



# Pakistan's Monthly Climate Summary February 2023

## In brief

- National rainfall for the month of February 2023 was largely below average (-77%) and ranks fifth driest month since 1961.
- The wettest day of the month in the country was 10<sup>th</sup> February when Malam Jabba (KP) recorded 60.0 mm rainfall, whereas Dir (KP) was the wettest place with monthly total rainfall of 125.0 mm.
- The national mean monthly temperature of February 2023 for Pakistan as a whole was 17.16 °C, being 3.55 °C warmer than average of 13.60 °C and ranked 2<sup>nd</sup> warmest ever February since 1961 (The record is 17.79 °C in 2006)
- Daytime (maximum) temperature at country-level was 25.10 °C, being 4.62 °C warmer than the country-average of 20.49 °C and ranked 2<sup>nd</sup> warmest maximum ever in February since 1961 (The record is 25.37 °C in 2006).
- Nighttime (minimum) temperature was 9.06 °C, being 2.86 °C warmer than the country-average of 6.20 °C and ranked 3<sup>rd</sup> warmest minimum ever in February since 1961 (The record is 10.10 °C in 2006).
- The hottest day of the month was at Mithi (Sindh) when it recorded 40.0 °C temperature on 16<sup>th</sup> February 2023, with same site being the warmest place with 35.4 °C in mean monthly maximum temperature.
- The coldest temperature (-16.0 °C) of the month was recorded at Kalam (KP) on 13<sup>th</sup> February 2023, which incidentally has also been the coolest place with -6.8 °C in mean monthly minimum temperature.
- The Indian Ocean Dipole (IOD) has remained in neutral phase during the month.
- The La Niña conditions have been persisting during last three years, one of the rare phenomena, being described as a Triple-dip La Niña and is being prevailed through this winter.

## National weather extremes during February 2023

Hottest day	40.0 °C	at Mithi (Sindh) on the 16 <sup>th</sup>
Coldest day	-0.5 °C	at Astore(GB) on the 11 <sup>th</sup>
Coldest night	-16.0 °C	at Kalam (KP) on the 13 <sup>th</sup>
Warmest night	21.0 °C	at Karachi Airport (Sindh) on the 22 <sup>nd</sup>
Wettest day	60.0 mm	at Malam Jabba (KP) on the 10 <sup>th</sup>
Wettest month	125.0 mm	at Dir (KP)

## Synoptic Summary

A westerly trough prevailed over Upper Khyber Pakhtunkhwa (KP) during 1-6 February, which later shifted northeastward over Gilgit Baltistan (GB) during 7-15 February with another trough prevailed over Northern areas of Punjab on 20-21 February. A low-pressure area formed over Northwest Balochistan on 8-10 February, which gripped upper parts of the country in the following days and caused light to moderate rains and snowfall over hills in Balochistan, KP, GB, Kashmir and Northern Punjab. A fresh westerly wave approached Balochistan in last week of the month, which spread over Upper KP, GB and Northern Punjab and yielded moderate rainfall over northern parts of the country, sub mountain Punjab, north-northeast Balochistan. The southern parts of the country remained under dry continental air during the month.

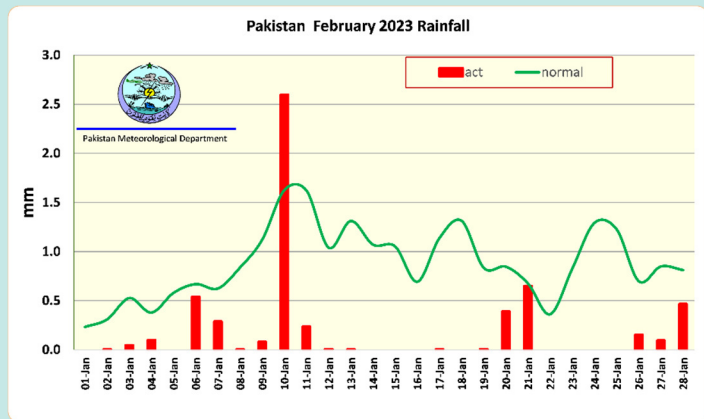
## New Weather Record Set in February 2023

S No	STATION	Weather Parameter	New Record		Old Record	
			Value	date	Value	Date
1	Balakot	Hottest day temperature (°C)	27.0	24/02/2023	27.0	25/02/2016
2	Bunji	Hottest day temperature (°C)	21.7	19/02/2023	21.5	11/02/1993
3	Gilgit	Hottest day temperature (°C)	22.0	18&19/02/2023	22.0	22/02/2021
4	Khanpur	Hottest day temperature (°C)	34.0	24/02/2023	34.0	28/02/1960
5	Barkhan	Hottest day temperature (°C)	30.5	15&17/02/2023	28.9	11/02/1993
6	Kalat	Hottest day temperature (°C)	26.0	16/02/2023	25.0	16/02/2004
7	Mithi	Hottest day temperature (°C)	40.0	16/02/2023	38.5	19/02/2017

S No	STATION	Weather Parameter	New Record		Old Record	
			Value	date	Value	Date
8	Thatt	Hottest day temperature (°C)	36.5	27/02/2023	36.0	27/02/2009
9	Balakot	Hottest night temperature (°C)	12.8	20/02/2023	12.7	16/02/1999
10	Gilgit	Hottest night temperature (°C)	10.6	20/02/2023	8.9	16/02/1993
11	Jacobabad	Hottest night temperature (°C)	18.0	26&28/02/2023	17.5	26/02/2021
12	Larkana	Hottest night temperature (°C)	19.8	27/02/2023	19.0	28/02/2009
13	Rohri	Hottest night temperature (°C)	19.5	28/02/2023	19.5	22/02/2006

## Rainfall: Largely Below average as a whole in the country

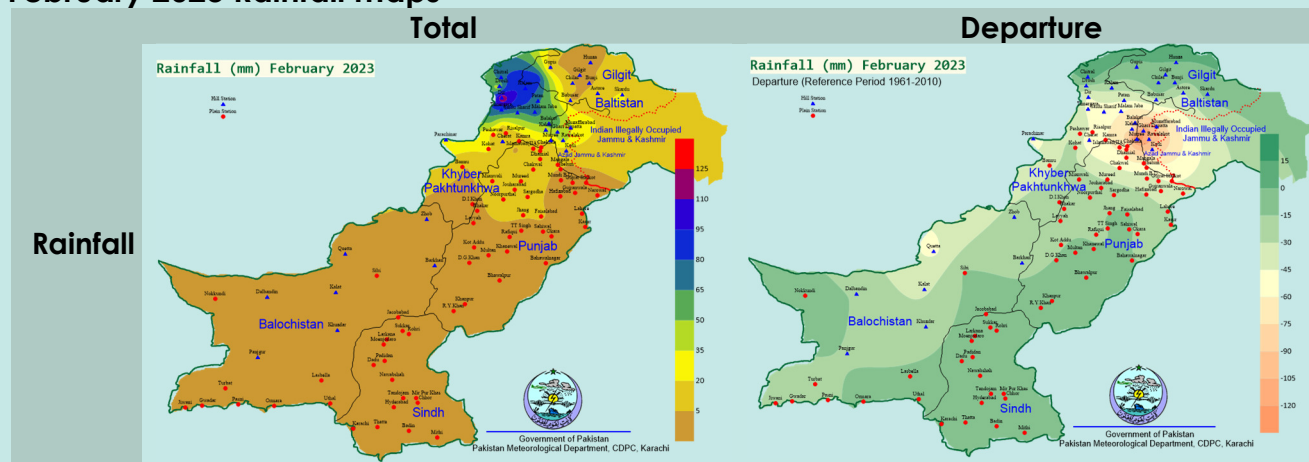
February 2023 brought about four light rain spells in Punjab, KP and GB/AJK, whereas no significant rain was observed in Sindh and Balochistan. Climatologically, February is an average rainy month contributing 33.5% and 8.4% to the winter (JFM) and annual rainfall respectively. However, with -77% deviation, the February 2023 happened to be a largely below-average rainy month for Pakistan with only 5.6 mm area-weighted rain against 24.9 mm average rainfall and ranked fifth driest February during past 63 years.



The situation was more or less similar on a regional scale i.e. Punjab (2.4mm/-90%) ranked fourth driest February, AJK (27.7mm/-67%) ranked seventh driest February since 1961, and KP (30.7mm /-54%) and GB (11.9mm /-36%) all witnessed largely below-average rainfall. Whereas Sindh and Balochistan were excessively dry during the month.

The wettest day of the month in the country was 10<sup>th</sup> February when Malam Jabba (KP) recorded 60.0 mm rainfall, whereas Dir (KP) was the wettest place with a monthly total rainfall of 125.0 mm.

## February 2023 Rainfall maps



The other significant monthly-total rains were at Kalam 92.7mm, Chitral 77.1mm, Malamjabba 74.0mm, Muzaffarabad City 65.3mm, Pattan 65.0mm, Saidu Sharif 64.2mm, Lower Dir 59.5mm, Muzaffarabad Airport 59.2mm, Balakot 55.0mm, Drosh 53.2mm. The stations: Bahawalpur, D.G.Khan, Kasur, Khanpur, Kot Addu, Layyah, Multan, Rahim Yar Khan, Khanewal, Hunza, Badin, Chhor, Hyderabad, Jacobabad, Karachi, Larkana, Mithi, Sh. Benazirabad, Padidan, Rohri, Sukkur, Moen Jo Daro, Thatta, Dadu, Mirpur Khas, Tando Jam, Sakrand, Khairpur, Barkhan, Dalbandin, Gawadar, Jiwani, Kalat, Khuzdar, Lasbela, Nokkundi, Panjgur, Pasni, Sibbi, Turbat, Ormara and Zhob remained dry with no rain during the month. Whereas Bahawalnagar, Mandi Bahauddin, Shorkot, Sialkot, Toba Tek Singh, Bunji, Dera Ismail Khan, and Quetta reported only traces of rainfall.

### February 2023 Area-Weighted Rainfall

Regions	Rank (of 63)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	05	24.9	5.6	-77	Fifth driest February
Azad Jammu & Kashmir	07	83.2	27.7	-67	Seventh driest February
Balochistan	--	18.8	0.0	-100	----
Gilgit Baltistan	26	18.7	11.9	-36	----
Khyber Pakhtunkhwa	11	66.8	30.7	-54	----
Punjab	04	23.2	2.4	-90	Fourth driest February
Sindh	--	5.3	0.0	-100	----

[RANK RANGES FROM 1 (LOWEST) TO 63 (HIGHEST)]

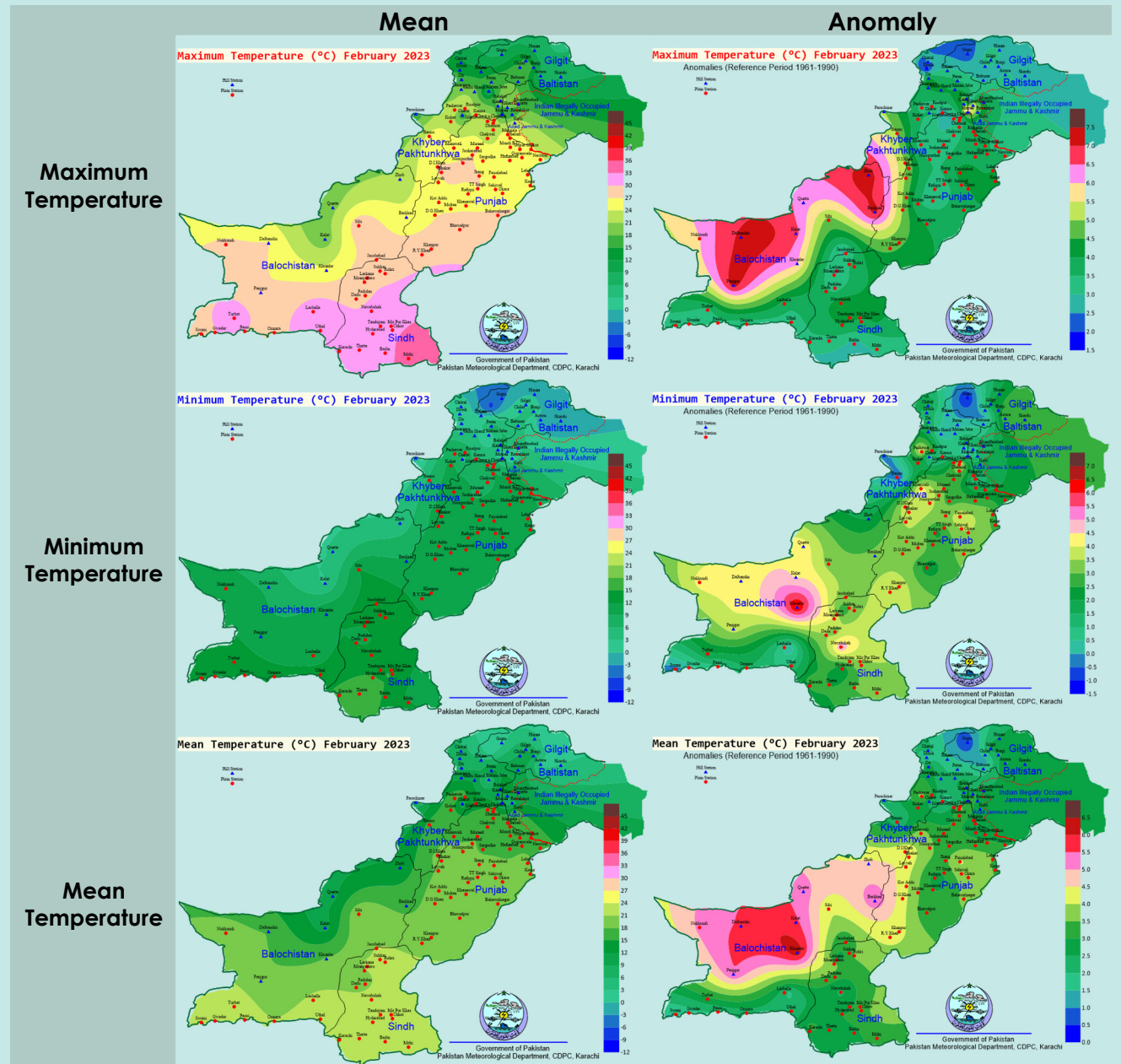
Temperatures: Significantly **Warmer** than average temperatures observed over the country.

Area Average Temperatures(°C) statistics in February 2023						
Regions	Maximum Temperature		Minimum Temperature		Mean Temperature	
	Actual	Anomaly	Actual	Anomaly	Actual	Anomaly
Pakistan	25.10	4.62	9.06	2.86	17.16	3.55
Azad Jammu & Kashmir	15.57	3.45	2.98	2.02	9.27	2.72
Balochistan	26.45	5.81	9.41	3.06	18.08	4.23
Gilgit Baltistan	11.37	2.72	-0.01	1.70	5.65	2.17
Khyber Pakhtunkhwa	19.83	4.02	5.20	1.52	12.67	2.92
Punjab	26.35	4.06	10.55	3.18	18.44	3.25
Sindh	31.05	3.51	13.60	3.22	22.34	3.43

February 2023 was **+3.55 °C warmer** than average with national mean monthly being 17.16 °C against the average 13.60 °C and ranked 2<sup>nd</sup> **warmest** February during past 63 years (record is 17.79 °C). The situation on regional scale was similar; Balochistan with 18.08 °C (**+4.23 °C**), KP 12.67 °C (**+2.92 °C**), Sindh 22.34 °C (**+3.43 °C**), AJK 9.27 °C (**+2.72 °C**), Punjab 18.44 °C (**+3.25 °C**) and GB with 5.65 °C (**+2.17 °C**) all recorded **warmer** than average temperatures.

February 2023 mean maximum (daytime) temperature of 25.10 °C recorded at country-level being **+4.62 °C warmer** than average of 20.49 °C and ranked 2<sup>nd</sup> highest mean maximum in February during past 63 years (record is 25.37 in 2006). The average night (minimum) temperature of 9.06 °C was also **+2.86 °C Warmer** than the country-average of 6.20 °C during the month and ranked 3<sup>rd</sup> highest mean minimum in February since 1961 (record is 10.10 in 2006). The mean temperature anomalies of February 2023 range in +0.6 to +6.4 °C in the country. The Mean Minimum temperature anomalies were -1.0 to +6.7 °C in the country with those being considerably higher over Central Balochistan. The hottest day of the month was at Mithi (Sindh) when it recorded 40.0 °C temperature on 16<sup>th</sup> February with the same proved warmest place with 35.4 °C average maximum temperature during the month. Kalam (KP) recorded the month's coldest night temperature -16.0 °C on 13<sup>th</sup> February and incidentally been the coolest place with -6.8 °C average minimum temperature.

## February 2023 Temperature maps



## February 2023 Monthly Averages & Normals

Station	Pressure (mb)		Temperature (°C)			Vapour (mb)	Precipitation	
	Station Level	Sea Level	Mean	Maximum	Minimum	Pressure	Total (mm)	Days
Drosh	857.5	1536.0	7.2	12.4	1.9	5.4	53.2	6
	856.9	1521.9	5.8	10.7	1.0	4.6	74.4	7.4
Peshawar	978.6	1017.0	16.5	24.2	8.7	10.0	16.3	3
	973.8	1016.0	13.1	19.8	6.3	8.7	47.1	6.4
Parachinar	830.6	1535.3	7.1	15.4	-1.2	5.4	36.0	4
	827.2	1506.5	4.7	10.9	-1.8	4.6	76.5	5.6
Rawalpindi	957.8	1016.4	15.8	22.3	9.2	9.0	5.5	3
	956.4	1015.7	12.3	19.2	5.4	8.6	79.7	7.1
Sargodha	992.9	1014.5	18.8	26.8	10.7	12.0	4.0	1
	993.4	1015.0	14.8	22.4	7.1	10.4	24.5	5.5
Jhelum	986.9	1014.2	17.2	25.6	8.7	11.4	5.2	2
	987.5	1015.1	14.7	21.5	7.9	10.1	52.8	6.3
Sialkot	985.2	1015.0	16.8	24.3	9.3	12.6	0.0	0
	985.2	1015.1	14.0	20.7	7.4	10.9	48.5	5.7
Zhob	859.1	1494.7	12.8	21.7	3.8	3.9	0.0	0
	858.6	1487.3	8.0	14.6	1.5	5.2	25.0	2.4
D.I.Khan	994.6	1014.6	19.2	27.2	11.1	13.1	0.0	0
	994.7	1015.0	14.8	22.2	7.3	9.7	15.0	4.1
Lahore	989.9	1014.9	19.1	25.9	12.2	12.2	0.7	0
	989.7	1014.9	15.7	22.1	9.4	10.5	30.3	5.3
Quetta	844.8	1538.3	11.3	19.1	3.4	4.3	0.0	0
	841.5	1507.6	6.2	12.8	-0.9	5.7	49.5	6.6
Multan	1000.1	1014.5	19.0	26.8	11.1	12.3	0.0	0
	1000.6	1015.2	15.5	23.3	7.8	10.3	11.1	2.9
Barkhan	892.1	1507.5	16.9	24.5	9.2	4.6	0.0	0
	891.7	1496.8	12.0	17.9	6.4	5.8	21.2	1.9
Nokkundi	935.5	1011.7	19.2	27.5	10.9	5.0	0.0	0
	937.1	1015.0	14.1	21.6	6.2	6.5	7.6	1
Dalbandin	920.1	1518.5	17.9	27.1	8.6	5.4	0.0	0
	919.7	1504.3	12.3	20.4	4.6	6.1	16.3	1.5
Jacobabad	1007.9	1014.4	21.0	28.0	13.8	14.0	0.0	0
	1008.1	1014.6	17.8	25.2	10.3	10.0	6.9	0.7
Khanpur	1003.8	1014.2	20.1	29.0	11.2	13.7	0.0	0
	1004.1	1014.5	15.8	24.2	7.4	10.1	5.3	1.4
Panjgur	906.0	1523.7	18.3	27.1	9.4	10.4	0.0	0
	905.6	1507.7	12.7	19.6	5.7	4.2	16.5	1.5
Khuzdar	879.3	1520.3	18.3	24.7	11.9	5.3	0.0	0
	877.3	1487.0	12.0	18.8	5.2	3.0	29.9	1.7
Sh. Benazirabad	1010.8	1014.2	22.6	31.5	13.7	15.4	0.0	0
	1011.3	1015.0	17.8	27.2	8.4	11.9	3.3	0.2
Jiwani	1008.8	1015.4	21.2	27.8	14.5	18.0	0.0	0
	1008.6	1015.1	20.0	25.1	14.9	14.8	31.0	0.9
Pasni	1014.7	1015.3	21.9	29.4	14.3	17.0	0.0	0
	1013.4	1014.2	19.6	26.5	13.4	13.4	21.5	0.6
Hyderabad	1008.8	1013.8	23.9	32.1	15.7	13.6	0.0	0
	1010.4	1014.5	20.7	27.7	13.7	11.0	4.3	0.9
Chhor	1013.1	1013.8	22.7	33.2	12.2	15.4	0.0	0
	1013.2	1013.8	19.0	29.3	8.5	10.4	3.6	0.3
Karachi	1011.8	1014.5	23.3	31.1	15.4	16.6	0.0	0
	1012.1	1014.8	20.4	27.9	13.0	12.2	10.4	1

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

## February 2023 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	11.4	24	2.7	12	19.0	18	-1.6	12	15.0	10	14	23
Peshawar	20.0	17	10.9	9	29.5	24	4.5	12	7.0	6	12	25
Parachinar	13.0	17	0.1	9	22.0	17	-7.5	4	23.0	10	12	20
Rawalpindi	19.4	26	11.1	12	27.2	24	4.2	1	2.0	6*	19	11*
Sargodha	22.9	26	14.0	12	31.3	18	5.7	13	4.0	28	4	6*
Jhelum	21.9	27	12.0	9	30.5	23*	5.4	12	3.2	27	8	6*
Sialkot	20.1	27	13.6	9	27.7	18	6.4	12	0.0	0	6	7*
Zhob	17.5	27	6.5	12	28.0	27	-1.5	12	0.0	0	11	10*
D.I.Khan	22.3	24	15.5	1	31.0	24	6.0	1	0.0	0	6	12
Lahore	22.2	26*	15.3	1	29.5	27	8.0	1	0.7	28	8	7*
Quetta	15.5	15	4.3	12	25.0	15*	-4.0	12	0.0	0	26	9*
Multan	23.4	26	14.7	13	31.0	26	6.4	13	0.0	0	8	6*
Barkhan	21.0	15*	11.5	1	30.5	15*	3.0	2	0.0	0	8	20
Nokkundi	23.0	17	11.5	12	32.0	17	3.5	12*	0.0	0	16	9
Dalbandin	22.3	17	10.0	12	33.5	15	3.0	12	0.0	0	20	9
Jacobabad	25.0	23*	15.3	1*	33.0	23	8.5	1*	0.0	0	6	28
Khanpur	24.4	24	14.4	1	34.0	24	4.7	1	0.0	0	16	28
Panjgur	21.5	19*	12.0	6	31.5	19	1.0	6*	0.0	0	16	2*
Khuzdar	22.0	20	12.3	1	29.0	27	5.5	1	0.0	0	10	8
Sh.Benazirabad	27.5	28	16.5	1	36.5	28	8.5	2	0.0	0	12	11
Jiwani	22.8	18*	18.3	1	31.0	18	12.0	1*	0.0	0	16	19
Pasni	24.8	19	18.3	1	34.0	18*	12.5	1*	0.0	0	16	5
Hyderabad	27.7	28	18.8	1	38.3	20	12.5	1	0.0	0	14	8*
Chhor	26.4	27	17.3	1	37.2	27	5.0	2	0.0	0	10	9*
Karachi	26.8	26	19.4	3	34.5	27	9.5	2*	0.0	0	12	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

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