



Pakistan's Monthly Climate Summary March, 2021

Overview

- National rainfall for the month of March 2021 was close to normal (-6%).
- Large variability of monthly rainfall over all six administrative regions was observed.
- Sindh (-42%) & Balochistan (-41%) recorded below normal rainfall.
- GB (-1%) & KP (+3%) received close to normal.
- Punjab (+12%) & AJK (+20%) got above normal rains
- The wettest place of the month in the country was Dir (KP) with 249.6 mm rainfall.
- The wettest day of the month in country was 23rd at TT Sing (Punjab) 67.8 mm rain.
- Pakistan rainfall for winter season (JFM) 2021 was 46% below average.
- All the regions experienced below normal rainfall in winter 2021 season.
- Winter season rains' deficiency over Sindh (-79%) and Balochistan (-77%) are more prominent.
- Winter season 2021 rainfall is ranked as fifth deficient season on record since 1961.
- The national mean monthly temperature of March 2021 was 2.52 °C warmer than average and ranked as 5th warmest month on record.
- The mean maximum temperature at country-level was 2.91 °C warmer than average.
- The minimum temperature for February was 13.86 °C, being 2.13 °C warmer than average.
- The country hottest days were 28th & 29th March at Sh. Benazirabad with 45.5 °C temperature.
- The coldest temperature of -5.0 °C was recorded at Astore (GB) on the 1st March 2021.

National weather extremes during March 2021

Hottest day	45.5 °C	at Sh. Benazirabad (Sindh) on the 28 th & 29 th
Coldest day	2.0 °C	at Malam Jabba (KP) on the 23 rd
Coldest night	-5.0 °C	at Astore (GB) on the 1 st
Warmest night	26.0 °C	at Karachi Airport (Sindh) on the 31 st
Wettest day	67.8 mm	at TT Singh (Punjab) on the 23 rd
Wettest month	249.6 mm	at Dir (KP)

Synoptic Summary

A trough of low was located over Gilgit Baltistan (GB) and adjoining areas on 1st March which persisted through the following three days. It then transformed into a low pressure area over there and persisted till 10th March. Also, a low-pressure area was located over Northeast Balochistan which persisted over there through the following three days. Then a fresh low-pressure area developed over northwest Balochistan on 6th March and former trough merged with the latter system, which again reduced to trough the following day.

On 11th March, a low developed over Khyber Pakhtunkhwa (KP) and persisted through the next day, weakened into trough on 13th March and lasted till 17th March over there. The low over NW-Balochistan, on the other hand, prevailing through 14th March shifted to north Balochistan. The trough over KP accentuating into a low for a shorter period of just one day again weakened into trough the next day and persisted till 22nd March. The north Balochistan low weakened into trough and persisted over there till 21st March followed by a low formed over Northwest-Balochistan and adjoining areas on 22nd March which persisted till 27th March.

On 23rd March, again a low-pressure area formed over KP and adjoining GB, which lasted almost through to the 30th March and produced one of the stronger and longer rainy spell of this year winter season. The mentioned low-pressure system then weakened into a shallow trough on last day of the month and consequently dry continental air followed which gripped almost entire country bringing heatwave like conditions in plain areas of the country.

March 2021 area-weighted rainfall

	Rank (of 61)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	26	30.5	28.5	-6.5	---
Azad Jammu & Kashmir	38	93.2	111.7	19.9	---
Balochistan	24	20.5	12.1	-40.8	---
Gilgit-Baltistan	38	29.7	29.3	-1.5	---
Khyber-Pakhtunkhwa	34	96.1	99.0	3.0	---
Punjab	36	28.0	31.3	11.7	---
Sindh	34	4.7	2.7	-42.3	---

Rank ranges from 1 (lowest) to 61 (highest).

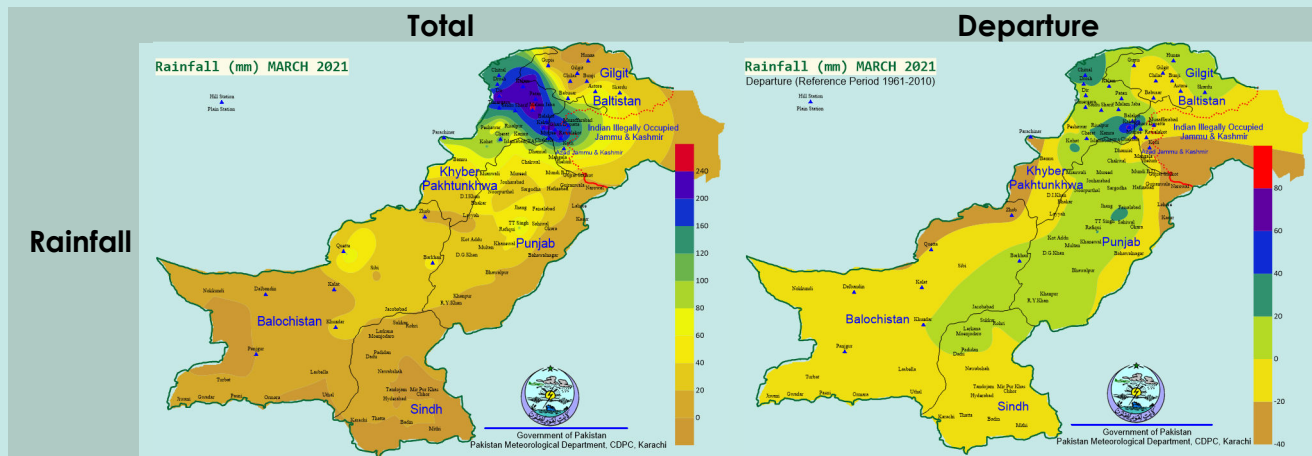
Rainfall – Normal rainfall over country

During March 2021, four significant rainfall events had occurred. The last spell, 21- 24 March brought substantial rainfall to major parts of country. The month of March has significant rainfall contribution of the order of 41% and 10% to the winter season (JFM) and annual rainfall respectively. The deficiency of rainfall prevalent from January 2021 was made up with this month rainfall. March 2021 National rainfall was only 28.5 mm against its normal rain of 30.5 mm being 6% below normal.

On regional scale, large variability of monthly rainfall were observed over all six administrative regions. Sindh (-42%) & Balochistan (-41%) recorded below normal rainfall and GB (-1%) & KP (+3%) remained close to normal, whereas, Punjab (+12%) & AJK (+20%) got above normal rains. Pakistan (as a whole) rainfall for the entire winter season (1-January to 31-March) 2021 was 46% below average. During the whole winter season all the regions experienced below normal rainfall but the deficiency over Sindh (-79%) and Balochistan (-77%) were more prominent. The

winter 2021 is ranked as fifth deficient season on record since 1961. The wettest day of the month in country was 23rd, when Toba Tak Singh (Punjab) recorded 67.8 mm of rain and Dir (KP) being the wettest place recording 249.6 mm rainfall during the month. The other chief amounts of month's rainfall were: Malam Jabba (247 mm), Pattan (237 mm), Muzaffarabad (220.5 mm) and Kakul (245 mm).

March 2021 rainfall maps



Temperatures – Abnormal warming

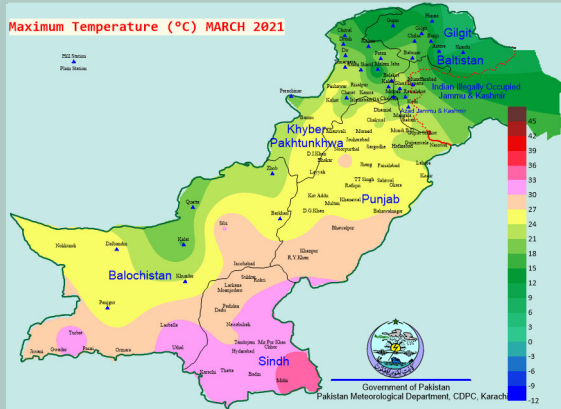
Like preceding month, March 2021 was also another warmest month on record. The national mean monthly temperature for Pakistan as a whole was 21.48 °C, being 2.52 °C warmer than monthly-average, placing it 5th warmest month on record. The mean maximum (day) temperature at country-level was 29.11 °C, being 2.91 °C warmer than average of 26.21 °C. The night (minimum) temperature was 13.86 °C, being 2.13 °C warmer than country-average of 11.73 °C. On regional basis, all provinces recorded significantly warmer than normal monthly mean temperatures. The mean temperature anomalies of March were 2-4 °C over major parts of the country.

Mean Maximum temperatures anomalies were 3-5 °C over major parts of the country, importantly these being of relatively higher order and more prominent over western Balochistan and south-west of KP areas. The mean minimum temperature anomalies for the month were 3-5 °C over major parts of country with anomalies over Sindh & Punjab regions being much higher than remaining parts of country. The hottest days of the month were at Sh. Benazirabad (Sindh) when it recorded 45.5 °C temperature on 28th & 29th March 2021. The coldest temperature of -5.0 °C of the month was recorded at Astore (GB) on 1st March 2021.

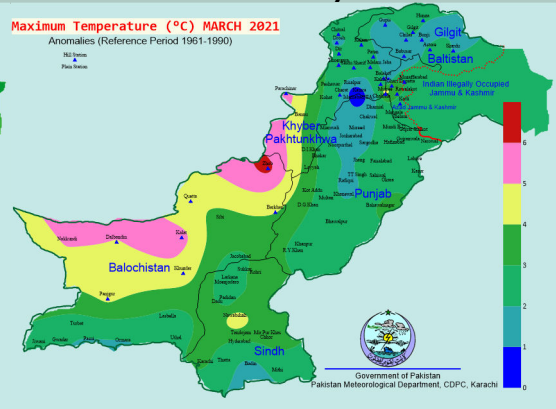
March 2021 Temperature maps

Maximum Temperature

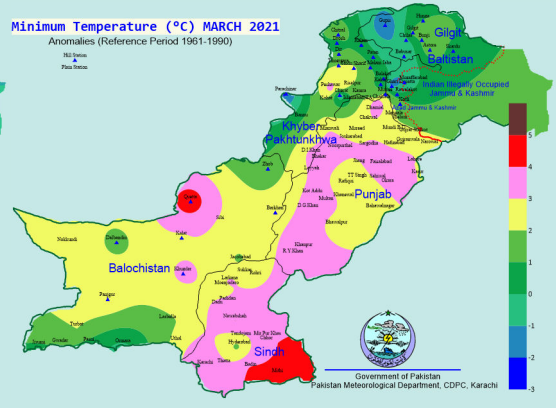
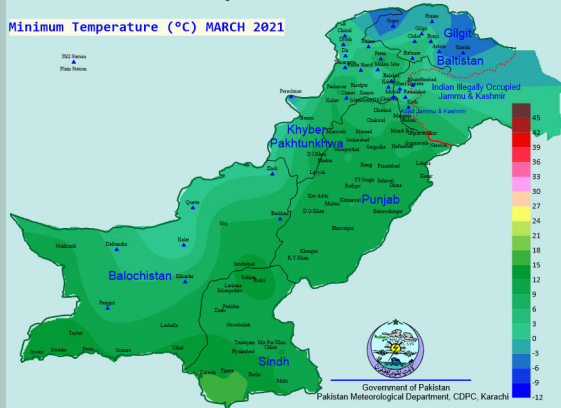
Mean



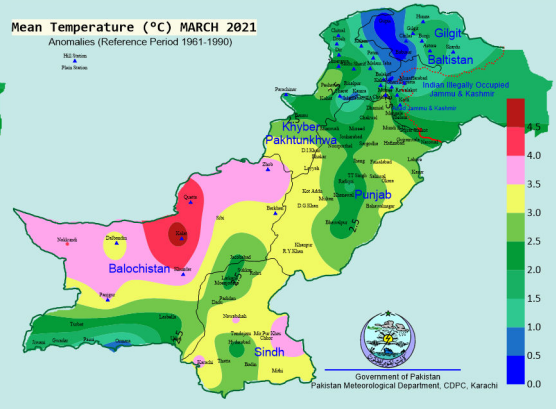
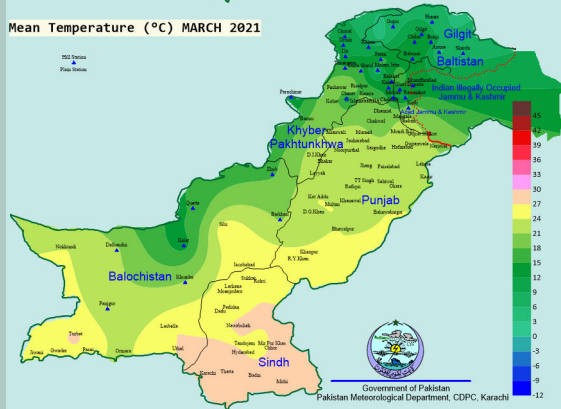
Anomaly



Minimum Temperature



Mean Temperature



March 2021 Monthly Averages & Normals

Station	Pressure (mb)		Temperature (°C)			Vapour (mb)	Precipitation	
	Station Level	Sea Level	Mean	Maximum	Minimum	Pressure	Total (mm)	Days
Drosh	855.1	1514.1	11.4	17.8	5.3	6.5	132.5	13
	855.5	1509.1	10.4	15.9	4.7	6.1	115.6	12.5
Peshawar	975.3	1012.9	20.8	27.6	13.7	13.9	79.0	7
	971.3	1012.7	17.5	23.7	11.0	11.6	83.3	10.4
Parachinar	828.0	1507.2	9.5	20.6	2.1	8.2	89.0	13
	827.3	1501.3	9.5	14.9	2.8	6.1	136.6	12.4
Rawalpindi	955.0	1012.7	19.9	26.0	13.6	11.4	74.8	6
	954.2	1012.3	17.0	23.7	10.1	10.8	97.1	10.6
Sargodha	987.6	1008.6	23.5	30.7	16.2	16.5	35.5	3
	990.5	1012.1	20.0	27.2	12.5	13.2	32.4	8.4
Jhelum	984.0	1010.8	21.6	29.4	14.6	15.4	66.6	4
	984.5	1011.6	19.4	26.3	12.5	12.5	68.8	9.2
Sialkot	982.0	1011.2	21.1	28.2	14.1	14.8	15.4	4
	982.5	1011.9	18.8	25.4	11.9	13.3	53.4	7.3
Zhob	858.3	1487.4	17.8	26.6	8.6	7.3	18.0	2
	857.6	1478.9	14.3	20.2	7.0	6.8	47.6	4.9
D.I.Khan	990.8	1010.5	23.5	30.3	16.2	16.9	27.5	4
	991.7	1011.2	19.9	26.5	12.7	13.1	37.4	7.4
Lahore	986.3	1010.7	23.8	29.6	17.3	14.7	11.3	3
	986.7	1011.4	20.8	26.9	14.2	13.2	38.4	7.4
Quetta	843.0	1518.7	16.0	22.7	8.1	5.1	28.0	5
	841.0	1500.7	11.6	18.1	3.6	7.2	61.7	7.3
Multan	996.3	1010.6	24.4	31.0	17.1	16.5	21.8	2
	997.3	1011.7	21.2	28.2	13.4	13.3	16.6	3.3
Barkhan	889.7	1490.3	21.0	27.7	13.7	7.9	44.0	3
	891.4	1490.9	17.5	23.3	11.1	7.7	31.4	3.3
Nokkundi	932.8	1007.7	24.8	32.8	15.5	4.8	0.0	0
	934.8	1011.2	20.1	26.9	11.9	8.6	7.3	1
Dalbandin	917.4	1504.8	23.2	31.2	11.5	7.8	1.0	1
	917.8	1499.9	18.8	25.7	9.1	7.4	12.4	1.5
Jacobabad	1003.8	1010.1	26.5	34.1	18.2	16.5	30.0	2
	1004.6	1010.9	24.2	30.9	16.2	12.6	10.6	1
Khanpur	999.5	1009.7	24.6	32.8	16.7	17.6	15.3	2
	1000.7	1011.0	21.6	29.7	12.6	13.1	3.6	1.8
Panjgur	903.2	1501.7	22.5	29.8	13.7	8.7	0.0	0
	904.1	1503.3	18.7	25.0	10.9	5.3	17.7	1.4
Khuzdar	878.0	1510.9	22.0	28.2	14.0	6.5	24.6	3
	875.6	1482.0	17.8	23.5	10.4	3.6	26.0	1.7
Nawabshah	1006.6	1009.9	27.8	38.0	18.2	16.9	1.0	1
	1007.6	1011.4	23.9	33.0	13.9	15.3	2.4	0.1
Jiwani	1004.9	1011.4	26.0	30.7	19.4	24.0	0.0	0
	1005.9	1012.4	23.6	28.2	18.3	18.6	15.4	0.9
Pasni	1010.6	1011.2	24.9	31.3	17.5	20.4	0.0	0
	1011.1	1012.6	22.6	29.8	16.6	16.5	21.0	0.8
Hyderabad	1005.0	1009.9	28.3	36.4	20.2	15.5	0.0	0
	1007.0	1011.0	26.2	33.4	18.5	13.4	2.5	0.3
Chhor	1009.4	1010.1	28.2	37.9	18.3	16.8	0.0	0
	1009.7	1010.3	25.1	34.6	14.2	13.5	0.8	0.2
Karachi	1008.3	1010.9	28.1	34.9	21.6	20.5	0.0	0
	1009.2	1011.9	24.9	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

Extreme values of month

STATION	Mean Temperature (°C)				Temperature (°C)				Highest (mm & knots)			
	Highest	Date	Lowest	Date	Highest	Date	Lowest	Date	Rain	Date	Wind Speed	Date
Drosh	15.8	20	2.3	23	25.0	5	0.0	24	37.4	24	14	1*
Peshawar	25.8	31	13.3	23	32.8	19	8.0	1	41.4	23	16	31
Parachinar	12.5	31	5.8	1	23.0	31	-2.0	1	25.0	23	9	31
Rawalpindi	25.0	29	15.1	22	31.2	28	9.6	2	21.2	22	40	23
Sargodha	28.1	29	18.9	12*	35.5	29	12.5	1	26.0	23	16	12
Jhelum	26.5	29	17.3	12*	33.8	29	10.3	2	29.0	24	18	31
Sialkot	25.8	29	17.3	12	33.3	30	10.5	1	8.4	23	10	31*
Zhob	24.1	27*	11.8	22	33.5	28*	4.5	1	14.0	23	15	11*
D.I.Khan	28.9	29	17.6	23	36.5	31	12.5	1*	10.5	23	8	30*
Lahore	28.3	29	19.9	12	34.3	30	14.0	1	7.0	23	16	12
Quetta	22.8	28	9.0	1	30.5	27*	-0.5	1	15.0	22	30	6*
Multan	29.8	29	20.9	23	38.3	29	12.7	1	18.0	23	14	11
Barkhan	26.8	29	15.3	23	34.0	27	9.0	1*	22.0	23	4	11*
Nokkundi	32.6	28	18.4	1	40.5	28	7.5	1	0.0	0	20	13
Dalbandin	29.5	28	14.9	1	39.0	28	3.0	1	1.0	22	10	29
Jacobabad	31.5	29*	23.0	2*	42.0	29	12.0	1*	29.0	23	10	20
Khanpur	30.5	29*	21.1	1	41.2	29	11.7	1*	8.2	22	12	22
Panjgur	28.0	28	16.0	1	36.0	28	5.8	1	0.0	0	28	13
Khuzdar	27.4	28	15.8	22	34.0	27	3.0	16	13.4	22	12	31*
Nawabshah	32.9	29	23.3	2	45.5	28*	14.0	4	1.0	22	12	6*
Jiwani	30.5	31	23.1	2	37.0	30	16.0	1	0.0	0	14	7*
Pasni	30.3	30	22.0	9	39.5	31	13.5	10	0.0	0	10	7
Hyderabad	32.5	27	23.8	1	42.0	27	14.5	1	0.0	0	26	22
Chhor	32.1	30	24.0	1	42.8	27	12.0	3	0.0	0	12	19
Karachi	33.3	31	25.1	2	41.5	31	15.5	2	0.0	0	20	31

* 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).

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Published on 6th April, 2021