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04 February 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.

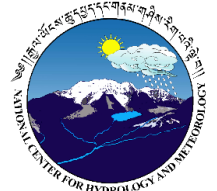
Generally, the forecast output is produced on a weekly basis for a period of a month for both the variables. The current products available from NCHM are on pilot basis which needs further studies and validation with the ground observations until the product is fully operationalized.



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Observed weather over last week

Most of the stations across the country showed a decrease in maximum and minimum temperature for the last week. Light to moderate rain was observed over the southern region and the remaining region received light rain. Light to moderate snow was observed over the high altitude areas and high passes of the country. The continuity of the data was hampered under the blackout pandemic situation. The table below shows the observed rain and temperature data from the regional meteorological stations during last week.

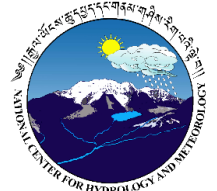
Station	Parameter	27 Jan	28 Jan	29 Jan	30 Jan	31 Jan	01 Feb	02 Feb
Babesa	Tmax (°C)	8.5	12.0	12.5	8.0	12.0	7.0	12.0
	Tmin (°C)	-6.0	-5.0	-7.5	0.0	-2.0	0.0	-2.5
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bhur	Tmax (°C)	22.0	19.0	21.0	21.0	21.0	18.0	
	Tmin (°C)		9.0	9.0	13.0	13.0	13.0	12.0
	Rain (mm)	3.2	0.0	0.0	0.0	0.0	1.5	
Chamkhar	Tmax (°C)	8.5	9.0	11.5	8.0	9.0	5.0	9.5
	Tmin (°C)	-4.0	-3.0	-8.0	-1.0	-2.5	0.0	-4.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deothang	Tmax (°C)	18.5	16.0	16.0	17.0	18.0	14.0	16.0
	Tmin (°C)	9.0	8.0	8.0	7.5	9.0	8.0	8.0
	Rain (mm)	0.0	0.0	0.0	0.0	0.0	1.6	0.0
Gasa	Tmax (°C)	5.0	5.5	8.5	1.0	6.0	-1.0	5.5
	Tmin (°C)	-7.0	-9.0	-7.5	-3.5	-3.5	-4.5	-8.5
	Rain (mm)	0.0	0.0	0.0	0.0	6.2	3.2 SWE	2.0



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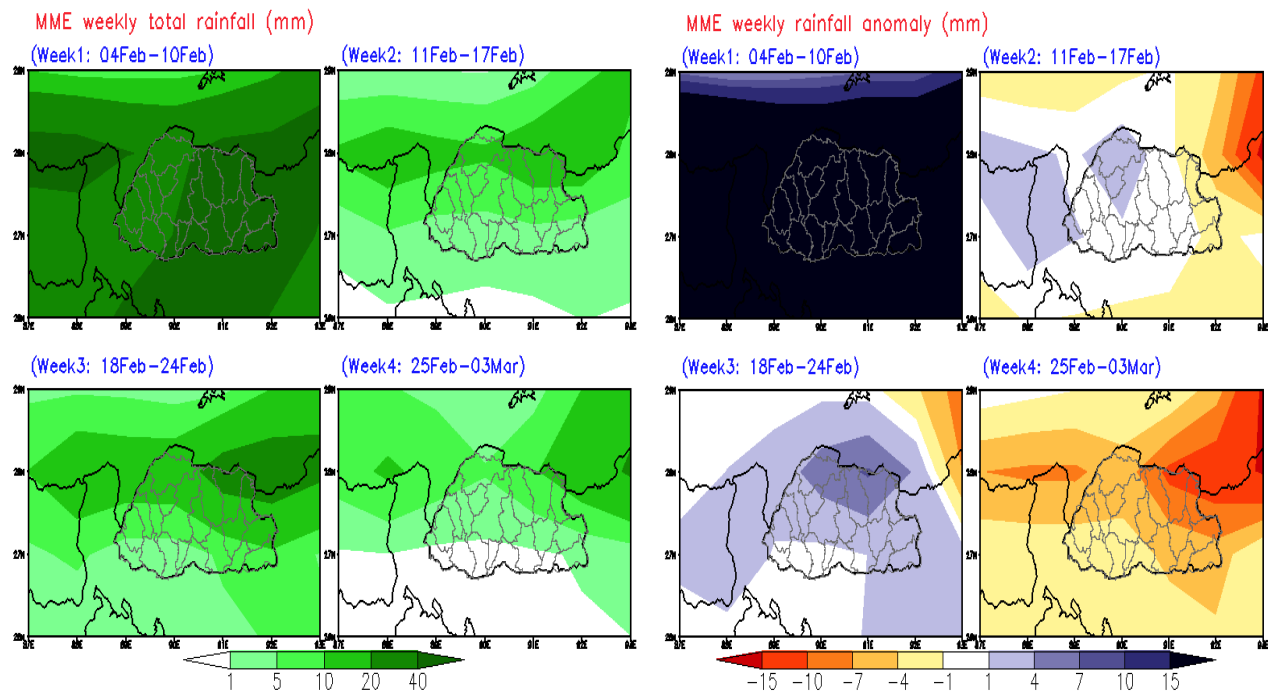
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Weekly forecast for Bhutan

1. Rainfall Prediction



Week 1 (04 February - 10 February)

Above normal rainfall is expected across the region.

Week 2 (11 February - 17 February)

Above normal rainfall is expected across the northern parts of the region, below normal rainfall towards the eastern region and normal rainfall across the remaining region.

Week 3 (18 February - 24 February)

Above normal rainfall is expected across the region.

Week 4 (25 February - 03 March)

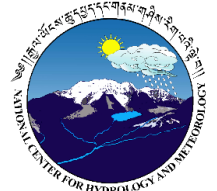
Below normal rainfall is expected across the region.



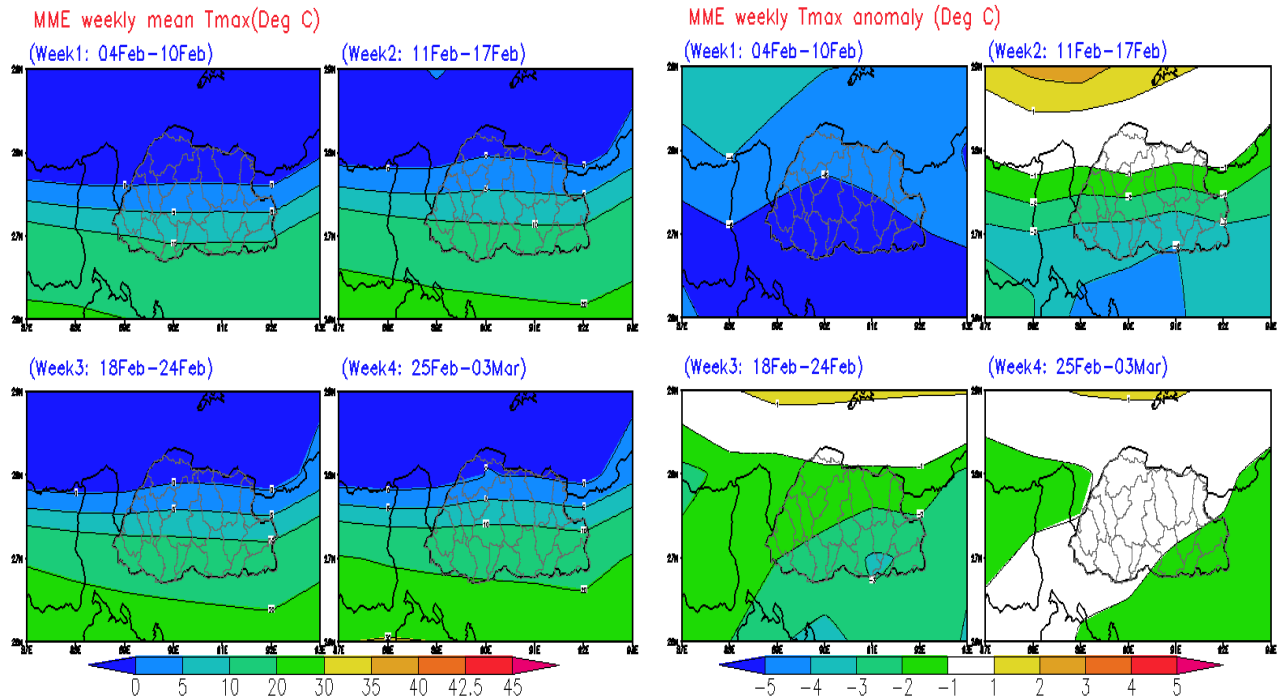
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2. Maximum Temperature Prediction



Week 1 (04 February - 10 February)

Below normal maximum temperature is expected across the country.

Week 2 (11 February - 17 February)

Normal maximum temperature is expected across the northern region and the rest of the region can expect below normal maximum temperature.

Week 3 (18 February - 24 February)

Below normal maximum temperature is expected across the country.

Week 4 (25 February - 03 March)

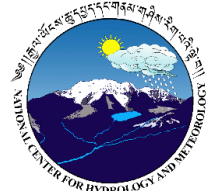
Parts of the southeast region can expect below normal maximum temperature and normal maximum temperature is expected across the remaining region.



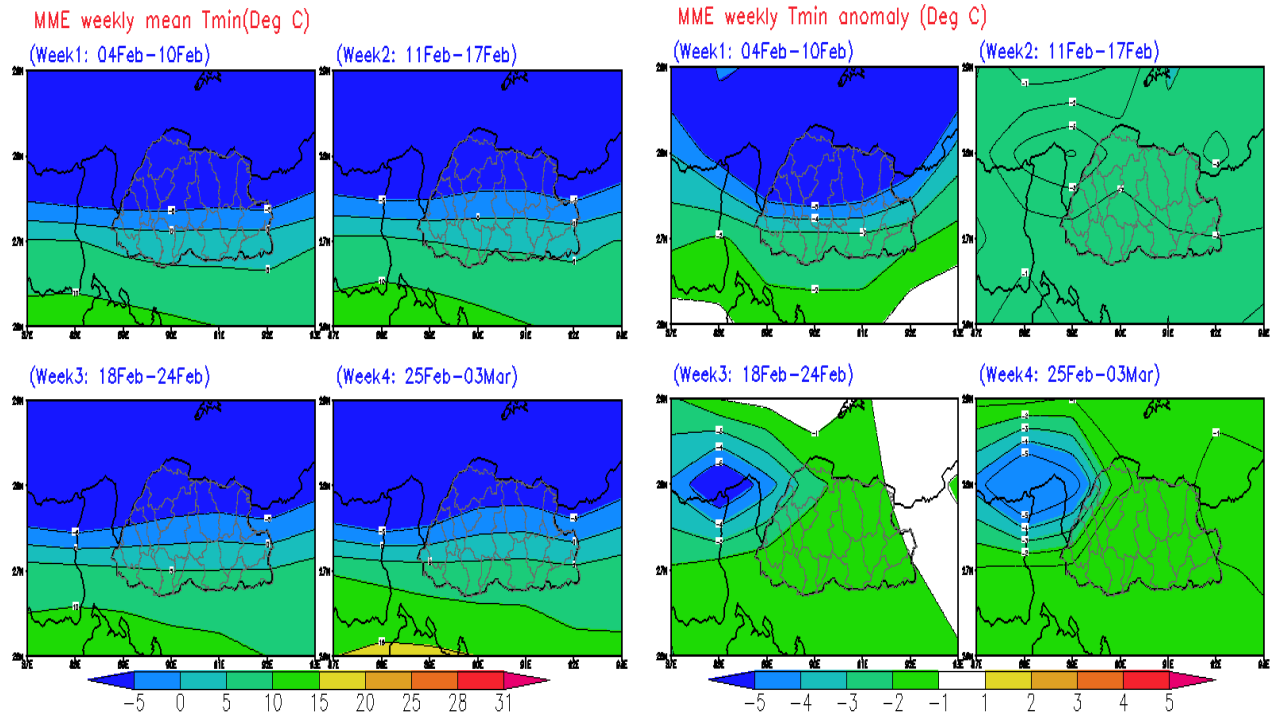
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3. Minimum Temperature Prediction



Week 1 (04 February - 10 February), Week 2 (11 February - 17 February), Week 3 (18 February - 24 February) and Week 4 (25 February - 03 March)

Below normal minimum temperature is expected across the country.

Summary

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