

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from most parts of the country during the last decade.
- ❖ Highest amount of rainfall recorded as 110.0 mm at Jhang during the last decade.
- ❖ Highest maximum temperature recorded as 49.0°C at Nokkundi 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 central 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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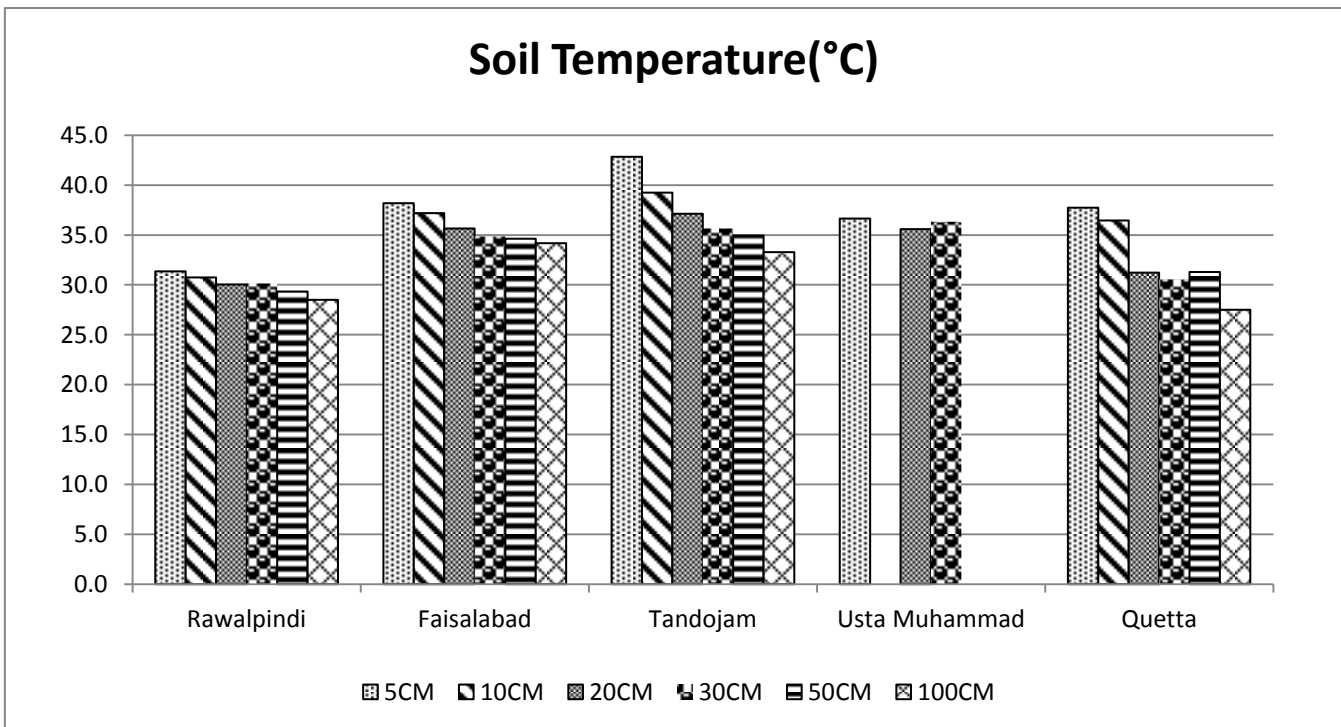
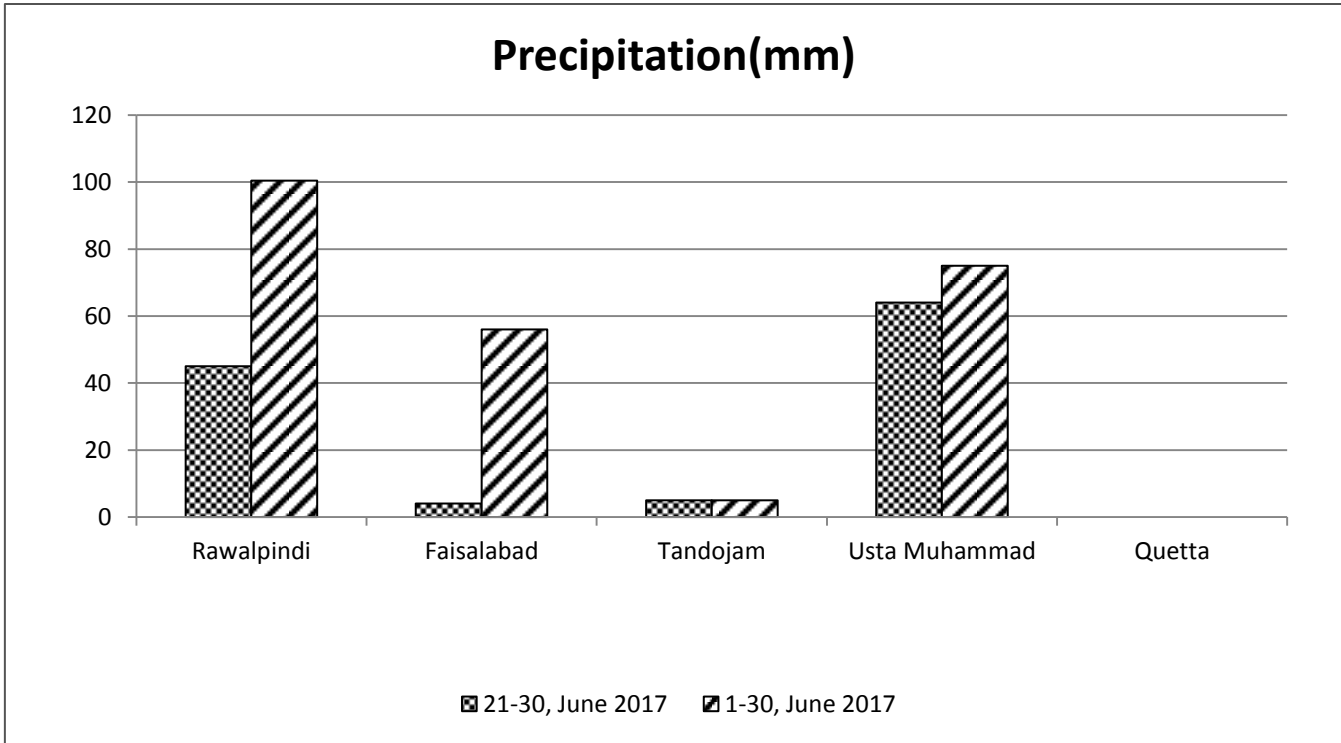
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Meteorological Conditions during 3rd decade of June, 2017

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	5.4	45.0	39.6	-3.9	-1.2	28.3	31.4	30.8	30.1	30.2	29.4	28.5	66	65.5	4.5	4.8
2	Faisalabad	1.9	4.0	2.1	-2.9	-0.9	31.1	38.2	37.2	35.7	34.9	34.7	34.2	60	76.1	4.5	5.5
3	Jhelum	4.2	32.3	28.1	-3.7	-1.8	30.0	34.2	32.9	31.5	30.7	31.0	***	66	67.2	3.8	5.0
4	Lahore	2.2	93.6	91.4	-3.4	-2.7	29.8	32.1	32.6	31.4	30.8	***	29.5	69	50.8	2.8	4.3
5	Sargodha	3.3	35.3	32.0	-3.8	-0.9	31.8	37.7	36.0	33.9	33.4	***	31.2	63	67.3	3.2	5.0
6	Multan	1.0	11.0	10.0	-5.0	-2.7	31.6	***	***	***	***	***	***	60	60.8	5.1	5.3
7	Khanpur	0.5	6.1	5.6	-3.7	-1.9	32.5	***	36.2	35.5	36.5	36.9	35.4	62	67.7	5.7	5.7
8	Tandojam	0.7	5.0	4.3	0.8	-0.4	32.8	42.9	39.3	37.2	35.7	35.0	33.3	62	72.8	9.1	6.5
9	Sakrand ☆	1.7	26.0	24.3	-0.3	1.6	34.5	44.2	***	***	***	***	35.1	55	97.6	4.0	6.4
11	Rohri	0.0	1.6	1.6	0.1	0.5	36.2	***	***	***	***	***	***	48	101.0	2.8	6.4
12	D.I Khan	0.8	26.0	25.2	-2.7	-3.4	30.2	36.2	35.2	34.7	34.8	23.0	31.9	61	85.7	13.0	7.4
13	Peshawar	1.3	3.0	1.7	-2.9	-1.1	31.3	35.9	33.1	34.0	31.8	21.3	29.4	57	67.6	4.5	5.4
14	Usta .M	1.8	64.0	62.2	-0.3	0.3	36.0	36.7	***	35.6	36.3	***	***	32	***	1.7	5.6
15	Quetta	0.0	0.0	0.0	-0.2	0.5	28.3	37.8	36.5	31.3	30.6	31.3	27.5	27	102.0	6.1	6.9
16	Skardu	0.4	4.6	4.2	-0.9	0.1	22.0	***	***	***	***	***	***	42	***	4.0	5.7
17	Gilgit	0.7	10.1	9.4	-0.8	2.8	26.1	***	***	***	***	***	***	45	64.5	4.0	5.0

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; $\text{Dep} \div \text{Normal} \times 100$. 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 (21st to 30th June, 2017)

Light to moderate rainfall reported from most parts of the country, during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Jhnag, Islamabad & Murree. Decadal maximum and minimum both dropped below normal by 3.8°C & 1.7°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 65.1hrs, 4.2km/hr and 5.1mm/day respectively.

1.1 Sindh

Light to moderate rainfall reported from agricultural plains of Sindh. Chief amount of rainfall received at Badin, Karachi & Thatta. Decadal maximum and minimum both raised above normal by 0.2°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 55%, 90.5hrs, 5.3km/hr and 6.4mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

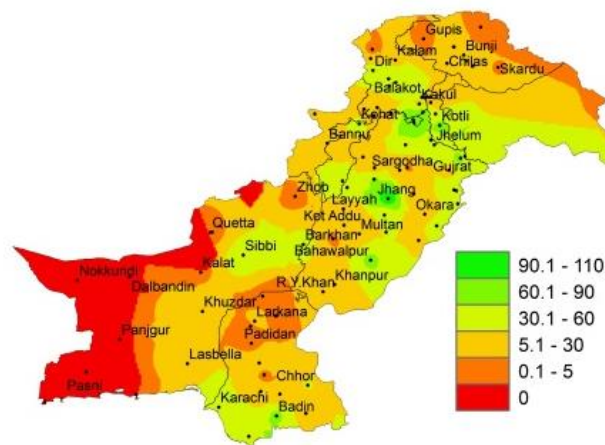
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at lower Dir, Balakot & D.I Khan. Decadal maximum and minimum both dropped below normal by 2.8°C & 2.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 76.7hrs, 8.8km/hr and 6.4mm/day respectively.

1.3 Balochistan

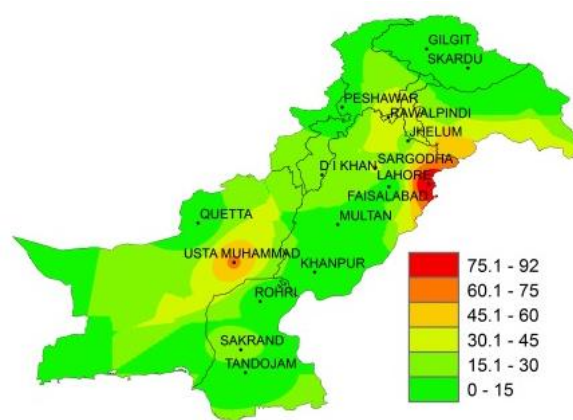
Light to moderate rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan & Zhob. Decadal maximum dropped below normal by 0.2°C & minimum raised above normal by 0.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 30%, 102.0hrs, 3.9km/hr and 6.3mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

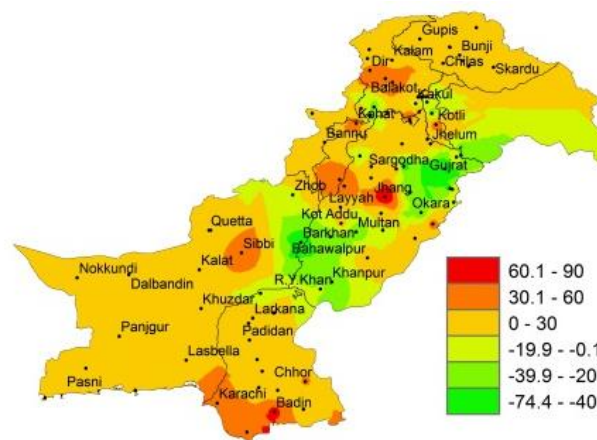
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Kotli, Rawalakot & Garhi Dopatta. Decadal maximum dropped below normal by 0.9°C and minimum raised above normal by 1.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 64.5hrs, 4.0km/hr and 5.4mm/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**
(21st to 30th June, 2017)

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

Rainfall reported as 45.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 66%. Mean day temperature was 33.5°C while night temperature recorded as 23.0°C with 65.5hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *westerly*.

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

Rainfall reported as 4.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 60%. Mean day temperature was 36.1°C while night temperature recorded as 26.1°C with 76.16hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *easterly*.

Cotton: *Very Good condition, budding stage.*

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

Rainfall reported as 5.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 62%. Mean day temperature was 39.0°C while night temperature recorded as 26.5°C with 72.8hours bright sunshine duration. Wind speed recorded as 9.1km/h with mean wind direction *south westerly*.

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

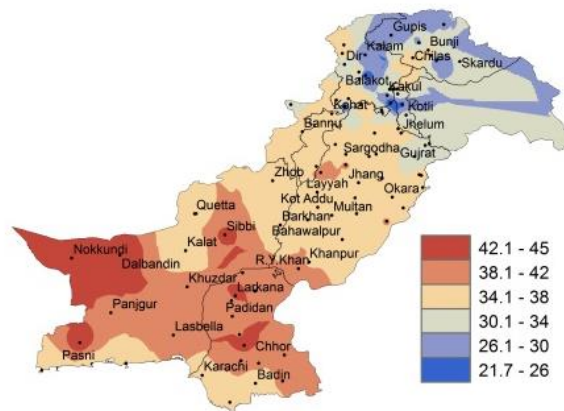
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Rainfall reported as 64.0mm during the decade; however weather remained cloudy for 09day. Average relative humidity recorded as 32%. Mean day temperature was 42.7°C while night temperature recorded as 29.3°C. Wind speed recorded as 1.7km/h with mean wind direction *south easterly*.

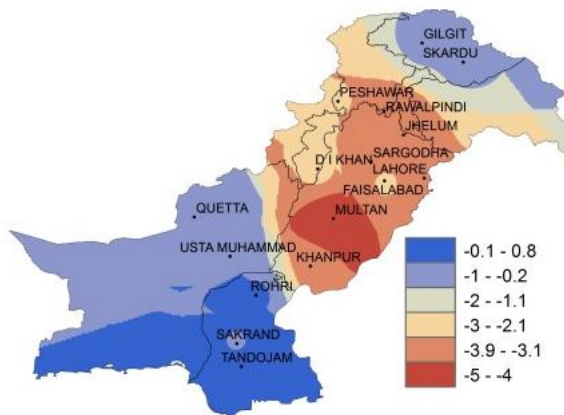
Rice: *Good condition, Paniri stage.*

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

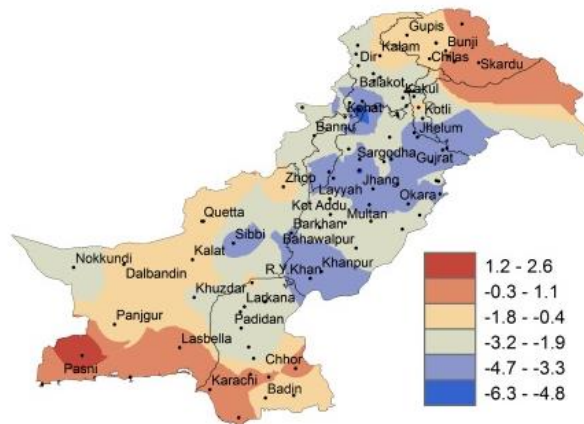
Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 27%. Mean day temperature was 35.6 °C while night temperature recorded as 21.0°C with 102.0hours bright sunshine duration. Wind speed recorded as 8.1km/hr with mean wind direction *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 (21st to 30th June, 2017)

2.6 Jhelum

Rainfall reported as 32.3mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 66%. Mean day temperature was 34.7°C while night temperature recorded as 25.2°C with 67.2 hours bright sunshine duration. Wind speed recorded as 3.8km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 93.6mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 69%. Mean day temperature was 33.9°C while night temperature recorded as 25.7°C with 50.8hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 35.3mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 63%. Mean day temperature was 36.4°C while night temperature recorded as 27.1°C with 67.3hours bright sunshine duration. Wind speed recorded 3.2km/hr with mean wind direction *variable*.

2.9 Multan

Rainfall reported as 11.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 60%. Mean day temperature was 36.0°C while night temperature recorded as 27.2°C with 60.8hours bright sunshine duration. Wind speed recorded 5.1km/hr with mean wind direction *north easterly*.

2.10 Khanpur

Rainfall reported as 6.1mm reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 62%. Mean day temperature was 37.8°C while night temperature recorded as 27.1°C with 67.7hours bright sunshine duration. Wind speed recorded 5.7km/hr with mean wind direction *north easterly*.

2.11 Sakrand

Rainfall reported as 26.0mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 55%. Mean day temperature was 40.1°C while night temperature recorded as 28.8°C with 97.6hours bright sunshine duration. Wind speed recorded 4.0km/hr with wind direction *southerly*.

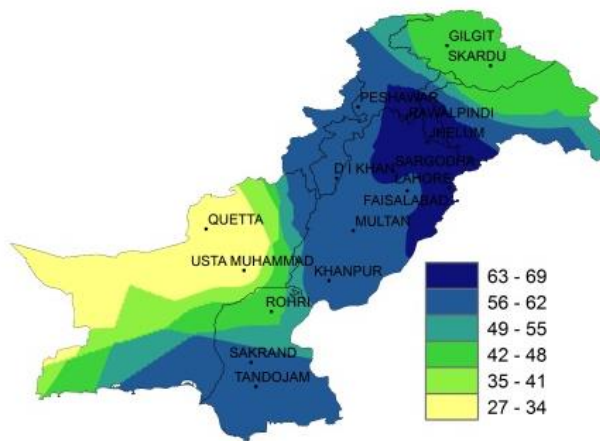


Figure.3: Relative Humidity in Percentage (%)

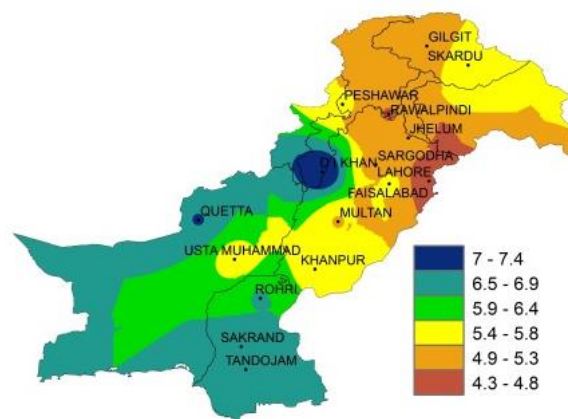


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

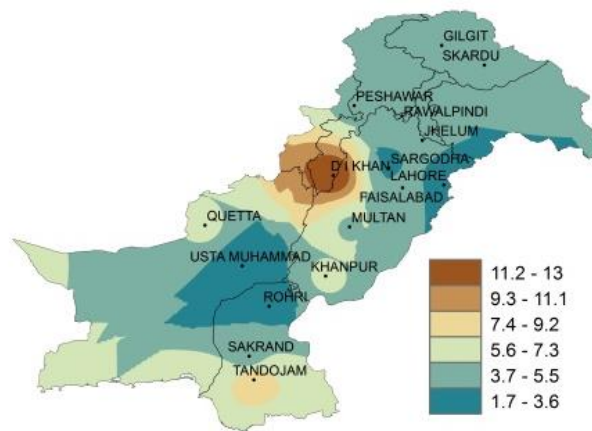


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Rainfall reported as 1.6mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 48%. Mean day temperature was 42.0°C while night temperature recorded as 30.3°C with 101.0hours bright sunshine duration. Wind speed recorded 2.8km/hr with wind direction *north easterly*.

2.13 D.I. Khan

Rainfall reported as 26.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 61%. Mean day temperature was 37.7°C while night temperature recorded as 22.7°C with 85.7hours bright sunshine duration. Wind speed recorded as 13.0km/hr with mean wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as 3.0mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 57%. Mean day temperature was 36.6°C while night temperature recorded as 26.0°C with 67.6hours bright sunshine duration. Wind speed recorded as 4.5km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 4.6mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 42%. Mean day temperature was 30.1°C while night temperature recorded as 13.9°C. Wind speed recorded as 4.0km/hr with mean wind direction *southerly*.

2.16 Gilgit

Rainfall reported as 10.1mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 45%. Mean day temperature was 33.8°C while night temperature recorded as 18.4°C with 64.5hours bright sunshine duration. Wind speed recorded as 4.0km/hr with mean wind direction *easterly*.

Ten Days Weather Advisory for Farmers
(3rd to 10th July, 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

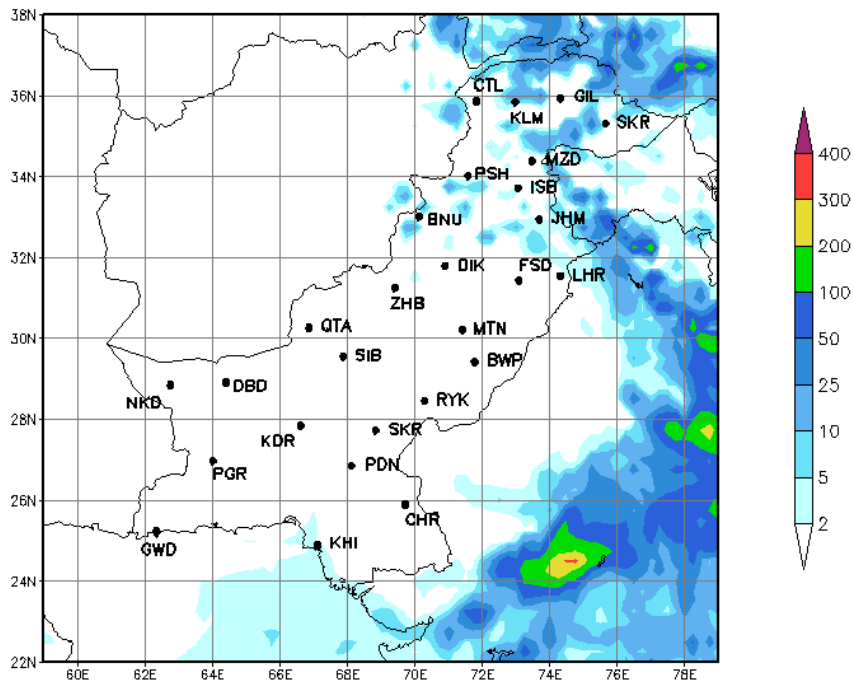
- ❖ **Punjab:** Light to moderate rainfall is expected in upper parts of the province during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at isolated places of the province during the decade.
- ❖ **Sindh:** Light rainfall is expected at isolated places of Karachi 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.

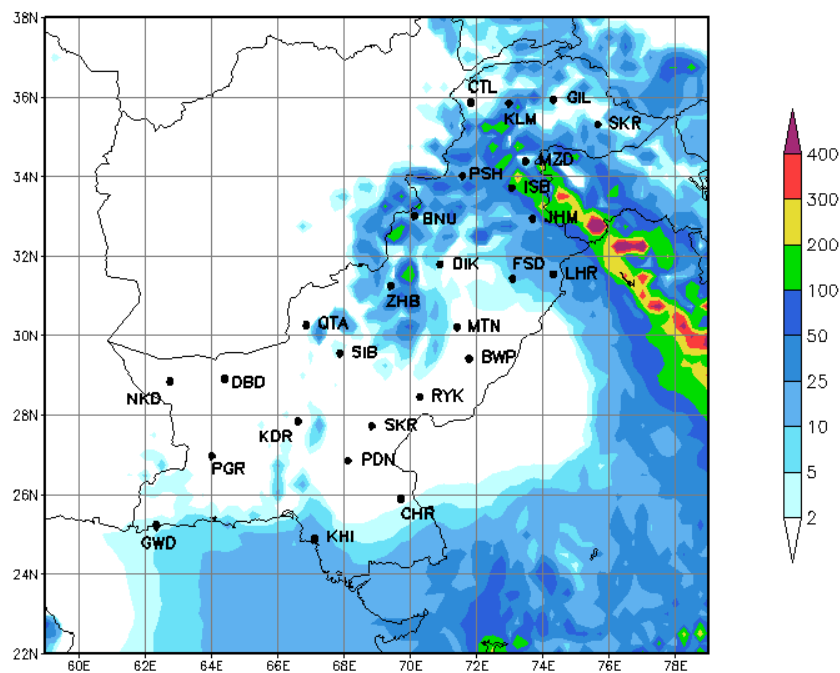
4.1 Precipitation Outlook (3rd to 5th July, 2017)

The forecast for the next three days (3rd to 5th) of the first decade of July 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 coastal areas of Sindh.



4.2 Precipitation Outlook (6th to 10th July, 2017)

The outlook for the last five days (6th to 10th) of the first decade of July 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)