

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

September

2010

Prepared by
The National Centre for Geophysical Research
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GENERAL BULLETIN INFORMATION

The National Centre for Geophysical Research is a governmental agency established 1975 in Lebanon by the National Council for Scientific Research (CNRS). The mission of the Centre, among other assignments, is the monitoring of seismic activity within the national territory. Currently, the national seismic network is under deployment; it has been officially registered as GRAL, an acronym for Geophysical Research Arrays of Lebanon. Station coordinates and status are given below.

Since 1993, the Centre has been participating in a regional initiative by the UNESCO and the USGS known as RELEMR, i.e. Reducing Earthquake Losses in the Eastern Mediterranean Region.

Within this framework, the Centre routinely contributes to the database set up for this purpose and maintained by the Euro-Mediterranean Seismological Centre (EMSC). For coherence, the Centre has adopted the recommended seismic analysis system SEISAN developed by Jens Havskov and Lars Ottemoller from the University of Bergen, Norway.

The localization program currently used for locating earthquakes is Hypocenter (Lienert et al., 1986). Plane parallel layers are assumed for local and regional events, while the IASPEI travel time tables are used for distant events.

The velocity model used for all local and regional events is the one currently adopted by the RELEMR initiative.

P-wave velocity (km/sec)	depth to top of layer (km)
6.2	0.0
6.8	14.0
8.05	34.0
8.25	50.0
8.5	80.0

Magnitudes are calculated from the coda duration. The coda wave magnitude is estimated via the formula:

$$M_c = 0.08 + 1.63 * \log_{10}(T) + 0.0009 * D.$$

where T is the coda duration (sec) and D is the epicentral distance (km). The coefficients above were adopted at the outset of our Centre in 1980 and thus are still in use for the sake of continuity.

All available coda values are used for magnitude calculations. No station corrections are used for either travel times or magnitudes calculations. The V_p/V_s velocity ratio used in both layered models above is 1.74.

As a general policy, neither depths, nor epicenters, are fixed unless stated otherwise since this might restrict later use of the data. Consequently, some event locations might be unrealistic such as zero depth earthquakes or teleseismic locations off by 1000 km. However, the locations are based on the available data and reflect the localization procedure and the models used.

STATIONS USED

The stations listed below are operated by the National Centre for Geophysical Research. They constitute the basic setup of the National Seismic Network of Lebanon.

However, readings from other cooperating agencies are also used in locating the events and thus more stations may appear in the event lists than in the station list; it is worth mentioning the systematic use of arrival times from the Cypriot seismic network CSS in order to constrain events corresponding to an active zone off the Lebanese shorelines.

STATION	LATITUDE	LONGITUDE	HEIGHT (m)	NAME	COMMENTS
BHL	3354.25N	3539.25E	1000	BHANNES	Opened May 1980
HWQ	3416.68N	3556.78E	1161	HAWQA	Opened Jan 2001
MATL	3329.32N	3519.78E	5	MATARIH	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 ($0.5 \times (\text{peak to peak})$), (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 2 2010 Hour: 10:54 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1054	29.88								
HWQ	BZ			EP		1054	26.42								

September 2 2010 Hour: 17:56 29.4 Lat: 33.79N Lon: 35.76E Depth: 0 Agency: REL Local
 Magnitudes: 2.8MC 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	17	323	EP		1756	32.03	0.02	44						1.0
BHL	BN	17	323	ES		1756	33.94	-0.04							1.0
DQRL	SZ	20	243	EP		1756	32.59	0.04							1.0
RCY	SZ	33	168	EP		1756	34.64	-0.01							1.0
RCY	SN	33	168	ES		1756	38.55	-0.02							1.0
HWQ	BZ	57	17	EP		1756	38.60	0.02							1.0

September 3 2010 Hour: 14:25 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1426	14.86								
RCY	SZ			EP		1426	14.11								

September 3 2010 Hour: 15: 3 1.5 Lat: 33.66N Lon: 35.90E Depth: 19 Agency: REL Local
 Magnitudes: 2.8MC REL Rms: 0.1 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	19	197	EP		15 3	5.85	-0.06	44						1.0
RCY	SN	19	197	ES		15 3	9.20	0.03							1.0
DQRL	SZ	31	280	EP		15 3	7.36	0.06							1.0
DQRL	SN	31	280	ES		15 3	11.55	-0.03							1.0
BHL	BZ	35	321	EP		15 3	7.90	-0.02							1.0
HWQ	BZ	69	4	EP		15 3	12.94	0.22							0.2

September 3 2010 Hour: 16:35 45.3

Agency: REL Distant

EMSC OT=16:35:45.3 43.29S 172.00E 5Km Mw=7.0 SOUTH NEW ZEALAND

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1655	22.85								
BHL	BZ			EP		1655	23.26								
BEYL	BZ			EP		1655	23.12								
DQRL	SZ			EP		1655	23.39								

September 4 2010 Hour: 10: 0 55.0

Agency: REL Regional

EMSC OT=10:00:55.0 35.88N 37.22E 28Km MD=3.2 SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		10 1	14.96								
FKH	SZ			EP		10 1	10.46								

September 5 2010 Hour: 9:12 43.6 Lat: 33.47N Lon: 35.66E Depth: 4 Agency: REL Local
 Magnitudes: 2.6MC REL Rms: 0.2 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	17	79	EP		912	46.45	-0.02	34						1.0
RCY	SE	17	79	ES		912	48.58	0.01							1.0
DQRL	SZ	28	342	EP		912	48.25	0.06							1.0
DQRL	SN	28	342	ES		912	51.57	-0.01							1.0
BHL	BZ	48	359	EP		912	51.39	-0.10							1.0
HWQ	BZ	94	16	EP	D	912	59.72	0.95							0.2

September 5 2010 Hour: 11:435.4 Lat: 33.79N Lon: 35.77E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC 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	17	321	EP		11	4	38.09-0.01	42						1.0
BHL	BE	17	321	ES		11	4	40.09-0.02							1.0
DQRL	SZ	21	244	EP		11	4	38.74 0.05							1.0
BEYL	BZ	27	290	EP		11	4	39.70-0.07							1.0
RCY	SZ	33	169	EP		11	4	40.70 0.03							1.0
RCY	SN	33	169	ES		11	4	44.53-0.05							1.0
HWQ	BZ	57	17	EP		11	4	44.58 0.02							1.0

September 5 2010 Hour: 16:13 50.2 Lat: 33.79N Lon: 35.78E Depth: 2 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	318	EP		1613	52.97-0.12		44						1.0
BHL	BN	18	318	ES		1613	55.26 0.03								1.0
DQRL	SZ	22	245	EP		1613	53.78 0.06								1.0
DQRL	SN	22	245	ES		1613	56.33 0.01								1.0
BEYL	BZ	28	290	EP		1613	54.89 0.10								1.0
RCY	SZ	33	171	EP		1613	55.46-0.03								1.0
RCY	SN	33	171	ES		1613	59.40 0.00								1.0
HWQ	BZ	57	16	EP		1613	59.42 0.07								1.0

September 6 2010 Hour: 14:12 31.2 Lat: 33.91N Lon: 35.82E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	268	EP		1412	33.66-0.02		42						1.0
DQRL	SZ	32	226	EP		1412	36.47 0.07								1.0
DQRL	SN	32	226	ES		1412	40.25-0.02								1.0
HWQ	BZ	43	16	EP		1412	38.03-0.01								1.0
RCY	SZ	46	178	EP		1412	38.55 0.00								1.0
RCY	SN	46	178	ES		1412	44.00-0.01								1.0

September 7 2010 Hour: 7:14 23.4

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		714	30.73								
BHL	BZ			EP		714	38.14								
RCY	SZ			EP		714	44.29								

September 7 2010 Hour: 9:15 43.0 Lat: 33.78N Lon: 35.74E Depth: 12 Agency: REL Local
Magnitudes: 2.5MC 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	16	331	EP		915	46.26-0.23		29						1.0
BHL	BN	16	331	ES		915	49.17 0.13								1.0
DQRL	SZ	18	244	EP		915	46.82 0.19								1.0
DQRL	SN	18	244	ES		915	49.17-0.11								1.0
RCY	SZ	32	164	EP		915	48.71 0.00								1.0
HWQ	BZ	59	19	EP		915	52.82 0.01								1.0

September 7 2010 Hour: 14:18 0.0

Agency: REL Regional

EMSC OT=14:18:00.7 37.02N 27.73E 2Km ML=4.1 WESTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1419	45.18								
RCY	SZ			EP		1419	49.48								

September 7 2010 Hour: 23:16 49.5 Lat: 33.78N Lon: 35.67E Depth: 28 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
DQRL	SZ	13	228	EP		2316	54.45	0.00	50						1.0
DQRL	SN	13	228	ES		2316	58.11	0.03							1.0
BHL	BZ	14	353	EP		2316	54.44	-0.07							1.0
RCY	SZ	35	154	EP		2316	56.62	-0.01							1.0
RCY	SE	35	154	ES		2317	1.88	0.00							1.0
HWQ	BZ	61	25	EP		2316	59.93	0.05							1.0

September 8 2010 Hour: 1:31 10.2 Lat: 35.08N Lon: 36.35E Depth: 10 Agency: REL Regional
Magnitudes: 3.3MC REL Rms: 0.6 secs

SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	93	176	EP		131	23.79	-1.25	90						1.0
HWQ	BZ	96	203	EP		131	26.13	0.59							1.0
BHL	BZ	145	206	EP		131	33.38	0.66							1.0
BEYL	BZ	155	211	EP		131	34.26	0.10							0.2
DQRL	SZ	168	205	EP		131	36.85	0.74							1.0
DQRL	SN	168	205	ES		131	55.29	0.00							1.0
RCY	SZ	182	195	EP		131	37.76	-0.07							1.0

September 11 2010 Hour: 2: 4 7.6 Agency: REL Regional
EMSC OT=02:04:07.6 34.38N 26.62E 47Km mb=4.2 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		2 5	51.90								
DQRL	SZ			EP		2 5	52.74								
RCY	SZ			EP		2 5	55.26								
HWQ	BZ			EP		2 5	55.60								

September 11 2010 Hour: 9:42 26.2 Lat: 33.55N Lon: 35.66E Depth: 9 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	17	110	EP		942	29.53	0.03	50						1.0
RCY	SE	17	110	ES		942	31.93	-0.01							1.0
DQRL	SZ	19	335	EP		942	29.71	-0.02							1.0
DQRL	SN	19	335	ES		942	32.37	0.03							1.0
BEYL	BZ	39	337	EP		942	32.66	-0.02							0.2
BHL	BZ	39	359	EP		942	32.73	-0.05							1.0
HWQ	BZ	85	18	EP		942	40.07	0.03							1.0

September 11 2010 Hour: 20:56 51.4 Lat: 33.69N Lon: 36.06E Depth: 0 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.0 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	30	224	EP		2056	56.21	-0.01	33						1.0
RCY	SN	30	224	ES		2056	59.80	-0.02							1.0
BHL	BZ	44	302	EP		2056	58.48	-0.01							1.0
DQRL	SZ	45	272	EP		2056	58.75	0.07							1.0
DQRL	SN	45	272	ES		2057	4.08	-0.02							1.0
HWQ	BZ	66	351	EP		2057	1.94	-0.02							1.0

September 13 2010 Hour: 5:47 49.5

Agency: REL Distant

EMSC OT=05:47:49.5 41.58N 142.04E 62Km Mw=5.8 HOKKAIDO, JAPAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		559	43.47								
HWQ	BZ			EP		559	44.39								
BHL	BZ			EP		559	47.20								
DQRL	SZ			EP		559	48.45								
RCY	SZ			EP		559	48.29								

September 14 2010 Hour: 15:16 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1516	55.46								
HWQ	BZ			EP		1516	55.39								

September 15 2010 Hour: 10:48 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DQRL	SZ			EP		1049	2.82								
RCY	SZ			EP		1049	1.27								

September 15 2010 Hour: 19:47 35.2 Lat: 33.53N Lon: 35.62E Depth: 2 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
DQRL	SZ	20	348	EP		1947	38.57	0.04	38						1.0
DQRL	SN	20	348	ES		1947	40.97	-0.02							1.0
RCY	SZ	21	99	EP		1947	38.60	-0.03							1.0
RCY	SN	21	99	ES		1947	41.18	0.02							1.0
BHL	BZ	42	5	EP		1947	41.97	-0.04							1.0
HWQ	BZ	89	20	EP		1947	49.56	0.02							1.0

September 15 2010 Hour: 19:48 16.0 Lat: 33.53N Lon: 35.62E Depth: 6 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
DQRL	SZ	20	346	EP		1948	19.51	0.02	40						1.0
DQRL	SN	20	346	ES		1948	22.05	0.00							1.0
RCY	SZ	20	100	EP		1948	19.51	-0.01							1.0
RCY	SE	20	100	ES		1948	22.11	0.00							1.0
BHL	BZ	42	4	EP		1948	22.81	-0.04							1.0
HWQ	BZ	88	20	EP		1948	30.34	0.03							1.0

September 15 2010 Hour: 19:52 39.7 Lat: 33.49N Lon: 35.59E Depth: 0 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	22	89	EP		1952	43.34	0.05							1.0
RCY	SN	22	89	ES		1952	45.93	-0.04							1.0
DQRL	SZ	24	355	EP		1952	43.45	-0.06	37						1.0
DQRL	SN	24	355	ES		1952	46.37	0.02							1.0
BHL	BZ	46	7	EP		1952	47.06	-0.03							1.0
HWQ	BZ	93	20	EP		1952	54.74	0.06							1.0

September 16 2010 Hour: 1:54 42.2

Agency: REL Distant

EMSC OT=01:54:42.2 16.01S 173.86W 96Km Mw=5.8 TONGA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		214	15.13								
HWQ	BZ			EP		214	15.63								
BHL	BZ			EP		214	16.62								
DQRL	SZ			EP		214	17.22								
RCY	SZ			EP		214	17.17								

September 16 2010 Hour: 10: 8 7.4 Lat: 33.83N Lon: 36.69E Depth: 0 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	53	331	EP		10	8	15.91-0.06	59						1.0
FKH	SN	53	331	ES		10	8	22.26-0.05							1.0
HWQ	BZ	85	307	EP		10	8	21.17 0.08							1.0
RCY	SZ	87	245	EP		10	8	21.35-0.08							1.0
RCY	SN	87	245	ES		10	8	31.75-0.05							1.0
BHL	BZ	96	276	EP		10	8	23.01 0.13							1.0
DQRL	SZ	104	263	EP		10	8	24.26 0.04							1.0

September 16 2010 Hour: 10:53 14.3 Lat: 33.83N Lon: 35.68E Depth: 25 Agency: REL Local
Magnitudes: 2.4MC 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	8	345	EP		1053	18.60-0.01	24							1.0
BHL	BN	8	345	ES		1053	21.83 0.02								1.0
DQRL	SZ	17	215	EP		1053	19.24 0.03								1.0
DQRL	SN	17	215	ES		1053	22.83-0.03								1.0
RCY	SZ	40	158	EP		1053	21.79 0.00								1.0
HWQ	BZ	55	27	EP		1053	23.54-0.22								0.2

September 16 2010 Hour: 16:17 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1617	58.79								
HWQ	BZ			EP		1618	1.13								

September 17 2010 Hour: 10:17 7.5

Agency: REL Regional

EMSC OT=10:17:07.5 38.08N 39.04E 2Km mb=4.7 EASTERN TURKEY

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1018	14.60								
HWQ	BZ			EP		1018	16.80								
BHL	BZ			EP		1018	23.24								
DQRL	SZ			EP		1018	26.89								
RCY	SZ			EP		1018	27.56								

September 17 2010 Hour: 11:39 38.3 Lat: 33.52N Lon: 35.62E Depth: 8 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

SAIDA REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	21	97	EP		1139	42.00-0.03								1.0
RCY	SN	21	97	ES		1139	44.78 0.02								1.0
DQRL	SZ	21	348	EP		1139	42.15 0.07	51							1.0
DQRL	SN	21	348	ES		1139	44.86 0.00								1.0
BHL	BZ	43	5	EP		1139	45.31-0.12								1.0
HWQ	BZ	90	20	EP		1139	52.93 0.06								1.0

September 17 2010 Hour: 19:21 12.5

Agency: REL Distant

EMSC OT=19:21:12.5 36.61N 70.91E 187Km Mw=6.3 HINDU KUSH REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		1926	50.62								
BHL	BZ			EP		1926	52.73								

September 20 2010 Hour: 13:57 47.9 Lat: 33.91N Lon: 35.81E Depth: 1 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	15	267	EP		1357	50.23-0.01	47							1.0
BHL	BN	15	267	ES		1357	52.01 0.01								1.0
DQRL	SZ	32	224	EP		1357	53.07 0.03								1.0
DQRL	SE	32	224	ES		1357	56.83-0.03								1.0
HWQ	BZ	43	17	EP		1357	54.72-0.01	50							1.0

RCY SZ 46 177 EP 1357 55.33 0.00 1.0

September 21 2010 Hour: 17:30 51.0 Lat: 33.79N Lon: 35.79E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC 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	315	EP		1730	53.89	-0.05	64						1.0
DQRL	SZ	23	246	EP		1730	54.61	-0.05							1.0
BEYL	BZ	29	289	EP		1730	55.75	0.03							1.0
RCY	SZ	33	173	EP		1730	56.39	0.09							1.0
RCY	SN	33	173	ES		1731	0.15	-0.05							1.0
HWQ	BZ	56	15	EP		1731	0.26	0.18							1.0
HWQ	BN	56	15	ES		1731	6.71	-0.07							1.0
FKH	SZ	76	48	EP		1731	3.26	-0.08							1.0

September 22 2010 Hour: 15:49 17.3 Lat: 33.78N Lon: 35.78E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC 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	18	319	EP		1549	20.14	-0.02	37						1.0
BHL	BN	18	319	ES		1549	22.25	-0.03							1.0
DQRL	SZ	21	246	EP		1549	20.74	0.03							1.0
DQRL	SE	21	246	ES		1549	23.24	0.01							1.0
RCY	SZ	32	171	EP		1549	22.46	-0.03							1.0
HWQ	BZ	57	16	EP		1549	26.53	0.03							1.0

September 23 2010 Hour: 14:51 43.2 Lat: 34.31N Lon: 35.78E Depth: 10 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

NORTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	16	103	EP		1451	46.33	-0.05	45						1.0
HWQ	BN	16	103	ES		1451	48.80	0.03							1.0
BHL	BZ	46	194	EP		1451	50.89	0.01							1.0
BHL	BN	46	194	ES		1451	56.56	-0.03							1.0
DQRL	SZ	70	196	EP		1451	54.59	0.04							1.0
RCY	SZ	91	176	EP		1451	57.70	0.00							1.0

September 23 2010 Hour: 15:43 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1543	57.93								
HWQ	BZ			EP		1544	1.29								

September 24 2010 Hour: 15:22 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1523	17.81								
HWQ	BZ			EP		1523	21.13								

September 25 2010 Hour: 3:16 32.2 Lat: 33.79N Lon: 35.76E Depth: 8 Agency: REL Local
Magnitudes: 2.7MC 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		316	35.30	0.02	37						1.0
BHL	BN	16	324	ES		316	37.52	0.00							1.0
DQRL	SZ	19	243	EP		316	35.74	0.00							1.0
DQRL	SN	19	243	ES		316	38.32	-0.01							1.0
RCY	SZ	33	167	EP		316	37.80	0.00							1.0
HWQ	BZ	57	18	EP		316	41.61	-0.01							1.0

September 25 2010 Hour: 3:46 11.8 Lat: 33.79N Lon: 35.79E Depth: 12 Agency: REL Local
Magnitudes: 2.7MC 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	317	EP		346	15.34	-0.07	37						1.0
BHL	BN	18	317	ES		346	18.12	0.02							1.0
DQRL	SZ	22	246	EP		346	15.90	-0.05							1.0
DQRL	SN	22	246	ES		346	19.08	0.05							1.0
RCY	SZ	32	172	EP		346	17.55	0.07							1.0
RCY	SN	32	172	ES		346	21.64	-0.05							1.0
HWQ	BZ	57	15	EP		346	21.19	0.03							1.0

September 25 2010 Hour: 6:16 41.3 Lat: 33.68N Lon: 35.92E Depth: 14 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	22	201	EP		616	45.57	0.01	39						1.0
RCY	SN	22	201	ES		616	48.70	-0.02							1.0
DQRL	SZ	33	276	EP		616	47.14	0.07							1.0
DQRL	SN	33	276	ES		616	51.27	-0.07							1.0
BHL	BZ	35	316	EP		616	47.52	0.07							1.0
HWQ	BZ	67	2	EP		616	52.03	-0.07							1.0

September 25 2010 Hour: 11:3 54.8 Lat: 34.35N Lon: 36.77E Depth: 0 Agency: REL Local
Magnitudes: 2.9MC 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	35	252	EP		11 4	0.21	-0.27	53						1.0
FKH	SN	35	252	ES		11 4	4.68	0.01							1.0
HWQ	BZ	76	265	EP		11 4	7.28	0.15							1.0
HWQ	BN	76	265	ES		11 4	16.28	0.05							1.0
BHL	BZ	114	245	EP		11 4	13.16	-0.06							0.2
RCY	SZ	128	223	EP		11 4	16.18	0.74							0.2
DQRL	SZ	132	238	EP		11 4	16.10	0.06							0.2
DQRL	SN	132	238	ES		11 4	31.76	0.01							1.0

September 26 2010 Hour: 10:17 3.2 Lat: 35.20N Lon: 37.51E Depth: 4 Agency: REL Regional
Magnitudes: 3.5MC REL Rms: 0.3 secs

SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	146	224	EP		1017	26.16	-0.21	100						1.0
HWQ	BZ	176	235	EP		1017	30.50	-0.25							1.0
HWQ	BN	176	235	ES		1017	51.40	0.27							1.0
BHL	BZ	223	230	EP		1017	36.62	0.02							1.0
BEYL	BZ	237	232	EP		1017	37.85	-0.35							0.2
RCY	SZ	244	220	EP		1017	39.62	0.38							1.0
DQRL	SZ	244	228	EP		1017	39.50	0.36							0.2
DQRL	SN	244	228	ES		1018	5.48	-0.26							1.0

September 26 2010 Hour: 10:24 59.5 Lat: 35.04N Lon: 37.21E Depth: 0 Agency: REL Regional
Magnitudes: 3.3MC REL Rms: 0.1 secs

SYRIA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	144	234	EP		1025	22.52	-0.08	84						1.0
BHL	BZ	191	229	EP		1025	29.42	0.04							1.0
DQRL	SZ	212	226	EP		1025	32.08	0.13							1.0
DQRL	SN	212	226	ES		1025	55.94	0.00							1.0
RCY	SZ	213	217	EP		1025	32.09	-0.11							1.0
RCY	SN	213	217	ES		1025	56.38	0.02							1.0

September 26 2010 Hour: 13:59 3.0 Lat: 33.52N Lon: 35.80E Depth: 0 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.0 secs

CENTRAL BEKAA

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ	5	132	EP		1359	3.79	-0.01							1.0
DQRL	SZ	29	314	EP		1359	7.82	0.06	50						1.0
DQRL	SN	29	314	ES		1359	11.24	-0.02							1.0
BHL	BZ	44	342	EP		1359	10.10	-0.08							1.0
HWQ	BZ	85	9	EP		1359	16.76	0.05							1.0
HWQ	BN	85	9	ES		1359	26.82	0.00							1.0

September 27 2010 Hour: 11:22 43.7

Agency: REL Distant

EMSC OT=11:22:43.7 29.64N 51.63E 10Km mb=5.8 SOUTHERN IRAN

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
RCY	SZ			EP		1126	3.41								
HWQ	BZ			EP		1126	4.67								
BHL	BZ			EP		1126	6.09								
DQRL	SZ			EP		1126	6.58								

September 27 2010 Hour: 23:30 41.7 Lat: 34.27N Lon: 36.37E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

HERMEL BAALBEK REGION

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ	5	124	EP		2330	44.44	-0.02	47						1.0
FKH	SN	5	124	ES		2330	46.50	0.01							1.0
HWQ	BZ	39	271	EP		2330	48.42	0.02							1.0
HWQ	BN	39	271	ES		2330	53.34	-0.01							1.0
BHL	BZ	77	238	EP		2330	54.05	0.00							1.0

September 28 2010 Hour: 9:34 56.9 Lat: 34.02N Lon: 35.78E Depth: 18 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	222	EP		935	1.02	0.02							1.0
BHL	BN	18	222	ES		935	4.05	-0.01							1.0
HWQ	BZ	32	28	EP		935	2.83	0.04							1.0
HWQ	BN	32	28	ES		935	7.15	-0.03							1.0
DQRL	SZ	40	209	EP		935	3.83	-0.06							1.0
DQRL	SN	40	209	ES		935	9.11	0.02							1.0
RCY	SZ	59	175	EP		935	6.55	0.00	41						1.0

September 28 2010 Hour: 10:22 5.0 Lat: 34.06N Lon: 35.61E Depth: 12 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.0 secs

KESROUANE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	18	168	EP		1022	8.51	-0.04	55						1.0
BHL	BN	18	168	ES		1022	11.19	-0.01							1.0
HWQ	BZ	39	52	EP		1022	11.58	-0.05							1.0
HWQ	BN	39	52	ES		1022	16.61	0.04							1.0
DQRL	SZ	40	186	EP		1022	11.75	0.06							1.0
RCY	SZ	66	162	EP		1022	15.75	-0.01							1.0

September 28 2010 Hour: 14:13 38.5 Lat: 34.55N Lon: 36.22E Depth: 5 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.1 secs

NORTH LEBANON

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ	39	219	EP		1413	44.73	-0.13	41						1.0
HWQ	BN	39	219	ES		1413	49.57	0.01							1.0
BHL	BZ	88	216	EP		1413	52.89	0.13							1.0
RCY	SZ	122	197	EP		1413	58.01	0.00							1.0
RCY	SN	122	197	ES		1414	12.43	-0.01							1.0

September 28 2010 Hour: 15:45 44.2 Lat: 33.79N Lon: 35.76E Depth: 6 Agency: REL Local
Magnitudes: 2.7MC 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	16	323	EP		1545	46.85	-0.07	40						1.0
DQRL	SZ	20	241	EP		1545	47.66	0.11							1.0
DQRL	SN	20	241	ES		1545	50.03	-0.02							1.0
RCY	SZ	34	167	EP		1545	49.54	-0.19							1.0
RCY	SN	34	167	ES		1545	53.95	0.10							1.0
HWQ	BZ	57	18	EP		1545	53.44	0.07							1.0

September 29 2010 Hour: 9:28 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		928	37.95								
FKH	SZ			EP		928	30.40								

September 29 2010 Hour: 11:50 37.8 Lat: 33.78N 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	17	322	EP		1150	40.50	0.00	53						1.0
DQRL	SZ	20	244	EP		1150	41.07	0.03							1.0
DQRL	SN	20	244	ES		1150	43.42	-0.02							1.0
RCY	SZ	33	168	EP		1150	43.05	-0.02							1.0
RCY	SN	33	168	ES		1150	46.98	0.01							1.0
HWQ	BZ	57	17	EP		1150	47.03	0.00							1.0

September 29 2010 Hour: 13:52 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		1353	19.70								
HWQ	BZ			EP		1353	23.71								

September 30 2010 Hour: 4:32 0.0 Agency: REL Regional
EMSC OT=04:30:56.4 34.22N 26.18E 50Km mb=4.4 CRETE, GREECE

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	BZ			EP		432	49.80								
RCY	SZ			EP		432	46.95								

September 30 2010 Hour: 8:40 0.0 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
FKH	SZ			EP		841	28.77								
HWQ	BZ			EP		841	36.41								

Epicentral Map of Lebanon september 2010

