



Pakistan's Monthly Climate Summary March 2023

In brief

- National rainfall for the month of March 2023 was largely above average (+42%).
- The wettest day of the month in the country was 24th March when Kot Addu (Punjab) recorded 64.7 mm rainfall, whereas Parachinar (KP) was the wettest place with monthly total rainfall of 142.0 mm.
- The national mean monthly temperature of March 2023 for Pakistan as a whole was 20.49 °C, being **1.63 °C warmer** than average of 18.86 °C.
- Daytime (maximum) temperature at country-level was 27.40 °C, being **1.57 °C warmer** than the country-average of 25.84 °C.
- Nighttime (minimum) temperature was 13.56 °C, being **2.16 °C warmer** than the country-average of 11.40 °C and ranked 6th warmest minimum ever in March since 1961 (The record is 14.94 °C in 2022).
- The hottest day of the month was at Mithi (Sindh) when it recorded 40.5 °C temperature on 6th March 2023, with same site being the warmest place with 36.1 °C in mean monthly maximum temperature.
- The coldest temperature (-3.0 °C) of the month was recorded at Kalam (KP) on 1st & 6th March 2023, which incidentally has also been the coolest place with -0.8 °C in mean monthly minimum temperature.
- The Indian Ocean Dipole (IOD) has remained in neutral phase during the month.
- The La Niña conditions have transitioned to neutral phase (i.e., neither La Niña nor El Niño).

National weather extremes during March 2023

Hottest day	40.5 °C	at Mithi (Sindh) on the 6 th
Coldest day	3.5 °C	at Kalam(KP) on the 2 nd
Coldest night	-3.0 °C	at Kalam (KP) on the 1 st & 6 th
Warmest night	24.5 °C	at Karachi Airport (Sindh) on the 17 th
Wettest day	64.7 mm	at Kot Addu (Punjab) on the 24 th
Wettest month	142.0 mm	at Parachinar (KP)

Synoptic Summary

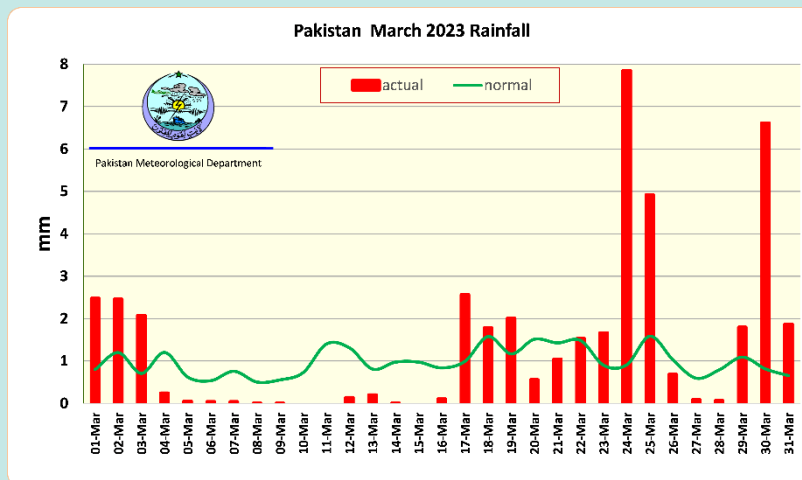
The month of March saw frequent approach of westerly low-pressure systems producing higher than average rains across the country and accompanied with heavy hailstorms over some areas. A trough of low prevailed over Gilgit-Baltistan (GB), upper Khyber Pakhtunkhwa (KP) and adjoining Kashmir during 1-6 March. While a low-pressure area developed on 8 March over Northeast Balochistan that persisted until 11 March. The second westerly wave approached Northwest Balochistan on 14 March, spread over northern and central parts of the country, persisted until 25 March, and yielded widespread rain-thunderstorms with few hailstorms. The third westerly wave entered Northwest Balochistan on 28th, which ultimately spread across the country, persisted until the month end, and again yielded widespread rain-thunderstorms across most parts of the country.

New Weather Record Set in March 2023

S No	STATION	Weather Parameter	New Record		Old Record	
			Value	date	Value	Date
1	MITHI	Wettest Monthly rain (mm)	20.0	2023	12.8	2007
		Heaviest Rainfall in 24 hours (mm)	20.0	22/2023	12.8	12/2007
2	SAKRAND	Wettest Monthly rain (mm)	16.0	2023	11.0	2020
		Heaviest Rainfall in 24 hours (mm)	15.0	19/2023	8.0	06/2020
3	THATA	Wettest Monthly rain (mm)	9.0	2023	7.8	2013
		Heaviest Rainfall in 24 hours (mm)	9.0	24/2023	7.8	02/2013
4	BANNU	Heaviest Rainfall in 24 hours (mm)	57.0	25/2023	30.0	04/1999

Rainfall: Largely above average as a whole in the country

March 2023 brought about two light-moderate and two moderate-heavy rain spells in Punjab, KP and GB/AJK, whereas four moderate-heavy rain spells and four light-moderate rain spells in Sindh and Balochistan, respectively. Climatologically and averagely March is a better rainy month contributes 40.0% and 10.2% to the winter (JFM) and annual rainfall respectively. However, with +42% deviation, the March 2023 happened to be



a largely above-average rainy month for Pakistan with 43.30mm area-weighted rain against 30.50 mm average rainfall. On a regional scale with extreme above-average rainfall, Balochistan (47.50/+132%) ranked 8th wettest March, Punjab (57.00mm/+104%) ranked 10th wettest March and Sindh (7.80mm/68%) ranked 11th wettest March on record during past 63 years. In contrast, the other regions GB (6.90mm/-74%) ranked 11th driest March, AJK (41.30mm/-59%) ranked 10th driest March since 1961 and KP (73.10mm/-21%) all witnessed largely below-average rainfall.

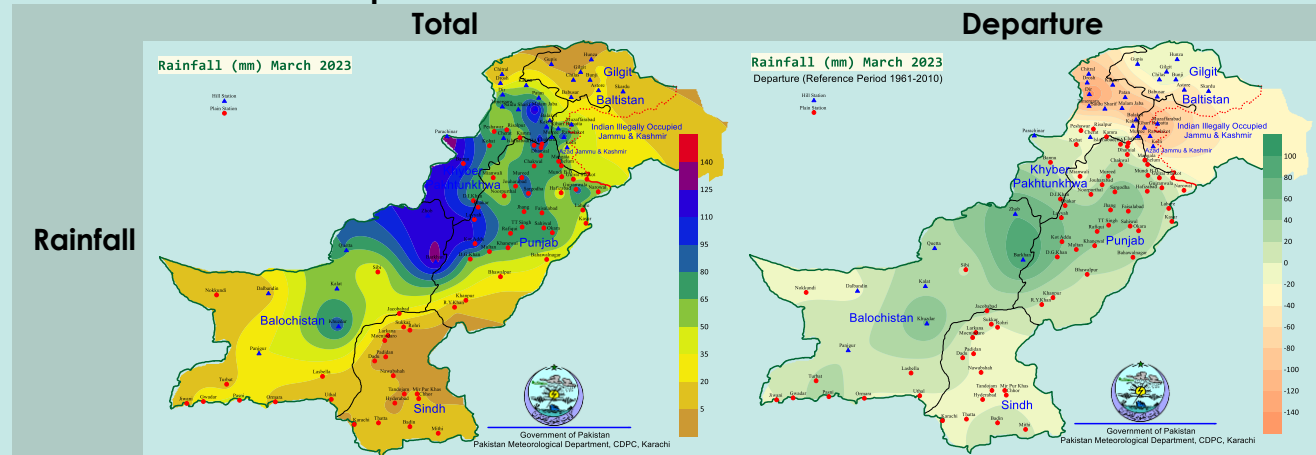
The wettest day of the month in the country was 24th March when Kot Addu (Punjab) recorded 64.7 mm rainfall, whereas Parachinar (KP) was the wettest place with a monthly total rainfall of 142.0 mm.

March 2023 Area-Weighted Rainfall

Regions	Rank (of 63)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	46	30.50	43.30	42	---
Azad Jammu & Kashmir	10	101.30	41.30	-59	10 th driest March
Balochistan	56	20.50	47.50	132	8 th wettest (record 65.1 mm in 2005)
Gilgit Baltistan	11	26.10	6.90	-74	11 th driest March
Khyber Pakhtunkhwa	23	92.30	73.10	-21	---
Punjab	54	28.00	57.00	104	10 th wettest (record 117.4 mm in 2020)
Sindh	53	4.70	7.80	68	11 th wettest (record 50.1 mm in 1967)

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

March 2023 Rainfall maps



The other significant monthly-total rains were at Bhakkar 97.3 mm, Noor Khan Airbase (Chaklala) 85.0 mm, Islamabad-Zero Point 102.3 mm, Islamabad- Airport 89.8 mm, Joharabad 86.0 mm, Kot Addu 107.8 mm, Layyah 107.9 mm, Gujranwala 91.2 mm, Sargodha Airbase 83.0 mm, Rawalakot 94.3 mm, Bannu 102.0 mm, Cherat 81.0 mm, D.I.Khan (City) 82.0 mm, Kakul 94.0 mm, Malam Jabba 130.0 mm, Barkhan 131.0 mm, Khuzdar 89.6 mm, Quetta (Samungli) 80.0 mm, Zhob 122.0 mm. The stations: Hunza, Chhor and Dadu remained absolutely dry with no rain during the month.

Temperatures: Warmer than average temperatures observed over the country.

March 2023 was **+1.63 °C warmer** than average with national mean monthly being 20.49 °C against the average 18.86 °C and ranked 13th **warmest** March during past 63 years (record is 22.92 °C). The situation on regional scale was similar; Balochistan with 20.35 °C (**+1.22 °C**), KP 16.45 °C (**+2.01 °C**), Sindh 26.08 °C (**+1.74 °C**), AJK 14.04 °C (**+2.86 °C**), Punjab 21.88 °C (**+1.36 °C**) and GB with 12.59 °C (**+3.39 °C**) all recorded **warmer** than average temperatures.

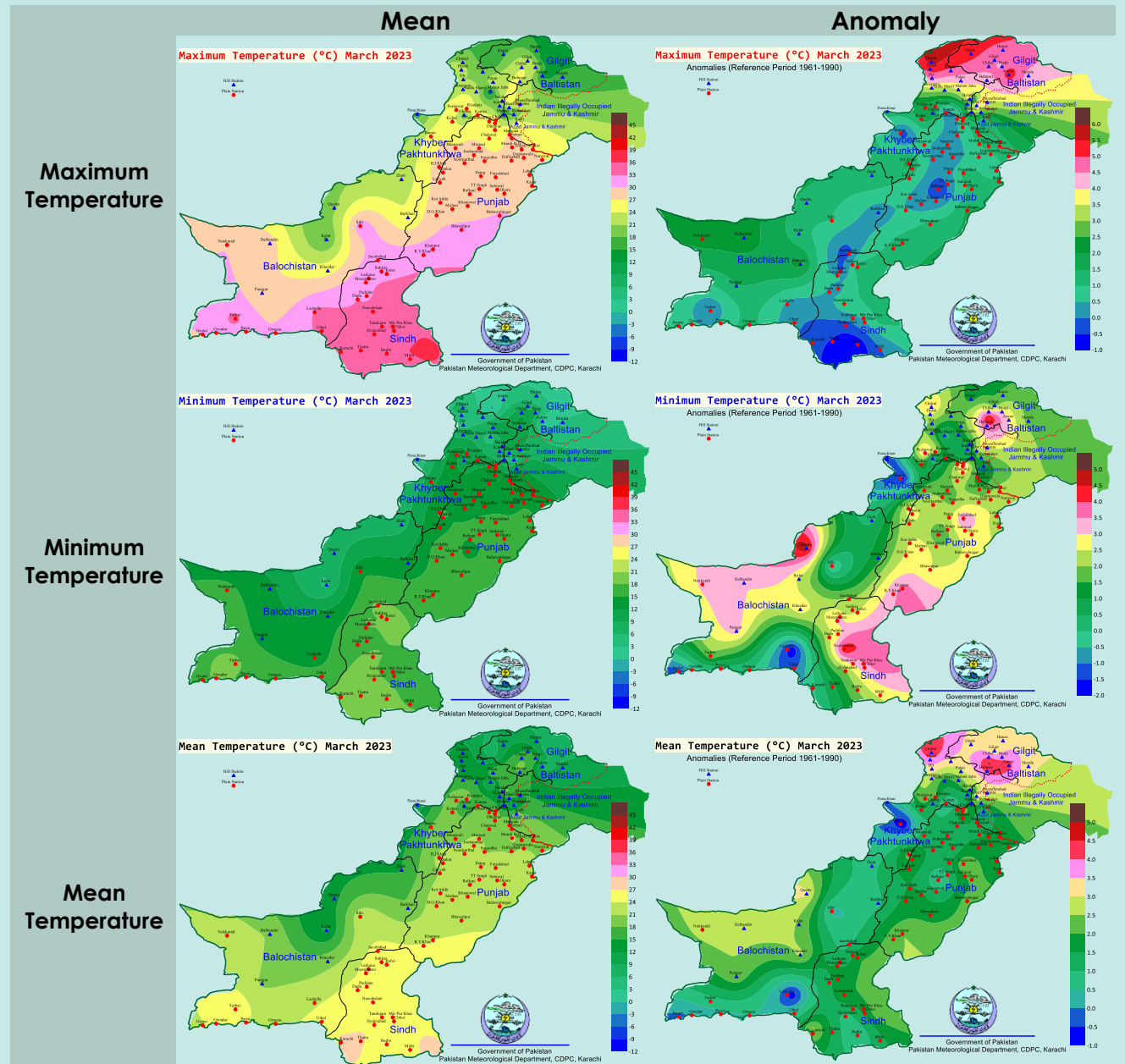
Area Average Temperatures(°C) statistics in March 2023

Regions	Maximum Temperature		Minimum Temperature		Mean Temperature	
	Actual	Anomaly	Actual	Anomaly	Actual	Anomaly
Pakistan	27.40	1.57	13.56	2.16	20.49	1.63
Azad Jammu & Kashmir	20.41	3.52	7.58	2.07	14.04	2.82
Balochistan	27.42	1.30	13.29	1.73	20.35	1.22
Gilgit Baltistan	19.18	4.56	5.93	2.19	12.59	3.39
Khyber Pakhtunkhwa	23.05	2.51	9.84	1.46	16.45	2.01
Punjab	28.45	0.90	15.27	2.56	21.88	1.36
Sindh	33.56	0.54	18.60	2.86	26.08	1.74

March 2023 mean maximum (daytime) temperature of 27.40 °C recorded at country-level being **+1.57 °C warmer** than average of 25.84 °C. The average night (minimum) temperature of 13.56 °C was also **+2.16 °C Warmer** than the country-average of 11.40 °C during the month

and ranked **6th warmest** mean minimum in March since 1961 (record is 14.94 in 2022). The mean temperature anomalies of March 2023 range in +1.22 to +3.39 °C in the country. The Mean Minimum temperature anomalies were -1.9 to +4.9 °C in the country with those being considerably higher over West Balochistan, Eastern Sindh and GB. The hottest day of the month was at Mithi (Sindh) when it recorded 40.5 °C temperature on 6th March with the same proved warmest place with 36.1 °C average maximum temperature during the month. Kalam (KP) recorded the month's coldest night temperature -3.0 °C on 1st & 6th March and incidentally been the coolest place with -0.8 °C average minimum temperature.

March 2023 Temperature maps



March 2023 Monthly Averages & Normals

Station	Pressure (mb)		Temperature (°C)			Vapour (mb)	Precipitation	
	Station Level	Sea Level	Mean	Maximum	Minimum	Pressure	Total (mm)	Days
Drosh	855.0	1512.7	14.3	20.1	8.5	7.2	16.4	7
	855.5	1509.1	10.3	15.9	4.7	6.1	115.6	12.5
Peshawar	976.5	1014.3	20.1	26.8	13.3	14.2	60.7	5
	971.3	1012.7	17.1	23.7	11.0	11.6	83.3	10.4
Parachinar	832.4	1551.6	9.6	16.4	2.7	7.3	142.0	17
	827.3	1501.3	9.2	14.9	2.8	6.1	136.6	12.4
Rawalpindi	956.4	1014.3	19.2	24.9	13.5	11.8	85.0	11
	954.2	1012.3	16.8	23.7	10.1	10.8	97.1	10.6
Sargodha	991.4	1012.6	22.0	28.3	15.6	16.5	72.5	5
	990.5	1012.1	19.8	27.2	12.5	13.2	32.4	8.4
Jhelum	985.4	1012.4	20.8	27.9	13.6	16.1	68.9	10
	984.5	1011.6	18.8	26.3	12.5	12.5	68.8	9.2
Sialkot	983.9	1013.2	20.6	26.9	14.2	16.3	44.8	4
	982.5	1011.9	18.5	25.4	11.9	13.3	53.4	7.3
Zhob	858.0	1483.7	14.8	21.8	7.8	8.4	122.0	9
	857.6	1478.9	13.6	20.2	7.0	6.8	47.6	4.9
D.I.Khan	992.7	1012.5	22.1	28.6	15.6	17.2	82.0	7
	991.7	1011.2	19.6	26.5	12.7	13.1	37.4	7.4
Lahore	988.4	1013.0	22.2	27.9	16.4	16.6	62.1	4
	986.7	1011.4	20.5	26.9	14.2	13.2	38.4	7.4
Quetta	843.0	1519.3	14.2	20.0	8.3	7.2	80.0	10
	841.0	1500.7	11.1	18.1	3.6	7.2	61.7	7.3
Multan	998.1	1012.3	22.6	28.7	16.4	16.8	65.0	7
	997.3	1011.7	20.6	28.2	13.4	13.3	16.6	3.3
Barkhan	890.8	1496.8	18.2	23.9	12.5	9.7	131.0	9
	891.4	1490.9	17.1	23.3	11.1	7.7	31.4	3.3
Nokkundi	932.9	1008.1	22.8	29.9	15.7	7.6	6.8	4
	934.8	1011.2	19.1	26.9	11.9	8.6	7.3	1
Dalbandin	917.9	1502.7	20.7	28.4	12.9	8.9	13.7	6
	917.8	1499.9	17.8	25.7	9.1	7.4	12.4	1.5
Jacobabad	1005.5	1011.9	24.6	31.0	18.3	17.9	39.0	5
	1004.6	1010.9	23.5	30.9	16.2	12.6	10.6	1
Khanpur	1001.8	1012.1	24.0	31.5	16.5	17.9	19.6	4
	1000.7	1011.0	21.1	29.7	12.6	13.1	3.6	1.8
Panjgur	902.8	1496.2	20.6	27.1	14.1	9.7	35.0	5
	904.1	1503.3	17.9	25.0	10.9	5.3	17.7	1.4
Khuzdar	878.9	1517.3	19.8	25.8	13.6	6.7	89.6	9
	875.6	1482.0	16.9	23.5	10.4	3.6	26.0	1.7
Sh. Benazirabad	1008.0	1011.3	26.4	34.2	18.6	17.4	2.3	1
	1007.6	1011.4	23.5	33.0	13.9	15.3	2.4	0.1
Jiwani	1005.9	1012.4	23.2	29.4	16.9	20.7	9.0	1
	1005.9	1012.4	23.2	28.2	18.3	18.6	15.4	0.9
Pasni	1011.8	1012.3	23.6	30.5	16.7	22.6	52.0	2
	1011.1	1012.6	22.7	29.8	16.6	16.5	21.0	0.8
Hyderabad	1006.3	1011.2	27.0	33.6	20.4	15.3	1.0	1
	1007.0	1011.0	25.9	33.4	18.5	13.4	2.5	0.3
Chhor	1010.2	1010.9	26.8	35.6	18.0	17.0	0.0	0
	1009.7	1010.3	24.4	34.6	14.2	13.5	0.8	0.2
Karachi	1009.1	1011.8	27.1	33.2	20.9	18.3	5.7	1
	1009.2	1011.9	24.7	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

March 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	18.7	16	9.9	3	26.3	16	5.0	4	5.0	20	16	22
Peshawar	23.3	14	14.6	25	32.4	8	10.0	3*	26.0	23*	6	21
Parachinar	14.0	15	6.5	31	21.5	15	0.5	31	25.0	18	5	19*
Rawalpindi	22.9	14	15.5	25	30.0	14	10.3	26	16.0	26	22	23
Sargodha	26.0	14	18.1	25	33.2	8*	12.8	3*	43.0	25	6	21*
Jhelum	24.6	13	16.9	17	34.0	13	11.2	8*	23.4	31	10	2
Sialkot	23.4	30	17.7	24	30.3	14	12.7	5*	21.0	31	8	31*
Zhob	19.0	15*	9.5	24	28.0	15	2.5	2	50.0	30	11	28
D.I.Khan	26.8	15	17.8	24*	34.5	14*	12.5	1*	36.0	24	18	16
Lahore	25.3	15	18.7	17*	31.8	16	13.5	25	45.0	25	8	23*
Quetta	17.3	15	9.0	24	24.5	10*	5.5	26	21.0	24	30	18
Multan	26.2	16	18.7	24	33.5	11*	13.9	20	39.0	24	12	12*
Barkhan	22.8	15	13.5	25	29.5	10*	8.0	25	36.0	24	6	7*
Nokkundi	26.3	17	15.5	2	33.5	9*	11.0	2	3.2	2	18	17
Dalbandin	24.0	15	14.0	2	32.5	9*	9.0	2	4.5	19	12	18
Jacobabad	27.5	13*	21.3	24	35.0	13	16.0	3*	26.0	24	8	7*
Khanpur	27.4	15	19.8	19	36.5	11*	13.7	20	6.8	24	16	16
Panjgur	24.0	17	17.9	31	30.0	8*	12.0	25*	21.0	30	24	23
Khuzdar	21.3	13*	17.0	3	28.0	9*	11.5	3	24.9	1	16	2
Sh.Benazirabad	28.5	11*	23.5	1	38.5	11	17.5	13*	2.0	19	16	23
Jiwani	25.0	16	21.0	2	32.5	5	15.0	1*	9.0	22	14	23*
Pasni	25.3	16	22.0	2	33.5	6*	15.5	6*	40.0	22	14	16*
Hyderabad	29.4	11	23.5	1	37.2	11	18.0	1	1.0	31	20	16*
Chhor	28.1	13	24.8	1*	38.7	13	14.5	1	0.0	0	14	19*
Karachi	28.8	17	24.7	23	36.4	10*	18.0	13	4.4	24	14	2*

* 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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