MapInfo : Soil pH and soil type of differing landscapes.

Introduction

MapInfo, a GIS software was selected to complete task 2.
For this section data from an independent study was collated together and inputted into MapInfo.
The study title was the carbon capture potential of differing landscapes, to influence agricultural land management.
The adjacent map shows the site and soil locations in a purple marker.
The purpose of GIS here is to collect differing data from the independent study, to assess and form correlations between land management for each soil sample and its soil pH and soil type.

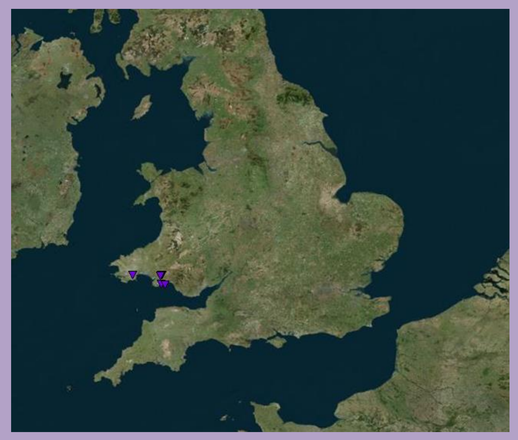


Figure 1. Wales map with soil sample locations.

Materials

Figure 2 Key and data points of soil clay and farm coordinates

Figure 3 Close up image of data points relevant to clay soil at the conventional farm.

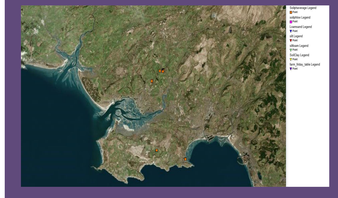
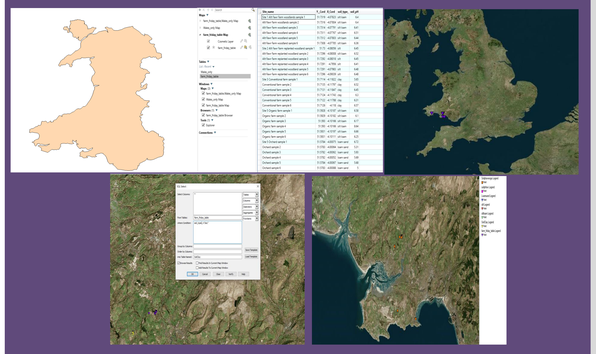


Figure 4. Displays data points for soil type loam, silt, silt loam, clay and the site coordinates references.

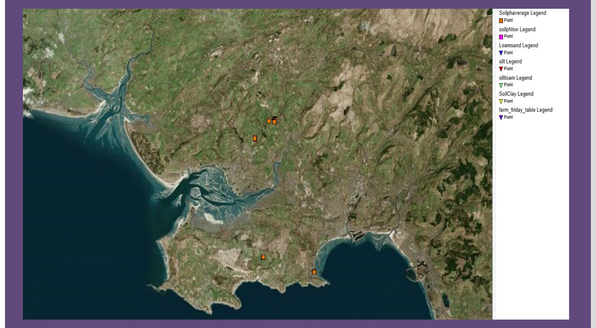
Methodology

The methodology of GIS is shown below.



Step 1: A base map of Wales was downloaded from Data UK Data Services.
Step 2: Inputting the independent project data in MapInfo.
Step 3: The data point for soil sample grid coordinates open, with the aerial map open.
Step 4: SQL selection, this section is where the type of data you want to selected from the independent project data can be inputted and it will be shown on the map.
Step 4: Is where these stages have been repeated for differing soil type and differing soil pH a into a final map.

Results



Above is the final map.
From the GIS and Mapinfo, it enabled the determination of the relationship between soil type and land management.

The image above displays the site managed under conventional farming techniques. Often this involves processes such as tillage, removal of vegetative cover and annual cropping, these practises are associated with losses of soil organic matter and top soil (Obalum, Chibuike, Peth and Ouyang, 2017) which is attributed with SOC reduction (Wiesmeier et al., 2019). When these layers are lost it clay accrues which is what the GIS has displayed here and affirming the hypothesis.

Conclusion

In conclusion GIS has allowed geospatial data to be collected and analysed to solve environmental management issues. GIS is a unique way of analysing data and the visual representation makes it easier to form correlations between the data sets..
For this task it has enabled correlations between land management, soil pH and soil type to be formed, which has been useful to help assist in proving task 2 hypothesis through geospatial data.

Referencing

Obalum, S., Chibuike, G., Peth, S. and Ouyang, Y., 2017. Soil organic matter as sole indicator of soil degradation. *Environmental Monitoring and Assessment*, [online] 189(4). Available at: <https://link.springer.com/article/10.1007/s10661-017-5881-y> [Accessed 21 December 2021].

Wiesmeier, M., Urbanski, L., Hobley, E., Lang, B., von Lützow, M., Marin-Spiotta, E., van Wesemael, B., Rabot, E., Ließ, M., Garcia-Franco, N., Wollschläger, U., Vogel, H. and Kögel-Knabner, I., 2019. Soil organic carbon storage as a key function of soils - A review of drivers and indicators at various scales. *Geoderma*, [online] 333, pp.149-162. Available at: <https://www.sciencedirect.com/science/article/pii/S001