FORTNIGHTLY DROUGHT WATCH BULLETIN

(1st to 15th August, 2025)

National Drought Monitoring and Early Warning Centre

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Sector H-8/2, Islamabad, Pakistan

URL: https://ndmc.pmd.gov.pk/new/

Rainfall Distribution and Anomalies:

From 1 to 15 August 2025, moderate to heavy rainfall affected many areas, with the heaviest downpours occurring in northern Khyber Pakhtunkhwa (KPK), Kashmir and northeastern Punjab (including the Potohar region), where some locations recorded over 150 mm of rain. Significant rainfall was also recorded in Muzaffarabad, Malam Jabba, Kakul, Sialkot, Garhi Dupatta, Islamabad and Rawalpindi, Rawalakot and Balakot and Gujrat, while lower amounts were reported in parts of Gilgit-Baltistan(GB) and central parts of the country. Southern parts of the country primarily remained dry. Figure 1 illustrates the spatial distribution of rainfall, and Table 1 lists the top 10 meteorological stations with the highest rainfall amounts, based on data from meteorological observatories.

Table 1. Top 10 stations with highest rainfall accumulation (01-15 August 2025)

Sr. No.	Station	Rainfall (mm)	Sr. No.	Station	Rainfall (mm)
1.	Muzaffarabad	187.4	6.	Islamabad	120.1
2.	Malam Jabba	167.0	7.	Rawalakot	118.1
3.	Kakul	153.0	8.	Rawalpindi	116.0
4.	Sialkot	126.8	9.	Balakot	116.0
5.	Garhi Dupatta	120.8	10.	Gujrat	111.0

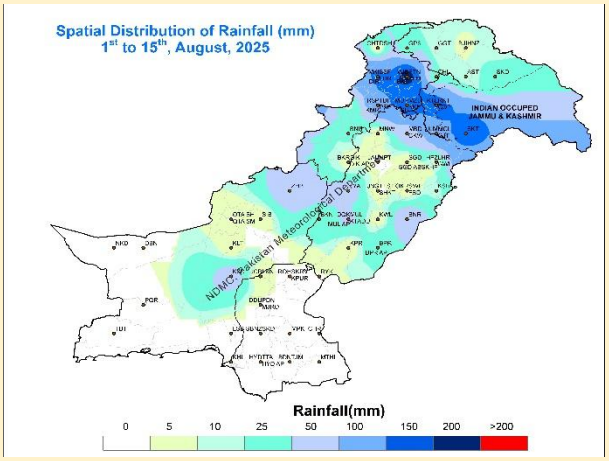

Figure 1: Spatial Distribution of Rainfall (mm)

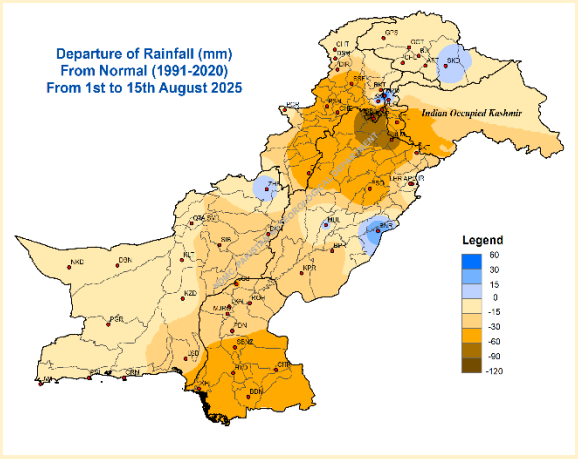

Figure 2: Departure of Rainfall (mm)

Figure 2 illustrates the spatial deviation of rainfall from the 1991–2020 climatological average during the first half of August 2025. Substantial negative departures were recorded across the country, with deficits reaching 120 mm below normal, however, few positive anomalies were observed as shown in the figure.

Mean Temperature Distribution and Anomalies:

Figure 3 displays the temperature anomalies during the study period, calculated relative to the 1991–2020 baseline. The observed anomalies exhibited a range of -2°C to +6°C, with the lowest values (-2°C to -1°C) localized in Nokkundi, Pasni, Sukkur, Bahawalnagar and Jhelum districts. In contrast, the most pronounced positive anomalies up to +6°C were recorded in norther areas, northeast Balochistan and lower KPK suggesting significant regional warming trends.

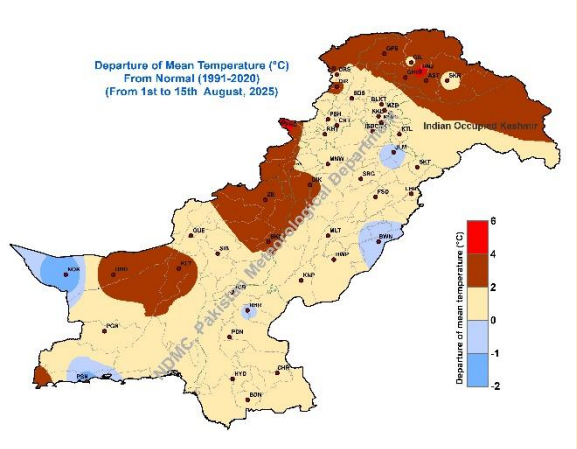

Figure 3: Departure of Mean Temperature(°C)

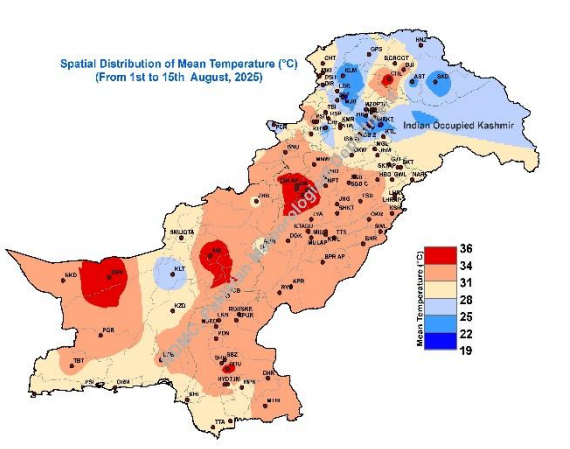

Figure 4: Spatial Distribution of Mean Temperature(°C)

Figure 4 illustrates the spatial distribution of mean temperatures across the region during the study period, ranging between 19°C and 36°C. The lowest average temperatures were observed in the northern mountains, reflecting cooler conditions at higher elevations. In contrast, moderate temperatures dominated the central and southern parts of the country. The highest thermal values, reaching up to 36°C prevailed in parts of Balochistan, upper parts of Sindh, southern KPK and central & southern Punjab, resulting in the variable mean temperature patterns across the region.

Climate Normals: Temperature and Rainfall

Figure 5 presents the long-term average rainfall distribution for 1–15 August, based on 30-year climatological Normals (1991–2020). Data show eastern Balochistan, south Punjab, upper parts of Sindh and GB received 0–50 mm of rainfall during this period. However, higher rainfall accumulations of 51–200 mm are observed over northern Punjab (including Potohar region, specifically Islamabad and surroundings), KPK, and Kashmir, reflecting regional orographic and climatological effects.

Figure 6 illustrates the mean temperature distribution during the 1991–2020 climatological period, with values ranging from 18°C to 36°C. The higher mean temperatures were consistently observed in Sindh, western and eastern Balochistan, and south Punjab. In contrast, cooler conditions prevailed in higher elevation of the country including Kalat division, where mean temperatures remained between 20°C and 28°C.

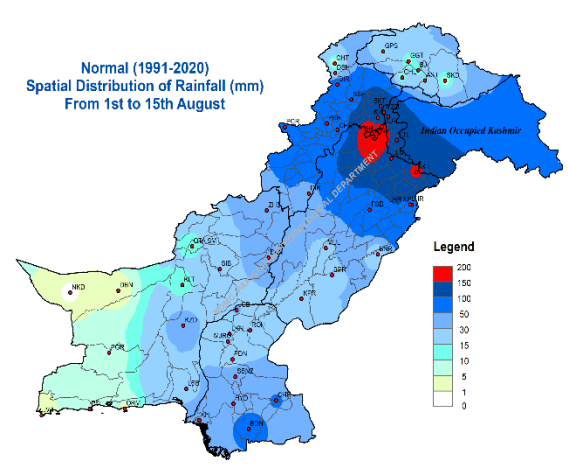

Figure 5: Normal Distribution of Rainfall(mm)

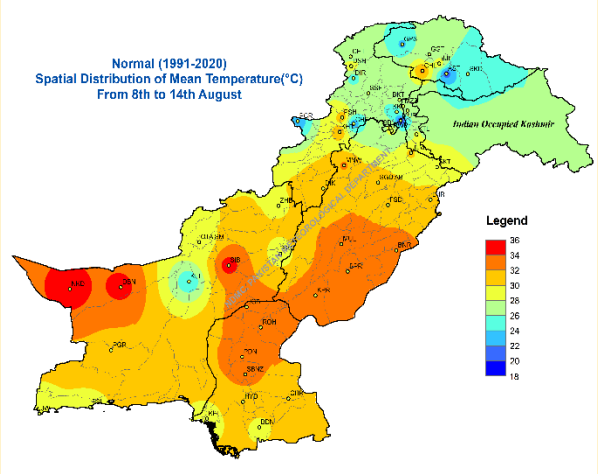

Figure 6: Normal Distribution of Mean Temperature(°C)

Maximum Length of Consecutive Dry Days (CCD)

Consecutive Dry Days (CDD), defined as periods with daily rainfall below 1 mm, with notable variations across the study region (Figure 7). The maximum CDD duration was recorded in Turbat (374 days), reflecting extreme aridity and prolonged drought conditions in the surroundings. Western Balochistan experienced moderate CDD frequencies (100–200 days), which may exacerbate water scarcity and shows drought conditions in the region. These findings underscore the regional disparities in dry spell persistence, with implications for water resource management and drought mitigation strategies.

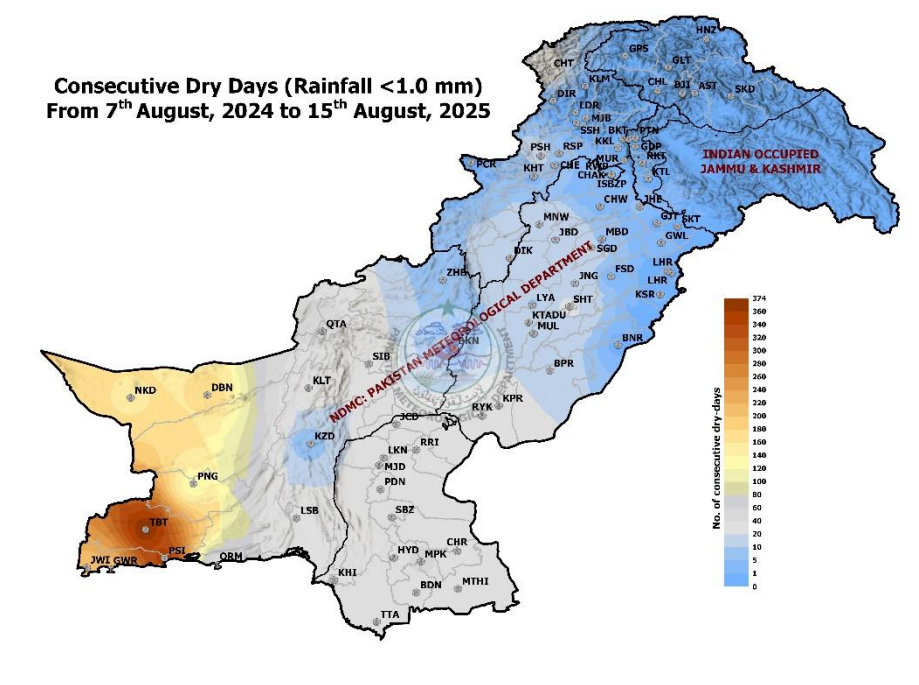

Figure 7: Spatial Distribution of Dry Days Spell

Reservoir Water Level Dynamics in Early August 2025

During the first week of August 2025, a notable increase in water levels was observed in major and minor reservoirs across the region. The Tarbela Reservoir level reached 1,546 feet, while Mangla reached 1,209 feet, primarily due to enhanced inflows from glacial melt and monsoonal precipitation in upstream catchments. Similarly, smaller reservoirs—including Rawal, Khanpur, and Simly—also exhibited rising water levels, driven predominantly by rainfall-derived inflows.

Weather Forecast for the Second Half of August

Meteorological projections indicate frequent rain-wind/thundershowers across upper regions, including upper Punjab, KPK, Islamabad, Kashmir, and GB, with isolated heavy falls. In contrast, central regions, encompassing southern Punjab, and northeastern/southern Balochistan, are expected to experience a few rain spells, with heavy falls possible in southeastern Sindh and northeast Balochistan. Hot and humid conditions will dominate central and southern plains, with limited rainfall activity. National mean temperatures are anticipated to remain above normal, particularly in interior Sindh, southern Punjab, and central Balochistan.

Summary

Precipitation patterns during the first half of August 2025 showed significant regional variability. The heaviest rainfall (>150mm) occurred in northern Punjab and Kashmir with Muzaffarabad recording the highest accumulation of 187mm. In contrast, GB and southern parts of the country received substantially less precipitation. Temperature anomalies revealed notable warming trends, particularly in upper and central parts of Balochistan, lower KPK and GB (+6°C), while the lowest values (-2°C to -1°C) localized in Nokkundi, Pasni, Sukkur, Bahawalnagar and Jhelum districts experienced cooler conditions. Western and eastern Balochistan, upper parts of Sindh, southern KPK and Chilas District recorded the highest temperatures (36°C), with northern mountainous areas remaining relatively cool (19-28°C).

Drought indicators showed concerning persistence, especially in Turbat (374 consecutive dry days) and western Balochistan (100-200 dry days). Water storage improved in major reservoirs, with Tarbela reservoir level risen to 1,546 feet and Mangla reaching 1,209 feet, primarily due to combined monsoon rainfall and glacial melt contributions.

Meteorological projections suggest continued rainfall activity in upper regions (including upper Punjab, Kashmir and KPK), potentially with heavy spells. Central and southern areas are likely to experience predominantly hot and humid conditions with few spells. Temperature forecasts indicate above-normal readings for interior Sindh, southern Punjab, and central Balochistan.

This report highlights critical regional disparities in precipitation and temperature patterns, with implications for flood risk management in high-rainfall zones, drought mitigation in arid regions, and heat stress preparedness in southern and central Pakistan. The observed trends emphasize the need for adaptive water resource management strategies in response to these climatic variations.