

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 6.0mm at Lower Dir during the last decade.
- ❖ Lowest Minimum temperature recorded -4.8°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 Punjab, K.P & G.B from 11th to 13th 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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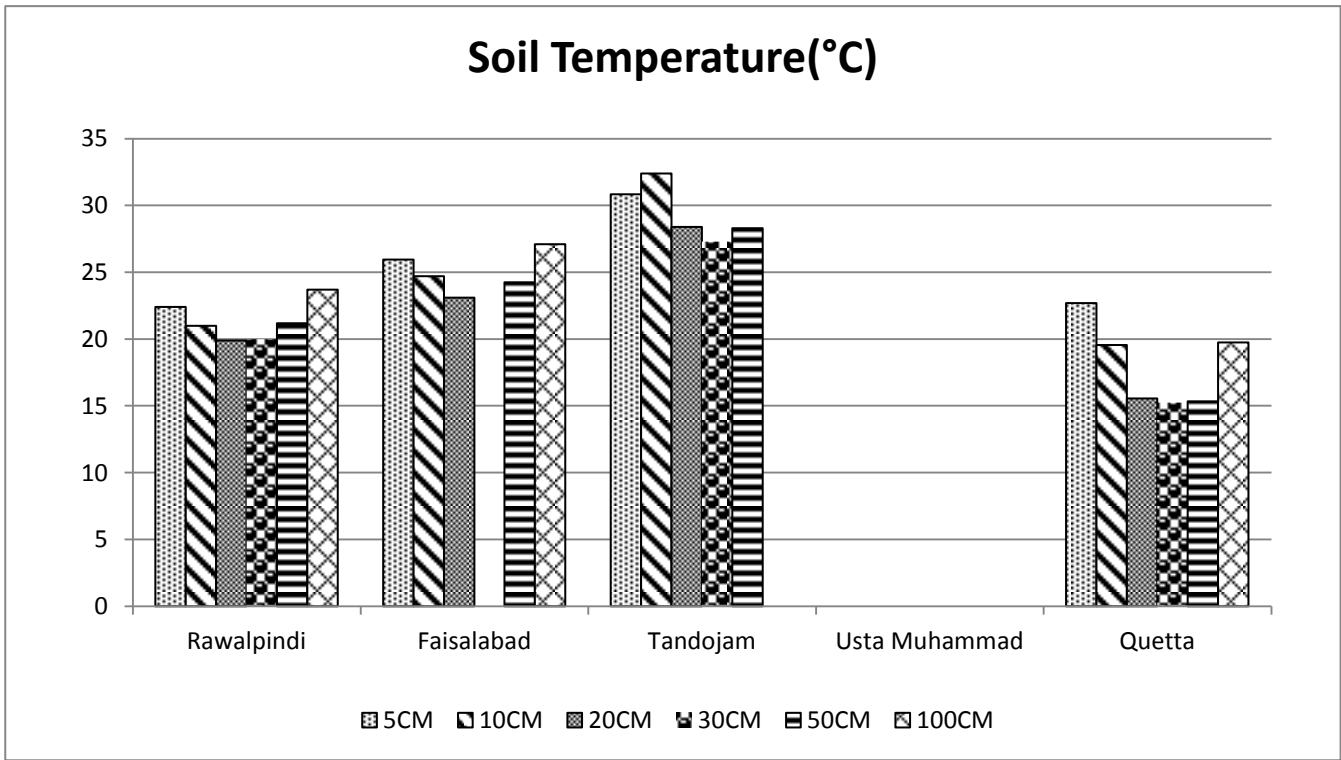
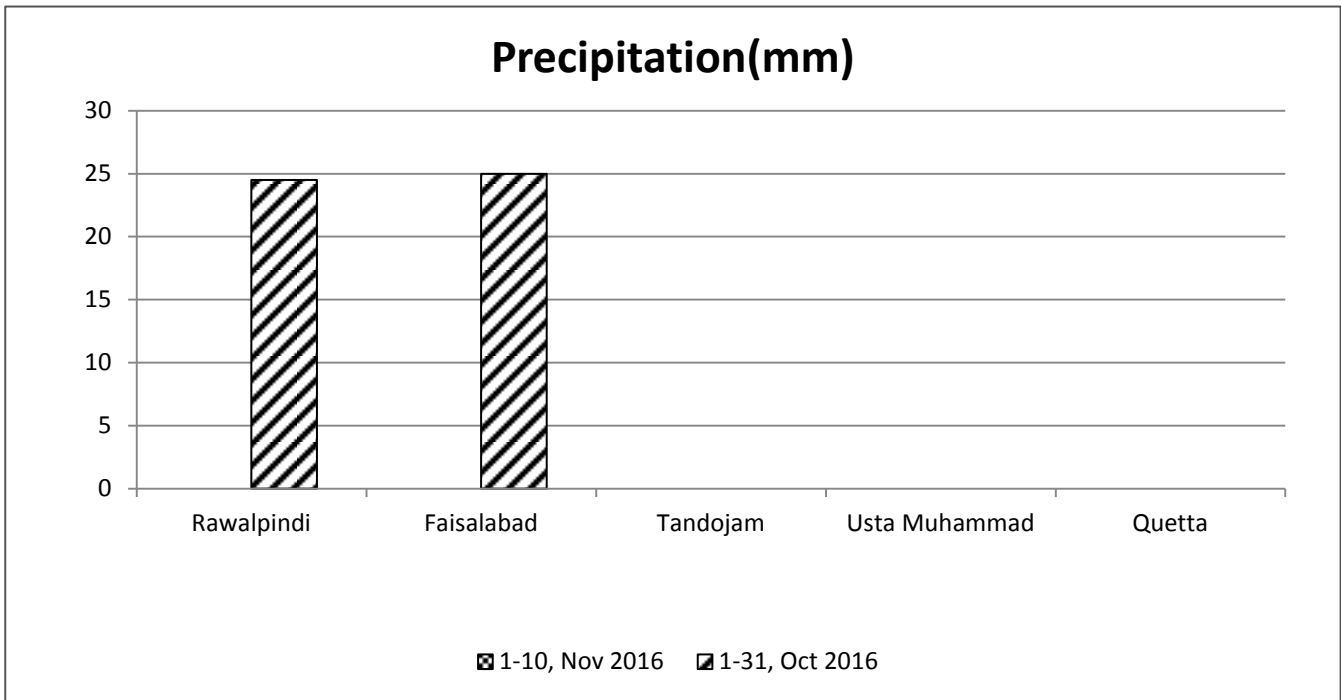
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Meteorological Conditions during 1st decade of November, 2016

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	0.4	0.3	19.5	22.4	21.0	19.9	20.0	21.2	23.7	54	73.9	2.2	2.1
2	Faisalabad	0.0	0.0	0.0	0.1	0.2	21.8	26.0	24.7	23.1	***	24.3	27.1	61	34.3	1.0	1.7
3	Jhelum	0.1	0.0	-0.1	-0.2	-1.2	21.0	21.8	21.1	21.0	21.3	22.3	***	61	60.1	0.9	1.7
4	Lahore	0.0	0.0	0.0	-0.8	-2.2	21.6	24.0	23.6	23.0	22.9	***	26.0	67	35.4	0.7	1.6
5	Sargodha	0.0	0.0	0.0	-1.0	0.4	21.9	25.2	24.3	23.8	24.3	***	26.7	69	53.9	0.9	1.8
6	Multan	0.0	0.0	0.0	-0.2	1.1	23.4	***	***	***	***	***	***	55	58.6	0.8	1.9
7	Khanpur	0.0	0.0	0.0	1.0	-0.7	23.9	***	25.2	25.7	26.4	27.4	28.4	50	83.5	2.3	2.8
8	Tandojam	0.0	0.0	0.0	1.5	-1.8	25.1	30.9	32.4	28.4	27.3	28.3	***	52	90.9	2.7	3.4
9	Sakrand ☆	0.0	0.0	0.0	2.1	-0.9	25.3	36.8	31.1	***	***	***	32.4	47	101.0	2.8	3.5
11	Rohri	0.0	0.0	0.0	1.5	***	34.6	***	***	***	***	***	***	37	105.0	0.2	3.0
12	D.I Khan	0.0	0.0	0.0	-0.5	0.9	22.0	***	***	***	***	***	***	67	40.8	***	2.9
13	Peshawar	0.4	0.0	-0.4	1.7	-1.0	20.4	25.0	22.4	20.3	***	***	***	54	60.1	3.4	2.3
14	Usta .M	0.0	0.0	0.0	1.7	-3.6	23.9	***	***	***	***	***	***	53	***	1.2	2.6
15	Quetta	0.1	0.0	-0.1	9.2	2.7	19.4	22.7	19.6	15.6	15.3	15.4	19.8	32	98.5	4.1	3.4
16	Skardu	0.1	0.0	-0.1	-0.8	-1.6	7.1	***	***	***	***	***	***	57	71.8	0.3	1.2
17	Gilgit	0.2	0.0	-0.2	-0.7	-0.5	11.7	***	***	***	***	***	***	55	63.6	1.3	1.5

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 (1st to 10th November, 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 dropped below normal by 0.1°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 60%, 57.1hrs, 1.3km/hr and 1.9mm/day respectively.

1.2 Sindh

Dry weather reported in the agricultural plains of Sindh. Decadal maximum raised above normal by 1.7°C & minimum dropped below normal by 1.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 99.0hrs, 1.9km/hr and 3.3mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

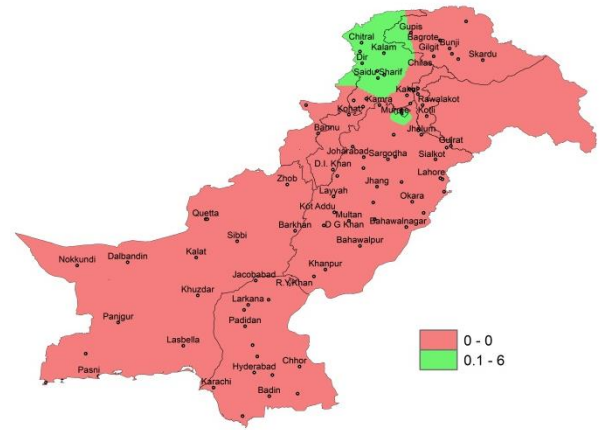
Light rainfall reported in few places of KP. Chief amount of rainfall received Dir, Swat & Saidu Sharif. Decadal maximum raised above normal by 0.6°C & minimum temperature remained normal by 0.0°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 50.5hrs, 3.4km/hr and 2.6mm/day respectively.

1.4 Balochistan

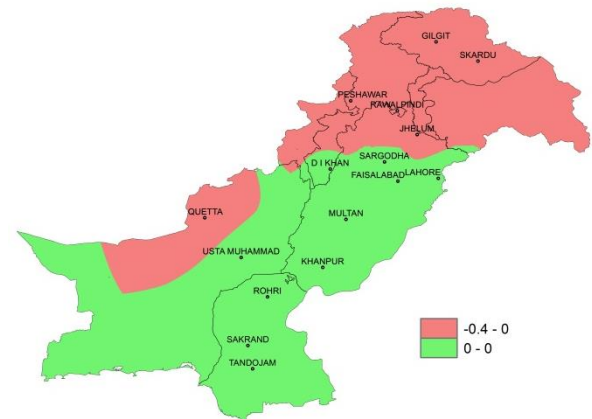
Dry weather reported in the agricultural plains of Balochistan. Decadal maximum raised above normal by 0.5°C & minimum dropped below normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 98.5hrs, 2.7km/hr and 3.0mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

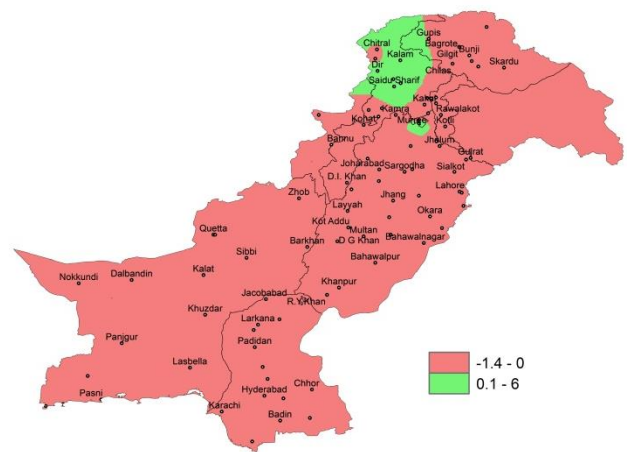
Dry weather reported in the agricultural plains of GB & Kashmir. Decadal maximum & minimum both dropped below normal by 1.0°C & 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 67.7hrs, 6.8km/hr and 1.4mm/day respectively.



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**
(1st to 10th November, 2016)

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

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 54%. Mean day temperature was 28.1°C while night temperature recorded as 10.8°C with 73.9hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *westerly*.
Maize Agaiti 2002: harvested.

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

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 61%. Mean day temperature was 29.9°C while night temperature recorded as 13.7°C with 34.33hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *south westerly*.
Cotton: Harvested.

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

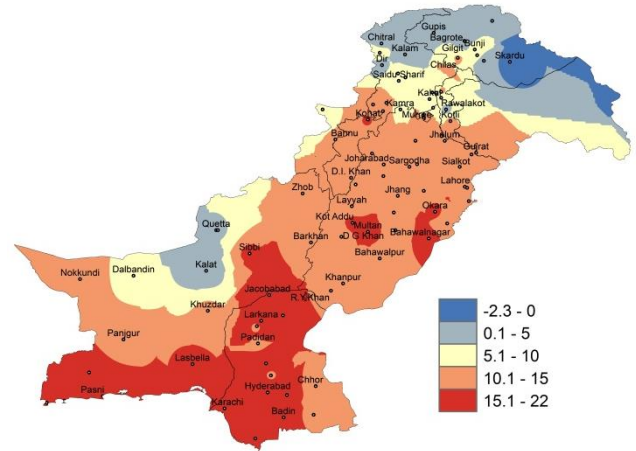
Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 52%. Mean day temperature was 35.6°C while night temperature recorded as 14.6°C with 90.9hours bright sunshine duration. Wind speed recorded as 2.7km/h with mean wind direction *south westerly*.
Wheat (Imdad): Good condition, Germination stage.

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

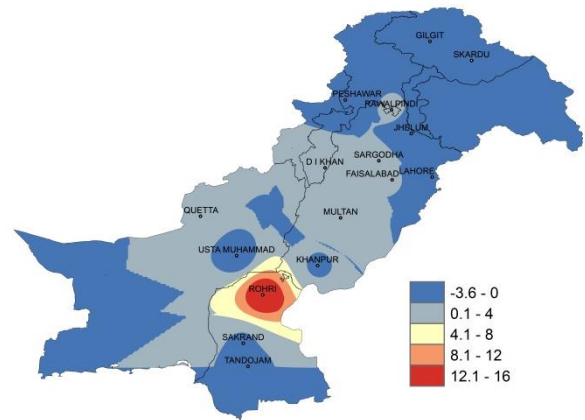
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 53%. Mean day temperature was 33.5°C while night temperature recorded as 14.3°C. Wind speed recorded as 1.2km/h with mean wind direction *south westerly*.
Rice: Harvested.

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

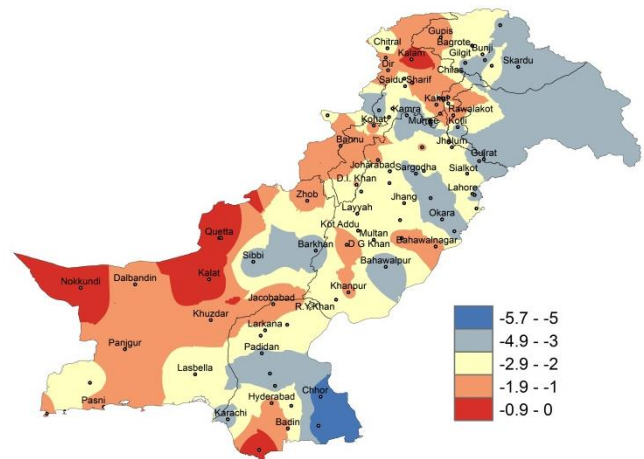
Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 32%. Mean day temperature was 21.6°C while night temperature recorded as 7.2°C with 98.5hours bright sunshine duration. Wind speed recorded as 4.1km/hr with mean wind direction *north 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 in “°C”

2(b) Past Weather for Sub-Regional Agricultural Plains (1st to 10th November, 2016)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 61%. Mean day temperature was 29.4°C while night temperature recorded as 12.5°C with 60.1hours bright sunshine duration. Wind speed recorded as 0.9km/hr with mean wind direction *south westerly*.

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 67%. Mean day temperature was 28.5°C while night temperature recorded as 14.7°C with 35.4hours bright sunshine duration. Wind speed recorded as 0.7km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 69%. Mean day temperature was 28.5°C while night temperature recorded as 15.2°C with 53.9hours bright sunshine duration. Wind speed recorded 0.9km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 55%. Mean day temperature was 30.7°C while night temperature recorded as 16.0°C with 58.6hours bright sunshine duration. Wind speed recorded 0.8km/hr with mean wind direction *variable*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 50%. Mean day temperature was 33.2°C while night temperature recorded as 14.5°C with 83.5hours bright sunshine duration. Wind speed recorded 2.3km/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 47%. Mean day temperature was 35.2°C while night temperature recorded as 15.3°C with 101.0hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *north easterly*.

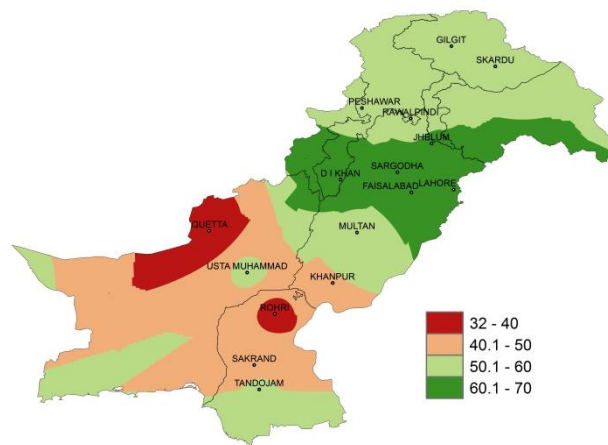


Figure.3: Relative Humidity in Percentage (%)

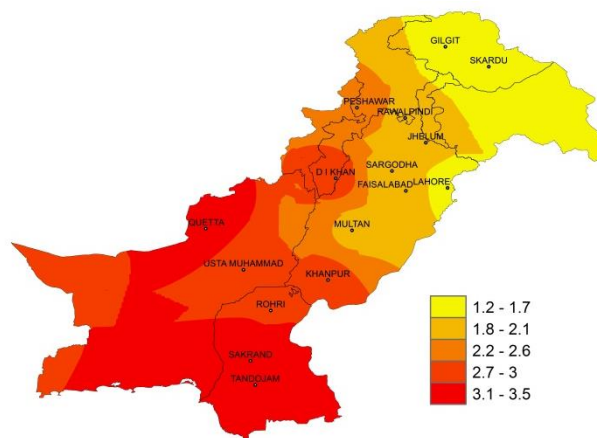


Figure.4: Reference Crop Evapotranspiration "ETo" in mm/day

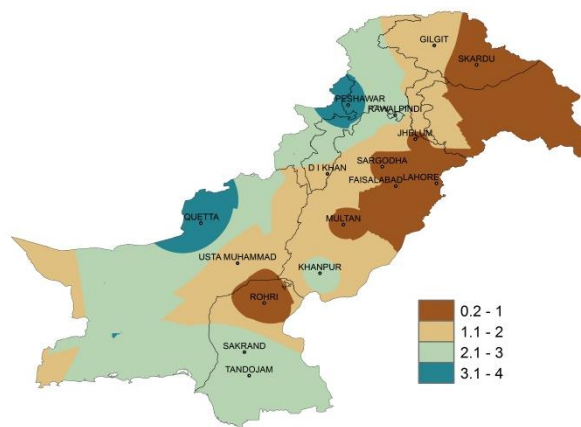


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 37%. Mean day temperature was recorded as 34.6°C with 105.0hours bright sunshine duration. Wind speed recorded as 0.2km/hr with mean wind direction *west easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 67%. Mean day temperature was 29.5°C while night temperature recorded as 14.5°C with 40.8hours bright sunshine duration.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 54%. Mean day temperature was 28.6°C while night temperature recorded as 12.2°C with 60.1hours bright sunshine duration. Wind speed recorded as 3.4km/hr with mean wind direction *north easterly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 57%. Mean day temperature was 16.5°C while night temperature recorded as -2.3°C with 71.8hours bright sunshine duration. Wind speed recorded as 0.3km/hr with mean wind direction *east-north easterly*.

2.16 Gilgit

Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 55%. Mean day temperature was 21.9°C while night temperature recorded as 1.5°C with 63.6hours bright sunshine duration. Wind speed recorded as 1.3km/hr with mean wind direction *westerly*.

3 Ten Days Weather Advisory for Farmers **(11th to 20th 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

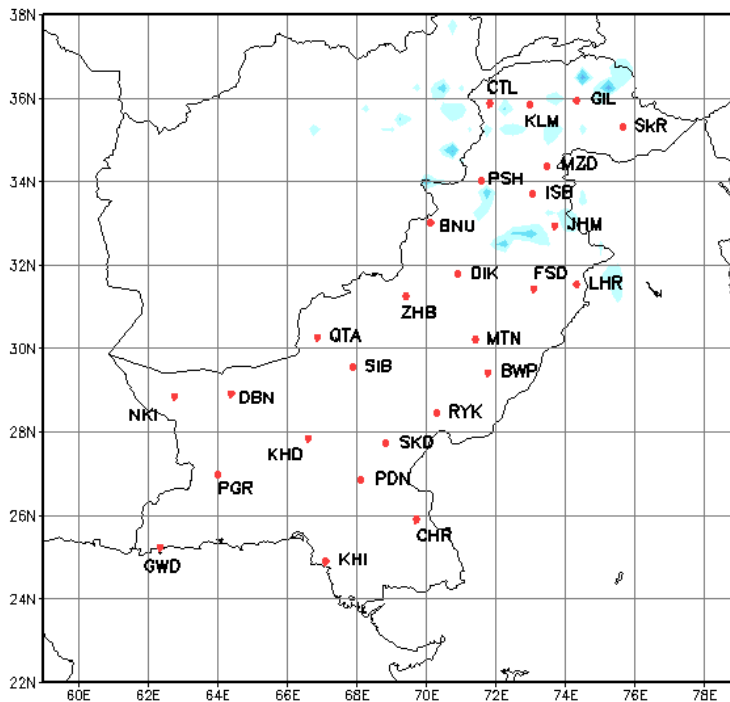
- ❖ **Punjab:** Mainly dry weather is expected in most parts of the province however light rainfall is expected at scattered places in Punjab including Rawalpindi, Lahore & Gujranwala divisions from 11th to 13th of the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly dry weather is expected during the decade however light rainfall is expected at scattered places in KP including Malakand, Hazara division from 11th to 13th 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 11th to 12th & 16th and 17th of the decade.
- ❖ **Kashmir:** Mainly dry weather is expected in most parts of the Kashmir however light rain with snowfall is expected at Muzaffarabad, Bimber from 11th to 12th 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.

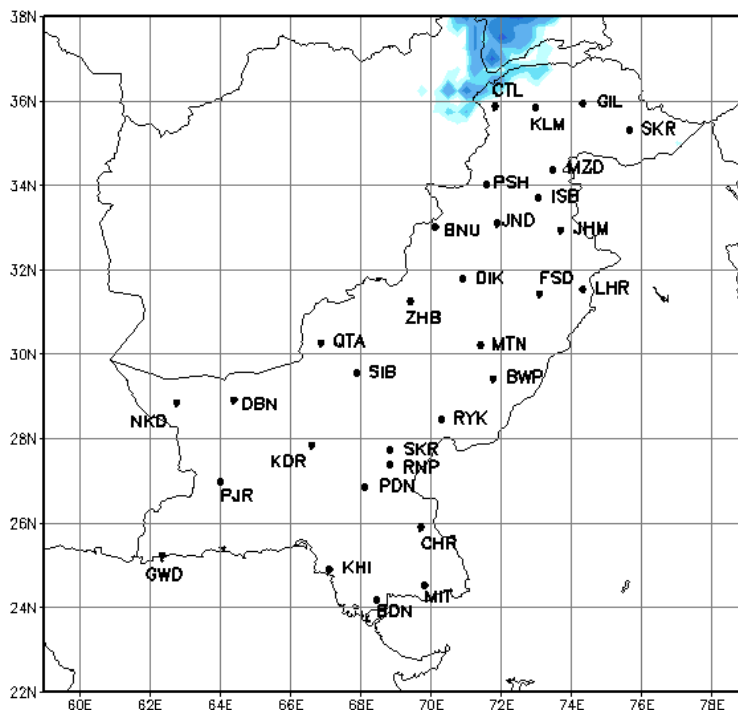
4.1 Precipitation Forecast (11th to 13th November, 2016)

The forecast for the first three days (11th to 13th) of this decade of November 2016 shows that light rainfall is expected in the country except isolated places in upper Central and Upper Punjab, KP & Gilgit Baltistan.



4.2 Precipitation Outlook (14th to 20th November, 2016)

The outlook for the last seven days (14th to 20th) 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)