

# **SINGAPORE CLIMATE AND ITS EFFECT ON RETAIL SALE** (1985-2019)

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# INTRODUCTION

Singapore has typical tropical climate with abundant rainfall, high and uniform temperatures and high humidity all year round, since its situated near the equator.

Singapore's climate is characterized by two main monsoon seasons:

- 1) Northeast Monsoon occurs from December to early March
- 2) Southwest Monsoon from June to September

I am a foreign businessman who is not familiar with Singapore climate. I am planning to set up my first business in Singapore retail sector.

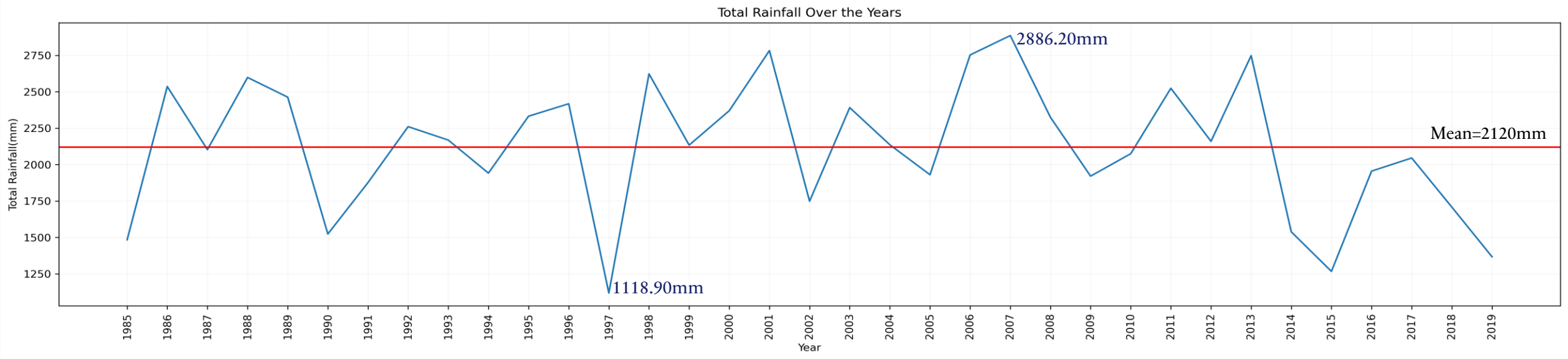
However, before deciding on the category/sector of my first retail business, I would like to have a more comprehensive understanding of Singapore climate, and find out how the retail business is dependent on the regional weather.

It is expected that rainy season will affect the retail sales unfavorably.

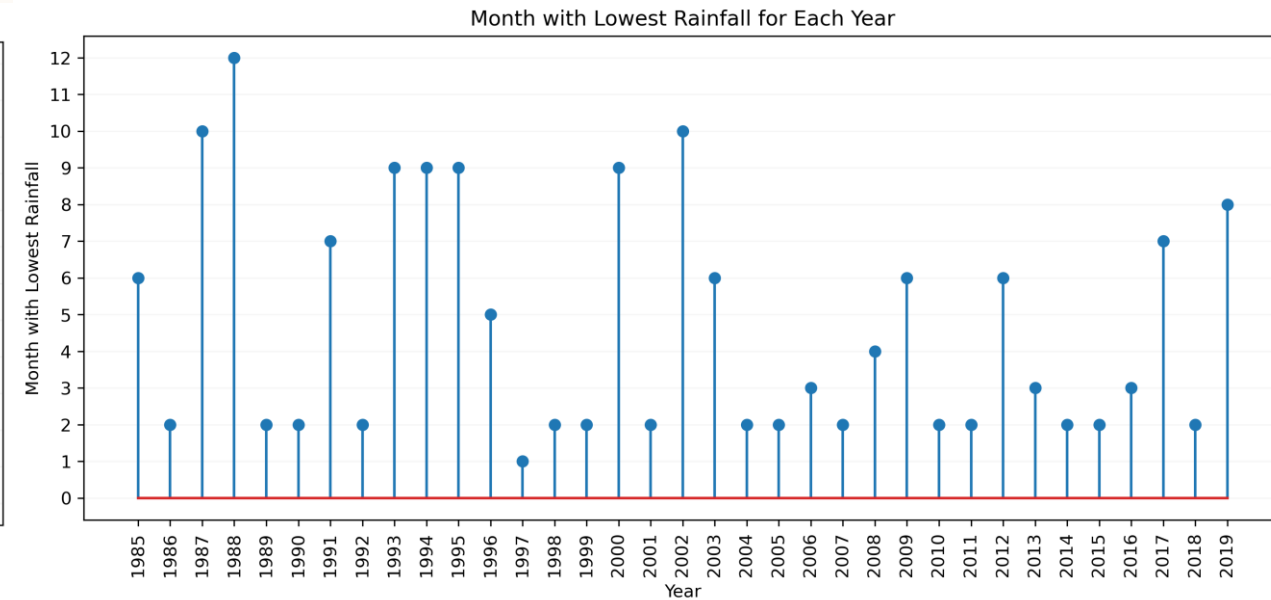
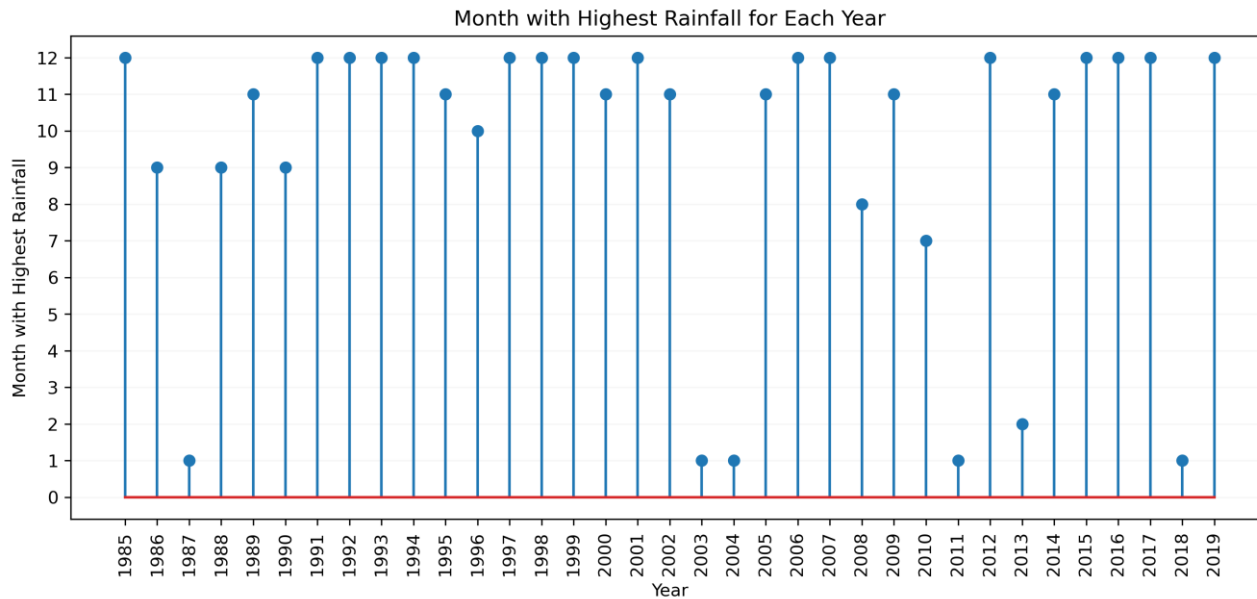
# PROBLEM STATEMENT

The purpose of this project is to analyze the climate change in Singapore and the effects on retail sales.

# ABUNDANT RAINFALL



# ABUNDANT RAINFALL



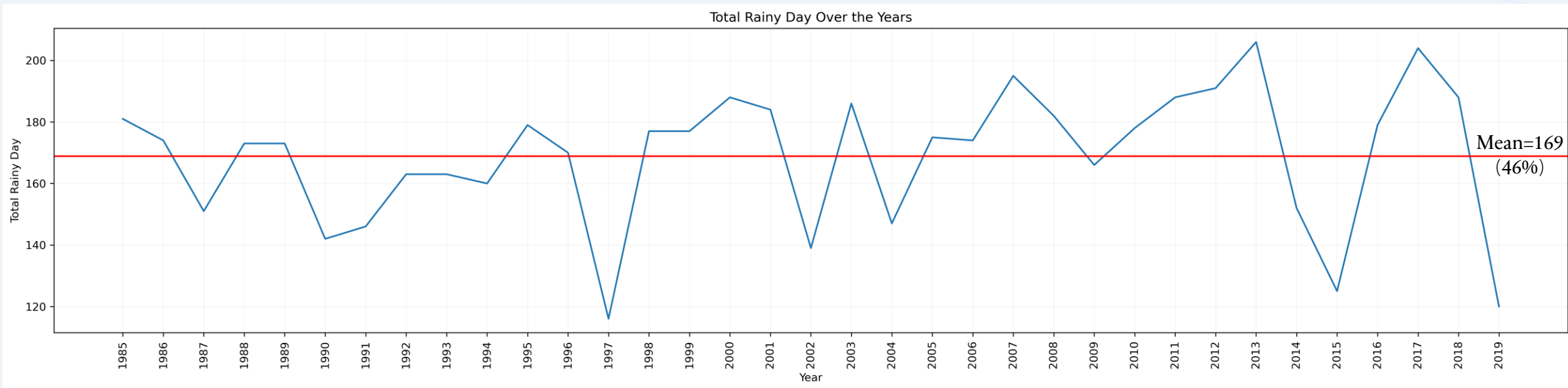
**December** usually has the highest total rainfall in a year, following by November.

Northeast Monsoon “early / wet phase” (Dec and Jan)

**February** generally has the lowest total rainfall .

Northeast Monsoon “late / dry phase” (February and March)

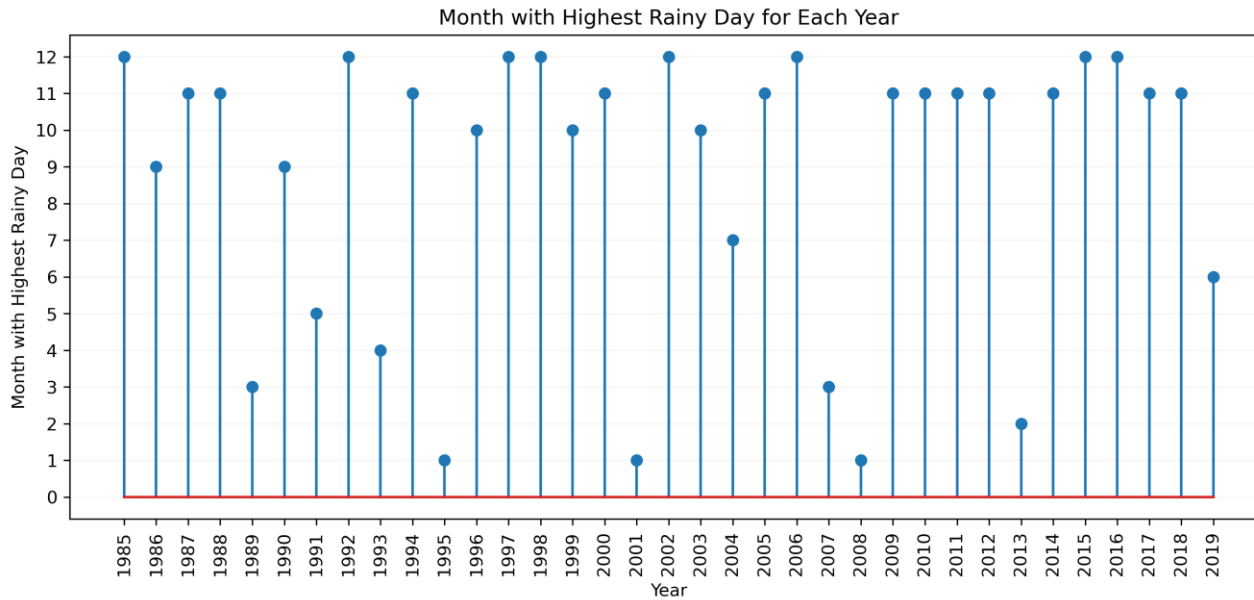
# NUMBER OF RAINY DAY



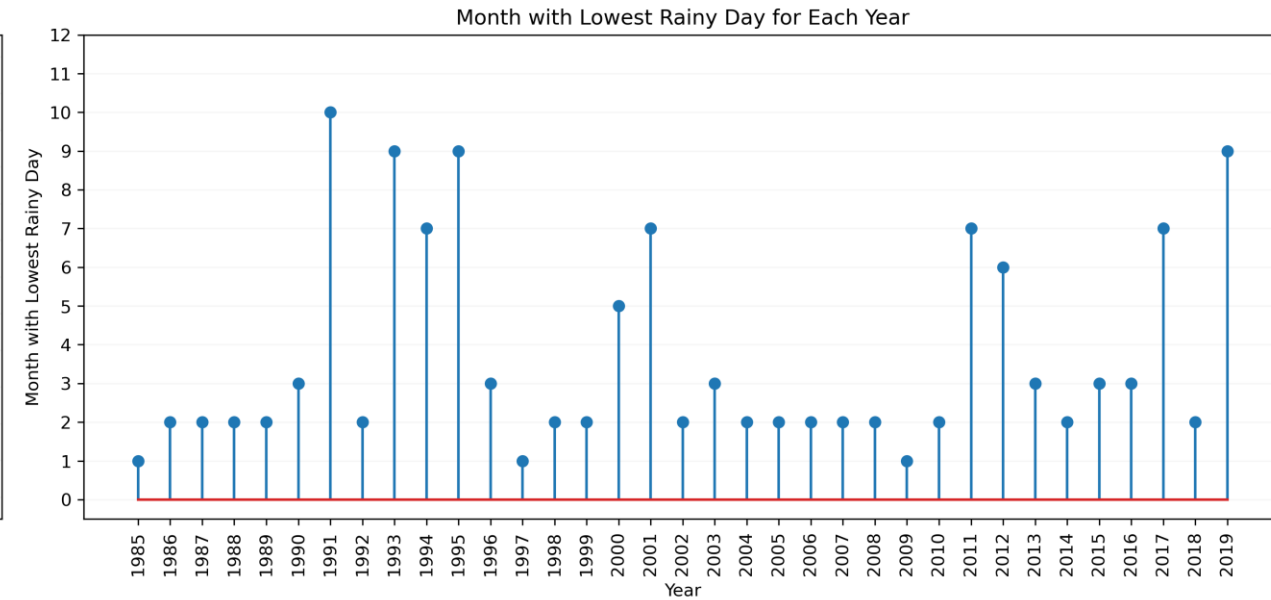
The highest number of rainy day was 206 days, which is 56% in the whole year 2013.  
The lowest has 116 days in 1997, accounts for 32% rainy days of the year.

Rainfall is almost an everyday phenomenon, even during the non-monsoon period.

# NUMBER OF RAINY DAY



**November** has the highest number of rainy day,  
followed by December

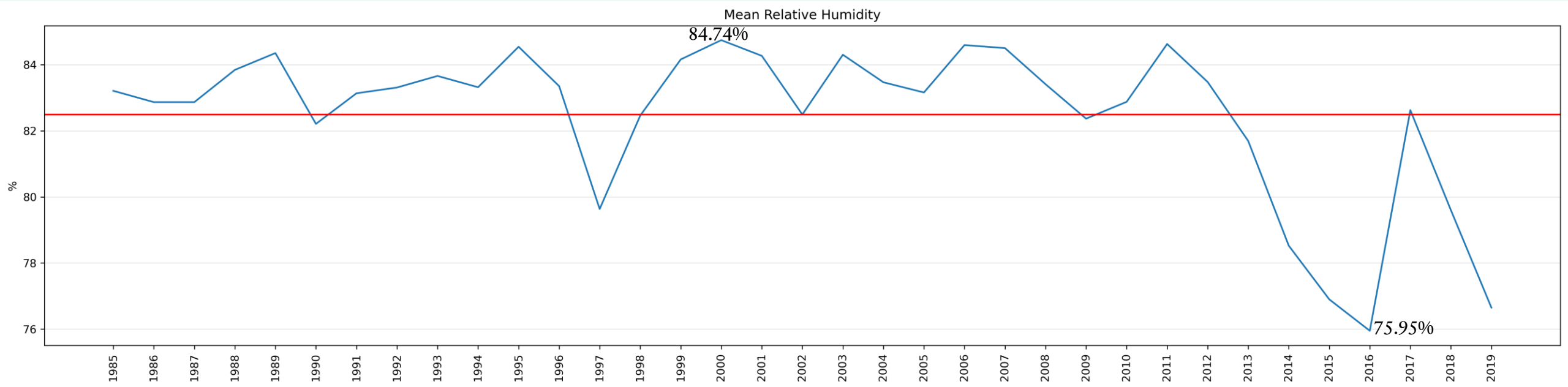


**February** is associated with the lowest rainy day.

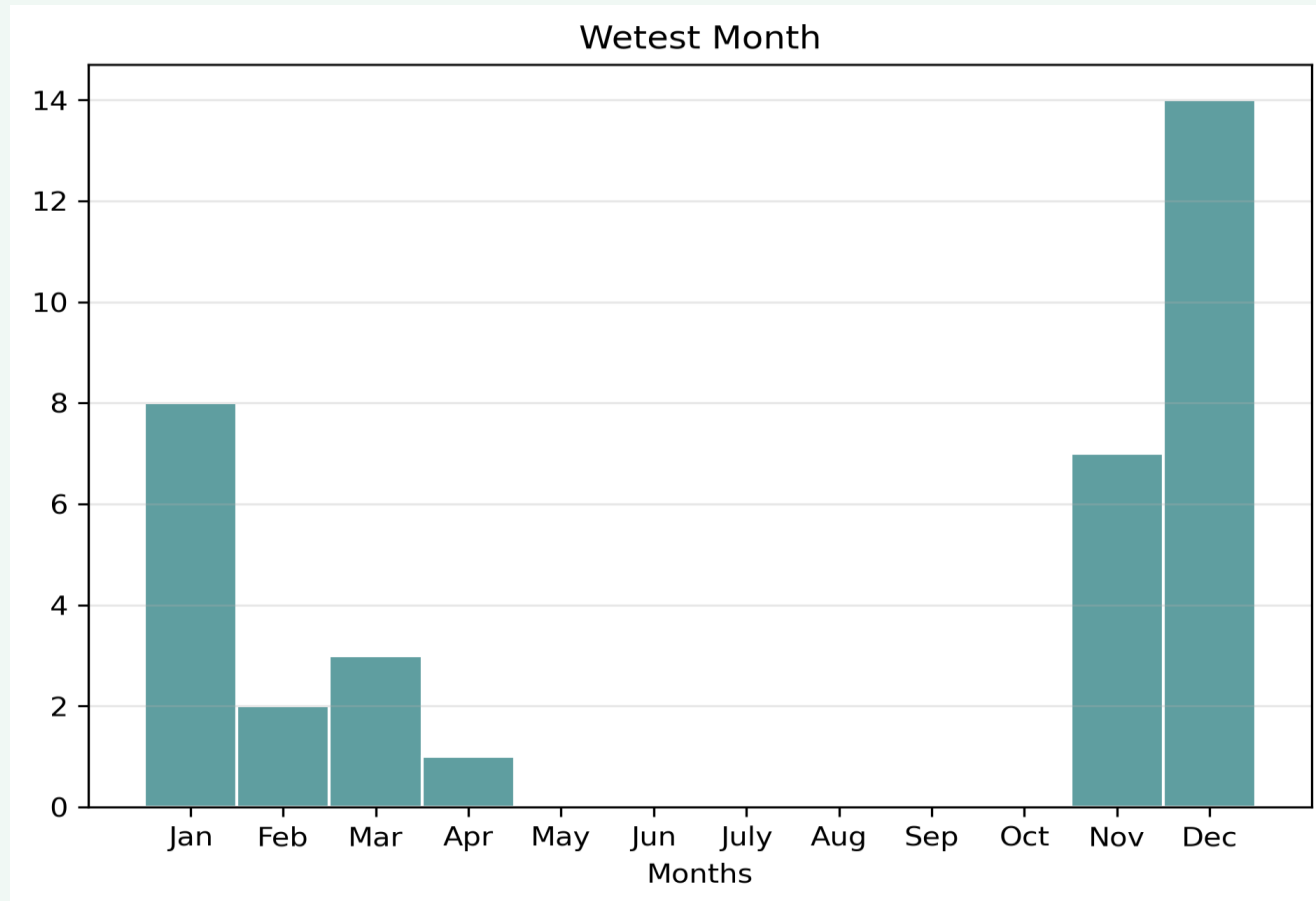


# HIGH HUMIDITY

(MEAN=82.49%)



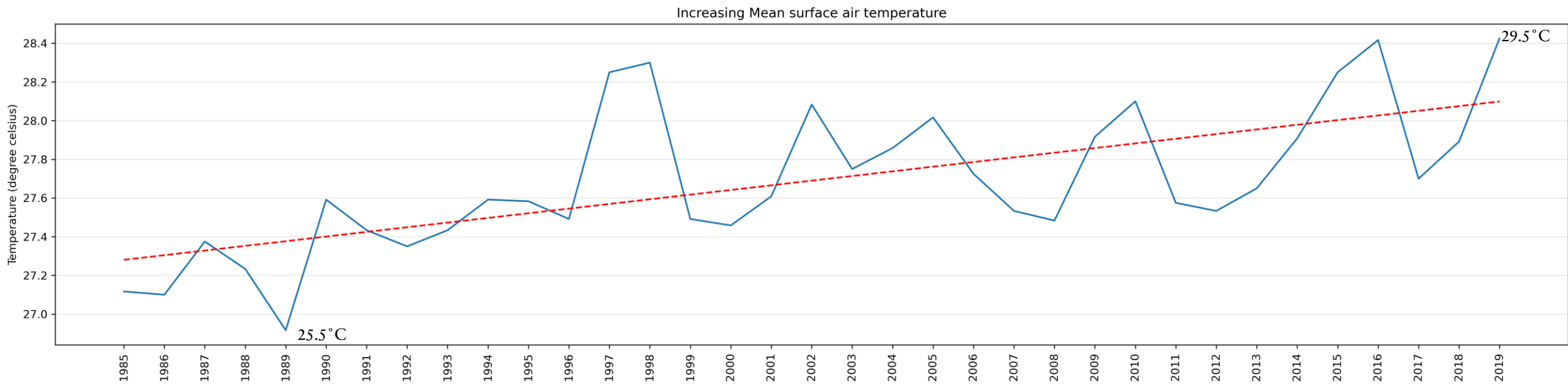
# HUMIDITY



Northeast Monsoon “early / wet phase” (December and January)

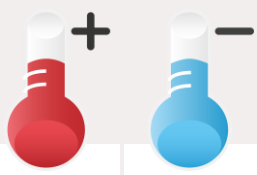
# UNIFORM TEMPERATURE

(MEAN=27.2 °C)

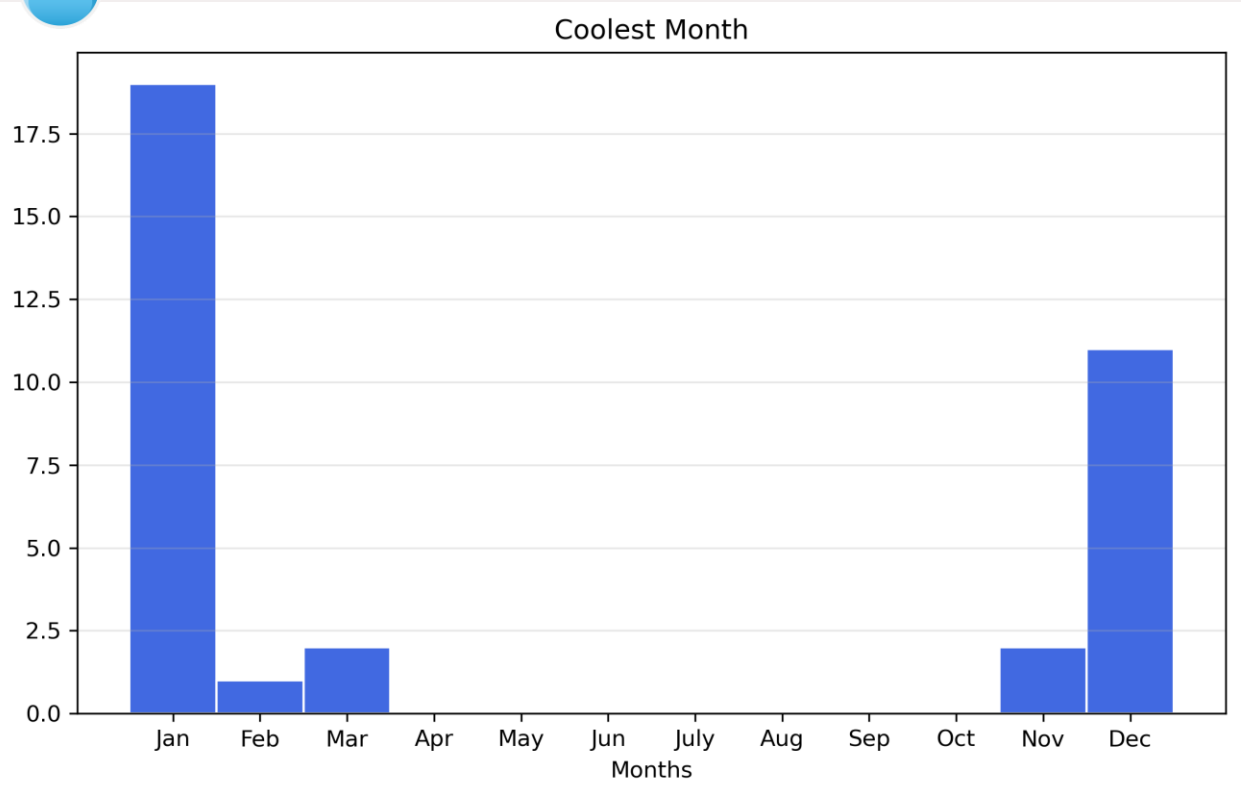
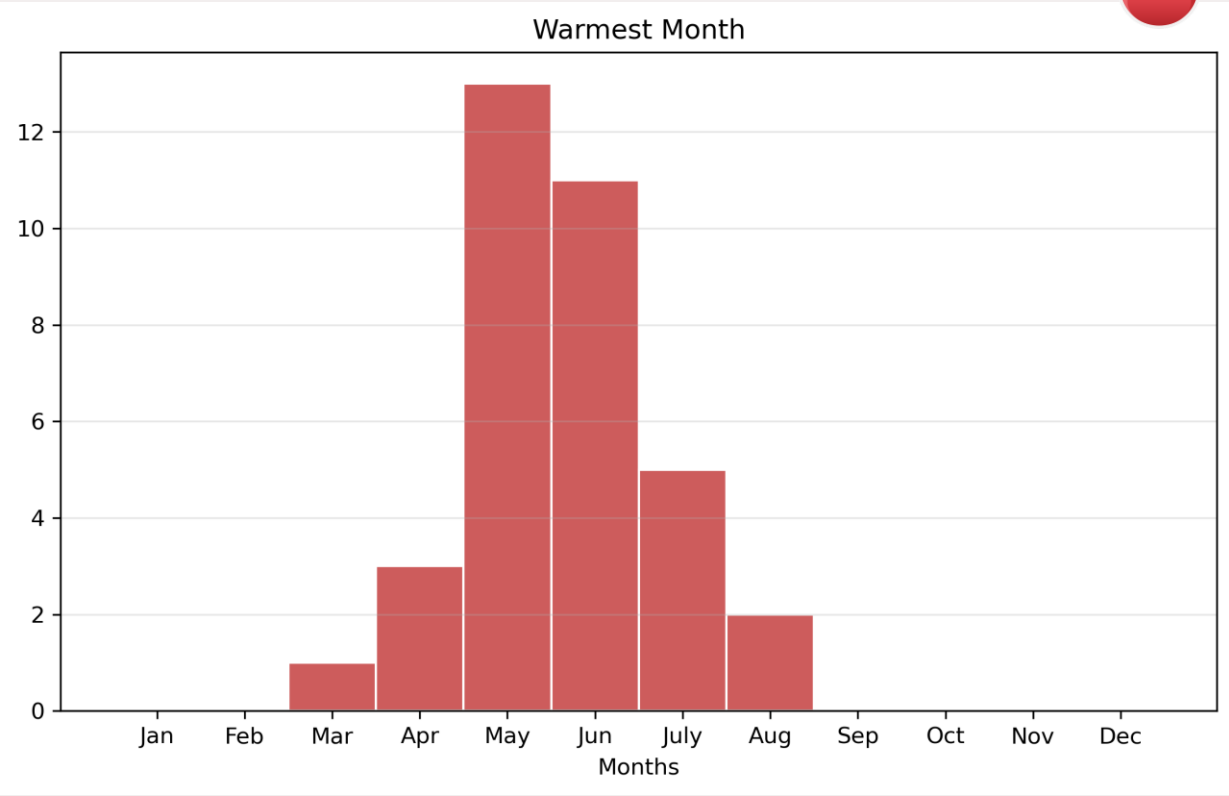


# MEAN SURFACE AIR TEMPERATURE

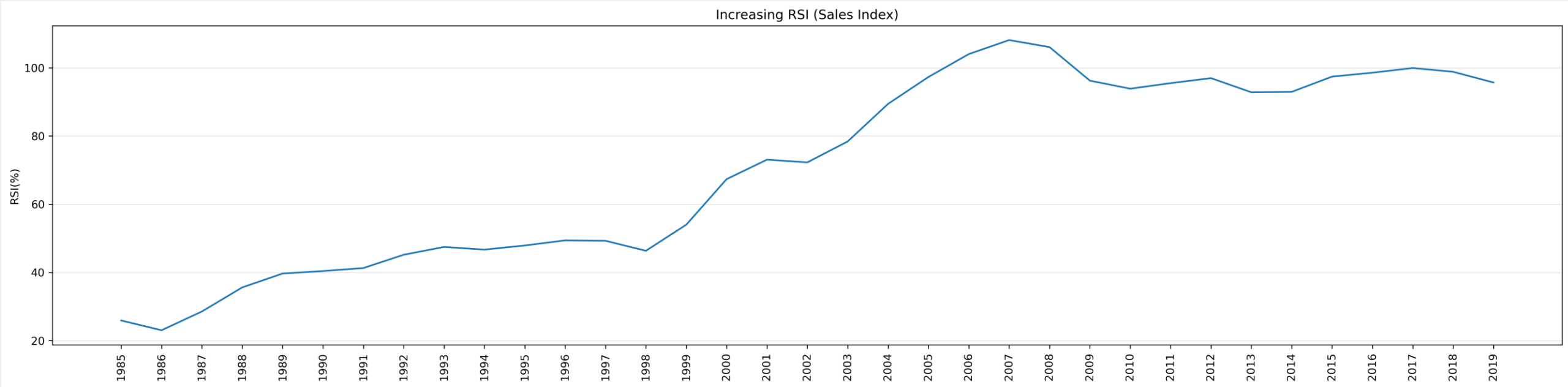
Inter-monsoon Period (Late March-May)  
- Hot afternoons are common (max above 32°C)



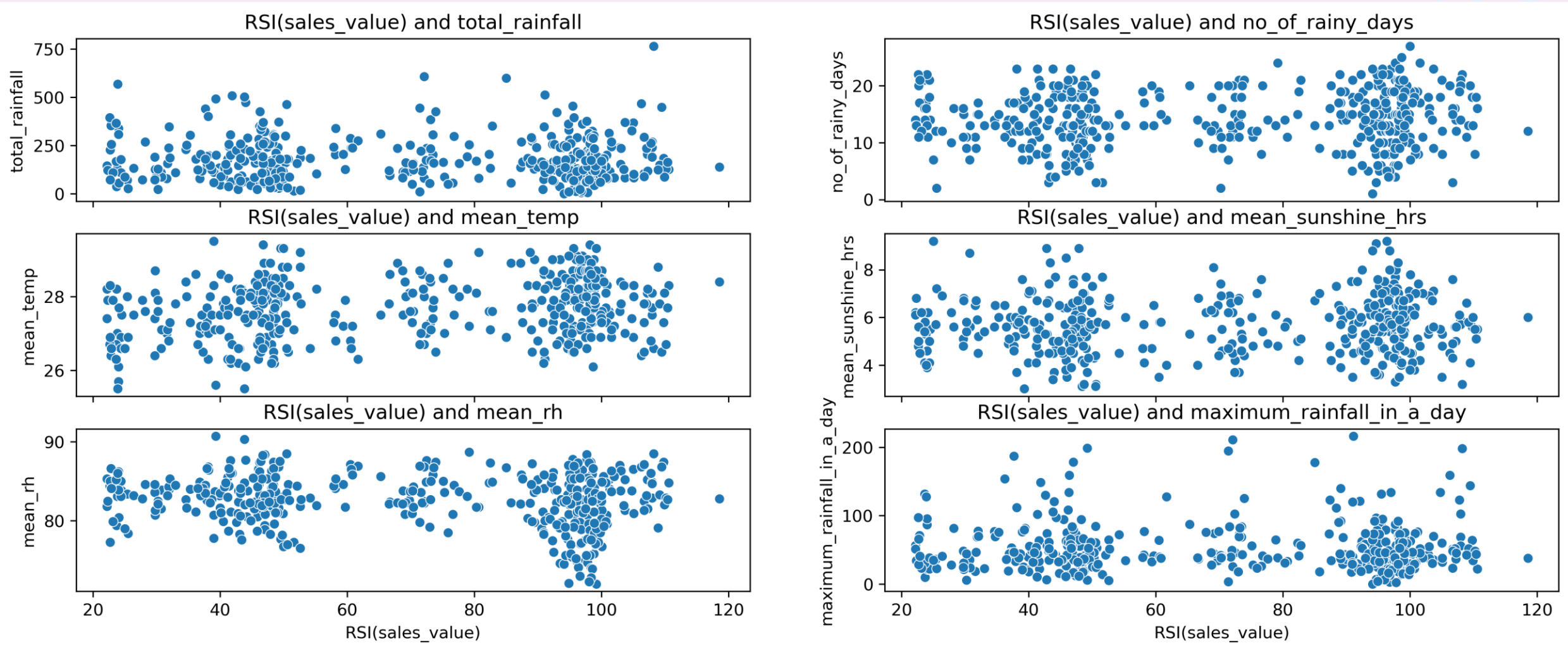
Northeast Monsoon “early / wet phase” (Dec-Jan)  
- As low as below 26°C



# RSI (RETAIL SALES INDEX)



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# SUMMARY

Singapore has uniform temperature, high humidity and abundant rainfall. Singapore Northeast Monsoon Season happen in end of every year to the subsequent month of early March.

In the early phase, Monsoon Surges cause widespread continuous moderate to heavy rain, usually from December to early January. In the later phase, Singapore will be relatively dry from late January to early March.

It is presented that Singapore climate has no material effect on the retail sales overall, it might be due to the multimodal distribution found in the dataset.

# RECOMMENDATION & LIMITATION

## RECOMMENDATION

- Data revealed that the retail sales index has a multimodal distribution, which means that there are different underlying independent groups in the. Further analysis should be done to look at the cluster of the modes separately.
- Further break down RSI into different industries in the data analysis.

## LIMITATION

- Limited coverage and insufficient depth of data availability.
- Unable to capture any product pricing or price promotional activities that may be influential in consumer purchasing behaviors.





**THANK YOU**