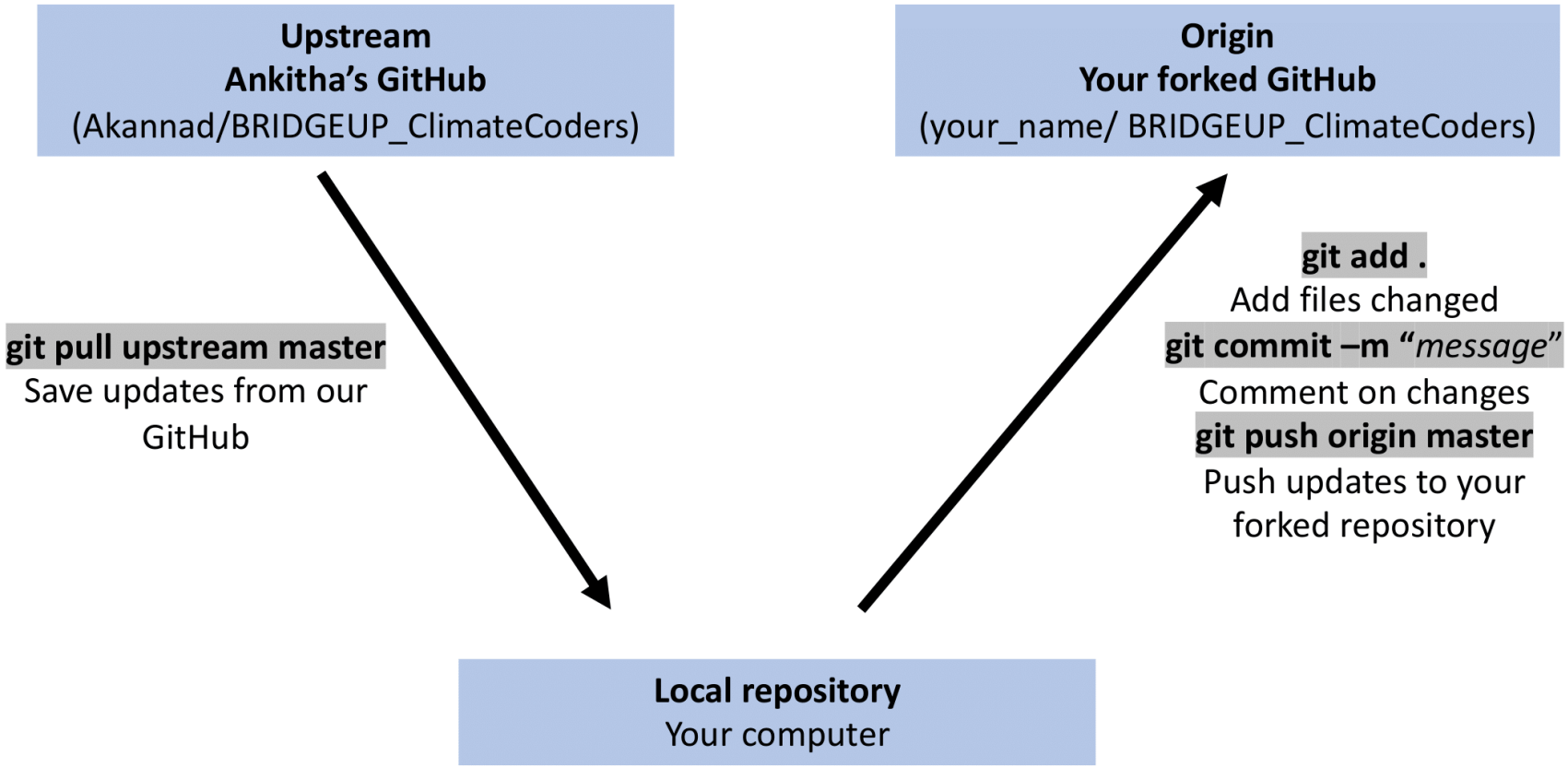

HAPPY
NEW YEAR

HOUSEKEEPING

- Cheers and challenges:

  Natalie ☺



EL NIÑO AND LA NIÑA

UNIT 2: CLIMATE IN SOUTH-EAST ASIA

JANG 12TH , 2019

WHAT A YEAR!

TheJakartaPost

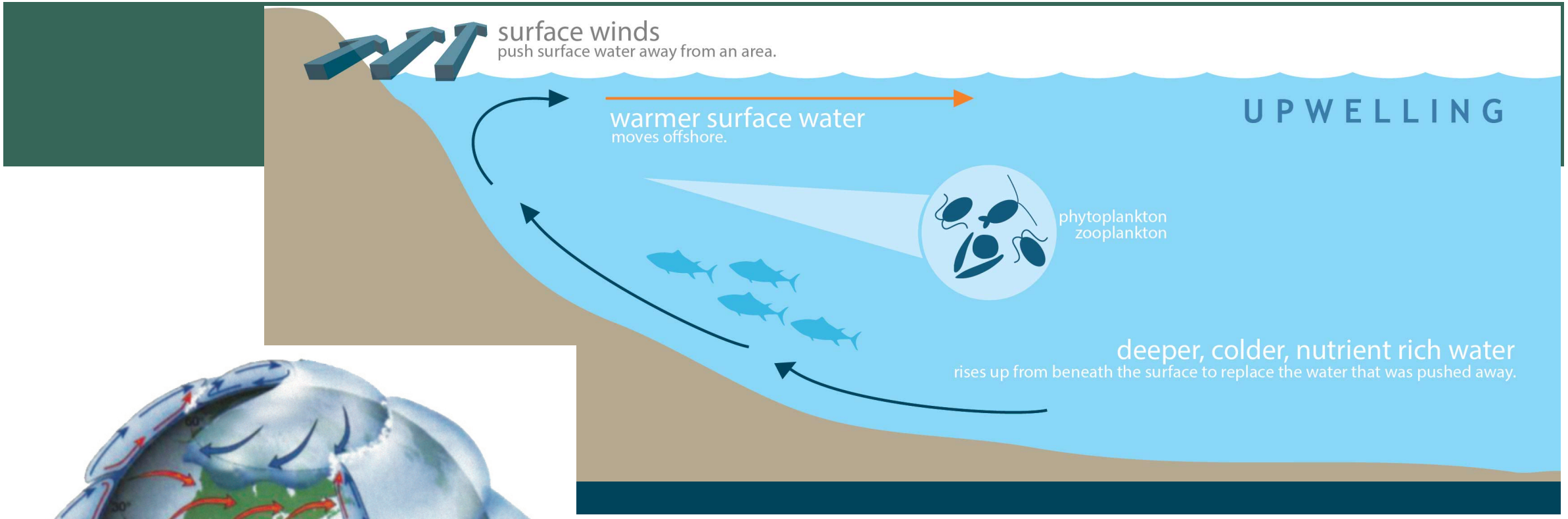
NEWS BUSINESS SE ASIA OPINION LIFESTYLE TRAVEL MULTIMEDIA

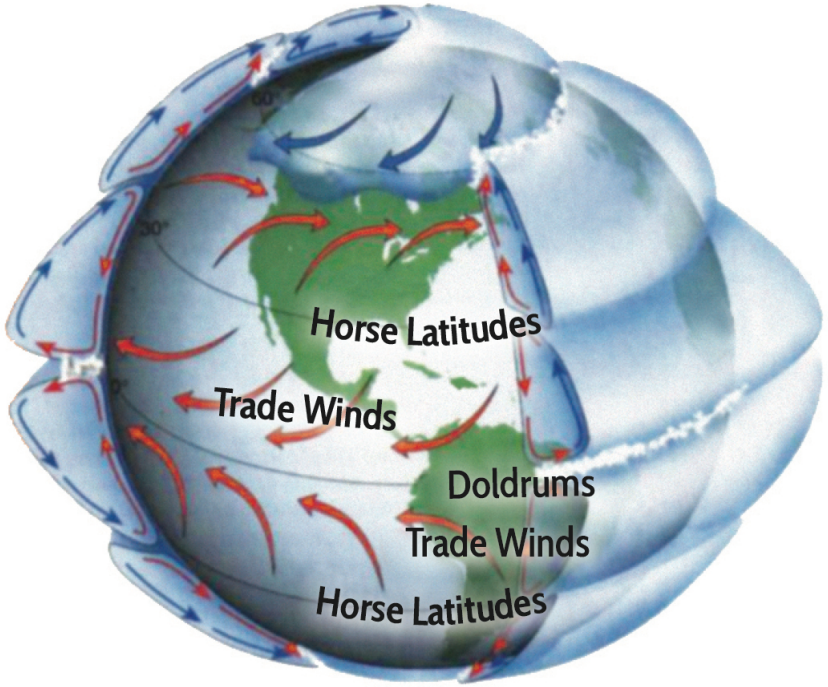
NEWS > CITY

‘Not ordinary rain’: Worst rainfall in over decade causes massive floods in Jakarta

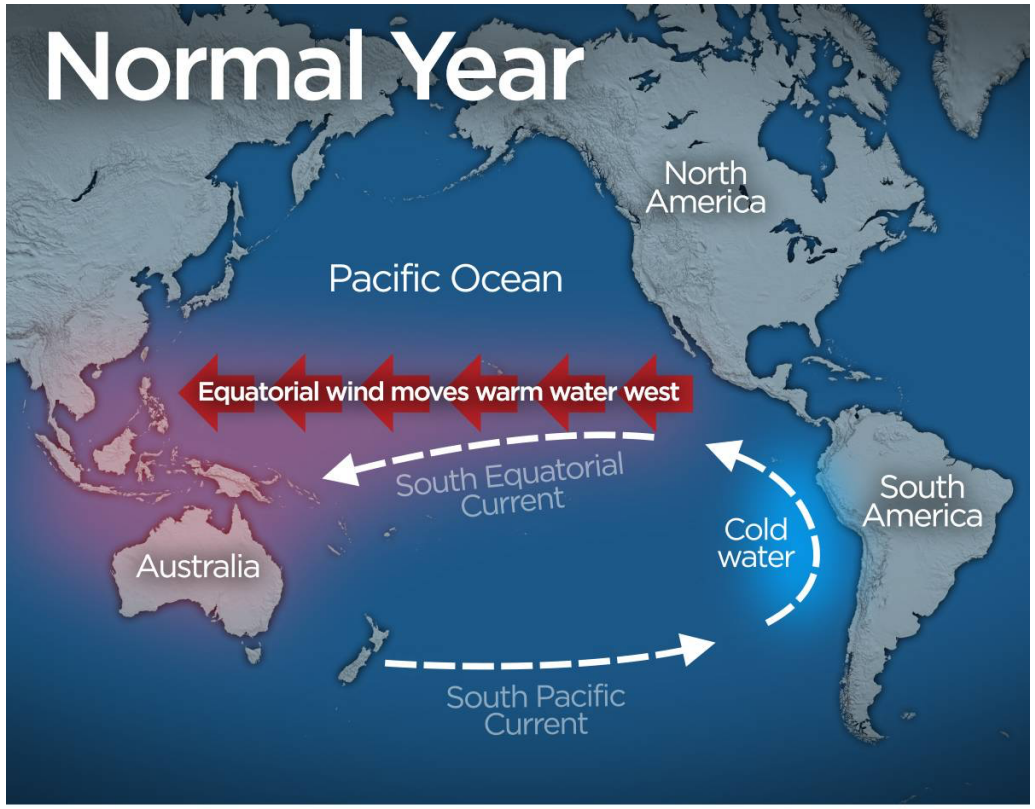
EL NIÑO

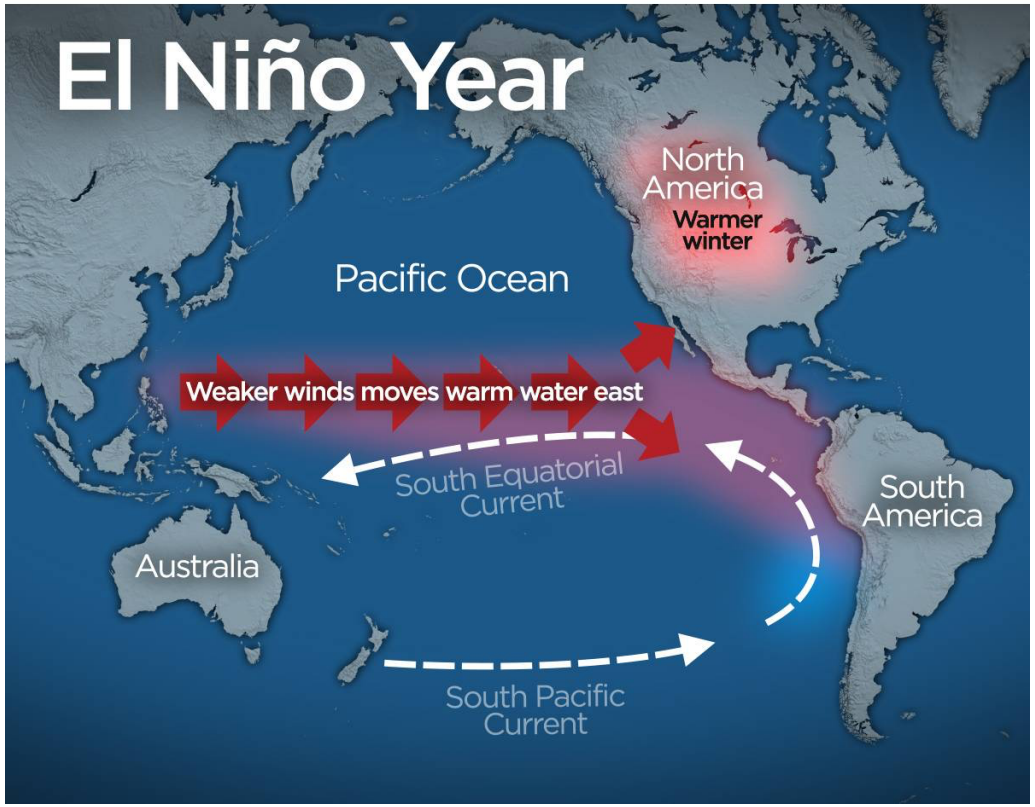
- First identified by Peruvian fisherman who noticed their fish stocks would significantly drop during certain years
- During this time, the waters were also strangely warmer, and the air was more humid.
- They called this effect the El Niño because it reminded them of the start of the summer and Christmas!


surface winds
push surface water away from an area.
warmer surface water
moves offshore.
UPWELLING
phytoplankton
zooplankton
deeper, colder, nutrient rich water
rises up from beneath the surface to replace the water that was pushed away.

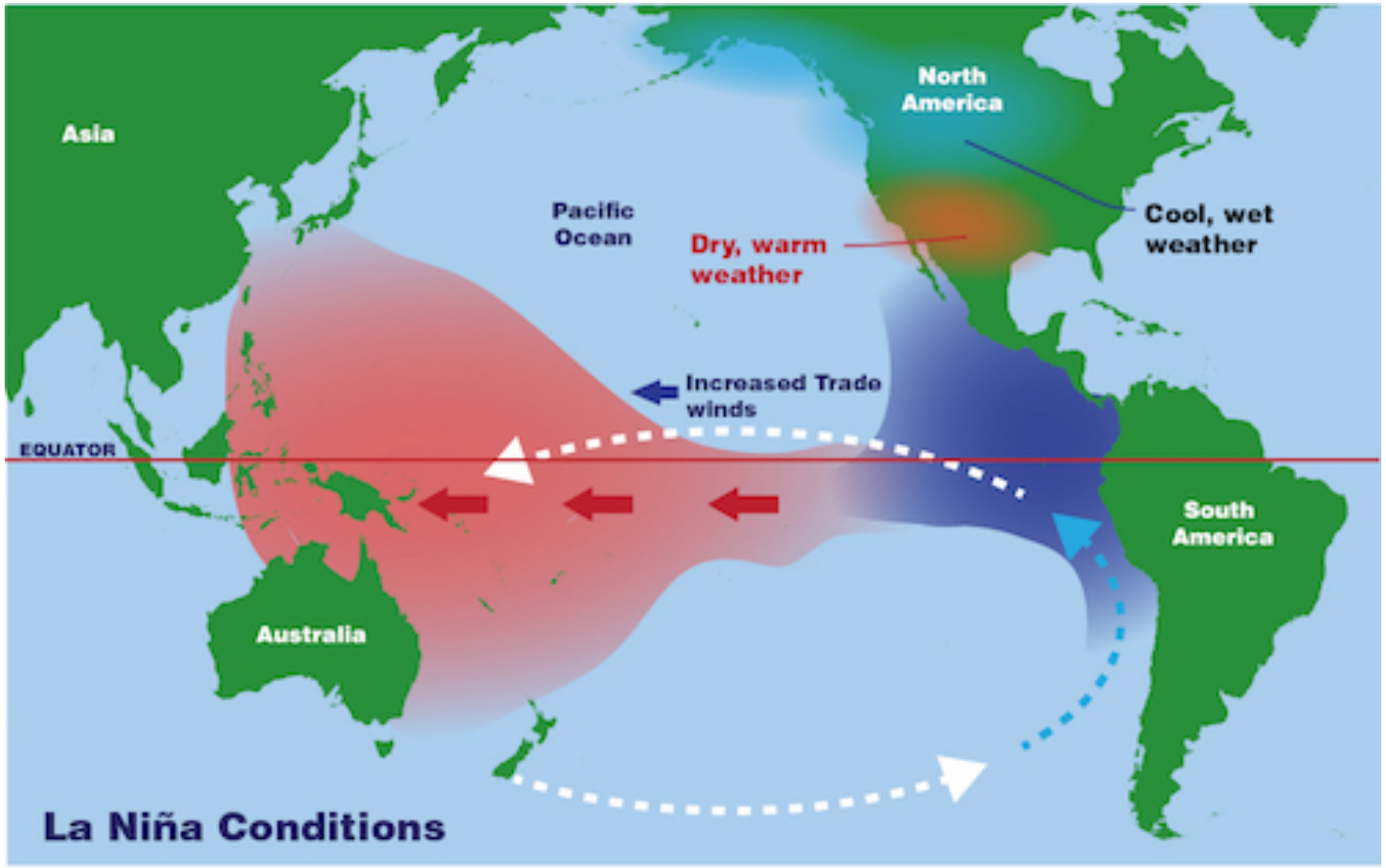

Horse Latitudes
Trade Winds
Doldrums
Trade Winds
Horse Latitudes

BUT DURING AN EL NIÑO…


Normal Year
North America
Pacific Ocean
Equatorial wind moves warm water west
South Equatorial Current
Cold water
South America
Australia
South Pacific Current


El Niño Year
North America
Warmer winter
Pacific Ocean
Weaker winds moves warm water east
South Equatorial Current
South America
Australia
South Pacific Current

LA NIÑA


Asia
North America
Pacific Ocean
Dry, warm weather
Cool, wet weather
Increased Trade winds
EQUATOR
South America
Australia
La Niña Conditions

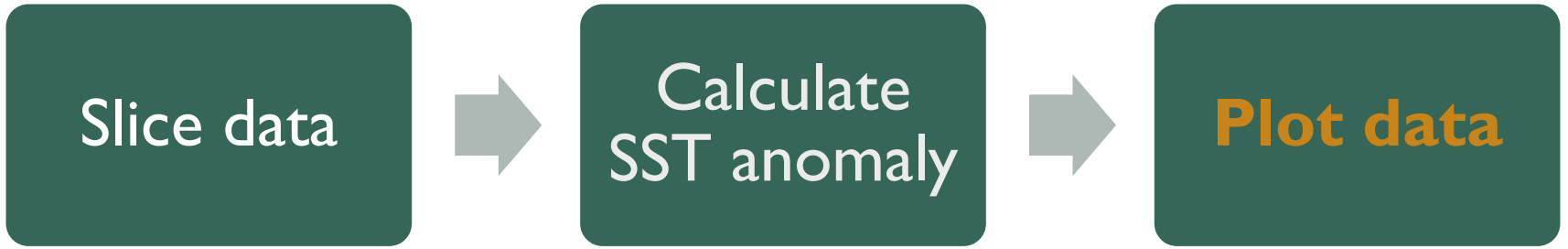
El Niño + La Niña = El Nino Southern Oscillation (ENSO)

How can we identify the ENSO?

TIMELINE

What is the recent climate in South-East Asia? How does it affect the ocean?

Data: Global sea temperature and salinity 2000 - 2017



ANNUAL SST ANOMALY MAPS

2017 - Sabrina

2015 - Ling

2013 – Darcie

2011 – Natalie

2009 - Mia

SAMPLE SUBLIME SCRIPT

Import packages

Create functions

Main script

```
def main():
```

Execute main script

```
if __name__ = '__main__':
    main()
```

Run script on terminal

cd directory with your code files

python file_name.py

DEBUGGING ON SUBLIME

1. Comment out sections
2. Google error
3. Print each line
4. Run your code each time you make a change
5. Take a break and come back to it!

PLOT_ANNUAL_SST_ANOMALY.PY

This is the script we've been working on so far.

Write a short description of what each block of code is doing

Run it on Terminal to make sure its working!

PLOT SST ANOMALY MAPS

For your assigned year:

- Average SST anomaly over entire year
  - Hint: the shape of the SST variable should be (330, 720)
- Plot data using contourf from the matplotlib library
- Save figure in the Figures folder on our Dropbox

Useful functions:

matplotlib.pyplot .contourf(**x,y,z**): contour plot

matplotlib.pyplot .colorbar(label = **"label name"**): plot colorbar with label

matplotlib.pyplot .savefig(**"file name.jpg"**): saves figure as jpg

numpy array .mean(axis = **1**): averages second dimension of numpy array