

# Decadal Agromet Bulletin of Pakistan



## Highlights...

- ❖ Light to Moderate rainfall reported from most of the agricultural plains of Sindh, Balochistan, while moderate to heavy from Punjab, Khyber Pakhtunkhwa, G.B & Kashmir & Sindh during the last decade.
- ❖ Lowest minimum temperature recorded as  $-10.0^{\circ}\text{C}$  at Kalam during the last decade.
- ❖ Light to moderate rainfall with snow over the mountains is expected at scattered places in upper Punjab, upper Khyber Pakhtunkhwa, FATA, Gilgit-Baltistan and Kashmir during the 2<sup>nd</sup> half of the decade; dry weather is expected in Baluchistan and Sindh during the current decade.
- ❖ Farmers are advised to schedule the irrigation plans for the Rabi crop in context of ongoing rains.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.
- ❖ 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

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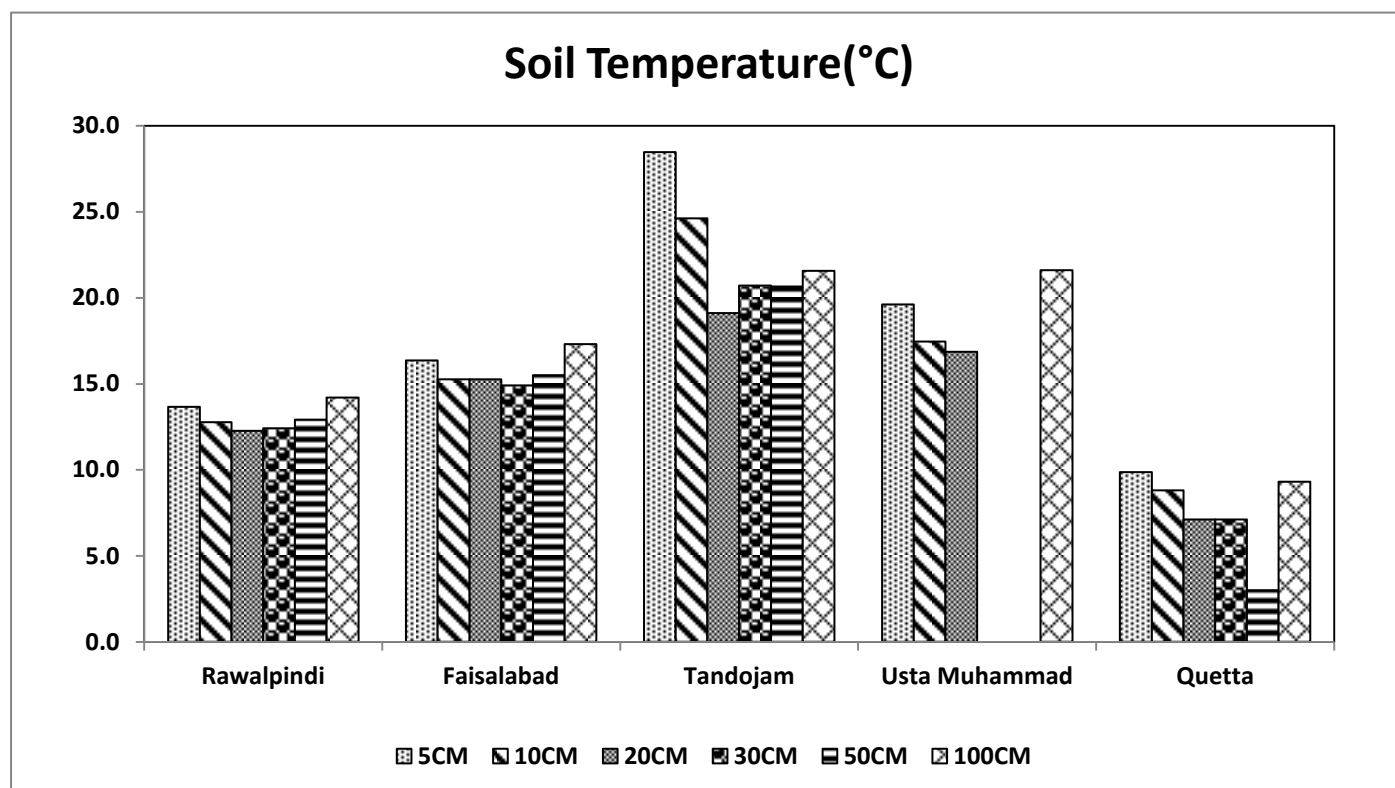
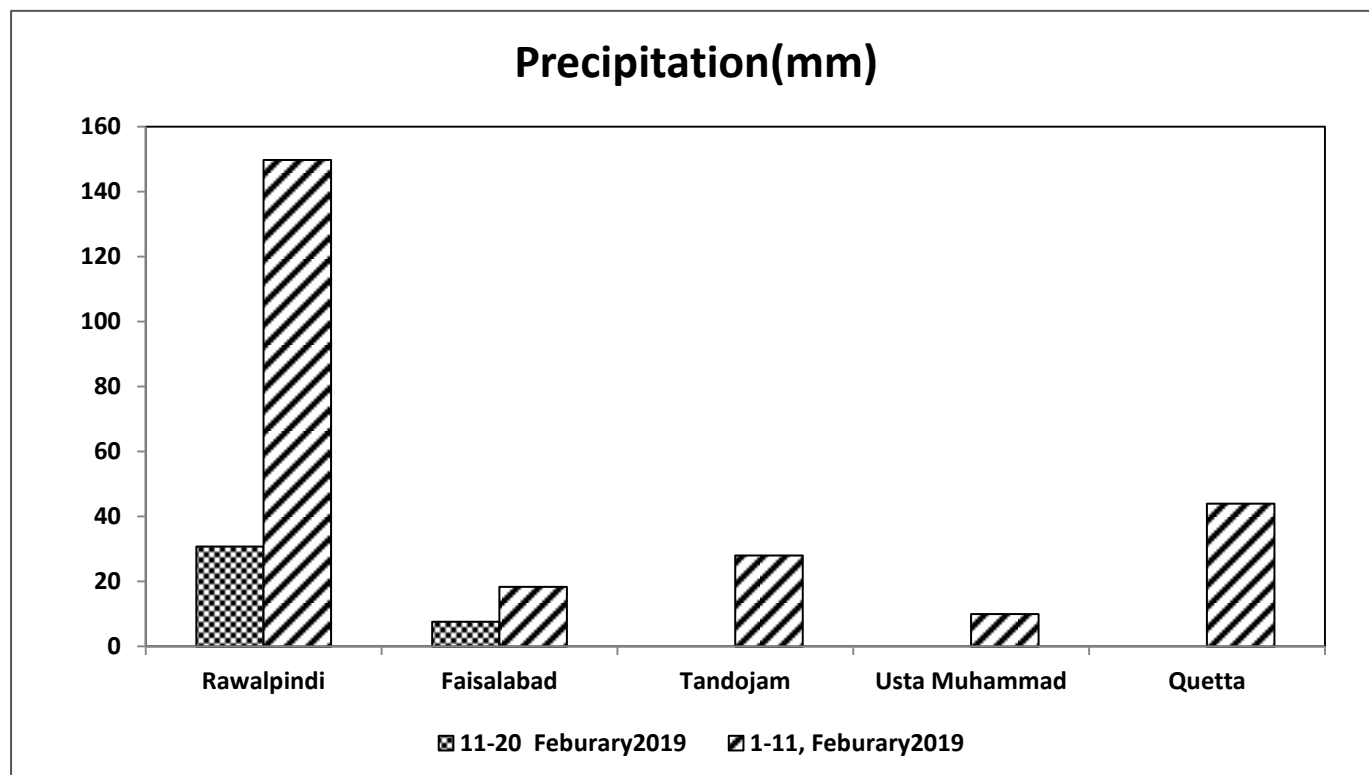
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### Meteorological Conditions during 2<sup>nd</sup> Decade of February, 2019

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	3.4	58.8	55.4	-1.7	-0.1	12.6	13.7	12.8	12.3	12.4	12.9	14.2	75	38.9	1.9	1.0
2	Faisalabad	0.6	38.2	37.6	-2.4	-2.1	14.6	16.4	15.3	15.3	14.9	15.5	17.3	65	40.3	2.1	1.3
3	Jhelum	3.3	60.5	57.2	-3.1	0.1	14.4	16.0	15.1	14.6	14.4	15.1	***	69	42.1	2.6	1.3
4	Lahore	2.3	26.6	24.3	-2.6	-0.9	15.5	16.3	15.9	15.0	14.8	***	17.0	73	35.6	2.3	1.3
5	Sargodha	1.6	11.0	9.4	-2.8	0.2	14.8	17.8	16.4	15.5	15.6	***	17.5	72	40.6	0.9	1.1
6	Multan	1.1	29.6	28.5	-3.5	-0.1	14.6	***	***	***	***	***	***	67	42.9	3.9	1.6
7	Khanpur	0.1	33.8	33.7	-2.8	0.3	16.0	***	17.9	17.9	18.1	18.5	19.5	66	66.1	4.2	2.0
8	Tandojam	0.6	1.0	0.4	-1.3	0.1	19.1	28.5	24.6	19.1	20.7	20.7	21.6	54	79.0	5.4	3.0
9	Sakrand ☆	0.0	7.0	7.0	-2.1	0.8	17.5	25.6	***	***	***	***	22.7	57	75.5	5.4	2.7
11	Rohri ☆	0.0	30.0	30.0	-3.4	-2.0	17.0	***	***	***	***	***	***	56	67.3	3.2	2.1
12	D.I Khan	1.5	10.0	8.5	-1.6	0.8	14.7	16.9	15.8	16.6	16.0	0.4	***	67	44.2	7.4	2.0
13	Peshawar	4.1	19.6	15.5	-2.0	-0.7	12.8	14.8	14.6	13.5	14.2	14.9	14.8	66	28.4	2.4	2.1
14	Usta .M	0.0	13.0	13.0	-4.0	-3.0	15.0	19.6	17.5	16.9	***	***	21.6	55	***	2.1	1.7
15	Quetta	1.7	33.2	31.5	-4.8	1.7	6.5	9.9	8.8	7.1	7.1	3.0	9.3	63	37.9	5.6	1.4
16	Skardu	1.0	25.7	24.7	-2.7	-1.7	0.0	***	***	***	***	***	***	80	18.7	0.3	0.6

**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, 2019



**Past Weather (11<sup>th</sup> to 20<sup>th</sup> February, 2019)**

Light to Moderate rainfall reported from most of the agricultural plains of Sindh, Balochistan, while moderate to heavy from Punjab, Khyber Pakhtunkhwa, and G.B & Kashmir during the last decade.

**1.1 Punjab**

Moderate to heavy rainfall reported from most of the agricultural plains of the Punjab. Highest rainfall reported from Narowal, Lahore & Murree. Decadal Maximum & Minimum both dropped below normal by 2.7°C & 0.4 °C respectively, in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 70%, 43.8hrs, 2.6km/hr and 1.4mm/day respectively.

**1.2 Sindh**

Light to moderate rainfall reported from most of the agricultural plains of the Sindh. Highest rainfall reported from Mohenjo-Daro, Larkana & Jacobabad. Decadal maximum and minimum both dropped below normal by 2.3°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 73.9hrs, 4.7km/hr and 2.6mm/day respectively.

**1.3 Khyber Pakhtunkhwa**

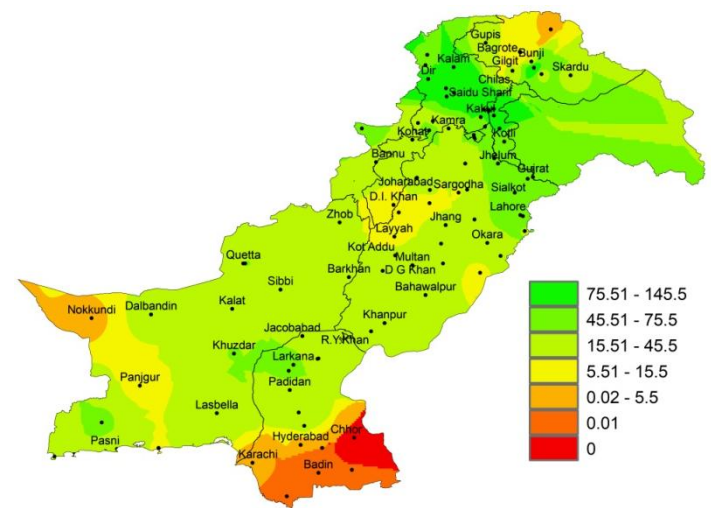
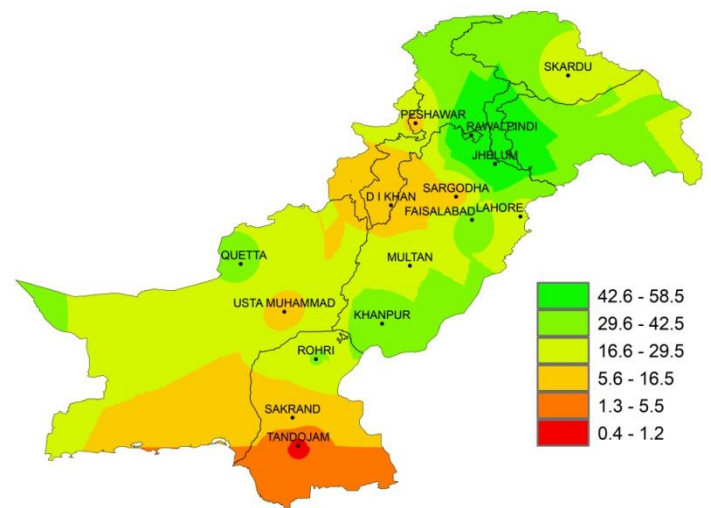
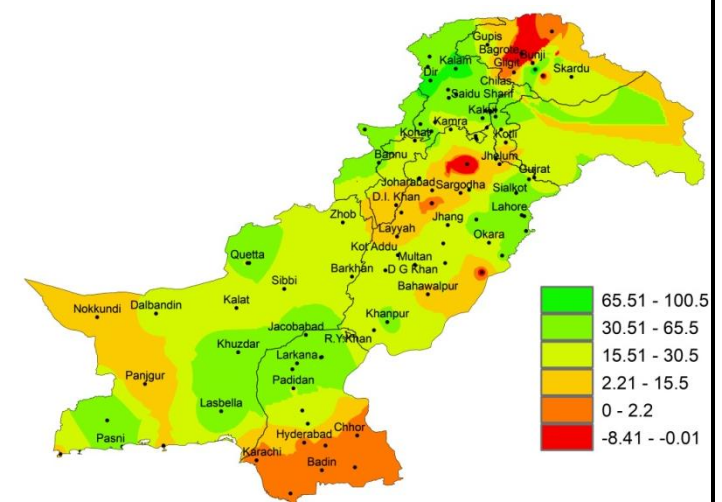
Moderate to heavy rainfall reported from most of the agricultural plains of Khyber Pakhtunkhwa. Highest rainfall reported from Mirkhani, Dir & Chitral. Decadal maximum dropped below normal by 1.8°C minimum remained normal in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 67%, 36.3hrs, 4.9km/hr and 2.1mm/day respectively.

**1.4 Balochistan**

Light to moderate rainfall reported from most of the place from agricultural plains of the Balochistan. Highest rainfall reported from Quetta, Khuzdar & Gawadar. Decadal maximum and minimum both dropped below normal by 4.4°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 39%, 37.9hrs, 3.9km/hr and 1.6mm/day respectively.

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

Moderate to heavy rainfall reported from most of the agricultural plains G.B & Kashmir. Highest rainfall reported from Garhi Dopatta, Muzaffarabad & Rawalakot. Decadal maximum and minimum both dropped below normal by 8.6°C & 1.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 9.4hrs, 0.2km/hr and 0.6mm/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 (21<sup>st</sup> to 28<sup>th</sup> February, 2019)

### 2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 58.8 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 75%. Mean day temperature was 18.5°C while night temperature recorded as 6.7°C with 38.9hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *Westerly*.

### 2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 38.2 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 20.5°C while night temperature recorded as 8.7°C with 40.3hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *westerly north westerly*.

**Wheat:** *Very good condition, Shooting completed.*

### 2.3 RAMC, Tandojam (Lower Sindh)

Rainfall reported as 1.0 mm during the decade; however weather remained cloudy for 04day during the decade. Average relative humidity recorded as 54%. Mean day temperature was 27.2°C while night temperature recorded as 10.9°C with 79.0hours bright sunshine duration. Wind speed recorded as 5.4km/hr with mean wind direction *Northerly*.

**Wheat (TJ-83):** *Good condition, Wax maturity.*

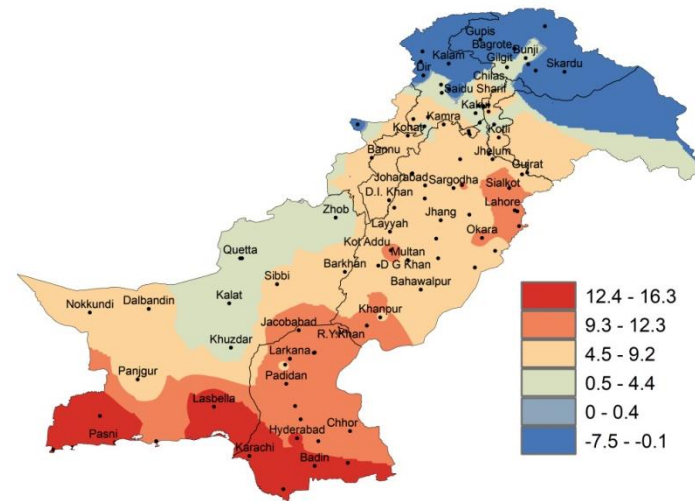
### 2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Rainfall reported as 13.0 mm the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 22.6°C while night temperature recorded as 7.3°C. Wind speed recorded as 2.1km/hr with mean wind direction *South easterly*.

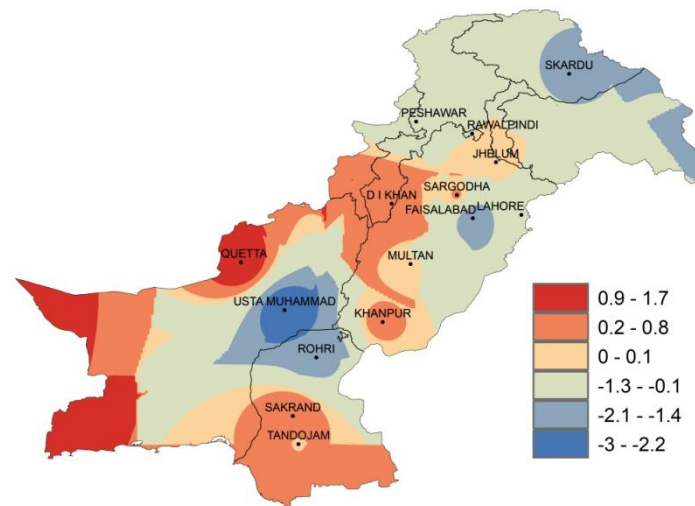
**Wheat:** *Good condition, Tillering stage.*

### 2.5 RAMC, Quetta (Northern Balochistan)

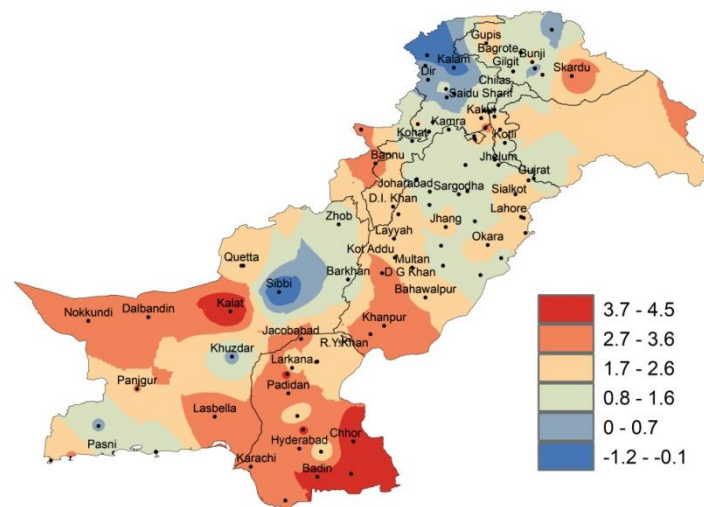
Rainfall reported as 33.2 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 63%. Mean day temperature was 10.4°C while night temperature recorded as 2.6°C with 37.9 hours bright sunshine duration. Wind speed recorded as 5.6km/hr with mean wind direction *southerly*.



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 (21<sup>st</sup> to 28<sup>th</sup> February, 2019)

### 2.6 Jhelum

Rainfall reported as 60.5 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 69%. Mean day temperature was 19.6°C while night temperature recorded as 9.2°C with 42.1 hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *Variable*.

### 2.7 Lahore

Rainfall reported as 26.6 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 73%. Mean day temperature was 20.1°C while night temperature recorded as 10.9°C with 35.6hours bright sunshine duration. Wind speed recorded as 2.3 km/hr with mean wind direction *Westerly*.

### 2.8 Sargodha

Rainfall reported as 11.0 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 72%. Mean day temperature was 20.2°C while night temperature recorded as 9.4°C with 40.6hours bright sunshine duration. Wind speed recorded 0.9km/hr with mean wind direction *Easterly*.

### 2.9 Multan

Rainfall reported as 29.6 mm the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 19.9°C while night temperature recorded as 6.9°C with 65.5hours bright sunshine duration. Wind speed recorded 3.9km/hr with mean wind direction *North easterly*.

### 2.10 Khanpur

Rainfall reported as 33.8 mm the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 22.8°C while night temperature recorded as 9.2°C with 66.1hours bright sunshine duration. Wind speed recorded 4.2km/hr with mean wind direction *North easterly*.

### 2.11 Sakrand

Rainfall reported as 7.0 mm the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 57%. Mean day temperature was 25.0°C while night temperature recorded as 10.0°C with 75.5hours bright sunshine duration. Wind speed recorded 5.4km/hr with wind direction *Northerly*.

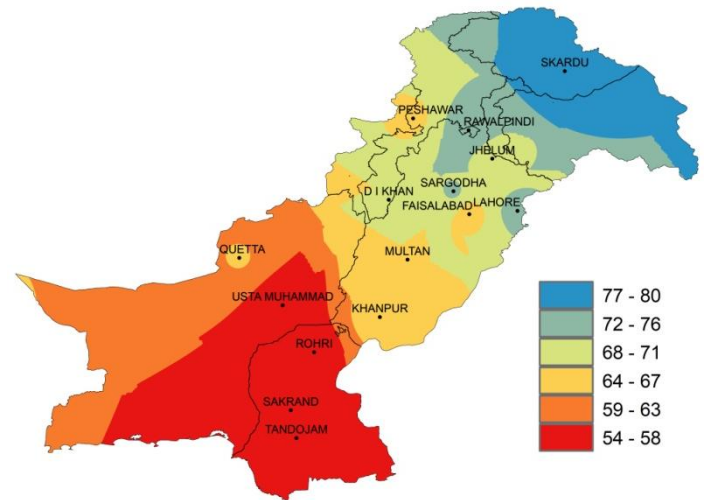


Figure.3: Relative Humidity in Percentage (%)

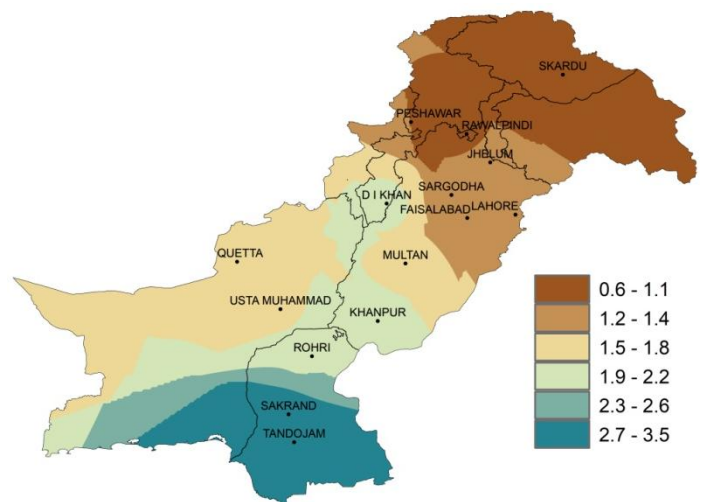


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

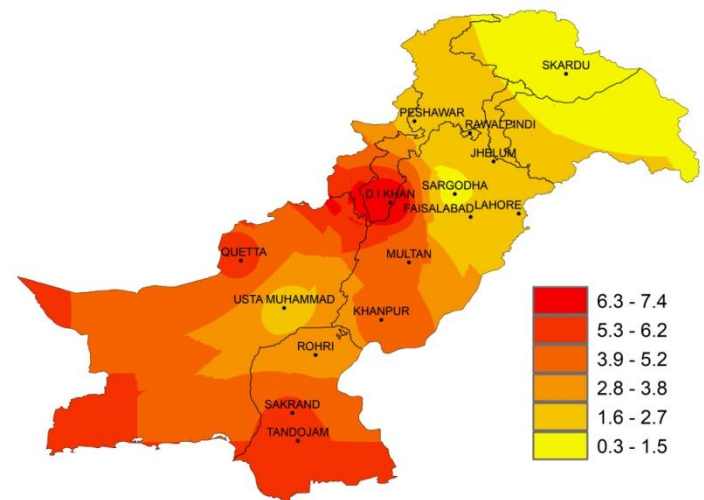


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Rainfall reported as 30.0 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 56%. Mean day temperature was 23.5°C while night temperature recorded as 10.4°C with 67.3 hours bright sunshine duration. Wind speed recorded 3.2 km/hr with wind direction *North easterly*.

**2.13 D.I. Khan**

Rainfall reported as 10.0 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 20.5°C while night temperature recorded as 8.9°C with 44.2 hours bright sunshine duration. Wind speed recorded as 7.4 km/hr with mean wind direction *North westerly*.

**2.14 Peshawar**

Rainfall reported as 19.6 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 18.0°C while night temperature recorded as 7.6°C with 28.4 hours bright sunshine duration. Wind speed recorded as 2.4 km/hr with mean wind direction *North westerly*.

**2.15 Skardu**

Precipitation reported as 25.7 cm (snowfall) during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 80%. Mean day temperature was 5.1°C while night temperature recorded as -5.1°C with 18.7 hours bright sunshine duration. Wind speed recorded as 0.3 km/hr with mean wind direction *North easterly*.

**Eight Days Weather Advisory for Farmers**  
**(21<sup>st</sup> to 28<sup>th</sup> February, 2019)**

**3.1 Temperature Forecast**

Both day and night temperatures are likely to be below normal 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**

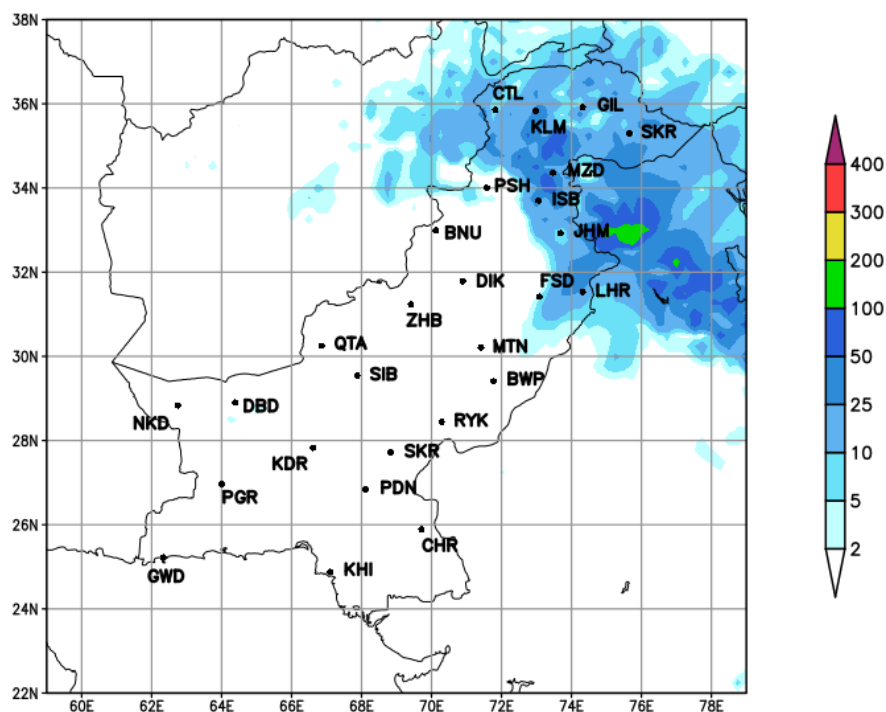
- ❖ **Punjab:** Widespread rain / thunderstorm (with snowfall over hills) is expected at isolated places in Rawalpindi, Gujranwala and Lahore divisions on 21<sup>st</sup> February 2019 and rain with snowfall over the hills is expected at scattered places in upper Punjab and Islamabad during the 2<sup>nd</sup> half of the current decade.
- ❖ **Khyber Pakhtunkhwa:** Widespread rain / thunderstorm (with snowfall over hills) is expected at isolated places in Malakand, Hazara and Mardan on 21<sup>st</sup> February 2019 and Rain with snowfall over the hills is expected at scattered places in upper Khyber Pakhtunkhwa during the 2<sup>nd</sup> half of the current decade.
- ❖ **Sindh:** Mainly cold and dry weather is expected during the current decade.
- ❖ **Baluchistan:** Mainly cold and dry weather is expected during the current decade.
- ❖ **Gilgit-Baltistan:** Widespread rain/thunderstorm (with snowfall over hills) is expected in Gilgit-Baltistan on 21<sup>st</sup> and rain with snowfall over the hills is expected at scattered places in the province during the 2<sup>nd</sup> half of the current decade.
- ❖ **Kashmir:** Widespread rain / thunderstorm (with snowfall over hills) is expected in Kashmir and rain with snowfall over the hills is expected at scattered places during the 2<sup>nd</sup> half of the current decade.

**3.4 Advisory for Farmers**

- ❖ Farmers are advised to schedule the irrigation plans for the Rabi crop in context of ongoing rains.
- ❖ 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.
- ❖ Measures may be taken to preserve the crops/nurseries from the damaging impacts of extreme cold conditions.

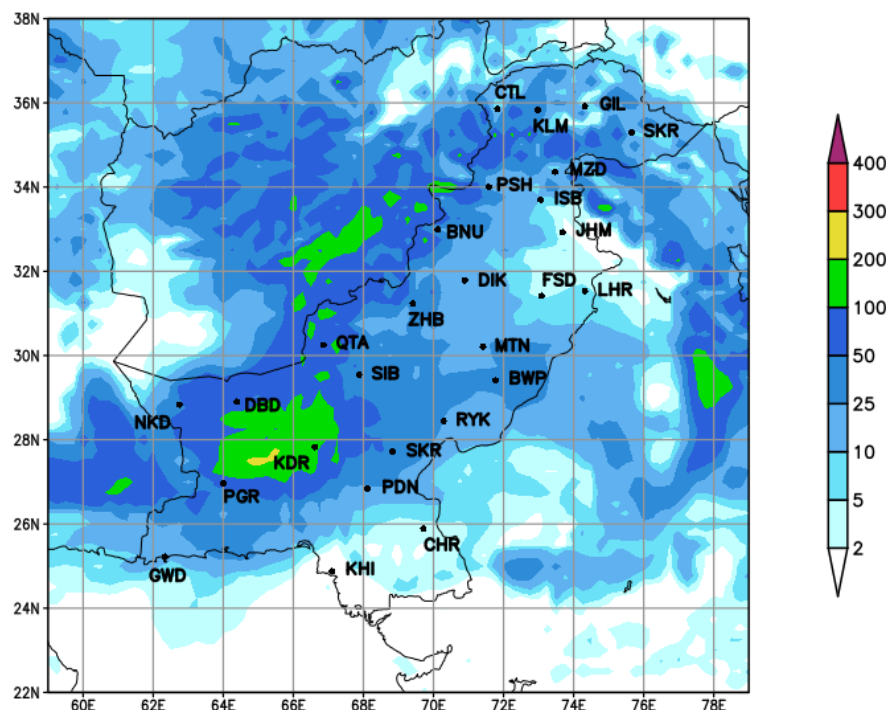
#### 4.1 Precipitation Outlook (21<sup>st</sup> to 23<sup>rd</sup> February, 2019)

The forecast for the last three days (21<sup>st</sup> to 23<sup>rd</sup>) of the 3<sup>rd</sup> decade of February, 2019 shows that light to moderate rainfall is expected in upper KP, G.B, Potohar region, eastern Punjab and Kashmir. However, cold and dry weather may prevail in rest of the country.



#### 4.2 Precipitation Outlook 24<sup>th</sup> to 28<sup>th</sup> February, 2019)

The outlook for the last five days (24<sup>th</sup> to 28<sup>th</sup>) of the 3<sup>rd</sup> decade of February, 2019 shows that light to moderate rainfall is expected in all over the country with heavy rainfall in central areas of Balochistan.





## Findings of AgMIP Pakistan, 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)