# Decadal Agromet Bulletin of Pakistan

## Highlights….

- Dry weather reported from all agricultural plains of the country during the last decade.
- Lowest Minimum temperature recorded as -9.8°C at Skardu during the last decade.
- Mostly cloudy weather is expected in most of the agricultural plains of the country except Sindh & Lower Balochistan; however light to moderate rain (with snowfall over the mountains) is expected in upper Punjab, upper KP, north western Balochistan, G.B & Kashmir from 2nd to 7th of the decade.
- Farmers obtaining crop water through tube wells are advised to schedule the irrigation as per crop requirement.
- Wheat cultivation has completed in most of the irrigated areas. Farmers of irrigated areas should irrigate the crop as per requirement in accordance with the prevailing weather conditions. Normally first irrigation is given 20-25 days after sowing.
- Farmers are advised to cultivate winter vegetables in time.
- In areas like Potohar Region and adjoining areas of Khyber Pakhtunkhwa where rain water storages are available farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.
- Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.

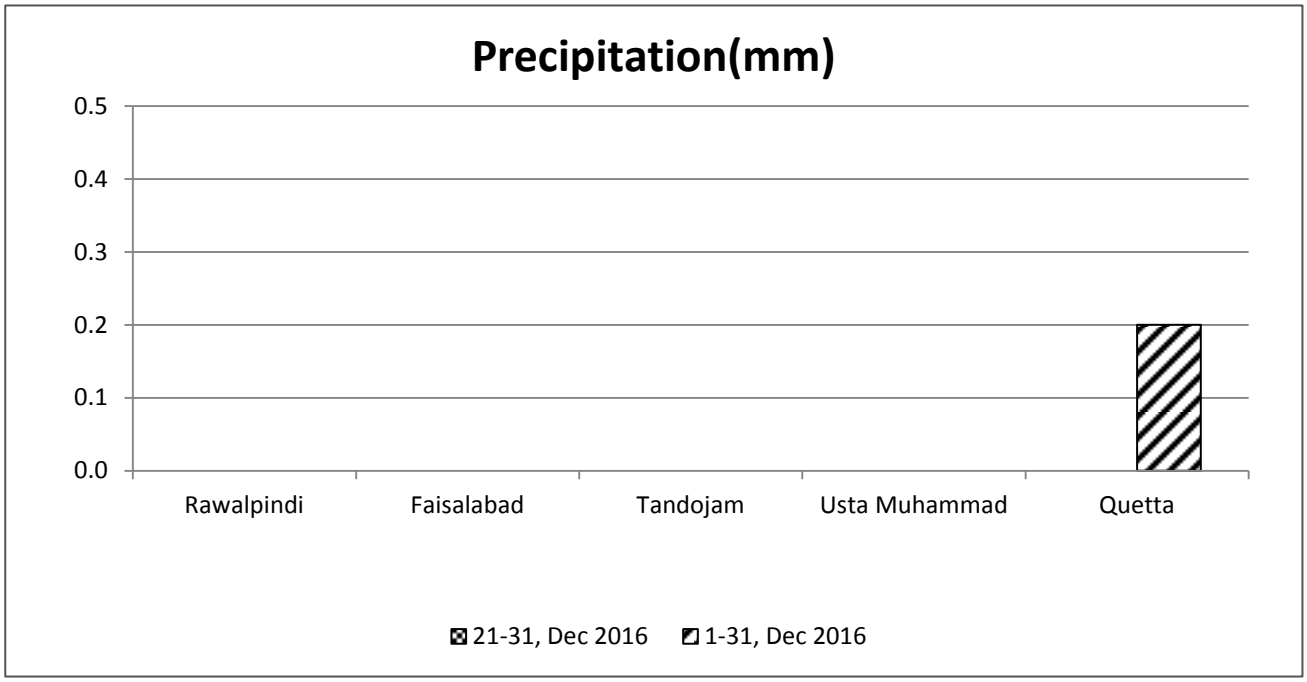
**NATIONAL AGROMET CENTRE (NAMC)**
**PAKISTAN METEOROLOGICAL DEPARTMENT**
**SECTOR H-8/2, ISLAMABAD**
Patron-in-Chief: *Dr. Ghulam Rasul, Director General*
Editor-in-Chief: *Dr. Azmat Hayat Khan, Director*
Editor: *Asma Jawad Hashmi, Deputy Director*
Phone: +92-51-9250592 Email: info@namc.pmd.gov.pk

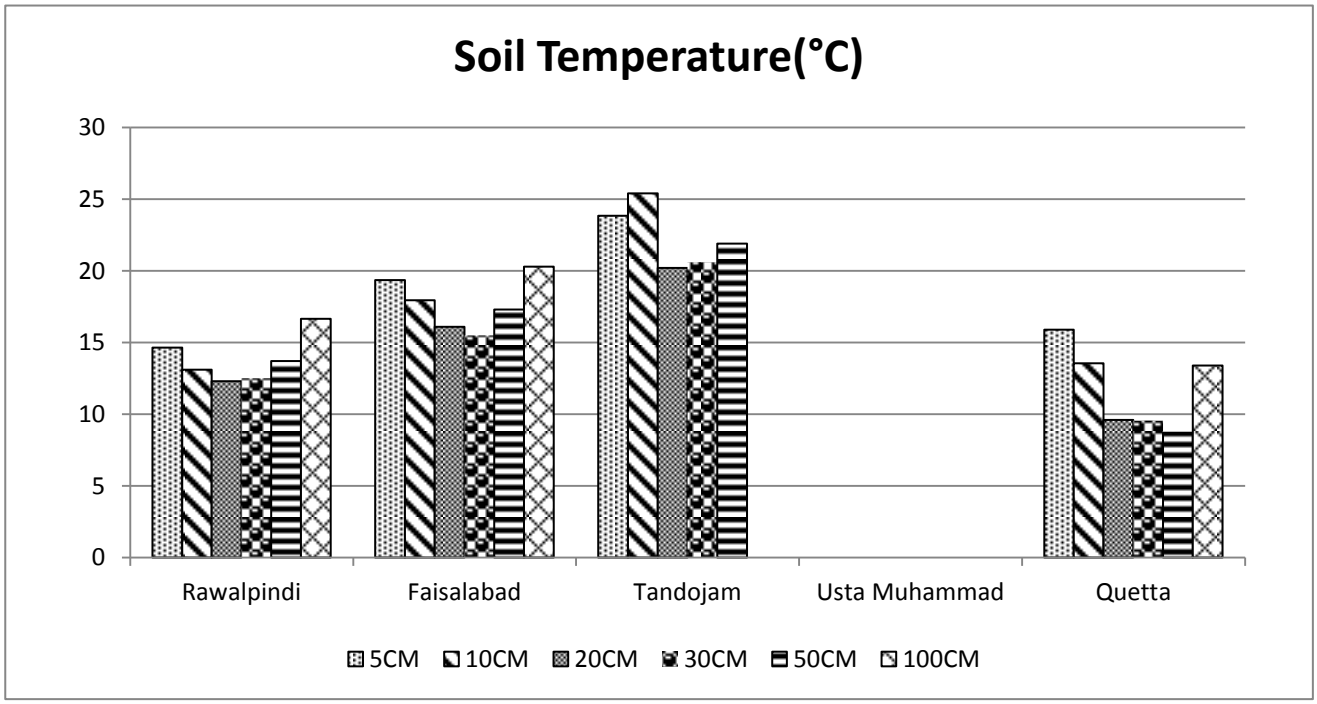
## Meteorological Conditions during 3rd decade of December, 2016

| Sr. No. | Station | Precipitation (mm) | | | Air Temperature (°C) | | | Soil Temperatures (°C) | | | | | | R.H (%) | Sunshine Duration(hours) | Wind Speed (km/hr) | ETo (mm/day) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Normal | Actual | Dep | Tmax Dep | Tmin Dep | Mean | 5cm | 10cm | 20cm | 30cm | 50cm | 100cm | | | | |
| 1 | Rawalpindi | 0.5 | 0.0 | -0.5 | 13.7 | 0.6 | 18.4 | 14.7 | 13.1 | 12.3 | 12.5 | 13.7 | 16.7 | 60 | 74.1 | 2.1 | 1.8 |
| 2 | Faisalabad | 0.2 | 0.0 | -0.2 | 3.3 | 2.1 | 15.4 | 19.4 | 18.0 | 16.1 | 15.5 | 17.3 | 20.3 | 63 | 61.5 | 1.6 | 1.3 |
| 3 | Jhelum | 0.4 | 0.0 | -0.4 | 1.9 | -0.7 | 13.9 | 13.9 | 13.1 | 12.9 | 13.6 | 15.5 | *** | 59 | 75.2 | 0.3 | 0.9 |
| 4 | Lahore | 0.3 | 0.0 | -0.3 | 2.6 | 0.4 | 15.6 | 16.5 | 16.3 | 15.7 | 16.0 | *** | 19.9 | 70 | 62.8 | 1.0 | 1.2 |
| 5 | Sargodha | 0.4 | 0.0 | -0.4 | 1.7 | 2.5 | 15.4 | 18.0 | 17.0 | 16.7 | 17.6 | *** | 20.7 | 71 | 64.9 | 1.9 | 1.3 |
| 6 | Multan | 0.1 | 0.0 | -0.1 | 2.4 | 3.4 | 16.5 | *** | *** | *** | *** | *** | *** | 63 | 65.3 | 0.9 | 1.3 |
| 7 | Khanpur | 0.1 | 0.0 | -0.1 | 3.9 | 1.6 | 17.0 | *** | 17.8 | 18.2 | 18.7 | 19.9 | 22.2 | 60 | 68.7 | 2.6 | 1.9 |
| 8 | Tandojam | 0.4 | 0.0 | -0.4 | 4.4 | 0.5 | 19.2 | 23.9 | 25.4 | 20.2 | 20.6 | 21.9 | *** | 55 | 83.1 | 1.9 | 2.2 |
| 9 | Sakrand ☆ | 0.0 | 0.0 | 0.0 | 4.4 | 4.1 | 19.1 | 27.8 | *** | *** | *** | *** | 26.0 | 59 | 100.1 | 3.3 | 2.5 |
| 11 | Rohri | 0.0 | 0.0 | 0.0 | 5.4 | 0.0 | 18.9 | *** | *** | *** | *** | *** | *** | 52 | 95.8 | 2.1 | 2.1 |
| 12 | D.I Khan | 0.4 | 0.0 | -0.4 | 2.5 | 0.3 | 15.1 | *** | *** | *** | *** | *** | *** | 64 | 69.4 | 5.8 | 2.4 |
| 13 | Peshawar | 0.6 | 0.0 | -0.6 | 2.4 | -1.6 | 12.7 | 14.9 | 12.5 | 11.6 | *** | *** | *** | 66 | 51.4 | 1.0 | 1.0 |
| 14 | Usta .M | 0.0 | 0.0 | 0.0 | 4.3 | 0.7 | 17.4 | *** | *** | *** | *** | *** | *** | 60 | *** | 1.6 | 1.7 |
| 15 | Quetta | 0.4 | 0.0 | -0.4 | 5.4 | 3.8 | 10.0 | 15.9 | 13.6 | 9.6 | 9.6 | 8.7 | 13.4 | 31 | 96.5 | 4.5 | 2.1 |
| 16 | Skardu | 0.5 | 0.0 | -0.5 | 3.1 | -1.5 | 0.4 | *** | *** | *** | *** | *** | *** | 63 | 54.7 | 0.3 | 0.6 |
| 17 | Gilgit | 0.4 | 0.0 | -0.4 | 2.6 | -1.7 | 4.8 | *** | *** | *** | *** | *** | *** | 50 | 41.1 | 2.2 | 1.0 |

**Table-1:** Meteorological parameters for selected station of Pakistan. **"Dep"** in the table stands for difference from climatic normal, i.e. actual value minus normal. And **"% Dep "**is calculated by the formula; **Dep** *divided by* **Normal** *multiplied by* **100**. Tmin & Tmax stands for minimum and maximum temperatures respectively. **ETo** stands for reference crop evapotranspiration. ******* stands for no data and (☆) indicates the station with five year's climatic (normal) data for computing departures.

# Graph at RAMCs during December, 2016



## 1. Past Weather (21st to 31st December, 2016)

Dry weather reported from the agricultural plains of the country during the last decade.

### 1.1 Punjab

Dry weather reported from all agricultural plains of Punjab. Decadal maximum & minimum both raised above normal 4.2°C & 1.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 67.5hrs, 1.5km/hr and 1.4mm/day respectively.

### 1.2 Sindh

Dry weather reported from all agricultural plains of Sindh. Decadal maximum & minimum both raised above normal 4.7°C & 1.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 93.0hrs, 2.4km/hr and 2.3mm/day respectively.

### 1.3 Khyber Pakhtunkhwa (KP)

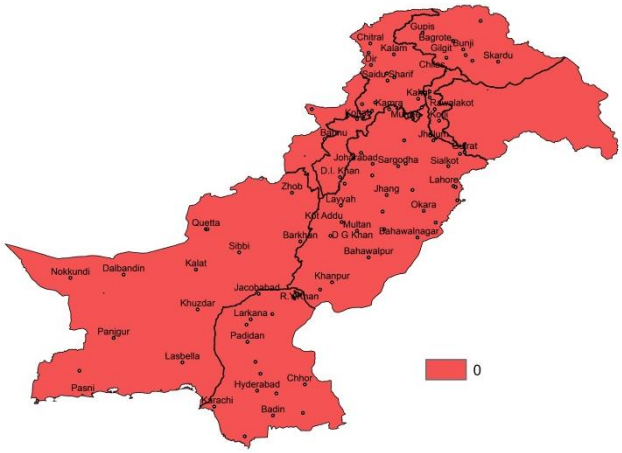
Dry weather reported from all agricultural plains of KP. Decadal maximum raised above normal 2.5°C & minimum dropped below normal by1.1°C, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 60.4hrs, 3.4km/hr and 1.7mm/day respectively.

### 1.4 Balochistan

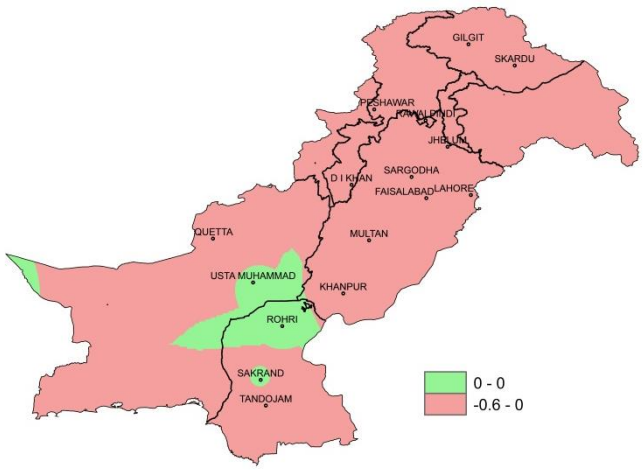
Dry weather reported from all agricultural plains of KP. Decadal maximum & minimum both raised above normal 4.9°C & 2.3°C respectively, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 96.5hrs, 3.1km/hr and 1.9mm/day respectively.

### 1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

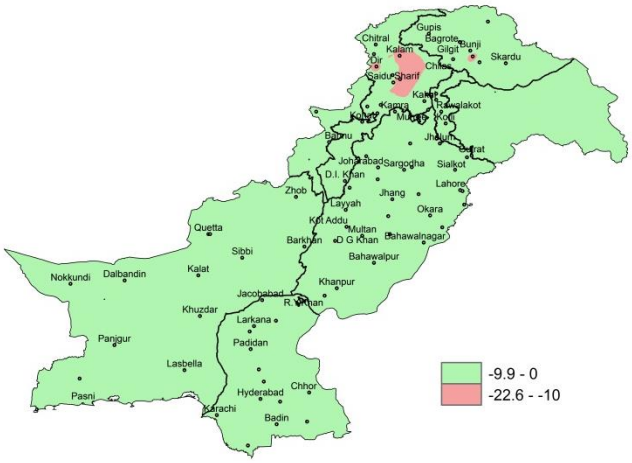
Dry weather reported from all agricultural plains of GB & Kashmir. Decadal maximum raised above normal by 3.0°C & minimum dropped below normal by 1.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 47.9hrs, 1.3km/hr and 0.8mm/day respectively.




**I. Actual rainfall**




**II. Departure of rainfall from Normal**




**III. Departure of rainfall from Previous Decade**

***Figure.1: Rainfall distribution during previous decade (mm)***

## 2(a) Past Weather for Major Agricultural Plains (21st to 31st December, 2016)

### 2.1 RAMC, Rawalpindi (Potohar region)

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 60%. Mean day temperature was 22.9°C while night temperature recorded as 3.9°C with 74.1hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *south easterly.*

### 2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 63%. Mean day temperature was 23.8°C while night temperature recorded as 7.0°C with 61.5hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *westerly.*
***Wheat:*** *Very Good condition, Tillering completed.*

### 2.3 RAMC, Tandojam (Lower Sindh)

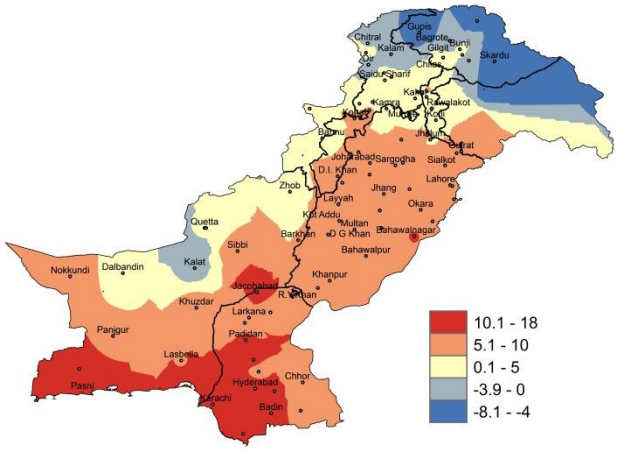
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 55%. Mean day temperature was 28.7°C while night temperature recorded as 9.6°C with 83.1hours bright sunshine duration. Wind speed recorded as 1.9km/h with mean wind direction *westerly.*
***Wheat (Imdad):*** *Good condition, Shooting stage.*

### 2.4 RAMC, Usta Muhammad (Eastern Balochistan)

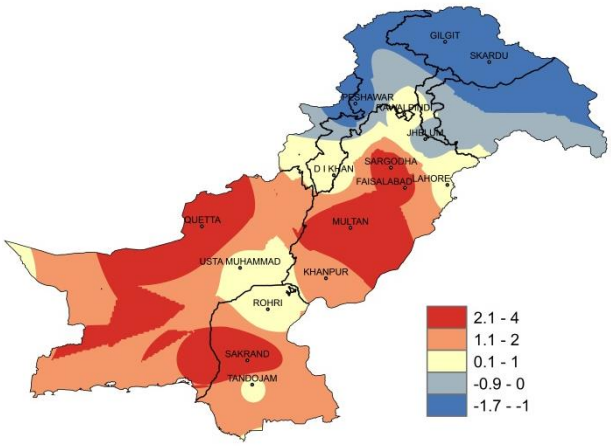
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 60%. Mean day temperature was 26.2°C while night temperature recorded as 8.6°C. Wind speed recorded as 1.6km/h with mean wind direction *north easterly.*
***Wheat:*** *Very Good condition, Tillering stage.*

### 2.5 RAMC, Quetta (Northern Balochistan)

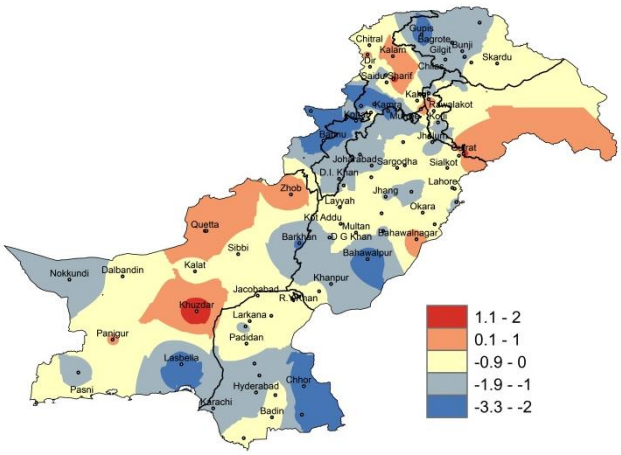
Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 31%. Mean day temperature was 18.2°C while night temperature recorded as 1.7°C with 96.5hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *westerly.*
***Wheat (Local White):*** *Very Good condition, Tillering stage*




**I. Actual min-temp**




**II. Departure of min-temp from Normal**




**III. Departure of min-temp from Previous Decade**

***Figure.2: Minimum Temperature distribution during previous decade (°C)***

## 2(b) Past Weather for Sub-Regional Agricultural Plains (21st to 31st December, 2016)

### 2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 59%. Mean day temperature was 22.9°C while night temperature recorded as 4.9°C with 75.2hours bright sunshine duration. Wind speed recorded as 0.3km/hr with mean wind direction *easterly.*

### 2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 70%. Mean day temperature was 22.3°C while night temperature recorded as 8.8°C with 62.8hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *north easterly*.

### 2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 71%. Mean day temperature was 22.4°C while night temperature recorded as 8.4°C with 64.9hours bright sunshine duration. Wind speed recorded 1.85km/hr with mean wind direction *variable.*

### 2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 63%. Mean day temperature was 23.8°C while night temperature recorded as 9.1°C with 65.3hours bright sunshine duration. Wind speed recorded 0.9km/hr with mean wind direction *north easterly.*

### 2.10 Khanpur

Dry weather reported during the decade however weather remained cloudy for 02days. Average relative humidity recorded as 60%. Mean day temperature was 26.0°C while night temperature recorded as 7.9°C with 68.7hours bright sunshine duration. Wind speed recorded 2.6km/hr with mean wind direction *south westerly.*

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 59%. Mean day temperature was 26.8°C while night temperature recorded as 11.3°C with 100.1hours bright sunshine duration. Wind speed recorded 3.33km/hr with wind direction *northrly.*

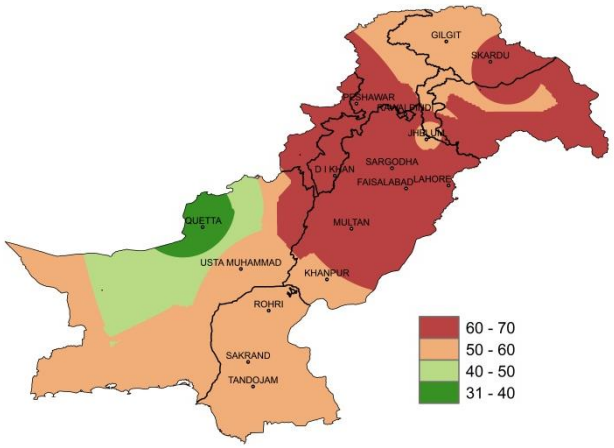



***Figure.3: Relative Humidity in Percentage (%)***

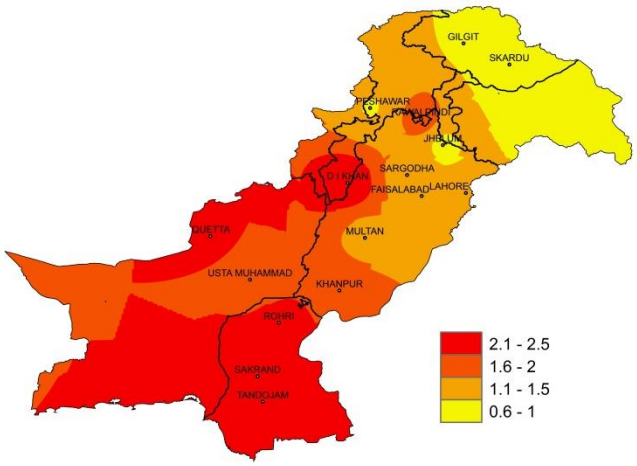



***Figure.4: Reference Crop Evapotranspiration "ETo" in mm/day***

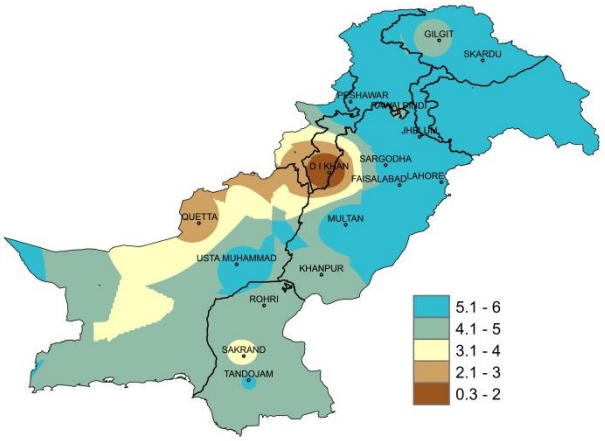



***Figure 5: Wind Speed in kilometer per hour (km/h)***

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 52%. Mean day temperature was 28.3°C while night temperature recorded as 9.4°C with 95.8hours bright sunshine duration. Wind speed recorded 2.1km/hr with wind direction *north easterly*.

**2.13 D.I. Khan**

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 64%. Mean day temperature was 23.8°C while night temperature recorded as 6.4°C with 69.4hours bright sunshine duration. Wind speed recorded 5.8km/hr with wind direction *north easterly*.

**2.14 Peshawar**

Dry weather during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 66%. Mean day temperature was 21.9°C while night temperature recorded as 3.4°C with 51.4hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *north westerly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 63%. Mean day temperature was 8.8°C while night temperature recorded as -8.0°C with 54.7hours bright sunshine duration. Wind speed recorded as 0.3km/hr with mean wind direction *north easterly*.

**2.16 Gilgit**

Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 50%. Mean day temperature was 13.9°C while night temperature recorded as -4.3°C with 41.1hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *south westerly*.

## 3 Ten Days Weather Advisory for Farmers (2nd to 10th January, 2017)

### 3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) in most of the agricultural plains of the country during the decade.

### 3.2 Wind Forecast

Normal wind pattern may prevail in most of the agricultural plains of the country during the decade.

### 3.3 Rain Forecast

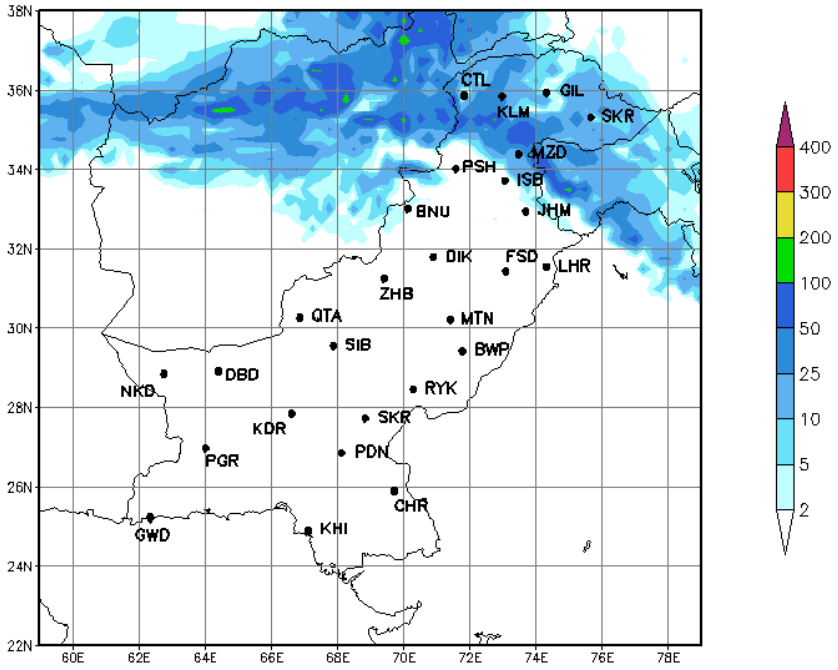
- **Punjab**: Cold and cloudy weather is expected in most parts of the province. However light to moderate rainfall is expected in Rawalpindi, Gujranwala, Faisalabad divisions from 2nd to 7th of the decade.
- **Khyber Pakhtunkhwa**: Mainly cold and dry weather is expected during the decade however light to moderate rainfall is expected at scattered places in KP including Peshawar, Mardan, Malakand & Hazara divisions from 2nd to 7th of the decade.
- **Sindh:** Dry weather is expected in most parts of the province.
- **Balochistan:** Mainly cold and dry weather is expected in most parts of the province however light rainfall is expected at scattered places of Zhob region from 5th to 7th of the decade.
- **Gilgit Baltistan:** Mainly cold and dry but cloudy weather is expected in most parts of G.B however light to moderate rain with snowfall is expected at scattered places during the current decade.
- **Kashmir: :** Mainly cold and dry but cloudy weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzzaffarabad and Rawalakot regions during the current decade.

### 3.4 Advisory for Farmers

- Light to moderate rain (with snowfall over the mountains) is expected in upper Punjab, upper KP, north western Balochistan, G.B & Kashmir from 2nd to 7th of the decade. Accordingly, farmers obtaining crop water through tube wells are advised to schedule the irrigation as per crop requirement.
- Farmers of irrigated areas should irrigate the crop as per requirement in accordance with the prevailing weather conditions. Normally first irrigation is given 20-25 days after sowing.
- In areas like Potohar Region and adjoining areas of Khyber Pakhtunkhwa where rain water storages are available farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.
- Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.
- Due to further drop of temperature farmers of particular areas in the northern half of the country are advised to take precautionary measures for protection of their crops from the expected frost.

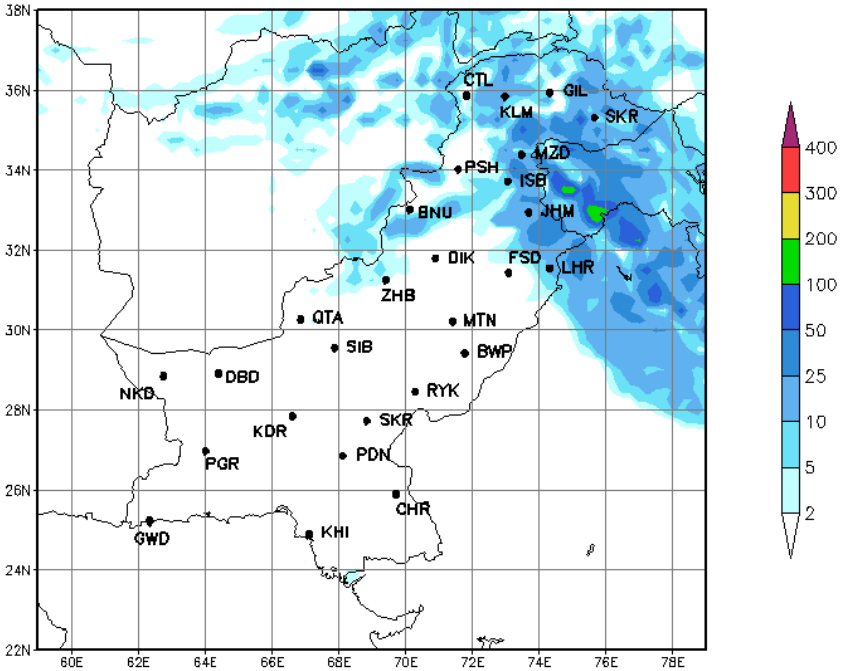
### 4.1 Precipitation Forecast (2nd to 4th January, 2017)

The forecast for the next three days (2nd to 4th) of the first decade of January 2017 shows that light to moderate rainfall (with snowfalls over mountainous regions) is expected in isolated places of Upper Punjab, Upper KP, GB & Kashmir however dry weather is expected in rest part of the country.




### 4.2 Precipitation Outlook (5th to 10th January, 2017)

The outlook for the last six days (5th to 10th) of the first decade of January 2017 shows that light to moderate rainfall is expected in Upper Punjab, Upper KP, North-Western Balochistan, G.B & Kashmir, while dry weather may prevail in rest of the country.



# Findings of AgMIP Paksitan, University of Agriculture, Faisalabad

- There would be significant increase in temperature i.e., 2.8°C in day and 2.2°C in the night during mid-century (2040-2069)
- There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069)
- Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat)
- If there will be no adaptation to Climate Change, majority of farmers would be the economic losers
- With Adaptation to Climate Change (through technology and management), there would be significant decrease in poverty and improvement in the livelihood of farming community.

*(Agricultural Model Inter-comparison and Improvement Project (AgMIP) Pakistan 2012-2014)*

1۔ سال 2040-69 کے دوران درجہ حرارت میں قابل ذکر اضافہ ہوسکتا ہے۔ جو کہ دن کے وقت 2.8°c اور رات کو 2.2°c تک ہوگا۔

2۔ گرمیوں کی بارش میں 25 فیصد اضافہ اور سردیوں کی بارش میں 12 فیصد تک کمی کا امکان ہے۔

3۔ مندرجہ بالا موسمی تغیرات کی وجہ سے دھان کی پیداوار میں 17 فیصد اور گندم کی پیداوار میں 14 فیصد تک کمی ہوسکتی ہے۔

4۔ اگر موسمی تغیرات کا مناسب بندوبست نہ کیا گیا۔ تو کسانوں کی اکثریت کو معاشی نقصان کا سامنا کرنا پڑے گا۔

5۔ موسمی تغیرات کے سدِّ باب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم ونسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)