

**Recent Publications from the Princeton Subsurface Hydrology Research Group:**

1. Nordbotten, J.M. and M.A. Celia, [Geological Storage of CO<sub>2</sub>: Modeling Approaches for Large-scale Simulation](#), John Wiley and Sons, Hoboken, NJ, 235 pages, 2012.
2. Court, B., K.W. Bandilla, M.A. Celia, A. Janzen, M. Dobossy, and J.M. Nordbotten, "[Applicability of Vertical-equilibrium and Sharp-interface Assumptions in CO<sub>2</sub> Sequestration Modeling](#)", *International Journal for Greenhouse Gas Control*, 10, 134-147, 2012.
3. Franz, T.E., K.K. Caylor, E.G. King, J.M. Nordbotten, M.A. Celia, and I. Rodriguez-Iturbe, "[An Ecohydrological Approach to Predicting Hillslope Scale Vegetation Patterns in Dryland Ecosystems](#)", *Water Resources Research*, 48, W01515, DOI: 10.1029/2011WR010524, 2012.
4. Court, B., T.R. Elliot, J.A. Dammal, T.A. Buscheck, J. Rohmer, and M.A. Celia, "[Promising Synergies to Address Water, Sequestration, Legal, and Public Acceptance Issues associated with Large-scale Implementation of CO<sub>2</sub> Sequestration](#)", *Mitigation and Adaptation Strategies for Global Change, Special Issue on Carbon Capture and Storage of The Journal for Mitigation and Adaption Strategies for Global Change*, 17(6), 569-599, 2012.
5. Court, B., K.W. Bandilla, M.A. Celia, T.A. Buscheck, J.M. Nordbotten, A. Janzen, and M. Dobossy, "[Initial Evaluation of Advantageous Synergies associated with Simultaneous Brine Production and CO<sub>2</sub> Geological Sequestration](#)", *International Journal for Greenhouse Gas Control*, 8, 90-100, 2012.
6. Nogues, J.P., B. Court, M. Dobossy, J.M. Nordbotten, and M.A. Celia, "[A Methodology to Estimate Maximum Probable Leakage along Old Wells in a Geological Sequestration Operation](#)", *International Journal for Greenhouse Gas Control*, 7, 39-47, 2012.
7. Buscheck, T.A., Y. Sun, M. Chen, Y. Hao, T.J. Wolery, W.L. Bourcier, B. Court, M.A. Celia, S.J. Friedmann, and R.D. Aines, "[Active CO<sub>2</sub> Reservoir Management for Carbon Storage: Analysis of Operational Strategies to Relieve Pressure Buildup and Improve Injectivity](#)", *International Journal of Greenhouse Gas Control*, 6, 230-245, 2012.
8. Elliot, T.R. and M.A. Celia, "[Potential Restrictions for CO<sub>2</sub> Sequestration Sites due to Shale and Tight Gas Production](#)", *Environmental Science and Technology*, 46, 4223-4227, 2012.
9. Nordbotten, J.M., Flemisch, B., S.E. Gasda, H.M. Nilsen, Y. Fan, G.E. Pickup, B. Wiese, M.A. Celia, H.K. Dahle, G.T. Eigestad, and K. Pruess, "[Uncertainties in Practical Simulation of CO<sub>2</sub> Storage](#)", *International Journal of Greenhouse Gas Technologies*, 9, 234-242, 2012.
10. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[Application of Simplified Models to CO<sub>2</sub> Migration and Immobilization in Large-scale Geological Systems](#)", *International Journal of Greenhouse Gas Technologies*, 9, 72-84, 2012.
11. Bandilla, K.W., B. Court, T.R. Elliot, and M.A. Celia, "[Comparison of Brine Production Scenarios for Geologic Carbon Sequestration Operations](#)", *Proc. Carbon Management Technology Conference*, Orlando, February 2012.
12. Celia, M.A., J.M. Nordbotten, B. Court, M. Dobossy, and S. Bachu, "[Field-scale Application of a Semi-analytical Model for Estimation of CO<sub>2</sub> and Brine Leakage along Old Wells](#)", *J. Greenhouse Gas Control*, Vol. 5, Issue 2, pages 257-269, 2011.
13. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[Vertically-averaged Approaches for CO<sub>2</sub> Migration with Solubility Trapping](#)", *Water Resources Research*, 47, W05528, doi:10.1029/2010WR009075, 2011.
14. Crow, W., J.W. Carey, S. Gasda, D.B. Williams, and M. Celia, "[Wellbore Integrity Analysis of a Natural CO<sub>2</sub>](#)

- [Producer](#)", *International Journal of Greenhouse Gas Control*, 49(2), 186-197, 2010.
15. Franz, T.E., K.K. Caylor, J.M. Nordbotten, I. Rodriguez-Iturbe, and M.A. Celia, "[An Ecohydrological Approach to predicting Regional Woody Species Distribution Patterns in Dryland Ecosystems](#)", *Advances in Water Resources*, 33(2), 215-230, 2010.
  16. Person, M., A. Banerjee, J. Rupp, C. Medina, P. Lichtner, C. Gable, R. Pawar, M. Celia, J. MacIntosh, and V. Bense, "[Assessment of Basin-scale Hydrologic Impacts of CO<sub>2</sub> Sequestration, Illinois Basin](#)", *International Journal of Greenhouse Gas Control*, 4, 840-854, 2010.
  17. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[The Impact of Local-scale Processes on Large-scale CO<sub>2</sub> Migration and Immobilization](#)", *XVIII International Conference on Water Resources* (Carrera, J. et al., eds.), Barcelona, Spain, June 2010.
  18. Celia, M.A. and J.M. Nordbotten, "[How Simple Can We Make Models for CO<sub>2</sub> Injection, Migration, and Leakage?](#)", *Proc. GHGT-10 Conference*, Amsterdam, The Netherlands, September 2010.
  19. Court, B., M.A. Celia, J.M. Nordbotten, and T.R. Elliot, "[Active and Integrated Management of Water Resources Throughout CO<sub>2</sub> Capture and Sequestration Operations](#)", *Proc. GHGT-10 Conference*, Amsterdam, The Netherlands, September 2010.
  20. Dobossy, M.E., M.A. Celia, and J.M. Nordbotten, "[An Efficient Software Framework for Performing Industrial Risk Assessment of Leakage for Geological Storage of CO<sub>2</sub>](#)", *Proc. GHGT-10 Conference*, Amsterdam, The Netherlands, September 2010.
  21. Gasda, S.E., J.Z. Wang, and M.A. Celia, "[Analysis of In-Situ Wellbore Integrity Data for Existing Wells with Long-Term Exposure to CO<sub>2</sub>](#)", *Proc. GHGT-10 Conference*, Amsterdam, The Netherlands, September 2010.
  22. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[The Impact of Local-Scale Processes on Large-Scale CO<sub>2</sub> Migration and Immobilization](#)", *Proc. GHGT-10 Conference*, Amsterdam, The Netherlands, September 2010.
  23. Nogues, J.P., J.M. Nordbotten, and M.A. Celia, "[Detecting Leakage of Brine or CO<sub>2</sub> Through Abandoned Wells in a Geological Sequestration Operation Using Pressure Monitoring Wells](#)", *Proc. GHGT-10 Conference*, Amsterdam, The Netherlands, September 2010.
  24. Nordbotten, J.M., D. Kavetski, M.A. Celia, S. Bachu, "[Model for CO<sub>2</sub> Leakage including Multiple Geological Layers and Multiple Leaky Wells](#)", *Environmental Science and Technology*, 43(3), 743-749, 2009.
  25. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[Vertical Equilibrium with Sub-scale Analytical Methods for Geological CO<sub>2</sub> Sequestration](#)", *Computational Geosciences*, 13(4), 469-481, 2009.
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  29. Crow, W., D.B. Williams, J.W. Carey, M. Celia, and S. Gasda, "[Wellbore Integrity Analysis of a Natural CO<sub>2</sub> Producer](#)", *Proc. GHGT-9 Conference*, Washington, DC, November 2008.
  30. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[Upslope Plume Migration and Implications for Geological CO<sub>2</sub> Sequestration in Deep Saline Aquifers](#)", *IES Journal A: Civil and Structural Engineering*, 1(1), 2-16, 2008.
  31. Gasda, S.E., J.M. Nordbotten, and M.A. Celia, "[Determining Effective Wellbore Permeability from a Field Pressure Test: A Numerical Analysis of Detection Limits](#)", *Environmental Geology*, 54(6), 1207-1215, 2008.
  32. Nordbotten, J.M., M.A. Celia, H.K. Dahle, and S.M. Hassanizadeh, "[On the Definition of Marco-scale Pressure in Multi-phase Flow in Porous Media](#)", *Water Resources Research*, 44, W06S02, doi:10.1029/2006WR005715, 2008.
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37. Nordbotten, J.M. and M.A. Celia, "[Similarity Solutions for Fluid Injection into Confined Aquifers](#)", *Journal of Fluid Mechanics*, 561, 307-327, 2006.
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39. Pinder, G.F. and M.A. Celia, [Subsurface Hydrology](#), John Wiley and Sons (New York), 2006.
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