
RIMORPHIS
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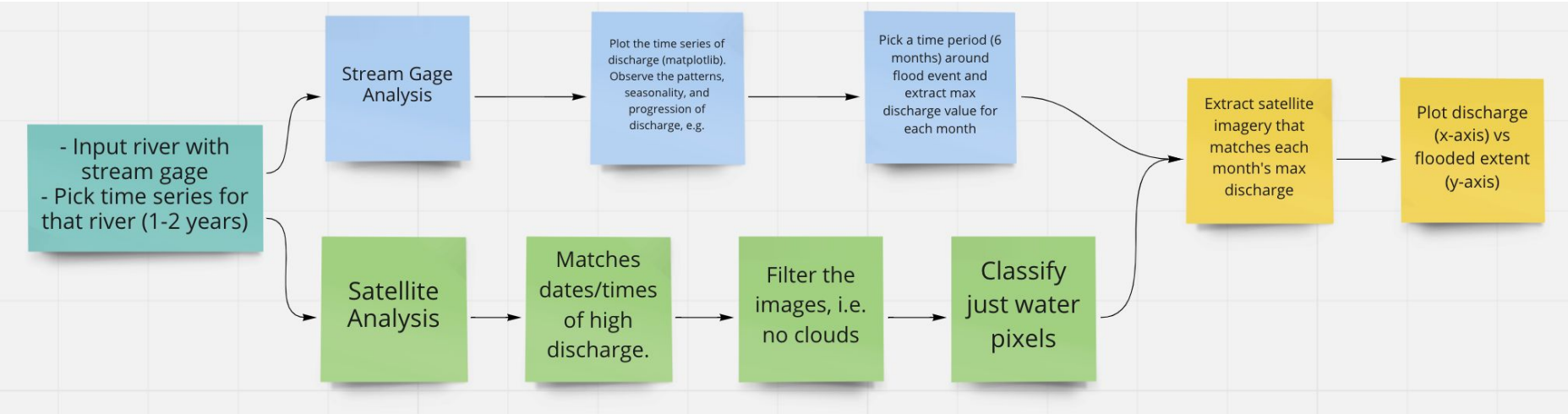
Methodology



RIMORPHIS Project GitHub Repository

GitHub repository link: https://github.com/AvraSaslow/ea-rimorphis

Development Environment

The notebooks were developed using Python 3.9.5 on a Mac system. The workflow utilizes packages from NumPy, EarthPy, Hydrofunctions, Folium, Geemap, and Matplotlib. The workbook was developed using the earth-analytics-python environment.

Installation instructions for the earth analytics python environment can be found here: (https://www.earthdatascience.org/workshops/setup-earth-analytics-python/setup-python-conda-earth-analytics-environment/).

Workflow

1. Use hydrofunctions library to download stream gage data for each location, save to pd dataframe
2. Pick time series for that river location (1-2 years)
3. Plot the time series of discharge (matplotlib), observe patterns, seasonality, progression of discharge/gage height, etc.
4. Select time period (6 months) around flood event and extract max discharge value for each month
5. Save max discharge values to new pd dataframe
6. Generate images for each site that match dates of high discharge values for each month of time period (6 months)
7. Filter/clean up images as required (remove clouds, etc...)
8. Classify water pixels for each image, generate water pixel counts
9. Save water pixel count values to max discharge dataframe, append with date column
10. Plot max discharge values for each location on x-axis vs flooded extent (water pixel count) on y-axis using matplotlib

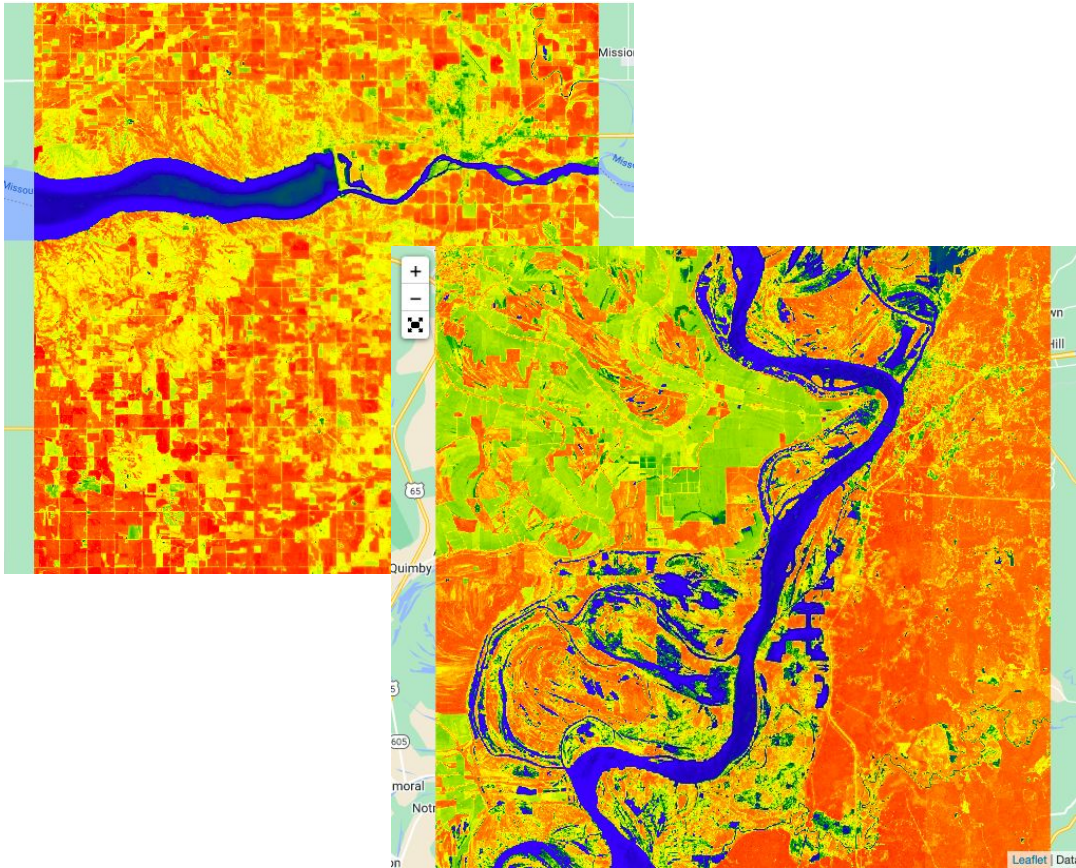
Project Organization and Communication

Project organization:

- Each project member is analyzing stream gage data for a given site
- Want to compare water pixel counts against both stream discharge data and gage height value

Communication tools:

- Google meet to review work progress and discuss next steps
- Texts for scheduling
- Email, google slides, GitHub repo, etc…



Challenges

- Site selection and data availability (capturing flood event within 6 month period)
- Cloud cover over wet seasons
- Automating water pixel extraction/count for various discharge values