



# Government of Pakistan Pakistan Meteorological Department Pakistan Monthly Climate Summary February 2024

## In brief

- February 2024 National area-weighted rainfall (30.6mm) was 23% **above average**.
- February 2024 **stands as the** 8<sup>th</sup> highest area-weighted rainfall for Balochistan and Sindh.
- The wettest day of the month in the country was February 28 when Jiwani (Balochistan) recorded rainfall of 137.0mm. Whereas, Gwadar was the wettest place with 207.1mm monthly total rainfall.
- The national mean monthly temperature for Pakistan was 14.49 °C, being **+0.88 °C warmer** than the country average (13.60 °C).
- The daytime (maximum) temperature at the country-level was 21.61 °C, being **+1.13 °C warmer** than the country average of 20.49 °C.
- The nighttime (minimum) temperature at country level was 7.30 °C, also **+1.09 °C warmer** than the countrywide average of 6.20 °C.
- The **hottest** day of the month was observed at Shaheed Benazirabad (Sindh) when it recorded a maximum temperature of 35.5 °C on 18<sup>th</sup> & 19<sup>th</sup> February. Whereas Mithi remained the **warmest** place with a mean monthly maximum temperature of 30.8 °C.
- The **coldest** night temperature (-14.0°C) of the month was recorded at Kalam (Khyber Pakhtunkhwa, KP) on February 6, 2024, which too happened to be the **coolest** place with -mean monthly minimum temperature of 8.6 °C.
- El Niño persists but with steady weakening trend with sea surface temperatures (SSTs) being +1.3°C over the central equatorial Pacific.
- The prevailing positive Indian Ocean Dipole (IOD) has transitioned to a neutral phase.

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

Hottest day	35.5 °C	at Shaheed Benazirabad (Sindh) on the 18 <sup>th</sup> & 19 <sup>th</sup>
Coldest day	-2.0 °C	at Malam Jabba (KP) on the 19 <sup>th</sup>
Coldest night	-14.0 °C	at Kalam (KP) on the 6 <sup>th</sup>
Warmest night	21.5 °C	at Karachi Airport (Sindh) on the 19 <sup>th</sup>
Wettest day	137.0 mm	at Jiwani (Balochistan) on the 28 <sup>th</sup>
Wettest month	207.1 mm	at Gwadar (Balochistan)

## Synoptic Summary

February 2024 has brought frequent Western Disturbance (WDs) across Pakistan. In all, there were four WDs, which entered the country from 1-6 Feb, 11-13 Feb, 16-21 Feb and 25-29 Feb and gripped Khyber Pakhtunkhwa (KP), Northern Punjab, Gilgit-Baltistan (GB) and Kashmir. These WDs caused heavy to very heavy rains-thunderstorms (with some record-breaking events in southwest Balochistan - Gwadar district) and snowfall over hills in KP, GB, AJ&K, Punjab, Balochistan and some parts of Sindh during the month.

Table-2: New Weather Records Set in February 2024								Table-3: Significant Wind		
S No	Stations	Weather Parameters	New Record		Old Record		No of years examined.	Date	Station	Max Wind Knots
			Value	Date	Value	Date				
1	GWADAR	Heaviest one day Rainfall (mm)	125.2	28/Feb/2024	38.0	01/Feb/2008	23	02/2024	Quetta Samungi	30
2	GWADAR	Wettest month rainfall(mm)	207.1	Feb-2024	54.3	Feb-2019	23	19/2024	Islamabad AP	40
3	BUNJI	Coldest night Temperature (°C)	-3.3	(5 days)-Feb-2024	-3.3	10/Feb/1986	53	19/2024	Mangla	30
								19/2024	Lahore Aiport	35

### Rainfall: Slightly Above average in the country.

Climatologically, the February rainfall contribution to the national annual total and Winter (JFM) is 8.4% & 33.5%, respectively. During the month, Pakistan experienced 3-4 moderate to heavy rainfall or very heavy spells. The area-averaged daily rainfall is shown in Fig-1. February 2024 rainfall was slightly above average, with 30.6mm (+23%), for Pakistan as a whole. Situation was diverse on regional scale i.e. Sindh with 14.4mm (+174%) & Balochistan with 39.2mm (+108%) recorded excessively above average rainfall and stand as the 8<sup>th</sup> wettest February in the regions (record is 25.9mm and 77.4mm in 2005, respectively). Punjab with 11.7mm (-50%) and Gilgit-Baltistan (GB) with 10.1mm (-46%) both recorded below average rainfall. The Azad Jammu & Kashmir (AJ&K) with 82.5mm (-1%) and KP with 61.7mm (-8%) both experienced near average rainfall (Table-4). The wettest day of the month in the country was 28<sup>th</sup> February when Jiwani (Balochistan) recorded 137.0 mm rainfall. Whereas Gwadar was the wettest place with a monthly total rainfall of 207.1mm (Table-1).

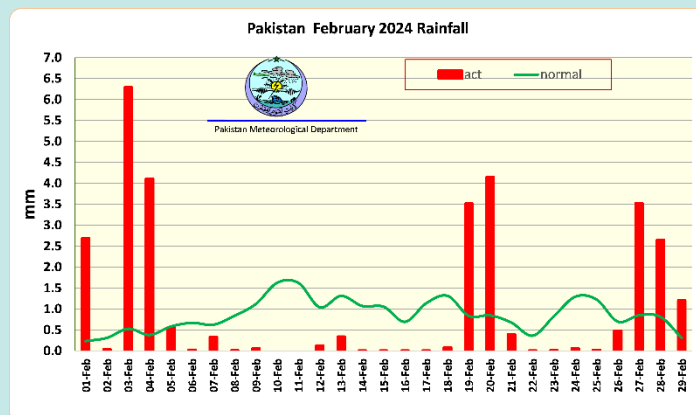


Fig1: Daily Area Weighted Rainfall

Table-4: February 2024 Area-Weighted Rainfall

Region	Rank (of 63y)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	47	24.9	30.6	23	----
Azad Jammu & Kashmir	38	83.2	82.5	-1	----
Balochistan	57	18.8	39.2	108	8 <sup>th</sup> Highest (77.4mm rainfall recorded in 2005)
Gilgit Baltistan	23	18.7	10.1	-46	----
Khyber Pakhtunkhwa	29	66.8	61.7	-8	----
Punjab	17	23.2	11.7	-50	----
Sindh	57	5.3	14.4	174	8 <sup>th</sup> Highest (25.9mm rainfall recorded in 1979)

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

The other significant rainfalls recorded were Rawalakot with 165.4mm, Jiwani with 158.0mm, Muzaffarabad Airport with 149.9mm, Muzaffarabad City with 142.4mm, Dir with 142.0mm, Pattan with 138.0mm, Balakot with 135.0mm, Parachinar with 127.0mm, Kalam with 123.0mm, Garhi Dupatta with 122.4mm, Cherat with 122.0mm, Malam-Jabba with 115.0mm, Saidu Sharif with 112.0mm, Kakul with 109.0mm and Murree with 104.6mm. The stations: Sahiwal, Dera Ismail Khan and Badin recorded only traces of rainfall during the month, while the stations- Hunza and Mithi remained absolutely dry with no rain during the month.

February 2024 Rainfall maps

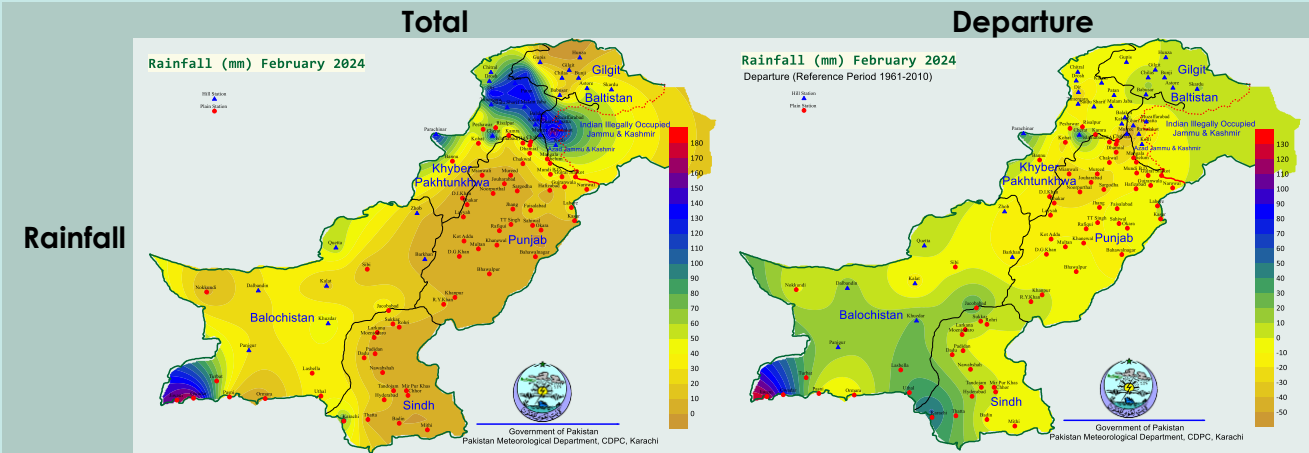


Fig. 2. February-2024 spatial rainfall distribution and departure from normal

Table 5: Temperatures: **Warmer** than average in the country.

Area Average Temperatures (°C) in February 2024						
Regions	Maximum Temperature		Minimum Temperature		Mean Temperature	
	Actual	Anomaly	Actual	Anomaly	Actual	Anomaly
Pakistan	21.61	1.13	7.30	1.09	14.49	0.88
Azad Jammu & Kashmir	13.68	1.55	0.16	-0.80	6.94	0.39
Balochistan	22.09	1.45	7.85	1.50	15.01	1.15
Gilgit-Baltistan	10.12	1.48	-2.90	-1.19	3.65	0.17
Khyber Pakhtunkhwa	17.33	1.52	3.53	-0.15	10.45	0.70
Punjab	23.01	0.72	8.38	1.01	15.73	0.53
Sindh	27.61	0.07	12.48	2.10	20.08	1.17

February 2024 was **+0.88 °C warmer** than average for Pakistan as a whole, with national mean monthly temperature being 14.49°C against the country average of 13.60 °C. So was the case in all the regions; Sindh with 20.08°C (**+1.17°C**), Balochistan with 15.01°C (**+1.15°C**), KP with 10.45°C (**+0.70°C**), Punjab with 15.73°C (**+0.53°C**), AJK with 6.94°C (**+0.39°C**) and GB with 3.65°C (**+0.17°C**) all exhibited warmer than average temperatures (Table-5, Fig. 3-lower panel). The mean temperature anomalies of February 2024 were in range from -1.0 to +2.6 °C in the country. February 2024 mean-maximum (daytime) temperature of 21.61°C recorded at country-level being **+1.13 °C warmer** than average of 20.49 °C. Similarly, warmer than average mean maximum temperatures have been observed in all regions (Table-5, Fig. 3-upper panel). The night (minimum) temperature of 7.30 °C was also **+1.09 °C Warmer** than the country-average of 6.20 °C during the month. Whereas the regions depicted the diverse situations i.e. the Sindh, Balochistan and Punjab exhibited **warmer** than average minimum temperatures. In contrast the GB, AJ&K and KP remained **cooler** than average (Table-5, Fig-3, middle panel). The Mean

Minimum temperature anomalies were -2.6 to +4.1 °C in the country with those being considerably higher over lower Sindh. The hottest day of the month was at Shaheed Benazirabad (Sindh) when it recorded 35.5 °C temperature on 18<sup>th</sup> & 19<sup>th</sup> February. Whereas Mithi happened to be the warmest place with 30.8 °C average maximum temperature during the month. Kalam (KP) recorded the month's coldest night temperature of -14.0 °C on 6<sup>th</sup> February and incidentally been the coolest place with -8.6 °C average minimum temperature.

## February 2024 Temperature maps

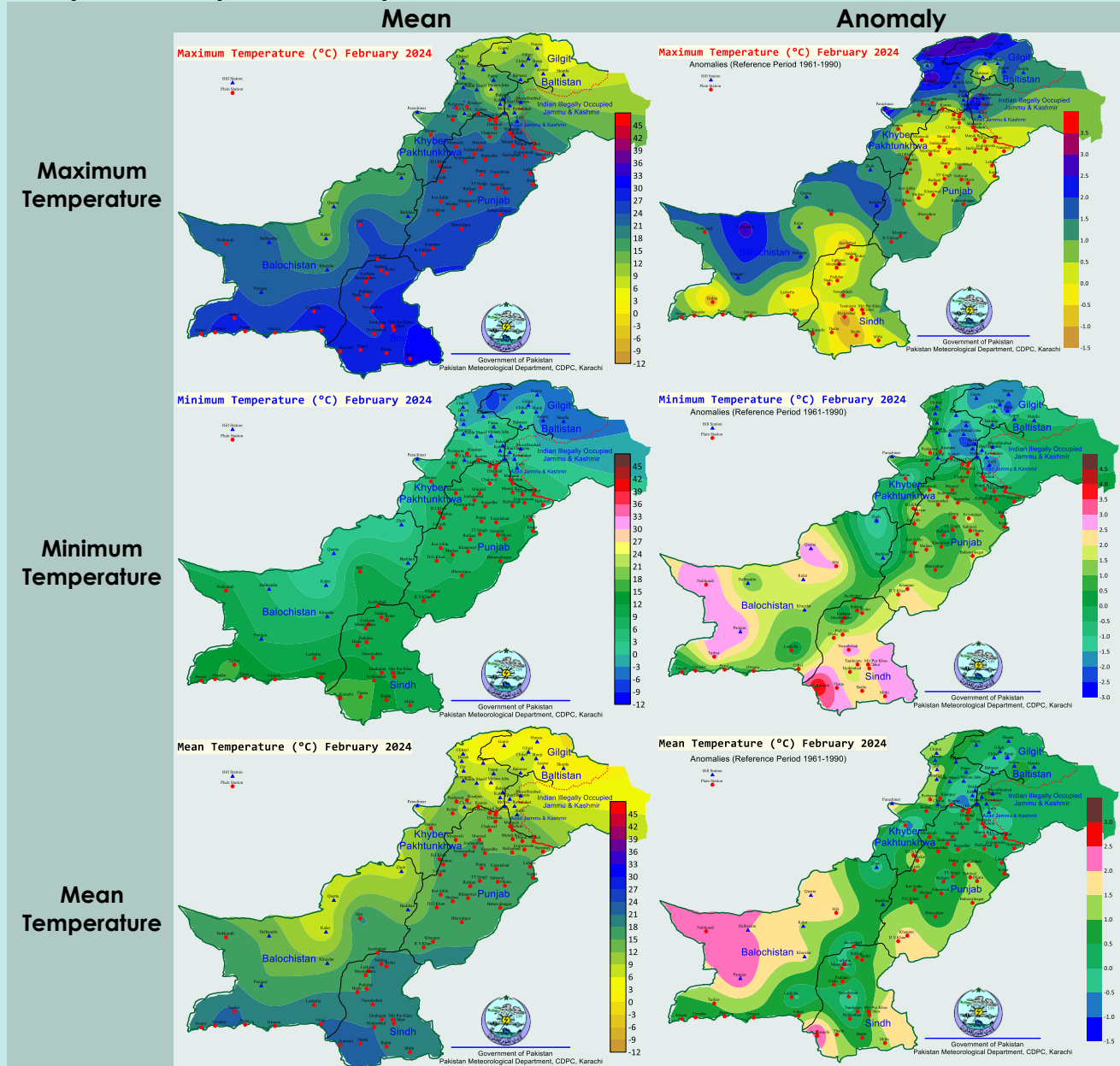


Fig. 3. February-2024 Temperatures (Maximum, Minimum & Mean) and their anomalies.

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

Station	Pressure (mb)		Temperature (°C)			Vapour (mb) Pressure	Precipitation	
	Station Level	Sea Level	Mean	Maximum	Minimum		Total (mm)	Days
Drosh	856.4	1525.8	6.0	11.6	0.4	4.3	72.7	5
	856.9	1521.9	5.8	10.7	1.0	4.6	74.4	7.4
Peshawar	980.4	1019.2	13.7	22.0	5.4	9.5	62.0	2
	973.8	1016.0	13.1	19.8	6.3	8.7	47.1	6.4
Parachinar	829.6	1525.8	7.0	13.3	0.6	5.4	127.0	7
	827.2	1506.5	4.7	10.9	-1.8	4.6	76.5	5.6
Rawalpindi	959.6	1018.9	13.2	19.6	6.7	7.4	51.0	4
	956.4	1015.7	12.3	19.2	5.4	8.6	79.7	7.1
Sargodha	995.5	1017.3	16.1	23.5	8.7	10.9	1.9	1
	993.4	1015.0	14.8	22.4	7.1	10.4	24.5	5.5
Jhelum	989.5	1017.2	14.4	22.0	6.8	10.4	38.7	5
	987.5	1015.1	14.7	21.5	7.9	10.1	52.8	6.3
Sialkot	987.2	1017.3	14.1	21.0	7.1	11.2	39.7	6
	985.2	1015.1	14.0	20.7	7.4	10.9	48.5	5.7
Zhob	859.0	1492.2	7.9	15.7	0.1	4.0	14.0	3
	858.6	1487.3	8.0	14.6	1.5	5.2	25.0	2.4
D.I.Khan	996.7	1017.0	16.1	23.2	9.0	12.0	0.0	0
	994.7	1015.0	14.8	22.2	7.3	9.7	15.0	4.1
Lahore	992.2	1017.6	15.9	22.3	9.4	11.0	24.0	3
	989.7	1014.9	15.7	22.1	9.4	10.5	30.3	5.3
Quetta	844.6	1536.8	8.0	14.1	1.8	4.1	56.0	5
	841.5	1507.6	6.2	12.8	-0.9	5.7	49.5	6.6
Multan	1002.3	1016.9	16.4	23.5	9.2	11.2	7.5	2
	1000.6	1015.2	15.5	23.3	7.8	10.3	11.1	2.9
Barkhan	892.7	1507.4	12.3	19.4	5.1	5.4	5.0	2
	891.7	1496.8	12.0	17.9	6.4	5.8	21.2	1.9
Nokkundi	937.0	1014.2	16.4	22.9	9.8	6.1	25.0	3
	937.1	1015.0	14.1	21.6	6.2	6.5	7.6	1
Dalbandin	920.7	1516.1	14.3	22.7	5.8	6.6	29.4	3
	919.7	1504.3	12.3	20.4	4.6	6.1	16.3	1.5
Jacobabad	1010.2	1016.8	17.7	24.3	11.1	12.1	37.0	2
	1008.1	1014.6	17.8	25.2	10.3	10.0	6.9	0.7
Khanpur	1006.3	1016.8	17.7	25.8	9.5	12.1	8.7	3
	1004.1	1014.5	15.8	24.2	7.4	10.1	5.3	1.4
Panjgur	905.6	1513.2	15.3	21.7	8.7	8.1	30.0	4
	905.6	1507.7	12.7	19.6	5.7	4.2	16.5	1.5
Khuzdar	880.9	1531.4	13.6	20.4	6.7	6.9	48.5	4
	877.3	1487.0	12.0	18.8	5.2	3.0	29.9	1.7
Sh. Benazirabad	1013.2	1016.5	19.7	27.9	11.5	12.3	6.2	1
	1011.3	1015.0	17.8	27.2	8.4	11.9	3.3	0.2
Jiwani	1009.3	1015.9	20.3	26.4	14.2	19.6	158.0	3
	1008.6	1015.1	20.0	25.1	14.9	14.8	31.0	0.9
Pasni	1015.8	1016.4	21.0	27.8	14.1	17.8	9.0	3
	1013.4	1014.2	19.6	26.5	13.4	13.4	21.5	0.6
Hyderabad	1010.7	1015.8	21.0	26.8	15.2	11.2	19.0	3
	1010.4	1014.5	20.7	27.7	13.7	11.0	4.3	0.9
Chhor	1014.8	1015.5	21.0	30.2	11.6	12.5	2.8	1
	1013.2	1013.8	19.0	29.3	8.5	10.4	3.6	0.3
Karachi	1013.3	1016.0	22.8	28.7	16.8	13.2	60.6	3
	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

**Table 7: February 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	11.5	16	0.6	19	19.0	16	-2.3	1	31.7	20	14	8
Peshawar	17.1	28	7.8	3	28.0	15	2.5	2*	42.5	19	6	20
Parachinar	12.4	17	0.3	3	20.8	17	-3.0	4*	37.0	20	4	1*
Rawalpindi	16.9	17	8.5	3	24.4	15	3.5	2	22.0	1	23	8
Sargodha	18.0	28	12.0	3	27.9	15	6.9	7*	1.5	4	16	18
Jhelum	17.4	28	9.5	3	27.0	14	4.2	3	13.6	1	12	19
Sialkot	16.3	21	10.7	3	25.0	15	5.0	7*	13.0	1	6	18*
Zhob	14.7	17	-0.5	4	25.5	17	-4.0	4	6.0	19	11	19*
D.I.Khan	19.0	28	12.3	3	28.5	15	7.0	5*	0.0	0	6	27*
Lahore	18.6	19	12.7	3	26.0	29	7.0	5	17.0	1	8	18*
Quetta	14.0	18	3.5	26	22.0	17*	-3.0	23	21.0	27*	30	2
Multan	19.4	19	12.0	3	27.0	17	7.0	13	4.2	4	12	19
Barkhan	16.3	17	6.8	3	26.0	17	2.0	6	4.0	7	6	19
Nokkundi	24.3	18	10.3	29	32.5	18	2.5	5	18.0	27	18	18*
Dalbandin	20.0	18	10.3	26	31.0	18	2.0	5	17.4	27	18	2
Jacobabad	21.0	20*	13.0	3	28.0	70	9.5	4*	26.0	27	6	2
Khanpur	20.5	17	15.3	3*	31.2	17	7.5	24	4.0	3	12	26
Panigur	19.5	18	12.8	1*	27.5	18	5.0	5	26.0	3	16	3*
Khuzdar	19.3	18	9.0	26	26.5	17*	3.5	5*	21.5	3	8	19
Sh.Benazirabad	24.5	19	15.5	3	35.5	18*	8.0	9*	5.7	4	14	26
Jiwani	22.0	23	18.0	12	29.0	21*	12.5	10*	137.0	28	14	5*
Pasni	22.5	22	19.0	26	30.0	15*	11.5	26	4.0	13	16	5*
Hyderabad	24.8	20	15.7	4	32.5	29	11.6	9	17.0	4	26	18*
Chhor	25.2	20	17.5	4	36.0	29	7.5	9*	2.6	4	16	18
Karachi	25.4	20	20.3	4	32.4	29	13.0	9	50.8	4	22	26

\* 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)

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