

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light amount of rainfall reported from Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan, Azad Jammu & Kashmir, Baluchistan and Sindh during the last decade.
- ❖ Highest amount of rainfall recorded as 16.20 mm at Khuzdar during the last decade.
- ❖ Highest maximum temperature recorded as 39.5°C at Shaheed Benizerabad during the last decade.
- ❖ Mainly dry weather is expected in most parts of the country, while cold in northern areas. However, rain-thunderstorm with dust storm is expected at isolated places in Khyber Pakhtunkhwa, Gilgit-Baltistan & Kashmir and upper Punjab during the current decade.
- ❖ Use proper precautions during picking of cotton because the cost of good and clean quality cotton is high than that of the filthy one.
- ❖ Harvesting of Peanut may be completed and the fields may be well ploughed afterwards.
- ❖ Farmers are advised to schedule the irrigation plans in context of upcoming Rabi crops.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.

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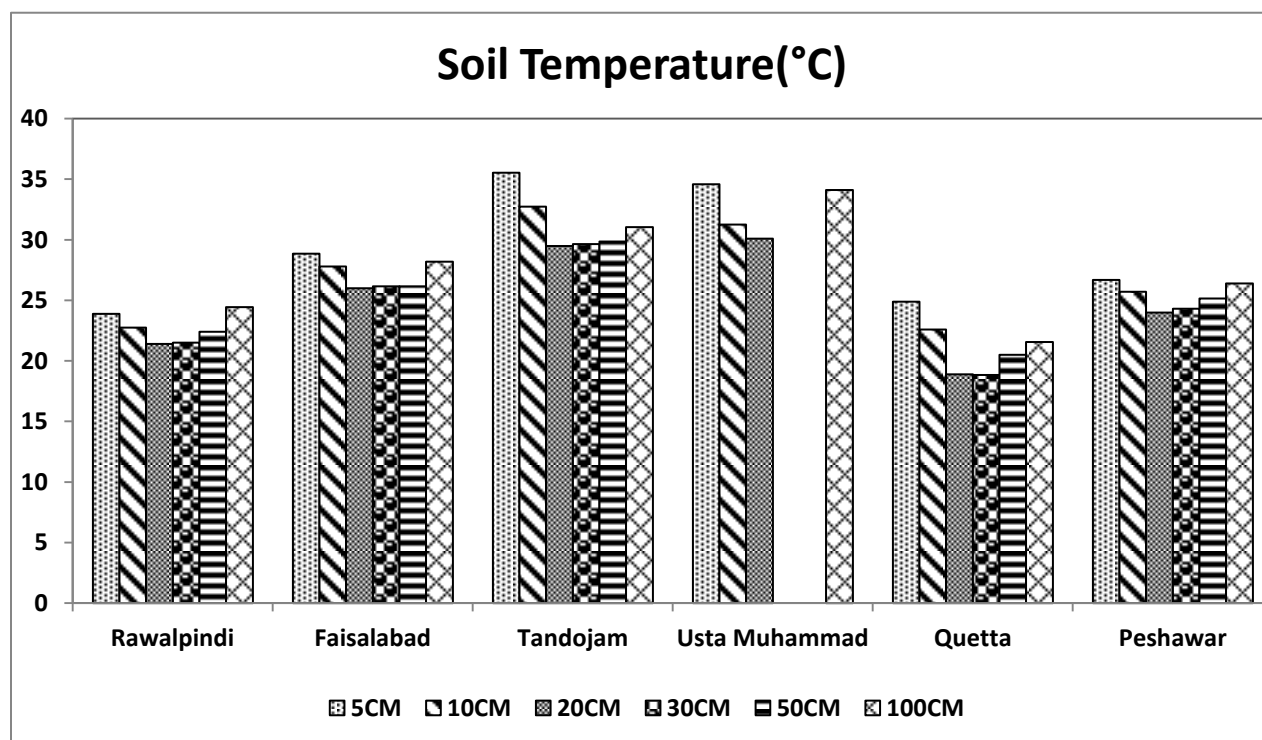
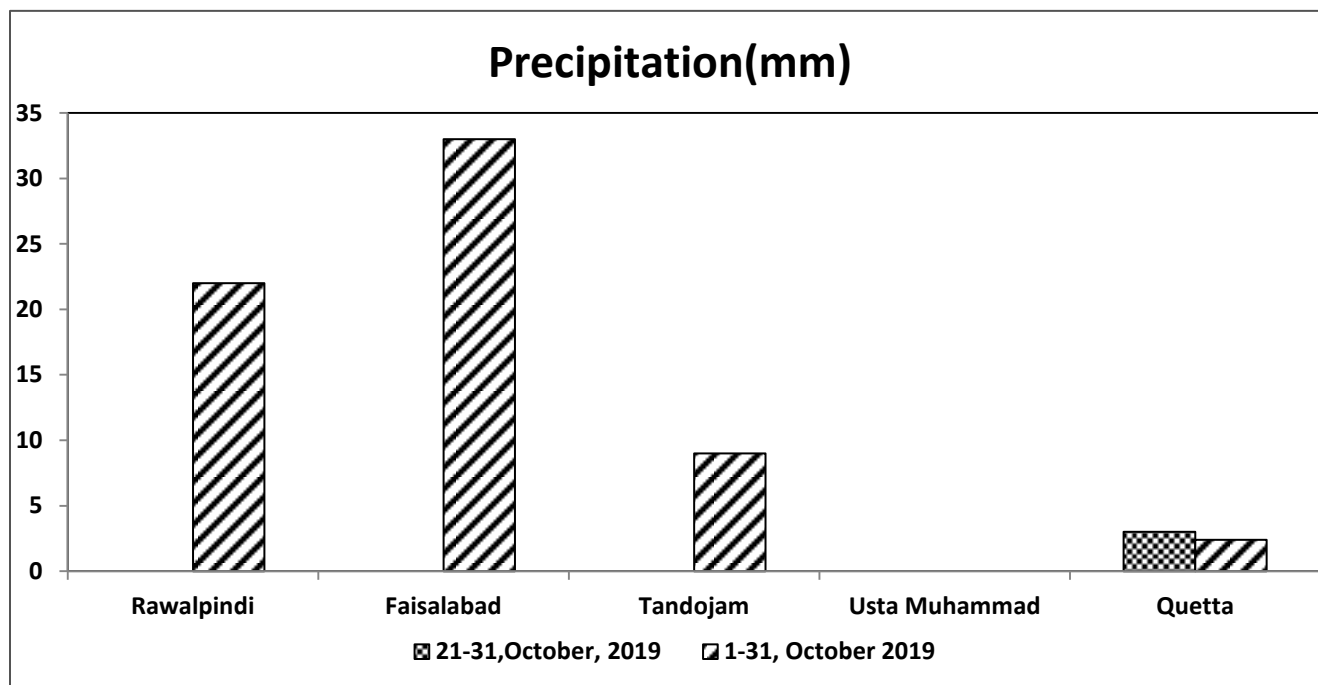
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Meteorological Conditions during 3rd Decade of October, 2019

| 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 | Tmx Dep | Tmin Dep | Mean | 5cm | 10c m | 20c m | 30cm | 50c m | 100cm | | | | |
| 1 | Rawalpindi | 0.3 | 0.0 | -0.3 | 0.3 | 1.9 | 21.9 | 23.9 | 22.8 | 21.4 | 21.5 | 22.4 | 24.5 | 61 | 92.3 | 1.2 | 2.3 |
| 2 | Faisalabad | 0.0 | 0.0 | 0.0 | 0.9 | 1.8 | 24.8 | 28.9 | 27.8 | 26.0 | 26.2 | 26.2 | 28.2 | 58 | 84.0 | 1.2 | 2.6 |
| 3 | Jhelum | 0.3 | 0.0 | -0.3 | 0.0 | 0.6 | 23.9 | 26.0 | 24.9 | 24.1 | 24.0 | 25.2 | *** | 60 | 102.9 | 1.2 | 2.6 |
| 4 | Lahore | 0.1 | 0.0 | -0.1 | 0.5 | 0.8 | 25.1 | 25.0 | 24.9 | 24.5 | 24.3 | *** | 26.9 | 57 | 87.5 | 0.7 | 2.3 |
| 5 | Sargodha | 0.2 | 0.0 | -0.2 | 0.7 | 1.8 | 25.4 | 29.4 | 27.6 | 25.7 | 25.7 | *** | 26.9 | 60 | 83.1 | 2.8 | 3.0 |
| 6 | Multan | 0.0 | 0.0 | 0.0 | -0.4 | 2.5 | 25.8 | *** | *** | *** | *** | *** | *** | 49 | 87.9 | 3.0 | 3.2 |
| 7 | Khanpur | 0.0 | 0.0 | 0.0 | 1.3 | 1.1 | 26.1 | *** | 28.1 | 28.5 | 29.0 | 29.7 | 30.9 | 52 | 98.0 | 1.5 | 3.1 |
| 8 | Tandojam | 0.0 | 0.0 | 0.0 | -0.1 | 1.1 | 27.2 | 35.6 | 32.8 | 29.5 | 29.7 | 29.9 | 31.1 | 57 | 81.7 | 2.3 | 3.5 |
| 9 | Sakrand ☆ | 0.0 | 0.0 | 0.0 | -0.2 | 2.2 | 26.7 | 35.1 | *** | *** | *** | *** | 33.0 | 52 | 93.1 | 3.9 | 4.0 |
| 11 | Rohri ☆ | 0.0 | 0.0 | 0.0 | -12.5 | *** | 19.0 | *** | *** | *** | *** | *** | *** | 50 | 100.8 | 2.5 | 2.8 |
| 12 | D.I Khan | 0.1 | 0.0 | -0.1 | 0.0 | 0.0 | 23.9 | *** | 20.8 | *** | 20.8 | 20.8 | *** | 61 | 88.8 | 4.9 | 3.5 |
| 13 | Peshawar | 0.1 | 0.0 | -0.1 | 1.2 | -1.7 | 21.9 | 26.7 | 25.7 | 24.0 | 24.3 | 25.2 | 26.4 | 56 | 76.0 | 1.0 | 2.1 |
| 14 | Usta M. | 0.0 | 0.0 | 0.0 | 1.8 | -0.7 | 27.1 | 34.6 | 31.3 | 30.1 | *** | *** | 34.1 | 62 | *** | 1.3 | 3.0 |
| 15 | Quetta | 0.0 | 3.0 | 3.0 | -1.0 | 2.2 | 16.3 | 24.9 | 22.6 | 18.9 | 18.9 | 20.5 | 21.6 | 26 | 107.2 | 5.4 | 3.6 |
| 16 | Skardu | 0.0 | 0.0 | 0.0 | -2.0 | 0.7 | 9.5 | *** | *** | *** | *** | *** | *** | 51 | 61.2 | 1.7 | 1.7 |
| 17 | Gilgit | 0.1 | 0.0 | -0.1 | -2.0 | 2.8 | 14.6 | *** | *** | *** | *** | *** | *** | 41 | 59.5 | 1.3 | 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 October, 2019



Past Weather (21st to 31st October, 2019)

Light amount of rainfall reported from Punjab, Khyber Pakhtunkhwa, Gilgit-Baltistan, Azad Jammu & Kashmir, Baluchistan and Sindh during the last decade.

1.1 Punjab

Light amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Rahimyar Khan, Khanpur & Kot Addu. Decadal maximum & minimum both raised above the normal by 0.5°C & 1.5°C respectively in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 57%, 90.8 hrs, 1.7 km/hr and 3.2 mm/day respectively.

1.2 Sindh

Light amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Jacobabad, Mithi & Sukkur. Decadal maximum dropped below the normal by 4.3 & minimum raised above the normal by 1.2°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 95.0 hrs, 4.3 km/hr 4.7 mm/day respectively.

1.3 Khyber Pakhtunkhwa

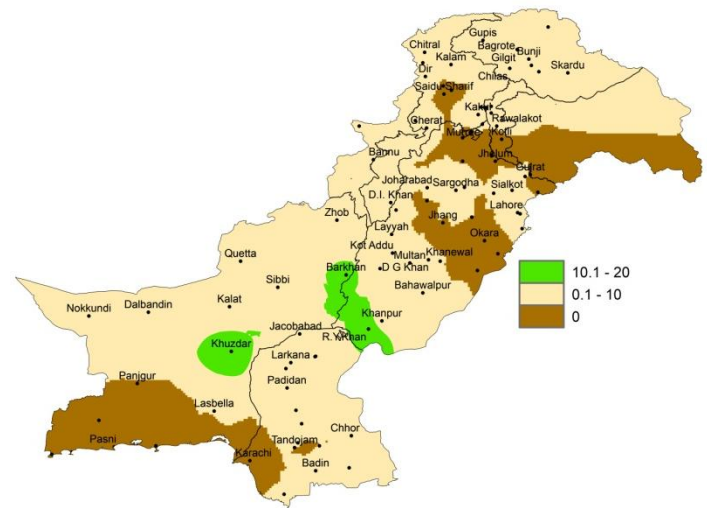
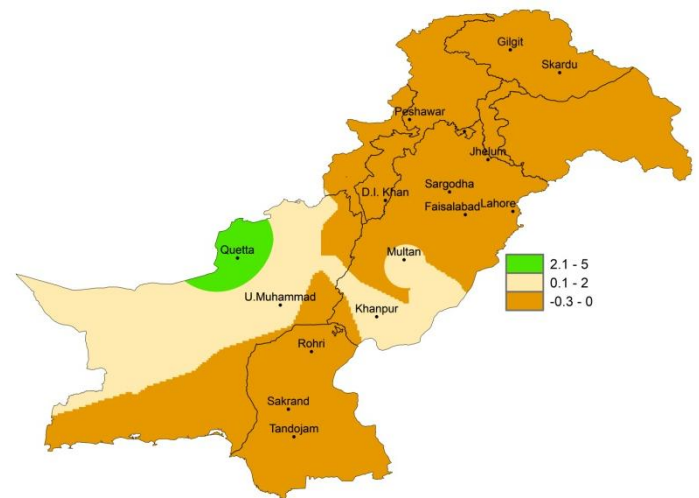
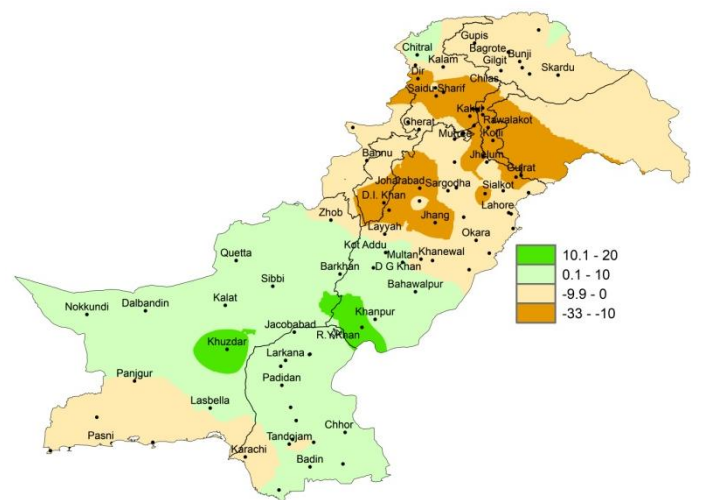
Light amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Chitral, Mir Khani & Drosh. Decadal maximum raised above the normal by 0.6 & minimum dropped below the normal by 0.9°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 59%, 82.4 hrs, 3.0 km/hr and 2.8 mm/day respectively.

1.4 Baluchistan

Light amount of rainfall reported from most of the agricultural plains of the province. Decadal maximum & minimum both raised above the normal by 0.4°C & 0.7°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 44%, 107.2 hrs, 3.4 km/hr and 3.3 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

Light amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Muzaffarabad, Bagrote & Gupis. Decadal maximum dropped below the normal by 2.0°C & minimum raised above the normal by 1.8°C in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 46%, 60.4 hrs, 1.5 km/hr and 1.7 mm/day respective.

**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** (21st to 31st October, 2019))

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

Rainfall reported as 4.0 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 29.0°C while night temperature recorded as 18.2°C with 73.3 hours bright sunshine duration. Wind speed recorded as 0.7 km/hr with mean wind direction *Variable*.

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

Rainfall reported as 11.0 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 55%. Mean day temperature was 32.9°C while night temperature recorded as 19.2°C with 76.0 hours bright sunshine duration. Wind speed recorded as 1.8 km/hr with mean wind direction *South easterly*.

Cotton: *V. Good, Picking Stage.*

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

Dry weather reported during the decade; however weather remained cleared throughout the decade. Average relative humidity recorded as 52%. Mean day temperature was 37.1°C while night temperature recorded as 20.9°C with 65.76 hours bright sunshine duration. Wind speed recorded as 1.4 km/h with mean wind direction *south westerly*.

Cotton (Shahbaz-95): *Harvested on 25-10-2019.*

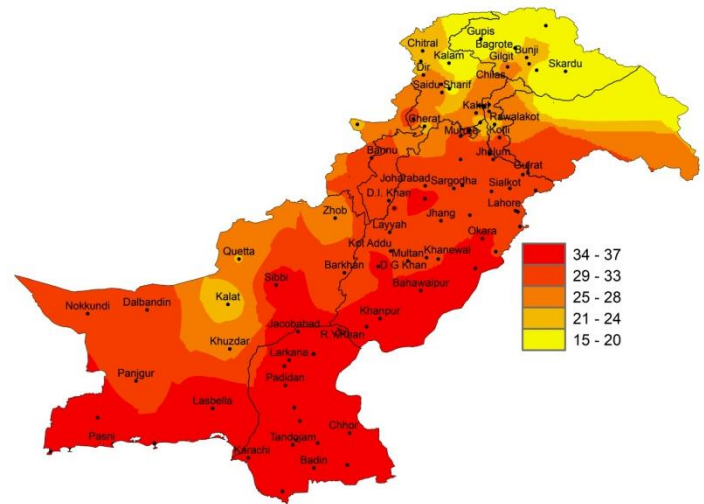
2.4 **RAMC, Usta Muhammad (Eastern Baluchistan)**

Dry weather reported during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 32.9°C while night temperature recorded as 20.9°C & Wind speed recorded as 1.4 km/h with mean wind direction *south easterly*.

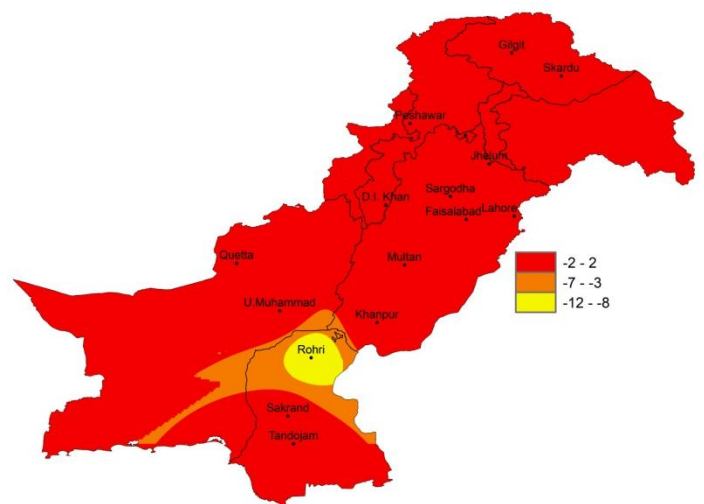
Rice: *Good, Flowering Milk maturity stage.*

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

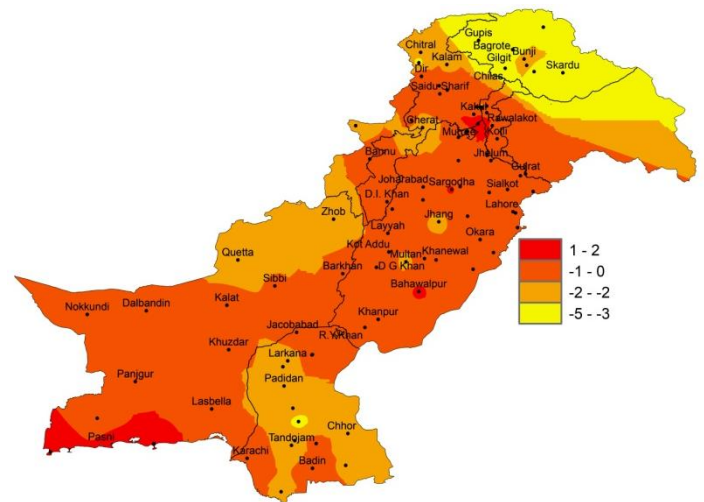
Rainfall reported as 0.2 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 24%. Mean day temperature was 24.7°C while night temperature recorded as 9.7°C with 103.6 hours bright sunshine duration. Wind speed recorded as 5.2 km/hr 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 (21st to 31st October, 2019))**

2.6 Jhelum

Rainfall reported as 2.2 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 62%. Mean day temperature was 31.9°C while night temperature recorded as 19.6°C with 75.1 hours bright sunshine duration. Wind speed recorded as 2.0 km/hr with mean wind direction *south westerly*.

2.7 Lahore

Rainfall reported as 11.2 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 58%. Mean day temperature was 31.7°C while night temperature recorded as 21.4°C with 73.1 hours bright sunshine duration. Wind speed recorded as 1.4 km/hr with mean wind direction *south easterly*.

2.8 Sargodha

Rainfall reported as 4.8 mm during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 32.6°C while night temperature recorded as 20.5°C with 81.1 hours bright sunshine duration. Wind speed recorded 1.2 km/hr with mean wind direction *Variable*.

2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 47%. Mean day temperature was 33.8°C while night temperature recorded as 21.8°C with 91.8 hours bright sunshine duration. Wind speed recorded 3.6 km/hr with mean wind direction *southerly*.

2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 53%. Mean day temperature was 35.4°C while night temperature recorded as 19.6°C with 96.7 hours bright sunshine duration. Wind speed recorded 2.4 km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cleared throughout the decade. Average humidity recorded as 49%. Mean day temperature was 36.3°C while night temperature recorded as 20.5°C with 106.5 hours bright sunshine duration. Wind speed recorded 3.0 km/hr with wind direction *southerly*.

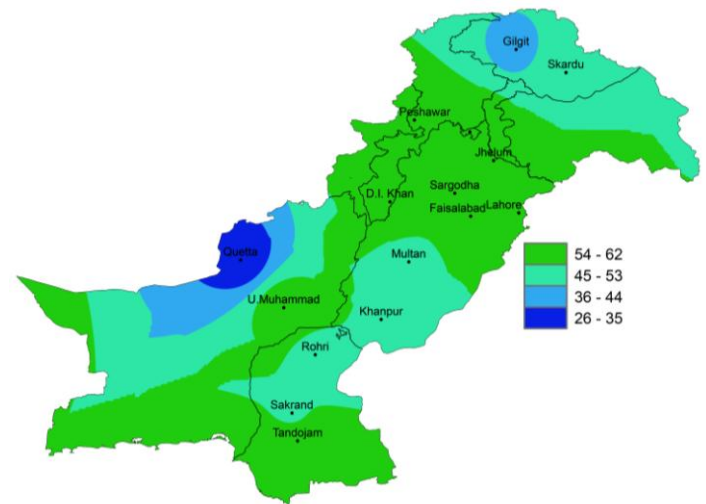


Figure.3: Relative Humidity in Percentage (%)

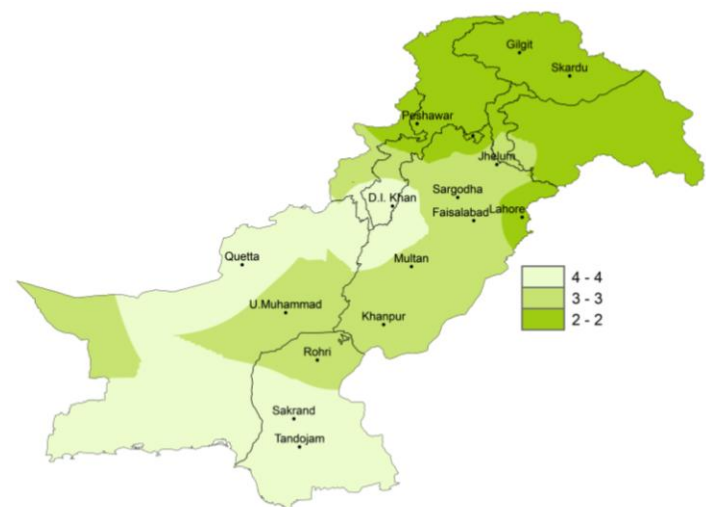


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

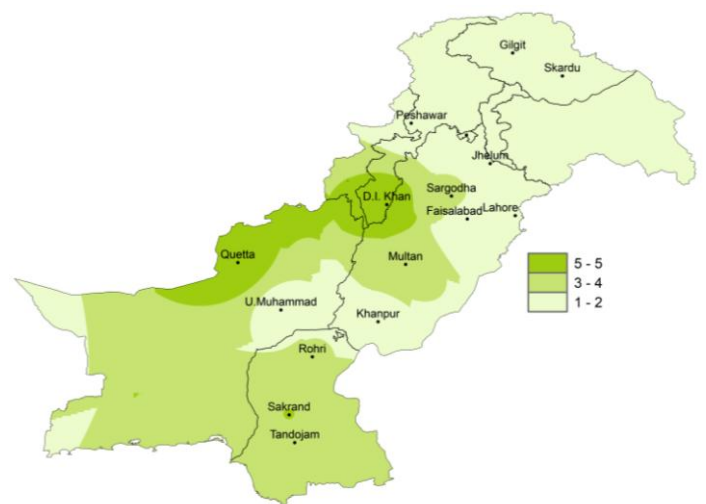


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 10 days during the decade. Average humidity recorded as 46%. Mean day temperature was 35.6°C while night temperature recorded as 20.0°C with 98.4 hours bright sunshine duration. Wind speed recorded 3.0 km/hr with wind direction *south westerly*.

2.13 D.I. Khan

Rainfall reported as 16.0 mm during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 58%. Mean day temperature was 33.1°C while night temperature recorded as 17.9°C with 82.4 hours bright sunshine duration. Wind speed recorded as 7.3 km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported 5.1 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 61%. Mean day temperature was 31.6°C while night temperature recorded as 17.4°C with 70.5 hours bright sunshine duration. Wind speed recorded as 2.1 km/hr with mean wind direction *north westerly*.

2.15 Skardu

Dry weather reported during the decade: however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 52%. Mean day temperature was 20.5°C while night temperature recorded as 3.1°C with 61.6 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction *South easterly*.

2.16 Gilgit

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 49%. Mean day temperature was 23.4°C while night temperature recorded as 4.1°C with 58.7 hours bright sunshine duration. Wind speed recorded as 0.4 km/hr with mean wind direction *South westerly*.

Ten Days Weather Advisory for Farmers (21st to 31st October, 2019))

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 country during the decade.

3.2 Wind Forecast

Generally, normal wind pattern may prevail in most of the agricultural plains of the country.

3.3 Rain Forecast

- ❖ **Punjab:** Mainly dry weather is expected. However, rain/thunderstorm is expected at few places in upper Punjab and Islamabad in the mid of the current decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly dry weather is expected. However, rain/thunderstorm is expected at scattered places in upper parts of the province during the 2nd half of the current decade.
- ❖ **Sindh:** Mainly dry weather is expected in most of the province during the decade.
- ❖ **Baluchistan:** Mainly dry weather is expected in most of the province during the decade. However, rain/thunderstorm is expected at isolated places in northwestern Balochistan (Zhob, Pishin, Quetta) in the mid of the current decade.
- ❖ **Gilgit-Baltistan:** Rain/wind-thunderstorm is expected at isolated places in the province during the 2nd half of the current decade.
- ❖ **Kashmir:** Rain/wind-thunderstorm is expected at isolated places in the province during the 2nd half of the current decade.

3.4 Advisory for Farmers

- ❖ Use proper precautions during picking of cotton because the cost of good and clean quality cotton is high than that of the filthy one.
- ❖ Harvesting of Peanut may be completed and the fields may be well ploughed afterwards.
- ❖ Farmers are advised to schedule the irrigation plans in context of upcoming Rabi crops.
- ❖ Removing weeds from the standing crops is very important as weeds utilize moisture and food which are to be utilized by the crop. As a result considerable loss in yield occurs every year.

Findings of AgMIP Pakistan, 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)