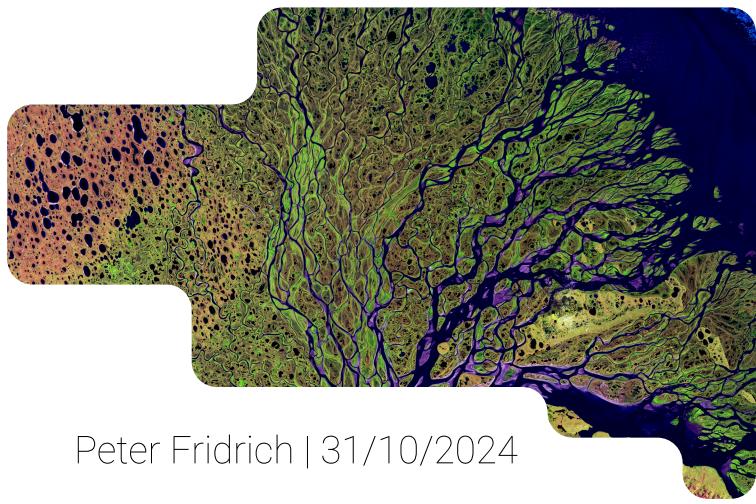


# Assignment

## GIS data analyst



## **Methodology**

The objective of this process was to create classified maps of vegetation vitality based on EVI index values, followed by calculating the average values within each class. The workflow consisted of two main steps:

1. **Classification of Individual Rasters:** Each raster was divided into classes based on defined EVI value ranges. These classes (1 to 5) allow for straightforward interpretation of vegetation vitality according to the specified EVI thresholds.
2. **Average Value Calculation for Classified Values:** After classifying individual rasters, their mean was calculated using the CellStatistics function to produce an average classified raster. This mean raster was then reclassified using customized classes to enhance the interpretation of the resulting values.

## **Tools and Libraries Used**

- **ArcPy**
- **ArcPy Spatial Analyst (arcpy.sa)**

In this project, the following tools were used:

- **Reclassify:** A tool for classifying raster values into specific categories.
- **CellStatistics:** This tool calculates average values across all rasters in a list of classified rasters.

## **Process Description**

1. **Preparation of Input and Output Directories:** The code defines the working directories for input and output files.
2. **Analysis of Input Raster Values:** Each raster was analyzed using `gdalinfo` to determine minimum, maximum, and mean EVI values. These statistics helped set intervals for classification.
3. **Classification of EVI Values:** Each raster was classified into five classes using the Reclassify function:
  - Class 1 represents the lowest vitality, while Class 5 represents the highest.
  - A value of -998 was assigned as NoData.
4. **Saving Classified Rasters:** All classified rasters were saved as 16-bit TIFF files.
5. **Calculation of Average Classified Raster:** Using CellStatistics, the average raster was calculated from all classified rasters.
6. **Reclassification of the Mean Raster:** The resulting mean raster was reclassified into new classes, simplifying the interpretation of final values.

## **Output**

The result is a raster, `EVI_Classified_Mean_Reclassified.tif`, which provides an overview of average vegetation vitality based on classified EVI values. This raster is prepared for further map processing and analysis in GIS. Final Layout was made in ArcGIS Pro.