



**The effect of climate change on dengue case  
in Muang Nakhon Si Thammarat**

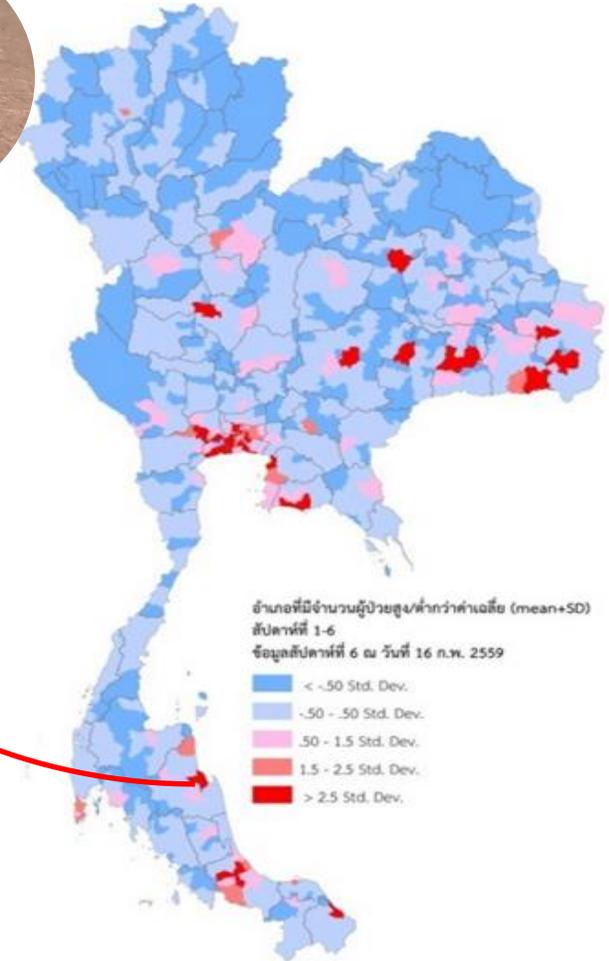
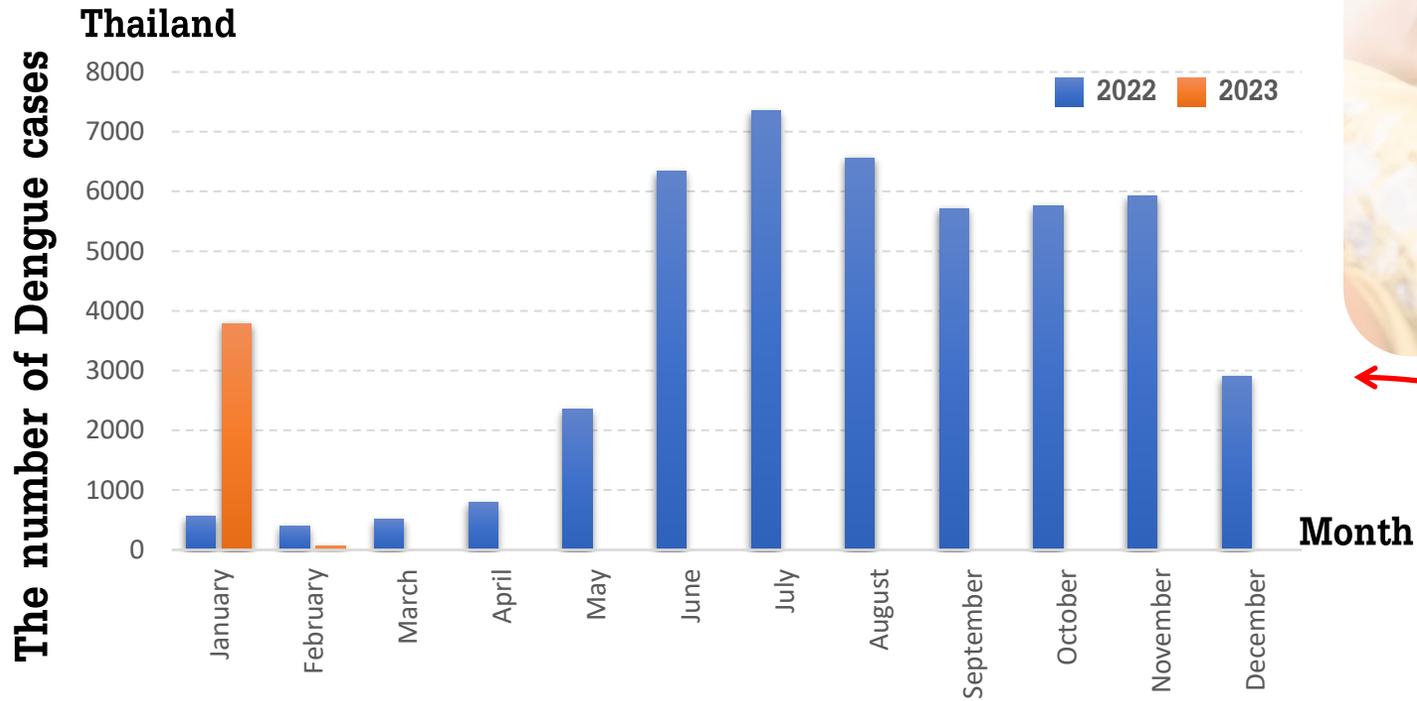
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# Overview



**Figure 1** The number of Dengue Cases in Thailand, Year 2022-2023



# Overview



*Aedes aegypti*



*Aedes albopictus*



**Figure 2** The type of *Aedes*



# Research questions



- 1. How does the climatic factor affect the incidence of dengue cases in Muang Nakhon Si Thammarat?**
- 2. How does the climatic factor affect the number of mosquito larvae?**



# Research objectives



- 1. Study the effect of climatic factor to the number of dengue cases in Muang Nakhon Si Thammarat, Thailand.**
- 2. Study the effect of the number of mosquito larvae to number of dengue cases.**



# Hypothesis



- 1. If the weather is warm, it will increase the number of mosquito larvae as well as the number of dengue incidence.**
  
- 2. If the weather is cold ,it will decrease the number of mosquito larvae as well as the number of dengue incidence.**



# Materials and Methods



## Study Sites : Watpramahatat School, Muang Nakhon Si Thammarat, Thailand



**Figure 3 :** Study Sites : Watpramahathat School, Muang Nakhon Si Thammarat, Thailand





## Identify type of mosquito larvae



*Aedes albopictus*



*Aedes aegypti*



# Materials and Methods



Collect climatic data from Meteorological Department of Thailand (Temperature and Relative Humidity)



Collect Dengue cases data from Nakhon Si Thammarat provincial health



Analysis of climatic factor and number of dengue cases and number of mosquito larvae.

House Index (HI)

percentage of house or premises positive for *Aedes* larvae

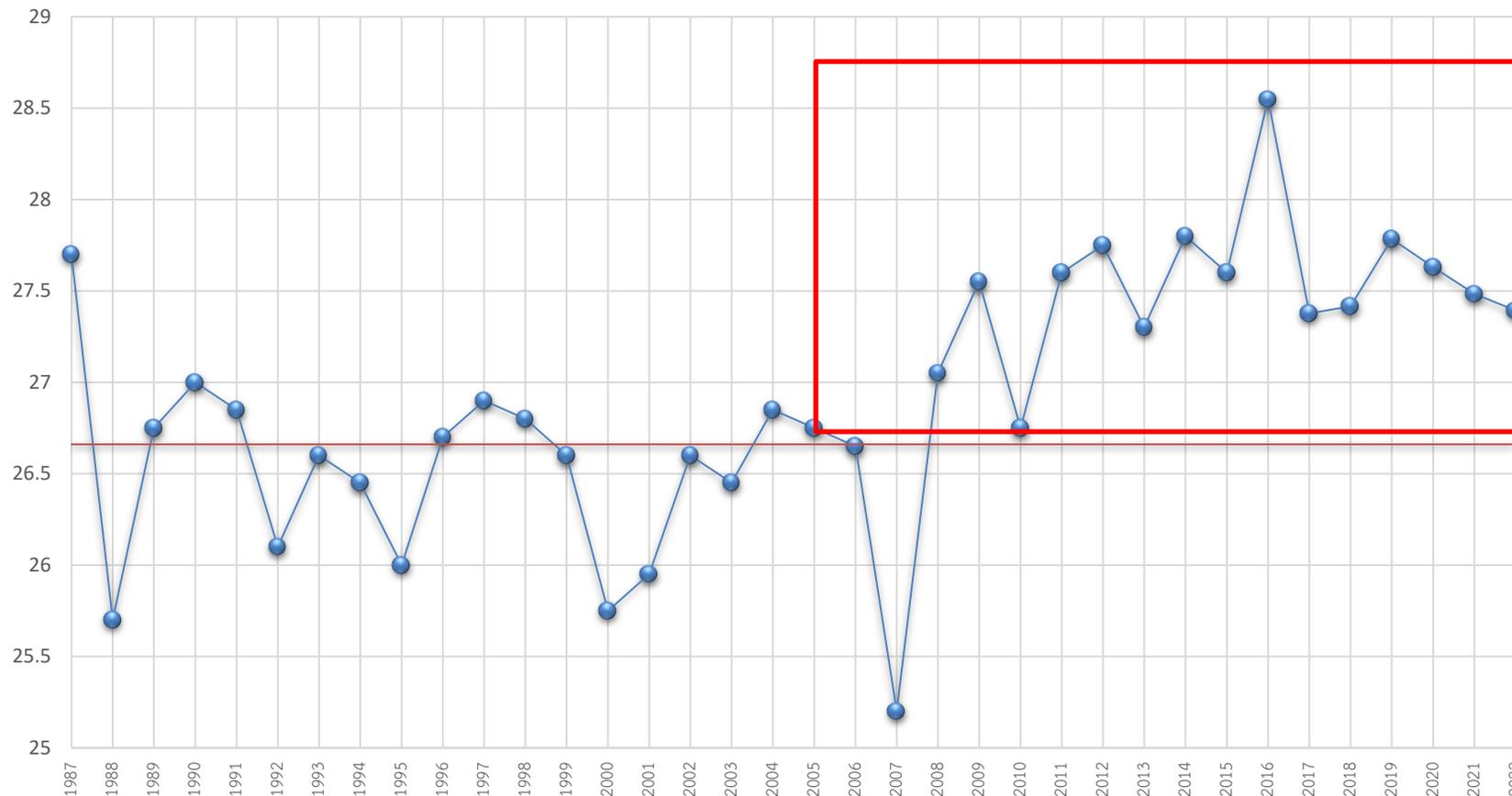
$$HI = \frac{\text{No. of house positive for } Aedes \text{ larvae}}{\text{No. of houses inspected}} \times 100 \%$$



# Data Summary and Analysis



The study of the average temperature compared with the average temperature in the past 30 years



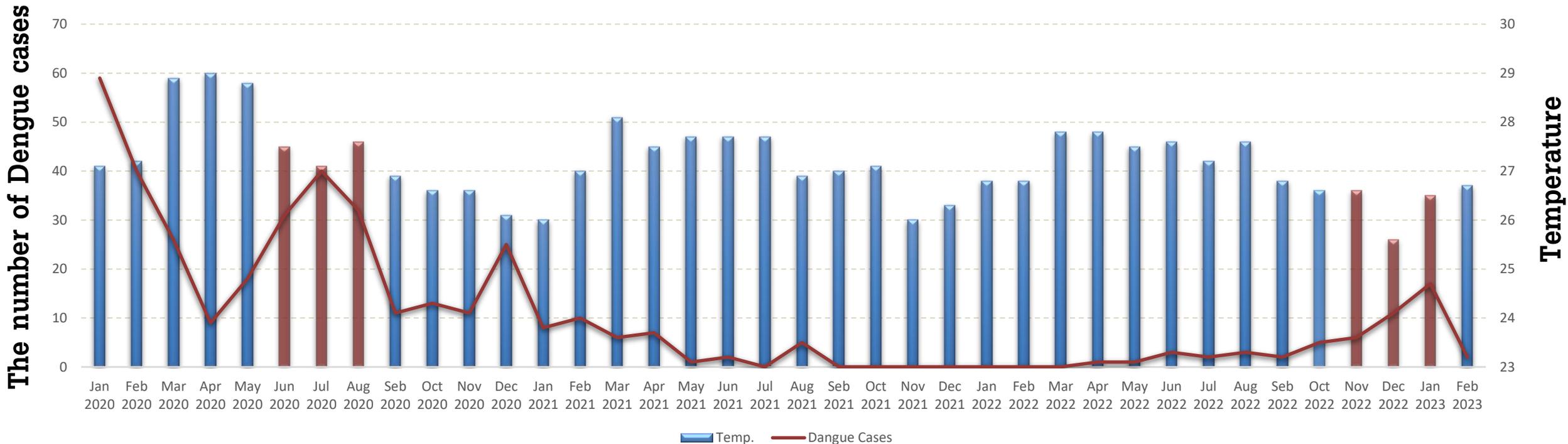
Muang Nakhon Si Thammarat, Thailand showed the average temperature in the past 10 years, higher than the average temperature in the past 30 years.



# Data Summary and Analysis



## Nakhon Si Thammarat



**Figure 5** The number of Danguge Cases in Muang Nakhon Si Thammarat and Monthly Temperature

The number of dengue cases during the rainy season (June-August and November-January) is higher than dry season.



# Data Summary and Analysis



**Table 1 :** The number of mosquito larvae and house index of *Ae. aegypti* and *Ae. Albopictus*, in February at Watpramahathat School, Muang Nakhon Si Thammarat, Thailand

Study point	Water color	pH	Temp. (°C)	The number of mosquito larvae	Mosquito Type	
					<i>Aedes</i>	other
1	clear	7	20.7	-	-	-
2	clear	7	20.7	-	-	-
3	clear	7	20.7	13	10	3
4	clear	7	20.7	-	-	-
5	clear	8	20.7	11	8	2
6	clear	7	20.7	-	-	-
7	clear	7	20.7	-	-	-
8	light brown	8	20.6	24	20	4
9	light brown	8	20.6	13	10	3
10	clear	7	20.6	5	5	-
HI Index (%)					50%	



# Data Summary and Analysis



**Table 2 :** Relationship between HI(%) in Watpramahatat School Muang Nakhon Si Thammarat.

	<b>Aedes Larvae</b>
No. of households (building point)	10
No. of positive households (building point)	5
House Index (%)	50.0

House index of mosquito larvae (*Ae. aegypti*) at Watpramahatat School Mueang Nakhon Si Thammarat showed a high value of 50%.

The World Health Organization, house index higher than 5% as an area at high risk of dengue fever.

Watpramahatat School, It is an area with a high risk of dengue fever.



# Conclusion



1. Muang Nakhon Si Thammarat, Thailand showed the average temperature In the past 10 years, higher than the average temperature in the past 30 years. The number of dengue cases during the rainy season (June-August and November-January) is higher than dry season.
2. Muang Nakhon Si Tammarat have HI >5%, and indicates that these districts are dengue sensitive.



Thank you

