

XINGYUAN CHEN

Hydrology Technical Group
Energy and Environment Directorate
Pacific Northwest National Laboratory
Phone: 509-371-7510; Fax: 509-372-6089
E-mail: Xingyuan.Chen@pnnl.gov

EDUCATION AND TRAINING

2009 Ph.D., Civil and Environmental Engineering, University of California at Berkeley
2007 M.A., Statistics, University of California at Berkeley
2002 M.Phil., Civil Engineering, Hong Kong University of Science and Technology
2000 B.E., Hydraulic Engineering, Tsinghua University, Beijing

RESEARCH AND PROFESSIONAL EXPERIENCE

2011-present, **Research Scientist**, Hydrology Technical Group, Pacific Northwest National Laboratory, Richland, Washington, *Research on efficient ensemble-based data assimilation alternatives for calibrating field-scale reactive flow and transport model at the Hanford 300 area, utilizing both field-scale data and mechanistic models developed at fine-scale studies.*
2010-2011, **Postdoctoral Research Associate**, Hydrology Technical Group, Pacific Northwest National Laboratory, Richland, Washington, *Research on assimilation of multiscale and multi-type lab and field experimental data into flow and transport model development, leveraging high performance community code and supercomputing resources.*
2009-2010, **Postdoctoral Associate Specialist**, Department of Civil and Environmental Engineering, University of California, Berkeley, California, *Research on developing and applying a full Bayesian data assimilation technique to characterize aquifer heterogeneity at Hanford IFRC site and reduce uncertainty in flow and transport modeling.*

SELECTED PUBLICATIONS

Freedman VL, X. Chen, SA Finsterle, MD Freshley, I Gorton, LJ Gosink, E Keating, C Lansing, WAM Moeglein, CJ Murray, GSH Pau, EA Porter, S Purohit, ML Rockhold, KL Schuchardt, C Sivaramakrishnan, VV Vesselinov, and SR Waichler (2014). A high-performance workflow system for subsurface simulation. *Environmental Modelling & Software*, 55:176-189. doi:10.1016/j.envsoft.2014.01.030.
Scheibe T.D., E.M. Murphy, X. Chen, A.K. Rice, K.C. Carroll, B.J. Palmer, A.M. Tartakovsky, I. Battiato, and B.D. Wood (2014). An Analysis Platform for Multiscale Hydrogeologic Modeling with Emphasis on Hybrid Multiscale Methods. *Ground Water*, doi: 10.1111/gwat.12179.
Chen X., G. E. Hammond, C. Murray, M. Rockhold, V. R. Vermeul, and J. M. Zachara (2013). Application of Ensemble-based Data Assimilation Techniques for Aquifer Characterization using Tracer Data at Hanford 300 Area. *Water Resources Research*, 49, doi:10.1002/2012WR013285.
Over M., Y. Yang, X. Chen, and Y. Rubin (2013). Making Bayesian inversion efficient using singular value decomposition and clustering. *Water Resources Research*, 49, 3257–3275, doi:10.1002/wrcr.20182.
Stegen, J., X. Lin, J. Fredrickson, X. Chen, D. Kennedy, C. Murray, M. Rockhold, and A. Konopka (2013). Quantifying the influences of ecological drift, selection and dispersal in subsurface microbial communities. *ISME Journal*, doi:10.1038/ismej.2013.93.
Chen, X., G. Miller, Y. Rubin, and D. Baldocchi (2012). A statistical method for estimating wood thermal diffusivity and probe geometry using in-situ heat response curves from sap flow measurements. *Tree Physiology*, 32 (12): 1458-1470, doi: 10.1093/treephys/tps100.
Chen, X., H. Murakami, M. Hahn, G. Hammond, M. Rockhold, Y. Rubin and J. Zachara (2012). Three-dimensional Bayesian geostatistical aquifer characterization at the Hanford 300 area using tracer test data. *Water Resources Research*, 48, W06501, doi:10.1029/2011WR010675.

- Baldocchi, D. D., Q. Chen, X. Chen, S. Ma, G.R. Miller, Y. Ryu, J. Xiao, R. Wenk, and J. Battles (2010). The dynamics of energy, water and carbon fluxes in a blue oak (*Quercus douglasii*) savanna in California, USA. M.J. Hill and N. P. Hanan (eds.), *Ecosystem Function in Global Savannas: Measurement and Modeling at Landscape to Global Scales*. CRC/Taylor and Francis.
- Miller, G., X. Chen, Y. Rubin, S. Ma, and D. Baldocchi (2010), Groundwater uptake by woody vegetation in a semiarid oak savanna, *Water Resources Research*, 46, W10503, doi:10.1029/2009WR008902.
- Murakami, H., X. Chen, M. Hahn, Y. Liu, M. Rockhold, V. Vermeul, J. Zachara, and Y. Rubin (2010). Bayesian Approach for Three-dimensional Aquifer Characterization at the Hanford 300 Area. *Hydrology and Earth System Sciences*, 14, 1989-2001, doi:10.5194/hess-14-1989-2010.
- Rubin, Y., X. Chen, H. Murakami, and M. Hahn (2010). A Bayesian approach for data assimilation and conditional simulation of spatial random fields. *Water Resources Research*, 46, W10523, doi:10.1029/2009WR008799.
- Chen, X., Y. Rubin Y, S. Ma, and D.D. Baldocchi (2008). Observations and stochastic modeling of soil moisture control on evapotranspiration in a Californian oak savanna. *Water Resources Research*, 44, W08409, doi:10.1029/2007WR006646.
- Chen, X., and Y-K Tung (2003). Investigation of polynomial normal transformation. *Journal of Structural Safety*, 25(4), 423-445.

SYNERGISTIC ACTIVITIES

- American Geophysical Union
- Peer reviewer for *Water Resources Research*, *Advances in Water Resources*, *Environmental Research Letter*, *Vadose Zone Journal*, *Environmental Geophysics*, *Journal of Earth System Science*, *Journal of Water Resources Planning and Management*, *Water Resources Management*, and Department of Energy Office of Science Graduate Fellowship Program
- Recipient of Horton Research Grant from American Geophysical Union
- Summa Cum Laude of the Class of 2000, Tsinghua University