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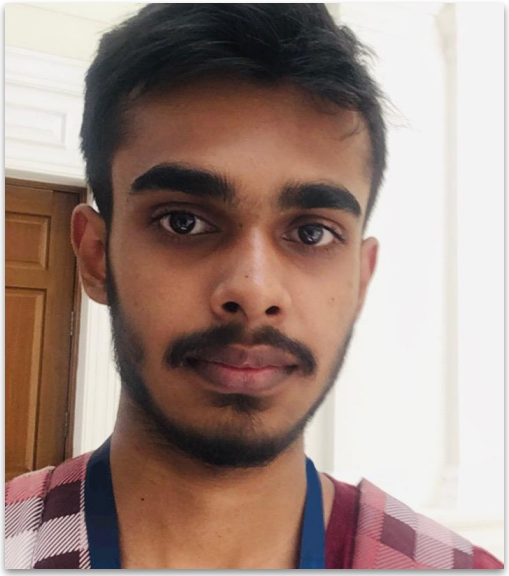
The DataHour on

Handling Satellite and Raster Data in Python

by Pareekshith Katti, Senior Data Scientist at ambee

Brief about me..



- My name is Pareekshith Katti
- Senior Data Scientist @ Ambee
- 4 years of work experience
- Worked with Geospatial Time Series Environmental Data for almost 4 years
- Have a patent on Virtual Air Monitoring System
- Built India’s first and global pollen data product being used by multiple big clients around the world
- Hobbies - Music Production, Keyboard, Books, Comics

Table of contents

- - Where and How to get satellite data
- - How to open satellite data
- - Basic data manipulation
- - How to read raster data
- - manipulating raster data
- - plotting raster data
- - converting to pandas/Geopandas and processing
- Jupyter Notebook Walkthrough
- Q & A

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Introduction

Introduction

- Satellites collect all sort of critical information related to earth
- Most of satellite data is image (raster) or remote sensing data
- Examples of satellite data include satellite imagery, weather, soil moisture, vegetation, fire monitoring etc
- Most data collected by satellite is geospatial in nature (Has location information as one of the index)
- Most satellite data is actually free
- Satellite data comes in compressed multidimensional formats and hence it is difficult to get into

Where can i get satellite data?

- NASA Earth Data - https://search.earthdata.nasa.gov/search
- Copernicus ADS/CDS - https://ads.atmosphere.copernicus.eu/
- USGS Earth Explorer - https://earthexplorer.usgs.gov/
- More Data Sources and Geospatial Resources - https://github.com/ambeelabs/geospatial_data_science_catalog

Tools to use

- NASA Panoply - A GUI Tool that allows you to explore the satellite data
- QGIS - Visualize, analyze and make geospatial manipulation on vector and raster data
- xarray - Pandas like library for higher dimensional data
- geopandas - Pandas extension for handling geospatial data
- gspatial_plot - Seaborn like interface for geospatial plots
- rasterio - open and manipulate raster data

Satellite Data Formats

- netCDF(nc/nc4)
- HDF(hdf/hdf5)
- GRIB
- GeoTIFF
- ASCII

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Jupyter Notebook Walkthrough

Conclusion

- You can find the datasets, presentation and code on my github repo
  - (Link)
- Connect with me on LinkedIn - https://in.linkedin.com/in/pareekshith-katti-ab180988
- Github - https://github.com/Paree24

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DataHour : Q&A

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Thank you!