



Government of Pakistan  
Pakistan Meteorological Department  
**Pakistan Monthly Climate Summary**  
March 2024

### In brief

- March 2024 National area-weighted rainfall (30.6mm) was 47% **above average**.
- The wettest day of the month in the country was March 31 when Muzaffarabad City (AJK) recorded rainfall of 126.0mm. Whereas, Dir (KP) was the wettest place with 330.5mm monthly total rainfall.
- The national mean monthly temperature of 18.78 °C for Pakistan, (with **-0.08 °C** anomaly) was near to the country average of 18.86 °C.
- The daytime (maximum) temperature at the country-level was 25.89 °C, (with **+0.06 °C** anomaly) also near to the country average of 25.84 °C.
- The nighttime (minimum) temperature at country level was 11.65 °C, (with **+0.25 °C** anomaly), **slightly warmer** than the countrywide average of 11.40 °C.
- The **hottest** day of the month was observed at Shaheed Benazirabad (Sindh) when it recorded a maximum temperature of 42.5 °C on 26 March. Whereas Mithi remained the **warmest** place with a mean monthly maximum temperature of 35.5 °C.
- The **coldest** night temperature (-12.5°C) of the month was recorded at Kalam (Khyber Pakhtunkhwa, KP) on 2 March 2024, which too happened to be the **coolest** place with -mean monthly minimum temperature of -4.3 °C.
- Presently, El Niño persists with steady weakening trend with sea surface temperatures (SSTs) being +0.8°C over the central equatorial Pacific. International model forecast further cooling of the central and eastern equatorial Pacific in months ahead with ENSO-neutral conditions expected by the end April.
- The Indian Ocean Dipole (IOD) is in neutral phase.

**Table-1: National Weather Extremes during March 2024**

Hottest day	42.5 °C	at Shaheed Benazirabad (Sindh) on the 26 <sup>th</sup>
Coldest day	-4.5 °C	at Kalat (Balochistan) on the 2 <sup>nd</sup>
Coldest night	-12.5 °C	at Kalam (KP) on the 5 <sup>th</sup>
Warmest night	25.5 °C	at Hyderabad (Sindh) on the 26 <sup>th</sup>
Wettest day	126.0 mm	at Muzaffarabad city (GB) on the 31 <sup>st</sup>
Wettest month	330.5 mm	at Dir (KP)

### Synoptic Summary

During March unusual Western Disturbance (WDs) was the most significant synoptic feature with persistent westerly waves affected upper and central parts of the country. In all three strong WDs entered the country from 1-7, 9-14 & 21-31 March which gripped most parts of the country resulting in heavy/very heavy rain-wind/thunderstorm accompanied with hailstorms and snowfall over the hills in KP, Gilgit-Baltistan (GB), Kashmir, Punjab, Balochistan, at a few places in Sindh. The unusual prolonged wet spells dropped the temperatures to new lowest records at several places in Balochistan & Sindh. On the other hand, a short-lived heat-low developed over northwest Balochistan and eastern Sindh on 15-17 March which raised the day temperatures in Sindh during the period.

**Table-2: New Weather Records Set in March 2024**

S No	Stations	Weather Parameters	New Record		Old Record		No of years examined.
			Value	Date	Value	Date	
1	JIWANI	Coldest night Temperature (°C)	5.5	03/Mar/2024	8.0	04/Mar/2003	81
2	LASBELA	Coldest night Temperature (°C)	4.0	4&5/Mar/2024	5.0	06/Mar/1945	94
3	MIRPUR KHAS	Coldest night Temperature (°C)	6.5	04/Mar/2024	9.0	14/Mar/2017	21
4	MITHI	Coldest night Temperature (°C)	3.0	03/Mar/2024	4.5	12/Mar/2017	21
5	MOIN-JO-DARO	Coldest night Temperature (°C)	1.0	01/Mar/2024	2.2	03/Mar/1983	46
6	ORMARA	Coldest night Temperature (°C)	8.0	04/Mar/2024	8.0	12/Mar/2017	94
7	SHORKOT	Coldest night Temperature (°C)	4.0	03/Mar/2024	4.0	09/Mar/1979	52
8	THATTA	Coldest night Temperature (°C)	10.0	03/Mar/2024	10.0	02/Mar/2015	21
9	ZHOB	Coldest night Temperature (°C)	-3.0	04/Mar/2024	-2.0	(04/Mar/1979)	70
10	QUETTA. (SAMUNGLI)	Hottest night Temperature (°C)	16.5	27/Mar/2024	16.5	31/Mar/2007	64
11	QUETTA. (SH MANDA)	Hottest night Temperature (°C)	16.0	27/Mar/2024	16.0	27/Mar/2015	28
12	RAHIM YAR KHAN	Hottest night Temperature (°C)	22.7	27/Mar/2024	22.0	22/Mar/2004	23
13	SHAHEED BENAZIRABAD	Hottest night Temperature (°C)	24.0	28/Mar/2024	23.0	26/Mar/2015	64
14	SUKKUR	Hottest night Temperature (°C)	24.5	27/Mar/2024	24.5	22/Mar/2004	28
15	DALBANDIN	Coldest day Temperature (°C)	6.5	01/Mar/2024	10.0	11/Mar/2020	64
16	JIWANI	Coldest day Temperature (°C)	19.0	02/Mar/2024	19.5	01/Mar/2005	64
17	KALAT	Coldest day Temperature (°C)	-4.5	02/Mar/2024	1.0	11/Mar/1975	64
18	NOKKUNDI	Coldest day Temperature (°C)	8.5	01/Mar/2024	10.0	05/Mar/1979	64
19	PANJGUR	Coldest day Temperature (°C)	7.5	01/Mar/2024	11.0	08/Mar/1979	64
20	QUETTA. (SAMUNGLI)	Coldest day Temperature (°C)	-1.5	02/Mar/2024	0.0	07/Mar/1979	64
21	QUETTA. (SH MANDA)	Coldest day Temperature (°C)	0.0	02/Mar/2024	5.0	14/Mar/2015	28
22	TURBAT	Coldest day Temperature (°C)	19.0	1&2/Mar/2024	19.0	01/Mar/2005	28

**Table-3: Significant Winds**

Date	Station	Max Wind Knots
02/2024	Lahore AP	32
23/2024	Lahore AP	32
30/2024	Lahore AP	48
30/2024	Islamabad AP	45
30/2024	Lahore City	32
28/2024	Bahawalpur AP	34

**Rainfall: Above average in the country.**

Climatologically, the March rainfall contribution to the national annual total and JFM Rainfall is 10.2% & 41.0%, respectively. During the month, Pakistan experienced three heavy/very heavy rain spells. The area-averaged daily rainfall is shown in Fig.-1. March 2024 rainfall was well-above average, with 44.7mm (+47%), for Pakistan as a whole. Situation was similar on regional scale, i.e. Balochistan with 39.0mm (+91%), GB with 43.9mm (+68%) and Sindh with 7.6mm (+64%) recorded excessively above average rainfall. AJK with 141.4mm (+40%) and KP with 128.3mm (+39%) both recorded above average rainfall. Punjab with 27.9mm was the only region to have experienced an average rainfall (Table -4).

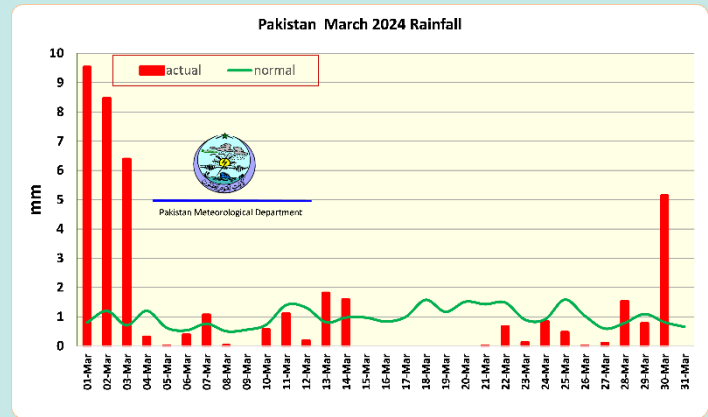


Fig1: Daily Area Weighted Rainfall

The wettest day of the month in the country was 31 March when Muzaffarabad (AJK) recorded 126.0 mm rainfall. Whereas Dir (KP) was the wettest place with a monthly total rainfall of 330.5mm (Table-1).

**Table-4: March 2024 Area-Weighted Rainfall**

Region	Rank (of 63y)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	48	30.50	44.70	47	---
Azad Jammu & Kashmir	43	101.30	141.40	40	---
Balochistan	50	20.50	39.00	91	---
Gilgit Baltistan	53	26.10	43.90	68	---
Khyber Pakhtunkhwa	47	92.30	128.30	39	---
Punjab	34	28.00	27.90	0	---
Sindh	51	4.70	7.60	64	---

[RANK RANGES FROM 1 (LOWEST) TO 64 (HIGHEST) IN TERMS OF YEARS FROM 1961]

The other significant rainfalls recorded were Malam-Jabba 296.0 mm, Muzaffarabad Airport 271.7 mm, Muzaffarabad City 269.7 mm, Pattan 268.0 mm, Lower Dir 260.4 mm, Rawalakot 250.0 mm, Saidu Sharif 212.0 mm, Kalam 210.7 mm, Garhi Dupatta 208.3 mm, Risalpur 197.0 mm, Kakul 193.2 mm, Cherat 191.0 mm, Chitral 189.6 mm, Peshawar City 167.6 mm, Mirkhani 161.0 mm, Takht Bai 159.4 mm, Drosh 158.4 mm, and Peshawar (BKIA) 155.3 mm. The stations: Rahim Yar Khan, Sh. Benzirabad, and Dadu recorded only traces of rainfall during the month.

### March 2024 Rainfall maps

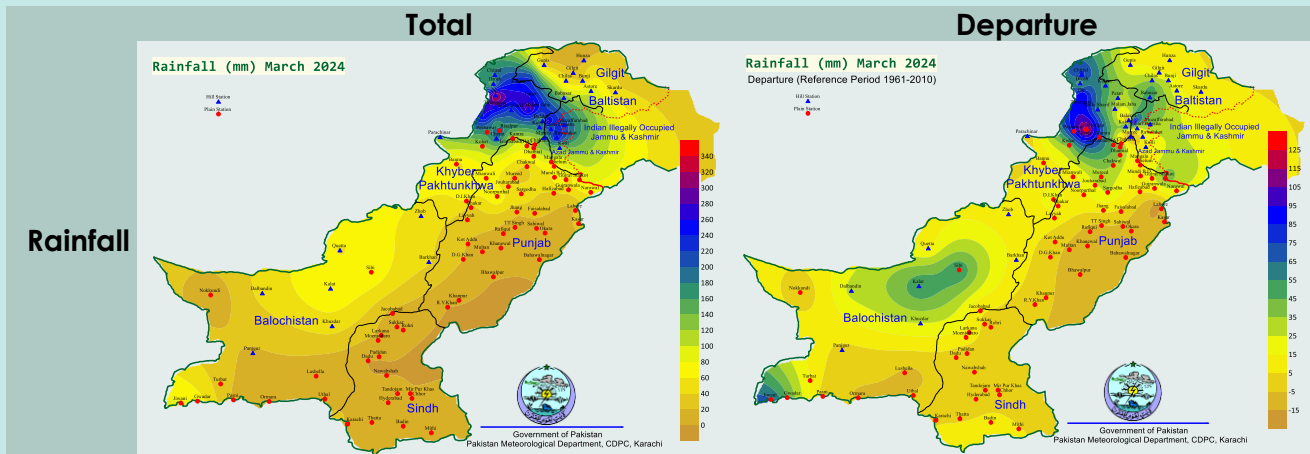


Fig. 2. March-2024 spatial rainfall distribution and departure from normal

### Table 5: Temperatures observed in the country

Area Averaged Temperatures (°C) in March 2024						
Regions	Maximum Temperature		Minimum Temperature		Mean Temperature	
	Actual	Anomaly	Actual	Anomaly	Actual	Anomaly
Pakistan	25.89	0.06	11.65	0.25	18.78	-0.08
Azad Jammu & Kashmir	18.46	1.58	5.82	0.31	12.16	0.93
Balochistan	25.61	-0.51	11.10	-0.46	18.34	-0.79
Gilgit-Baltistan	15.64	1.02	3.76	0.02	9.72	0.53
Khyber Pakhtunkhwa	21.23	0.69	8.16	-0.22	14.72	0.27
Punjab	27.86	0.32	13.79	1.08	20.86	0.34
Sindh	32.61	-0.40	16.70	0.96	24.67	0.33

March 2024 national mean temperature of 18.78 °C for Pakistan was -0.08 °C lower than the country average of 18.86 °C. However, diverse situation was in the regions; AJK with 12.16°C (+0.93 °C), GB with 9.72°C (+0.53 °C), Punjab with 20.86°C (+0.34 °C), Sindh with 24.67 °C (+0.33°C) and KP with 14.72 °C all exhibited warmer than average temperatures. Balochistan with 18.34°C (-0.93°C) was the only region to have observed cooler than average temperature (Table-5, Fig. 3-lower panel). The mean temperature anomalies of March 2024 were in range ±2.2 °C in the country. March 2024 mean-maximum (daytime) temperature of 25.89°C recorded at country-level with a positive anomaly of +0.06 °C than the country average of 25.84 °C. However, it remained diverse across the different regions (Table-5, Fig. 3-upper panel).

The night (minimum) temperature of 11.65 °C was also **slightly Warmer** by +0.25 °C than the country-average of 11.40 °C during the month. Whereas the regions depicted the diverse situations (Table-5, Fig-3, middle panel). The Mean Minimum temperature anomalies were -3.8 to +2.5 °C in the country with those being considerably higher over western Balochistan and eastern Sindh & Punjab. The hottest day of the month was at Shaheed Benazirabad (Sindh) when it recorded 42.5 °C temperature on 26 March. Whereas Mithi happened to be the warmest place with 35.5 °C average maximum temperature during the month. Kalam (KP) recorded the month's coldest night temperature of -12.5 °C on 5 March and incidentally been the coolest place with -4.3 °C average minimum temperature.

### March 2024 Temperature maps

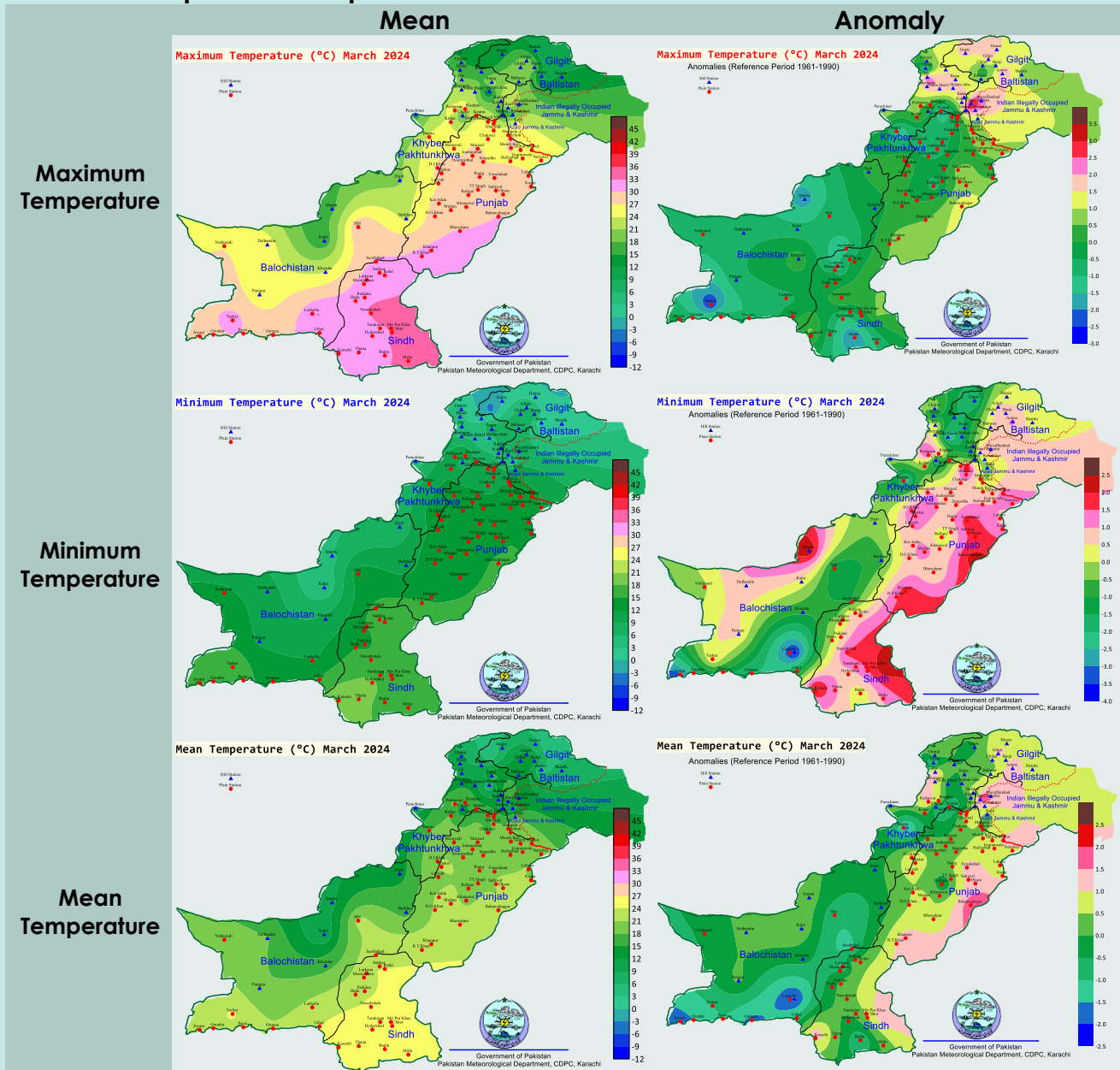


Fig. 3. March-2024 Temperatures (Maximum, Minimum & Mean) and their anomalies.

**Table 6: March 2024 Monthly Averages & Normals**

Station	Pressure (mb)		Temperature (°C)			Vapour (mb)	Precipitation	
	Station Level	Sea Level	Mean	Maximum	Minimum	Pressure	Total (mm)	Days
Drosh	856.5	1526.8	9.1	14.7	3.3	6.1	158.4	11
	855.5	1509.1	10.3	15.9	4.7	6.1	115.6	12.5
Peshawar	977.2	1015.3	18.5	25.4	11.4	12.1	167.6	7
	971.3	1012.7	17.1	23.7	11.0	11.6	83.3	10.4
Parachinar	828.7	1514.3	10.2	16.2	4.1	6.7	126.0	8
	827.3	1501.3	9.2	14.9	2.8	6.1	136.6	12.4
Rawalpindi	956.6	1014.7	18.0	23.9	12.2	10.9	131.0	9
	954.2	1012.3	16.8	23.7	10.1	10.8	97.1	10.6
Sargodha	991.7	1013.0	21.1	28.1	14.0	14.5	29.0	5
	990.5	1012.1	19.8	27.2	12.5	13.2	32.4	8.4
Jhelum	985.9	1012.9	19.9	27.3	12.5	14.4	64.3	6
	984.5	1011.6	18.8	26.3	12.5	12.5	68.8	9.2
Sialkot	983.7	1013.1	19.9	26.7	13.1	15.2	91.7	6
	982.5	1011.9	18.5	25.4	11.9	13.3	53.4	7.3
Zhob	857.8	1482.1	13.7	20.4	7.0	6.9	51.0	7
	857.6	1478.9	13.6	20.2	7.0	6.8	47.6	4.9
D.I.Khan	993.1	1013.0	20.9	27.4	14.4	14.6	54.2	7
	991.7	1011.2	19.6	26.5	12.7	13.1	37.4	7.4
Lahore	988.7	1013.4	21.1	27.3	15.0	13.7	12.0	5
	986.7	1011.4	20.5	26.9	14.2	13.2	38.4	7.4
Quetta	843.9	1529.1	11.4	16.9	5.9	6.4	59.0	10
	841.0	1500.7	11.1	18.1	3.6	7.2	61.7	7.3
Multan	998.6	1012.8	21.7	28.5	14.8	13.9	10.6	6
	997.3	1011.7	20.6	28.2	13.4	13.3	16.6	3.3
Barkhan	892.7	1513.2	17.0	23.5	10.5	7.2	42.0	6
	891.4	1490.9	17.1	23.3	11.1	7.7	31.4	3.3
Nokkundi	935.5	1011.6	19.7	26.9	12.5	6.6	5.0	1
	934.8	1011.2	19.1	26.9	11.9	8.6	7.3	1
Dalbandin	919.4	1513.3	18.2	25.6	10.8	8.2	47.2	4
	917.8	1499.9	17.8	25.7	9.1	7.4	12.4	1.5
Jacobabad	1006.6	1013.1	22.6	30.0	15.2	14.4	17.0	3
	1004.6	1010.9	23.5	30.9	16.2	12.6	10.6	1
Khanpur	1002.4	1012.7	22.8	30.9	14.6	15.0	2.0	1
	1000.7	1011.0	21.1	29.7	12.6	13.1	3.6	1.8
Panjgur	905.3	1515.9	18.3	25.0	11.5	8.4	18.0	4
	904.1	1503.3	17.9	25.0	10.9	5.3	17.7	1.4
Khuzdar	879.3	1519.5	14.9	22.5	7.3	8.7	49.5	3
	875.6	1482.0	16.9	23.5	10.4	3.6	26.0	1.7
Sh. Benazirabad	1009.6	1012.9	24.8	33.8	15.8	13.1	0.0	0
	1007.6	1011.4	23.5	33.0	13.9	15.3	2.4	0.1
Jiwani	1008.2	1014.8	21.7	28.4	15.0	19.1	88.0	2
	1005.9	1012.4	23.2	28.2	18.3	18.6	15.4	0.9
Pasni	1013.7	1014.3	22.5	29.5	15.4	18.0	13.0	2
	1011.1	1012.6	22.7	29.8	16.6	16.5	21.0	0.8
Hyderabad	1007.4	1012.3	26.0	32.7	19.2	12.5	4.0	1
	1007.0	1011.0	25.9	33.4	18.5	13.4	2.5	0.3
Chhor	1011.5	1012.2	25.8	35.0	16.5	15.0	3.5	1
	1009.7	1010.3	24.4	34.6	14.2	13.5	0.8	0.2
Karachi	1010.6	1013.4	25.9	32.1	19.7	14.5	12.3	1
	1009.2	1011.9	24.7	31.7	17.7	17.0	6.6	0.8

Note: The first row against each station contains the actual values while second row for normal values

**Table 7: March 2024 extreme values**

STATION	Mean Temperature (°C)				Temperature (°C)				Highest (mm & knots)			
	Highest	Date	Lowest	Date	Highest	Date	Lowest	Date	Rain	Date	Wind Speed	Date
Drosh	15.5	25	0.1	3	23.7	25	-2.4	5	35.0	2	14	16
Peshawar	24.3	24	9.3	3	33.0	24*	4.5	4	65.0	2	8	3*
Parachinar	16.0	25	3.0	3	23.0	20*	-1.0	5	43.0	2	12	2
Rawalpindi	23.0	29	10.8	4	30.1	25	5.0	4	33.0	2	26	2
Sargodha	26.7	25	13.5	3	34.8	25	6.3	5	13.2	31	8	6
Jhelum	25.7	29	13.5	4	34.2	25	6.4	4*	23.3	31	16	30
Sialkot	25.0	29	13.5	4	33.0	25	6.7	6	44.1	3	10	2
Zhob	21.5	25	2.8	3	29.5	25	-3.0	4	15.0	1	9	2*
D.I.Khan	25.3	20*	13.0	3*	34.0	18	6.5	4*	20.0	24	8	13
Lahore	26.6	29	14.0	4	33.2	29	8.5	4	3.0	7*	10	2*
Quetta	20.8	26	-3.0	2	26.0	26	-5.0	3	16.0	1	24	1
Multan	28.4	26	13.0	3	35.0	26	6.4	3	4.2	31	16	2
Barkhan	24.5	27	7.3	3	31.0	22	2.5	3	15.0	1	6	2*
Nokkundi	27.3	20*	5.0	2	34.5	18*	0.0	3	5.0	1	14	1*
Dalbandin	26.0	27	5.3	2	33.5	18*	-0.5	3	21.2	1	12	10
Jacobabad	30.0	26	13.3	3	37.5	26	5.5	3	12.0	1	8	2
Khanpur	30.0	26	12.9	3	38.5	26	4.4	3	2.0	30	20	2
Panjgur	26.3	26	4.8	2	33.5	25	1.5	2*	9.0	1	24	13
Khuzdar	23.8	22	0.0	2*	30.5	19*	0.0	2*	34.4	1	8	2*
Sh.Benazirabad	32.8	26	15.5	5	42.5	26	6.0	4	0.0	0	14	14*
Jiwani	26.8	25	13.3	2	34.0	25	5.5	3	72.0	1	18	27
Pasni	26.0	21*	15.0	2	35.0	31	8.5	3	11.8	1	16	1
Hyderabad	33.0	26	16.7	3	40.5	26	10.0	4	4.0	2	16	23*
Chhor	32.6	26	16.3	3	41.5	26	7.0	3*	3.5	2	12	2
Karachi	30.6	26	18.6	2	37.5	19	11.1	4	12.3	2	14	5*

\* means value occurred multiple times

#### **Note**

Monthly Climate Summary is produced by Pakistan Meteorological Department, Climate Data Processing Centre, Karachi to provide the main features of weather events occurred in the country during the month. The summary contains detailed data information of 25 climate stations of Pakistan. The extremes & analysis is based on 110 numbers of stations. The information in the summary is based on real time data and/or electronic reports, therefore, the above results can be considered only preliminary. Climate Summaries are usually published in the first week of each month. Long term average for rainfall is for 1961-2010 (50 years) while normal period for temperature is 1961-1990 (30 years).

#### **Contact**

Dr. Muhammad Hasan Ali Baig, Director, Climate Data Processing Centre, Pakistan Meteorological Dept  
 Meteorological Complex, Gulistan E Jouhar, Block #5, Karachi-75290  
 Webpage: <http://www.pmd.gov.pk/cdpc/home.htm>; Email: [info.cdpc@pmd.gov.pk](mailto:info.cdpc@pmd.gov.pk)

*Published on April 3, 2024*