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04 March 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.

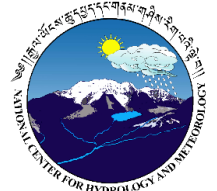
Generally, the forecast output is produced on a weekly basis for a period of a month for both the variables. The current products available from NCHM are on pilot basis which needs further studies and validation with the ground observations until the product is fully operationalized.



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Observed weather over last week

Most of the stations across the country showed an increase in maximum and minimum temperature for the second half of the week. Light to moderate rain was observed over the southern region and the remaining region received light rain. The table below shows the observed rain and temperature data from the regional meteorological stations during last week.

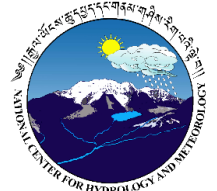
Station	Parameter	24 Feb	25 Feb	26 Feb	27 Feb	28 Feb	01 Mar	02 Mar
Babesa	Tmax (°C)	15.0	12.0	13.5	14.0	15.0	18.0	15.5
	Tmin (°C)	-1.0	-0.5	1.0	-2.0	5.0	-3.0	0.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dagana	Tmax (°C)	19.0	23.5	20.0	15.0	20.0	21.5	22.5
	Tmin (°C)	5.0	7.0	6.0	7.0	7.0	7.0	9.5
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	3.5
Chamkhar	Tmax (°C)	12.0	13.0	14.0	12.0	13.0	17.0	13.0
	Tmin (°C)	0.0	0.0	0.0	0.0	3.0	-2.5	-2.0
	Rain (mm)	0.0	0.0	0.0	1.3	0.0	0.4	0.0
Deothang	Tmax (°C)	21.0	20.0	20.0	19.0	20.0	22.0	22.5
	Tmin (°C)	11.0	12.0	10.0	11.0	10.0	11.0	12.0
	Rain (mm)	0.0	2.4	0.0	9.0	0.0	0.0	0.0
Gasa	Tmax (°C)	9.5	6.5	10.5	9.5	7.0	13.0	12.-
	Tmin (°C)	-1.5	-1.0	-4.5	-3.0	-0.5	-3.5	-2.0
	Rain (mm)	2.2	3.2	0.0	5.5	0.0	0.0	0.0



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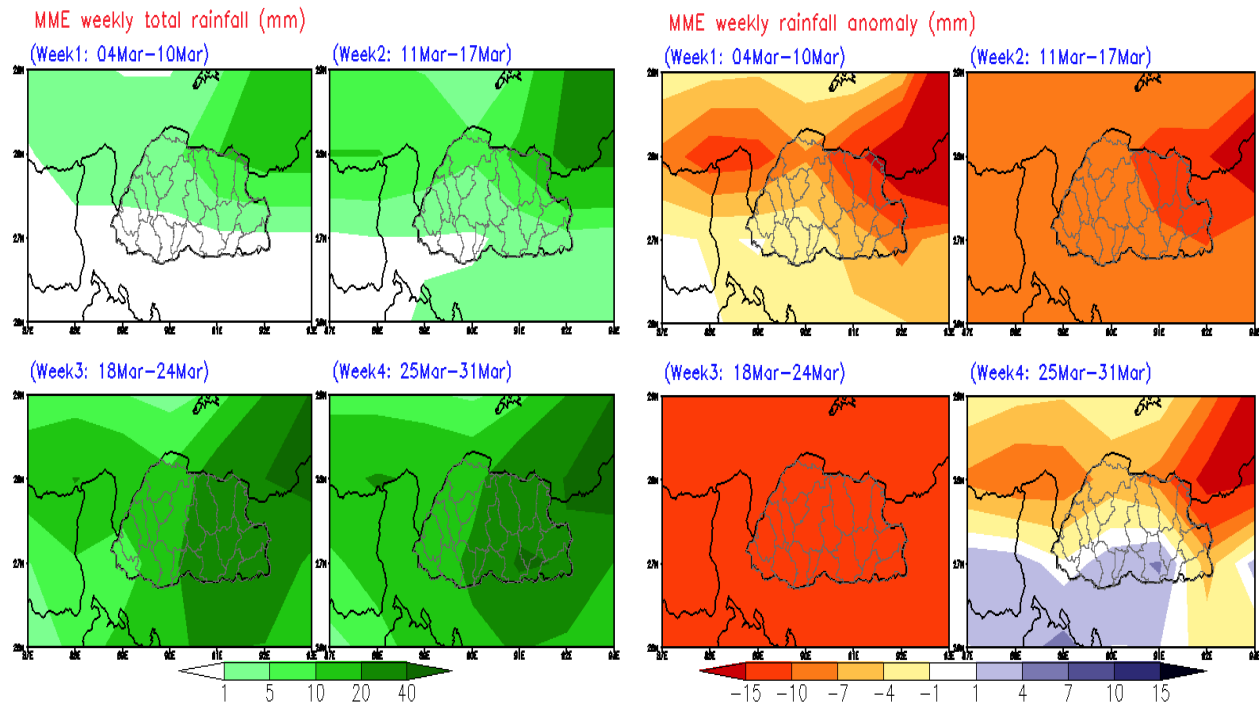
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Weekly forecast for Bhutan

1. Rainfall Prediction



Week 1 (04 March - 10 March), Week 2 (11 March - 17 March) and Week 3 (18 March - 24 March)

Below normal rainfall is expected across the region.

Week 4 (25 March - 31 March)

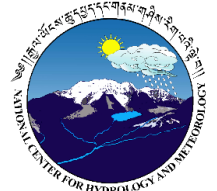
Above normal rainfall is expected across the southern region and the rest of the region can expect below normal rainfall.



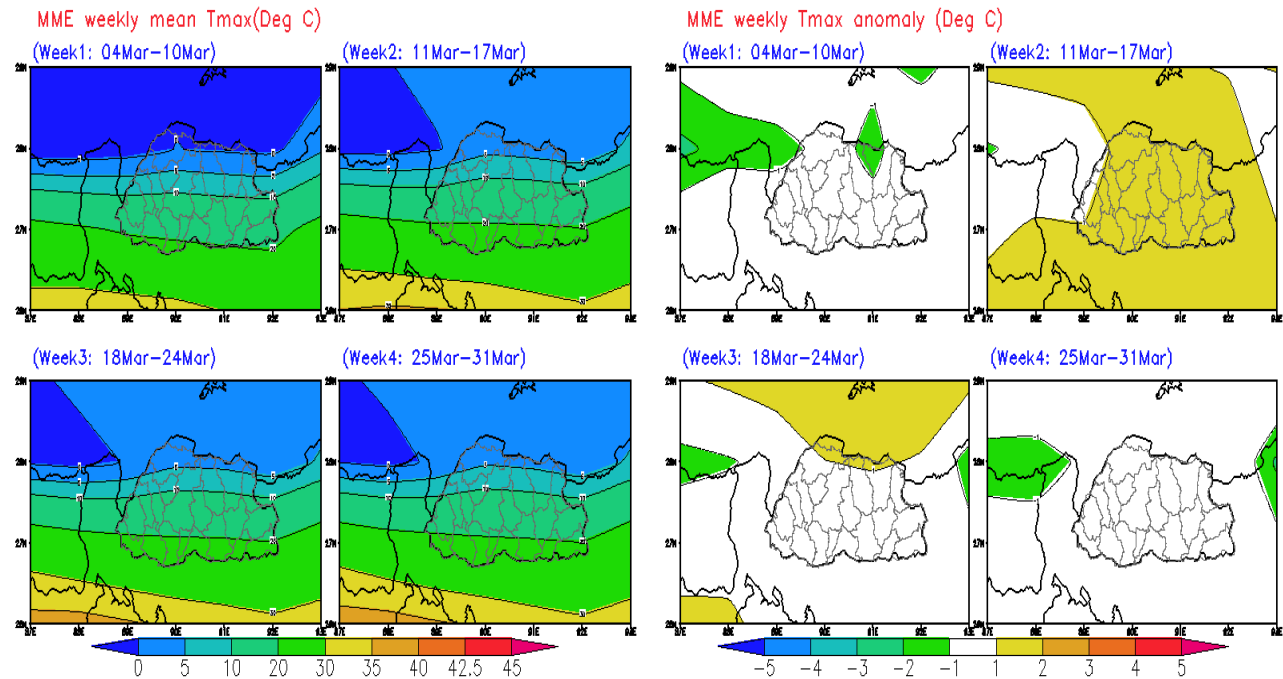
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2. Maximum Temperature Prediction



Week 1 (04 March - 10 March)

Normal maximum temperature is expected across the country.

Week 2 (11 March - 17 March)

Above normal maximum temperature is expected across the country.

Week 3 (18 March - 24 March) and Week 4 (25 March - 31 March)

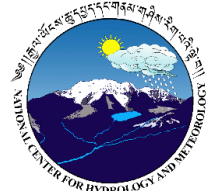
Normal maximum temperature is expected across the country.



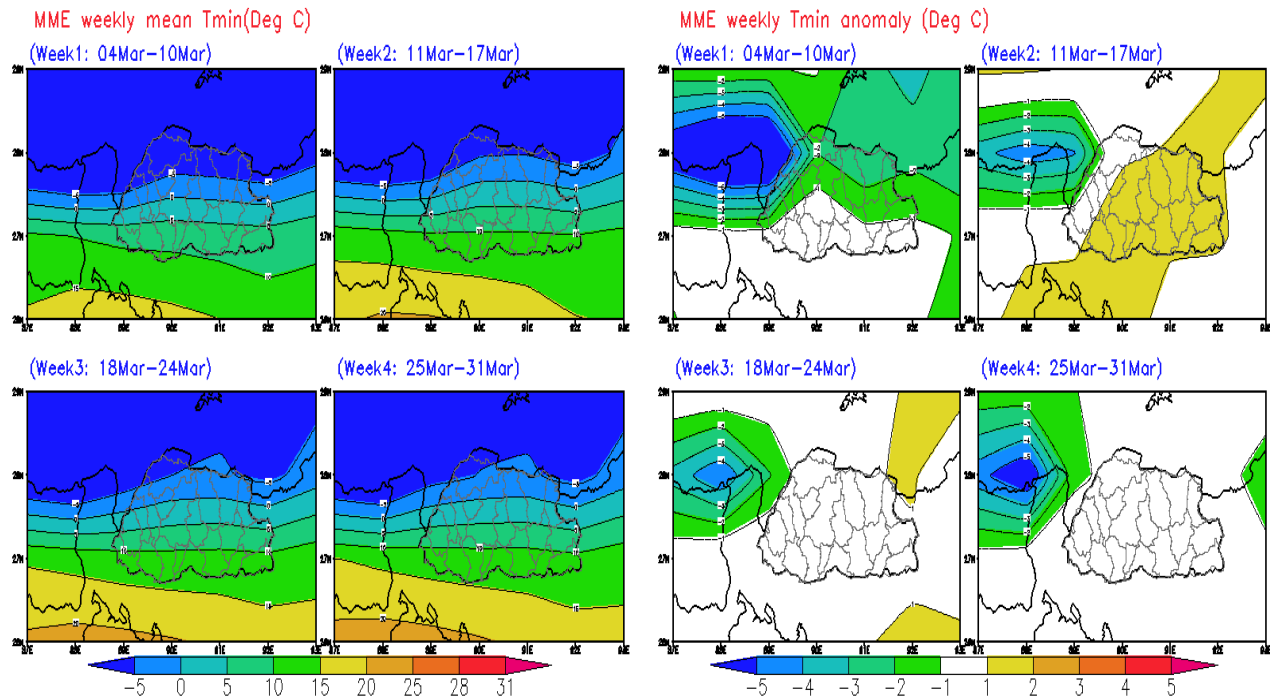
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3. Minimum Temperature Prediction



Week 1 (04 March - 10 March)

The southern region can expect normal minimum temperature and below normal minimum temperature is expected across the remaining region.

Week 2 (11 March - 17 March)

Normal minimum temperature is expected across the western region and above normal minimum temperature is expected across the remaining region.

Week 3 (18 March - 24 March) and Week 4 (25 March - 31 March)

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 above normal for week 2 and normal for the other remaining weeks.
- The minimum temperature is likely to be below normal for week 1, above normal for week 2 and normal for the last two 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