Curriculum Vitae
Tetsu K. Tokunaga

Senior Scientist, Earth Sciences Division
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Tetsu Tokunaga's research combines his training in soil physics with related areas including groundwater and multiphase flow, and environmental biogeochemistry. His main research accomplishments include identifying the mechanism of water film flow in variably saturated fractures, identifying the permeability-sorptivity scaling relation, identifying the Bond number limit of classical unsaturated hydraulic scaling, innovations in tensiometric fluid potential measurements, developing synchrotron-based methods to measure water films at controlled capillary/disjoining pressures (under high pressure supercritical CO_2 confinement, and at atmospheric pressure), developing synchrotron-based methods to investigate reactive transport of metals and radionuclides (chromium, uranium, and selenium) in variable redox sediments, and deriving a free-path distribution model for gas diffusion in porous media.

Education and Training:
Postdoctoral Research Fellow, 1986-1988, Lawrence Berkeley Laboratory
Ph.D., 1986, Soil Science, University of California, Berkeley
B.A., 1979, Soil Resources, University of California, Berkeley

Professional Experience:
1990, 1992: Lecturer, Department of Soil Science, University of California, Berkeley
1988-1993: Scientist, Earth Sciences Division, Lawrence Berkeley National Laboratory
1993-2001: Staff Scientist, Earth Sciences Division, LBNL
2001-present: Senior Scientist, Earth Sciences Division, LBNL

Service:
Associate editor, Water Resources Research, 2009-present.
Associate editor, Vadose Zone Journal, 2008-present.

Selected Publications (from more than 80 peer-reviewed papers and 1 U.S. Patent) ResearcherID: H-2790-2014

Wang, S., and T.K. Tokunaga. 2015. Capillary pressure-saturation relations for supercritical CO2 and brine in limestone/dolomite sands: Implications for geologic carbon sequestration in carbonate reservoirs. Environ. Sci. Technol. 49, 7208-7217.

Wan, J., Y. Kim, and T.K. Tokunaga. 2014. Contact angle measurement ambiguity in supercritical CO_2-water-mineral systems: Mica as an example. International Journal of Greenhouse Gas Control. 31, 128-137.

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Tokunaga, T.K., J. Wan, J. Jung, T.W. Kim, and W. Dong. 2013. Capillary pressure and saturation relations for supercritical CO_2 and brine in sand: High-pressure $P_c(S_w)$

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Tokunaga, T.K., J. Wan, J. Pena, E.L. Brodie, M.K. Firestone, T.C. Hazen, S.R. Sutton, A. Lanzirotti, and M. Newville. 2005. Uranium reduction in sediments under diffusion-limited transport of organic carbon. Environ. Sci. Technol. 39, 7077-7083.

Wan, J., T.K. Tokunaga, E. Brodie, Z. Wang, Z. Zheng, D. Herman, T.C. Hazen, M.K. Firestone, and S.R. Sutton. 2005. Reoxidation of bioreduced uranium under reducing conditions. Environ. Sci. Technol. 39, 6162-6169.

Tokunaga, T.K., J. Wan, J. Pena, E.L. Brodie, M.K. Firestone, T.C. Hazen, S.R. Sutton, A. Lanzirotti, and M. Newville. 2005. Uranium reduction in sediments under diffusion-limited transport of organic carbon. Environ. Sci. Technol. 39, 7077-7083.

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Tokunaga, T., 1992. The pressure response of the soil water sampler, and possibilities for simultaneous soil solution sampling and tensiometry. Soil Sci. 154:171-183.

Narasimhan, T.N., White, A.F., and T. Tokunaga, 1986. Groundwater contamination from an inactive uranium mill tailings pile. 2. Application of a dynamic mixing model. Water Resources Res. 22:1820-1834.

Tokunaga, T.K., 1985. Porous media gas diffusivities from a free path distribution model. J. Chem. Phys. 82:5298-5299.