

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Light to moderate rainfall reported from most parts of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 121.2mm at Chitral during the last decade
- ❖ Lowest Minimum temperature recorded as -12.2°C at Skardu during the last decade.
- ❖ Mostly cold and cloudy weather is expected throughout the country; however light to moderate rain (with snowfall over the mountains) is expected at most parts of the country from 13<sup>th</sup> to 19<sup>th</sup> of the decade.
- ❖ Wheat crop is at tillering/shooting/milk maturity stages in different agriculture plains. Farmers are advised to schedule their irrigation plans by keeping in view the expected rain in the particular areas of the country
- ❖ Farmers in the lower half of the country especially those in central regions are advised to take up poultry rearing houses to maintain optimum room temperature and take care against the rapid changes in air temperature and relative humidity.
- ❖ 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*

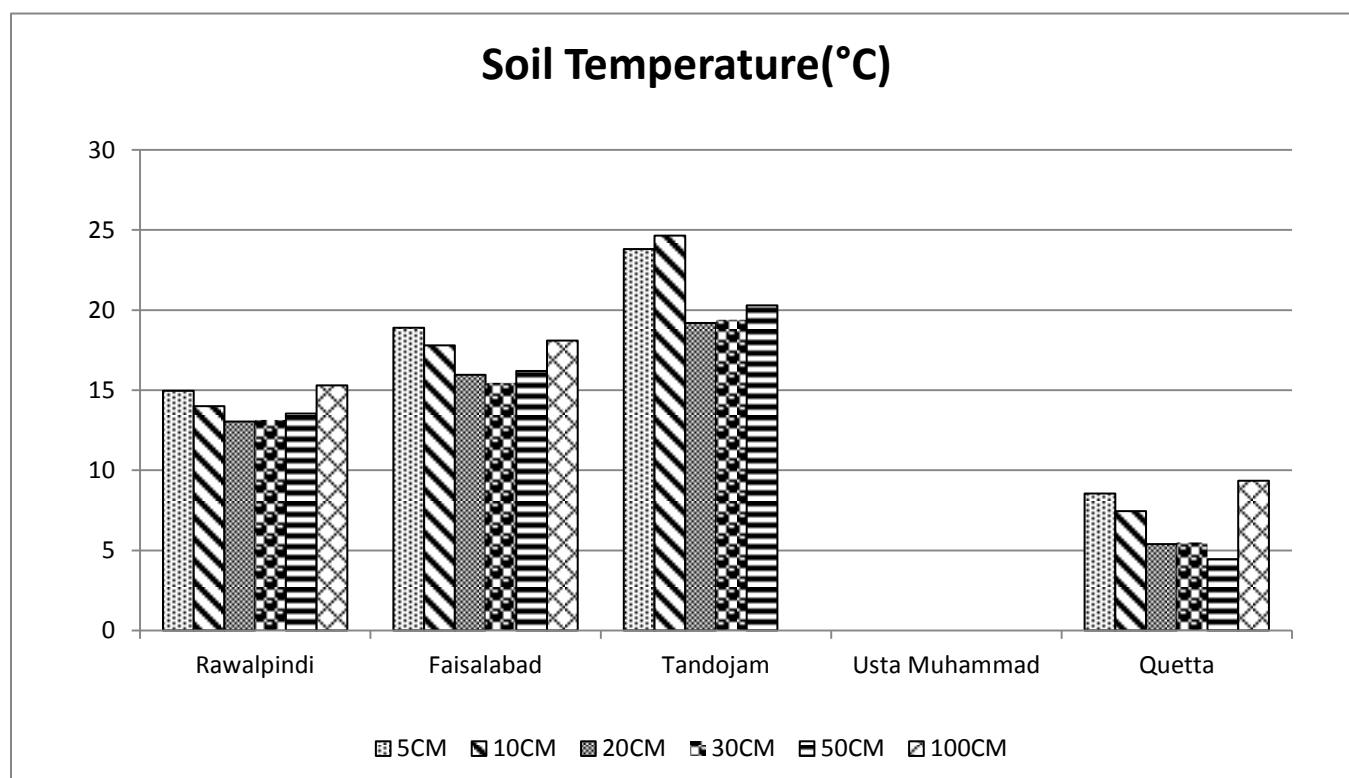
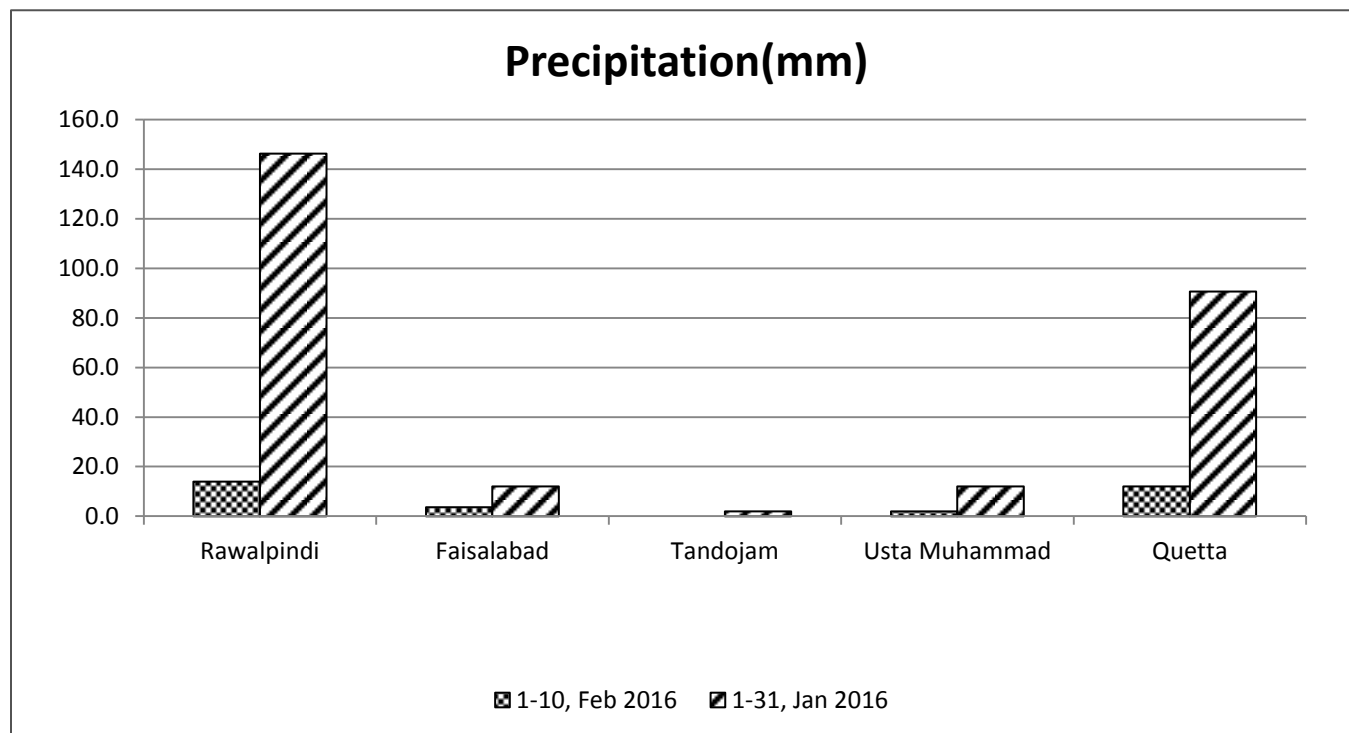
Phone: [+92-51-9250592](tel:+92-51-9250592) Email: [info@namc.pmd.gov.pk](mailto:info@namc.pmd.gov.pk)

**Meteorological Conditions during 1<sup>st</sup> decade of February, 2017**

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	3.2	14.0	10.8	0.6	2.6	13.4	15.0	14.0	13.1	13.2	13.6	15.3	70	56.4	2.9	1.6
2	Faisalabad	0.7	3.7	3.0	0.4	0.3	14.0	18.9	17.8	16.0	15.5	16.2	18.1	58	58.3	2.9	1.9
3	Jhelum	1.8	8.2	6.4	1.0	1.4	15.1	16.0	15.1	14.5	14.5	15.0	***	62	65.1	3.9	2.1
4	Lahore	0.9	6.8	5.9	0.7	-0.1	15.7	16.7	16.2	15.3	15.2	***	17.9	69	64.8	2.1	1.8
5	Sargodha	1.0	17.0	16.0	0.3	1.8	15.1	18.1	16.8	15.6	15.9	***	18.3	67	56.7	2.0	1.7
6	Multan	0.7	1.8	1.1	-1.1	1.0	14.5	***	***	***	***	***	***	59	55.5	2.2	1.8
7	Khanpur	0.9	0.0	-0.9	-0.7	-1.6	14.7	***	17.0	17.3	18.2	18.9	20.3	59	71.9	3.8	2.4
8	Tandojam	0.0	0.0	0.0	-1.6	-0.7	16.5	23.8	24.7	19.2	19.4	20.3	***	51	94.6	3.5	3.0
9	Sakrand ☆	0.1	0.0	-0.1	-0.6	2.2	16.8	28.6	***	***	***	***	23.7	42	83.6	5.2	3.2
11	Rohri	0.4	0.0	-0.4	-1.4	-0.7	17.2	***	***	***	***	***	***	47	89.7	2.5	2.5
12	D.I Khan	1.3	8.0	6.7	-0.3	1.0	14.2	***	***	***	***	***	***	55	56.2	10.0	3.1
13	Peshawar	2.5	29.0	26.5	0.4	0.6	13.2	15.9	14.3	13.2	***	***	***	60	45.6	3.7	1.8
14	Usta .M	0.2	2.0	1.8	-2.1	0.0	15.6	***	***	***	***	***	***	57	***	4.4	2.6
15	Quetta	1.8	12.0	10.2	-2.6	0.1	4.7	8.6	7.5	5.4	5.5	4.5	9.4	57	57.6	6.2	1.8
16	Skardu	0.8	3.2	2.4	-2.7	0.2	-1.0	***	***	***	***	***	***	81	22.2	0.1	0.8
17	Gilgit	0.1	12.2	12.1	-1.0	0.3	5.4	***	***	***	***	***	***	60	28.0	2.7	1.2

**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 February, 2017



## 1. Past Weather (1<sup>st</sup> to 10<sup>th</sup> January, 2017)

Light to moderate rainfall reported from most parts of the country during the last decade.

### 1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Murree, Kamra & Chakwal. Decadal maximum & minimum both raised above normal by 0.2°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 61.2hrs, 2.8km/hr and 1.9mm/day respectively.

### 1.1 Sindh

Light rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Jacobabad, Hyderabad, & Karachi. Decadal maximum dropped below normal by 1.2°C & minimum raised above normal by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 89.3hrs, 3.7km/hr and 2.9mm/day respectively.

### 1.2 Khyber Pakhtunkhwa (KP)

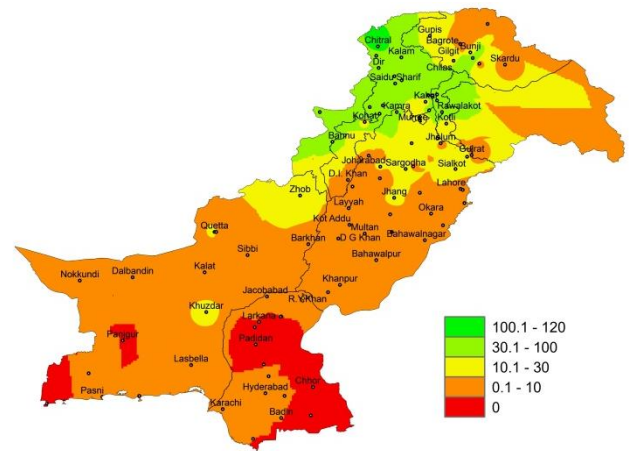
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Chitral, Kalam & Mirkhani. Decadal maximum & minimum both raised above normal by 0.1°C & 0.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 50.9hrs, 6.9km/hr and 2.5mm/day respectively.

### 1.3 Balochistan

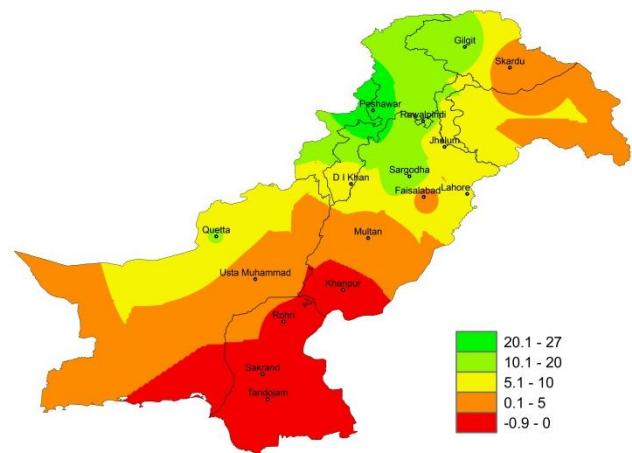
Light to moderate rainfall reported from agricultural plains of Balochistan. Chief amount of rainfall received at Zhob, Khuzdar & Quetta. Decadal maximum dropped below normal by 2.4°C & minimum raised above normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 57.6hrs, 5.3km/hr and 2.2mm/day respectively.

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

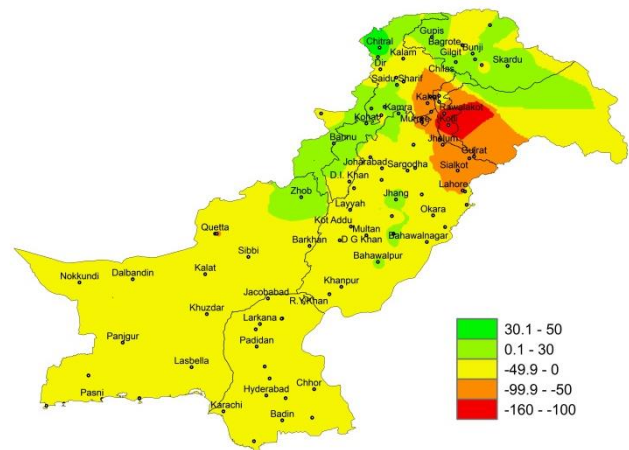
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Rawalakot, garhi Dopatta & Muzaffarabad. Decadal maximum dropped below normal by 1.9°C & minimum raised above normal by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 71%, 25.1hrs, 1.4km/hr and 1.0mm/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** **(1<sup>st</sup> to 10<sup>th</sup> February, 2017)**

### 2.1 **RAMC, Rawalpindi (Potohar region)**

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 70%. Mean day temperature was 19.5°C while night temperature recorded as 7.2°C with 56.4hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *westerly*.

### 2.2 **RAMC, Faisalabad (Central Punjab)**

Rainfall reported as 3.7mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 58%. Mean day temperature was 21.5°C while night temperature recorded as 6.5°C with 58.33hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *westerly*.

**Wheat:** *Very Good condition, shooting completed.*

### 2.3 **RAMC, Tandojam (Lower Sindh)**

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 51%. Mean day temperature was 24.8°C while night temperature recorded as 8.1°C with 94.6hours bright sunshine duration. Wind speed recorded as 3.5km/h with mean wind direction *northerly*.

**Wheat (Imdad):** *Good condition, milk maturity stage.*

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

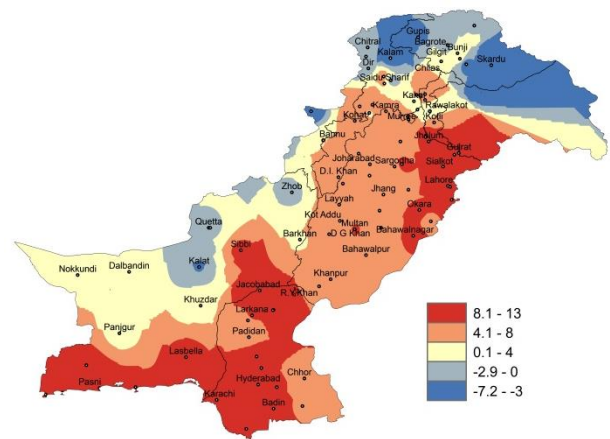
Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 57%. Mean day temperature was 22.7°C while night temperature recorded as 8.5°C. Wind speed recorded as 4.4km/h with mean wind direction *variable*.

**Wheat:** *Very Good condition, stem extension stage.*

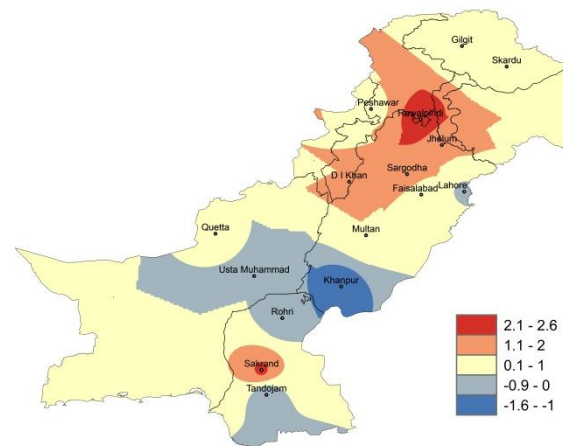
### 2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as 12.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 57%. Mean day temperature was 9.7°C while night temperature recorded as -0.4°C with 57.6hours bright sunshine duration. Wind speed recorded as 6.2km/hr with mean wind direction *southerly*.

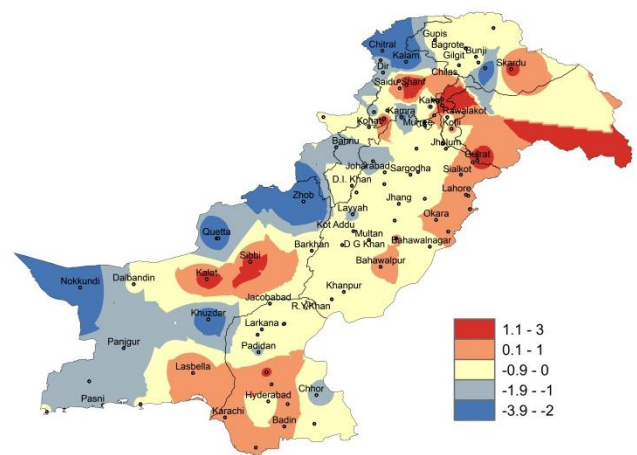
**Wheat (Local White):** *Very Good condition, Tillering stage*



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 (1<sup>st</sup> to 10<sup>th</sup> January, 2017)

### 2.6 Jhelum

Rainfall reported as 8.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 62%. Mean day temperature was 21.7°C while night temperature recorded as 8.5°C with 65.1hours bright sunshine duration. Wind speed recorded as 3.9km/hr with mean wind direction *northerly*.

### 2.7 Lahore

Rainfall reported as 6.8mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 69%. Mean day temperature was 21.6°C while night temperature recorded as 9.8°C with 64.8hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *north westerly*.

### 2.8 Sargodha

Rainfall reported as 17.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 67%. Mean day temperature was 21.5°C while night temperature recorded as 8.7°C with 56.7hours bright sunshine duration. Wind speed recorded 2.04km/hr with mean wind direction *variable*.

### 2.9 Multan

Rainfall reported as 1.8mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 59%. Mean day temperature was 20.9°C while night temperature recorded as 8.1°C with 55.5hours bright sunshine duration. Wind speed recorded 2.2km/hr with mean wind direction *variable*.

### 2.10 Khanpur

Dry weather reported during the decade however weather remained cloudy for 07days. Average relative humidity recorded as 59%. Mean day temperature was 22.7°C while night temperature recorded as 6.6°C with 71.9hours bright sunshine duration. Wind speed recorded 3.8km/hr with mean wind direction *north easterly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 42%. Mean day temperature was 24.1°C while night temperature recorded as 9.4°C with 83.6hours bright sunshine duration. Wind speed recorded 5.2km/hr with wind direction *northerly*.

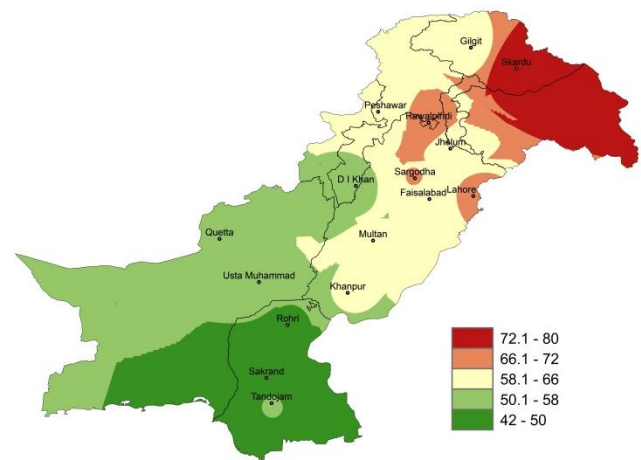


Figure.3: Relative Humidity in Percentage (%)

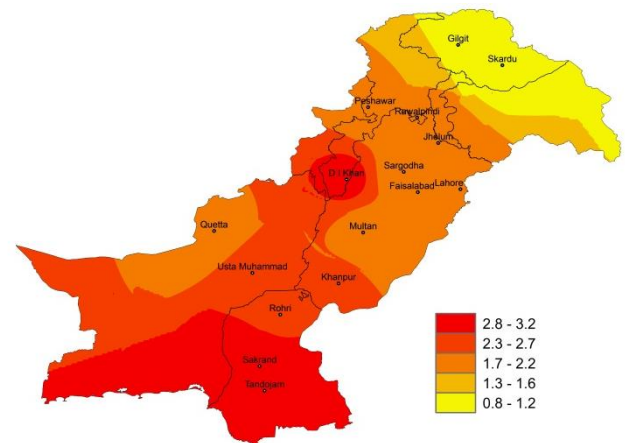


Figure.4: Reference Crop Evapotranspiration "ETo" in mm/day

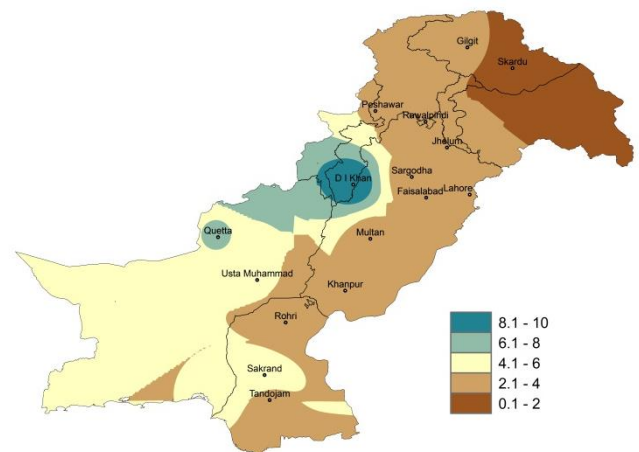


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 47%. Mean day temperature was 23.4°C while night temperature recorded as 10.9°C with 89.7hours bright sunshine duration. Wind speed recorded 2.5km/hr with wind direction *north easterly*.

**2.13 D.I. Khan**

Rainfall reported as 8.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 55%. Mean day temperature was 21.0°C while night temperature recorded as 7.3°C with 56.2hours bright sunshine duration. Wind speed recorded 10.0km/hr with wind direction *north westerly*.

**2.14 Peshawar**

Rainfall reported as 29.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 60%. Mean day temperature was 19.3°C while night temperature recorded as 7.6°C with 45.6hours bright sunshine duration. Wind speed recorded as 3.7km/hr with mean wind direction *north westerly*.

**2.15 Skardu**

Rainfall reported as 3.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 81%. Mean day temperature was 3.7°C while night temperature recorded as -5.7°C with 22.2hours bright sunshine duration. Wind speed recorded as 0.1km/hr with mean wind direction *northeasterly*.

**2.16 Gilgit**

Rainfall reported as 12.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 60%. Mean day temperature was 11.4°C while night temperature recorded as -0.6°C with 28.0hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *variable*.

### **3 Ten Days Weather Advisory for Farmers** **(13<sup>th</sup> to 20<sup>th</sup> February, 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**

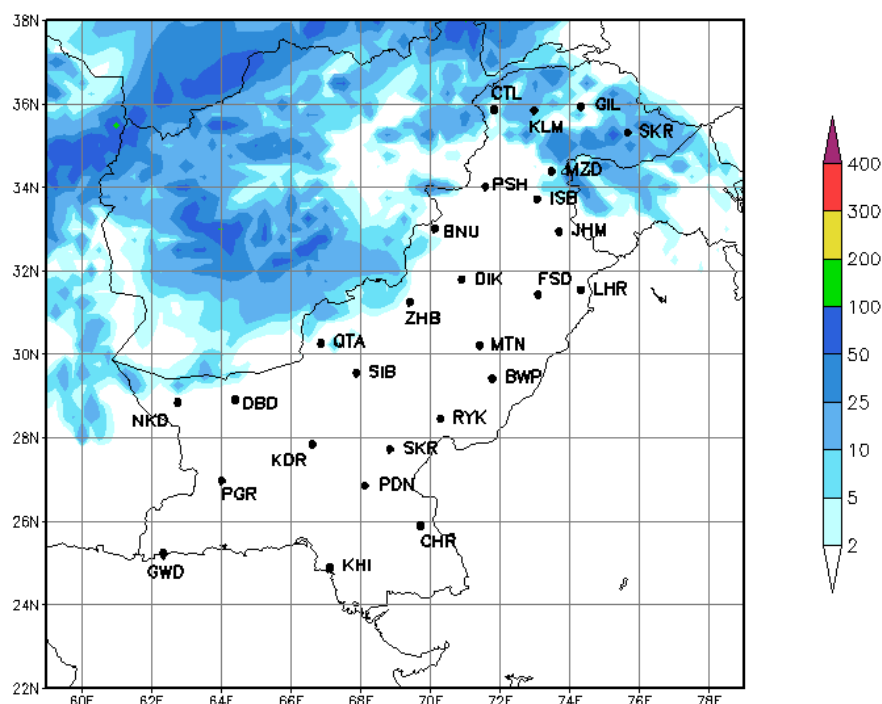
- ❖ **Punjab:** Cold and cloudy weather is expected in most parts of the province. However light to moderate rainfall is expected from 17th to 20th of the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly cold and cloudy weather is expected in most parts of the province during the decade.
- ❖ **Sindh:** Dry weather is expected in the agricultural plains of province during the decade.
- ❖ **Balochistan:** Mainly cold and cloudy weather is expected in most parts of the province however light to moderate rainfall is expected at scattered places of North Western Balochistan from 14th to 18th of the decade.
- ❖ **Gilgit Baltistan:** Mainly cold and 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 cloudy weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzaffarabad and Rawalakot regions during the current decade.

❖ **3.4 Advisory for Farmers**

- ❖ Wheat crop is at tillering/shooting/milk maturity stages. Farmers are advised to stop irrigation the crops by keeping in view the expected rain in the agricultural plains of the country
- ❖ Farmers of irrigated/barani areas are advised to remove weeds from the fields, so that the present soil moisture may fully be utilized.
- ❖ Farmers in the lower half of the country especially those in central regions are advised to take up poultry rearing houses to maintain optimum room temperature and take care against the rapid changes in air temperature and relative humidity.
- ❖ 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 and livestock from the expected frost.

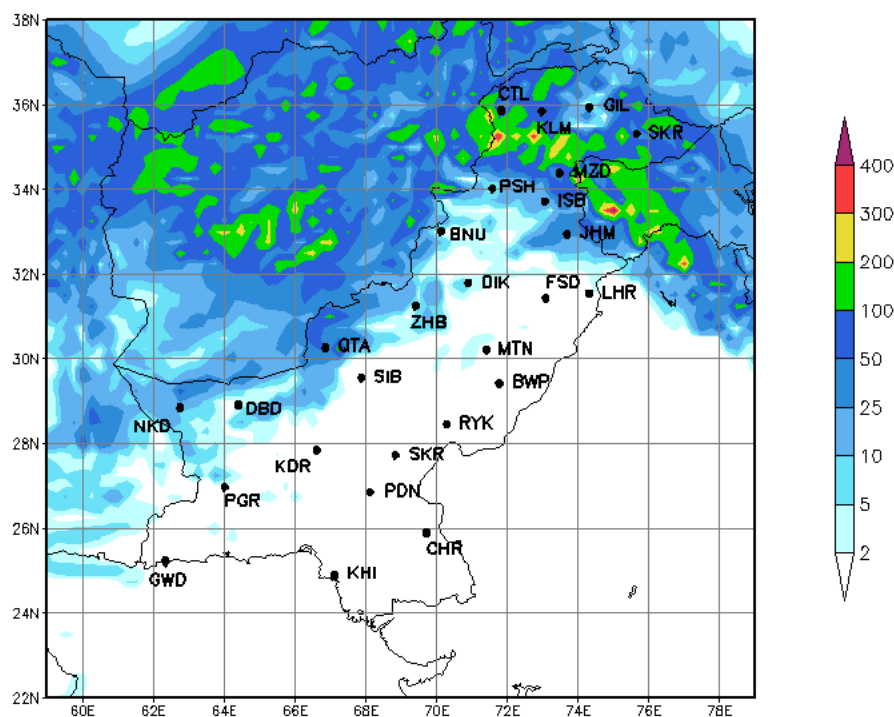
#### 4.1 Precipitation Forecast (13<sup>th</sup> to 15<sup>th</sup> February, 2017)

The forecast for the next three days (13<sup>th</sup> to 15<sup>th</sup>) of the second decade of February 2017 shows that light rainfall (with snowfalls over mountainous regions) is expected at isolated places of North-Western Balochistan, Upper KP, GB and Kashmir. However dry weather is expected in rest parts of the country.



#### 4.2 Precipitation Outlook (16<sup>th</sup> to 20<sup>th</sup> February, 2017)

The outlook for the last six days (16<sup>th</sup> to 20<sup>th</sup>) of the first decade of February 2017 shows that light to moderate rainfall is expected in Upper Punjab, KP, northern Balochistan, G.B and 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 ہو سکتا 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 ہو سکتی 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 سدّ باب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم و نسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)