28 October 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.

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Observed weather over last week

Most of the stations across the country showed a decrease in maximum temperature during the second half of the week and an increase in minimum temperature during the second half of the week. Moderate rain was observed over the parts of eastern and southern regions and the light rain was observed over the remaining regions. The table below shows the observed rain and temperature data from the regional meteorological stations during last week.

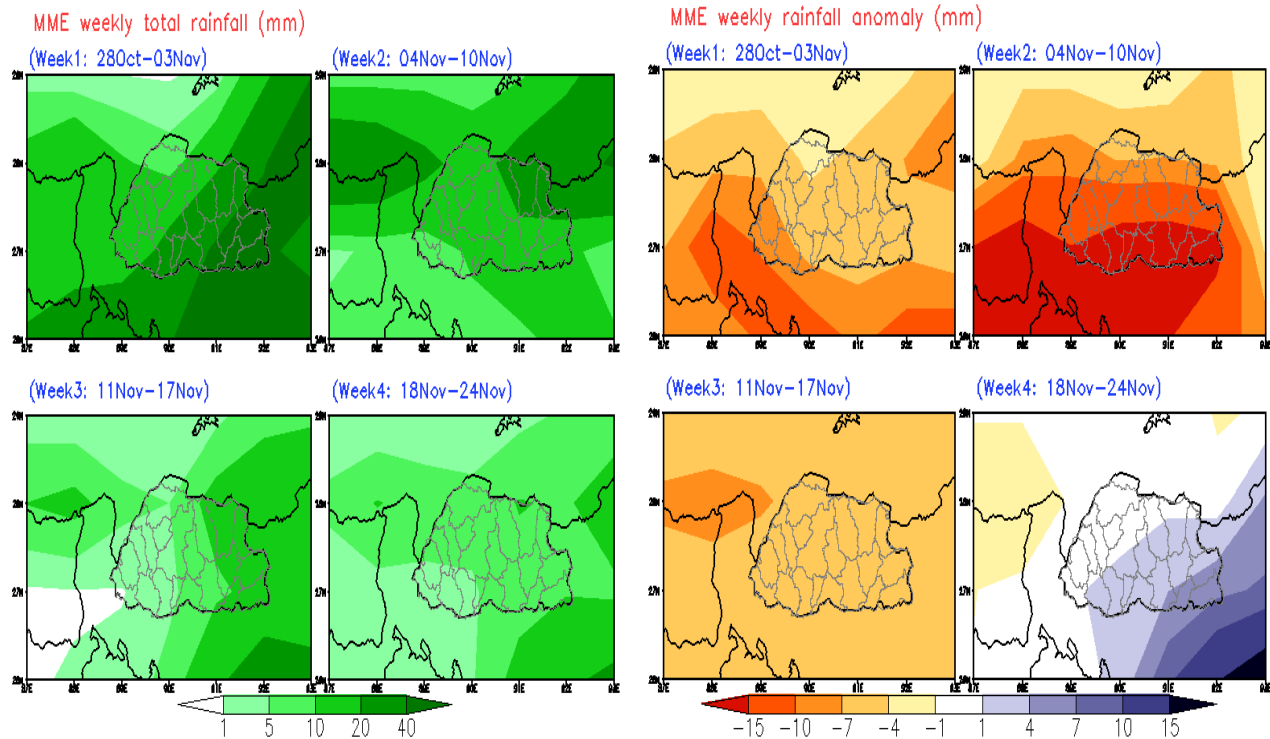| Station	Parameter	20 Oct	21 Oct	22 Oct	23 Oct	24 Oct	25 Oct	26 Oct
Babesa	Tmax (°C)	19.0	20.5	22.5	22.0	19.0	16.0	17.5
	Tmin (°C)	1.0	0.5	1.0	2.0	1.5	7.5	7.5
	Rain (mm)	0.0	0.0	0.0	0.0	9.2	4.0	0.0
Dagana	Tmax (°C)	26.0	26.0	26.5	27.5	20.0	17.5	24.0
	Tmin (°C)	11.0	11.5	13.0	14.0	14.0	14.0	13.5
	Rain (mm)	0.0	0.0	0.0	0.0	10.8	8.8	0.0
Chamkhar	Tmax (°C)	18.0	19.5	19.5	20.5	13.5	13.0	16.0
	Tmin (°C)	5.5	4.5	2.0	1.0	3.0	5.5	7.5
	Rain (mm)	0.0	0.0	0.0	0.0	43.1	2.7	0.4
Deothang	Tmax (°C)	28.0	27.5	28.5	27.0	21.0	20.0	22.0
	Tmin (°C)	15.5	16.0	16.5	18.0	18.5	16.0	16.0
	Rain (mm)	0.0	0.0	0.0	0.0	69.4	46.2	0.0
Gasa	Tmax (°C)	16.0	17.0	16.0	17.0	12.5	11.0	16.0
	Tmin (°C)	2.5	1.5	2.0	3.0	2.5	5.0	3.5
	Rain (mm)	0.0	0.0	0.0	0.0	17.4	2.4	4.9

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Weekly forecast for Bhutan

1.   Rainfall Prediction

Week 1 (28 October - 03 November), Week 2 (04 November - 10 November) and Week 3 (11 November - 17 November)
Below normal rainfall is expected throughout the region.

Week 4 (18 November - 24 November)
Normal rainfall is expected across the northern and western region and the above normal rainfall is expected across the remaining region.
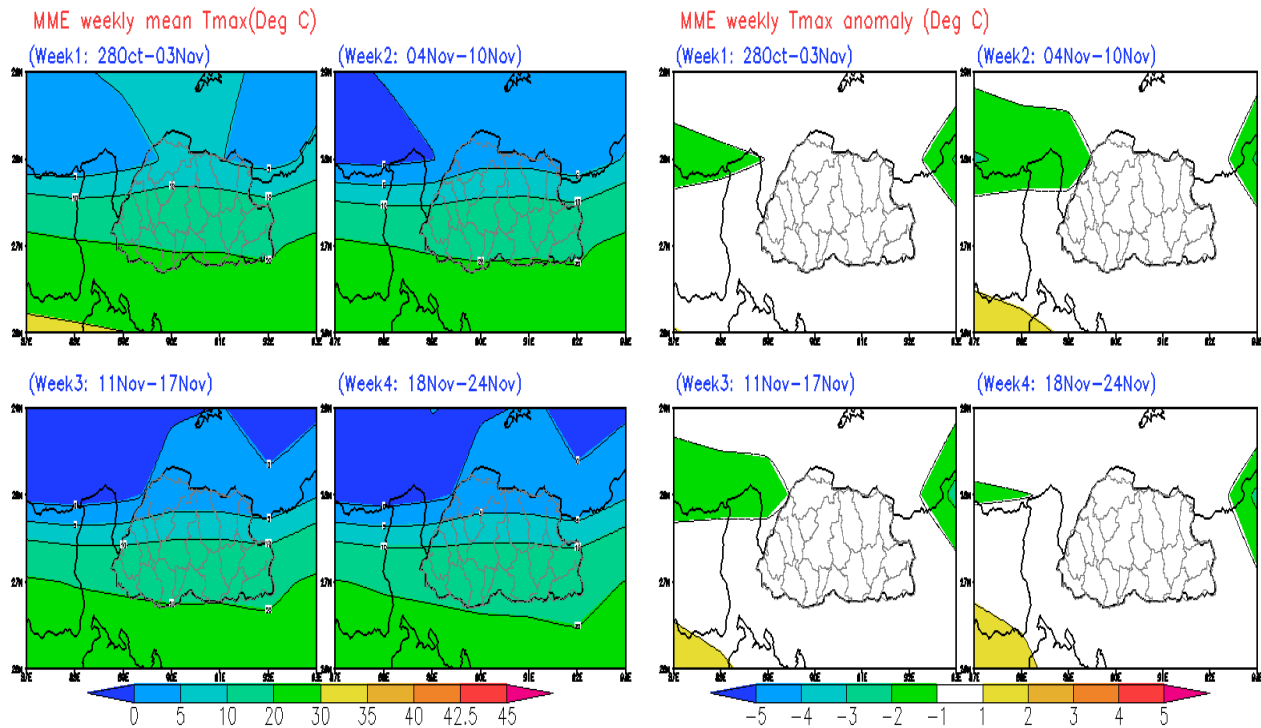
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2. Maximum Temperature Prediction

Week 1 (28 October - 03 November), Week 2 (04 November - 10 November), Week 3 (11 November - 17 November) and Week 4 (18 November - 24 November)

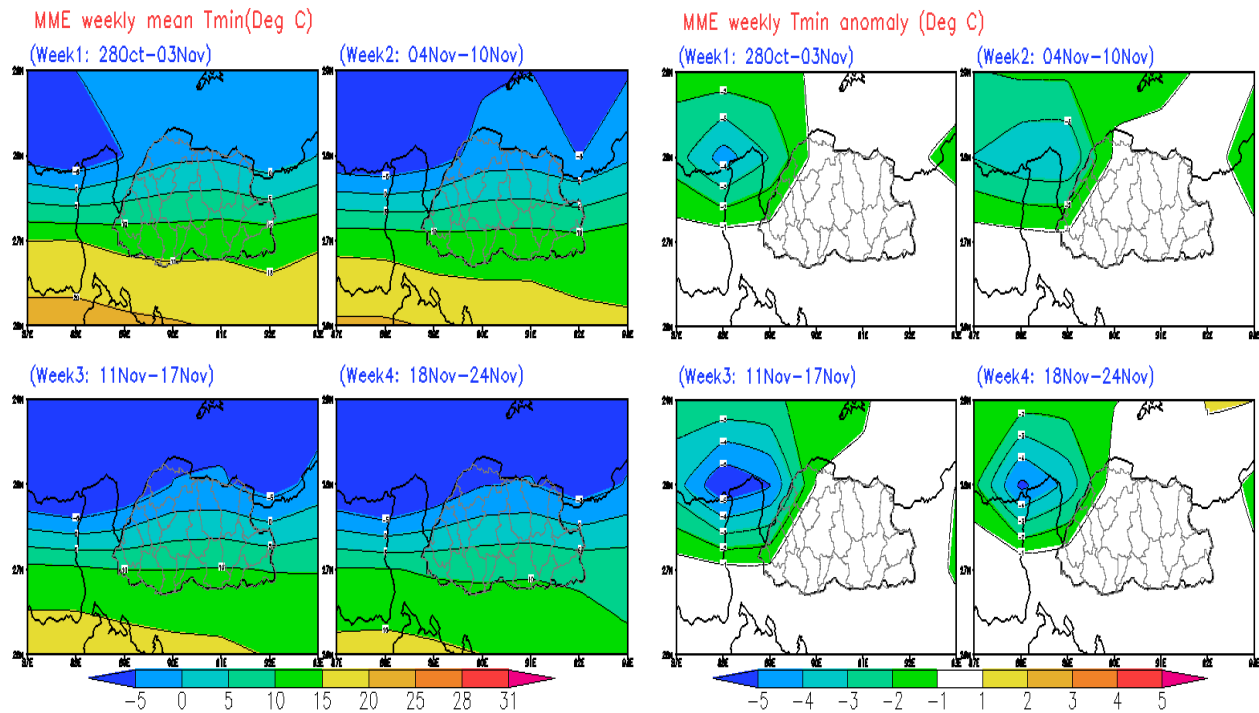Normal maximum temperature is expected across the country.

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3. Minimum Temperature Prediction

Week 1 (28 October - 03 November), Week 2 (04 November - 10 November), Week 3 (11 November - 17 November) and Week 4 (18 November - 24 November)
Normal minimum temperature is expected across the country.

Summary

- The rainfall is likely to be below normal for the first three weeks and above normal for the last week.
- The maximum temperature is likely to be normal for all the weeks.
- The minimum temperature is likely to be normal for all the weeks.

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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