

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Light rainfall reported from most of the agricultural plains of Punjab, K.P, Balochistan, G. B & Kashmir however, dry weather reported from Sindh.
- ❖ Highest amount of rainfall recorded as 19.0 mm at Pattan during the last decade.
- ❖ Lowest Minimum temperature recorded as -6.2°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 KP, G.B, Kashmir and north western Balochistan from 19<sup>th</sup> to 20<sup>th</sup> of the decade.
- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation as per crop requirement.
- ❖ Farmers of irrigated plains of Punjab, Sindh & K.P are advised to complete sowing of wheat crop by mid of December to get maximum yield. In case of late sowing, the recommended varieties may be cultivated to minimize the loss in yield.
- ❖ Wheat cultivation is in progress in most of the irrigated areas. Farmers of irrigated areas should irrigate the crop as per requirement in accordance with the prevailing dry weather in most of the irrigated agricultural plains of the country. Normally first irrigation is given 20-25 days after sowing.

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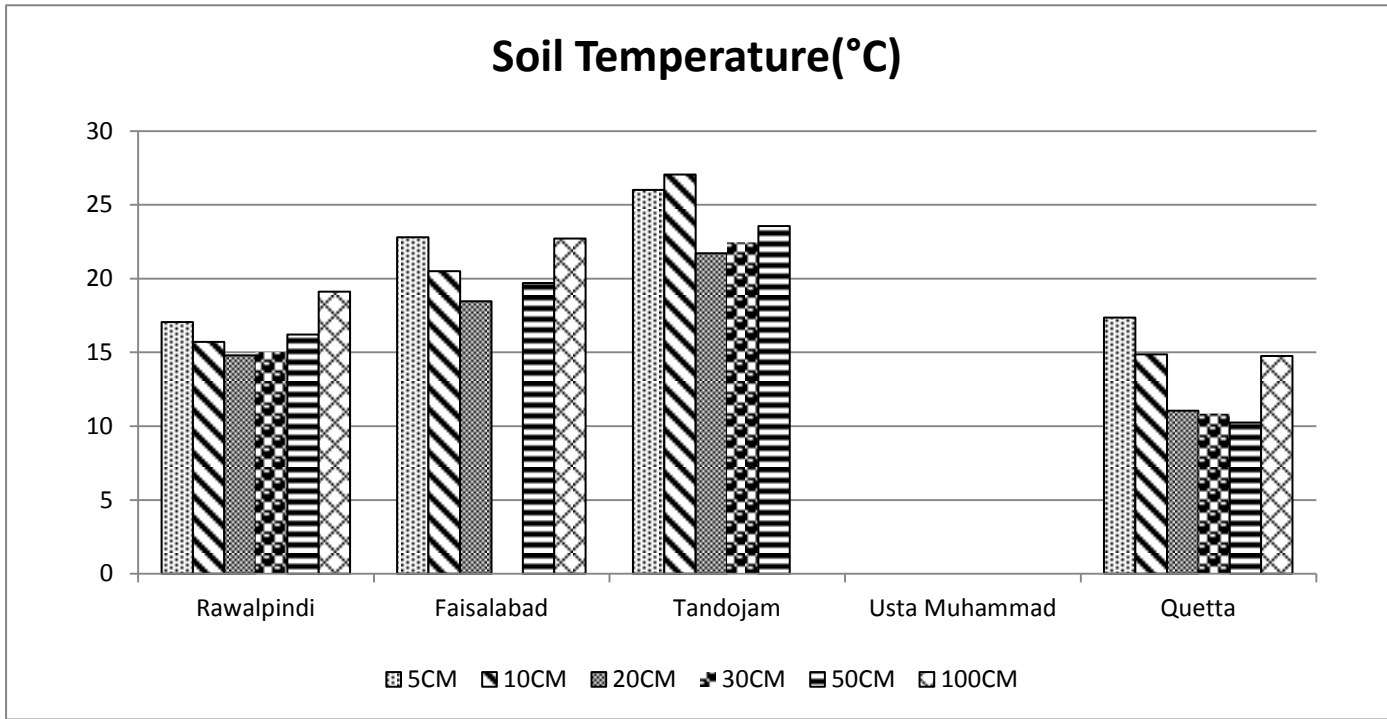
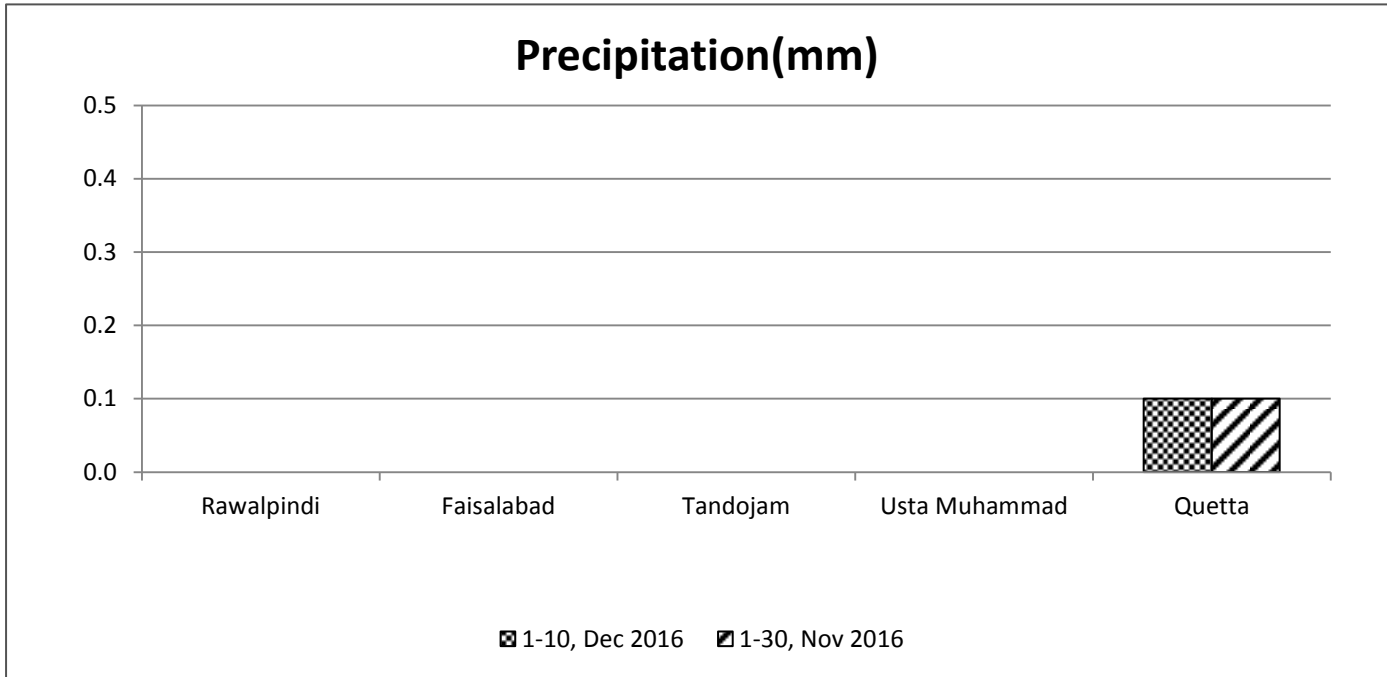
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**Meteorological Conditions during 1<sup>st</sup> decade of December, 2016**

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	1.4	0.0	-1.4	2.9	1.7	15.6	17.1	15.7	14.8	15.0	16.2	19.1	63	73.0	1.7	1.4
2	Faisalabad	0.5	0.0	-0.5	3.4	3.5	18.8	22.8	20.5	18.5	***	19.7	22.7	59	71.3	1.5	1.5
3	Jhelum	1.1	0.0	-1.1	-1.4	-0.4	14.7	16.3	15.7	15.8	16.4	17.0	***	65	68.0	1.1	1.2
4	Lahore	0.1	0.0	-0.1	1.0	-0.3	17.4	18.5	18.0	17.6	17.9	***	21.8	72	50.8	1.0	1.3
5	Sargodha	0.9	0.0	-0.9	2.0	3.3	18.4	20.9	19.9	19.3	20.0	***	22.9	69	69.2	1.5	1.5
6	Multan	0.5	0.0	-0.5	1.2	4.4	18.7	***	***	***	***	***	***	63	59.6	0.6	1.4
7	Khanpur	0.1	0.0	-0.1	4.1	1.8	19.1	***	20.0	20.5	21.3	22.3	24.3	62	69.3	1.9	1.8
8	Tandojam	0.3	0.0	-0.3	4.3	1.7	21.6	26.0	27.1	21.7	22.5	23.6	***	50	82.0	2.8	2.7
9	Sakrand ☆	1.5	0.0	-1.5	5.7	4.3	21.4	29.9	***	***	***	***	28.0	60	92.5	4.3	2.9
11	Rohri	1.1	0.0	-1.1	4.5	***	20.3	***	***	***	***	***	***	54	87.0	0.0	2.6
12	D.I Khan	0.3	0.0	-0.3	3.1	1.2	17.1	***	***	***	***	***	***	71	58.7	5.7	2.4
13	Peshawar	0.9	0.1	-0.8	0.8	0.3	14.8	18.4	16.5	15.4	***	***	***	69	43.7	0.7	1.0
14	Usta .M	1.2	0.0	-1.2	5.1	3.5	20.3	***	***	***	***	***	***	55	***	0.0	1.4
15	Quetta	0.8	0.1	-0.7	5.4	5.4	12.4	17.4	14.9	11.1	10.9	10.3	14.8	36	87.4	3.6	2.0
16	Skardu	0.6	0.0	-0.6	2.9	-0.2	3.7	***	***	***	***	***	***	64	62.0	0.2	0.7
17	Gilgit	0.3	0.0	-0.3	3.4	0.2	8.1	***	***	***	***	***	***	58	31.4	2.1	1.1

**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 December, 2016



**1. Past Weather (1<sup>st</sup> to 10<sup>th</sup> December, 2016)**

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

**1.1 Punjab**

Light rainfall reported from the agricultural plains of Punjab. Chief amount of rainfall received Jhelum, Layyah & Murree. Decadal maximum & minimum both raised above normal 1.9°C & 2.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 65%, 65.9hrs, 1.9km/hr and 1.3mm/day respectively.

**1.2 Sindh**

Dry weather reported from the agricultural plains of Sindh. Decadal maximum & minimum both raised above normal 4.8°C & 3.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 87.2hrs, 2.4km/hr and 2.7mm/day respectively.

**1.3 Khyber Pakhtunkhwa (KP)**

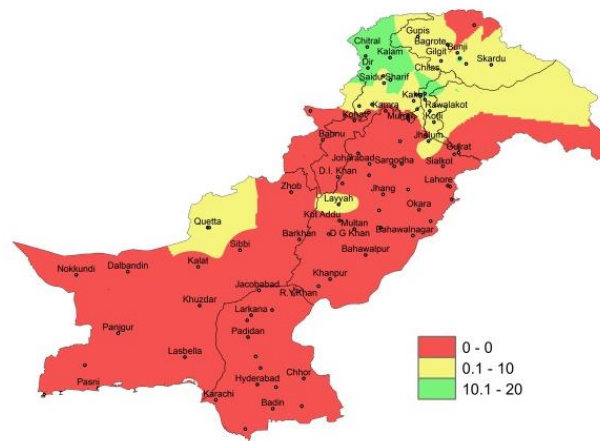
Light rainfall reported from the agricultural plains of KP. Chief amount of rainfall received Pattan, Dir & Drosh. Decadal maximum & minimum both raised above normal 2.0°C & 0.8°C respectively, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 70%, 51.2hrs, 3.2km/hr and 1.7mm/day respectively.

**1.4 Balochistan**

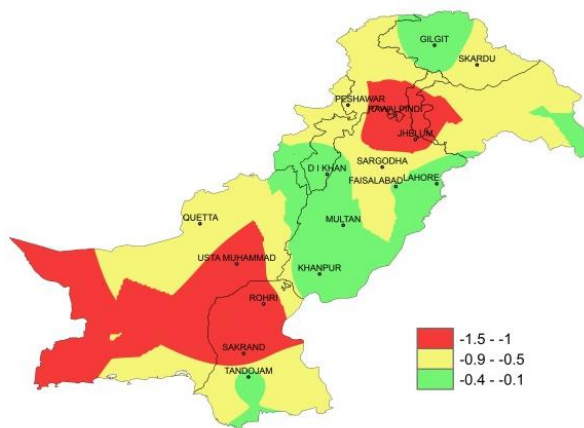
Light rainfall reported at one place of Balochistan i.e. Quetta. Decadal maximum & minimum both raised above normal 5.3°C & 4.5°C respectively, in the province, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 87.4hrs, 1.8km/hr and 1.7mm/day respectively.

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

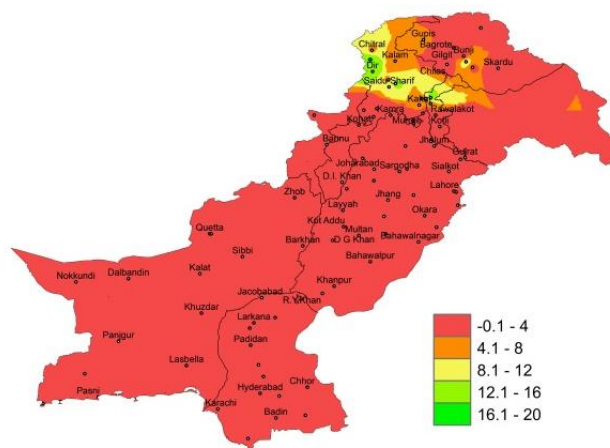
Light rainfall reported from the agricultural plains of GB & Kashmir. Chief amount of rainfall received Gupis, Muzaffarabad & Rawalakot. Decadal maximum raised above normal by 3.0°C & minimum remained normal by 0.0°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 46.7hrs, 1.2km/hr and 0.9mm/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 (1<sup>st</sup> to 10<sup>th</sup> December, 2016)**

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

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 63%. Mean day temperature was 24.6°C while night temperature recorded as 6.5°C with 73.0hours bright sunshine duration. Wind speed recorded as 1.7km/hr with mean wind direction *south easterly*.

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

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 59%. Mean day temperature was 27.0°C while night temperature recorded as 10.5°C with 71.25hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *westerly*.

**Wheat:** *Very Good condition, Emergence 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 58%. Mean day temperature was 30.7°C while night temperature recorded as 12.5°C with 82.0hours bright sunshine duration. Wind speed recorded as 2.8km/h with mean wind direction *north easterly*.

**Wheat (Imdad):** *Good condition, tillering stage.*

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

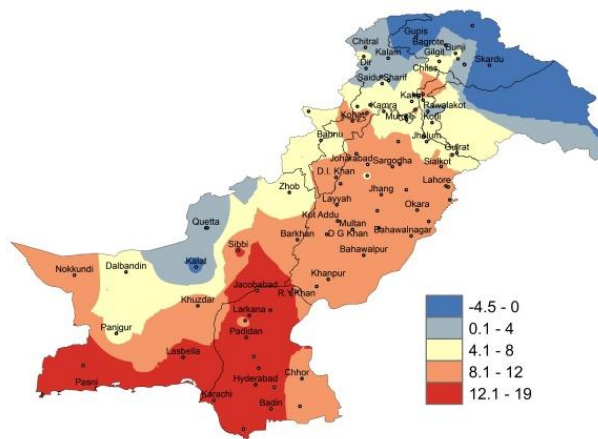
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 55%. Mean day temperature was 29.0°C while night temperature recorded as 11.5°C. Wind speed recorded as *calm*.

**Wheat:** *Very Good condition, Third leaf stage.*

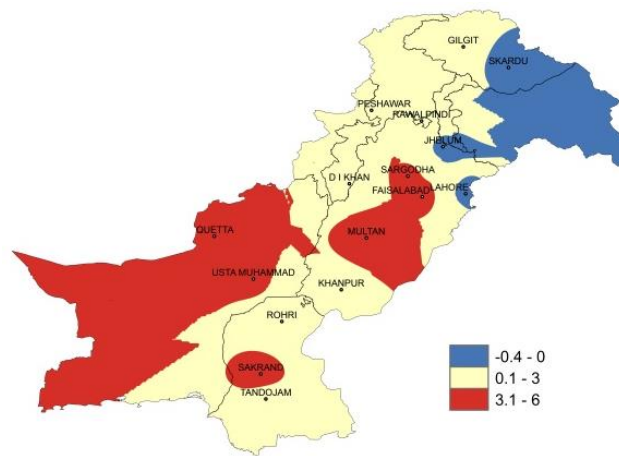
**2.5 RAMC, Quetta (Northern Balochistan)**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 36%. Mean day temperature was 20.2°C while night temperature recorded as 4.6°C with 87.4hours bright sunshine duration. Wind speed recorded as 3.6km/hr with mean wind direction *north easterly*.

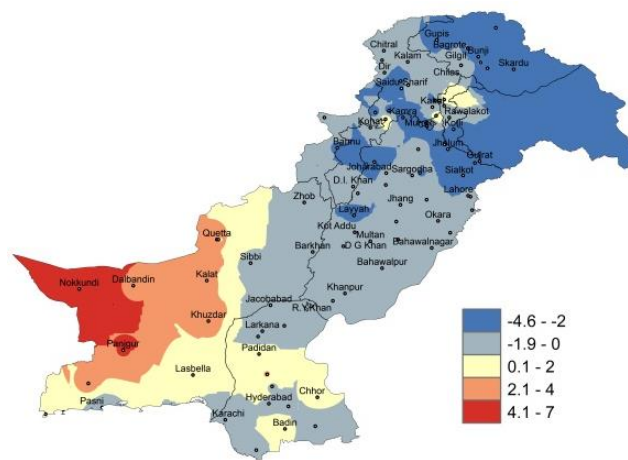
**Wheat:** *Very Good condition, Third leaf stage*



**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 (1<sup>st</sup> to 10<sup>th</sup> December, 2016)**

**2.6 Jhelum**

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 65%. Mean day temperature was 22.3°C while night temperature recorded as 7.1°C with 68.0hours bright sunshine duration. Wind speed recorded as 1.1km/hr with mean wind direction *easterly*.

**2.7 Lahore**

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 72%. Mean day temperature was 24.5°C while night temperature recorded as 10.3°C with 50.8hours 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 07days. Average relative humidity recorded as 69%. Mean day temperature was 25.6°C while night temperature recorded as 11.2°C with 69.2hours bright sunshine duration. Wind speed recorded 1.5km/hr with mean wind direction *variable*.

**2.9 Multan**

Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 63%. Mean day temperature was 25.5°C while night temperature recorded as 11.9°C with 59.6hours bright sunshine duration. Wind speed recorded 0.6km/hr with mean wind direction *variable*.

**2.10 Khanpur**

Dry weather reported during the decade however weather remained clear throughout the decade. Average relative humidity recorded as 62%. Mean day temperature was 27.9°C while night temperature recorded as 10.3°C with 69.3hours bright sunshine duration. Wind speed recorded 1.9km/hr with mean wind direction *variable*.

**2.11 Sakrand**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 60%. Mean day temperature was 29.5°C while night temperature recorded as 13.2°C with 92.5hours bright sunshine duration. Wind speed recorded 2.3km/hr with wind direction *south easterly*.

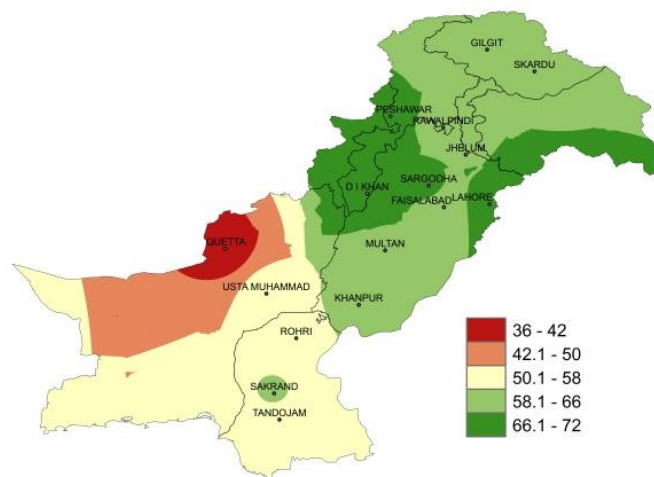


Figure.3: Relative Humidity in Percentage (%)

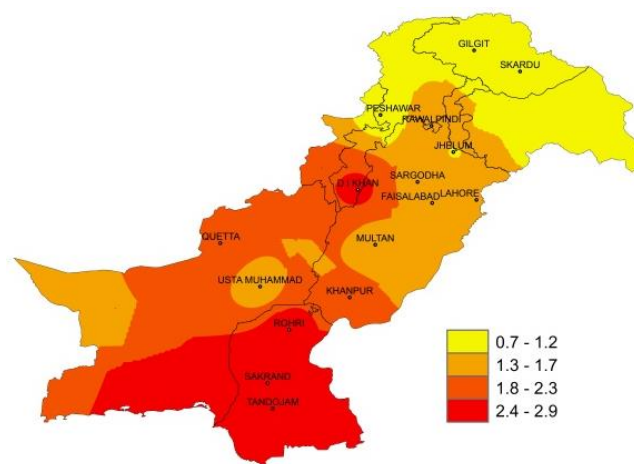


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

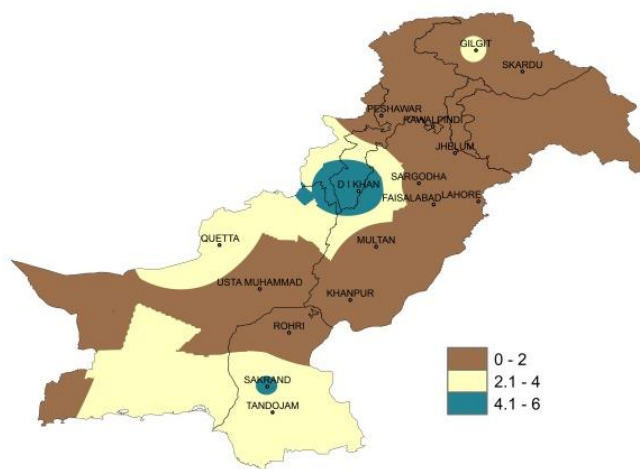


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 54%. Mean day temperature was 28.31°C while night temperature recorded as 12.31°C with 87.0hours bright sunshine duration. Wind speed recorded as *calm*.

**2.13 D.I. Khan**

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 71%. Mean day temperature was 26.3°C while night temperature recorded as 7.8°C with 58.7hours bright sunshine duration. Wind speed recorded 5.7km/hr with wind direction *north westerly*.

**2.14 Peshawar**

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 69%. Mean day temperature was 22.4°C while night temperature recorded as 7.1°C with 43.7hours bright sunshine duration. Wind speed recorded as 0.7km/hr with mean wind direction *north westerly*.

**2.15 Skardu**

Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 64%. Mean day temperature was 11.9°C while night temperature recorded as -4.5°C with 62.0hours bright sunshine duration. Wind speed recorded as 0.2km/hr with mean wind direction *north easterly*.

**2.16 Gilgit**

Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 58%. Mean day temperature was 17.2°C while night temperature recorded as -1.1°C with 31.4hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *westerly*.

### **3 Ten Days Weather Advisory for Farmers** **(13<sup>th</sup> to 20<sup>th</sup> December, 2016)**

**3.1 Temperature Forecast**

Night temperatures are expected to drop slightly (1-2°C) 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:** Cold and dry weather is expected in most parts of the province. Also dense fog may prevail in Lahore, Gujranwala, Faisalabad & Sargodha divisions during the decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly cold and dry weather is expected during the decade however light to moderate rainfall is expected at scattered places in KP including Malakand, Mardan, Hazara divisions from 19<sup>th</sup> to 20<sup>th</sup> of the decade.
- ❖ **Sindh:** Dry weather is expected in most parts of the province.
- ❖ **Balochistan:** Mainly cold and dry weather is expected in most parts of the province however light rainfall is expected in north western Balochistan from 19<sup>th</sup> to 20<sup>th</sup> of the decade.
- ❖ **Gilgit Baltistan:** Mainly cold and dry but cloudy weather is expected in most parts of G.B however light to moderate rain with snowfall is expected at scattered places from 19<sup>th</sup> to 20<sup>th</sup> of the decade.
- ❖ **Kashmir:** Mainly cold and dry but cloudy weather is expected in most parts of the Kashmir however light to moderate rain with snowfall is expected at Muzaffarabad and Rawalakot regions from 19<sup>th</sup> to 20<sup>th</sup> of the decade.

**3.4 Advisory for Farmers**

During the last two months dry weather has been reported from most of the agricultural plains of the country and is likely to prevail by the end of second decade. Keeping in view the present and expected dry atmospheric/soil conditions following advices are proposed farming community especially for rainfed areas of Khyber Pakhtunkhwa and Punjab.

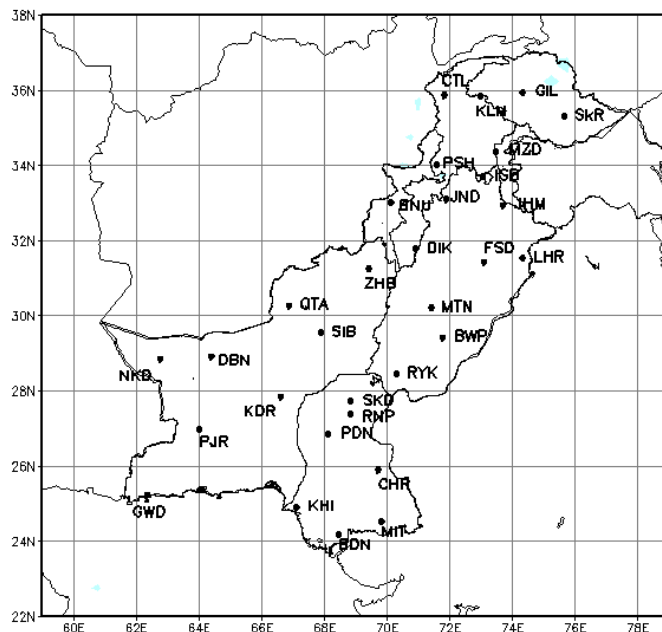
- ❖ Farmers obtaining crop water through tube wells are advised to schedule the irrigation as per crop requirement.
- ❖ Farmers of irrigated plains of Punjab, Sindh & K.P are advised to complete sowing of wheat crop by mid of December to get maximum yield. In case of late sowing, the recommended varieties should be cultivated to minimize the loss in yield.
- ❖ Wheat cultivation is in progress in most of the irrigated areas. Farmers of irrigated areas should irrigate the crop as per requirement due to dry weather prevailing in most of the irrigated agricultural plains of the country. Normally first irrigation is given 20-25 days after sowing.
- ❖ Farmers may sow recommended varieties and seed 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.
- ❖ 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.



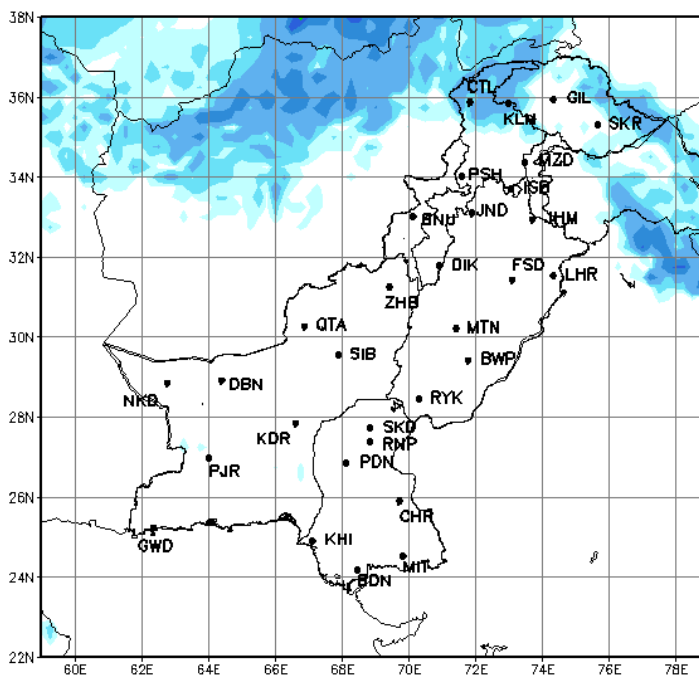
**4.1 Precipitation Forecast (13<sup>th</sup> to 15<sup>th</sup> December, 2016)**

The forecast for the next three days (13<sup>th</sup> to 15<sup>th</sup>) of December 2016 shows that dry weather is expected in all the agricultural plains of country.



**4.2 Precipitation Outlook (16<sup>th</sup> to 20<sup>th</sup> December, 2016)**

The outlook for the last five days (16<sup>th</sup> to 20<sup>th</sup>) of the second decade of December 2016 shows that light to moderate rainfall is expected in 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)