

Extreme Weather Events in Bhutan











Background

Weather and Climate Services Division, National Center for Hydrology and Meteorology has initiated recording of the severe weather events across the country since September 2017 for archival and use in future studies. NCHM has weather station with regular observer across the country. The information on the weather events are reported via the wechat messenger and accordingly archival of these events are done based on the type of event and location of the event.

The recorded events are as per the observation from the Class A meteorological station and some weather events are abstracted from printed national newspaper.

Weather Events in Bhutan

Weather events from across the country, such as; heavy rain, thunderstorm, lightning, snowfall, hailstorm, windstorm, tropical cyclone, heatwave and coldwave conditions, and icing; are collected and mapping is done on the monthly basis. The list of weather events with the symbol are as follows;

Sl. no	Weather events	Symbols
1	Heavy rain	
2	Thunderstorm	
3	Lightning	
4	Snow	
5	Hail Storm	
6	Windstorm	
7	Cyclone	
8	Highest temperature	
9	Lowest temperature	
10	Frost/Icing	

The maps show the monthly occurrence of the events in Dzongkhag wise and tables shows daily occurrence of event(s) in a month.

September, 2017

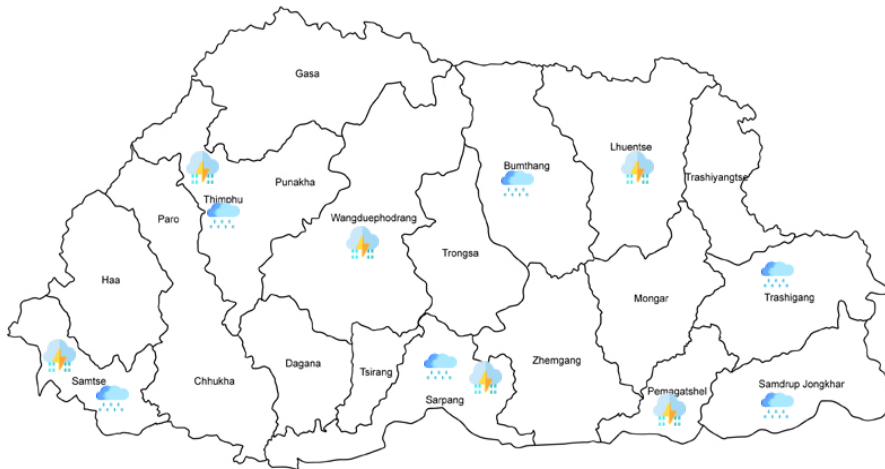


Figure 1: Weather events for month of September 2017

Table 1: Daily weather events for the month of September 2017

Dzongkhag/Date	17-Sep	26-Sep	28-Sep	29-Sep	30-Sep
Thimphu	Rain, Thunderstorm				
Wangdi	Thunderstorm				
Samtse	Thunderstorm, Heavy rain		Thunderstorm, Heavy rain	Heavy rain	
Sarpang	Thunderstorm, Heavy rain	Thunderstorm, Heavy rain			
Pema Gatshel	Thunderstorm				
Samdrup Jongkhar	Heavy rain				
Trashigang					Heavy rain
Lhuentse	Thunderstorm				
Bumthang					Heavy rain

October, 2017



Figure 2: Weather events for month of October 2017

Table 2: Daily weather events for the month of October 2017

Dzongkhag/Date	6-Oct
Chhukha	Thunderstorm

November, 2017

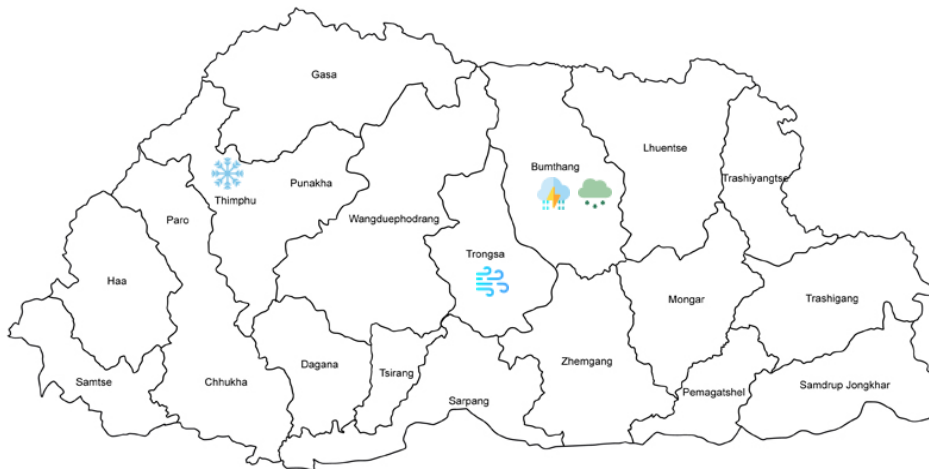


Figure 3: Weather events for month of November 2017

Table 3: Daily weather events for the month of November 2017

Dzongkhag/Date	2-Nov
Thimphu	Snow (Bumdra area)
Trongsa	Strong wind
Trongsa	Thunderstorm, Hailstorm

January, 2018

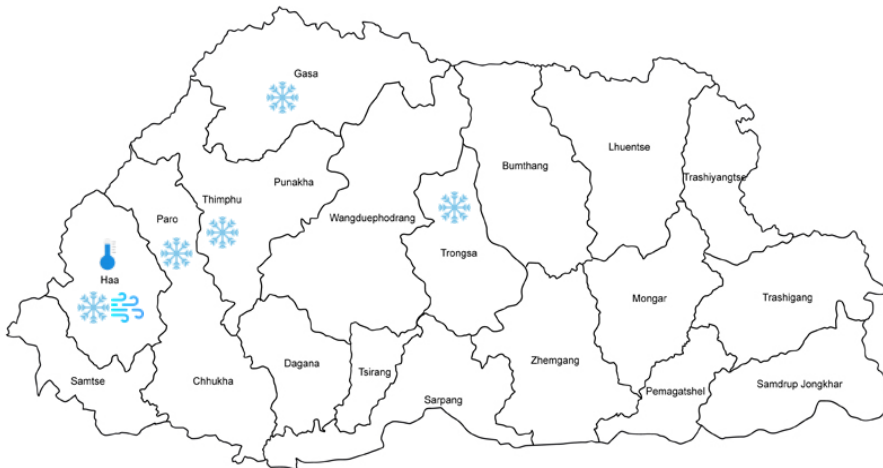


Figure 4: Weather events for month of January 2018

Table 4: Daily weather events for the month of January 2018

Dzongkhag/Date	26- Jan	27-Jan	29-Jan
Thimphu		Snow (at high altitude)	
Paro		Snow (at high altitude)	
Haa	Windstorm	Snow (1.5mm)	
Gasa	Snow	Snow (2.4mm)	Snow (1.2mm)
Trongsa		Snow (at high altitude)	

February, 2018

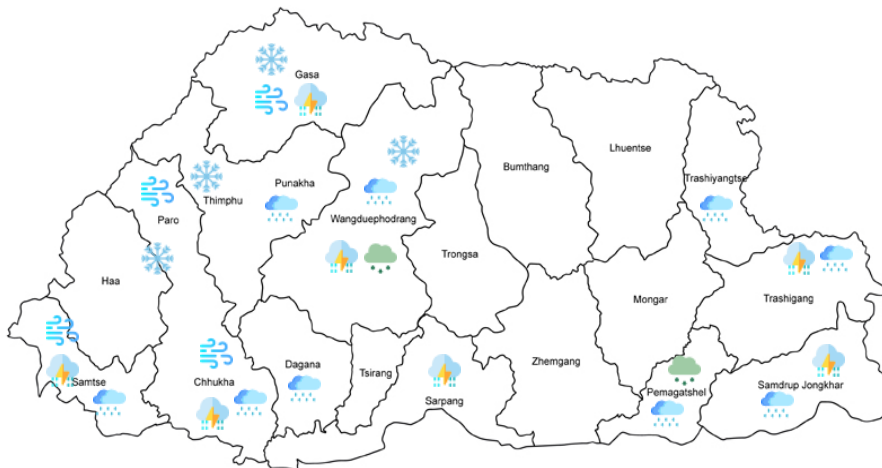


Figure 5: Weather events for month of February 2018

Table 5: Daily weather events for the month of February 2018

Dzongkhag/Date	10-Feb	14-Feb	15-Feb	18-Feb	22-Feb	23-Feb	25-Feb	26-Feb
Thimphu		Snow (at higher altitude and Lungtenphu area)						
Paro	strong windstorm	Snow (Chelela, Ha-Paro highway)						
Punakha							Rain	
Wangdi		Rain, thunderstorm, Snow (Gangtoe gonpa), hailstorm						
Gasa		Snow, Rain	Rain, Windstorm	light Snow	Rain	Rain	Rain	
Trashiyangtse					Rain			
Samtse		Thunderstorm, Windstorm						Rain
Chhukha		Thunder, Rain, Wind storm		Wind storm, Rain				Rain, Thunder
Sarpang		Thunderstorm						
Pemagatshel		Rain, light Hailstorm						Rain
Samdrup Jongkhar		Rain, Thunder storm						Rain
Trashigang		Thunderstorm, Rain						
Mongar		lightning and thunder, light rain			Rain			Rain
Dagana					Rain			

March, 2018

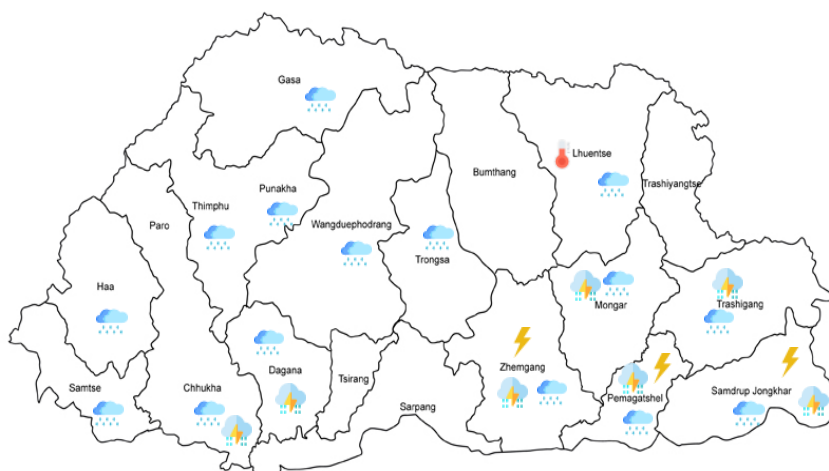


Figure 6: Weather events for month of March 2018

Table 6: Daily weather events for the month of March 2018

Dzongkhag/ Date	2-Mar	5-Mar	6-Mar	12-Mar	16- Mar	17-Mar	26-Mar	29-Mar	30-Mar
Thimphu				Rain					
Haa		Rain							
Punakha	Rain			Rain					
Wangdi	Heavy rain		Strong wind (for 10mins)	Rain					
Gasa	Rain	Rain	Rain and windstorm	Rain			Rain	Rain	Snow
Lhuentse	Rain			Rain					
Trongsa	Rain	Rain, Thunderst orm, Lightning							
Zhemgang			Rain, Thunder, Lightning (dawn)	Rain		Hailstorm, Heavy rain, Thunderst orm, Lightning			
Dagana	Rain	Rain, Thunderst orm							
Samtse	Rain			Rain, Windsto rm			Rain, Windstor m		
Chhukha	Rain, Thunderst orm	Rain					Rain	Thunder	Rain, Thunderst orm
Pemagatshel	Rain, Thunderst orm		Rain, Thunder, Lightning (dawn)		Rain				
Samdrup Jongkhar	Rain, Thunderst orm, Lightning	Rain, Thunderst orm, Lightning			Rain, Thunde r, Lightni ng		Rain, Thunder, Lightnin g		
Trashigang	Rain		Rain, Thunderst orm					Rain, Thunders torm	
Mongar			Rain, Thunderst orm	Rain		Rain		Rain, thunder, hail	

May, 2018

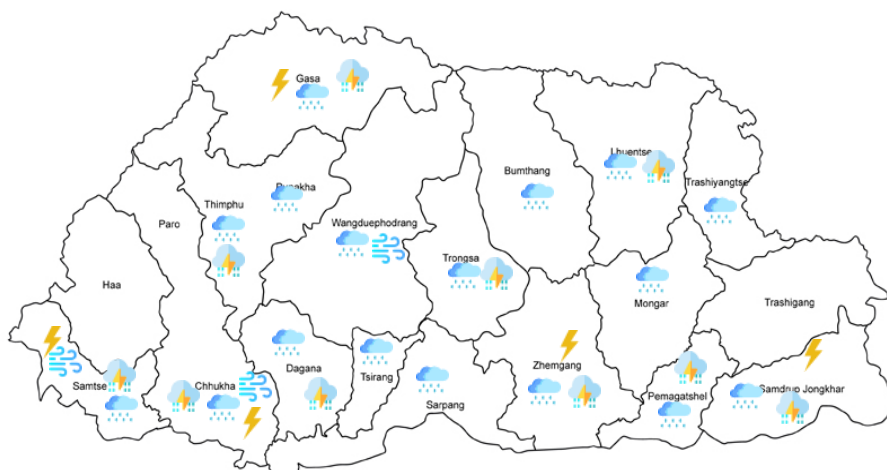


Figure 8: Weather events for month of May 2018

Table 8: Daily weather events for the month of May 2018

Date	1-May	9-May	10-May	13-May	14-May	15-May	22-May	23-May
Thimphu		Rain , Thunderstorm	Rain					Rain
Punakha								Rain
Wangdi		Rain			Rain, Windstorm			
Gasa	Rain	Rain	Rain , Thunderstorm, Lightning	Rain		Rain	Rain	
Lhuentse			Rain , Thunderstorm				Rain	Rain
Trongsa		Rain , Thunderstorm						Rain
Bumthang								Rain
Trashi Yangtse								Rain
Samtse			Rain, thunderstorm, lightning				Rain, thunderstorm, lightning	rain, thunder, lightning
Chhukha		Rain , Thunderstorm, Lightning	Rain, Windstorm, Lightning	Rain	Rain	Rain	Rain, thunderstorm, lightning	Rain
Sarpang							Rain	
Pema Gatshel		Rain , Thunderstorm						
Samdrup Jongkhar		Rain , Thunderstorm, Lightning						
Trashigang		Thunderstorm						
Mongar	rain	Rain			Rain	Rain		
Zhemgang		Thunder storm				Rain	Lightning	Rain
Dagana			Rain, thunderstorm				Rain	
Tsirang		rain					Heavy rain	

Summary

- Bhutan experienced most of the extreme weather events during the post-monsoon and pre-monsoon season.
- Less weather events were reported during winter season (October, November, and December).
- The Highest temperature recorded was 37.5°C in Lhuentse on 23rd March, 2018.
- The Lowest temperature recorded was -12.5°C in Haa on 6th January, 2018.