

WEATHER IN PAKISTAN NORTHEAST MONSOON SEASON (JAN - MAR 2005)

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Introduction:

Northeast monsoon season of 2005, commenced over northern and central parts of the country on the very first day of the season i.e. 1st January. After three days of wet spell, rainfall activity ceased and restarted on 21st January. Two subsequent western disturbances affected the country from 3rd to 21st February later on third and fourth prevailed over the region from 1st to 6th & 15th to 22nd March respectively. Under the influence of these weather systems moderate to heavy rainfalls and a few dust storms in plains were reported almost at all the places in northern and central parts of the country and at many places in southern parts of the country. Heavy snowfall also occurred over the mountains of northern areas in association with these strong western disturbances. The peculiar feature of this winter was a heavy spell of snowfall over the Margalla hill and even in Islamabad / Rawalpindi.

Seasonal rainfall (mm) (January-March):

Seasonal rainfall recorded at meteorological observing stations in the whole country was in large excess at 37, moderate excess at 9, slight excess at 4, normal at 1 and slight deficit at 1, moderate deficit at 1 and in large deficit at 3.

Rainfall remained in excess over northern areas, NWFP, Punjab and Balochistan whereas deficit was reported from the most meteorological stations of Sindh. On the country wide scale, rainfall during the winter season the principal amounts of rainfall during the month of January, February and March 2005 stayed in excess. The principal amounts of rainfall during the month of January February and March 2005 are given in Annex-1. Seasonal station wise percentage rainfall departures are given in Fig. 1 and percentage departures in Table 2 whereas province wise graphic representation of rainfall is given in Fig 2.

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Monthly features:

January:

Weather and associated synoptic features:

Details of weather systems formed during the month are given in Table-3. Rain/thundershowers occurred almost at all the places or at a number of places on 6–9 days in Malakand, Hazara, Kohat and Peshawar regions, on 3–5 days in FATA, Bannu, D.I.Khan, Rawalpindi, Gujranwala, Sargodha and Lahore regions, on 1–2 days in Faisalabad, Multan, D.G.Khan, Bahawalpur, Zhob, Sibbi, Kalat and Karachi regions. Rain/thunderstorms also occurred at a few places or at isolated places on 6-9 days in Rawalpindi, Quetta and Kalat regions, on 3-5 days in FATA, Hazara, Peshawar, Faisalabad, Mekran and Hyderabad regions, on 1-2 days in Malakand, Bannu, D.I.Khan, Gujranwala, Lahore, Multan, D.G.Khan, Bahawalpur, Sibbi, Sukkur and Mirpurkhas regions.

Rainfall distribution:

The rainfall was in large excess at 38 meteorological observing stations (Gupis, Gilgit, Skardu, Bunji, Chilas, Astor, Muzaffarabad, Garhi Dupatta, Kotli, Parachinar, Dir, Drosh, Saidu Sharif, Kakul, Balakot, Kohat, Peshawar, Risalpur, Cherat, D.I.Khan, Chaklala, Murree, Jhelum, Sialkot, Mianwali, Sargodha, Faisalabad, Shorekot, Lahore (PB0), Lahore (A/P), Multan, Bahawalnagar, Jiwani, Hyderabad, Badin, Chhor, Karachi (A/P) and Karachi (Masroor); in slight excess in 1 meteorological observing station (Sibbi); normal in 3 meteorological observing stations (Quetta, Pasni and Moenjodaro); in slight deficit in 1 meteorological observing station (Kalat); in moderate deficit in 3 meteorological observing stations (Chitral, Bahawalpur and Nawabshah) and in large deficit in 10 meteorological observing stations (Khanpur, Dalbandin, Nokkundi, Zhob, Barkhan, Khuzdar, Panjgur, Jacobabad, Rohri and Padidan).

Annex-1: Principal amounts of rainfall (30 mm and above) during the winter 2005.

Date	January			February			March		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Garhi Dupatta 101, Cherat 95, Risalpur 86, Dir 76, Kohat 75, Rawalakot 73, Peshawar 72,, Kamra 72, Bannu 68, Muzaffarabad 63, Saidu Sharif 63, Balakot 53, Jhang 51, D.I.Khan 50, Malam Jabba 50, Mianwali 44, Parachinar 42, Kakul 39, Rawalpindi 38, Islamabad 34, Kotli 34, Mangla 31 & Multan 31.		Nil			Nil			Nil
2	Garhi Dupatta 33.		Nil					Jiwani 116, Gawadar 77, Turbat 46, Nokkundi 41 & Panjgur 35.	
3		Nil	Nil					Nil	
4		Nil	Nil					Nil	
5		Nil	Rawalakot 87 & Malam Jabba 31.					Nil	
6		Nil	Murree 48.					Mianwali 33.	
7		Nil	Garhi Dupatta 67, Balakot 61, Islamabad 49, Rawalpindi 42, Rawalakot 39, Muzaffarabad 37, Murree 37 & Kakul 33.					Nil	
8		Nil	Turbat 45 & Kalam 30.					Nil	
9		Nil	Kalam 58, Turbat 51, Garhi Dupatta 47, Kotli 38, Rawalakot 34, Islamabad 34 & Rawalpindi 32.					Dalbandin 30.	
10		Nil	Turbat 52, Panjgur 48, Murree 48, Rawalakot 46, G/Dupatta 42, Kotli 41, Islamabad 39, Khuzdar 36, Kalat 35, Kalam 32, Balakot 32 & Kakul 31.					Rawalakot 34.	

Date	January			February			March		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11	Nil	Nil	Rawalakot 60, S. Sharif 57, Chitral 56, Kalam 55, Parachinar 49, G/Dupatta 47, Drosh 43, Dir 43, Malam Jabba 40, Risalpur 32 & Muzaffarabad 30.	Nil	Rawalakot 60, S. Sharif 57, Chitral 56, Kalam 55, Parachinar 49, G/Dupatta 47, Drosh 43, Dir 43, Malam Jabba 40, Risalpur 32 & Muzaffarabad 30.	Nil	Rawalakot 60, S. Sharif 57, Chitral 56, Kalam 55, Parachinar 49, G/Dupatta 47, Drosh 43, Dir 43, Malam Jabba 40, Risalpur 32 & Muzaffarabad 30.	Nil	Rawalakot 60, S. Sharif 57, Chitral 56, Kalam 55, Parachinar 49, G/Dupatta 47, Drosh 43, Dir 43, Malam Jabba 40, Risalpur 32 & Muzaffarabad 30.
12	Nil	Nil	Kalam 71, Murree 57, Balakot 45, S. Sharif 44 & Dir 37.	Nil	Kalam 71, Murree 57, Balakot 45, S. Sharif 44 & Dir 37.	Nil	Kalam 71, Murree 57, Balakot 45, S. Sharif 44 & Dir 37.	Nil	Kalam 71, Murree 57, Balakot 45, S. Sharif 44 & Dir 37.
13	Nil	Nil	Dir 49.	Nil	Dir 49.	Nil	Dir 49.	Nil	Dir 49.
14	Nil	Nil	Nokkundi 61 & Kalat 41.	Nil	Nokkundi 61 & Kalat 41.	Nil	Nokkundi 61 & Kalat 41.	Nil	Nokkundi 61 & Kalat 41.
15	Nil	Nil	Shorekot 37.	Nil	Shorekot 37.	Nil	Shorekot 37.	Nil	Shorekot 37.
16	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
17	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
18	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
19	Nil	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.
20	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
21	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
22	Murree 93, G/Dupatta 52, Kotli 37, Muzaffarabad 35, Rawalakot 34, Islamabad 32, Malam Jabba 30 & Kamra 30.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.	Nil	Rawalakot 61, G/Dupatta 44 & Murree 43.
23	Sialkot 33, Kotli 32 & Rawalakot 31.	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Date	January	February	March
(1)	(2)	(3)	(4)
24	Nil	Nil	Nil
25	Jiwani 42 & G/Dupatta 38	Nil	Nil
26	Nil	Nil	Nil
27	Parachinar 38.	Kalat 36.	Nil
28	Murree 63, G/Dupatta 55, Parachinar 33, Mangla 33, Balakot 30, Jhelum 30 & Lahore (A/P) 30.	Nil	Nil
29	Nil	Nil	Nil
30	Nil	Nil	Nil
31	Nil	Nil	Nil

Table 2: Stationwise rainfall(mm) for each month and season as a whole (January - March 2005)

	Jan			Feb			Mar			Season		
	Actual	Normal	Dep %	Actual	Normal	Dep%	Actual	Normal	Dep%	Actual	Normal	Dep%
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
1 Gupis	26	5	420	35	4	400	21	9	133	82	18	355
2 Gilgit	11	4	175	14	6	133	12	13	-8	37	23	61
3 Skardu	38	21	81	46	24	92	15	40	-63	99	85	16
4 Bunji	35	4	775	5	6	-17	3	16	-81	43	26	65
5 Chilas	29	8	263	35	13	169	16	30	-47	80	51	59
6 Astor	53	35	51	111	49	127	28	83	-66	192	167	15
7 Muzaffar- abad	175	94	86	270	135	100	146	157	-7	591	386	53
8 Garhi Dupatta	310	96	223	447	151	196	169	184	-8	926	431	115
9 Kotli	127	76	67	193	99	95	102	119	-14	422	294	43
10 Parachinar	141	43	228	150	74	103	91	121	-25	382	238	61
11 Chitral	21	37	-43	125	63	98	84	107	-21	230	207	11
12 Dir	185	111	67	255	173	47	303	242	25	743	526	41
13 Drosh	93	42	121	91	68	34	70	113	-38	254	223	14
14 Saidu Sharif	134	76	76	228	103	121	138	180	-23	500	359	39

	Jan			Feb			Mar			Season		
	Actual (mm)	Normal (mm)	Dep % (mm)	Actual (mm)	Normal (mm)	Dep % (mm)	Actual (mm)	Normal (mm)	Dep % (mm)	Actual (mm)	Normal (mm)	Dep % (mm)
15 Kakul	117	65	80	196	114	72	187	142	32	500	321	56
16 Balakot	160	95	68	333	153	118	185	189	-2	678	437	55
17 Kohat	133	25	432	143	42	240	115	86	34	391	153	155
18 Peshawar	128	26	392	132	43	207	149	98	52	409	167	145
19 Risalpur	129	35	269	130	53	145	79	80	-1	338	168	101
20 Cherat	142	36	294	15	67	-78	126	111	13	283	214	32
21 D.I.Khan	64	10	540	67	17	294	34	35	-3	165	62	166
22 Chaklala	97	56	73	213	73	192	87	90	-3	397	219	81
23 Murree	212	127	67	387	145	167	193	177	9	792	449	76
24 Jhelum	80	34	135	66	50	32	57	61	-7	203	145	40
25 Sialkot	82	39	110	87	44	98	70	55	27	239	138	73
26 Mianwali	77	24	221	119	24	396	157	57	175	353	105	236
27 Sargodha	80	13	515	56	23	143	95	35	171	231	71	225
28 Faisalabad	26	11	136	42	20	110	112	26	331	180	57	216
29 Shorekot	31	7	343	90	12	650	49	25	96	170	44	286
30 Lahore (P.B.O)	64	23	178	56	29	93	64	41	56	184	93	98
31 Lahore (A/P)	59	21	181	72	29	148	46	43	7	177	93	90
32 Multan	38	7	443	57	9	533	54	19	184	149	35	326

	Jan			Feb			Mar			Season		
	Actual (mm)	Normal (mm)	Dep % (mm)	Actual (mm)	Normal (mm)	Dep% (mm)	Actual (mm)	Normal (mm)	Dep% (mm)	Actual (mm)	Normal (mm)	Dep% (mm)
33 Bahawalpur	4	6	-33	45	11	309	28	9	211	77	26	196
34 Bahawal-Nagar	19	4	375	56	16	250	44	15	193	119	35	240
35 Khanpur	1	4	-75	26	5	420	5	6	-17	32	15	113
36 Quetta	54	57	-5	119	49	143	62	55	13	235	161	46
37 Dalbandin	0	16	-100	46	18	155	77	19	305	123	53	132
38 Nokkundi	0	11	-100	94	8	1075	93	8	1063	187	27	593
39 Zhob	0	18	-100	54	26	108	73	48	52	127	92	38
40 Barkhan	5	16	-69	82	21	290	107	33	224	194	70	177
41 Sibbi	8	7	14	65	10	550	110	25	340	183	42	336
42 Kalat	21	24	-13	168	27	522	45	25	80	234	76	208
43 Khuzdar	8	18	-55	105	24	337	69	29	138	182	71	156
44 Panjgur	3	16	-81	100	16	525	63	16	294	166	48	246
45 Pasni	18	19	-5	14	19	-26	38	14	171	70	52	35
46 Jiwani	50	27	85	3	33	-91	129	10	1190	182	70	160
47 Moenjodaro	0	0	0	45	5	800	17	2	750	62	7	786
48 Jacobabad	0	3	-100	22	7	214	5	10	-50	27	20	35
49 Rohri	1	3	-67	20	8	150	13	6	117	33	17	94
50 Nawabshah	1	2	-50	0	2	-100	0	3	-100	1	7	-86

	Jan			Feb			Mar			Season		
	Actual (mm)	Normal (mm)	Dep % (mm)	Actual (mm)	Normal (mm)	Dep% (mm)	Actual (mm)	Normal (mm)	Dep% (mm)	Actual (mm)	Normal (mm)	Dep% (mm)
51 Padidan	0	1	-100	11	5	120	0	5	-100	11	11	0
52 Hyderabad	2	1	100	3	4	-25	0	5	100	5	10	-50
53 Badin	2	1	100	0	4	-100	0	2	-100	2	7	-71
54 Chhor	2	1	100	0	2	-100	0	5	-100	2	8	-75
55 Karachi (A/P)	11	6	83	13	10	30	0	12	-100	24	28	-14
56 Karachi (Masroot)	16	4	300	20	6	233	0	8	-100	36	18	100

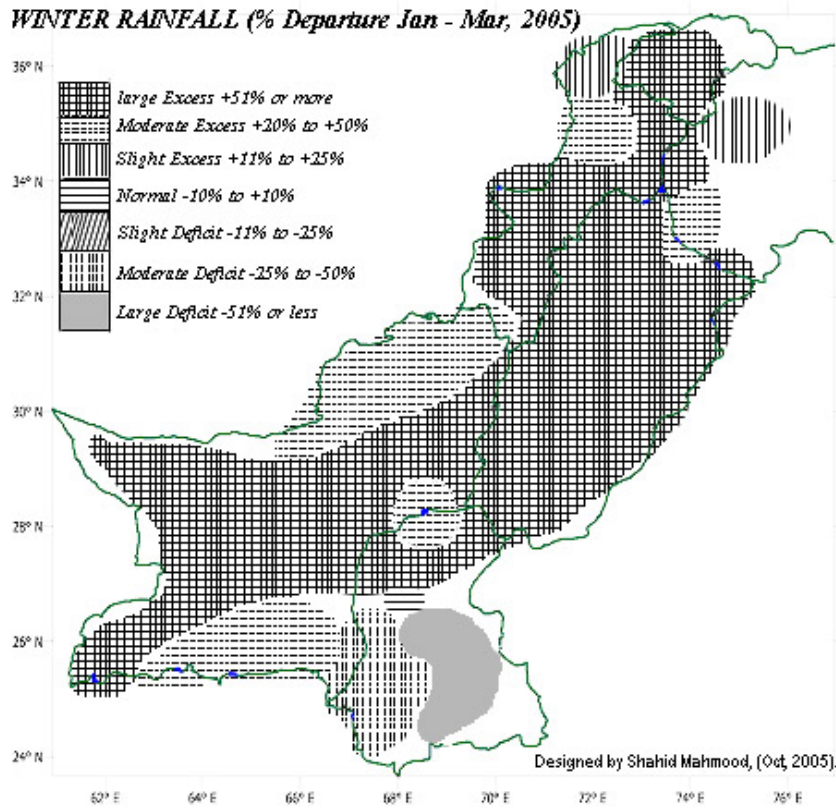


Figure 1

Temperature distribution:

Severe cold wave conditions prevailed on 1-2 days in FATA and Kalat regions. Night temperatures were below normal for 7-9 days in Hazara, Quetta, Mekran and Sukkur regions, for 4-6 days in Peshawar, Kalat, Mirpurkhas and Karachi regions, for 1-3 days in FATA, Malakand, Multan, Bahawalpur, Gujranwala, Faisalabad, Lahore, Zhob and Hyderabad regions. They were above normal for 10-12 days in Lahore, Quetta and Mekran regions, for 4-7 days in Sibbi, Kalat, Larkana, Sukkur, Hyderabad and Karachi regions, for 1-2 days in FATA, Peshawar, Zhob, Multan, Bahawalnagar, Mirpurkhas, Sibbi, D.I.Khan, Rawalpindi, Gujranwala and Sargodha regions. They were slightly above normal on 1 day each in Quetta and Sibbi regions. The month's lowest minimum

temperature over the plains of the country was -0.6°C recorded at Chaklala (Rawalpindi region) on 20th January.

Table 3: Details of the weather systems during January 2005

S.No	System	Period	Place of the first location	Direction of Movement	Place of final location	Remarks
1	2	3	4	5	6	7
1	Low pressure area	1-2	South Punjab & adjoining Upper Sindh	Stationary	South Punjab & adjoining areas	Became less- marked on 3.
2	Low pressure area extended upto mid-tropospheric level	1-3	Upper NWFP & adjoining areas	Eastwards	Kashmir & adjoining areas	Moved away eastwards on 4.
3	Low pressure area	12-13	Southeast Iran & adj. areas	Southeastwards	North Arabian Sea & adjoining areas	Moved away southeastwards on 14.
4	Low pressure area extended upto mid-tropospheric level	13-14	Northeast Afghanistan & adjoining areas	Northeastwards	North of NWFP	Moved away northeastwards on 15.
5	Low pressure area	20-22	West Balochistan & adjoining areas.	Do	Northeast Balochistan	Became less- marked on 23.
6	Low pressure area extended upto mid-tropospheric level	21-24	Upper NWFP & adjoining areas	Eastwards	Kashmir & adjoining areas	Moved away eastwards on 25.
7	Low pressure area	24-26	Northwest Arabian Sea & adj. areas	Do	Lower Sindh & adjoining areas	Moved away eastwards on 27.
8	Low pressure area extended upto mid-tropospheric level	26-29	Upper NWFP & adjoining areas	Do	Kashmir and adjoining areas	Moved away eastwards on 30.

February

Weather and associated synoptic features:-

Details of weather systems formed during February 2005 are given in table 4.

Rain/thundershowers occurred almost at all the places or at a number of places for 13-16 days in FATA, Malakand and Hazara regions, for 7-11

days in upper and central parts of Punjab, NWFP and Balochistan and for 1-6 days in lower NWFP, southern Punjab and Sindh

Rainfall Distribution:

The rainfall was in large excess in 44 meteorological observing stations (Gupis, Gilgit, Skardu, Chilas, Astor, Muzaffarabad, Garhi Dupatta, Kotli, Parachinar, Chitral, Saidu Sharif, Kakul, Balakot, Kohat, Peshawar, Risalpur, D.I.Khan, Chaklala, Murree, Sialkot, Mianwali, Sargodha, Faisalabad, Shorekot, Lahore (PBO), Lahore (A/P), Multan, Bahawalpur, Bahawalnagar, Khanpur, Quetta, Dalbandin, Nokkundi, Zhob, Barkhan, Sibbi, Kalat, Khuzdar, Panjgur, Moenjodaro, Jacobabad, Rohri, Padidan and Karachi (Masroor); in moderate excess in 4 meteorological observing stations (Dir, Drosh, Jhelum and Karachi (A/P); in slight deficit in 2 meteorological observing stations (Bunji and Hyderabad); in moderate deficit in 1 meteorological observing station (Pasni) and in large deficit in 5 meteorological observing stations (Cherat, Jiwani, Nawabshah, Badin and Chhor).

Temperature distribution:

Severe cold wave conditions prevailed for 3-4 days in Mekran and Quetta regions, for 1-2 days in Hazara, Kalat, Sukkur, Mirpurkhas and Karachi regions. Night temperatures were appreciably below normal for 6-9 days in Hazara, Peshawar and Sukkur regions, for 3-5 days in Zhob, Mekran, Hyderabad, Karachi, Mirpurkhas, Quetta, Multan, Bahawalpur, Sibbi, Larkana and Gujranwala regions, for 1-2 days in FATA, Faisalabad, Kalat, D.I.Khan, Sargodha and Rawalpindi regions. They were appreciably to markedly above normal for 11-14 days in Quetta, Rawalpindi, Lahore, Hyderabad, Sibbi, Kalat, Mekran, Sukkur and Karachi regions, for 6-9 days in Mirpurkhas, Faisalabad, Larkana, Multan and Bahawalpur regions, on 1-4 days in Sargodha, Gujranwala and D.I.Khan regions. They were considerably above normal for 1-3 days in Bahawalpur, Mirpurkhas, Karachi, Sukkur, Multan and Hyderabad regions.

The month's lowest minimum temperature in plains of the country was -2.0°C recorded at Nokkundi (Quetta region) on 18th February.

Disastrous weather events and associated damages:

1. According to press reports torrential rains and flash floods in Balochistan caused heavy loss of lives damaged many bridges and burst "Shadi Kour Dam" in Pasni area. Atleast 378 people lost their lives while 2000 other were missing and tens of thousands left homeless in different areas of Balochistan.

2. In another report, heavy rains and snowfall claimed 120 lives and more than 5000 mud houses were collapsed in different areas of the NWFP.

Table 4: Details of the weather systems during February 2005

S.No	System	Period	Place of first location	Direction of movement	Place of final location	Remarks
1	2	3	4	5	6	7
1	Low pressure area extended upto mid-tropospheric level	3-8	Upper NWFP & adjoining areas	Eastwards	Kashmir & adjoining areas	Moved away eastwards on 9
2	Low pressure area	4-6	Balochistan & adjoining areas	Stationary	Balochistan & adjoining areas	Became less-marked on 7
3	Low pressure area extended upto mid-tropospheric level	8-13	Northeast Balochistan & adj. areas	Northeastwards	Kashmir & adj. areas	Moved away northeastwards on 14
4	Low pressure area	9-11	Northwest Arabian Sea & adjoining areas	Eastwards	Eastern Sindh & adj. areas	Moved away eastwards on 12.
5	Low pressure area extended upto mid-tropospheric level	14-16	Upper NWFP & adjoining areas	Eastwards	Kashmir & adj. areas	Moved away eastwards on 17.
6	Do	17-20	Do	Do	Do	Moved away eastwards on 21.
7	Low pressure area	24-25	Northeast Balochistan & adj. areas	Northeast-wards	Do	Moved away northeastwards on 26.
8	Do	26-28	Balochistan & adj. Coastal areas	Stationary	Balochistan & adj. areas	Became less-marked on 1 of next month.
9	Do	27-28	South Punjab & adj. areas	Do	South Punjab & adj. areas	Became less-marked on 1 of next month

March

Weather and associated synoptic features: -

Details of weather systems formed during the month are given in Table 5.

Rain/thundershowers occurred almost at all the places for 10-14 days in Malakand, Hazara, Kohat, Peshawar and Zhob regions, on 4-8 days in FATA, Bannu, Rawalpindi, Gujranwala, Sargodha, Faisalabad, D.G.Khan, Quetta, Sibbi and Kalat regions, for 1-3 days in D.I.Khan, Lahore, Multan, Bahawalpur, Mekran and Larkana regions. Rain/thunderstorms also occurred at a few places or at isolated places for 9-11 days in Malakand, Rawalpindi and Quetta regions, for 5-8 days in FATA, Hazara, Bannu, Peshawar, D.I.Khan, Faisalabad, Lahore, Multan, Bahawalpur and Kalat regions, for 1-4 days in Kohat, Gujranwala, Sargodha, D.G.Khan, Zhob, Sibbi, Mekran, Larkana, Sukkur and Hyderabad regions.

Rainfall distribution:

The rainfall was in large excess at 23 meteorological observing stations (Gupis, Peshawar, Mianwali, Sargodha, Faisalabad, Shorkot, Lahore (PBO), Multan, Bahawalpur, Bahawalnagar, Dalbandin, Nokkundi, Zhob, Barkhan, Sibbi, Kalat, Khuzdar, Panjgur, Pasni, Jiwani, Moenjodaro, Rohri and Hyderabad); in moderate excess at 3 meteorological observing stations (Kakul, Kohat and Sialkot); in slight excess in 3 meteorological observing stations (Dir, Cherat and Quetta); normal in 10 meteorological observing stations (Gilgit, Muzaffarabad, Garhi Dupatta, Balakot, Risalpur, D.I.Khan, Chaklala, Murree, Jhelum and Lahore(A/P)); in slight deficit at 5 meteorological observing stations (Kotli, Parachinar, Chitral, Saidu Sharif and Khanpur); in moderate deficit at 3 meteorological observing stations (Chilas, Drosh and Jacobabad) and in large deficit in 9 meteorological observing stations (Skardu, Bunji, Astor, Nawabshah, Padidan, Badin, Chhor, Karachi (A/P) and Karachi (Masroor).

Table 5: Details of weather system during March 2005

S.No	System	Period	Place of first location	Direction of movement	Place of final location	Remarks
1	2	3	4	5	6	7
1	Low pressure area extended upto mid-tropospheric level	1-6	Balochistan and adjoining areas	Stationary	Balochistan and adjoining areas	Became less marked on 7.
2	Do	2-6	North of NWFP	East-south-eastwards	Kashmir & adjoining areas	Moved away eastwards on 7.
3	Do	8-10	Northeast Afghanistan & adjoining NWFP	Northeastwards	North of Kashmir	Moved away northeastwards on 11.
4	Low pressure area	8-10	Upper Sindh & adj. areas	Do	South Punjab & adj. areas	Became less marked on 11
5	Low pressure area extended upto mid-tropospheric level	15-22	Upper NWFP & adjoining areas	Eastwards	Kashmir & adjoining areas	Moved away eastwards on 23.
6	Low pressure area	16-22	Balochistan and adjoining areas	Do	Upper Sindh and adjoining areas	Moved away eastwards on 23.
7	Do	25-28	Northeast Afghanistan & adj. areas	Do	Kashmir & adjoining areas	Moved away eastwards on 29.

Temperature distribution:

Severe cold wave conditions prevailed for a single day in Hazara region. Night temperatures were appreciable for below normal for 5-7 days in Peshawar and Sukkur regions, on 1-4 days in Hazara, Sargodha, Mekran, Zhob and Mirpurkhas regions. They were appreciably above normal for 10-13 days in Bahawalpur, Quetta, Kalat, Sukkur, Lahore and Mekran regions, for 6-9 days in Multan, Larkana, Mirpurkhas, Karachi, Rawalpindi, Sibbi and Faisalabad regions, for 4-5 days in Sargodha and Hyderabad regions, for 1-3 days in Peshawar, FATA, Malakand, D.I.Khan and Zhob regions. They were considerably above normal on 4 days in Quetta region, for 1-2 days in FATA, Lahore and Larkana regions.

The month's lowest minimum temperature of 7.8° C recorded at Islamabad (Rawalpindi region) on 11 March.

Disastrous weather events and associated damages:

According to press reports heavy rains and floods in different areas of Balochistan claimed at least 39 lives and damaged hundreds of houses.

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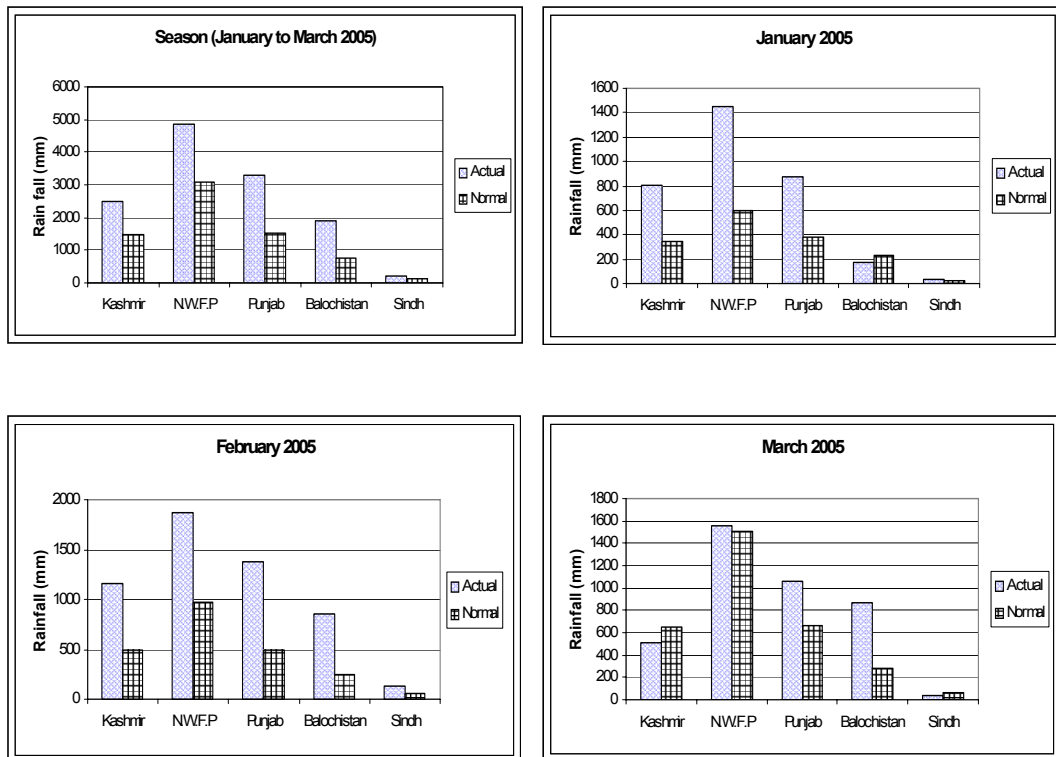


Figure 2

Annex-II

	Rainfall	Temperature
Large excess	percentage departure from normal rainfall is + 51% or more.	Severe Heat wave Departure of maximum temperature from normal is + 8° C or more for the regions where normal max temp. is more than 40° C. Declared only when the max. temp. of a station reaches at least 40° C for plains and at least 35° C for Hilly regions.
Moderate excess	percentage departure from normal rainfall is + 26% to + 50%.	Heat wave Departure of max. temp. from Conditions normal is between + 4° C to + 7° C (appreciable + where the normal max. temp. is moderate) more than 40° C.
Slight excess	percentage departure from normal rainfall is + 11% to + 25%.	Hot day conditions Whenever the max. temp remains 40° C or more and minimum remains 5° C or more above normal, provided, it is not satisfying the heat wave criteria.
Normal	percentage departure from normal rainfall is - 10% to + 10%.	Markedly above Departure of max. temperature from normal is between + 6° C to + 7° C.
Slight deficit	percentage departure from normal rainfall is - 11% to - 25%.	Appreciably Departure of max. temperature from above normal is between + 4° C to + 5° C.
Moderate deficit	percentage departure from normal rainfall is - 26% to - 50%.	Appreciably Departure of max. temperature from below normal is between - 4° C to - 5° C.
Large deficit	percentage departure from normal rainfall is - 51% or less.	Markedly below Departure of max. temperature normal from normal is between - 6° C to 7° C.
Almost at all	66 % or more stations of a places meteorological division reporting at least 2.5 mm rainfall.	Considerably Departure of max temperature below normal from normal is - 8° C or less.
At a number of	33 % to 66 % stations of a places meteorological division reporting at least 2.5 mm rainfall.	
At a few places	33 % or less stations of a meteorological division reporting at least 2.5 mm rainfall.	
Isolated places	One or two stations of a meteorological division.	
Heavy rain	rainfall amount is from 44.5 mm to 88.9 mm in 24 hour	
Very heavy	rainfall amount is 89.0 mm	
Rainfall	rainfall or more in 24 hours.	