

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate 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 43.0mm at D.I Khan during the last decade.
- ❖ Highest Maximum temperature recorded 44.5°C at Nokkundi during the last decade.
- ❖ Mostly hot and dry weather is expected in most of the agricultural plains of the country however rain-dust-thunderstorm is expected in upper parts of the country during the 2nd half 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 in the mentioned.

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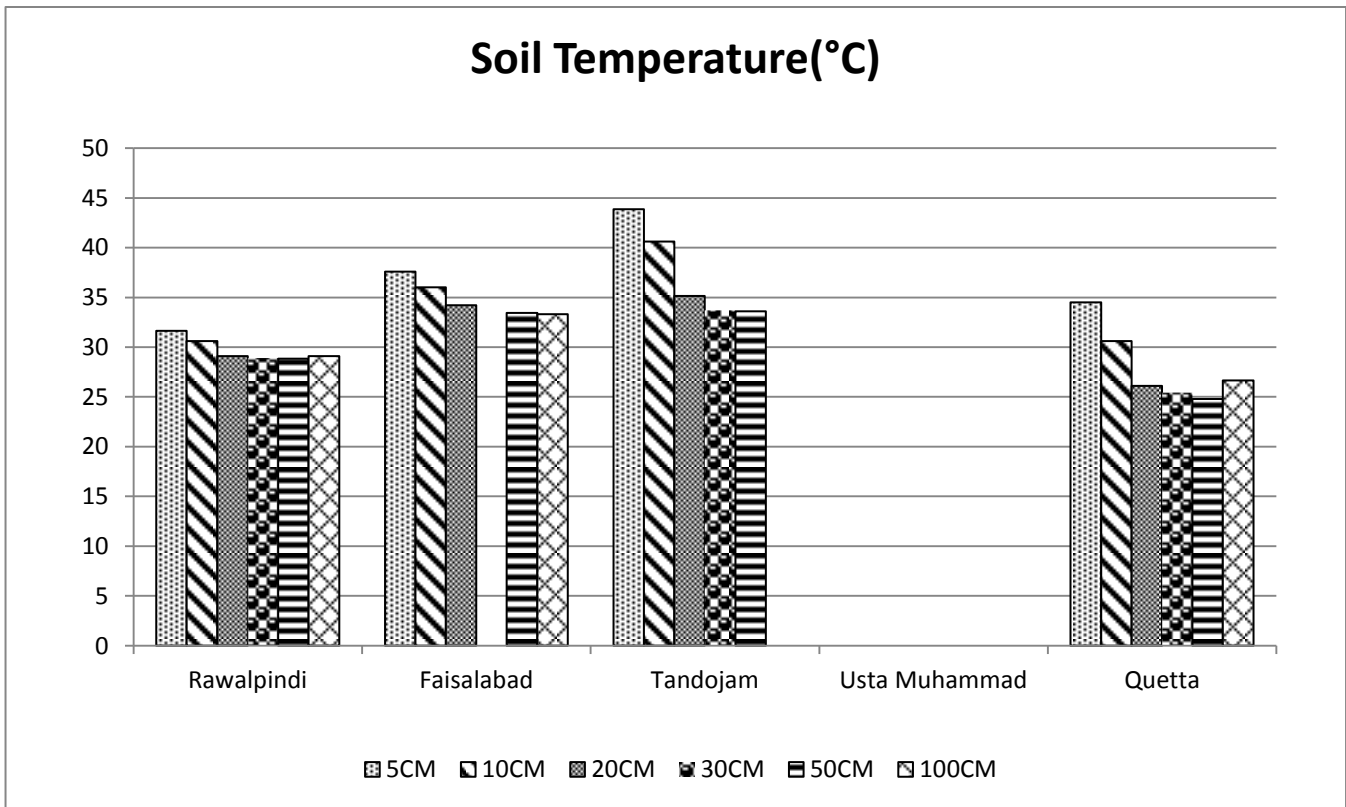
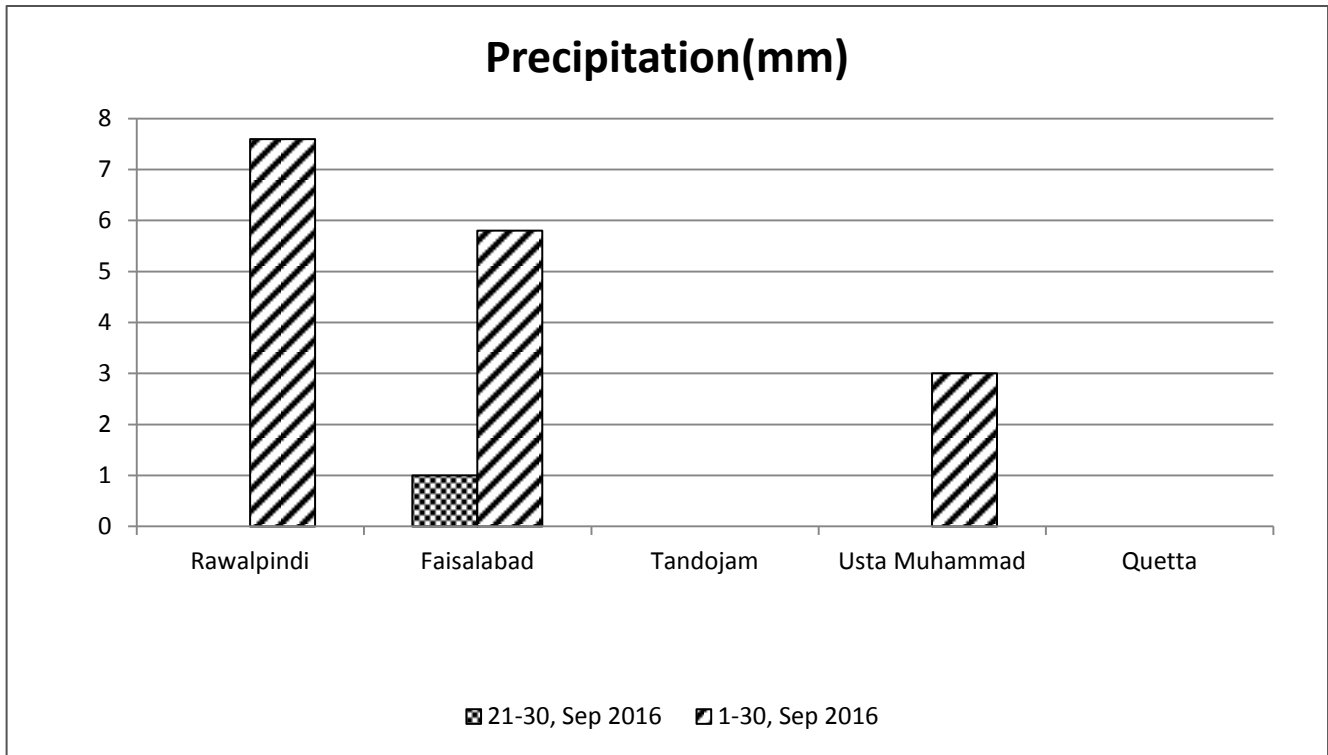
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Meteorological Conditions during 3rd decade of September, 2016

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	0.9	4.4	28.7	31.7	30.6	29.1	28.9	28.9	29.1	64	61.3	3.6	3.7
2	Faisalabad	2.1	1.0	-1.1	0.6	2.7	30.4	37.6	36.0	34.2	***	33.5	33.3	57	88.6	3.2	4.4
3	Jhelum	0.9	10.4	9.5	0.7	2.5	30.1	31.0	30.2	29.6	29.2	29.8	***	69	69.7	1.5	3.5
4	Lahore	1.1	30.1	29.0	0.1	0.4	29.8	32.1	32.1	30.7	30.1	***	30.1	68	56.6	1.8	3.4
5	Sargodha	0.9	0.0	-0.9	0.5	2.3	31.0	35.8	34.3	31.9	31.5	***	30.6	65	68.0	2.4	3.8
6	Multan	0.1	2.6	2.5	1.1	2.8	32.3	***	***	***	***	***	***	54	82.9	2.4	4.4
7	Khanpur	0.0	0.0	0.0	1.7	1.6	31.6	***	35.0	35.2	35.2	35.4	34.5	59	94.6	3.1	4.9
8	Tandojam	0.0	0.0	0.0	1.1	-0.6	30.1	43.9	40.6	35.2	33.7	33.6	***	63	105.2	11.4	6.7
9	Sakrand ☆	0.0	0.0	0.0	1.1	0.8	30.7	46.8	39.7	***	***	***	35.9	58	108.6	5.7	5.8
11	Rohri	0.0	0.0	0.0	1.6	***	39.5	***	***	***	***	***	***	45	99.0	2.8	6.0
12	D.I Khan	0.7	43.0	42.3	-0.1	1.5	29.8	***	***	***	***	***	***	65	76.5	***	4.8
13	Peshawar	1.1	0.1	-1.0	1.3	3.2	29.8	34.6	32.3	31.2	***	***	***	72	59.6	4.1	3.7
14	Usta .M	0.0	0.0	0.0	-4.1	0.1	30.5	***	***	***	***	***	***	70	***	3.4	3.8
15	Quetta	0.0	0.0	0.0	2.5	7.4	24.4	34.5	30.6	26.1	25.5	24.8	26.7	25	105.8	4.9	5.0
16	Skardu	0.1	0.0	-0.1	3.5	-0.4	17.4	***	***	***	***	***	***	43	77.4	1.4	2.9
17	Gilgit	0.2	0.7	0.5	1.5	2.3	21.0	***	***	***	***	***	***	51	84.5	1.4	3.1

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 September, 2016



1 Past Weather (21st to 30th September, 2016)

Light to moderate 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 to moderate rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received in Murree, Shorkot & Sialkot. Decadal maximum & minimum both raised above normal by 0.8°C & 2.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 62%, 74.5hrs, 2.6km/hr and 4.0mm/day respectively.

1.2 Sindh

Dry weather reported in the agricultural plains of Sindh. Decadal maximum & minimum both raised above normal by 1.3°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 104.3hrs, 6.6km/hr and 6.2mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

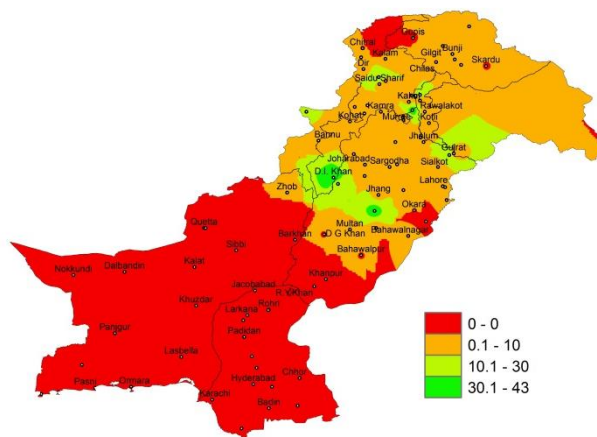
Light to moderate rainfall reported in the agricultural plains of KP. Chief amount of rainfall received D.I Khan, Lower Dir & Parachinar. Decadal maximum & minimum both raised above normal by 0.6°C & 2.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 69%, 68.1 hrs, 4.1km/hr and 4.3mm/day respectively.

1.4 Balochistan

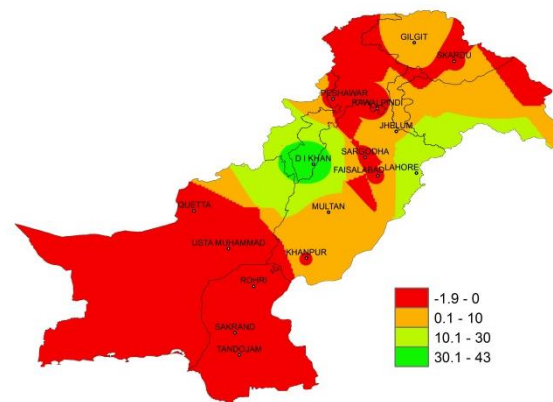
Dry weather reported in the agricultural plains of Balochistan. Decadal maximum dropped below normal by 0.8°C & minimum temperature raised above normal by 3.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 48%, 105.8hrs, 4.2km/hr and 4.4mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

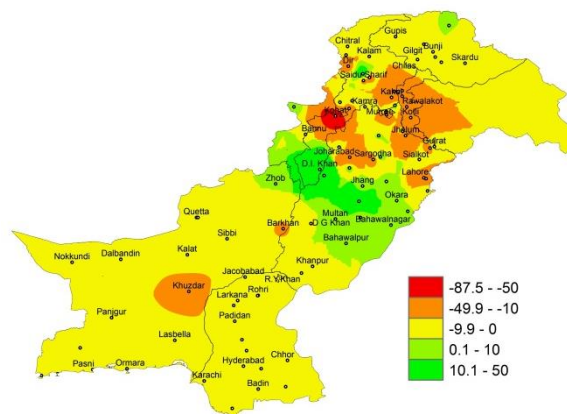
Light to moderate rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received Bagrote, Muzaffarabad & Garhi dopatta. Decadal maximum & minimum both raised above normal by 3.0°C & 1.0°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 81.0hrs, 1.4km/hr and 3.0mm/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 30th September, 2016)

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

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 64%. Mean day temperature was 33.8°C while night temperature recorded as 23.6°C with 61.3hours bright sunshine duration. Wind speed recorded as 3.6km/hr with mean wind direction *north easterly*.

Maize Agaiti 2002: Good condition, milk maturity stage.

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

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 07day. Average relative humidity recorded as 57%. Mean day temperature was 36.0°C while night temperature recorded as 24.8°C with 88.55hours bright sunshine duration. Wind speed recorded as 3.2km/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 01day. Average relative humidity recorded as 63%. Mean day temperature was 37.5°C while night temperature recorded as 22.7°C with 105.2hours bright sunshine duration. Wind speed recorded as 11.4km/h with mean wind direction *south westerly*.

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

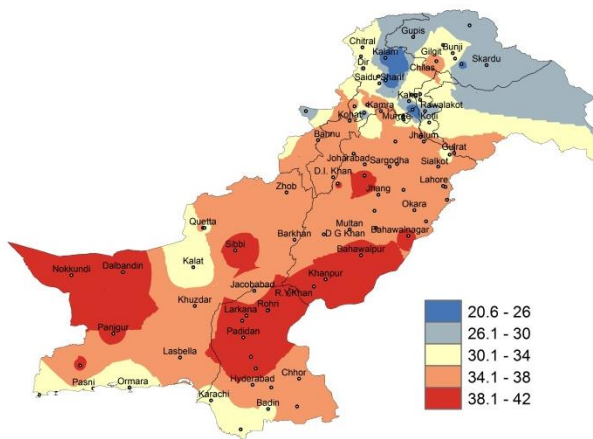
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 70%. Mean day temperature was 35.3°C while night temperature recorded as 25.6°C. Wind speed recorded as 3.4km/h with mean wind direction *north easterly*.

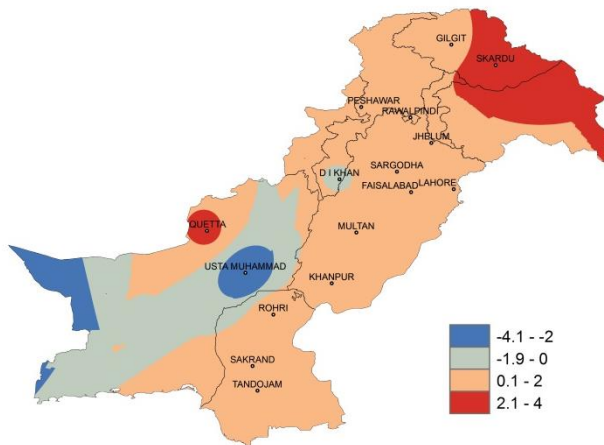
Rice: Good condition, Shooting stage.

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

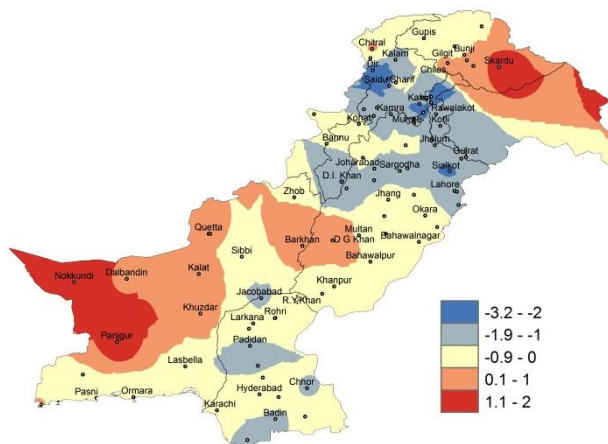
Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 25%. Mean day temperature was 32.1°C while night temperature recorded as 16.7°C with 105.8hours bright sunshine duration. Wind speed recorded as 4.9km/hr with mean wind direction *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 (21st to 30th September, 2016)

2.6 Jhelum

Rainfall reported as 10.4mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 69%. Mean day temperature was 35.3°C while night temperature recorded as 24.8°C with 69.7hours bright sunshine duration. Wind speed recorded as 1.5km/hr with mean wind direction *south westerly*.

2.7 Lahore

Rainfall reported as 30.1mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 68%. Mean day temperature was 34.5°C while night temperature recorded as 25.0°C with 56.6hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *south easterly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 65%. Mean day temperature was 36.1°C while night temperature recorded as 25.9°C with 68.0hours bright sunshine duration. Wind speed recorded 2.4km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 2.6mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 54%. Mean day temperature was 37.6°C while night temperature recorded as 27.0°C with 82.9hours bright sunshine duration. Wind speed recorded 2.4km/hr with mean wind direction *variable*.

2.10 Khanpur

Dry weather reported during the decade. However however weather remained cloudy for 01day. Average relative humidity recorded as 59%. Mean day temperature was 38.3°C while night temperature recorded as 24.8°C with 94.6hours 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 remains cloudy for 01day. Average relative humidity recorded as 58%. Mean day temperature was 38.1°C while night temperature recorded as 23.3°C with 108.6hours bright sunshine duration. Wind speed recorded 5.73km/hr with wind direction *south easterly*.

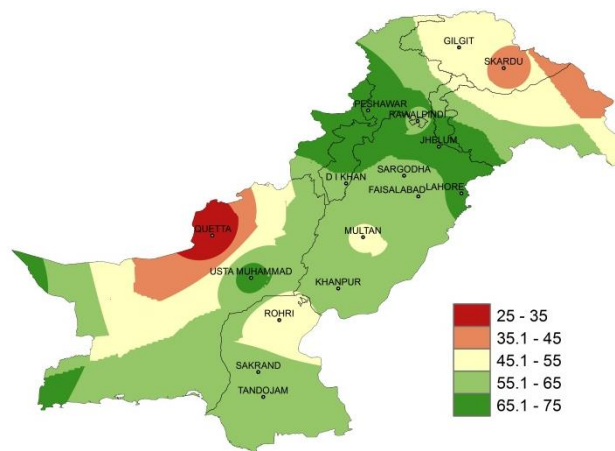


Figure.3: Relative Humidity in Percentage (%)

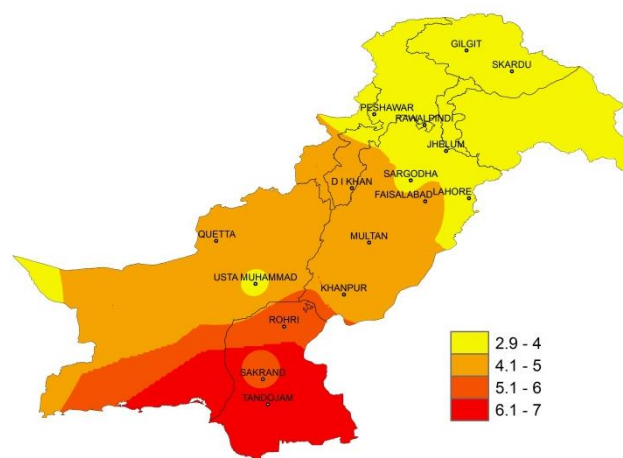


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

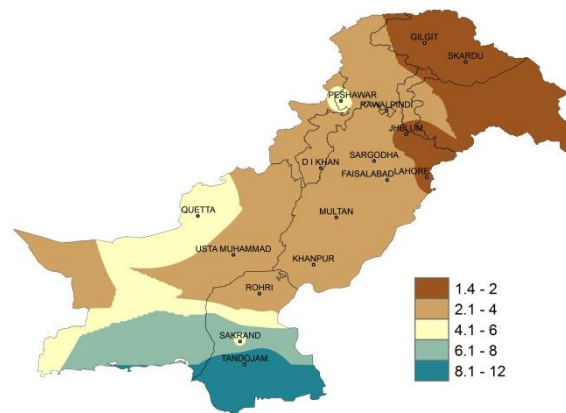


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade. However sky remained clear throughout the decade. Average relative humidity recorded as 45%. Mean day temperature was recorded as 39.5°C with 99.0hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *south easterly*.

2.13 D.I. Khan

Rainfall reported as 43.0mm during the decade; however weather remains cloudy for 03days. Average relative humidity recorded as 65%. Mean day temperature was 35.8°C while night temperature recorded as 23.7°C with 76.5 hours bright sunshine duration.

2.14 Peshawar

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 72%. Mean day temperature was 35.0°C while night temperature recorded as 24.5°C with 59.6hours bright sunshine duration. Wind speed recorded as 4.1km/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 43%. Mean day temperature was 27.2°C while night temperature recorded as 7.6°C with 77.4hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *easterly*.

2.16 Gilgit

Rainfall reported as 0.7mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 51%. Mean day temperature was 31.0°C while night temperature recorded as 11.0°C with 84.5hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *westerly*.

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

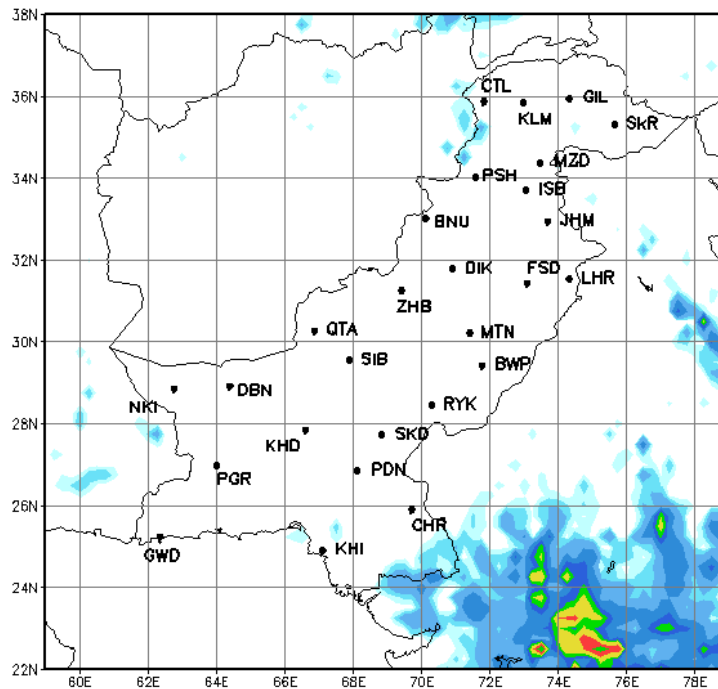
- ❖ **Punjab:** Rain-dust-thunderstorm is expected at scattered places in Punjab including Bahawalpur, D.G khan, Sahiwal and light to moderate rainfall is expected in Rawalpindi, Gujranwala, Lahore in the end of 2nd half of the decade
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at scattered places in KP including Malakand, Hazara Division during the decade
- ❖ **Sindh:** Light rainfall is expected at isolated places of province during the 2nd half of decade.
- ❖ **Balochistan:** Mainly hot and dry weather is expected in most parts of the province. However light rainfall is expected at isolated places of province including Kalat, Naseerabad, Sibbi & Zhob in the 2nd half of the decade.
- ❖ **Gilgit Baltistan:** Rain-thunderstorm is expected at isolated places in GB during the decade.
- ❖ **Kashmir:** Rain-thunderstorm is expected at isolated places 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 in the mentioned.

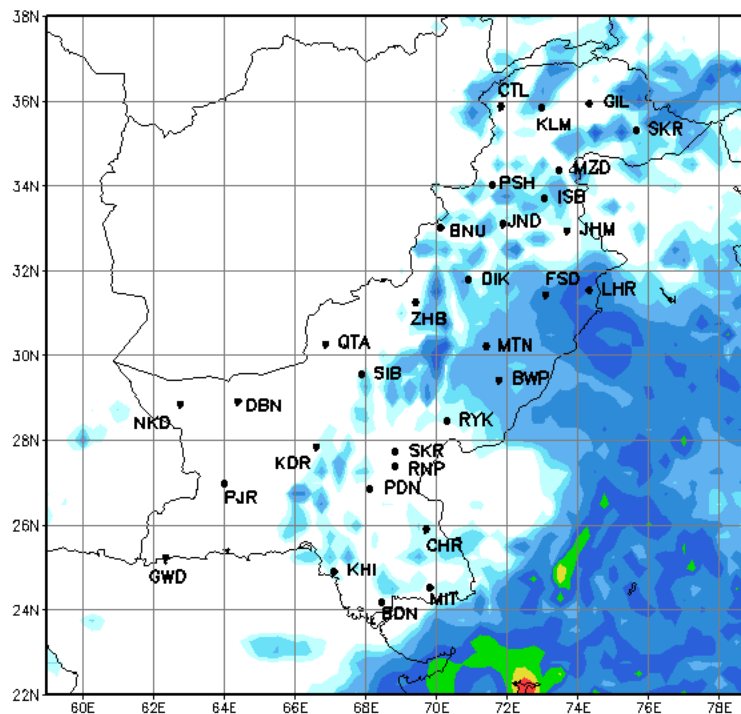
4.1 Precipitation Forecast (1st to 3rd October, 2016)

The forecast for the first three days of this decade of October 2016 shows that normal to slightly below normal rainfall is expected in the regions of Khyber Pakhtoonkhwa, Lower Sindh and Azad Jammu and Kashmir.



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

The outlook for the last seven days of this decade of October 2016 shows that light to moderate rainfall is expected at isolated places in the Punjab, KP, G.B and Kashmir. Light rainfall is expected at isolated places of Sindh and Balochistan.



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)