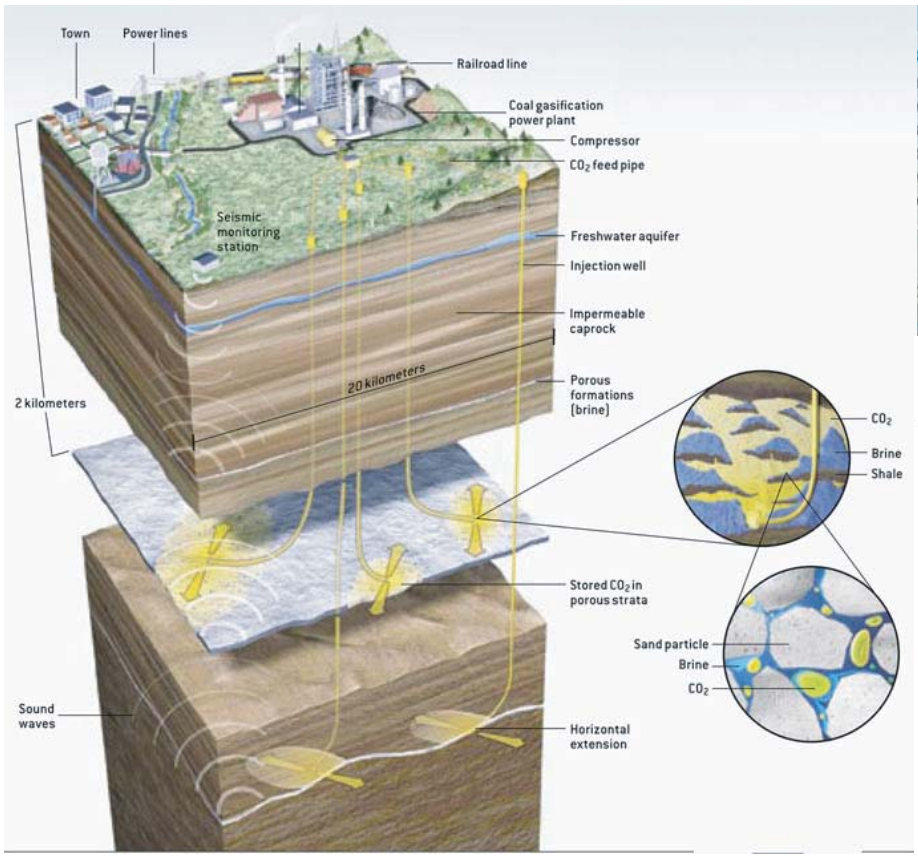
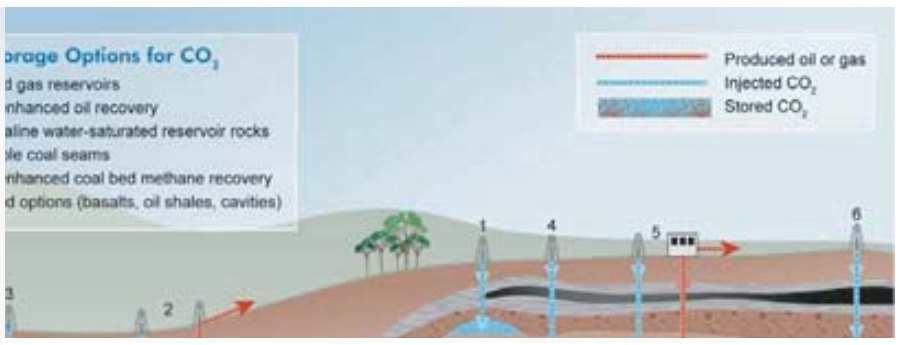
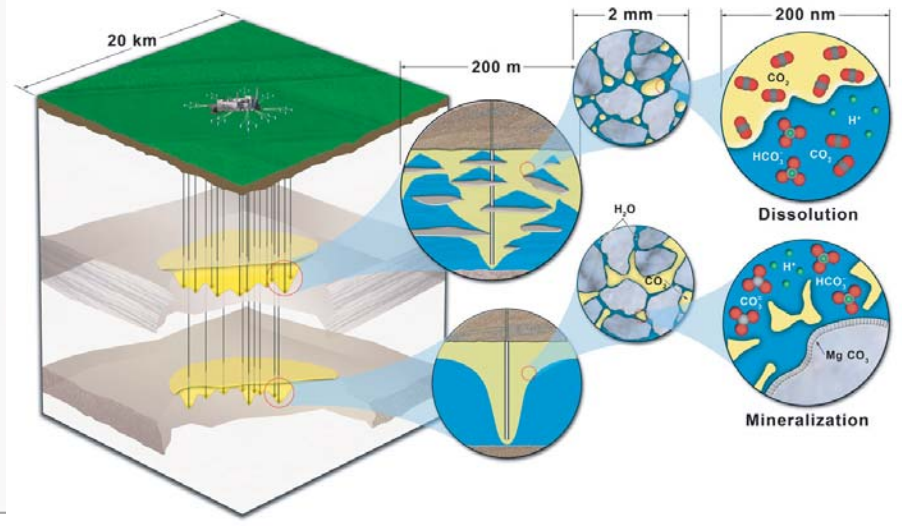
Boston University Physics Colloquium







Thinking Big:
Carbon Capture and Sequestration as a Greenhouse Gas Mitigation Strategy

Carbon capture and storage (CCS, sometimes called carbon sequestration) has emerged as a key technology pathway to substantial greenhouse gas reductions. While not sufficient to total energy decarbonization, it appears able likely to contribute between from 10-50% of the potential abatement needed for stabilization of atmospheric CO2 at 560 ppm and provides an avenue for large-scale immediate action. The current primary pathways to capture and separation include post-combustion, pre-combustion, and oxyfiring methods, and each appears economically viable today in many settings. In capture technology, the primary research issue is cost reduction. Geological storage is accomplished through injection into three primary storage classes: saline formations, depleted oil and gas fields, and unmineable coal seams. In each, multiple trapping mechanisms prevent the return of CO2 to the surface. In storage technology, the primary issues are uncertainty and risk reduction, which is partly inherent in subsurface work. however, the physics and chemistry of sequestration are sufficiently well understood to recognize and manage potential hazards. To effectively reduce global GHG emissions, commercial CCS deployment is likely to require 1000's of large volume injection facilities distributed globally with very low percentages of leakage. This immediately raises questions of injection scale, which in turn prompts scientific and technical questions regarding capacity, storage mechanisms, site effectiveness, and potential risks to private and public stakeholders. Additional science and technology is required to develop the operational protocols needed to successfully deploy CCS at scale. This work can be conducted parallel to large and carefully executed early deployment.

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January 22, 2008 (Tuesday) at 3:30 pm (Refreshments at 3:15 pm)
SCI 107, Metcalf Science Center, Boston University
Call: Winna Somers (wsomers@bu.edu) (617)353-9320
Host: Andrew Cohen