

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported in the agricultural plains of Punjab K.P and, G.B & Kashmir however light rainfall reported in the agricultural plains of Balochistan. Dry weather reported in the plains of Sindh.
- ❖ Highest amount of rainfall reported 88.0 mm at Kohat during the last decade.
- ❖ Highest Maximum temperature recorded 45.5°C at Shaheed Benazir Abad during the last decade.
- ❖ Mostly hot and dry weather is expected in most of the agricultural plains of the country however rain-dust-thunderstorm is expected in upper parts of the country during the start of 1st half and in the end of 2nd half of the decade.
- ❖ Pest/viral attacks are expected over cotton crop during hot and humid conditions during monsoon. Farmers should be very careful and take in time precautionary measures in this regard.
- ❖ 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 rains.

**NATIONAL AGROMET CENTRE (NAMC)
PAKISTAN METEOROLOGICAL DEPARTMENT
SECTOR H-8/2, ISLAMABAD**

Patron-in-Chief: *Dr. Ghulam Rasul, Director General*

Editor-in-Chief: *Dr. Azmat Hayat Khan, Director*

Editor: *Asma Jawad Hashmi, Deputy Director*

Phone: [+92-51-9250592](tel:+92-51-9250592) Email: info@namc.pmd.gov.pk

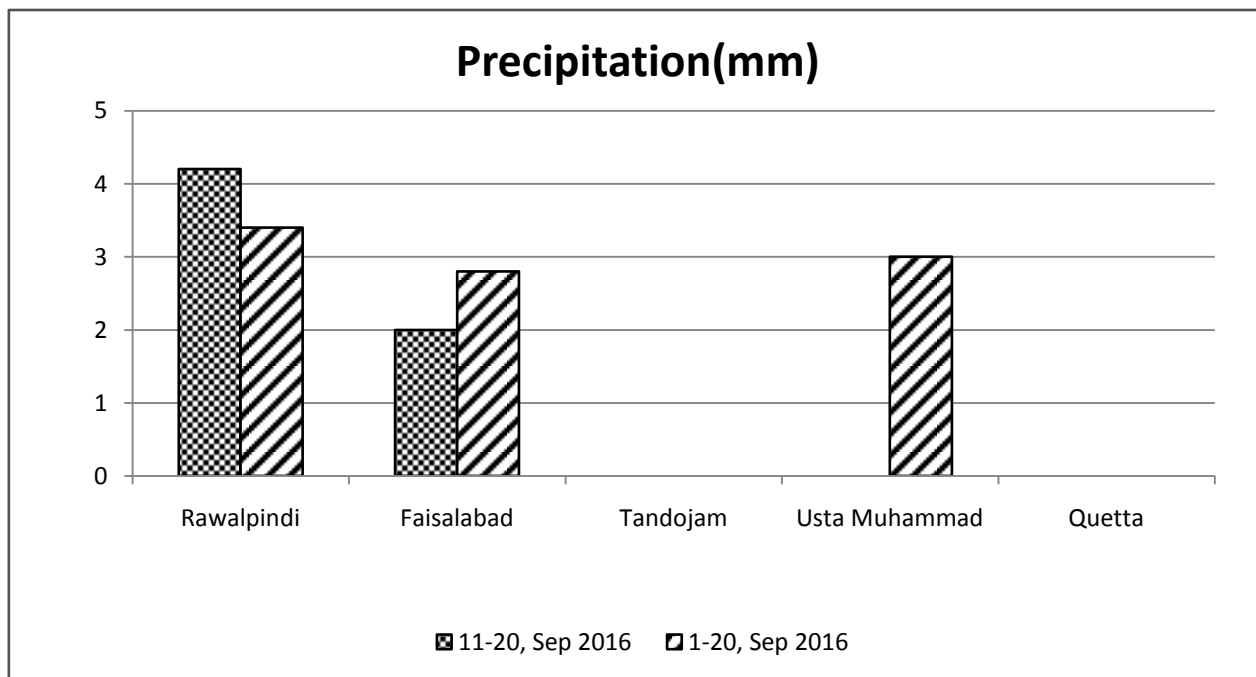
Meteorological Conditions during 3rd decade of August, 2016**Table-1:** Meteorological parameters for selected station of Pakistan. "Dep" in the table stands for difference from climatic normal, i.e. actual value minus normal. And "% Dep" is calculated by the formula; Dep divided by

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	3.4	4.2	0.8	2.1	1.6	29.3	31.7	31.0	29.8	29.5	29.1	29.3	58	97.3	1.7	5.3
2	Faisalabad	1.2	2.0	0.8	2.4	-1.4	30.0	38.2	37.1	35.4	***	34.1	33.3	55	90.1	3.0	4.6
3	Jhelum	1.3	53.1	51.8	1.1	0.1	30.1	32.4	31.7	30.6	29.9	30.3	***	66	89.8	2.5	4.4
4	Lahore	1.4	0.1	-1.3	2.1	0.5	30.9	34.4	33.9	32.0	30.9	***	30.2	61	66.9	1.4	3.8
5	Sargodha	2.0	6.0	4.0	1.9	1.6	31.9	36.1	34.3	32.0	31.4	***	30.4	62	77.2	1.1	4.0
6	Multan	0.8	0.0	-0.8	1.8	2.0	32.7	***	***	***	***	***	***	50	85.5	3.7	5.0
7	Khanpur	0.0	0.0	0.0	2.2	-0.1	31.9	***	34.6	33.4	34.4	34.6	34.6	56	98.4	3.0	5.1
8	Tandojam	0.0	0.0	0.0	2.2	-1.3	30.4	44.9	40.8	35.2	34.3	33.9	***	63	107.3	10.1	6.7
9	Sakrand ☆	0.0	0.0	0.0	2.0	0.3	31.4	48.5	41.1	***	***	***	36.3	53	115.8	3.1	5.7
11	Rohri	0.1	0.0	-0.1	1.8	***	39.9	***	***	***	***	***	***	46	70.3	2.2	7.0
12	D.I Khan	2.3	0.1	-2.2	1.9	0.9	31.2	***	***	***	***	***	***	61	83.2	***	5.5
13	Peshawar	1.1	0.1	-1.0	2.0	0.1	30.3	37.9	33.9	32.5	***	***	***	62	70.2	4.3	4.4
14	Usta .M	0.0	0.0	0.0	-2.0	0.9	31.4	***	***	***	***	***	***	64	***	5.0	4.6
15	Quetta	0.0	0.0	0.0	0.3	3.9	24.3	35.3	31.8	27.5	26.8	25.5	27.4	29	101.7	5.3	5.3
16	Skardu	0.2	4.2	4.0	-1.1	-0.7	17.7	***	***	***	***	***	***	48	56.6	2.5	3.0
17	Gilgit	0.1	5.9	5.8	0.1	2.8	22.2	***	***	***	***	***	***	50	67.0	2.4	3.4

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 September, 2016

Soil Temperature (°C)						
Station	5CM	10CM	20CM	30CM	50CM	100CM
Rawalpindi	31.7	31.0	29.8	29.5	29.1	29.3
Faisalabad	38.2	37.1	35.4	***	34.1	33.3
Tandojam	44.9	40.8	35.2	34.3	33.9	***
Usta Muhammad	***	***	***	***	***	***
Quetta	35.3	31.8	27.5	26.8	25.5	27.4



1 Past Weather (11th to 20th September, 2016)

Light to moderate rainfall reported in the agricultural plains of Punjab K.P and, G.B & Kashmir however light rainfall reported in the agricultural plains of Balochistan. Dry weather reported in the plains of Sindh.

1.1 Punjab

Light to moderate rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received in Jhelum, Sialkot & Joharabad. Decadal maximum & minimum both raised above normal by 1.9°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 58%, 86.5hrs, 2.3km/hr and 4.6mm/day respectively.

1.2 Sindh

Dry weather reported in the agricultural plains of Sindh. Decadal maximum raised above normal by 2.0°C & minimum temperature dropped below normal by 0.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 54%, 97.8hrs, 5.1km/hr and 6.5mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

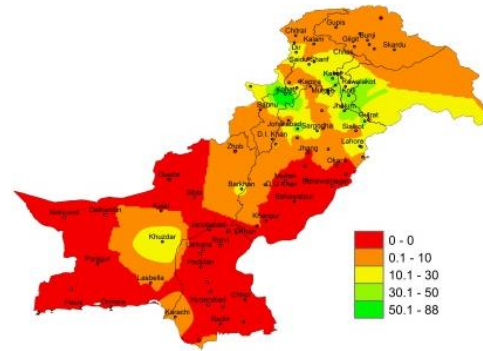
Light to moderate rainfall reported in the agricultural plains of KP. Chief amount of rainfall received Kohat, Kakul & Pattan. Decadal maximum & minimum both raised above normal by 2.0°C & 0.5°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 62%, 76.7 hrs, 4.3km/hr and 5.0mm/day respectively.

1.4 Balochistan

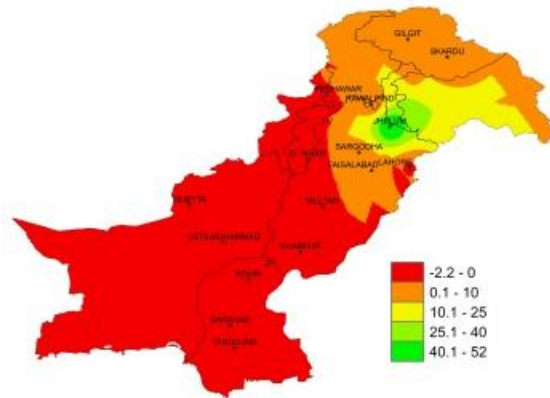
Light rainfall reported in few agricultural plains of Balochistan. Chief amount of rainfall received in Khuzdar & Barkhan. Decadal maximum dropped below normal by 0.9°C & minimum temperature raised above normal by 2.4°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 47%, 101.7hrs, 5.2km/hr and 5.0mm/day respectively.

1.5 Gilgit-Baltistan & Azad Jammu Kashmir

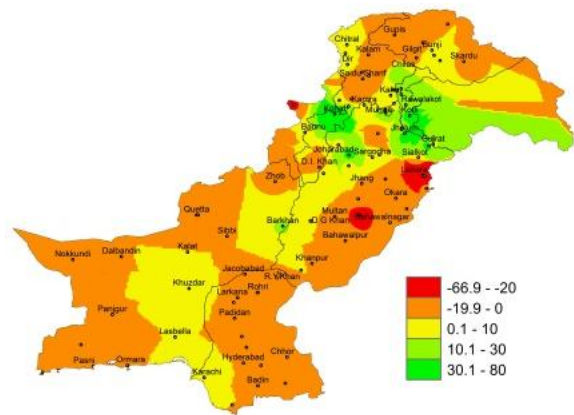
Light to moderate rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received Kotli Muzaffarabad & Garhi dopatta. Decadal maximum dropped below normal by 1.0°C & minimum raised above normal by 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 61.8hrs, 2.5km/hr and 3.2mm/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 (11th to 20th September, 2016)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as 4.2mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 58%. Mean day temperature was 35.5°C while night temperature recorded as 23.0°C with 97.3hours bright sunshine duration. Wind speed recorded as 1.7km/hr with mean wind direction *Westerly North westerly*. **Maize Agaiti 2002:** Good condition, flowering stage.

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 2.0mm during the decade; however weather remained cloudy for 09day. Average relative humidity recorded as 55%. Mean day temperature was 37.7°C while night temperature recorded as 22.2°C with 90.1hours bright sunshine duration. Wind speed recorded as 3.0km/hr with mean wind direction *south easterly*. **Cotton:** Very good condition, Maturity stage.

2.3 RAMC, Tandojam (Lower Sindh)

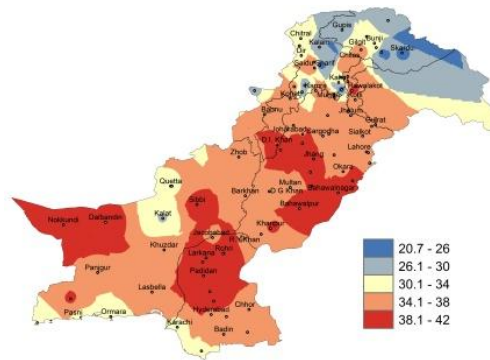
Dry weather reported during the decade; however weather remained cloudy for 02days. Average relative humidity recorded as 63%. Mean day temperature was 37.8°C while night temperature recorded as 23.0°C with 107.3hours bright sunshine duration. Wind speed recorded as 10.1km/h with mean wind direction *south westerly*. **Cotton (Star-2):** Good condition, Boll opening stage.

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

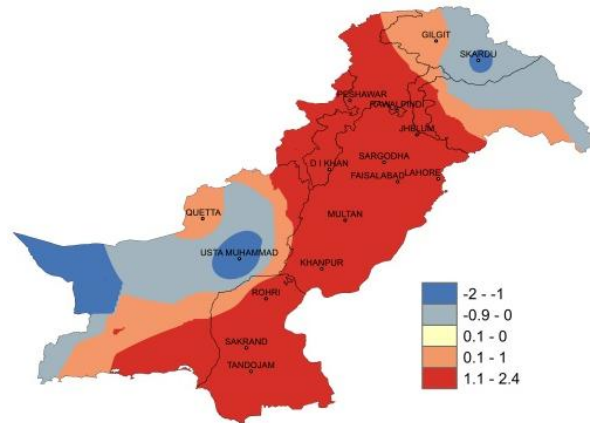
Dry weather reported during the decade; however weather remained clear throughout the decade. Average relative humidity recorded as 64%. Mean day temperature was 36.6°C while night temperature recorded as 26.2°C. Wind speed recorded as 5.0km/h with mean wind direction *South easterly*. **Rice:** Good condition, Shooting stage.

2.5 RAMC, Quetta (Northern Balochistan)

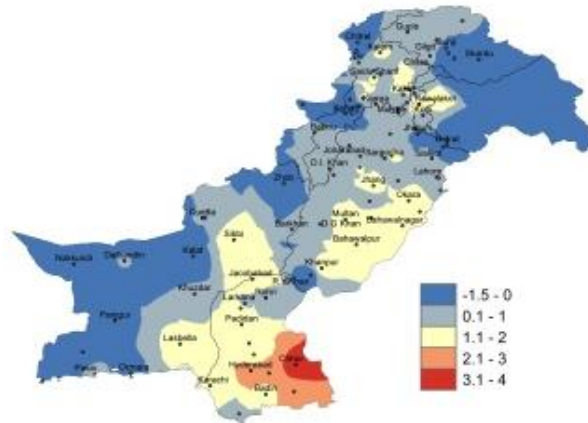
Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 29%. Mean day temperature was 32.0°C while night temperature recorded as 16.5°C with 101.7hours bright sunshine duration. Wind speed recorded as 5.3km/hr with mean wind direction *southerly*.



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 (11th to 20th September, 2016)

2.6 Jhelum

Rainfall reported as 53.1mm during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 66%. Mean day temperature was 35.8°C while night temperature recorded as 24.3°C with 89.8hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *south westerly*.

2.7 Lahore

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 61%. Mean day temperature was 35.8°C while night temperature recorded as 26.0°C with 66.9hours bright sunshine duration. Wind speed recorded as 1.4km/hr with mean wind direction *North westerly*.

2.8 Sargodha

Rainfall reported as 6.0mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 62%. Mean day temperature was 37.5°C while night temperature recorded as 26.3°C with 77.2hours bright sunshine duration. Wind speed recorded 1.1km/hr with mean wind direction *variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 50%. Mean day temperature was 37.8°C while night temperature recorded as 27.5°C with 85.5hours bright sunshine duration. Wind speed recorded 3.7km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade. However sky remained clear throughout the decade. Average relative humidity recorded as 56%. Mean day temperature was 39.0°C while night temperature recorded as 24.8°C with 98.4hours bright sunshine duration. Wind speed recorded 3.0km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remains cloudy for 01day. Average relative humidity recorded as 53%. Mean day temperature was 38.9°C while night temperature recorded as 23.9°C with 115.8hours bright sunshine duration. Wind speed recorded 3.1km/hr with wind direction *south easterly*.

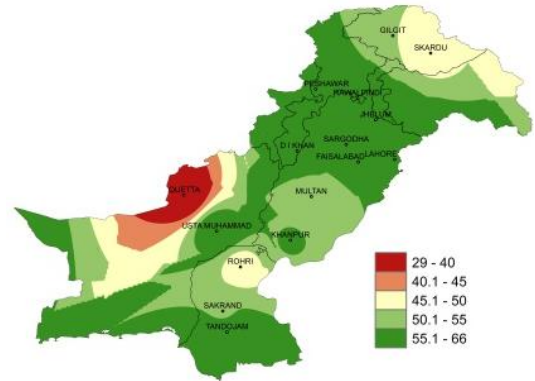


Figure.3: Relative Humidity in Percentage (%)

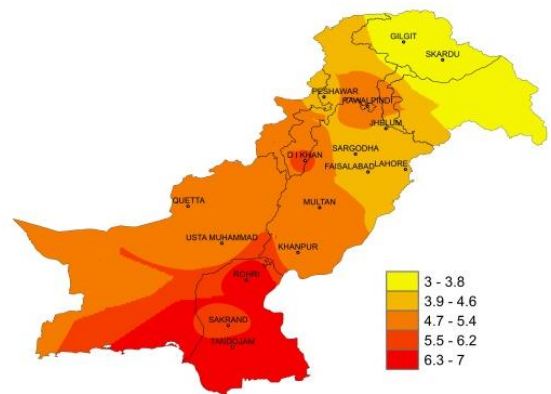


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

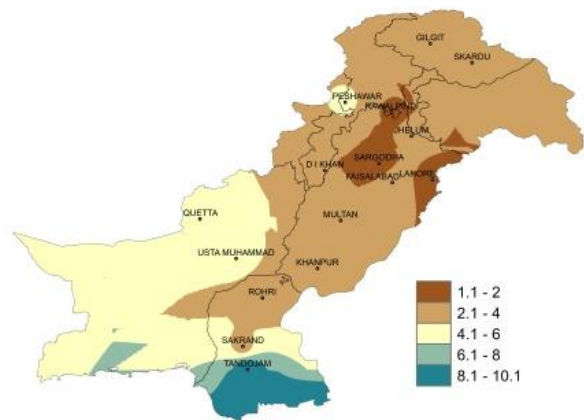


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade. However sky remained clear throughout the decade. Average relative humidity recorded as 46%. Mean day temperature was recorded as 39.9°C with 70.3hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *south westerly*.

2.13 D.I. Khan

Rainfall reported as Trace (Non measureable) during the decade; however weather remains cloudy for 03days. Average relative humidity recorded as 61%. Mean day temperature was 37.9°C while night temperature recorded as 24.4°C with 83.2 hours bright sunshine duration.

2.14 Peshawar

Rainfall reported as Trace (Non measureable) during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 62%. Mean day temperature was 36.6°C while night temperature recorded as 23.9°C with 76.4hours bright sunshine duration. Wind speed recorded as 4.3km/hr with mean wind direction *north westerly*.

2.15 Skardu

Rainfall reported as 4.2 mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 48%. Mean day temperature was 25.7°C while night temperature recorded as 9.7°C with 56.6hours bright sunshine duration. Wind speed recorded as 2.5km/hr with mean wind direction *North easterly*.

2.16 Gilgit

Rainfall reported as 5.9mm during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 50%. Mean day temperature was 31.4°C while night temperature recorded as 13.0°C with 67.0hours bright sunshine duration. Wind speed recorded as 2.4km/hr with mean wind direction *South easterly*.

3 Ten Days Weather Advisory for Farmers **(21st to 30th September, 2016)**

3.1 Temperature Forecast

Night temperatures are expected to drop slightly (1-2°C) and day temperatures are likely to be slightly 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-thunderstorm is expected at scattered places in Punjab including Rawalpindi, Lahore, Gujranwala, Sargodha, and Faisalabad from 21st to 23rd and in upper Punjab including Islamabad in the end of 2nd half of the decade.
- ❖ **Khyber Pakhtunkhwa:** Rain-dust-thunderstorm is expected at scattered places in KP including Mardan, Malakand, Hazara and Peshawar Division from 21st to 23rd and in upper KP in the end of 2nd half of the decade.
- ❖ **Sindh:** Mainly hot and dry weather is expected in most parts of the province.
- ❖ **Balochistan:** Mainly hot and dry weather is expected in most parts of the province.
- ❖ **Gilgit-Baltistan:** Rain-thunderstorm is expected at isolated places in GB during 1st half of the decade.
- ❖ **Kashmir:** Rain-thunderstorm is expected at isolated places from 21st to 23rd and in the end of the 2nd half of the decade.

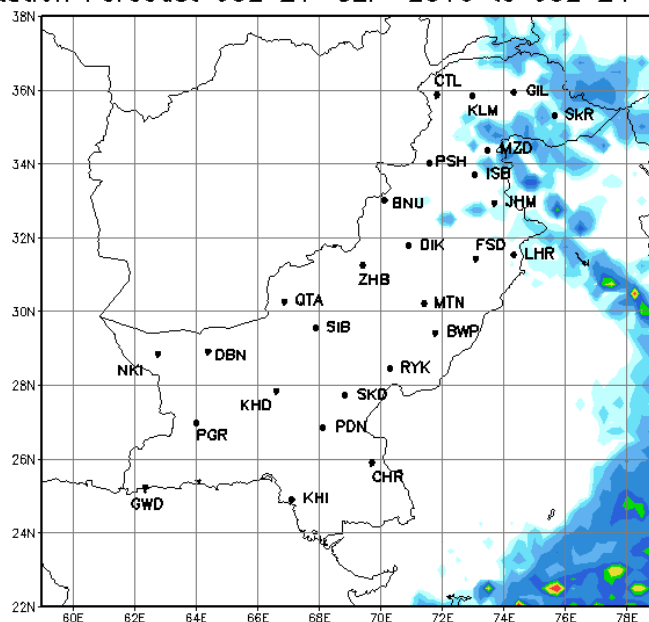
3.4 Advisory for Farmers

- ❖ Pest/viral attacks are expected over cotton crop during hot and humid conditions during monsoon. Farmers should be very careful and take in time precautionary measures in this regard.
- ❖ 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 rains.
- ❖ Farmers of cotton belt are advised to be aware of the adverse effects of stagnant water in the fields. Mechanism for drainage of stagnant water from fields should be evolved on priority basis and necessary requirement in this regard should be taken.

4.1 Precipitation Forecast (21st to 23rd September, 2016)

The forecast for the next seven days this decade of September 2016 shows that normal to slightly below normal rainfall is expected in the monsoon dominated regions of Punjab, Khyber Pakhtoonkhwa and Azad Jammu and Kashmir.

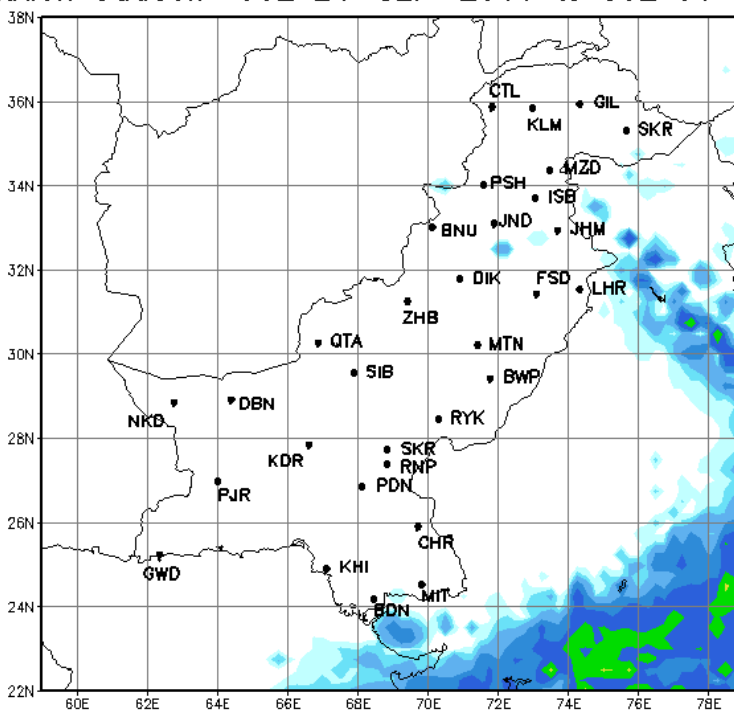
Precipitation Forecast 00Z 21-SEP-2016 to 00Z 24-SEP-2016



4.2 Precipitation Outlook (24th to 30th September, 2016)

The outlook for the next seven days this decade of September 2016 shows that light rainfall is expected at isolated places in the upper parts of the country.

Precipitation Outlook 00Z 24-SEP-2016 to 00Z 01-OCT-2016



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۔

(ایگپ پاکستان 2012-2014)