Decadal Agromet Bulletin of Pakistan

Highlights….

- Light to moderate rainfall reported from most parts of Punjab, K.P, G.B, Kashmir and light rainfall reported form few parts of Balochistan and Sindh during the last decade.
- Highest amount of rainfall recorded as 53.0mm at Dir during the last decade.
- Highest maximum temperature recorded as 48.0°C at Dadu during the last decade.
- Light to moderate rain is expected in most parts of the country, while dry weather is expected in southern parts of the country during the current decade.
- Wheat crop is at different maturity stages in of upper half of the country. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- Farmers of southern Punjab and Sindh are advised to prepare land for cotton crops in time so that best grains conditions may be fully utilized during the whole crop life.
- Sowing of Kharif crops should be completed as soon as possible to fully utilize the soil moisture after these rains.
- Dust/sand storm may occur in areas of matured wheat crop; accordingly measures may be taken to preserve the grains and residue after harvesting.
- 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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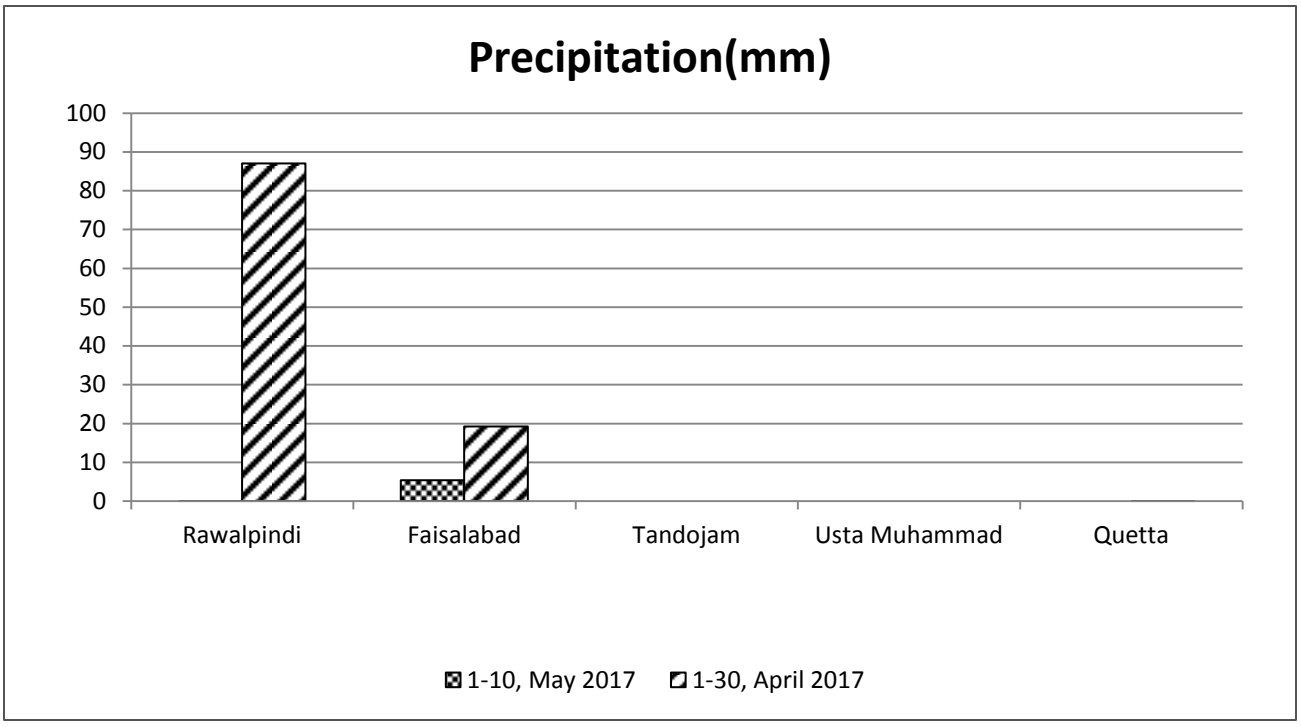
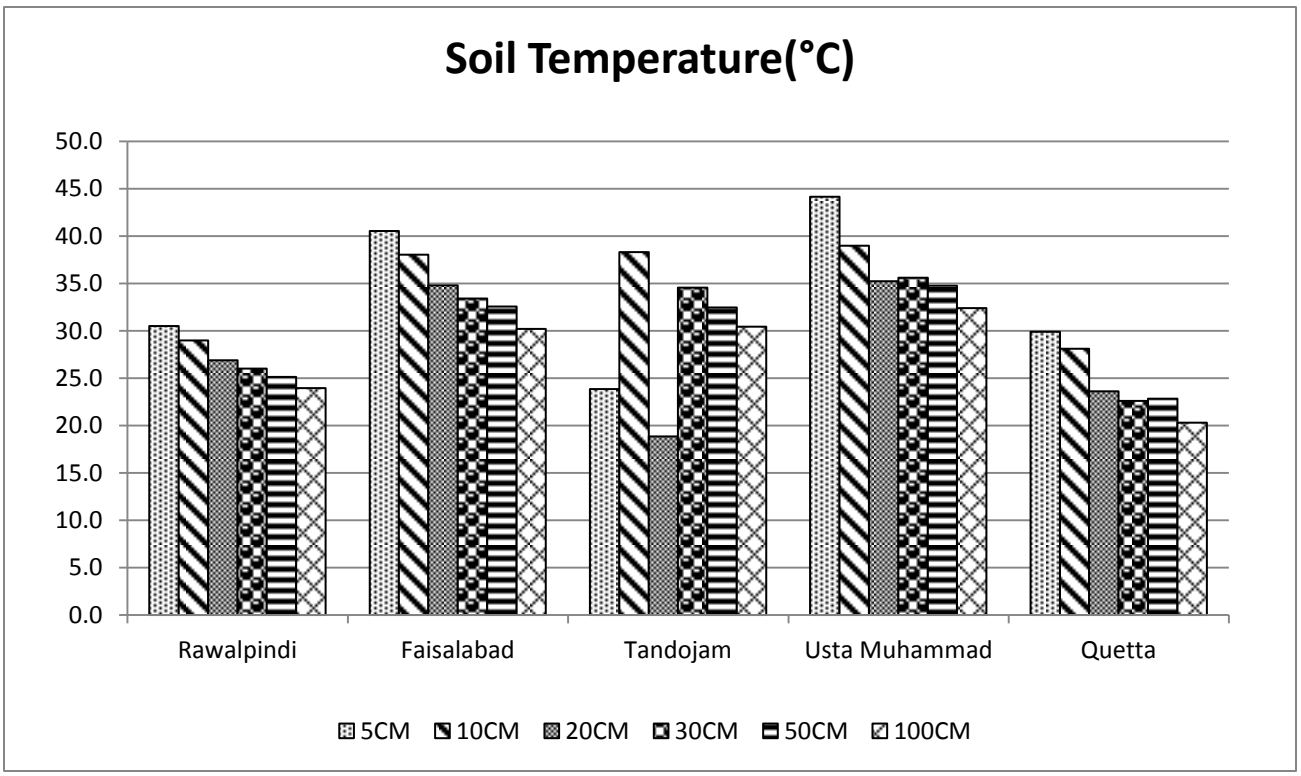
Meteorological Conditions during 1st decade of May, 2017

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	1.0	0.1	-0.9	0.4	1.8	28.6	30.5	29.0	26.9	26.0	25.2	24.0	45	86.6	5.0	5.8
2	Faisalabad	0.7	5.4	4.7	1.1	1.8	32.4	40.6	38.1	34.8	33.4	32.6	30.2	35	91.4	3.4	5.8
3	Jhelum	1.5	0.2	-1.3	1.0	-0.3	30.7	33.8	32.5	29.9	28.2	27.9	***	33	81.8	3.9	5.7
4	Lahore	0.7	0.0	-0.7	1.6	0.4	32.6	36.9	34.5	30.5	29.0	***	26.5	30	80.7	3.3	5.5
5	Sargodha	0.5	12.0	11.5	0.4	2.0	32.6	34.5	34.7	31.3	30.3	***	27.0	37	79.9	5.0	6.2
6	Multan	0.4	0.1	-0.3	-8.9	2.3	29.3	***	***	***	***	***	***	25	84.0	6.0	6.3
7	Khanpur	0.2	0.6	0.4	2.8	2.3	35.1	***	35.7	35.5	35.3	35.0	32.5	30	89.2	4.5	6.6
8	Tandojam	0.0	0.0	0.0	1.3	-1.2	32.5	23.9	38.3	18.9	34.6	32.5	30.5	47	92.3	9.6	8.2
9	Sakrand ☆	0.0	0.1	0.1	0.9	2.2	35.0	51.7	***	***	***	***	32.5	29	104.1	4.8	7.1
11	Rohri	0.0	0.0	0.0	1.3	1.5	36.8	***	***	***	***	***	***	26	90.7	3.4	6.2
12	D.I Khan	0.1	0.1	0.0	2.0	1.5	32.2	***	***	***	***	***	***	38	75.5	14.1	9.3
13	Peshawar	0.9	0.1	-0.8	1.4	-0.4	28.6	35.3	31.0	29.4	25.9	19.2	24.7	43	65.1	2.6	4.5
14	Usta .M	0.1	0.0	-0.1	2.3	-2.4	34.8	44.2	39.0	35.3	35.6	34.8	32.4	25	***	3.5	7.0
15	Quetta	0.3	0.0	-0.3	-0.4	1.3	22.1	29.9	28.1	23.6	22.6	22.9	20.3	20	91.5	5.1	5.5
16	Skardu	1.1	0.0	-1.1	0.1	-0.8	16.0	***	***	***	***	***	***	34	80.9	2.2	3.9
17	Gilgit	0.8	4.4	3.6	-0.7	0.2	20.2	***	***	***	***	***	***	38	89.9	2.9	4.5

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 May, 2017





1. Past Weather (1st to 10th May, 2017)

Light to moderate rainfall reported from most parts of Punjab, K.P, G.B, Kashmir and light rainfall reported form few parts of Balochistan and Sindh during the last decade.

1.1 Punjab

Light to moderate rainfall reported from agricultural plains of Punjab. Chief amount of rainfall received at Sargodha, Murree & Layyah. Decadal maximum dropped below normal by 0.2°C and minimum raised above normal by 1.5°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 34%, 84.8hrs, 4.4km/hr and 6.0mm/day respectively.

1.1 Sindh

Light rainfall reported from few agricultural plains of Sindh. Chief amount of rainfall received at Mithi & Karachi Decadal maximum and minimum both raised above normal by 1.2°C & 0.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 34%, 95.7hrs, 5.9km/hr and 7.2mm/day respectively.

1.2 Khyber Pakhtunkhwa (KP)

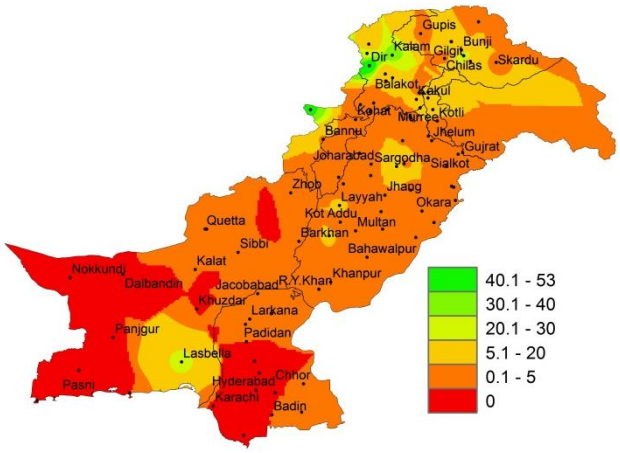
Light to moderate rainfall reported from agricultural plains of KP. Chief amount of rainfall received at Dir, Mirkhani & Parachinar. Decadal maximum & minimum both raised above normal by 1.7°C & 0.6°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 41%, 70.3hrs, 8.4km/hr and 6.9mm/day respectively.

1.3 Balochistan

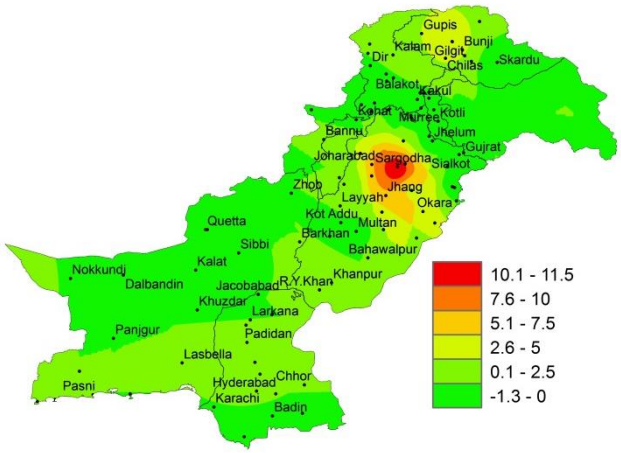
Light rainfall reported at one place of Balochistan i.e Lasbella. Decadal maximum raised above normal by 0.9°C & minimum dropped below normal by 0.6°C, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 23%, 91.5hrs, 4.3km/hr and 6.3mm/day respectively.

1.4 Gilgit-Baltistan and Azad Jammu & Kashmir

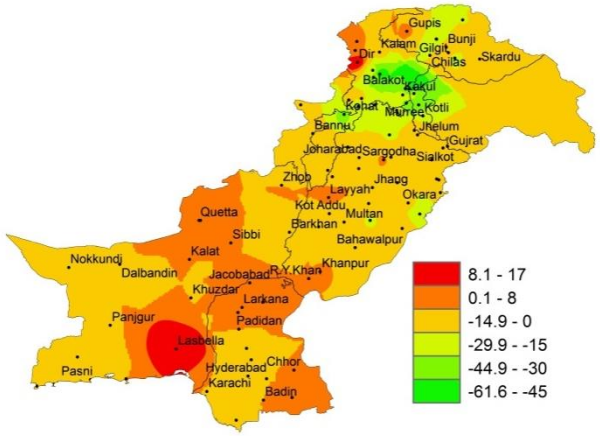
Light to moderate rainfall reported from agricultural plains of GB & Kashmir. Chief amount of rainfall received at Garhi Doppatta, Bagrote & Rawalakot. Decadal maximum & minimum temperature both dropped below normal by 0.3°C & 0.3°C respectively, in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 36%, 85.4hrs, 2.6km/hr and 4.2mm/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 (mm)

2(a) Past Weather for Major Agricultural Plains (1st to 10th May, 2017)

2.1 RAMC, Rawalpindi (Potohar region)

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 08days. Average relative humidity recorded as 45%. Mean day temperature was 35.7°C while night temperature recorded as 21.4°C with 86.6hours bright sunshine duration. Wind speed recorded as 5.0km/hr with mean wind direction *westerly.*

2.2 RAMC, Faisalabad (Central Punjab)

Rainfall reported as 5.4mm during the decade; however weather remained cloudy for 04days. Average relative humidity recorded as 35%. Mean day temperature was 40.0°C while night temperature recorded as 24.7°C with 91.41hours bright sunshine duration. Wind speed recorded as 3.4km/hr with mean wind direction *north westerly.*
Crop Condition: *Field is being prepared for new crops.*

2.3 RAMC, Tandojam (Lower Sindh)

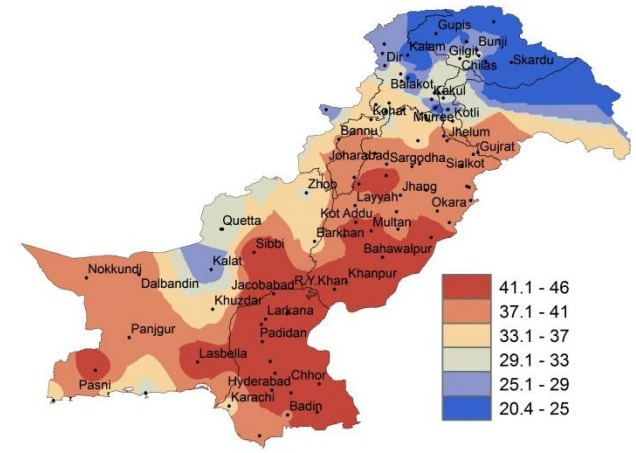
Dry weather reported during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 47%. Mean day temperature was 42.4°C while night temperature recorded as 22.6°C with 92.3hours bright sunshine duration. Wind speed recorded as 9.6km/h with mean wind direction *southerly*.
Cotton: *Good condition, emergence stage.*

2.4 RAMC, Usta Muhammad (Eastern Balochistan)

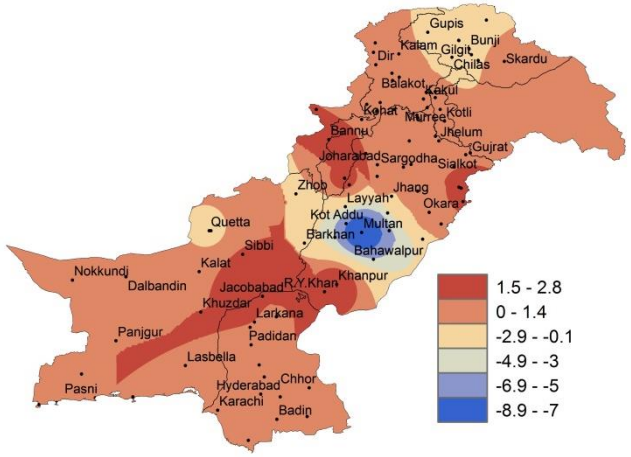
Dry weather reported during the decade; however weather remained cloudy for 03days. Average relative humidity recorded as 25%. Mean day temperature was 46.4°C while night temperature recorded as 23.2°C. Wind speed recorded as 3.5km/h with mean wind direction *south easterly.*
Crop Condition: *Field is being prepared for new crops.*

2.5 RAMC, Quetta (Northern Balochistan)

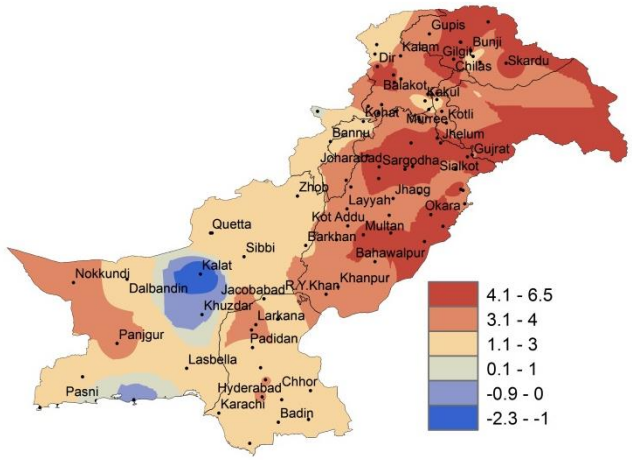
Dry weather reported during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 20%. Mean day temperature was 29.4°C while night temperature recorded as 14.7°C with 91.5hours bright sunshine duration. Wind speed recorded as 5.1km/hr with mean wind direction *north westerly.*
Wheat (Local White): *Good condition, wax maturity stage*



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 May, 2017)

2.6 Jhelum

Rainfall reported as 0.2mm during the decade; however weather remained cloudy for 10days. Average relative humidity recorded as 33%. Mean day temperature was 38.9°C while night temperature recorded as 22.4°C with 81.8hours bright sunshine duration. Wind speed recorded as 3.9km/hr with mean wind direction *north westerly.*

2.7 Lahore

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 30%. Mean day temperature was 39.6°C while night temperature recorded as 25.6°C with 80.7hours bright sunshine duration. Wind speed recorded as 3.3km/hr with mean wind direction *north westerly*.

2.8 Sargodha

Rainfall reported as 12.0mm during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 37%. Mean day temperature was 39.5°C while night temperature recorded as 25.7°C with 79.9hours bright sunshine duration. Wind speed recorded 5.0km/hr with mean wind direction *north easterly.*

2.9 Multan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 25%. Mean day temperature was 31.4°C while night temperature recorded as 27.2°C with 89.8hours bright sunshine duration. Wind speed recorded 6.0km/hr with mean wind direction *north easterly.*

2.10 Khanpur

Rainfall reported as 0.6mm during the decade; however weather remained cloudy for 07days. Average relative humidity recorded as 30%. Mean day temperature was 43.3°C while night temperature recorded as 26.9°C with 84.0hours bright sunshine duration. Wind speed recorded 4.5km/hr with mean wind direction *variable.*

2.11 Sakrand

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy 06days. Average relative humidity recorded as 29%. Mean day temperature was 43.4°C while night temperature recorded as 26.6°C with 104.1hours bright sunshine duration. Wind speed recorded 4.8km/hr with wind direction *variable.*

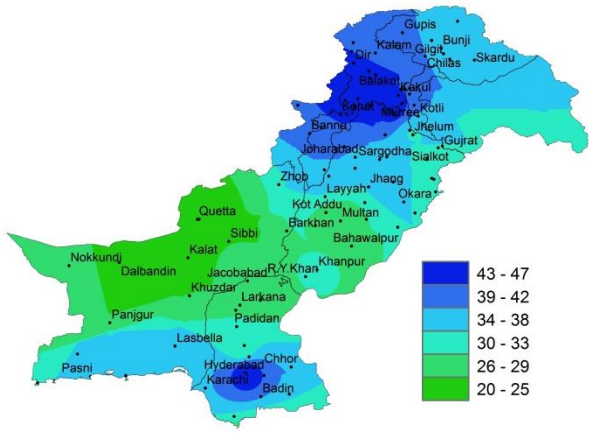


Figure.3: Relative Humidity in Percentage (%)

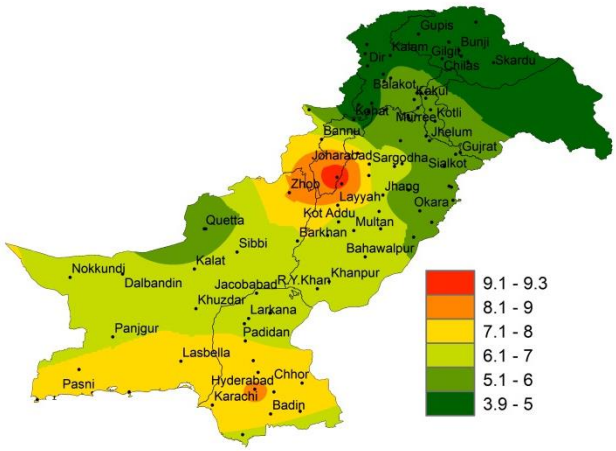


Figure.4: Reference Crop Evapotranspiration ETo(mm/day)

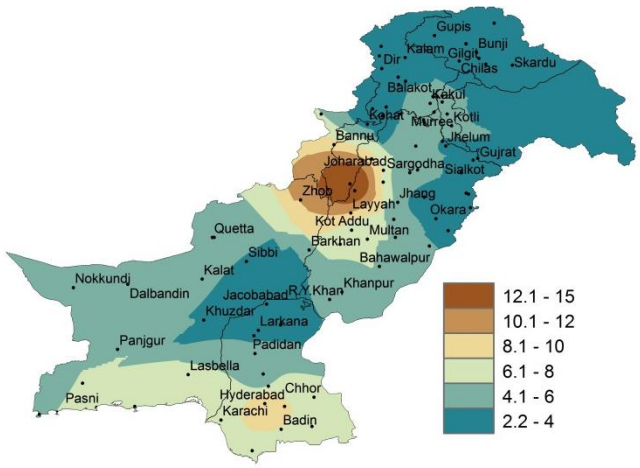


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 26%. Mean day temperature was 44.3°C while night temperature recorded as 29.2°C with 90.7hours bright sunshine duration. Wind speed recorded 3.4km/hr with wind direction *south westerly*.

2.13 D.I. Khan

Rainfall reported as Trace (not measureable) during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 38%. Mean day temperature was 40.4°C while night temperature recorded as 24.0°C with 75.5hours bright sunshine duration. Wind speed recorded 14.1km/hr with wind direction *north easterly*.

2.14 Peshawar

Rainfall reported as Trace (not measurable) during the decade; however weather remained cloudy for 09days. Average relative humidity recorded as 43%. Mean day temperature was 36.2°C while night temperature recorded as 21.0°C with 65.1hours bright sunshine duration. Wind speed recorded as 2.6km/hr with mean wind direction *south westerly*.

2.15 Skardu

Dry weather reported during the decade; however weather remained cloudy for 06days. Average relative humidity recorded as 34%. Mean day temperature was 24.1°C while night temperature recorded as 7.9°C with 80.9hours bright sunshine duration. Wind speed recorded as 2.2km/hr with mean wind direction *easterly*.

2.16 Gilgit

Rainfall reported as 4.4mm during the decade; however weather remained cloudy for 05days. Average relative humidity recorded as 38%. Mean day temperature was 29.1°C while night temperature recorded as 11.2°C with 89.9hours bright sunshine duration. Wind speed recorded as 2.9km/hr with mean wind direction *easterly*.

Ten Days Weather Advisory for Farmers (11th to 20th May, 2017)

3.1 Temperature Forecast

Day temperatures are expected slightly above normal in southern parts, however slightly normal in northern half 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; however dust/sand storms may occur in southern Punjab and upper Sindh.

3.3 Rain Forecast

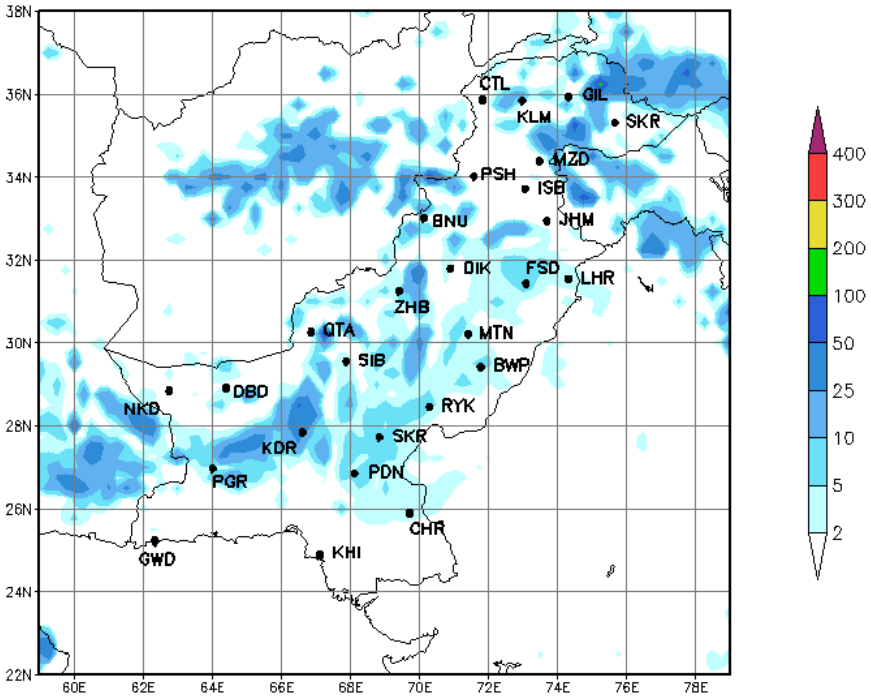
- **Punjab:** Light to moderate rainfall is expected in upper parts of the province.
- **Khyber Pakhtunkhwa:** Light to moderate rainfall is expected at isolated places of the province during the decade.
- **Sindh:** Light rainfall is expected at isolated places of the province during the decade.
- **Balochistan:** Light to moderate rainfall is expected in most parts of the province during the decade.
- **Gilgit Baltistan:** Light to moderate rainfall is expected in most parts of G.B during the decade.
- **Kashmir:** Light to moderate rainfall is expected in most parts of the Kashmir during the decade.

3.4 Advisory for Farmers

- Wheat crop is at different maturity stages in upper half of the country. Farmers are advised to schedule their harvesting by keeping in view the weather forecast.
- Farmers of southern Punjab and Sindh are advised to prepare land for cotton crops in time so that best grains conditions may be fully utilized during the whole crop life.
- Sowing of Kharif crops should be completed as soon as possible to fully utilize the soil moisture after these rains.
- Dust/sand storm may occur in areas of matured wheat crop; accordingly measures may be taken to preserve the grains and residue after harvesting.
- 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.

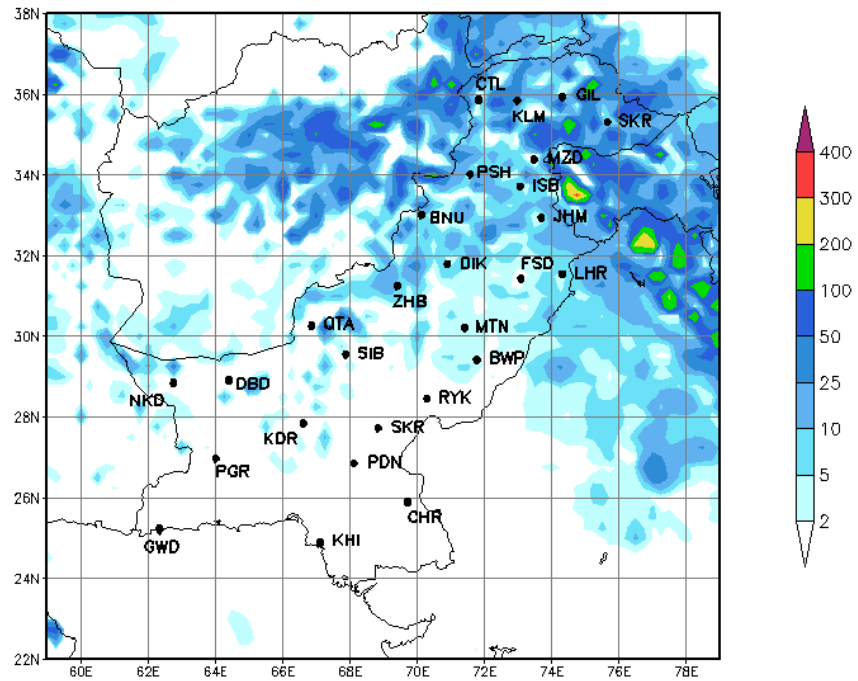
4.1 Precipitation Outlook (11th to 13th May, 2017)

The forecast for the first three days (11th to 13th) of the second decade of May 2017 shows that light to moderate is expected in GB, Kashmir, upper KPK, northern Baluchistan, Sindh and southern Punjab. However dry weather is expected in coastal areas of the country.



4.2 Precipitation Outlook (14th to 20th May, 2017)

The outlook for the last seven days (14th to 20th) of the second decade of May 2017 shows that light to moderate rainfall is expected in few parts of Balochistan and upper parts of the country. While dry weather may prevail in southern parts of the country.



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 ہوسکتا 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 ہوسکتی 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 سدِّ باب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم ونسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)