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The Application of GIS in CO_2 Sequestration

Reducing carbon dioxide emissions is an important goal in slowing the rate of global warming. This project looked at the feasibility of using GIS (Geographic Information System) software for locating potential CO_2 sequestration sites in saline aquifers and oil field reservoirs. Subsurface strata are one of the best potential targets for storage of CO_2 from individual sources such as utility power plants. We applied the criteria for site selection using GIS software, making subsurface maps of key reservoir intervals, computer mapping of subsurface data, and collecting subsurface reservoir attributes such as permeability and porosity. We concentrated our efforts on studying the potential of subsurface saline and hydrocarbon reservoirs as CO_2 sequestration targets. In this project we selected five significant criteria for evaluating CO_2 sequestration sites in Illinois. The five selected criteria were: Subsurface depth of the target reservoir; Lateral proximity of the target reservoir to its equivalent freshwater interval; Reservoirs with adequate porosity and permeability for storage of CO_2; The quality of the reservoir seal; and Earthquake hazards This research showed that (GIS) is useful in assessing CO_2 sequestration project and that it can be used to optimize the best location for sequestration sites. Additional criteria and data need to be integrated into the GIS application for actual site assessment.