


Pakistan Meteorological Department



Monthly Drought Bulletin for the Month of April 2024

National Drought Monitoring Centre (NDMC)

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Highlights

- During the month of April 2024, moderate to heavy rainfall events were reported across the country which give some relief to the few droughts affected areas of Balochistan and Sindh.
- Normal to below-normal mean temperatures were recorded in most parts of the country while some areas like Karachi, Moenjo darro, Gilgit, Astore and Gupis observed above normal mean temperature during the month.
- During the month of May 2024, overall, a tendency for normal to near normal rainfall is expected in most parts of the country. Day time temperatures are forecasted to remain normal to slightly above normal nationwide.
- Mild Drought conditions may be observed in Nokkundi, some areas of Sindh and Cholistan region in Punjab. Keeping in view the weather forecast for the month of May 2024, disaster management authorities are requested to plan disaster risk management (DRM) activities accordingly.

1. Weather Summary for the Month of April, 2024

During the month of April 2024, light to moderate rainfall events reported across south eastern part of the country where as western and south western part received moderate to high rainfall during the month. North West KP and Kashmir received very heavy to extremely heavy rainfall. The chief amounts of monthly rainfall recorded across Pakistan during April 2024 are shown in table 1. Figure 2 depicts the Normal rainfall for the month of April 2024.

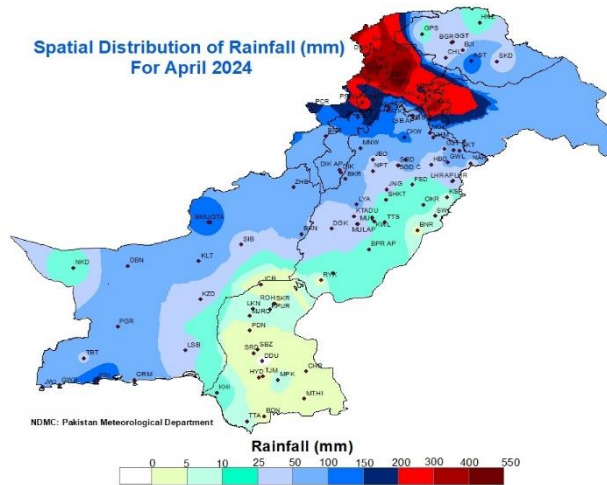


Figure 1: April 2024 Spatial Distribution of Rainfall

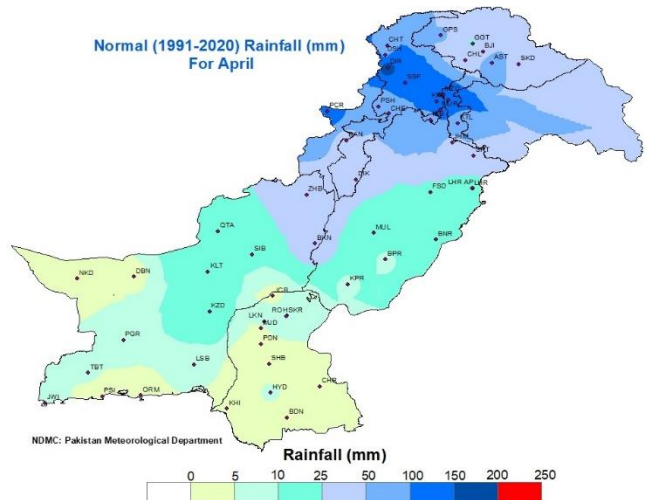


Figure 2: April Normal (1991-2020) Rainfall

Figure 3 displays the departure of rainfall from the normal. Well above normal rainfall was reported in most parts of the country except a few stations like Sukkar, Larkana, Badin, Hyderabad, Bahawalnagar, Faisalabad and Gupis.

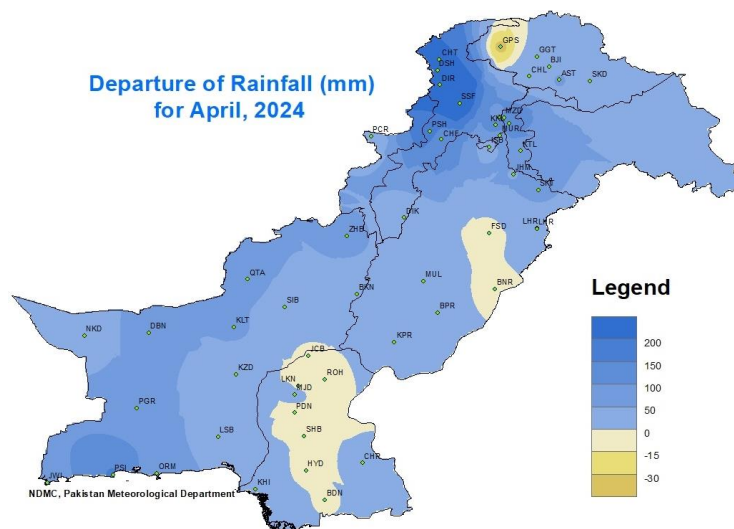


Figure 3: Departure of rainfall from Normal (1991-2020)

2. Monthly Rainfall and Temperature Analysis

2.1 Mean Temperature Comparison

During the month of April 2024, mean temperature recorded at PMD stations is spatially distributed analyzed and spatial distribution of temperature for the month of April 2024 is shown in figure 4, while figure 2 depicts the normal (1991-2020) temperature climatology for the month. During the month southern parts of the country got maximum mean temperature up to 32 degrees Celsius and in the northern areas the mean temperature recorded was 08-degree Celsius.

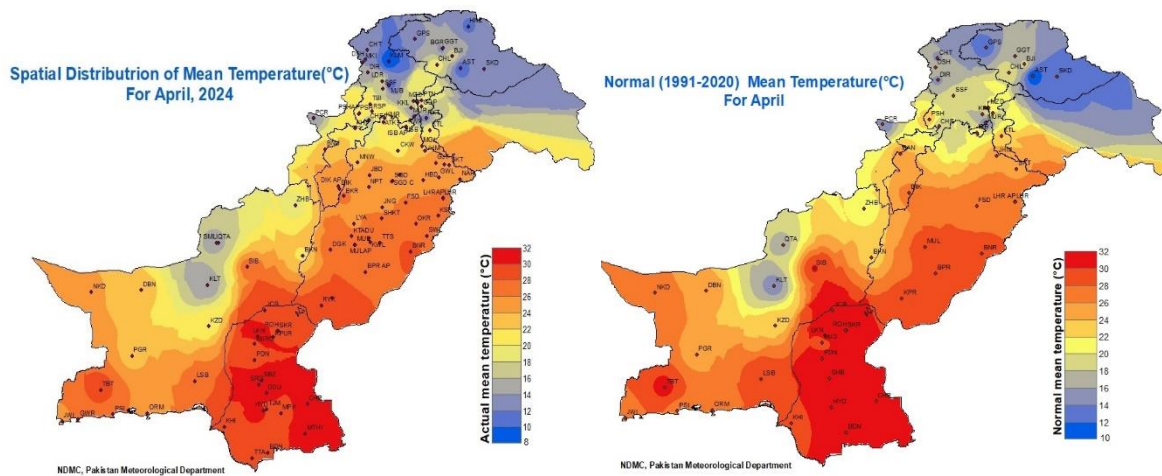


Figure 4: Mean Temperature (°C) April 2024.

5: Normal (1991-2020) mean temperature (°C)

Figure

Departure of mean temperature from the normal (1991-2020) climatology is shown in figure 6 below. Which show that normal to below-normal mean temperatures were recorded in most parts of the country while some areas like Karachi, Moenjo darro, Gilgit, Astore and Gupis observed above normal mean temperature during the month.

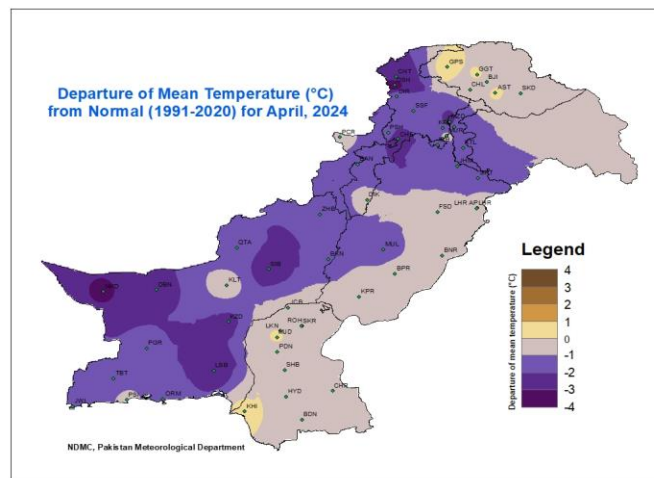


Figure 6: Departure of Temperature (°C) from Normal

2.2 Provincial comparison of stations rainfall (mm)

The comparison of actual rainfall to normal (1991-2020) for the month of April 2024 for Khyber Pakhtunkhwa has been shown in figure 7 (a), Gilgit Baltistan and Azad Jammu & Kashmir in figure 7 (b), Punjab in figure 7 (c), Balochistan in figure 7 (d), and Sindh in figure 7 (e). All provinces received above normal precipitation as shown by the graphs.

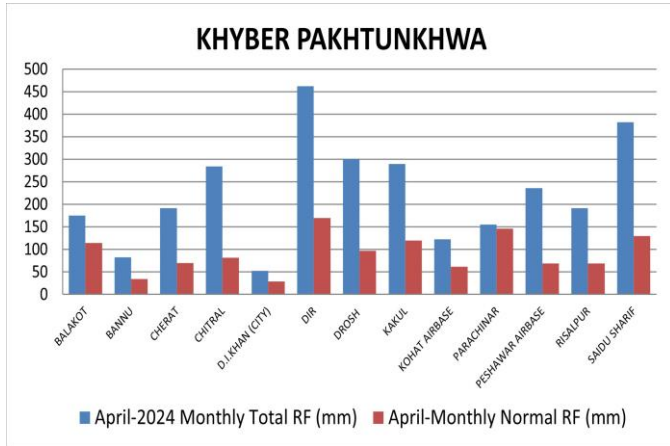


Figure 7a

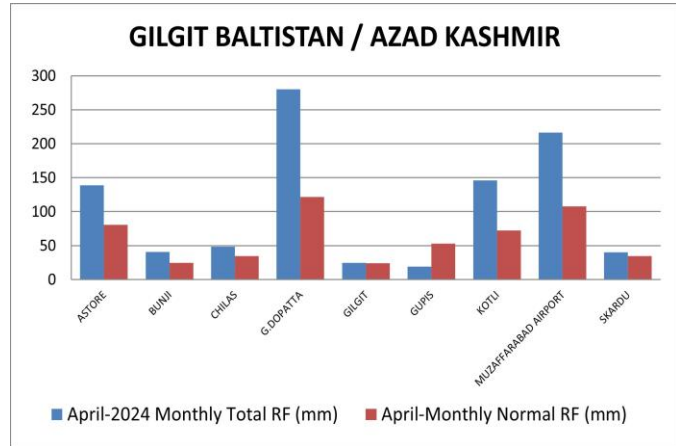


Figure 7b

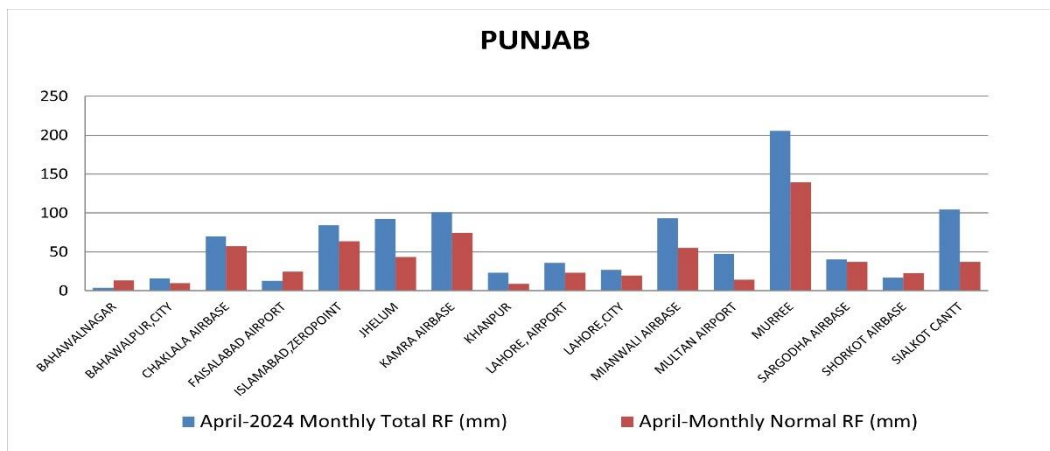


Figure 7c

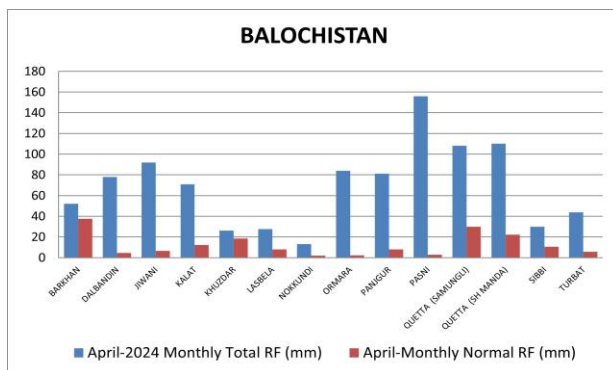


Figure 7d

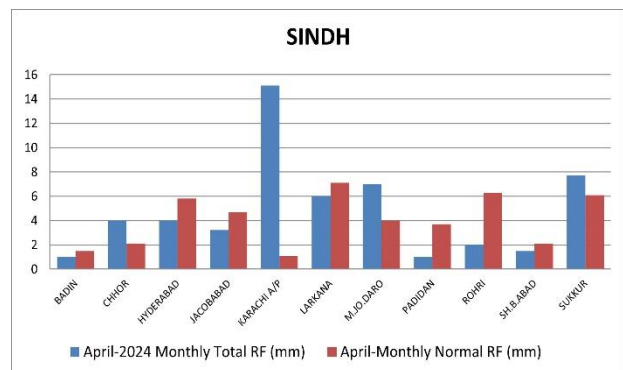


Figure 7e

2.3 Stations with Maximum rainfall during the Month

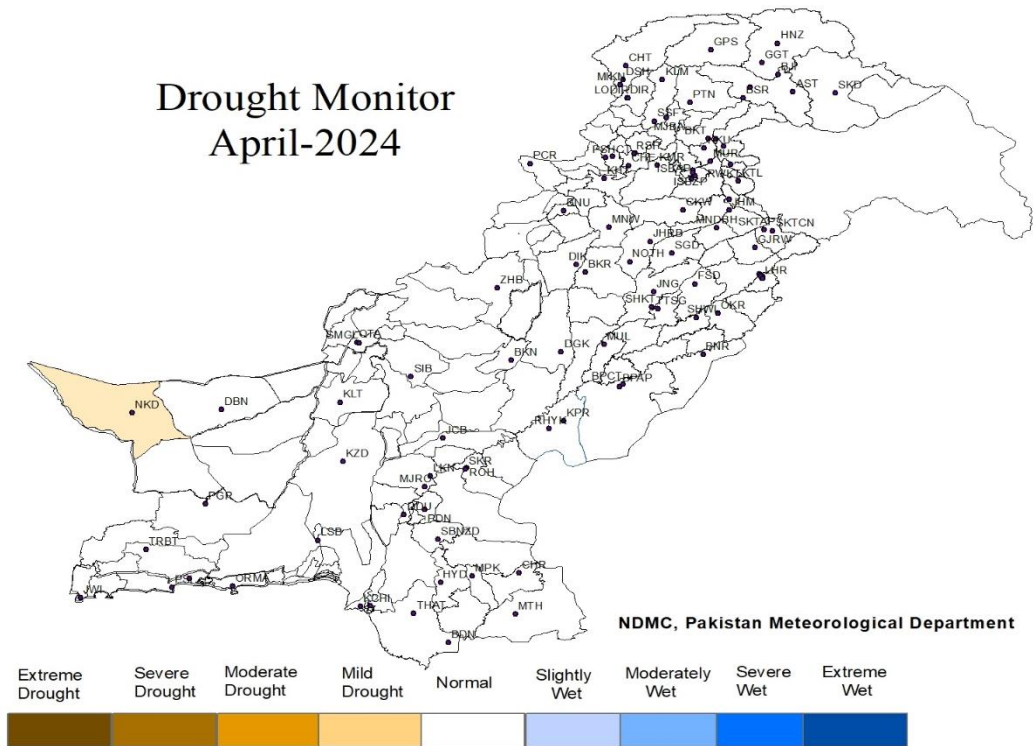
North western KP which includes Malam Jabba, Dir, Saidu Sharif and Kalam, and Rawalakot in Azad Kashmir received maximum amount of rainfall ranges from 363.8 mm to 520 mm. The detailed data about maximum rainfall is displayed in the below table.

Table 1: Chief amount of rainfall recorded across Pakistan during the month of April, 2024.

Sr. No.	Station	Rainfall(mm)	Sr. No.	Station	Rainfall(mm)
1	MALAMJABBA	520.0	11	MIRKHANI	270.0
2	DIR	461.9	12	PATTAN	261.0
3	SAIDU SHARIF	382.0	12	PESHAWAR AIRBASE	235.5
4	KALAM	379.6	14	BACHA KHAN A/P	220.8
5	RAWALAKOT	363.8	15	MUZAFFARABAD	216.5
6	LOWER DIR	346.9	16	PESHAWAR CITY	208.8
7	DROSH	300.4	17	MURREE	205.5
8	KAKUL	289.0	18	RISALPUR	191.0
9	CHITRAL	283.5	19	CHERAT	191.0
10	G.DOPATTA	280.3	20	BALAKOT	174.7

3. Drought Situation Analysis

The spatial drought monitor map based on the output results from different drought monitoring indices and Pakistan Meteorological Department ground station data across Pakistan is represented in figure 8. Mild Drought conditions may be observed in Nokkundi in Balochistan, keeping in view the weather forecast for the month of May 2024.



4. Temperature Vegetation Dryness Index (TVDI)

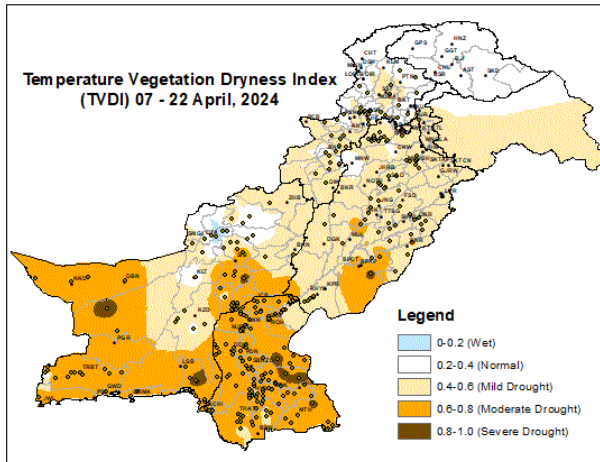


Figure 9: Temperature vegetation dryness index (TVDI)

Temperature Vegetation Dryness Index (TVDI) derived from MODIS products MOD12A2 (NDVI) and MOD11A2 (LST) is shown in Figure 9, which indicates moderate dry conditions showing the dryness and less soil moisture conditions in the Southern Balochistan, Sindh, and Cholistan in Punjab as well.

5. Normalized Difference Vegetation Index (NDVI)

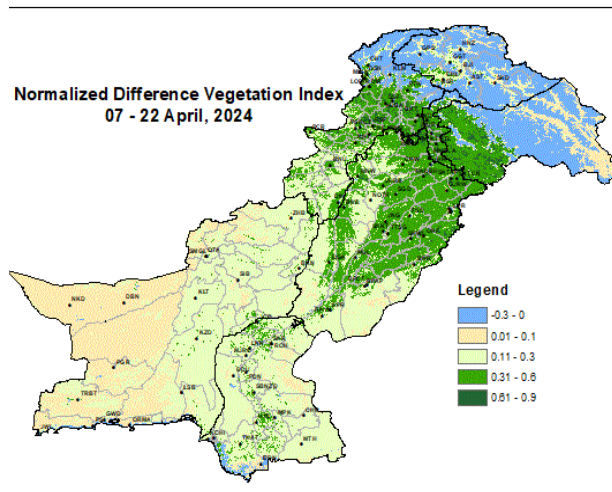


Figure 10: Normalized difference vegetation index (NDVI)

Normalized Difference Vegetation Index values for May 2024 are shown in figure 10. NDVI conditions in AJK, Punjab, Khyber Pakhtunkhwa, and along the Indus Belt are good, showing the wide spread vegetation in fields. Good vegetative conditions are observed due to good chlorophyll content stored in the plants and the vegetation cover.

6. Length of Consecutive Dry Days

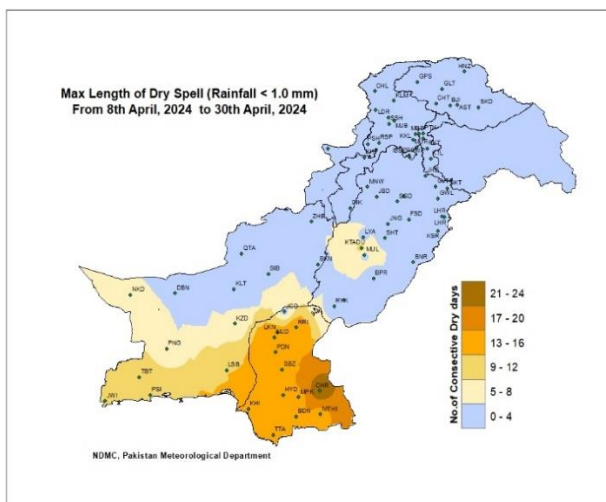


FIGURE 11: No of consecutive dry days

The maximum length of consecutive dry days spell with rainfall, 1.0 mm is shown in figure 11 below. Number of consecutive dry days has decreased to 23 days. The maximum dry days are observed in Sindh and Lesbella (Baluchistan).

7. Water Availability/ Dams Flow Data

The water inflow, outflow and levels of the Rawal, Khanpur, Tarbela and Mangla dams for the month of April 2024 are shown in the four panels of figures 12. The level at Tarbela, Mangla and Khanpur reservoirs has increased to 1458 feet, 1157 feet and 1953 feet respectively due to improved water flow as a result of above normal precipitation in their catchment areas. The maximum levels (storage capacity) of the major reservoirs (Tarbela and Mangla) are 1550 feet and 1242 feet respectively. However, no change has been observed at Rawal reservoir.

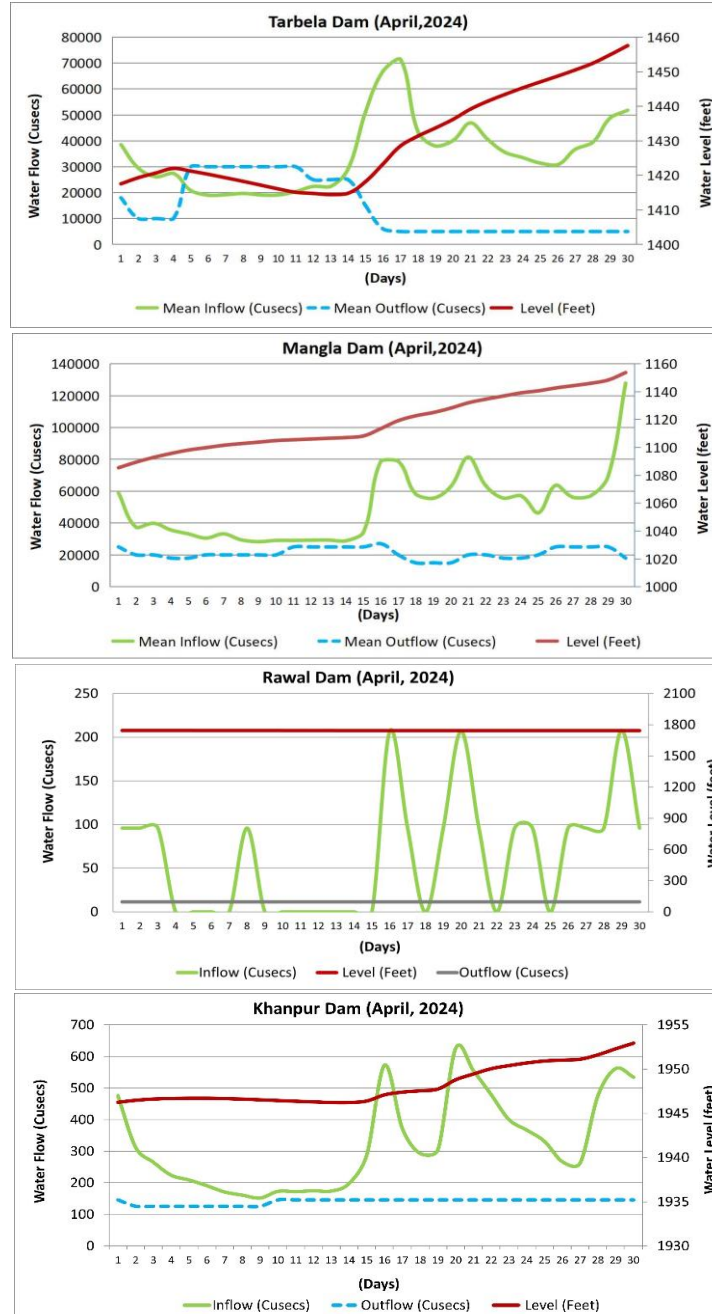


Figure 12: Water inflow, outflow and level of Rawal, Khanpur, Tarbela and Mangla Dams.

8. Weather Outlook for May 2024

A tendency for near normal rainfall is expected in most parts of the country, however, Khyber Pakhtunkhwa, northern Punjab and Kashmir may get slightly above normal rainfall during May 2024. The day time maximum temperatures are expected to remain slightly above normal over northern and southern parts of the country, however, the central parts comprising of the most parts of Punjab and southern Khyber Pakhtunkhwa may experience normal to slightly below normal maximum temperatures. Concurrently warmer than normal minimum temperatures are expected nationwide with maximum departure over northern Khyber Pakhtunkhwa, Gilgit-Baltistan and Kashmir.

9. Drought Outlook for May 2024

Keeping in view the forecast for May 2024, drought-affected areas of Sindh, Balochistan and southern Punjab may not get further relief as compared to the previous month.

All stakeholders are requested to make all efforts to save the water available across rain-fed areas of Sindh, Balochistan and Cholistan region in Punjab, especially in previously drought-affected areas and plan DRM activities accordingly.

10. Crop Condition

At present, the major agricultural soils (particularly in the upper half) hold a considerable moisture based on the recently prevailed weather conditions. Accordingly, the standing crops and vegetable/orchards have been growing with almost satisfactory pace in most parts of the country. However, isolated wind/thunder/hailstorm along with light to moderate precipitation particularly in the upper half has affected the seasonal crops, vegetables and orchard.

11. Advice for Farmers

- I. Farmers may schedule the irrigation of crops as per requirement keeping in view the weather forecast of expected rains.
- II. Removing weeds from standing crops is very important as weeds utilize moisture and food which may be utilized by the crop. As a result, considerable loss in yield occurs every year.
- III. However, operations against weeds should be started using weedicides or manually when the crop completely covers the field.
- IV. Farmers of lower half may plan the harvesting of their crops keeping in view the weather forecasts.