



Government of Pakistan
Pakistan Meteorological Department
Pakistan Monthly Climate Summary
September 2024

In brief

- National area-weighted rainfall, 15.0mm, of September 2024 was well **below average (-30%)**.
- The heaviest one-day rainfall of 110.0 mm occurred at Chaklala Airbase (Punjab) on 27th September. Whereas the Islamabad (Zero point) has been the wettest place with monthly total 191.0 mm.
- The national mean monthly temperature of 29.25 °C for Pakistan was **warmer by +1.26 °C** than the country-average of 27.98 °C and stands 4th highest in September (the record is 29.79 °C in 2019) during the past 64 years.
- The daytime (maximum) temperature at country-level was 35.45 °C also **warmer by +0.93°C** than the country-average of 34.52 °C and stands 8th warmest mean maximum temperature during past 64 years (record is 36.22 °C in 2019).
- The country-level nighttime (minimum) temperature of 23.01 °C was **warmer (+1.99°C anomaly)** than the countrywide average of 21.02 °C and stands 4th warmest mean minimum temperature during past 64 years (the record is 23.3°C in 2019).
- The **hottest** day of the month was observed at Turbat (Balochistan) on 10th & 11th September when it recorded a maximum temperature of 44.5 °C. Whereas the stations Nokkundi & Sibi found to be the **warmest** places with a mean monthly maximum temperature of 40.3 °C.
- The **coldest** night temperature of 7.3 °C of the month was recorded at Skardu (GB) on 30th. Coincidentally, the same station happened to be the **coolest** place with mean monthly minimum temperature of 11.1 °C.
- The El Niño–Southern Oscillation (ENSO) has slightly shifted from neutral to La Niña with sea surface temperatures (SSTs) being around -0.4 °C over the central equatorial Pacific Ocean and likely fall further.
- The Indian Ocean Dipole (IOD) is in neutral phase.

Table-1: National Weather Extremes during September 2024

Hottest day	44.5	Turbat (Balochistan) on 10 th & 11 th
Coldest day	17.5	Malam-Jabba (KP) on 14 th
Coldest night	7.3	Skardu (GB) on 30 th
Warmest night	30.6	Multan Airport (Punjab) on 25 th
Wettest day	110.0	at Chaklala Airbase (Punjab) on the 27 th
Wettest month	191.0	at Islamabad Zero Point

Synoptic Summary

Seasonal (Heat) low, with monthly average value of 1000 hPa, remained oriented over Northwest-west Balochistan during most of the month with another low-pressure area affected eastern Sindh during first & last week. Meanwhile monsoon currents from the North Arabian Sea & Bay of Bengal kept penetrating in Upper, central part of the country during first and last week of the month with a westerly wave also approached during 27-29 September which produced few heavy to extremely heavy falls over Khyber Pakhtunkhwa (KP), Punjab, Gilgit-Baltistan (GB) and Kashmir. With this last spell in the month, monsoon-2024 practically withdrew from the country.

Table-2: New Weather Records Set in September 2024

S No	Stations	Weather Parameters	New Record		Old Record		No of years examined.
			Value	Date	Value	Date	
1	GAWADAR	Wettest month rainfall(mm)	3.0	Sep-2023	0.0	---	23
2	GAWADAR	Heaviest one day Rainfall (mm)	3.0	01/Sep/2024	0.0	---	23
3	PARACHINAR	Hottest night Temperature (°C)	24.5	25/Sep/2024	22.2	24/Sep/1990	64
4	QUETTA. (SAMUNGLI)	Hottest night Temperature (°C)	24.5	01/Sep/2024	22.2	01/Sep/2002	64

Table-3: Significant Winds recorded in September 2024

Date	Station	Max Wind Knots	Date	Station	Max Wind Knots
06/2024	Peshawar AP	30	26/2024	Islamabad ZP	30
02/2024	Islamabad AP	30	27/2024	Sialkot AP	30
26/2024	Islamabad AP	50	27/2024	Faisalabad	30
06/2024	Islamabad ZP	30	02/2024	Lahore AP	36
12/2024	Islamabad ZP	35	03/2024	Lahore AP	38

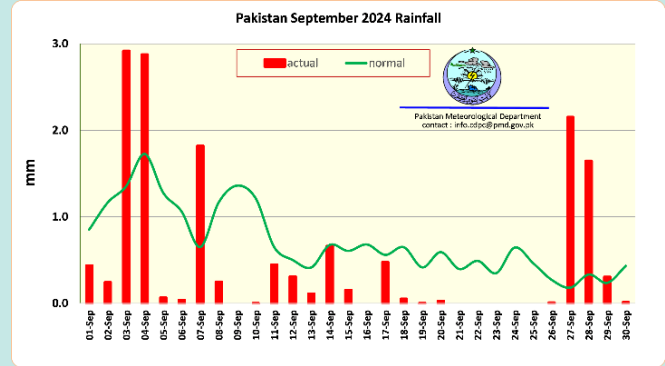


Fig-1: Daily Area-averaged Rainfall (mm) in Pakistan

Rainfall: Below Average in the country.

Climatologically, September is considered as an average rainy month of the year with rainfall contribution to the annual national total and monsoon (JAS) being 7.2% and 15.2%, respectively. During the month, Pakistan experienced four/five moderate/heavy rain spells. The daily area-averaged rainfall is shown in Fig-1. September 2024 rainfall with 15.0 mm was well **below average (-30%)** for Pakistan as a whole. The situation was similar on regional scale too i.e. the GB with 4.2mm (-56%) recorded excessively below average rainfall. Whereas, Sindh with 10.6mm (-47%), KP with 26.3mm (-43%) experienced the 8th driest September (record being 6.7mm in 1968), AJ&K with 41.4mm (-36%), Balochistan with 4.4mm (-29%) and Punjab with 30.9mm (-11%) all exhibited below average rainfall (Table-4).

The wettest day of the month in the country was 27th September when 110.0mm rainfall was recorded at Chaklala Airbase (Punjab). Whereas Islamabad (Zero Point) found being the wettest place with a monthly total rainfall of 191.0 mm (Table-1).

Table-4: September 2024 Area Weighted Rainfall

Region	Rank (of 64y)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	21	21.4	15.0	-30	---
Azad Jammu & Kashmir	16	64.9	41.4	-36	---
Balochistan	34	6.2	4.4	-29	---
Gilgit Baltistan	15	9.7	4.2	-56	---
Khyber Pakhtunkhwa	08	46.0	26.3	-43	08 th driest (record 6.7 mm in 1968)
Punjab	30	34.7	30.9	-11	---
Sindh	37	19.9	10.6	-47	---

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

The other notable rainfalls recorded in the month were Chaklala Airbase 188.0mm, Mangla 134.8mm, Sialkot Airport 123.9mm, Islamabad, Airport 107.1mm, Garhi Dupatta 105.8mm, Jhelum 104.5mm, Murree 95.0mm, Mandibahauddin 88.5mm, Narowal 88.3mm, Lahore City 84.6mm, Sialkot Cantt 83.0mm and Rawalakot 81.7mm. The stations Multan Airport, Rahim Yar Khan, Rohri, Sukkur,

Moen Jo Daro, Dadu, Tando Jam, Khairpur, Nokkundi, Turbat and Zhob remained absolutely dry with no rain during the month. The stations: Bahawalpur Airport, Khanpur, T.T. Singh, Bannu, Sakrand, Dalbandin, Quetta (Sh. Manda) and Sibbi recorded only traces of rainfall during the month.

September 2024 Rainfall maps

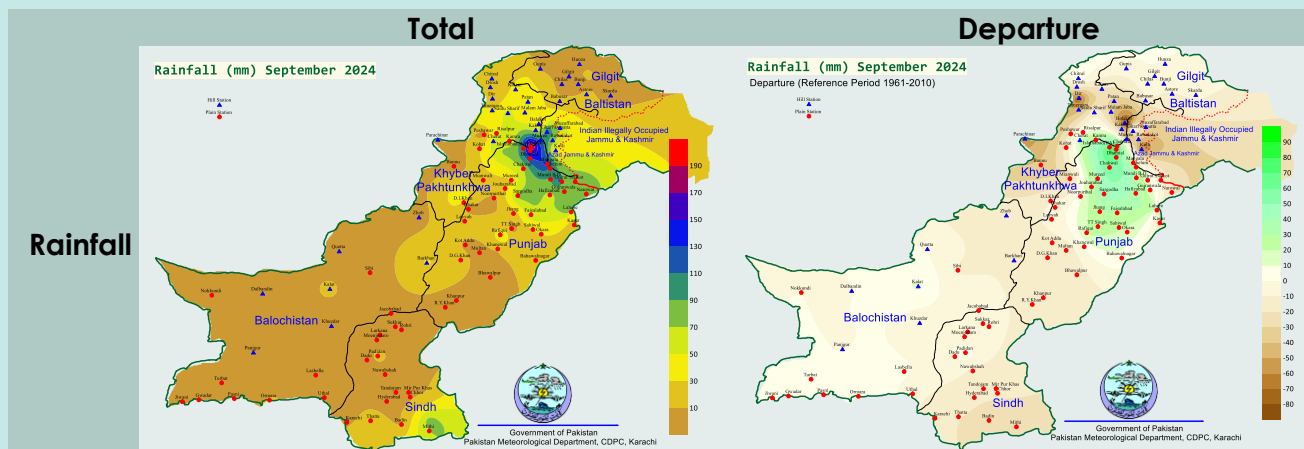


Fig. 2. September-2024 spatial rainfall distribution and departure from normal

Table 5: Warmer-than-average Temperatures at Country-level and Provinces/regions

Area Averaged Temperatures (°C) in September 2024 and anomalies from normal 1961-1990						
Regions	Maximum Temperature		Minimum Temperature		Mean Temperature	
	Actual	Anomaly	Actual	Anomaly	Actual	Anomaly
Pakistan	35.45	+0.93	23.01	+1.99	29.25	+1.26
Azad Jammu & Kashmir	30.66	+1.87	17.63	+1.57	24.18	+1.74
Balochistan	36.03	+1.03	22.23	+2.09	29.15	+1.24
Gilgit-Baltistan	30.19	+1.03	14.24	+0.07	22.22	+0.69
Khyber Pakhtunkhwa	33.71	+1.25	20.80	+1.63	27.27	+1.46
Punjab	36.70	+0.77	26.24	+2.73	31.48	+1.47
Sindh	36.47	+0.27	26.45	+1.97	31.47	+1.02

The September 2024 national mean temperature of 29.25 °C was +1.26 °C warmer than the country-average of 27.98 °C and stands 4th highest mean temperature in the month (record is 29.79°C in 2019). Similar trend prevailed at regional scale: Punjab with 31.48°C (+1.47°C) stands as the 3rd highest mean temperature (record is 31.57°C in 1961), AJ&K with 24.18 °C (+1.74 °C) and KP with 27.27 °C (+1.46 °C) both ranked as 4th highest mean temperature (the records being 24.43°C in 2019 & 27.61 in 1961 respectively). The Balochistan with 29.15°C (+1.24) and Sindh with 31.47°C (+1.02) both observed 7th highest mean temperature (the records being 30.11 °C in 1983 & 32.39°C in 2021 respectively).

The monthly mean maximum (daytime) temperature of 34.45 °C at country-level was also positively anomalous (+0.93 °C) than the country average of 35.52 °C and ranked as the 8th highest of the month (the record is 36.22 °C in 2019). The AJ&K with 30.66 °C (+1.87 °C) and KP with 33.71 °C (+1.25°C) both recorded the 4th highest of the month (records are 31.08°C in 1968 & 34.44°C in 1987 respectively). The other regions too observed the positive anomaly (Table-5, Fig. 3 upper panel). The Mean maximum temperature anomalies were ranged from -1.5 to +3.4 °C in the country with those being considerably higher over GB & adjoining AJ&K and western Balochistan.

The night-time (minimum) temperature of 23.01 °C (with +1.99 °C anomaly) was too warmer than average of 21.02 °C during the month of September-2024 and ranked 4th highest mean minimum temperature of the month (record is 23.3 °C in 2019). A similar trend was found across all the regions: For Punjab with 26.24°C (+2.73 °C) it ranked 2nd warmest (record is 26.35°C in 2019), Sindh with 26.45 °C (+1.97 °C) and KP with 20.80°C (+1.63°C) both ranked 4th warmest (records are 27.34°C in 2021 & 21.87°C in 1961 respectively), AJ&K with 17.63°C (+1.57 °C) ranked 5th warmest and Balochistan with 22.23°C (+2.09°C) ranked 6th warmest (Table-5, Fig-3, middle panel). The hottest day of the month was 44.5 °C recorded at Turbat (Balochistan) on 10th & 11th September. Whereas the stations Nokkundi & Sibi both from Balochistan happened to be the warmest places with 40.3 °C average maximum temperature during the month. The lowest night (minimum) temperature of the month was 7.3 °C recorded at Skardu (GB) on 30th September, Coincidentally, the same station being the coolest place with 11.1 °C average night (minimum) temperature.

September 2024 Temperature maps

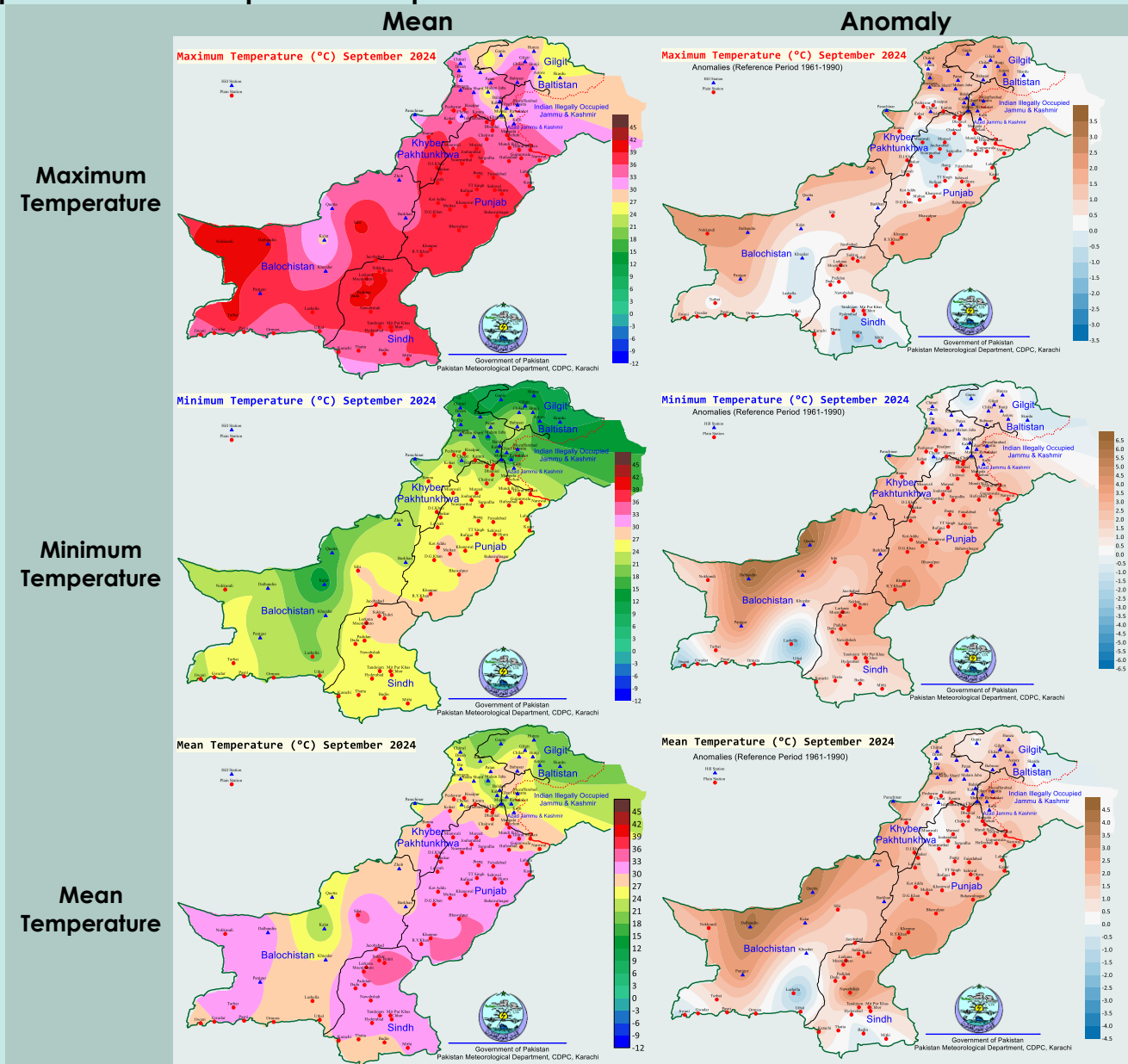


Fig. 3. September-2024 Temperatures (Maximum, Minimum & Mean) and their anomalies.

Table 6: September 2024 Monthly Averages & Normals

Station	Pressure (mb)		Temperature (°C)			Vapour Pressure	Precipitation	
	Station	Sea	Mea	Maximu	Minimu		Total	Day
Drosh	849.3	1456.5	25.3	32.9	17.8	13.4	9.8	3.0
	850.3	1466.6	25.6	33.1	18.2	11.4	21.8	4.8
Peshawar	967.8	1004.0	30.1	36.4	23.8	28.3	2.0	2.0
	963.7	1003.3	29.0	35.2	22.7	24.0	22.2	4.4
Parachinar	825.4	1468.6	24.8	30.0	19.5	15.7	2.0	1.0
	825.6	1473.5	20.7	27.2	14.3	13.1	55.4	8.4
Rawalpindi	948.9	1004.4	28.7	33.7	23.7	24.0	188.0	6.0
	948.3	1004.3	26.6	33.5	20.7	23.1	113.2	8.7
Sargodha	982.5	1002.7	31.7	37.1	26.2	32.0	46.7	3.0
	983.3	1004.1	30.3	36.3	24.2	26.2	27.7	4.3
Jhelum	977.0	1002.9	30.3	35.5	25.1	32.5	104.5	4.0
	978.0	1004.0	28.9	34.7	23.1	26.3	74.5	7.1
Sialkot	975.1	1003.4	29.8	34.2	25.4	32.3	83.0	6.0
	976.1	1004.4	27.9	33.2	22.6	27.4	90.7	6.8
Zhob	852.6	1432.1	28.1	34.7	21.5	13.7	0.0	0.0
	854.6	1451.4	26.1	33.2	19.1	12.9	11.5	1.2
D.I.Khan	983.4	1002.4	32.0	37.7	26.3	31.5	16.8	2.0
	983.9	1003.0	30.1	36.5	23.6	26.4	20.8	2.1
Lahore	979.8	1003.5	30.7	35.2	26.1	31.1	84.6	7.0
	980.0	1003.8	29.8	35.0	24.6	26.4	65.1	6.4
Quetta	839.9	1484.4	25.0	32.7	17.3	7.6	1.0	1.0
	838.5	1469.6	21.6	31.6	11.7	9.0	2.5	0.4
Multan	988.8	1002.3	32.9	37.4	28.4	30.9	0.0	0.0
	989.8	1003.4	30.9	36.9	24.9	26.4	24.9	1.7
Barkhan	885.6	1458.7	28.6	34.0	23.2	21.7	32.0	4.0
	886.4	1465.7	27.1	33.6	20.6	16.5	44.5	3.0
Nokkundi	927.3	999.6	32.0	40.3	23.7	5.4	0.0	0.0
	929.4	1002.0	30.1	38.6	22.2	9.4	0.0	0.0
Dalbandin	912.1	1477.1	31.9	39.8	24.0	8.9	0.0	0.0
	912.6	1474.4	28.0	37.2	16.5	6.3	0.0	0.1
Jacobabad	996.3	1002.5	32.3	37.5	27.1	35.5	3.0	1.0
	996.3	1003.2	31.4	36.8	26.0	28.2	11.0	0.4
Khanpur	992.4	1002.2	33.1	39.0	27.2	34.3	0.0	0.0
	993.4	1003.3	29.8	36.7	22.9	26.7	14.6	1.2
Panjgur	898.4	1469.8	30.2	37.2	23.2	11.6	1.0	1.0
	899.7	1476.7	27.4	35.4	19.3	8.3	2.5	0.4
Khuzdar	872.1	1457.5	27.3	33.5	21.1	9.8	1.0	1.0
	872.5	1451.4	26.7	34.2	20.0	6.1	7.9	1.5
Sh. Benazirabad	999.7	1002.9	32.7	38.9	26.5	34.3	1.0	1.0
	1000.3	1004.0	31.2	38.6	23.7	28.1	16.2	1.0
Jiwani	998.4	1004.8	27.0	32.5	21.5	29.9	1.0	1.0
	999.3	1005.7	27.8	31.5	24.3	28.2	0.3	0.1
Pasni	1004.3	1004.8	29.3	34.0	24.5	31.4	6.0	1.0
	1004.2	1004.8	27.4	32.6	23.6	27.5	1.2	0.2
Hyderabad	998.6	1003.4	31.2	36.0	26.3	31.0	1.0	1.0
	1000.6	1004.2	31.0	36.4	25.3	26.8	12.6	0.8
Chhor	1003.0	1003.7	30.8	35.9	25.7	34.8	14.4	2.0
	1003.8	996.9	29.8	36.0	23.7	27.3	37.3	1.4
Karachi	1002.0	1004.7	30.3	33.6	27.0	31.1	0.6	0.0
	1003.2	1005.9	29.1	32.8	25.4	27.8	10.2	0.8

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

Table 7: September 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	28.9	24	21.1	29*	38.8	24	12.8	30	5	28	14.0	09
Peshawar	32.4	24	27.0	14*	40.0	12	20.0	15	1	03*	12.0	13
Parachinar	28.8	23	21.5	28	33.5	23	15.5	15	2	03	8.0	10
Rawalpindi	31.2	25	25.2	27	36.4	24	19.8	27	110	27	18.0	11
Sargodha	34.5	25	27.2	28	40.7	24	21.7	28	25.7	28	6.0	19*
Jhelum	32.8	25	23.9	27	38.5	24*	20.0	27	69	27	6.0	02*
Sialkot	32.1	24*	26.5	27	37.4	24	22.6	28*	45	03	8.0	07
Zhob	30.5	23	24.2	29	37.5	22*	15.9	29	0	--	8.0	13
D.I.Khan	34.3	24	28.3	03	40.5	22*	22.5	07	14	07	10.0	27
Lahore	33.3	24	27.8	28	38.0	24	23.0	29	50.2	03	8.0	03
Quetta	28.0	01	22.8	14	36.0	23*	15.5	11*	1	01	20.0	14
Multan	35.3	24	30.0	03	40.5	24	26.3	01*	0	--	14.0	14
Barkhan	31.5	23	25.5	15	37.0	23	19.0	15*	10	04	4.0	02*
Nokkundi	34.3	02	28.3	11	43.0	24	19.5	11	0	--	16.0	09*
Dalbandin	34.5	02	28.8	11	42.0	07*	21.0	11*	0	--	10.0	13
Jacobabad	33.8	23	29.8	14	40.0	23	25.0	15	3	01	4.0	13*
Khanpur	34.9	25	31.2	14	41.4	05*	25.0	29	0	00	6.0	01*
Panjgur	32.0	06	28.5	11	39.5	04*	21.0	29	1	18	16.0	09
Khuzdar	29.3	25*	25.0	02*	36.0	24	19.0	02*	1	04	12.0	29
Sh.Benazirabad	34.8	27	29.8	01	42.5	27	25.0	01*	1	04	14.0	12*
Jiwani	28.3	2*	26.3	27*	34.0	02	20.5	18*	1	01	14.0	01*
Pasni	30.0	9*	25.8	01	35.0	09*	20.5	01	6	01	16.0	08
Hyderabad	33.4	27	29.3	01	39.2	27	25.5	01*	1	04	20.0	13*
Chhor	33.7	26	28.5	14	40.5	26	24.0	14*	12.8	04	10.0	13*
Karachi	31.6	27	28.1	01	35.5	26	23.5	01	0.6	01	14.0	05

* 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 Jauhar, Block #5, Karachi-75290
 Webpage: <http://www.pmd.gov.pk/cdpc/home.htm>; Email: info.cdpc@pmd.gov.pk

Published on October 2, 2024