Government of Pakistan
Ministry of Aviation (Aviation Division)
Pakistan Meteorological Department
Sector: H-8/2, Islamabad.

Tel:051-9250364
Fax:051-9250368

Date: 31st December 2024

Outlook for January 2025

1. Synoptic Situation:

The negative phase of climate indicator like El Niño Southern Oscillation (ENSO) is expected to persist, whereas, Indian Ocean Dipole (IOD) is returning to neutral from negative phase and this transition impacts the regional circulation patterns for the forecast moment as follows:

2. Monthly Rainfall Outlook:

Overall near-**normal*** rainfall is expected allover the country. A tendency for slightly above normal rainfall is expected in central Khyber Pakhtunkhwa along with North and East Punjab during January 2025. However, the southern parts of the country, are expected to receive near normal rainfall.

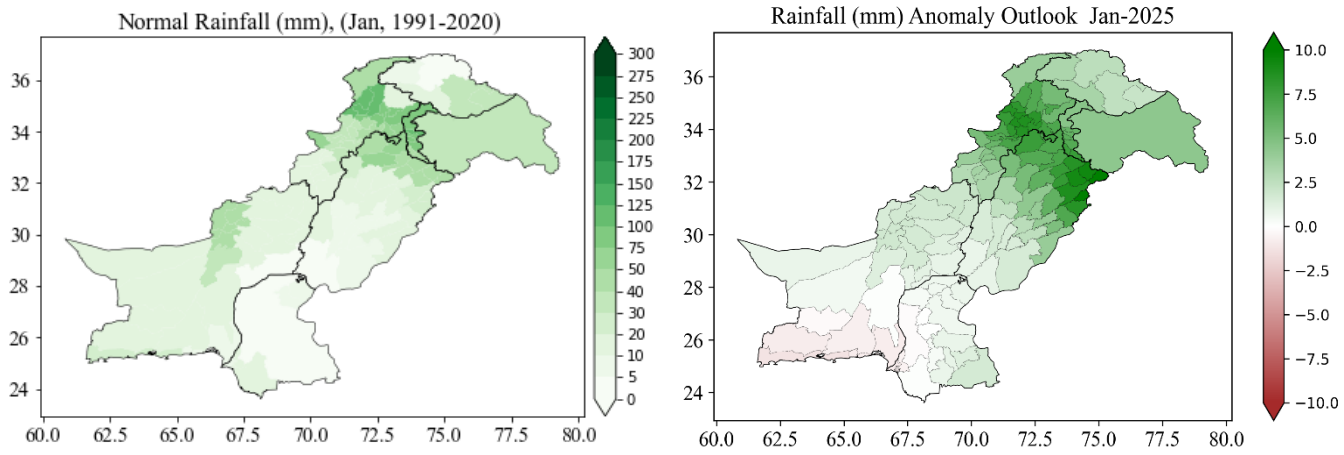

Figure 1 Normal (1991-2020) rainfall and monthly anomaly outlook for January 2025.

3. Monthly Temperature Outlook:

Mean temperatures are expected to remain **above normal*** nationwide, with maximum departure over Kashmir and adjoining areas of Gilgit Baltistan, Khyber Pakhtunkhwa.

*Normal = 30-years (period) average climatology

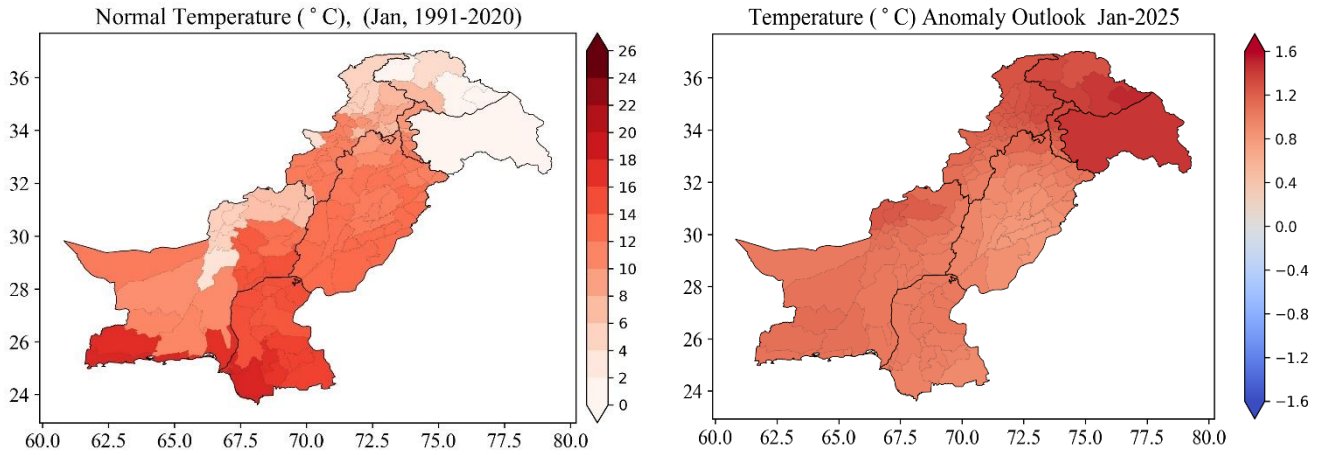

Figure 2: Normal (1991-2020) temperature and monthly anomaly outlook for January 2025.

4. Impacts:

Agriculture

- **Crop Emergence and Growth:**
  - Normal to above normal rainfall in most parts of the country may support Rabi crops growth, especially in rain-fed zones. However, near normal to slightly below normal rainfall with above normal day time temperature in southern parts (Sindh, Balochistan, and southern Punjab) may not significantly improve soil moisture levels and soil moisture stress is expected in these areas, which may affect crop growth during the period.
  - In addition, above-normal temperatures could accelerate crop development, potentially leading to early maturation especially in lower parts. This might reduce grain filling stages for early sowing areas of wheat and barley that may have negative impact on yields.
- **Soil Moisture:**
  - Slightly above-normal rainfall in upper parts could alleviate soil moisture deficits, improving conditions for crop establishment and growth.
  - Near normal to below normal rainfall in southern parts may produce soil moisture stress in areas with already existing water stress.
- **Frost Risk:**
  - Higher-than-normal temperatures will reduce the risk of frost, which could be beneficial for present vegetative stages for Rabi crops.

Transportation

- **Fog Formation:**
  - Warmer-than-normal temperatures may reduce fog intensity; however, radiative cooling on clear nights could still lead to fog in the plains of Punjab, KP, and adjacent areas.
  - Reduced fog frequency and duration could benefit road and air transportation, though periods of low visibility in the mornings may still disrupt traffic.

Water Resources

- **Reservoir Levels:**

*Normal = 30-years (period) average climatology

- Above-normal rainfall in upper areas may help replenish reservoirs, improving water availability for irrigation and domestic use.
- Near-normal rainfall in the south may not contribute significantly to reservoir inflows, necessitating close monitoring of water levels.

- **Irrigation Water Supply:**

  - Improved rainfall in the upper parts of the country is likely to enhance water availability for agriculture, reducing the reliance on stored water sources.

Energy Sector

- **Hydropower Generation:**

  - Slightly above-normal rainfall in northern areas could enhance reservoir inflows, supporting hydropower generation.
  - However, elevated temperatures may increase electricity demand, straining energy resources, particularly in regions dependent on hydropower.

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