

# *Seismological Bulletin*

*Broadband Iranian National Seismic Network Center  
(BIN)*

*October to December*

*2009*

*Seismology Department  
International Institute of Earthquake Engineering and Seismology (IIEES)  
No. 21, Arghavan St., North Dibajee, Farmanieh  
Tehran  
Islamic Republic of Iran*

*Tel: +98-21-22830830  
Fax: +98-21-22299479*

## GENERAL BULLETIN INFORMATION

### *LOCATION PROGRAM AND VELOCITY MODEL*

The location program used for locating earthquakes is Hypocenter (Lienert et al.,1986). As a general policy, neither depths nor epicenters are fixed unless stated. No station corrections are used for travel time calculations.

Plane parallel layers are assumed for local and regional events, while the IASPEI travel time tables are used for distant events (Epicentral distance larger than 15 degrees).The model used for all local and regional events, is:  
(Doloei and Roberts, 2003; Kaviani, 2004;Tatar, 2001):

P-wave velocity (km/sec)	depth to top of layer (km)
5.4	0.0
5.9	6.0
6.3	14.0
6.5	18.0
8.05	46.0 (Moho)
8.1	80.0

The Vp/Vs velocity ratio used in layered models above is 1.73 (Tatar, 2001).

### *MAGNITUDE RELATION*

After instrumental correction the maximum ground amplitudes A(nm) is used to calculate local magnitude Ml applying the following formula (Hutton and Boore, 1987):

$$Ml = \log(A) + 1.1 \cdot \log(D) + 0.00189 \cdot D - 2.09$$

where D is the hypocentral distance in km.This relation is valid for hypocentral distances between 10 and 700 km. All available amplitudes are used for magnitude calculations. No station corrections are used for magnitude calculations.

### STATION COORDINATES

The stations listed below are those operated by Seismology Department of the International Institute of Earthquake Engineering and Seismology (IIEES).

STATION	LATITUDE	LONGITUDE	ALTITUDE(m)	NAME
ASAO	3432.88N	5001.52E	2217	Ashtian
BJRD	3741.98N	5724.49E	1337	Bojnoord
BNDS	2723.96N	5610.28E	1500	Bandar Abbas
CHTH	3554.48N	5107.56E	2250	Charan
DAMV	3537.82N	5158.26E	2300	Damavand
GHIR	2817.13N	5259.20E	1200	Ghir
GHVR	3428.80N	5114.72E	0927	Qom
GRMI	3848.59N	4753.63E	1300	Germi
KHMZ	3344.38N	4957.85E	1985	Khomein
KRBA	2958.93N	5645.63E	2576	Bardsir
MAKU	3921.29N	4441.00E	1730	Maku
MRVT	3739.56N	5605.36E	0870	Maraveh tapeh
NASN	3247.95N	5248.50E	2800	Naein
SHGR	3206.50N	4848.08E	0150	Shushtar
SHRO	3600.51N	5600.78E	1264	Shahrud
SHRT	3338.77N	6017.46E	0837	Shah-rakht
SNGE	3505.55N	4720.82E	1940	Sanandaj
TABS	3338.94N	5707.14E	0000	Tabas
THKV	3554.94N	5052.73E	1795	Kavosh
ZHSF	2936.66N	6046.52E	1575	Zahedan
ZNJK	3640.25N	4841.11E	2200	Zanjan

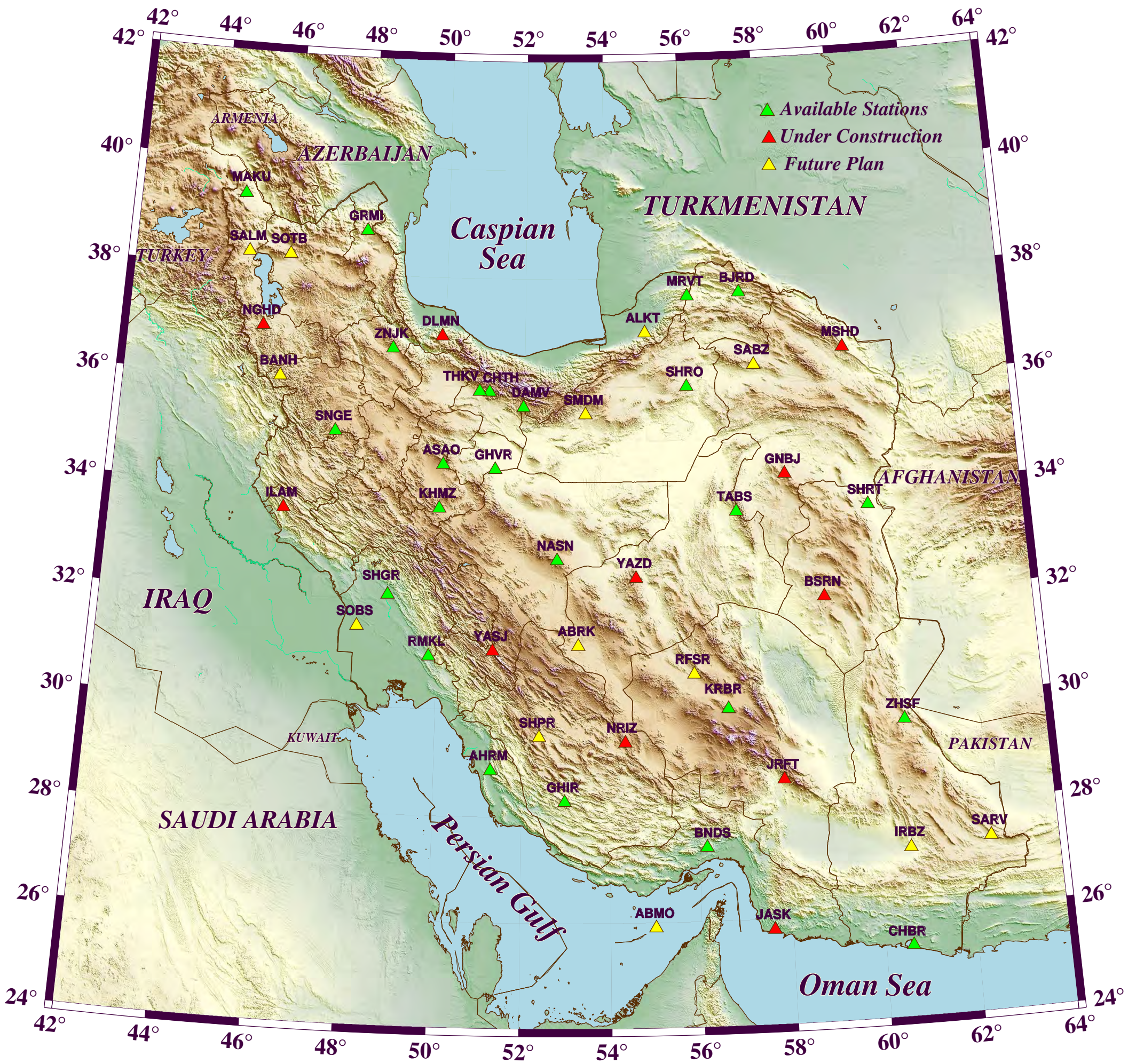
## ABBREVIATIONS

TIME: Origin time in UTC (hour, minute, and seconds)  
LAT: Latitude of epicenter (degree-minute)  
LON: Longitude of epicenter (degree-minute)  
DEPTH: Focal depth in kilometer (F indicates fixed depth)  
AGENCY: Hypocenter reporting agency  
MAGNITUDES: Up to 3 different magnitudes can be given followed by type and reporting agency  
RMS: Root mean square value of travel time residuals (seconds)  
STAT: Station code  
CO: Component, S: short period, L: long period, B: broadband,  
DIST: Epicentral 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\*(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 asterix 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.

## REFERENCES

- Doloei, J. and R. Roberts (2003). Crustal and uppermost mantle structure of Tehran region from teleseismic P-waveform receiver function analysis, *Tectonophysics*, 364, 115-133.
- Hutton, L. K. and D. M. Boore (1987). The ML scale in Southern California, *Bull. Seism. Soc. Am.*, 77, No. 6, pp. 2074-2094.
- Kaviani, A. (2004). La chaîne de collision continentale du Zagros (Iran): structure lithosphérique par analyse de données sismologiques. Ph.D. Thesis, University of Joseph Fourier-Grenoble I.
- Lienert, B.R., E. Berg, and L.N. Frazer (1986). Hypocenter: An earthquake location method using centered, scaled, and adaptively least squares, *Bull. Seism. Soc. Am.*, 76., pp 771-783.
- Tatar M. (2001). Etude sismotectonique de deux zones de collision continentale: le Zagros Central et l'Alborz, Ph.D. thesis, University of Joseph Fourier-Grenoble I.





**Broadband Iranian National Seismic Network (BIN)**

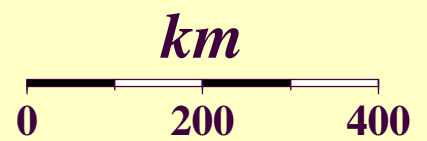
- |  |  |   |
|--|--|---|
|  Available Stations |  Under Construction |  Future Plan |
|--|--|---|

More information available at :

[http://www.iiees.ac.ir/Seismology/seis\\_stations.html/](http://www.iiees.ac.ir/Seismology/seis_stations.html/)



International Institute of Earthquake Engineering and Seismology(IIEES)





**October 2 2009 Hour: 4:47 43.8 Lat: 30.15N Lon: 57.80E Depth: 15F Agency: INS Local**  
**Magnitudes: 3.5ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	344	208	EPn		448	34.77	0.5							1.0
BNDS	BN	344	208	ESg		449	19.95	-0.4							1.0
TABS	BZ	393	351	EPn		448	39.64	-0.7							1.0
TABS	BN	393	351	Sn		449	21.66	0.0							1.0
TABS	BN	393	351	AML		449	45.08			121	0.4				
SHRT	BZ	454	31	EPn		448	47.99	0.2							0.9
NASN	BZ	558	303	EPn		449	1.54	0.5							0.8
NASN	BN	558	303	AML		450	22.39			20	0.6				

**October 4 2009 Hour: 21:50 49.6 Lat: 31.82N Lon: 49.49E Depth: 15 Agency: INS Local**  
**Magnitudes: 5.1ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KHMZ	BZ	218	12	EPg		2151	25.36	-0.1							1.0
KHMZ	BE	218	12	ESg		2151	51.51	-0.1							1.0
KHMZ	BN	218	12	AML		2151	56.85			12331	0.4				
KHMZ	BE	218	12	AML		2152	0.15			14712	0.6				
NASN	BZ	331	70	EPn		2151	39.16	0.6							0.9
SNGE	BZ	415	332	EPn		2151	49.03	0.1							0.9
SNGE	BN	415	332	AML		2152	52.18			3340	0.6				
SNGE	BE	415	332	AML		2152	56.62			3439	0.7				
THKV	BZ	472	15	EPn		2151	56.45	0.4							0.8
DAMV	BZ	481	28	EPn		2151	57.19	-0.1							0.8
DAMV	BE	481	28	AML		2153	12.77			1543	0.5				
DAMV	BN	481	28	AML		2153	13.47			1871	0.7				
GHIR	BZ	516	138	EPn		2152	1.39	0.0							0.8
ZNJK	BZ	544	352	EPn		2152	4.57	-0.4							0.8
KRBR	BZ	724	104	EPn		2152	27.09	-0.3							0.6
KRBR	BE	724	104	Sn		2153	38.40	-0.3							0.6
TABS	BZ	743	72	EPn		2152	29.29	-0.3							0.6

**October 6 2009 Hour: 14:43 1.2 Lat: 36.85N Lon: 55.52E Depth: 7F Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHRD	BZ	103	154	EPg		1443	18.88	-0.3							1.0
MRVT	BZ	104	29	EPg		1443	18.40	-0.8							1.0
MRVT	BN	104	29	AML		1443	46.68			853	0.5				
BJRD	BZ	193	60	EPg		1443	34.81	0.4							1.0
BJRD	BE	193	60	ESg		1443	58.93	0.3							1.0
BJRD	BE	193	60	AML		1444	7.21			368	0.6				
DAMV	BZ	346	248	EPn		1443	52.88	0.0							0.9
DAMV	BE	346	248	AML		1444	43.32			298	0.5				
CHTH	BZ	407	257	EPn		1444	1.08	0.6							0.9
THKV	BZ	429	257	EPn		1444	3.30	0.2							0.9
THKV	BE	429	257	AML		1445	13.06			234	0.1				
GHVR	BZ	467	237	EPn		1444	7.54	-0.2							0.8
GHVR	BE	467	237	AML		1445	22.30			167	1.0				
GHVR	BN	467	237	AML		1445	30.82			153	0.7				
ASAO	BZ	558	244	EPn		1444	19.17	-0.1							0.8

**October 9 2009 Hour: 18:32 43.0 Lat: 32.31N Lon: 47.28E Depth: 39 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHGR	BZ	146	98	EPg		1833	6.90	-0.2							1.0
SHGR	BN	146	98	ESg		1833	24.80	0.2							1.0
SHGR	BE	146	98	AML		1833	27.76			2448	0.4				
SHGR	BN	146	98	AML		1833	32.77			2855	0.9				
KHMZ	BZ	297	57	EPn		1833	25.45	0.0							1.0
KHMZ	BN	297	57	ESg		1834	4.99	0.0							1.0
KHMZ	BN	297	57	AML		1834	11.53			363	0.7				
SNGE	BZ	309	1	EPn		1833	27.17	0.2							1.0

ASAO	BZ	357	45	EPn		1833	32.88	0.0									0.9
ASAO	BN	357	45	AML		1834	32.74			249	0.7						
GHVR	BZ	441	56	EPn		1833	43.28	0.1									0.9
ZNJK	BZ	501	15	EPn		1833	50.77	-0.1									0.8
CHTH	BZ	535	41	EPn		1833	54.74	-0.3									0.8

**October 10 2009 Hour: 1:28 9.9 Lat: 27.48N Lon: 55.85E Depth: 18 Agency: INS Local**  
**Magnitudes: 3.8ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	33	106	EPg		128	16.70	0.1							1.0
KRBR	BZ	291	18	EPn		128	53.69	0.0							1.0
KRBR	BE	291	18	AML		129	30.28			506	0.3				
KRBR	BN	291	18	AML		129	30.61			532	0.5				
GHIR	BZ	295	288	EPn		128	53.74	-0.3							1.0
GHIR	BN	295	288	ESg		129	33.26	0.2							1.0
GHIR	BE	295	288	AML		129	49.25			323	0.7				
GHIR	BN	295	288	AML		129	59.90			372	0.8				

**October 10 2009 Hour: 3:32 42.4 Lat: 31.89N Lon: 49.54E Depth: 17 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHGR	BZ	74	289	EPg		332	55.47	0.2							1.0
KHMZ	BZ	209	11	EPg		333	16.35	-0.5							1.0
KHMZ	BN	209	11	ESg		333	42.11	0.2							1.0
KHMZ	BN	209	11	AML		333	50.24			759	0.5				
KHMZ	BE	209	11	AML		333	52.71			1141	0.6				
ASAO	BZ	298	9	EPn		333	27.69	0.7							1.0
ASAO	BN	298	9	AML		334	8.98			503	0.6				
ASAO	BE	298	9	AML		334	19.54			464	0.5				
NASN	BZ	324	71	EPn		333	30.33	0.1							0.9
SNGE	BZ	410	331	EPn		333	40.18	-0.6							0.9
SNGE	BN	410	331	AML		334	28.55			211	0.6				
SNGE	BE	410	331	AML		334	47.35			248	0.7				
THKV	BZ	463	15	EPn		333	47.46	0.0							0.8
THKV	BN	463	15	AML		335	1.86			102	0.5				
THKV	BE	463	15	AML		335	12.30			99	0.6				
DAMV	BZ	472	28	EPn		333	48.37	-0.2							0.8

**October 10 2009 Hour: 11:42 57.3 Lat: 34.04N Lon: 46.96E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SNGE	BZ	122	17	EPg		1143	17.90	0.0							1.0
SNGE	BN	122	17	ESg		1143	32.87	-0.1							1.0
SNGE	BE	122	17	AML		1143	37.14			1827	0.5				
SNGE	BN	122	17	AML		1143	37.19			1632	0.5				
SHGR	BZ	275	141	EPn		1143	38.93	-0.1							1.0
KHMZ	BZ	280	96	EPn		1143	39.80	-0.1							1.0
ASAO	BZ	288	78	EPN5		1143	41.09	0.2							1.0
ASAO	BE	288	78	AML		1144	26.38			445	0.6				
ASAO	BN	288	78	AML		1144	27.21			369	0.6				
ZNJK	BZ	331	28	EPN5		1143	46.43	0.1							0.9

**October 13 2009 Hour: 0:54 27.7 Lat: 34.96N Lon: 46.94E Depth: 15 Agency: INS Local**  
**Magnitudes: 4.9ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZNJK	BZ	246	39	EPn		055	6.28	0.2							1.0
ASAO	BZ	286	98	EPn		055	11.93	0.9							1.0
KHMZ	BZ	309	115	EPn		055	13.45	-0.4							1.0
KHMZ	BE	309	115	AML		056	5.85			5295	0.6				
KHMZ	BN	309	115	AML		056	7.70			3282	0.5				
SHGR	BZ	361	151	EPn		055	20.21	0.2							0.9
SHGR	BE	361	151	AML		056	21.68			2703	0.6				
SHGR	BN	361	151	AML		056	22.39			3283	0.7				
GHVR	BZ	398	97	EPn		055	24.53	-0.2							0.9

GHVR	BE	398	97	AML		056	44.06			2173	0.7				
GHVR	BN	398	97	AML		056	49.04			1826	0.8				
GRMI	BZ	435	11	EPn		055	29.31	-0.2							0.9
DAMV	BZ	463	79	EPn		055	32.72	-0.3							0.8
NASN	BZ	593	112	EPn		055	48.79	-0.5							0.7

**October 17 2009 Hour: 10:53 56.7 Lat: 35.47N Lon: 51.57E Depth: 15 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.7 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
DAMV	BZ	41	63	EPg		1054	4.28	-0.1							1.0
DAMV	BN	41	63	ESg		1054	10.07	0.0							1.0
DAMV	BN	41	63	AML		1054	10.46		10721	0.2					
CHTH	BZ	63	321	EPg		1054	8.66	0.7							1.0
CHTH	BN	63	321	AML		1054	15.89		5637	0.1					
GHVR	BZ	113	195	EPg		1054	17.04	1.2							1.0
GHVR	BE	113	195	AML		1054	37.04		2457	0.3					
ASAO	BZ	174	235	EPg		1054	24.83	-0.7							1.0
ASAO	BE	174	235	AML		1054	49.44		2362	0.4					
ASAO	BN	174	235	AML		1054	50.09		1129	0.5					
KHMZ	BZ	242	218	EPg		1054	35.14	-1.1							1.0
ZNJK	BZ	292	298	EPn		1054	40.91	0.2							1.0
NASN	BZ	317	159	EPn		1054	44.57	0.6							1.0
SHRD	BZ	406	80	EPn		1054	54.39	-0.4							0.9
MRVT	BZ	472	58	EPn		1055	2.37	-0.5							0.8

**October 17 2009 Hour: 17: 8 8.8 Lat: 30.18N Lon: 57.44E Depth: 11 Agency: INS Local**  
**Magnitudes: 4.1ML INS Rms: 0.0 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KRBR	BZ	69	251	EPg		17 8	21.13	0.0							1.0
KRBR	BE	69	251	AML		17 8	36.19		7963	0.3					
BNDS	BZ	332	202	EPn		17 8	58.10	0.0							0.9
BNDS	BN	332	202	AML		17 9	42.60		630	0.8					
BNDS	BE	332	202	AML		17 9	44.92		691	0.8					
TABS	BZ	386	356	EPn		17 9	4.68	0.0							0.9
TABS	BN	386	356	AML		1710	12.25		353	0.6					
GHIR	BZ	481	245	EPN5		17 9	16.54	0.0							0.8

**October 20 2009 Hour: 21:48 31.8 Lat: 36.71N Lon: 55.02E Depth: 7 Agency: INS Local**  
**Magnitudes: 3.5ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHRD	BZ	119	131	EPg		2148	52.40	0.0							1.0
MRVT	BZ	142	42	EPg		2148	56.20	-0.1							1.0
BJRD	BZ	239	62	EPg		2149	12.86	0.1							1.0
DAMV	BZ	299	247	EPn		2149	17.84	0.1							1.0
DAMV	BE	299	247	AML		2149	59.34		208	0.5					
DAMV	BN	299	247	AML		2150	0.97		160	0.7					
TABS	BZ	390	150	EPn		2149	28.77	0.0							0.9
TABS	BN	390	150	AML		2150	41.37		96	1.1					
ASAO	BZ	512	243	EPn		2149	43.98	-0.1							0.8

**October 21 2009 Hour: 1:44 37.5 Lat: 30.14N Lon: 57.60E Depth: 15F Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.5 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KRBR	BZ	83	258	EPg		144	51.68	-0.3							1.0
KRBR	BN	83	258	ESg		145	2.31	-0.2							1.0
KRBR	BN	83	258	AML		145	2.91		5240	0.2					
KRBR	BE	83	258	AML		145	3.12		4845	0.0					
ZHSF	BZ	312	100	EPn		145	23.32	-0.6							1.0
BNDS	BZ	335	205	EPn		145	27.49	0.7							0.9
BNDS	BN	335	205	AML		146	24.10		242	1.0					
SHRT	BZ	464	32	EPN5		145	43.10	0.3							0.8
NASN	BZ	543	304	EPN5		145	53.08	0.3							0.8



**October 24 2009 Hour: 3: 4 39.8 Lat: 28.07N Lon: 56.67E Depth: 18 Agency: INS Local**  
**Magnitudes: 4.3ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	90	213	EPg		3 4	55.41	0.2							1.0
KRBR	BZ	212	2	EPg		3 5	14.38	-0.3							1.0
KRBR	BE	212	2	ESg		3 5	40.41	0.2							1.0
KRBR	BE	212	2	AML		3 5	44.43		6504	0.5					
KRBR	BN	212	2	AML		3 5	45.37		4524	0.4					
GHIR	BZ	362	275	EPn		3 5	32.17	-0.1							0.9
GHIR	BE	362	275	AML		3 6	54.04		425	0.7					
GHIR	BN	362	275	AML		3 7	5.23		415	0.6					
ZHSF	BZ	435	66	EPn		3 5	40.96	-0.4							0.9
ZHSF	BZ	435	66	EPg		3 5	50.40	0.3							0.9
TABS	BZ	620	4	EPn		3 6	4.51	0.3							0.7
NASN	BZ	642	326	EPn		3 6	7.07	-0.1							0.7

**October 27 2009 Hour: 17:19 34.8 Lat: 30.84N Lon: 56.83E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.6ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KRBR	BZ	96	184	EPg		1719	50.93	-0.4							1.0
KRBR	BE	96	184	AML		1720	5.27		1898	0.3					
TABS	BZ	312	5	EPn		1720	21.20	-0.2							1.0
TABS	BN	312	5	AML		1721	12.79		342	0.5					
BNDS	BZ	387	190	EPn		1720	31.19	0.5							0.9
BNDS	BN	387	190	AML		1721	17.23		104	0.7					
ZHSF	BZ	404	109	EPn		1720	32.98	0.2							0.9
NASN	BZ	438	301	EPn		1720	37.34	0.1							0.9
NASN	BE	438	301	ESg		1721	37.38	0.0							0.9
NASN	BN	438	301	AML		1721	46.21		72	0.7					

**October 29 2009 Hour: 6:21 12.3 Lat: 28.50N Lon: 57.43E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.6ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	174	226	EPg		621	40.85	-0.2							1.0
BNDS	BE	174	226	AML		622	3.42		783	0.4					
BNDS	BN	174	226	AML		622	6.42		808	0.4					
KRBR	BZ	177	339	EPg		621	41.45	-0.2							1.0
KRBR	BN	177	339	AML		622	11.85		496	0.2					
ZHSF	BZ	348	69	EPn		622	3.44	0.1							0.9
GHIR	BZ	436	268	EPn		622	14.59	0.4							0.9

**November 3 2009 Hour: 7:48 20.0 Lat: 29.05N Lon: 58.42E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.5 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KRBR	BZ	192	303	EPg		748	51.39	-0.4							1.0
KRBR	BN	192	303	ESg		749	14.70	-0.2							1.0
KRBR	BN	192	303	AML		749	22.85		779	0.4					
ZHSF	BZ	237	74	EPg		748	58.24	-0.5							1.0
ZHSF	BN	237	74	AML		749	28.62		397	0.4					
ZHSF	BE	237	74	AML		749	33.26		561	0.6					
BNDS	BZ	287	231	EPn		749	3.58	0.2							1.0
BNDS	BE	287	231	AML		749	49.80		282	0.4					
TABS	BZ	525	347	EPn		749	33.67	0.6							0.8
TABS	BE	525	347	AML		751	0.99		123	0.3					
GHIR	BZ	538	262	EPn		749	34.79	0.2							0.8
GHIR	BE	538	262	AML		751	6.89		57	0.7					
SHRT	BZ	540	19	EPn		749	35.59	0.8							0.8

**November 3 2009 Hour: 23:26 50.6 Lat: 27.22N Lon: 56.19E Depth: 13 Agency: INS Local**  
**Magnitudes: 4.9ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	20	356	EPg		2326	54.77	-0.2							1.0
BNDS	BN	20	356	ESg		2326	58.21	0.1							1.0
BNDS	BN	20	356	AML		2326	59.99		214000		0.4				
KRBR	BZ	311	10	EPn		2327	37.49	0.2							1.0
KRBR	BE	311	10	AML		2328	19.97		4767		0.6				
KRBR	BN	311	10	AML		2328	20.97		8442		0.5				
GHIR	BZ	337	291	EPn		2327	40.50	0.2							0.9
GHIR	BN	337	291	AML		2328	51.30		2558		0.6				
GHIR	BE	337	291	AML		2328	56.19		2744		0.6				
ZHSF	BZ	522	58	EPn		2328	3.30	0.0							0.8
NASN	BZ	699	333	EPn		2328	24.85	-0.6							0.7
TABS	BZ	718	7	EPn		2328	27.80	0.1							0.7
SHRT	BZ	814	28	EPn		2328	39.44	-0.1							0.6
GHVR	BZ	933	331	EPn		2328	53.90	-0.4							0.5
SHRD	BZ	975	359	EPn		2328	59.48	0.0							0.5
DAMV	BZ	1015	338	EPn		2329	4.90	0.3							0.4
GRMI	BZ	1500	331	EPn		2330	4.75	0.0							0.1

**November 5 2009 Hour: 23:59 52.9 Lat: 27.26N Lon: 56.24E Depth: 11 Agency: INS Local**  
**Magnitudes: 3.8ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	17	338	EPg		2359	56.68	-0.1							1.0
KRBR	BZ	306	9	EPn		24 0	39.58	0.4							1.0
KRBR	BE	306	9	AML		24 1	29.88		586		0.6				
GHIR	BZ	340	290	EPn		24 0	43.38	0.2							0.9
GHIR	BN	340	290	AML		24 1	47.08		155		0.6				
ZHSF	BZ	516	59	EPn		24 1	4.70	-0.3							0.8
NASN	BZ	698	333	EPn		24 1	26.97	-0.9							0.7
SHRT	BZ	808	28	EPn		24 1	41.63	0.3							0.6

**November 13 2009 Hour: 3: 6 2.2 Lat: 29.00N Lon: 58.69E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZHSF	BZ	214	71	EPg		3 6	37.10	-0.2							1.0
KRBR	BZ	217	301	EPg		3 6	37.54	-0.4							1.0
KRBR	BE	217	301	AML		3 7	9.38		723		0.6				
KRBR	BN	217	301	AML		3 7	11.90		1105		0.8				
BNDS	BZ	304	235	EPn		3 6	47.92	0.1							1.0
BNDS	BE	304	235	AML		3 7	37.92		494		0.6				
BNDS	BN	304	235	AML		3 7	38.09		334		0.6				
TABS	BZ	537	344	EPn		3 7	16.87	0.2							0.8
SHRT	BZ	538	16	EPn		3 7	17.30	0.6							0.8
GHIR	BZ	563	263	EPn		3 7	20.04	0.1							0.8

**November 13 2009 Hour: 3: 8 11.4 Lat: 28.97N Lon: 58.72E Depth: 14 Agency: INS Local**  
**Magnitudes: 4.2ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZHSF	BZ	213	70	EPg		3 8	46.38	0.0							1.0
ZHSF	BE	213	70	ESg		3 9	11.81	-0.1							1.0
KRBR	BZ	221	301	EPg		3 8	47.71	0.0							1.0
KRBR	BN	221	301	AML		3 9	17.53		2264		0.4				
KRBR	BE	221	301	AML		3 9	19.83		1862		0.3				
BNDS	BZ	304	236	EPn		3 8	57.38	0.3							1.0
BNDS	BN	304	236	ESg		3 9	36.80	-0.2							1.0
BNDS	BN	304	236	AML		3 9	45.07		698		0.5				
BNDS	BE	304	236	AML		3 9	47.55		1189		0.5				

**November 18 2009 Hour: 0:50 32.8 Lat: 31.58N Lon: 50.90E Depth: 14 Agency: INS Local**  
**Magnitudes: 4.2ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHGR	BZ	207	287	EPg		051	6.68	-0.1							1.0
SHGR	BN	207	287	AML		051	45.48			3514	0.5				
SHGR	BE	207	287	AML		051	49.20			3623	0.6				
NASN	BZ	225	53	EPg		051	9.42	-0.5							1.0
NASN	BE	225	53	ESg		051	37.12	0.1							1.0
KHMZ	BZ	255	340	EPn		051	12.30	-0.1							1.0
KHMZ	BN	255	340	ESg		051	45.43	0.3							1.0
GHVR	BZ	324	6	EPn		051	20.91	0.1							0.9
ASAO	BZ	339	346	EPn		051	22.95	0.0							0.9
GHIR	BZ	417	151	EPn		051	32.78	0.4							0.9
DAMV	BZ	460	12	EPn		051	37.92	0.0							0.8
DAMV	BN	460	12	AML		052	57.11			139	0.6				
CHTH	BZ	481	2	EPn		051	40.61	0.1							0.8
SNGE	BZ	511	321	EPn		051	43.85	-0.4							0.8

**November 22 2009 Hour: 17:29 21.7 Lat: 37.90N Lon: 46.94E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.8ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GRMI	BZ	131	39	EPg		1729	43.74	0.0							1.0
GRMI	BN	131	39	AML		1730	6.78			2725	0.4				
ZNJK	BZ	206	131	EPg		1729	55.52	-0.2							1.0
ZNJK	BN	206	131	AML		1730	25.26			690	0.3				
ZNJK	BE	206	131	AML		1730	25.73			594	0.5				
MAKU	BZ	255	310	EPn		1730	1.72	0.5							1.0
MAKU	BN	255	310	ESg		1730	33.46	-0.3							1.0

**November 25 2009 Hour: 1:9 6.0 Lat: 30.23N Lon: 59.83E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZHSF	BZ	114	127	EPg		1 9	25.21	0.0							1.0
KRBR	BZ	297	266	EPn		1 9	51.00	0.1							1.0
KRBR	BE	297	266	ESg		110	29.77	-0.1							1.0
KRBR	BE	297	266	AML		110	34.94			239	0.6				
KRBR	BN	297	266	AML		110	45.62			272	0.6				
SHRT	BZ	382	6	EPn		110	1.08	0.0							0.9
TABS	BZ	458	327	EPn		110	10.62	0.0							0.8
TABS	BN	458	327	ESg		111	13.72	0.0							0.8
TABS	BN	458	327	AML		111	23.87			138	0.6				
TABS	BE	458	327	AML		111	26.56			73	0.8				
GHIR	BZ	699	254	EPn		110	40.54	0.0							0.7

**November 27 2009 Hour: 6:40 14.1 Lat: 32.26N Lon: 55.66E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.5ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
TABS	BZ	205	41	EPg		640	47.56	-0.3							1.0
TABS	BN	205	41	AML		641	20.42			609	0.6				
KRBR	BZ	274	157	EPN5		640	56.20	0.1							1.0
KRBR	BE	274	157	ESg		641	31.40	-0.1							1.0
KRBR	BN	274	157	AML		641	38.15			282	0.7				
KRBR	BE	274	157	AML		641	40.53			213	0.4				
NASN	BZ	275	283	EPn		640	56.14	0.0							1.0
NASN	BN	275	283	AML		641	35.31			160	0.8				
SHRD	BZ	417	4	EPn		641	13.81	0.2							0.9
SHRT	BZ	459	69	EPn		641	19.15	0.3							0.8
GHVR	BZ	479	302	EPn		641	21.25	-0.1							0.8

**November 29 2009 Hour: 3:25 30.1 Lat: 26.52N Lon: 60.00E Depth: 37F Agency: INS Local**  
**Magnitudes: 4.1ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
CHBR	BZ	113	154	EPg		325	49.01	-0.2							1.0
CHBR	BN	113	154	ESg		326	3.33	0.1							1.0
CHBR	BE	113	154	AML		326	4.05			3867	0.3				
CHBR	BN	113	154	AML		326	12.57			5229	0.1				
ZHSF	BZ	351	12	EPn		326	19.81	0.3							0.9
ZHSF	BE	351	12	Sn		326	55.26	-0.3							0.9
KRBR	BZ	498	321	EPn		326	38.12	0.2							0.8
KRBR	BE	498	321	AML		327	35.56			225	0.4				
GHIR	BZ	720	287	EPN5		327	4.99	-0.3							0.7

**December 2 2009 Hour: 12:37 56.5 Lat: 28.58N Lon: 53.49E Depth: 45 Agency: INS Local**  
**Magnitudes: 4.4ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GHIR	BZ	59	237	EPg		1238	8.63	0.0							1.0
KRBR	BZ	353	63	EPn		1238	45.46	0.0							0.9
KRBR	BN	353	63	ESg		1239	33.65	0.0							0.9
KRBR	BE	353	63	AML		1239	34.46			1537	0.7				
KRBR	BN	353	63	AML		1239	40.81			1439	0.7				
NASN	BZ	472	352	EPn		1239	0.02	-0.2							0.8
NASN	BE	472	352	ESg		1240	5.28	0.1							0.8
NASN	BE	472	352	AML		1240	13.87			182	0.6				
SHGR	BZ	597	312	EPN5		1239	15.60	0.2							0.7
KHMZ	BZ	663	330	EPn		1239	23.77	-0.1							0.7
ZHSF	BZ	718	79	EPn		1239	30.70	0.1							0.7
ASAO	BZ	739	334	EPN5		1239	33.24	0.0							0.6

**December 3 2009 Hour: 8:35 48.7 Lat: 30.37N Lon: 59.78E Depth: 16 Agency: INS Local**  
**Magnitudes: 3.5ML INS Rms: 0.0 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KRBR	BZ	294	262	EPg		836	36.62	0.0							1.0
KRBR	BE	294	262	AML		836	50.38			66	0.2				
SHRT	BZ	367	7	EPn		836	41.78	0.0							0.9
TABS	BZ	442	326	EPg		837	0.04	0.0							0.9
TABS	BE	442	326	Sn		837	36.79	0.0							0.9
TABS	BN	442	326	AML		837	48.09			161	0.6				

**December 3 2009 Hour: 15:5 11.0 Lat: 37.15N Lon: 54.52E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.8ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
MRVT	BZ	150	67	EPg		15	5	35.96	0.0						1.0
MRVT	BE	150	67	ESg		15	5	54.22	0.0						1.0
MRVT	BN	150	67	AML		15	5	57.25		1961	0.3				
MRVT	BE	150	67	AML		15	5	58.75		1790	0.2				
SHRD	BZ	184	133	EPg		15	5	41.42	0.0						1.0
DAMV	BZ	284	234	EPn		15	5	54.30	0.2						1.0
DAMV	BE	284	234	AML		15	6	34.33		373	0.4				
DAMV	BN	284	234	AML		15	6	42.64		318	0.7				
CHTH	BZ	334	247	EPn		15	6	0.21	-0.1						0.9
TABS	BZ	454	148	EPn		15	6	15.20	0.0						0.8
NASN	BE	507	198	EPn		15	6	21.80	-0.1						0.8

**December 3 2009 Hour: 20:14 21.6 Lat: 34.88N Lon: 45.12E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.6ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SNGE	BZ	205	83	EPg		2014	55.08	-0.3							1.0
SNGE	BN	205	83	ESg		2015	20.02	0.0							1.0
SNGE	BE	205	83	AML		2015	25.41			543	0.4				
SNGE	BN	205	83	AML		2015	28.04			736	0.6				
ASAO	BZ	451	93	EPn		2015	25.87	0.3							0.9
ASAO	BN	451	93	AML		2016	42.14			43	0.5				



SHGR	BZ	460	131	EPn		2015	26.21	-0.1									0.8
KHMZ	BZ	463	104	EPN5		2015	27.16	0.1									0.8
GHVR	BZ	563	93	EPn		2015	39.29	0.0									0.8

**December 7 2009 Hour: 18:41 16.7 Lat: 31.78N Lon: 56.06E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KRBR	BZ	210	161	EPg		1841	51.33	-0.1							1.0
KRBR	BN	210	161	AML		1842	19.66			1266	0.5				
KRBR	BE	210	161	AML		1842	20.19			1077	0.3				
TABS	BZ	230	25	EPg		1841	53.85	-0.5							1.0
TABS	BE	230	25	AML		1842	41.23			238	0.9				
NASN	BZ	327	291	EPn		1842	5.01	-0.3							0.9
NASN	BN	327	291	AML		1842	53.16			112	0.6				
SHRT	BZ	447	61	EPn		1842	20.41	0.4							0.9
SHRD	BZ	469	359	EPn		1842	23.33	0.5							0.8
ASAO	BZ	641	300	EPn		1842	44.67	0.4							0.7

**December 9 2009 Hour: 10:11 27.4 Lat: 31.51N Lon: 59.45E Depth: 18 Agency: INS Local**  
**Magnitudes: 3.8ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
ZHSF	BZ	246	148	EPN5		1012	5.17	-0.2							1.0
ZHSF	BE	246	148	ESg		1012	37.10	0.1							1.0
ZHSF	BE	246	148	AML		1012	44.53			345	0.4				
SHRT	BZ	250	18	EPg		1012	8.30	0.0							1.0
TABS	BZ	323	318	EPn		1012	14.89	-0.1							0.9
TABS	BN	323	318	AML		1013	4.57			477	0.8				
TABS	BE	323	318	AML		1013	5.62			242	0.7				
SHRD	BZ	592	328	EPn		1012	48.49	0.1							0.7
NASN	BZ	643	285	EPN5		1012	55.02	0.1							0.7
NASN	BN	643	285	AML		1014	38.59			42	0.6				
NASN	BE	643	285	AML		1014	39.81			39	0.5				

**December 12 2009 Hour: 1:58 34.5 Lat: 27.63N Lon: 53.29E Depth: 26 Agency: INS Local**  
**Magnitudes: 4.2ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GHIR	BZ	78	338	EPg		158	48.22	0.1							1.0
GHIR	BN	78	338	ESg		158	57.94	-0.1							1.0
GHIR	BE	78	338	AML		159	5.52			9058	0.5				
GHIR	BN	78	338	AML		159	8.65			11121	0.5				
KRBR	BZ	427	52	EPn		159	34.41	0.0							0.9
KRBR	BE	427	52	AML		2 0	20.71			324	0.6				
KRBR	BN	427	52	AML		2 0	20.84			482	0.6				
NASN	BZ	575	355	EPn		159	52.82	0.1							0.8
NASN	BN	575	355	AML		2 0	52.45			138	0.6				
KHMZ	BZ	748	336	EPn		2 0	13.98	-0.2							0.6
CHBR	BZ	751	106	EPn		2 0	14.07	-0.2							0.6
GHVR	BZ	784	346	EPn		2 0	18.67	0.2							0.6
ASAO	BZ	827	339	EPn		2 0	23.94	-0.1							0.6

**December 12 2009 Hour: 21:37 36.7 Lat: 27.49N Lon: 53.22E Depth: 26 Agency: INS Local**  
**Magnitudes: 4.4ML INS Rms: 0.1 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GHIR	BZ	91	345	EPg		2137	52.26	0.0							1.0
GHIR	BE	91	345	ESg		2138	3.68	0.0							1.0
GHIR	BN	91	345	AML		2138	9.01			12423	0.4				
KRBR	BZ	443	51	EPn		2138	38.58	0.1							0.9
KRBR	BE	443	51	AML		2139	25.38			784	0.3				
KRBR	BN	443	51	AML		2139	25.38			1176	0.7				
NASN	BZ	590	356	EPn		2138	56.88	0.1							0.7
NASN	BN	590	356	AML		2139	4.36			66	0.3				
TABS	BZ	778	28	EPn		2139	19.65	-0.3							0.6

**December 13 2009 Hour: 3:29 8.1 Lat: 27.58N Lon: 53.21E Depth: 30 Agency: INS Local**  
**Magnitudes: 3.8ML INS Rms: 0.0 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GHIR	BZ	81	344	EPg		329	22.37	0.0							1.0
GHIR	BN	81	344	ESg		329	32.77	0.0							1.0
GHIR	BE	81	344	AML		329	37.66			5237	0.2				
GHIR	BN	81	344	AML		329	42.64			6305	0.3				
KRBR	BZ	437	52	EPn		330	8.94	0.0							0.9
KRBR	BE	437	52	AML		331	18.58			74	0.3				
NASN	BZ	580	356	EPn		330	26.71	0.0							0.8

**December 13 2009 Hour: 3:50 34.0 Lat: 27.42N Lon: 53.18E Depth: 25 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.0 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GHIR	BZ	97	349	EPg		350	50.51	0.0							1.0
GHIR	BE	97	349	ESg		351	2.56	0.0							1.0
GHIR	BE	97	349	AML		351	8.88			5170	0.4				
GHIR	BN	97	349	AML		351	10.41			5567	0.4				
KRBR	BZ	450	50	EPn		351	36.79	0.0							0.9
KRBR	BN	450	50	AML		352	29.86			91	0.6				
KRBR	BE	450	50	AML		352	53.14			111	0.5				
KHMZ	BZ	765	337	EPn		352	15.86	0.0							0.6

**December 14 2009 Hour: 20:20 21.6 Lat: 39.49N Lon: 52.03E Depth: 15 Agency: INS Local**  
**Magnitudes: 4.2ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GRMI	BZ	365	259	EPn		2021	15.00	0.4							1.0
CHTH	BZ	406	192	EPn		2021	19.87	0.0							1.0
MRVT	BZ	408	119	EPn		2021	19.56	-0.4							1.0
MRVT	BE	408	119	AML		2022	3.97			248	0.1				
ZNJK	BN	429	224	AML		2022	5.99			352	0.5				
ZNJK	BE	429	224	AML		2022	7.08			426	0.6				
DAMV	BZ	429	181	EPn		2021	23.04	0.4							0.9
DAMV	BE	429	181	AML		2022	9.54			496	0.4				
DAMV	BN	429	181	AML		2022	10.12			464	0.3				
ZNJK	BZ	429	224	EPn		2021	21.97	-0.7							0.9
SHRD	BZ	522	137	EPn		2021	34.57	0.4							0.9

**December 21 2009 Hour: 23: 8 37.8 Lat: 31.88N Lon: 49.29E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHGR	BZ	53	299	EPg		23 8	47.29	0.1							1.0
SHGR	BN	53	299	AML		23 9	7.01			5670	0.4				
KHMZ	BZ	216	17	EPg		23 9	12.60	-0.7							1.0
KHMZ	BN	216	17	ESg		23 9	39.38	0.2							1.0
KHMZ	BE	216	17	AML		23 9	45.99			508	0.2				
ASAO	BZ	304	13	EPn		23 9	24.08	0.6							1.0
ASAO	BE	304	13	AML		2310	10.28			272	0.5				
ASAO	BN	304	13	AML		2310	13.74			372	0.2				
GHVR	BZ	341	32	EPn		23 9	28.55	0.6							0.9
GHVR	BE	341	32	AML		2310	28.74			189	0.8				
NASN	BZ	347	72	EPn		23 9	28.78	0.0							0.9
SNGE	BZ	400	334	EPn		23 9	35.17	-0.1							0.9
SNGE	BN	400	334	AML		2310	37.68			120	0.9				
CHTH	BZ	478	20	EPn		23 9	44.62	-0.5							0.8
DAMV	BZ	485	30	EPn		23 9	45.57	-0.3							0.8

**December 23 2009 Hour: 15:041.1 Lat: 33.58N Lon: 47.35E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.5ML INS Rms: 0.2 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SNGE	BZ	168	360	EPg		15	1	8.99							1.0
SNGE	BN	168	360	AML		15	1	33.72		1029	0.4				
SHGR	BZ	212	140	EPg		15	1	15.70							1.0
SHGR	BE	212	140	AML		15	1	50.70		412	0.5				
SHGR	BN	212	140	AML		15	1	53.09		484	0.4				
ASAO	BZ	270	66	EPn		15	1	22.77	0.2						1.0
ASAO	BN	270	66	ESg		15	1	57.24	-0.1						1.0
ASAO	BE	270	66	AML		15	2	8.75		183	0.4				
ASAO	BN	270	66	AML		15	2	9.28		218	0.5				
ZNJK	BZ	364	19	EPn		15	1	34.18	-0.1						0.9
GHVR	BZ	374	73	EPn		15	1	35.64	0.3						0.9
GHVR	BN	374	73	AML		15	2	36.02		81	0.6				
GHVR	BE	374	73	AML		15	2	37.30		95	0.7				

**December 23 2009 Hour: 16:5153.2 Lat: 26.87N Lon: 56.06E Depth: 0 Agency: INS Local**  
**Magnitudes: 4.1ML INS Rms: 0.0 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BNDS	BZ	60	10	EPg		1652		4.29	0.0						1.0
BNDS	BE	60	10	AML		1652		16.12		18903	0.5				
BNDS	BN	60	10	AML		1652		19.40		18586	0.3				
GHIR	BZ	342	298	EPn		1652		45.14	0.0						0.9
GHIR	BE	342	298	AML		1653		55.48		410	0.6				
GHIR	BN	342	298	AML		1654		2.68		360	0.4				
KRBR	BZ	352	11	EPN5		1652		46.58	0.0						0.9
KRBR	BN	352	11	AML		1653		38.25		755	0.6				
KRBR	BE	352	11	AML		1653		41.97		628	0.6				
CHBR	BZ	464	107	EPn		1653		0.11	0.0						0.8
CHBR	BN	464	107	AML		1653		51.84		134	0.4				
CHBR	BE	464	107	AML		1654		2.64		87	0.8				

**December 24 2009 Hour: 17:1715.4 Lat: 33.89N Lon: 48.48E Depth: 15 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.4 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
KHMZ	BZ	138	96	EPg		1717		37.73	-0.8						1.0
KHMZ	BN	138	96	ESg		1717		55.55	0.1						1.0
KHMZ	BN	138	96	AML		1717		59.59		1295	0.4				
ASAO	BZ	160	62	EPg		1717		42.51	0.5						1.0
ASAO	BE	160	62	AML		1718		5.74		1028	0.7				
ASAO	BN	160	62	AML		1718		12.66		1468	1.6				
SNGE	BZ	170	322	EPg		1717		43.44	-0.1						1.0
SHGR	BZ	199	171	EPg		1717		48.25	0.2						1.0
SHGR	BE	199	171	AML		1718		17.08		1818	0.3				
SHGR	BN	199	171	AML		1718		21.41		1896	0.9				
NASN	BZ	420	105	EPn		1718		15.72	0.2						0.9

**December 25 2009 Hour: 6:3759.0 Lat: 32.26N Lon: 49.05E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.9ML INS Rms: 0.3 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHGR	BZ	29	234	EPg		638		4.82	0.1						1.0
SHGR	BN	29	234	AML		638		13.75		12697	0.4				
SHGR	BE	29	234	AML		638		13.97		43118	0.7				
KHMZ	BZ	185	27	EPg		638		29.34	-0.2						1.0
KHMZ	BN	185	27	ESg		638		52.03	0.2						1.0
KHMZ	BE	185	27	AML		638		55.99		1297	0.5				
KHMZ	BN	185	27	AML		638		59.31		642	0.6				
ASAO	BZ	269	19	EPn		638		40.73	0.4						1.0
SNGE	BZ	351	334	EPn		638		50.46	-0.1						0.9
NASN	BZ	358	79	EPn		638		51.47	0.1						0.9
CHTH	BZ	447	25	EPn		639		1.95	-0.5						0.9

**December 25 2009 Hour: 7:17 55.8 Lat: 32.26N Lon: 49.04E Depth: 14 Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.5 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
SHGR	BZ	28	233	EPg		718	1.26	-0.2							1.0
SHGR	BE	28	233	AML		718	11.12		24034	0.8					
SHGR	BN	28	233	AML		718	14.66		10035	0.4					
KHMZ	BZ	185	27	EPg		718	25.98	-0.5							1.0
KHMZ	BN	185	27	ESg		718	48.87	0.0							1.0
KHMZ	BE	185	27	AML		718	52.78		737	0.6					
ASAO	BZ	270	20	EPn		718	37.74	0.5							1.0
ASAO	BN	270	20	ESg		719	11.80	-0.2							1.0
ASAO	BE	270	20	AML		719	18.79		272	0.6					
ASAO	BN	270	20	AML		719	21.16		237	0.6					
GHVR	BZ	320	39	EPn		718	44.35	1.0							0.9
GHVR	BE	320	39	AML		719	35.87		211	0.6					
GHVR	BN	320	39	AML		719	38.81		220	0.8					
SNGE	BZ	351	334	EPn		718	47.42	0.1							0.9
NASN	BZ	359	79	EPn		718	48.06	-0.3							0.9
DAMV	BZ	461	35	EPn		719	0.60	-0.5							0.8

**December 31 2009 Hour: 16:14 28.1 Lat: 27.05N Lon: 53.62E Depth: 40 Agency: INS Local**  
**Magnitudes: 3.6ML INS Rms: 0.0 secs**

STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
GHIR	BZ	150	336	EPg		1614	53.05	0.0							1.0
GHIR	BN	150	336	ESg		1615	11.21	0.0							1.0
GHIR	BN	150	336	AML		1615	18.58		908	0.8					
GHIR	BE	150	336	AML		1615	19.89		824	0.5					
KRBR	BZ	447	43	EPn		1615	29.16	0.0							0.9
KRBR	BE	447	43	AML		1616	48.18		76	0.7					
NASN	BZ	642	353	EPn		1615	53.35	0.0							0.7
NASN	BE	642	353	Sn		1616	55.64	0.0							0.7

**December 31 2009 Hour: 23:16 44.6 Lat: 37.79N Lon: 58.40E Depth: 48F Agency: INS Local**  
**Magnitudes: 3.7ML INS Rms: 0.1 secs**

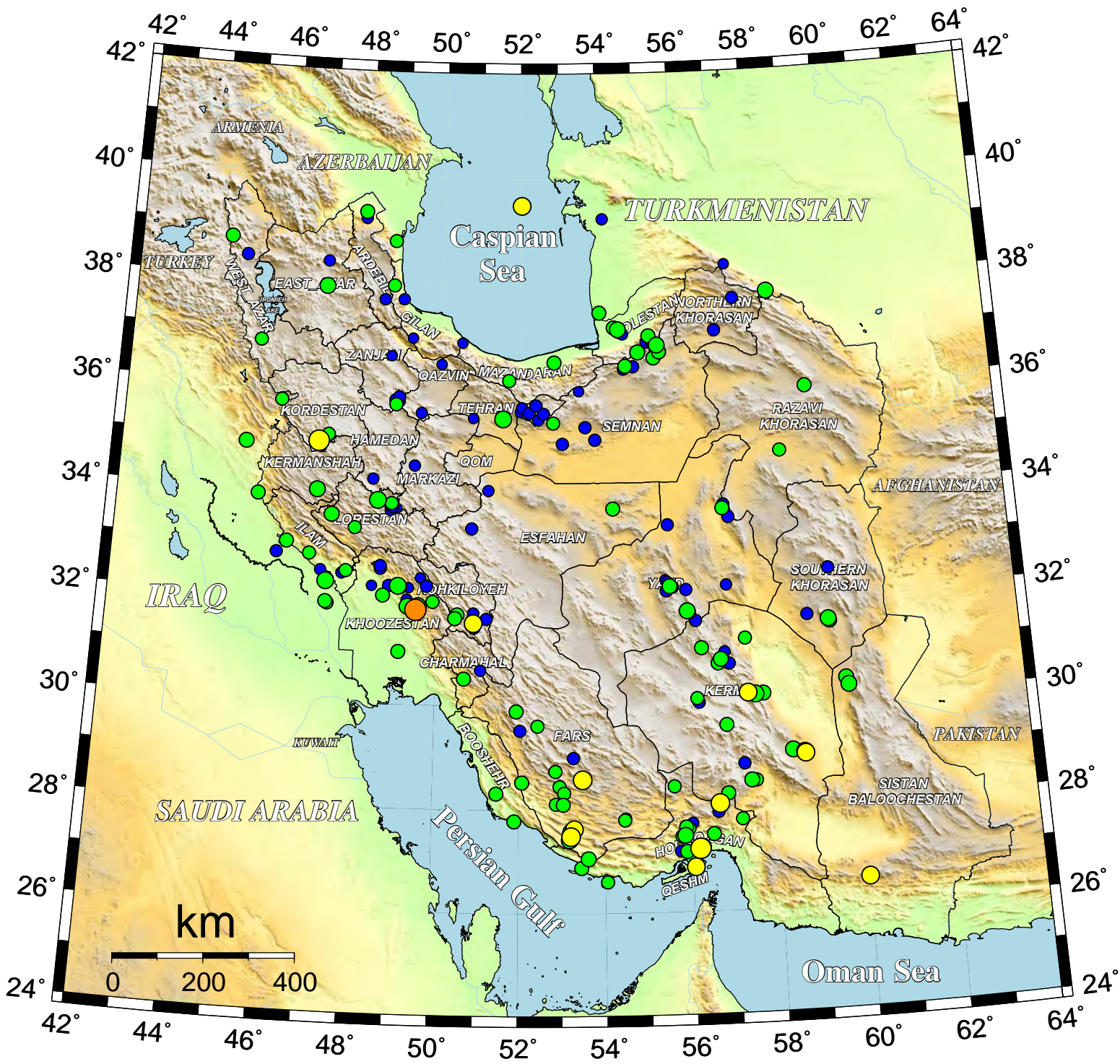
STAT	CO	DIST	AZI	PHASE	P	HRMN	SECON	TRES	CODA	AMPL	PERI	BAZ	ARES	VELO	WT
BJRD	BZ	88	264	EPg		2317	0.41	-0.1							1.0
BJRD	BN	88	264	AML		2317	11.65		3317	0.3					
MRVT	BZ	205	267	EPN5		2317	11.59								
MRVT	BN	205	267	ESg		2317	37.01	0.1							1.0
MRVT	BN	205	267	AML		2317	39.60		519	0.3					
MRVT	BE	205	267	AML		2317	40.13		551	0.4					
SHRD	BZ	291	228	EP		2317	25.50	-0.1							1.0
TABS	BZ	474	195	EP		2317	48.28	0.0							0.8
TABS	BN	474	195	Sn		2318	40.29								
SHRT	BZ	490	159	EP		2317	50.44	0.1							0.8



## IIES EARTHQUAKE CATALOGUE (October - December 2009)

Year	Month	Day	Hour	Minute	Second	Error	Lat	Error	Long	Error	Depth	Error	NSt	NPh	Gap	D <sub>min</sub>	Rms	M <sub>L</sub>
2009	10	2	4	47	43.8	0.97	30.151	3.7	57.798	11.1	15.0	0.0	4	6	177	343.8	0.44	3.5
2009	10	4	21	50	49.6	0.82	31.815	4.9	49.495	6.4	15.0	9.2	9	11	193	217.9	0.29	5.1
2009	10	6	14	43	1.2	1.15	36.846	5.2	55.516	4.8	7.1	0.0	8	9	132	103.6	0.42	3.7
2009	10	9	18	32	43	0.47	32.307	3.4	47.275	5.1	39.3	6.1	7	9	263	145.5	0.14	3.9
2009	10	10	1	28	9.9	0.67	27.481	8.9	55.847	3.0	18.0	6.9	3	4	182	33.4	0.18	3.8
2009	10	10	3	32	42.4	1.36	31.890	9.3	49.541	9.6	17.6	12.9	7	8	218	74.0	0.39	3.9
2009	10	10	11	42	57.3	0.42	34.039	2.6	46.959	8.6	14.2	6.9	5	6	236	122.1	0.10	3.7
2009	10	13	0	54	27.7	1.17	34.963	6.9	46.944	9.8	15.0	0.0	8	8	220	246.3	0.44	4.9
2009	10	17	10	53	56.7	2.16	35.466	7.6	51.570	7.7	15.4	12.7	9	10	97	40.6	0.69	3.9
2009	10	17	17	8	8.8	0.34	30.182	2.6	57.437	7.5	11.8	5.6	4	4	207	68.9	0.00	4.1
2009	10	20	21	48	31.8	0.39	36.713	2.2	55.020	3.8	7.1	6.3	6	6	155	118.6	0.09	3.5
2009	10	21	1	44	37.5	1.13	30.142	7.6	57.604	4.5	15.0	0.0	5	6	105	83.2	0.47	3.9
2009	10	24	3	4	39.8	0.77	28.074	2.7	56.670	4.2	18.0	6.0	6	8	147	89.5	0.26	4.3
2009	10	27	17	19	34.8	0.87	30.844	4.4	56.828	6.5	14.1	11.1	5	6	111	95.8	0.28	3.6
2009	10	29	6	21	12.3	0.75	28.500	4.4	57.428	6.0	14.2	9.3	4	4	157	173.7	0.23	3.6
2009	11	3	7	48	20	1.42	29.045	8.6	58.425	5.5	14.1	13.4	6	7	157	191.9	0.45	3.7
2009	11	3	23	26	50.6	0.59	27.221	7.2	56.186	4.5	13.2	3.9	11	12	233	19.9	0.25	4.9
2009	11	5	23	59	52.9	0.97	27.256	17.8	56.237	8.0	11.8	7.8	6	6	232	17.1	0.41	3.8
2009	11	13	3	6	2.2	0.91	28.996	6.5	58.690	4.8	14.1	9.2	6	6	164	213.7	0.31	3.9
2009	11	13	3	8	11.4	0.66	28.965	4.6	58.715	2.6	14.1	8.4	3	5	166	212.6	0.18	4.2
2009	11	18	0	50	32.8	0.75	31.577	3.1	50.900	2.8	14.1	5.3	9	11	136	207.2	0.26	4.2
2009	11	22	17	29	21.7	1.02	37.896	6.7	46.941	6.8	14.2	12.8	3	4	179	131.2	0.31	3.8
2009	11	25	1	9	6	0.33	30.227	1.4	59.832	1.3	14.1	2.9	5	7	127	113.9	0.07	3.7
2009	11	27	6	40	14.1	0.60	32.264	2.0	55.661	4.0	14.1	6.7	6	7	126	205.4	0.18	3.5
2009	11	29	3	25	30.1	0.61	26.517	2.0	59.997	5.1	37.0	0.0	4	6	142	113.1	0.25	4.1
2009	12	2	12	37	56.5	0.37	28.581	1.7	53.493	1.5	45.6	2.2	7	9	158	59.4	0.12	4.4
2009	12	3	8	35	48.7	0.34	30.368	3.7	59.778	3.7	16.2	3.7	3	4	255	293.7	0.00	3.5
2009	12	3	15	5	11	0.37	37.149	2.3	54.518	3.0	14.7	6.0	6	7	181	150.2	0.08	3.8
2009	12	3	20	14	21.6	0.60	34.878	12.9	45.119	9.7	14.1	10.1	5	6	312	204.8	0.19	3.6
2009	12	7	18	41	16.7	1.16	31.780	5.5	56.061	8.8	14.1	13.6	6	6	130	210.2	0.39	3.7
2009	12	9	10	11	27.4	0.49	31.507	2.5	59.451	6.5	18.0	7.5	5	6	136	245.6	0.13	3.8
2009	12	12	1	58	34.5	0.42	27.633	5.8	53.290	5.9	26.1	4.5	7	8	230	78.2	0.14	4.2

Year	Month	Day	Hour	Minute	Second	Error	Lat	Error	Long	Error	Depth	Error	NSt	NPh	Gap	D <sub>min</sub>	Rms	M <sub>L</sub>
2009	12	12	21	37	36.7	0.46	27.490	7.6	53.221	10.1	26.6	8.1	4	5	295	91.1	0.14	4.4
2009	12	13	3	29	8.1	0.34	27.578	5.9	53.209	7.2	30.0	5.3	3	4	293	81.4	0.00	3.8
2009	12	13	3	50	34	0.34	27.425	5.2	53.184	5.6	25.5	6.2	3	4	287	97.3	0.00	3.9
2009	12	14	20	20	21.6	1.07	39.495	14.3	52.027	4.9	15.0	0.0	6	6	219	365.3	0.43	4.2
2009	12	21	23	8	37.8	1.37	31.877	10.7	49.291	9.1	14.1	13.9	8	9	227	52.9	0.43	3.7
2009	12	23	15	0	41.1	0.76	33.575	3.5	47.347	4.9	14.1	6.6	5	6	220	168.3	0.20	3.5
2009	12	23	16	51	53.2	0.34	26.867	3.8	56.062	2.9	0.4	4.7	4	4	191	59.9	0.00	4.1
2009	12	24	17	17	15.4	1.39	33.886	5.7	48.482	5.3	15.0	12.3	5	6	151	138.1	0.41	3.9
2009	12	25	6	37	59	0.85	32.263	4.6	49.053	6.4	14.7	6.0	6	7	155	29.2	0.27	3.9
2009	12	25	7	17	55.8	1.53	32.261	7.3	49.043	11.3	14.1	10.4	7	9	154	28.4	0.46	3.7
2009	12	31	16	14	28.1	0.31	27.054	5.4	53.620	6.9	40.7	3.5	3	5	293	150.1	0.02	3.6
2009	12	31	23	16	44.6	0.34	37.789	7.1	58.405	5.0	48.0	0.0	5	5	252	88.4	0.09	3.7



**201 events during 2009/10/01 to 2009/12/31**

**Magnitude**

● $2.5 \leq M < 3$	● $3 \leq M < 4$	● $4 \leq M < 5$	● $5 \leq M < 6$	● $6 \leq M < 7$
N = 88	N = 100	N = 12	N = 1	N = 0

The events are located at:

*Broadband Iranian National Seismic Network (BIN)*

More information available at: <http://www.iiees.ac.ir/EQsearch/EventQuery.aspx>



*International Institute of Earthquake Engineering and Seismology (IIEES)*