

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Dry weather reported in the agricultural plains of country however light rainfall reported in few places of Punjab & K.P.
- ❖ Highest amount of rainfall reported 4.4mm at Gujranwala during the last decade.
- ❖ Lowest Minimum temperature recorded -6.8°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 K.P & G.B from 21st to 26th of the decade.
- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation as per crop requirement.
- ❖ Farmers may sow recommended varieties and see should be specially treated before sowing in consultation with agricultural offices.
- ❖ Farmers are advised to cultivate winter vegetables in time.
- ❖ In areas like Potohar Region and adjoining areas of Khyber Pakhtunkhwa where rain water storages are available farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.

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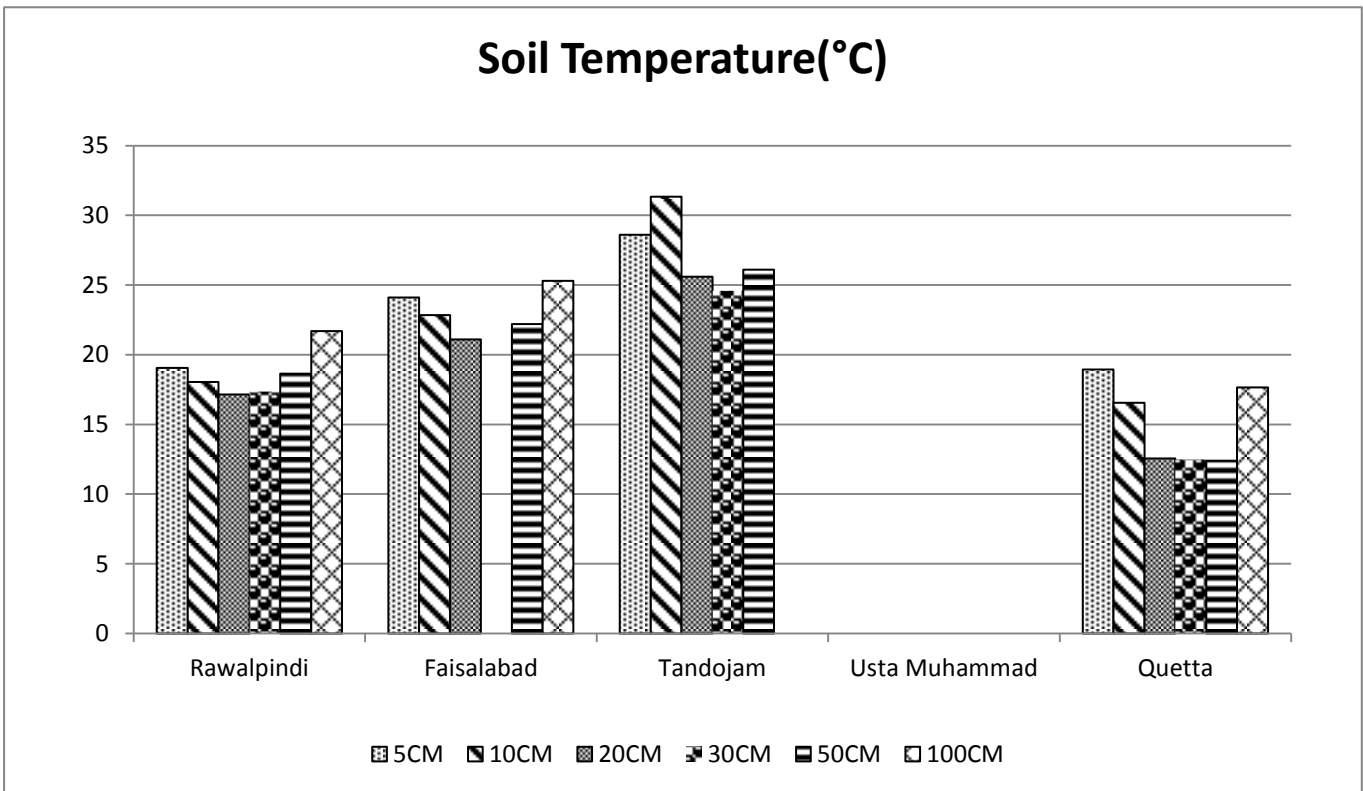
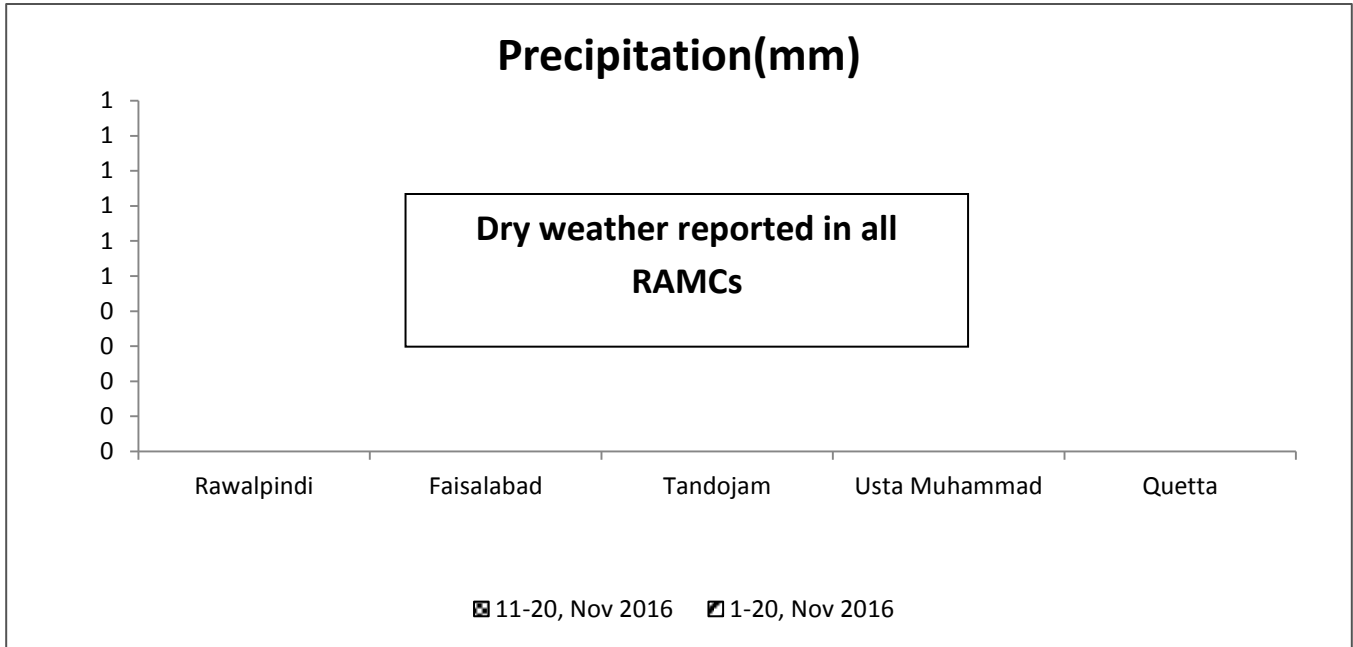
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Meteorological Conditions during 2nd decade of November, 2016

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	0.5	0.0	-0.5	0.2	-1.0	16.4	19.1	18.1	17.2	17.4	18.7	21.7	61	66.0	1.8	1.9
2	Faisalabad	0.1	0.0	-0.1	0.7	0.1	19.3	24.1	22.9	21.1	***	22.2	25.3	56	69.9	1.8	1.6
3	Jhelum	0.5	1.0	0.5	0.7	-2.2	18.3	18.6	18.0	18.1	18.6	20.2	***	59	65.8	2.0	1.5
4	Lahore	0.2	0.2	0.0	-0.5	-2.9	19.3	20.8	20.5	20.1	20.3	***	24.3	60	62.1	1.5	1.5
5	Sargodha	0.4	1.0	0.6	0.2	0.6	19.8	23.3	22.3	21.5	22.3	***	25.2	64	68.1	3.1	1.7
6	Multan	0.0	0.0	0.0	-0.8	0.6	19.9	***	***	***	***	***	***	54	60.9	1.2	1.8
7	Khanpur	0.0	0.0	0.0	1.2	-1.4	20.2	***	22.1	22.9	23.9	24.8	26.7	51	85.5	2.1	2.6
8	Tandojam	0.0	0.0	0.0	0.6	-2.1	22.0	28.6	31.4	25.6	24.6	26.1	***	48	89.8	3.0	3.2
9	Sakrand ☆	0.0	0.0	0.0	1.9	0.0	21.7	32.1	26.9	***	***	***	30.7	47	97.3	2.4	3.3
11	Rohri	0.0	0.0	0.0	2.0	***	30.7	***	***	***	***	***	***	42	98.6	3.1	3.0
12	D.I Khan	0.4	0.0	-0.4	0.5	-0.1	19.3	***	***	***	***	***	***	62	69.3	***	2.8
13	Peshawar	0.7	0.0	-0.7	0.6	-1.7	17.1	21.2	18.1	18.1	***	***	***	68	60.4	1.0	2.1
14	Usta .M	0.0	0.0	0.0	-0.1	-5.7	20.3	***	***	***	***	***	***	52	***	2.4	2.3
15	Quetta	1.8	0.0	-1.8	1.4	1.6	11.8	19.0	16.6	12.6	12.5	12.4	17.7	28	97.0	4.2	3.2
16	Skardu	0.1	0.0	-0.1	0.6	-3.0	4.5	***	***	***	***	***	***	36	65.0	1.2	1.0
17	Gilgit	0.1	0.0	-0.1	0.7	-1.1	9.5	***	***	***	***	***	***	53	54.8	1.2	1.2

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, 2016



1. Past Weather (11th to 20th November, 2016)

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

1.1 Punjab

Light rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received Gujranwala, Sargodha & Sialkot. Decadal maximum raised above normal 0.2°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 58%, 68.3hrs, 1.9km/hr and 1.8mm/day respectively.

1.2 Sindh

Dry weather reported in the agricultural plains of Sindh. Decadal maximum raised above normal by 1.5°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 46%, 95.2hrs, 2.8km/hr and 3.2mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

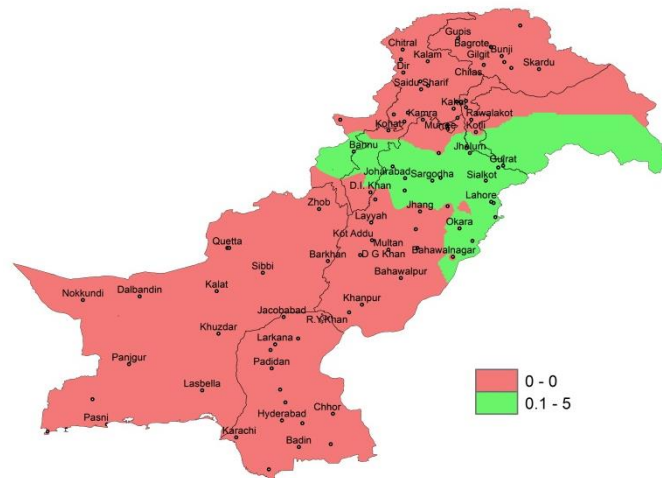
Light rainfall reported in few places of KP. Chief amount of rainfall received Bannu. Decadal maximum raised above normal by 0.6°C & minimum temperature dropped below normal by 0.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 64.9hrs, 1.0km/hr and 2.5mm/day respectively.

1.4 Balochistan

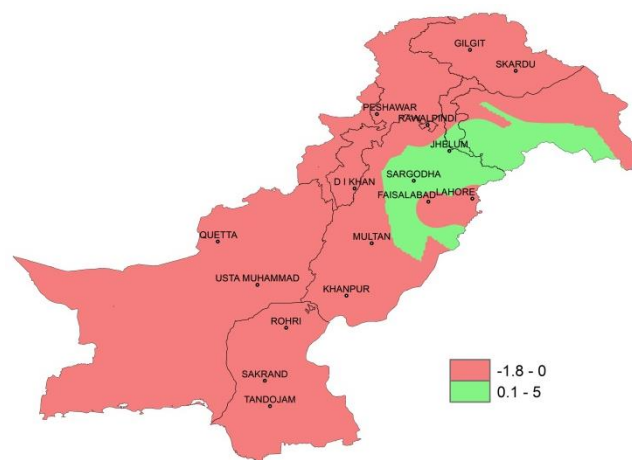
Dry weather reported in the agricultural plains of Balochistan. Decadal maximum raised above normal by 0.6°C & minimum dropped below normal by 2.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 97.0hrs, 3.3km/hr and 2.8mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

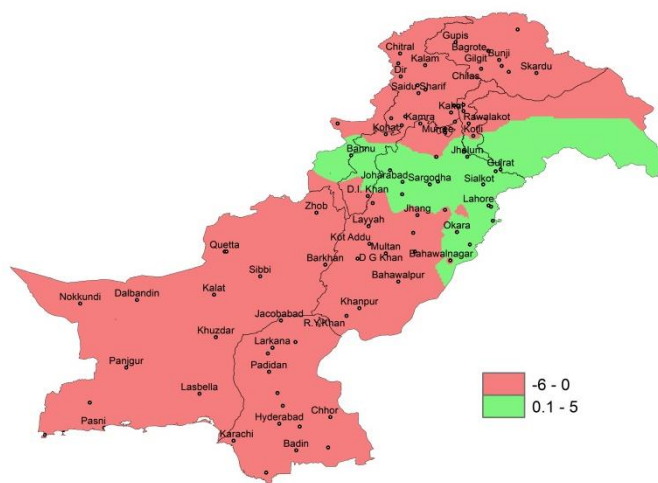
Dry weather reported in the agricultural plains of GB & Kashmir. Decadal maximum raised above normal by 1.0°C & minimum dropped below normal by 2.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 35.5hrs, 1.2km/hr and 1.1mm/day respectively.



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 (11th to 20th 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 61%. Mean day temperature was 25.1°C while night temperature recorded as 7.6°C with 66.0hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 56%. Mean day temperature was 27.6°C while night temperature recorded as 11.0°C with 69.91hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *westerly*.

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 48%. Mean day temperature was 31.7°C while night temperature recorded as 12.2°C with 89.8hours bright sunshine duration. Wind speed recorded as 3.0km/h with mean wind direction *north easterly*.

Wheat (Imdad): Good condition, 3rd leaf stage.

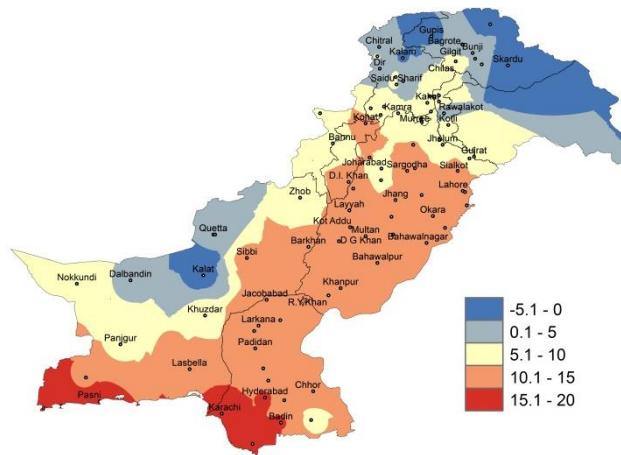
2.4 RAMC, Usta Muhammad (Eastern Balochistan)

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 52%. Mean day temperature was 29.7°C while night temperature recorded as 10.9°C. Wind speed recorded as 2.4km/h with mean wind direction *north easterly*.

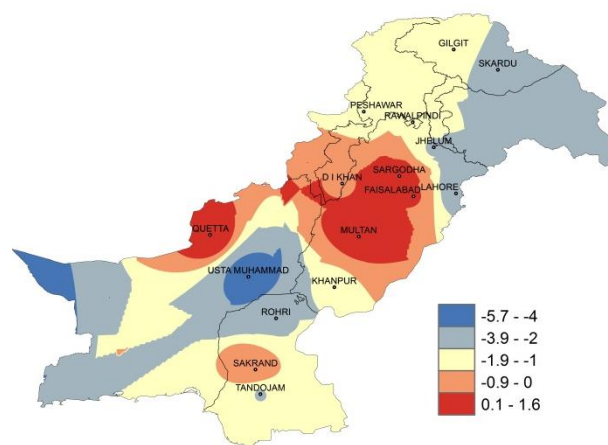
Rice: Harvested.

2.5 RAMC, Quetta (Northern Balochistan)

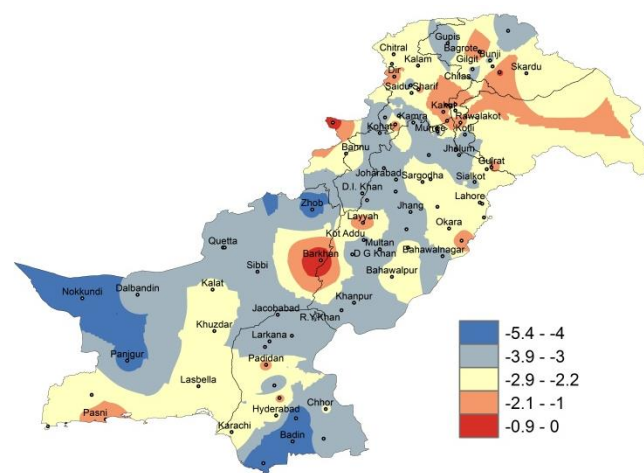
Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 28%. Mean day temperature was 20.0°C while night temperature recorded as 3.5°C with 97.0hours bright sunshine duration. Wind speed recorded as 4.2km/hr with mean wind direction *north 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 (11th to 20th November, 2016)

2.6 Jhelum

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 59%. Mean day temperature was 27.6°C while night temperature recorded as 8.9°C with 65.8hours bright sunshine duration. Wind speed recorded as 2.0km/hr with mean wind direction *westerly*.

2.7 Lahore

Rainfall reported as 0.2 during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 60%. Mean day temperature was 26.5°C while night temperature recorded as 12.0°C with 62.1hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 04day. Average relative humidity recorded as 64%. Mean day temperature was 27.0°C while night temperature recorded as 12.6°C with 68.1hours bright sunshine duration. Wind speed recorded 3.1km/hr with mean wind direction *south westerly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 54%. Mean day temperature was 27.0°C while night temperature recorded as 12.8°C with 60.9hours bright sunshine duration. Wind speed recorded 1.2km/hr with mean wind direction *northerly*.

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 29.3°C while night temperature recorded as 11.0°C with 85.5hours bright sunshine duration. Wind speed recorded 2.1km/hr with mean wind direction *northerly*.

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 30.8°C while night temperature recorded as 12.6°C with 97.3hours bright sunshine duration. Wind speed recorded 1.3km/hr with wind direction *north easterly*.

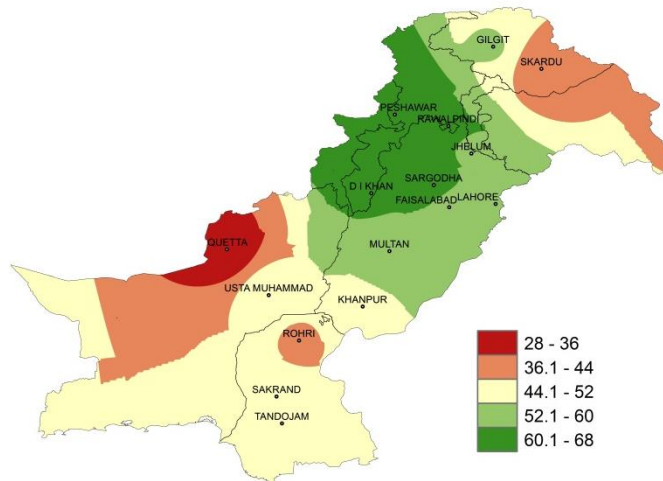


Figure.3: Relative Humidity in Percentage (%)

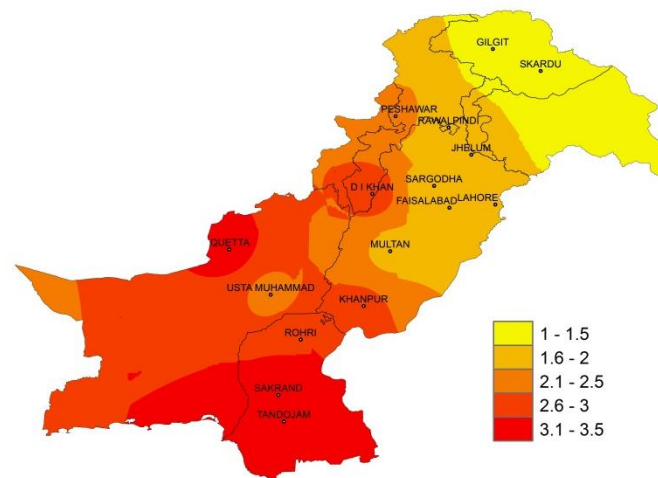


Figure.4: Reference Crop Evapotranspiration "ETo" in mm/day

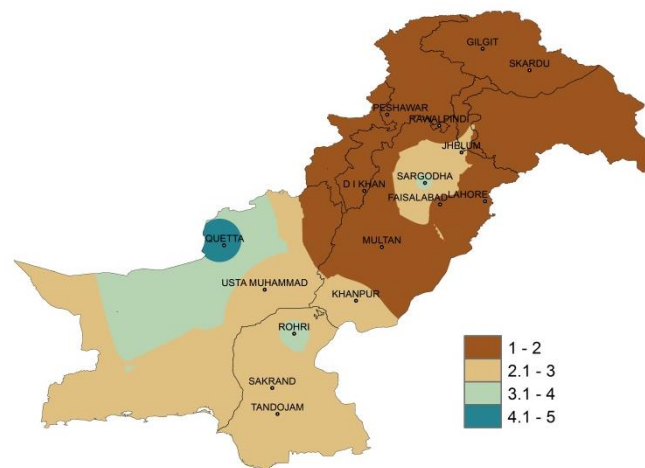


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 42%. Mean day temperature was recorded as 30.7°C with 98.6hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *northerly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 62%. Mean day temperature was 27.6°C while night temperature recorded as 10.0°C with 69.3hours bright sunshine duration.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 68%. Mean day temperature was 25.3°C while night temperature recorded as 8.8°C with 60.4hours bright sunshine duration. Wind speed recorded as 1.0km/hr with mean wind direction *north easterly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 36%. Mean day temperature was 14.0°C while night temperature recorded as -5.1°C with 65.0hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 53%. Mean day temperature was 19.4°C while night temperature recorded as -0.5°C with 54.8hours bright sunshine duration. Wind speed recorded as 1.2km/hr with mean wind direction *easterly*.

3 Ten Days Weather Advisory for Farmers (21st to 30th 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 & Gujranwala divisions from 25th to 26th of the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly dry weather is expected during the decade however light to moderate rainfall is expected at scattered places in KP including Malakand, Hazara division from 21st to 26th of the decade.
- ❖ **Sindh:** Mainly dry weather is expected in most parts of the province during the decade.
- ❖ **Balochistan:** Mainly dry weather is expected in most parts of the province during the decade.
- ❖ **Gilgit Baltistan:** Mainly cloudy weather is expected in most parts of G.B however light to moderate rain with snowfall is expected at Gilgit & Skardu from 21st to 26th, 29th & 30th of the decade.
- ❖ **Kashmir:** Mainly cloudy weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzaffarabad, Bimber from 21st to 26th of the decade.

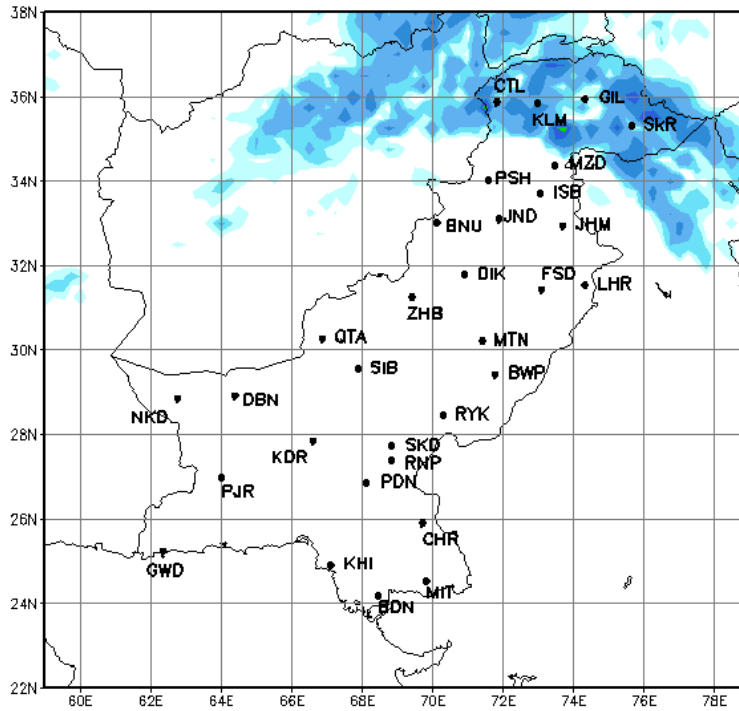
3.4 Advisory for Farmers

During the last two months dry weather has been reported in most of agricultural Plains of the country and is likely to prevail by mid of December. Keeping in view the present and expected dry atmospheric soil conditions following advices are given to farming community especially for rainfed areas of Khyber Pakhtunkhwa and Punjab.

- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation as per crop requirement.
- ❖ Farmers may sow recommended varieties and see should be specially treated before sowing in consultation with agricultural offices.
- ❖ Farmers are advised to cultivate winter vegetables in time.
- ❖ In areas like Potohar Region and adjoining areas of Khyber Pakhtunkhwa where rain water storages are available farmers are advised to irrigate crops by using available irrigation methods like sprinkler irrigation etc.

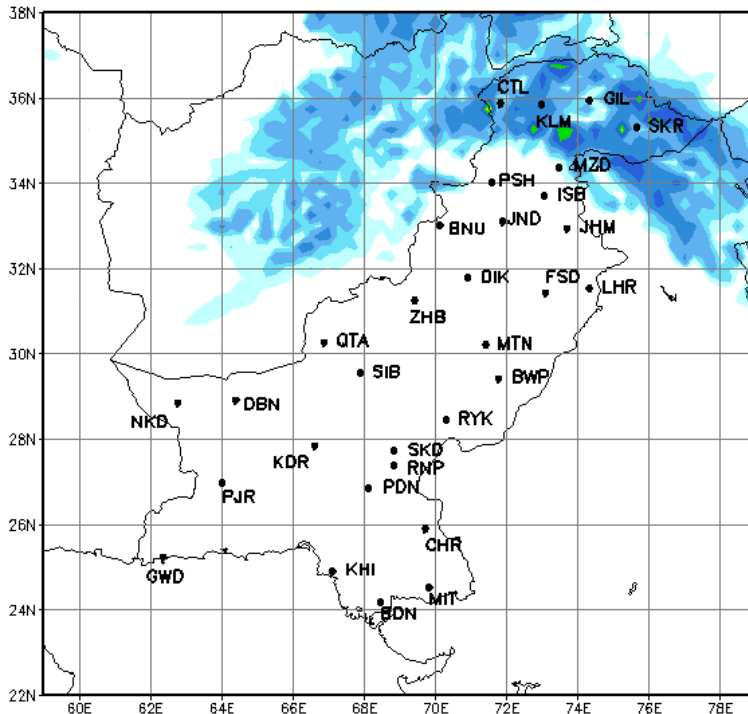
4.1 Precipitation Forecast (21st to 23rd November, 2016)

The forecast for the first three days (21st to 23rd) of this decade of November 2016 shows that dry weather is expected in the country except isolated places in KP, G.B & Kashmir.



4.2 Precipitation Outlook (24th to 30th November, 2016)

The outlook for the last seven days (24th to 30th) 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 & Kashmir, 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)