

Extreme weather is changing Europe's tourism and the travel industry isn't ready



Climate change is set to make the tourist-friendly weather in some places unrecognisable. PHOTO: AFP

Source: The Straits Times

BUSINESS

Climate Change Is Only Beginning to Mess Up Your Holidays

Analysis by Lara Williams | Bloomberg

July 19, 2023 at 12:43 a.m. EDT



Hotter southern Europe?
Travel to northern Europe instead

How does this affect Asian
cities such as Singapore?

Source: The Washington Post

Why do we want to know how Singapore's tourism is affected by the climate?

"Tourism contributes 4% of Singapore's GDP."
- Singapore Tourism Board

Singapore beats major cities Tokyo and Hong Kong in new city ranking

By Kanchan Nath — On May 23, 2023
TD Editor



Source: Travel Daily Media

Expenditure by international inbound visitors:
S\$13.8 billion to S\$14.3 billion in 2022
- The Business Times

These Are The Top 5 Cities To Visit In Asia According To New Survey

Last updated: August 9, 2023 · 0 Comments

Honorable mentions for the fifth through fifteenth rankings on this survey are:

6. *Mumbai, India* – 90
7. *Chiang Mai, Thailand* – 89
8. *Luang Prabang, Laos* – 89
9. *Siem Reap, Cambodia* – 89
10. *Singapore* – 90
11. *Osaka, Japan* – 88
12. *Jaipur, India* – 88
13. *Hoi An, Vietnam* – 88
14. *Ho Chi Minh City, Vietnam* – 88
15. *Seoul, South Korea* – 87

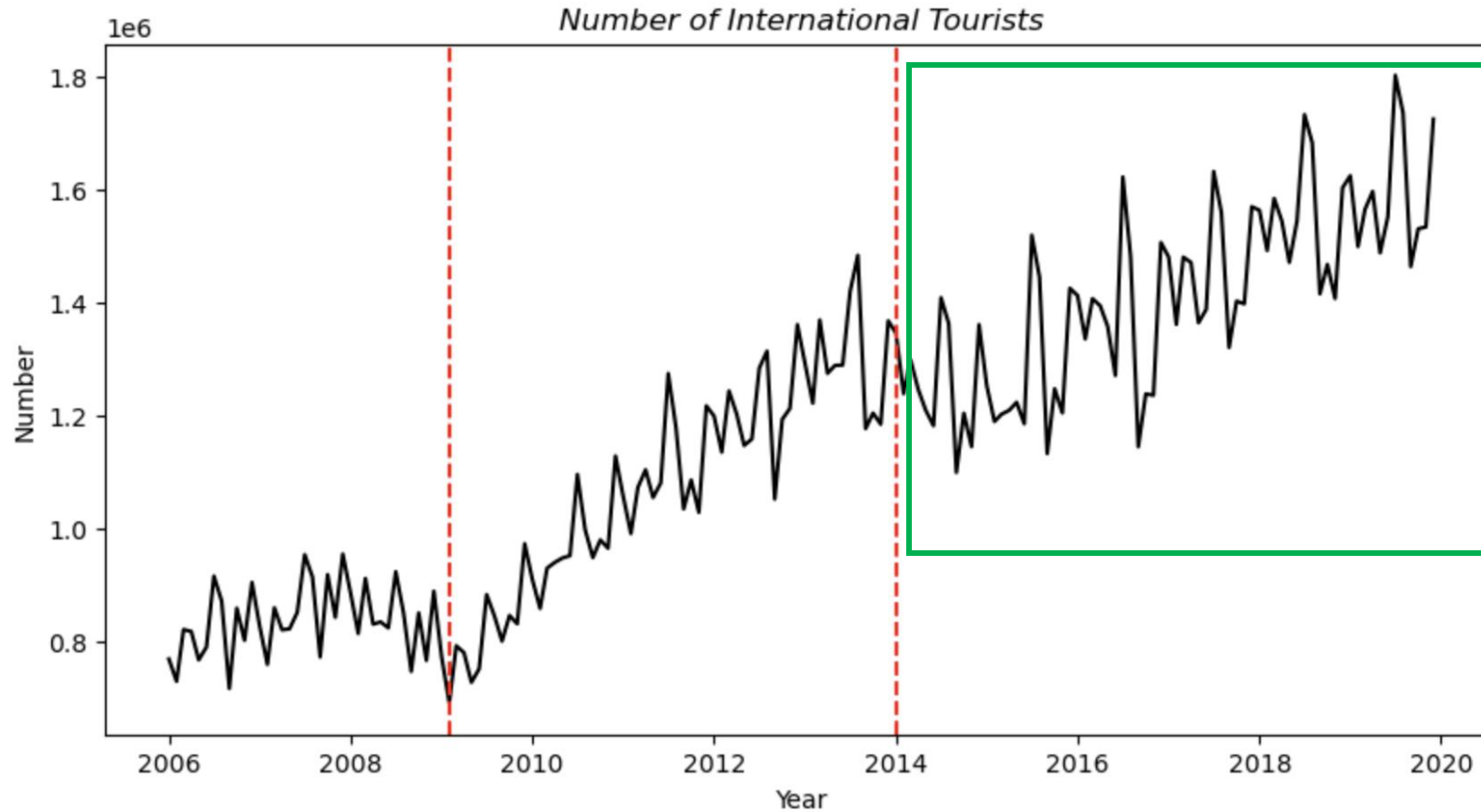
Source: Travel Off Path

Does the change in Singapore climate influence the number of tourists visiting the country?

Observe trends:

- Number of inbound tourists
- Amount of rainfall
- Maximum surface temperature
- Relative humidity level

General tourists trends in the past years



- Overall increasing trend
- 3 segments:
 - 2006 to 2009
 - 2009 to 2014
 - 2014 to 2020

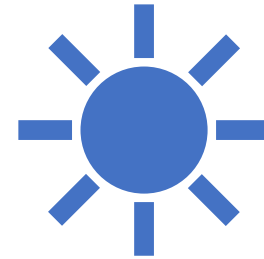
Understanding Singapore climate



Source:
Meteorological Service Singapore





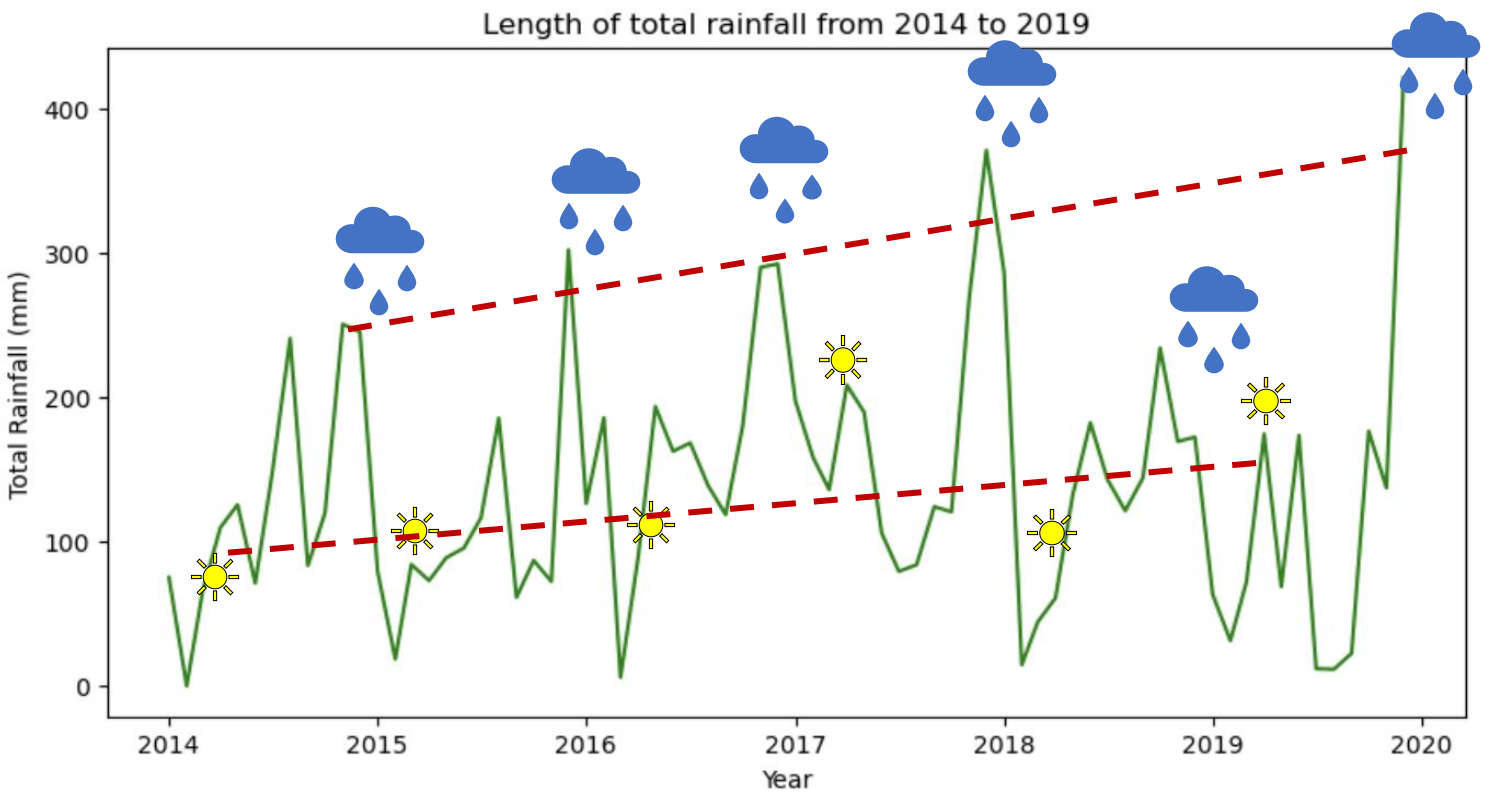
Monsoon seasons:
November to January &
June to September



Dry seasons:
February to early May

Climate trend – length of total rainfall

 Feb - May
 Nov – Jan



During wet seasons, the total rainfall increases over the years.

During dry seasons, the total rainfall increases gradually.

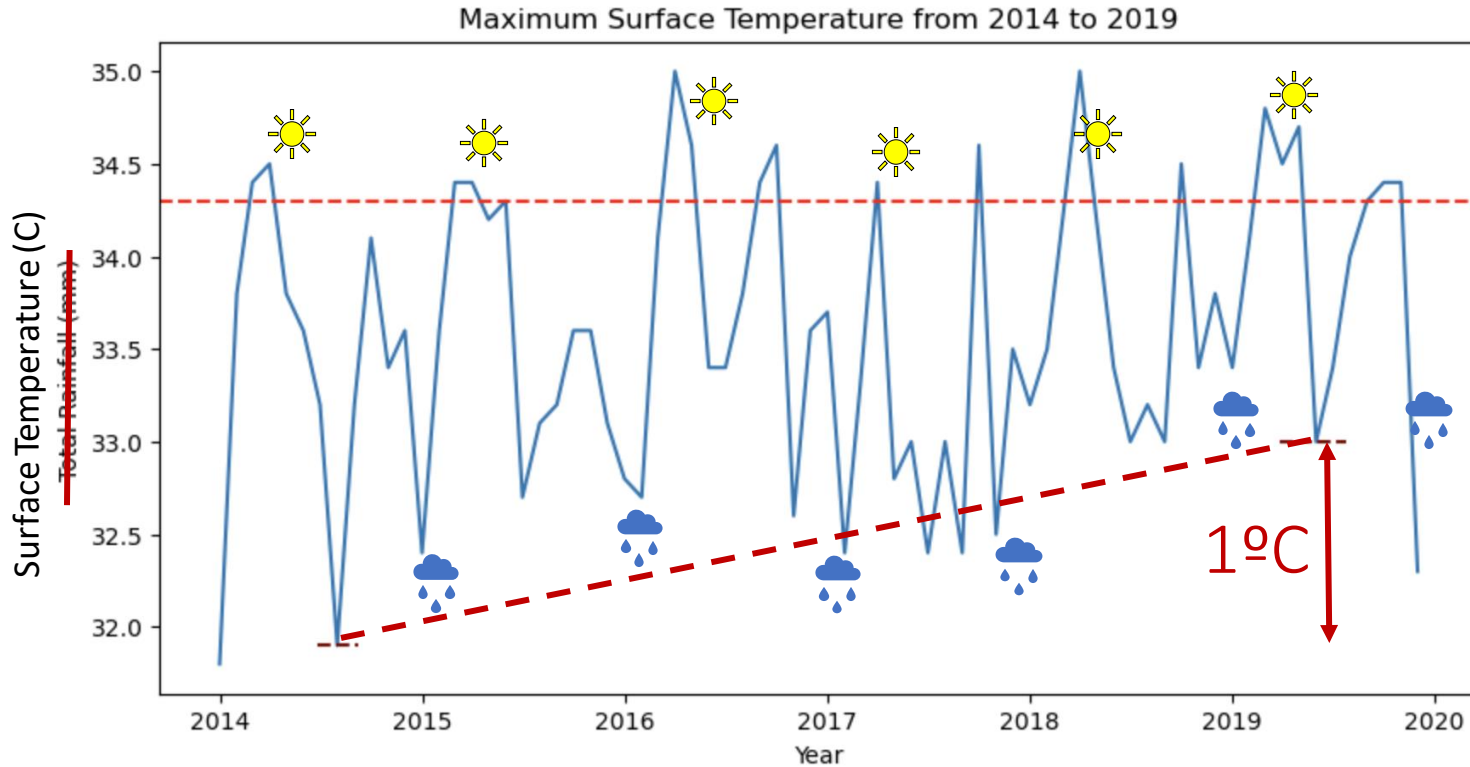
Climate trend – maximum surface temp



Feb - May



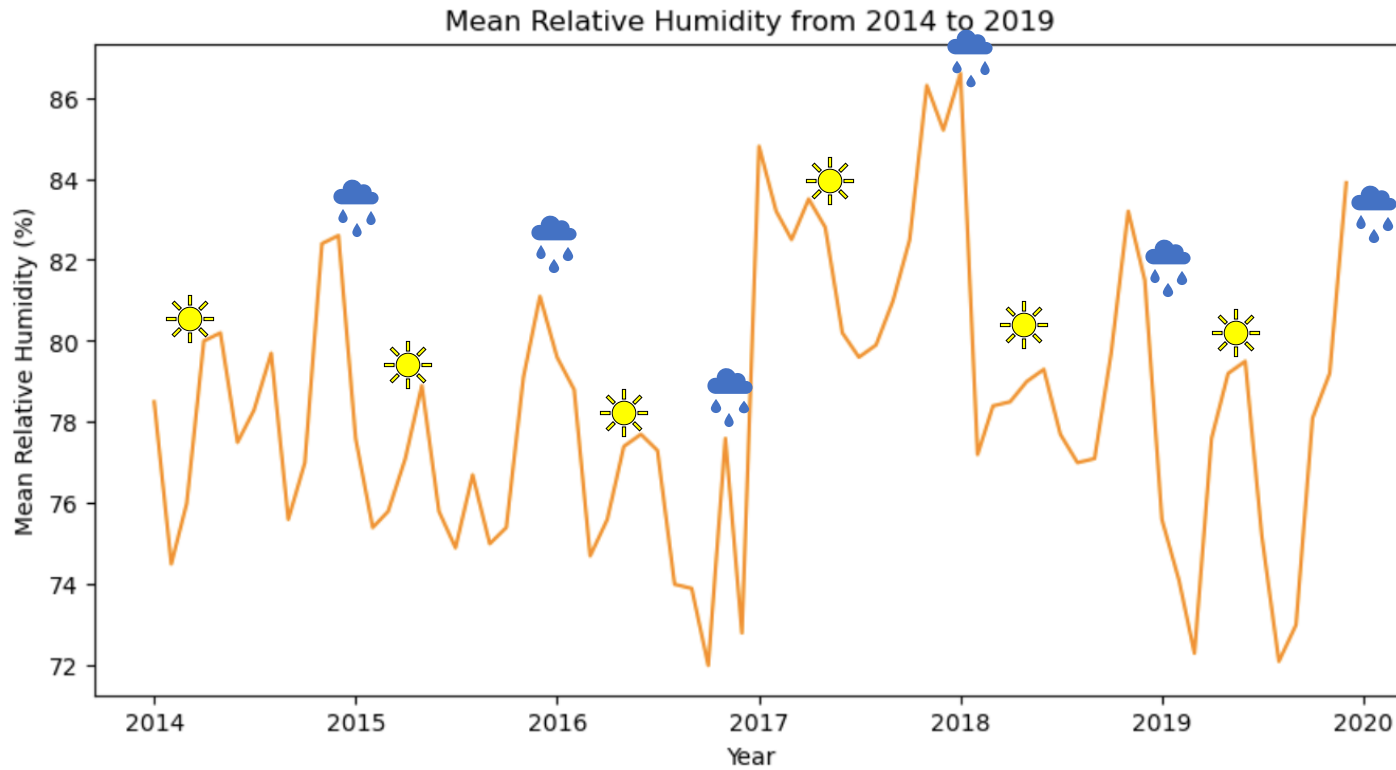
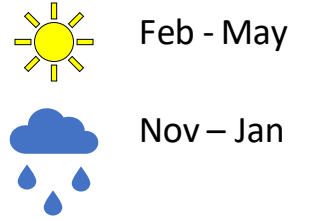
Nov - Jan



During dry seasons, the maximum surface temperature is $\geq 34.3^{\circ}\text{C}$

During wet seasons, the maximum surface temperature is increasing over the years.

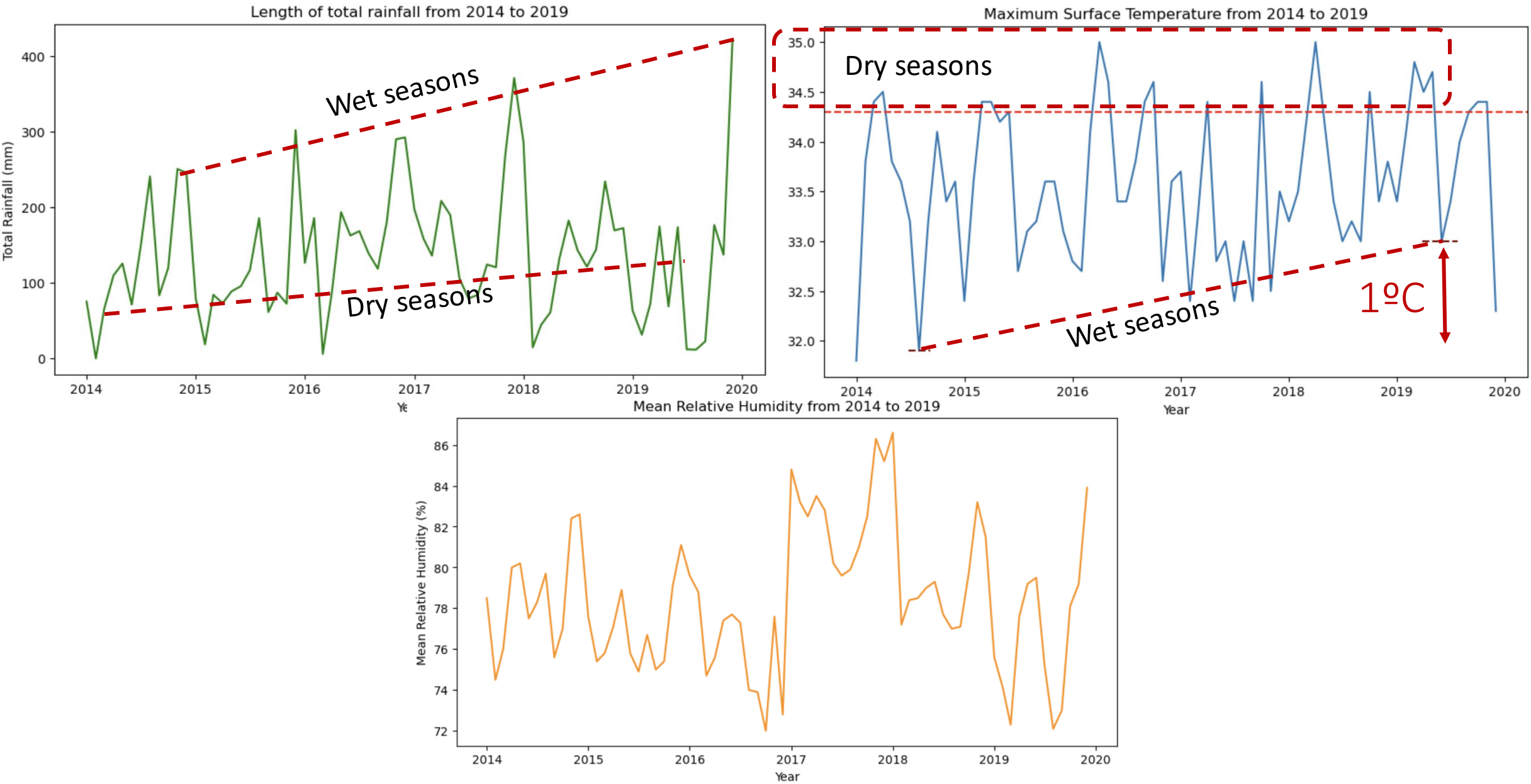
Climate trend – mean relative humidity



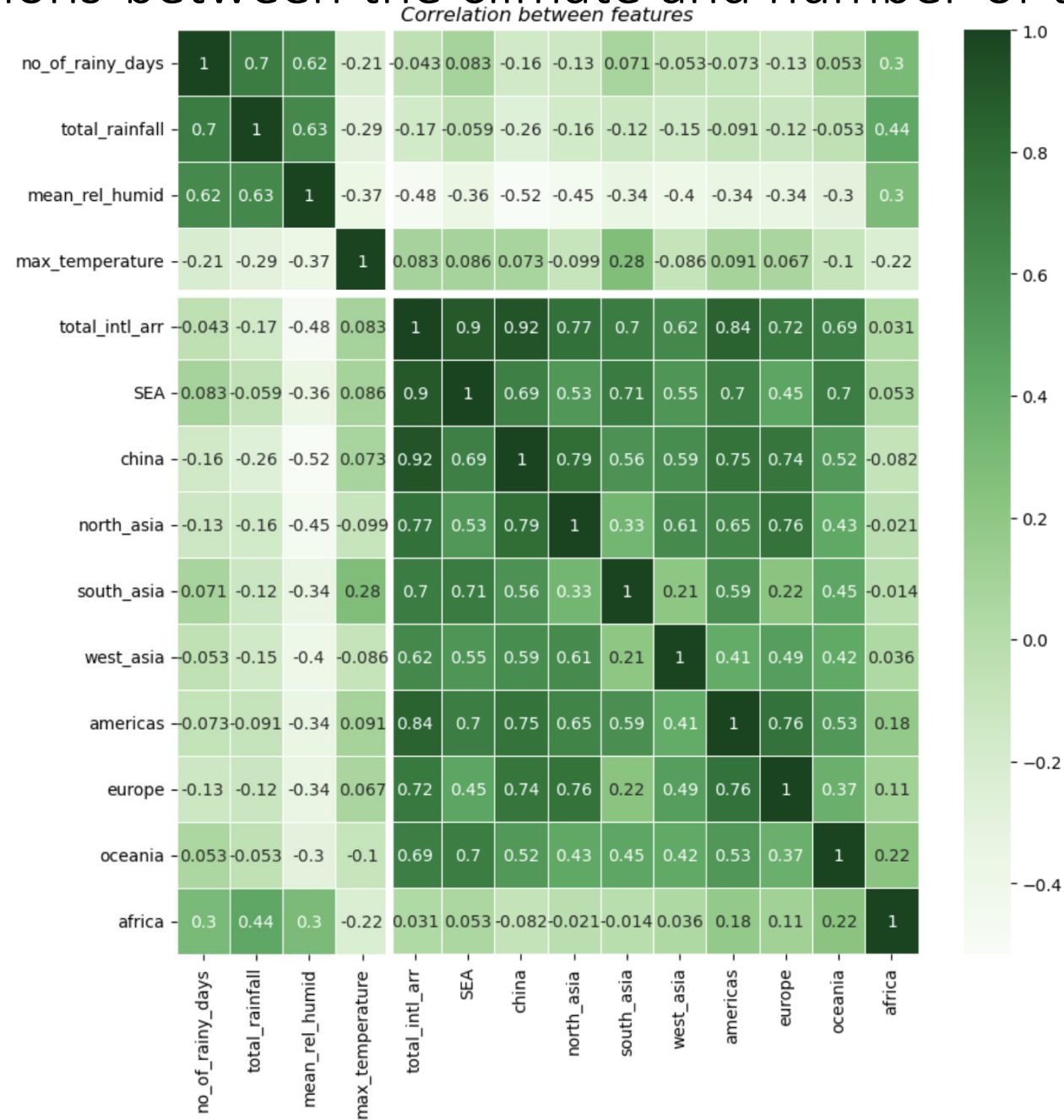
How sticky does your skin feel when you are outdoors?

Humidity changes are more erratic after 2017.

Climate trends in 2014 till 2019



Correlations between the climate and number of tourists



Correlations between the climate and number of tourists



total_intl_arr	-0.043	-0.17	-0.48	0.083
SEA	-0.083	-0.059	-0.36	0.086
china	-0.16	-0.26	-0.52	0.073
north_asia	-0.13	-0.16	-0.45	-0.099
south_asia	-0.071	-0.12	-0.34	0.28
west_asia	-0.053	-0.15	-0.4	-0.086
americas	-0.073	-0.091	-0.34	0.091
europa	-0.13	-0.12	-0.34	0.067
oceania	-0.053	-0.053	-0.3	-0.1
africa	0.3	0.44	0.3	-0.22
	no_of_rainy_days	total_rainfall	mean_rel_humid	max_temperature

Humidity

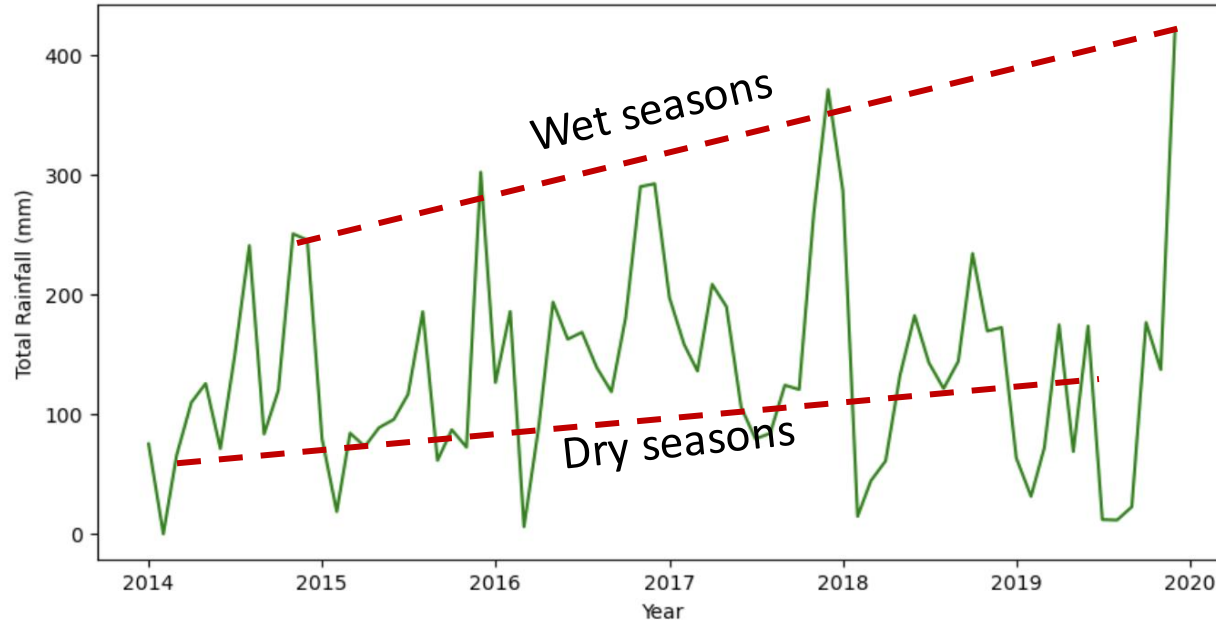
ie. The wetter it feels outside or
the more sticky our skin feels

Number of International tourists

Number of tourists from China

Number of tourists from North Asia

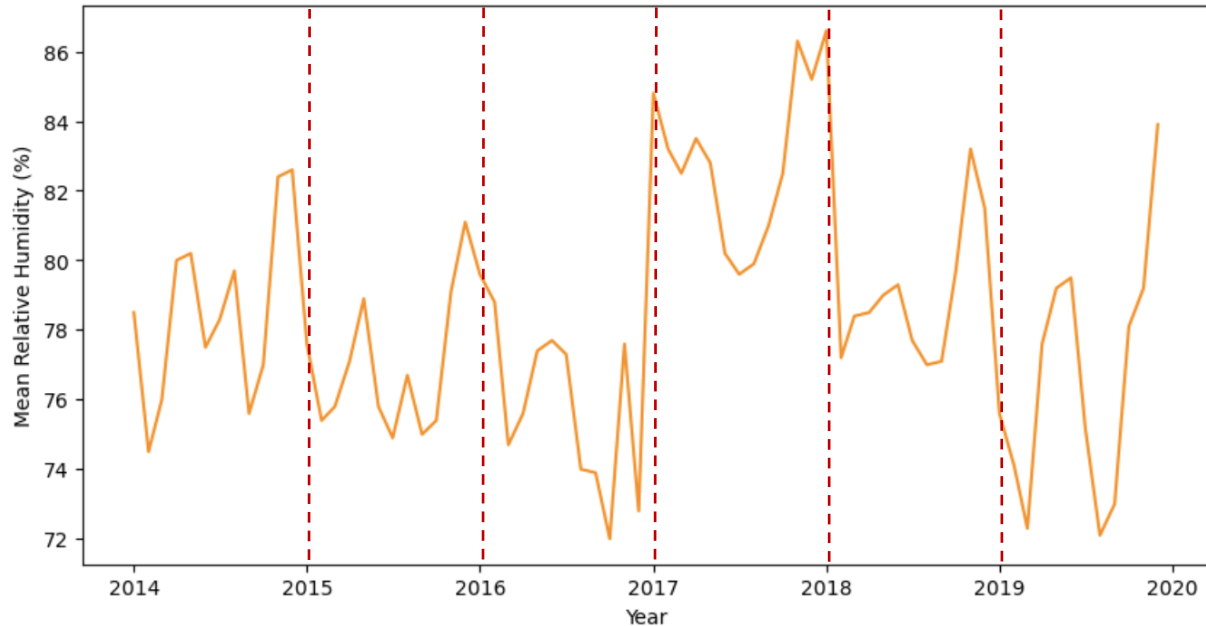
Length of total rainfall from 2014 to 2019



Does the change in Singapore climate influence the number of tourists visiting the country?

Yes, to a small extent.

Mean Relative Humidity from 2014 to 2019



- Tourists are generally unaffected by the rain and heat.
- Prefer dryer seasons with low relative humidity level, between June to Aug.



Recommendations:

During the dry seasons,

- Singapore Zoo,
- The Universal Studios Singapore,
- The Gardens by The Bay,
- The Civic District or
- The Heritage Trails

On wet seasons, indoor activities

- indoor flower gardens
- museum exhibitions
- indoor VR theme park