

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of the country, excluding central Sindh & western Baluchistan, during the last decade
- ❖ Highest amount of rainfall recorded as 97.0 mm at Lahore during the last decade.
- ❖ Highest maximum temperature recorded as 49.5°C at Moen-Jo-Daro during the last decade.
- ❖ Light to moderate rain is expected in most of the upper half and coastal belt of the country during the current decade, while dry weather is expected in western Baluchistan and Sindh.
- ❖ Rice growers are advised to sow the crop in accordance with the recommendation by the agriculture experts.
- ❖ 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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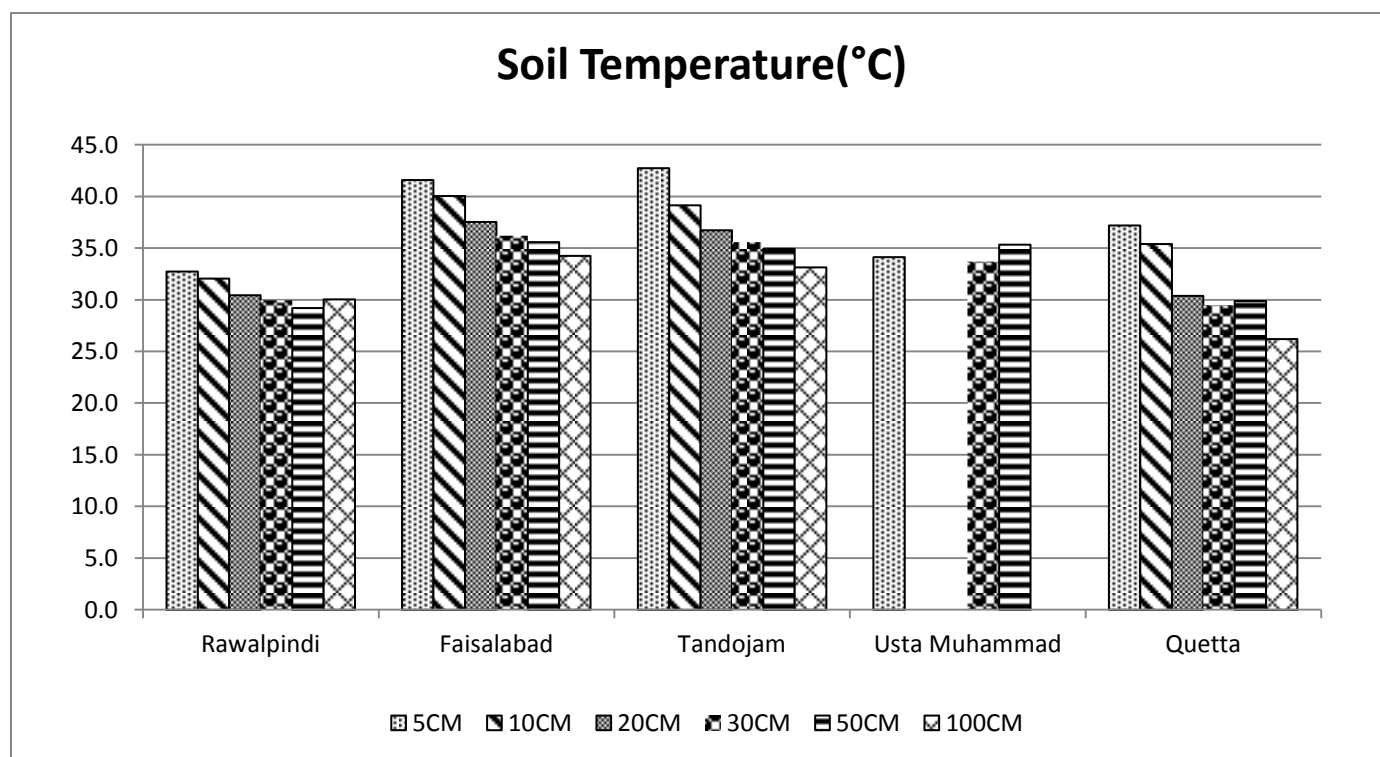
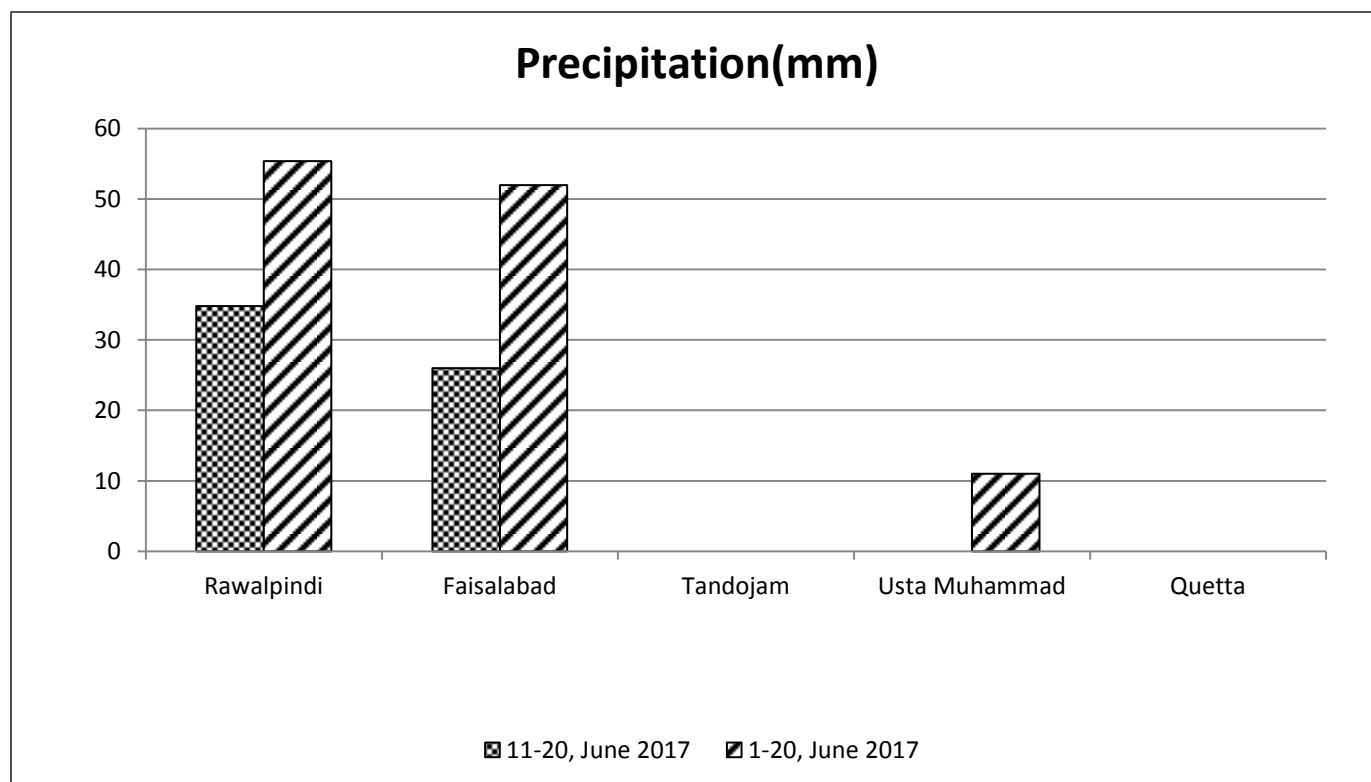
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Meteorological Conditions during 2nd decade of June, 2017

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	3.5	34.8	31.3	0.1	0.8	30.7	32.8	32.1	30.5	30.0	29.2	30.1	53	92.8	4.0	5.9
2	Faisalabad	2.7	26.0	23.3	0.1	0.7	32.9	41.6	40.1	37.6	36.2	35.6	34.3	47	83.8	5.6	6.6
3	Jhelum	2.8	36.4	33.6	0.1	-1.7	32.0	38.9	35.9	33.7	32.5	32.5	***	48	82.9	4.2	6.0
4	Lahore	3.5	46.6	43.1	-1.2	-2.3	31.5	34.6	34.2	32.2	31.2	***	29.5	51	79.5	2.8	5.4
5	Sargodha	1.8	6.0	4.2	-0.2	0.3	33.6	39.8	37.8	34.7	33.9	***	30.8	49	83.9	6.1	6.7
6	Multan	0.4	43.0	42.6	-2.3	-0.9	33.6	***	***	***	***	***	***	49	75.3	8.6	7.2
7	Khanpur	0.2	36.6	36.4	-0.2	0.7	35.3	***	39.1	38.7	38.6	38.6	35.9	54	86.4	7.4	7.3
8	Tandojam	0.0	0.0	0.0	-0.6	-0.3	32.6	42.8	39.2	36.8	35.6	35.0	33.2	59	98.6	18.4	8.9
9	Sakrand ☆	0.0	0.0	0.0	0.9	2.7	36.2	0.0	***	***	***	***	0.0	45	116.5	7.6	8.5
11	Rohri	0.3	0.0	-0.3	1.1	1.1	37.4	***	***	***	***	***	***	44	112.0	2.2	6.6
12	D.I Khan	1.5	0.1	-1.4	0.7	0.8	33.7	37.0	36.1	35.3	36.1	25.9	31.4	47	80.4	10.8	8.2
13	Peshawar	0.8	0.0	-0.8	0.3	0.6	32.7	37.4	34.0	33.0	32.4	21.1	25.6	43	84.5	5.7	6.7
14	Usta .M	0.0	0.0	0.0	6.0	-1.9	38.2	34.2	***	***	33.7	35.3	***	24	***	15.1	14.4
15	Quetta	0.0	0.0	0.0	1.4	2.8	28.7	37.2	35.4	30.4	29.5	29.9	26.2	21	112.3	6.8	7.4
16	Skardu	0.3	0.1	-0.2	-0.2	-3.1	20.0	***	***	***	***	***	***	37	74.2	3.5	4.8
17	Gilgit	0.3	0.1	-0.2	1.1	1.0	25.8	***	***	***	***	***	***	33	81.6	3.4	5.3

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 June, 2017



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

Light to moderate rainfall reported from most parts of the country, excluding central Sindh & western Baluchistan, during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Lahore, Gujranwala & Sialkot. Decadal maximum and minimum both dropped below normal by 0.5°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 83.5hrs, 5.5km/hr and 6.4mm/day respectively.

1.1 Sindh

Light rainfall reported from few parts of Sindh. Chief amount of rainfall received at Jacobabad, Badin & Karachi. Decadal maximum and minimum both raised above normal by 0.5°C & 1.2°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 109.0hrs, 9.4km/hr and 8.0mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

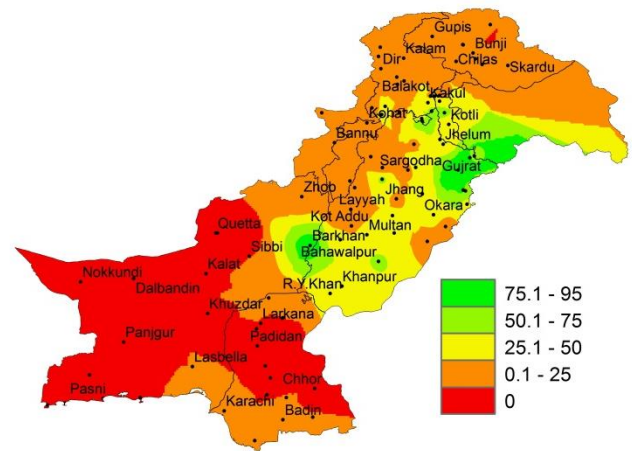
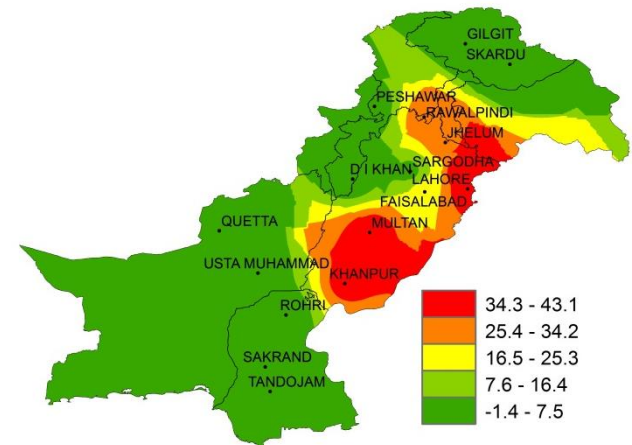
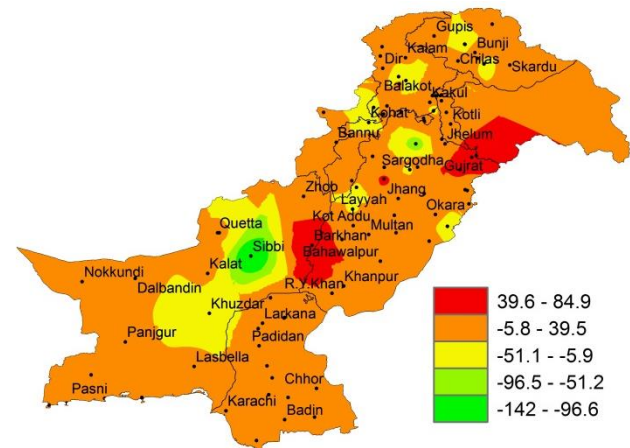
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Risalpur, Kakul & Cherat. Decadal maximum and minimum both raised above normal by 0.5°C & 0.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 82.5hrs, 8.3km/hr and 7.5mm/day respectively.

1.3 Balochistan

Light rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan & Zhob. Decadal maximum and minimum both raised above normal by 3.7°C & 0.4°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 23%, 112.3hrs, 11.0km/hr and 10.9mm/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 Rawalakot, Muzzaffarabad & Garhi Dopatta. Decadal maximum raised above normal by 0.4°C and 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 35%, 77.9hrs, 3.5km/hr and 5.1mm/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 (mm)**

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

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 34.8mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 53%. Mean day temperature was 37.4°C while night temperature recorded as 23.9°C with 92.8hours bright sunshine duration. Wind speed recorded as 4.0km/hr with mean wind direction *westerly*.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 26.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 47%. Mean day temperature was 39.2°C while night temperature recorded as 26.6°C with 83.83hours bright sunshine duration. Wind speed recorded as 5.6km/hr with mean wind direction *south easterly*.

Cotton: *Very Good condition, budding stage.*

2.3 RAMC, Tandojam (Lower Sindh)

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 59%. Mean day temperature was 38.8°C while night temperature recorded as 26.3°C with 98.6hours bright sunshine duration. Wind speed recorded as 18.4km/h with mean wind direction *south westerly*.

Cotton HH-906: *Good condition, budding stage.*

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

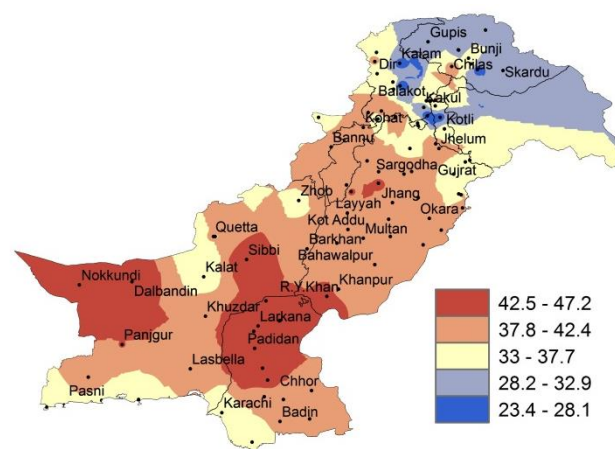
Dry weather reported during the decade; however weather remained cloudy for 06day. Average relative humidity recorded as 24%. Mean day temperature was 50.4°C while night temperature recorded as 25.9°C. Wind speed recorded as 15.1km/h with mean wind direction *south easterly*.

Crop Condition: *Field is being prepared for new crop.*

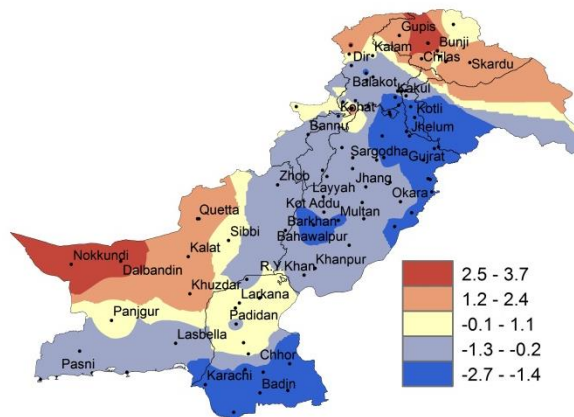
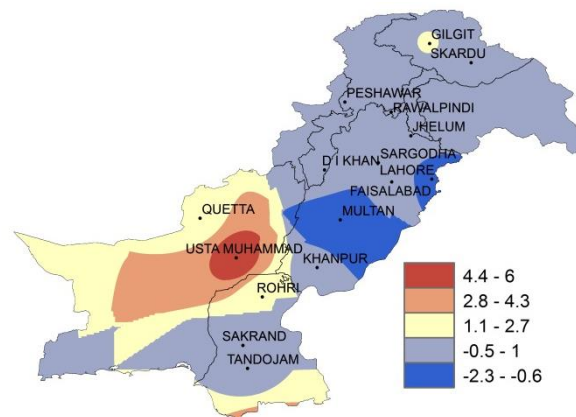
2.5 RAMC, Quetta (Northern Balochistan)

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 21%. Mean day temperature was 36.0°C while night temperature recorded as 21.3°C with 112.3hours bright sunshine duration. Wind speed recorded as 6.8km/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 June, 2017)

2.6 Jhelum

Rainfall reported as 36.4mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 48%. Mean day temperature was 39.0°C while night temperature recorded as 24.9°C with 82.9 hours bright sunshine duration. Wind speed recorded as 4.2km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 46.6mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 51%. Mean day temperature was 37.2°C while night temperature recorded as 25.7°C with 79.5hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 6.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 49%. Mean day temperature was 39.7°C while night temperature recorded as 27.4°C with 83.9hours bright sunshine duration. Wind speed recorded 6.1km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 43.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 49%. Mean day temperature was 39.2°C while night temperature recorded as 28.0°C with 75.3hours bright sunshine duration. Wind speed recorded 8.6km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Rainfall reported as 36.6mm reported during the decade; however weather remained cloudy for 02day. Average relative humidity recorded as 54%. Mean day temperature was 41.8°C while night temperature recorded as 28.7°C with 86.4hours bright sunshine duration. Wind speed recorded 7.4km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 45%. Mean day temperature was 42.8°C while night temperature recorded as 29.6°C with 116.5hours bright sunshine duration. Wind speed recorded 7.58km/hr with wind direction *southerly*.

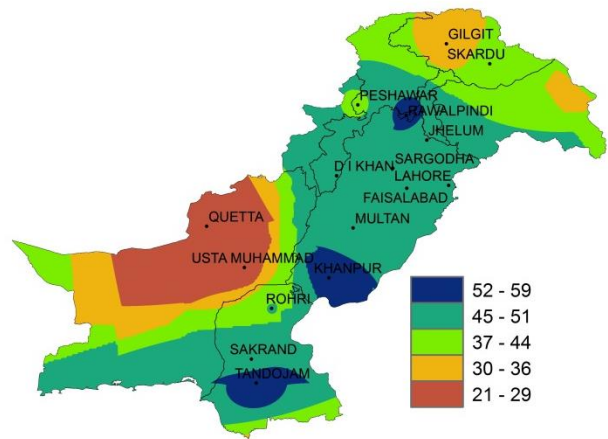


Figure.3: Relative Humidity in Percentage (%)

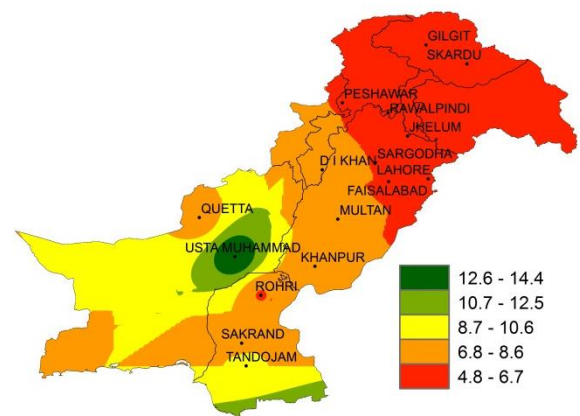


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

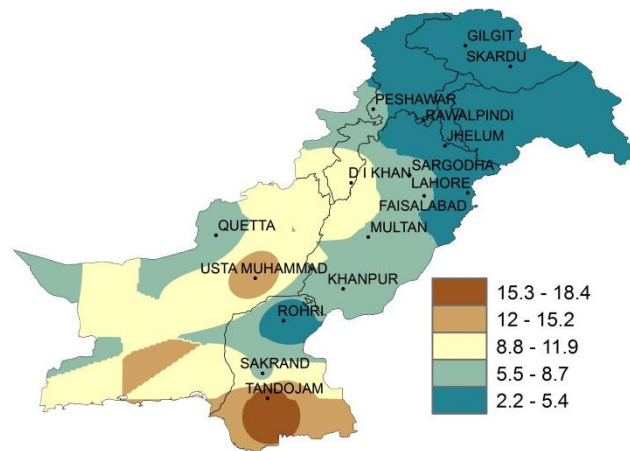


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 44%. Mean day temperature was 44.3°C while night temperature recorded as 30.5°C with 112.0 hours bright sunshine duration. Wind speed recorded 2.2 km/hr with wind direction *south westerly*.

2.13 D.I. Khan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 05 days. Average relative humidity recorded as 47%. Mean day temperature was 41.1°C while night temperature recorded as 26.2°C with 80.4 hours bright sunshine duration. Wind speed recorded as 10.8 km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 39.1 mm during the decade; however weather remained cloudy for 09 days. Average relative humidity recorded as 43%. Mean day temperature was 39.1°C while night temperature recorded as 26.3°C with 84.5 hours bright sunshine duration. Wind speed recorded as 5.7 km/hr with mean wind direction *north easterly*.

2.15 Skardu

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04 days. Average relative humidity recorded as 37%. Mean day temperature was 29.4°C while night temperature recorded as 10.6°C with 74.2 hours bright sunshine duration. Wind speed recorded as 3.5 km/hr with mean wind direction *south easterly*.

2.16 Gilgit

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 04 days. Average relative humidity recorded as 33%. Mean day temperature was 35.8°C while night temperature recorded as 15.8°C with 81.6 hours bright sunshine duration. Wind speed recorded as 3.4 km/hr with mean wind direction *easterly*.

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

3.1 Temperature Forecast

Day temperatures are expected slightly above normal in most parts of the country, however night temperature are expected 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

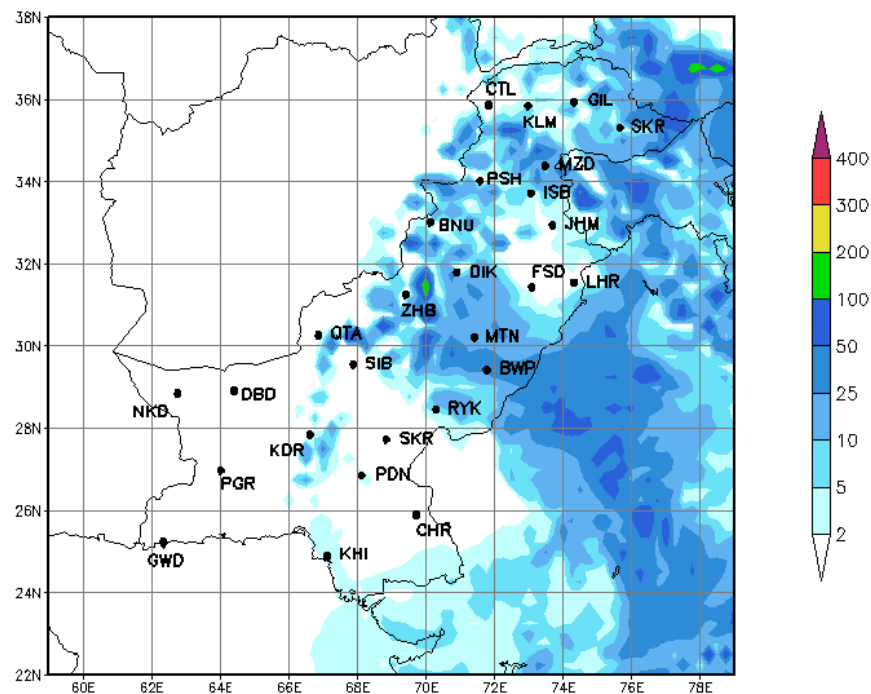
- ❖ **Punjab:** Light to moderate rainfall is expected in most parts of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at isolated places of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places of Karachi division during the current decade.
- ❖ **Balochistan:** Light to moderate rainfall is expected in isolated places of Kalat, Zhob and Quetta divisions during the current decade.
- ❖ **Gilgit Baltistan:** Light to moderate rainfall is expected in most parts of G.B during the current decade.
- ❖ **Kashmir:** Light to moderate rainfall is expected in most parts of the Kashmir during the current decade.

3.4 Advisory for Farmers

- ❖ Rice growers are advised to sow the crop in accordance with the recommendation by the agriculture experts.
- ❖ 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.

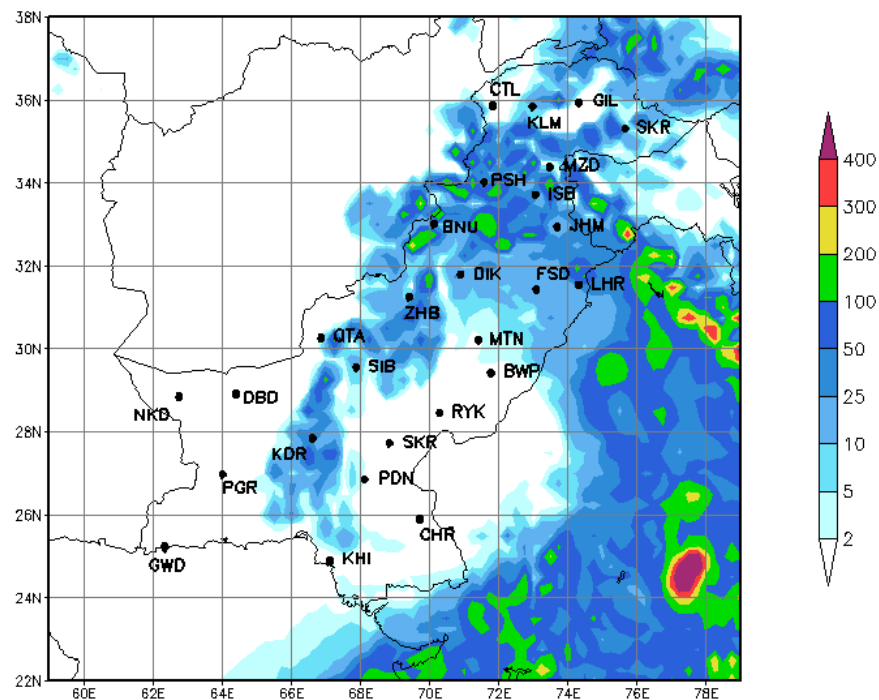
4.1 Precipitation Outlook (21st to 23rd June, 2017)

The forecast for the first three days (21st to 23rd) of the third decade of June 2017 shows that mainly cloudy weather with light to moderate rainfall is expected in most of the central and upper parts of the country. However, light rainfall is expected at a few places in Baluchistan and coastal areas of Sindh.



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

The outlook for the last seven days (24th to 30th) of the third decade of June 2017 shows that light to moderate rainfall is expected at scattered places in upper Punjab, KP, G.B, Kashmir, Baluchistan & coastal belt of Sindh. However, dry weather may prevail in western Baluchistan, most parts of Sindh (except coastal areas) and southern Punjab.



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)