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27 December, 2024

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 decreasing maximum and minimum temperature throughout the week. No rain was observed in the country. The table below displays observed real time rain and temperature data from regional meteorological stations over the last week.

Station	Parameter	20 Dec	21 Dec	22 Dec	23 Dec	24 Dec	25 Dec	26 Dec
Babesa	Tmax (°C)	18.0	16.0	13.5	14.5	15.5	15.0	15.0
	Tmin (°C)	-4.0	0.0	-2.5	-4.5	-4.5	-5.0	-3.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dagana	Tmax (°C)	23.0	22.0	21.0	22.0	22.5	21.5	22.0
	Tmin (°C)	7.0	6.0	6.0	6.0	6.0	6.5	6.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chamkhar	Tmax (°C)	14.0	13.5	13.5	14.0	14.0	12.0	13.0
	Tmin (°C)	-5.0	-1.5	-1.5	-5.5	-0.5	-0.5	-1.5
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deothang	Tmax (°C)	22.0	22.0	22.0	21.0	23.5	22.0	22.5
	Tmin (°C)	12.5	12.5	12.0	11.5	11.0	12.0	12.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gasa	Tmax (°C)	12.5	11.0	11.0	12.5	12.0	0.0	12.0
	Tmin (°C)	-3.0	11.0	11.0	12.5	12.0	10.0	-2.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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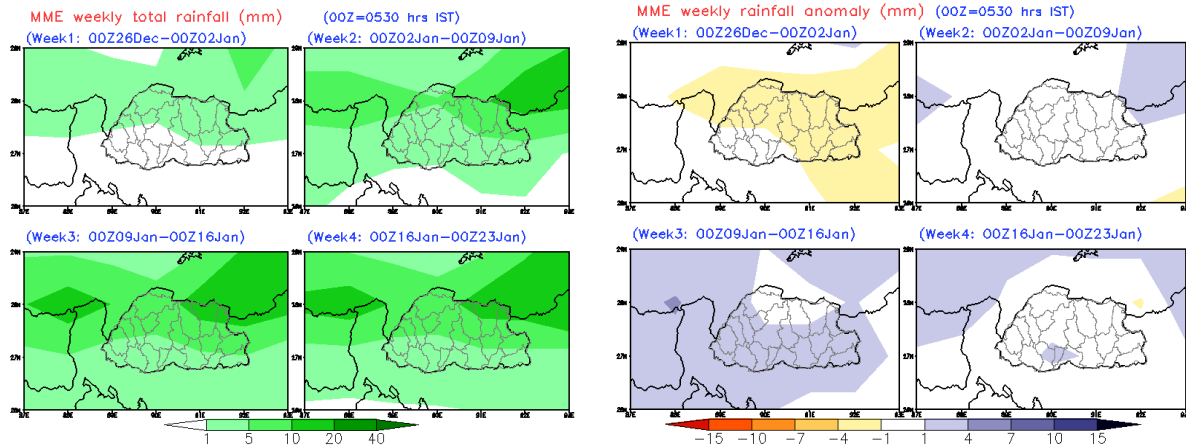
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Weekly forecast for Bhutan

1. Rainfall Prediction



Week 1 (26 December - 02 January)

Below normal rainfall throughout the region

Week 2 (02 January - 09 January)

Normal rainfall throughout the region

Week 3 (09 January - 16 January) and Week 4 (16 January - 23 January)

Above normal rainfall expected throughout the region.



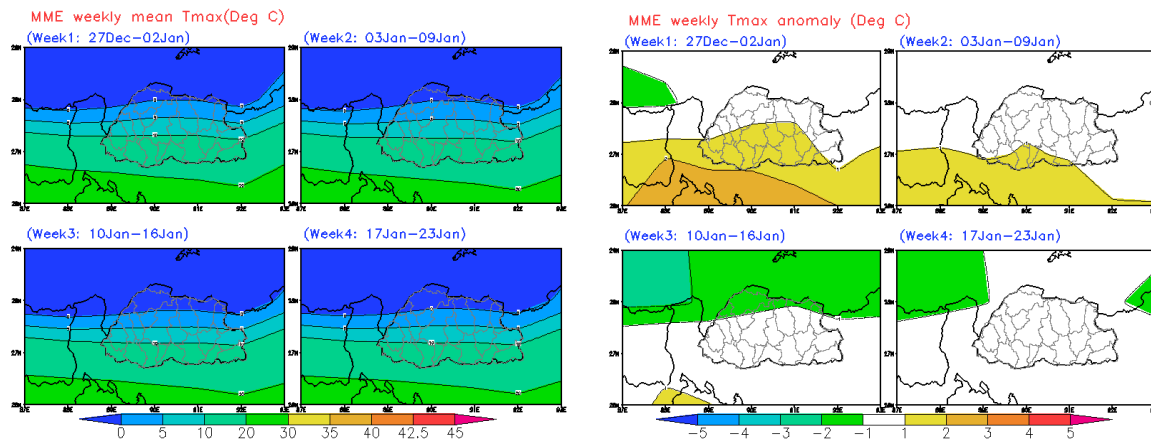
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2. Maximum Temperature Prediction



Week 1 (27 December - 02 January) and Week 2 (03 January - 09 January)

Above normal maximum temperature in the southern parts and normal in the rest of the region

Week 3 (10 January - 16 January) and Week 3 (17 January - 23 January)

Normal maximum temperature expected throughout the region.



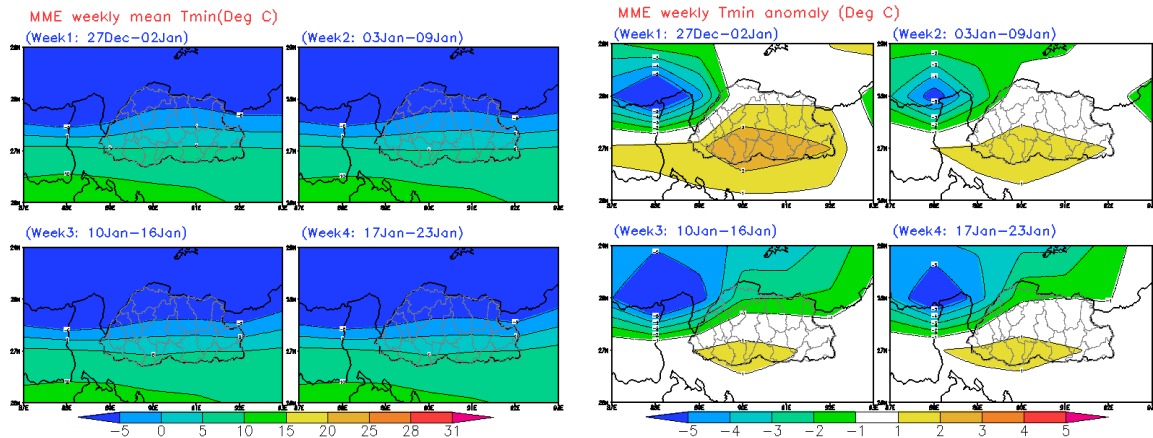
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3. Minimum Temperature Prediction



Week 1 (27 December - 02 January) and

Above normal minimum temperature is expected throughout the region

Week 2 (03 January - 09 January), Week 3 (10 January - 16 January) and Week 3 (17 January - 23 January)

Below Normal minimum temperature expected in the north and above normal minimum temperature in the south.



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Summary

- The rainfall is likely to be below in the first week, normal in the second and above in the last two weeks.
- The maximum temperature is likely to be normal for the whole four weeks, except for the first week, the southern part is expected to experience above normal maximum temperature
- The minimum temperature is likely to be above normal in the first week, below normal in the north and above normal in the south for the remaining three 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