



State of **Pakistan Climate** in 2022

Table of Contents

1. Pakistan Climate highlights	1
2. Significant Climate Events.....	1
3. Synoptic Features of 2022	2
4. Significant Climate Drivers	4
5. Rainfall: Record breaking annual rainfall	4
5.1 Monsoon: The exceptional rainy season	5
6. Temperature: The fifth warmest year of Pakistan.....	6
6.1 Mean Annual Temperature	6
6.2 Annual Maximum Temperature	6
6.3 Annual Minimum Temperature	6
7. Heatwaves	8
8. Strong winds/ Windstorm	8

List of Tables

1. Table 1: Annual area-weighted rainfall	2
2. Table 2: Annual area-averaged mean temperature	2
3. Table 3: New highest 24-hours rainfall (mm) records set	9
4. Table 4: New total monthly/yearly rainfall (mm) records set	10
5. Table 5: New highest maximum temperatures (°C) record set	11
6. Table 6: New lowest maximum temperatures (°C) record set	12
7. Table 7: New highest minimum temperatures (°C) record set	13
8. Table 8: New lowest minimum temperatures (°C) record set	14
9. Table 9: Strong winds (30 knots & plus) during the year	14

List of Figures

1. Figure 1: Significant climate events	1
2. Figure 2(a): Mean monthly temperature	2
3. Figure 2(b): Mean monthly rainfall	2
4. Figure 3: Daily average rainfall.....	3
5. Figure 4: Pakistan spatial distribution of 2022 annual rainfall	5
6. Figure 5: Pakistan annual rainfall time-series 1961-2022	5
7. Figure 6: Pakistan spatial distribution of 2022 annual mean temperature	7
8. Figure 7: Pakistan annual mean temperature anomalies 1961-2022	7
9. Figure 8: Pakistan spatial distribution of 2022 annual maximum temperature	8
10. Figure 8: Pakistan spatial distribution of 2022 annual minimum temperature	9

1. Pakistan Climate highlights in 2022

- A very heavy snowstorm occurred (16.5 inch) on 7-8 January 2022 at the hilly station, Murree and suburbs, which caused several deaths of tourists, due to freezing & carbon monoxide poisoning owing to stranded in their vehicles whole night.
- The country witnessed ever-highest & record-breaking rainfall during the year 2022 with national total rainfall being +77% of the average, since 1961.
- The country experienced the worst-ever devastating flooding during the monsoon season, peaking in late August. July (181% above normal) and August (243% above normal) were the wettest on record. Sindh province was particularly severely affected with Balochistan also hard-hit.
- Record-breaking rain triggered massive flooding took over 1700 deaths with 33 million people affected & 7.9 million displaced.
- The unprecedented intense rainfall in Balochistan, Sindh and Southern Punjab in monsoon 2022 set many new daily- and monthly-total rainfall records.
- The annual national mean temperature for 2022, for Pakistan as a whole, was 0.84 °C above average, placing it as fifth-warmest year on record.
- The pre-monsoon period was exceptionally hot in the country with March and April being hottest ever months on record. Daily maximum temperatures set new records at several locations in Sindh, Balochistan and Southern Punjab. Six heatwaves occurred across the country during March-May 2022 with day/maximum temperatures been 5-12°C above average.
- In maximum winds there were 81 events of 30 knots (and more) at different plain stations with 60 knots been the highest wind gust recorded at Lahore Airport on 22 May.
- The La Niña conditions persisted for 3rd year in a row, one of the rare phenomena, billed as a Triple-dip La Niña.
- Negative Indian Ocean Dipole (IOD) developed during June-September and then returned to neutral phase at the end of 2022.

2. Significant Climate Events in 2022

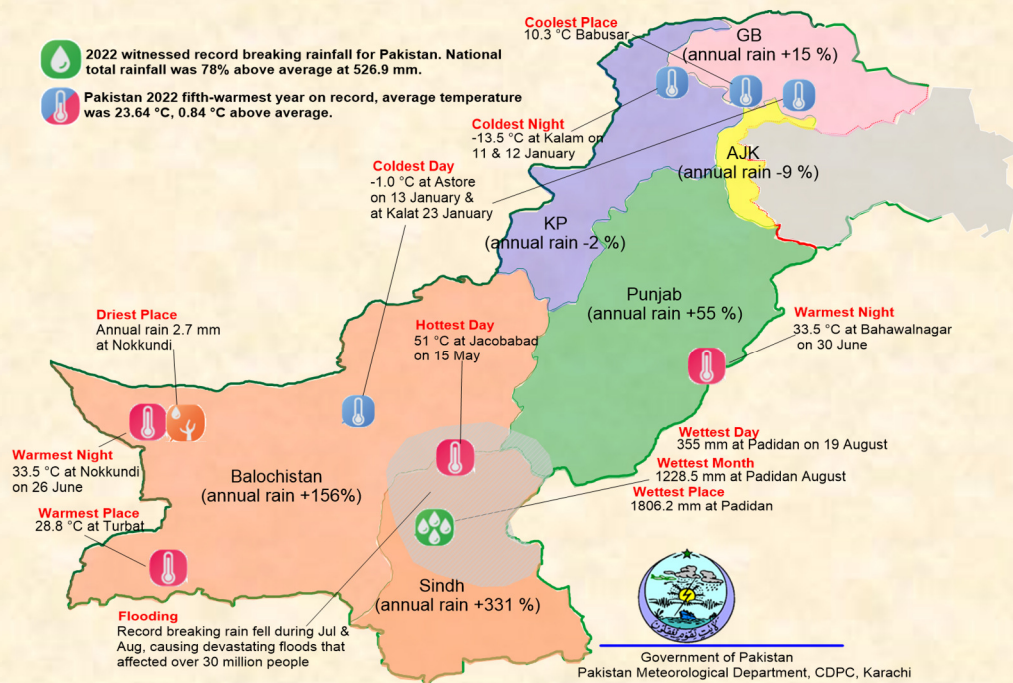


Fig. 1. Significant climate events

Table 1: Annual area-weighted rainfall -2022

Region	Rank (of 62)	Normal (mm)	Average (mm)	Departure (percent)	Comment
Pakistan	1	297.6	526.9	77	Record wettest (previous record 445.9 mm in 1992)
Azad Jammu & Kashmir	44	939.4	851.3	-9	----
Balochistan	1	159.9	409.4	156	Record wettest (previous record 341.1 mm in 1997)
Gilgit Baltistan	20	193.6	221.1	14	----
Khyber Pakhtunkhwa	39	684.2	668.6	-2	----
Punjab	6	387.0	560.9	45	6 th wettest (record 642.3 mm in 2015)
Sindh	1	171.9	741.6	331	Record wettest (previous record 524.7 mm in 1994)

Rank ranges from 1 (lowest) to 62 (highest).

Table 2: Annual area-averaged mean temperature - 2022

Region	Rank (of 62)	Normal (°C)	Average (°C)	Anomaly (°C)	Comment
Pakistan	58	22.80	23.64	0.84	05th highest (record 23.95°C in 2002)
Azad Jammu & Kashmir	61	16.22	17.35	1.14	02nd highest (record 17.43°C in 2001)
Balochistan	50	23.11	23.80	0.69	13th highest (record 24.99°C in 2002)
Gilgit Baltistan	57	14.22	14.92	0.70	06th highest (record 15.30°C in 1971)
Khyber Pakhtunkhwa	62	19.60	20.63	1.04	01st highest (record 20.54°C in 2016)
Punjab	57	24.55	25.43	0.88	06th highest (record 25.62°C in 1970)
Sindh	59	26.58	27.54	0.96	04th highest (record 27.89°C in 2018)

Rank ranges from 1 (lowest) to 62 (highest).

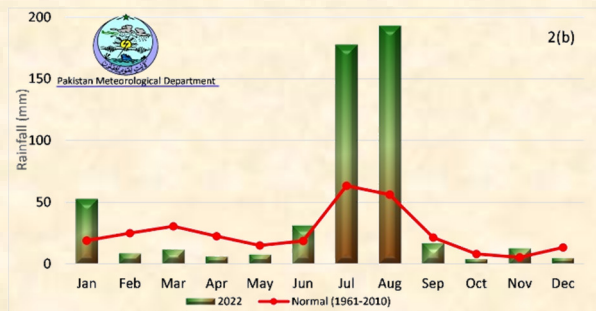
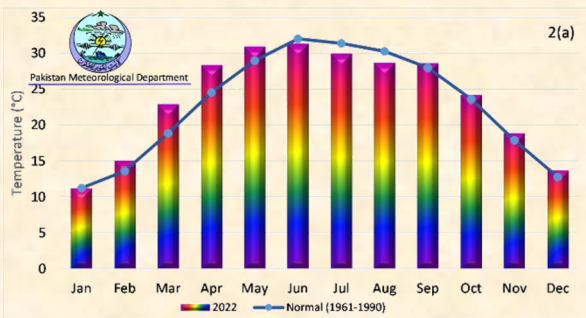


Figure 2: Monthly mean Temperature (left) and rainfall in 2022 vs corresponding averages.

3. Synoptic Features of 2022

January 2022 saw the development of two significant westerly low-pressure areas over western parts of Pakistan; first on Jan 3, persisted for about a week and the 2nd on 17 Jan persisted until the month's end. In February, three low-pressure areas formed over, Balochistan during 6-8 Feb, Gilgit-Baltistan (GB) during 7-9 Feb and Khyber Pakhtunkhwa (KP) during 15-17 Feb with rest of the days been marred by dry continental air prevalence. March also witnessed three low-pressure areas formed over, Northwest Balochistan, KP during 15-17 and South Punjab during 14-19 March with last one causing unprecedented heatwave conditions over there. April's first two weeks witnessed an unusual dry continental air prevailing over most parts of the country resulting in unusual heatwave conditions, while the trough-low seesaw pattern prevailed over KP & GB during rest of the month. During the month of May (mid- onwards), the seasonal (or Heat) low formed

over North Balochistan with another low-pressure area developed over South Punjab on 7-15 May which consequently caused heatwave conditions over plains of the country. Whereas, KP & GB remained mostly under the trough. During June 2022, the seasonal/heat low remained a predominant synoptic feature over southern Pakistan, followed by a significant penetration of moist currents from the North Arabian Sea into eastern parts of the country from mid of the month until 22nd June and produced above-average pre-monsoon rains across the country.

With beginning of July, strong moist currents penetrated Sindh from the Arabian Sea and country's eastern parts from Bay of Bengal which prevailed through to the entire month. On the other hand, a deepened heat low (with lowest pressure of 991 millibars, being 3 millibars less than its July-averaged value) oriented unusually over west Balochistan. In addition, two monsoon lows developed over southern Punjab during 7-15 July & southeast Sindh during 22-27 July yielding heavy downpours in Sindh & east Balochistan with a *Depression* developed on 16th over Gulf of Kutch-Northeast Arabian Sea, which moved westwards.

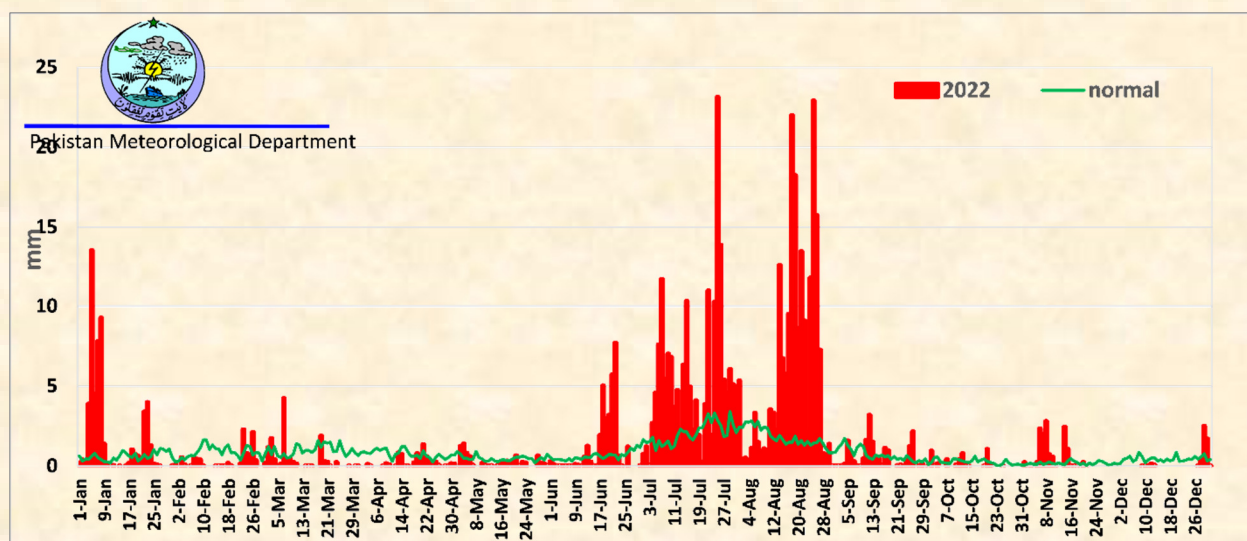


Figure 3: Pakistan 2022 area-weighted observed & normal rainfall

August too witnessed the strong monsoon currents penetration from the Arabian Sea as well as from Bay of Bengal in southern and central parts of the country. The Heat low meanwhile prevailed over Northwest Balochistan causing vigorous moist currents incursion into Balochistan and Sindh. In addition, three *Depressions* formed during the month: one over Kutch- Northeast Arabian Sea on 8 August and two over Bay of Bengal on 13 & 19 August. The latter one moved westward, weakened into a low-pressure and reached Sindh to produce some extremely heavy rains over entire Sindh leading to urban/flash flooding in Sindh's most districts and northeast Balochistan.

During September, the Heat low over west-northwest Balochistan and westerly trough prevailed over GB & KP. While, monsoon currents from the Arabian Sea & Bay of Bengal converged over central and upper Parts of the country during 10-15 September. In addition, a *Deep Depression* developed over the Bay of Bengal, moved first towards central India and later over southeast Sindh, which caused moderate rain-thunderstorms over there. The unprecedented and devastating Monsoon-2022 finally withdrew from the country in 3rd week of September. October saw a westerly trough prevailing over GB, Kashmir and Upper KP through the entire month, while continental air prevailed elsewhere in the country from 1st to 5th October. In addition, two low-pressure areas formed over southern Punjab and Northwest Balochistan on 6th - 8th October.

November normally brings the dry continental winds across Pakistan with a westerly trough prevailed from beginning of the month until 16th over upper KP, GB and Kashmir. While, low-pressure areas formed over upper Sindh during 4-8 November and west Balochistan which consequently yielded light to moderate rainfall in Sindh and Balochistan on 7- 8 November. Then from 17 November until the month end, dry continental air prevailed over the country. December brought the dry continental air over most parts of the country with a westerly trough prevailed over GB, Upper KP and Kashmir during 1-4 and 7-13 December. On 27 December a significant westerly wave entered west Balochistan inducing a low-pressure area formation over there and upper half of the country that yielded widespread light/moderate rainfall in Balochistan, Punjab, KP, and AJK with snowfall over mountains of KP & GB.

4. Significant Climate Drivers

The La Niña conditions persisted for the 3rd year in a row, one of the rare phenomena, and described as a Triple-dip La Niña. La Niña conditions emerged in mid-2020 and continued into 2021 with sea surface temperatures briefly becoming ENSO (El Nino Southern Oscillation)-neutral (temperatures within 0.5 °C of normal), although still cooler than average during most of the Northern Hemisphere summer. Temperatures declined again, and La Niña re-emerged during the July–September period of 2021, quickly evolving to a moderate strength event where it remained through the end of 2022. For the second consecutive year, a negative Indian Ocean Dipole (IOD) developed during June-September period of 2022 and then returned to neutral phase at the end of 2022. Apart from this, seasonal/heat low was more intense (owing to excessive & prolonged heating in March-May) and the monsoon trough/axis been oriented in south than its normal course that pushed more concentrated monsoonal winds flow over south Pakistan.

5. Rainfall: Record breaking annual rainfall

Country witnessed ever-highest & record-breaking rainfall during monsoon 2022 for Pakistan as a whole. The national total rainfall was 77% above the 1961–2010 average at 526.9 mm (the 1961–2010 average is 297.6 mm). Annual rainfall was above average over Balochistan (+156%), Sindh (+331 %), Punjab (+45%) and GB (+14%) while near normal over KP (-2 %) and AJK (-9 %), (Figs. 3 & 4). The annual rainfall of 2022 over Sindh & Balochistan was exceptionally high and for both it ranked record wettest year since 1961 (Table-1).

The year 2022 began with a couple of good rainfall events making January 178% above average and the second wettest month during the past 62 years. Also, a very heavy snowstorm occurred (16.5 inch) on 7-8 January 2022 at the hilly station, Murree and suburbs, which caused several tourists' deaths, due to freezing & carbon monoxide poisoning owing to stranded in their vehicles whole the night. In contrast, February and March, receiving very little rain, were largely deficient months -66% and -62% respectively and stood as the seventh and ninth driest months. The winter rainfall for the country as a whole was near average (-2%). Deficiency of rainfall continued in April and May, which respectively saw 72% and 48% below average national rainfall placing April as the second driest month on record. After four consecutive months of deficient-rain, June 2022 happened to be an excessive rainy month with 68% above average rain (Fig 2b).

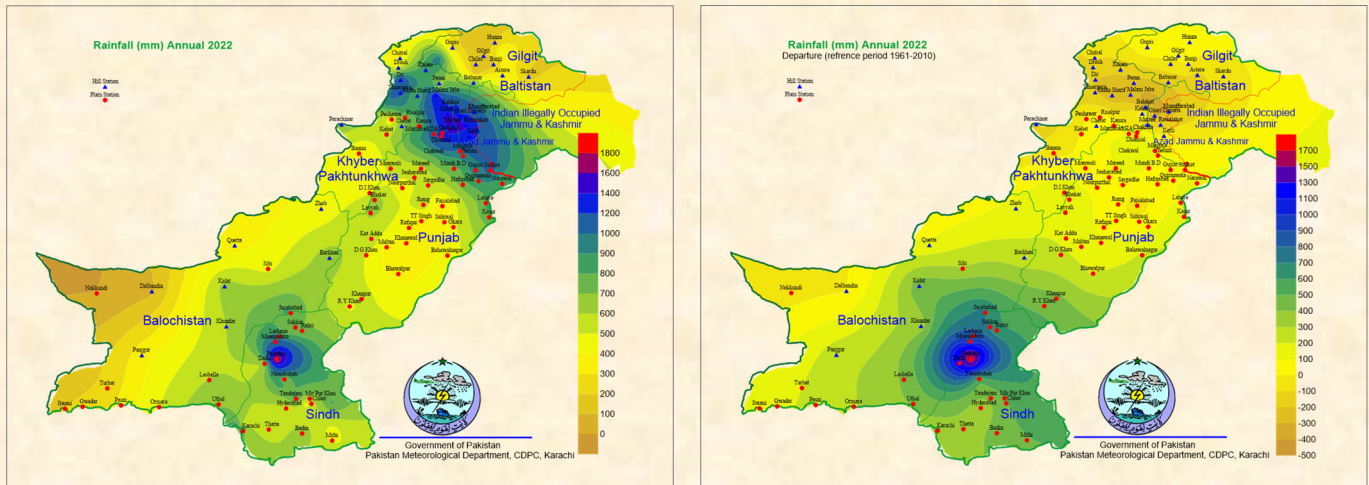


Figure 4: Pakistan spatial distribution of 2022 annual rainfall

5.1. Monsoon 2022: The exceptional rainy season

During July 2022, three widespread rain spells occurred across the country. National monthly rainfall was 181% above average and stood as record wettest July since 1961. During August 2022, about four widespread rainy spells occurred. The incessant intense rains across large swaths of Sindh and Balochistan during 11-27 August proved to be one of the most significant on record. Climatologically, the August is a fairly wet month of the year but being 243% above than average rainfall, August 2022 happened to be an extremely excessive-rain month and stood as the record wettest August since 1961. On regional scale, Sindh (726%), Balochistan (590%) & Gilgit-Baltistan, GB (233%) all witnessed extremely above average rains during the month. For former two regions, August 2022 now ranks as the wettest ever month, while, for GB it is the second wettest month during past 62 years. It was largely above average over Khyber Pakhtunkhwa, KP (58%) & Punjab (52%) too with ranking as the 4th wettest August for KP since 1961.

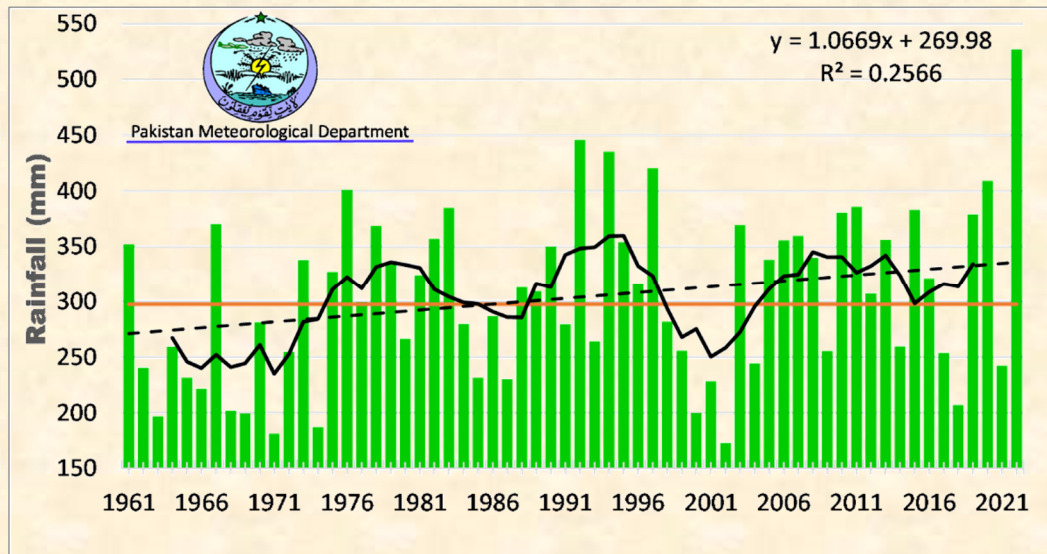


Figure 5: Pakistan annual rainfall time-series over 62-years. The black line indicates the 7-year moving average, positioned over middle year of the each 7-year block. The red straight line shows the national annual long-term (1961-2010) average. The black dotted line shows a trend over the period.

The heavy rains contributed to record August rainfall total (monthly and daily) in many locations over hundred years. Single-day as well as monthly rainfall totals during the month were very

significant, when 13 PMD stations broke their 24-hours rainfall record (Table 3) and 21 stations set a new monthly total rainfall record (Table 4). The unrelenting very heavy rainfall triggered widespread devastating flooding across Sindh, South Punjab and Eastern Balochistan, which resulted in significant human and livestock casualties besides damaging the private homes and public infrastructure, especially in Balochistan and Sindh provinces, as per report of Humanitarian Advisory Team of United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). The National Disaster Management Authority (NDMA) reported that some 33 million people affected, 1,717 people killed and 12,867 injured. Over 806,387 houses destroyed and a further 71,308,159 damaged, more than 1,163,635 livestock heavily impacted beside millions of acres of crops and orchards had been impacted.

Unprecedentedly intense and prolonged monsoon rains over northeast Balochistan, Sindh and south Punjab set several new daily and monthly total records. Single-day and monthly-total rainfall events were highly significant and record-breaking with 33 locations (with 19 or more years data) had their highest daily rainfall record during July and August. Similarly, 63 sites (few of them having more than century data) broke their total monthly rainfall record mostly in Sindh.

With -21% deviation, the September 2022 happened to be a below-average rainfall month as a whole for Pakistan. With -50% deviation, the October 2022 too was largely below-average rainy month. November on the other hand saw just opposite to its normal behavior with above average rainfall (145%), while, December again proved to be largely below average (-64%) month (Fig. 1b).

6. Temperature: The fifth warmest year of Pakistan

6.1. Mean Annual Temperature

The annual national mean temperature for 2022, for Pakistan as a whole, was 0.84 °C above the 1961–1990 average, placing it as fifth-warmest year on record during past sixty-two years. They were ever highest over KP and second highest on record over AJK, (Fig. 6). It was amongst the fourth warmest year for Sindh & sixth warmest year on record for GB and Punjab (Table 2).

6.2. Annual Maximum Temperature

The 2022 mean annual maximum temperature at country-level was 30.65 °C being 0.95 °C warmer than average of 29.69 °C and was so in all regions of the country, (Fig. 8).

6.3. Annual Minimum Temperature

The mean annual minimum temperature was 16.63 °C, being 1.29 °C warmer than the country average of 15.36 °C being warmest on record surpassing the previous record of +1.04 in 2006. It was so at sub-regional basis as well with GB & Punjab being first and AJK & KP the second warmest ever minimum on record. The annual minimum temperature over Balochistan & Sindh were also broadly above average and thus placing them in the upper six warmer years, (Fig. 9).

The first two months of 2022 were warmer than average for country as whole. January saw warmer night temperatures and cooler day temperatures over the country while February recorded both night & day temperatures warmer.

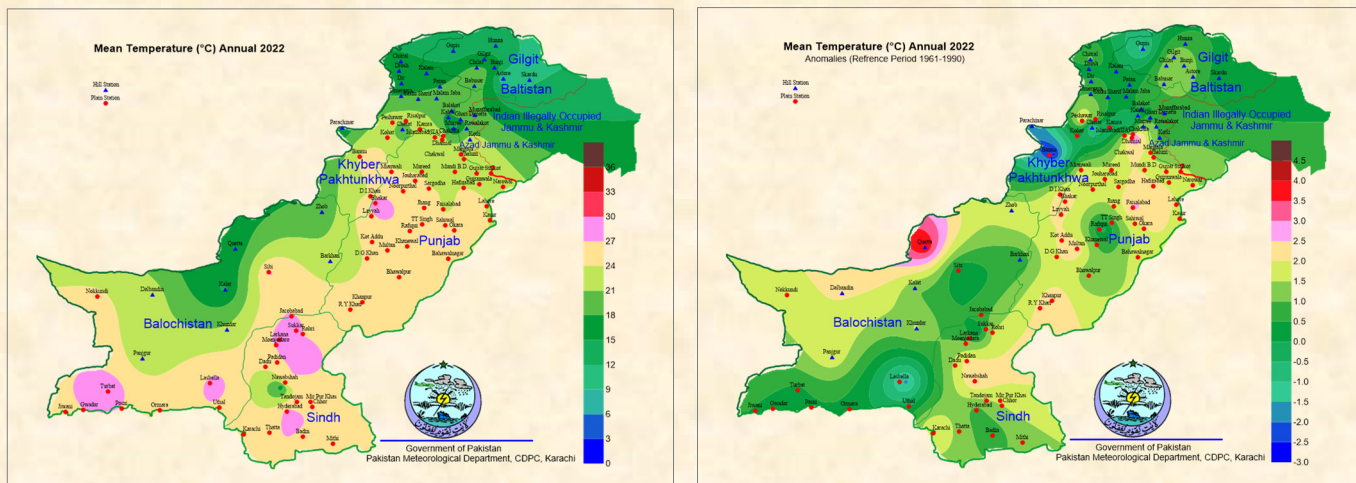


Figure 6: Pakistan spatial distribution of 2022 annual mean temperature

March and April brought an unusual warming in the country with temperatures being ever highest since 1961 and therefore ranked as the first & second ever-hottest months on record. Extreme warmth continued in May, when mean and night temperatures were considerably warmer and both now stand in five warmer month on record. The national mean monthly temperature of May 2022 for Pakistan as a whole was warmer than monthly average and was fifth warmest mean temperature since 1961. The day and night temperature at country-level was warmer than average while later stands as fifth warmest month on record. July and August's national mean day & night monthly temperatures for Pakistan as a whole were all cooler than their respective monthly-averages, owing to record-breaking heavy rainfall. September to December saw a return to above average maxima and minima across most of the country (Fig. 2a). The annual mean temperature anomalies over the 62-years period are depicted in Fig. 7.

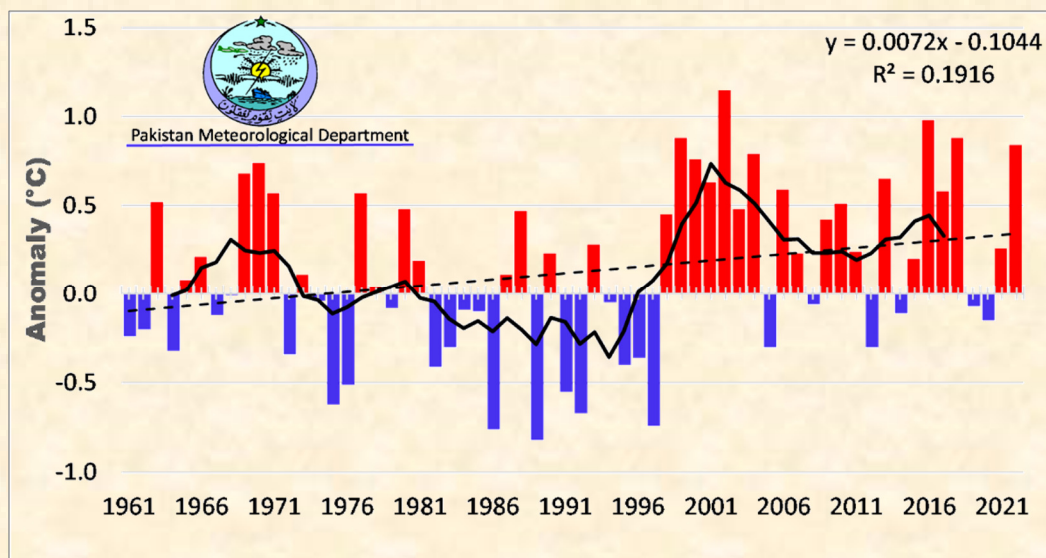


Figure 7: Pakistan annual mean temperature anomalies (with 1961-1990 the base period) over 1961-2022. The black solid line indicates 7-year moving average with average positioned over middle year of each 7-year block. The black dotted line shows the trend over the period.

7. Heatwaves

The country plain areas battered six heatwaves from March to May 2022 with when the country scorched due to excessively above-average temperatures of the range of 8°C to 12°C. Daytime maximum temperatures shot to 41- 44°C during March's second and third week in Sindh, northeast & south Balochistan and south Punjab. April was even hotter when entire Sindh, Punjab, east & south Balochistan and southern KP battered with maximum temperatures of 44 - 47°C. The heatwave conditions peaked in May with maximum temperatures reaching 50°C at Dera Ghazi Khan (south Punjab) and 51°C at Jacobabad (Sindh) followed by 43°C plus at other sites. June's first two weeks saw similar condition across much of the country with places like Gilgit, Bunji, Chilas and Chitral in northern areas even experiencing temperatures in the range of 42 -47°C.

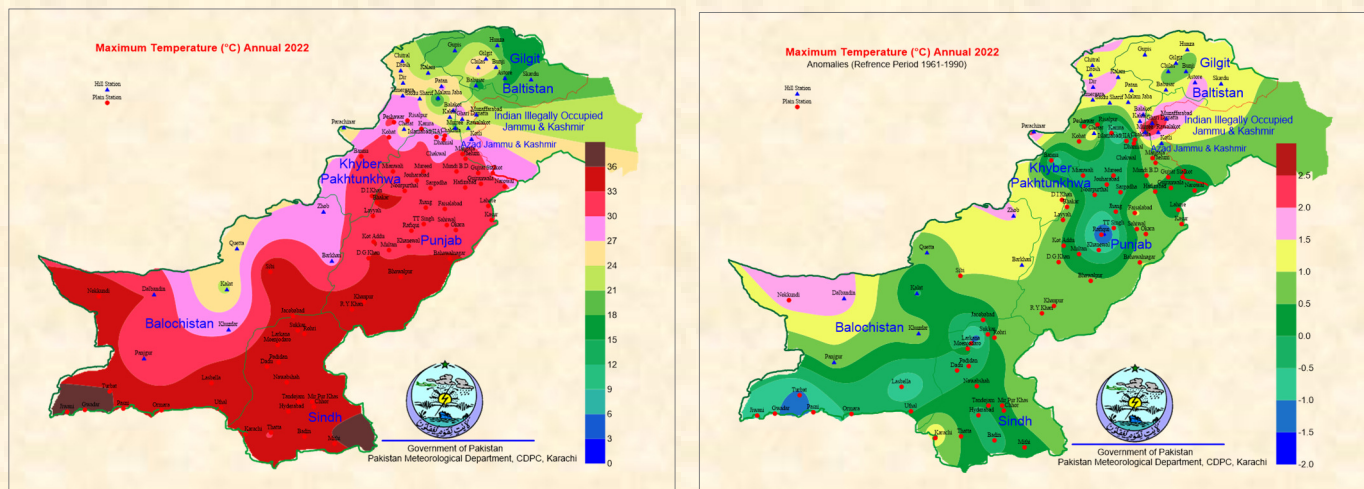


Figure 8: Pakistan spatial distribution of 2022 annual maximum temperature

New records of daily maximum temperature set at several locations during March and April in Sindh, Balochistan and Southern Punjab. PMD 32 sites (with 19 or more years of temperature data) recorded their highest daily maximum temperature for the month with 25 sites' records broken alone in March 2022 (Table 5). The peak heat was on 18 March when significant numbers of station's highest maximum temperature records were broken and 21 sites reported new highest minimum temperature record, mostly in April and November (Table 7). On the other hand, during June to August, several individual daily maximum temperatures reached the record lowest level. Out of 31 sites, 29 (13 in June, 5 in July and 11 in August) lowest maximum temperature records were shattered (Table 6).

8. Strong winds/ Windstorm

There have been over 80 events of strong winds (30 knots & more) across the country from 14 March to 9 June 2022, given in the Table-9. The other extreme/ record events like 24-hours & monthly highest rainfall, highest & lowest maximum temperatures and highest & lowest minimum temperatures are given in the Tables 3 to 8.

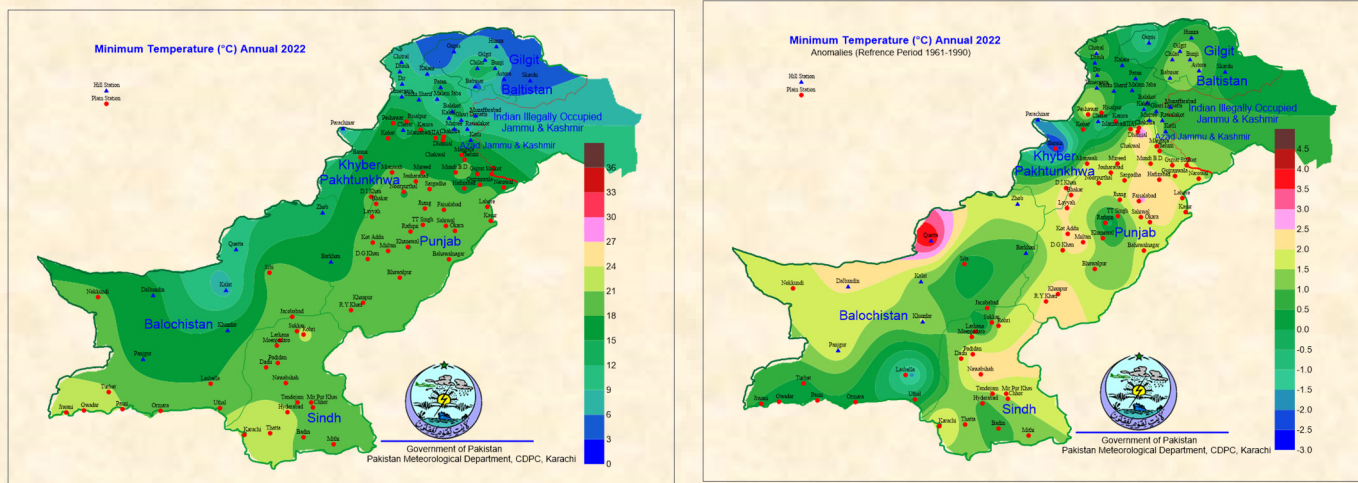


Figure 9: Pakistan spatial distribution of 2022 annual minimum temperature.

Table 3: New highest 24-hours rainfall (mm) records set during 2022

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
1	Chhor	January	13.5	07/2022	7.6	29/1935	85
2	Gwadar	January	64.2	05/2022	42.0	13/2009	21
3	Jhelum	January	62.2	08/2022	59.2	27/1957	75
4	Lahore AP	January	74.0	08/2022	56.6	06/2021	69
5	Mirpurkhas	January	7.0	05/2022	6.0	21/2019	19
6	Moen-Jo-Daro	January	16.0	07/2022	9.0	13/2020	44
7	Padidan	January	25.3	05/2022	23.9	27/1992	82
8	Rawalpindi	January	85.0	08/2022	62.5	25/1970	69
9	Sukkur AP	January	16.0	05/2022	13.0	13/2022	26
10	Larkana	April	38.0	21/2022	35.0	04/2015	69
11	Sukkur AP	June	82.0	20/2022	28.0	16/2013	26
12	Gwadar	July	58.0	06/2022	35.0	15/2021	21
13	Ormara	July	62.0	27/2022	57.4	06/1960	92
14	Quetta(S. Manda)	July	30.0	05/2022	26.0	23/1997	26
15	Rahim Yar Khan	July	58.0	22/2022	55.0	02/2015	21
16	Turbat	July	41.3	27/2022	36.6	28/2003	26
17	Barkhan	August	110.0	14/2022	104.2	23/1984	56
18	Chitral	August	31.6	26/2022	17.0	16/2014	59
19	Dir	August	90.0	26/2022	81.8	19/1983	56
20	Kalat	August	132.0	26/2022	46.2	08/1953	127
21	Khuzdar	August	87.1	25/2022	60.2	06/1984	56
22	Larkana	August	157.3	22/2022	131.0	05/2010	35
23	Moen-Jo-Daro	August	125.0	21/2022	119.6	21/1994	44
24	Muzaffarabad	August	163.0	01/2022	160.0	20/2012	66
25	Padidan	August	355.0	19/2022	238.0	31/2011	82

26	Quetta(S. Manda)	August	91.0	26/2022	19.0	02/2006	26
27	Sh. Benazirabad	August	123.0	25/2022	117.1	14/1955	69
28	Panjgur	November	44.0	08/2022	27.8	24/1997	112
29	Barkhan	Year	110.0	14-Aug-2022	104.2	23-Aug-1984	56
30	Kalat	Year	132.0	26-Aug-2022	88.0	02-Sep-2011	127
31	Moen-Jo-Daro	Year	125.0	21-Aug-2022	119.6	21-Aug-1994	44
32	Padidan	Year	355.0	19-Aug-2022	238.0	31-Aug-2011	82
33	Quetta(S. Manda)	Year	91.0	26-Aug-2022	55.0	23-Mar-2021	26

Table 4: New total monthly/yearly rainfall (mm) records set during 2022

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
1	Chhor	January	24.5	2022	9.9	1940	85
2	Gupis	January	56.8	2022	48.0	2009	62
3	Jhelum	January	145.8	2022	145.0	1950	75
4	Kohat	January	144.0	2022	133.0	2005	69
5	Lahore AP	January	151.8	2022	105.9	1981	69
6	Lahore City	January	131.9	2022	121.2	1981	142
7	Lasbella	January	40.0	2022	36.1	1944	92
8	Mirpurkhas	January	11.0	2022	10.5	2019	19
9	Mithi	January	14.0	2022	11.0	2011	19
10	Rawalpindi	January	185.9	2022	166.9	1954	69
11	Sh. Benazirabad	January	29.5	2022	28.5	1981	69
12	Sukkur AP	January	30.0	2022	15.0	2019	26
13	Risalpur	June	130.0	2022	82.0	2007	69
14	Sukkur AP	June	97.0	2022	29.0	2021	26
15	Badin	July	335.7	2022	302.9	2003	92
16	Bahawalnagar	July	297.0	2022	263.1	1995	60
17	Gwadar	July	153.2	2022	39.0	2021	21
18	Karachi Masroor	July	584.8	2022	509.3	1967	66
19	Lasbella	July	404.7	2022	353.7	2003	92
20	Mirpurkhas	July	125.0	2022	113.5	2017	19
21	Ormara	July	221.0	2022	185.2	1978	92
22	Padidan	July	535.4	2022	207.0	1956	82
23	Panjgur	July	186.0	2022	144.0	1945	112
24	Pasni	July	167.3	2022	159.5	1956	111
25	Quetta(S.Manda)	July	67.0	2022	43.0	2003	26
26	Rahim Yar Khan	July	191.8	2022	121.0	2015	22
27	Sibbi	July	159.0	2022	139.2	1959	97
28	Sukkur AP	July	175.0	2022	117.6	2003	26
29	Turbat	July	119.0	2022	65.4	2003	28
30	Barkhan	August	312.0	2022	294.3	1984	56

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
31	Chhor	August	547.9	2022	356.1	1990	85
32	Chitral	August	110.0	2022	41.2	2015	59
33	Dir	August	361.0	2022	296.0	1983	56
34	Drosh	August	142.3	2022	115.6	1941	122
35	Jacobabad	August	498.7	2022	241.2	2013	92
36	Kalat	August	361.0	2022	77.7	1953	127
37	Khuzdar	August	227.1	2022	222.9	1984	57
38	Larkana	August	762.3	2022	207.0	2010	37
39	Moen-Jo-Daro	August	779.5	2022	281.0	2020	44
40	Padidan	August	1228.5	2022	300.1	1992	82
41	Quetta AP	August	208.0	2022	173.0	1983	77
42	Quetta(S.Manda)	August	207.0	2022	43.0	2006	26
43	Rahim Yar Khan	August	224.4	2022	177.4	2010	22
44	Rohri	August	371.4	2022	142.2	1933	97
45	Sh. Benazirabad	August	495.7	2022	274.1	2011	69
46	Sibbi	August	243.0	2022	212.0	2020	97
47	Sukkur AP	August	379.0	2022	13.0	2008	26
48	Panjgur	Nov	44.0	2022	37.5	1997	112
49	Chhor	Year	854.4	2022	644.9	1961	85
50	Jacobabad	Year	838.7	2022	485.8	2012	92
51	Kalat	Year	638.2	2022	598.9	1997	127
52	Khanpur	Year	543.5	2022	409.0	2015	69
53	Khuzdar	Year	599.2	2022	594.7	1994	57
54	Larkana	Year	988.7	2022	580.2	1994	37
55	Lasbella	Year	615.9	2022	612.9	1944	92
56	Moen-Jo-Daro	Year	1023.8	2022	413.1	1994	44
57	Padidan	Year	1806.2	2022	546.9	1992	82
58	Quetta(S.Manda)	Year	375.0	2022	362.3	2011	26
59	Rahim Yar Khan	Year	476.6	2022	315.2	2003	22
60	Rohri	Year	669.4	2022	452.3	1994	97
61	Sh.Benazirabad	Year	685.0	2022	637.3	2011	69
62	Sibbi	Year	472.0	2022	410.0	2020	97
63	Sukkur AP	Year	698.0	2022	292.7	2008	26

Table 5: New highest maximum temperatures (°C) record set during 2022

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
1	Astore	March	22.5	19/2022	20.3	31/2007	62
2	Bahawalnagar	March	41.5	30/2022	40.5	21/2010	60
3	Bahawalpur	March	41.0	(02)/2022	41.0	25/1959	97
4	Balakot	March	34.0	18/2022	34.0	31/2018	62

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
5	Barkhan	March	35.7	18/2022	35.0	20/2010	56
6	Chilas	March	33.5	18/2022	31.0	22/1974	62
7	Dir	March	32.0	18/2022	31.0	31/2018	56
8	Faisalabad	March	38.5	18/2022	38.0	31/2018	107
9	Gilgit	March	31.0	18/2022	30.0	31/2017	62
10	Gupis	March	24.5	18/2022	24.0	20/2010	62
11	Islamabad(ZP)	March	35.6	18/2022	34.5	31/2018	40
12	Kakul	March	31.5	18/2022	30.0	31/2018	70
13	Kalat	March	30.0	(02)/2022	29.0	28/2021	127
14	Karachi AP	March	42.5	31/2022	42.2	20/2010	89
15	Khanpur	March	43.0	29/2022	42.0	31/2018	69
16	Khuzdar	March	36.5	17/2022	35.5	31/2018	56
17	Multan	March	40.2	29/2022	39.5	23/2010	69
18	Murree	March	27.2	18/2022	26.0	26/2000	142
19	Muzaffarabad	March	38.5	18/2022	37.0	25/1977	66
20	Quetta AP	March	31.5	18/2022	31.1	19/2010	77
21	Quetta(S.Manda)	March	32.5	18/2022	32.0	09/2004	26
22	Rahim Yar Khan	March	43.5	30/2022	43.0	31/2018	21
23	Sh.Benazirabad	March	45.5	(02)/2022	45.5	29/2021	69
24	Sibbi	March	43.0	(02)/2022	42.6	22/2010	97
25	Zhob	March	36.0	18/2022	33.5	(03)/2021	68
26	Balakot	April	37.0	30/2022	36.5	28/2006	62
27	Gupis	April	29.5	29/2022	29.5	28/2011	62
28	Zhob	April	39.0	(02)/2022	38.5	11/2019	68
29	Bunji	June	43.3	30/2022	43.3	30/2001	62
30	Quetta(S.Manda)	July	41.5	(02)/2022	41.5	27/2021	26
31	Mirpurkhas	November	37.0	(02)/2022	37.0	02/2019	19
32	Mithi	November	40.5	03/2022	39.5	05/2007	19

Table 6: New lowest maximum temperatures (°C) record set during 2022

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
1	Bunji	January	0.6	21/2022	1.4	16/1996	62
2	Bahawalpur	June	29.6	22/2022	30.1	22/2017	62
3	Barkhan	June	26.0	22/2022	26.5	15/2009	56
4	Garhi Dupatta	June	19.5	22/2022	20.6	21/1996	62
5	Islamabad(ZP)	June	23.0	22/2022	25.3	18/2008	40
6	Jhelum	June	25.4	22/2022	25.5	03/2008	62
7	Kakul	June	16.5	22/2022	19.0	24/1974	62
8	Kotli	June	21.9	22/2022	22.0	25/1974	62
9	Murree	June	12.0	22/2022	13.0	17/2009	62

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
10	Muzaffarabad	June	20.0	22/2022	20.0	17/2009	62
11	Rahim Yar Khan	June	30.2	22/2022	31.7	16/2009	21
12	Rawalpindi	June	23.0	22/2022	25.5	25/2015	62
13	Saidu Shrif	June	20.0	22/2022	20.3	18/2001	49
14	Zhob	June	22.5	22/2022	23.0	24/1974	62
15	Gwadar	July	29.0	08/2022	29.5	(02)/2002	21
16	Jacobabad	July	31.0	25/2022	31.0	27/2015	62
17	Panjgur	July	26.5	26/2022	27.0	16/1978	62
18	Quetta(S.Manda)	July	27.5	25/2022	30.0	31/2015	26
19	Sukkur AP	July	30.5	26/2022	30.5	26/2015	26
20	Barkhan	August	23.0	21/2022	24.4	05/1990	56
21	Chitral	August	17.8	28/2022	19.0	27/2010	59
22	Jacobabad	August	26.0	20/2022	30.0	27/2020	62
23	Larkana	August	27.0	26/2022	27.0	02/1994	35
24	Moen-Jo-Daro	August	26.5	26/2022	28.5	02/1994	44
25	Padidan	August	26.0	26/2022	27.0	01/1992	62
26	Quetta(S.Manda)	August	20.5	27/2022	27.0	08/2020	26
27	Saidu Sharif	August	20.0	27/2022	20.0	03/1976	49
28	Sh.Benazirabad	August	26.5	25/2022	27.2	16/1970	62
29	Sukkur AP	August	26.5	20/2022	26.5	04/2010	26
30	Zhob	August	20.0	22/2022	24.0	04/2010	62
31	Bunji	Year	0.6	21-Jan-2022	1.1	30-Dec-1990	62

Table 7: New highest minimum temperatures (°C) record set during 2022

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
1	Bunji	February	12.8	13/2022	11.7	22/2021	62
2	Mirpurkhas	February	19.0	03/2022	19.0	16/2006	19
3	Khuzdar	March	21.0	(02)/2022	20.5	(02)/2011	56
4	Chilas	April	23.5	19/2022	23.0	24/1976	62
5	D-I-Khan	April	28.0	30/2022	27.2	27/1970	62
6	Gilgit	April	19.0	29/2022	18.9	26/1993	62
7	Kalat	April	19.0	30/2022	16.0	(02)/2017	62
8	Karachi AP	April	29.4	30/2022	28.0	28/2010	62
9	Mirpurkhas	April	26.0	30/2022	25.6	23/2004	19
10	Quetta AP	April	20.5	18/2022	19.5	29/2020	62
11	Khanpur	May	31.0	15/2022	31.0	31/2001	62
12	Zhob	June	29.5	29/2022	29.0	23/2002	62
13	Turbat	August	30.5	11/2022	30.0	06/2020	26
14	Mirpurkhas	September	29.7	11/2022	29.5	22/2007	19
15	Zhob	September	26.0	04/2022	25.5	(02)/2019	62

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
16	Bunji	November	13.9	01/2022	13.9	01/2018	62
17	Jacobabad	November	22.0	(03)/2022	21.5	06/2011	62
18	Kalat	November	9.0	03/2022	8.0	22/2019	62
19	Larkana	November	22.5	02/2022	22.5	04/2011	35
20	Peshawar	November	18.5	01/2022	17.0	03/2006	62
21	Sh. Benazirabad	November	22.5	07/2022	22.0	01/2019	62

Table 8: New lowest minimum temperatures (°C) record set during 2022

SN	Station	Month	New Record		Previous Record		No of years examined
			Value	Date	Value	Date	
1	Sukkur AP	June	19.5	22/2022	19.5	07/2009	26
2	Zhob	June	12.5	22/2022	13.0	10/2008	62

Table 9: Strong winds reported (wind speed 30knots) or stronger during the year 2022

Date	Time	Station	Wind Speed (Knots)	Date	Time	Station	Wind Speed (Knots)
14 Mar 2022	1500z	Peshawar Airport	32.0	21 May 2022	1200z	Mangla	30.0
18 Mar 2022	2100z	Rawalpindi	33.0	22 May 2022	0900z	Quetta,Samungli	30.0
18 Mar 2022	2100z	Islamabad, Airport	37.0	22 May 2022	1200z	Quetta,Samungli	32.0
20 Apr 2022	1200z	Islamabad, Airport	32.0	22 May 2022	1500z	Islamabad, Airport	40.0
22 Apr 2022	1200z	Peshawar Airport	30.0	22 May 2022	1500z	Quetta,Samungli	30.0
30 Apr 2022	1500z	Turbat	30.0	22 May 2022	1800z	Lahore Airport	60.0
30 Apr 2022	1500z	Turbat	30.0	22 May 2022	2100z	Bahawalnagar	40.0
01 May 2022	1200z	Turbat	30.0	27 May 2022	1200z	Peshawar Airport	36.0
02 May 2022	0900z	Ormara	30.0	27 May 2022	1500z	Rawalpindi	32.0
02 May 2022	1200z	Quetta,Samungli	34.0	28 May 2022	0600z	Quetta,Samungli	30.0
02 May 2022	1200z	Ormara	40.0	28 May 2022	0900z	Quetta,Samungli	32.0
02 May 2022	1800z	Peshawar Airport	30.0	29 May 2022	0900z	Peshawar Airport	35.0
03 May 2022	0000z	Rawalpindi	35.0	29 May 2022	0900z	Peshawar Bkia	30.0
04 May 2022	0000z	Kotli	30.0	30 May 2022	1200z	Peshawar Airport	44.0
09 May 2022	1200z	Peshawar Airport	40.0	31 May 2022	1200z	Peshawar Airport	35.0
09 May 2022	1500z	Rawalpindi	50.0	31 May 2022	1200z	Peshawar Airport	35.0
09 May 2022	1500z	Islamabad, Airport	42.0	03 Jun 2022	1200z	Ormara	30.0
09 May 2022	1500z	Islamabad, Zeropoint	35.0	09 Jun 2022	1200z	Peshawar Airport	50.0
10 May 2022	1200z	Peshawar Airport	40.0	09 Jun 2022	1500z	Rawalpindi	33.0
16 May 2022	1500z	Sialkot Airport	30.0	10 Jun 2022	1200z	Peshawar Airport	55.0
17 May 2022	1500z	Mangla	30.0	10 Jun 2022	1500z	Rawalpindi	30.0
19 May 2022	1200z	Islamabad, Airport	36.0	12 Jun 2022	1200z	Peshawar Airport	45.0
19 May 2022	1200z	Mangla	30.0	12 Jun 2022	1500z	Rawalpindi	34.0
20 May 2022	1200z	Peshawar Airport	30.0	12 Jun 2022	1500z	Mangla	30.0

Date	Time	Station	Wind Speed (Knots)
12 Jun 2022	1500z	Turbat	40.0
12 Jun 2022	1800z	Lahore Airport	30.0
16 Jun 2022	1500z	Rawalpindi	36.0
16 Jun 2022	1500z	Kotli	30.0
17 Jun 2022	0900z	Quetta,Samungli	30.0
17 Jun 2022	1200z	Quetta,Samungli	30.0
18 Jun 2022	0600z	Rawalpindi	38.0
18 Jun 2022	0600z	Islamabad, Airport	30.0
20 Jun 2022	1800z	Bahawalnagar	40.0
21 Jun 2022	1200z	Quetta,Samungli	30.0
30 Jun 2022	1500z	Mangla	30.0
30 Jun 2022	1500z	Mangla	30.0
06 Jul 2022	1200z	Dera Ghazi Khan	30.0
09 Jul 2022	0000z	Rawalpindi	35.0

Date	Time	Station	Wind Speed (Knots)
09 Jul 2022	0000z	Islamabad, Airport	39.0
10 Jul 2022	0000z	Moin Jo Daro	30.0
14 Jul 2022	0600z	Lahore Airport	30.0
19 Jul 2022	1200z	Quetta,Samungli	34.0
22 Jul 2022	0300z	Dadu	40.0
02 Aug 2022	1500z	Takht Bai	30.0
08 Aug 2022	1500z	Tandojam	40.0
09 Aug 2022	1200z	Ormara	30.0
09 Aug 2022	1500z	Turbat	30.0
12 Aug 2022	1200z	Quetta,Samungli	30.0
21 Aug 2022	1200z	Larkana	30.0
12 Sep 2022	1500z	Turbat	30.0
24 Sep 2022	1500z	Dera Ghazi Khan	30.0
11 Oct 2022	2100z	Islamabad, Airport	30.0

The State of Pakistan's Climate in 2022 is produced by Pakistan Meteorological Department, Climate Data Processing Centre, Karachi to provide informative overview of the temperatures, rainfall and significant weather events in Pakistan for the year. Some of the information is based on real time data and/or electronic reports therefore, the results contained above can be considered only preliminary. If you have any comments or suggestions, please contact us:

Director, Climate Data Processing Centre,

Pakistan Meteorological Department, Meteorological Complex, University Road, Karachi-75290,

<http://www.pmd.gov.pk/cdpc/home.htm>; info.cdpc@pmd.gov.pk

Published on 24th February 2023