



Government of Pakistan
Pakistan Meteorological Department
Pakistan's Monthly Climate Summary
December 2023

In brief

- National area-weighted rainfall with only 1.1mm for the month of December 2023 was **excessively below average** (-92%).
- The wettest day of the month in the country was December 01 when Muzaffarabad Airport (AJK) recorded rainfall of 33.3mm, making it the wettest place as well with the same amount of rainfall as monthly total.
- The national mean monthly temperature of December 2023 for Pakistan as a whole was 14.35 °C, being **1.59 °C warmer** than the average (12.77 °C) and ranks the month as the 6th warmest December (record being 15.64 in 2016)
- The daytime (maximum) temperature at the country-level was 22.23 °C, which is **1.97 °C warmer** than the country-wide average of 20.25 °C and stands 7th warmest average maximum temperature for the month in past 63 years (record being 23.95 in 2016).
- The nighttime (minimum) temperature at country level was 6.44 °C, which is also **1.59 °C warmer** than the countrywide average of 4.85 °C and ranks as the 8th warmest average minimum temperature for the month in the past 63 years, with the record being 7.22 °C in 2016.
- The hottest day of the month was observed in Lasbela & Turbat (Balochistan) when they recorded a temperature of 33.5 °C on December 12th and 27th respectively. Whereas Mithi has been found the **warmest** place with a mean monthly maximum temperature of 30.8 °C.
- The **coldest** temperature of the month, -9.7°C, was recorded in Skardu (GB) on December 26, 2023. Coincidentally, the same station was the **coolest** place with a mean monthly minimum temperature of -6.8 °C.
- Central and eastern Pacific Sea surface temperatures (SSTs) have consistently been anomalous nearing to +2.0 °C during 1st week of January 2024, indicating that the El Niño event nearing its peak.
- The prevailing positive Indian Ocean Dipole (IOD) started weakening.

Table-1: National Weather Extremes during December 2023

Hottest day	33.5 °C	Lasbela (Balochistan) on the 12 th and Turbat (Balochistan) on the 27 th
Coldest day	4.0 °C	Hunza (GB) on the 24 th
Coldest night	-9.7 °C	Skardu (GB) on the 26 th
Warmest night	17.5 °C	Thatta & Karachi Airport (Sindh) on the 3 rd and Turbat (Balochistan) on the 15 th
Wettest day	33.3 mm	Muzaffarabad Airport (AJK) on the 1 st
Wettest month	33.3 mm	at Muzaffarabad Airport (AJK)

Synoptic Summary

The dry continental air with dense foggy conditions remained predominant features over most parts of the country during most of the month. However, two weaker intensity western disturbances entered western Balochistan during 15-16 & 22-24 Dec and spread over Northeast Balochistan, Upper Sindh, and then gripped Upper Khyber Pakhtunkhwa (KP), Gilgit-Baltistan (GB), Kashmir, and Northern Punjab, causing some light-intensity rainfall in western Balochistan, Northern areas of Punjab, KP, GB, Kashmir, and isolated places in Upper Sindh. A dry spell continued to prevail during the rest of the month.

Table-2: Significant wind speeds recorded during the December-2023.

Date	Station	Max Wind Knots
04/2023	Turbat	25
10/2023	Islamabad AP	22

Table-3: New Weather (rain & temperature) Records Set in December 2023

S No	Stations	Weather Parameters	New Record		Old Record		No of years examined.
			Value	Date	Value	Date	
1	Miawali	Hottest night Temperature (°C)	12.5	02/2023	12.5	10/2018	64
2	Peshawar	Hottest night Temperature (°C)	12.0	23&24/2023	12.0	08/2020	65

Rainfall: Excessively below average in the country

Climatologically, the December rainfall contribution to the national annual total and Post-monsoon (OND) is 4.5% & 50.3%, respectively. During the month, Pakistan experienced only 1-2 light rainfall spells. The area-averaged daily rainfall is shown in Fig-1. December 2023 rainfall was excessively below average, with only 1.1mm (-92%), for Pakistan as a whole and stands the 6th driest December during past 63 years (driest ever being 0.0mm in 1999). The situation was more

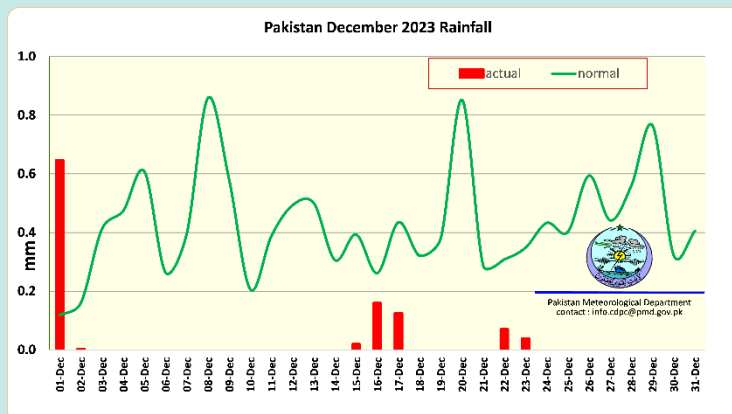


Fig1: Daily Area Weighted Rainfall

or less similar on regional scale too: Sindh recorded no rain except Jacobabad reported only traces. Punjab with only 0.2mm (-98%) observed the 9th driest December (driest ever being 0.0mm in 3 different years); GB with only 0.3mm (-97%) observed the 4th driest December (driest ever is 0.0mm in 1999); Balochistan with 0.8mm (-94%), KP with 4.1mm (-87%) and the AJK with 7.4mm (-82%) all exhibited excessively below average rainfall (Table-4).

Table-4: December 2023 Area-Weighted Rainfall

Region	Rank (of 63y)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	06	13.3	1.1	-92.1	06 th driest (record is 0.0mm in 1999)
Azad Jammu & Kashmir	11	41.5	7.4	-82.2	---
Balochistan	13	12.8	0.8	-93.6	---
Gilgit Baltistan	04	10.6	0.3	-97.3	04 th driest (record is 0.0mm in 1999)
Khyber Pakhtunkhwa	10	30	4.1	-86.5	10 th driest (record is 0.0mm in 3 years)
Punjab	09	10.2	0.2	-98.1	09 th driest (record is 0.0mm in 8 years)
Sindh	01	3.4	0.0	-100.0	0.0mm recoded in 21 different years)

[RANK RANGES FROM 1 (LOWEST) TO 63 (HIGHEST) IN TERMS OF YEARS FROM 1961]

The other mentionable rainfalls were recorded at Muzaffarabad city 32.5 mm, Balakot 24.0 mm, Murree 17.0 mm, Kalam 14.6 mm, Garhi Dupatta 13.0 mm, Saidu Sharif 12.6 mm, Dir 12.0 mm, Lower Dir 12.0 mm and Malam Jabba 12.0 mm. The stations: Bhakkar, Chakwal, Kasur, Kamra Airbase, Lahore, Mianwali, Rahim Yar Khan, Gujranwala, Shorkot, Astore, Bunji, Kohat, Peshawar City, Takht Bai and Jacobabad recorded only traces of rainfall during the month. Whereas, a number of stations experienced no rainfall.

December 2023 Rainfall maps

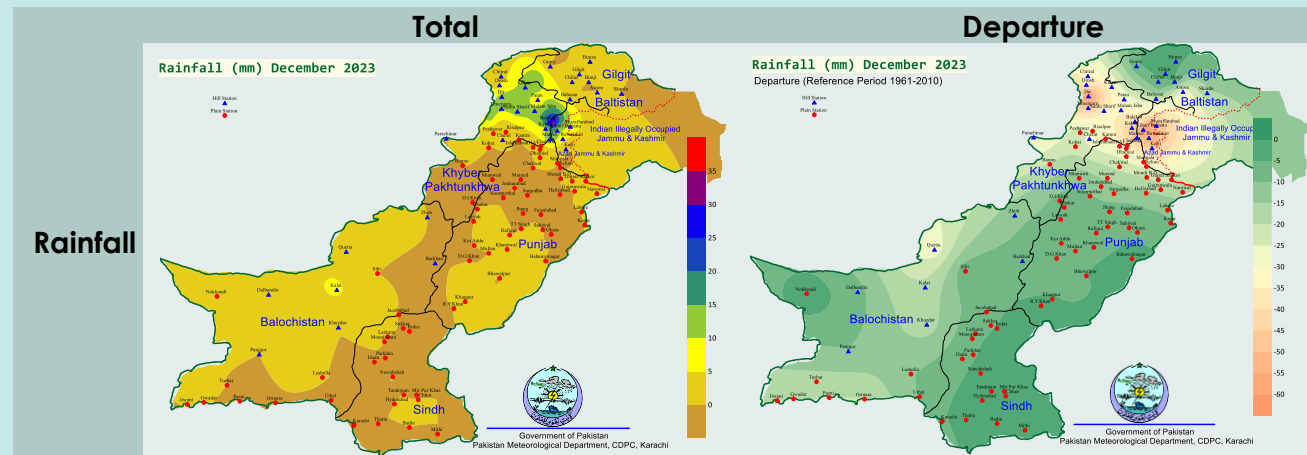


Fig. 2. December spatial rainfall distribution and departure from normal

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

Area Average Temperatures (°C) statistics in December 2023						
Regions	Maximum Temperature		Minimum Temperature		Mean Temperature	
	Actual	Anomaly	Actual	Anomaly	Actual	Anomaly
Pakistan	22.23	1.97	6.44	1.59	14.35	1.59
Azad Jammu & Kashmir	15.49	2.77	1.17	0.70	8.34	1.73
Balochistan	23.58	2.90	6.46	1.37	15.03	1.88
Gilgit-Baltistan	11.53	3.25	-3.46	-0.41	4.09	1.46
Khyber Pakhtunkhwa	19.06	2.65	3.79	0.94	11.44	1.80
Punjab	22.25	0.33	7.87	2.25	15.08	0.99
Sindh	26.69	0.51	11.24	2.39	18.99	1.51

December 2023 remained **1.59 °C warmer** than average, with the national mean monthly temperature being 14.35°C against the average of 12.77 °C, ranking as the **6th warmest** December (the record is 15.64 °C in 2016). A similar trend was also observed in the regions: KP with 11.44 °C (**+1.80 °C**) recorded the 2nd highest (the record is 12.02 °C in 2016), AJK with 8.34 °C (**+1.73 °C**) observed the 3rd highest (the record is 9.08°C in 2016), Balochistan with 15.03 (**+1.88 °C**) & Sindh with 18.99 (**+1.51 °C**) both observed the 7th highest (the record is 16.63 °C in 2001 & 20.81 in 2016, respectively), GB with 4.09 °C (**+1.46°C**) and Punjab with 15.08 °C (**+0.99°C**) all exhibited significantly warmer than average temperatures (Table-5).

The mean monthly maximum (daytime) temperature (22.23 °C) recorded at country-level was also **+1.97 °C significantly warmer** than average of 20.25 °C and ranks as the 7th highest mean maximum temperature in December with record being 23.95°C in 2016 (Table-5, Fig. 3-upper panel). Whereas the country-level night (minimum) temperature of 6.44 °C was **warmer (+1.59 °C)** than average of 4.85 °C and stands as the 8th warmest night-time (minimum) temperature in the month (record was 7.22 °C in 2016). The mean maximum and mean minimum temperatures in the regions also recorded **warmer** than average (lying in first ten

ranges during the past 63 years) except the GB which observed lower than average mean minimum temperature (Table-5, Fig.3- middle panel). The mean temperature anomalies ranged from -1.0 to +3.7 °C, while that of mean minimum temperature ranged -2.6 to +4.1°C in the country, being considerably higher in western Balochistan. The hottest day of the month was observed at Lasbela & Turbat (Balochistan) when it recorded a temperature of 33.5 °C on 12th & 27th December respectively (Table-1). Mithi has been found the **warmest** place with a mean monthly maximum temperature of 30.8 °C. Skardu (GB) recorded the month's **coldest** night temperature of -9.7°C on 26th December (Table-1), which also proved to be the **coolest** place during the month with -6.8 °C average minimum temperature.

December 2023 Temperature maps

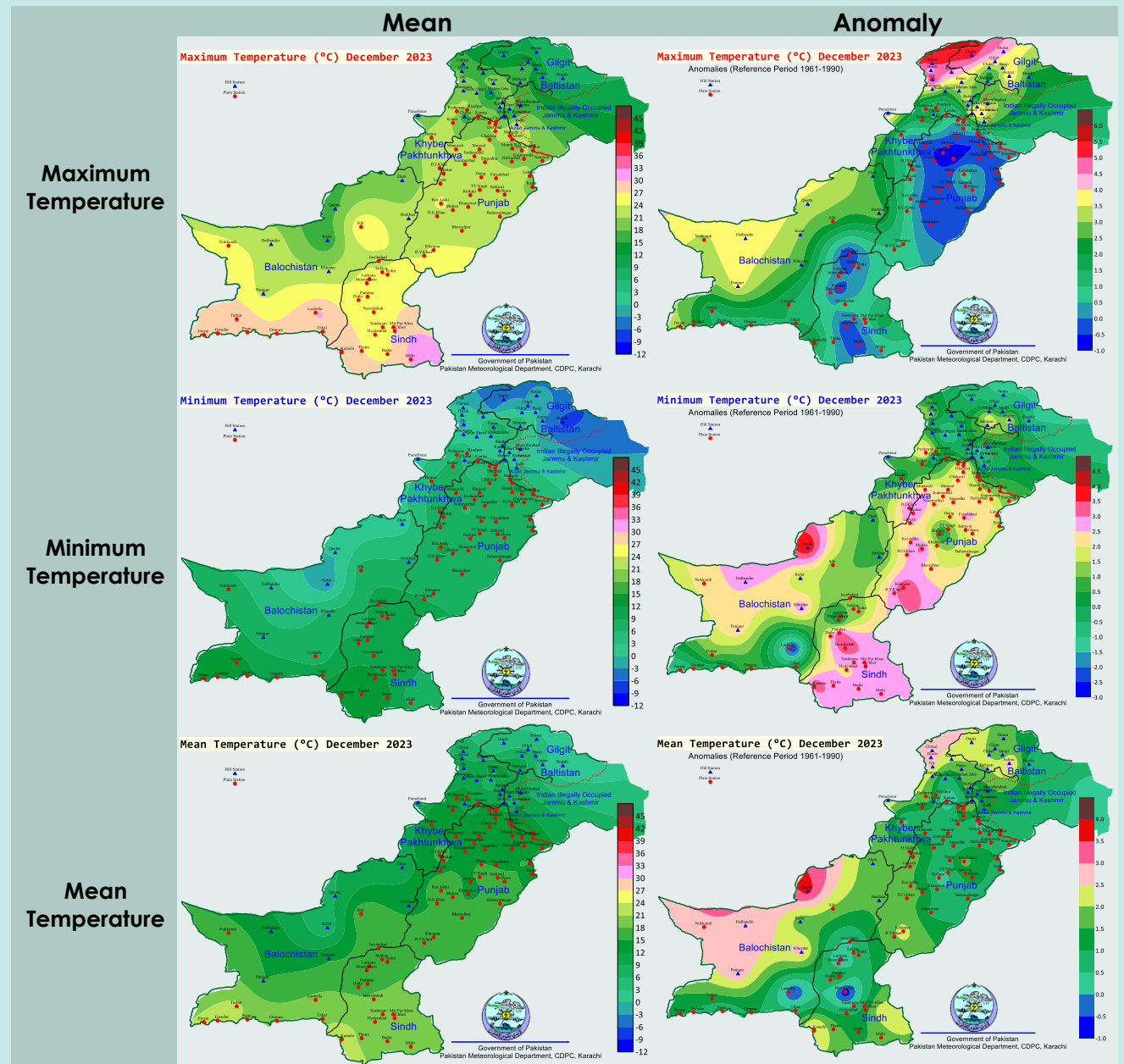


Fig. 3. December-2023 Temperatures (Mean, Maximum and Minimum) and their anomalies

Table 6: December 2023 Monthly Averages & Normals

Station	Pressure (mb)		Temperature (°C)			Vapour (mb)	Precipitation	
	Station Level	Sea Level	Mean	Maximum	Minimum	Pressure	Total (mm)	Days
Drosh	858.7	1548.1	9.4	15.5	3.2	4.3	5.2	3
	858.8	1548.4	7.3	12.2	2.3	4.4	37.7	5.5
Peshawar	981.1	1020.1	13.8	22.8	4.8	10.5	0.0	0
	976.3	1018.7	12.9	20.7	5.1	8.9	16.9	3.5
Parachinar	831.9	1547.3	9.2	17.1	1.3	5.4	0.0	0
	830.2	1530.6	6.4	13.4	-0.3	4.4	28.6	3.7
Rawalpindi	960.4	1019.8	13.6	20.8	6.3	8.9	2.0	2
	942.8	1019.0	12.0	20.0	4.0	8.3	31.2	4.5
Sargodha	996.2	1018.2	15.3	22.5	8.1	13.0	0.0	0
	996.0	1018.3	13.9	22.0	5.6	10.6	9.5	3.4
Jhelum	990.4	1018.2	13.9	21.1	6.8	11.8	0.0	0
	990.1	1017.9	13.9	21.5	6.3	10.3	26.6	4
Sialkot	988.1	1018.2	13.5	20.5	6.5	12.5	2.0	1
	987.8	1018.1	12.9	20.2	5.6	10.8	24.0	3.3
Zhob	860.8	1510.0	9.8	18.1	1.5	4.1	0.0	0
	861.3	1515.5	9.1	16.3	1.0	4.8	11.5	0.7
D.I.Khan	997.6	1018.0	15.6	22.8	8.4	13.3	0.0	0
	997.2	1017.9	14.0	22.2	5.7	10.1	8.8	2.3
Lahore	993.2	1018.6	15.3	21.4	9.2	12.6	0.0	0
	992.5	1017.9	14.8	21.9	7.8	10.6	9.9	3.1
Quetta	846.9	1558.9	8.8	16.6	0.9	3.6	3.0	1
	844.3	1533.5	5.9	14.0	-1.9	5.0	37.5	4.3
Multan	1003.4	1018.0	15.6	22.5	8.7	12.9	0.0	0
	1003.6	1018.4	14.7	23.0	6.3	10.8	2.7	0.9
Barkhan	894.6	1526.1	14.0	21.8	6.2	5.5	0.0	0
	894.3	1521.6	12.6	20.9	6.0	5.5	6.0	0.6
Nokkundi	938.9	1016.3	16.1	24.4	7.7	4.8	0.5	0
	939.8	1018.1	13.4	21.4	5.5	6.1	1.8	0.3
Dalbandin	923.3	1537.2	13.7	23.3	4.0	6.7	2.0	2
	922.5	1527.1	11.6	18.7	1.8	5.8	12.5	0.9
Jacobabad	1011.4	1018.0	16.8	23.5	10.1	13.2	0.0	0
	1011.1	1017.7	16.6	24.3	8.9	10.3	2.9	0.2
Khanpur	1007.3	1017.9	16.6	24.4	8.7	13.3	0.2	0
	1006.9	1017.6	14.9	23.8	5.9	10.3	2.7	0.7
Panjgur	909.2	1545.3	15.1	23.2	7.0	8.5	0.0	0
	907.8	1527.4	12.5	19.8	5.2	3.9	8.9	1
Khuzdar	880.7	1531.1	14.7	21.8	7.5	7.2	0.1	0
	878.7	1510.4	12.1	19.8	4.7	2.9	14.3	1.2
Sh. Benazirabad	1014.2	1017.6	18.5	26.3	10.7	13.2	0.0	0
	1014.0	1018.0	16.9	26.0	7.8	11.8	1.8	0.2
Jiwani	1010.3	1016.9	21.3	28.8	13.7	16.7	0.0	0
	1010.6	1017.1	20.6	26.0	15.1	14.9	23.5	1.4
Pasni	1016.6	1017.2	20.5	28.4	12.6	15.6	0.0	0
	1015.6	1016.3	19.7	26.9	12.9	14.0	19.6	0.9
Hyderabad	1011.5	1016.6	20.4	25.8	14.8	12.6	0.0	0
	1013.0	1017.1	19.7	26.5	13.0	11.2	1.4	0.2
Chhor	1015.6	1016.3	19.6	29.7	9.5	12.1	0.0	0
	1015.7	1016.4	17.7	28.6	6.8	9.9	0.2	0
Karachi	1014.0	1016.7	22.1	29.4	14.8	10.8	0.0	0
	1014.3	1017.1	20.1	27.9	12.2	11.6	3.9	0.6

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

Table 7: December 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	11.8	08	5.1	16	18.5	8	0.4	18*	3.2	17	12	4*
Peshawar	17.2	02	11.3	15*	28.5	28	2.5	19	0.0	0	4	24
Parachinar	10.8	2*	6.8	16	20.0	56	-1.5	16	0.0	0	4	2*
Rawalpindi	16.2	03	11.2	16	23.3	23	4.5	19*	1.0	1*	16	10
Sargodha	18.3	03	9.2	31	27.2	25	6.3	14*	0.0	0	2	3*
Jhelum	17.4	02	10.3	31	25.0	2	4.7	19	0.0	0	4	1*
Sialkot	17.3	01	9.3	28	24.0	1*	4.0	21*	2.0	17	2	6*
Zhob	12.0	06	6.5	22	21.0	6*	-2.0	20	0.0	0	5	2*
D.I.Khan	19.3	02	9.5	31	27.5	25	1.0	24	0.0	0	2	1*
Lahore	18.4	02	11.9	31	25.0	2*	7.5	21*	0.0	0	4	23
Quetta	12.0	25	5.5	17	20.0	25	-2.5	18	3.0	16	20	15*
Multan	18.6	05	10.3	31	25.6	5	5.4	18	0.0	0	8	8*
Barkhan	15.8	21	12.0	14*	24.5	21*	4.5	25	0.0	0	4	5*
Nokkundi	20.3	26	12.5	18	28.5	26	4.5	20*	0.5	15	12	11*
Dalbandin	18.3	01	9.8	18	26.5	1*	1.0	8	1.0	16*	8	27
Jacobabad	19.8	04	13.3	31	27.0	4	6.5	21	0.0	0	4	12*
Khanpur	19.3	01	11.0	31	27.0	3*	5.2	19	0.2	23	6	27
Panjgur	17.5	01	9.8	17	26.0	23	3.0	17*	0.0	0	12	17
Khuzdar	16.0	10	13.0	15	24.0	10	6.0	8*	0.1	23	4	6*
Sh.Benazirabad	21.0	1*	15.5	31	28.5	1*	8.5	20*	0.0	0	12	24
Jiwani	23.8	1*	19.5	18*	31.5	12	12.0	18*	0.0	0	12	17
Pasni	23.3	04	18.8	19	31.5	4	11.0	20	0.0	0	12	17
Hyderabad	22.7	11	16.8	31	31.0	11	12.5	31	0.0	0	16	23*
Chhor	21.8	01	17.8	20*	31.5	22	7.2	21	0.0	0	4	1*
Karachi	24.2	25	20.1	21	31.8	25	11.5	21	0.0	0	18	18

* 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

Published on January 11, 2024