



MONTHLY CLIMATE SUMMARY
For
March 2023

Meteorological Services Division
National Centre for Hydrology and Meteorology
Royal Government of Bhutan

Highlights

- The pre monsoon season is expected from March - May and the country receive certain amount of rainfall that period. During the month of March 2023, most parts of the regions received moderate to heavy rainfall.
- The lowest daily minimum temperature was recorded at Haa met station (-4.5°C).
- The highest daily maximum temperature was recorded at Phuentsholing met station (32.5°C)
- The highest daily rainfall was recorded at Phuentsholing met station (124.6 mm).
- Phuentsholing met station recorded the highest total rainfall of 449.4 mm for March month.
- All the computations are based on real time observed data of 20 Agrometeorological (Class A) stations.

Rainfall

Bhutan experiences the summer monsoon during the month of June to September. Bhutan received most of its annual rainfall during summer monsoon so, the Centre monitors the performance of monsoon and issue an outlook for the monsoon season. The normal is the monitoring of long-term average rainfall of Bhutan from (1996-2022). The relationship between the long-term average or normal (1996-2022) with the monthly real time observation data (2023) is also analyzed. For the month of March 2023, the country as a whole received near normal rainfall.

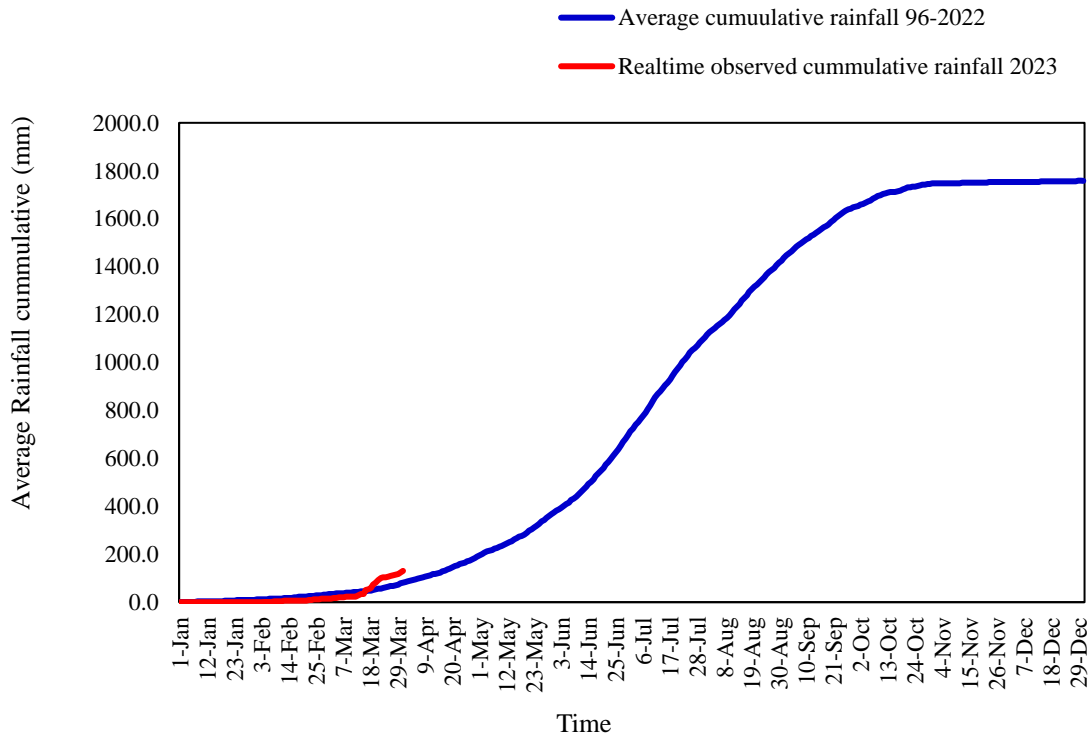


Figure 1: Observed rainfall (March 2023) against the long-term average (1996-2022)

Highest daily observation rainfall recorded at each met stations – March 2023

Table 1 Highest daily observation rainfall recorded at each met stations in March month

Stations	Rainfall (mm)
Bhur	29.6
Chamkhar	9.3
Dagana	17.6
Damphu	23.4
Deothang	33.0
Gasa	18.2
Haa	22.4
Kanglung	17.0
Mongar	12.8
Paro	12.1
Pemagatshel	17.8
Phuentsholing	124.6
Punakha	27.0
Babesa	17.4
Sipsu	87.2
Tangmachu	9.4
Trashiyangtse	14.2
Trongsa	17.0
Bajo	20.6
Zhemgang	21.3

Total observation rainfall recorded at each met stations – March 2023

Table 2 Total observation rainfall recorded at each met stations in March month

Stations	Total Rainfall (mm)
Bhur	187.1
Chamkhar	57.0
Dagana	58.2
Damphu	91.0
Deothang	122.4
Gasa	174.4
Haa	69.5
Kanglung	65.2
Mongar	61.3
Paro	19.6

Pemagatshel	71.2
Phuentsholing	449.4
Punakha	53.0
Babesa	33.4
Sipsu	232.4
Tangmachu	65.1
Trashiyangtse	116.4
Trongsa	114.7
Wangdue	60.3
Zhemgang	79.8

The following map shows the spatial distribution of total rainfall across Bhutan during March 2023. The northern, southwest and isolated parts of southern region received good amount of rainfall as compared to other remaining regions.

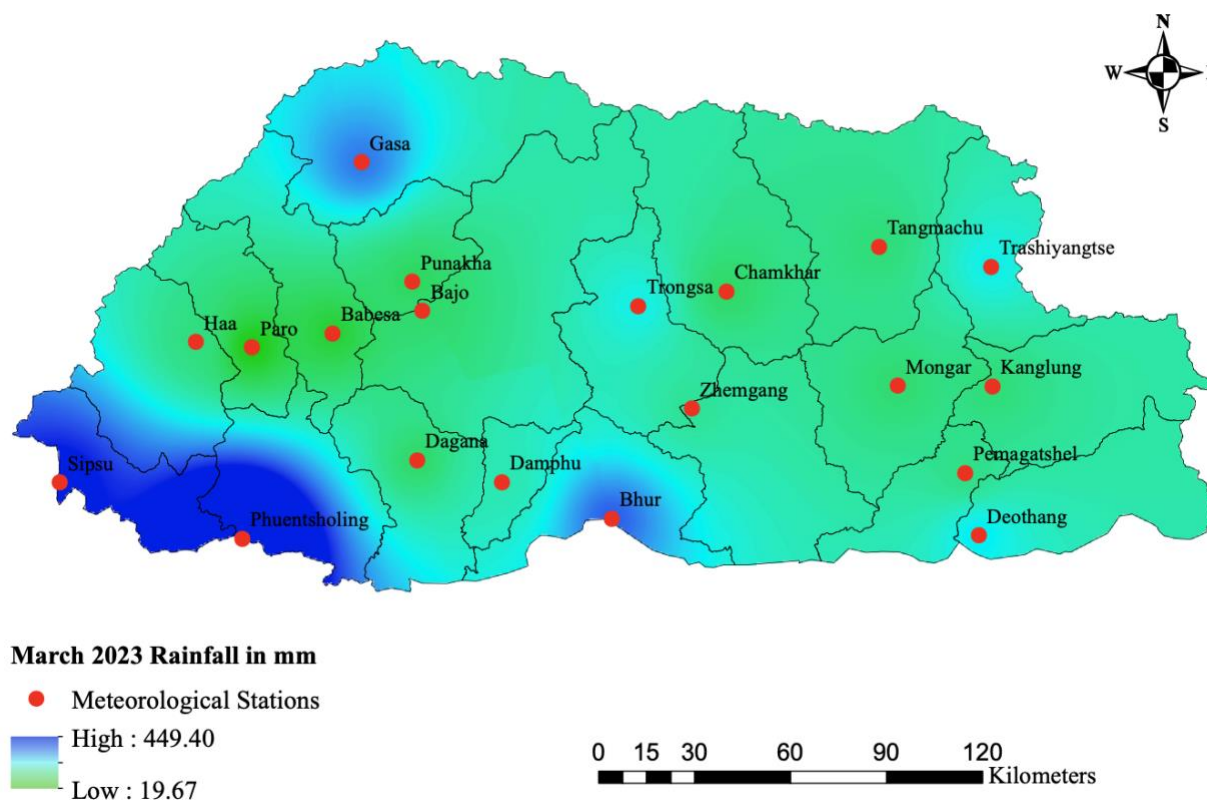


Figure 2: Spatial distribution of total rainfall during March 2023

Temperature

The normal is the monitoring of long-term average temperature of Bhutan from (1996-2022). The behavior of observed real time average temperature (2023) against the long-term average (1996-2022) is analyzed. Thus, for the month of March 2023, the observed average temperature was mostly near normal to slightly above normal for few days.

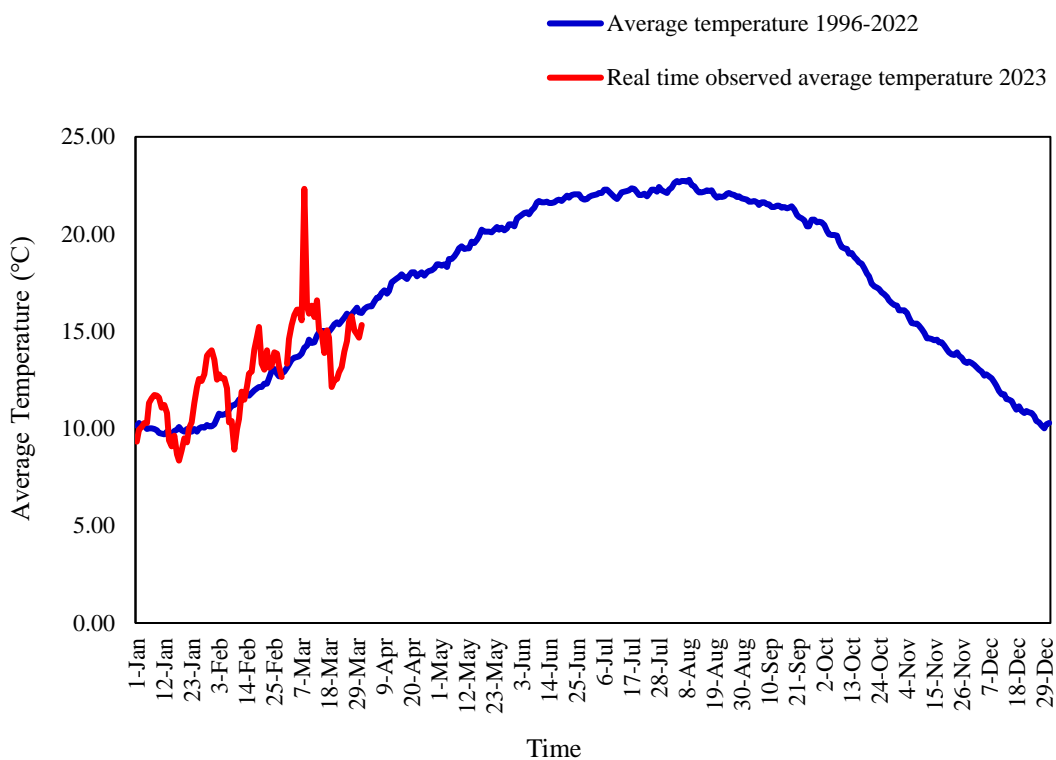


Figure 3: Average observed temperature (March 2023) against long-term average (1996-2022)

Highest daily maximum temperature recorded at each met stations – March 2023

Table 3 Highest daily maximum temperature recorded at each met stations in March month

Stations	Maximum Temperature (°C)
Bhur	30.0
Chamkhar	19.0
Dagana	26.5
Damphu	22.0
Deothang	26.0
Gasa	15.5
Haa	16.0

Kanglung	23.5
Mongar	26.0
Paro	19.5
Pemagatshel	26.0
Phuentsholing	32.5
Punakha	31.5
Babesa	20.0
Sipsu	32.0
Tangmachu	27.5
TrashiYangtse	29.0
Trongsa	20.5
Bajo	27.5
Zhemgang	21.5

Lowest daily minimum temperature recorded at each met stations – March 2023

Table 4 Lowest daily minimum temperature recorded at each met stations in March month

Stations	Minimum Temperature (°C)
Bhur	16.5
Chamkhar	2.0
Dagana	1.5
Damphu	8.5
Deothang	1.5
Gasa	-2.0
Haa	-4.5
Kanglung	6.0
Mongar	9.0
Paro	-2.0
Pemagatshel	8.0
Phuentsholing	12.0
Punakha	11.0
Babesa	-1.5
Sipsu	13.5
Tangmachu	9.5
TrashiYangtse	3.0
Trongsa	3.5
Bajo	7.0
Zhemgang	5.5

The map below shows the spatial variation of maximum, minimum and average temperature during March month.

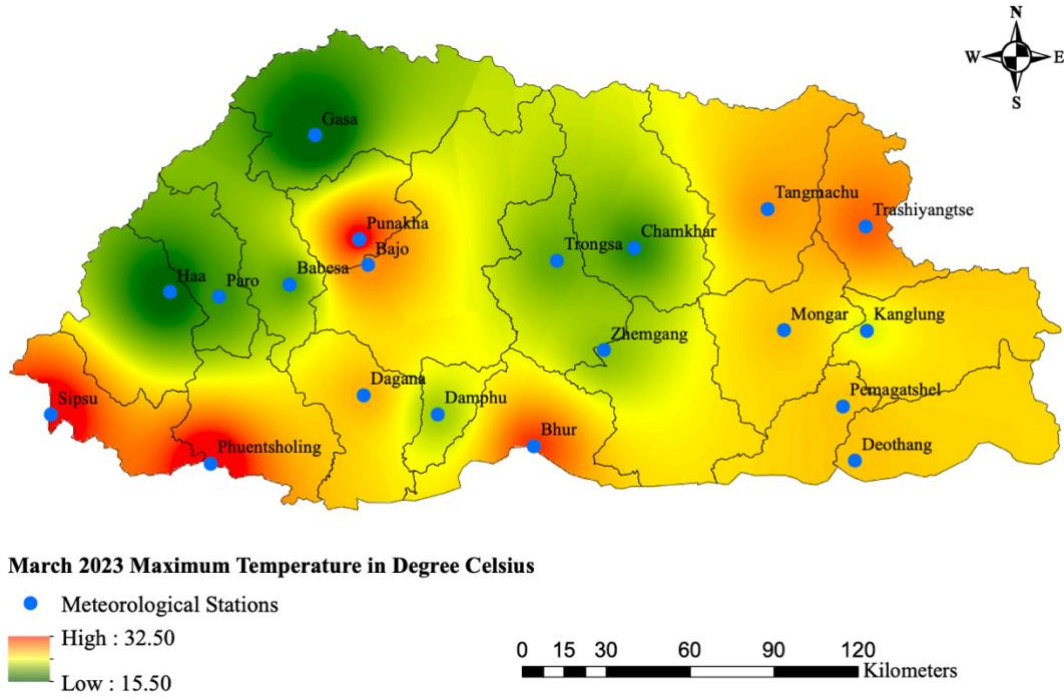


Figure 4: Spatial variation of maximum of maximum temperature during March 2023

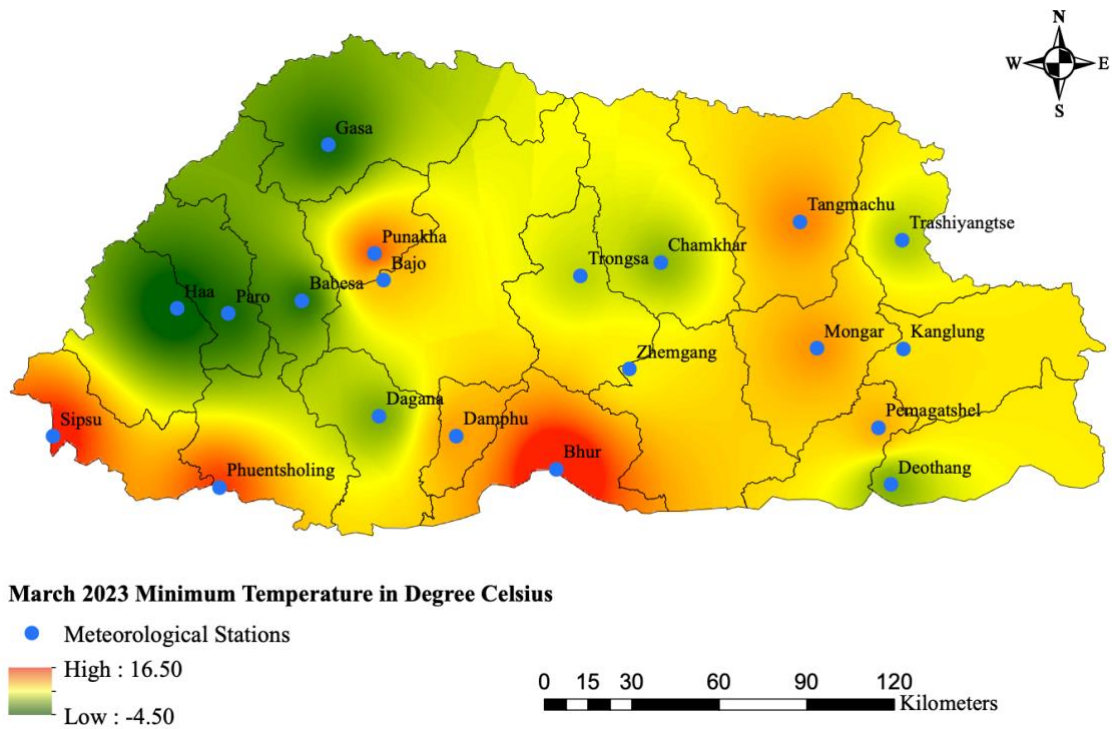
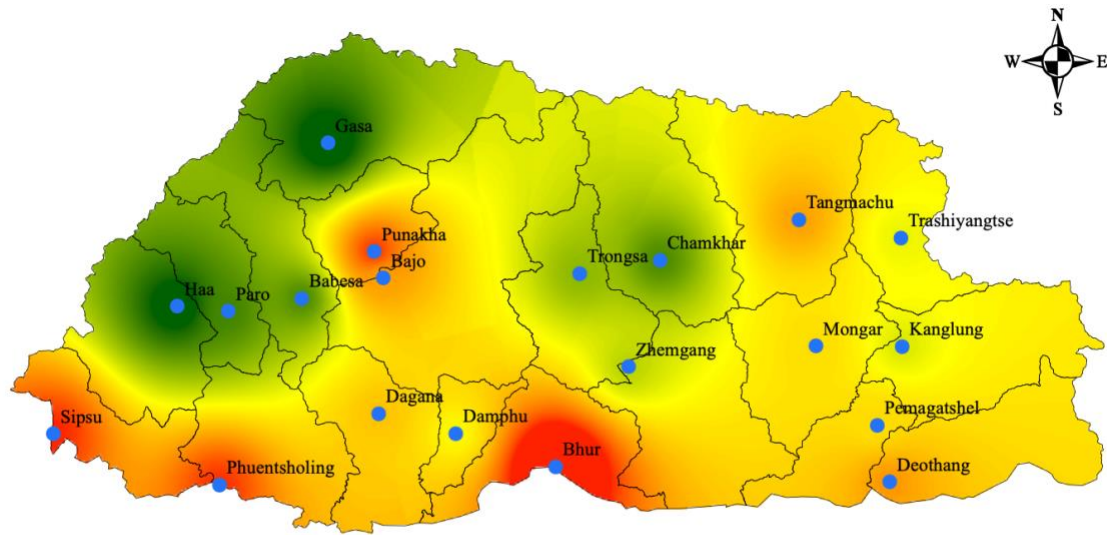


Figure 5: Spatial variation of minimum of minimum temperature during March 2023



March 2023 Average Temperature in Degree Celsius

● Meteorological Stations

High : 27.40

Low : 6.19



Figure 6: Spatial variation of average temperature during March 2023