GIS Solutions Engineering Challenge

1. The Challenge - Design a Soil Sampling Campaign

Demonstrate your geospatial engineering and analytical skills:
Prepare and plan a soil sampling campaign, employing stratified random sampling in accordance with the section 8.2.1.2 of the attached Verra VM0042 Methodology. The provided zip file contains 1. a project boundary geopackage, 2. a geopackage with pre-sampled point data and 3. some raster GeoTiff files extracted from the Google Earth Engine.

2. Requirements

1. Prepare a map visualization of all the provided input data.
2. Perform a quick statistical analysis of the distribution of soil organic carbon (SOC) stocks in the provided pre-sampled dataset (i.e. mean, median, standard deviation, histogram).
3. Identify the provided covariate datasets through the google earth engine data catalog.
4. Extract the values of the covariate datasets at the sampling point locations and determine the statistical correlation between each covariate and the sampled SOC stocks.
5. Decide on the usefulness of each covariate for stratification based on the methodology. Is there sufficient supporting data to stratify the AOI and assign sampling points?
6. What would be the next steps to carry out a stratified random sampling? Make a plan with concrete next actions.
7. Document all your work and the steps taken in a script, notebook, or in a separate section in your report to make it reproducible.
8. Present your workflow and results as a .pdf or .html report

3. Expected time-frame

Time-box your work on this challenge to 3 hours max. We do not expect a perfect solution, but are keen on learning more about your way of working. If you're short on time, show us how you would approach each single requirement, rather than trying to complete only some of the requirements to 100%.

4. Deliverables

Send us your challenge submission as a link to a gitlab/github repository or a zip file containing all the code as scripts/notebooks and the report as html or pdf file.

Looking forward to your submission, we thank you and wish you the best of success!