

# Decadal Agromet Bulletin of Pakistan



## Highlights....

- ❖ Heavy to moderate rainfall reported in the agricultural plains of Punjab & K.P. Light to moderate rainfall reported in agriculture plains of Balochistan, GB & Kashmir, and light rainfall reported in agricultural plains of Sindh during the last decade
- ❖ Highest amount of rainfall reported 157mm at Kakul during the last decade.
- ❖ Highest Maximum temperature recorded 46°C at Panjgur during the last decade.
- ❖ Rain/thunderstorm is expected from 22<sup>nd</sup> to 31<sup>st</sup> in most of the agricultural plains of the country during the decade.
- ❖ 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.

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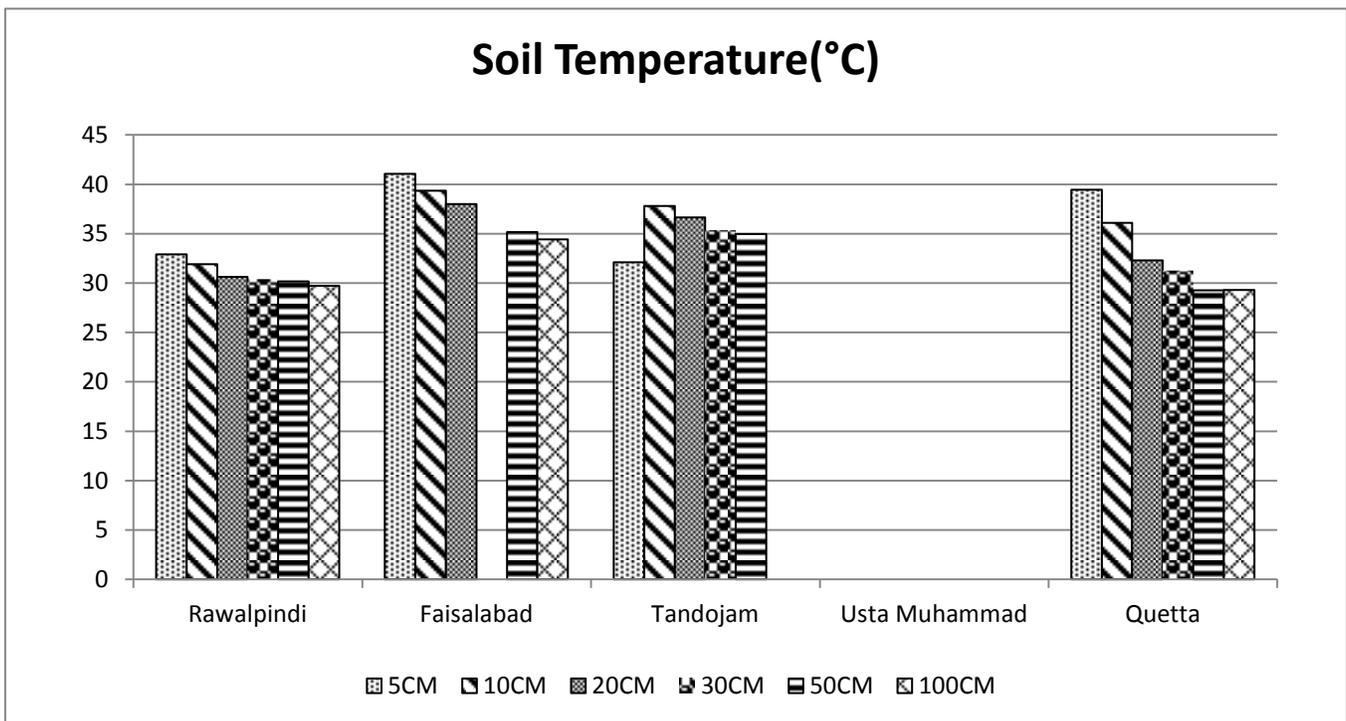
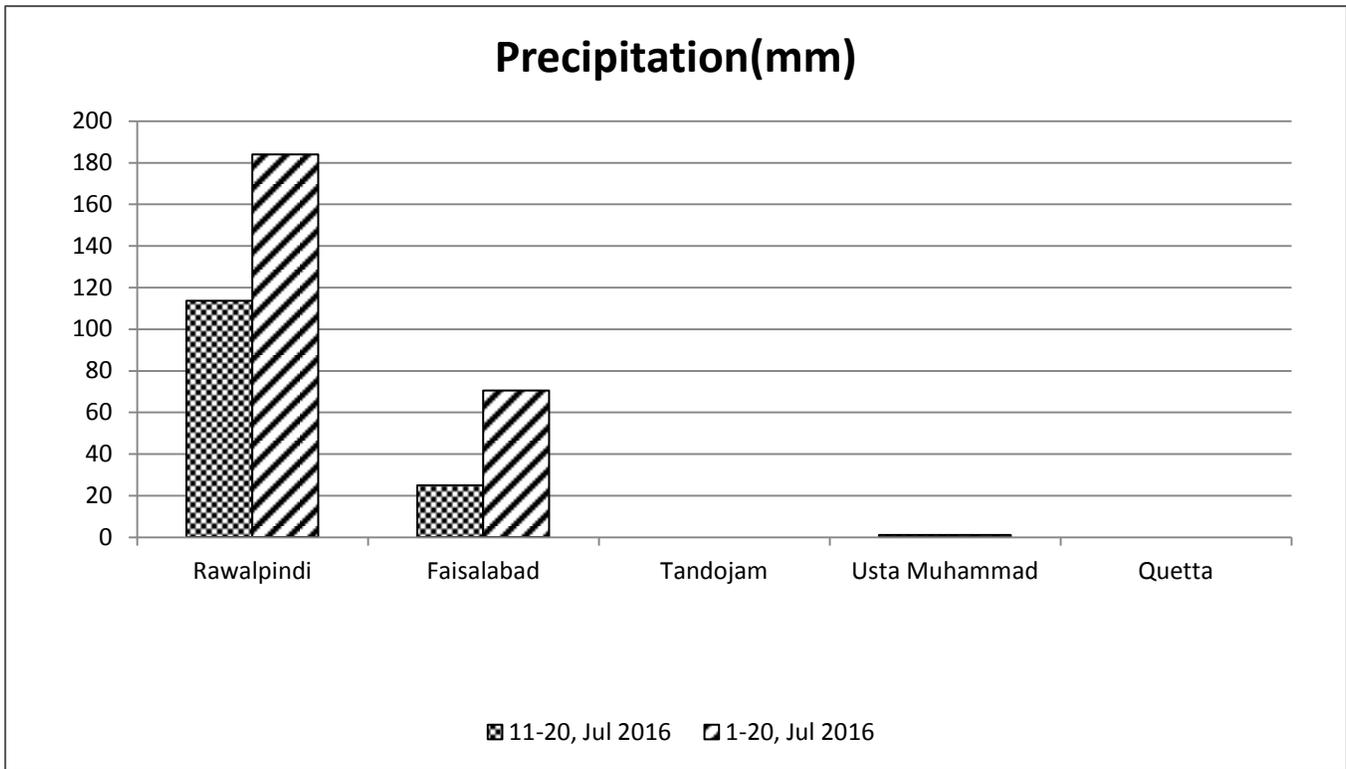
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Meteorological conditions during 2<sup>nd</sup> decade of July, 2016

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	113.6	105.7	-1.1	0.6	29.8	32.9	31.9	30.6	30.4	30.2	29.7	70	72.6	4.1	5.0
2	FAISALABAD	2.9	24.8	21.9	-0.7	0.5	32.3	41.1	39.4	38.0	***	35.2	34.4	63	76.2	5.0	5.6
3	JHELUM	4.1	94.2	90.1	-1.4	-0.8	30.9	35.5	32.6	32.8	32.3	31.9	***	72	72.3	3.1	4.9
4	LAHORE	4.4	56.7	52.3	2.4	-1.9	30.8	34.4	34.1	32.3	31.6	***	31.0	70	56.1	2.8	4.5
5	SARGODHA	3.0	142.9	139.9	-3.0	-0.7	31.4	35.1	33.7	33.0	32.3	31.1	31.1	75	65.9	4.8	4.9
6	MULTAN	1.5	4.0	2.5	-0.8	1.0	34.8	***	***	***	***	***	***	55	74.1	5.8	6.2
7	KHANPUR	0.4	2.0	1.6	-1.1	-0.6	34.4	***	39.2	39.1	39.0	39.0	36.7	58	72.4	6.2	6.2
8	TANDOJAM	2.0	0.0	-2.0	-1.0	-1.0	31.4	32.1	37.8	36.7	35.4	35.0	***	63	68.8	15.3	7.0
9	SAKRAND ☆	0.4	0.0	-0.4	-1.5	0.3	33.5	49.2	42.5	***	***	***	37.2	57	90.3	9.1	7.2
11	D I KHAN	2.7	138.0	135.3	-2.0	-0.8	31.4	***	***	***	***	***	***	70	68.2	***	5.5
11	PESHAWAR	1.4	14.0	12.6	-1.5	-0.1	31.9	38.0	36.0	34.6	***	***	***	68	77.0	5.9	5.6
12	USTA MUHAMMAD	0.3	1.0	0.7	-2.6	-1.0	34.1	***	***	***	***	***	***	58	***	2.4	4.8
13	QUETTA	0.3	0.0	-0.3	-1.0	1.2	29.0	39.5	36.1	32.3	31.3	29.3	29.3	31	98.0	5.4	6.5
14	SKARDU	0.4	2.2	1.8	-0.7	0.8	22.7	***	***	***	***	***	***	46	52.5	2.9	4.1
15	GILGIT	0.1	19.2	19.1	-2.0	2.9	26.8	***	***	***	***	***	***	53	73.6	2.9	4.8

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 July, 2016



**1. Past Weather (11<sup>th</sup> to 20<sup>th</sup> July, 2016)**

Heavy to moderate rainfall reported in the agricultural plains of Punjab & K.P. Light to moderate rainfall reported in agriculture plains of Balochistan, GB & Kashmir, 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 Gujranwala, Islamabad & Noorpur Thal. Decadal maximum & minimum both dropped below normal by 0.8°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 66%, 69.9hrs, 4.5km/hr and 5.3mm/day respectively.

**1.2 Sindh**

Light rainfall reported in the agricultural plains of Sindh. Chief amount of rainfall received in Mitthi, Badin & Karachi. Decadal maximum & minimum both dropped below normal by 0.8°C & 0.2°C respectively, in the province.. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 53.0hrs, 8.1km/hr and 7.1mm/day respectively.

**1.3 Khyber Pakhtunkhwa (KP)**

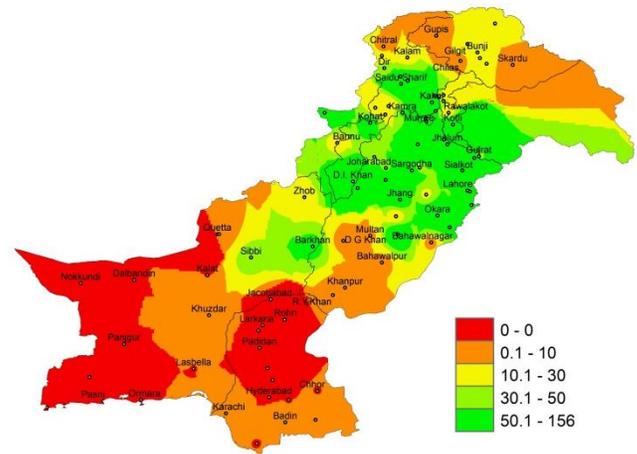
Heavy to moderate rainfall reported in the agricultural plains of KP. Chief amount of rainfall received in Kakul, D.I Khan & Saidu Sharif. Decadal maximum & minimum both dropped below normal by 1.8°C & 0.5°C respectively, in the province.. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 69%, 72.0hrs, 5.9km/hr and 5.6mm/day respectively.

**1.4 Balochistan**

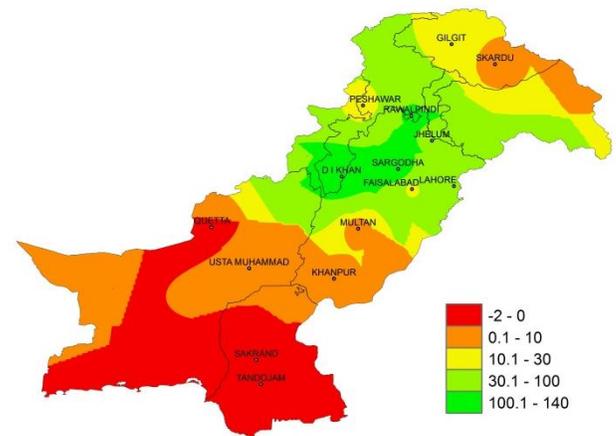
Light to moderate rainfall reported in the agricultural plains of Balochistan. Chief amount of rainfall received in Barkhan, Sibbi & Zhob. Decadal maximum & minimum both dropped below normal by 1.8°C & 0.1°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 98.0hrs, 3.9km/hr and 5.7mm/day respectively.

**1.5 Gilgit-Baltistan and Azad Jammu & Kashmir**

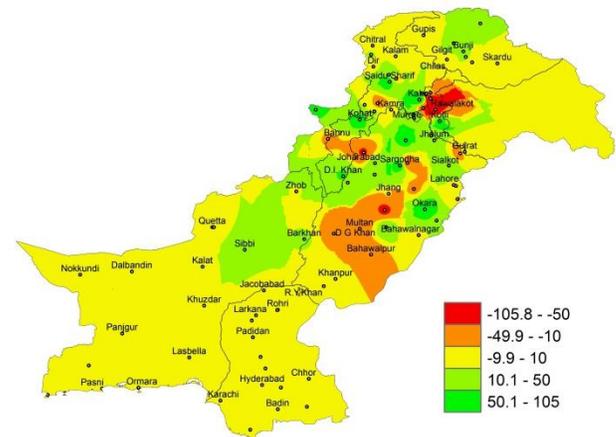
Light to moderate rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received Kotli, Muzaffarabad & Bagrote. Decadal maximum & minimum temperature both dropped below normal by 1.0°C & 1.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 63.1hrs, 2.9km/hr and 4.5mm/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  
(11<sup>th</sup> to 20<sup>th</sup> July, 2016)**

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

Rainfall reported as 113.6mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 70%. Mean day temperature was 35.3°C while night temperature recorded as 24.2°C with 72.6hours bright sunshine duration. Wind speed recorded as 4.1km/hr with mean wind direction *easterly*.

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

Rainfall reported as 24.8mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 63%. Mean day temperature was 37.1°C while night temperature recorded as 27.5°C with 76.2hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *south easterly*.  
**Cotton:** Very good condition, flowering completed.

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

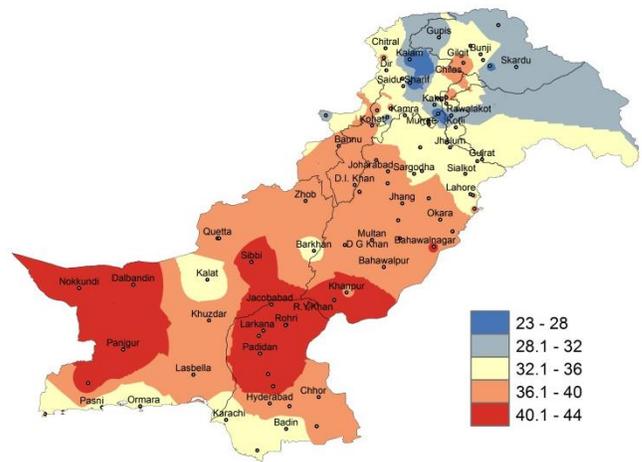
Dry weather reported during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 63%. Mean day temperature was 36.8°C while night temperature recorded as 26.0°C with 68.8hours bright sunshine duration. Wind speed recorded as 15.3km/h with mean wind direction *south westerly*.  
**Cotton (Star-2):** Good condition, flowering stage.

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

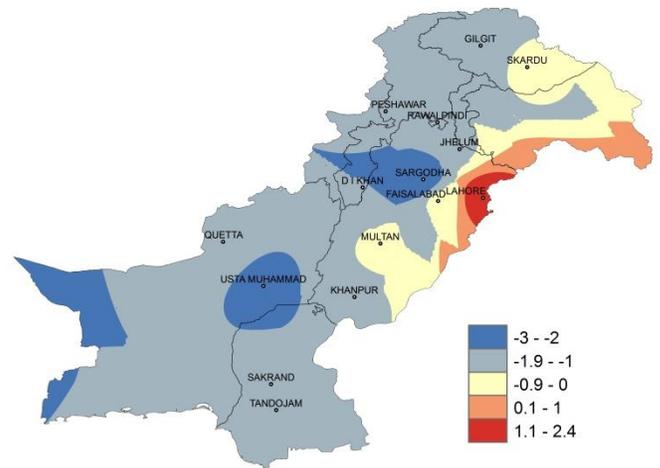
Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 58%. Mean day temperature was 40.1°C while night temperature recorded as 28.0°C.  
**Rice:** Good Condition, 3<sup>rd</sup> Leaf stage.

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

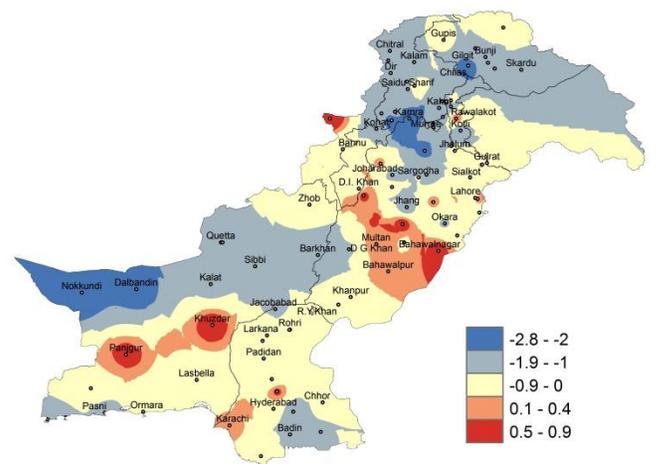
Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 31%. Mean day temperature was 35.3°C while night temperature recorded as 22.7°C with 98.0hours bright sunshine duration. Wind speed recorded as 5.4km/hr with mean wind direction *north 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 (11<sup>th</sup> to 20<sup>th</sup> July, 2016)**

2.6 **Jhelum**

Rainfall reported as 94.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 72%. Mean day temperature was 35.8°C while night temperature recorded as 25.9°C with 72.3hours bright sunshine duration. Wind speed recorded 3.1km/hr with wind direction *south easterly*.

2.7 **Lahore**

Rainfall reported as 56.7mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 70%. Mean day temperature was 35.7°C while night temperature recorded as 25.8°C with 56.1hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *south easterly*.

2.8 **Sargodha**

Rainfall reported as 142.9mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 75%. Mean day temperature was 35.5°C while night temperature recorded as 27.2°C with 65.9hours bright sunshine duration. Wind speed recorded 4.8km/hr with mean wind direction *easterly*.

2.9 **Multan**

Rainfall reported as 4.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 55%. Mean day temperature was 39.1°C while night temperature recorded as 30.4°C with 74.1hours bright sunshine duration. Wind speed recorded 5.8km/hr with mean wind direction *south westerly*.

2.10 **Khanpur**

Rainfall reported as 2.0mm during the decade. However sky remained cloudy for 05days. Average relative humidity recorded as 58%. Mean day temperature was 39.7°C while night temperature recorded as 29.0°C with 72.4hours bright sunshine duration. Wind speed recorded 6.2km/hr with mean wind direction *south westerly*.

2.11 **Sakrand**

Dry weather reported during the decade; however weather remains cloudy for 07days. Average relative humidity recorded as 57%. Mean day temperature was 39.0°C while night temperature recorded as 27.9°C with 90.3hours bright sunshine duration. Wind speed recorded 9.1km/hr with wind direction *south easterly*.

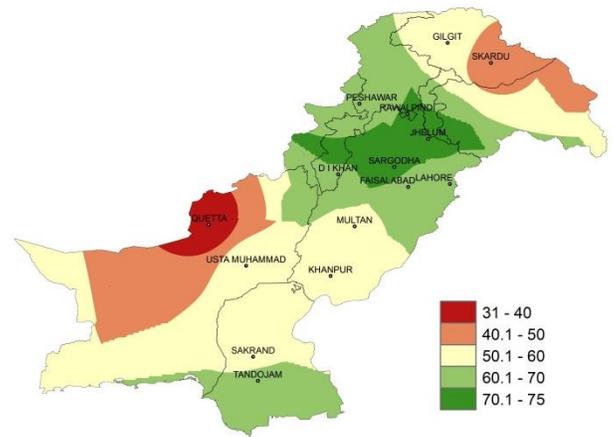


Figure.3: Relative Humidity in Percentage (%)

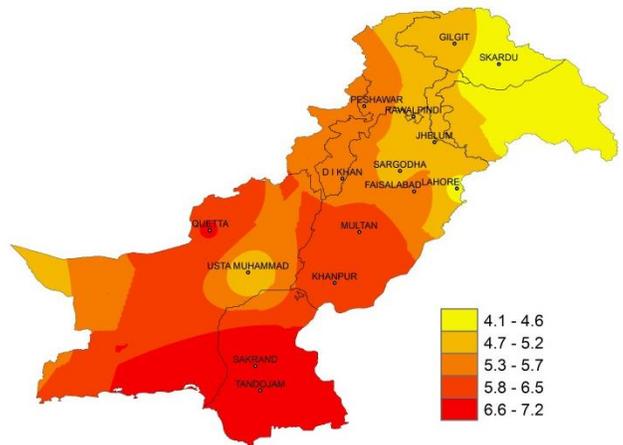


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

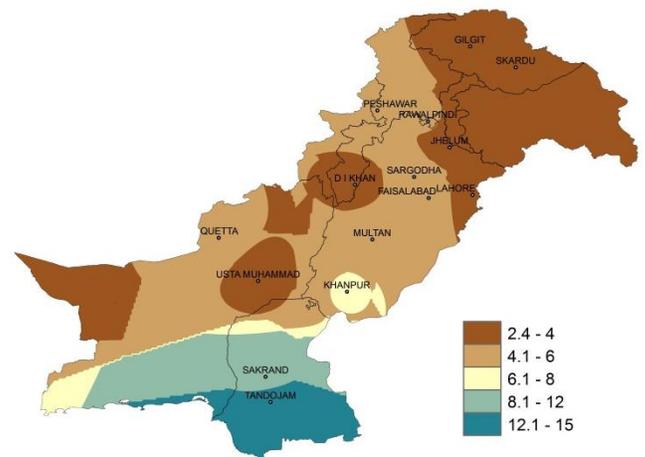


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 D.I. Khan**

Rainfall reported as 138.0mm during the decade; however weather remains cloudy for 05days. Average relative humidity recorded as 70%. Mean day temperature was 37.1°C while night temperature recorded as 25.7°C with 68.2hours bright sunshine duration..

**2.13 Peshawar**

Rainfall reported as 14.0mm during the decade; however weather remained cloudy for 09day. Average relative humidity recorded as 68%. Mean day temperature was 36.7°C while night temperature recorded as 27.0°C with 77.0hours bright sunshine duration. Wind speed recorded as 5.9km/hr with mean wind direction *north easterly*.

**2.14 Skardu**

Rainfall reported as 2.2mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 46%. Mean day temperature was 29.2°C while night temperature recorded as 16.1°C with 52.5hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *south south-easterly*.

**2.15 Gilgit**

Rainfall reported as 19.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 53%. Mean day temperature was 34.0°C while night temperature recorded as 19.5°C with 73.6hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *westerly*.

### **3. Ten Days Weather Advisory for Farmers** **(21<sup>st</sup> to 31<sup>st</sup> 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:** Rain-dust storm/thunderstorm at isolated places in Bahawalpur, D.G Khan, Faisalabad, Rawalpindi,

Lahore & Gujranwala division are expected at isolated places from 22<sup>nd</sup> to 31<sup>st</sup> of July during the decade.

- ❖ **Khyber Pakhtunkhwa:** Rain-thunderstorm is expected at few places in Bannu, D.I Khan, Kohat, Mardan, Malakand, Hazara & Peshawar Division from 23<sup>rd</sup> to 31<sup>st</sup> of July during the decade.
- ❖ **Sindh:** Mainly 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 & Larkana divisions from 22<sup>nd</sup> to 24<sup>th</sup> and 30<sup>th</sup> to 31<sup>st</sup> of July during the decade.
- ❖ **Balochistan:** Mainly hot and dry weather is expected in most parts of Balochistan, however light rainfall reported is expected at isolated places in Kalat, Gawadar, Makran, Sibbi and Quetta divisions from 23<sup>rd</sup> to 25<sup>th</sup> and 27<sup>th</sup> to 31<sup>st</sup> of July during the decade.
- ❖ **Gilgit Baltistan:** Rain-thunderstorm is expected at isolated places including Ghanche, Ghizer, Gilgit, Hunza-Nagar & Skardu from 22<sup>nd</sup> to 31<sup>st</sup> of July during the decade.
- ❖ **Kashmir:** 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)