

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Light rainfall reported in the agricultural plains of Punjab, K.P, G.B & Kashmir however dry weather reported in the agricultural plains of Balochistan & Sindh.
- ❖ Highest amount of rainfall reported 8.0mm at Balakot during the last decade.
- ❖ Highest Maximum temperature recorded 41.5°C at Turbat during the last decade.
- ❖ Mostly dry weather is expected in most of the agricultural plains of the country; however rain-thunderstorm is expected in upper parts of K.P & G.B from 21<sup>st</sup> to 26<sup>th</sup> of the decade.
- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation according to the expected weather mentioned during the decade.
- ❖ Farmers are advised to control further weeds growth at the present growing stages to stop any negative impact over the crops. Weeds removing practices should be started soon after expected rains.
- ❖ Farmers are advised to take cultivate winter vegetables in time so that present soil moisture may fully be utilized.
- ❖ Farmers of cotton crop areas are advised to prepare field for incoming Rabi crops and complete sowing in time.

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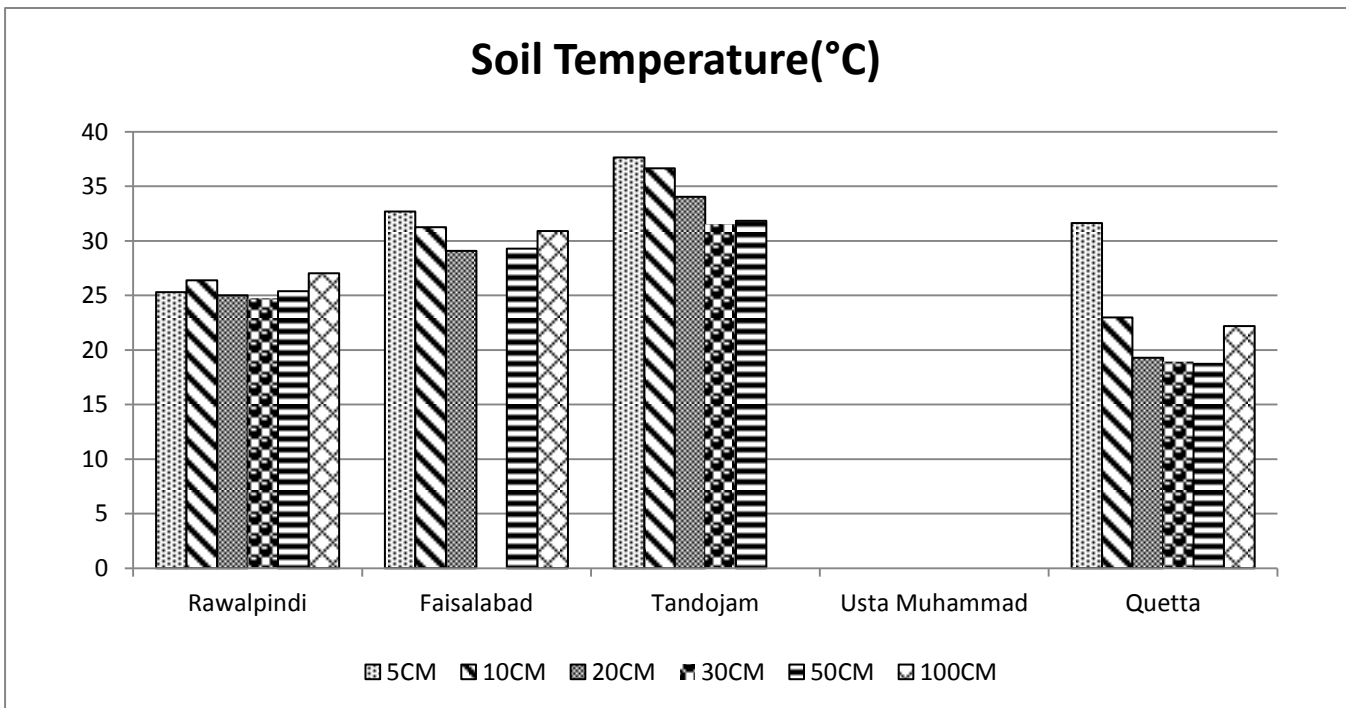
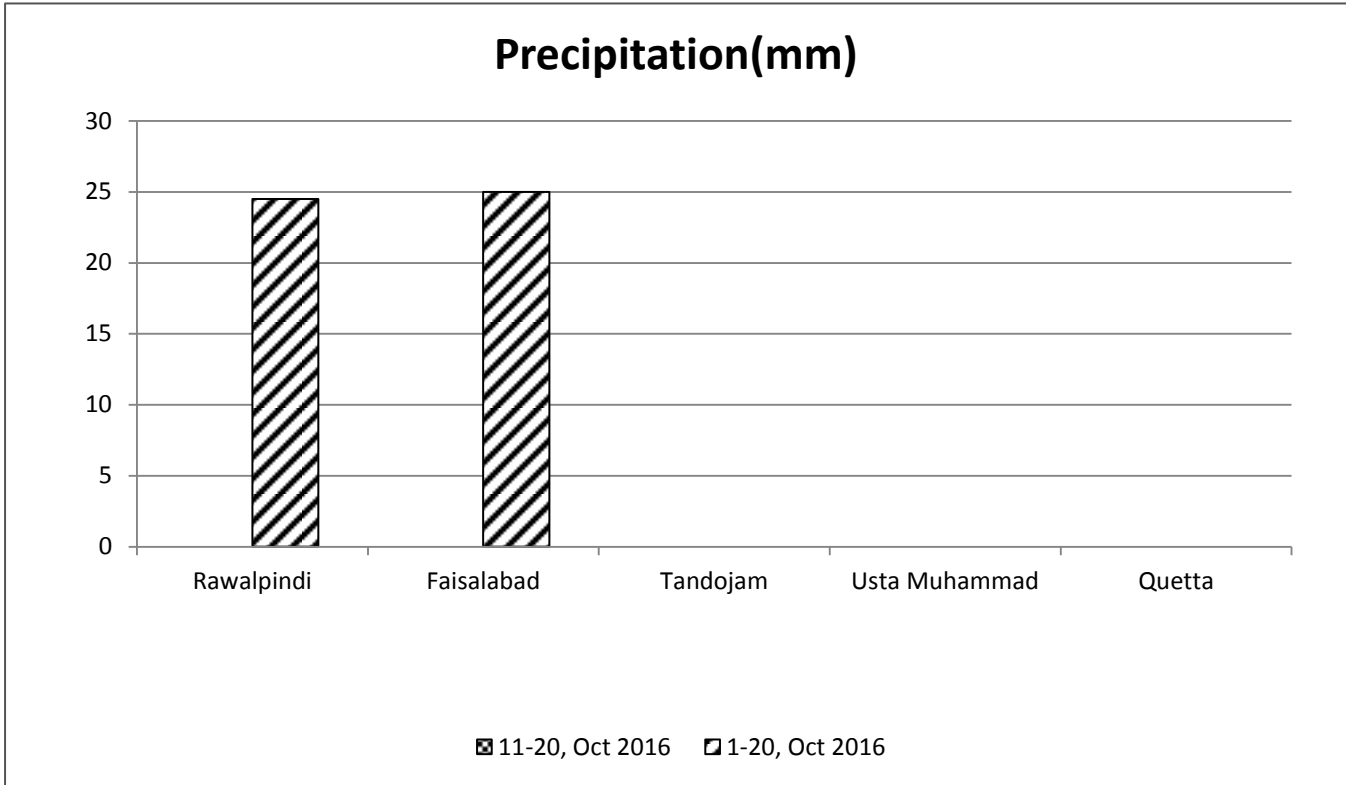
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**Meteorological Conditions during 2<sup>nd</sup> decade of October, 2016**

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	1.9	0.0	-1.9	2.1	0.5	24.6	25.3	26.4	25.0	24.8	25.4	27.1	51	91.3	2.1	3.1
2	Faisalabad	0.1	0.0	-0.1	1.9	0.5	26.5	32.7	31.3	29.1	***	29.3	30.9	47	89.4	1.7	3.2
3	Jhelum	1.1	0.0	-1.1	1.7	0.3	26.0	28.6	27.3	26.0	25.7	26.8	***	55	90.9	1.7	3.1
4	Lahore	0.6	0.0	-0.6	2.3	-1.5	27.0	28.7	28.2	27.3	27.2	***	28.8	53	87.8	1.1	3.0
5	Sargodha	0.4	0.0	-0.4	1.4	0.4	27.1	31.5	30.3	28.5	28.6	***	29.5	49	85.0	2.8	3.5
6	Multan	0.0	0.0	0.0	0.9	1.9	28.2	***	***	***	***	***	***	43	81.9	2.1	3.4
7	Khanpur	0.0	0.0	0.0	0.7	-0.4	27.4	***	30.6	30.9	31.6	32.4	32.7	50	96.1	3.1	4.0
8	Tandojam	0.0	0.0	0.0	0.5	0.4	28.6	37.7	36.7	34.1	31.6	31.9	***	59	87.9	7.3	5.2
9	Sakrand ☆	0.0	0.0	0.0	0.0	1.3	28.3	42.0	36.3	***	***	***	34.8	56	106.5	3.5	4.5
11	Rohri	0.0	0.0	0.0	1.1	***	37.2	***	***	***	***	***	***	42	101.0	1.4	4.0
12	D.I Khan	0.2	0.0	-0.2	1.5	-0.4	26.5	***	***	***	***	***	***	55	84.7	***	4.7
13	Peshawar	0.5	0.0	-0.5	2.5	0.2	25.3	29.3	27.0	26.0	***	***	***	64	72.8	2.1	2.9
14	Usta .M	0.0	0.0	0.0	0.8	-3.9	26.7	***	***	***	***	***	***	58	***	8.8	5.3
15	Quetta	0.0	0.0	0.0	-1.2	0.6	17.5	31.7	23.0	19.3	19.0	18.8	22.2	26	104.4	4.8	3.8
16	Skardu	0.2	0.0	-0.2	1.9	-0.4	12.7	***	***	***	***	***	***	44	75.0	0.5	1.8
17	Gilgit	0.1	0.0	-0.1	4.1	0.9	17.2	***	***	***	***	***	***	45	89.1	1.9	2.4

**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 October, 2016



**1. Past Weather (11<sup>th</sup> to 20<sup>th</sup> October, 2016)**

Light rainfall reported in the agricultural plains of Punjab, K.P, G.B & Kashmir however dry weather reported in the agricultural plains of Balochistan & Sindh.

**1.1 Punjab**

Light rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received in Kamra & Islamabad. Decadal maximum & minimum both raised above normal by 1.6°C & 0.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 88.9hrs, 2.1km/hr and 3.3mm/day respectively.

**1.2 Sindh**

Dry weather reported in the agricultural plains of Sindh. Decadal maximum & minimum both raised above normal by 0.5°C & 0.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 52%, 98.5hrs, 4.1km/hr and 4.6mm/day respectively.

**1.3 Khyber Pakhtunkhwa (KP)**

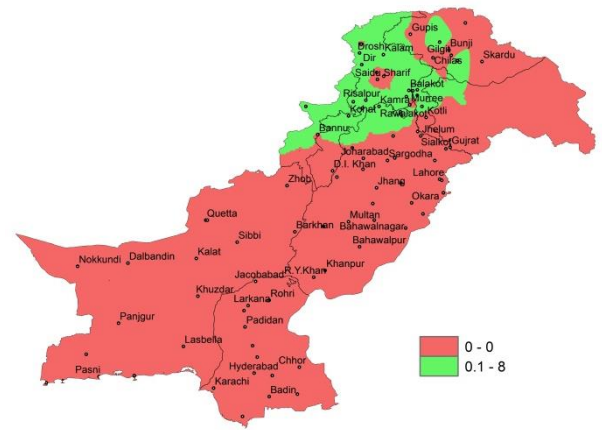
Light rainfall reported in the agricultural plains of KP. Chief amount of rainfall received Balakot, Pattan & kohat. Decadal maximum raised above normal by 2.0°C & minimum dropped below normal by 0.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 60%, 78.8 hrs, 2.1km/hr and 3.8mm/day respectively.

**1.4 Balochistan**

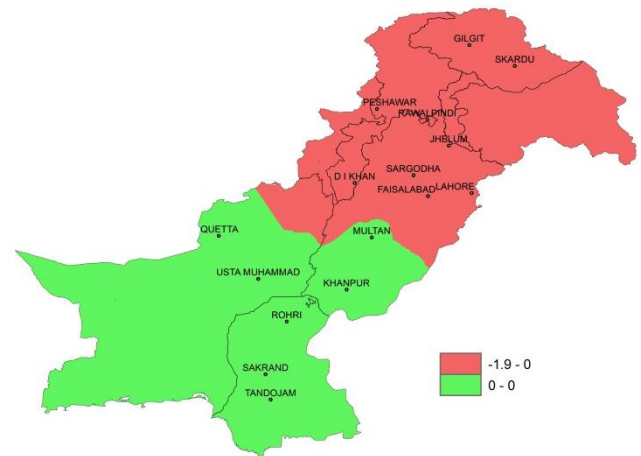
Dry weather reported in the agricultural plains of Balochistan. Decadal maximum & minimum both dropped below normal by 0.2°C & 1.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 42%, 104.4hrs, 6.8km/hr and 4.6mm/day respectively.

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

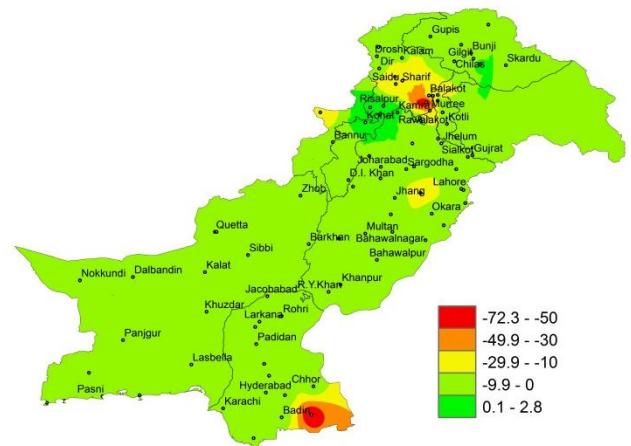
Light rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received Bagrote, Muzaffarabad, & Astore. Decadal maximum & minimum both raised above normal by 3.0°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 82.1hrs, 1.2km/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 in "mm"**

**2(a) Past Weather for Major Agricultural Plains (11<sup>th</sup> to 20<sup>th</sup> October, 2016)**

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 51%. Mean day temperature was 32.7°C while night temperature recorded as 16.4°C with 91.3hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *westerly*.

**Maize Agaiti 2002:** Good condition, wax maturity stage.

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 47%. Mean day temperature was 35.0°C while night temperature recorded as 17.9°C with 89.42hours bright sunshine duration. Wind speed recorded as 1.7km/hr with mean wind direction *south easterly*.

**Cotton:** Very good condition, Maturity stage.

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

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 59%. Mean day temperature was 36.9°C while night temperature recorded as 20.3°C with 87.9hours bright sunshine duration. Wind speed recorded as 7.3km/h with mean wind direction *south westerly*.

**Cotton (Star-2):** Good condition, Maturity stage.

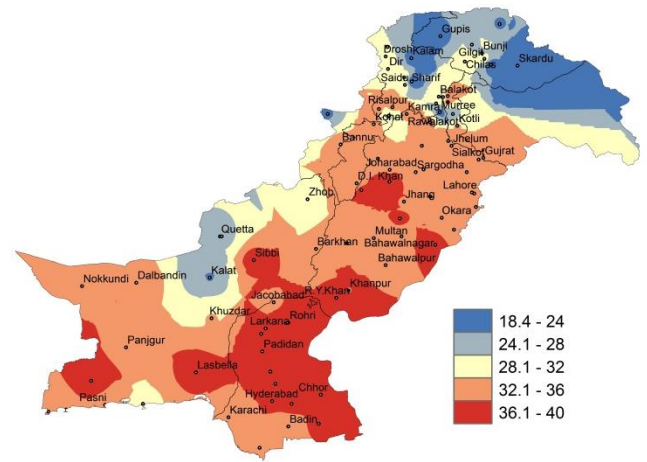
**2.4 RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 58%. Mean day temperature was 35.5°C while night temperature recorded as 17.9°C. Wind speed recorded as 8.8km/h with mean wind direction *southerly*.

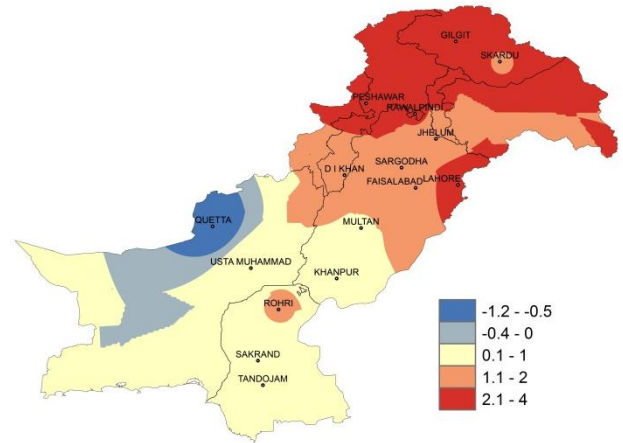
**Rice:** Good condition, wax maturity stage.

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

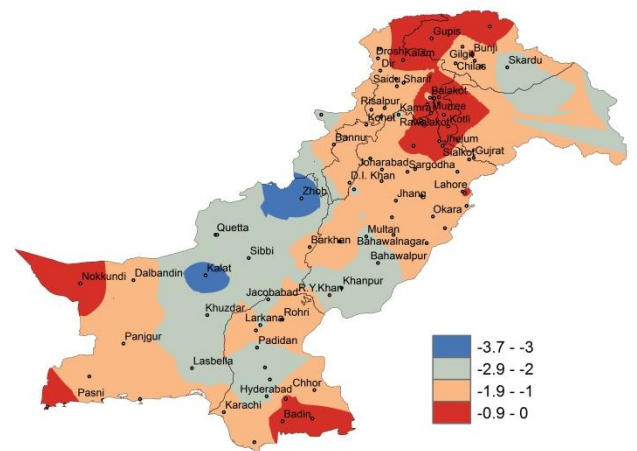
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 26%. Mean day temperature was 26.1°C while night temperature recorded as 8.9°C with 104.4hours bright sunshine duration. Wind speed recorded as 4.8km/hr with mean wind direction *north westerly*.



I. Actual max-temp



II. Departure of max-temp from Normal



III. Departure of max-temp from Previous Decade

**Figure.2: Maximum Temperature distribution during previous decade in °C**

**2(b) Past Weather for Sub-Regional Agricultural Plains (11<sup>th</sup> to 20<sup>th</sup> October, 2016)**

**2.6 Jhelum**

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 55%. Mean day temperature was 34.3°C while night temperature recorded as 17.6°C with 90.9hours bright sunshine duration. Wind speed recorded as 1.7km/hr with mean wind direction *south westerly*.

**2.7 Lahore**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 53%. Mean day temperature was 34.3°C while night temperature recorded as 19.6°C with 87.8hours bright sunshine duration. Wind speed recorded as 1.1km/hr with mean wind direction *north westerly*.

**2.8 Sargodha**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 49%. Mean day temperature was 34.6°C while night temperature recorded as 19.5°C with 85.0hours bright sunshine duration. Wind speed recorded 2.8km/hr with mean wind direction *variable*.

**2.9 Multan**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 43%. Mean day temperature was 35.2°C while night temperature recorded as 21.1°C with 81.9hours bright sunshine duration. Wind speed recorded 2.1km/hr with mean wind direction *south westerly*.

**2.10 Khanpur**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 50%. Mean day temperature was 35.9°C while night temperature recorded as 18.9°C with 96.1hours bright sunshine duration. Wind speed recorded 3.1km/hr with mean wind direction *south westerly*.

**2.11 Sakrand**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 56%. Mean day temperature was 36.0°C while night temperature recorded as 20.6°C with 106.5hours bright sunshine duration. Wind speed recorded 3.5km/hr with wind direction *south easterly*.

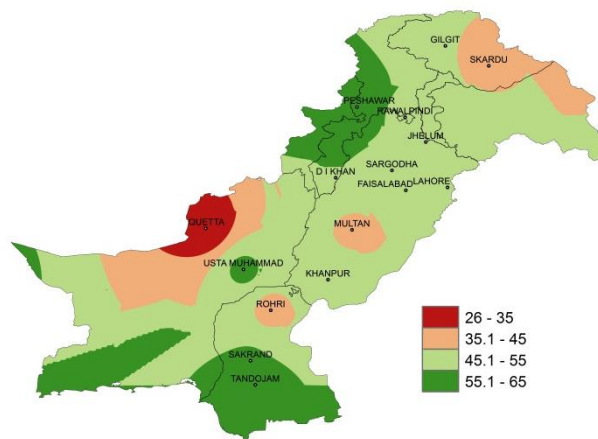


Figure.3: Relative Humidity in Percentage (%)

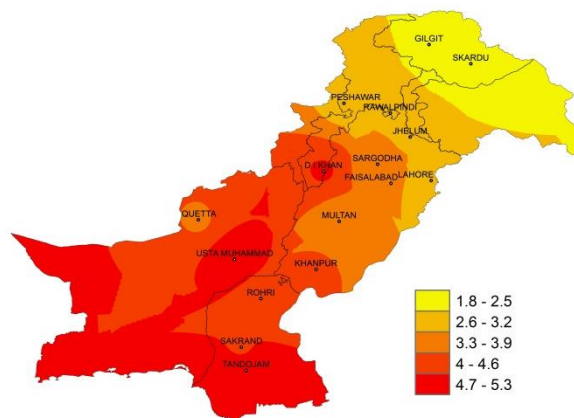


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

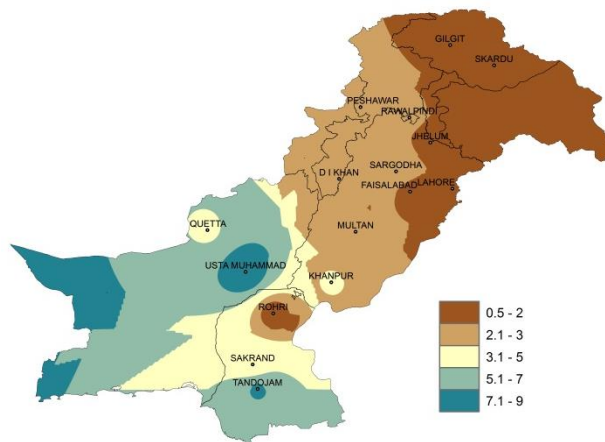


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 42%. Mean day temperature was recorded as 37.2°C with 101.0hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *south easterly*.

**2.13 D.I. Khan**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 55%. Mean day temperature was 35.3°C while night temperature recorded as 17.7°C with 84.7hours bright sunshine duration.

**2.14 Peshawar**

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 64%. Mean day temperature was 33.2°C while night temperature recorded as 17.4°C with 72.8hours bright sunshine duration. Wind speed recorded as 2.08km/hr with mean wind direction *north westerly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 44%. Mean day temperature was 22.4°C while night temperature recorded as 2.9°C with 75.0hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *east north-easterly*.

**2.16 Gilgit**

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 45%. Mean day temperature was 27.6°C while night temperature recorded as 6.7°C with 89.1hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *easterly*.

**3 Ten Days Weather Advisory for Farmers****(21<sup>st</sup> to 31<sup>st</sup> October, 2016)****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 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**

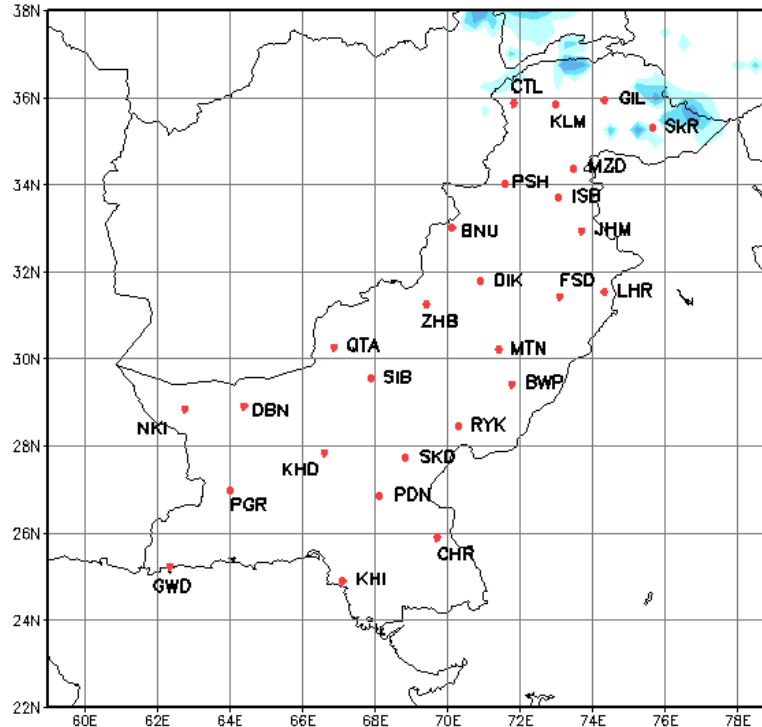
- ❖ **Punjab:** Dry weather is expected in most parts of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Light rainfall is expected at scattered places in KP including Malakand, Hazara Division during the decade.
- ❖ **Sindh:** Mainly hot and dry weather is expected in most parts of the province during the decade.
- ❖ **Balochistan:** Mainly hot and dry weather is expected in most parts of the province during the decade.
- ❖ **Gilgit Baltistan:** Rain-thunderstorm is expected at isolated places in GB from 21<sup>st</sup> to 26<sup>th</sup> of the decade.
- ❖ **Kashmir:** Mainly dry weather is expected in most parts of the Kashmir during the decade.

**3.4 Advisory for Farmers**

- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation according to the expected weather mentioned during the decade.
- ❖ Farmers are advised to control further weeds growth at the present growing stages to stop any negative impact over the crops. Weeds removing practices should be started soon after expected rains.
- ❖ Farmers are advised to take cultivate winter vegetables in time so that present soil moisture may fully be utilized.
- ❖ Farmers of cotton crop areas are advised to prepare field for incoming Rabi crops and complete sowing in time.
- ❖ Farmers of rainfed areas are advised to sow their Rabi crops during the period 15<sup>th</sup> October to 15<sup>th</sup> November. After this time yield of wheat crop decreases gradually. Farmers of irrigated areas of Punjab, Sindh, and KP are advised to complete sowing of wheat crop in the month of November.

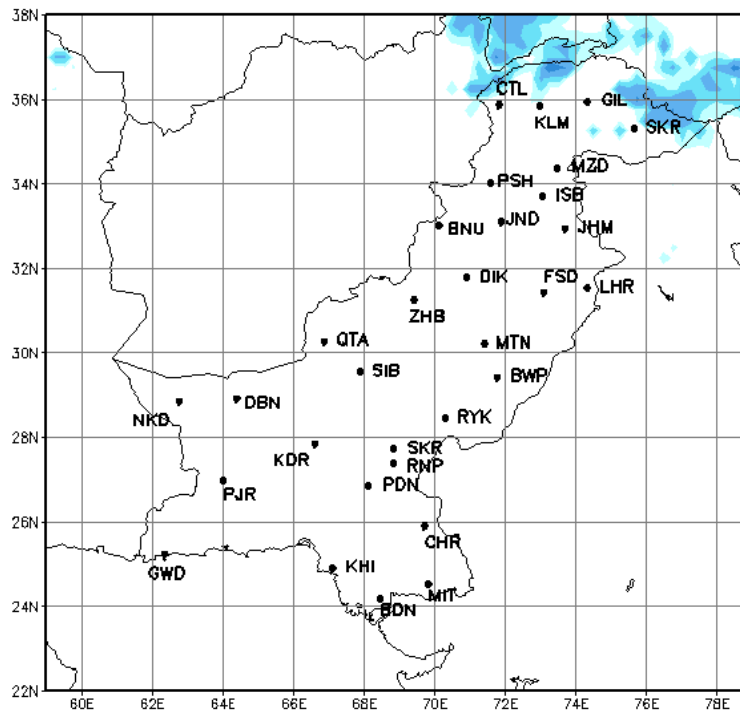
**4.1 Precipitation Forecast (21<sup>st</sup> to 23<sup>rd</sup> October, 2016)**

The forecast for the first three days (21<sup>st</sup> to 23<sup>rd</sup>) of this decade of October 2016 shows that normal rainfall is expected in the regions of KP \* & Gilgit Baltistan.



**4.2 Precipitation Outlook (24<sup>th</sup> to 31<sup>st</sup> October, 2016)**

The outlook for the last eight days (24<sup>th</sup> to 31<sup>st</sup>) of this decade of October 2016 shows that light to moderate rainfall is expected at isolated places in the KP & G.B.





## 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 سدباب (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)