

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Moderate to heavy rainfall reported in the agricultural plains of KP, however light to moderate in the agricultural plains of Punjab & light rainfall in agricultural plains of Balochistan, GB & Kashmir while trace rainfall reported from a single place in the agriculture plains of Sindh during the last decade.
- ❖ Highest amount of rainfall reported 96.5 mm at Parachinar during the last decade.
- ❖ Highest Maximum temperature recorded 52.2°C at Larkana during the last decade.
- ❖ Mainly very hot and dry weather is expected in most parts of the country however rain-thunderstorm with strong gusty winds are expected at scattered places during start & end of the decade.
- ❖ Cotton crop is in initial growing stages in most of the agricultural plains of the country. Farmers are advised to irrigate the crops by keeping in view the expected rain in the agricultural plains of the country.
- ❖ Dust storm and heat waves is regular feature in lower half of the country including southern Punjab, lower KP, Sindh and Balochistan. Whereas occasional wind/thunderstorms accompanied by hail and intermittent rain for short periods are the climatic features in upper half of the country especially in the Potohar region. Farmers are advised to be very careful and take in time precautionary measures to save standing crops, livestock and other property during last decade of May.

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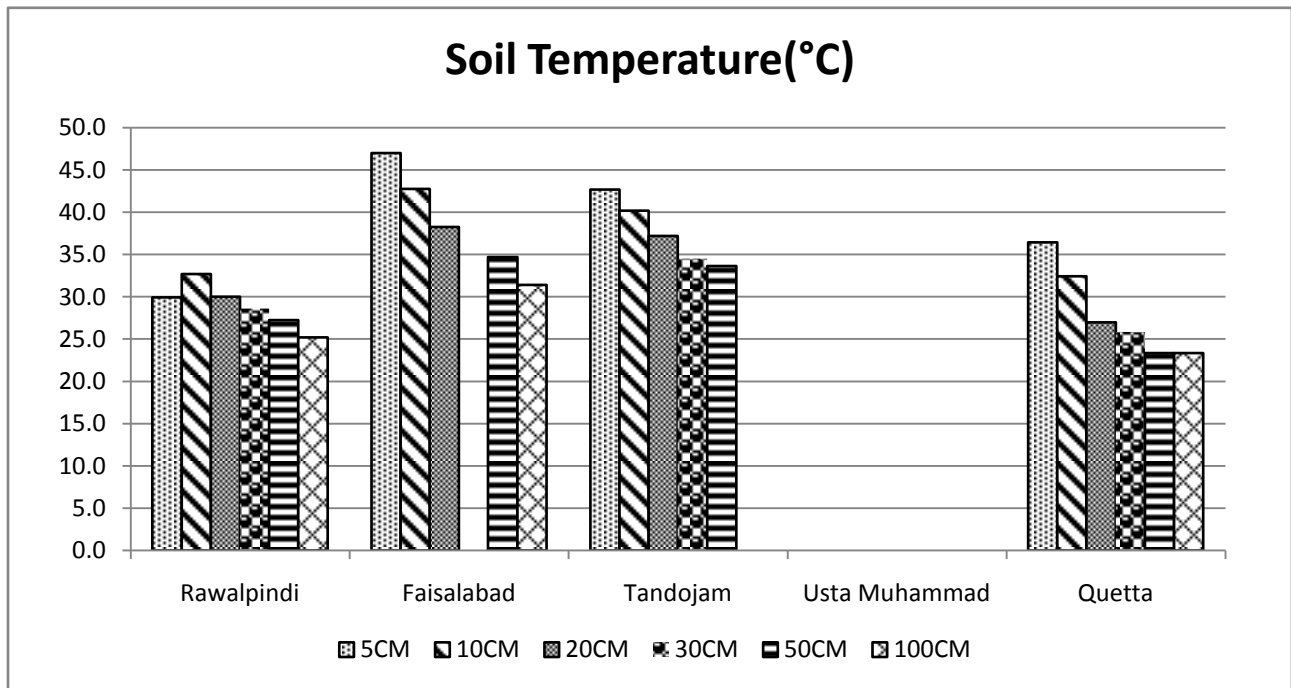
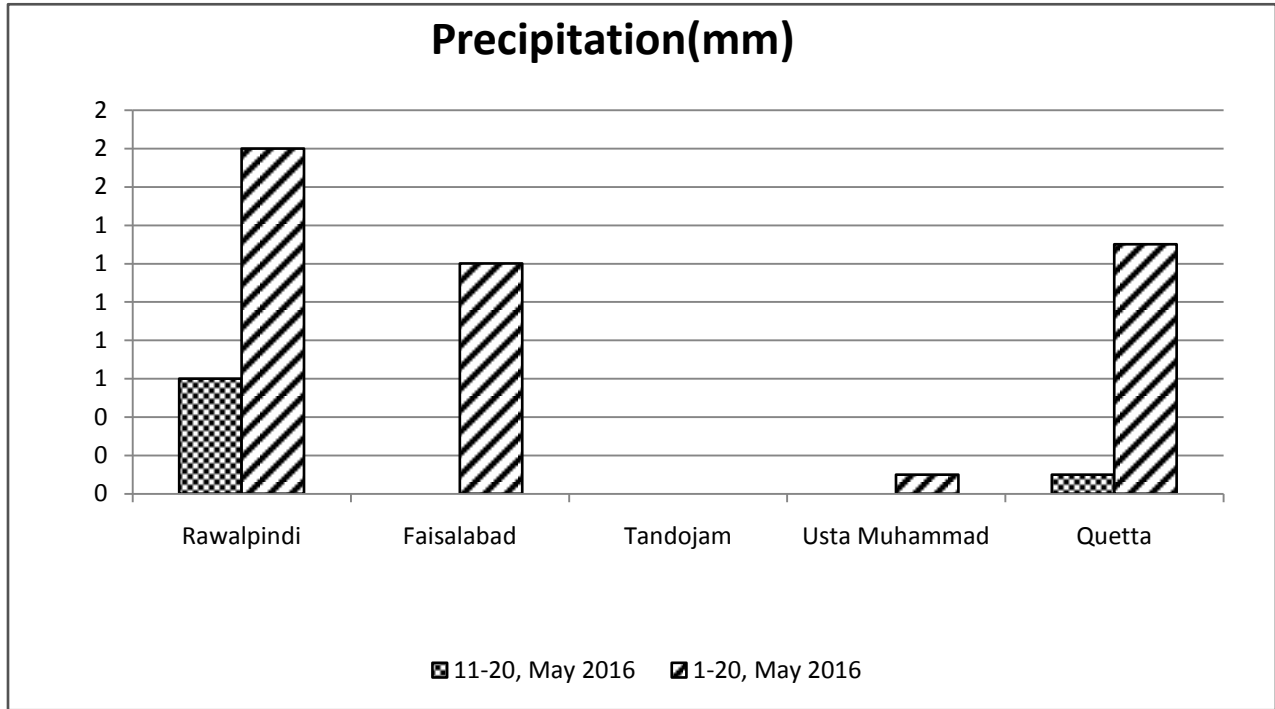
Meteorological conditions during 2nd decade of May, 2016

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	1.5	0.6	-0.9	0.9	2.0	30.9	30.0	32.7	30.0	28.6	27.3	25.2	35	106.8	6.0	7.1
2	FAISALABAD	0.2	0.0	-0.2	1.0	1.0	34.1	47.0	42.8	38.3	***	34.7	31.4	32	105.5	3.0	6.2
3	JHELUM	0.9	1.0	0.1	1.3	-0.9	32.6	37.9	35.4	32.3	30.2	29.7	***	35	110.1	3.8	6.7
4	LAHORE	0.2	0.6	0.4	1.8	0.4	34.3	39.8	37.5	32.9	31.5	***	28.1	29	104.1	3.6	6.5
5	SARGODHA	0.6	0.0	-0.6	0.3	1.1	34.4	39.5	37.1	33.7	32.6	30.8	28.0	40	95.2	3.5	6.3
6	MULTAN	0.0	0.0	0.0	0.3	1.1	35.7	***	***	***	***	***	***	29	93.9	4.2	6.8
7	KHANPUR	0.0	0.0	0.0	2.1	1.0	35.8	***	37.3	36.8	36.7	36.5	33.4	36	98.0	5.1	7.3
8	TANDOJAM	0.0	0.0	0.0	2.0	-0.6	34.2	42.7	40.2	37.2	34.5	33.7	***	48	105.2	12.3	9.4
9	SAKRAND ☆	0.0	0.0	0.0	0.1	1.6	36.1	52.0	43.4	***	***	***	33.6	42	109.2	7.6	8.5
11	DI KHAN	0.4	0.1	-0.3	1.5	1.6	34.3	***	***	***	***	***	***	39	92.0	***	7.7
11	PESHAWAR	0.4	7.0	6.6	0.3	-1.1	30.6	37.4	33.2	31.1	***	***	***	42	85.9	3.1	5.6
12	USTA MUHAMMAD	0.0	0.0	0.0	1.6	0.0	37.6	***	***	***	***	***	***	32	***	9.8	10.6
13	QUETTA	0.1	0.1	0.0	-0.1	2.1	25.0	36.5	32.5	27.0	25.9	23.4	23.4	18	108.6	2.3	5.1
14	SKARDU	0.3	4.9	4.6	-0.9	0.4	18.2	***	***	***	***	***	***	44	74.4	4.9	4.6
15	GILGIT	0.2	1.0	0.8	-2.4	1.6	22.1	***	***	***	***	***	***	44	87.2	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 years climatic (normal) data for computing departures.

1.

Graph at RAMC's during May, 2016



Past Weather (11th to 20th May 2016)

Moderate to heavy rainfall reported in the agricultural plains of KP, however light to moderate in the agricultural plains Punjab & light rainfall in agricultural plains of Balochistan, GB & Kashmir while trace rainfall reported from a single place in the agriculture plains of Sindh during the last decade.

1.1 Punjab

Light to moderate rainfall reported in the agricultural plains of Punjab. Chief amount of rainfall received in Murree, Chakwal & Sialkot. Decadal maximum & Minimum both raised above normal by 1.1°C & 0.8°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 34%, 101.9hrs, 4.2km/hr and 6.7mm/day respectively.

1.2 Sindh

Trace (Non measureable) rainfall reported from a single place (Padidan) in the agricultural plains of Sindh. Decadal maximum & Minimum both raised above normal by 1.1°C & 0.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 45%, 107.2 hrs, 10.0 km/hr and 9.0mm/day respectively.

1.3 Khyber Pakhtunkhwa (KP)

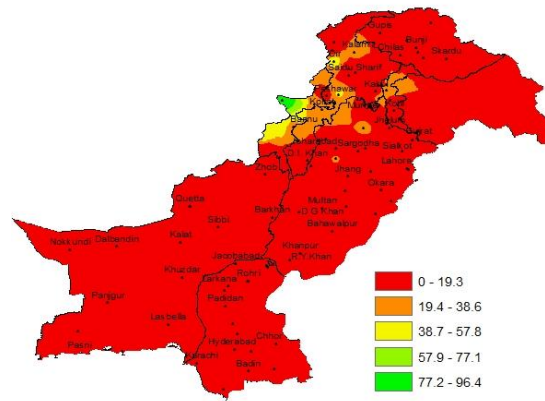
Moderate to heavy rainfall reported in the agricultural plains of KP. Chief amount of rainfall received in Parachinar, Risalpur & Kohat. Decadal maximum & Minimum both raised above normal by 0.9°C by 0.3°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETO were recorded as 41%, 89.0 hrs, 3.1 km/hr and 6.7mm/day respectively.

1.4 Balochistan

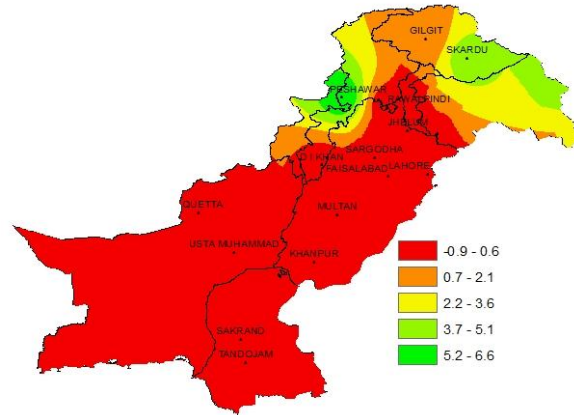
Light rainfall reported at isolated plces in the agricultural plains of Balochistan. Chief amount of rainfall received in Barkhan, Ormara & Quetta. Decadal maximum & Minimum both raised above normal by 8°C & 1.1°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 25%, 108.6hrs, 6.1 km/hand 7.9 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

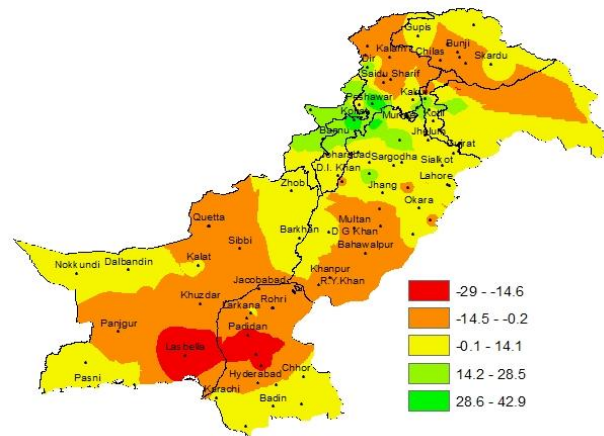
Light rainfall reported in the agricultural plains of GB & Kashmir. Chief amount of rainfall received in Hunza, Muzaffarabad & Gupis. Decadal maximum dropped below normal by 2.0°C & minimum temperature raised above normal by 1.0°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 80.8hrs, 4.5 km/hr and 4.8mm/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 May, 2016)**

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

Rainfall reported as 0.6 mm during the decade however weather remained cloudy for 04days. Average relative humidity recorded as 35%. Mean day temperature was 38.5°C while night temperature recorded as 23.2°C with 106.8 hours bright sunshine duration. Wind speed recorded as 6.0 km/hr with mean wind direction *westerly*.

Wheat (Chakwal-97): Good condition, Full maturity stage.

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

Dry weather reported during the decade however weather remained cloudy for 05days. Average relative humidity recorded as 32%. Mean day temperature was 42.2°C while night temperature recorded as 26.0°C with 105.5hours bright sunshine duration. Wind speed recorded as 3.0km/hr with mean wind direction *Variable*.

Cotton: Good condition, Emergence completed.

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

Dry weather reported during the decade. Sky remained clear throughout the decade. Average relative humidity recorded as 48%. Mean day temperature was 43.3°C while night temperature recorded as 25.1°C with 105.2 hours bright sunshine duration. Wind speed recorded as 12.3 km/h with mean wind direction *south westerly*.

Cotton: Germination (Sowing on 19-05-2016)

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

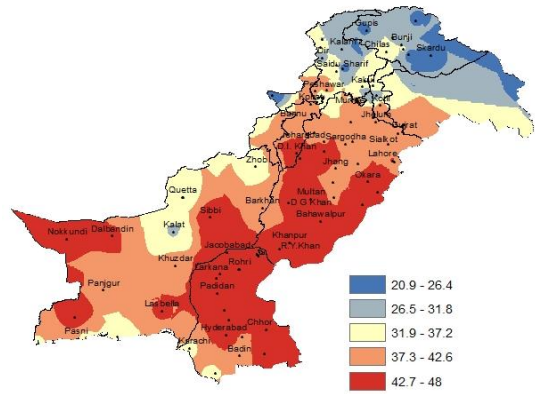
Dry weather reported during the decade. Weather remained cloudy for 02days. Average relative humidity recorded as 32%. Mean day temperature was 47.9°C while night temperature recorded as 27.3°C. Wind speed recorded as 9.8 km/hr with mean wind direction *North easterly*.

Wheat (Zardana): Threshed.

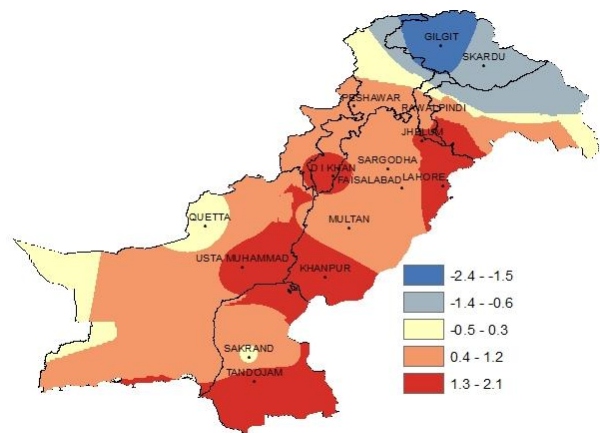
2.5 **RAMC, Quetta (Northern Balochistan)**

Rainfall reported as Trace (non measureable) during the decade however weather remained cloudy for 05days. Average relative humidity recorded as 18%. Mean day temperature was 32.4°C while night temperature recorded as 17.5°C with 108.6 hours bright sunshine duration. Wind speed recorded as 2.3km/hr with mean wind direction *North westerly*

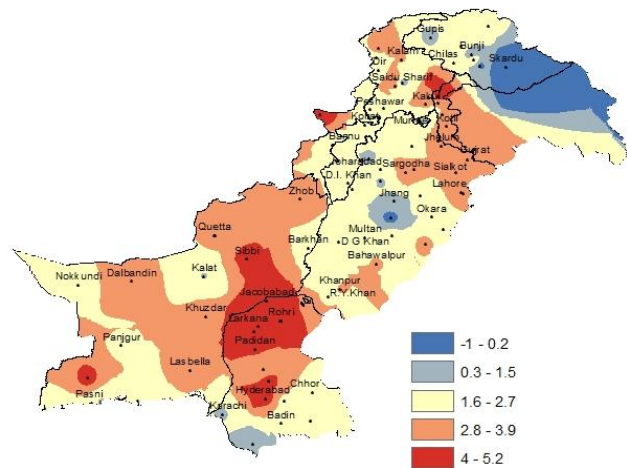
Wheat: Good condition, Wax maturity.



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 May, 2016)**

2.6 **Jhelum**

Rainfall reported as 1.0 mm during the decade however weather remained cloudy for 08days. Average relative humidity recorded as 35%. Mean day temperature was 41.6°C while night temperature recorded as 23.6°C with 110.1hours bright sunshine duration. Wind speed recorded 3.8km/hr with wind direction *Variable*.

2.7 **Lahore**

Rainfall reported as 0.6 mm during the decade however weather remained cloudy for 03days. Average relative humidity recorded as 29%. Mean day temperature was 42.0°C while night temperature recorded as 26.6°C with 104.1hours bright sunshine duration. Wind speed recorded as 3.6km/hr with mean wind direction *north westerly*.

2.8 **Sargodha**

Dry weather reported during the decade however weather remained cloudy for 04 days. Average relative humidity recorded as 40%. Mean day temperature was 42.1°C while night temperature recorded as 26.7°C with 85.2 hours bright sunshine duration. Wind speed recorded 3.5km/hr with mean wind direction *variable*.

2.9 **Multan**

Dry weather reported during the decade however weather remained cloudy for 03days. Average relative humidity recorded as 29%. Mean day temperature was 43.2°C while night temperature recorded as 28.2°C with 93.9 hours bright sunshine duration. Wind speed recorded 4.2 km/hr with mean wind direction *north easterly*.

2.10 **Khanpur**

Dry weather reported during the decade. However sky remained cloudy for 03days. Average relative humidity recorded as 36%. Mean day temperature was 44.2°C while night temperature recorded as 27.4°C with 98.0 hours bright sunshine duration. Wind speed recorded 5.1km/hr with mean wind direction *North easterly*.

2.11 **Skrand**

Dry weather reported during the decade however weather remains cloudy for 05days. Average relative humidity recorded as 42%. Mean day temperature was 44.6°C while night temperature recorded as 27.5°C with 109.2 hours bright sunshine duration. Wind speed recorded 7.6km/hr with wind direction *south westerly*.

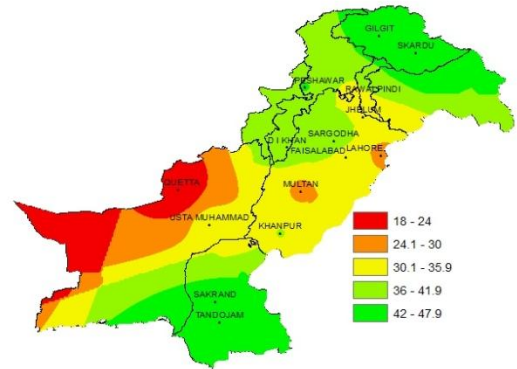


Figure.3: Relative Humidity in Percentage (%)

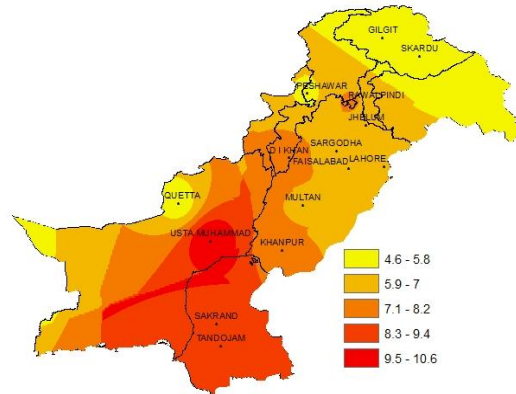


Figure.4: Reference Crop Evapotranspiration “ETo” in mm/day

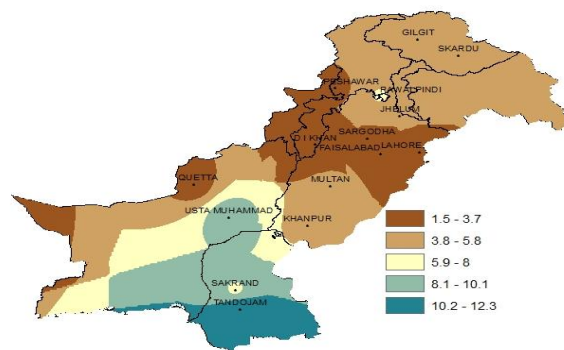


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 D.I. Khan

Rainfall reported as Trace (non measureable) during the decade however weather remained cloudy for 02days. Average relative humidity recorded as 39%. Mean day temperature was 42.7°C while night temperature recorded as 25.8°C with 92.0hours bright sunshine duration.

2.13 Peshawar

Rainfall reported as 7.0mm during the decade however weather remained cloudy for 06days. Average relative humidity recorded as 42%. Mean day temperature was 38.6°C while night temperature recorded as 22.5°C with 85.6hours bright sunshine duration. Wind speed recorded as 3.1km/hr with mean wind direction *North easterly*.

2.14 Skardu

Rainfall reported as 4.9mm during the decade however weather remained cloudy for 05days. Average relative humidity recorded as 44%. Mean day temperature was 25.9°C while night temperature recorded as 10.4°C with 74.4hours bright sunshine duration. Wind speed recorded as 4.9 km/hr with mean wind direction *South easterly*.

2.15 Gilgit

Rainfall reported as 1.0 mm during the decade however weather remained cloudy for 10days. Average relative humidity recorded as 44%. Mean day temperature was 30.7°C while night temperature recorded as 13.5°C with 87.2hours bright sunshine duration. Wind speed recorded as 4.0km/hr with mean wind direction *south easterly*.

**3. Ten Days Weather Advisory for Farmers
(21st to 31st May, 2016)****3.1 Temperature Forecast**

Day time temperature expected to remain 2-4°C above normal in most parts of the country & night temperatures are expected 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. However rain-thunderstorm with gusty winds/dust storm at isolated places of the province are expected on 22nd to 24th of the decade.

❖ **Khyber Pakhtunkhwa:** Mainly hot and dry weather is expected in most parts of the province. However rain-thunderstorm with gusty winds/dust storm at Hazara, Peshwar, Kohat, Malakand & Mardan division are expected on 22nd to 24th of the decade.

❖ **Sindh:** Very hot and dry weather is expected in most parts of Sindh. However rain-thunderstorm with gusty winds/dust storm at Sukkar, Larkana, Mirpurkhas, & Shaheed Benazirabad division on 22nd to 23rd of the decade.

❖ **Balochistan:** Very hot and dry weather is expected in most parts of Sindh. However rain-thunderstorm with gusty winds/dust storm at Sibbi & Makran division on 22nd of the decade.

❖ **Gilgit Baltistan:** Mainly hot and dry weather is expected in most parts of Gilgit Baltistan. However rain-thunderstorm with gusty winds/dust storm at isolated places on 23rd to 24th of the decade and at few places on 28th of the decade. .

❖ **Kashmir:** Mainly hot and dry weather is expected in most parts of Kashmir. However rain-thunderstorm with gusty winds/dust storm at isolated places on 23rd to 24th and at few places on 28th of the decade.

3.4 Advisory for Farmers

❖ Cotton crop is in initial growing stages in most of the agricultural plains of the country. Farmers are advised to irrigate the crops by keeping in view the expected rain in the agricultural plains of the country.

❖ Dust storm and heat waves is regular feature in lower half of the country including southern Punjab, lower KP, Sindh and Balochistan. Whereas occasional wind/thunderstorms accompanied by hail and intermittent rain for short periods are the climatic features in upper half of the country especially in the Potohar region. Farmers are advised to be very careful and take in time precautionary measures to save standing crops, livestock and other property during last decade of May.

Findings of AgMIP Paksitan, University of Agriculture Faisalabad

1. 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)
2. There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069)
3. Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat)
4. If there will be no adaptation to Climate Change, majority of farmers would be the economic losers
5. 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)