

Assessment of CO₂ Injectivity and Storage Potential in Shale

Project Motivations

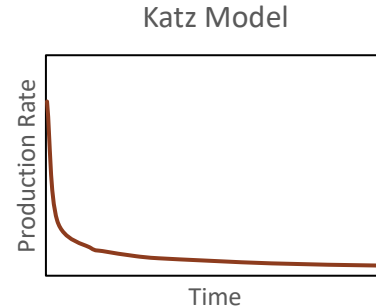
- Provides an alternative storage location for CO₂
- Utilizing current well infrastructure will lead to low costs and short scale-up times
- Increased oil and gas production through CO₂ injection

Results and Impact

- Simulation and Katz Model analysis reveal injection rates on the order of 10-100s tpd, and <5 Mt storage per well
- Suggests large-scale CO₂ storage would be impractical without injectivity improvements

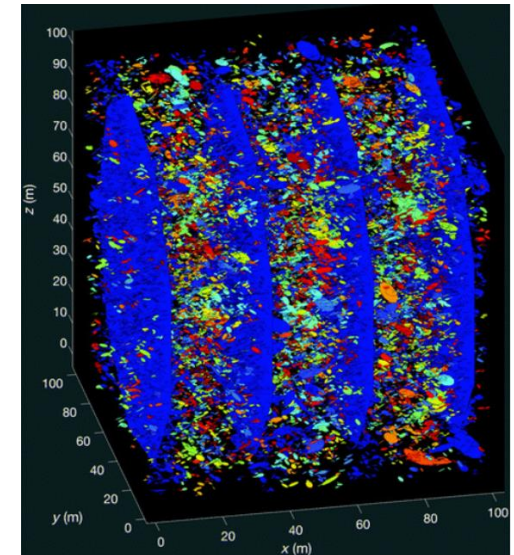
Future Research

- Core-scale experimentation with advanced imaging to better understand CO₂ transport in fractures and matrix-fracture interactions



$$q = \frac{1}{2} \frac{\alpha}{\sqrt{t}} * PB \text{ Ratio}$$

$$\alpha = A \frac{P_r^2 - P_{bhf}^2}{P_s} \sqrt{\frac{c_g \phi_m k_m}{\pi \eta}}$$



Hakso and Zoback 2019

