



Outlook for December-January-February (DJF), 2024-25

1. Synoptic Situation:

During the season DJF, 2024-25 negative phase of El Niño Southern Oscillation (ENSO) is expected to persist, whereas the neutral phase of the Indian Ocean Dipole (IOD) is expected to shift towards positive phase at the end of the season. Based on the current atmospheric conditions, the climatic outlook for Pakistan is as follows:

2. Seasonal Outlook (Rainfall):

As per seasonal outlook below normal rainfall is expected in northern parts of the country i.e., Khyber Pakhtunkhwa and northern Balochistan along with upper Punjab. However, a near normal rainfall is predicted over southern Punjab, whole Sindh and adjoin areas of Balochistan.

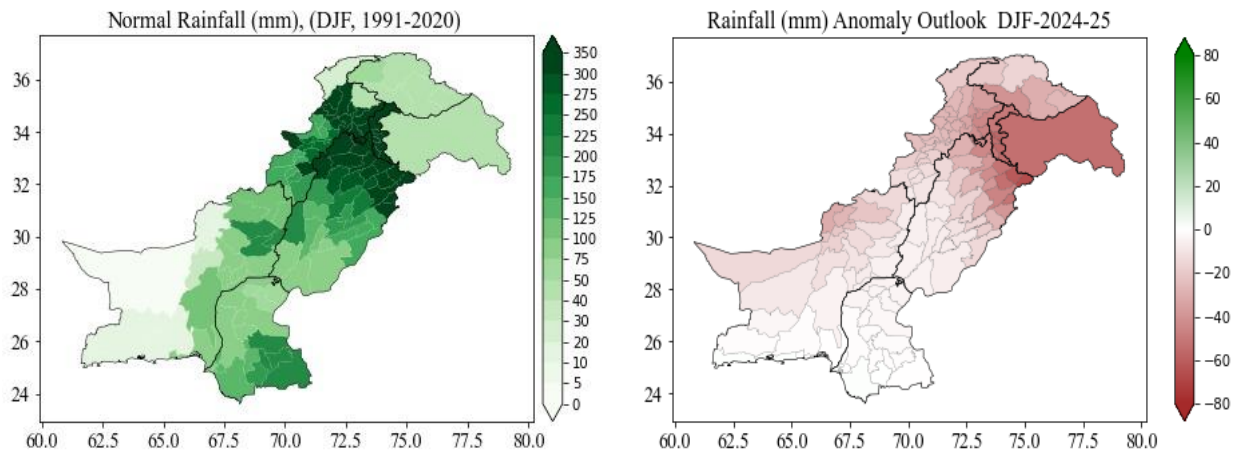


Figure 1: Normal (1991-2020) rainfall and monthly anomaly outlook for DJF 2024

3. Seasonal Temperature Outlook:

Temperatures are expected to remain **above normal*** nationwide with maximum departure over upper Khyber Pakhtunkhwa and Gilgit-Baltistan.

*Normal = 30-years (period) average climatology

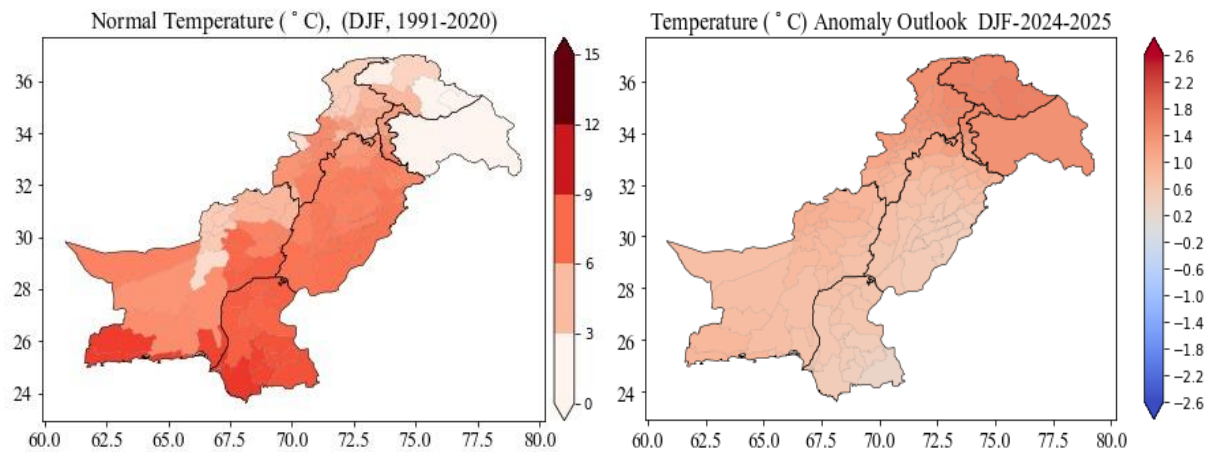


Figure 2: Normal (1991-2020) temperature and monthly anomaly outlook for DJF 2024-25

4. Impacts:

Agriculture

Soil Moisture and Crop Growth: Below-normal rainfall in KP, northern Balochistan, and upper Punjab may lead to reduced soil moisture, potentially stressing Rabi crops (e.g., wheat, barley) during their emerging and vegetative growth stages. Farmers in rain-fed regions may face challenges in maintaining adequate water supply, increasing reliance on irrigation where available. Warmer and drier conditions may increase the risk of pest infestations and crop diseases, requiring proactive monitoring and management strategies.

Health

Seasonal Illnesses and Air Quality: Cooler nights combined with above-normal daytime temperatures may lead to an increase in seasonal flu and respiratory infections. Dry conditions may contribute to poor air quality in urban areas, potentially exacerbating respiratory issues.

Transportation and Fog

Fog Formation: Fog is expected to form in central and northern Punjab, as well as in parts of KP during mornings, which may reduce visibility and disrupt road, rail, and air travel. Travelers should exercise caution and anticipate delays.

Water Resources

Reservoir Levels: Below-normal rainfall in northern areas may limit water inflows into reservoirs, reducing availability for agriculture and hydropower generation. Efficient water usage will be helpful to mitigate shortages, particularly in areas heavily reliant on rainfall.

Energy Sector

Hydropower Generation: Reduced water inflows in northern regions may impact hydropower production, necessitating increased use of alternative energy sources to meet demands.

*Normal = 30-years (period) average climatology

Disaster Management

Drought Risk: Prolonged dry conditions in northern regions may elevate the risk of short-term droughts, potentially affecting agriculture and water supply. Authorities should monitor conditions may prepare contingency plans.

Note: Considering the dynamic nature of the climate system the outlook is updated monthly during the last week of each month.

*Normal = 30-years (period) average climatology