

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported in the agricultural plains of Punjab and K.P however light rainfall reported in the agricultural plains of Balochistan, G.B & Kashmir. Dry weather reported in the plains of Sindh.
- ❖ Highest amount of rainfall reported 98.0 mm at Lahore during the last decade.
- ❖ Highest Maximum temperature recorded 43.0°C at Nokkundi during the last decade.
- ❖ Mostly dry weather is expected in most of the agricultural plains of the country however light to moderate rainfall is expected in upper parts of the country during the 2nd half of the decade.
- ❖ Pest/viral attacks are expected over cotton and sugarcane crops during hot and humid conditions during monsoon. Farmers should be very careful and take in time precautionary measures in this regard.
- ❖ 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.
- ❖ Farmers are advised to take in time precautionary measures to protect their crops, livestock and other property from any expected rains.

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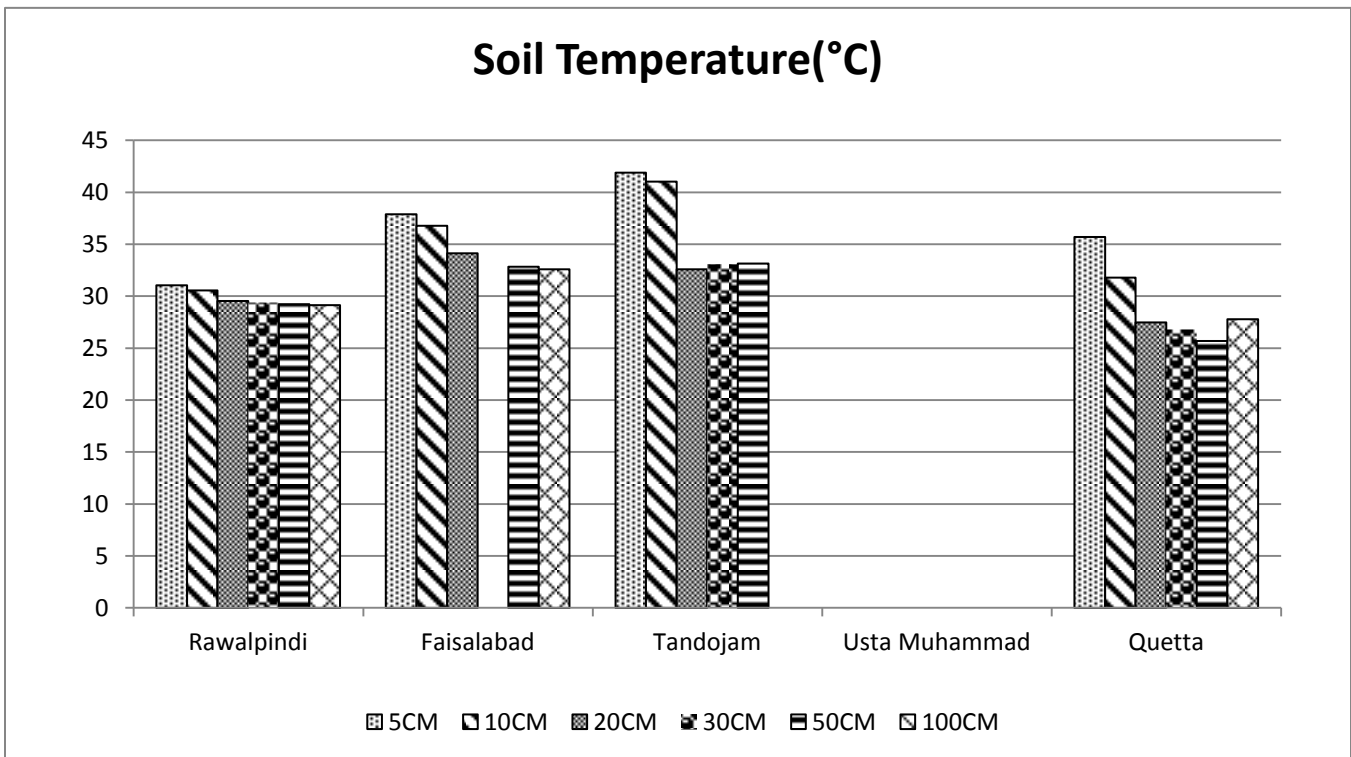
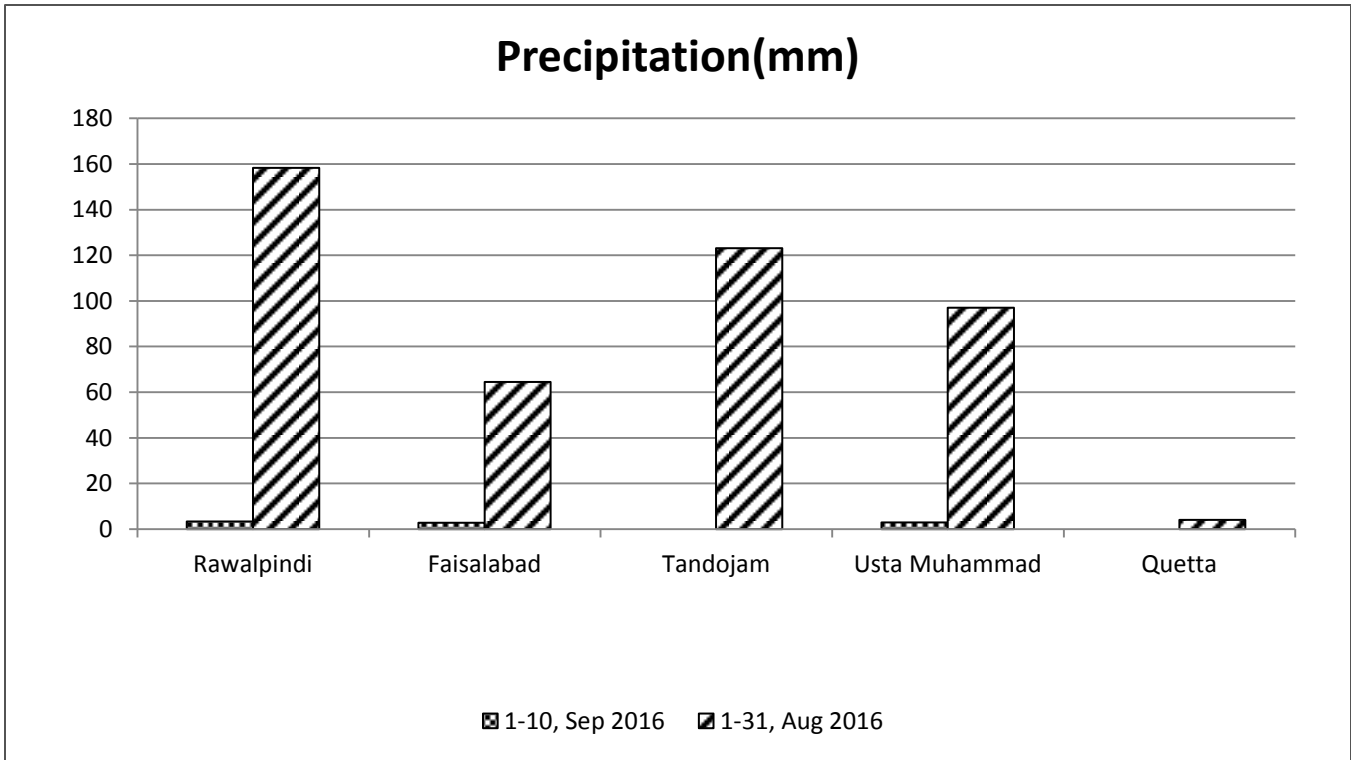
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Meteorological conditions during 3rd decade of August, 2016

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	5.4	3.4	-2.0	1.9	2.0	29.7	31.1	30.6	29.6	29.4	29.3	29.2	63	82.5	3.5	4.6
2	Faisalabad	1.6	2.8	1.2	1.1	1.5	31.2	37.9	36.8	34.2	***	32.9	32.6	58	87.2	3.1	4.9
3	Jhelum	3.4	0.6	-2.8	1.7	0.8	30.7	33.2	32.1	31.0	30.3	30.6	***	65	92.9	3.3	4.9
4	Lahore	3.8	97.6	93.8	1.0	-0.6	30.3	33.0	32.7	31.2	30.3	***	29.7	66	77.7	1.8	4.3
5	Sargodha	1.5	14.0	12.5	0.5	1.1	31.7	34.2	33.0	31.1	30.6	***	30.4	65	81.0	1.5	4.4
6	Multan	1.1	0.0	-1.1	-0.4	0.8	31.7	***	***	***	***	***	***	60	79.1	5.6	5.3
7	Khanpur	0.7	0.0	-0.7	-4.8	-0.8	28.6	***	34.8	34.8	35.0	35.6	34.8	61	98.4	5.5	5.2
8	Tandojam	2.2	0.0	-2.2	-0.6	-1.1	29.2	41.9	41.1	32.6	33.1	33.2	***	66	95.2	15.5	6.7
9	Sakrand ☆	1.0	0.0	-1.0	1.4	-0.3	31.1	48.4	41.0	***	***	***	36.5	56	110.6	5.6	6.3
11	Rohri	0.1	0.0	-0.1	0.6	***	38.6	***	***	***	***	***	***	57	92.2	2.4	6.5
12	D.I Khan	1.1	7.0	5.9	0.6	0.8	31.0	***	***	***	***	***	***	64	78.1	***	5.4
13	Peshawar	1.1	0.0	-1.1	2.0	0.6	31.1	39.9	35.3	33.7	***	***	***	61	76.4	3.6	4.7
14	Usta .M	0.6	3.0	2.4	-2.7	-2.1	30.3	***	***	***	***	***	***	68	***	4.8	4.8
15	Quetta	0.0	0.0	0.0	-0.6	3.4	24.7	35.7	31.8	27.5	26.8	25.7	27.8	29	102.6	4.0	5.1
16	Skardu	0.8	6.4	5.6	4.5	0.5	19.8	***	***	***	***	***	***	52	53.6	1.6	3.1
17	Gilgit	0.5	4.6	4.1	-1.5	-0.6	21.0	***	***	***	***	***	***	57	58.2	1.9	3.2

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 years climatic (normal) data for computing departures.

Graph at RAMCs during September, 2016



1 Past Weather (1st to 10th September, 2016)

Light to moderate rainfall reported in the agricultural plains of Punjab and K.P, however light rainfall reported in the agricultural plains of Balochistan, G.B & Kashmir. Dry weather reported in the plains of Sindh.

1.1 Punjab

Light to moderate rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received in Lahore, T.T Singh & Layyah. Decadal maximum & minimum both raised above normal by 0.1°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 85.5hrs, 3.5km/hr and 4.8mm/day respectively.

1.2 Sindh

Dry weather reported in the agricultural plains of Sindh. Decadal maximum raised above normal by 0.5°C & minimum temperature dropped below normal by 0.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 60%, 99.3hrs, 7.8km/hr and 6.5mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

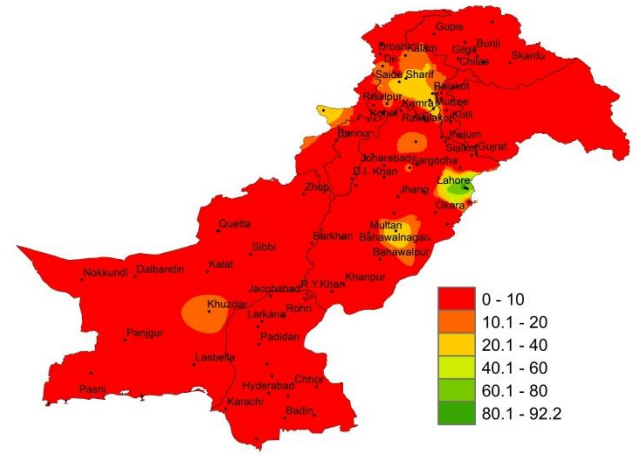
Light to moderate rainfall reported in the agricultural plains of KP. Chief amount of rainfall received in Malam jabba, Kakul & Parachinar. Decadal maximum & minimum both raised above normal by 1.3°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 77.3hrs, 3.6km/hr and 5.1mm/day respectively.

1.4 Balochistan

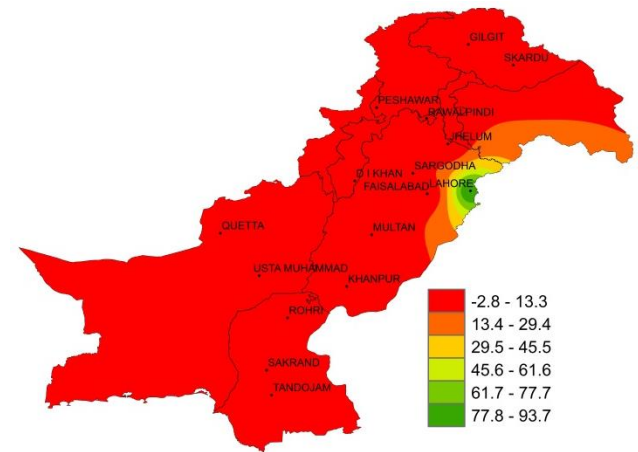
Light rainfall reported in few agricultural plains of Balochistan. Chief amount of rainfall received in Khuzdar & Zhob. Decadal maximum dropped below normal by 1.7°C & minimum temperature raised above normal by 0.7°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 102.6hrs, 4.4km/hr and 5.0mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

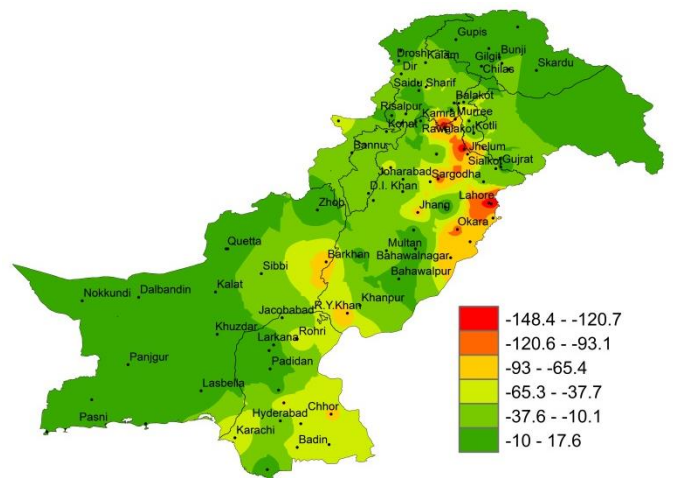
Light rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received Gilgit, Gupis & Kotli. Decadal maximum raised above normal by 2.0°C & minimum temperature remained normal, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 55.9hrs, 1.8km/hr and 5.2mm/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 September, 2016)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 3.4mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 63%. Mean day temperature was 35.3°C while night temperature recorded as 24.1°C with 82.45hours bright sunshine duration. Wind speed recorded as 3.5km/hr with mean wind direction *South easterly*
Maize Agaiti 2002: Good condition, 9th leaf stage.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 2.8mm during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 58%. Mean day temperature was 36.8°C while night temperature recorded as 25.5°C with 87.20hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *southerly*.
Cotton: Very good condition, boll opening stage.

2.3 RAMC, Tandojam (Lower Sindh)

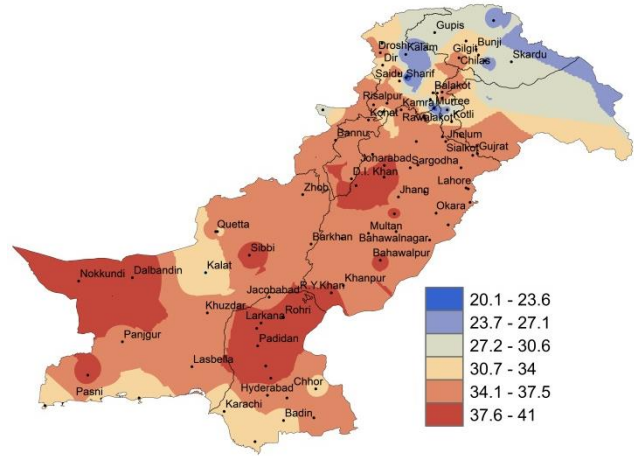
Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 66%. Mean day temperature was 34.9°C while night temperature recorded as 23.5°C with 95.2hours bright sunshine duration. Wind speed recorded as 15.5km/h with mean wind direction *south westerly*.
Cotton (Star-2): Good condition, Boll opening stage.

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

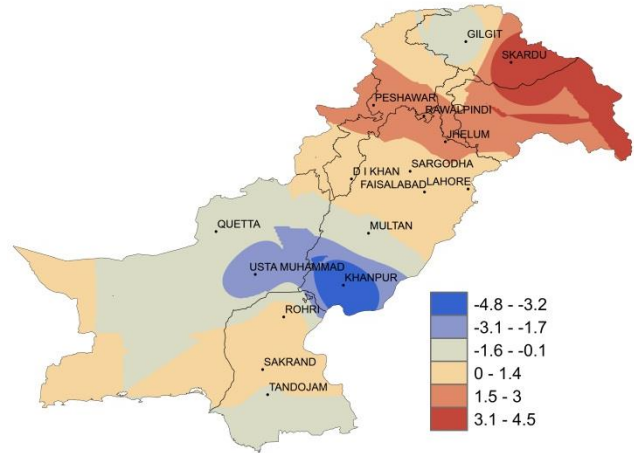
Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 68%. Mean day temperature was 36.1°C while night temperature recorded as 24.5°C. Wind speed recorded as 4.8km/h with mean wind direction *south easterly*
Rice: Good condition, Tillering stage.

2.5 RAMC, Quetta (Northern Balochistan)

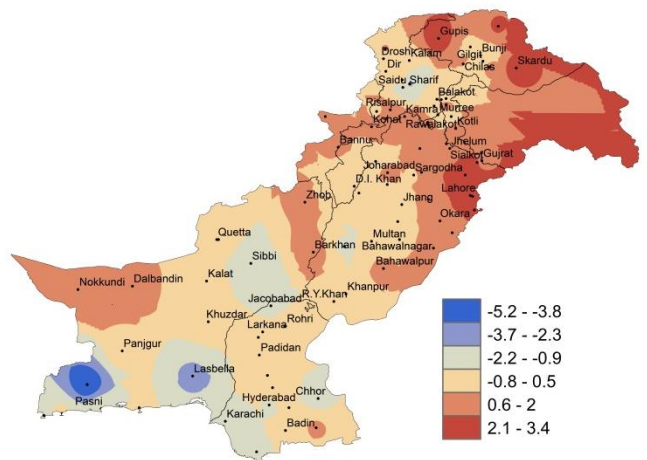
Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 29%. Mean day temperature was 32.2°C while night temperature recorded as 17.1°C with 102.6hours bright sunshine duration. Wind speed recorded as 4.0km/hr with mean wind direction *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 (1st to 10th September, 2016)

2.6 Jhelum

Rainfall reported as 0.6mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 65%. Mean day temperature was 36.2°C while night temperature recorded as 25.2°C with 92.9hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *south westerly*.

2.7 Lahore

Rainfall reported as 97.6mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 66%. Mean day temperature was 35.2°C while night temperature recorded as 25.4°C with 77.7hours bright sunshine duration. Wind speed recorded as 1.8km/hr with mean wind direction *south westerly*.

2.8 Sargodha

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 65%. Mean day temperature was 36.6°C while night temperature recorded as 26.8°C with 81.0hours 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 10days. Average relative humidity recorded as 60%. Mean day temperature was 36.2°C while night temperature recorded as 27.1°C with 79.1hours bright sunshine duration. Wind speed recorded 5.6km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade. However sky remained cloudy for 03days. Average relative humidity recorded as 61%. Mean day temperature was 31.9°C while night temperature recorded as 25.2°C with 98.4hours bright sunshine duration. Wind speed recorded 5.5km/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 56%. Mean day temperature was 37.8°C while night temperature recorded as 24.4°C with 110.6hours bright sunshine duration. Wind speed recorded 5.6km/hr with wind direction *south westerly*.

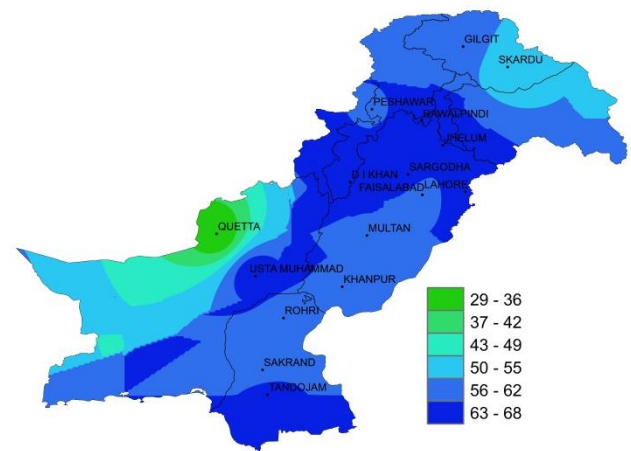


Figure.3: Relative Humidity in Percentage (%)

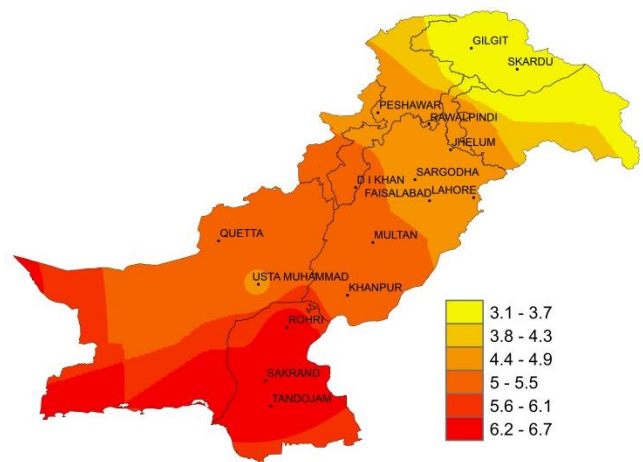


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

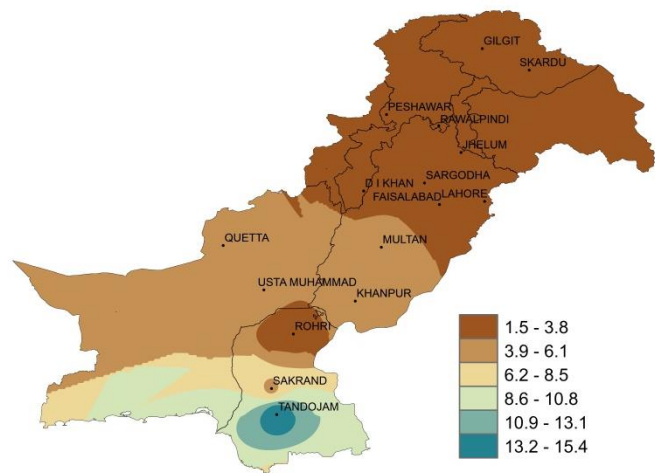


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 57%. Mean day temperature was recorded as 40.0°C with 92.0hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *south westerly*.

2.13 D.I. Khan

Rainfall reported as 7.0mm during the decade; however weather remains cloudy for 02days. Average relative humidity recorded as 64%. Mean day temperature was 37.0°C while night temperature recorded as 25.0°C with 78.1hours bright sunshine duration.

2.14 Peshawar

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 61%. Mean day temperature was 37.0°C while night temperature recorded as 25.2°C with 76.4hours bright sunshine duration. Wind speed recorded as 3.6km/hr with mean wind direction *north easterly*.

2.15 Skardu

Rainfall reported as 6.4mm during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 52%. Mean day temperature was 27.2°C while night temperature recorded as 12.4°C with 53.6hours bright sunshine duration. Wind speed recorded as 1.6km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as 4.6mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 57%. Mean day temperature was 30.5°C while night temperature recorded as 11.4°C with 58.2hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *easterly*.

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

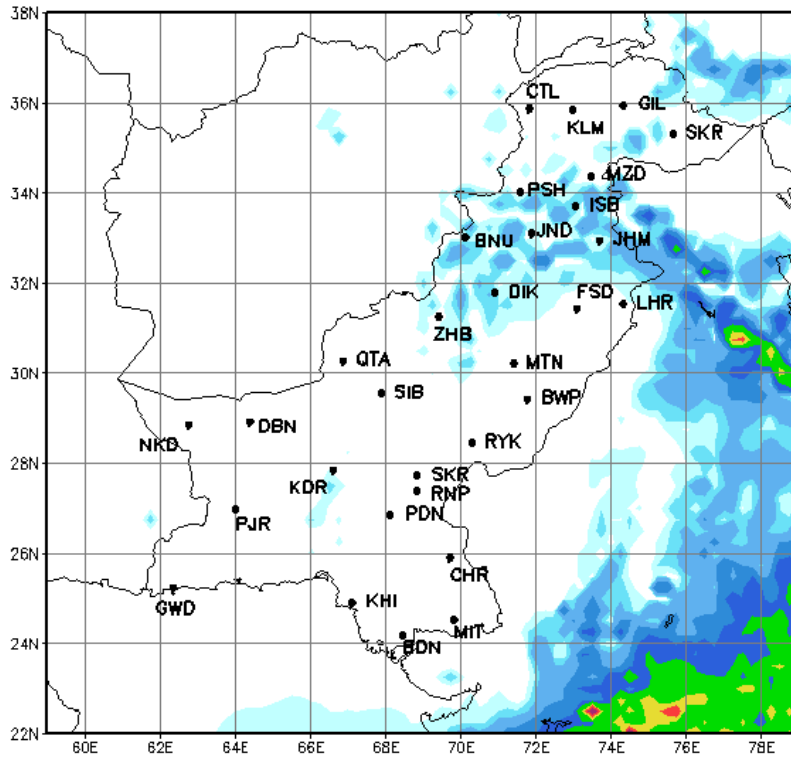
- ❖ **Punjab:** Rain-thunderstorm is expected at isolated places in upper Punjab including Rawalpindi, Lahore, Gujranwala, Sargodha, and Faisalabad in the end of 2nd half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Rain-thunderstorm is expected at scattered places in Khyber-Pakhtunkhwa including Mardan, Malakand, Hazara and Peshawar Division in 2nd half of the decade.
- ❖ **Sindh:** Mainly hot and dry weather is expected in most parts of the province.
- ❖ **Balochistan:** Mainly hot and dry weather is expected in most parts of Balochistan, however light rainfall is expected at isolated places in Zhob & Kalat divisions in 2nd half of the decade.
- ❖ **Gilgit Baltistan:** Rain-thunderstorm is expected at isolated places in GB during 2nd half of the decade.
- ❖ **Kashmir:** Rain-thunderstorm is expected at isolated places including Muzaffarabad, Kotli, Neelum & Rawalakot during 2nd half of the decade.

3.4 Advisory for Farmers

- ❖ Pest/viral attacks are expected over cotton and sugarcane crops during hot and humid conditions during monsoon. Farmers should be very careful and take in time precautionary measures in this regard.
- ❖ 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.
- ❖ Farmers are advised to take in time precautionary measures to protect their crops, livestock and other property from any expected rains.
- ❖ Farmers of cotton belt are advised to be aware of the adverse effects of stagnant water in the fields. Mechanism for drainage of stagnant water from fields should be evolved on priority basis and necessary requirement in this regard should be taken.

4.1 Precipitation Forecast (14th to 20th September, 2016)

The forecast for the next seven days this decade of September 2016 shows that normal to slightly below normal rainfall is expected in the monsoon dominated regions of Punjab, Khyber Pakhtoonkhwa and Azad Jammu and Kashmir.



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)