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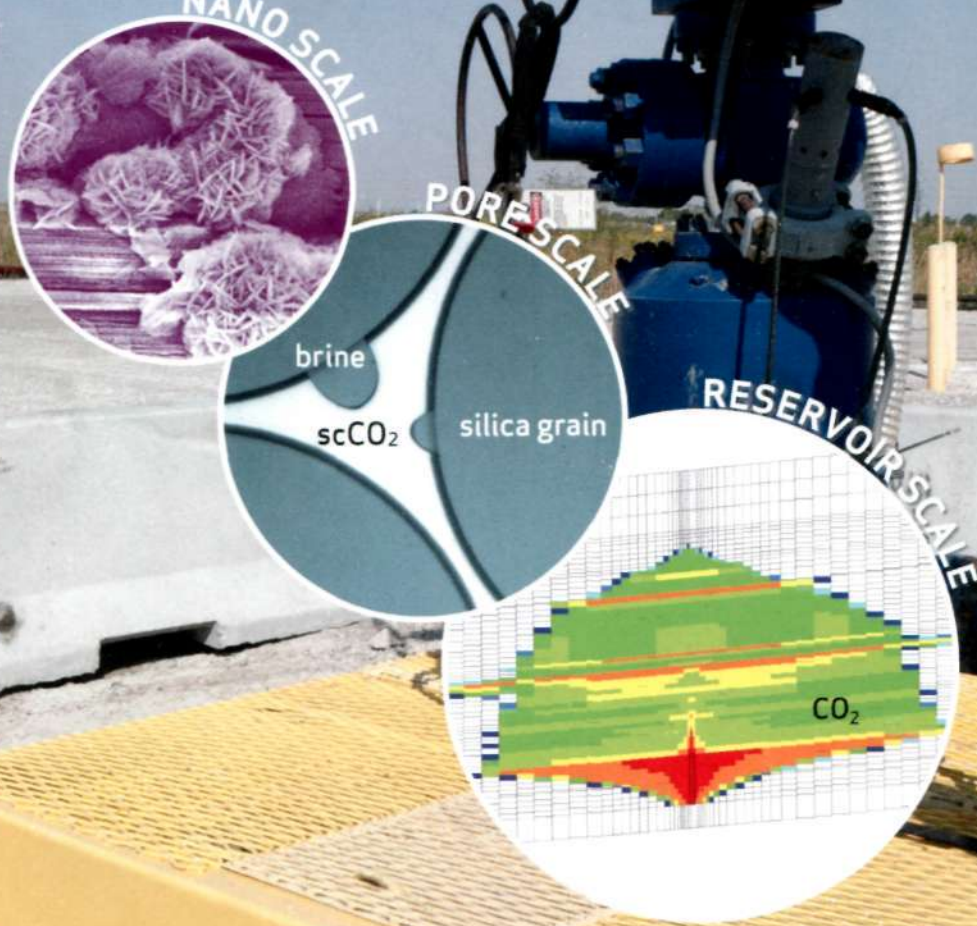
Environmental and Geochemical Aspects of Carbon Sequestration



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Environmental Science & Technology

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ON THE COVER: Geologic CO_2 sequestration is a promising option to mitigate adverse effects of climate change. To ensure its environmental sustainability, we must understand key geochemical reactions (from nano-scale to reservoir-scale) and their impacts on the reactive transport of CO_2 and on environmental risk management. See Jun and co-workers, es304681x. The cover art images were contributed by: Brook Haley, Daniel Byers, Rob Finley, Quanlin Zhou, Jens Birkholzer, Jiamin Wan, Yongman Kim, and Yandi Hu. We are grateful to Dean Ralph Quatrano (WUStL) for his support.

SPECIAL SECTION: GEOLOGIC CARBON SEQUESTRATION FOCUS ISSUE

Comment

Features

In the face of increasing energy demands, geologic CO_2 sequestration (GCS) is a promising option to mitigate the adverse effects of climate change. To ensure the environmental sustainability of this option, we must understand the rates and mechanisms of key geochemical reactions and their impacts on GCS performance, the multiphase reactive transport of CO_2, and the management of environmental risks. Strong interdisciplinary collaborations are required to minimize environmental impacts and optimize the performance of GCS operations.In the face of increasing energy demands, geologic CO_2 sequestration (GCS) is a promising option to mitigate the adverse effects of climate change. To ensure the environmental sustainability of this option, we must understand the rates and mechanisms of key geochemical reactions and their impacts on GCS performance, the multiphase reactive transport of CO_2, and the management of environmental risks. Strong interdisciplinary collaborations are required to minimize environmental impacts and optimize the performance of GCS operations.

Critical Reviews

Articles

Environmental Measurements Methods

Remediation and Control Technologies

Sustainability Engineering and Green Chemistry

Ecotoxicology and Human Environmental Health

Energy and the Environment

Additions and Corrections

● Supporting Information available via online article