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Outlook for January-February-March (JFM), 2025

1. Synoptic Situation:

During the season January-February-March, 2025 negative phase of climate indicator like El Niño Southern Oscillation (ENSO) is expected to persist, whereas the Indian Ocean Dipole (IOD) is transitioning from negative to natural phase and that is likely to persist during the season. Based on described atmospheric conditions, the climatic outlook for Pakistan is as follows:

2. Seasonal Outlook (Rainfall):

As per seasonal outlook **normal*** to **slightly above normal** rainfall is expected in the central and southern Khyber Pakhtunkhwa, and most parts of Punjab and adjoining parts of Kashmir, due to prevailing western weather systems. Upper Khyber Pakhtunkhwa, Hazara, Gilgit Baltistan, Sindh and Eastern Balochistan is expected to receive near normal rainfall**,** however western Balochistan is expected to receive slightly below normal rainfall during the season. The second half of the season is expected to be relatively dry, in comparison to the first half.

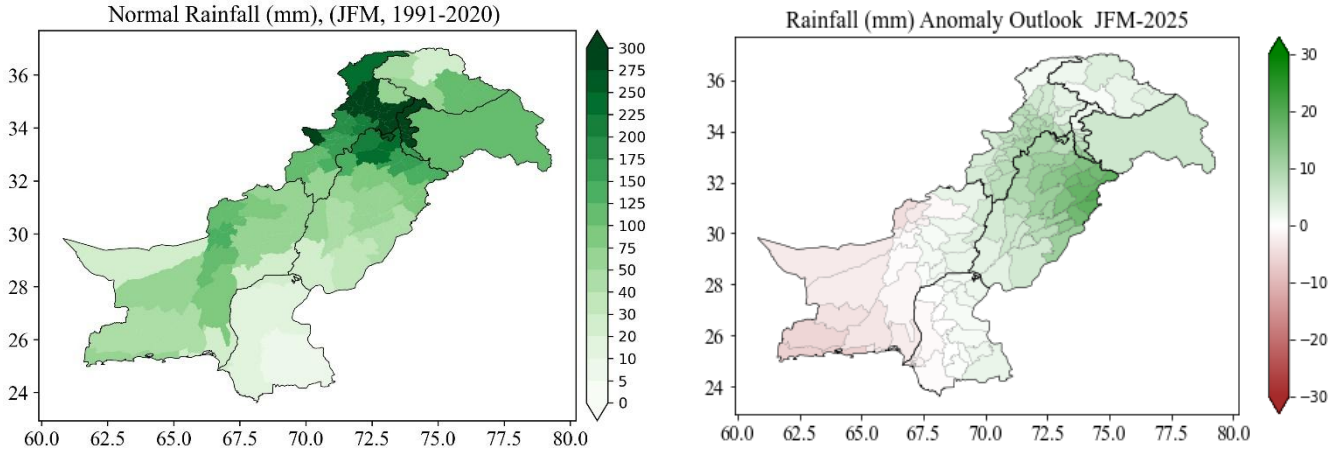

Figure 1: Normal (1991-2020) rainfall and monthly anomaly outlook for JFM 2025

3. Seasonal Temperature Outlook:

Temperatures are expected to remain **above normal*** nationwide with maximum departure over mountainous areas.

*Normal = 30-years (period) average climatology

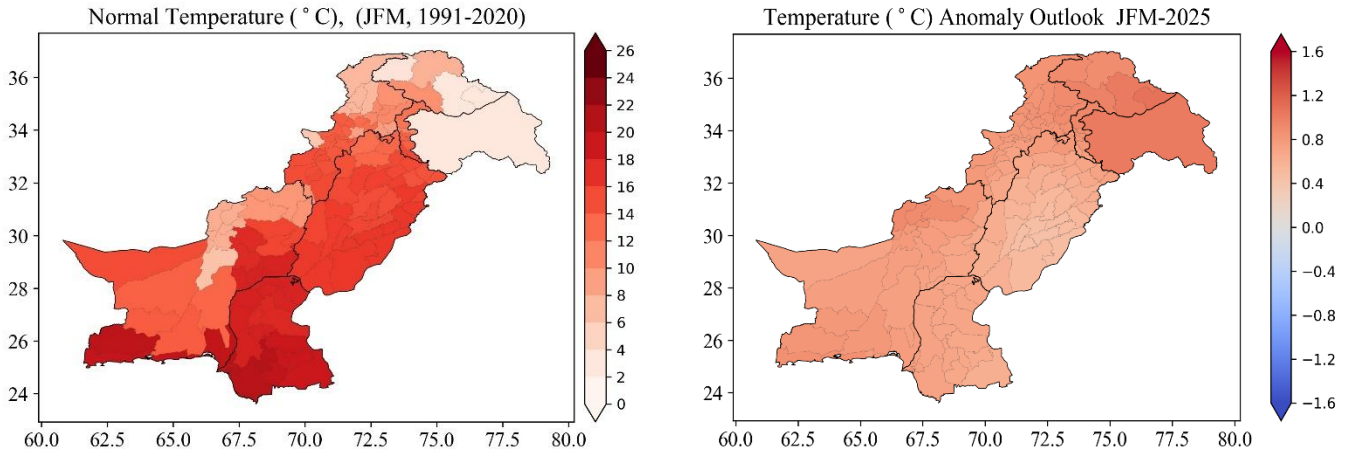

Figure 2: Normal (1991-2020) temperature and monthly anomaly outlook for JFM 2025

4. **Impacts:**

Agriculture

1. **Crop Growth and Yield:**
   - **Northern Regions:** Normal to slightly above-normal rainfall in the northern half of the country (Khyber Pakhtunkhwa, northern Balochistan, upper Punjab, and Kashmir) may support soil moisture replenishment, benefiting Rabi crops like wheat and barley.
   - **Southern Regions:** Below-normal rainfall in lower Balochistan may exacerbate water stress, potentially affecting crops like chickpeas and mustard that rely on seasonal precipitation.
2. **Crop Development Timing:**
   - Warmer-than-normal temperatures may accelerate the growth cycle of crops, potentially leading to earlier maturity. This could reduce the grain filling period, impacting overall yield quality and quantity.
3. **Soil Moisture:**
   - Adequate rainfall in the first half of the season in the northern regions could improve soil moisture, but the expected drier conditions in the second half may challenge late-stage growth. Farmers may need supplemental irrigation during critical crop stages in March.
4. **Frost Risk:**
   - Above-normal temperatures across the country will significantly reduce frost events. This will protect vulnerable crops from cold stress, particularly in frost-prone areas of the north.

Water Resources

1. **Reservoir Levels:**
   - Normal to slightly above-normal rainfall in the northern regions during the early part of the season may help replenish reservoirs and maintain adequate water supplies. However, reduced rainfall in the second half of the season may limit further improvements.
   - Below-normal rainfall in southern Balochistan could strain local water resources, affecting irrigation and domestic water availability.
2. **Irrigation Water Supply:**
   - Water availability for irrigation may be sufficient in the north, but close monitoring of reservoir levels will be critical to ensure adequate supply for the second half of the season.

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*Normal = 30-years (period) average climatology

Transportation and Infrastructure

1. **Land sliding and heavy snow Risk:**

    - Slightly above-normal rainfall in the northern regions during the early season may lead to heavy snowfall and land sliding in mountainous regions (Kashmir, Gilgit-Baltistan, and northern KP) will contribute to snowpack, which is crucial for transportation and tourist.

2. **Fog Formation:**
    - During the gaps between intermittent rainfall spells thick foggy condition are expected to develop in plain areas of the country. However, the fog intensity will reduce towards the end of the season.

Health and Environment

1. **Pollen Alert:**
    - Warmer temperatures and below normal rainfall during second half of the season may cause early onset of pollen season in Islamabad and Rawalpindi.
2. **Heat Stress:**
    - Above-normal temperatures could lead to early onset of heat stress in vulnerable populations, particularly in southern regions during March.

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