

Report on Tmax for the month of May 2021

The report presents a short analysis of observed warm days (Maximum temperature) for the month of May 2021 compared to the historical observed Maximum Temperature (Tmax). May month falls under the pre-monsoon period during which the western disturbance and moist winds from the Bay of Bengal brings rainfall accompanied by thunderstorm, lightning and hail. This month is also the transitional stage from winter monsoon to summer monsoon. During this transitional period, weather disturbances are experienced due to unstable atmospheric conditions in the region. The large temperature variation is also observed during this period depending on the onset of summer monsoon. Higher Tmax are likely to be recorded across the country when there is delay in the monsoon. This also causes the accelerated melting of the glacier thereby, increasing the risk of GLOF. Therefore, this report will help in terms of monitoring the GLOF Early Warning System and also the drought condition for agriculture.

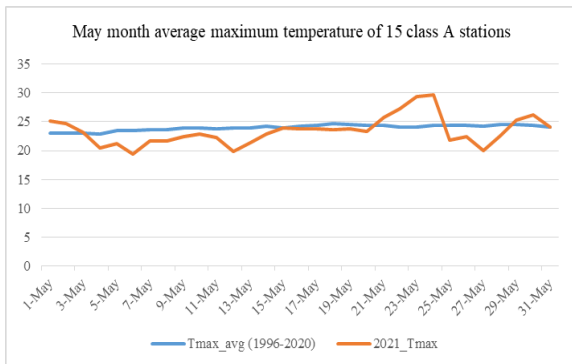
The country as a whole experienced warmer days in the 3rd week of the month of May, from 20th to 24th May, 2021. The Tmax of May 2021 was compared with the past 24 years data of May month.

Comparison of Tmax in May 2021

a) Analysis of the average Tmax

The country has 20 Class A stations, one in each Dzongkhag. However, due to gaps in temperature data for some stations, only 15 stations data of the past 24 years are used to compare the average Tmax of 2021.

The Tmax from 20th to 24th of May, 2021 was above normal (average of Tmax from 1996-2020). On 23rd and 24th May, 2021 the average Tmax exceeded by 5 Degree Celcius while comparing to the average historical Tmax of 1996-2020. However, the Tmax began to decline after the 25th of May.



Date	Average Tmax (1996-2020) (15 class A Station) (°C)	2021 Tmax (°C)	Max Temp Departure
21 May	24.31	25.71	1.39
22 May	24.15	27.25	3.09
23 May	24.08	29.39	5.31
24 May	24.33	29.67	5.34
25 May	24.34	21.75	-2.59

Figure 1: Average Maximum temperature of Bhutan for the month of May

b) Highest historical Tmax and 2021 Tmax of May month

On the 23rd and 24th of May 2021, Punakha and Trashiyangtse respectively recorded the highest May month Tmax till date for the two Dzongkhags. Punakha had the highest Tmax of 37 degrees Celsius on May 23rd, 2021, while Tashiyangtse had the highest Tmax of 30.5 degrees on May 24th, 2021. In addition, Samtse and Dagana also equaled their individual highest Tmax of May month with temperature of 34 and 31 respectively on 24th May, 2021. The previous highest Tmax of Samtse and Dagana was recorded on 29th May, 2017 and 22nd May, 2018 respectively. Similarly, on 23rd May 2021, the Tmax of Chamkhar also equaled its highest May month Tmax which was recorded on 27 May 1996 with 25.5 degrees Celsius.

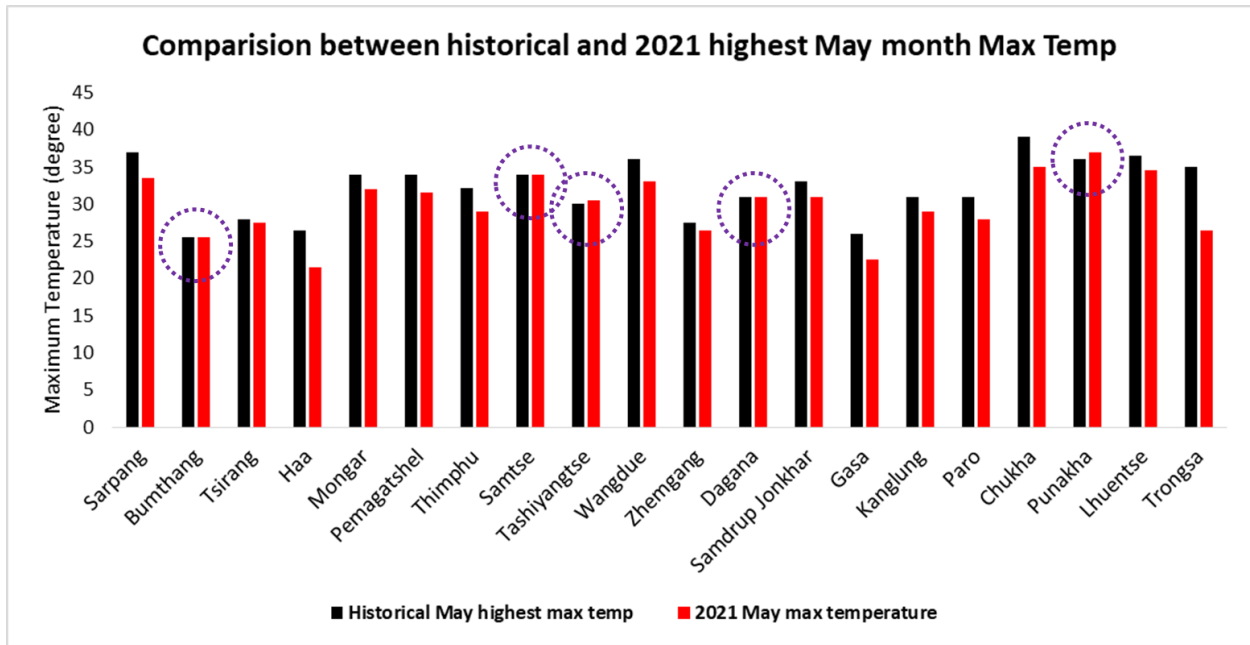


Figure 2: Comparison between historical and 2021 highest temp for May month

For the May month, 2021 has five stations with the highest Tmax at their respective locations. Similarly, in May of 1998, four stations had its highest Tmax of May. The highest maximum temperature of May 2021 was 37 degrees Celsius recorded at Punakha on 23rd May. However, Phuentsholing Station still holds the highest maximum temperature recorded for the month of May with 39 degrees Celsius recorded on 20 May 1998.

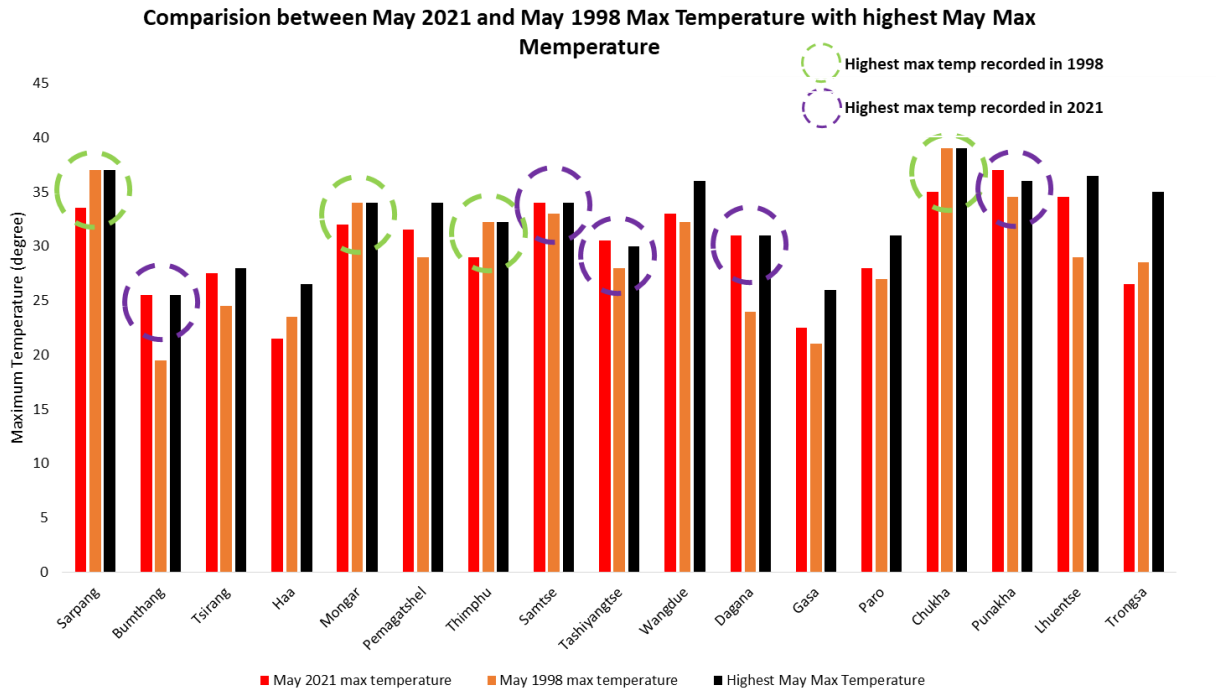


Figure 3: Comparison between 2021 and 1998 highest temp with historical for May month

Conclusion

The maximum temperature for the first three weeks of May 2021 was observed to be normal or below normal for the whole country. The third week of May 2021 recorded above normal temperature from 22 to 24 May 2021. The conditions favoring this change may be due to prevailing atmospheric conditions, western disturbances, moisture content in the atmosphere from the cyclonic system YAAS, cloud cover among others. The cyclone ‘YAAS’ was formed as low pressure on 23rd May, 2021 in south central Bay of Bengal and landfalled near Balasore in Odisha around noon (12 BST) of 26th May, 2021 as a Very Severe Cyclonic Storm as per the Indian Meteorological Department (IMD).