

Republic of Lebanon
National Council for Scientific Research

Provisional Seismological Bulletin

from the

NATIONAL SEISMIC NETWORK

August

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Prepared by
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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 of 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 location 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 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 coda duration. The coda wave magnitude is estimated via the formula:

$$M_c = 0.08 + 1.63 * \log_{10}(T) + 0.009 * D.$$

where T is the coda duration (sec) and D is the epicentral distance (km). The coefficients were adopted at the beginning of operation 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 Vp/Vs velocity ratio used in both layered models above is 1.74.

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

STATIONS USED

The stations listed below are operated by the National Centre for Geophysical Research. They form 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 to mention 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	3414.13N	3624.11E	1170	FAKEHEH	Scheduled 2003
RCY	3329.08N	3549.13E	1360	RACHAYA	Scheduled 2003
DWR	3323.13N	3524.08E	420	DWEIR	Scheduled 2003

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 will be available for download in pdf format on:
<http://www.cnrs.edu.lb/geophysicalresearch/>

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.ifjff.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: GRL throughout the bulletin, aka. Geophysical Research Lebanon

MAGNITUDES: Up to 3 different magnitudes can be given followed by type and reporting agency, e.g. 3.1 MC GRL - coda magnitude calculated according to GRL standard parameters.

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.

August 1 2005 Hour: 0:42 29.2 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 046 35.27

August 1 2005 Hour: 4:48 0.8 KURIL ISLANDS M=5.6 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 452 57.38

August 1 2005 Hour: 9:12 0.6 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ IPg 912 41.97
 HWQ SZ IPg 912 45.16
 BHL SE ISg 912 47.14
 HWQ Sn ISg 912 51.39

August 1 2005 Hour: 9:56 37.5 Lat: 33.65N Lon: 35.30E Depth: 15 Agency: REL Local
Magnitudes: 3.3MC REL Rms: 1.5 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 MATL SZ 18 170 IPg 956 42.54 1.4 1.0
 BHL BZ 44 49 IPg 956 43.39 -1.5 330 101 93.0 1.0
 BHL BN 44 49 ISg 956 48.69 -1.7 1.0
 HWQ SZ 92 40 IPg 956 52.04 0.0 81 1.0
 HWQ Sn 92 40 ISg 957 4.81 1.9 1.0

August 1 2005 Hour: 10: 5 0.2 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ IPg 10 6 16.11
 HWQ SZ IPg 10 6 16.39
 HWQ Sn ISg 10 6 30.55
 BHL Sn ISg 10 6 29.08

August 1 2005 Hour: 13:35 3.5 Lat: 36.54N Lon: 27.38E Depth: 0 Agency: REL Regional
Magnitudes: 4.8MC REL Rms: 1.3 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 PPCY SZ 485 111 EP 1336 10.30 0.8 1.0
 ALFC SZ 496 107 EP 1336 11.60 0.8 1.0
 SZAC SZ 536 110 EP 1336 16.40 0.7 1.0
 MAMC SZ 549 104 EP 1336 17.80 0.6 1.0
 CSS SZ 566 106 EP 1336 20.10 0.8 1.0
 PHNC SZ 625 104 EP 1336 28.60 2.2 1.0
 MATL SZ 800 113 EPn 1336 46.41 -2.5 1.0
 BHL BZ 808 109 EPn 1336 46.65 -3.3 1.0
 BHL BN 808 109 Sn 1338 7.70 -1.0 1.0
 HWQ SZ 817 105 EPn 1336 49.28 -1.9 291 1.0
 HWQ Sn 817 105 Sn 1338 12.25 1.4 1.0

August 1 2005 Hour: 14: 1 23.6 Lat: 33.75N Lon: 36.65E Depth: 0 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.2 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ 87 312 IPg 14 1 37.49 -0.2 70 1.0
 HWQ Sn 87 312 ISg 14 1 48.29 0.2 1.0
 BHL SZ 93 281 IPg 14 1 38.53 -0.1 1.0
 BHL Sn 93 281 ISg 14 1 49.65 -0.1 1.0
 MATL SZ 125 257 IPg 14 1 44.02 0.2 1.0

August 1 2005 Hour: 15:33 1.2 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ IPg 1534 26.99
 BHL Sn ISg 1534 33.12
 HWQ SZ IPg 1534 32.62
 HWQ SE ISg 1534 41.82

August 2 2005 Hour: 14:59 36.1 Lat: 34.19N Lon: 35.43E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	37	147	IPg		1459	42.80	0.2	47			226	-99	7.6	1.0
BHL	SE	37	147	ISg		1459	47.25	-0.1							1.0
HWQ	SZ	48	78	IPg		1459	44.40	0.2							1.0
HWQ	Sn	48	78	ISg		1459	50.05	-0.2							1.0

August 3 2005 Hour: 7:17 23.1 Lat: 33.31N Lon: 35.20E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	23	33	IPg		717	26.58	-0.2	41						1.0
BHL	Sn	78	33	ISg		717	44.66	-0.3							1.0
HWQ	SZ	127	33	IPg		717	43.86	0.2							1.0
HWQ	Sn	127	33	ISg		717	59.15	0.3							1.0

August 3 2005 Hour: 8:43 44.0 Lat: 34.29N Lon: 35.26E Depth: 15 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	56	140	IPg		843	53.44	0.2							1.0
BHL	SE	56	140	ISg		843	59.90	-0.2							1.0
HWQ	SZ	63	91	IPg		843	54.25	0.0	52			9	98	41.0	1.0
HWQ	Sn	63	91	ISg		844	1.85	0.0							1.0

August 3 2005 Hour: 11:18 0.7 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1119	7.99								
HWQ	SE			ISg		1119	21.64								
BHL	Sn			ISg		1119	24.06								

August 3 2005 Hour: 12:20 0.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPg		1221	11.59								
HWQ	SZ			IPg		1221	14.98								
HWQ	Sn			ISg		1221	27.08								

August 3 2005 Hour: 14:38 0.1 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPg		1439	25.84								
BHL	Sn			ISg		1439	29.88								
HWQ	SZ			IPg		1439	26.32								
HWQ	Sn			ISg		1439	31.57								

August 3 2005 Hour: 17:25 1.2 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	Sn			ISg		1726	15.86								
BHL	SZ			IPg		1726	7.74								
BHL	Sn			ISg		1726	16.87								
HWQ	SZ			IPg		1726	7.40								

August 4 2005 Hour: 10:32 13.8 EASTER ISLAND M=5.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1047	3.52								

August 4 2005 Hour: 18:27 6.1 Lat: 33.71N Lon: 35.47E Depth: 82 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 2.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	28	208	IPg		1827	14.98	-2.8							1.0
BHL	SZ	28	38	IPg		1827	20.88	2.9							1.0
BHL	Sn	28	38	ISg		1827	28.27	1.5							1.0
HWQ	SZ	77	35	IPg		1827	22.86	1.5	48						1.0
HWQ	SE	77	35	ISg		1827	29.58	-3.1							1.0

August 5 2005 Hour: 1:137.8 ALEUTIAN ISLANDS M=5.5 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1 9 51.52

August 5 2005 Hour: 14:54 7.1 Lat: 34.18N Lon: 35.47E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.6 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ 35 152 IPg 1454 13.82 0.6 46 234 -96 21.3 1.0
 BHL SE 35 152 ISg 1454 18.03 0.2 1.0
 HWQ SZ 45 76 IPg 1454 15.04 0.4 1.0
 HWQ SE 45 76 ISg 1454 19.23 -1.1 1.0

August 5 2005 Hour: 17:19 5.5 Lat: 33.79N Lon: 36.39E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ 68 323 IPg 1719 16.55 0.0 44 35 -99 56.3 1.0
 HWQ Sn 68 323 ISg 1719 24.72 0.0 1.0
 BHL SZ 70 281 IPg 1719 16.82 0.1 1.0
 BHL SE 70 281 ISg 1719 24.99 -0.1 1.0

August 6 2005 Hour: 4:10 25.7 ZEMLYA M=5.4 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 411 57.18

August 6 2005 Hour: 5:39 2.0 Lat: 33.70N Lon: 36.13E Depth: 13 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 2.5 secs
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ 49 298 IPg 539 6.99 -3.3 1.0
 BHL Sn 49 298 ISg 539 15.15 -1.2 1.0
 HWQ SZ 66 346 IPg 539 16.43 3.5 35 115 -49 44.1 1.0
 HWQ SE 66 346 ISg 539 22.04 1.0 1.0

August 6 2005 Hour: 7:52 1.3 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPg 752 49.77
 HWQ SE ISg 752 57.80
 BHL Sn ISg 752 56.93

August 6 2005 Hour: 8:13 0.6 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL SZ IPg 813 33.01
 HWQ SZ IPg 813 35.65
 HWQ SE ISg 813 42.44

August 6 2005 Hour: 9:22 1.0 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SZ IPg 922 30.87
 HWQ SE ISg 922 35.02
 BHL Sn ISg 922 36.41

August 6 2005 Hour: 10:9 31.0 TONGA ISLANDS M=5.5 Agency: REL Distant
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 BHL BZ EP 1015 37.25

August 6 2005 Hour: 10:36 1.5 Agency: REL Local
 STAT CO DIST AZI PHASE P HRMN SECON TRES CODA AMPL PERI BAZ ARES VELO WT
 HWQ SE ISg 1036 40.01
 BHL SZ IPg 1036 32.12
 BHL SE ISg 1036 38.03

August 6 2005 Hour: 13:35 0.0

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1336	13.25								
HWQ	SE			ISg		1336	23.57								
BHL	SE			ISg		1336	34.00								

August 6 2005 Hour: 14:14 1.3

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1415	25.06								
HWQ	Sn			ISg		1415	35.02								
BHL	Sn			ISg		1415	46.14								

August 6 2005 Hour: 14:23 1.5

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1424	31.29								
BHL	SZ			IPg		1424	35.97								
BHL	Sn			ISg		1424	53.33								
HWQ	SE			ISg		1424	41.67								

August 6 2005 Hour: 14:51 22.5 Lat: 33.73N Lon: 35.67E Depth: 34 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 1.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	19	356	IPg		1451	27.58	-1.0	47			177	0	32.9	1.0
BHL	Sn	19	356	ISg		1451	33.01	-0.1							1.0
MATL	SZ	41	230	IPg		1451	31.72	1.1							1.0
HWQ	SZ	66	23	IPg		1451	32.04	-1.8							1.0
HWQ	SE	66	23	ISg		1451	44.14	1.8							1.0

August 6 2005 Hour: 16:22 1.1 CYPRUS REGION M=3.9

Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPn		1623	29.96								
BHL	Sn			Sn		1624	12.41								
HWQ	Sn			Sn		1624	16.04								

August 6 2005 Hour: 17:23 1.3

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1724	4.18								
HWQ	Sn			ISg		1724	11.70								
BHL	Sn			ISg		1724	11.82								

August 7 2005 Hour: 2:11 22.8 PRINCE EDWARD IS M=5.5

Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		229	57.38								

August 7 2005 Hour: 10:19 34.5 Lat: 34.64N Lon: 36.91E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	97	246	IPg		1019	50.90	0.7	52			66	0	40.4	1.0
HWQ	SE	97	246	ISg		1020	1.25	-0.5							1.0
BHL	SZ	141	235	IPg		1019	56.59	-0.7							1.0
BHL	SE	141	235	ISg		1020	14.67	0.5							1.0

August 7 2005 Hour: 10:53 0.8

Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1054	6.67								
HWQ	Sn			ISg		1054	28.23								
BHL	SE			ISg		1054	39.66								

August 7 2005 Hour: 11:1 1.3 **Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPg		11	2	1.92							
HWQ	SZ			IPg		11	2	2.71							
BHL	Sn			ISg		11	2	14.18							
HWQ	SE			ISg		11	2	15.89							

August 7 2005 Hour: 11:51 15.5 **FIJI ISLANDS M=5.7** **Agency: REL Distant**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1155		3.07							

August 7 2005 Hour: 15:18 21.4 **HONSHU M=5.7** **Agency: REL Distant**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1518		59.98							

August 8 2005 Hour: 4:26 0.9 **Agency: REL Regional**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPn		426		58.91							
HWQ	SE			Sn		427		33.93							
BHL	Sn			Sn		427		48.91							

August 8 2005 Hour: 7:4 1.2 **Agency: REL Local**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	Sn			ISg		7	5	18.26							
BHL	Sn			ISg		7	5	16.83							
HWQ	SZ			IPg		7	5	11.28							
BHL	SZ			IPg		7	5	9.84							

August 8 2005 Hour: 8:50 0.7 **Lat: 36.46N Lon: 31.25E Depth: 0** **Agency: REL Regional**
Magnitudes: 4.1MC REL **Rms: 0.6 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ALFC	SZ	189	140	EP		850	30.0	-0.3							1.0
ALFC	SZ	189	140	ES		850	51.9	-0.3							1.0
PPCY	SZ	201	150	EP		850	32.7	1.0							1.0
MAMC	SZ	228	128	EP		850	35.0	-0.1							1.0
SZAC	SZ	240	142	ES		851	03.8	0.6							1.0
CSS	SZ	251	131	EP		850	37.4	-0.6							1.0
CSS	SZ	251	131	ES		851	04.8	-0.8							1.0
PHNC	SZ	299	122	EP		850	44.8	0.9							1.0
HWQ	SZ	491	118	EPn		851	7.86	0.1	154						1.0
HWQ	SE	491	118	Sn		851	58.65	1.2							1.0
BHL	SZ	491	124	EPn		851	7.41	-0.4							1.0
BHL	SE	491	124	Sn		851	56.94	-0.6							1.0

August 9 2005 Hour: 2:27 54.4 **Lat: 34.77N Lon: 36.63E Depth: 11** **Agency: REL Local**
Magnitudes: 3.6MC REL **Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	83	229	IPg		228	7.98	0.0	124			58		9 17.0	1.0
HWQ	Sn	83	229	ISg		228	17.89	-0.1							1.0
BHL	SZ	131	224	IPg		228	15.93	0.2							1.0
BHL	SE	131	224	ISg		228	31.62	0.2							1.0
MATL	SZ	186	221	IPg		228	24.09	-0.3							1.0

August 9 2005 Hour: 9:50 2.0 **Lat: 34.30N Lon: 36.17E Depth: 41** **Agency: REL Local**
Magnitudes: 2.9MC REL **Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	21	264	IPg		950	8.49	-0.6	52			84		0 16.7	1.0
HWQ	SE	21	264	ISg		950	14.54	0.3							1.0
BHL	SZ	65	228	IPg		950	13.90	0.6							1.0
BHL	Sn	65	228	ISg		950	21.40	-0.3							1.0

August 9 2005 Hour: 10:28 26.1 Lat: 33.85N Lon: 37.10E Depth: 65 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.9 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	117	294	IPg		1028	45.32	0.9	74			104	-9	23.6	1.0
HWQ	Sn	117	294	ISg		1028	58.76	0.8							1.0
BHL	SZ	134	273	IPg		1028	45.31	-1.1							1.0
BHL	SE	134	273	ISg		1029	0.79	-0.6							1.0

August 9 2005 Hour: 10:42 1.2 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1043	6.85								
HWQ	SE			ISg		1043	19.35								
BHL	Sn			ISg		1043	16.08								

August 9 2005 Hour: 10:50 58.7 Lat: 33.58N Lon: 36.71E Depth: 15 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	104	291	IPg		1051	14.92	-0.1							1.0
BHL	SE	104	291	ISg		1051	27.05	0.0							1.0
HWQ	SZ	105	318	IPg		1051	14.98	-0.1	76			73	-64	27.8	1.0
HWQ	SE	105	318	ISg		1051	27.53	0.2							1.0

August 9 2005 Hour: 14:45 8.7 Lat: 34.16N Lon: 35.47E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	33	150	IPg		1445	15.29	0.7	56			164	-99	19.3	1.0
BHL	Sn	33	150	ISg		1445	19.28	0.3							1.0
HWQ	SZ	46	74	IPg		1445	16.06	-0.3							1.0
HWQ	Sn	46	74	ISg		1445	21.45	-0.6							1.0

August 10 2005 Hour: 8:59 1.4 TURKEY M=4.4 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			EPn		859	56.77								
BHL	SZ			EPn		9 0	3.37								

August 10 2005 Hour: 13:36 50.0 Lat: 34.82N Lon: 36.59E Depth: 0 Agency: REL Local
Magnitudes: 3.2MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	84	225	IPg		1337	4.10	0.6	70			76	31	17.0	1.0
HWQ	Sn	84	225	ISg		1337	12.57	-0.9							1.0
BHL	SZ	133	221	IPg		1337	11.34	0.0							1.0
BHL	Sn	133	221	ISg		1337	27.39	0.2							1.0

August 11 2005 Hour: 15:34 29.2 Lat: 33.79N Lon: 36.21E Depth: 15 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	53	284	IPg		1534	37.31	-0.8							1.0
BHL	Sn	53	284	ISg		1534	44.99	0.3							1.0
HWQ	SZ	60	336	IPg		1534	39.31	0.3	50			110	-45	18.1	1.0
HWQ	Sn	60	336	ISg		1534	46.50	0.2							1.0

August 12 2005 Hour: 14:43 26.4 Lat: 34.02N Lon: 35.81E Depth: 25 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	19	229	IPg		1443	31.36	-0.1	46			49	0	29.0	1.0
BHL	Sn	19	229	ISg		1443	35.28	0.1							1.0
HWQ	SZ	31	23	IPg		1443	32.88	0.1							1.0
HWQ	Sn	31	23	ISg		1443	37.42	-0.1							1.0

August 13 2005 Hour: 11:34 13.6 Lat: 33.61N Lon: 35.92E Depth: 0 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 1.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	41	323	IPg		1134	17.67	-2.5	36						1.0
BHL	SE	41	323	ISg		1134	24.57	-0.5							1.0
MATL	SZ	57	256	ISg		1134	30.69	1.3							1.0
HWQ	SZ	74	2	IPg		1134	25.30	-0.2							1.0
HWQ	SE	74	2	ISg		1134	36.33	2.0							1.0

August 13 2005 Hour: 11:47 17.3 Lat: 34.56N Lon: 36.69E Depth: 14 Agency: REL Local
Magnitudes: 2.9MC REL Rms: 0.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	75	245	IPg		1147	29.60	-0.1	50			65	0	25.6	1.0
HWQ	SE	75	245	ISg		1147	38.93	0.1							1.0
BHL	SZ	120	233	IPg		1147	36.86	0.1							1.0
BHL	Sn	120	233	ISg		1147	51.13	-0.1							1.0

August 13 2005 Hour: 14:38 1.4 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			EPn		1438	24.26								
HWQ	SZ			EPn		1438	30.48								
BHL	Sn			Sn		1438	48.45								
HWQ	SE			Sn		1438	59.77								

August 15 2005 Hour: 14:11 33.9 Lat: 33.80N Lon: 35.70E Depth: 0 Agency: REL Local
Magnitudes: 2.5MC REL Rms: 1.0 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	12	342	IPg		1411	34.24	-1.6	31			160	0	10.6	1.0
BHL	SE	12	342	ISg		1411	37.45	0.1							1.0
HWQ	SZ	58	23	IPg		1411	44.20	1.0							1.0
HWQ	SE	58	23	ISg		1411	50.59	0.5							1.0

August 16 2005 Hour: 2:26 51.9 HONSHU M=7.2 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		258	39.16								

August 16 2005 Hour: 13:12 0.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ			IPg		1312	27.36								
BHL	SE			ISg		1312	31.10								
HWQ	Sn			ISg		1312	32.82								
BHL	SZ			IPg		1312	25.78								

August 17 2005 Hour: 14:55 1.1 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	Sn			ISg		1455	27.94								
BHL	SZ			IPg		1455	30.40								
BHL	Sn			ISg		1455	42.77								
HWQ	SZ			IPg		1455	22.28								

August 17 2005 Hour: 15:13 1.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPg		1513	59.78								
HWQ	SZ			IPg		1514	1.49								
BHL	Sn			ISg		1514	3.58								
HWQ	Sn			ISg		1514	5.87								

August 17 2005 Hour: 15:13 52.8 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1513	59.79								

August 18 2005 Hour: 8:51 1.5 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPg		851	9.42								
HWQ	SZ			IPg		851	11.26								
HWQ	Sn			ISg		851	17.34								

August 18 2005 Hour: 10:55 0.4 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ			IPg		1055	42.43								
BHL	Sn			ISg		1055	49.78								
HWQ	SZ			IPg		1055	42.72								
HWQ	SE			ISg		1055	51.01								

August 18 2005 Hour: 12:14 0.8 Agency: REL Local

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	Sn			ISg		1215	16.35								
BHL	SZ			IPg		1215	14.77								
BHL	Sn			ISg		1215	29.31								
HWQ	SZ			IPg		1215	7.67								

August 19 2005 Hour: 2:42 53.1 Lat: 34.81N Lon: 32.78E Depth: 43 Agency: REL Regional
Magnitudes: 3.8MC REL Rms: 0.9 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SZAC	SZ	11	125	EP		243	00.30	0.5							1.0
PPCY	SZ	41	281	EP		243	02.40	0.6							1.0
ALFC	SZ	42	336	EP		243	01.50	-0.4							1.0
CSS	SZ	53	72	EP		243	02.50	-0.6							1.0
MAMC	SZ	56	45	EP		243	02.90	-0.5							1.0
PHNC	SZ	116	79	EP		243	10.90	0.3							1.0
MATL	SZ	277	121	ES		243	57.78	-0.3							1.0
BHL	SZ	283	110	EP		243	30.26	-0.9							1.0
BHL	SE	283	110	ES		243	57.53	-1.9							1.0
HWQ	SZ	296	101	EP		243	32.90	0.0	135						1.0
HWQ	Sn	296	101	ES		244	3.01	0.7							1.0
FKH	SZ	338	100	EP		243	38.55	0.6							1.0
FKH	SE	338	100	ES		244	13.10	1.9							1.0

August 19 2005 Hour: 14:44 4.5 Lat: 34.15N Lon: 35.58E Depth: 12 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	28	165	IPg		1444	9.22	-0.2	40			345	0	10.9	1.0
BHL	SE	28	165	ISg		1444	13.28	0.1							1.0
HWQ	SZ	37	66	IPg		1444	11.10	0.2							1.0
HWQ	Sn	37	66	ISg		1444	15.43	-0.1							1.0

August 21 2005 Hour: 11:16 21.1 Lat: 34.77N Lon: 36.45E Depth: 15 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
HWQ	SZ	72	220	IPg		1116	32.53	-0.1	58			93	53	20.7	1.0
HWQ	Sn	72	220	ISg		1116	41.08	-0.1							1.0
BHL	SZ	121	217	IPg		1116	39.73	-0.2							1.0
BHL	SE	121	217	ISg		1116	54.16	0.4							1.0

August 21 2005 Hour: 13:27 25.6 Lat: 33.92N Lon: 35.65E Depth: 54 Agency: REL Local
Magnitudes: 2.1MC REL Rms: 1.9 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	1	172	IPg		1327	35.83	2.4							1.0
BHL	Sn	1	172	ISg		1327	40.40	1.2							1.0
HWQ	SZ	48	34	IPg		1327	36.77	0.8	16						1.0
HWQ	Sn	48	34	ISg		1327	41.22	-2.5							1.0
MATL	SZ	56	212	ISg		1327	42.80	-1.9							1.0

August 22 2005 Hour: 13:42 30.6 Lat: 33.65N Lon: 36.02E Depth: 0 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 1.0 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	44	310	IPg		1342	35.93	-1.8							1.0
BHL	Sn	44	310	ISg		1342	43.24	0.3							1.0
MATL	SZ	66	255	IPg		1342	42.26	1.0							1.0
HWQ	SZ	70	355	IPg		1342	41.78	-0.2	56						1.0
HWQ	Sn	70	355	ISg		1342	51.05	0.7							1.0

August 23 2005 Hour: 16:51 37.0 Lat: 33.84N Lon: 36.04E Depth: 15 Agency: REL Local
Magnitudes: 2.6MC REL Rms: 0.5 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	36	281	IPg		1651	44.11	0.8	34			225	123	73.1	1.0
BHL	Sn	36	281	ISg		1651	48.12	0.1							1.0
HWQ	SZ	49	350	IPg		1651	45.05	-0.2							1.0
HWQ	Sn	49	350	ISg		1651	50.69	-0.7							1.0

August 23 2005 Hour: 17:32 9.2 Lat: 34.19N Lon: 35.60E Depth: 15 Agency: REL Local
Magnitudes: 2.8MC REL Rms: 0.7 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	32	170	IPg		1732	14.49	-0.5	43			155	164	44.0	1.0
BHL	Sn	32	170	ISg		1732	18.31	-0.9							1.0
HWQ	SZ	34	73	IPg		1732	16.10	0.9							1.0
HWQ	Sn	34	73	ISg		1732	20.16	0.5							1.0

August 24 2005 Hour: 10: 7 31.9 HONSHU M=5.7 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1027	4.89								

August 24 2005 Hour: 19: 3 58.5 Lat: 34.83N Lon: 32.97E Depth: 11 Agency: REL Regional
Magnitudes: 3.9MC REL Rms: 1.1 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SZAC	SZ	12	222	IPg		19 4	0.80	-0.5							1.0
CSS	SZ	36	67	IPg		19 4	4.10	-0.5							1.0
MAMC	SZ	44	31	IPg		19 4	5.90	0.1							1.0
ALFC	SZ	49	317	IPg		19 4	6.70	0.0							1.0
PPCY	SZ	57	276	IPg		19 4	7.60	-0.4							1.0
AKMC	SZ	62	290	IPg		19 4	8.50	-0.2							1.0
PHNC	SZ	99	79	IPg		19 4	15.00	0.4							1.0
MATL	SZ	264	124	EPn		19 4	38.33	2.2							1.0
BHL	SZ	268	112	EPn		19 4	38.18	1.5							1.0
BHL	Sn	268	112	Sn		19 5	2.31	-2.6							1.0
HWQ	SZ	280	102	EPn		19 4	38.41	0.2	146						1.0
HWQ	Sn	280	102	Sn		19 5	7.56	-0.1							1.0

August 26 2005 Hour: 9:43 22.8 Lat: 33.80N Lon: 35.54E Depth: 21 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.6 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ	16	41	IPg		943	26.68	-0.5	60						1.0
BHL	BE	16	41	ISg		943	30.31	0.0							1.0
MATL	SZ	39	210	IPg		943	30.34	0.5							1.0
HWQ	SZ	65	35	IPg		943	33.14	-0.4							1.0
HWQ	SE	65	35	ISg		943	42.26	0.7							1.0
FKH	SZ	93	58	IPg		943	36.81	-0.8							1.0

FKH SE 93 58 ISg 943 49.08 0.5 1.0

August 26 2005 Hour: 14: 8 46.8 Lat: 33.65N Lon: 35.66E Depth: 14 Agency: REL Local
Magnitudes: 2.4MC REL Rms: 0.4 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	28	359	IPg		14 8	52.43	0.5	26			179	0	17.2	1.0
BHL	SE	28	359	ISg		14 8	55.49	-0.3							1.0
HWQ	SZ	75	21	IPg		14 8	58.28	-0.5							1.0
HWQ	SE	75	21	ISg		14 9	7.90	0.3							1.0

August 26 2005 Hour: 15:30 9.2 Lat: 34.14N Lon: 35.45E Depth: 15 Agency: REL Local
Magnitudes: 2.7MC REL Rms: 0.3 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	SZ	32	145	IPg		1530	15.12	0.2	41			324	0	34.2	1.0
BHL	Sn	32	145	ISg		1530	19.10	0.0							1.0
HWQ	SZ	48	71	IPg		1530	17.52	0.3							1.0
HWQ	Sn	48	71	ISg		1530	22.78	-0.4							1.0

August 26 2005 Hour: 18:21 40.7 GULF OF ADEN M=6.2 Agency: REL Regional

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BN			Sn		1826	23.91								
FKH	SZ			EP		1821	52.05								
BHL	BZ			EP		1821	52.58								
HWQ	SZ			EP		1821	57.70								

August 30 2005 Hour: 7:24 41.7 Lat: 33.37N Lon: 35.29E Depth: 26 Agency: REL Local
Magnitudes: 3.0MC REL Rms: 0.9 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	13	17	IPg		724	46.71	0.5	57						1.0
BHL	BZ	68	30	IPg		724	51.89	-1.1							1.0
BHL	BE	68	30	ISg		725	0.38	-0.9							1.0
HWQ	SZ	117	31	IPg		725	0.49	0.4							1.0
HWQ	SE	117	31	ISg		725	14.84	1.1							1.0

August 30 2005 Hour: 17:54 46.3 Lat: 33.40N Lon: 35.29E Depth: 21 Agency: REL Local
Magnitudes: 3.1MC REL Rms: 1.2 secs

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MATL	SZ	10	22	IPg		1754	50.43	0.5							1.0
BHL	SZ	65	31	IPg		1754	55.89	-1.1	63						1.0
BHL	SE	65	31	ISg		1755	3.42	-1.5							1.0
HWQ	SZ	115	32	IPg		1755	4.59	0.4							1.0
HWQ	SE	115	32	ISg		1755	19.20	1.7							1.0

August 30 2005 Hour: 17:55 11.9 HONSHU M=5.9 Agency: REL Distant

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BHL	BZ			EP		1823	3.02								

Epicentral Map of Lebanon

AUGUST 2005

Magnitudes

- Ml = 2
- Ml = 3
- Ml = 4
- Ml = 5

