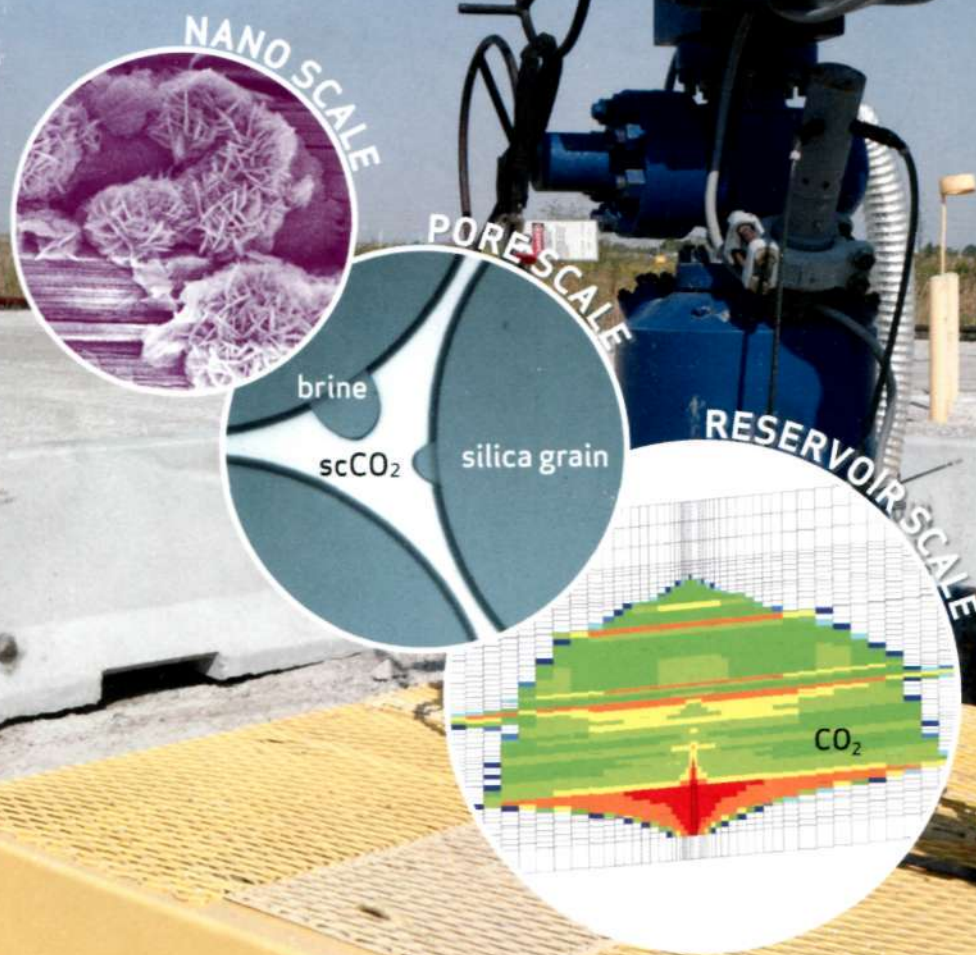


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# ENVIRONMENTAL Science & Technology

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Environmental  
and Geochemical  
Aspects of Carbon  
Sequestration



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**ON THE COVER:** Geologic CO<sub>2</sub> 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<sub>2</sub> 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

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[dx.doi.org/10.1021/es304681x](https://doi.org/10.1021/es304681x)

**Environmental and Geochemical Aspects of Geologic Carbon Sequestration: A Special Issue**  
Young-Shin Jun,\* Daniel E. Giammar, Charles J. Werth, and David A. Dzombak

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[dx.doi.org/10.1021/es3027133](https://doi.org/10.1021/es3027133)

**Impacts of Geochemical Reactions on Geologic Carbon Sequestration**

Young-Shin Jun,\* Daniel E. Giammar, and Charles J. Werth

In the face of increasing energy demands, geologic CO<sub>2</sub> 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<sub>2</sub>, 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<sub>2</sub> 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<sub>2</sub>, and the management of environmental risks. Strong interdisciplinary collaborations are required to minimize environmental impacts and optimize the performance of GCS operations.

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