

Decadal Agromet Bulletin of Pakistan



Highlights....

- ❖ Light to moderate rainfall reported from the agricultural plains of KP, Punjab, Balochistan, Gilgit Baltistan, Kashmir and Sindh during the last decade.
- ❖ Highest amount of rainfall recorded 113 mm at D.I.Khan during the last decade.
- ❖ Lowest minimum temperature recorded -2.4°C at Astore during the last decade.
- ❖ Lower values of relative humidity (less than 45%) reported from Sindh and higher values of ETo reported from the agricultural plains of Sindh and Southern Punjab.
- ❖ Day & night temperatures expected to rise $1-2^{\circ}\text{C}$ in most of the agricultural plains of the country during the next decade.
- ❖ Normal wind pattern may prevail in most parts of the country during the next decade.
- ❖ Light to moderate rainfall is expected in upper parts of KP, Upper Punjab, Gilgit Baltistan, northwest Balochistan & Kashmir region from 22nd to 24th March, whereas isolated chances of light rainfall expected on 27th and 28th March in southern, central parts and upper hilly parts of the country during the decade.
- ❖ Farmers are advised to free the standing crops from excess of weeds.
- ❖ No irrigation is required in the upper half agricultural plains including KP and central/northern Punjab. Whereas farmers of lower half including Southern Punjab, Sindh and Balochistan should harvest the early grown wheat crop, so as to prepare land for coming Kharif crop and save soil moisture.

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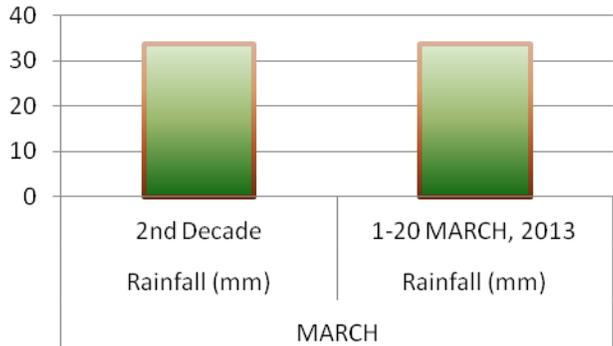
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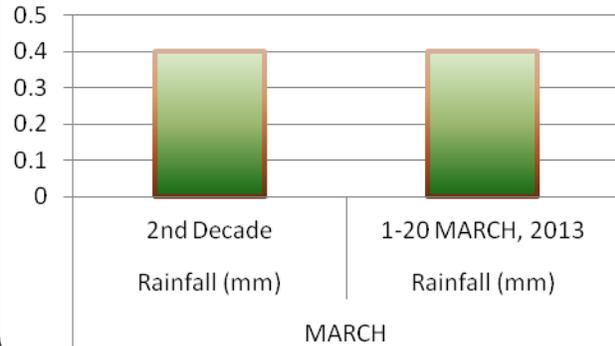
Editor: Zeeshan Javed Hashmi, Assistant Meteorologist, NAMC Islamabad

Graphs for Rainfall (mm) during March 2013

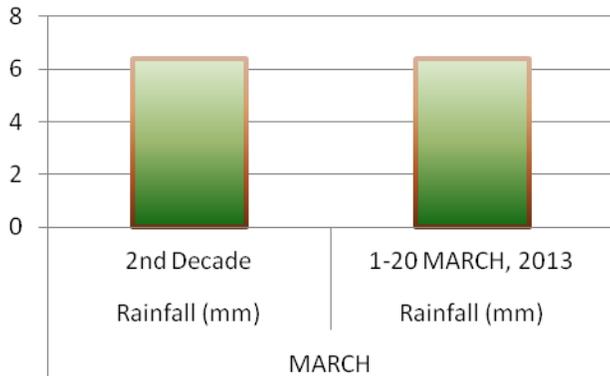
RAMC RAWALPINDI



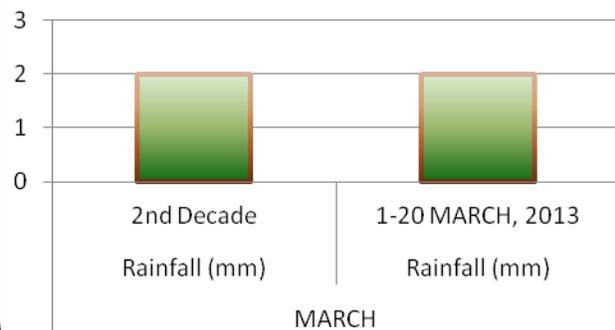
RAMC FAISALABAD



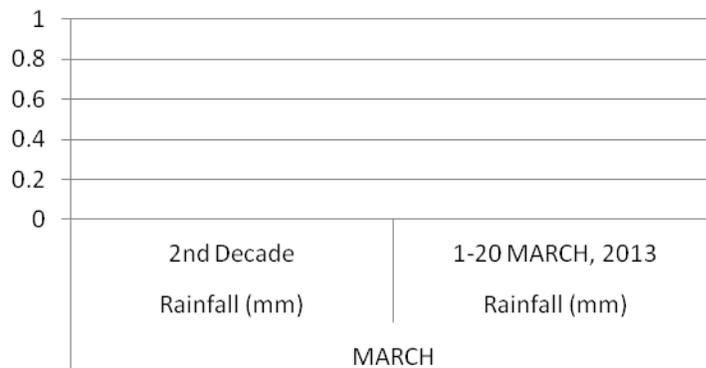
RAMC QUETTA



RAMC USTA MUHAMMAD



RAMC TANDOJAM



Meteorological conditions during 2nddecade of March, 2013

Sr. No.	Station	Precipitation (mm)			Air Temperature (°c)			Soil Temperatures (°c)						Sunshine Duration (hours)	Wind Speed (km/hr)	R.H (%)	ETo (mm/day)
		Normal	Actual	Dep	Tmin Dep	Tmax Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	TANDOJAM	0.9	0.0	-0.9	-0.2	-0.6	25.1	33.6	30.4	27.3	25.2	25.0	23.6	98.1	2.6	47.0	4.2
2	SAKRAND ☆	0.8	0.0	-0.8	-0.1	0.9	23.7	34.9	32.6	35.9	27.8	26.4	24.7	107.1	2.4	42.0	4.0
3	ROHRI	0.0	2.0	2.0	0.4	-1.0	25.4	33.4	30.6	26.4	25.8	24.1	24.9	101.0	6.0	44.0	4.8
4	USTA MUHAMMAD	0.7	2.0	1.3	2.8	-3.3	23.5	28.3	29.7	23.8	24.2	23.2	20.9	***	0.4	62.0	2.8
5	QUETTA	0.6	6.4	5.8	1.0	-2.4	13.3	18.2	16.9	13.3	12.4	11.1	12.5	81.2	5.8	40.0	3.4
6	KHANPUR	0.4	0.0	-0.4	-1.0	-0.3	22.9	25.2	24.4	25.0	24.6	24.8	23.8	94.6	3.6	51.0	3.9
7	MULTAN	0.4	TR	-0.3	-0.8	-1.8	21.8	***	***	***	***	***	***	76.3	5.0	55.0	3.7
8	ORE	0.7	7.4	6.7	-2.2	-0.9	21.6	25.5	24.5	22.0	20.8	***	20.0	77.1	3.1	55.0	3.3
9	FAISALABAD	0.6	0.4	-0.2	-0.8	-1.1	20.8	26.4	24.6	21.9	20.6	20.2	19.6	69.7	4.1	55.0	3.3
10	SARGODHA	1.1	13.0	11.9	-0.3	-2.0	21.4	25.6	23.5	21.1	20.6	20.9	20.2	71.7	3.1	59	3.2
11	JHELUM	1.5	5.8	4.3	0.3	-0.6	21.4	24.3	22.8	20.9	19.8	20.0	***	69.2	3.1	62.0	3.1
12	RAWALPINDI	2.0	33.8	31.8	-4.2	-2.0	16.1	21.6	19.4	17.9	17.7	17.0	16.7	59.7	2.1	61.0	2.5
13	DI KHAN	14.2	1.1	17.2	-0.7	-2.1	20.1	***	***	***	***	***	***	68.0	2.6	61.0	3.0
14	PESHAWAR	1.4	6.7	5.3	-1.2	-2.4	18.6	22.0	19.6	18.7	18.4	18.0	17.6	49.2	1.8	66.0	2.3
15	SKARDU	0.8	TR	-0.7	2.6	0.4	9.4	***	***	***	***	***	***	34.9	3.1	39.0	2.1
16	GILGIT	0.4	0.6	0.2	1.2	-0.4	13.6	***	***	***	***	***	***	29.1	3.3	53.0	2.3

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 years climatic (normal) data for computing departures.

Past Weather (10th to 20th March, 2013):

Light to moderate rainfall reported from the agricultural plains of Punjab, KP, Balochistan, Gilgit Baltistan & Kashmir, while light rainfall reported from agricultural plains of Sindh.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of Punjab. Chief amount received at Mianwali, Murree and Islamabad, Decadal maximum temperature and minimum temperature both dropped below normal by 1.2°C & 1.3°C respectively in the province. Mean values of wind speed, relative humidity and ETo were recorded as 3.2 km/hr, 57%, and 3.3 mm/day respectively (Fig 3-4).

1.2 Sindh

Light rainfall reported from few agricultural plains of Sindh; Decadal maximum temperature dropped below normal by 2.9°C & decadal minimum temperature raised above normal by 1.9°C, in the province. Mean values of wind speed, relative humidity and ETo were recorded as 3.7 km/hr, 44%, and 4.3 mm/day respectively.

1.3 Khyber Pakhtoonkhawa (KP)

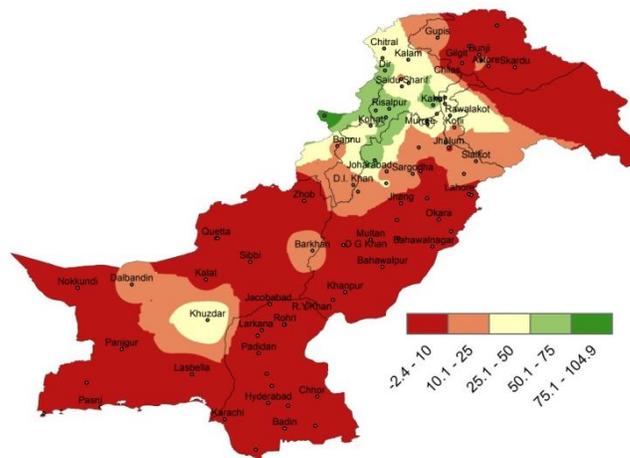
Light to moderate rainfall reported most of places in the agricultural plains of KP; chief amount received at D.I.K, Raisalpur, Parachinar etc. In KP region; Decadal maximum & minimum temperature both dropped below normal by 2.3°C & 1.0°C respectively, in the province. Mean values of wind speed, relative humidity and ETo were recorded as 2.2 km/hr, 64%, and 2.7 mm/day respectively.

1.4 Balochistan

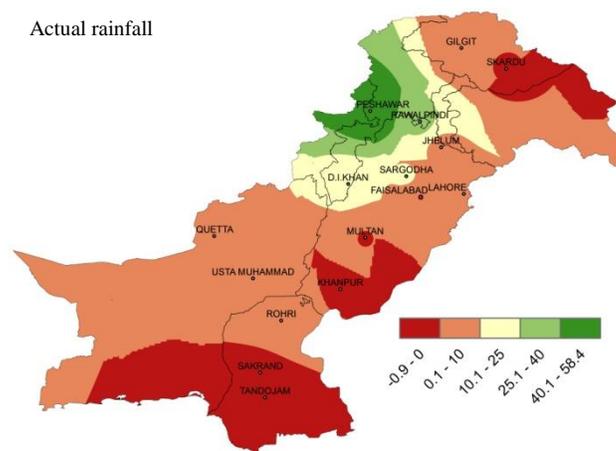
Light to moderate rainfall reported most of places in the agricultural plains of Balochistan; Decadal maximum temperature dropped below normal by 2.9°C & minimum temperature raised above normal by 1.9°C respectively, in the province. Whereas mean values of wind speed, relative humidity and ETo were 3.1 km/hr, 51%, and 3.1 mm/day respectively.

1.5 Gilgit Baltistan and Azad Jammu & Kashmir

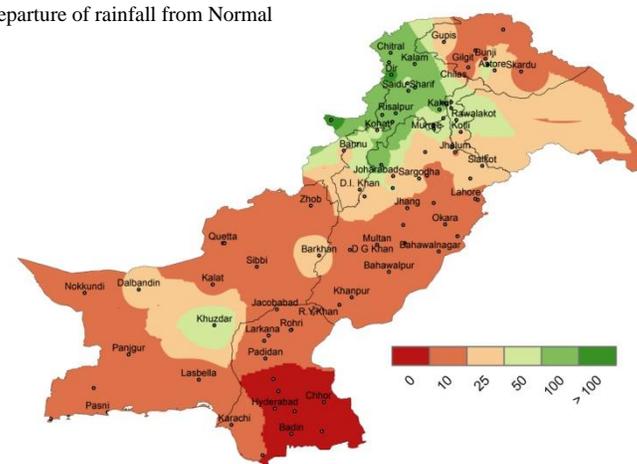
Light to moderate rainfall reported at a number of places in agricultural plains of GB & Kashmir; chief amount received at, Muzaffarabad, Rawalakot, Garhi doppta, etc. In GB & AJK region; Decadal maximum temperature remained normal & Decadal minimum temperature raised above normal by 1.9°C in the province. Whereas mean values of wind speed, relative humidity and ETo were recorded 3.2 km/hr, 46%, and 2.2 mm/day respectively.



a) Actual rainfall



Departure of rainfall from Normal



b) Departure of rainfall from Previous Decade

Figure.1: Rainfall distribution during previous decade in “mm”

2 (a) **Past Weather for Major Agricultural Plains (10th to 20th March, 2013): as per Table-1**

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

Rainfall reported as 33.8mm during the decade, weather remained cloudy for 7 days, average relative humidity recorded as 61%. Mean night temperature was 7.1°C while day temperature recorded as 25.1°C with 59.7 hours bright sunshine duration. Wind speed recorded as 2.1 Km/hr with mean direction *westerly*. Presently one crop is grown at the station.

Wheat Chakwal 97: Good condition, Shooting stage.

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

Rainfall reported as 0.4 mm during the decade, weather remained cloudy for 9 days, average relative humidity recorded as 55%. Mean night temperature was 13.3°C while day temperature recorded as 28.3°C with 69.7 hours bright sunshine duration. Wind speed recorded as 4.1 Km/hr with mean direction *south westerly*.

Sugarcane: Very Good condition, Tillering stage.
Wheat: Very Good condition, Flowering stage.

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

No rainfall reported during the decade, weather remained cloudy for 5 day during the decade, average relative humidity recorded as 47%. Mean night temperature was 15.8°C while day temperature recorded as 34.3°C with 98.1 hours bright sunshine duration. Wind speed recorded as 2.6 km/hr with mean direction *north easterly*.

Wheat (TJ 83): The crop has been harvested on 20-03-2013.

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

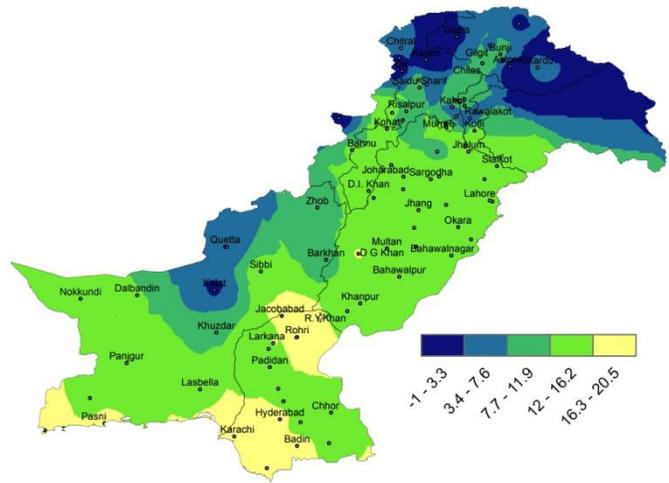
Rainfall reported as 6.4 mm during the decade, weather remained cloudy for 10 days, average relative humidity recorded as 40%. Mean night temperature was 7.2°C while day temperature recorded as 19.4°C with 81.2 hours bright sunshine duration and wind speed recorded as 5.8 Km/hr with mean direction *southerly*.

Wheat (Local white): Good condition, Shooting stage.

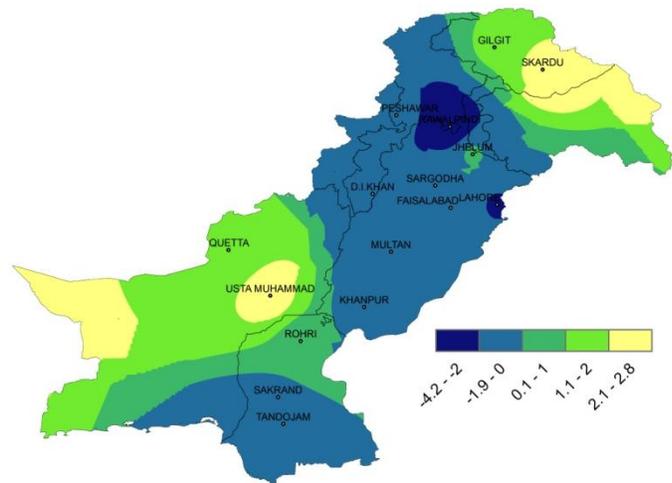
2.5 **RAMC, Usta Muhammad (Eastern Balochistan)**

Rainfall reported as 2.0 mm during the decade, weather remained cloudy for 3 days, average relative humidity recorded as 62%. Mean night temperature was 18.6°C while day temperature recorded as 28.4°C with wind speed recorded as 0.4 Km/hr with mean direction *easterly*.

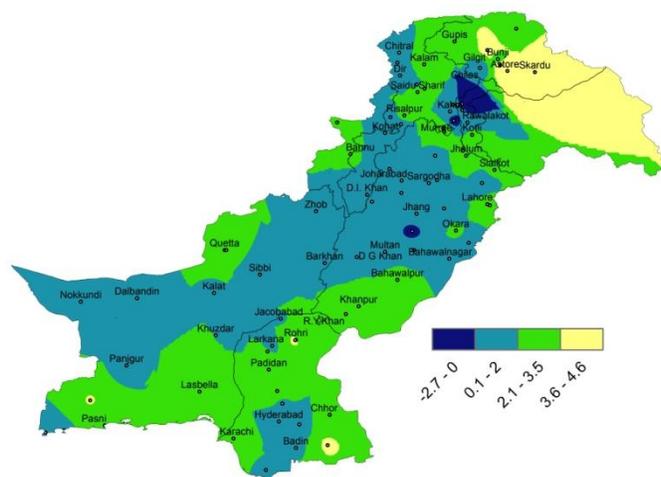
Wheat: Good condition, Heading stage.



(a) Actual min-temp



(b) Departure of min-temp from Normal



(c) Departure of min-temp from Previous Decade

Figure.2: Minimum Temperature distribution during previousdecade in “°C”

2(b) Past Weather for sub regional Agricultural Plains (10th to 20th March, 2013):

2.6 Jhelum

Rainfall reported as 5.8 mm during the decade, weather remained cloudy for 10 days and average relative humidity recorded as 62%. Mean night temperature was 14.3°C while day temperature recorded as 28.4°C with 69.2 hours bright sunshine duration. Wind speed recorded as 3.1 Km/hr with mean direction *north westerly*.

2.7 Lahore

Rainfall reported as 7.4 mm during the decade, weather remained cloudy for 5 days, average relative humidity recorded as 55%. Mean night temperature was 15.3°C while day temperature recorded as 27.9°C with 77.1 hours bright sunshine duration. Wind speed recorded as 3.1 Km/hr with mean direction *north westerly*.

2.8 Sargodha

Rainfall reported as 13.0 mm during the decade, weather remained cloudy for 10 days during the decade, average relative humidity recorded as 59%. Mean night temperature was 14.8°C while day temperature recorded as 28.0°C with 71.7 hours bright sunshine duration. Wind speed recorded as 3.1 Km/hr with mean direction *north easterly*.

2.9 Multan

Rainfall reported as Trace(non measureable) during the decade, weather remained cloudy for 10 days, average relative humidity recorded as 55%. Mean night temperature was 14.7°C while day temperature recorded as 28.9°C with 76.3 hours bright sunshine duration. Mean wind direction *southerly*.

2.10 Khanpur

No rainfall reported during the decade, weather remained cloudy for 5 days during the decade, average relative humidity recorded as 51%. Mean night temperature was 14.5°C while day temperature recorded as 31.2°C with 94.6 hours bright sunshine duration. Wind speed recorded as 3.6 Km/hr with mean direction *westerly*.

2.11 Rohri

Rainfall reported as 2.0 mm during the decade, weather remained cloudy for 7 days, average relative humidity recorded as 44%. Mean night temperature was 18.7°C while day temperature recorded as 32.0°C with 101.0 hours bright sunshine duration. Wind speed recorded as 6.0 Km/hr with mean direction *north easterly*.

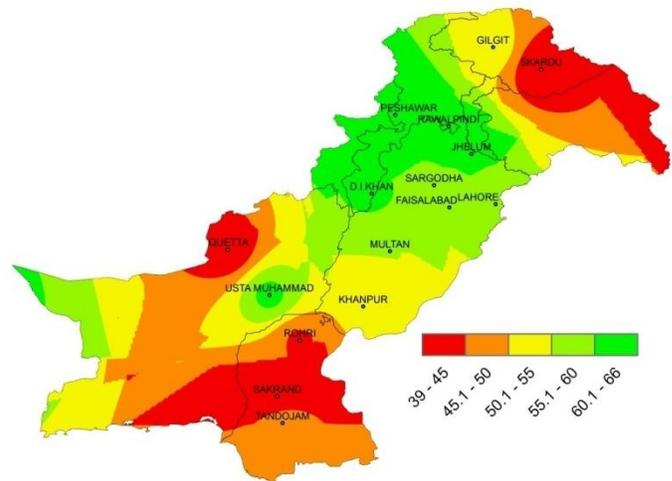


Figure.3: Relative Humidity in percentage

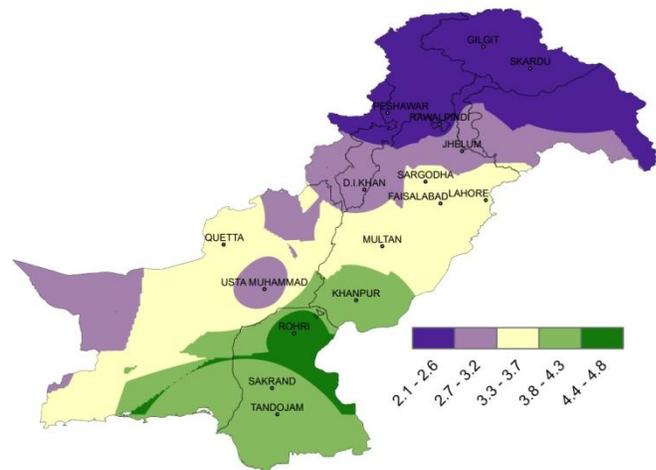


Figure.4: Reference Crop Evapotranspiration “ET₀” in mm/day

2.12 Sakrand

No rainfall reported during the decade, weather remained cloudy for 2 days during the decade, average relative humidity recorded as 42%. Mean night temperature was 13.9°C while day temperature recorded as 33.5°C with 107.1 hours bright sunshine duration. Wind speed recorded as 2.4 Km/hr with mean direction *north westerly*.

2.13 Peshawar

Rainfall reported as 60.6 mm during the decade, weather remained cloudy for 10 days, average relative humidity recorded as 66%. Mean night temperature was 12.6°C while day temperature recorded as 24.6°C with 49.2 hours bright sunshine duration. Wind speed recorded as 1.8 Km/hr with mean direction *south westerly*.

2.14 D.I. Khan

Rainfall reported as 17.2 mm during the decade, weather remained cloudy for 9 days, average relative humidity recorded as 61%. Mean night temperature was 13.5°C while day temperature recorded as 26.6°C with 68.0 hours bright sunshine duration. Wind speed recorded as 2.6 Km/hr with mean direction *easterly*.

2.15 Gilgit

Rainfall reported as 0.6 mm during the decade. weather remained cloudy for 10 days and average relative humidity recorded as 53%. Mean night temperature was 7.0°C while day temperature recorded as 20.1°C with 29.1 hours bright sunshine. Wind speed recorded as 3.3 Km/hr with variable direction.

2.16 Skardu

Rainfall reported Trace(non measureable) during the decade, weather remained cloudy for 8 days, average relative humidity recorded as 39%. Mean night temperature was - 3.8°C while day temperature recorded as 14.9°C with 34.9 hours bright sunshine duration with mean speed 3.1 Km/hr and mean direction *south easterly*.

3. Ten days Weather advisory for Farmers (21st to 31st March, 2013)

3.1 Temperature Forecast:

Day & night temperatures expected to rise 1-2°C in most of the agricultural plains of the country during the decade.

3.2 Rain Forecast:

❖ **Punjab:**

Rainfall/ Thunderstorm is expected in upper parts of the province from 22nd March to 24th March and 27th to 28th March.

❖ **Khyber Pakhtoonkhawa:**

Rainfall/ Thunderstorm is expected in the province from 22nd to 24th and on hilly areas on 27th to 28th March.

❖ **Sindh :**

Mainly dry weather is expected in most parts of the province during the decade. Whereas light to moderate rainfall is expected from 23th to 24th in northwest Balochistan during the decade.

❖ **Balochistan:**

Light Rainfall/ Thunderstorm is expected at isolated places in eastern parts of the province from 22nd March to 27th March

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❖ **Gilgit-Baltistan & Kashmir:**

Rainfall/ Thunderstorm is expected on 22nd to 24th March and 27th to 28th March .

3.3 Wind Forecast:

Normal wind pattern may prevail in most of the agricultural plains of the country during the decade.

3.4 Advisory for Farmers:

- ❖ Farmers are advised to free the standing crops from excess of weeds.
- ❖ No irrigation is required in the upper half agricultural plains including KP and central/northern Punjab. Whereas farmers of lower half including Southern Punjab, Sindh and Balochistan should early complete harvesting/threshing of full matured crops so that in time cultivation of coming Kharif crops should be done.
- ❖ Cotton is mostly cultivated in agricultural plains of central/south Punjab and Sindh. Keeping crop water requirement and day time maximum temperature constraints for germination/emergence and early growth of cotton plant and present weather conditions under consideration, sowing of early growing varieties of cotton should be completed in April and late varieties up to 15th May in Sindh. In Punjab early sowing should be completed up to end of April and late varieties up to end of May.
- ❖ It is observed that pest attack especially fungust attack on roots are maximum on the late sowing crop.
- ❖ For best growth of cotton plant optimum temperature should be in range of 18 to 30°C during germination with minimum of 14°C and maximum 40°C, 20 to 30°C during early vegetative growth and 20-40°C at day time and 12-27°C at night from budding to flowering stages. Whereas optimum temperature during boll formation and maturity stages is 27-32°C. Temperature above 38°C during this stage reduce yield. The above temperature range is best possible only if the crop variety is sown given time.