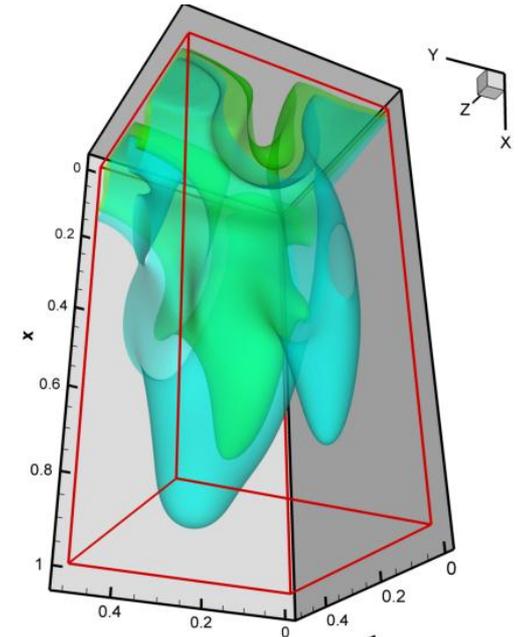
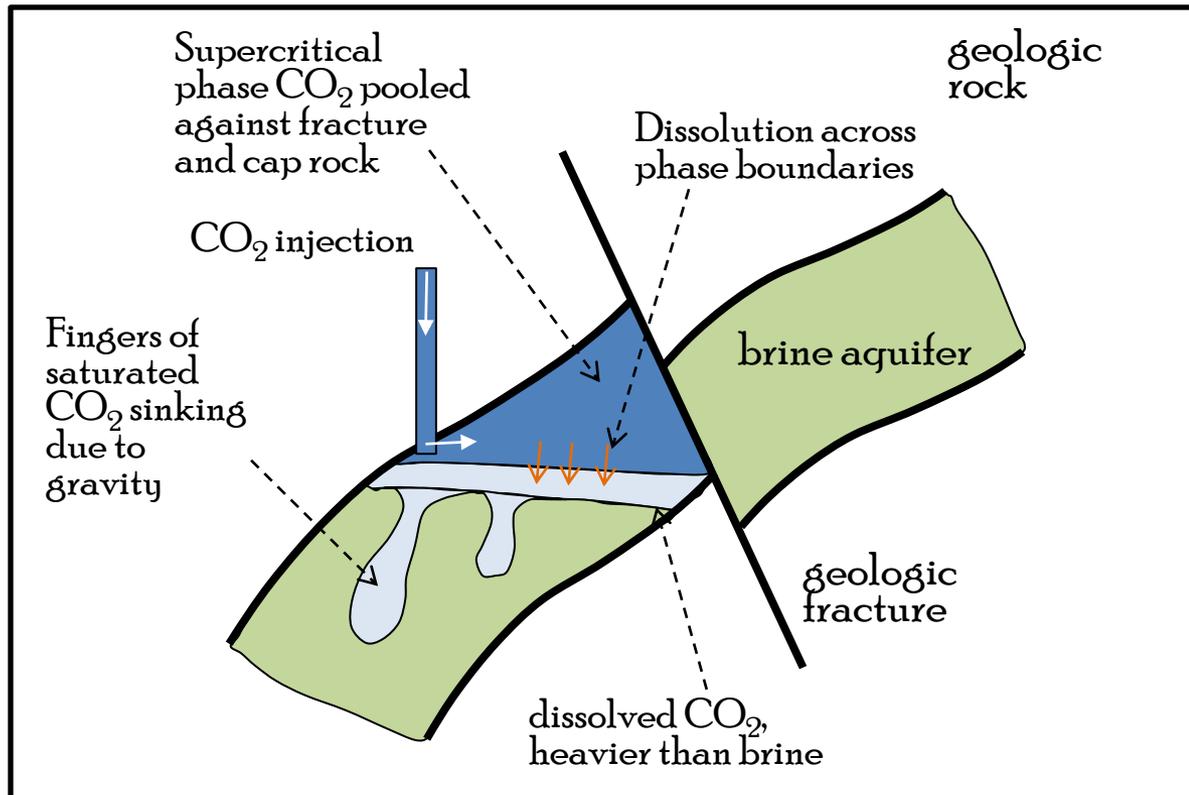


# CO<sub>2</sub> Sequestration in Brine Aquifers by Gravitational Convection

Amir Riaz

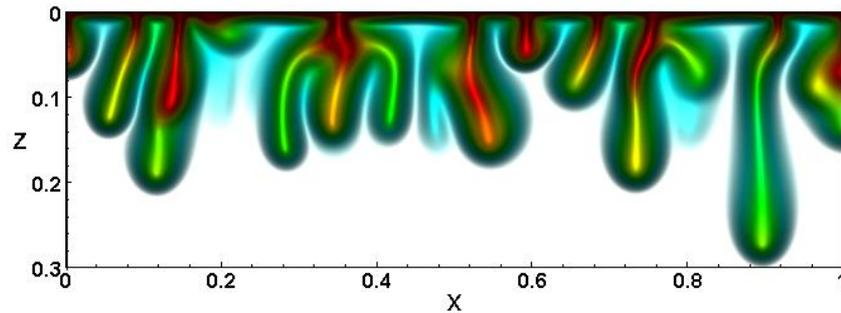
University of Maryland

➤ Brine aquifers are the most abundant sites with high storage capacities



Unstable gravitational convection in deep aquifers

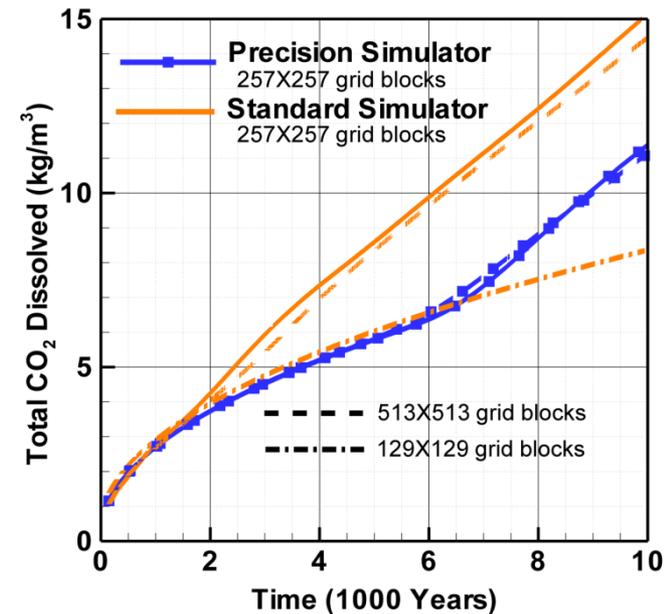
# Modeling unstable gravity driven convection



Sinking gravity plumes of CO<sub>2</sub> in deep saline aquifer promote mixing

Unstable plumes produced over a wide range of length scales

- What is the appropriate numerical method to simulate such behavior?
- Prediction of long term storage depends upon
  - Critical time of instability growth
  - Size of unstable plumes
  - Long term nonlinear behavior
- Conventional numerical simulators cannot resolve the necessary scales



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