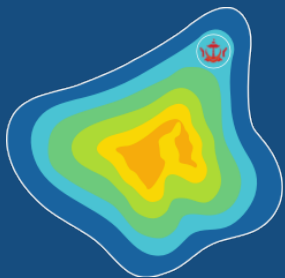


Brunei Climate

Harnina Morani

23 Zulkaedah 1438H / 16th August 2017



BDMD

Brunei Darussalam
Meteorological
Department

Content



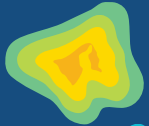
Introduction: Brunei Climate



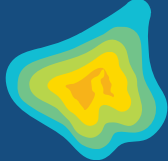
Brunei Climate: Monsoons



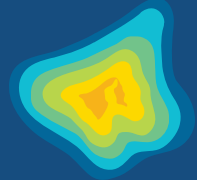
Rainfall Trend



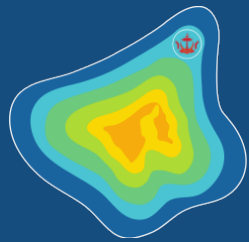
Temperature Trend



Summary



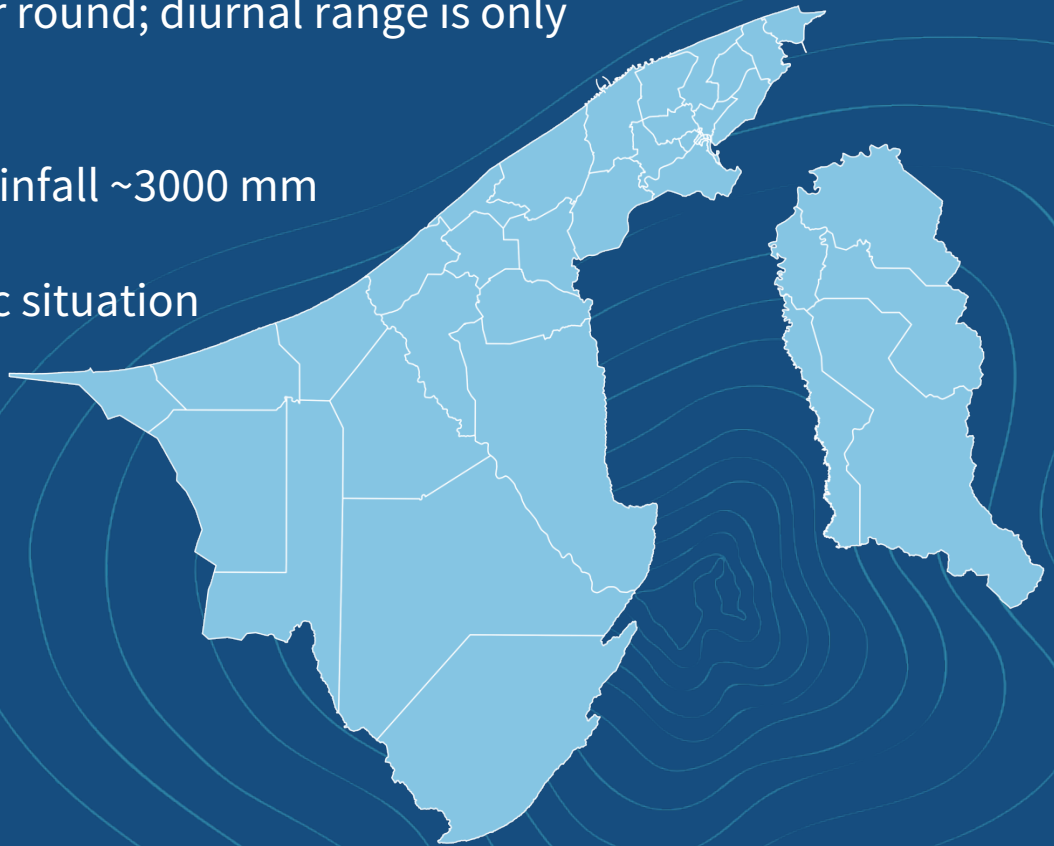
Limitation



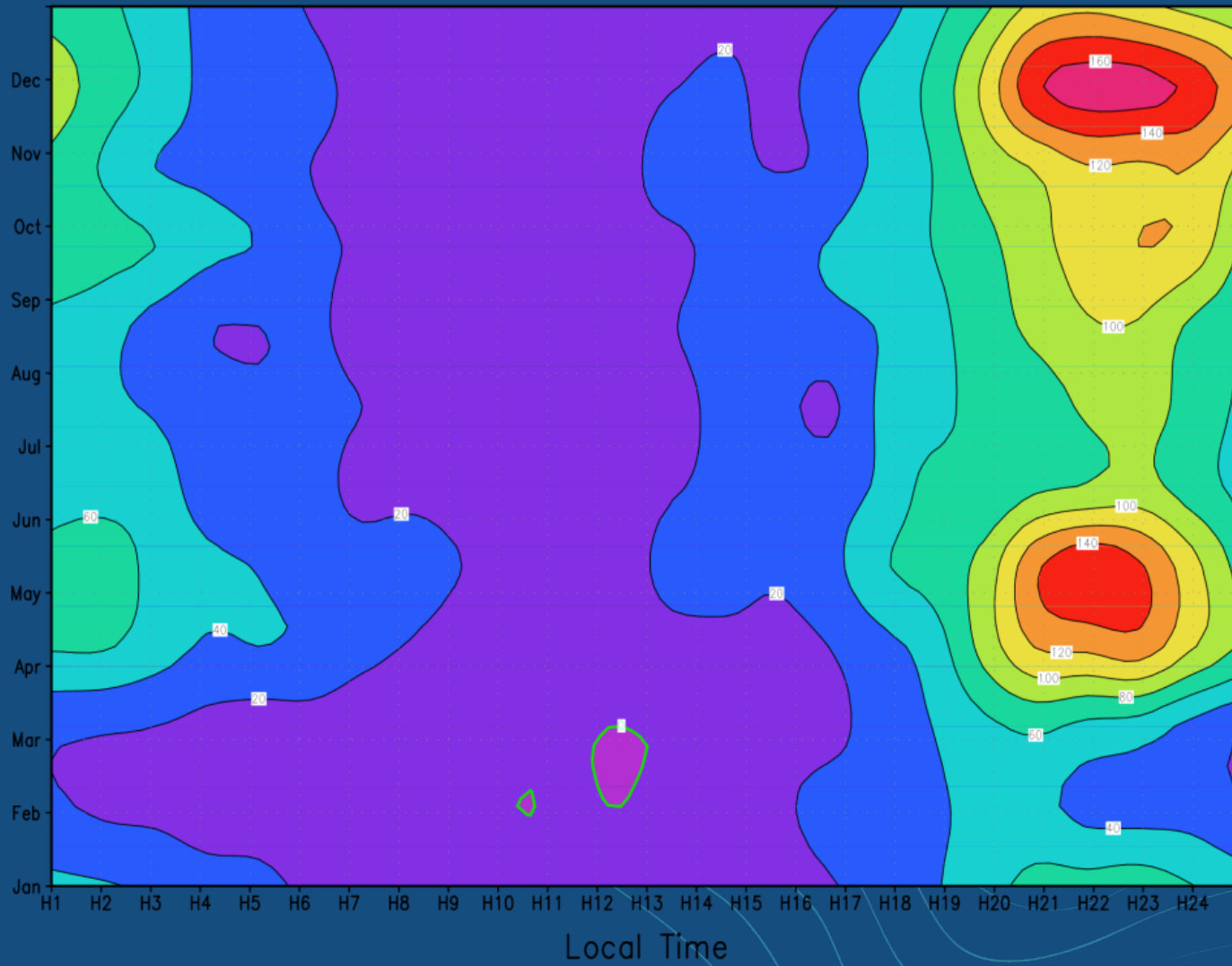
Introduction: Brunei Climate

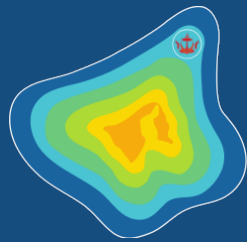
Introduction: Brunei Climate

- ❑ Climatologically classified as: Tropical Rainforest
- ❑ Uniform temperature all year round; diurnal range is only between 25-33 deg celcius
- ❑ Abundant Rainfall: Annual rainfall ~3000 mm
- ❑ At times; affected by synoptic situation
(Typhoon/Tropical Storm) and
global system (ENSO)



DIURNAL THUNDERSTORM OCCURRENCES (WW=95+97;1979–2012)

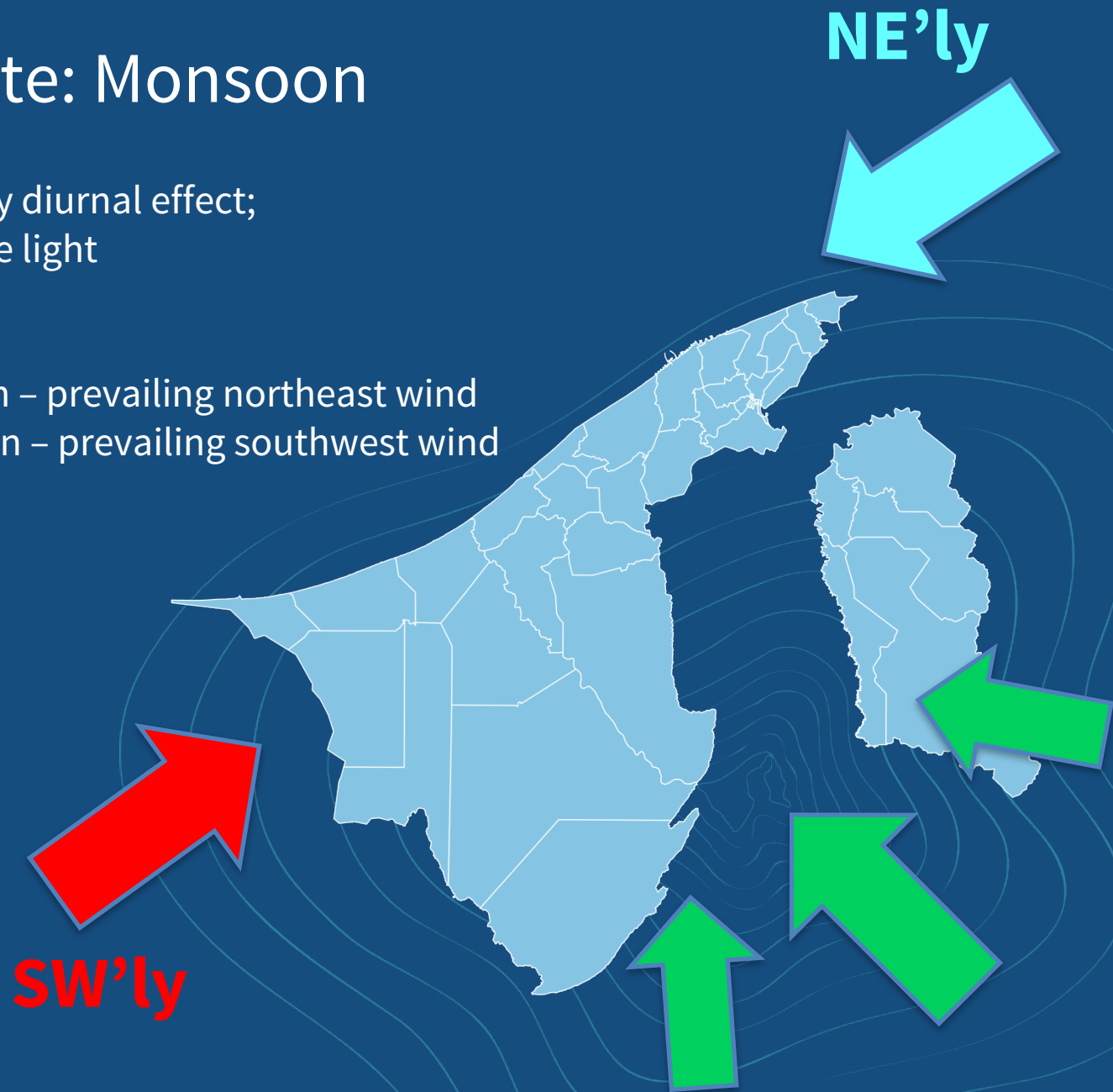




Brunei Climate: Monsoon

Brunei Climate: Monsoon

- Generally govern by diurnal effect;
- sea and land breeze light
- Northeast Monsoon – prevailing northeast wind
- Southwest Monsoon – prevailing southwest wind
- Inter-monsoons



Northeast Monsoon

Onset: December

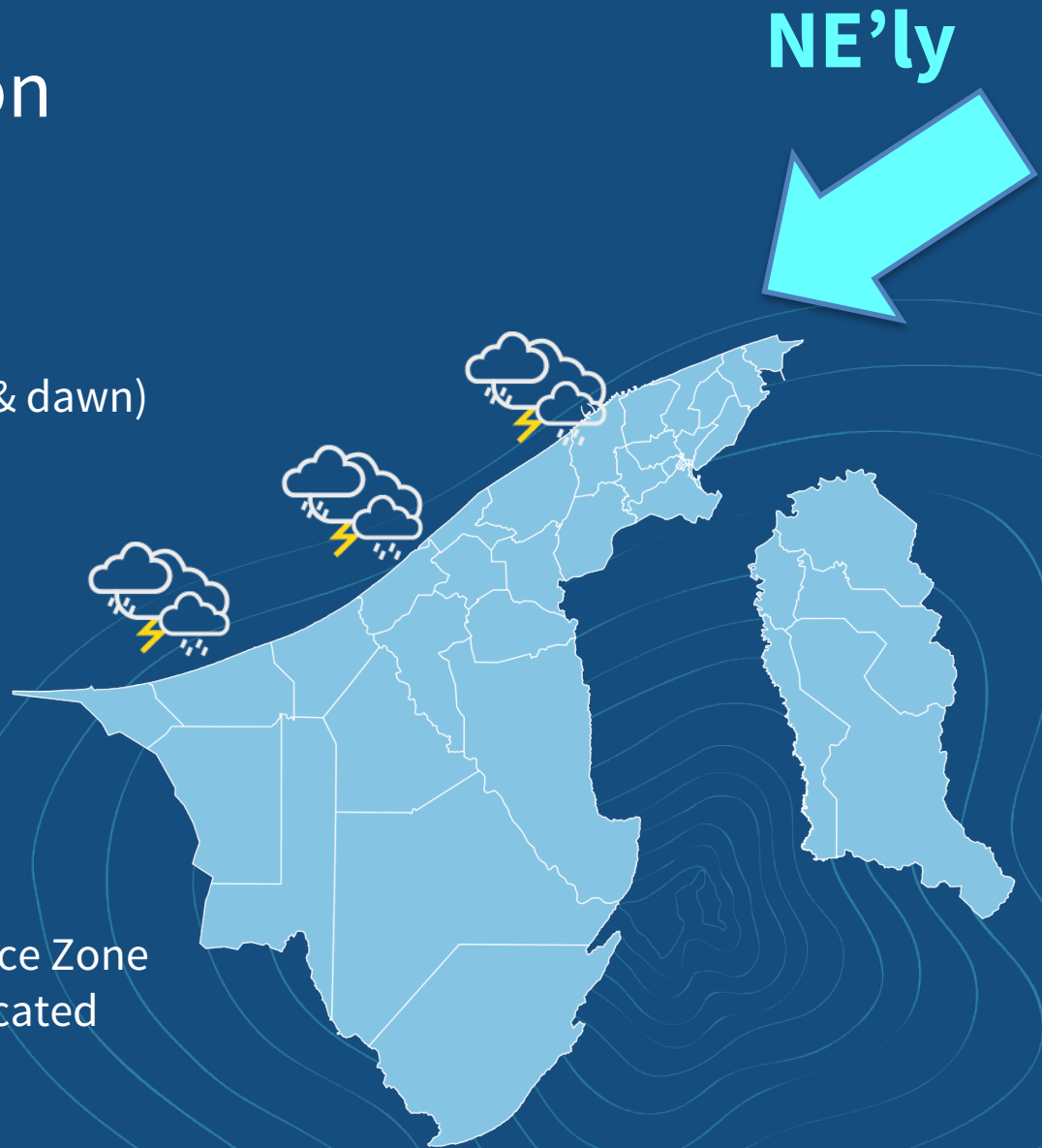
Dec-Jan (1st)

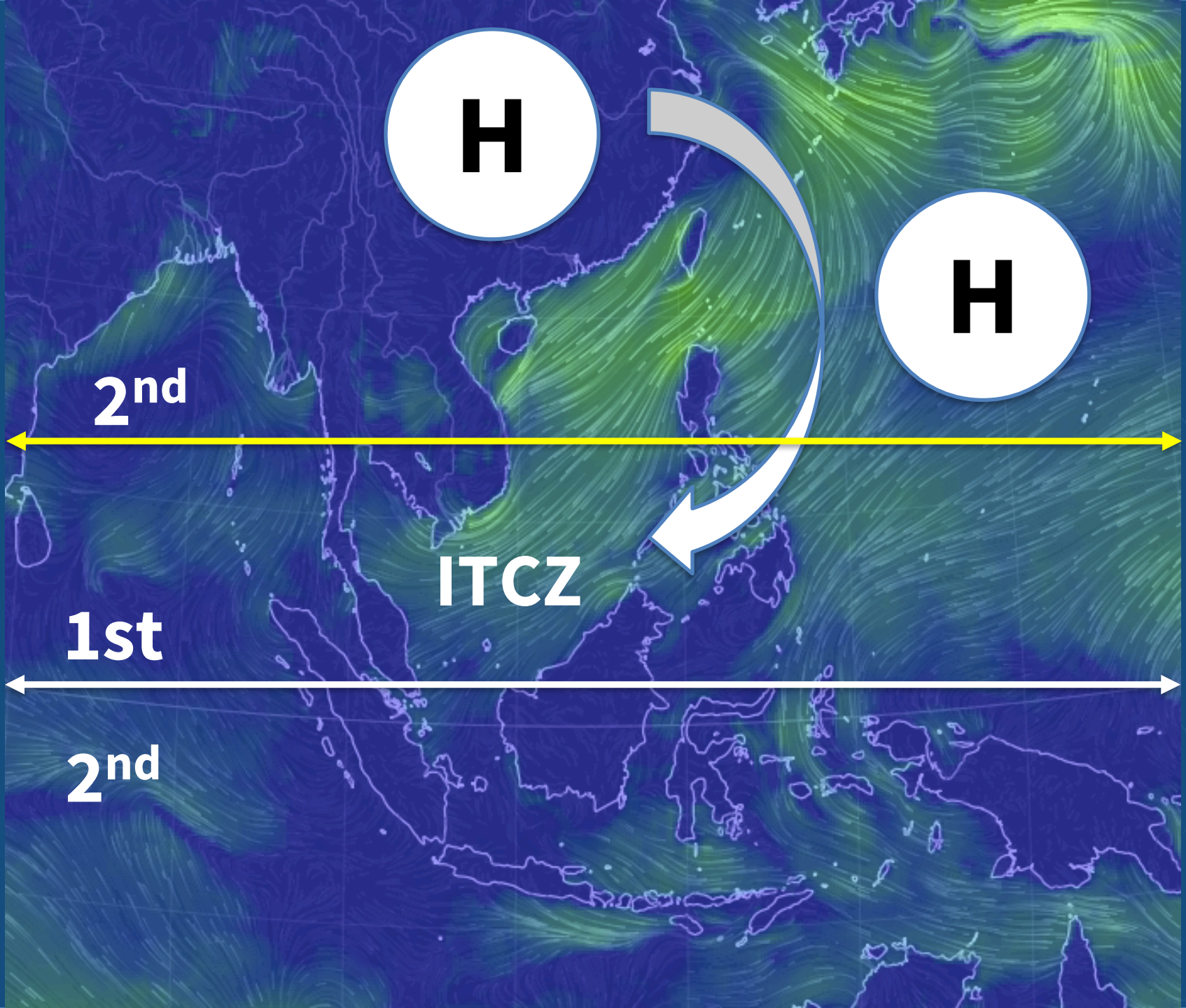
- ☐ Thundery showers (evening & dawn)
- ☐ ITCZ along equator
- ☐ induced by cold surges

Feb-Mar (2nd)

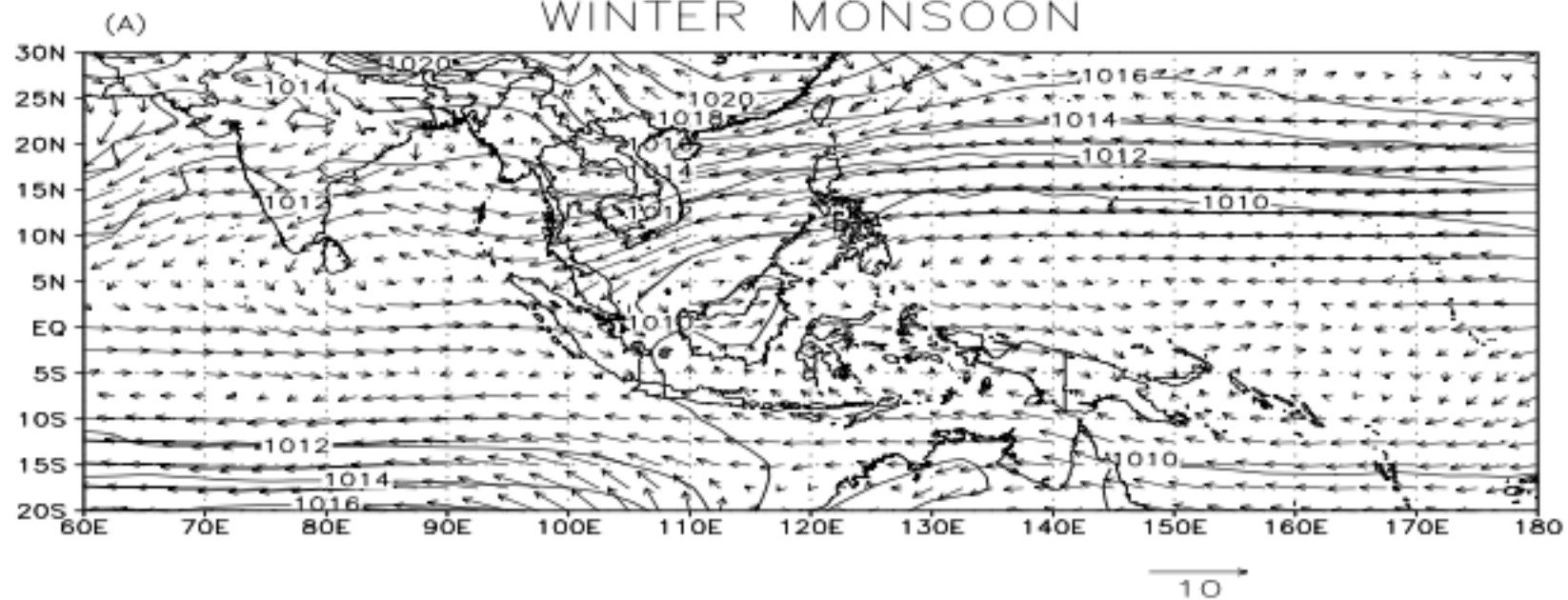
- ☐ – less weather activity
- ☐ ITCZ either north or south of equator

*ITCZ: Inter Tropical Convergence Zone
A belt of low pressure located near the equator





WINTER MONSOON

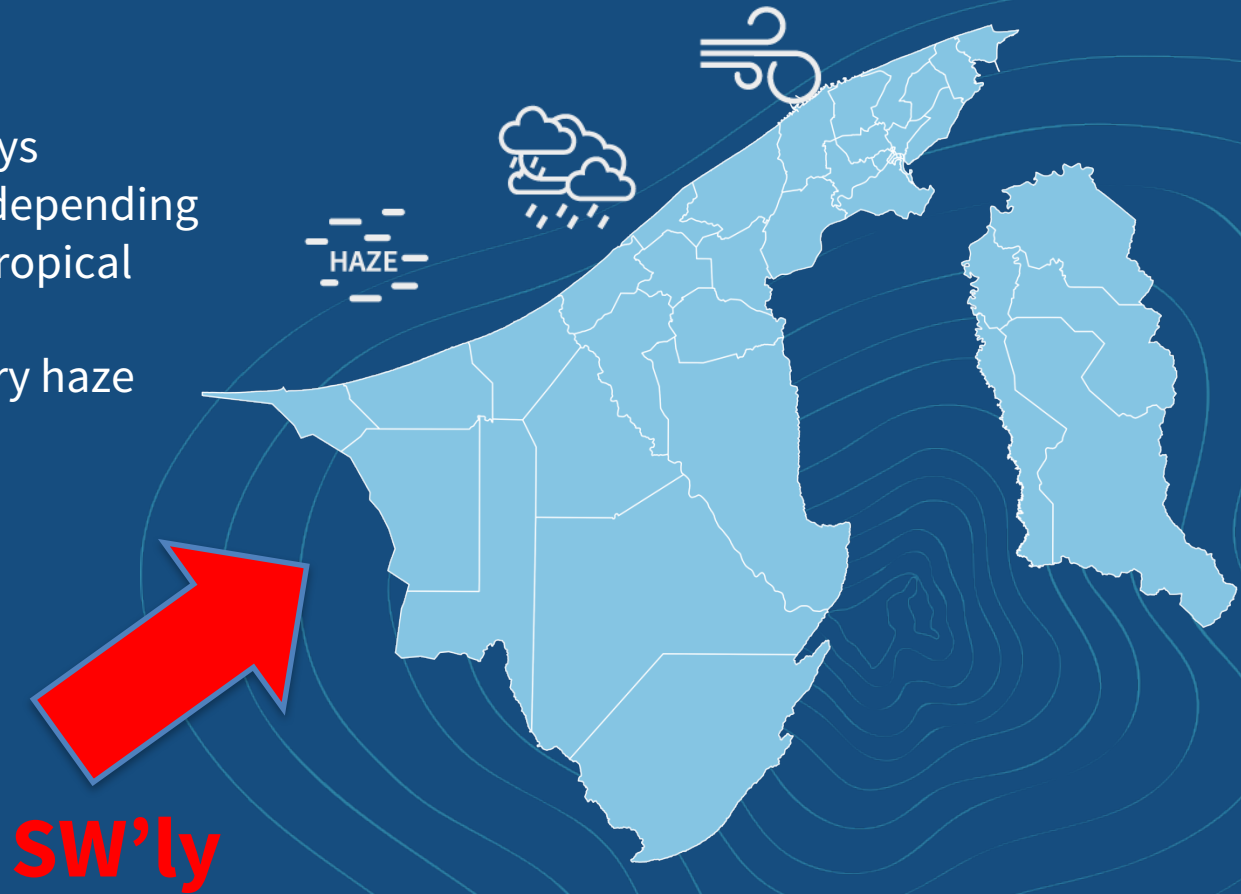


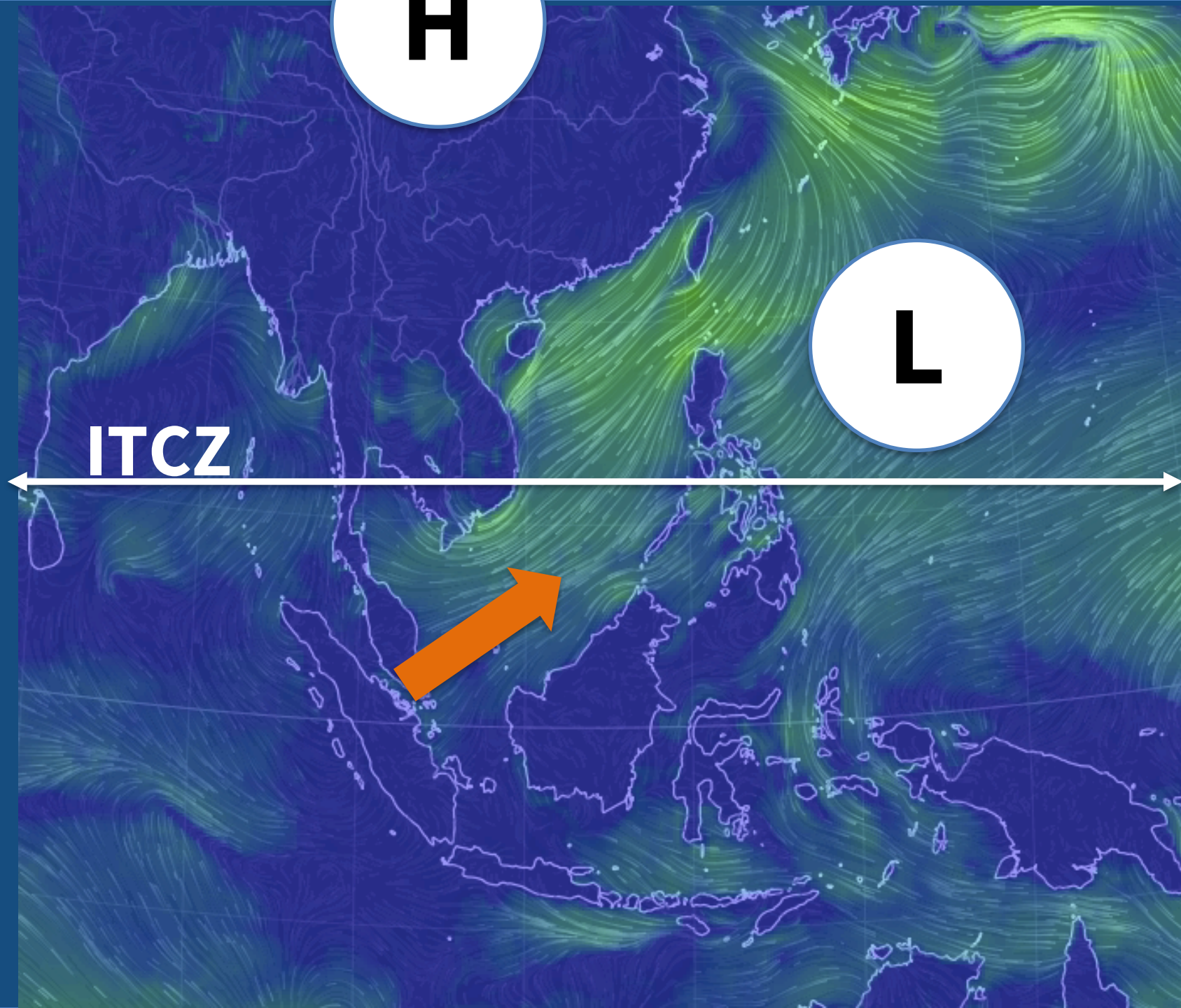
Southwest Monsoon

Onset: June

June –September

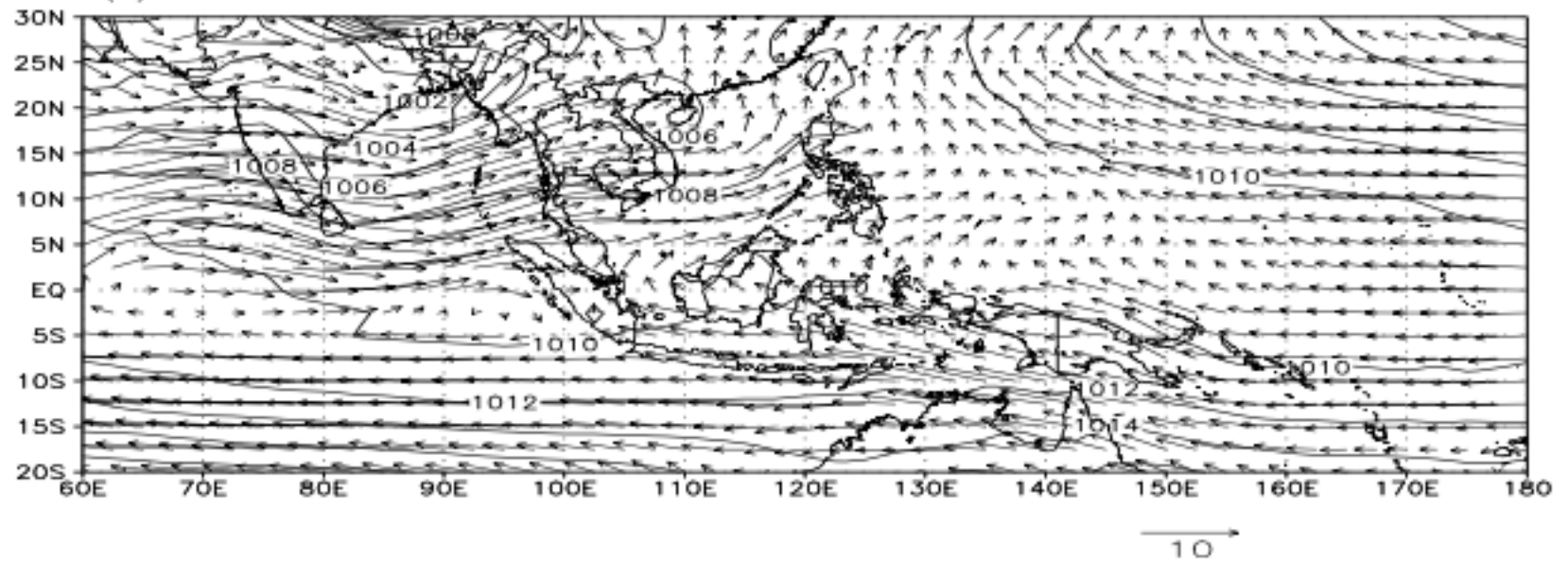
- Stable atmosphere
- Increase no rain days
- Squally showers – depending
- on the position of tropical storm/typhoon
- Haze/transboundary haze





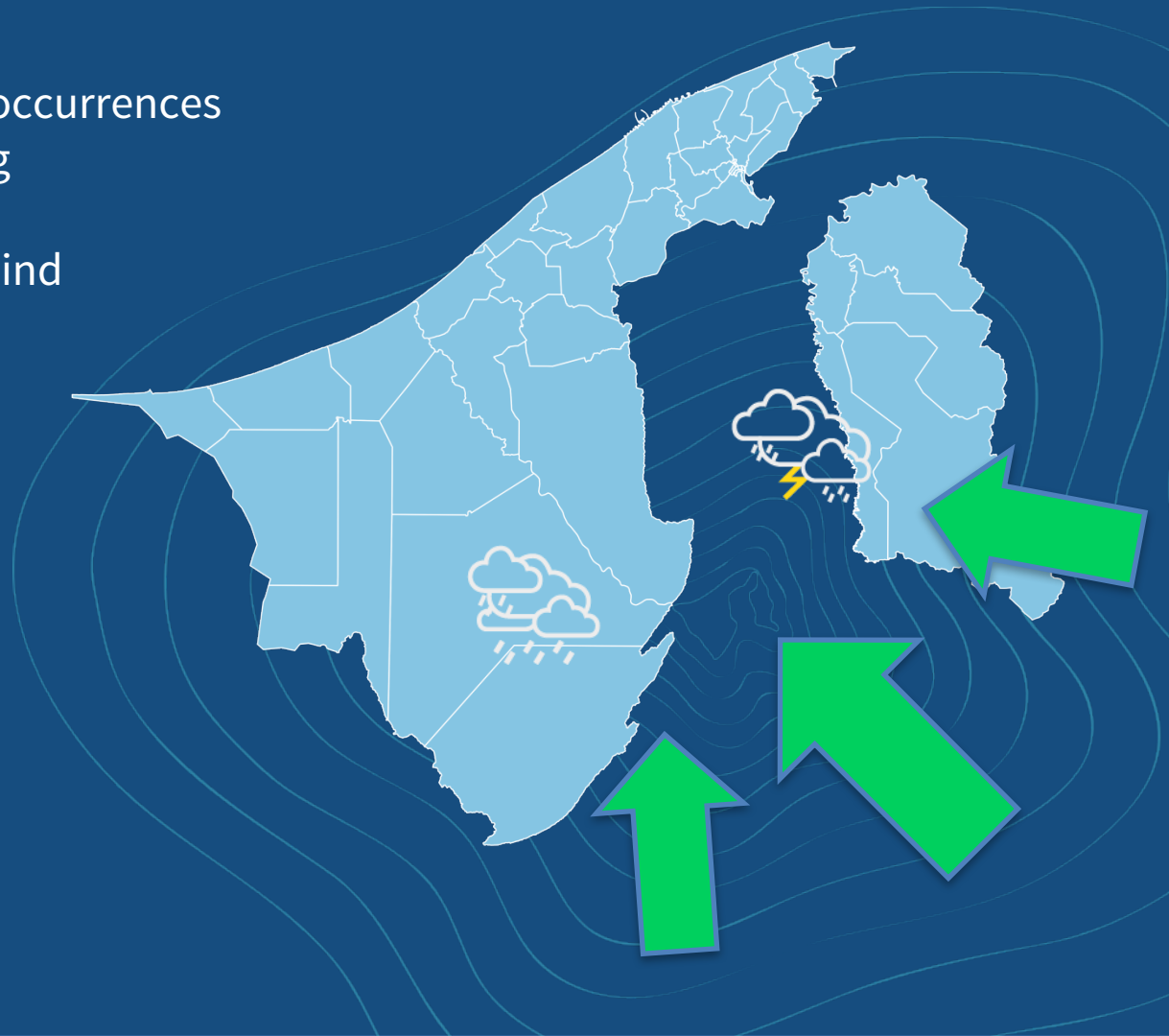
SUMMER MONSOON

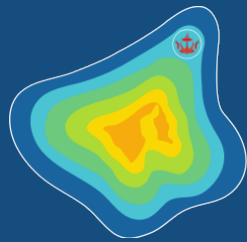
(B)



Inter-Monsoon

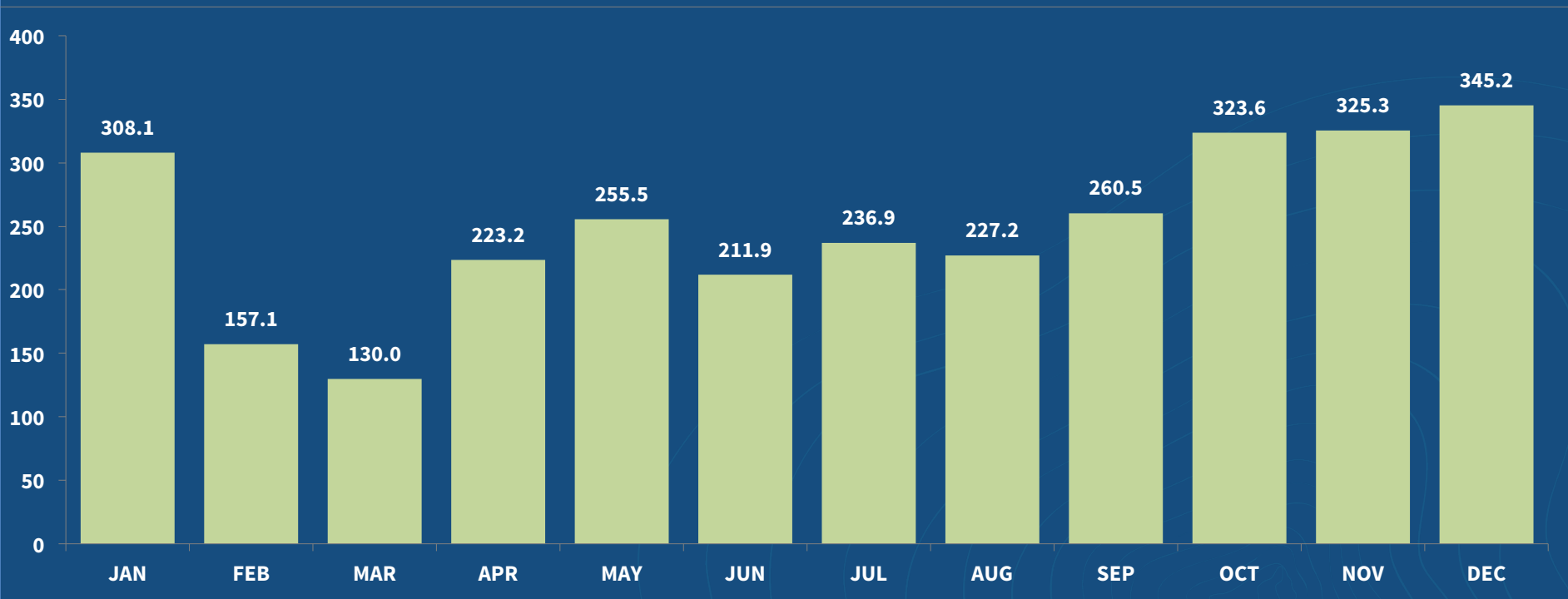
- ❑ 1st: April to May
- ❑ 2nd: October to November
- ❑ Increase Thunderstorms occurrences particularly in the evening
- ❑ Inter-season; change of wind





Rainfall Trend

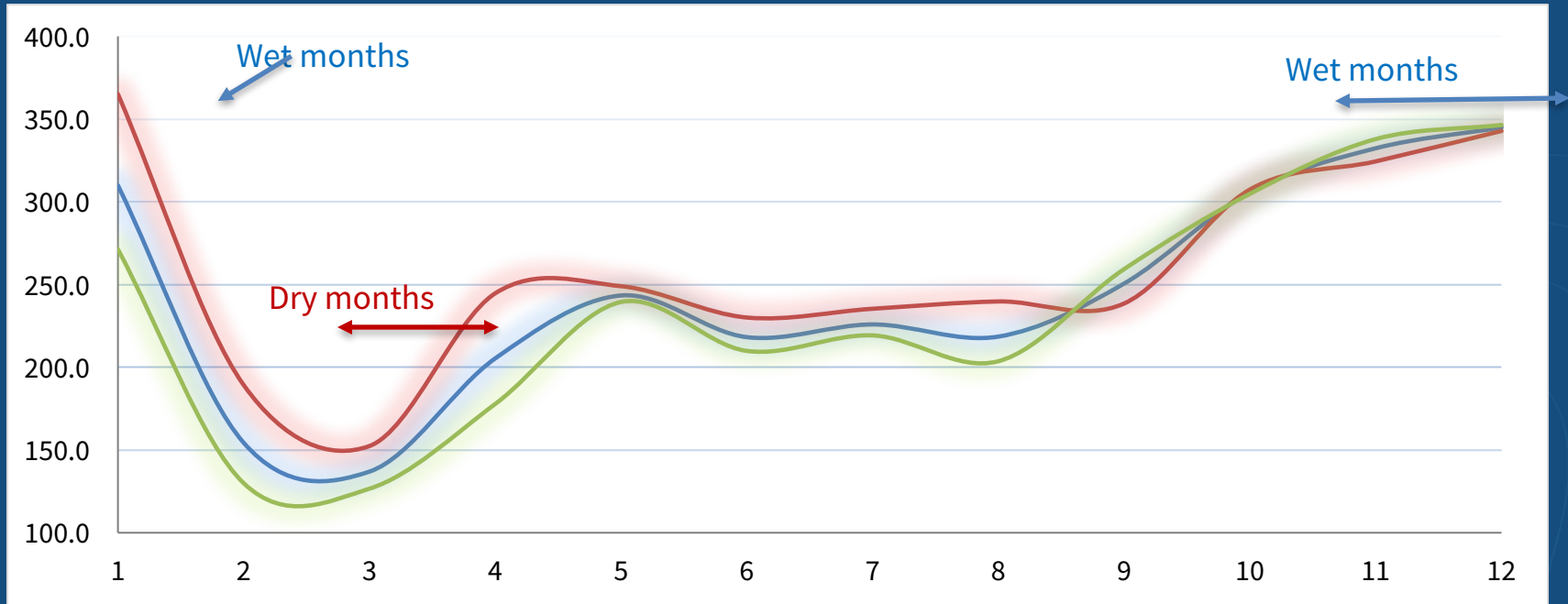
Rainfall Trend: Normal



1981-2010 Climatological Basis for Brunei Darussalam

Recorded at BIA Observational Station

Rainfall Trend: Monthly



● **Climate normal** shows that Oct-Nov-Dec-Jan are the wet months whereas Feb-Mar-Apr are the dry months.

● **Recent trend** (red line) shows significant increase in rainfall for Jan-April and slight increase in Jun-Aug period.

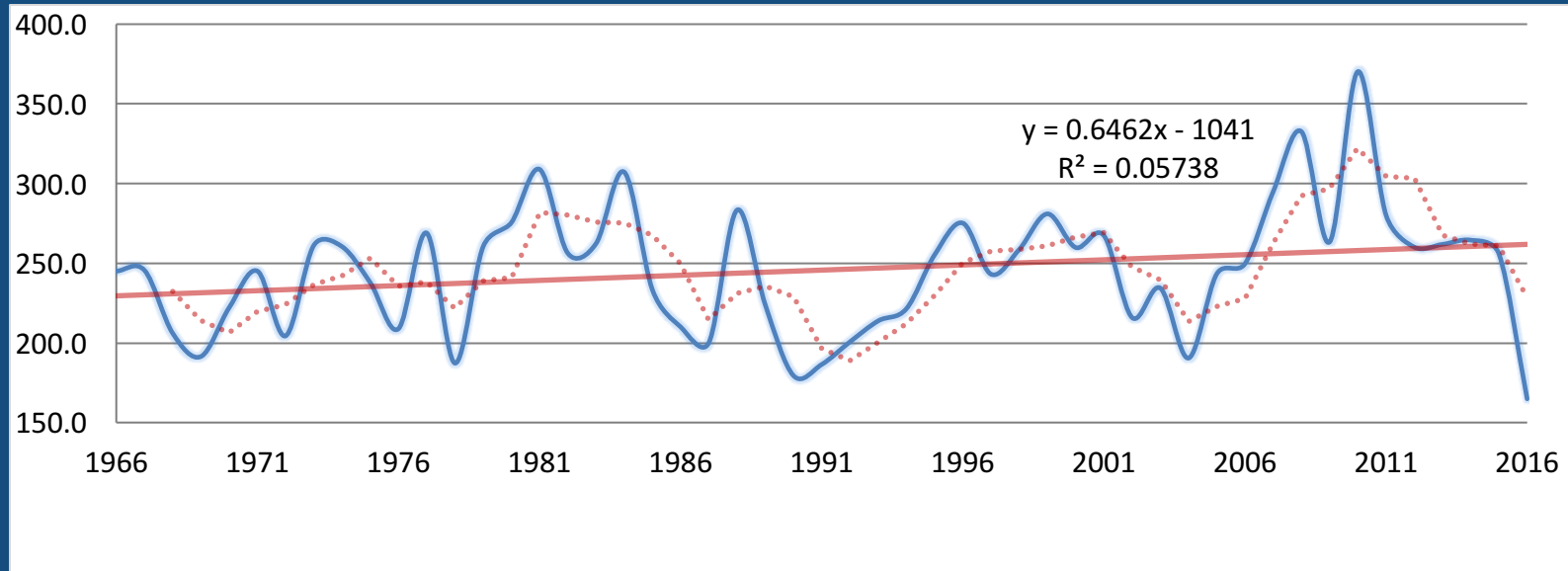
● January-April are getting wetter in recent years.

Blue : Period 1966-2016

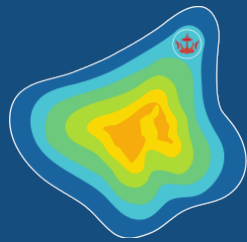
Red : Recent 1996-2016

Green : Normal 1966-1995

Rainfall Trend: Annual

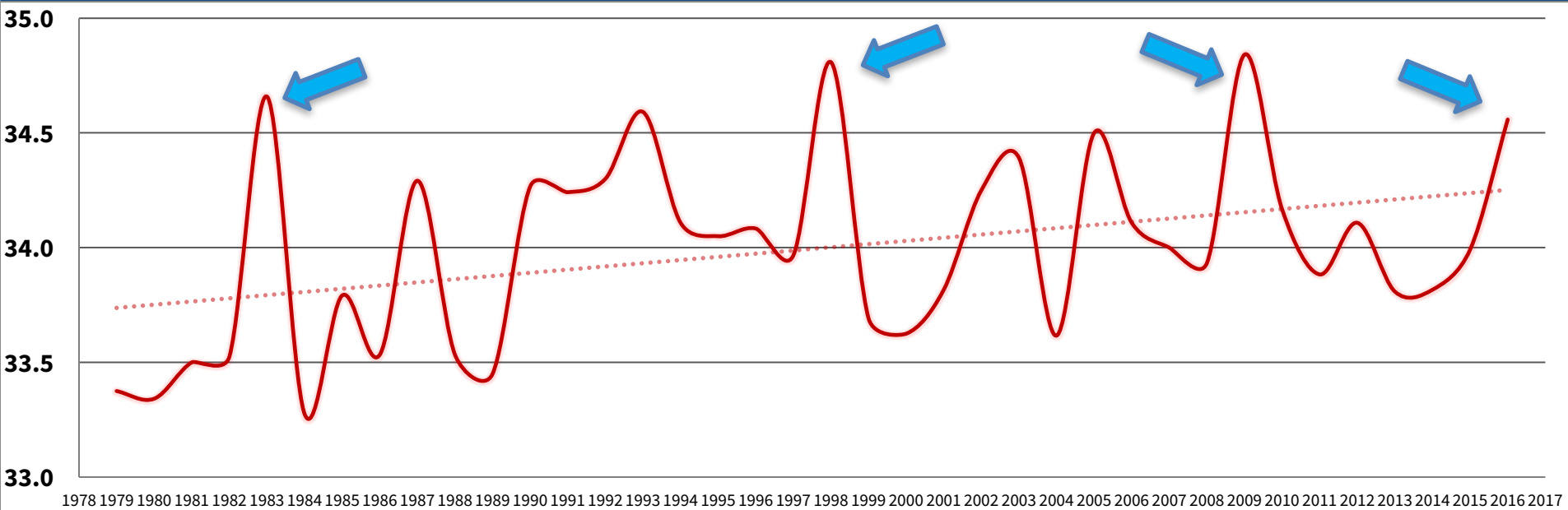


- Annual total rainfall is showing an increasing trend
- Significant increase was between 2006-2011
- Recent trend of rainfall mean is 37.2 mm.



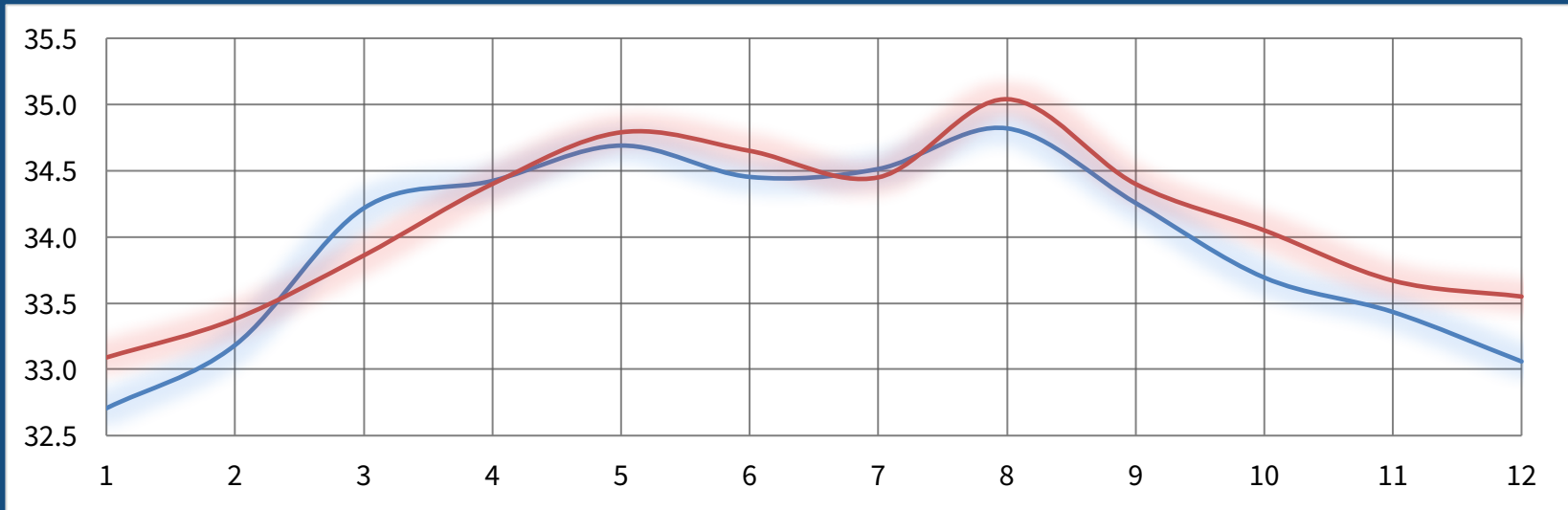
Temperature Trend

Temperature Trend: Maximum Mean



- Strong El Nino Years: 1982-1983, 1997-1998 and 2015-2016, Moderate El Nino Years: 2009-2010
- Maximum temperature tends to peak during EL Nino years

Temperature Trend: Monthly Maximum



Monthly maximum trend shows slight increase in maximum temperature during the recent years – particularly August to January

Blue

: Normal 1979-2008

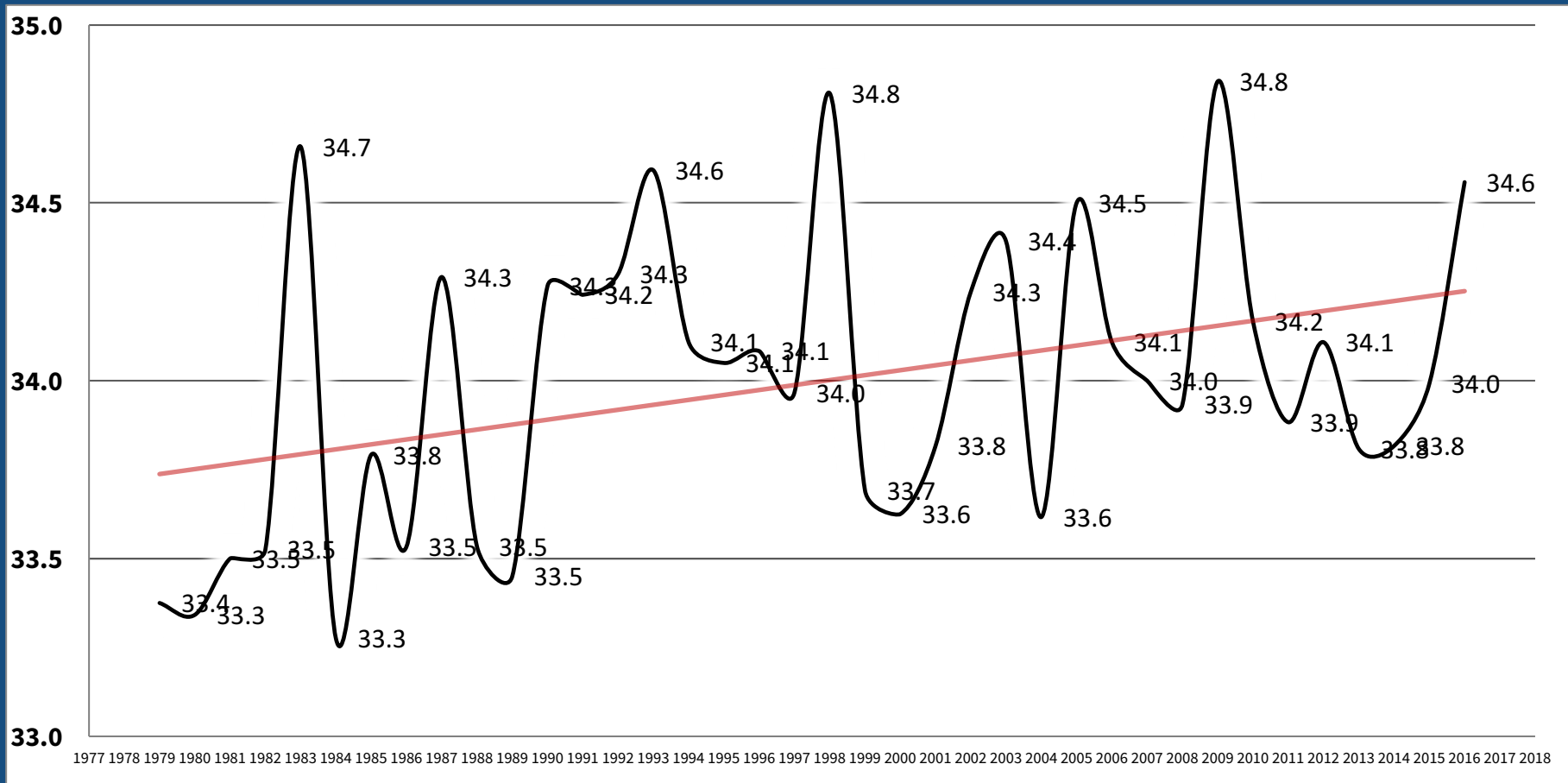
Red

: Recent 2013-2016



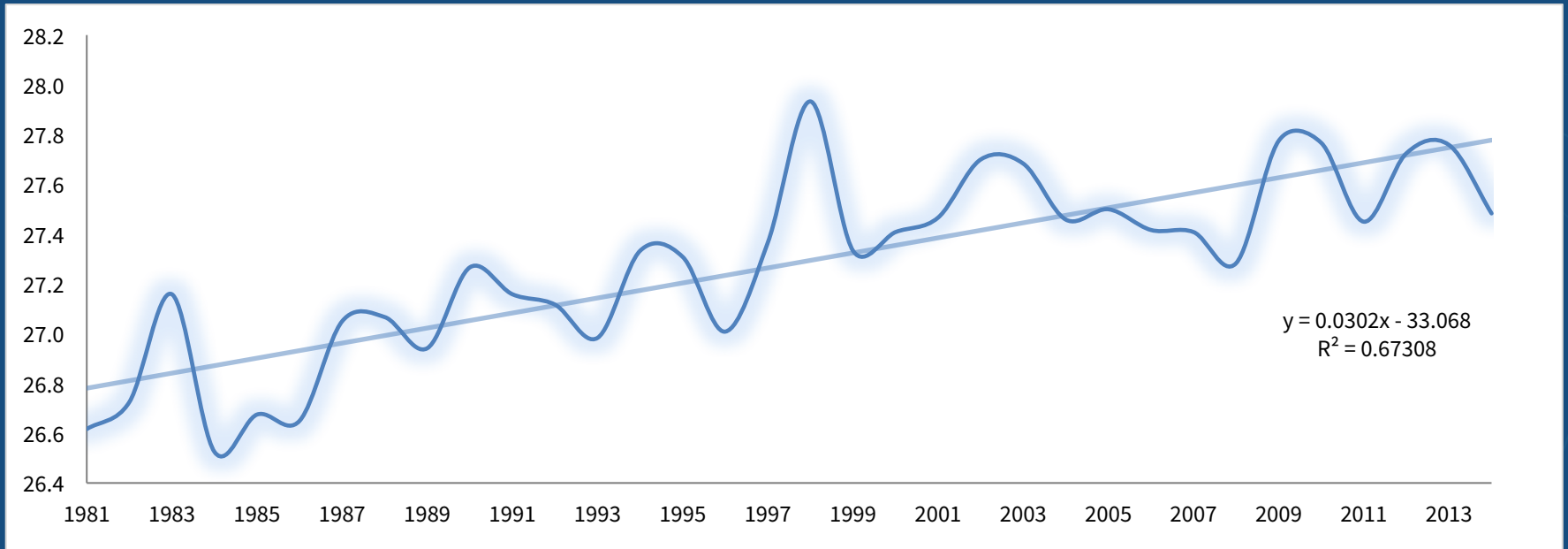
Monthly variations from the highest and lowest maximum temperature are about 2 Degree Celsius

Temperature Trend: Maximum Mean



On average, maximum temperature is warming by +0.3 degree Celsius

Temperature Trend: Mean



● Mean Temperature shows warming trend

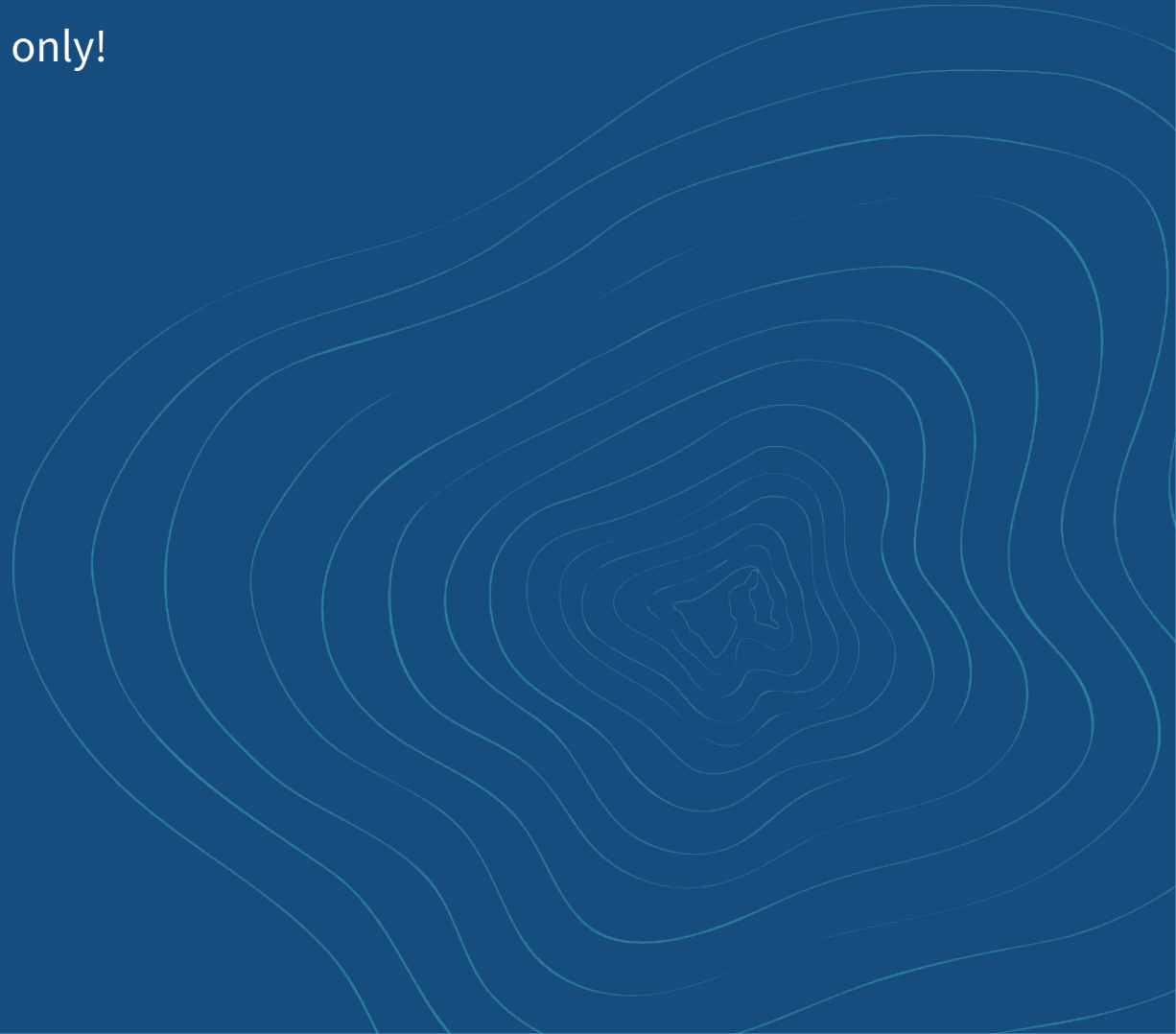
● Warming trend of 0.6 degree Celsius

Summary

- ❑ Warming Trend: 0.6 deg celcius
- ❑ On average, maximum temperature is warming by +0.3 degree Celsius
- ❑ Annual total rainfall is showing an increasing trend
- ❑ Recent trend of rainfall mean is 37.2 mm
- ❑ Basically Brunei is getting warmer and wetter

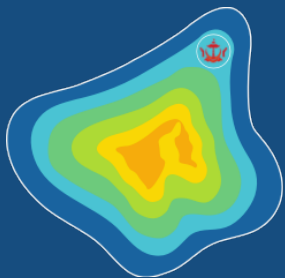
Limitations

- ❑ The historical data is based on one station
- ❑ Temperature and Rainfall only!
- ❑ Based on 50 years data



Thank You

Towards A Weather Smart Society



BDMD

Brunei Darussalam
Meteorological
Department