Decadal Agromet Bulletin of Pakistan

Highlights….

❖ Light rainfall reported from few agricultural plains of Punjab, while light to moderate rainfall observed from most parts of K.P and G.B & Kashmir. Dry weather was observed in Sindh and Balochistan.

❖ Lowest minimum temperature recorded as -5.2°C at Skardu during the last decade.

❖ Smoggy conditions persisted in the plain areas of Sindh and Punjab.

❖ Mainly cold and cloudy weather is expected in most parts of the country during the current decade.

❖ Farmers of cotton crop are advised to prepare fields for incoming Rabi crops and complete sowing in time.

❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.

❖ 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.
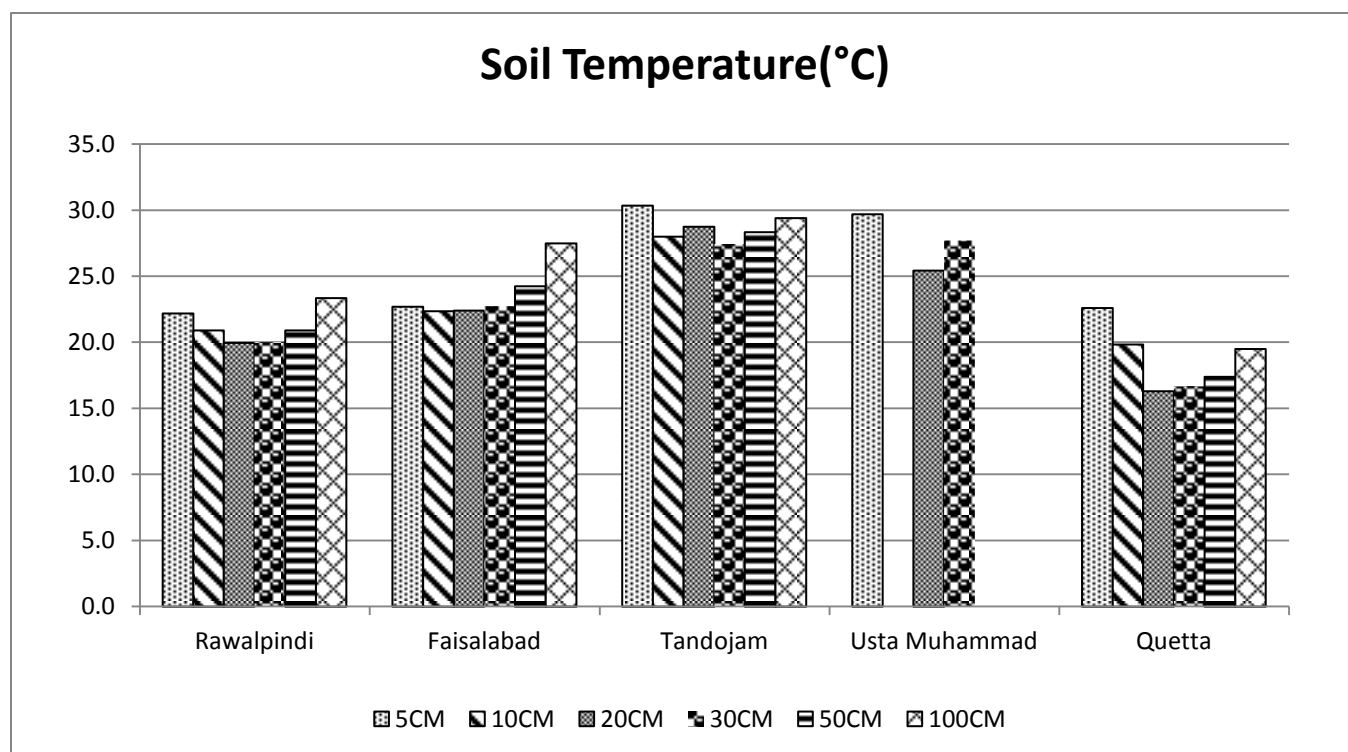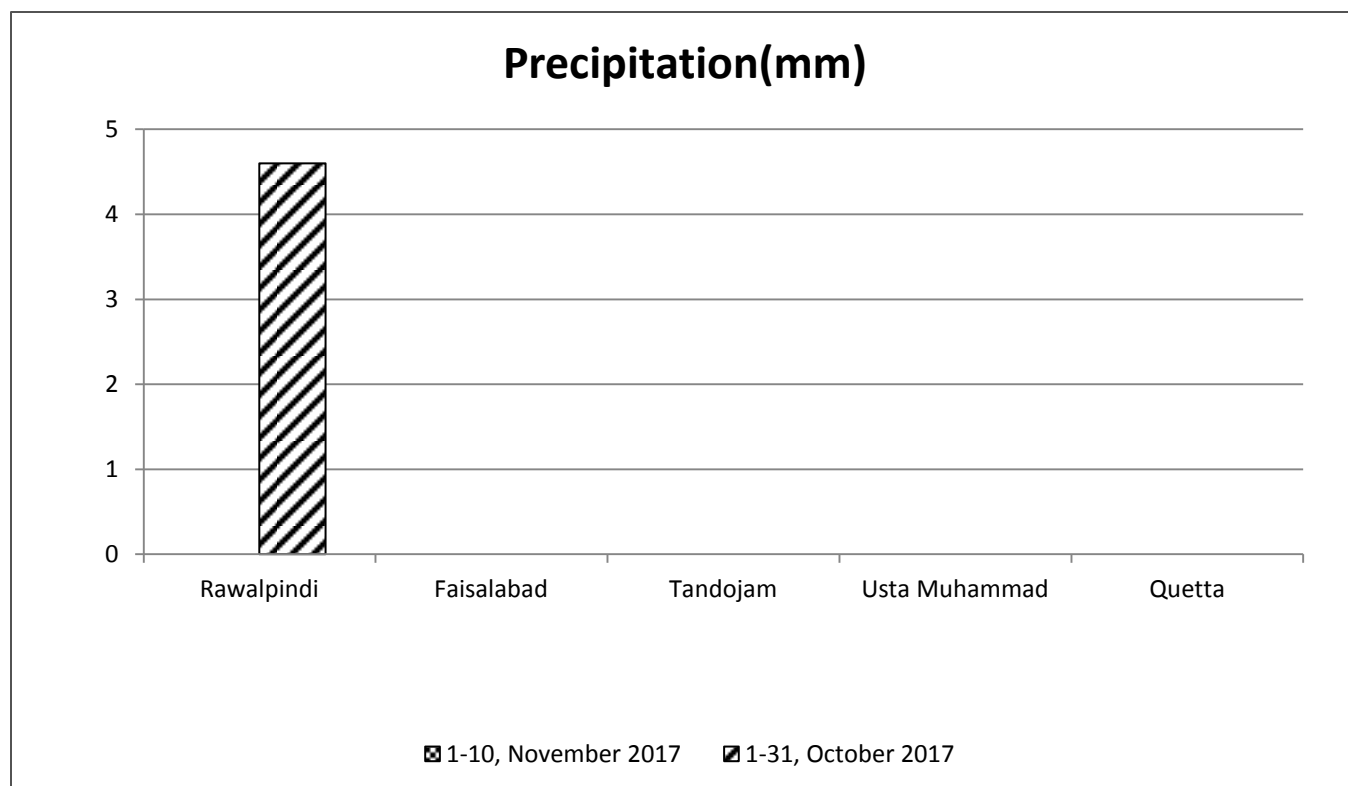
Meteorological Conditions during 1st Decade of November, 2018

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	0.3	15.8	15.5	-3.1	-1.3	23.7	28.6	18.9	18.2	18.9	20.0	22.8	65	63.3	1.4	1.7
2	Faisalabad	0.0	0.0	0.0	-1.5	-0.6	19.2	24.3	23.0	22.5	22.5	23.7	26.8	51	60.6	1.6	2.0
3	Jhelum	0.1	5.0	4.9	6.7	-2.9	20.6	20.5	19.9	19.9	20.5	22.0	***	58	64.4	2.2	2.5
4	Lahore	0.0	0.0	0.0	-2.3	-1.5	20.5	22.5	22.4	22.1	21.7	***	25.5	60	57.8	1.3	1.9
5	Sargodha	0.0	0.0	0.0	-2.2	-2.0	19.0	25.5	24.0	23.0	23.5	***	26.1	56	61.6	1.7	2.0
6	Multan	0.0	0.0	0.0	-2.6	-0.9	20.5	***	***	***	***	***	***	47	51.0	2.3	2.2
7	Khanpur	0.0	0.0	0.0	-1.3	-1.8	21.4	***	24.1	24.7	25.5	26.9	28.7	52	82.5	2.1	2.7
8	Tandojam	0.0	0.0	0.0	-1.1	-1.9	25.4	29.4	27.0	27.0	26.3	27.2	29.1	49	84.7	3.1	3.4
9	Sakrand☆	0.0	0.0	0.0	-0.4	-1.6	25.2	33.3	***	***	***	***	31.6	48	97.9	2.1	3.1
11	Rohri	0.0	0.0	0.0	-1.8	-1.1	25.1	***	***	***	***	***	***	40	94.8	0.6	2.3
12	D.I Khan	0.0	0.0	0.0	-1.5	-1.7	20.3	24.3	23.5	23.6	24.7	15.4	***	59	64.6	6.3	3.0
13	Peshawar	0.4	4.0	3.6	-1.5	-5.2	19.4	21.5	20.5	19.4	20.3	21.5	22.6	59	53.5	1.0	1.5
14	Usta .M	0.0	0.0	0.0	-2.9	-3.5	23.1	29.4	27.8	27.5	***	***	32.0	55	***	4.7	3.1
15	Quetta	0.1	0.0	-0.1	-3.2	0.2	16.7	19.2	17.6	15.4	16.3	16.9	19.1	22	98.2	4.8	2.8
16	Skardu	0.1	3.0	2.9	-5.1	1.7	7.9	***	***	***	***	***	***	63	37.0	2.2	1.2
17	Gilgit	0.2	13.8	13.6	-5.0	0.1	12.6	***	***	***	***	***	***	60	36.9	2.0	1.3

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 November, 2018

Precipitation(mm)

☒ 1-10, November 2017　　☑ 1-31, October 2017

Soil Temperature(°C)

⊞ 5CM　◩ 10CM　▨ 20CM　➘ 30CM　⊟ 50CM　▨ 100CM

Past Weather (1st to 10th November, 2018)

Light rainfall reported from few agricultural plains of Punjab, while light to moderate rainfall observed from most parts of K.P and G.B & Kashmir. Dry weather was observed in Sindh and Balochistan.

1.1   Punjab

Light rainfall reported from few agricultural plains of Punjab. Chief amount of rainfall received at Islamabad, Kamra & Mangla. Decadal maximum & minimum both dropped below normal by 3.1°C & 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 63.0hrs,1.8km/hr and 2.1 mm/day respectively.

1.2   Sindh

Decadal maximum & minimum both dropped below normal by 1.1°C & 1.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 92.5hrs, 1.9km/hr and 2.9mm/day respectively.
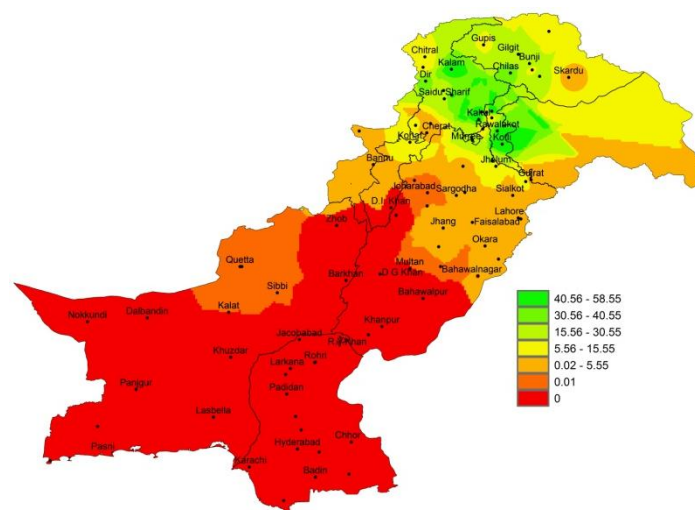
1.3   Khyber Pakhtunkhwa (KP)

Light to moderate rainfall reported from most agricultural plains of KP. Decadal maximum & minimum both dropped below normal by 1.5°C & 3.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 59.1hrs, 3.7km/hr and 2.3mm/day respectively.
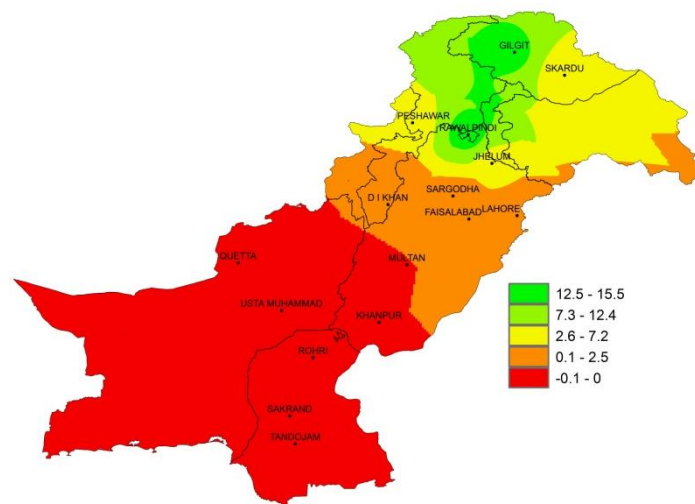
1.4   Balochistan

Dry weather reported from the agricultural plains of Balochistan. . Decadal maximum & minimum both dropped below normal by 3.1°C & 1.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 39%, 98.2hrs, 4.8km/hr and 3.0mm/day respectively.

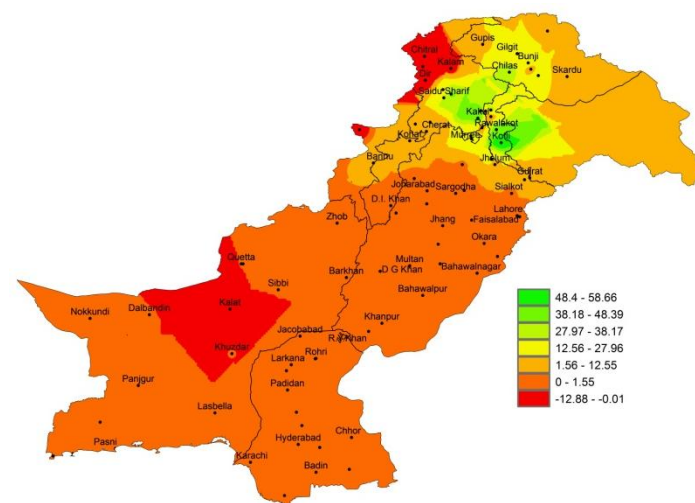### 1.5   Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from most agricultural & Kashmir. Decadal maximum dropped below normal by 5.1°C & minimum temperature raised above by 0.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as62%, 37.0hrs, 2.1km/hr and 2.1mm/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)   <u>**Past Weather for Major Agricultural Plains (1ˢᵗ to 10ᵗʰ November, 2018)**</u>

2.1   RAMC, Rawalpindi (Potohar region)

Rainfall reported as 15.8mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 65%. Mean day temperature was 24.6°C while night temperature recorded as 9.2°C with 63.3hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *Westerly*.
Maize: *Good condition, Wax maturity.*

2.2   RAMC, Faisalabad (Central Punjab)

Rainfall reported as Trace (Not measurable) during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 28.3°C while night temperature recorded as 12.9°C with 60.6hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *Westerly*.
Cotton: *Very good condition, Full maturity 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 49%. Mean day temperature was 33.0°C while night temperature recorded as 14.5°C with 84.7hours bright sunshine duration. Wind speed recorded as 3.1km/h with mean wind direction *North easterly*.
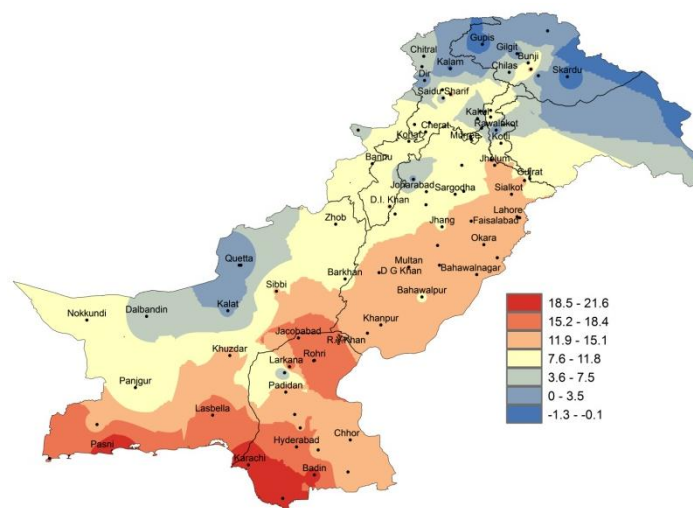***Wheat TJ-83:*** *Good condition, Emergence.*

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 55%. Mean day temperature was 28.9°C while night temperature recorded as 14.4°C. Wind speed recorded as 4.7km/h with mean wind direction *south westerly*.
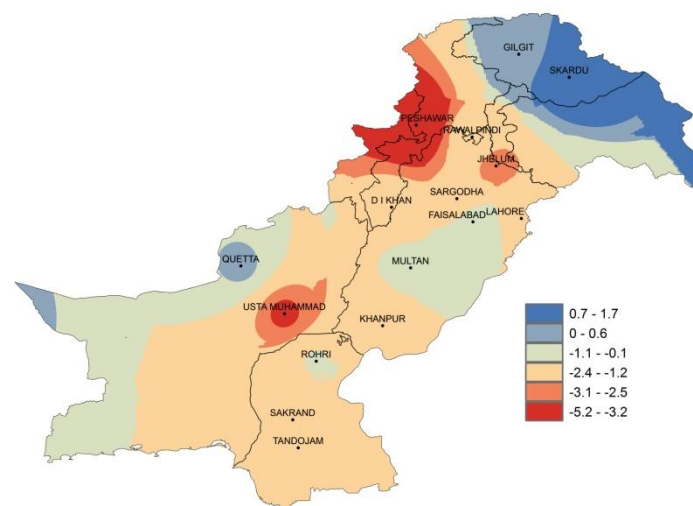***Rice:*** *Harvested.*

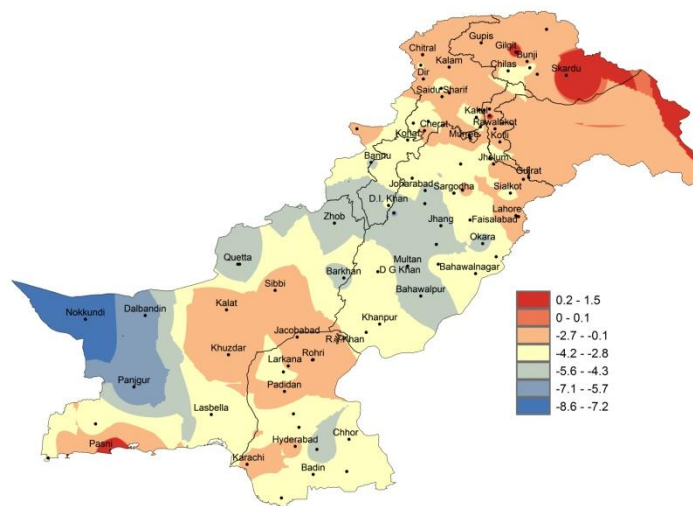### 2.5   RAMC, Quetta (Northern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 09 day. Average relative humidity recorded as 22%. Mean day temperature was19.2°C while night temperature recorded as 4.7°C with 98.2hrsbright sunshine duration. Wind speed recorded as 4.8km/hr with mean wind direction *north westerly*.

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 (1st to 10th November, 2018)

2.6   Jhelum

Rainfall reported as 5.0mm during the decade; however weather remained cloudy for 07days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 26.3°C while night temperature recorded as 10.8°C with 64.4hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *northwesterly.*

2.7   Lahore

Rainfall reported as Trace (not measureable) during the decade; weather remained cloudy for06days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 27.0°C while night temperature recorded as15.4°C with 57.8bright sunshine hours duration. Wind speed recorded as 1.3km/hr with mean wind direction *westerly.*

2.8   Sargodha

Rainfall reported as Trace(not measureable) during the decade; weather remained cloudy for07days during the decade Average relative humidity recorded as 56%. Mean day temperature was 27.3°C while night temperature recorded as 12.8°C with 61.6 bright sunshine hours duration. Wind speed recorded as 1.7km/hr with mean wind direction *North easterly.*

2.9   Multan

Dry weather reported during the decade; weather remained cloudy for 07days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 28.3°C while night temperature recorded as 14.0°C with 51.0hours bright sunshine duration. Wind speed recorded 2.3km/hr with mean wind direction *north westerly.*

2.10   Khanpur

Dry weather reported during the decade weather remained cloudy for 02days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 30.9°C while night temperature recorded as 13.4°C with 82.5hours bright sunshine duration. Wind speed recorded 2.1km/hr with mean wind direction *north easterly.*

2.11   Sakrand

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 48%. Mean day temperature was 32.7°C while night temperature recorded as 14.6°C with 97.7hours bright sunshine duration. Wind speed recorded 2.1km/hr with wind direction *northerly.*
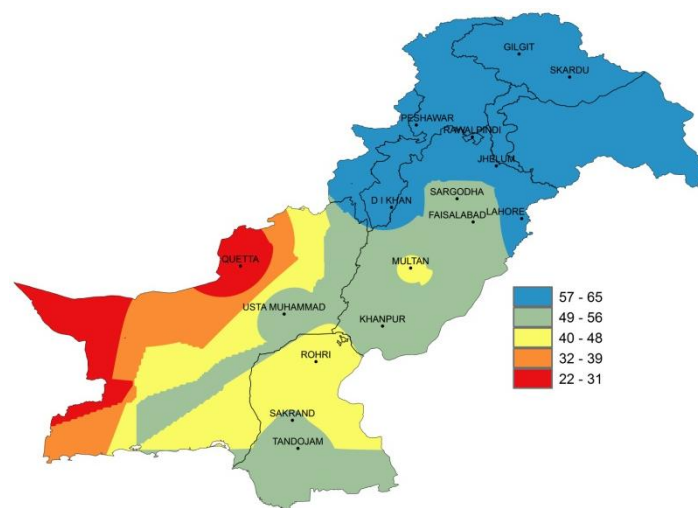

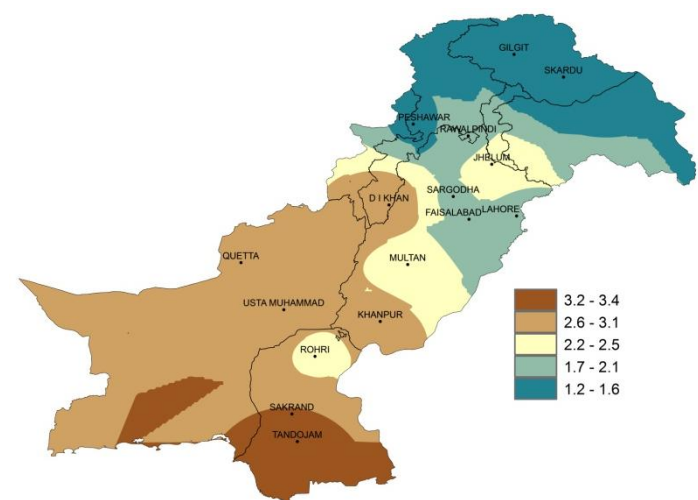***Figure.3: Relative Humidity in Percentage (%)***

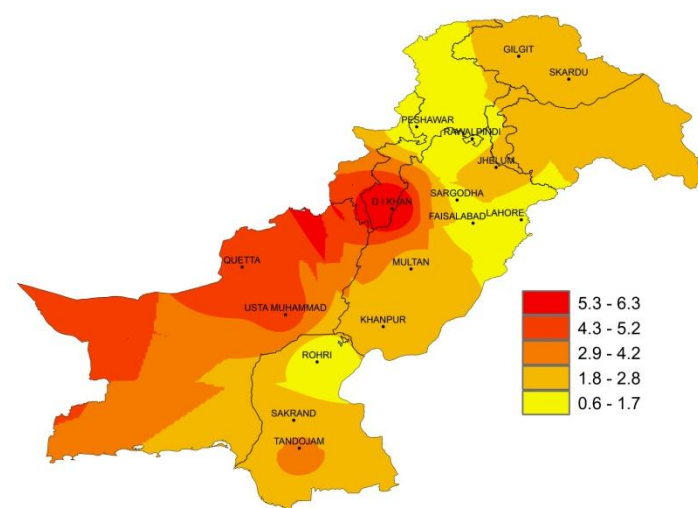***Figure.4: Reference Crop Evapotranspiration ETo (mm/day)***

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

2.12   Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 40%. Mean day temperature was 31.3°C while night temperature recorded as 17.3°C with 98.8hours bright sunshine duration. Wind speed recorded 0.6km/hr with wind direction *north westerly.*

2.13   D.I. Khan

Dry weather reported during the decade weather remained cloudy for 04days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 28.5°C while night temperature recorded as 11.9°C. Wind speed recorded as 6.3km/hr with mean wind direction *easterly*.

2.14   Peshawar

Rainfall reported as 4.0mm during the decade; however weather remained cloudy for 06days during the decade. Average relative humidity recorded as 59%. Mean day temperature was 25.4°C while night temperature recorded as 8.0°C. Wind speed recorded as 1.0km/hr with mean wind direction *north westerly.*

2.15   Skardu

Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 07day during the decade. Average relative humidity recorded as 63%. Mean day temperature was 12.2°C while night temperature recorded as 1.0°C with 37.0hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *south easterly.*

2.16   Gilgit

Rainfall reported as 13.0mm during the decade; however weather remained cloudy for 07 day during the decade. Average relative humidity recorded as 60%. Mean day temperature was 17.6°C while night temperature recorded as 2.1°C with 36.9hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *westerly.*

Ten Days Weather Advisory for Farmers (12th to 20th November, 2018)

3.1   Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) and day temperatures are likely to be slightly normal in most parts 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.
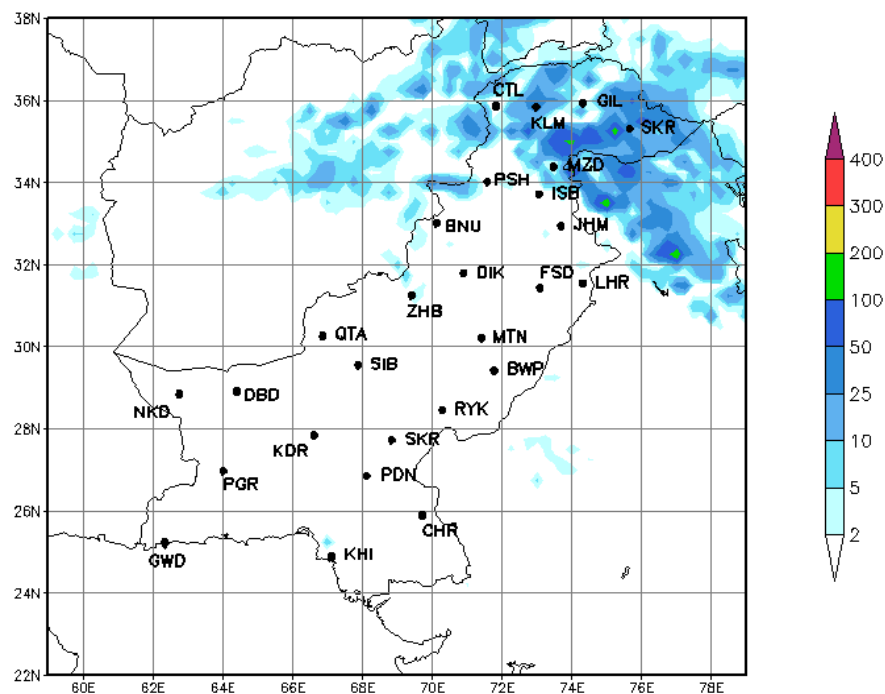
3.3   Rain Forecast

❖ **Punjab:** Mainly cold and dry weather is expected in most parts of the province during the current decade.

❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall (snowfall over hills) is expected in the province during the 1st half of the current decade.

❖ **Sindh:** Mainly cold and dry weather is expected in most parts of the province during the current decade.

❖ **Balochistan:** Mainly cold and dry weather is expected in most parts of the province during the current decade.

❖ **Gilgit-Baltistan:** Light to moderate rainfall (snowfall over hills) is expected in the province during the 1st half of the current decade.

❖ **Kashmir**: Light to moderate rainfall (snowfall over hills) is expected in the province during the 1st half of the current decade.

❖ **3.4 Advisory for Farmers**

❖ Farmers of cotton crop are advised to prepare field for incoming Rabi crops and complete sowing in time.

❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.

❖ 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.
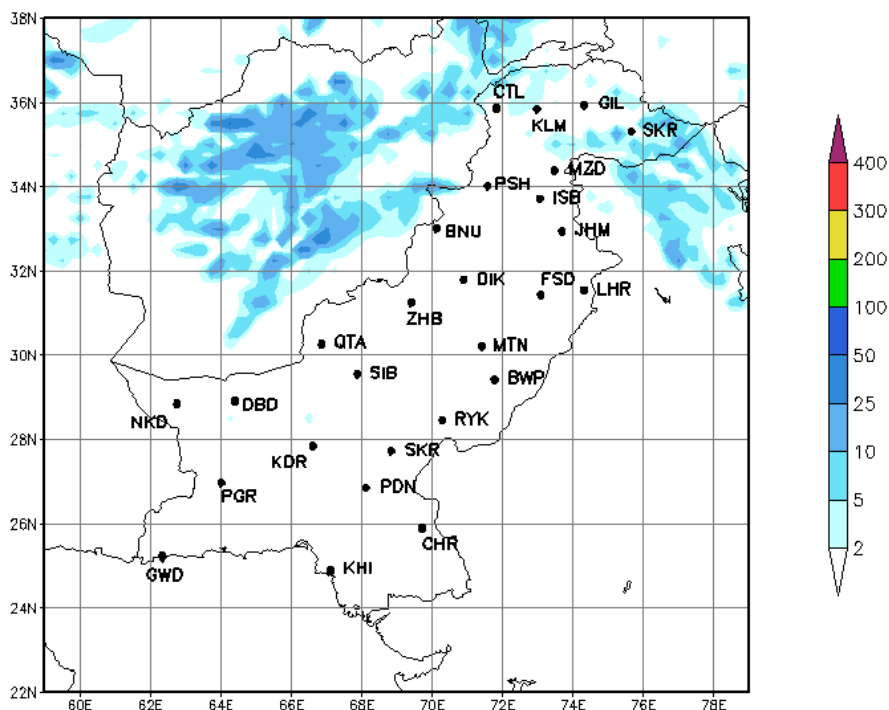
4.1 Precipitation Outlook (12th to 14th November, 2018)

The forecast for the next three days (12th to 14th) of the second decade of November 2018 shows that mainly cold and cloudy weather with light to moderate rainfall is expected in GB, upper KP and Kashmir,.

4.2 Precipitation Outlook (15th to 20th November, 2018)

The outlook for the last five days (15th to 20th) of the second decade of November2018 shows that mainly cold and cloudy weather with light rainfall is expected at isolated places of GB and Kashmir, however dry weather may prevail in rest parts of the country.

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)

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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 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 سدِّ باب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم ونسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جا سکتی ہے۔

(ایگمپ پاکستان 2014-2012)

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