16:10 57.5 Agency: REL Regional
EMSC OT=16:10:57.5 36.95N 36.84E 7Km M=2.8 TURKEY-SYRIA BORDER REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 1611 | 38.89 | | | | | | | | |
| FKH | SZ | | | EP | | 1611 | 41.69 | | | | | | | | |
| HWQ | BZ | | | EP | | 1611 | 42.71 | | | | | | | | |

June 24 2021 Hour: 22:22 20.6 Agency: REL Distant
EMSC OT=22:22:20.6 34.95S 179.19E 176Km M=5.3 SOUTH OF KERMADEC

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| FKH | SZ | | | EP | | 2241 | 48.44 | | | | | | | | |
| BEIL | SZ | | | EP | | 2241 | 48.86 | | | | | | | | |
| HWQ | BZ | | | EP | | 2241 | 48.86 | | | | | | | | |
| ZAHL | SZ | | | EP | | 2241 | 49.48 | | | | | | | | |
| RCY | SZ | | | EP | | 2241 | 49.25 | | | | | | | | |
| SHBL | SZ | | | EP | | 2241 | 49.48 | | | | | | | | |
| QRWL | SZ | | | EP | | 2241 | 49.59 | | | | | | | | |
| BHL | BZ | | | EP | | 2241 | 49.63 | | | | | | | | |
| DQRL | SZ | | | EP | | 2241 | 49.94 | | | | | | | | |

June 25 2021 Hour: 1:59 39.9 Lat: 33.74N Lon: 35.37E Depth: 0 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| DQRL | SZ | 19 | 100 | EP | | 159 | 42.73 | -0.16 | 47 | | | | | | 1.0 |
| DQRL | SN | 19 | 100 | ES | | 159 | 45.23 | 0.09 | | | | | | | 1.0 |
| BEYL | SZ | 19 | 37 | EP | | 159 | 43.06 | 0.14 | | | | | | | 1.0 |
| BHL | BZ | 32 | 54 | EP | | 159 | 44.81 | -0.26 | | | | | | | 1.0 |
| QRWL | SZ | 36 | 126 | EP | | 159 | 45.57 | -0.03 | | | | | | | 1.0 |
| QRWL | SN | 36 | 126 | ES | | 159 | 49.91 | 0.06 | | | | | | | 1.0 |
| ZAHL | SZ | 50 | 74 | EP | | 159 | 47.80 | -0.06 | | | | | | | 1.0 |
| RCY | SZ | 51 | 121 | EP | | 159 | 48.01 | -0.02 | | | | | | | 1.0 |
| SHBL | SZ | 55 | 141 | EP | | 159 | 48.82 | 0.07 | | | | | | | 1.0 |
| HWQ | BZ | 80 | 41 | EP | | 159 | 52.96 | 0.13 | | | | | | | 1.0 |
| BEIL | SZ | 117 | 40 | EP | | 159 | 58.76 | 0.05 | | | | | | | 1.0 |

June 25 2021 Hour: 18:28 41.5 Agency: REL Regional
EMSC OT=18:28:41.5 39.19N 40.23E 16Km M=5.4 EASTERN TURKEY

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 1830 | 3.06 | | | | | | | | |
| FKH | SZ | | | EP | | 1830 | 5.22 | | | | | | | | |
| HWQ | BZ | | | EP | | 1830 | 7.90 | | | | | | | | |
| ZAHL | SZ | | | EP | | 1830 | 14.83 | | | | | | | | |
| BHL | BZ | | | EP | | 1830 | 14.13 | | | | | | | | |
| DQRL | SZ | | | EP | | 1830 | 17.65 | | | | | | | | |

| | | | | | |
|------|----|--|----|------|-------|
| RCY | SZ | | EP | 1830 | 18.09 |
| QRWL | SZ | | EP | 1830 | 17.91 |
| SHBL | SZ | | EP | 1830 | 21.34 |

June 25 2021 Hour: 19: 6 14.6 Lat: 33.61N Lon: 35.98E Depth: 7 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

RACHAYA REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|-------|------|------|-----|------|------|-----|
| RCY | SZ | 19 | 226 | EP | | 19 | 6 | 17.86 | -0.10 | 45 | | | | | 1.0 |
| RCY | SN | 19 | 226 | ES | | 19 | 6 | 20.46 | 0.01 | | | | | | 1.0 |
| ZAHL | SZ | 28 | 342 | EP | | 19 | 6 | 19.49 | 0.08 | | | | | | 1.0 |
| QRWL | SZ | 29 | 255 | EP | | 19 | 6 | 19.52 | 0.10 | | | | | | 1.0 |
| SHBL | SZ | 37 | 217 | EP | | 19 | 6 | 20.74 | 0.03 | | | | | | 1.0 |
| DQRL | SZ | 39 | 285 | EP | | 19 | 6 | 21.08 | -0.02 | | | | | | 1.0 |
| DQRL | SN | 39 | 285 | ES | | 19 | 6 | 25.93 | 0.01 | | | | | | 1.0 |
| BHL | BZ | 44 | 317 | EP | | 19 | 6 | 21.74 | -0.11 | | | | | | 1.0 |
| HWQ | BZ | 74 | 358 | EP | | 19 | 6 | 26.56 | -0.01 | | | | | | 1.0 |
| FKH | SZ | 80 | 29 | EP | | 19 | 6 | 27.70 | 0.05 | | | | | | 0.2 |
| BEIL | SZ | 105 | 10 | EP | | 19 | 6 | 31.36 | 0.01 | | | | | | 1.0 |

June 26 2021 Hour: 22:52 36.5 Agency: REL Distant
EMSC OT=22:52:36.5 28.49S 176.47W 10Km M=5.1 KERMADEC ISLANDS

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| DQRL | SZ | | | EP | | 2312 | 33.70 | | | | | | | | |
| BHL | BZ | | | EP | | 2312 | 32.86 | | | | | | | | |
| QRWL | SZ | | | EP | | 2312 | 33.46 | | | | | | | | |
| HWQ | BZ | | | EP | | 2312 | 31.96 | | | | | | | | |
| ZAHL | SZ | | | EP | | 2312 | 33.22 | | | | | | | | |
| SHBL | SZ | | | EP | | 2312 | 33.64 | | | | | | | | |
| RCY | SZ | | | EP | | 2312 | 32.98 | | | | | | | | |
| BEIL | SZ | | | EP | | 2312 | 31.84 | | | | | | | | |
| FKH | SZ | | | EP | | 2312 | 31.96 | | | | | | | | |

June 27 2021 Hour: 22:15 29.8 Agency: REL Distant
EMSC OT=22:15:29.8 8.17S 110.67E 100Km M=4.9 JAVA, INDONESIA

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 2227 | 39.85 | | | | | | | | |
| RCY | SZ | | | EP | | 2227 | 40.28 | | | | | | | | |
| SHBL | SZ | | | EP | | 2227 | 40.40 | | | | | | | | |
| HWQ | BZ | | | EP | | 2227 | 40.52 | | | | | | | | |
| QRWL | SZ | | | EP | | 2227 | 41.00 | | | | | | | | |
| BHL | BZ | | | EP | | 2227 | 41.24 | | | | | | | | |
| DQRL | SZ | | | EP | | 2227 | 41.54 | | | | | | | | |

June 29 2021 Hour: 3:41 57.6 Agency: REL Regional
EMSC OT=03:41:57.6 38.53N 39.60E 5Km M=4.1 EASTERN TURKEY

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|------|------|------|------|-----|------|------|----|
| BEIL | SZ | | | EP | | 343 | 10.63 | | | | | | | | |
| FKH | SZ | | | EP | | 343 | 12.29 | | | | | | | | |
| HWQ | BZ | | | EP | | 343 | 15.19 | | | | | | | | |
| ZAHL | SZ | | | EP | | 343 | 21.18 | | | | | | | | |
| BHL | BZ | | | EP | | 343 | 21.12 | | | | | | | | |
| DQRL | SZ | | | EP | | 343 | 23.04 | | | | | | | | |
| RCY | SZ | | | EP | | 343 | 25.68 | | | | | | | | |
| QRWL | SZ | | | EP | | 343 | 25.71 | | | | | | | | |
| SHBL | SZ | | | EP | | 343 | 28.00 | | | | | | | | |

June 30 2021 Hour: 11:56 32.4 Lat: 33.82N Lon: 36.90E 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 |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| FKH | SZ | 66 | 316 | EP | | 1156 | 42.88 | -0.08 | 70 | | | | | | 1.0 |
| FKH | SN | 66 | 316 | ES | | 1156 | 50.70 | -0.08 | | | | | | | 1.0 |
| HWQ | BZ | 102 | 300 | EP | | 1156 | 48.88 | 0.05 | | | | | | | 1.0 |

| | | | | | | | | | | | | | | | |
|------|----|-----|-----|----|------|-------|-------|--|--|--|--|--|--|--|-----|
| BEIL | SZ | 104 | 321 | EP | 1156 | 49.25 | 0.10 | | | | | | | | 1.0 |
| BEIL | SN | 104 | 321 | ES | 1157 | 1.58 | 0.03 | | | | | | | | 1.0 |
| RCY | SZ | 105 | 250 | EP | 1156 | 49.33 | -0.07 | | | | | | | | 1.0 |
| RCY | SN | 105 | 250 | ES | 1157 | 2.01 | 0.04 | | | | | | | | 1.0 |
| QRWL | SZ | 117 | 255 | EP | 1156 | 51.39 | 0.08 | | | | | | | | 1.0 |
| SHBL | SZ | 120 | 244 | EP | 1156 | 51.64 | -0.07 | | | | | | | | 1.0 |

June 30 2021 Hour: 14:48 2.1 Lat: 34.19N Lon: 36.36E Depth: 0 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 0.2 secs

BAALBECK REGION

| STAT | CO | DIST | AZI | PHASE | P | HRMN | SECON | TRES | CODA | AMPL | PERI | BAZ | ARES | VELO | WT |
|------|----|------|-----|-------|---|------|-------|-------|------|------|------|-----|------|------|-----|
| FKH | SZ | 8 | 34 | EP | | 1448 | 3.25 | -0.06 | 31 | | | | | | 1.0 |
| HWQ | BZ | 40 | 285 | EP | | 1448 | 8.30 | -0.20 | | | | | | | 1.0 |
| HWQ | BN | 40 | 285 | ES | | 1448 | 13.16 | -0.09 | | | | | | | 1.0 |
| BEIL | SZ | 43 | 337 | EP | | 1448 | 8.79 | -0.15 | | | | | | | 1.0 |
| BEIL | SN | 43 | 337 | ES | | 1448 | 14.33 | 0.32 | | | | | | | 1.0 |
| ZAHL | SZ | 58 | 230 | EP | | 1448 | 11.70 | 0.34 | | | | | | | 1.0 |
| ZAHL | SN | 58 | 230 | ES | | 1448 | 18.33 | 0.11 | | | | | | | 1.0 |
| BHL | BZ | 73 | 245 | EP | | 1448 | 13.59 | -0.23 | | | | | | | 1.0 |
| RCY | SZ | 91 | 213 | EP | | 1448 | 16.97 | 0.20 | | | | | | | 1.0 |
| QRWL | SZ | 95 | 222 | EP | | 1448 | 17.23 | -0.19 | | | | | | | 1.0 |
| SHBL | SZ | 110 | 212 | EP | | 1448 | 19.70 | -0.05 | | | | | | | 1.0 |

Epicentral Map of Lebanon

JUNE 2021

