Training Day 6 Daily Dairy

June 13, 2024

- Calculated timeseries chart of calculated NDVI.
- Implemented code to Export result in google Drive.
- Calculated 16-day NDVI(500m) of punjab using MODIS

Introduction

This data documents the process of calculating the 16-day Normalized Difference Vegetation Index (NDVI) for Punjab using MODIS data in Google Earth Engine (GEE). It includes the steps for extracting NDVI values over time, generating a time series chart, and exporting the results to Google Drive.

Steps to Calculate and Analyse 16-Day NDVI of Punjab

1. Setting up Google Earth Engine (GEE)
   i.   Sign Up: Create an account on the Google Earth Engine website.
   ii.   Access GEE Code Editor.

2. Importing the Shapefile of Punjab
   i.   Convert Shapefile: Ensure the shapefile of Punjab is in a compatible format
   ii.   Upload to GEE: Upload the converted shapefile to your GEE assets.
   iii. Import Shapefile: Import the shapefile in the GEE Code Editor to define the region of interest (Punjab).

3. Loading MODIS NDVI Data
   i.   Select Data: Choose the `MODIS/006/MOD13A1` dataset in GEE, which provides 16-day NDVI values at a 500-meter resolution.
   ii.   Filter by Date: Filter the dataset to cover the desired date range, such as from January 1, 2020, to December 31, 2023.
   iii. Filter by Region: Filter the dataset to include only the area within the Punjab shapefile.

4. Calculating Mean NDVI for Punjab
   i.   Clip Data: Clip the MODIS NDVI data to the boundaries of the Punjab shapefile.
   ii.   Compute Mean NDVI: Calculate the mean NDVI value for the entire Punjab region over the specified period.

5. Generating NDVI Time Series Chart
   i.   Reduce NDVI Data: Reduce the NDVI data to the Punjab region to get mean NDVI values over time.
   ii.   Create Time Series: Aggregate the NDVI data to form a time series, which includes NDVI values for each 16-day interval.

iii. Visualize Data: Generate a time series chart using GEE's charting capabilities to visualize NDVI trends over the specified period.

6. Exporting Results to Google Drive
   i. Export Time Series Data: Export the NDVI time series data to Google Drive in CSV format for further analysis.
   ii. Export Mean NDVI Image: Export the mean NDVI image to Google Drive in GeoTIFF format for visualization and mapping purposes.

7. Analysis and Interpretation
   i. Examine Trends: Analyse the NDVI time series chart to identify trends, patterns, and anomalies in vegetation health over the specified period.
   ii. Generate Insights: Use the exported data to conduct detailed analyses using additional tools or software like Excel, R, or Python.
   iii. Create Reports: Compile your findings into comprehensive reports, including visualizations and statistical summaries of NDVI trends in Punjab.

Conclusion

These steps outline the process of calculating and analysing the 16-day NDVI for Punjab using MODIS data in Google Earth Engine. By following these steps, we can effectively monitor vegetation health, identify seasonal patterns, and make informed decisions for environmental management and agricultural planning.