Methane Monitor Pipeline: Technical Manual

Data Processing

Overview

The script visualizes methane concentration data for different dates on a world map. Each visualization highlights continental borders and is saved as a JPG image.

Dependencies:

matplotlib: For creating visualizations.

xarray: To handle multi-dimensional arrays.

geopandas: For geospatial data handling.

cartopy: For map projections and geospatial visualizations.

fsspec: For file-system-like protocols.

Code Walkthrough

Extracting Data URLs:

item_links: Contains links to the assets named 'ch4' from the query result.

f: Opens the file links for reading, creating a list of open files.

Filtering and Grouping Data:

d_filtered: Filters the poor value

d_grouped: Groups the filtered methane data by time.

Visualization Loop:

- Iterates through each date in the grouped data.
- Sets up a map and plots the continental borders.
- Adds a title to the map based on the date.
- Defines the spatial extent (ROI_bbox).
- Iterates through each time within a date, extracts data, and plots it on the map.
- Saves the visualization as a JPG image.

Display:

After processing all dates, the final map is displayed using plt.show().

Usage Notes:

- Ensure all dependencies are installed and properly imported.
- The variable ROI_bbox should contain the coordinates defining the spatial extent.
- The directory "output/" should exist to save the images.