

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Heavy to moderate rainfall reported in the agricultural plains of Punjab, K.P, GB & Kashmir. Light to moderate rainfall reported in agriculture plains of Balochistan, and light rainfall reported in agricultural plains of Sindh during the last decade.
- ❖ Highest amount of rainfall reported 144mm at Garhi Dopatta during the last decade.
- ❖ Highest Maximum temperature recorded 49°C at Dalbandin during the last decade.
- ❖ Rain/thunderstorm is expected from 12th to 17th in most of the agricultural plains of the country during the decade.
- ❖ Farmers obtaining crop water through tube wells are also 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.
- ❖ 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.
- ❖ Stagnant water due to heavy monsoon rains is fatal for standing crops like cotton. Farmers should take suitable measures to resolve the issue.

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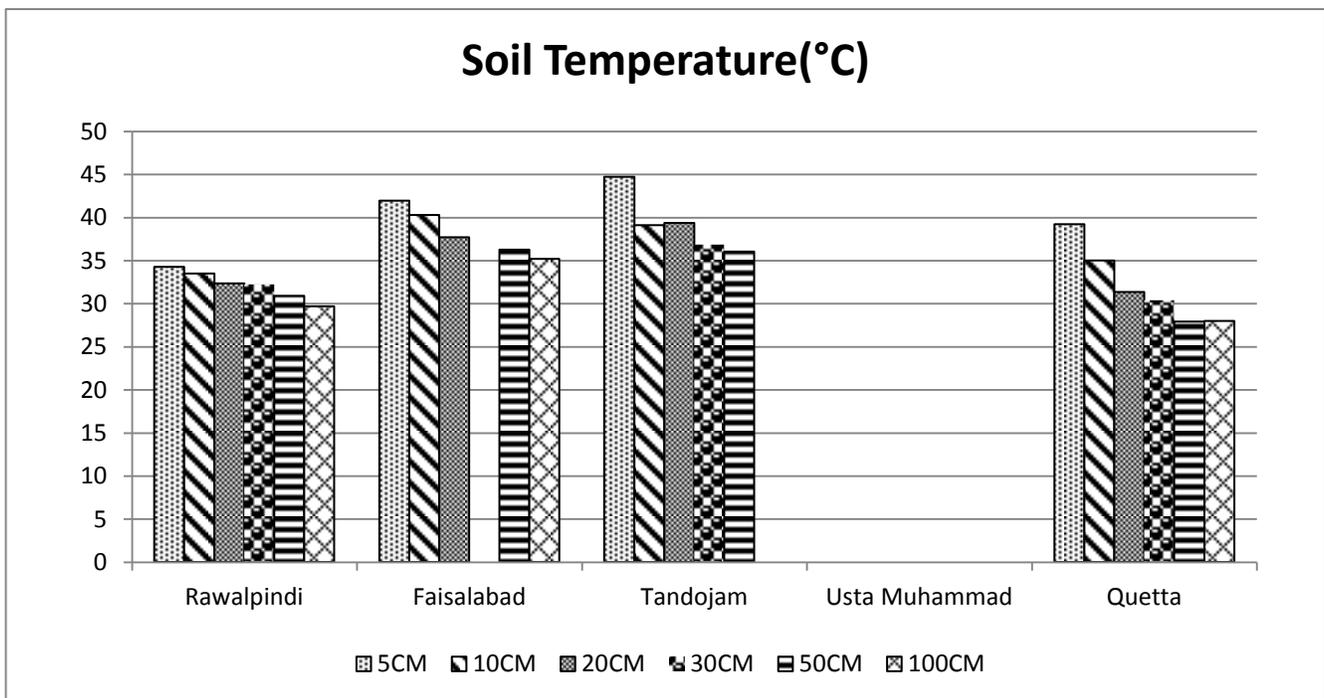
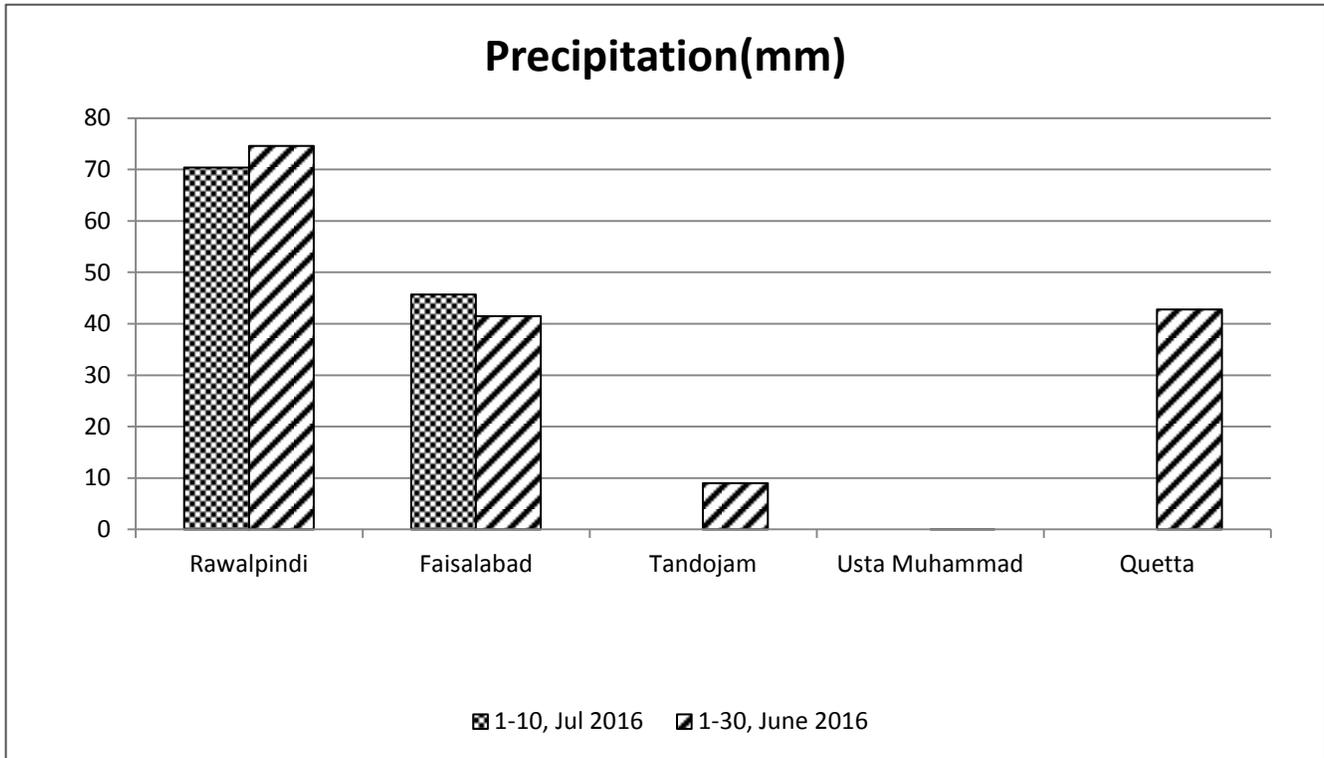
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Meteorological conditions during 1st decade of July, 2016

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	7.9	70.4	62.5	0.2	2.2	31.2	34.3	33.5	32.4	32.3	30.9	29.7	60	83.0	3.9	5.6
2	FAISALABAD	2.9	45.7	42.8	-0.2	-0.7	32.0	42.0	40.3	37.7	***	36.3	35.2	60	77.3	4.1	5.5
3	JHELUM	4.1	50.4	46.3	-0.8	-1.0	31.1	36.0	34.6	33.4	32.3	32.4	***	64	78.6	2.9	5.2
4	LAHORE	4.4	43.6	39.2	2.7	-2.3	30.7	34.7	34.4	32.1	31.9	***	31.0	66	59.1	3.1	4.7
5	SARGODHA	3.0	8.8	5.8	-1.1	-1.2	32.1	36.6	35.1	34.3	33.7	30.7	31.1	63	68.2	3.5	5.2
6	MULTAN	1.5	34.0	32.5	-1.1	0.1	34.2	***	***	***	***	***	***	57	74.4	6.3	6.2
7	KHANPUR	0.4	0.0	-0.4	-0.5	-0.4	34.8	***	39.2	38.9	38.8	38.4	36.4	59	95.3	6.9	7.0
8	TANDOJAM	2.0	0.0	-2.0	-0.5	0.0	32.2	44.7	39.1	39.4	36.9	36.1	***	63	81.8	16.4	7.6
9	SAKRAND ☆	0.4	0.1	-0.3	-0.2	1.0	34.5	51.1	43.7	***	***	***	36.6	57	105.2	8.1	7.6
11	D I KHAN	2.7	76.0	73.3	-1.5	-1.2	31.5	***	***	***	***	***	***	67	70.1	***	5.8
11	PESHAWAR	1.4	6.0	4.6	0.9	0.2	33.2	41.9	37.2	35.4	***	***	***	55	87.4	4.4	6.1
12	USTA MUHAMMAD	0.3	0.0	-0.3	-1.4	0.3	35.3	***	***	***	***	***	***	51	***	3.4	6.0
13	QUETTA	0.3	0.0	-0.3	-0.4	1.9	29.7	39.2	35.0	31.4	30.4	27.9	28.0	27	101.1	5.2	6.5
14	SKARDU	0.4	0.1	-0.3	1.0	0.8	23.5	***	***	***	***	***	***	34	65.6	6.0	5.5
15	GILGIT	0.1	2.6	2.5	-1.0	2.1	26.9	***	***	***	***	***	***	41	75.4	4.3	5.5

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 years climatic (normal) data for computing departures.

Graph at RAMCs during July, 2016



1. Past Weather (1st to 10th July, 2016)

Heavy to moderate rainfall reported in the agricultural plains of Punjab, K.P, GB & Kashmir. Light to moderate rainfall reported in agriculture plains of Balochistan, and light rainfall reported in agricultural plains of Sindh during the last decade.

1.1 Punjab

Heavy to moderate rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received in Sialkot, Murree & Gujranwala. Decadal maximum & minimum both dropped below normal by 0.1°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 76.6hrs, 4.4km/hr and 5.6mm/day respectively.

1.2 Sindh

Light rainfall reported in the agricultural plains of Sindh. Chief amount of rainfall received in Shaheed Benzairabad, Jacobabad & Rohri. Decadal maximum & minimum both dropped below normal by 0.2°C & 0.3°C respectively, in the province.. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 62.3hrs, 8.2km/hr and 7.6mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

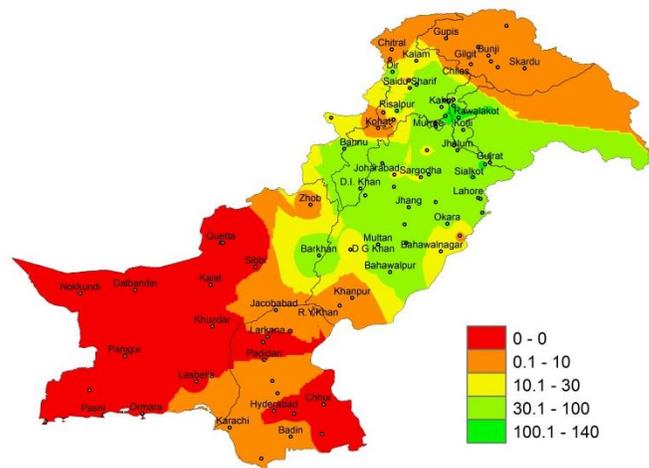
Heavy to moderate rainfall reported in the agricultural plains of KP. Chief amount of rainfall received in Malam Jabba, D.I Khan & Kakul. Decadal maximum & minimum both dropped below normal by 0.3°C & 0.5°C respectively, in the province.. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 61%, 78.8hrs, 4.4km/hr and 6.0mm/day respectively.

1.4 Balochistan

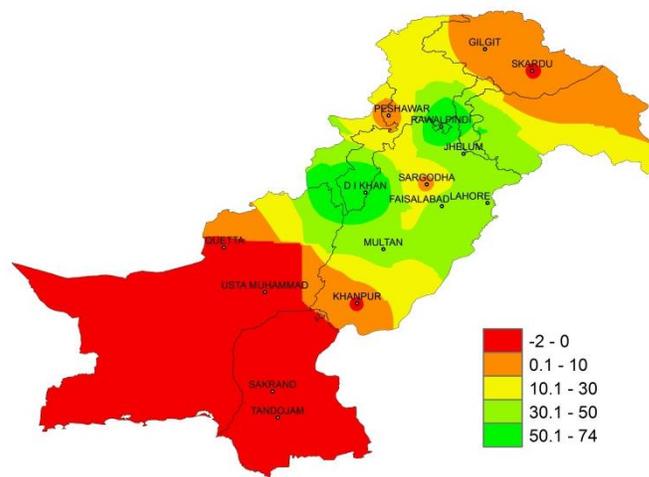
Light to moderate rainfall reported in the agricultural plains of Balochistan. Chief amount of rainfall received in Barkhan & Zhob. Decadal maximum dropped below normal by 0.9°C & minimum raised above normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 39%, 101.1hrs, 4.3km/hr and 6.3mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

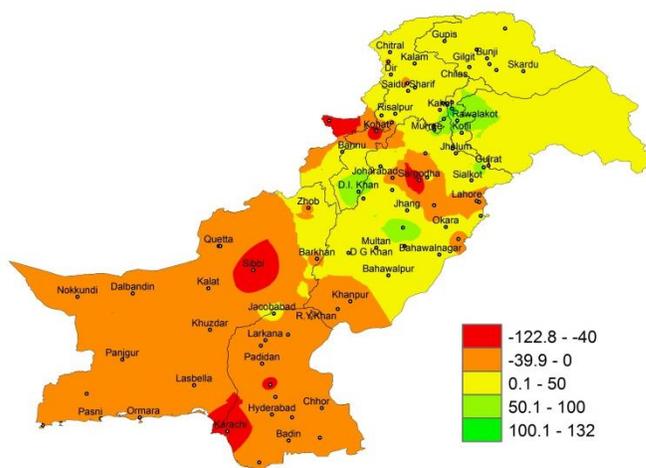
Heavy to moderate rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received Garhi Dopatta, Rawalakot & Muzaffarabad. Decadal maximum remained normal & minimum temperature raised above normal by 1.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 38%, 70.5hrs, 5.2km/hr and 5.5mm/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 July, 2016)

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

Rainfall reported as 70.4mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 60%. Mean day temperature was 36.6°C while night temperature recorded as 25.8°C with 83.0hours bright sunshine duration. Wind speed recorded as 3.9km/hr with mean wind direction *westerly*.

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

Rainfall reported as 45.7mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 60%. Mean day temperature was 37.6°C while night temperature recorded as 26.3°C with 77.33hours bright sunshine duration. Wind speed recorded as 4.1km/hr with mean wind direction *south easterly*.
Cotton: Very good condition, flowering completed.

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

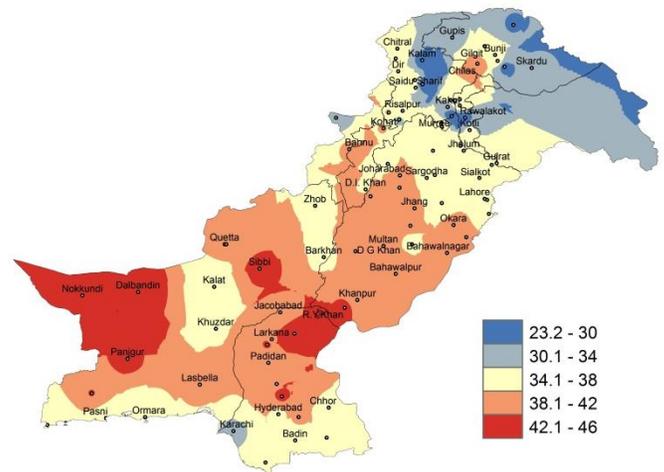
Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 63%. Mean day temperature was 37.3°C while night temperature recorded as 27.0°C with 81.8hours bright sunshine duration. Wind speed recorded as 16.4km/h with mean wind direction *south westerly*.
Cotton (Star-2): Good condition, budding stage.

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

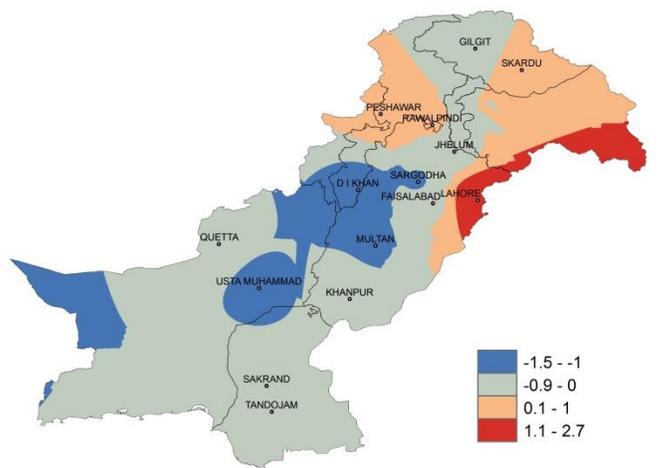
Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 51%. Mean day temperature was 41.3°C while night temperature recorded as 29.3°C.
Rice (Paniri): Good Condition.

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

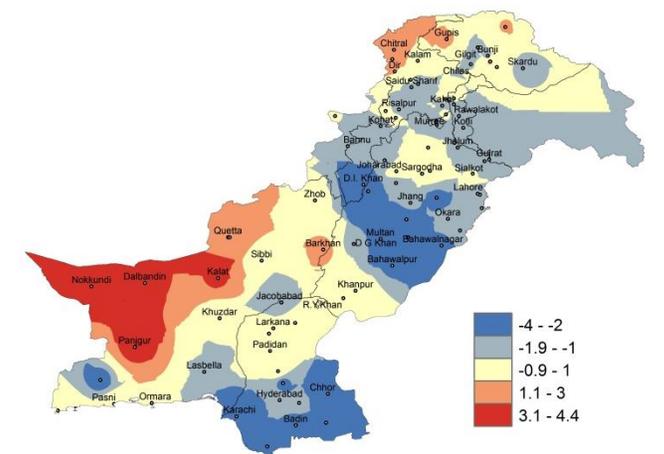
Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 27%. Mean day temperature was 35.9°C while night temperature recorded as 23.4°C with 101.1hours bright sunshine duration. Wind speed recorded as 5.2km/hr with mean wind direction *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 July, 2016)

2.6 Jhelum

Rainfall reported as 50.4mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 64%. Mean day temperature was 36.4°C while night temperature recorded as 25.7°C with 78.6hours bright sunshine duration. Wind speed recorded 2.9km/hr with wind direction *south westerly*.

2.7 Lahore

Rainfall reported as 43.6mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 66%. Mean day temperature was 36.0°C while night temperature recorded as 25.4°C with 59.1hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *south easterly*.

2.8 Sargodha

Rainfall reported as 8.7mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 63%. Mean day temperature was 37.4°C while night temperature recorded as 26.7°C with 68.2hours bright sunshine duration. Wind speed recorded 3.5km/hr with mean wind direction *north easterly*.

2.9 Multan

Rainfall reported as 34.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 57%. Mean day temperature was 38.8°C while night temperature recorded as 29.5°C with 74.4hours bright sunshine duration. Wind speed recorded 6.3km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Dry weather reported during the decade. However sky remained cloudy for 08days. Average relative humidity recorded as 59%. Mean day temperature was 40.3°C while night temperature recorded as 29.2°C with 95.3hours bright sunshine duration. Wind speed recorded 6.9km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Rainfall reported as Trace (not measureable) during the decade; however weather remains cloudy for 06days. Average relative humidity recorded as 57%. Mean day temperature was 40.3°C while night temperature recorded as 28.6°C with 105.2hours bright sunshine duration. Wind speed recorded 8.14km/hr with wind direction *south easterly*.

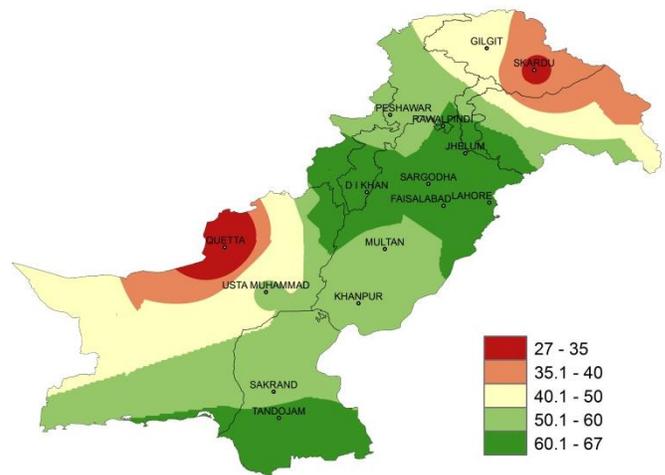


Figure.3: Relative Humidity in Percentage (%)

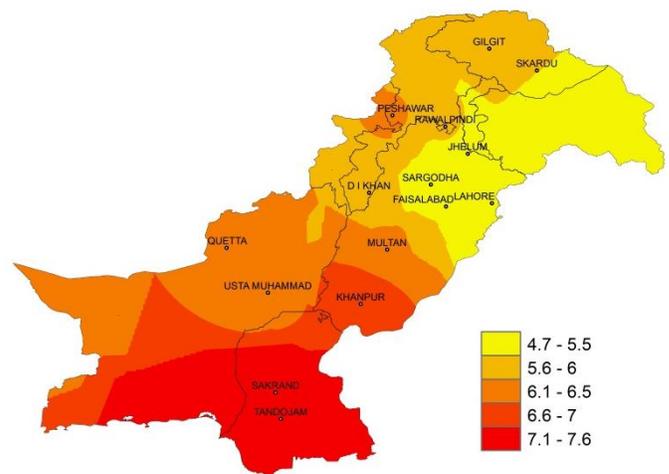


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

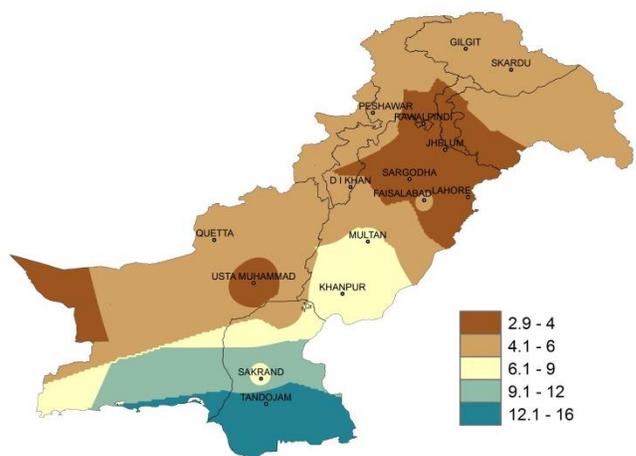


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 D.I. Khan

Rainfall reported as 76.0mm during the decade; however weather remains cloudy for 08days. Average relative humidity recorded as 67%. Mean day temperature was 37.6°C while night temperature recorded as 25.3°C with 70.1hours bright sunshine duration..

2.13 Peshawar

Rainfall reported as 6.0mm during the decade; however weather remained cloudy for 10day. Average relative humidity recorded as 55%. Mean day temperature was 39.1°C while night temperature recorded as 27.3°C with 87.4hours bright sunshine duration. Wind speed recorded as 4.4km/hr with mean wind direction *north easterly*.

2.14 Skardu

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 34%. Mean day temperature was 30.9°C while night temperature recorded as 16.1°C with 65.6hours bright sunshine duration. Wind speed recorded as 6.0km/hr with mean wind direction *south east-southerly*.

2.15 Gilgit

Rainfall reported as 2.6mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 41%. Mean day temperature was 35.0°C while night temperature recorded as 18.7°C with 75.4hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *easterly*.

3. Ten Days Weather Advisory for Farmers **(11th to 20th July, 2016)**

3.1 Temperature Forecast

Temperatures are likely to be slightly above 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:** Mainly dry and hot weather is expected during the decade. Rain-dust storm/thunderstorm at isolated

places in Bahawalpur, D.G Khan, Faisalabad, Rawalpindi, Lahore & Gujranwala division are expected at isolated places from 12th to 16th of the decade.

- ❖ **Khyber Pakhtunkhwa:** Mainly hot and dry weather is expected in most parts of the province. However Rain-thunderstorm is expected at few places in Kohat, Mardan, Malakand, Hazara & Peshawar Division from 13th to 17th of the decade.
- ❖ **Sindh:** Very hot and dry weather is expected in most parts of the province with the possibility of dust-storm due to the heat. Light rainfall is expected at isolated places including Hyderabad, Karachi, MirpurKhas & Sukkur divisions from 12th to 15th of the decade.
- ❖ **Balochistan:** Very hot and dry weather is expected in most parts of Balochistan, however rain-dust storm/thunderstorm is expected at isolated places in Zhob during the decade however light rainfall reported is expected at isolated places in Makran, Sibbi and Quetta divisions from 13th to 17th decade.
- ❖ **Gilgit Baltistan:** Mainly hot weather is expected in most parts of G.B. However rain-thunderstorm is expected at isolated places including Astore, Gilgit, Hunza-Nagar & Skardu during the decade.
- ❖ **Kashmir:** Mainly hot weather is expected in most parts of Kashmir. However rain-thunderstorm is expected at isolated places including Muzaffarabad, Kotli, Neelum & Rawalakot 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.
- ❖ Farmers are advised to take in time precautionary measures to protect their crops, livestock and other property from any expected heavy rains.
- ❖ 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.
- ❖ Stagnant water due to heavy monsoon rains is fatal for standing crops like cotton. Farmers should take suitable measures to resolve the issue.

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)