

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from Punjab and G.B & Kashmir while light from KP and Balochistan and dry from Sindh, during the last decade.
- ❖ Highest amount of rainfall recorded as 69.8mm at Kotli during the last decade.
- ❖ Highest maximum temperature recorded as 43.5°C at Sibbi during the last decade.
- ❖ Light to moderate rain is expected in upper half of the country during the current decade, while dry weather is expected in lower half.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Adopt better practices for weed management of Cotton crop as it is critical weed period. Plant protection measures for pink boll worm may be initiated as attack of Pink boll worm is being observed. Accordingly farmers are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Cotton picking may be initiated after 10 am in the morning as there will be dew present on cotton plants during early morning.

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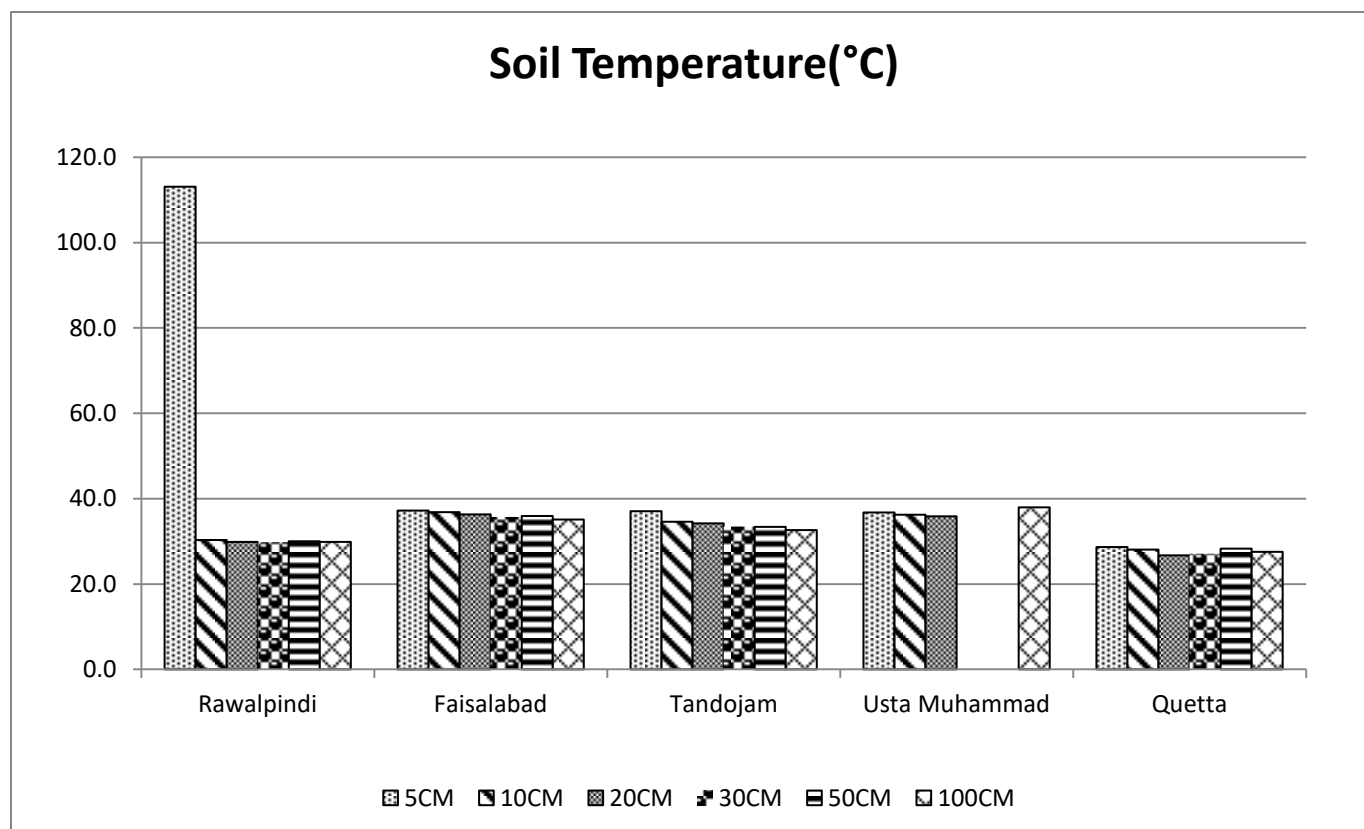
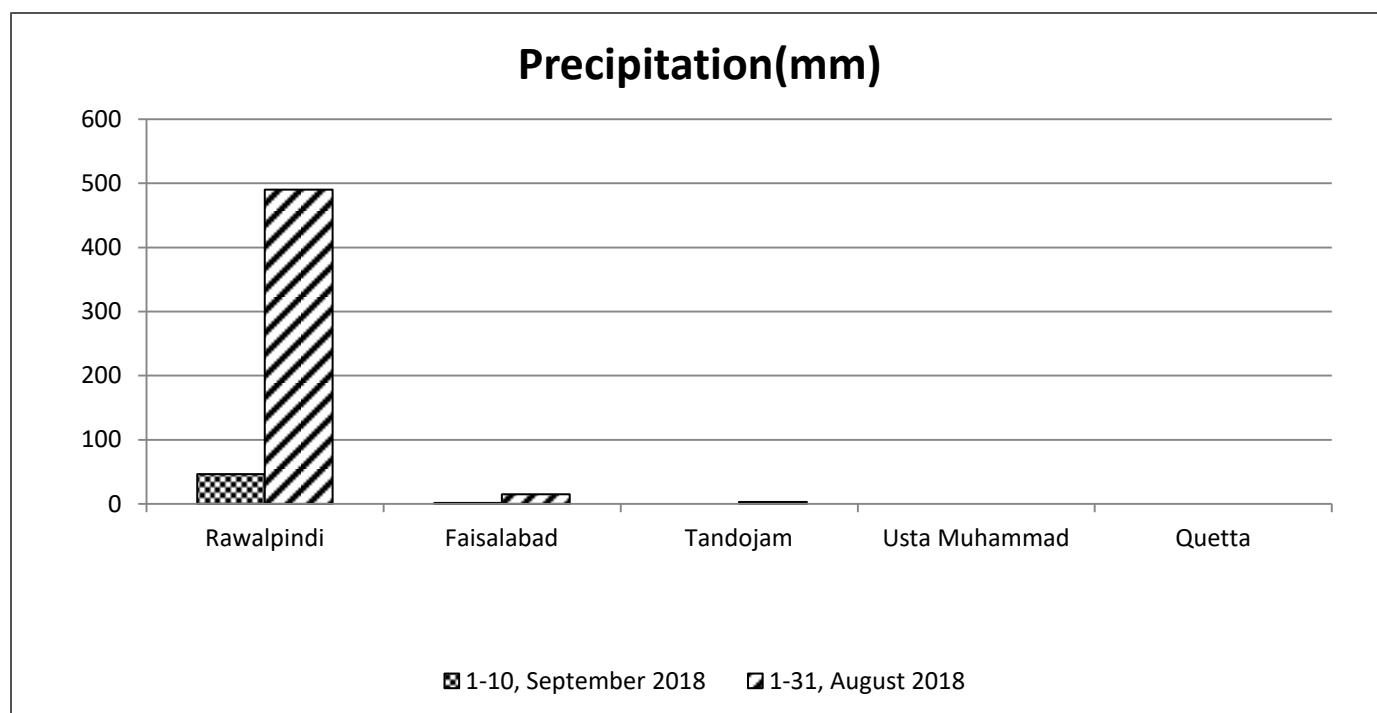
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Meteorological Conditions during 1st Decade of September, 2018

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	46.2	40.8	2.3	2.7	30.3	113.1	30.3	29.9	29.8	30.0	29.9	65	81.9	2.7	2.4
2	Faisalabad	1.6	1.4	-0.2	2.0	2.8	32.3	37.2	36.8	36.3	35.7	35.9	35.1	56	73.5	3.3	2.9
3	Jhelum	3.4	6.4	3.0	2.4	2.3	31.8	33.1	32.5	32.0	31.5	31.7	***	64	77.8	3.9	2.9
4	Lahore	3.8	56.6	52.8	1.7	1.3	31.6	32.7	32.8	31.9	31.9	***	31.1	68	50.3	1.4	2.1
5	Sargodha	1.5	0.0	-1.5	2.4	2.0	33.1	37.4	36.2	34.7	34.3	***	31.9	61	66.1	1.9	2.4
6	Multan	1.1	0.0	-1.1	0.6	1.8	32.7	***	***	***	***	***	***	54	77.6	6.9	4.1
7	Khanpur	0.7	0.0	-0.7	1.6	0.4	32.4	***	35.7	35.9	36.2	36.6	35.5	0	78.9	4.6	3.1
8	Tandojam	2.2	0.0	-2.2	0.8	-2.1	29.4	37.1	34.6	34.2	33.5	33.4	32.6	63	78.1	14.2	5.4
9	Sakrand ☆	1.0	0.0	-1.0	2.3	0.6	32.0	42.1	***	***	***	***	36.3	52	103.7	6.4	4.7
11	Rohri	0.1	0.0	-0.1	0.7	-1.2	32.8	***	***	***	***	***	***	52	92.4	1.0	2.7
12	D.I Khan	1.1	0.0	-1.1	3.6	3.1	33.7	37.0	36.3	35.9	35.8	24.9	***	61	85.6	8.2	4.4
13	Peshawar	1.1	1.0	-0.1	2.0	-0.3	30.7	33.9	34.0	32.9	32.3	31.5	31.0	63	72.2	1.9	2.1
14	Usta .M	0.6	0.0	-0.6	-1.5	-0.1	31.9	36.8	36.3	35.9	***	***	37.9	70	***	3.6	2.8
15	Quetta	0.0	0.0	0.0	-0.6	1.9	23.9	28.6	28.1	26.7	27.1	28.3	27.6	19	101.6	4.7	3.3
16	Skardu	0.8	17.4	16.6	7.0	2.3	22.0	***	***	***	***	***	***	47	26.0	3.7	2.1
17	Gilgit	0.8	1.0	0.2	0.5	5.3	24.9	***	***	***	***	***	***	51	57.7	2.3	1.7

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, 2018



Past Weather (1st to 10th September, 2018)

Light to moderate rainfall reported from Punjab and G.B & Kashmir while light from KP and Balochistan and dry from Sindh, during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Lahore, Islamabad Sialkot. Decadal maximum raised and Minimum both raised above normal by 1.9°C & 1.9°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 53%, hrs, 3.5 km/hr and 2.8 mm/day respectively.

1.1 Sindh

Dry weather reported from agricultural plains of Sindh. except trace (non measureable) rainfall received at Badin, Karachi. Decadal maximum raised above normal by 1.3°C & minimum temperature dropped below normal by 0.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 91.4 hrs, 7.2 km/hr and 4.3 mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

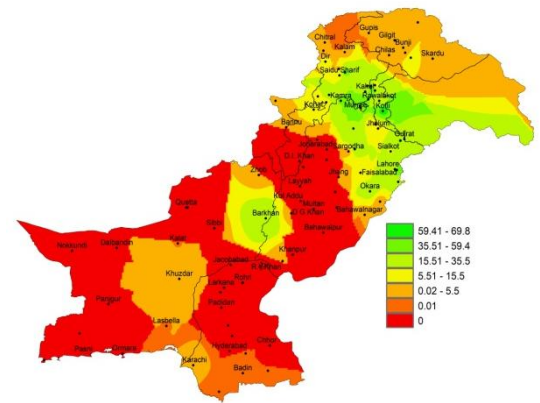
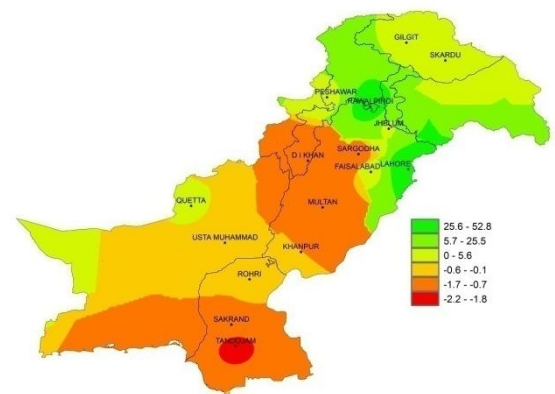
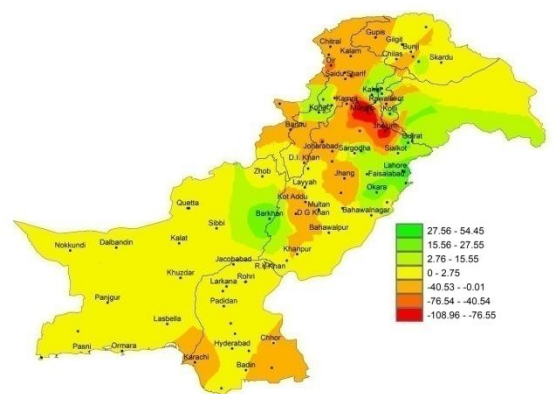
Light rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Malam Jabba, Kakul & Risalpur. Decadal maximum & minimum temperature both raised above normal by 2.8°C & 1.4°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 62%, 78.9 hrs, 5.1 km/hr and 3.3 mm/day respectively.

1.3 Balochistan

Light rainfall reported from few agricultural plains of Balochistan. Chief amount of rainfall received at Barkhan & Khuzdar. Decadal maximum dropped below normal by 1.1°C & minimum temperature raised above normal by 0.9°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 101.6 hrs, 4.2 km/hr and 3.1 mm/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, Muzaffarabad & Garhi Dopatta. Decadal maximum & minimum temperature both raised above normal by 3.8°C & 3.8°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 41.9 hrs, 3.0 km/hr and 1.9 mm/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** **(1st to 10th September, 2018)**

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

Rainfall reported as 46.2mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 65%. Mean day temperature was 35.7°C while night temperature recorded as 24.3°C with 81.9hours bright sunshine duration. Wind speed recorded as 2.7km/hr with mean wind direction *Westerly*.

Maze: good condition, Ninth leaf stage.

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

Rainfall reported as 1.4mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 56%. Mean day temperature was 37.7°C while night temperature recorded as 26.8°C with 73.5hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *southeasterly*.

Cotton: Very good condition, boll opening completed.

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

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 63%. Mean day temperature was 36.3°C while night temperature recorded as 22.5°C with 78.1hours bright sunshine duration. Wind speed recorded as 14.2km/h with mean wind direction *south westerly*.

Cotton CIM-602: Good condition, Maturity.

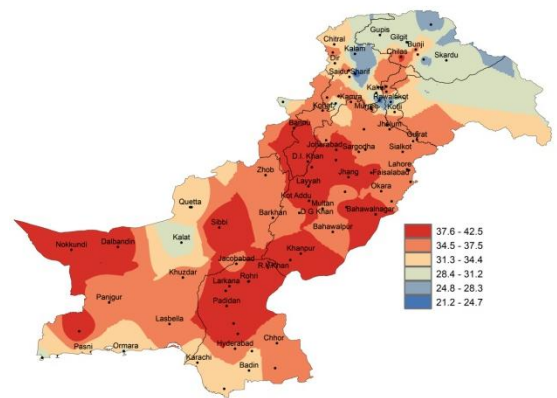
2.4 **RAMC, Usta Muhammad (Eastern Balochistan)**

Dry weather reported during the decade; however weather remained cloudy for 01days. Average relative humidity recorded as 70%. Mean day temperature was 37.3°C while night temperature recorded as 26.5°C. Wind speed recorded as 3.6km/h with mean wind direction *southeasterly*.

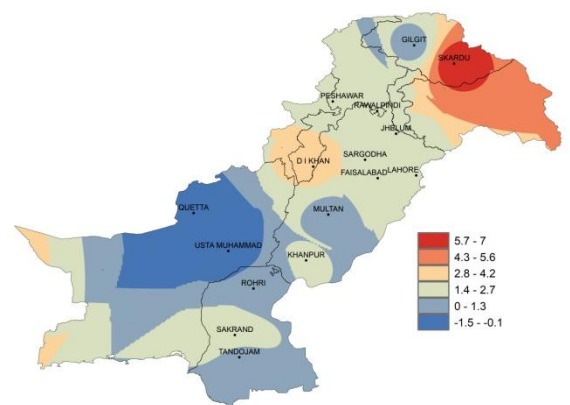
Rice: Tillering stage.

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

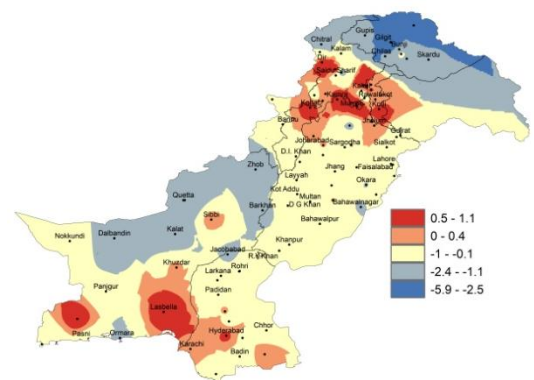
Dry weather reported during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 19%. Mean day temperature was 32.2°C while night temperature recorded as 15.6°C with 101.6hours bright sunshine duration. Wind speed recorded as 4.7km/hr with mean wind direction *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 (1st to 10th September, 2018)

2.6 Jhelum

Rainfall reported as 6.4 mm during the decade; however weather remained cloudy for 10 days. Average relative humidity recorded as 64%. Mean day temperature was 36.9°C while night temperature recorded as 26.7°C with 77.8 hours bright sunshine duration. Wind speed recorded as 3.3 km/hr with mean wind direction *South easterly*.

2.7 Lahore

Rainfall reported as 56.6 mm during the decade; however weather remained cloudy for 10 days. Average relative humidity recorded as 68%. Mean day temperature was 35.9°C while night temperature recorded as 27.3°C with 50.3 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with mean wind direction *South westerly*.

2.8 Sargodha

Dry weather reported during the decade; however weather remained cloudy for 07 days. Average relative humidity recorded as 61%. Mean day temperature was 38.5°C while night temperature recorded as 27.7°C with 66.1 hours bright sunshine duration. Wind speed recorded 1.9 km/hr with mean wind direction *South easterly*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 06 days. Average relative humidity recorded as 54%. Mean day temperature was 37.2°C while night temperature recorded as 28.1°C with 77.6 hours bright sunshine duration. Wind speed recorded 6.9 km/hr with mean wind direction *South westerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 03 days. Average relative humidity recorded as 58%. Mean day temperature was 38.3°C while night temperature recorded as 26.4°C with 78.9 hours bright sunshine duration. Wind speed recorded 4.6 km/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 52%. Mean day temperature was 38.7°C while night temperature recorded as 25.3°C with 103.7 hours bright sunshine duration. Wind speed recorded 6.4 km/hr with wind direction *southerly*.

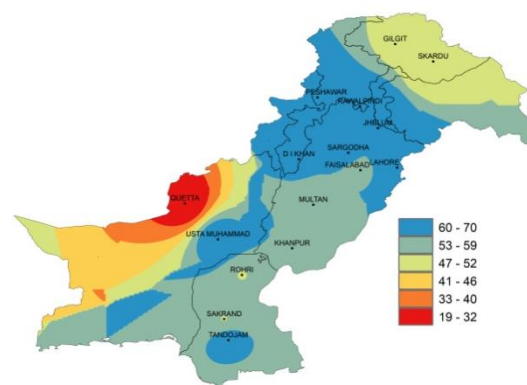


Figure.3: Relative Humidity in Percentage (%)

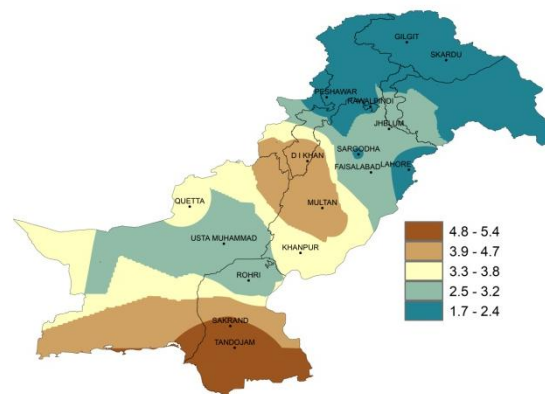


Figure.4: Reference Crop Evapotranspiration (ETo) (mm/day)

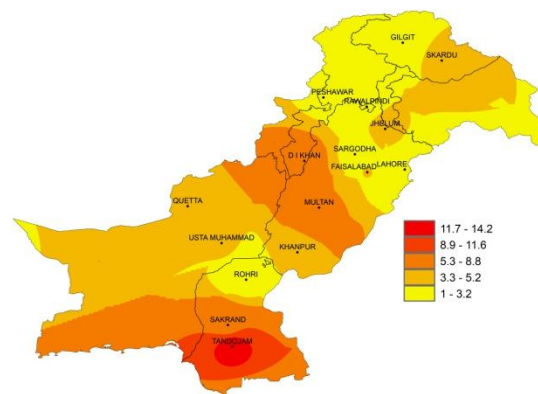


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 01days. Average relative humidity recorded as 52%. Mean day temperature was 38.7°C while night temperature recorded as 26.8°C with 92.4hours bright sunshine duration. Wind speed recorded 1.0km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 61%. Mean day temperature was 40.0°C while night temperature recorded as 27.3°C with 85.6hours bright sunshine duration. Wind speed recorded as 8.2km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 63%. Mean day temperature was 37.0°C while night temperature recorded as 34.3°C with 72.2hours bright sunshine duration. Wind speed recorded as 1.9km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 1.0mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 47%. Mean day temperature was 29.7°C while night temperature recorded as 14.2°C with 26.0hours bright sunshine duration. Wind speed recorded as 3.7km/hr with mean wind direction *south westerly*.

TenDays Weather Advisory for Farmers(11th to 20th September, 2018)

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

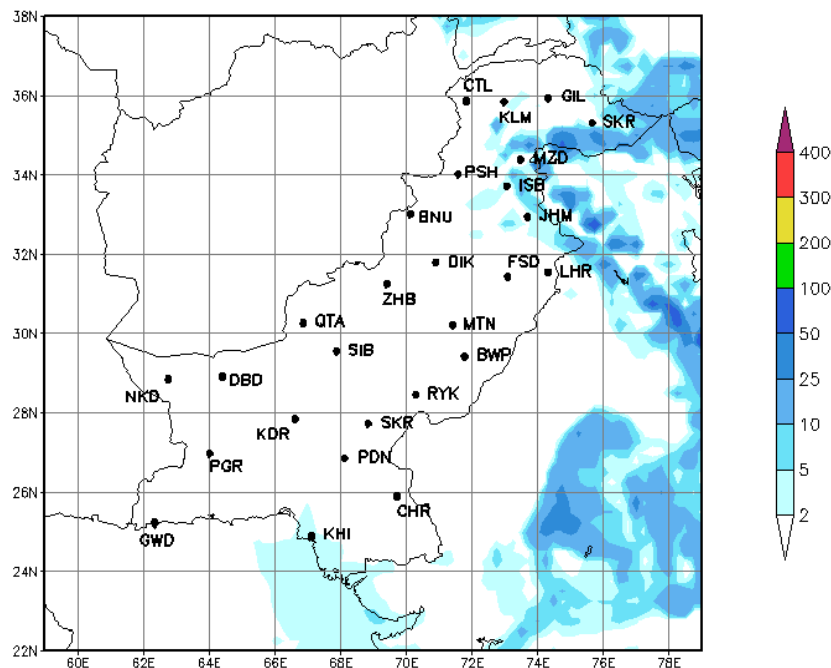
- ❖ **Punjab:** Mainly hot and humid weather is expected in most parts of the Province. However, light to moderate rain-thundershower with gusty winds is expected in most parts of the province.
- ❖ **Khyber Pakhtunkhwa:** Mainly hot and humid weather is expected in most parts of the Province. However, light rain-thundershower with gusty winds is expected in most parts of the province.
- ❖ **Sindh:** Dry weather is expected most part of the province during the current decade.
- ❖ **Balochistan:** Dry weather is expected most part of the province during the current decade. However, light rain-thundershower with gusty winds is expected in Zhob division.
- ❖ **Gilgit Baltistan:** Mainly hot and humid weather is expected in most part. However, light rain-thundershower with gusty winds is expected at scattered places.
- ❖ **Kashmir:** Mainly hot and humid weather is expected in most part. However, light rain-thundershower with gusty winds is expected at scattered places, Kashmir.

3.4 Advisory for Farmers

- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Adopt better practices for weed management of Cotton crop as it is critical weed period. Plant protection measures for pinkboll worm may be initiated as attack of Pinkboll worm is being observed. Accordingly farmers are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Cotton picking may be initiated after 10 am in the morning as there will be dew present on cotton plants during early morning.

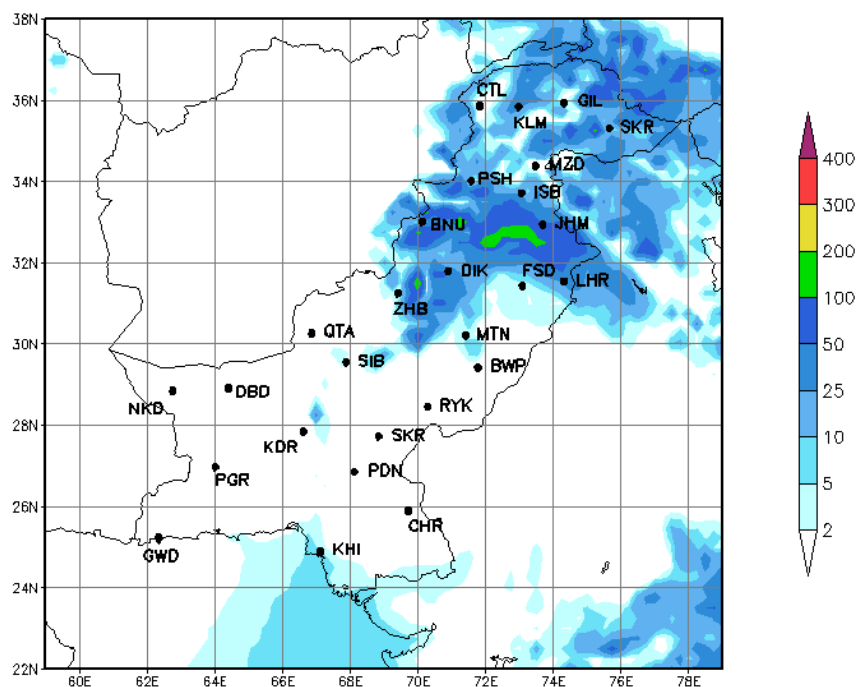
4.1 Precipitation Outlook (11th to 13th September, 2018)

The forecast for the first three days (11th to 13th) of the second decade of September 2017 shows that mainly cloudy weather with light to moderate rainfall is expected at isolated places in KP, G.B, Kashmir, Punjab, Eastern Baluchistan. However, dry weather may prevail in rest parts of the country.



4.2 Precipitation Outlook (14th to 20th September, 2018)

The outlook for the last seven days (14th to 20th) of the second decade of September 2017 shows that light to moderate rainfall is expected at scattered places in most of the upper half while at isolated places in southern half of the country. However, dry weather may prevail in western parts of Baluchistan and most parts of Sindh.



Findings of AgMIPPakistan, 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۔

(ایگپ پاکستان 2012-2014)