سازمان برنامه و بودجه

زلزله‌های سال ۱۹۶۸ کشور ایران

دفتر تحقیقات و استانداردهای فنی

نشریه شماره ۶۹

خرداد ماه ۲۵۳۶

IRAN EARTHQUAKES 1968

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نشریه های شماره ۵۳ و ۶۳ این دفتر که به ترتیب در شهریورماه ۱۳۵۴ و مردادماه ۲۵۳۵ در اختیار قرار گرفت حاوی زلزله هائی بود که در سالهای ۱۹۷۰ و ۱۹۶۹ میلادی در کشورایران روی داده است و در این نشریه که سومین نشریه ای است که باین صورت از طرف این دفتر انتشار می یابد ، زلزله هائی‌که درسال ۱۹۶۸ در ایران روی داده است جمع آوری شده است و چون در سطح بین المللی مورد استفاده قرار میگیرد بر حسب تقویم میلادی و به زبان انگلیسی تهیه شده است .

در سال ۱۹۶۸ زلزله بزرگ دشت بیاض رخ داد که این زلزله از طرف عده ای ازکارشناسان ایرانی‌وخارجی مورد مطالعه قرار گرفت ودر این نشریه به مدارکی که میتوان برای مطالعه این‌زلزله مراجعه نموداشاره شده است . گرچه همانطوریکه در مقدمه نشریه شماره ۵۳ ذکر شد هدف از تهیه این مجموعه ها ورود در مبحث لرزه شناسی (Seismology) نیست و بیشتر استفاده های مهندسی مورد نظر میباشد ، لکن از آنجا که تلفیق اطلاعات حاصله از دستگاههای لرزه شناسی و اطلاعات ماکروسیسمیک در محاسبه مراکز زلزله کاربرد دارد تهیه کاتالوگی از زلزله های ایران که اطلاعات کسب شده از دستگاههای لرزه شناسی در سطح جهانی و در سطح منطقه را با اطلاعات محلی تواما " مورد توجه قرار دهد میتواند برای بررسی زلزله های گذشته ایران مفید واقع شود .

در این نشریه در مواردیکه عددی برای بزرگی (Magnitude) زلزله ای ذکر شده آن عددمتوسط ارقامی است که توسط پایگاههای مختلف گزارش شده است که با مقیاس ریختر است ، در حالاتی که ازپایگاههای کشور شوروی استفاده وبا حروف (NEP) و یا (TSK) نمایش داده شده مقدار بزرگی برحسب مقیاس کشور شوروی ذکر گردیده و عدد بزرگی در پرانتز نمایش داده شده است .

توضیحات دیگر مربوط به این کاتالوگ در مقدمه نشریه شماره ۵۳ ذکر شده است . انتظار دارد با کمک متخصصین فن و علاقمندان ، این قبیل مجموعه ها تکمیل گردد و احیانا " چنانچه خطاهائی‌درارقام‌و توضیحات مندرج در آن ها وجود دارد تذکر فرمایند که رفع ومجموعه های دقیق تری در اختیار قرار گیرد .

دفتر تحقیقات و استانداردهای فنی

INTRODUCTION

The documentation of the seismicity of Iran has now reached the stage which allows the publication of some preliminary results on the distribution of earthquakes in Iran for this century.

This is the third issue of a bulletin to be published by the Plan & Budget Organization at irregular intervals which hopefully and in a short period of time, will cover the documentation of all seismic events found to have occurred during the present century. The principle emphasis of this presentation is on the engineering effects of earthquakes in Iran rather than on the purely seismological aspects of the events.

The much needed assessment of earthquake risk in Iran cannot be achieved by relying solely on the local or world-wide seismograph data available. The five first class seismic stations at present in existence in Iran are inadequate to locate with accuracy small to moderate local earthquakes which can be equally as damaging as larger shocks. The identification and assessment of macroseismic effects, therefore both contribute to the information available and is invaluable in combination with the instrumental data in reducing bias in the determination of focal parameters particularly of focal depth for earlier events. A relocation programme based on a joint epicenter determination technique and using macroseismic data is already well advanced. The purpose of this catalogue is thus to present in an orderly fashion both instrumental data and the related macroseismic information which material in combination with field evidence permits a re examination of focal estimates delineation of seismic

zones establishment of recurrence relations and the assessment of seismic risk for engineering purposes.

Entries in this catalogue have been arranged to read as follows:

The date and origin time of the event is given in hours minutes and seconds(GMT). When no seconds or minutes are shown the time refers to macroseismic information and the time at which the shock was felt locally(GMT). The focal location of the event estimated from instrumental results. i. e. the geographical co-ordinates of the epicenter and focal depth in kilometres. is shown and the agency reporting this location is given first in the reference column. Other agencies reporting different focal estimates are also shown. In all cases magnitude values are the average of those reported by different stations . In the case of K TKSE magnitudes determined by the Soviet networks (TSK and NEP) these are given in brackets.

The radius of perceptibility r_3 in kilometers and the maximum intensity I_o (MM). when known are also given. Asterisked entries indicate minimum values.

In a catalogue like this, composed from press reports and from microseismic data estimated using different methods and instruments, many errors will doubtless be found. Also, with the great number of place names although we have followed the official Village Gazetteer of Iran mistakes are unavoidable. We would be most grateful, therefore, for any corrections or notices of omissions that could help to eventually produce an earthquake catalogue of Iran for this century that is as accurate and reliable as possible.

Date	Time (GMT)	Epicenter	M_6	M_5	h	I_o	r_3	Macroseismic data, references
Jan. 1								
2	115933	29.52 - 52.56	4.8		34			relatively strong earthquake at Minudasht(et/13 Dey)
4	125814	38.1 - 55.7	.	(10)				Strongly felt in Maharlu and Shiraz where it cause minor damage; followed by three strong aftershocks up 1630 causing panic; (pr,ke/13-4 Deh, ICS, IC, US)
8	085253	36.3 - 57.7	.	(10)				(NEP)
9								(NEP)
10	104348	27.3 - 56.0	4.6		61			relatively strong earthquake at Gorgan (et/19 Dey)
14	115410	39.7 - 44.6	.	(9)				(IC, US)
14	181226	38.0 - 54.8	.	3.6				(TSK)
19	135348	37.5 - 56.7	.	3.7				Very strong at Aliabad and Gorgan (ke,pr/25 Deh, NE
21	224655	39.1 - 46.1	.	(10)				Felt in the Atrek valley and Bojnurd, without damag (pr,ke/30 Deh, NEP, ICS)
22	10	-	.					(TSK)
22	203413	33.80 - 46.83	4.9		51			Felt in Maku (ke/3 Bah)
22	212044	33.80 - 46.80	4.9		51			(IC, US, BC)
22	215330	37.3 - 56.0	.	(9)				(IC, US, BC)
31	201902	37.5 - 57.2	.	(8)				(NEP)
Feb. 2	111537	37.4 - 57.0	.	(9)				(NEP)
8	0930	-	.					(NEP)
9	213242	39.7 - 49.7	.	(10)	10			Strong in Lar and vicinity, followed by one aftersho (ke/22 Bah)
12								(TSK)
12								at Shahsavar a shock caused panic(et/24 Bah)
16	201333	39.1 - 44.7	.	(9)				at Alan-Baraghus(Tabriz)a shock caused some damages (et/24 Bah)
19	003748	39.5 - 44.7	.	(10)				(TSK)
								Caused panic in Maku (ke/3 Isf, TSK)

Feb.	20	064338	36.2	- 55.7	.	(10)				(NEP)
	21	095512	39.6	- 44.8	.	(10)				Strong in Maku; it caused no damage (ke/3 Isf, TS
	22	171827	37.2	- 57.7	.	4.0				(NEP)
Mar.	5	013111	35.6	- 58.7	.	(9)				(NEP)
	5	1303		-	.					Felt in Shahsawar region, particularly at Rudsar a Ramsar, followed by an aftershock at 1330 (pr,ke/16 Is
	7	194537	38.2	- 47.2	.	3.2				(TSK)
	14	070950	38.1	- 57.5	.	(10)				(NEP)
	22	114919	38.1	- 57.5	.	4.0				(NEP)
	22	132958	36.8	- 58.5	.	3.6				(NEP)
	23	164728	37.4	- 59.4	.	(10)				(NEP)
	24	225639	37.0	- 59.0	.	(9)				Felt in Quchan (ke/8 Farv, NEP)
	25	113848	36.9	- 58.4	.	(9)				Felt in Quchan (ke/8 Farv, NEP)
	26	044225	29.91	- 51.84	4.9		62			(IC, US)
	27	24		-	.					Strongly felt in Torbat-i Haydarieh (ke/8 Farv)
	30	112217	39.6	- 54.0	.	(10)				(NEP)
Apr.	3	133849	32.57	- 48.72	4.5		34			(IC, US)
	4	002917	38.5	- 44.9	.	(10)				(TSK)
	5	081451	39.3	- 44.3	.	(9)				(TSK)
	9	141301	37.4	- 56.3	.	(9)				(NEP)
	15	090003	39.2	- 55.8	.	(10)				(NEP)
	23	123859	27.65	- 56.67	4.9		36			(IC)
	23	123949	27.68	- 56.76	5.1		74		170	Strong in Hajjiabad and Bandar Abbas; felt widely at Bastak, Lingeh and Minab, followed by many slight shocks (pr,ke/4 Ord, ICS, IC, US)
	26	025824	35.09	- 50.16	5.2		32	VI+	140	Damaging shock at Tigabad and Abadeh Nivasht; str felt at Gharqabad where walls cracked; felt at Arak, and in the Kharaqan area (pr,ke/6-8 Ord, ICS, IC, US,

Apr.	29	170156	39.24 - 44.23	5.3	5.7	17	VII+	190	Destructive in the Dehestans of Avajiq and Chalder of western Azarbaijan. About 90 villages were affected which 10 were completely destroyed with the loss of 42 lives; many hundreds on animals were killed and 6,000 people were made homeless. In the village of Gol 18 out of 200 people were kil and the 35 houses of the village were destroyed; in Qezel Suri, 8 of the 240 inhabitants were killed and 47 houses destroyed; 7 were killed in Shah Bandalu, 3 in Saz Aghel out of 45, 2 in Arkhashan, 2 in Shadlu-ye Sof and 1 in Pareh Khodik where the shock caused large-scal landslides. The villages of Aghbolagh, Majnun-e Olia Qermezi Dizaj, and Saghu were ruined. The earthquake triggered many landslides and rockfa at Ghar Dizaj, on the road between Bedowli and Bashkand and as far as Maku. The only reinforced concrete structure in the regio the Customs Building in Bazargan where the intensity was V+, suffered no damage. The shock was felt in Khoi, Tasuj, Marand, Goris (IV Nakhichevan, Julfa. Followed by many aftershocks. (pr,et,ke/10-18 Ord, ICS, Ayatollahi et al 1968, Nabavi Ruttner et al 1968, IC, US, UR, BC, TAB, BAT, RLS, FS)
	29	1722	-	.	3.2		IV		Felt in Saz Aghel (pr, TAB)
	29	183857	39.3 - 44.3	.	4.1		V+		Felt in Maku (pr, TAB, TSK)
	29	1847	-	.	2.7				(TAB)
	29	195706	39.2 - 44.3	4.4	(10)		VI	40	Widely felt in epicentral area (pr,FS, TAB, TSK)
	29	221627	39.7 - 46.1	.	(9)				(TSK)
	29	2305	-	.	3.1		IV		Felt in Maku (pr, TAB)
	30	1155	-	.	3.0		IV		Felt in Maku (pr, TAB)
	30								
	30								earthquake at Bujnurd with no damage(et/11 Ord)
May	1	0906	-	.	.				shock at Shahabad-e-Gharb(et/11 Ord)
	1	1017	-	.	3.3				Felt in Takht-i Ravan and Gol (pr/12 Ord)
									Felt in Gol (pr/12 Ord, TAB)

May	1	2340		-	.	3.4			Caused the collapse of houses at Siyah Cheshmeh ar additional damage to the ruined Gol (pr/12 Ord, TAB) The shocks of the 30th Apr. and 1st May at 1017 killec more people at Siyah Cheshmeh (FS)
	2	100228	39.3	- 44.4	.	3.8	VI	45	Damaging shock about 20 kilometres south-southeast of the epicentral area demolished the village of Siyal Cheshmeh and caused serious damage to Zavieh and Takht Ravan Sofla, (pr,ke,et/12-13 Ord, FS, TAB) The shock felt at Bazargan.
	2	1352		-	.	3.4	IV		Felt in Takht-i Ravan (pr/13 Ord, TAB, KER) At 20 hours another shock caused damage at Siyah Chesl (ke/14 Ord)
	4	0604		-	.	3.3			Felt in Siyah Cheshmeh (ke/15 Ord, TAB)
	7	074528	38.2	- 58.3	.	(7)			(NEP)
	7	1153		-	.	3.0			Felt in Takht-e Ravan (pr/18 Ord, TAB)
	8	121816	38.7	- 48.3	.	(10)			(TSK)
	9	080755	38.2	- 57.3	.	(10)			(NEP)
	9	2105		-	.				In Shakhkhteh ten houses were damaged (ke/21 Ord)
	11	0630		-	.	3.1			Aftershock at Siyah Cheshmeh (pr/21 Ord, TAB)
	11	214242	39.2	- 44.3	.	3.8	V+	60	Widely felt at Siyah Cheshmeh, Bazarga and Shaha Maku and throughout the epicentral area of the earthq of the 29th April.(pr,ke,et/22 Ord, TSK, TAB)
	11	2345		-	.				Aftershock at Bazargan and Shahabad (ke/22 Ord)
	12	051442	39.2	- 44.2	.	3.8	V+	50	Strongly felt at Maku, Shahabad, Siyah Cheshmeh a Bazargan (ke/22 Ord, TSK, TAB, SHZ)
	12	051618	39.1	- 44.3	.	4.0			(TSK, TAB)
	12	052054	39.5	- 44.3	.	(10)			(TSK)
	14	051842	39.2	- 44.3	.	3.8			Associated with landslides on the Ghazal-kuh whic cut the road between Maku and Abaju (ke/24 Ord,TAB,
	14	064011	39.2	- 44.3	.	(9)			(TSK)
	16	022059	39.0	- 44.3	.	3.8			(TSK, TAB)

May	16	031200	39.2 - 44.4	.	3.4				(TSK, TAB)
	16	055033	39.2 - 44.2	.	3.5				(TSK, TAB)
	18	100435	39.2 - 44.2	.	3.5				(TSK, TAB)
	18	1608	-	.	3.1				
	19	164950	36.61 - 53.35	4.6	4.0	22			Felt at Siyah Cheshmeh and Maku (pr/29/Ord, TAB)
	20	1919	-	.	4.5		VI		Felt in the Zamrud valley causing some damage at Shabkola and Ahudasht (ICS, IC, US, NEP)
	21	2031	-	.	4.0		V		Damaging in the Maku area (TAB)
	22	0510	-	.	3.3				A few ruins collapsed in the Shahbadalu area; strong felt in Maku, Shahabad and Bazargan, followed by minor shocks (pr,ke/1 Khord, TAB)
	22	183608	33.16 - 49.25	4.6		51			Felt in Maku, Shahabad and Bazargan (pr,ke/1 Khor, T (IC, US)
	23	180305	38.8 - 54.4	.	(9)				(NEP)
	24	204249	37.4 - 56.3	.	3.2				(NEP)
	25	112021	36.7 - 54.3	.	3.7				(NEP)
	26	234823	38.5 - 45.0	.	4.1		V-		Very strong at Khoi (ke/6 Khor,TAB, TSK)
	26	235114	38.5 - 44.9	.	4.2		V+		Strongly felt at Khoi and Tasuj and the villages of the surrounding region. Prolonged landslides in Kuh-i-Musaq on the shores of Lake Rezaiyyeh. (pr,ke/6 and 22 Khor, TAB,TSK)
	30	001119	32.73 - 48.26	4.6		54			(IC, US)
	30	011031	27.83 - 53.94	5.2		40	VII+	160.	Destructive at Evaz-i-Lar (Uz or Avuz) where part of the bazaar and seven houses collapsed injuring 15 people Felt in Jahrum and Lingeh (pr,ke/9 Khor, ICS, IC, US)
	30	195306	29.70 - 51.24	5.2		22	VI+		Slight damage at Mishan; strongly felt in Kazerun, and Borazjan (pr/10-11 Khor, ICS, IC, US, BC)
	31		-	.					Continuing shocks in Lar and Evaz have damaged 95% of the houses there; also at Gerash and Deh-kuyeh houses were ruined (pr,ke/10-11 Khor, ICS)

Jun.	4	014426	37.50 - 49.19	4.6		49			(IC, US)
	4	065008	32.86 - 42.28	5.1		45			Felt at Pul-i-Dokhtar, Malavi, Dizful, Khorramabad (pr/ke/14-5 KhOr., IC, US, BC)
	5	132941	38.8 - 54.5		(9)				(NEP)
	9	095632	39.09 - 46.10	5.0	5.0	31	VII+	190	Destructive in Zangezur in the USSR. The villages Gekhi, Gird, Zabukh, Kadjaran, Keypashin, Niurgiod, Kh and Chaikend were ruined; these villages are confined within an area of 75 square kilometres at 39.2°N - 46. with I_0 = VII+. Ground deformations associated with slumping and sliding was noticed near Girdand Gekhi. The shock was strongly felt at Ahar and Shabistar in the region of Karachehdag and Arasbaran in Iran. Numerous aftershocks. (Bagramin A. 1972, Rustanovich D. 1972, Shirokova E. pr,et,ke/19-20 Khor, IC, US, UR, TSK, TAB)
	9	045830	39.3 - 46.1	.	(9)				(TSK)
	9	071455	39.3 - 46.1	.	(9)				(TSK)
	9	103532	39.3 - 46.1	.	(9)				(TSK)
	9	113822	39.24 - 46.23	4.8	4.2	28		160	Damaging in the Zangezur region; felt at Ahar and vicinity; (ke/19-20 Khor, IC, US, TSK)
	9		-	.	(8)				Felt and recorded at Ashkhabad and Venovska at 09 (NEP)
	10	045730	39.3 - 46.1	.	(9)				(TSK)
	10	055020	39.3 - 46.1	.	(10)				(TSK)
	10	075256	38.1 - 57.9	.	(9)				(NEP)
	10	110840	39.3 - 46.1	.	(9)				(TSK)
	10	133842	39.3 - 46.1	.	(9)				(TSK)
	10	143320	39.3 - 46.1	.	(10)				(TSK)
	10	225740	37.2 - 54.5	.	(10)				(NEP)
	11	011942	39.4 - 45.9	.	(10)				(TSK)

Jun.	11	2300	-	.					Felt at Bandar-Gaz and vicinity (ke/22 Khor)
	11	233522	39.4 - 45.9	.	(9)				(TSK)
	13	114926	39.1 - 44.3	.	(9)				(TSK, TAB)
	13	135728	39.5 - 45.9	.	(9)				(TSK)
	13	150917	38.4 - 56.5	.	(9)				(NEP)
	13	160734	38.3 - 56.5	.	(9)				(NEP)
	13	230400	29.84 - 51.30	4.8		49			(IC, US)
	14	032418	39.3 - 46.0	.	(10)				(TSK)
	15	000824	29.8 - 51.93	4.5		88			(IC, US)
	15	032108	39.2 - 45.9	.	4.1				(TSK)
	16	054514	39.2 - 46.1	.	4.0	13	V+	120	Strongly felt in the Zangezur region; at Goris V, felt in Varzaqan, Kaleybar and Ahar in Iran. (ke/26 Khor, TSK)
	16	062533	39.2 - 46.1	.	2.9				(TSK)
	19	201230	39.1 - 44.2	.	3.8				(TSK)
	22	195650	29.64 - 51.26	4.7		52	V		Felt in Kazerun and near-by villages, causing sligh damage and great panic; followed by aftershocks; (p,ke/2-3 Tir, IC, US, BC)
	23	044000	39.2 - 45.3	.	4.1				(TSK, TAB)
	23	053115	39.3 - 46.6	.	3.5				(TSK, TAB)
	23	091619	29.76 - 51.24	5.3		32	VI		At Borj Seyyd and Khisht most houses were cracked a a few collapsed without casualties; at Kunar Takhteh al a number of houses were damaged and at Chit and Hajji J the shock caused panic; (pr/3-5 Tir, ICS, IC, US, BC)
	24	033007	38.2 - 56.3	.	(10)				(NEP)
	24	043352	39.3 - 46.1	.	3.5				(TSK, TAB)

Jun.	25	101350	39.7 - 49.6	.	4.0		(TSK)
	26	015415	29.74 - 51.12	5.0		17	Additional damage caused in the Khisht - Kunar Takh area (pr/5 Tir, ICS, IC, US)
	26	020848	39.3 - 46.1	.	(9)		(TSK)
	27	102336	36.5 - 59.3	.	(10)		(NEP)
	30	211332	39.2 - 55.9	.	(10)		(NEP)
Jul.	1	200119	39.2 - 44.3	.	(9)		(NEP)
	1	234223	29.56 - 51.20	4.6		33	(IC, US, UR)
	2	214542	37.2 - 58.0	.	(10)		(NEP)
	8	112731	27.98 - 56.97	4.7		108	(IC, US, UR)
	8	171527	29.71 - 51.08	4.8	5.1	35	(IC, US, UR, BC)
	12	103406	29.82 - 50.73	4.7		45	(IC, US, UR)
	12	0222	-	.			Felt at Bandar Pahlavi (ke/22 Tir)
	13	011109	39.3 - 57.2	.	(10)		(NEP)
	14	223438	39.10 - 55.71	4.3	3.7	46	(IC, US, NEP)
	15	083340	32.63 - 48.75	4.5		57	(IC, US, UR)
	19	021217	38.8 - 55.9	.	(10)		(NEP)
	20	222131	36.5 - 58.1	.	(9)		(NEP)
	21	060552	38.8 - 44.0	.	(10)		(TSK)
	21	130023	36.9 - 55.1	.	(10)		(NEP)
	21	170035	30.18 - 51.00	4.4		73	(IC, US)
	23	165212	39.2 - 46.1	.	(10)		(TSK)
	24						R atively strong shock at Sarab(et/3 Ord)
	24	090047	38.3 - 58.7	.	3.6		(NEP)
	26	232240	39.2 - 46.1	.	4.0		(TSK)
	27	034622	39.2 - 46.1	.	(10)		(TSK)
	27	054758	38.3 - 58.1	.	(8)		(NEP)
	29	145450	39.8 - 54.0	.	(10)		(NEP)

Jul.	29	160343	36.72 - 53.85	4.8	3.8	14			(IC, US, UR, NEP)
	31	200500	33.60 - 60.22	4.3		33			(IC, UR)
Aug.	2	035927	36.85 - 49.33	4.7		36			(IC, US, UR)
	2	133023	27.54 - 60.92	5.7		65			(IC, US, UR)
	3	140140	25.19 - 62.85	4.7		29			(IC, US, UR)
	5	082831	37.0 - 49.2	.	3.8				(TSK)
	5	101141	39.3 - 46.0	.	(9)				(TSK)
	6	124333	37.8 - 47.8	.	(10)				(TSK)
	10	042801	37.00 - 43.13	4.9		42			(IC, US, UR, BC)
	12		- .	.					Twenty shocks in the last 24 hours caused 70% of tl houses in Evaz-i Lar to crack (ke/22 Mord)
	13	103845	38.3 - 57.3	.	(8)				(NEP)
	26	055915	26.70 - 55.28	4.6		92			(IC, US)
	28	033120	39.2 - 44.1	.	(9)				(TSK)
	28	055255	40.0 - 52.1	.	3.4				(NEP)
	29	0930	-	.					At Hashtgerd-i Karaj a shock caused panic (et/9 Sha
	30	211119	34.91 - 58.40	4.3		33			(IC, US)
	31	104737	34.08 - 58.87	6.0	7.5	15	X	550+	A most destructive earthquake in Khorasan in the Ni Valley. The shock affected 157 villages with a total population of 112,100 out of which 5,590 were killed; unofficial figures suggest 12,000 killed. Out of 23,2C houses in the area 9,356 were destroyed and 70,000 peop were made homeless. The earthquake was associated with 80 kilometres of left-lateral faulting, in places showing evidence of th with an average displacement of 2.0 metres. Vertical displacements were mainly down to the south by about on metre. The shock was felt with an intensity IV as far as and Badghis in Afganistan and cause water to slosh out c pools in Herat and Bust.

Aug.	31	113433	33.98 - 59.12	5.4		24			(IC, US, UR)
	31	132257	34.11 - 59.49	4.7		13			(IC, US, UR)
	31	140616	34.08 - 59.44	4.9		17			(IC, US, UR, BC)
	31	1804	-	•					Felt in Kerman (et/10 Shar)
Sep.	1	053945	39.14 - 46.20	5.0	4.9	24	VIII	140	Destructive aftershock in the Zangezur area, widel felt as far as Ahar in Iran where it caused concern (see: Bagramin et al (1972), Rustanovic (1972), Shiroko (1972) (pr,ke/10-11 Shahr, IC, US, UR, BC, TSK)
	1	072731	34.09 - 58.24	5.9	6.3	14	VIII	210	Destructive aftershock of the Dasht-e Bayaz earth ruined Ferdows where 730 out of 10,900 people in the were killed. The shock destroyed or damaged beyond r 2,100 houses out of the 2,350 and caused great damage the extreme west part of the Dasht-e Bayaz epicentral (same references as for Dasht-e Bayaz earthquake)

Maximum damage occurred at Dasht-e Bayaz where 1,3 out of 1,670 were killed; at Kakhk 1,379 out of 4,380, at Kareshk 570 out of 670; at Miam 120 out of 302; at Boshkabad 400 out of 1,116 and at Beynabach 380 out of 1,800.

This earthquake has been studied in great detail, Ambraseys et al (1969a,b), Bayer et al (1969), Behzadi (1972), Brown (1969), Bubnov (1968), Crampin et al (19 Eftekhar-Nejad (1968), Javaheri (1970), Moinfar (1969) Niazi (1968, 1969), Pakhtaman (1969), Tchalenko et al (1970,1975), Tchalenko (1970), Wyss et al (1972), H kroth et al (1970)

Seismic moment Mo = 1.8×10^{27}, MoP = 4.8×10^{26}, MoS = 8.6×10^{26}, Strike 71°E, Dip 80°, North (1973), Wys

Destructive aftershock of the Dasht-e Bayaz earth ruined Ferdows where 730 out of 10,900 people in the were killed. The shock destroyed or damaged beyond r 2,100 houses out of the 2,350 and caused great damage the extreme west part of the Dasht-e Bayaz epicentral (same references as for Dasht-e Bayaz earthquake)

Seismic moment Mo = 8.5×10^{25}, thrust, Strike 148 dip 65°, North (1973).

Sep.	1	0730	-		.			Felt in Yazd. If this shock was due to the earthq that ruined Ferdows it should have been felt 440 km fr the epicentre; (ke/11 Shahr).
	1	082318	34.2	- 58.2	5.6	6.3	13	(IC, US, UR)
	1	110358	34.20	- 59.91	4.9		2	(IC, US, UR)
	1	164314	39.3	- 46.0	.	(9)		(TSK)
	1	191637	34.16	- 58.24	4.8		20	(IC, US)
	1	200821	37.4	- 55.8	.	(9)		(NEP)
	1	204416	39.3	- 46.1	.	(9)		(TSK)
	1	211641	34.17	- 58.18	4.8		37	(IC, US, UR)
	2	061829	39.3	- 46.1	.	(10)		(TSK)
	2	070320	39.3	- 46.1	.	(10)		(TSK)
	2	185141	37.0	- 54.5	.	(10)		(NEP)
	3	013814	39.3	- 46.1	.	(9)		(TSK)
	3	095350	34.02	- 59.26	5.0		30	(IC, US, UR)
	3	2130		-	.			Causing panic in Behbehan (ke/13 Shahr)
	4	055408	34.21	- 58.50	4.7		33	(IC, US)
	4	055428	37.2	- 56.2	.	(10)		NEP, UR)
	4	080845	34.20	- 59.47	5.0		24	(IC, US, UR)
	4	111935	34.00	- 59.31	5.1		25	Damaging in Dasht-e Bayaz area and Ferdows, followe by many shocks (ke/14 Shahr, IC, US, UR, BC)
	4	191313	39.3	- 46.1	.	(9)		(TSK)
	4	232445	34.06	- 58.32	5.4	5.2	1	Damaging in Ferdows area (ke/14 Shahr, IC,US,UR,BC)
	6	022736	34.06	- 59.52	4.9	4.8	16	150 Strongly felt over a large area including Qain (pr,ke,et/16 Shahr, IC, US, UR, BC)
	6	045459	39.3	- 46.1	.	(9)		(TSK)
	7	170413	37.7	- 56.6	.	(10)		(NEP)

Sep.	8	142822	39.2 - 44.1	.	(10)				(TSK)
	10	0215	-	.					Very strong at Bujnurd (ke/19 Shahr)
	10	145240	39.3 - 46.1	.	(9)				(TSK)
	10	203158	34.08 - 59.49	4.7		10			Very strong at Qain and Damghan (sic), bringing d four houses and affects mosque at Gonabad; aftershock (ke/20 Shahr, IC, US, UR, BC)
	11	191713	34.03 - 59.54	5.2	5.4	33		160	Caused additional damage to the epicentral area; strong at Bajestan, Qain and Gonabad; felt in Birjand, Torbat-i Haydarieh and Kashmar; aftershocks; (pr,ke/21-22 Shahr, IC, US, UR, BC)
	12	0212	-	.					Causing panic in Damghan, no damage (et/21 Shahr). preceded by a shock at 0150.
	14	0415	-	.					Felt in Khurramabad (et/23 Shahr)
	14	134832	28.42 - 53.15	5.8	6.0	34	VII	150+	Caused heavy damage in the Afzar district; preced a shock at 01h 50m, the main shock ruined almost all in Barikhun, Tang-e Ruin and caused damage to Mobarak where a number of people were injured; in villages no west of that place, a number of houses collapsed; the caused minor damage in Jahrum and it was strongly fel ruzabad; it was also felt as a slight shock in Fasa nj and Lar. Followed by violent aftershocks. (pr,et,ke/24-29 Shahr, ICS, DEW, IC, US, UR, BC,SHZ)
	14	192024	28.40 - 53.19	5.1	5.9	34	VII+		Destructive in Mobarakabad where almost all house destroyed 1 person killed and 3 injured; damage exten to Karzin, Barikhun and in the Afzar area; slight dam in Firuzabad and Jahrum; continuing aftershocks, (pr,ke,et/24-29 Shahr, ICS, DEW, IC, US, UR, BC, SHZ)
									For the shock at 13h 48m 32s, Seismic moment Mo = 2.9 Thrust, strike 108°E, dip 30° (NRTH)
	15	061501	28.41 - 53.24	4.6		35			Felt in Firuzabad (ke/25 Shahr, DEW, IC, US)

Sep.	15	094214	34.03 - 59.59	4.8		14		Strongly felt in Qain (ke/25 Shahr,IC, US, UR)
	15	1504	-	.	5.0		VI	Damaging in Jahrum and vicinity (pr/26 Shahr, TEH)
	15	1922	-	.				Strongly felt in Jahrum (pr/26 Shahr)
	16	071007	39.3 - 46.3	.	4.2	44		(IC, TSK)
	16	1755	-	.				Strong at Khurramabad (et/26 Shahr)
	17	191509	34.10 - 58.37	4.4		38		Felt in Qain, and Gonabad (pr,et/27 Shahr, IC, US, U
	17	1930	-	.				Caused panic in Torbat-i Haydarieh and it was strong felt at Torbat-i Jam (pr,et/27-8 Shahr)
	17	2330	-	.				Felt in Shahr-i Kurd and vicinity (pr/27-8 Shahr)
	19	051514	34.21 - 58.05	4.6		42		(IC, US)
	19	221239	28.45 - 53.17	5.1		24		Felt in Jahrum (ke/30 Shahr, DEW, IC, US, UR)
	19	233558	28.37 - 53.26	4.7		40		(DEW, IC, US, UR)
	27	041958	39.4 - 45.9	.	(9)			(TSK)
	27	093457	38.3 - 57.9	.	(8)			(NEP)
	27	1630	-	.				Felt in Bushire and srroundings (pr,ke/6-7 Mehr)
	28		-	.				Continuing shocks in Jahrum; strong shock (pr/7 Mehr
	29	0130	-	.				Preceded by numerous shocks, strong earthquake in Khurramabad causing panic (ke/7 Mehr)
	29	2330	-	.				Strongly felt in Gach Saran; preceded by many minor shocks during the last six months (ke/8 Mehr)
Oct.	1	181603	39.19 - 46.21	3.5	3.6	10	V	Causing panic in Kaleybar (pr/10 Mehr, IC,US, UR, TSI
	2		-	.				Felt, the 37th shock in Jahrum during the last fortnight (ke/11 Mehr)
	2	1100	-	.				Violent shock felt in Langerud, Rudsar and Lahijan as well as near-by villages (ke/11 Mehr)
	3	201605	39.3 - 46.1	.	(9)			(TSK)
	4	090438	37.5 - 59.4	.	(10)			Caused small damage in Quchan and Jafarabad; (pr,ke/14-15 Mehr, NEP)

Oct.	4	2330		-	.			Felt in Gonabad (ke/14 Mehr)
	5	212721	36.5	- 54.7	.	(10)		(NEP)
	5			-	.			Felt in Ferdows together with other shocks during last 24 hours (ke/15 Mehr)
	5	220022	39.4	- 45.3	.	(9)	10	(TSK)
	9	180605	29.5	- 53.8	.		46	(IC, US)
	10	183326	38.3	- 47.5	.	(10)		Strongly felt at Meshginshahr and Ahar; no damage in either (ke/21 Mehr, TSK)
	13	013453	34.10	- 58.87	.		29	(IC, US, UR)
	13	131132	39.4	- 45.5	.	(9)		(TSK)
	13			-	.			Felt in Jahrum (ke/22 Mehr)
	16	1400		-	.			Felt in Kazerun (ke/25 Mehr)
	16	152733	32.60	- 48.93	4.1		68	Felt in Bala Rud, 14 km north of Andimeshgh and i Vakhman-i Ghir (?)= Vakhmanshir and Andimeshgh. (ke/25 Mehr, IC, US, BC)
	16	1745		-	.			Felt in Kazerun and Guyom (?) (ke/25 Mehr)
	16	2350		-	.			Widely felt, from Andimeshgh to Dorud (ke/25 Mel
	17	075127	39.3	- 46.1	.	(9)		(TSK)
	22							earthquake occurred at Tange-Haft and Tange-Panj (railway stations of southern part) between Sefid dasht and Andimeshk(et/30 Mehr)
	23	220153	38.8	- 53.3	.	3.2		(NEP)
	25	063840	38.1	- 55.8	.	(9)		(NEP)
	25	2100		-	.			Felt in Jahrum (et/4-5 Aban)
	27	212555	38.2	- 58.2	.	(9)		(NEP)
	29	0214		-	.			Felt in Lar (ke/9 Aban)
Nov.	6	170607	31.84	- 50.76	4.6		51	(IC, US, UR)
	12	2130		-	.			This was the 50th aftershock felt in Jahrum (ke/
	13	013603	38.6	- 56.6	.	(10)		(NEP)

Nov.	13	072828	39.6	- 53.7	.	3.6			(NEP)
	15	062539	37.6	- 58.5	5.1	5.5	22	VII	175 Damaging in the Ashkhabad region. At Nasosnay almost all houses were damaged and five collapsed. Within a radius of 20 kilometres the villages of Annay, Kipchak, Kaledjar and Shorkala were damaged and Ashkhabad itself was shaken with an intensity VI+. The earthquake was studied by Galinski et al (1972). (IC, UR, BC, NEP)
	16	2330		-	.				Felt at Oshnuiyeh (ke/26 Aban)
	17	0200		-	.				Felt at Oshnuiyeh (ke/26 Aban)
	18	142303	27.40	- 53.22	,		89		(IC, UR)
	28	180246	34.23	- 59.65	4.8		33		(IC, UR)
Dec.	3	091717	37.4	- 56.8	.	(8)			(NEP)
	7	2200		-	.				Strongly felt in Qasr-i Shirin and its villages causi some damage to houses. (ke/17 Azor)
	11	182541	39.4	- 46.6	.	(9)			(TSK)
	12	185447	35.80	- 53.49	4.9		27	VI+	Strongly felt in Semnan causing some damage at Sangsa and Shahmirzad; rockfalls on the road to Kiasar. (pr, ke/22-23 Azor, ICS, IC, US, UR)
	15	062529	38.0	- 58.32	.		20		(IC, UR)
	15	111640	39.1	- 55.6	.	(10)			(NEP)
	18	030806	37.9	- 57.2	.	3.6			(NEP)
	18	032525	37.6	- 57.2	.	(9)			(NEP)
	25	0400		-	.				Felt in the Sanandaj region, particularly at Paveh and vicinity where it caused some damage. (ke/4-6 Deh)
	26	122113	38.3	- 47.9	.	(9)			(T)
	28	0730		-	.				Felt at Ramsar (pr,ke/8 Dey)
	29	0830		-	.				Felt in Shirvan and Ilam, causing panic; no damage. (pr,ke/8-9 Deh)

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