

GIS term project proposal

My project will focus on the potential of geological carbon sequestration (GCS) in Texas (or Illinois because my Master's thesis is related with GCS and is part of a project ongoing in Illinois).

The first step to this project will be to map with GIS the location of the potential GCS sites throughout Texas (or Illinois) which are mainly deep saline aquifers, Enhanced Oil Recovery sites and declining oil fields. However, for the sake of narrowing the subject, I can maybe focus only on deep saline aquifers.

Then I can use certain parameters related to GCS such as the depth of the saline aquifers (should exceed 3000ft), salinity (should exceed 1000ppm), rock types (sandstone for example), and presence of an overlying impermeable seal (this might be hard to characterize though) in order to narrow down the number of potential sites. I can also determine the volume of CO₂ that those sites can store.

I will also map the location of the main places emitting CO₂, such as power plants, coal plants, refineries, cement plants and the amount of CO₂ produced. With this, I will see which sites minimize the distance to an emitting source.

I can also map the existing CO₂ pipelines to see if there is already some routes available in order to transport CO₂ from the emitting sources to the potential sites.

With all that, I will see which sites seem to be the more adapted for GCS.