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# Outlook for July-August-September (Monsoon), 2025

### 1. Current meteorological conditions

Below normal rainfall was recorded across the country during the season, March to May (MAM). A few rainfall spells of moderate to high intensity were observed mostly over northern and central regions. However, during May rainfall events of light to moderate intensity were recorded at isolated places of Gilgit-Baltistan, Balochistan and Sindh. A few high intensity thunderstorm events with gusty winds and hailing were observed mostly in upper half of the country. Additionally, above-normal temperatures were recorded nationwide (Table 1).
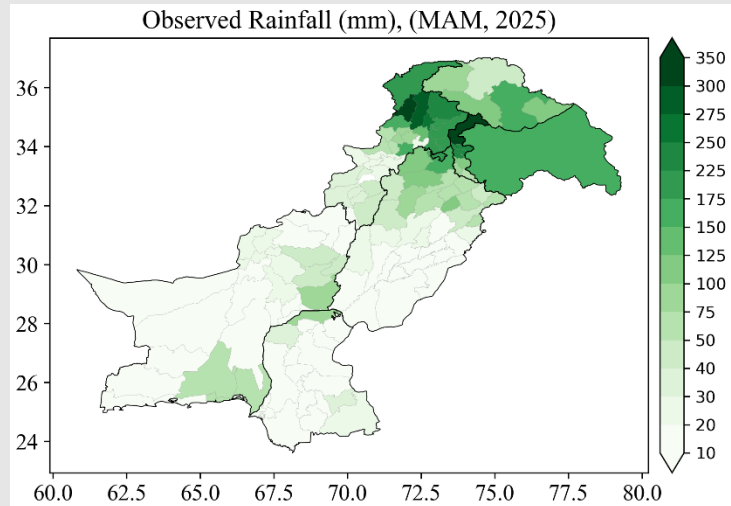


**Figure 1:** Observed rainfall (mm), MAM 2025

Table 1: MAM 2025 Rainfall and Temperature - Observed Averages and Anomalies

| Region | Total Rainfall (mm) | Normal Rainfall (mm) | Rainfall Departure (%) | Mean Temp (°C) | Anomaly (°C) |
|---|---|---|---|---|---|
| Pakistan | 65.4 | 117.2 | -42.4 | 25.1 | 1.6 |
| AJK | 242.2 | 311.9 | -22.4 | 22.8 | 1.2 |
| Balochistan | 9.6 | 44.9 | -68.6 | 26.14 | 2.03 |
| Gilgit-Baltistan | 94.1 | 101.1 | -7.0 | 15.5 | 0.6 |
| Khyber Pakhtunkhwa | 116.2 | 252.0 | -51.7 | 21.8 | 2.3 |
| Punjab | 68.8 | 117.0 | -41.3 | 26.8 | 1.4 |
| Sindh | 12.59 | 12.5 | 0.9 | 31.1 | 1.4 |

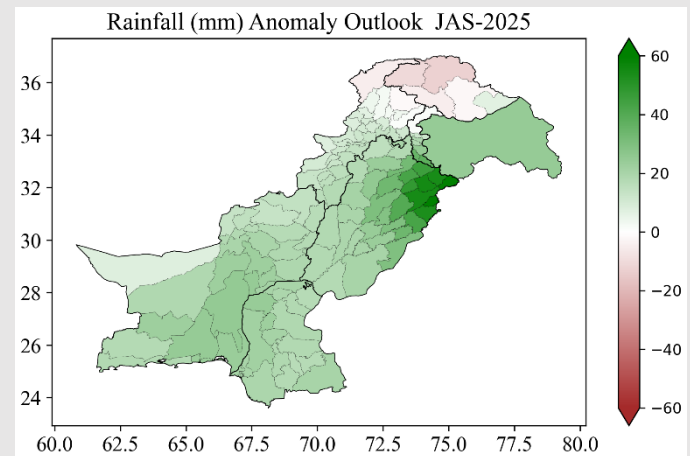### 2. Seasonal Rainfall Outlook for JAS 2025:

The monthly and seasonal outlook is based on the outputs of eight global seasonal prediction models with optimal skill. These models are combined using the Multi-Model Ensemble (MME) technique to generate operational forecasts for monthly and seasonal rainfall and temperature. Currently, the Indian Ocean Dipole (IOD) is in a neutral phase but is expected to transition to a negative phase during the season. Meanwhile, the El Niño Southern Oscillation (ENSO) is projected to remain in a neutral phase throughout the season. Given these conditions, the forecast indicates a general tendency for **normal* to slightly above- normal** rainfall across the central to

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* Normal = 30-years average climatology

southern parts of the country, with the highest departures expected in the northeastern parts of Punjab and Kashmir. In contrast, the northern regions, including northern Khyber Pakhtunkhwa and Gilgit-Baltistan, are likely to experience **normal to slightly below-normal** rainfall during the forecast period (Figure 2, 3, Table 2).
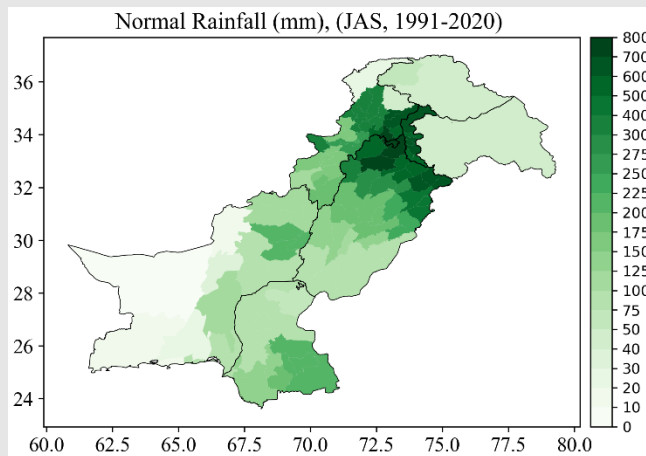


**Figure 2:** Normal (1991-2020) rainfall (mm) for JAS



**Figure 3:** Monthly rainfall (mm) anomaly for JAS 2025

The probabilistic rainfall outlook reflects a consensus among all models used in the ensembles. The tercile probability map (Figure 4) indicates that most ensemble members predict the likelihood of near normal rainfall in most parts of the country including southern Punjab, Sindh and southeastern Balochistan, while Gilgit-Baltistan and northern Khyber Pakhtunkhwa are likely to receive below-normal rainfall during the forecast season. Northern Punjab, southern Khyber Pakhtunkhwa and northern and southwestern Balochistan may get above normal rainfall during the Monsoon season.
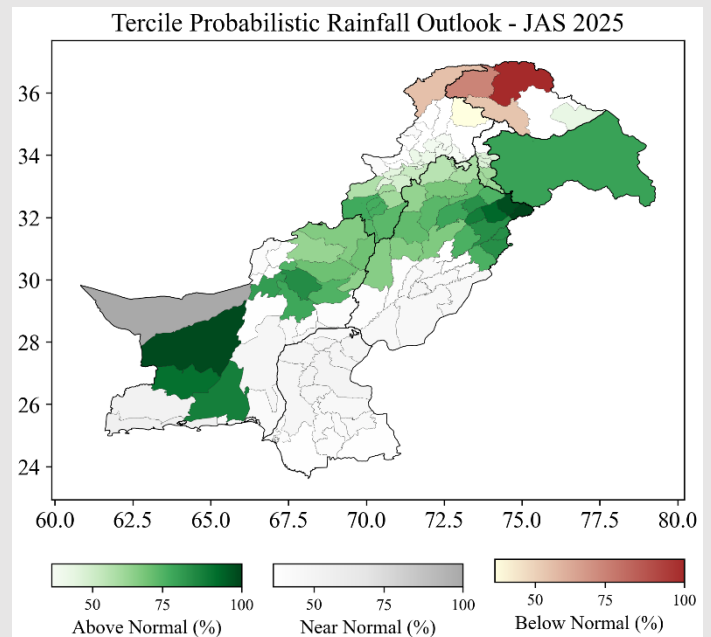


**Figure 4:** Probabilistic (%) rainfall outlook for JAS 2025

Table 2: Normal rainfall (mm) and seasonal departure (%), (JAS 2025)

| Region | Normal Rainfall (mm) | Departure (%) | Remarks |
|---|---|---|---|
| Pakistan | 155 | +13 | Slightly above normal |
| Gilgit-Baltistan (GB) | 129 | -4 | normal |
| Khyber Pakhtunkhwa (KP) | 162 | +6 | Normal |
| Azad Jammu and Kashmir | 246 | +8 | Normal |
| Punjab | 201 | +16 | Slightly above normal |
| Sindh | 111 | +18 | Slightly above normal |
| Balochistan | 95 | +19 | Slightly above normal |

### 3. Seasonal Temperature Outlook:

Mean temperatures are expected to remain **above normal\*** throughout the country, with maximum departure over Kashmir, Gilgit Baltistan and adjoining areas of Khyber Pakhtunkhwa (Figure 6, Table 3).
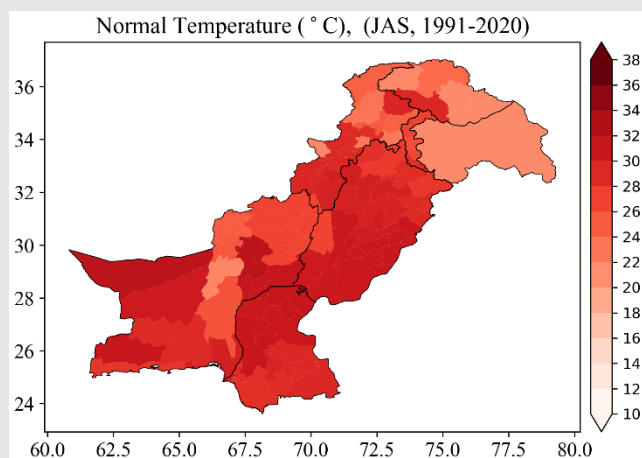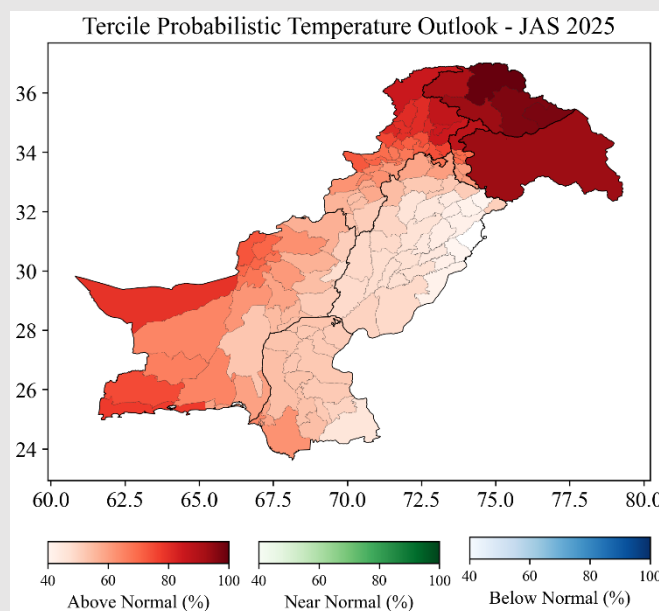


**Figure 5:** Normal (1991 - 2020) temperature for JAS
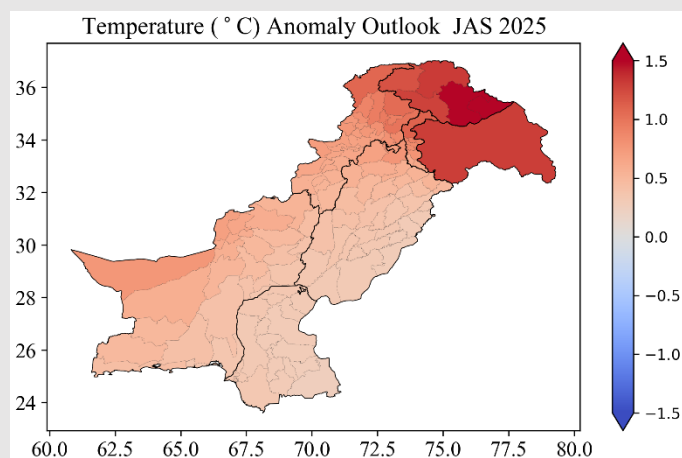


**Figure 6:** Monthly temperature anomaly outlook for JAS 2025

The tercile probabilistic temperature outlook (Figure 7) indicates that the majority of models predict above-normal temperatures across the country with maximum likelihood over northern and southwestern areas of the country.



**Figure 7:** Probabilistic (%) temperature outlook for JAS 2025

Table 3: Normal temperature and seasonal departure

| Region | Normal Temperature (℃) | Departure (℃) | Remarks |
|---|---|---|---|
| Pakistan | 25 | +0.6 | Above Normal |
| Gilgit-Baltistan (GB) | 17 | +1.4 | Above Normal |
| Khyber Pakhtunkhwa (KP) | 20 | +0.7 | Above Normal |
| Azad Jammu and Kashmir | 17 | +0.8 | Above Normal |
| Punjab | 29 | +0.4 | Normal |
| Sindh | 31 | +0.3 | Normal |
| Balochistan | 28 | +0.5 | Normal |

4. **Impacts:**

- **Flooding Risk:**
    - Normal to above-normal rainfall in North-Eastern Punjab and AJK may cause flooding (urban & flash flooding).
    - Heavy rainfall events may cause flash or urban flooding in hill torrent areas of Koh-e-Suleman and plains of major cities in Sindh, Punjab, AJK, and KP.
    - Rainfall will also replenish water reservoirs and groundwater resources.
- **Snowmelt and GLOFs:**
    - More than 1°C higher temperatures anomalies predicted over Upper Khyber Pakhtunkhwa, Gilgit-Baltistan, and Kashmir may accelerate snowmelt, resulting in increased river inflow.
    - High temperatures may also lead to Glacial Lake Outburst Floods (GLOFs) in these areas.
- **Agricultural Advisory:**
    - Major Kharif crops (Sugarcane, Rice, Cotton, Maze) are expected to have normal growth.
- **Severe Weather / Heatwaves:**
    - Although the general outlook for the rainfall is normal to slightly above normal but the possibility of an extreme rainfall even cannot be ruled out.
    - Normal heatwaves conditions are likely to exist over most parts of the county except in the Northern high mountain areas.

5. **Recommendations**:

- Given the recent increase in windstorm events, it is advisable that billboards in major urban areas be either removed or securely reinstalled with enhanced protection to withstand severe wind conditions. Similarly, proactive measures should be taken to protect solar energy structures to minimize the risk of damage during such events.

**Note**: The Seasonal Outlook is updated monthly in the first week of the month. The forecast reliability varies with location, time of year, and global ocean/atmospheric conditions. It provides general trends using probabilities rather than precise predictions and compares expected conditions to historical averages. For better decision-making, it should be used alongside short-term forecasts and other climate data.