Geochemical Modeling of CO₂ Reactions with Reservoir and Cap Rocks


Mineralogical or above Ground Carbon Sequestration (U.S. Patent 7922792 "Method for Sequestration of CO₂ and SO₂ Utilizing a Plurality of Waste Streams")

Laboratory Experiments on Host Rock Reactivity and Caprock Integrity


Single Mineral Reaction Kinetics with Applications to CCUS (last five years)


Geochemical Modeling Tools


Online Geochemical Modeling Tools (3000 visits between 9/20 and 11/21)

- CO$_2$ Solubility Calculator: Users input temperature, pressure, and NaCl molality, and the online tool generates CO$_2$ solubility.
- H$_2$S Solubility Calculator: H$_2$S is a common impurity in CO$_2$ streams in CCUS. Users input temperature, pressure, NaCl molality, and H$_2$S and CO$_2$ mole fractions, the online tool generates H$_2$S solubility.

- Online PHREEQC: We developed an online version of the US Geological Survey modeling software for speciation – solubility reaction path, and one-dimensional coupled reactive transport modeling.

- Online SUPCRTBL: An online version of SUPCRT that is dynamically linked to a MySQL database to make preparation of input files easier.