

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Dry weather reported in the agricultural plains of country however light rainfall reported in few places of K.P.
- ❖ Highest amount of rainfall reported 2.6mm at Lower Dir during the last decade.
- ❖ Lowest Minimum temperature recorded -3.4°C at Skardu during the last decade.
- ❖ Mostly dry weather is expected in most of the agricultural plains of the country; however light to moderate rain (with snowfall on mountains) is expected in upper parts of K.P & G.B from 3rd to 5th & 7th 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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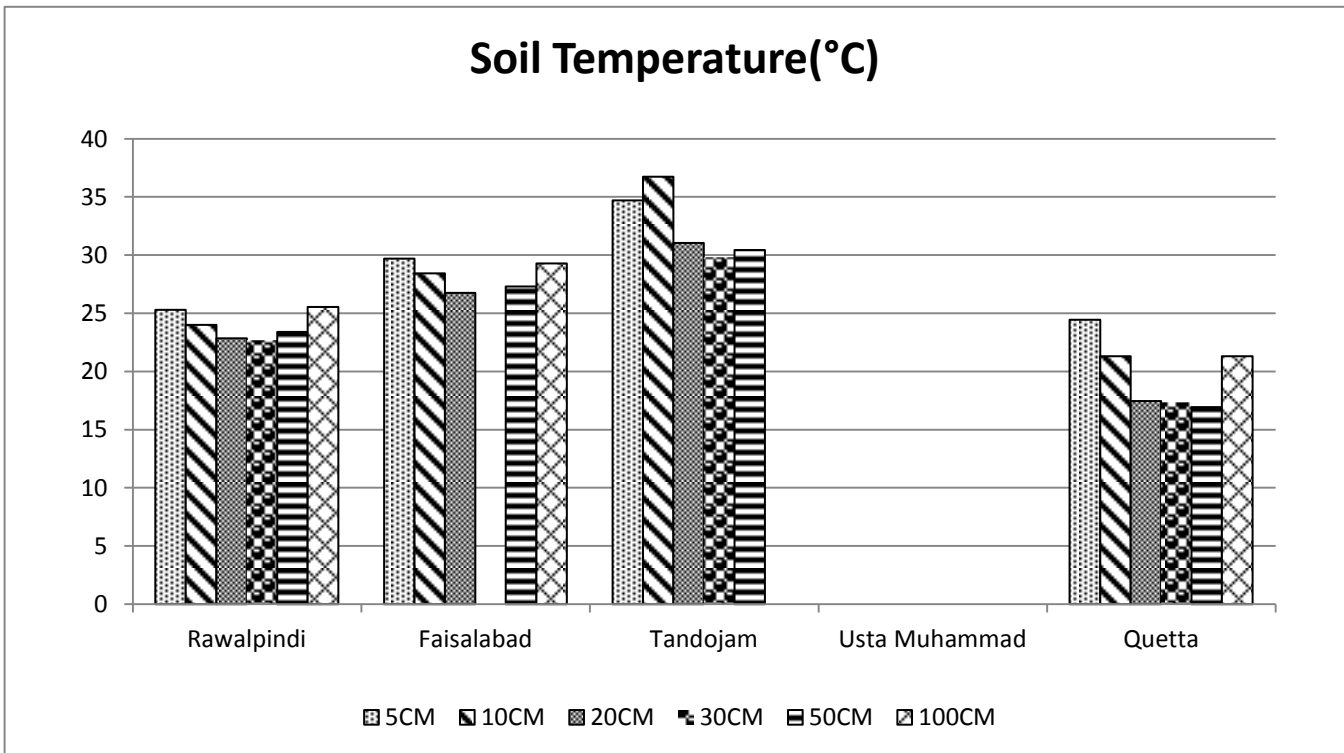
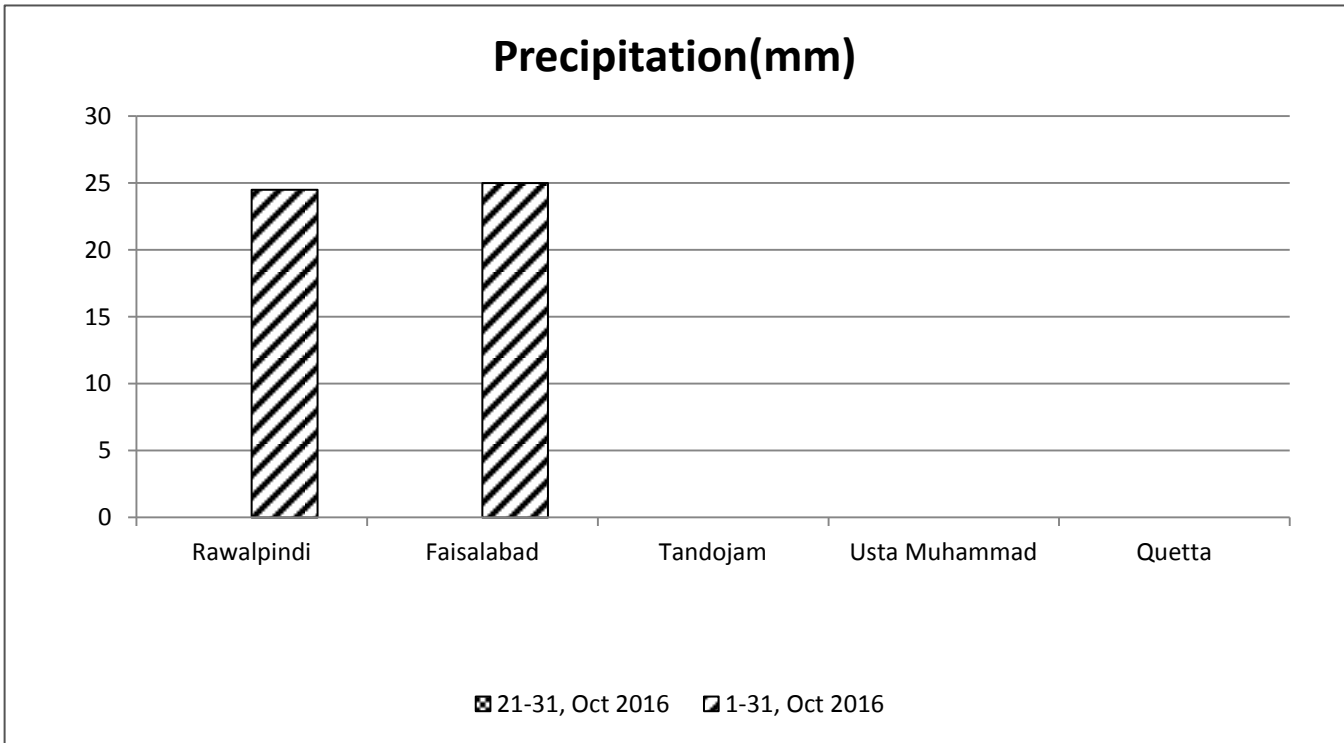
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Meteorological Conditions during 3rd decade of October, 2016

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	0.3	0.0	-0.3	1.0	1.1	21.8	25.3	24.0	22.9	22.7	23.4	25.6	64	87.6	2.8	2.7
2	Faisalabad	0.0	0.0	0.0	1.4	2.3	25.3	29.7	28.5	26.8	***	27.3	29.3	56	69.2	1.2	2.4
3	Jhelum	0.3	0.0	-0.3	0.6	-0.3	23.7	24.9	24.1	23.5	23.6	24.8	***	60	86.9	0.4	2.3
4	Lahore	0.1	0.0	-0.1	1.0	-0.9	24.5	26.9	25.6	25.2	25.2	***	27.3	59	74.8	1.0	2.4
5	Sargodha	0.2	0.0	-0.2	0.1	1.6	25.0	28.5	27.3	26.3	26.6	***	28.2	58	72.1	1.1	2.4
6	Multan	0.0	0.0	0.0	0.6	1.7	25.9	***	***	***	***	***	***	48	87.4	1.1	2.7
7	Khanpur	0.0	0.0	0.0	2.0	-0.4	25.7	***	27.7	28.2	26.4	27.3	30.6	51	109.1	1.5	3.2
8	Tandojam	0.0	0.0	0.0	0.8	1.3	27.7	34.7	36.8	31.1	29.8	30.5	***	54	99.0	5.2	4.6
9	Sakrand ☆	0.0	0.0	0.0	1.6	1.8	27.4	40.1	34.8	***	***	***	33.8	53	113.0	3.1	4.1
11	Rohri	0.0	0.0	0.0	2.3	***	36.4	***	***	***	***	***	***	34	111.7	6.3	4.0
12	D.I Khan	0.1	0.0	-0.1	0.8	-1.5	23.6	***	***	***	***	***	***	54	76.7	***	4.1
13	Peshawar	0.1	0.1	0.0	1.1	-0.3	22.5	26.8	25.1	24.3	***	***	***	60	56.1	0.5	1.8
14	Usta .M	0.0	0.0	0.0	2.3	-4.2	25.6	***	***	***	***	***	***	47	***	4.0	4.0
15	Quetta	0.0	0.0	0.0	-1.6	2.0	15.9	24.5	21.3	17.5	17.4	17.0	21.3	38	112.6	4.5	3.2
16	Skardu	0.0	0.0	0.0	-1.3	0.7	9.8	***	***	***	***	***	***	51	81.7	1.5	1.8
17	Gilgit	0.1	0.1	0.0	-0.9	1.5	14.5	***	***	***	***	***	***	54	83.5	2.1	2.1

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 (21st to 31st October, 2016)

Dry weather reported in the agricultural plains of country however light rainfall reported in few places of K.P.

1.1 Punjab

Dry weather reported in the agricultural plains of Punjab. Decadal maximum & minimum both raised above normal by 1.0°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 83.9hrs, 1.3km/hr and 2.6mm/day respectively.

1.2 Sindh

Dry weather reported in the agricultural plains of Sindh. Decadal maximum & minimum both raised above normal by 1.6°C & 1.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 107.9hrs, 4.9km/hr and 4.2mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

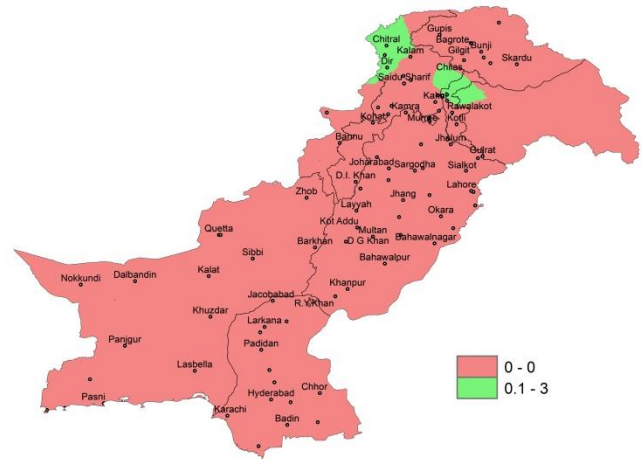
Light rainfall reported in few places of KP. Chief amount of rainfall received Drosh & Pattan. Decadal maximum raised above normal by 0.9°C & minimum dropped below normal by 0.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 66.4hrs, 0.5km/hr and 3.0mm/day respectively.

1.4 Balochistan

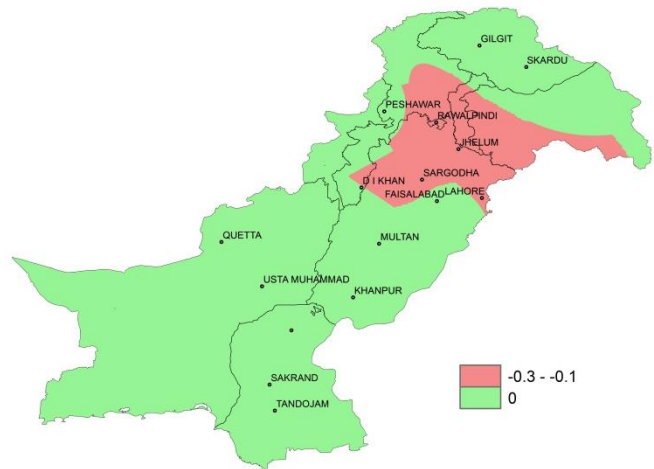
Dry weather reported in the agricultural plains of Balochistan. Decadal maximum raised above normal by 0.4°C & minimum dropped below normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 112.6hrs, 4.3km/hr and 3.6mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

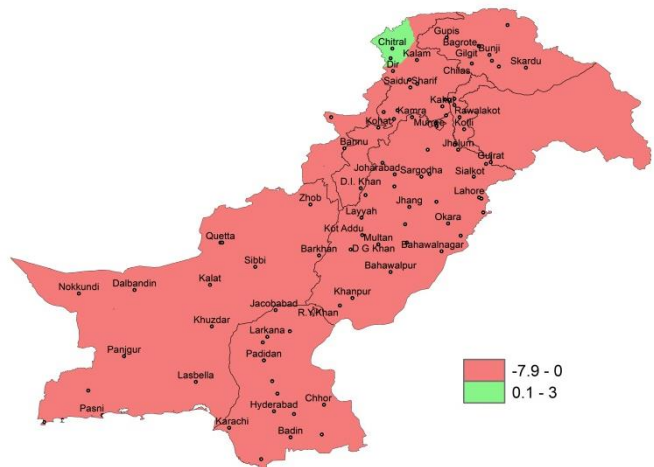
Dry weather reported in the agricultural plains of GB & Kashmir. Decadal maximum dropped below normal by 1.0°C & minimum raised above normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 53%, 82.6hrs, 1.8km/hr and 2.0mm/day respectively.



I. Actual rainfall



II. Departure of rainfall from Normal



III. Departure of rainfall from Previous Decade

Figure.1: Rainfall distribution during previous decade in "mm"

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

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

Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 64%. Mean day temperature was 30.2°C while night temperature recorded as 13.4°C with 87.6hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *north westerly*.

Maize Agaiti 2002: Good condition, full maturity stage.

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

Dry weather reported during the decade; however weather remained cloudy for 02 days. Average relative humidity recorded as 56%. Mean day temperature was 33.0°C while night temperature recorded as 17.5°C with 69.20hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *easterly*.

Cotton: Very good condition, Maturity stage.

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

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 54%. Mean day temperature was 36.3°C while night temperature recorded as 19.1°C with 99.0hours bright sunshine duration. Wind speed recorded as 5.2km/h with mean wind direction *south westerly*.

Cotton (Star-2): Harvested.

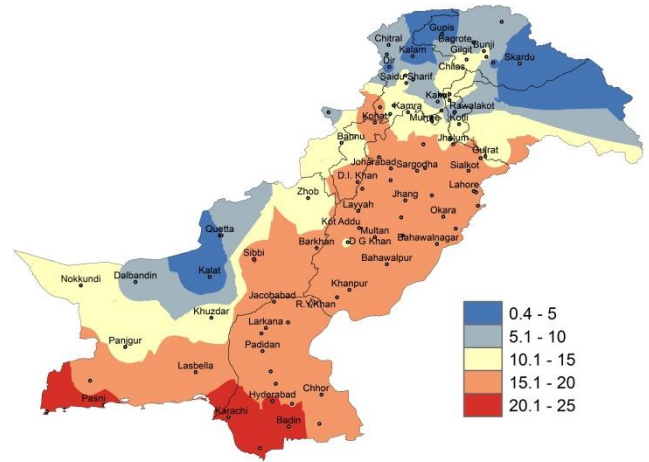
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 47%. Mean day temperature was 35.3°C while night temperature recorded as 15.9°C. Wind speed recorded as 4.0km/h with mean wind direction *variable*.

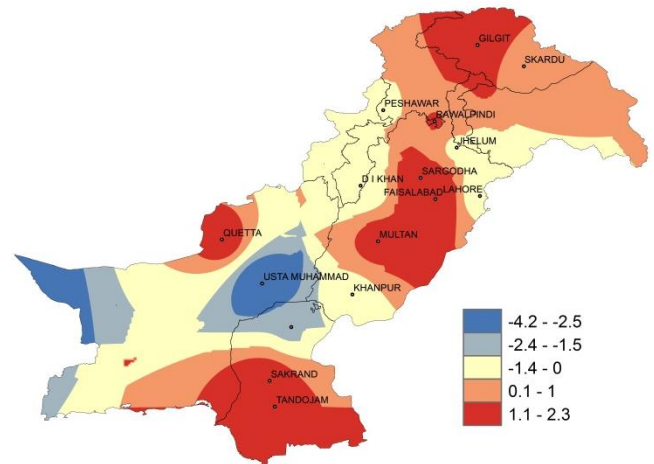
Rice: Good condition, full maturity stage.

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

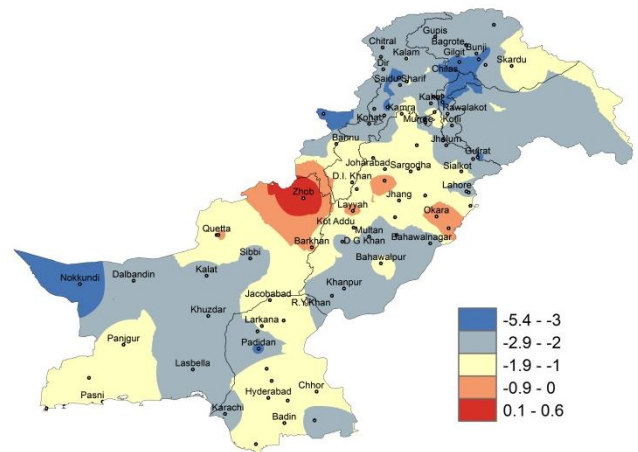
Dry weather reported during the decade; however weather remained cloudy for 04 days. Average relative humidity recorded as 38%. Mean day temperature was 23.1°C while night temperature recorded as 8.7°C with 112.6hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *northerly*.



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 in °C

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

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 60%. Mean day temperature was 32.2°C while night temperature recorded as 15.2°C with 86.9hours bright sunshine duration. Wind speed recorded as 0.4km/hr with mean wind direction *southerly*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 59%. Mean day temperature was 31.4°C while night temperature recorded as 17.6°C with 74.8hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 58%. Mean day temperature was 31.6°C while night temperature recorded as 18.4°C with 72.1hours bright sunshine duration. Wind speed recorded 1.11km/hr with mean wind direction *south westerly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 01 day. Average relative humidity recorded as 48%. Mean day temperature was 33.2°C while night temperature recorded as 18.5°C with 87.4hours bright sunshine duration. Wind speed recorded 1.1km/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 51%. Mean day temperature was 35.0°C while night temperature recorded as 16.3°C with 109.1hours bright sunshine duration. Wind speed recorded 1.5km/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 53%. Mean day temperature was 35.7°C while night temperature recorded as 19.1°C with 113.0hours bright sunshine duration. Wind speed recorded 3.1km/hr with wind direction *south easterly*.

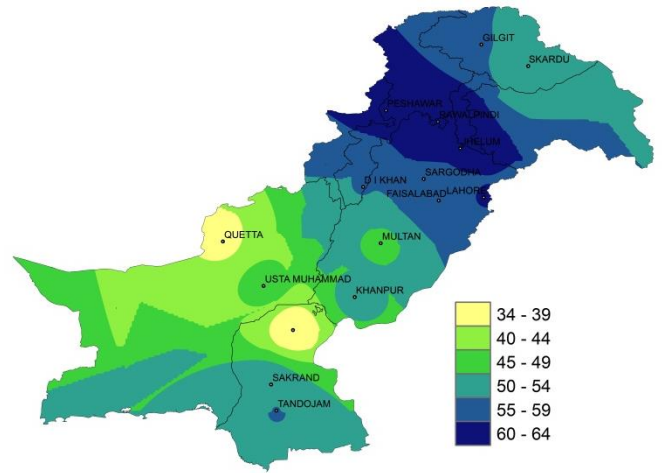


Figure.3: Relative Humidity in Percentage (%)

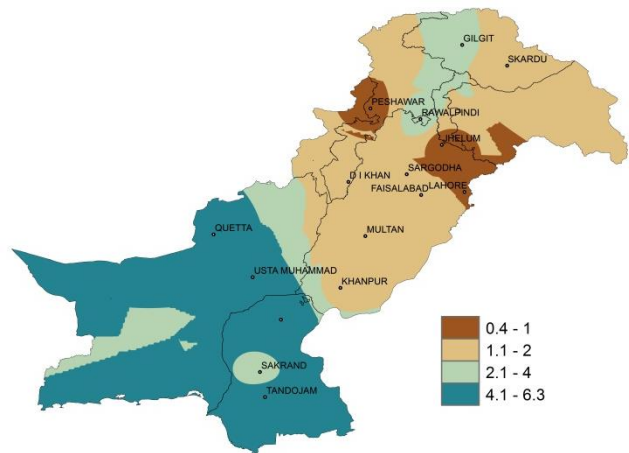


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

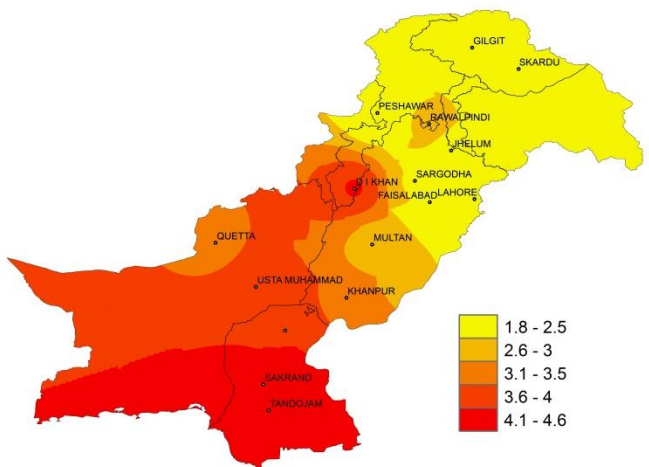


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 34%. Mean day temperature was recorded as 36.4°C with 111.7hours bright sunshine duration. Wind speed recorded as 6.3km/hr with mean wind direction *south westerly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 02 days. Average relative humidity recorded as 54%. Mean day temperature was 32.8°C while night temperature recorded as 14.3°C with 76.7hours bright sunshine duration.

2.14 Peshawar

Rainfall reported as Trace (not measureable); however weather remained cloudy for 05days. Average relative humidity recorded as 60%. Mean day temperature was 30.2°C while night temperature recorded as 14.8°C with 56.1hours bright sunshine duration. Wind speed recorded as 0.5km/hr with mean wind direction *north easterly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 51%. Mean day temperature was 18.0°C while night temperature recorded as 1.6°C with 81.7hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 11days. Average relative humidity recorded as 54%. Mean day temperature was 24.1°C while night temperature recorded as 4.9°C with 83.5hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *south easterly*.

3 Ten Days Weather Advisory for Farmers **(1st to 10th November, 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

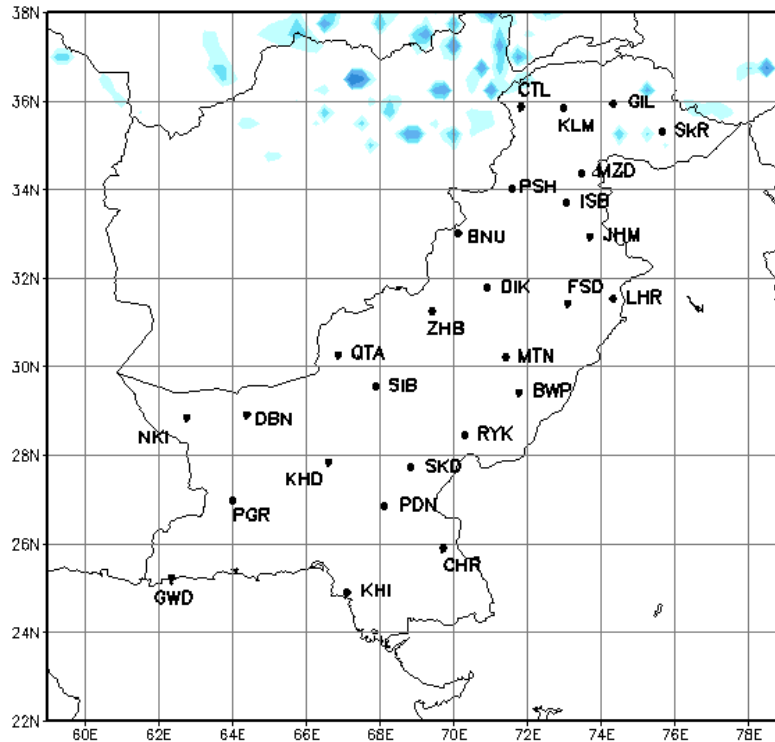
- ❖ **Punjab:** Dry weather is expected in most parts of the province during the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly dry weather is expected during the decade however light rainfall is expected at scattered places in KP including Malakand, Hazara division from 3rd to 5th of the decade.
- ❖ **Sindh:** 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:** Mainly dry weather is expected in most parts of G.B however light to moderate rain with snowfall is expected at Gilgit & Skardu from 3rd to 5th and 7th of the decade.
- ❖ **Kashmir:** Mainly dry weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzaffarabad from 3rd to 5th of 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 15th October to 15th 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.

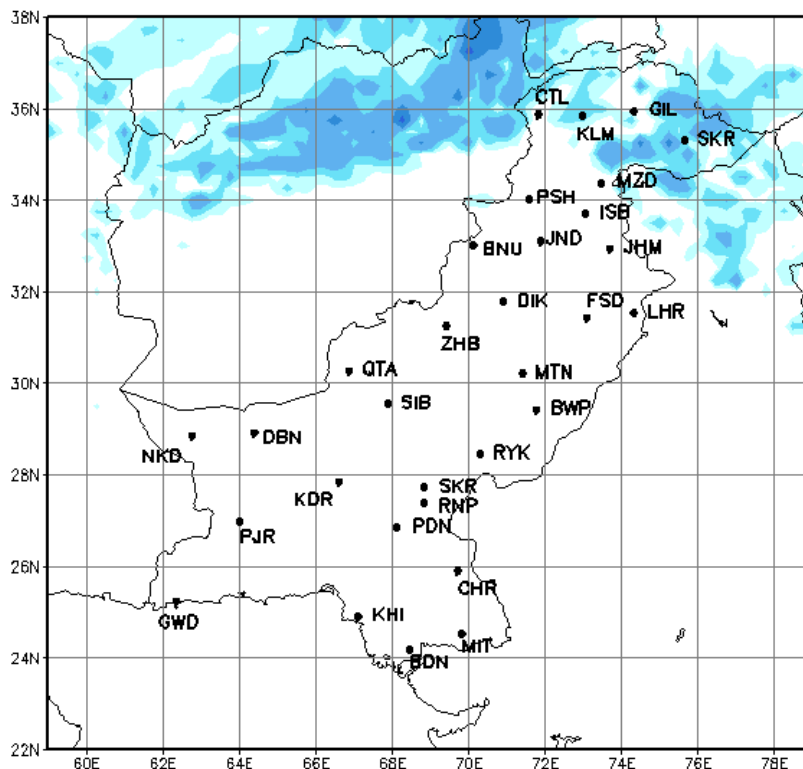
4.1 Precipitation Forecast (1st to 3rd November, 2016)

The forecast for the first three days (1st to 3rd) of this decade of November 2016 shows that no rainfall is expected in the country except isolated places in upper KP & Gilgit Baltistan.



4.2 Precipitation Outlook (4th to 10th November, 2016)

The outlook for the last seven days (4th to 10th) of this decade of November 2016 shows that light to moderate rainfall (with snowfall on mountains) is expected at isolated places in the upper KP & G.B, 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 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)