

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of the Punjab, K.P however light rainfall reported from few parts of G.B, Kashmir & Sindh. Dry weather reported from Balochistan during the last decade.
- ❖ Highest amount of rainfall recorded as 44.0 mm at Saidu Sharif during the last decade.
- ❖ Highest maximum temperature recorded as 44.0°C at Nokkundi during the last decade.
- ❖ Mainly dry weather is expected in most parts of the country during the current decade, while light rainfall is expected in scattered places of Upper KP.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ 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.
- ❖ Measures may be taken to preserve the standing crops and vegetables from the damaging effects of varying weather pattern due to monsoon systems.

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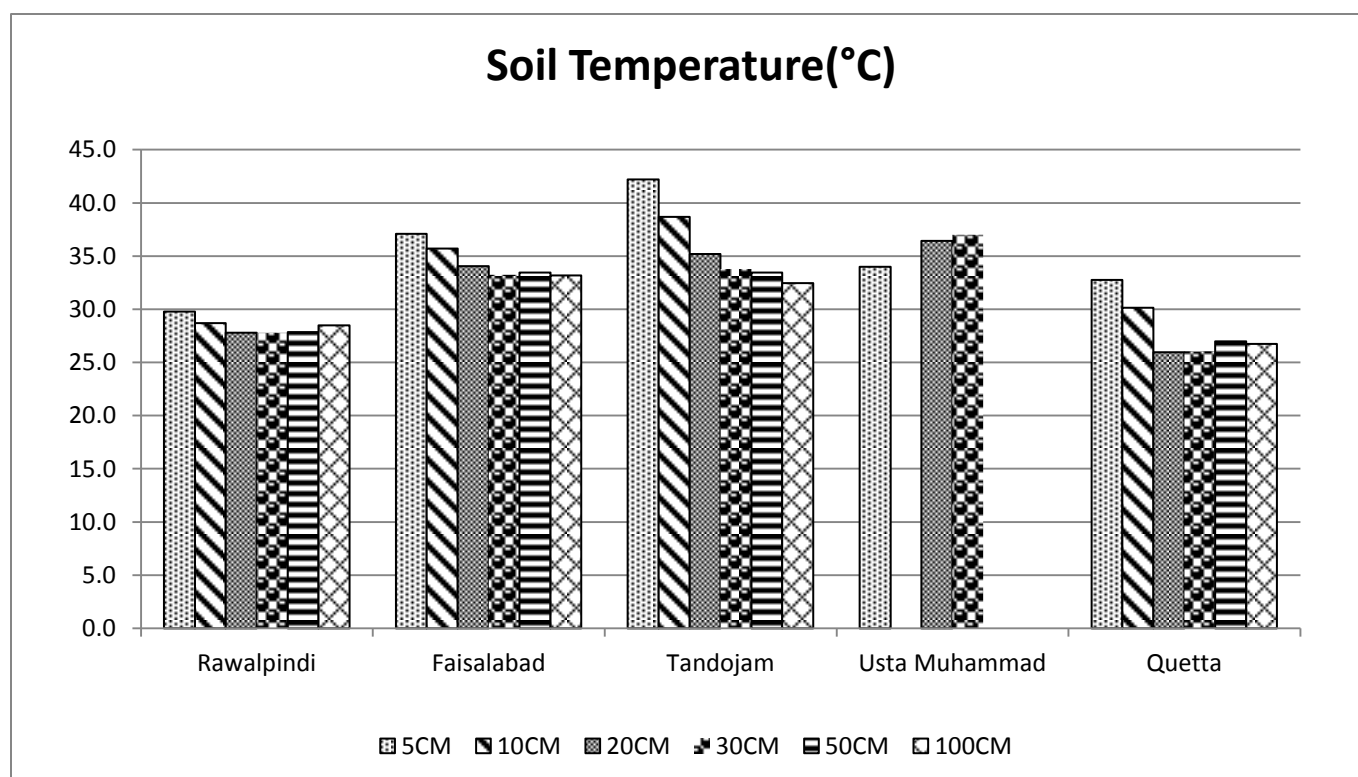
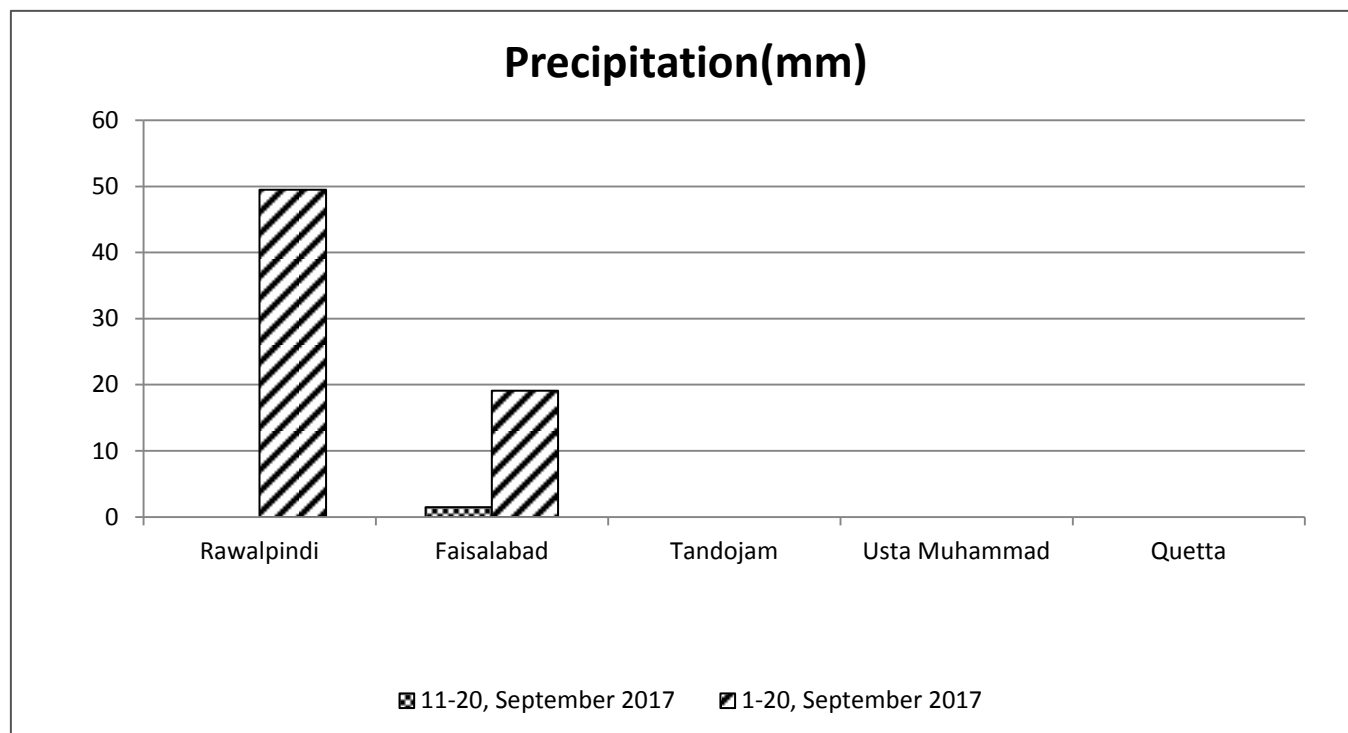
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Meteorological Conditions during 2nd Decade of September, 2017

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	3.4	0.0	-3.4	1.1	0.1	28.0	29.8	28.7	27.8	27.8	27.9	28.5	56	98.4	2.4	4.4
2	Faisalabad	1.2	1.5	0.3	2.2	0.0	30.6	37.1	35.7	34.1	33.3	33.5	33.2	50	94.6	2.1	4.5
3	Jhelum	1.3	0.0	-1.3	2.0	-1.9	29.5	33.3	31.8	29.9	29.1	29.7	***	58	93.7	4.4	4.9
4	Lahore	1.4	0.2	-1.2	2.4	-1.4	30.1	32.8	32.4	30.8	30.0	***	30.1	56	78.2	1.1	3.8
5	Sargodha	2.0	19.0	17.0	0.4	-0.4	30.2	33.8	32.2	30.0	29.7	***	29.9	60	83.1	2.2	4.2
6	Multan	0.8	0.0	-0.8	1.5	1.0	32.0	***	***	***	***	***	***	48	87.1	5.2	5.4
7	Khanpur	0.0	0.0	0.0	2.0	-0.1	31.8	***	35.4	35.4	35.6	35.6	34.7	59	96.3	2.6	5.0
8	Tandojam	0.0	0.0	0.0	1.9	-1.1	30.4	42.2	38.7	35.2	33.8	33.5	32.5	67	98.1	5.8	5.6
9	Sakrand ☆	0.0	0.0	0.0	1.6	1.6	31.9	43.4	***	***	***	***	35.9	58	112.7	6.1	6.3
11	Rohri	0.1	0.0	-0.1	1.6	-0.6	33.1	***	***	***	***	***	***	49	77.8	1.8	4.4
12	D.I Khan	2.3	0.1	-2.2	1.9	0.2	30.8	32.4	32.1	31.8	32.3	21.7	31.8	54	94.1	6.4	5.7
13	Peshawar	1.1	7.0	5.9	1.1	-2.9	28.3	34.5	32.6	30.7	29.7	29.6	30.0	54	74.4	2.1	3.9
14	Usta .M	0.0	0.0	0.0	-0.6	1.2	32.3	34.0	***	36.4	37.0	***	***	64	***	2.9	4.5
15	Quetta	0.0	0.0	0.0	-1.6	-0.5	21.1	32.8	30.2	26.0	26.1	27.0	26.8	26	103.6	4.9	5.2
16	Skardu	0.2	1.3	1.1	-2.6	-0.9	16.9	***	***	***	***	***	***	53	42.1	2.2	2.7

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, 2017



Past Weather (11th to 20th September, 2017)

Light to moderate rainfall reported from most parts of the Punjab, K.P however light rainfall reported from few parts of G.B, Kashmir & Sindh. Dry weather reported from Balochistan during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Joharabad, Sargodha & Layyah. Decadal maximum raised above normal by 1.7°C & minimum temperature dropped below normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 90.2hrs, 2.9km/hr and 4.6mm/day respectively.

1.1 Sindh

Light rainfall reported from one place of Sindh i.e. Mithi. Decadal maximum raised above normal by 1.7°C & minimum temperature remained normal, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 96.2hrs, 4.6km/hr and 5.4mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

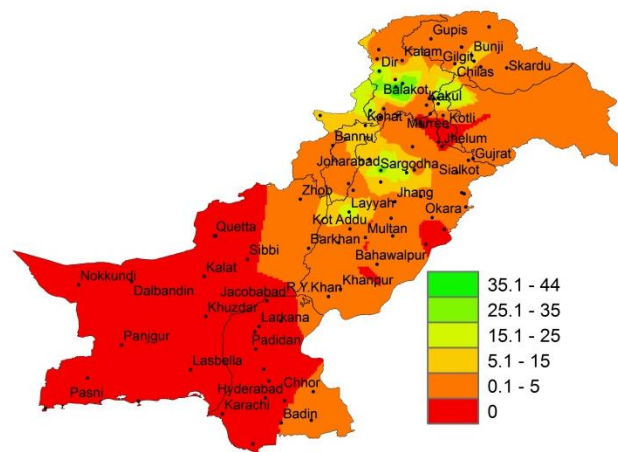
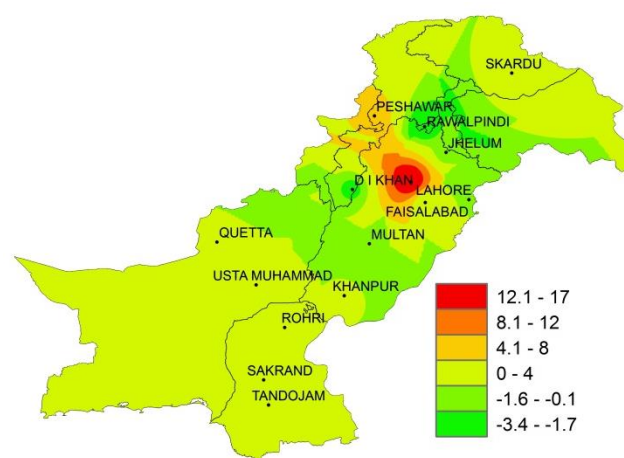
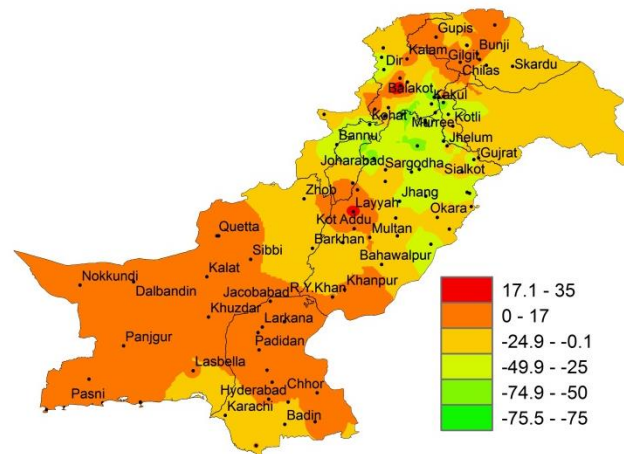
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Saidu Sharif, Pattan & Malam Jabba. Decadal maximum raised above normal by 1.5°C & minimum temperature dropped below normal by 1.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 84.3hrs, 4.3km/hr and 4.8mm/day respectively.

1.3 Balochistan

Dry weather reported from agricultural plains of Balochistan. Decadal maximum dropped below normal by 1.1°C & minimum temperature raised above normal by 0.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 103.6hrs, 3.9km/hr and 4.9mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Garhi Dopatta, Bunji & Bagrote. Decadal maximum & minimum temperature both dropped below normal by 2.6°C & 0.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 27%, 42.1hrs, 1.1km/hr and 2.7mm/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 (mm)**

2(a) **Past Weather for Major Agricultural Plains** **(11th to 20th September, 2017)**

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

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 56%. Mean day temperature was 34.5°C while night temperature recorded as 21.5°C with 98.4hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *westerly*.

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

Rainfall reported as 1.5mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 50%. Mean day temperature was 37.5°C while night temperature recorded as 23.6°C with 94.58hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *south easterly*.

Cotton: Very good condition, boll opening stage completed.

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

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 67%. Mean day temperature was 37.5°C while night temperature recorded as 23.2°C with 98.1hours bright sunshine duration. Wind speed recorded as 5.8km/h with mean wind direction *south westerly*.

Cotton HH-906: Good condition, boll opening stage.

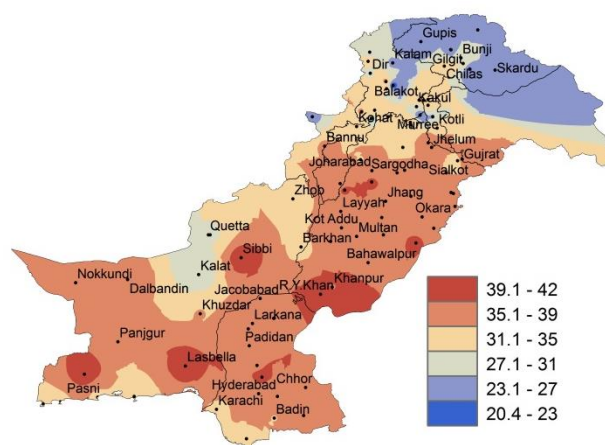
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 64%. Mean day temperature was 38.0°C while night temperature recorded as 26.5°C. Wind speed recorded as 2.9km/h with mean wind direction *south easterly*.

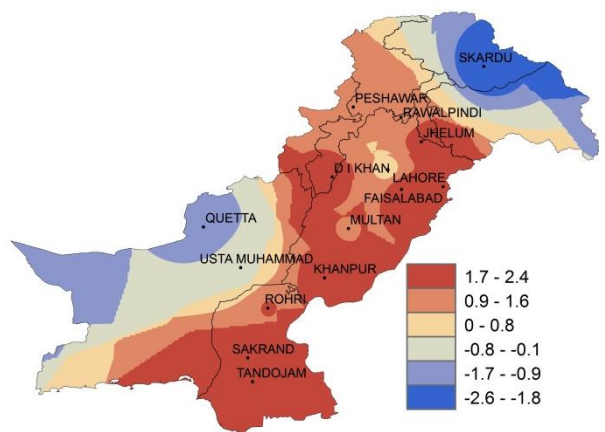
Rice: Good condition, tillering stage.

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

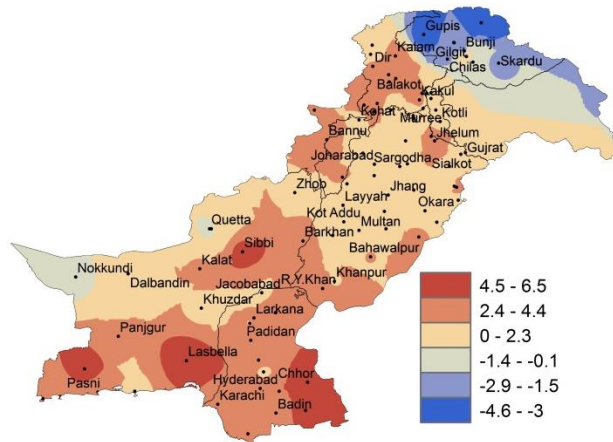
Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 26%. Mean day temperature was 30.1°C while night temperature recorded as 12.1°C with 103.6hours bright sunshine duration. Wind speed recorded as 4.9km/hr with mean wind direction *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 (°C)

2(b) Past Weather for Sub-Regional Agricultural Plains (11th to 20th September, 2017)

2.6 Jhelum

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 58%. Mean day temperature was 36.7°C while night temperature recorded as 22.3°C with 93.7hours bright sunshine duration. Wind speed recorded as 4.4km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 0.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 56%. Mean day temperature was 36.1°C while night temperature recorded as 24.1°C with 78.2hours bright sunshine duration. Wind speed recorded as 1.1km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 19.0mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 60%. Mean day temperature was 36.0°C while night temperature recorded as 24.3°C with 83.1hours bright sunshine duration. Wind speed recorded 2.2km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 48%. Mean day temperature was 37.5°C while night temperature recorded as 26.5°C with 87.1hours bright sunshine duration. Wind speed recorded 5.2km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 59%. Mean day temperature was 38.8°C while night temperature recorded as 24.8°C with 96.3hours bright sunshine duration. Wind speed recorded 2.6km/hr with mean wind direction *north westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 58%. Mean day temperature was 38.5°C while night temperature recorded as 25.2°C with 112.7hours bright sunshine duration. Wind speed recorded 6.1km/hr with wind direction *southerly*.

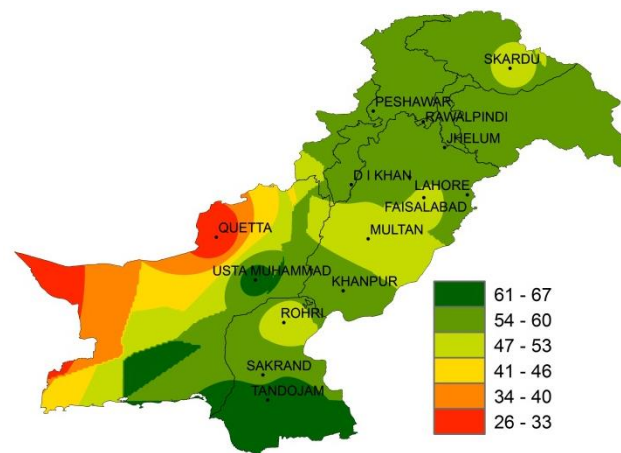


Figure.3: Relative Humidity in Percentage (%)

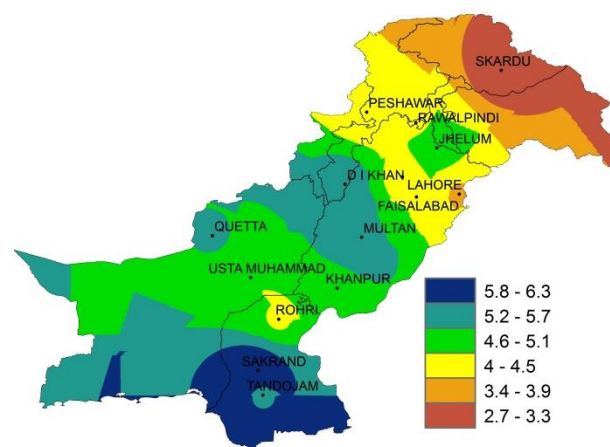


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

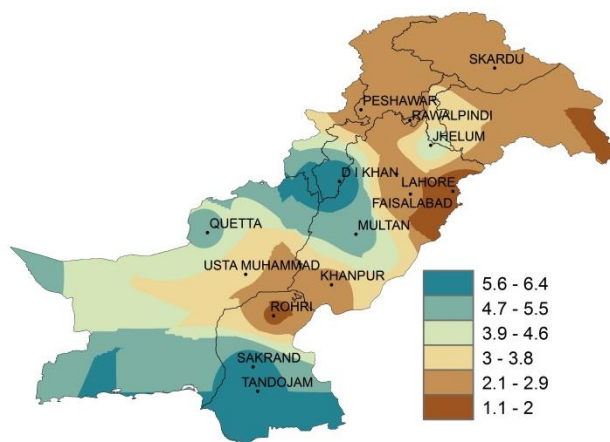


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01day. Average relative humidity recorded as 49%. Mean day temperature was 39.7°C while night temperature recorded as 26.5°C with 77.8hours bright sunshine duration. Wind speed recorded 1.8km/hr with wind direction *south easterly*.

2.13 D.I. Khan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 54%. Mean day temperature was 37.9°C while night temperature recorded as 23.7°C with 94.1hours bright sunshine duration. Wind speed recorded as 6.4km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 7.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 54%. Mean day temperature was 35.7°C while night temperature recorded as 20.9°C with 74.4hours bright sunshine duration. Wind speed recorded as 2.1km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 1.3mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 53%. Mean day temperature was 24.2°C while night temperature recorded as 9.5°C with 42.1hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *east south- easterly*.

Ten Days Weather Advisory for Farmers
(21st to 30th September, 2017)

3.1 Temperature Forecast

Day temperatures are expected slightly normal in most parts of the country, however night temperature are expected below normal in most of the agricultural parts of the during the decade.

3.2 Wind Forecast

Normal wind pattern may prevail in most of the agricultural plains of the country during the decade; however dust/sand storms may occur in southern Punjab and upper Sindh.

3.3 Rain Forecast

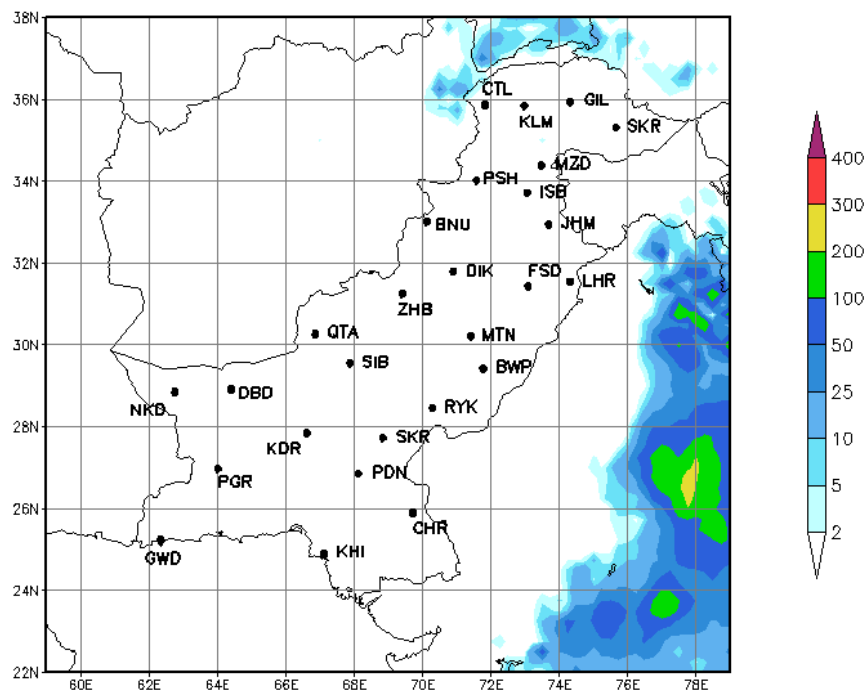
- ❖ **Punjab:** Dry weather is expected in the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at scattered places in upper parts of the province during the 2nd half of the decade.
- ❖ **Sindh:** Dry weather is expected in the province during the current decade.
- ❖ **Balochistan:** Dry weather is expected in the province during the current decade.
- ❖ **Gilgit Baltistan:** Dry weather is expected in G.B during the current decade.
- ❖ **Kashmir:** Dry weather is expected in Kashmir during the current decade.

3.4 Advisory for Farmers

- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ 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.
- ❖ Accumulation of stagnant water in the fields due to heavy rains is fatal for standing crops like cotton etc. Farmers may take suitable measures to resolve the issue.

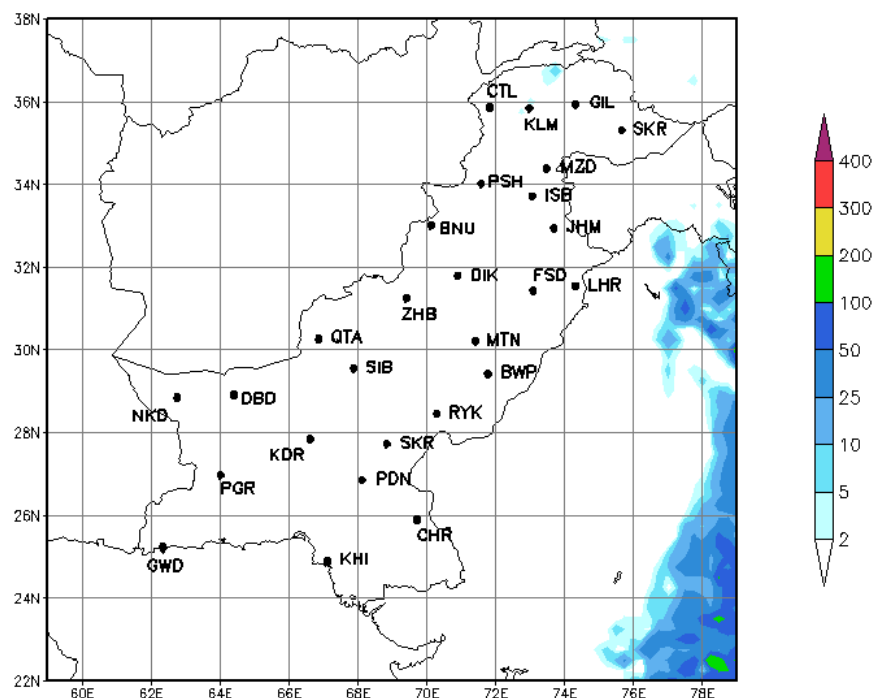
4.1 Precipitation Outlook (21st to 23rd September, 2017)

The forecast for the first three days (21st to 23rd) of the third decade of September 2017 shows that mainly dry weather may prevail in most parts of the country.



4.2 Precipitation Outlook (24th to 30th September, 2017)

The outlook for the last seven days (24th to 30th) of the third decade of September 2017 shows that light rainfall is expected at particular places of the upper KP. However, dry weather may prevail in rest parts of 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)