El Niño & la Niña events

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PHOTO : NOAA VIA AP
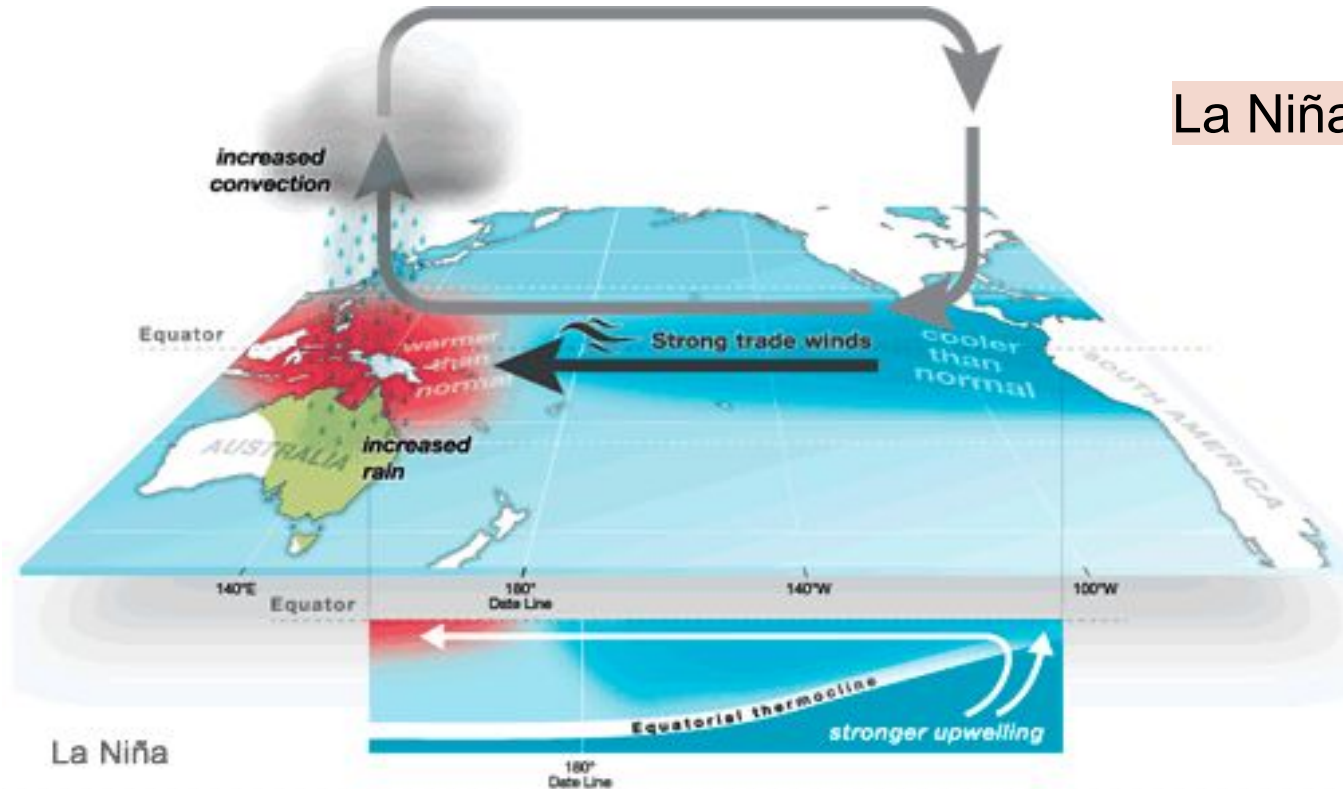
1

El Niño Southern Oscillations and its events
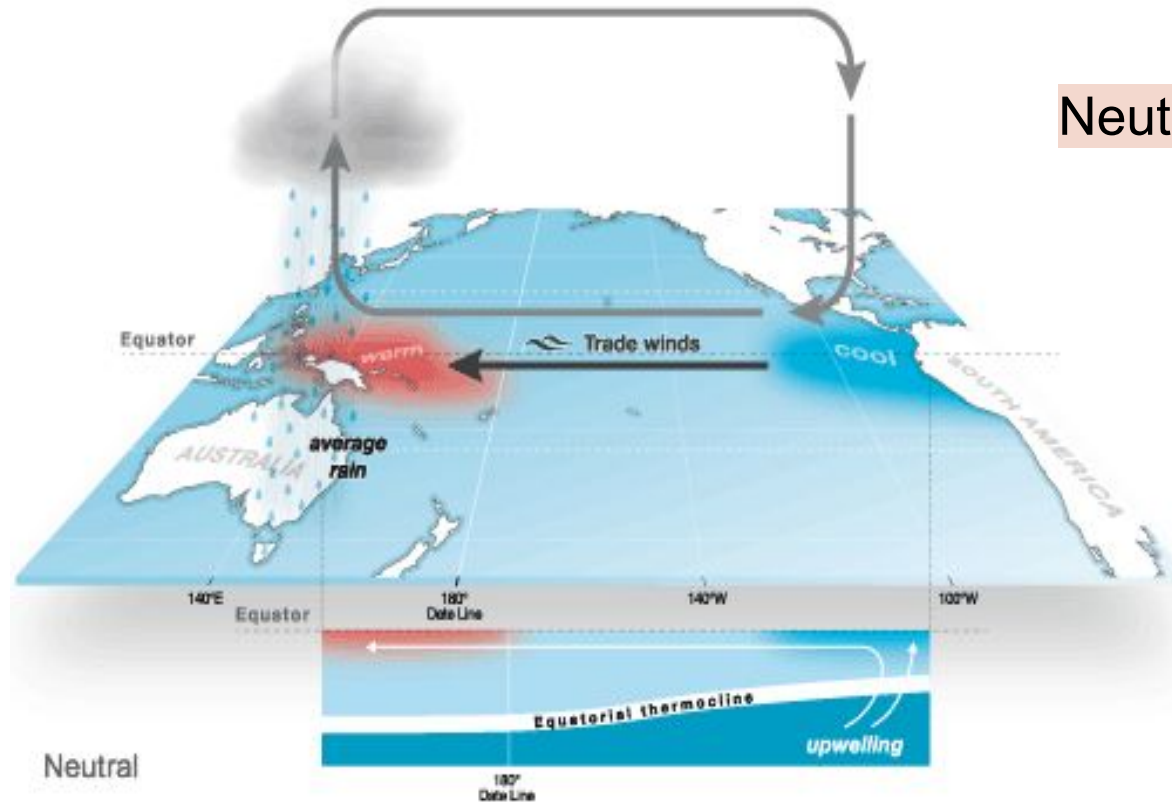
Neutral situation

El Niño Southern Oscillations and its events
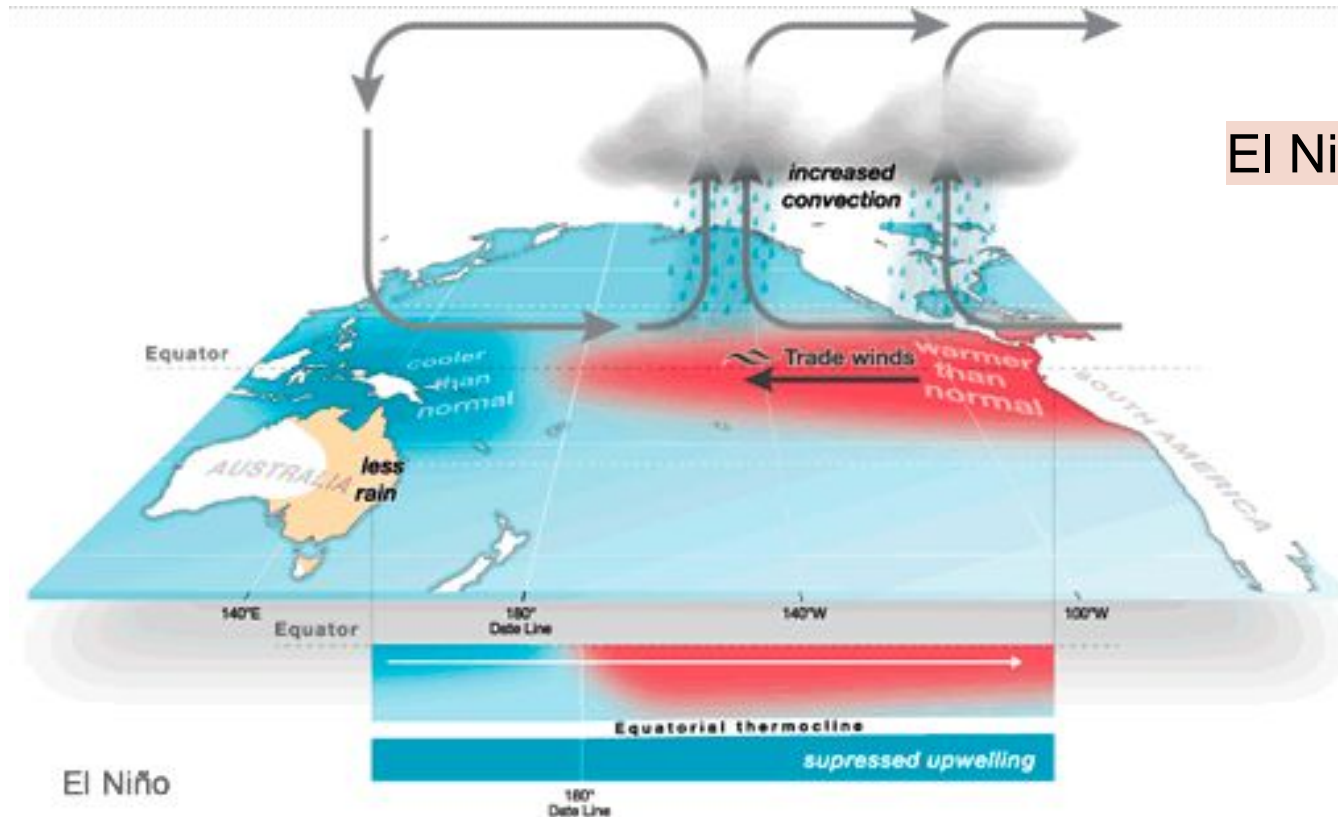
El Niño situation

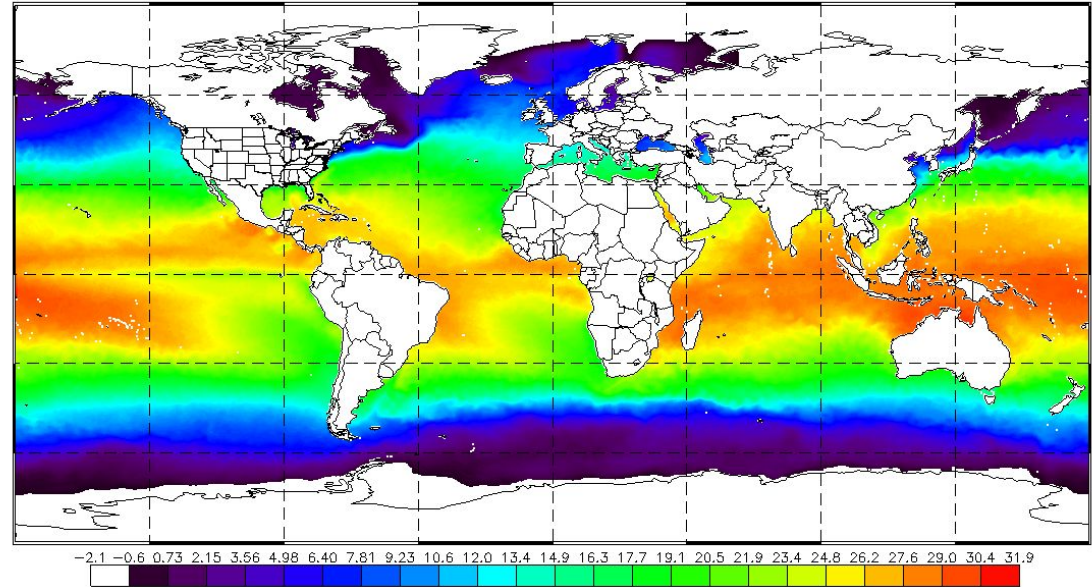# El Niño Southern Oscillations and its events
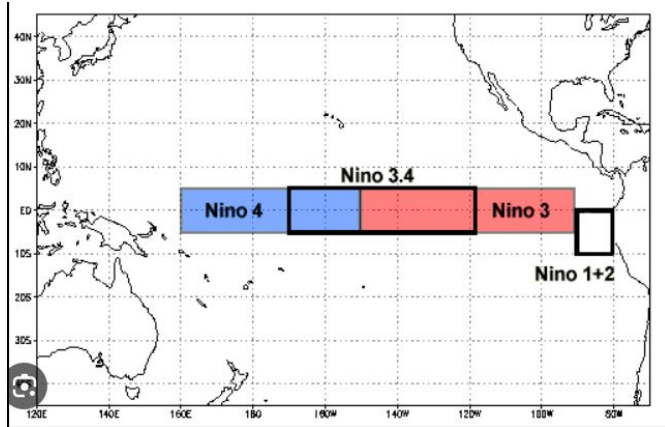

La Niña situation

The Data

Monthly Mean Satellite—only Nighttime SST for January, 1994

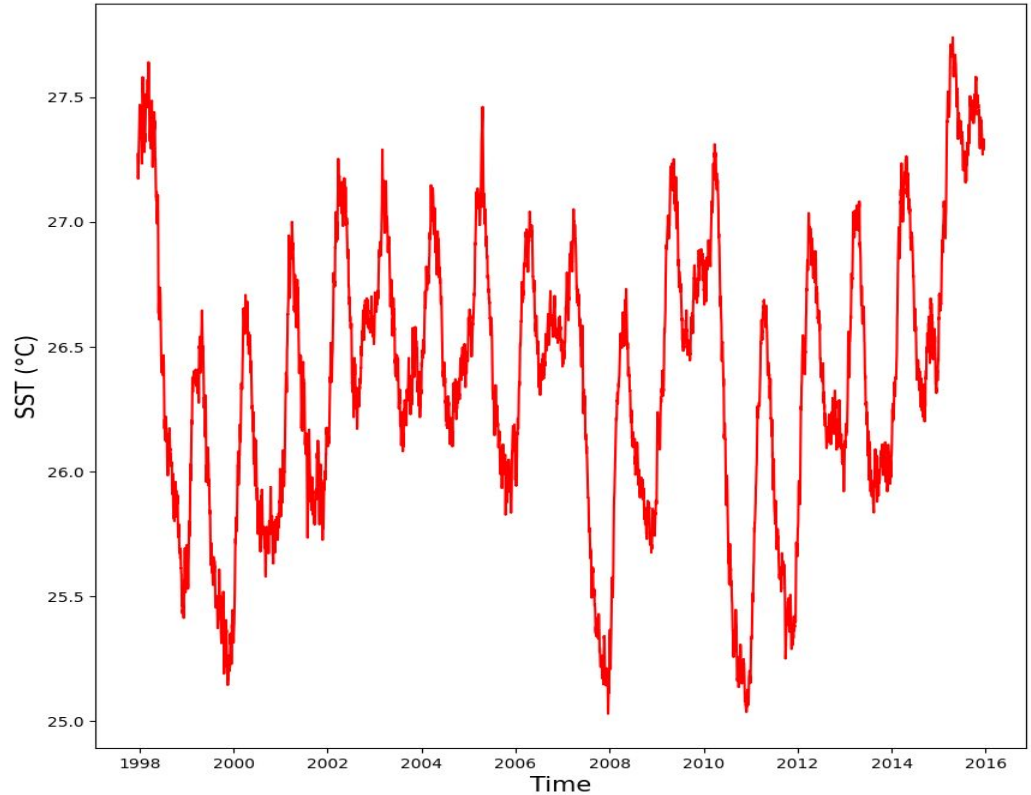Time period: January 1998 - February 2016

Index Niño 3.4 (ENSO Index)
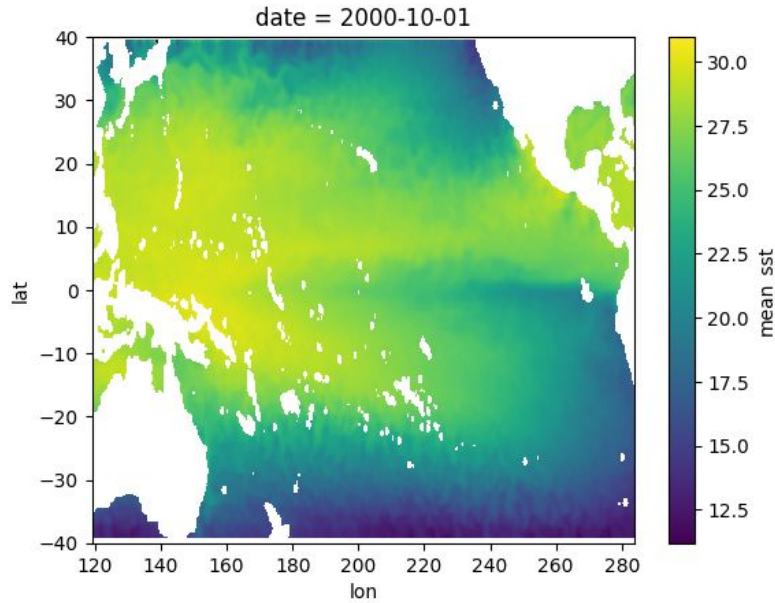

zone :
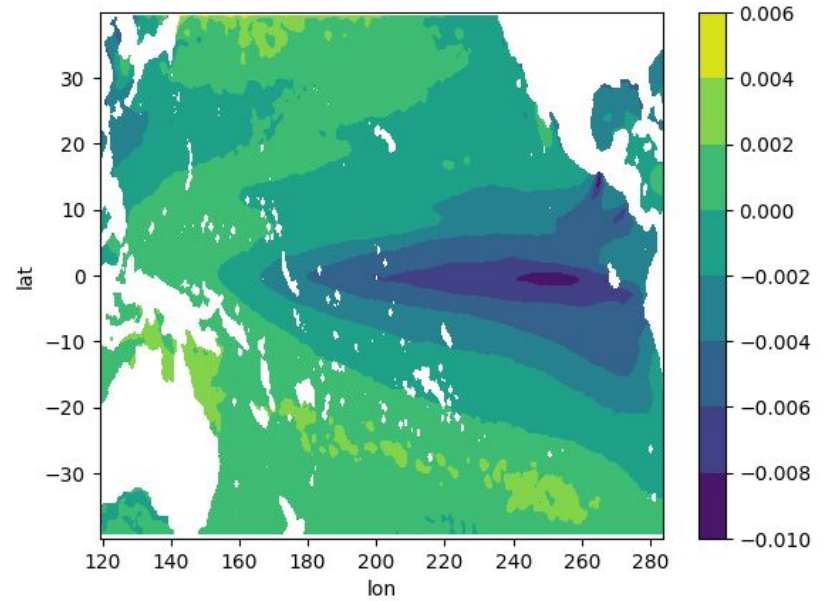longitude: [180 ; 300]
latitude: [-20 ; 20]

Mean SST in time between 01/01/1998 to 01/02/2016
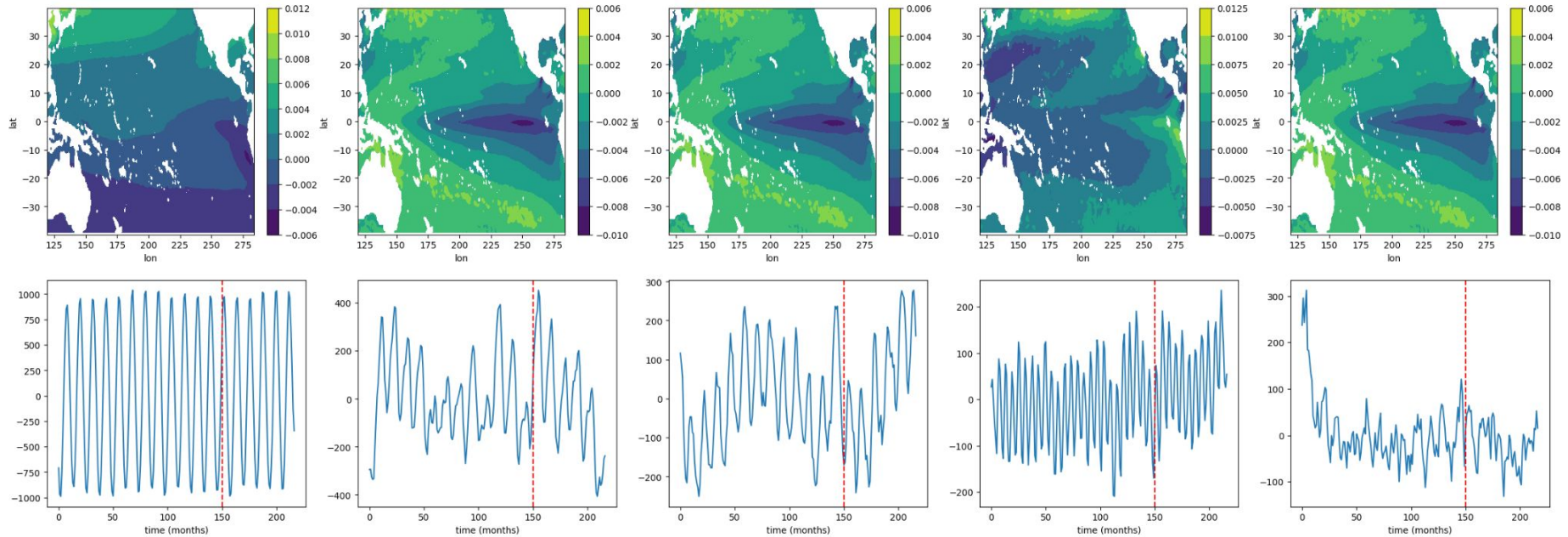
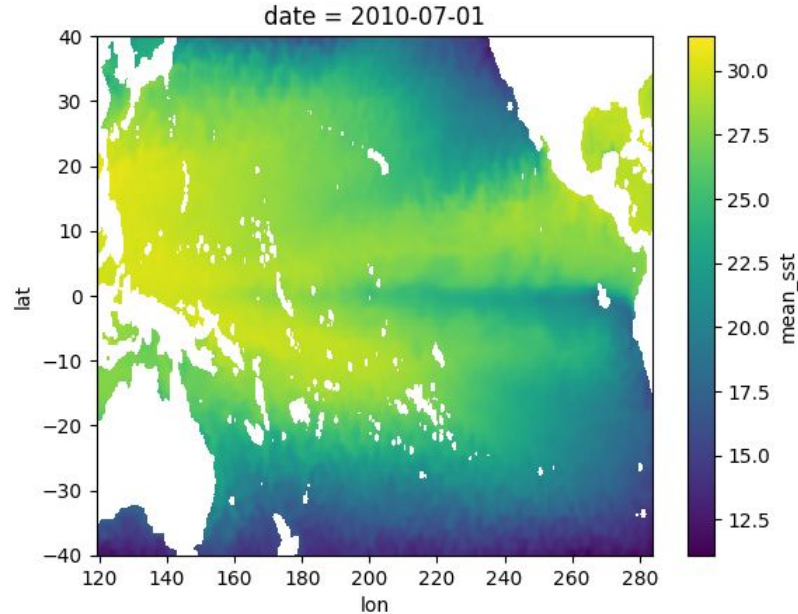# Principal Components Analysis :

Map of mean SST from data

Map of SST with pattern 2 of PCA

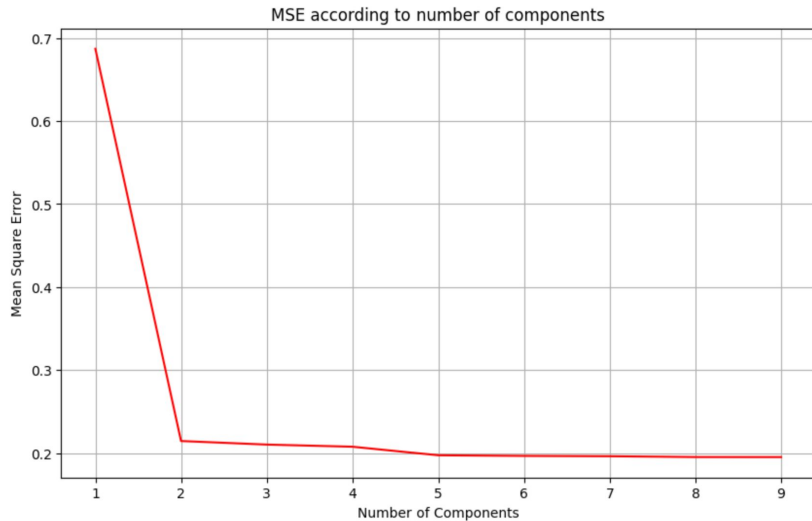# Principal Components Analysis :

Map pattern and time series associated to each PCA component (5)
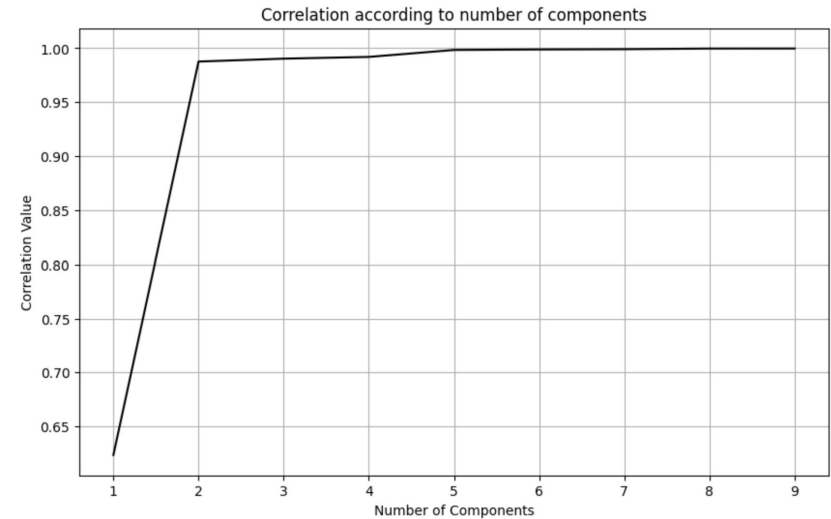
Principal Components Analysis :

Real SST Map on month 150

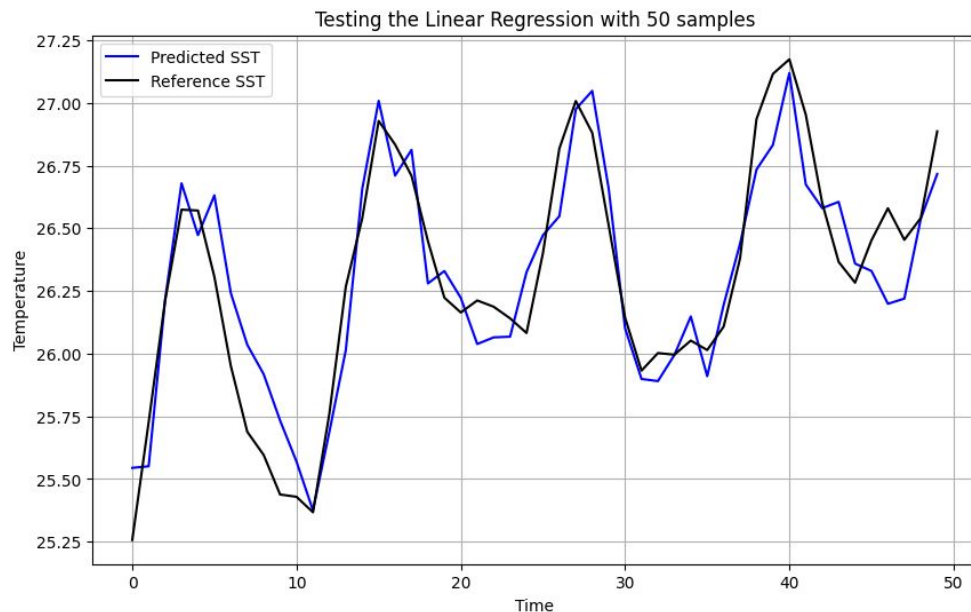# PCA : choice of number of components

Evolution of MSE depending on the
number of components

Evolution of correlation depending
on the number of components

Forecasting One Month Ahead Using One Year of Historical Data

Testing the Linear Regression with 50 samples

Testing

1 component:
MAE : 0.278
RMSE : 0.341

2 components:
MAE : 0.14
RMSE : 0.17

4 components:
MAE : 0.182
RMSE : 0.229

Merci