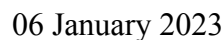




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Extended Range Prediction for Bhutan

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 an increase in maximum and decrease in minimum temperature for the last week. Very light rain was observed for the isolated areas of the northern and eastern region for the last week. The table below displays observed real time rain and temperature data from regional meteorological stations over the last week.

Station	Parameter	29 Dec	30 Dec	31 Dec	01 Jan	02 Jan	03 Jan	04 Jan
Babesa	Tmax (°C)	9.5	8.5	9.0	8.5	9.5	12.0	12.5
	Tmin (°C)	1.0	1.0	0.5	-1.0	0.0	-2.5	-6.5
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dagana	Tmax (°C)	17.5	17.0	19.5	18.5	19.5	19.0	20.0
	Tmin (°C)	6.0	6.0	6.0	5.0	5.0	5.0	6.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chamkhar	Tmax (°C)	9.5	7.0	6.5	6.0	8.0	11.0	10.0
	Tmin (°C)	3.0	0.0	1.5	0.5	-1.5	-4.5	-1.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deothang	Tmax (°C)	19.0	19.0	17.0	20.0	20.5	21.5	22.0
	Tmin (°C)	9.0	10.0	11.0	9.5	10.0	10.0	10.5
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gasa	Tmax (°C)	1.0	2.5	6.0	4.0	5.5	6.0	6.5
	Tmin (°C)	-1.5	-1.5	-2.0	-2.0	-2.0	-3.0	-3.5
	Rain (mm)	0.0	1.0	0.0	1.0	0.0	0.0	0.0



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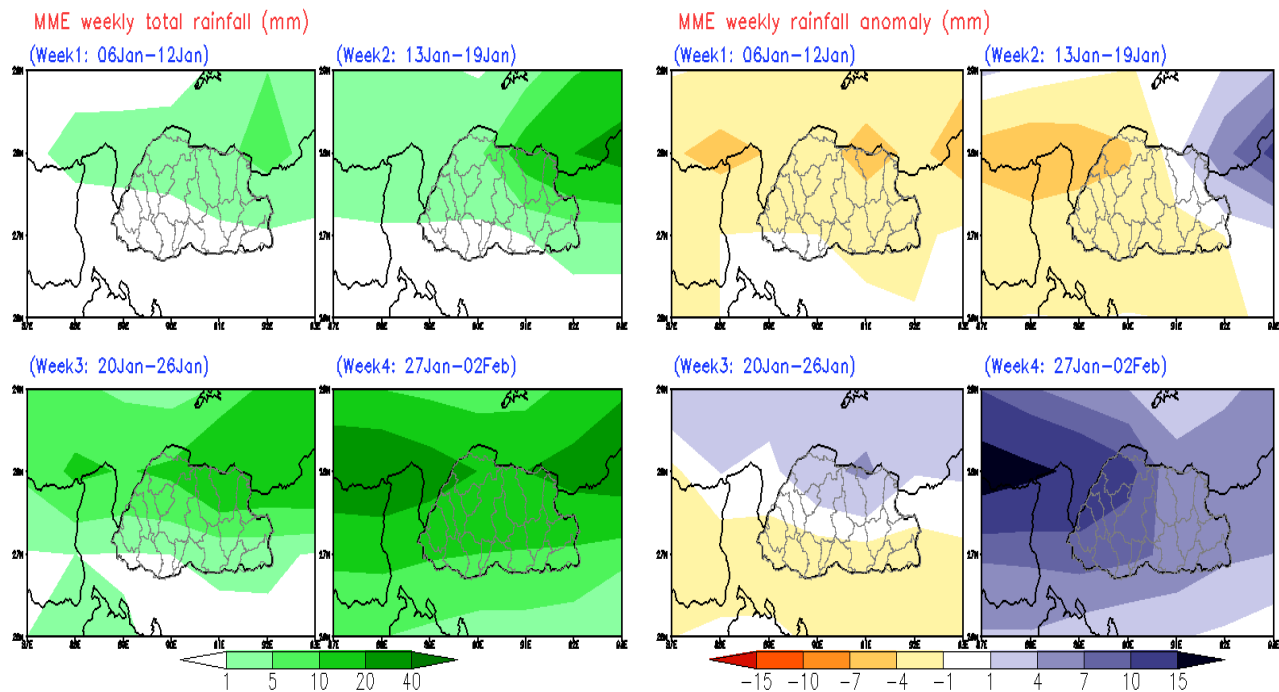
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Weekly forecast for Bhutan

1. Rainfall Prediction



Week 1 (06 January - 12 January) and Week 2 (13 January - 19 January)

Below normal rainfall is expected throughout the region.

Week 3 (20 January - 26 January)

Below normal rainfall is expected across the southern region, normal rainfall towards the central region while the remaining region can expect above normal rainfall.

Week 4 (27 January - 02 February)

Above normal rainfall is expected throughout the region..



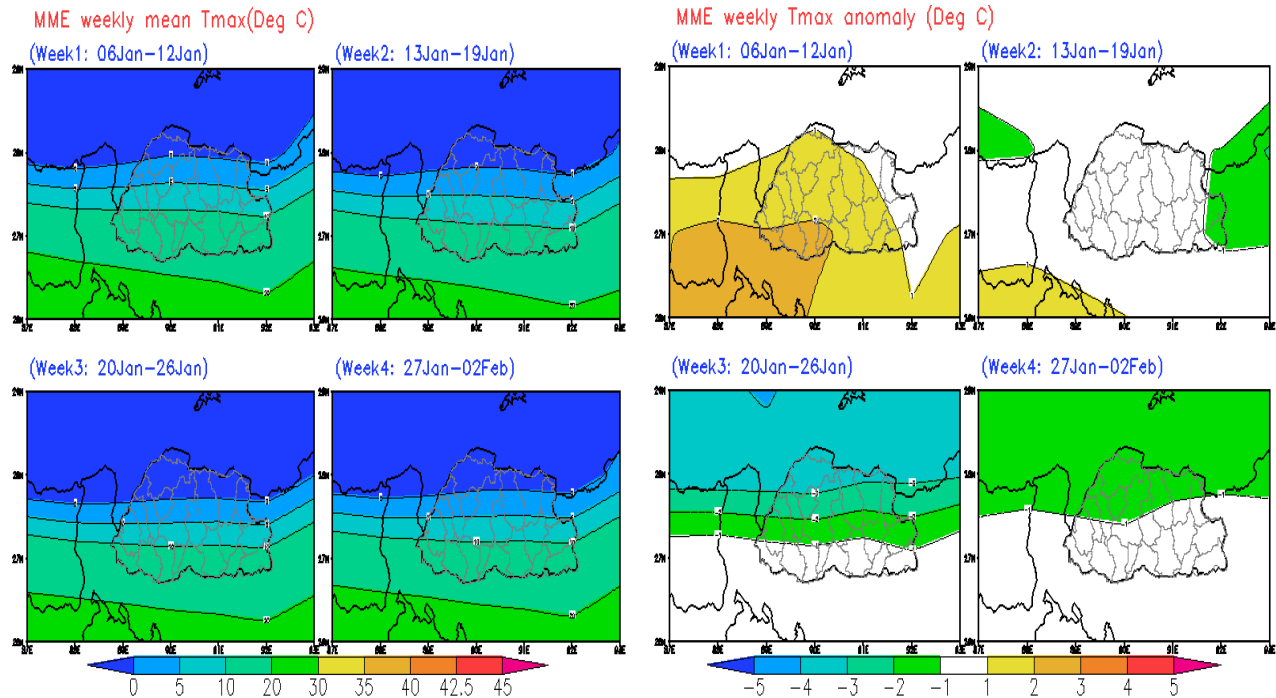
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2. Maximum Temperature Prediction



Week 1 (06 January - 12 January)

Above normal maximum temperature is expected across the country.

Week 2 (13 January - 19 January)

Normal maximum temperature is expected throughout the region.

Week 3 (20 January - 26 January)

Normal maximum temperature is expected across the southern region and below normal maximum temperature is expected for the remaining region.

Week 4 (27 January - 02 February)

The northern and parts of the central region can expect below normal maximum temperature while the rest of the region can observe normal maximum temperature.



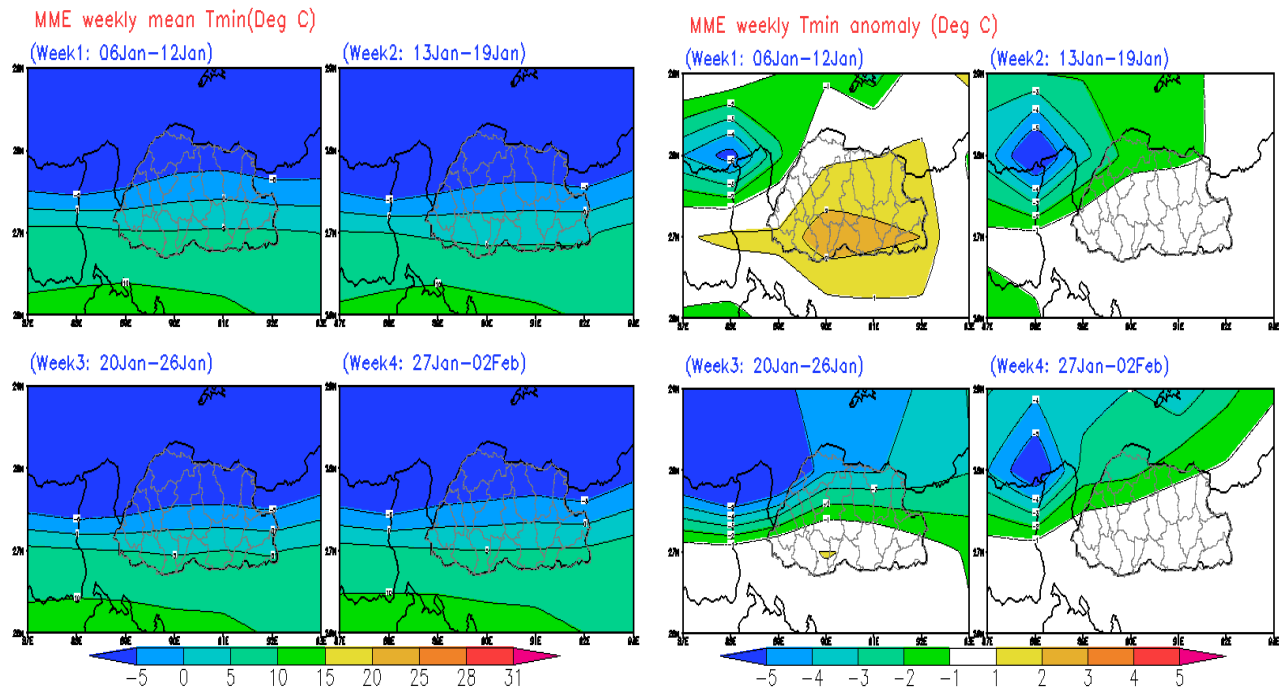
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3. Minimum Temperature Prediction



Week 1 (06 January - 12 January)

The northern and western region can expect normal minimum temperature however, the remaining region can expect above normal minimum temperature.

Week 2 (13 January - 19 January)

Below normal minimum temperature is expected across the northern and western region and the rest of the region can observe normal minimum temperature.

Week 3 (20 January - 26 January)

Normal minimum temperature is expected across the southern and parts of the central region, and the rest of the region can observe below normal minimum temperature.

Week 4 (27 January - 02 February)

Below normal minimum temperature is expected across the northern and parts of the western region and the rest of the region can observe normal minimum temperature.



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Summary

- The rainfall is likely to be below normal for the first two weeks, below to above normal for week 3 and above normal for the last week.
- The maximum temperature is likely to be above normal for week1, normal for week 2 and below normal for week 3 and 4.
- The minimum temperature is likely to be above normal for week 1, normal for week 2, 4 and below normal for week 3.

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