Assignment 03

By Jie ou (ID:12432886)

1. Global methane levels from 2002

1.1 Methane climatology for each month

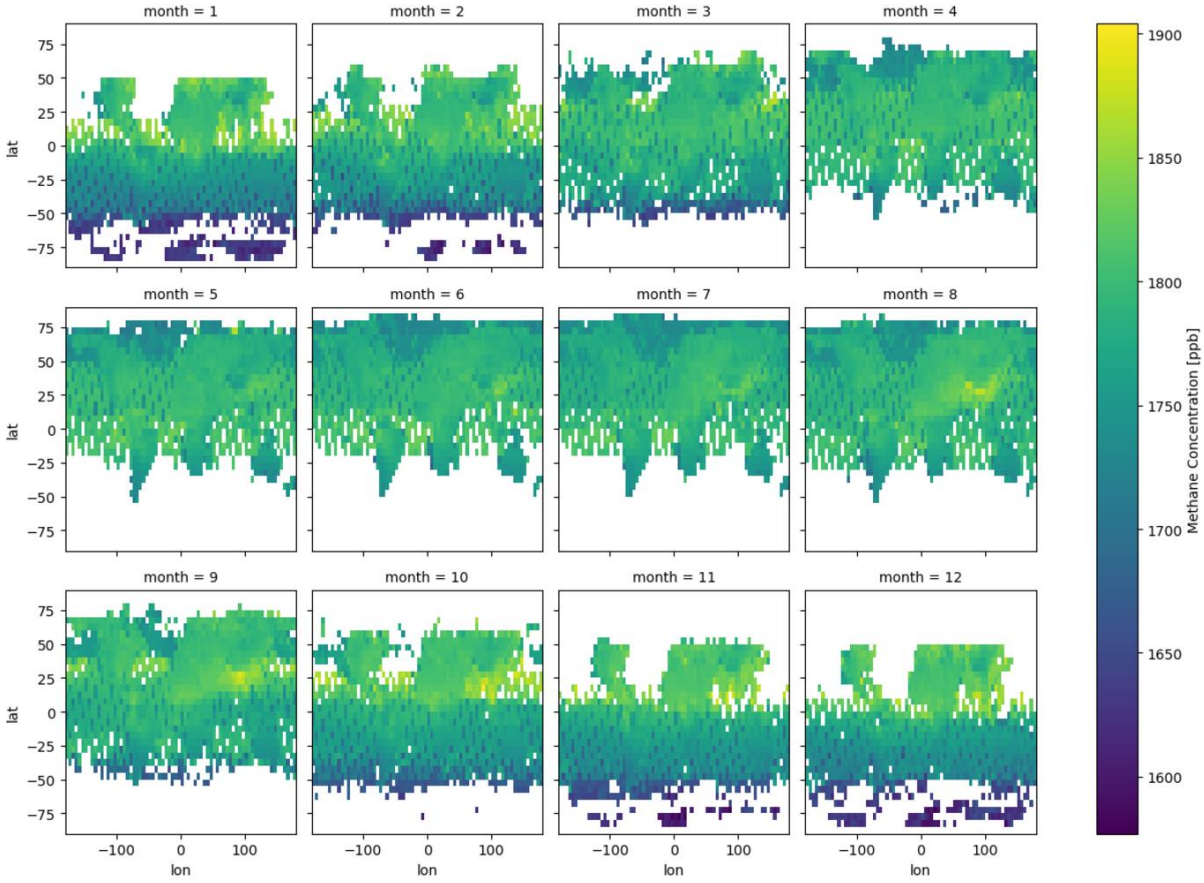

Figure 1 Monthly Methane Climatology

1.2 Global methane concentration Time Series

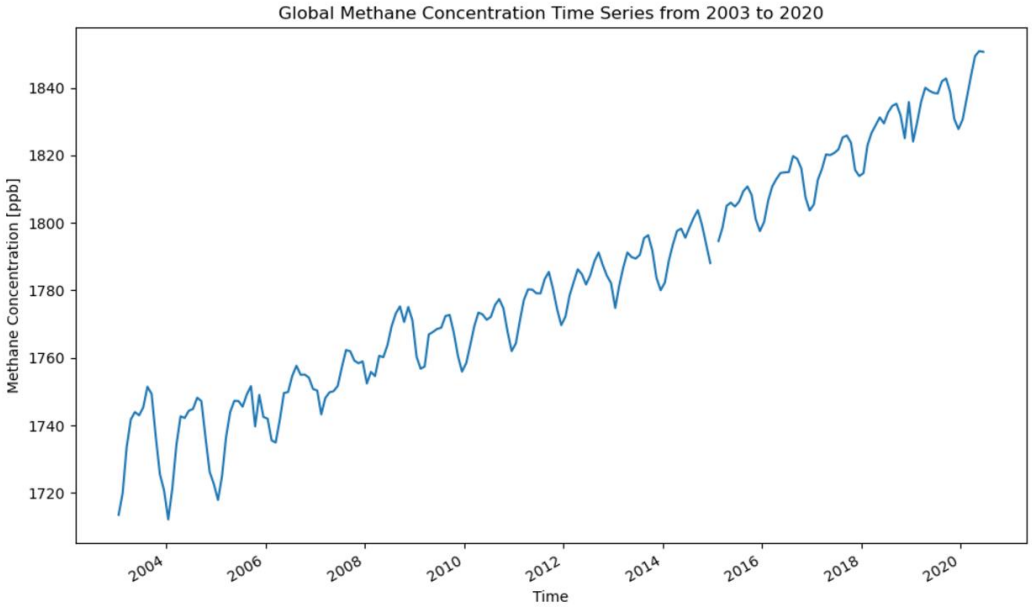

Figure 2　Global Methane Concentration Time Series from 2003 to 2020

从 2003 年到 2020 年，全球甲烷浓度呈现出明显的上升趋势，同时伴随着季节性波动。甲烷浓度在起初的三年内波动较大，2006 年后呈现较稳定的增长趋势。

1.3 Deseasonalized methane levels

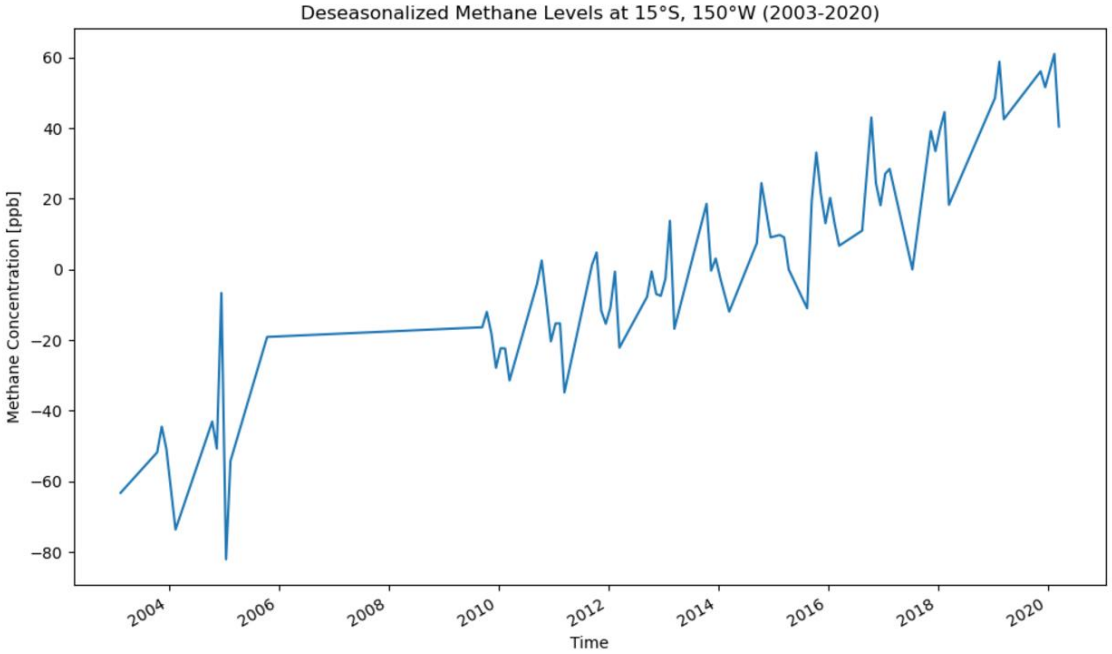

Figure 3　Deseasonalized Methane Levels at 15°S, 150°W (2003-2020)

该地点 2010 年前的数据缺失较多，2010 ~ 2020 年期间的甲烷浓度整体上呈现出明显的上升趋势。

2. Niño 3.4 index

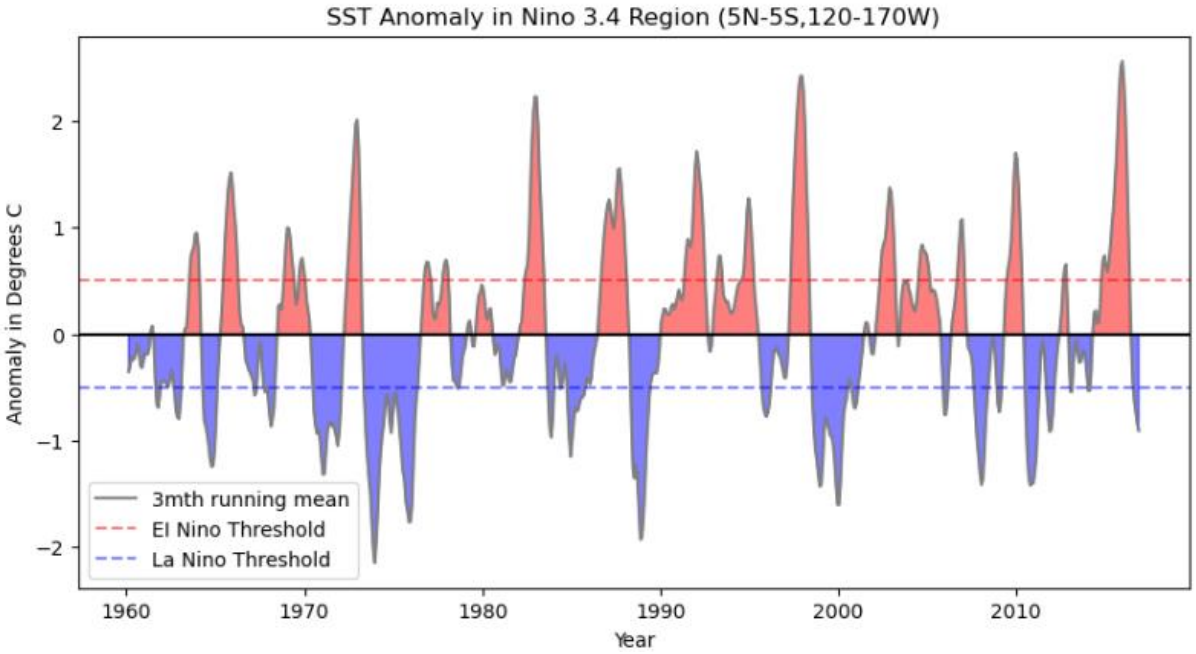

Figure 4　SST Anomaly in Nino 3.4 Region (5N-5S,120-170W)

3. Explore a netCDF dataset

所有数据集来源于助教在群中所发，下载地址：

https://send.cra.moe/file/X65CzgqXopA-roKkF/zcji1e1QWeR4xNB9/S3%E4%BD%9C%E4%B8%9A%E6%95%B0%E6%8D%AE.zip

3.1 Plot a time series

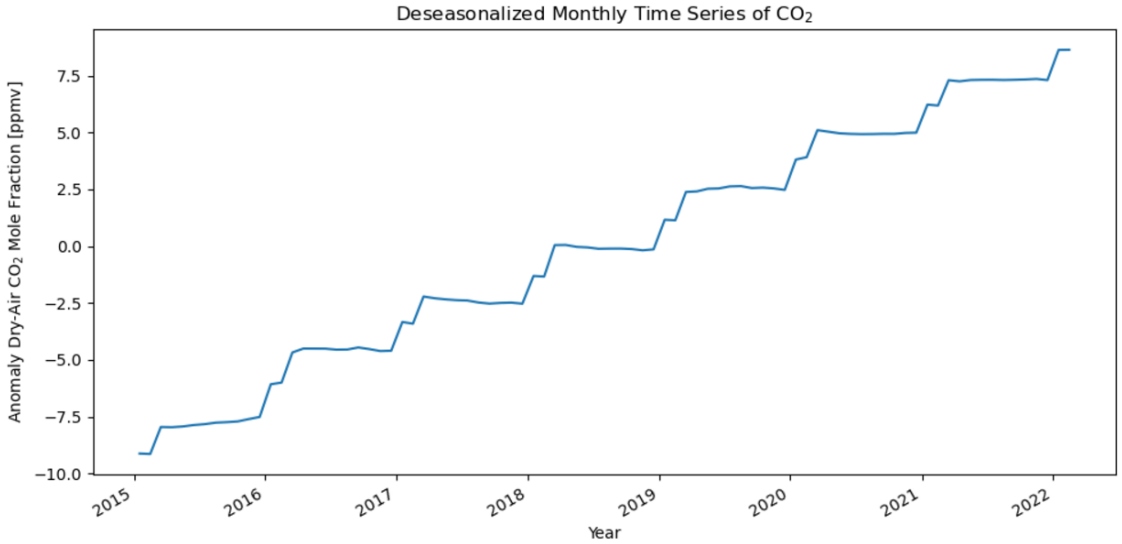

Figure 5 Deseasonalized Monthly Time Series of CO_2

3.2 Plot 5 plot

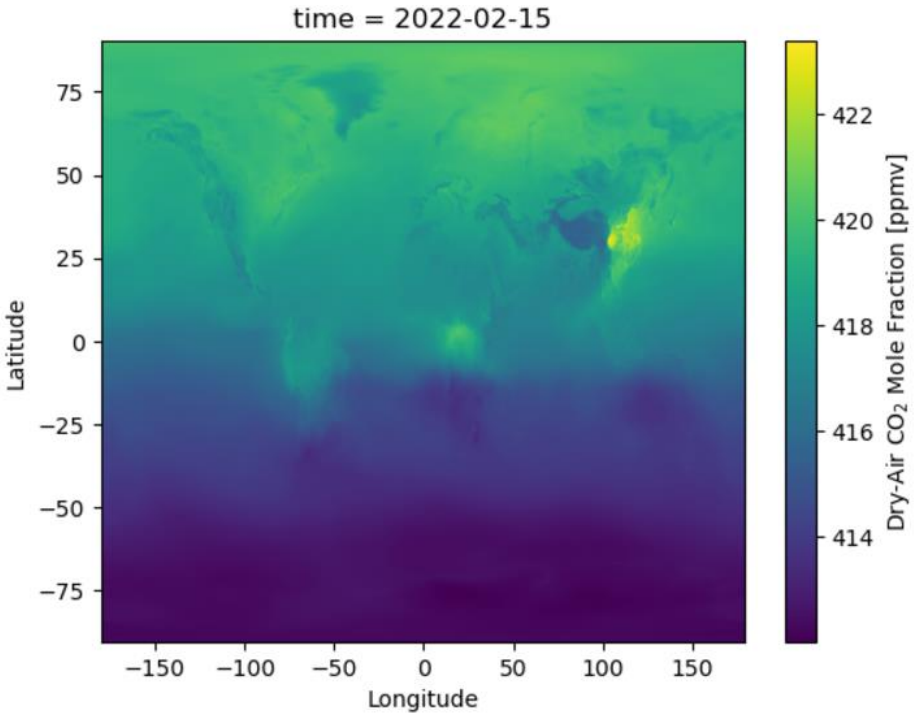

Figure 6 Latest CO_2 Concentrations

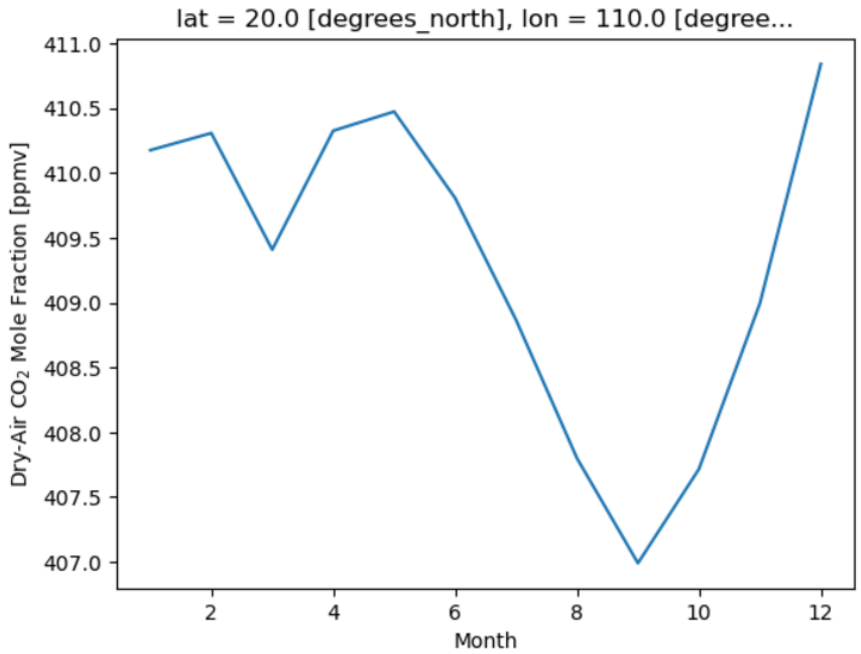

Figure 7 Haikou CO_2 Climatology

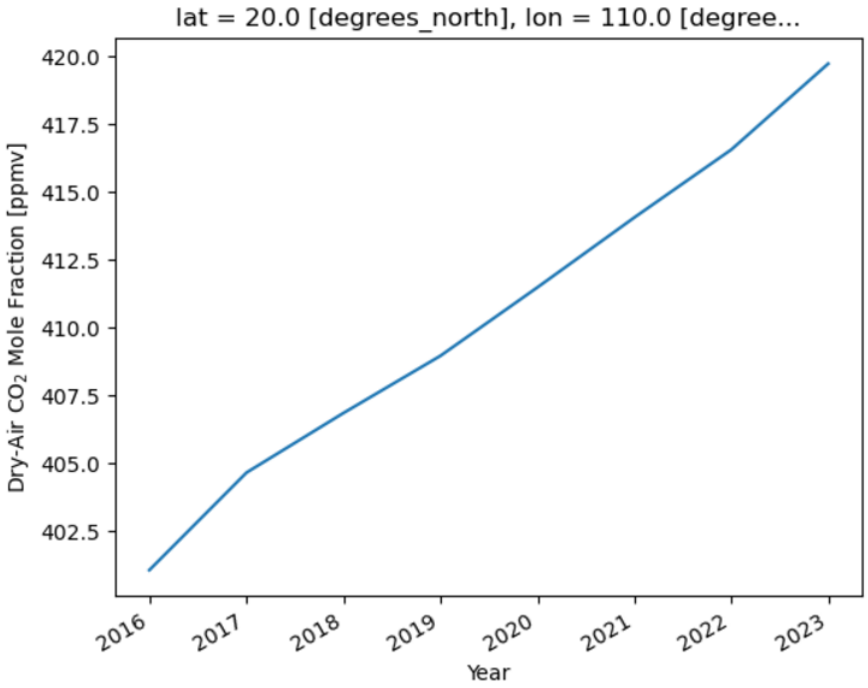

Figure 8 Average CO2 Concentration Trends in Haikou City (1 year rolling)

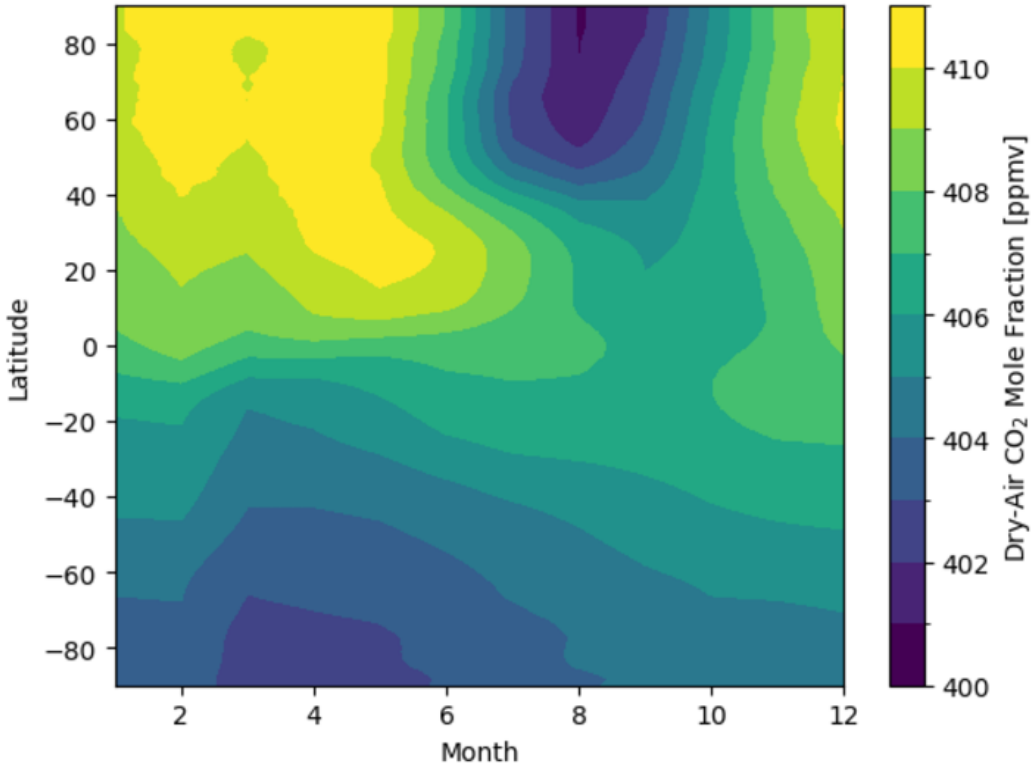

Figure 9 Zonal Mean Climatology

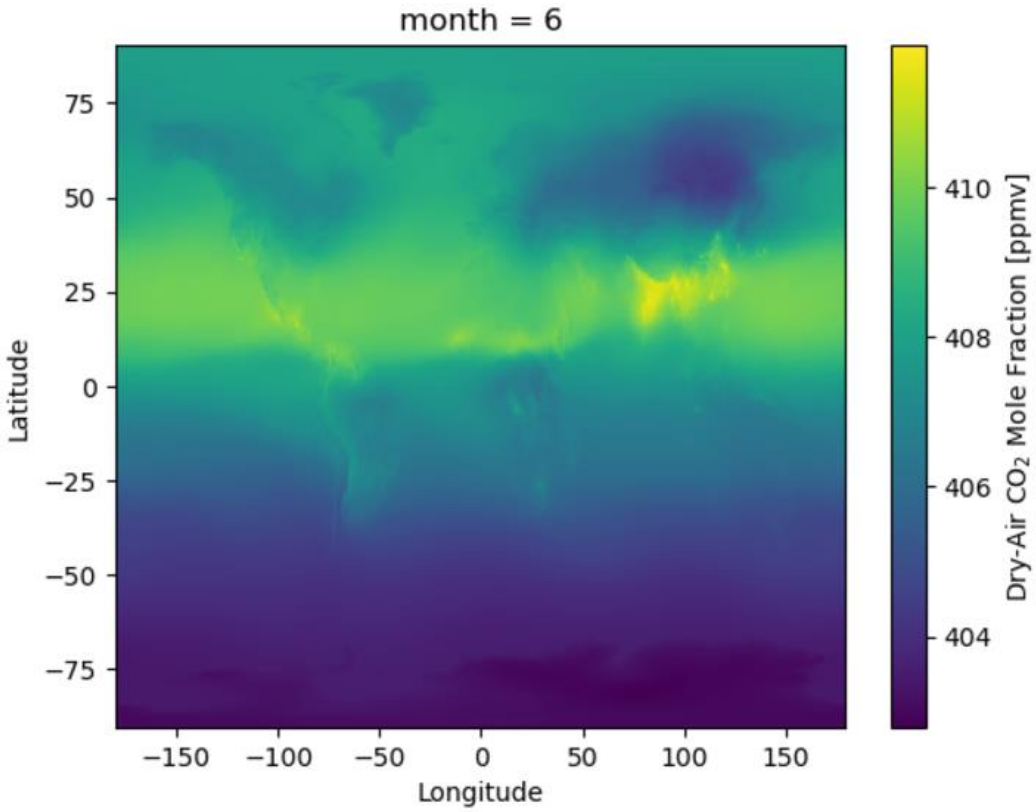

Figure 10 Global CO2 Concentration Patterns in June