Assignment 6 – GGS416

Extracting estimated burnt areas from satellite imagery

Due November 5th, 2023

Building on this week's work in SentinelHub, you should obtain a new image of a burnt area and extract the estimated burnt area to a shapefile.

Complete the following to pick up 100 points:

1. Obtain a new multi-spectral image for a burnt area (20 points).
2. Write code to visualize this newly obtained image (20 point).
3. Specify a spectral index which estimates the burnt area in this newly obtained image (20 points).
4. Extract this data to a shapefile. Visualize this newly obtained image and extracted shapefile together (20 points).
5. Critically review the results, considering the threshold value, effectiveness of the index, and any other factors you determine to be merit-worthy enough to discuss (400 words) (20 points).

Once you have collated the code, either submit the underlying notebook as a pdf, or take screenshots of your notebook, and paste into a word document for inspection. Make sure you submit the final shape files you create too. The best submissions usually include all of this content placed in a word document, with a written narrative accompanying it, and then provided for review in a pdf format.

50% of the grade is dependent on your submitted code, which should feature your annotations/comments, to demonstrate you understand what the extraction code is doing. This matters because future classes build on this knowledge sequentially.

The point of this exercise is to enable you to become familiar with (i) extracting imagery from an imagery provider (ii) clipping these images to an Area of Interest (AoI), and then (iii) extracting pixels/objects for analysis, as this is critical for your coursework projects (and future careers!).

The Mason honor code applies.

You must ensure your submissions are in a respectable report format with proper headings, figure numbers, figure titles, citations, page numbers etc. Use this as an opportunity to demonstrate your professional scientific writing voice (e.g., authoritative in tone, and avoiding easy mistakes like abbreviations).