

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

February

2010

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	Opened Nov 2000
FKH	3414.69N	3624.61E	1152	FAKEHEH	Opened Dec 2004
RCY	3329.79N	3550.14E	1370	RACHAYA	Opened Jun 2006
DWR	3323.13N	3524.08E	420	DWEIR	Scheduled 2003
BEYL	3352.30N	3529.59E	49	BEIRUT	Opened Jul 2006
NAQL	3307.02N	3508.46E	83	NAQOURA	Opened Jul 2008
DQRL	3342.34N	3534.21E	963	DEIR QAMAR	Opened Mar 2010

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.

February 1 2010 Hour: 4:254.3

Agency: REL Regional

EMSC OT=04:01:43.7 39.52N 38.02E 10Km mb=4.6 EASTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		4 3	3.40								
HWQ	SZ			EP		4 3	3.48								
BHL	BZ			EP		4 3	12.15								

February 1 2010 Hour: 12:26 11.4

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1226	51.71								
FKH	SZ			EP		1226	45.88								

February 1 2010 Hour: 14:35 49.7 Lat: 33.64N Lon: 35.49E Depth: 9 Agency: REL Local

Magnitudes: 2.6MC REL

Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	33	27	EP		1435	55.24	-0.05							1.0
BHL	BE	33	27	ES		1435	59.47	0.03							1.0
RCY	SZ	35	116	EP		1435	55.69	0.05	33						1.0
RCY	SE	35	116	ES		1436	0.03	-0.03							1.0
HWQ	SZ	83	30	EP		1436	3.09	0.00							0.2

February 2 2010 Hour: 10:38 48.7

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1039	13.12								
HWQ	SZ			EP		1039	21.57								

February 2 2010 Hour: 11:24 3.0

Agency: REL Regional

EMSC OT=11:23:58.8 34.84N 32.58E 10Km ML=3.6 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1124	42.27								

February 2 2010 Hour: 15:29 6.1 Lat: 33.51N Lon: 35.41E Depth: 10 Agency: REL Local

Magnitudes: 2.7MC REL

Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	40	92	EP		1529	12.74	-0.05	38						1.0
RCY	SN	40	92	ES		1529	17.78	0.03							1.0
BHL	BZ	49	28	EP		1529	14.29	0.05							1.0
BHL	BE	49	28	ES		1529	20.26	-0.03							1.0
HWQ	SZ	99	30	EP		1529	21.79	0.00							1.0

February 3 2010 Hour: 10:22 3.2 Lat: 33.86N Lon: 36.75E Depth: 11 Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.0 secs

DAMASCUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	53	324	EP		1022	12.03	0.00	53						1.0
HWQ	SZ	87	303	EP		1022	17.20	-0.04							1.0
HWQ	SE	87	303	ES		1022	27.64	0.02							1.0
RCY	SZ	93	245	EP		1022	18.18	0.04							1.0
RCY	SE	93	245	ES		1022	29.15	-0.02							1.0

February 3 2010 Hour: 10:24 1.5

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ			EP		1024	56.19								
RCY	SZ			EP		1025	2.73								

February 4 2010 Hour: 12:47 46.9 Lat: 33.74N Lon: 36.39E Depth: 72 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.0 secs

DAMASCUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	58	243	EP		1247	59.87	0.03	57						1.0
RCY	SN	58	243	ES		1248	9.37	-0.02							1.0
BHL	BZ	71	285	EP		1248	0.90	0.00							1.0
HWQ	SZ	73	326	EP		1248	1.07	-0.03							1.0
HWQ	SN	73	326	ES		1248	11.58	0.02							1.0

February 4 2010 Hour: 13:1 5.5 Lat: 33.83N Lon: 36.88E Depth: 7 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

DAMASCUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	64	317	EP		13 1	15.75	-0.14	56						1.0
FKH	SN	64	317	ES		13 1	23.57	0.01							1.0
HWQ	SZ	100	301	EP		13 1	21.87	0.19							1.0
RCY	SZ	103	250	EP		13 1	22.25	0.01							1.0
RCY	SE	103	250	ES		13 1	34.57	-0.02							1.0
BHL	BZ	114	275	EP		13 1	23.68	-0.05							1.0

February 4 2010 Hour: 23:40 36.3 Agency: REL Regional
EMSC OT=23:42:54.0 36.19N 32.11E 93Km ML=4.0 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		2343	48.79								
BHL	BZ			EP		2343	47.87								
MATL	SZ			EP		2343	49.65								
NAQL	SZ			EP		2343	52.03								
FKH	SZ			EP		2343	53.47								
RCY	SZ			EP		2343	54.02								

February 6 2010 Hour: 0:10 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		010	24.37								
BHL	BZ			EP		010	30.16								

February 6 2010 Hour: 4:45 42.1 Agency: REL Distant
EMSC OT=04:45:02.5 46.98N 152.78E 60Km Mw=6.0 KURIL ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		457	11.44								
BHL	BZ			EP		457	14.46								
RCY	SZ			EP		457	16.53								

February 6 2010 Hour: 10:4 11.9 Lat: 33.31N Lon: 35.42E Depth: 4 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	22	338	EP		10 4	15.50	0.03							1.0
RCY	SZ	44	61	EP		10 4	18.99	-0.05	40						1.0
RCY	SN	44	61	ES		10 4	24.40	0.05							1.0
BHL	BZ	70	18	EP		10 4	22.92	-0.25							0.2
BHL	BN	70	18	ES		10 4	31.14	-0.39							0.2
HWQ	SZ	118	24	EP		10 4	31.15	0.21							0.2

February 6 2010 Hour: 11:8 46.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		11 9	17.48								
HWQ	SZ			EP		11 9	25.28								

February 6 2010 Hour: 11:29 53.6

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1129	57.56								
HWQ	SZ			EP		1129	58.96								
RCY	SZ			EP		1130	3.97								
FKH	SZ			EP		1130	4.03								

February 7 2010 Hour: 2:35 1.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		235	38.11								
HWQ	SZ			EP		235	38.82								

February 7 2010 Hour: 6:9 26.5

Agency: REL Distant

EMSC OT=06:09:59.4 23.54N 123.70E 10Km Mw=6.5 RYUKYU ISL.,JAPAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		621	41.39								
BHL	BZ			EP		621	45.15								
RCY	SZ			EP		621	45.48								

February 7 2010 Hour: 22:46 35.2

Agency: REL Distant

EMSC OT=22:28:20.3 23.33S 179.82W 536Km Mw=5.8 FIJI ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		2247	3.79								
BHL	BZ			EP		2247	3.77								

February 10 2010 Hour: 4:12 4.0

Lat: 34.11N

Lon: 35.71E

Depth: 23

Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.1 secs

KEŠROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	24	192	EP		412	9.27-0.03		48						1.0
BHL	BE	24	192	ES		412	13.23-0.03								1.0
HWQ	SZ	29	50	EP		412	9.96 0.09								1.0
FKH	SZ	66	77	EP		412	14.84-0.09								1.0
RCY	SZ	69	170	EP		412	15.39 0.01		47						1.0
RCY	SE	69	170	ES		412	23.86 0.04								1.0

February 11 2010 Hour: 11:15 19.8

Lat: 34.39N

Lon: 36.71E

Depth: 0

Agency: REL Local

Magnitudes: 3.0MC REL

Rms: 0.2 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	32	240	EP		1115	24.77-0.18		58						1.0
FKH	SN	32	240	ES		1115	28.77 0.02								1.0
HWQ	SZ	71	260	EP		1115	31.44 0.13								1.0
HWQ	SN	71	260	ES		1115	39.82-0.01								1.0
BHL	BZ	111	241	EP		1115	36.91-0.83								0.2
RCY	SZ	128	219	EP		1115	40.50 0.09								1.0
RCY	SN	128	219	ES		1115	55.67 0.01								1.0

February 11 2010 Hour: 21:53 27.1

Agency: REL Regional

EMSC OT=21:56:30.8 33.98N 25.42E 10Km Mw=5.3 EASTERN MED SEA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2158	34.31								
RCY	SZ			EP		2158	35.27								
HWQ	SZ			EP		2158	37.38								
FKH	SZ			EP		2158	40.85								

February 12 2010 Hour: 22:1 13.3

Lat: 33.34N

Lon: 35.39E

Depth: 0

Agency: REL Local

Magnitudes: 2.7MC REL

Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	17	341	EP		22 1	15.98-0.01								1.0
NAQL	SZ	34	223	EP		22 1	18.78 0.01								1.0
RCY	SZ	45	68	EP		22 1	20.46-0.04		39						1.0

RCY	SE	45	68	ES	22	1	25.88	0.02										1.0
BHL	BZ	67	22	EP	22	1	24.08	0.04										1.0
BHL	BN	67	22	ES	22	1	32.00	-0.01										1.0

February 13 2010 Hour: 2:54 3.0 Agency: REL Distant

EMSC OT=02:34:29.5 21.85S 174.76W 10Km Mw=6.1 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		254	13.34								
BHL	BZ			EP		254	14.25								
FKH	SZ			EP		254	15.16								
RCY	SZ			EP		254	15.85								
NAQL	SZ			EP		254	23.17								

**February 13 2010 Hour: 9:59 36.0 Lat: 33.25N Lon: 35.41E Depth: 3 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.2 secs**

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	28	344	EP		959	40.46	0.02							1.0
RCY	SZ	48	55	EP		959	43.76	0.01	37						1.0
RCY	SE	48	55	ES		959	49.53	0.01							1.0
BHL	BZ	76	17	EP		959	47.61	-0.63							0.2
HWQ	SZ	124	23	EP		959	55.91	-0.05							0.2
HWQ	SE	124	23	ES		10	0	10.85	0.08						0.2

February 13 2010 Hour: 10:23 0.3 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ			EP		1023	55.56								
RCY	SZ			EP		1023	58.90								

February 13 2010 Hour: 12: 6 50.8 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		12	7	24.42							
HWQ	SZ			EP		12	7	31.63							

February 14 2010 Hour: 4:20 28.4 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		420	17.94								
BHL	BZ			EP		420	9.85								

February 14 2010 Hour: 7:52 0.1 Agency: REL Regional

EMSC OT=07:52:19.8 36.26N 35.80E 20Km ML=3.4 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		752	48.83								
FKH	SZ			EP		752	49.56								

**February 14 2010 Hour: 14:25 9.8 Lat: 33.72N Lon: 35.48E Depth: 3 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs**

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	26	38	EP		1425	14.01	0.00	33						1.0
BHL	BN	26	38	ES		1425	17.11	0.00							1.0
RCY	SZ	41	127	EP		1425	16.54	0.01							1.0
RCY	SE	41	127	ES		1425	21.49	0.00							1.0
HWQ	SZ	75	35	EP		1425	21.95	0.01							0.2

February 14 2010 Hour: 15:59 0.8 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1559	42.51								
RCY	SZ			EP		1559	39.18								

February 15 2010 Hour: 0:12 43.8

Agency: REL Regional

EMSC OT=00:12:32.9 36.30N 35.65E 2Km ML=2.9 CENTRAL TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		013	6.18								
BHL	BZ			EP		013	8.22								

February 15 2010 Hour: 8:22 30.0

Lat: 33.04N

Lon: 35.63E

Depth: 1

Agency: REL Local

Magnitudes: 2.7MC REL

Rms: 0.1 secs

MOUNT HERMON REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
NAQL	SZ	47	281	EP		822	37.50	0.00							1.0
RCY	SZ	54	21	EP		822	38.68	-0.09	40						1.0
RCY	SE	54	21	ES		822	45.32	0.05							1.0
HWQ	SZ	141	12	EP		822	52.61	0.09							1.0
HWQ	SE	141	12	ES		823	9.14	-0.05							1.0

February 15 2010 Hour: 10: 9 42.5

Agency: REL Distant

EMSC OT=10:15:44.7 06.12N 126.86E 100Km mb=5.4 MINDANAO

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1028	19.87								
BHL	BZ			EP		1028	21.98								
RCY	SZ			EP		1028	22.05								

February 15 2010 Hour: 11:29 59.7

Lat: 33.65N

Lon: 35.62E

Depth: 41

Agency: REL Local

Magnitudes: 2.9MC REL

Rms: 0.0 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	27	130	EP		1130	7.16	-0.04	51						1.0
RCY	SE	27	130	ES		1130	12.78	0.02							1.0
BHL	BZ	28	7	EP		1130	7.29	0.00							1.0
HWQ	SZ	76	24	EP		1130	12.45	0.04							1.0
HWQ	SN	76	24	ES		1130	21.79	-0.02							1.0

February 15 2010 Hour: 12:17 54.5

Lat: 33.91N

Lon: 35.78E

Depth: 14

Agency: REL Local

Magnitudes: 2.6MC REL

Rms: 0.0 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	12	268	EP		1217	57.61	0.00	34						1.0
HWQ	SZ	44	20	EP		1218	2.03	0.03							1.0
HWQ	SN	44	20	ES		1218	7.50	-0.02							1.0
RCY	SZ	46	174	EP		1218	2.29	-0.02							1.0
RCY	SE	46	174	ES		1218	8.07	0.01							1.0

February 15 2010 Hour: 12:55 0.4

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
NAQL	SZ			EP		1256	0.03								
RCY	SZ			EP		1256	2.66								

February 16 2010 Hour: 12: 4 4.4

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		12 5	21.42								
RCY	SZ			EP		12 5	19.11								

February 17 2010 Hour: 12:42 9.5

Lat: 34.37N

Lon: 36.70E

Depth: 0

Agency: REL Local

Magnitudes: 3.0MC REL

Rms: 0.1 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	30	242	EP		1242	14.18	-0.15	58						1.0
FKH	SN	30	242	ES		1242	17.90	-0.03							1.0
HWQ	BZ	70	262	EP		1242	20.84	0.07							1.0
HWQ	BN	70	262	ES		1242	29.18	0.06							1.0
BHL	BZ	109	242	EP		1242	27.02	-0.11							1.0
RCY	SZ	126	220	EP		1242	29.91	0.15							1.0

February 17 2010 Hour: 17:34 29.6 Lat: 33.76N Lon: 35.72E Depth: 0 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	339	EP		1734	32.35	-0.11							1.0
BHL	BE	18	339	ES		1734	34.59	0.04							1.0
RCY	SZ	31	160	EP		1734	34.57	-0.02	42						1.0
RCY	SN	31	160	ES		1734	38.27	0.01							1.0
MATL	SZ	47	231	EP		1734	37.25	0.03							1.0
HWQ	SZ	61	20	EP		1734	39.58	0.05							1.0

February 17 2010 Hour: 19:38 35.9 Agency: REL Distant

EMSC OT=19:38:05.3 29.66S 177.67W 30Km Mw=5.9 KERMADEC ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1957	54.94								
RCY	SZ			EP		1957	56.10								
BHL	BZ			EP		1957	56.18								

February 17 2010 Hour: 23:21 59.4 Lat: 33.85N Lon: 35.37E Depth: 18 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BEYL	BZ	11	76	EP		2322	2.98	0.10							1.0
BHL	BZ	27	76	EP		2322	4.48	-0.19	56						1.0
BHL	BN	27	76	ES		2322	8.53	0.00							1.0
MATL	SZ	40	186	EP		2322	6.30	-0.05							1.0
RCY	SZ	58	132	EP		2322	9.11	0.09							1.0
RCY	SE	58	132	ES		2322	16.10	-0.01							1.0
HWQ	SZ	71	48	EP		2322	11.03	0.04							1.0

February 18 2010 Hour: 1:12 7.5 Agency: REL Distant

EMSC OT=01:13:17.7 42.61N 130.54E 566Km Mw=6.9 CHINA-RUSSIA-KOREA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		123	36.22								
BHL	BZ			EP		123	39.58								
RCY	SZ			EP		123	41.07								
NAQL	SZ			EP		123	45.03								

February 18 2010 Hour: 23: 2 39.5 Lat: 33.32N Lon: 35.41E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	20	338	EP		23	2	42.73	-0.01						1.0
NAQL	SZ	34	228	EP		23	2	44.95	-0.01						1.0
RCY	SZ	44	64	EP		23	2	46.57	-0.02	33					1.0
RCY	SN	44	64	ES		23	2	51.84	0.00						1.0
BHL	BZ	69	19	EP		23	2	50.62	0.07						1.0
BHL	BN	69	19	ES		23	2	58.69	-0.03						1.0

February 19 2010 Hour: 16:18 5.9 Lat: 33.74N Lon: 35.49E Depth: 12 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.0 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	24	40	EP		1618	10.35	0.06							1.0
BHL	BN	24	40	ES		1618	13.50	-0.04							1.0
RCY	SZ	42	130	EP		1618	12.92	-0.06	50						1.0
RCY	SN	42	130	ES		1618	18.27	0.04							1.0
HWQ	SZ	73	35	EP		1618	17.80	0.00							1.0

February 20 2010 Hour: 10:12 32.3 Lat: 33.26N Lon: 35.41E Depth: 6 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	26	344	EP		1012	36.71	0.00							1.0
RCY	SZ	48	57	EP		1012	40.11	0.00	35						1.0
RCY	SN	48	57	ES		1012	45.87	0.00							1.0
HWQ	SZ	123	24	EP		1012	52.03	0.06							0.2
HWQ	SE	123	24	ES		1013	6.49	0.00							1.0

February 20 2010 Hour: 23:48 48.0

Agency: REL Regional

EMSC OT=23:48:24.7 34.68N 33.10E 15Km ML=3.4 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
NAQL	SZ			EP		2349	1.29								
BHL	BZ			EP		2349	1.82								

February 21 2010 Hour: 4:39 55.0

Agency: REL Regional

EMSC OT=04:38:37.8 38.68N 40.15E 5Km ML=4.4 EASTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		440	0.48								
BHL	BZ			EP		440	5.34								
RCY	SZ			EP		440	12.05								

February 21 2010 Hour: 12:7 46.1 Lat: 34.53N Lon: 36.87E Depth: 15 Agency: REL Local

Magnitudes: 3.1MC REL Rms: 0.0 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	90	252	EP		12 8	0.22-0.05								1.0
HWQ	BN	90	252	ES		12 8	10.76	0.00							1.0
BHL	BZ	132	239	EP		12 8	6.55	0.07							1.0
RCY	SZ	149	220	EP		12 8	9.02-0.02		61						1.0
RCY	SE	149	220	ES		12 8	26.00-0.01								1.0

February 21 2010 Hour: 22:9 11.2 Lat: 33.56N Lon: 35.45E Depth: 26 Agency: REL Local

Magnitudes: 2.8MC REL Rms: 0.1 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	14	232	EP		22 9	15.87	0.09							1.0
RCY	SZ	37	102	EP		22 9	18.35	0.01	47						1.0
RCY	SN	37	102	ES		22 9	23.60	0.00							1.0
BHL	BZ	42	27	EP		22 9	18.88-0.09		41						1.0
BHL	BN	42	27	ES		22 9	24.66-0.04								1.0
NAQL	SZ	57	210	EP		22 9	20.84-0.08								1.0
HWQ	SZ	92	30	EP		22 9	25.99	0.11							1.0

February 22 2010 Hour: 7:20 16.5

Agency: REL Distant

EMSC OT=07:00:55.7 23.67S 175.84W 40Km Mw=5.8 TONGA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		720	43.58								
RCY	SZ			EP		720	43.83								

February 22 2010 Hour: 17:37 36.9 Lat: 33.79N Lon: 35.76E Depth: 0 Agency: REL Local

Magnitudes: 2.9MC REL Rms: 0.0 secs

BEIRUT REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	324	EP		1737	39.50	0.01							1.0
BHL	BE	16	324	ES		1737	41.37-0.05								1.0
RCY	SZ	33	167	EP		1737	42.17-0.06		50						1.0
RCY	SE	33	167	ES		1737	46.17	0.00							1.0
MATL	SZ	52	230	EP		1737	45.27	0.06							1.0
HWQ	SZ	57	18	EP		1737	46.17	0.04							1.0

February 23 2010 Hour: 2:37 48.4 Agency: REL Regional

EMSC OT=02:36:55.2 36.40N 28.56E 60Km ML=3.7 DODECANESE ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		238	22.00								
NAQL	SZ			EP		238	23.78								
HWQ	SZ			EP		238	24.43								
RCY	SZ			EP		238	27.61								

February 23 2010 Hour: 5:3 2.5 Agency: REL Regional

EMSC OT=05:03:01.2 34.84N 32.19E 5Km ML=3.4 CYPRUS REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		5 3	51.89								
HWQ	SZ			EP		5 3	50.24								

February 23 2010 Hour: 10:26 54.9 Agency: REL Regional

EMSC OT=10:25:54.2 32.56N 48.26E 10Km mb=5.1 WESTERN IRAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EP		1028	29.58								
BHL	BZ			EP		1028	30.87								

February 24 2010 Hour: 4:37 1.0 Agency: REL Regional

EMSC OT=04:36:41.4 36.19N 36.03E 2Km ML=3.1 TURKEY-SYRIA REG

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		437	12.89								
HWQ	SZ			EP		437	13.25								

February 24 2010 Hour: 9:38 5.0 Lat: 34.41N Lon: 36.73E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	34	238	EP		938	10.44-0.14		60						1.0
FKH	SN	34	238	ES		938	14.65-0.04								1.0
HWQ	BZ	73	259	EP		938	16.85 0.01								1.0
HWQ	BN	73	259	ES		938	25.65 0.06								1.0
RCY	SZ	131	219	EP		938	26.20 0.11								1.0

February 24 2010 Hour: 11:49 2.9 Lat: 34.39N Lon: 36.75E Depth: 1 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.1 secs

NEBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	35	244	EP		1149	8.39-0.18		60						1.0
HWQ	BZ	75	261	EP		1149	15.05 0.04								1.0
HWQ	BN	75	261	ES		1149	24.02 0.04								1.0
BHL	BZ	115	242	EP		1149	21.24-0.12								0.2
RCY	SZ	130	221	EP		1149	24.02 0.16								1.0
RCY	SN	130	221	ES		1149	39.34-0.05								1.0

February 25 2010 Hour: 10:22 23.5 Lat: 33.99N Lon: 36.15E Depth: 35 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

HERMEL BAALBEK REGION

Earthquake was felt

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	37	330	EP		1022	31.35-0.04		45						1.0
HWQ	SN	37	330	ES		1022	37.25 0.02								1.0
BHL	BZ	47	258	EP		1022	32.50 0.00								1.0
RCY	SZ	62	208	EP		1022	34.46 0.04								1.0
RCY	SN	62	208	ES		1022	42.47-0.02								1.0

February 25 2010 Hour: 18:42.2 Lat: 33.83N Lon: 34.63E Depth: 22 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.0 secs

OFFSHORE CENTRAL LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	75	120	EP		18	4	34.35	0.04						1.0
BHL	BZ	96	85	EP		18	4	37.33	0.01						1.0
RCY	SZ	118	108	EP		18	4	40.56	-0.07	50					1.0
RCY	SE	118	108	ES		18	4	54.29	0.01						1.0
HWQ	SZ	132	67	EP		18	4	42.60	0.02						1.0
HWQ	SE	132	67	ES		18	4	57.66	-0.01						1.0

February 26 2010 Hour: 1:19 0.9 Agency: REL Distant
EMSC OT=01:07:58.1 23.82N 122.87E 33Km Mw=5.5 TAIWAN REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		119	32.61								

February 26 2010 Hour: 8:30 58.1 Agency: REL Distant
EMSC OT=08:37:03.2 06.42N 126.80E 116Km Mw=5.8 MINDANAO

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		849	35.35								
BHL	BZ			EP		849	37.49								
RCY	SZ			EP		849	37.85								

February 26 2010 Hour: 20:31 11.2 Agency: REL Distant
EMSC OT=20:31:24.1 25.93N 128.50E 2Km Mw=7.2 RYUKYU ISLANDS

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		2043	22.70								
BHL	BZ			EP		2043	24.74								
RCY	SZ			EP		2043	26.90								

February 27 2010 Hour: 6:53 5.0 Agency: REL Distant
EMSC OT=06:34:14.1 35.89S 73.04W 30Km Mw=8.8 CHILE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		653	9.31								
BHL	BZ			EP		653	20.03								
RCY	SZ			EP		653	19.49								
BEYL	BZ			EP		653	16.81								

February 28 2010 Hour: 21:35 57.1 Lat: 33.29N Lon: 35.33E Depth: 1 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.1 secs

SOUTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	22	0	EP		2136	0.77	0.01							1.0
RCY	SZ	53	64	EP		2136	5.62	-0.02	34						1.0
RCY	SE	53	64	ES		2136	11.95	0.01							1.0
BHL	BZ	75	24	EP		2136	9.29	0.07							0.2
BHL	BE	75	24	ES		2136	17.97	-0.20							0.2
HWQ	SZ	124	27	EP		2136	17.15	0.01							0.2
HWQ	SE	124	27	ES		2136	32.03	0.09							0.2

Epicentral Map of Lebanon

February 2010

