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08 April 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 and minimum temperature during the last week. Moderate rain was observed over the northern region, heavy to extremely heavy rain was observed over the isolated areas of the southern region and the rest of the region observed light to moderate rain during the last week. The table below shows the observed rain and temperature data from the regional meteorological stations during last week.

Station	Parameter	31 Mar	01 Apr	02 Apr	03 Apr	04 Apr	05 Apr	06 Apr
Babesa	Tmax (°C)	22.0	19.0	23.5	18.0	19.5	22.0	20.5
	Tmin (°C)	11.0	11.0	12.0	12.0	10.5	10.0	10.0
	Rain (mm)	1.2	0.0	1.4	0.8	0.0	0.0	0.6
Dagana	Tmax (°C)	20.0	22.5	24.5	18.0	21.5	23.0	25.0
	Tmin (°C)	15.0	15.0	15.5	16.5	14.5	14.0	14.5
	Rain (mm)	0.6	0.6	0.6	1.0	0.4	0.4	1.0
Chamkhar	Tmax (°C)	18.0	19.0	21.5	17.5	18.5	19.5	22.0
	Tmin (°C)	9.5	9.5	11.5	11.5	9.0	9.5	10.5
	Rain (mm)	0.0	0.0	0.4	6.3	0.0	0.0	0.1
Deothang	Tmax (°C)	18.0	19.0	18.0	18.0	18.5	19.0	22.0
	Tmin (°C)	15.0	14.0	15.0	15.0	14.0	13.5	15.0
	Rain (mm)	34.8	8.2	26.2	73.4	56.2	97.6	74.2
Gasa	Tmax (°C)	16.5	17.5	18.0	14.5	15.0	13.5	17.0
	Tmin (°C)	6.5	7.5	8.0	7.0	7.5	6.5	7.0
	Rain (mm)	6.8	0.0	25.4	18.0	9.2	1.8	2.0



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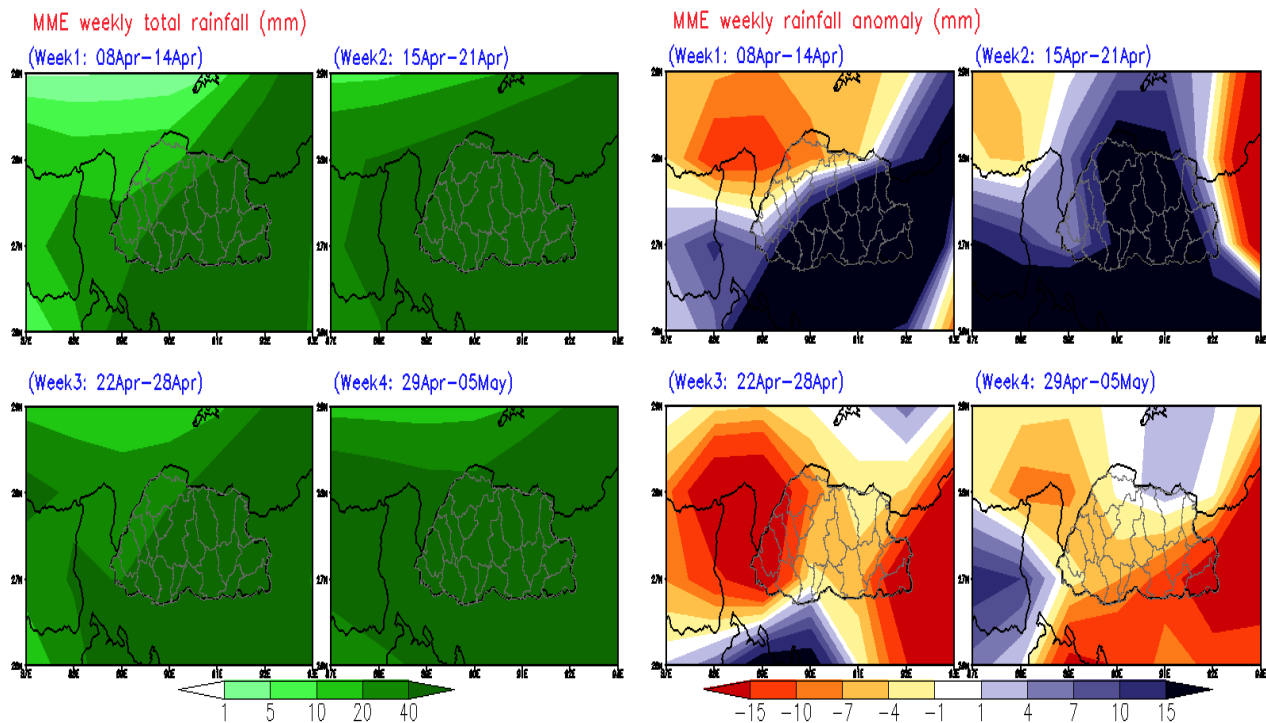
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## Weekly forecast for Bhutan

### 1. Rainfall Prediction



#### Week 1 (08 April - 14 April)

Below normal rainfall is expected across the western region while the remaining region can expect above normal rainfall.

#### Week 2 (15 April - 21 April)

Above normal rainfall is expected across the region.

#### Week 3 (22 April - 28 April) and Week 4 (29 April - 05 May)

Below normal rainfall is expected throughout the region.



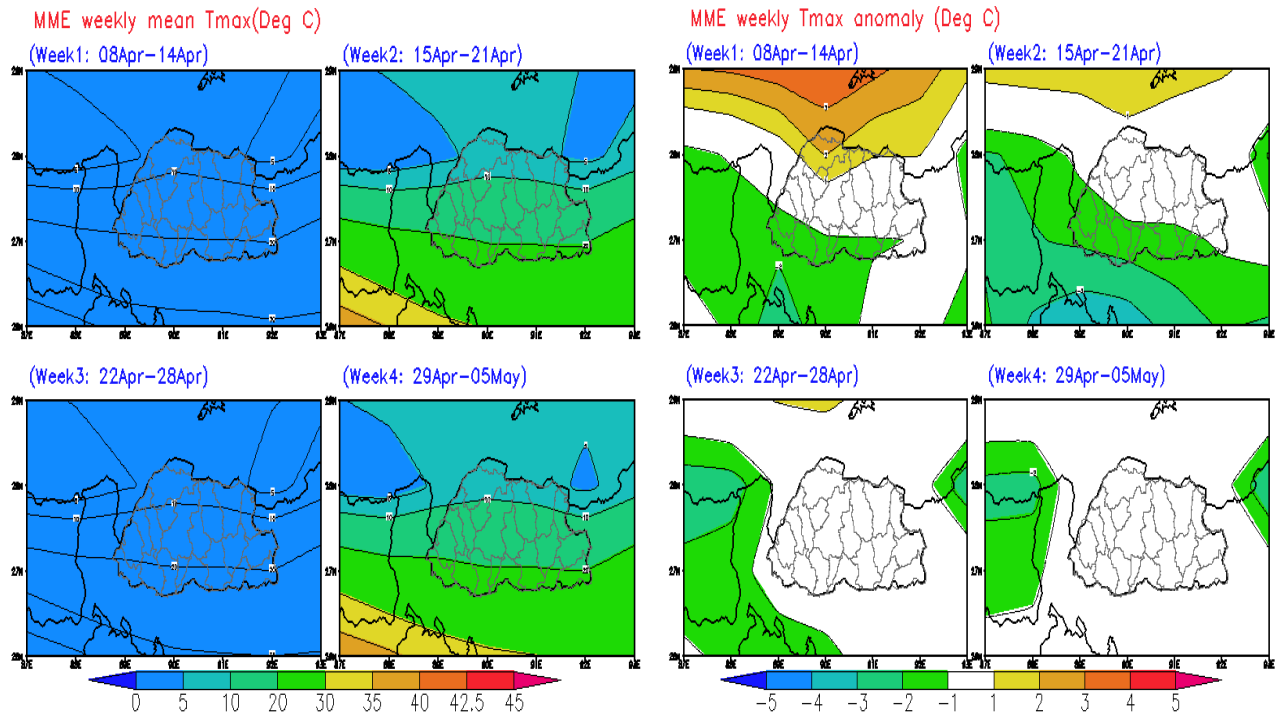
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## 2. Maximum Temperature Prediction



### Week 1 (08 April - 14 April)

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

### Week 2 (15 April - 21 April)

The parts of the western and southern region can observe below normal maximum temperature and the rest of the region can expect normal maximum temperature.

### Week 3 (22 April - 28 April) and Week 4 (29 April - 05 May)

Normal maximum temperature is expected across the country.



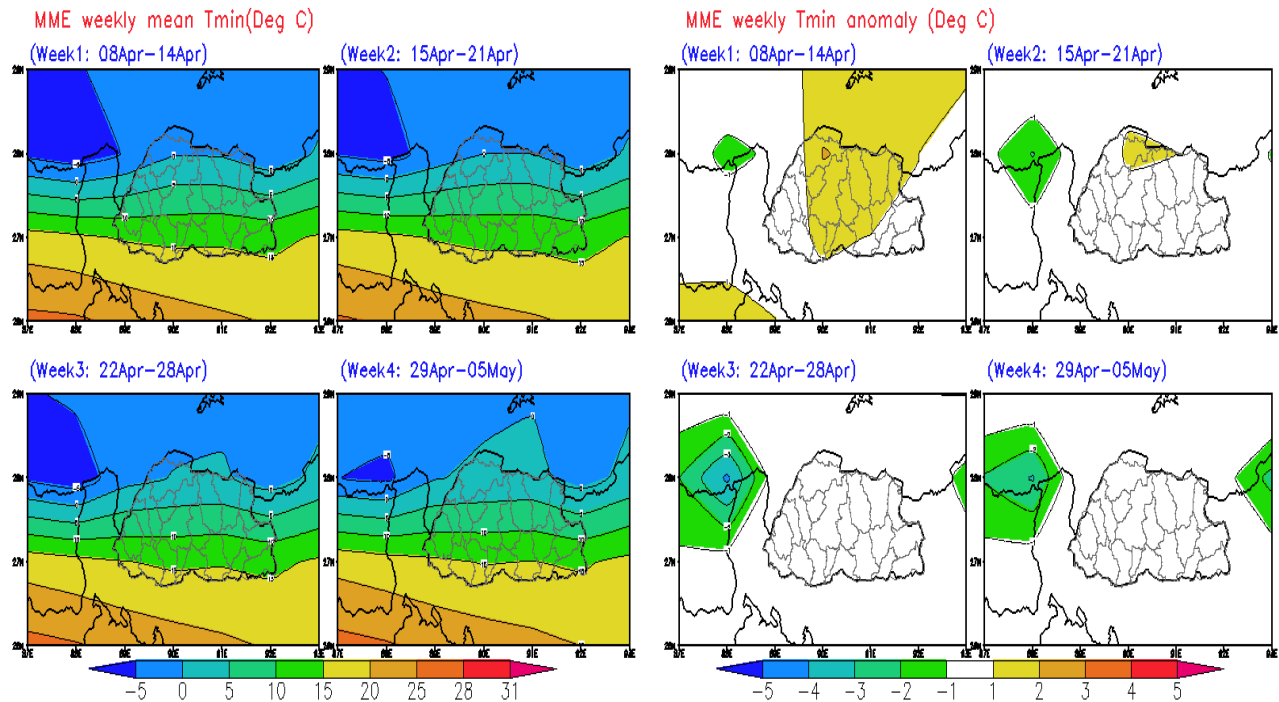
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### 3. Minimum Temperature Prediction



#### Week 1 (08 April - 14 April)

The western and parts of the eastern region can observe normal minimum temperature and the remaining region can observe above normal minimum temperature.

#### Week 2 (15 April - 21 April), Week 3 (22 April - 28 April) and Week 4 (29 April - 05 May)

Normal minimum temperature is expected across the country.

#### Summary

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