23 September 2022

Extended Range Prediction for Bhutan

Background

Extended Range Prediction (ERP) for Bhutan is prepared with the support from the Indian Meteorological Department (IMD), Government of India. The model used for the system is CFSv2 coupled model (Atmospheric and Ocean model) which runs once every week (Wednesday), with the 16 Ensemble Members at the horizontal resolution of around 25 km, and the products are made available the next day (Thursday). Therefore, the ERP products for Bhutan will be generated every Friday. ERP for Bhutan is carried out for two climate variables, rainfall and temperature.

Generally, the forecast output is produced on a weekly basis for a period of a month for both the variables. The current products available from NCHM are on pilot basis which needs further studies and validation with the ground observations until the product is fully operationalized.

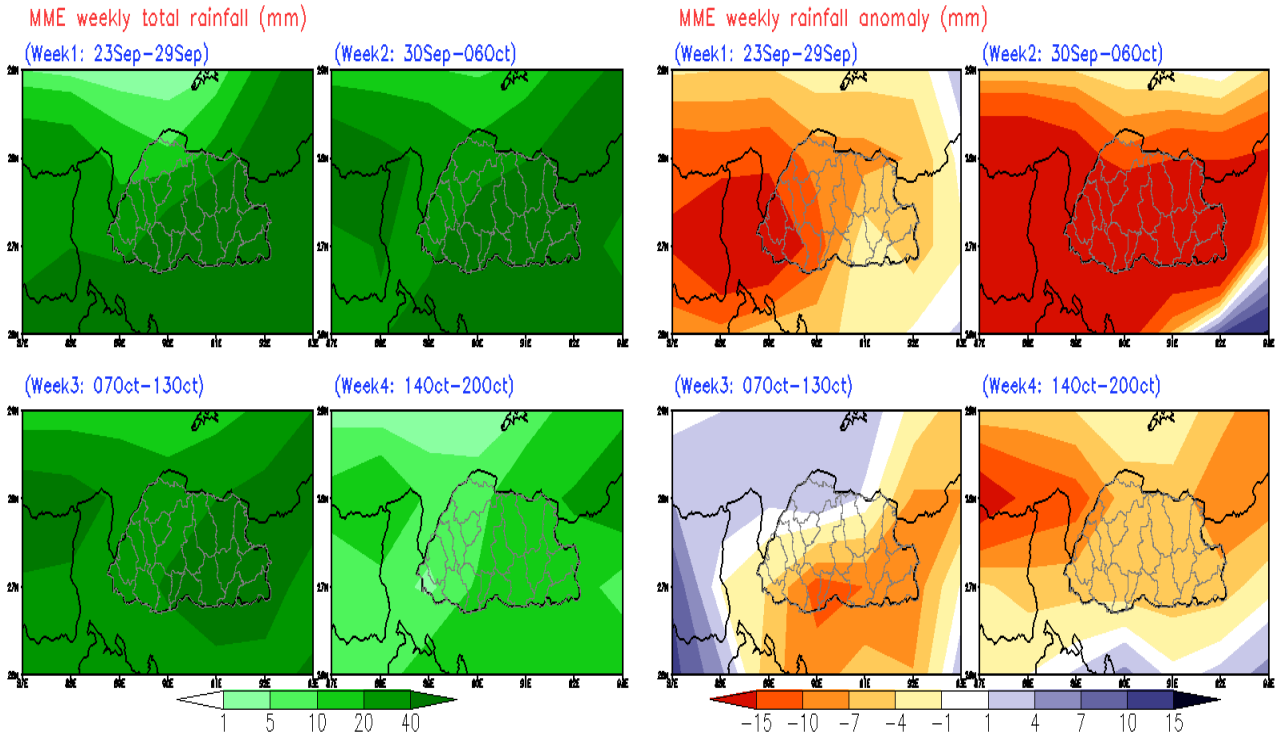
Observed weather over last week

Most of the stations across the country showed an increase in maximum temperature and decrease in minimum temperature for the last week. Moderate to extremely heavy rain was observed over the isolated parts of the southern region and light to moderate rain was observed over the remaining region. The table below shows the observed rain and temperature data from the regional meteorological stations during last week.

Station	Parameter	15 Sept	16 Sept	17 Sept	18 Sept	19 Sept	20 Sept	21 Sept
Babesa	Tmax (°C)	22.0	24.5	25.0	25.5	27.0	28.0	27.5
	Tmin (°C)	13.5	13.5	14.0	13.5	13.5	12.0	13.0
	Rain (mm)	9.4	0.0	0.0	0.2	0.0	4.2	0.0
Dagana	Tmax (°C)	26.5	26.5	26.0	28.0	28.5	29.0	28.0
	Tmin (°C)	17.0	18.5	18.5	18.0	18.5	18.0	18.0
	Rain (mm)	1.8	11.4	0.0	0.0	0.0	0.0	0.4
Chamkhar	Tmax (°C)	21.0	22.0	22.0	23.0	23.5	24.0	22.5
	Tmin (°C)	13.5	14.0	13.5	13.5	14.5	13.0	13.0
	Rain (mm)	3.3	0.1	1.2	4.1	0.0	0.0	0.0
Deothang	Tmax (°C)	27.0	26.5	26.0	29.5	29.0	30.0	27.0
	Tmin (°C)	21.0	21.0	21.5	20.5	21.0	22.0	21.5
	Rain (mm)	0.2	4.6	1.3	0.0	0.0	0.0	13.4
Gasa	Tmax (°C)	21.0	22.0	17.0	22.0	20.0	22.0	22.0
	Tmin (°C)	10.0	9.0	11.5	11.0	10.0	12.0	8.5
	Rain (mm)	4.8	34.0	8.2	2.4	15.6	0.0	0.0

Weekly forecast for Bhutan

1. Rainfall Prediction



Week 1 (23 September - 29 September), Week 2 (30 September - 06 October), Week 3 (07 October - 13 October) and Week 4 (14 October - 20 October)

Below normal rainfall is expected throughout the region.

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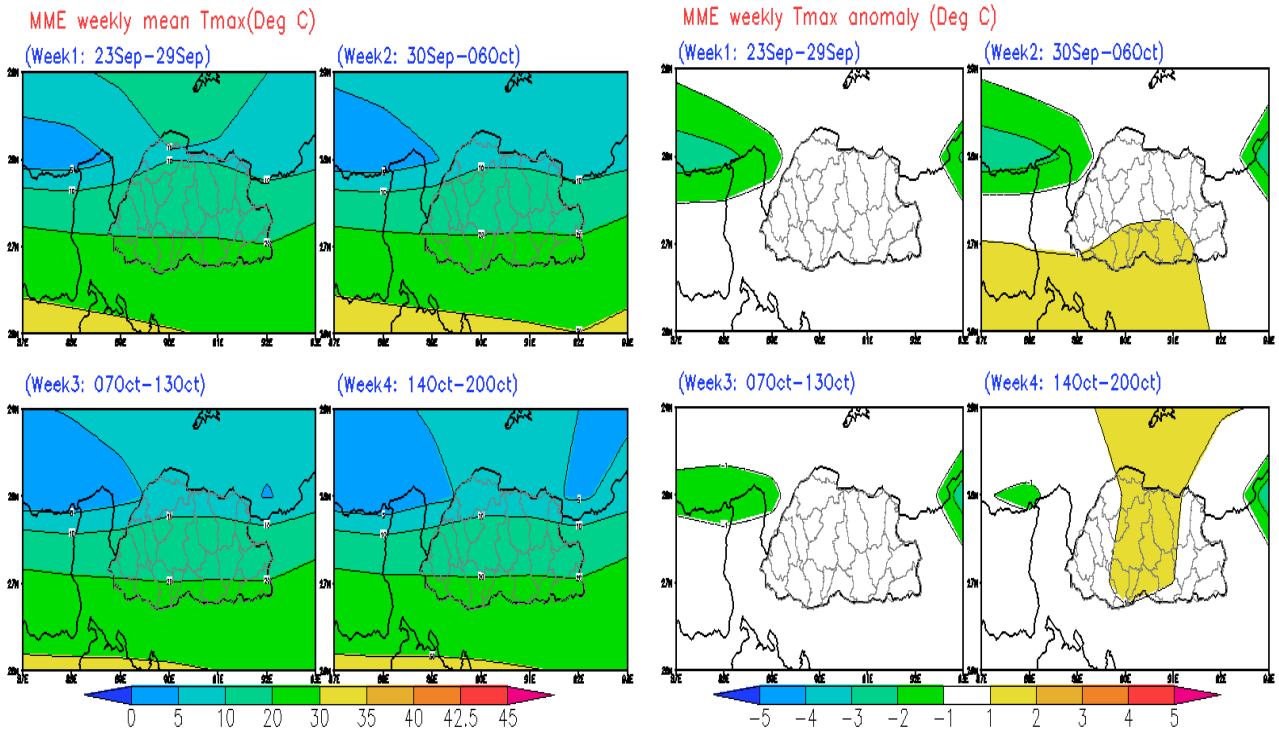
2. Maximum Temperature Prediction



Week 1 (23 September - 29 September)

Normal maximum temperature is expected across the country.

Week 2 (30 September - 06 October)

Above normal maximum temperature is expected across the southern region while the rest of the region can experience normal maximum temperature.

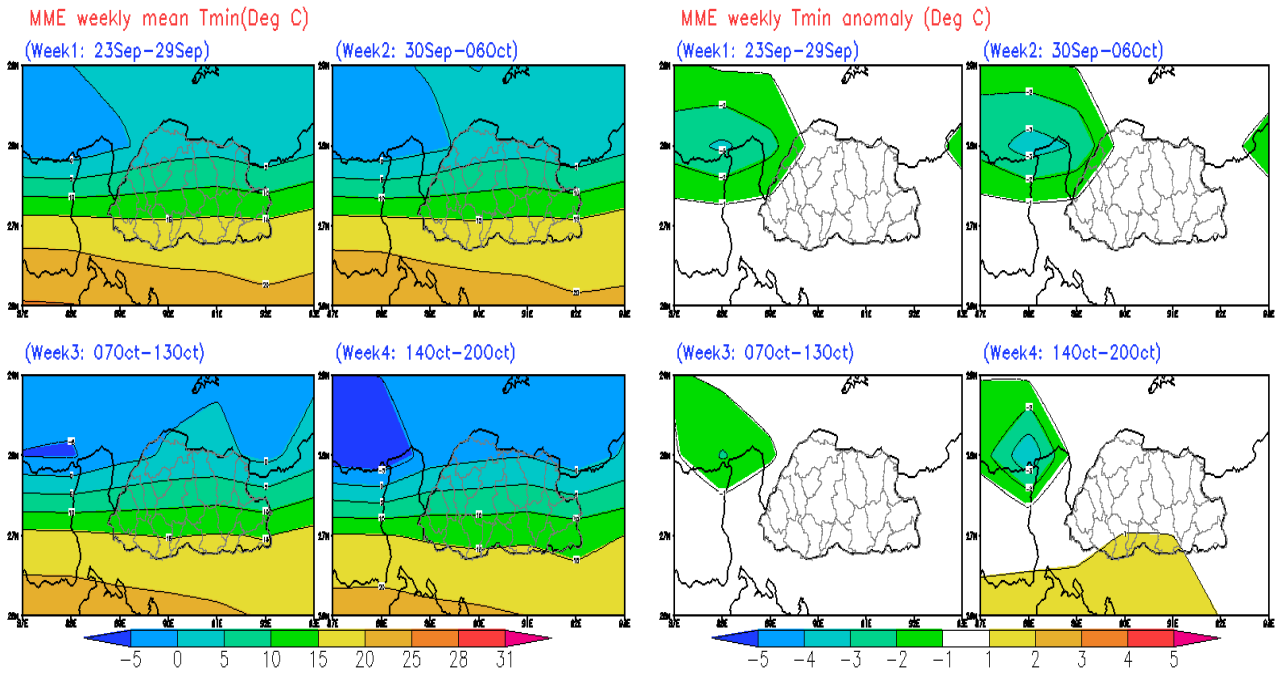
Week 3 (07 October - 13 October)

Normal maximum temperature is expected across the country.

Week 4 (14 October - 20 October)

Normal maximum temperature is expected across the western and eastern region however, the remaining region can expect above normal maximum temperature.

3. Minimum Temperature Prediction



Week 1 (23 September - 29 September), Week 2 (30 September - 06 October), Week 3 (07 October - 13 October) and Week 4 (14 October - 20 October)

Normal minimum temperature is expected across the country.

Summary

- The rainfall is likely to be below normal for all the weeks.
- The maximum temperature is likely to be normal for all the weeks.
- The minimum temperature is likely to be normal for all the weeks.

Classification of rainfall for 24 Hours

No rainfall	0.0 mm
Very light rainfall	0.1 to 0.9 mm
Light rainfall	1.0 to 10.0 mm
Moderate rainfall	11.0 to 30.0 mm
Heavy rainfall	31.0 to 70.0 mm
Very heavy rainfall	71.0 to 150.0 mm
Extremely heavy rainfall	Equal or more than 151.0 mm