



# Diurnal Cloud Types and Meteorological Correlations in Thasala, Nakhon Si Thammarat

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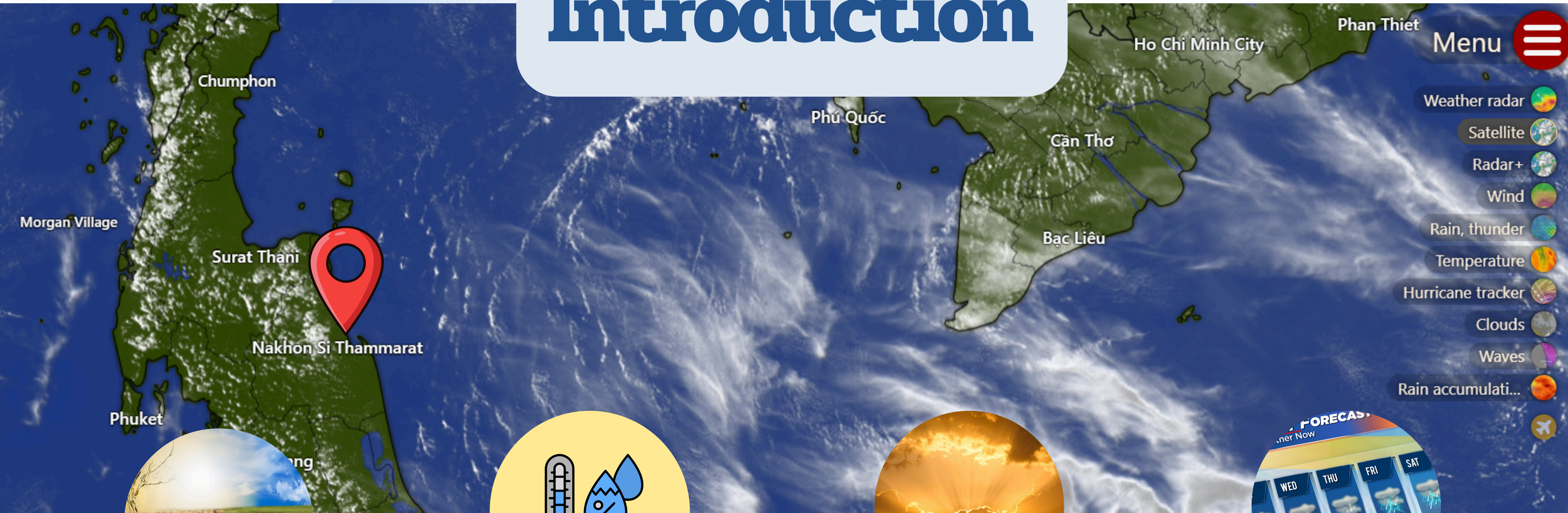


### Teacher

Mr.Suphon Tomsaeng

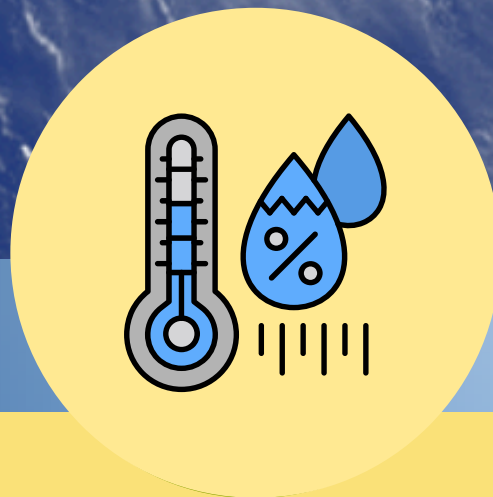


# Introduction



## Climate Drivers

Clouds are crucial in determining Earth's temperature and long-term climate balance.



## Weather Indicators

They provide vital data on moisture, wind, and temperature at various atmospheric levels.



## Energy Regulation

Clouds act as a filter, controlling how much sunlight enters and how much heat escapes back into space.



## Predictive Value

Accurate cloud data is essential for both daily weather forecasting and understanding global climate change.

# Objective

1

To study atmospheric behavior at the local level.

2

To analyze the relationship between clouds and temperature.



# Study site

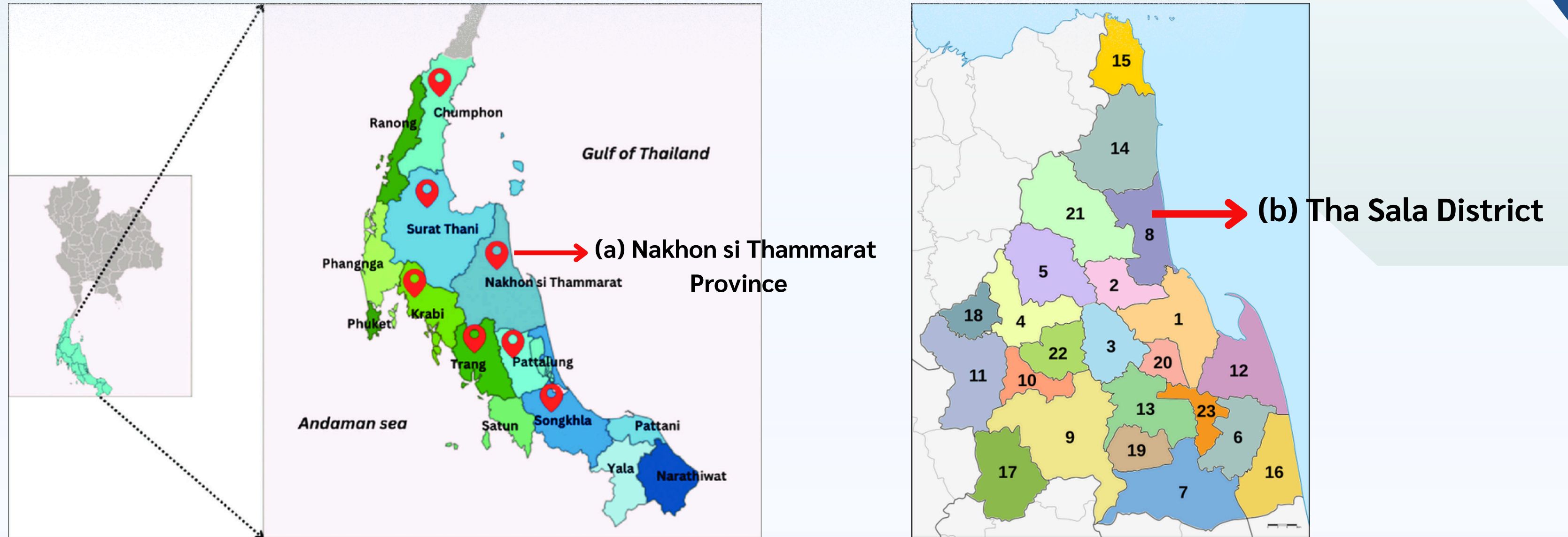


Figure 1. (a) Map of Nakhon si Thammarat, Southern Thailand (b) Map of Tha Sala District

# Data collection

## Experimental Design

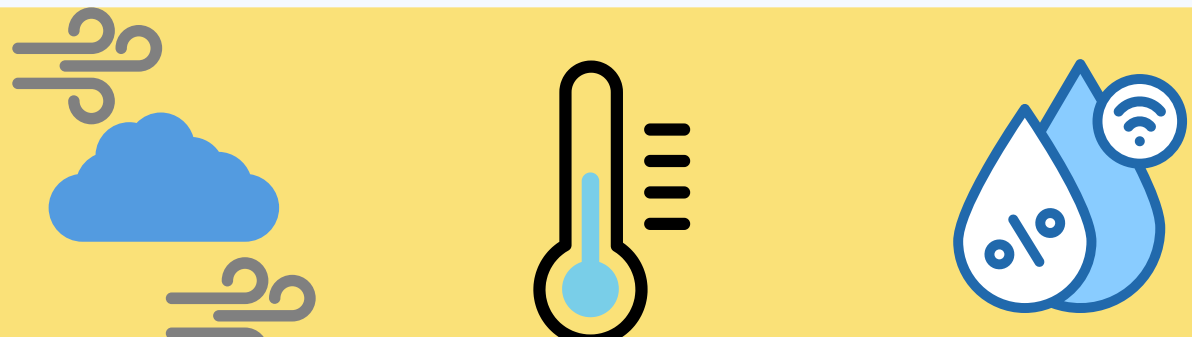
### Study Site

Tha Sala District,  
Nakhon si Thammarat  
Province, Thailand

### Data collection

16-17 January 2026

### ATM Measurement

- 
- Wind Speed
  - Temperature
  - Relative humidity

### Data Analysis

- $\bar{x} \pm SD$
- T-Test
- Calculation



### GLOBE Protocol

### Cloud App



# Monitoring stations

- **Davis WeatherLink**

Date & Time ↑	WLL Inside Temp/Hum								WLL Barometer		
	Inside Temp °C	High Inside Temp °C	Low Inside Temp °C	Inside Hum %	High Inside Hum %	Low Inside Hum %	Inside Dew Point °C	Inside Heat Index °C	Barometer mb	High Bar mb	Low Bar mb
01/17/2026 - 00:00	19.9	19.9	19.8	59.7	60.8	56.9	11.8	19.8	1017.4	1017.4	1017.4
01/17/2026 - 00:05	19.9	20.0	19.9	59.5	60.8	59.5	11.8	19.8	1017.4	1017.5	1017.4
01/17/2026 - 00:10	19.8	20.0	19.8	59.7	59.7	56.5	11.8	19.7	1017.3	1017.4	1017.3
01/17/2026 - 00:15	19.9	20.0	19.8	60.2	61.0	59.5	11.9	19.8	1017.2	1017.3	1017.2
01/17/2026 - 00:20	19.9	19.9	19.8	58.2	60.4	56.5	11.5	19.8	1017.2	1017.2	1017.1
01/17/2026 - 00:25	19.8	19.9	19.8	59.7	60.8	59.1	11.8	19.7	1017.1	1017.1	1017.1
01/17/2026 - 00:30	19.9	19.9	19.8	58.4	60.4	56.7	11.6	19.8	1017.0	1017.1	1017.0
01/17/2026 - 00:35	19.8	19.9	19.8	61.0	61.5	58.0	12.1	19.8	1017.0	1017.1	1017.0
01/17/2026 - 00:40	19.9	19.9	19.8	59.9	60.8	59.9	11.9	19.8	1017.0	1017.1	1017.0
01/17/2026 - 00:45	19.8	19.9	19.8	58.4	59.9	56.9	11.4	19.6	1017.0	1017.1	1017.0
01/17/2026 - 00:50	19.8	19.9	19.7	60.8	61.9	59.7	12.0	19.7	1016.9	1017.0	1016.9
01/17/2026 - 00:55	19.8	19.9	19.8	58.2	61.5	58.2	11.3	19.6	1016.9	1017.0	1016.8
01/17/2026 - 01:00	19.8	19.8	19.8	61.9	61.9	57.5	12.3	19.8	1016.8	1016.9	1016.8
01/17/2026 - 01:05	19.8	19.9	19.8	59.7	61.9	59.7	11.8	19.7	1016.8	1016.9	1016.8
01/17/2026 - 01:10	19.8	19.9	19.7	61.0	61.0	57.3	12.1	19.8	1016.8	1016.8	1016.8
01/17/2026 - 01:15	19.8	19.8	19.7	61.0	62.2	61.0	12.1	19.8	1016.7	1016.8	1016.7
01/17/2026 - 01:20	19.7	19.9	19.7	59.5	61.3	57.6	11.6	19.6	1016.8	1016.8	1016.6
01/17/2026 - 01:25	19.9	19.9	19.8	61.3	61.5	59.7	12.2	19.8	1016.7	1016.8	1016.7
01/17/2026 - 01:30	19.9	19.9	19.7	60.6	61.7	60.3	12.1	19.8	1016.6	1016.7	1016.6
01/17/2026 - 01:35	19.7	19.9	19.7	60.1	60.1	57.1	11.8	19.6	1016.6	1016.7	1016.6
01/17/2026 - 01:40	19.8	19.8	19.7	60.1	61.9	60.1	11.9	19.8	1016.5	1016.6	1016.5

The app will collect data 15 minutes according to the schedule. In the app information on the spatial variability of temperature, Relative humidity, and wind speed will be provided.



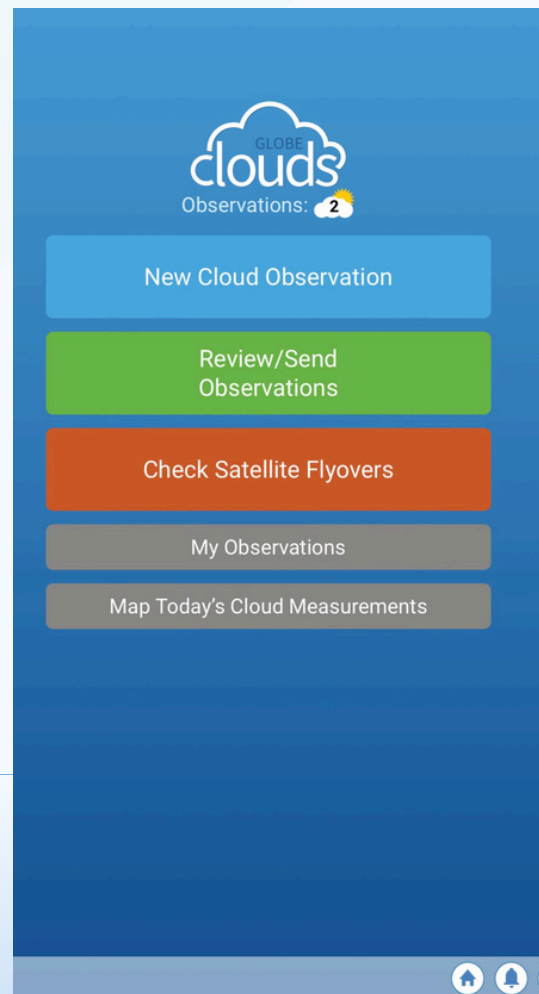
Figure 2 shows sample data collected from both devices

# Materials and methods

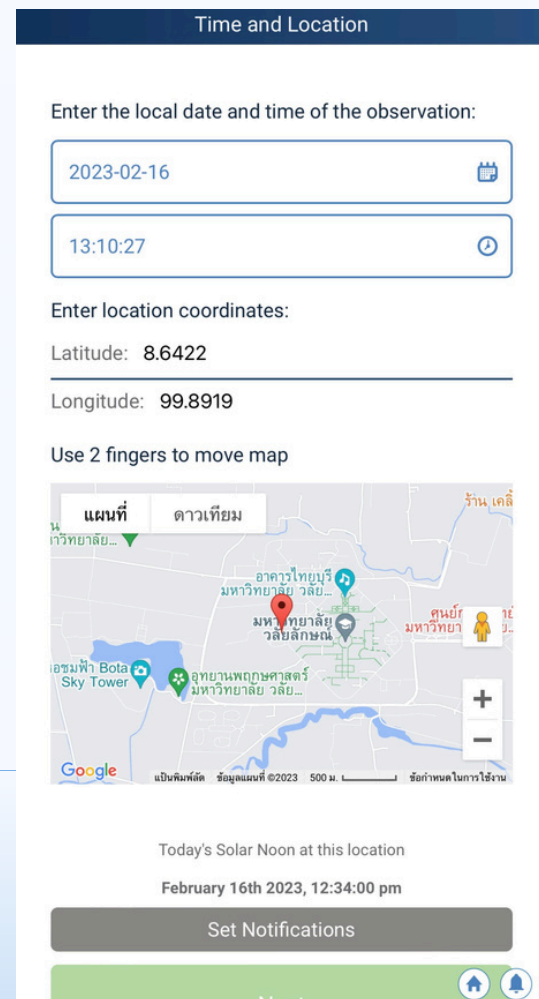
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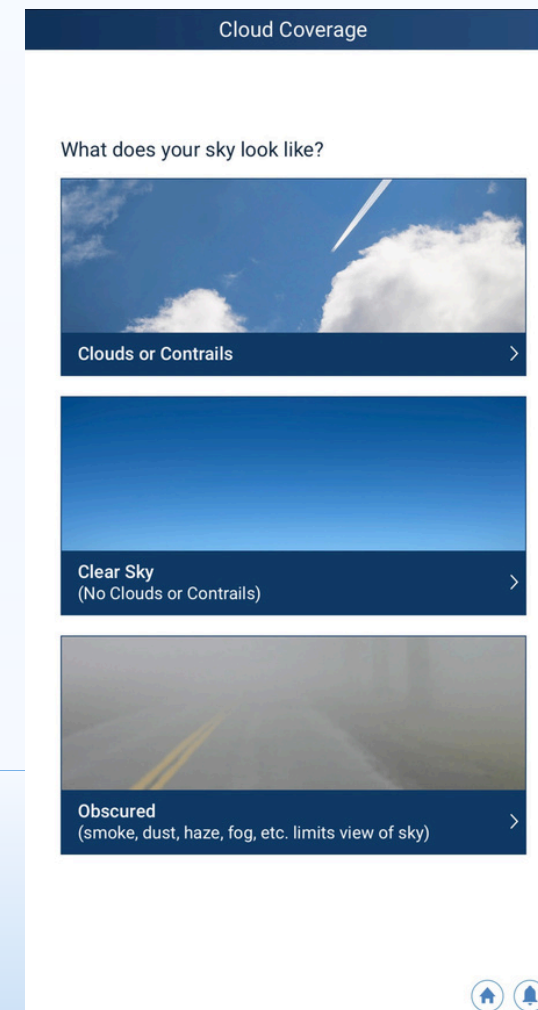
2



3



4



1. choose Cloud App. 2. choose New cloud observation.

3, 4 Observe the sky, the clouds, and don't forget the clouds at the edge.



Fig3.GLOBE Observer: Cloud App.

# Materials and methods

16 January 2026

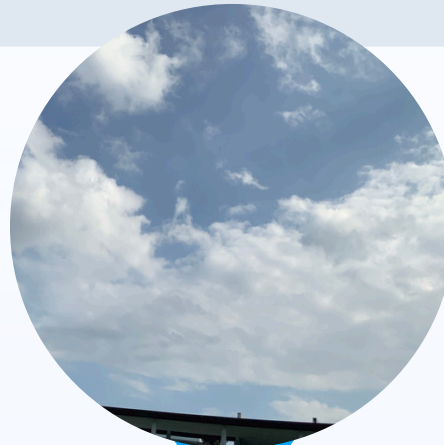


Cumulus

Cirrus



Altostratus



Stratocumulus



17 January 2026



Cumulus

Cirrus



Altostratus

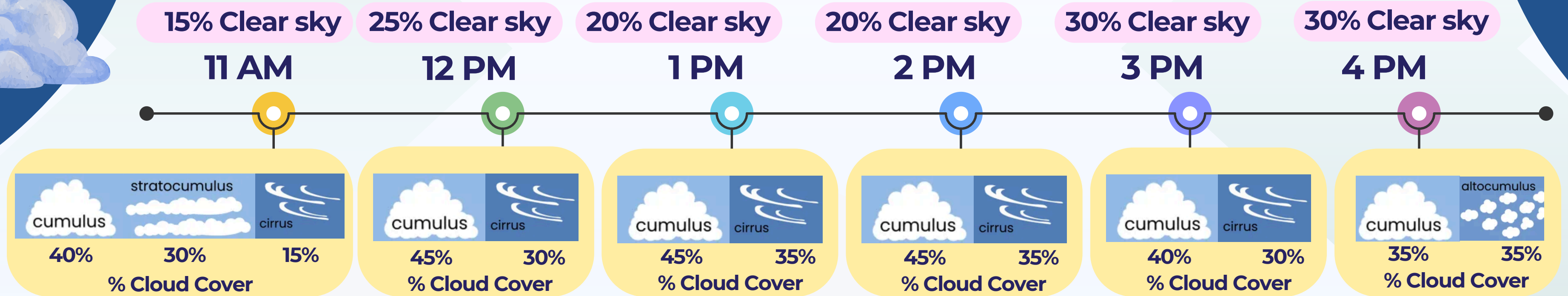


Stratocumulus

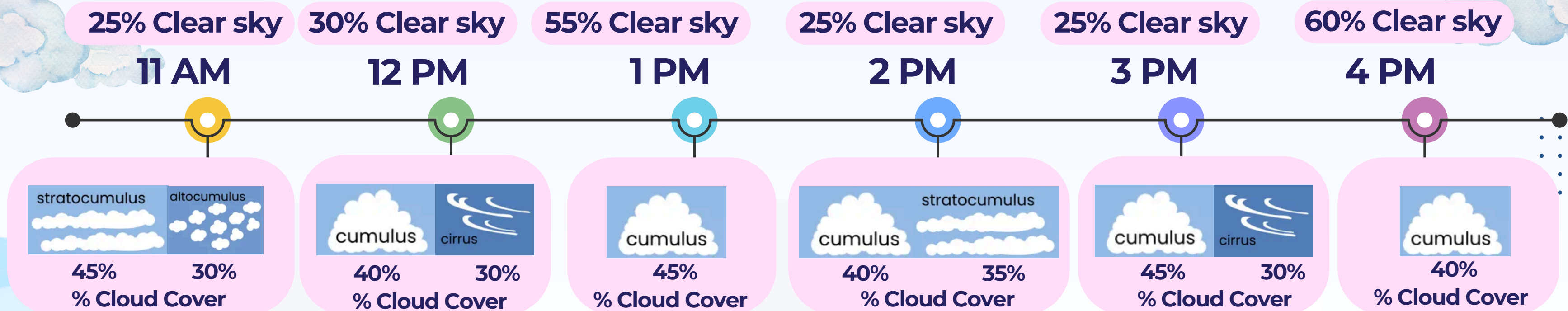


# Results and Discussion

## 16 January 2026

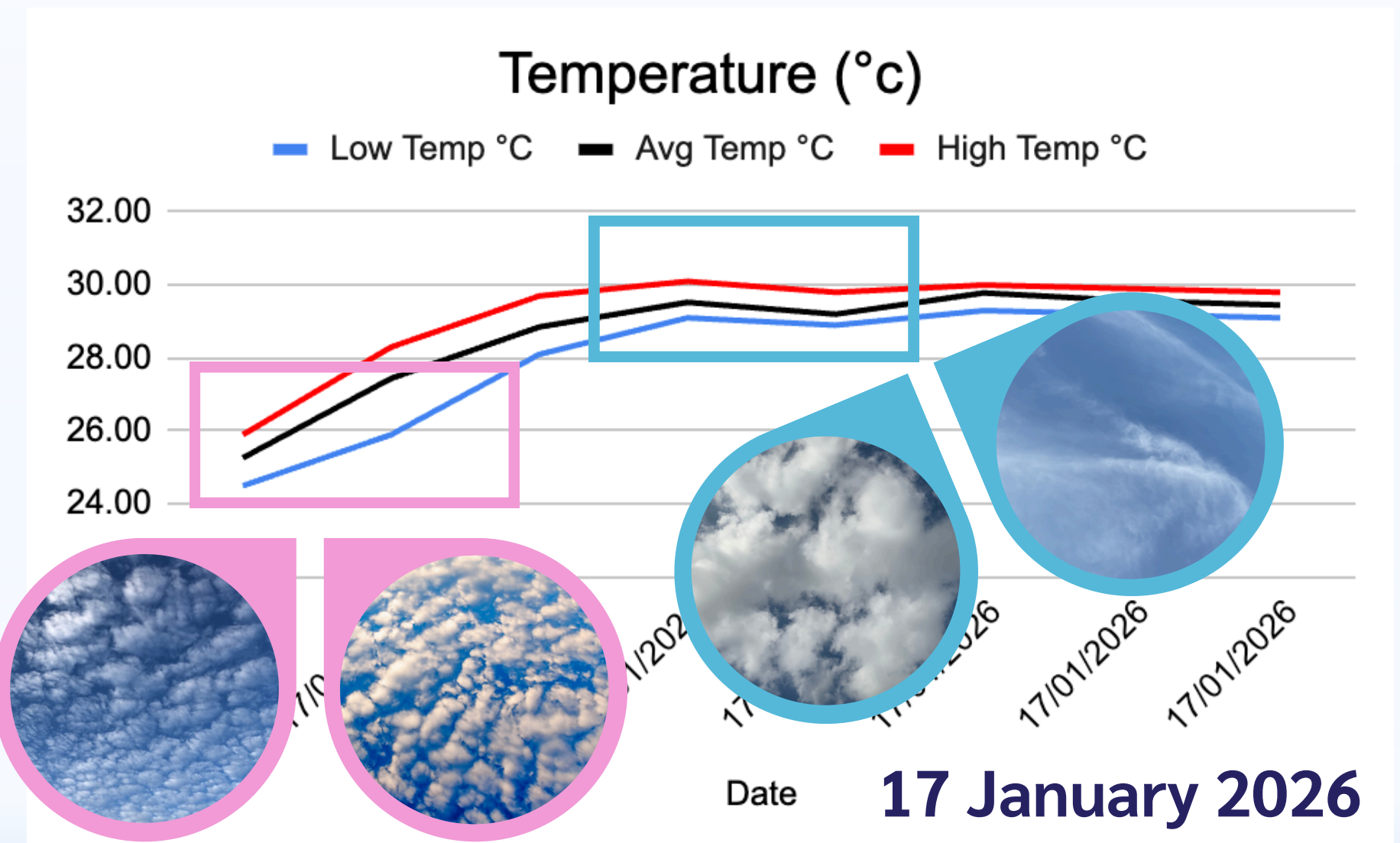
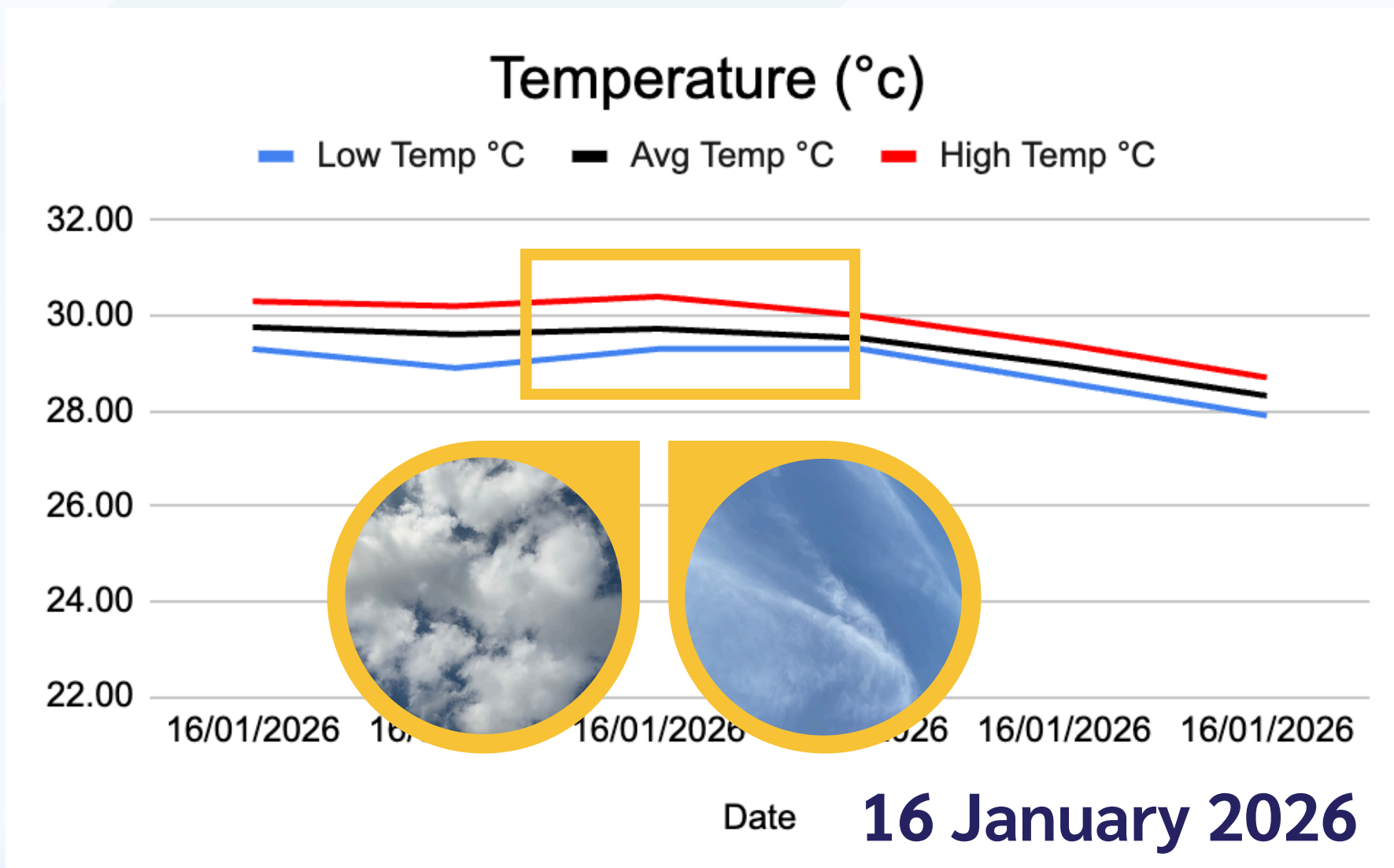


## 17 January 2026



# Results and Discussion

## ● Temperature



**Temp 28.9 - 29.8 °C**

- **Cumulus**
- **Cirrus**

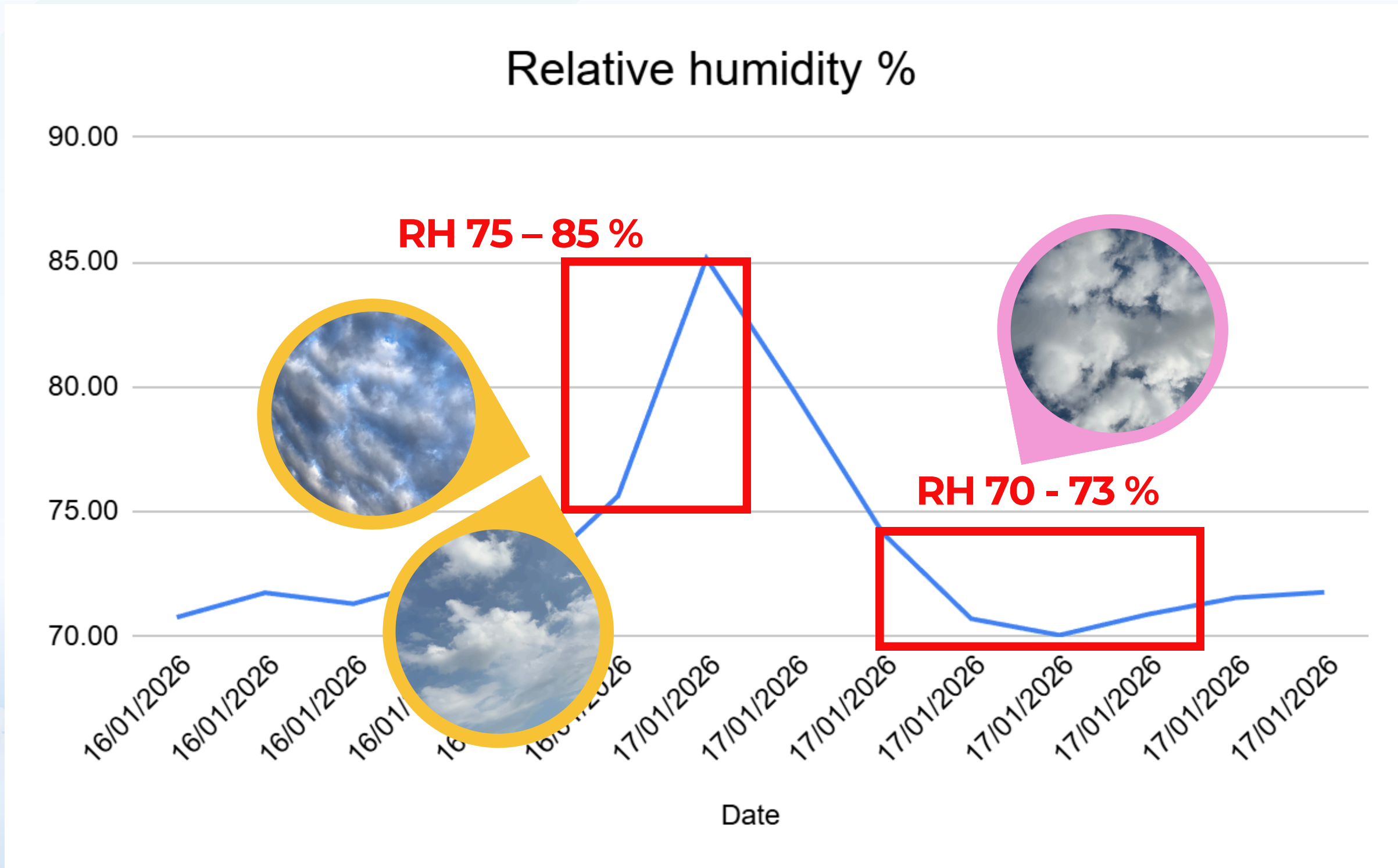
**Temp 25.3 - 27.4 °C**

- **Stratocumulus**
- **Alto cumulus**

On average, the temperature in the second range is **3 °C** lower than in the first.

# Results and Discussion

## • Relative humidity (%)



**Relative humidity 75 - 85 %**

- **Stratocumulus**
- **Altopcumulus**

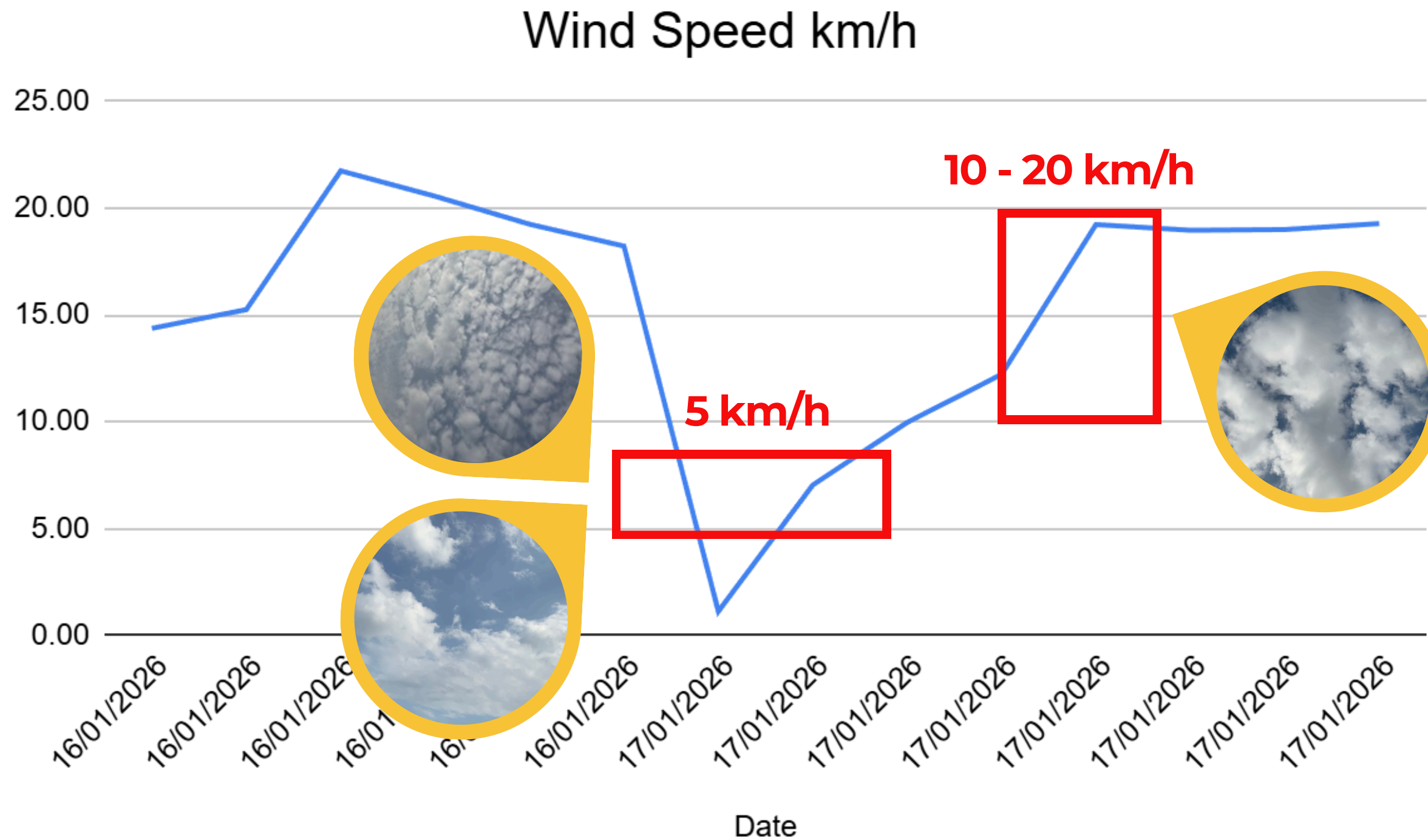
**Relative humidity 70 - 73 %**

- **Cumulus**

The average difference in relative humidity is approximately **8.5%**

# Results and Discussion

## ● Wind Speed (km/h)



### Wind Speed 5 km/h

- Stratocumulus
- Altocumulus

### Wind Speed 10 -20 km/h

- Cumulus

The average difference in wind speed is approximately **10 km/h.**

# Conclusion



- High Temperatures: Promote convective clouds **Cumulus**, which grow vertically in localized areas with moderate coverage.
- Low Temperatures: Linked to stratiform clouds **Stratocumulus/Altostratus**

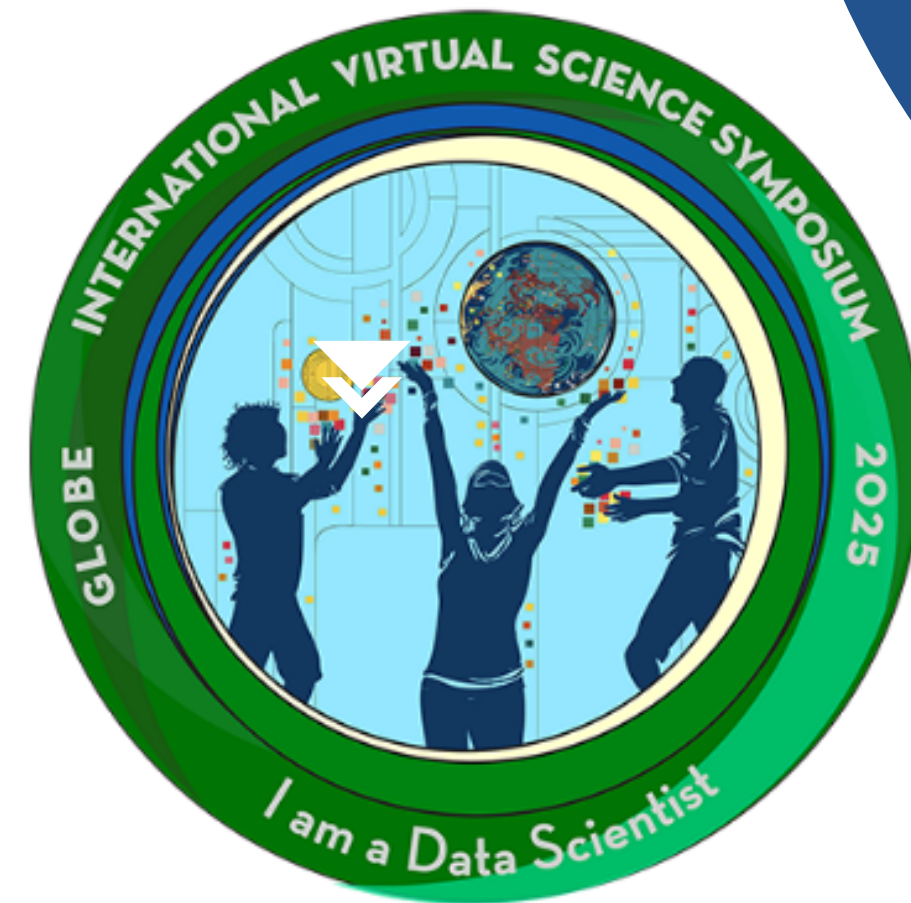
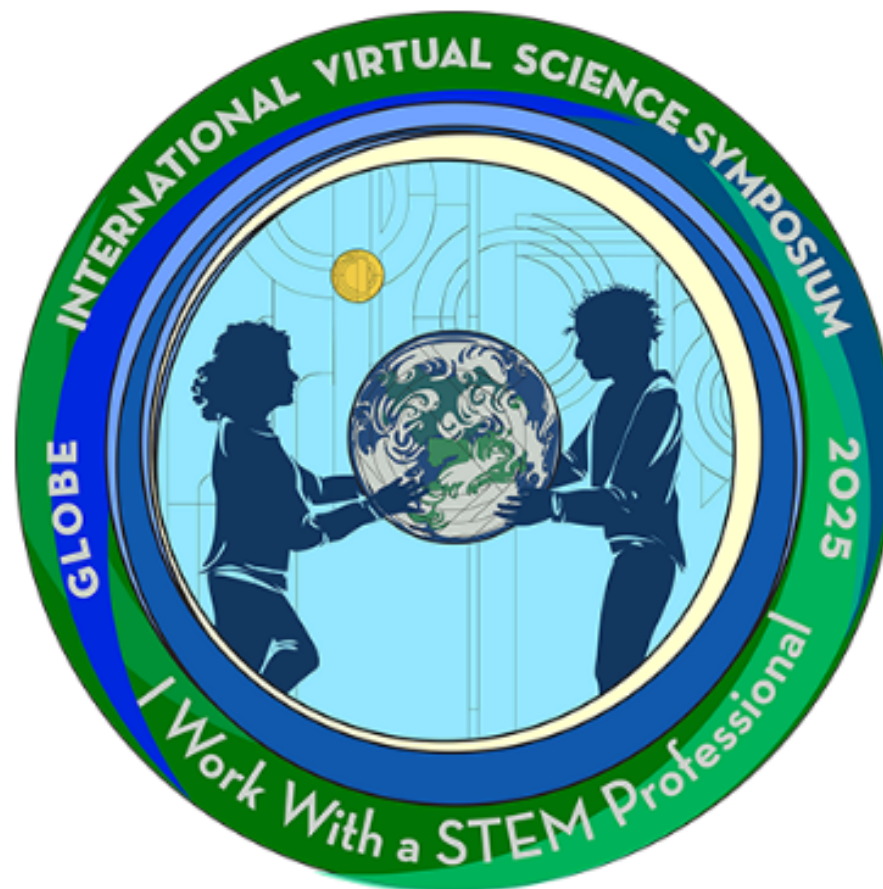
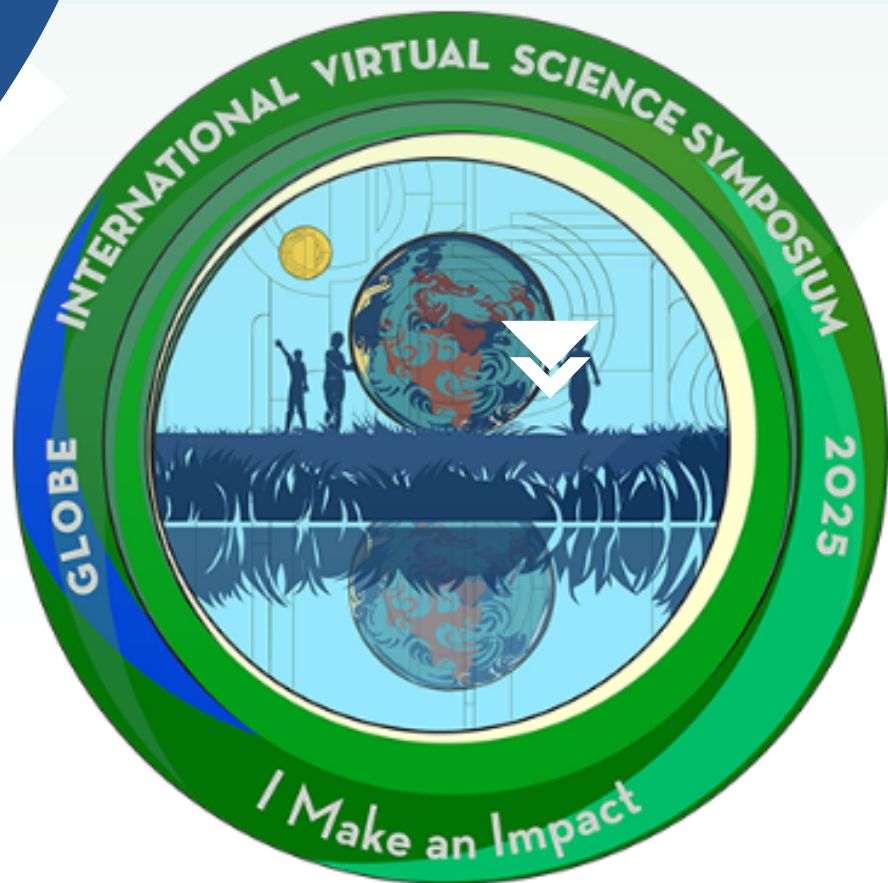


- **High Humidity:** Leads to widespread, persistent stratiform (layered) clouds that cover most of the sky.
- **Moderate Humidity:** Favors convective (clumpy) clouds, resulting in more clear-sky areas and less overall coverage.



- **Low Wind Speed** Favors the formation of extensive, layered clouds (stratified layers).
- **High Wind Speed** Enhances atmospheric mixing, encouraging clouds to grow vertically (convective types).

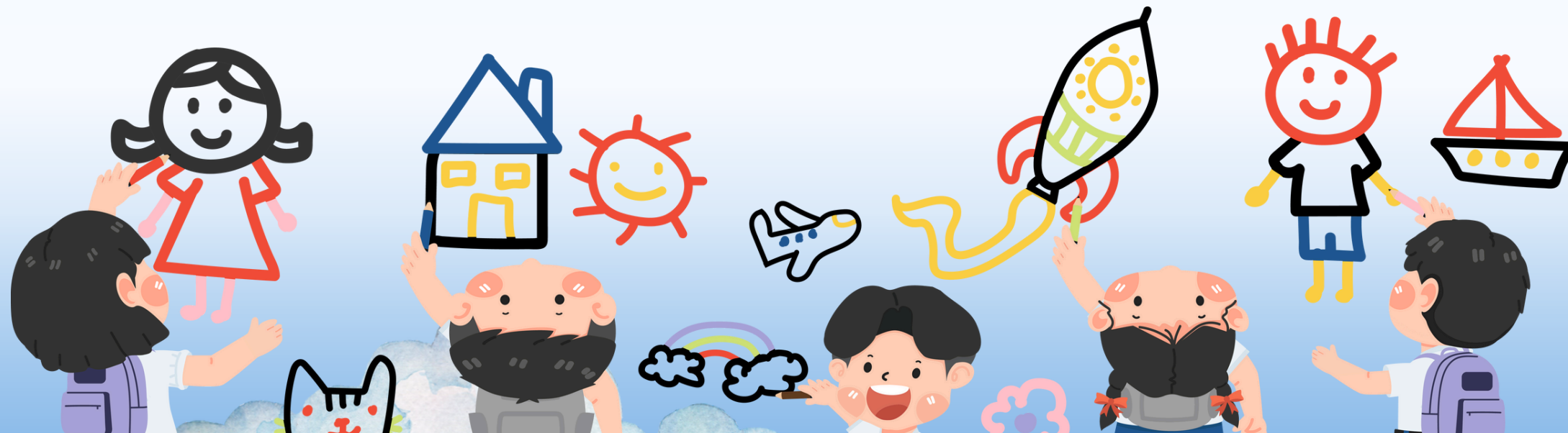
# VSS badges



I make an impact

I am a STEM professional

I am a data scientist





# References



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# Acknowledgements



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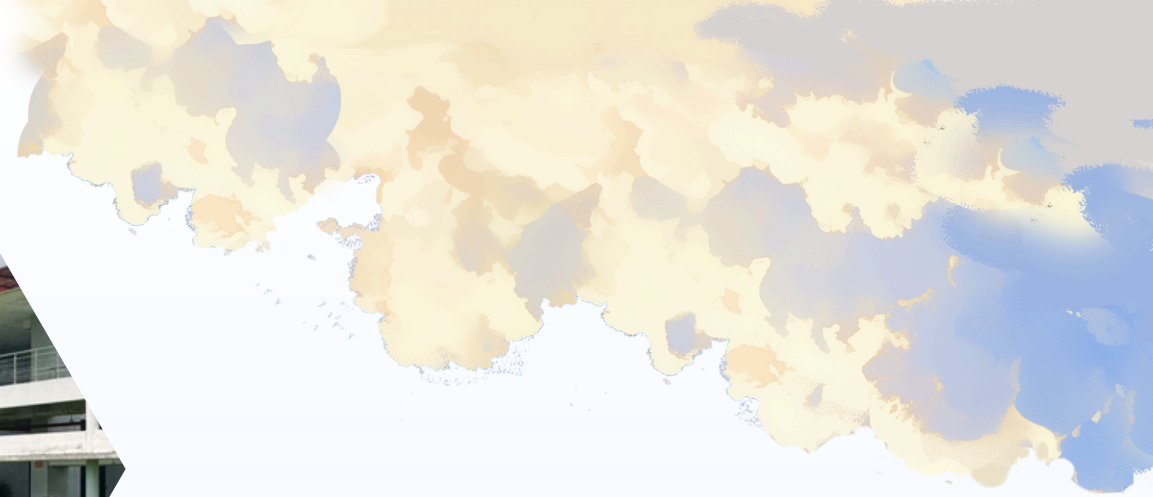


Miss Thunwarut Sutthipun



Miss Chacha Sattharat

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**THANK YOU FOR YOUR ATTENTION**