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Curriculum Vitae

Haruko Murakami Wainwright

CONTACT INFORMATION

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EDUCATION

Ph.D. 2010: University of California-Berkeley, Dept. of Nuclear Engineering

(Advisors: Prof. William E. Kastenberg in Nuclear Engineering and Prof. Yoram Rubin in Civil and Environmental Engineering)

M.A. 2010: University of California-Berkeley, Dept. of Statistics

M.S. 2006: University of California-Berkeley, Dept. of Nuclear Engineering

B.S. 2003: Kyoto University (Kyoto, Japan), Dept. of Engineering Physics

PROFESSIONAL POSITIONS

Jun. 14 – present: Lawrence Berkeley National Laboratory, Research scientist (career-track)

Feb. 11 – May 14: Lawrence Berkeley National Laboratory, Postdoctoral fellow

Aug. 05 – Dec. 10: University of California, Berkeley, Research assistant

Aug. 09 – Dec. 09: University of California, Berkeley, Teaching assistant

Mar. 04 – Aug. 05: Argonne National Laboratory, Visiting graduate student program

Jan. 04 – Mar. 04: Argonne National Laboratory, Japan Atomic Energy Society international student exchange program

Jul. 03 – Aug. 03: Japanese Atomic Energy Research Institute, Graduate student traineeship

Sep. 02 – Oct. 02: Schlumberger-Doll Research, Summer internship

AWARDS

- 2016 LBNL Early Career Achievement award, 2016.

- 2012 Director's Achievement Awards for Exceptional Tech Transfer Achievement (as a part of the TOUGH2 development team), 2012.

- Tenth International Conference on Permafrost young researcher travel grant award, 2012.

- Tenth International Conference on Permafrost NSF travel grant award, 2012.

- Student travel fellowship for the U.S. Department of Energy, Subsurface Biogeochemical Research 5th Annual PI Meeting, 2010.
- Student travel fellowship for the U.S. Department of Energy, Environmental Remediation Science Program 4th Annual PI Meeting, 2009.
- Roy G. Post Foundation Scholarship, 2009.
- Jane-Lewis Fellowship, 2006-2007 and 2007-2008.
- Japan Atomic Energy Society international student exchange program, 2004.

JOURNAL PUBLICATIONS AND BOOK CHAPTERS

- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, K. Lipnikov, C. Gable, T. Miller, J.D. Moulton, “A modeling approach to evaluate the remedial options for tritium groundwater contamination,” in prep.
- **Wainwright, H.M.**, A. Liljedahl, J. Peterson, B. Dafflon, C. Ulrich, A. Gusmeroli, S. Hubbard, “Estimation of snow depth within a tundra ecosystem using multiscale observations and Bayesian methods,” *Cryosphere*, in revision.
- **Wainwright, H.M.**, A. Seki and K. Saito, “A multiscale Bayesian data integration approach for mapping radionuclide contamination in the regional scale,” submitted to *Journal of Environmental Radioactivity*.
- Jeanne, P., J. Rutqvist, **H.M. Wainwright**, A.P. Rinaldi, W. Foxall, Q. Zhou, J. Birkholzer, “Effects of the distribution and evolution of the coefficient of friction along a fault on the assessment of the seismic activity associated with a hypothetical industrial-scale geologic CO₂ sequestration operation,” submitted to *International Journal of Greenhouse Gas Control*.
- Finsterle S., M. Commer, J.K. Edmiston, Y. Jung, M.B. Kowalsky, G.S.H. Pau, **H.M. Wainwright**, and Y. Zhang, “iTOUGH2: A Multiphysics Simulation-Optimization Framework for Analyzing Subsurface Systems,” *Computers & Geosciences*, <http://dx.doi.org/10.1016/j.cageo.2016.09.005>, 2016.
- Jeanne, P., J. Rutqvist, **H.M. Wainwright**, W. Foxall, C. Bachmann, Q. Zhou, A.P. Rinaldi, J. Birkholzer, “Impact of in-situ stress measurement uncertainties on the assessment of the seismic activity and risk associated with a hypothetical industrial-scale geologic CO₂ sequestration operation,” *Journal of Rock Mechanics and Geotechnical Engineering*, 10.1016/j.jrmge.2016.06.008, 2016.
- Dwivedi, D., B. Dafflon, B. Arora, **H.M. Wainwright** and S. Finsterle, “Spatial analysis and geostatistical methods,” in press, Chapter 21 in *Handbook of Applied Hydrology* (Editor: Singh, V.P.), McGraw-Hill, New York, USA, 2016.
- **Wainwright, H.M.**, A. Flores-Orozco, M. Bücker, B. Dafflon, S.S. Hubbard and K.H. Williams, “Probabilistic mapping of biogeochemical hotspots using induced polarization imaging,” *Water Resour. Res.*, 52, 533–551, doi:10.1002/2015WR017763, 2015.
- Dafflon B., Hubbard S.S., Ulrich, C., and Peterson J.E., Wu Y., **Wainwright H.**, and Kneafsey T., “Geophysical estimation of shallow permafrost distribution and properties in an ice-wedge polygon-dominated Arctic tundra region,” *Geophysics*, doi: 10.1190/geo2015-0175.1, 2015.

- Agarwal, D. A., Faybishenko, B., Freedman, V. L., Krishnan, H., Kushner, G., Lansing, C., Porter, E., Romosan, A., Shoshani, A., **Wainwright, H.**, Weidmer, A., and Wu, K. "A science data gateway for environmental management." *Concurrency Computat.: Pract. Exper.*, doi: 10.1002/cpe.3697, 2015
- **Wainwright, H.M.**, B. Dafflon, L.J. Smith, M.S. Hahn, J.B. Curtis, Y. Wu, C. Ulrich, J.E. Peterson, M.S. Torn and S.S. Hubbard, "Identifying multiscale zonation and assessing the relative importance of polygon geomorphology on carbon fluxes in an Arctic Tundra Ecosystem," *Journal of Geophysical Research, Biogeosciences*, doi: 10.1002/2014JG002799, 2015.
- Bromhal, G.S., J. Birkholzer, S.D. Mohaghegh, N. Sahinidis, **H.M. Wainwright**, Y. Zhang, S. Amini, V. Gholami, Y. Zhang and A. Shahkarami, "Evaluation of rapid performance reservoir models for quantitative risk assessment," *Energy Procedia*, 63, 3425-3431, ISSN 1876-6102, 2014.
- **Wainwright, H.M.**, J. Chen, D. Sassen and S.S. Hubbard, "Bayesian Hierarchical Approach for Estimation of Reactive Facies over Plume-Scales Using Geophysical Datasets," *Water Resources Research*, 50, 4564–4584, doi:10.1002/2013WR013842, 2014.
- Gangodagamage, C., J. Rowland, C. Wilson, S. Hubbard, S. Brumby, **H.M. Wainwright**, A. Liljedahl, G. Altmann, C. Tweedie, S. Wullschleger, "Predicting Active Layer Thickness Using Statistical Learning from Remotely Sensed High-Resolution Data in Arctic Permafrost Landscapes," *Water Resources Research*, 50, 6339–6357, doi:10.1002/2013WR014283, 2014.
- Pau, G. SH, Y. Zhang, S.A. Finsterle, **H.M. Wainwright** and J.T. Birkholzer, "Reduced Order Modeling in iTOUGH2," *Computers & Geosciences*, <http://dx.doi.org/10.1016/j.cageo.2013.08.008>, 2013.
- **Wainwright, H.M.**, S. Finsterle, Y. Jung, Q. Zhou and J.T. Birkholzer, "Making Sense of Global Sensitivity Analysis," *Computers & Geosciences*, ISSN 0098-3004, <http://dx.doi.org/10.1016/j.cageo.2013.06.006>, 2013.
- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, J.T. Birkholzer, "Modeling the Performance of Large-Scale CO₂ Storage Systems: A Comparison of Different Sensitivity Analysis Methods," *International Journal of Greenhouse Gas Control*, 17, Pages 189-205, ISSN 1750-5836, <http://dx.doi.org/10.1016/j.ijggc.2013.05.007>, 2013.
- Bea, B. A., **H.M. Wainwright**, N. Spycher, B. Faybishenko, S. S. Hubbard, M. Denham, "Identifying key controls on acidic-U(VI) plume behavior at the Savannah River Site, using reactive transport modeling," *Journal of Contaminant Hydrology*, 151, 34-54, ISSN 0169-7722, <http://dx.doi.org/10.1016/j.jconhyd.2013.04.005>, 2013.
- Hubbard, S. S., C. Gangodagamage, B. Dafflon, **H.M. Wainwright**, J. E. Peterson, A. Gusmeroli, C. Ulrich, Y. Wu, C. Wilson, J. Rowland, C. Tweedie and S.D. Wullschleger, "Quantifying and relating land-surface and subsurface variability in permafrost environments using LiDAR and surface geophysical datasets," *Hydrogeology*, Feb2013.doi: 10.1007/s10040-012-0939-y, 2013.
- Chen, X., **H. Murakami**, M.S. Hahn, G. Hammond, M.L. Rockhold and Y. Rubin, "Bayesian geostatistical aquifer characterization at the Hanford 300 Area using tracer test data," *Water Resour. Res.*, 48, W06501, doi:10.1029/2011WR010675, 2012.
- **Murakami, H.**, X. Chen, M.S. Hahn, Y. Liu, M.L. Rockhold, V.R. Vermeul, J.M. Zachara, and Y. Rubin, "Bayesian approach for three-dimensional aquifer characterization at the Hanford 300 area," *Hydrol. Earth Syst. Sci.* 7, 2017–2052, 2010.

- Rubin, Y., X. Chen, **H. Murakami**, M. Hahn, “A Bayesian approach for inverse modeling, data assimilation and conditional simulation of spatial random fields,” *Water Resour. Res.*, 46, W10523, doi:10.1029/2009WR008799, 2010.
- **Murakami, H.**, J. Ahn, “Development of compartment models with Markov-chain processes for radionuclide transport in repository region,” *Annals of Nuclear Energy*, 38 (2-3), 511-519, 2010, doi: 10.1016/j.anucene.2010.09.013, 2010.
- I. Kanno, S. Hishiki, **H. Murakami**, O. Sugiura, Y. Murase, T. Nakamura, M. Katagiri, “Schottky and pn Junction Cryogenic Radiation Detectors Made of p-InSb Compound Semiconductor,” *Nucl.Inst.Meth.A* **520**, page 93-95, 2004.

OTHER PUBLICATIONS

- **Wainwright, H.M.**, B. Faybishenko, S. Molins, J.A. Davis, B. Arora, G. Pau, J. Johnson, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Effective Long-term Monitoring Strategies by Integrating Reactive Transport Models with In situ Geochemical Measurements, Waste Management 2016, March 6 – 10, 2016, Phoenix, Arizona, USA.
- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Using ASCEM Modeling and Visualization to Optimize Remediation Strategies at F-Area Savannah River Site, SC,” MODFLOW and More Conference, May 30 – June 3, 2015, Golden, Colorado, USA.
- **Wainwright, H.M.**, M. Okumura and K. Saito, “A Multiscale Bayesian Data Integration Approach for Mapping Radionuclide Contamination,” International Workshop on Nuclear Safety: From accident mitigation to resilient society facing extreme situations, March 23-24, 2015, Berkeley, California, USA.
- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Using ASCEM Modeling and Visualization to Inform Stakeholders of Contaminant Plume Evolution and Remediation Efficacy at F-Basin Savannah River, SC,” Proceedings of WM2015 Conference, March 15 – 19, 2015, Phoenix, Arizona, USA.
- Quinn, N., **H. M. Wainwright**, P. Jordan, Q. Zhou, J. Birkholzer, “Potential Impacts of Future Geological Storage of CO₂ on the Groundwater Resources in California’s Central Valley Simulations of Deep Basin Pressure Changes and Effect on Shallow Water Resources,” California Energy Commission. Publication number: CEC-500-2014-028.
- Houseworth, J., **H.M. Wainwright**, J. Birkholzer, “Assessment of Decoupling Wellbore Leakage from Reservoir Flow in Reduced-Order Models,” NRAP-TRS-III-001-2013, NRAP Technical Report Series, U.S. Department of Energy, National Energy Technology Laboratory: Morgantown, WV, 2013.
- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, J.T. Birkholzer, “Improved Understanding of Global Sensitivity Analysis: Applications to CO₂ Storage Systems,” Proceedings of Modflow and More Conference, Golden, Colorado, 2013.
- Freshley, M., Hubbard, S., **H.M. Wainwright** et al., “Advanced Simulation Capability for Environmental Management (ASCHEM) Phase II Demonstration,” ASCHEM-SITE-2012-01, 2012.

- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, and J. Birkholzer, “Modeling the Performance of Large-Scale CO₂ Storage Systems: A Comparison of Different Sensitivity Analysis Methods,” NRAP-TRS-III-002-2012, NRAP Technical Report Series, U.S. Department of Energy, National Energy Technology Laboratory: Morgantown, WV, 2012.
- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, Y. Jung and J. Birkholzer, “iTOUGH2 Global Sensitivity Analysis Module: Applications to CO₂ Storage Systems,” Proceedings of TOUGH Symposium 2012, Lawrence Berkeley National Laboratory, Berkeley, California, September 2012.
- **Wainwright, H.M.**, Hubbard, S.S., Dafflon, B., Ulrich, C., Wu, Y., Gangodagamage, C., Rowland, J., Wilson, C., Tweedie, C., Wullschleger, S.D., “Multiscale Bayesian fusion approach using geophysical and remote sensing data for characterizing arctic tundra hydrogeochemical properties,” Proceedings of Tenth International Conference on Permafrost, Salekhard, Russia, 2012.
- **Murakami, H.** and J. Ahn, “Development of Compartment Models for Radionuclide Transport in Repository Region,” Proceedings of the 12th International High-Level Radioactive Waste Management Conference, Las Vegas, Nevada, 2008.
- J. Li, **H. Murakami**, Y. Liu, P.E.A. Gomez, M. Gudipati, and M. Greiner, “Peak Cladding Temperature in a Spent Fuel Storage or Transportation Cask,” Proceedings of the 15th International Symposium on the Packaging and Transportation of Radioactive Materials, PATRAM 2007.

INVITED TALKS AND LECTURES

- Eddy-Dilek, C. and **H.M. Wainwright**, “Application of ASCEM to SRS F Area Seepage Study,” Interagency Steering Committee on Performance and Risk Assessment Community of Practice (P&RA CoP) Annual Technical Exchange Meeting, Washington DC, October 19th, 2016.
- **Wainwright, H.M.**, “Technical Advances in Groundwater Monitoring,” Sustainable Remediation Forum 33, Washington DC, October 19th, 2016.
- **Wainwright, H.M.** and K.H. Williams, “Scientific and Technical Advances for Sustainable Remediation at Former Uranium Mill Tailing and Mining Sites,” Central Rocky Mountain Health Physics Chapter Meeting, Denver, October 7th, 2016.
- **Wainwright, H.M.**, “Environmental Resiliency on Nuclear Energy,” Department of Nuclear Engineering, Colloquium Series, University of California, Berkeley, September 26th, 2016.
- **Wainwright, H.M.**, “Data Integration of Complex Environmental Datasets for Radionuclide Contamination: Case studies in Fukushima Prefecture and Former Nuclear Weapon Production Sites in US,” Symposium on the Future of Nuclear Energy and Fuel Cycle, University of Tokyo, Tokyo, June 25th, 2016.
- **Wainwright, H.M.**, B. Dafflon, and S.S. Hubbard, “Coupled geophysical and remote sensing techniques for quantifying ecosystem functioning across scales,” Geophysics Seminar, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, November 6th, 2015.
- **Wainwright, H.M.**, M. Okumura and K. Saito, “Integration of Complex Environmental Datasets for Characterizing Radionuclide Contamination,” International Workshop on Nuclear Safety: From accident mitigation to resilient society facing extreme situations, Berkeley, USA, March 23-24, 2015.
- **Wainwright, H.M.**, “Geostatistics on Complex Environmental Datasets,” in NE290: Special Topics in Environmental Aspects of Nuclear Engineering, UC-Berkeley, October 2014 and 2015

- **Wainwright, H.M.**, Davis, J., Spycher, N., Hubbard, S.S., “Reactive Fate and Transport Modeling Experiences, Including Geochemical Behavior of Cesium in the Subsurface,” U.S.-Japan Workshop for Decommissioning and Environmental Management, Tokyo, Japan, July 17-18, 2013.
- **Wainwright, H.M.**, “Basic Knowledge for Understanding Radionuclide Contamination from the Fukushima Nuclear Power Plant Accident (in Japanese),” Special seminar at Japanese Graduates and Researchers Society at Berkeley, Berkeley, CA, April 23, 2011.

CONFERENCE PRESENTATIONS

- **Wainwright, H.M.**, B. Dafflon, L.J. Smith, M.S. Hahn, J.B. Curtis, Y. Wu, C. Ulrich, J.E. Peterson, M.S. Torn and S.S. Hubbard, “Ecosystem Functional Zonation Approach to Integrate Multi-type Multiscale Datasets for Scaling Above and Below-ground Control on Carbon Cycling,” International Conference on Permafrost, Potsdam, Germany, June 2016.
- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Effective Long-term Monitoring Strategies by Integrating Reactive Transport Models with In situ Geochemical Measurements,” WM2016 Conference, Phoenix, USA, March 2016.
- **Wainwright, H.M.**, A. Liljedahl, J. Peterson, B. Dafflon, C. Ulrich, A. Gusmeroli, S. Hubbard, “Multiscale Observational Platforms and Bayesian Data Integration to Estimate Snow Depth and Snow-water-equivalent over the Ice-wedge Polygonal Tundra,” AGU Fall Meeting 2015, San Francisco, December 2015.
- **Wainwright, H.M.**, A. Flores-Orozco, M. Bückler, B. Dafflon, S.S. Hubbard and K.H. Williams, “Noninvasive Characterization of Biogeochemical Hotspots Using Induced Polarization Imaging,” Goldschmidt, Prague, August 2015.
- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Using ASCEM Modeling and Visualization to Optimize Remediation Strategies at F-Area Savannah River Site, SC,” MODFLOW and MORE Conference, Golden, USA, June 2015.
- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Using ASCEM Modeling and Visualization to Inform Stakeholders of Contaminant Plume Evolution and Remediation Efficacy at F-Basin Savannah River, SC,” WM2015 Conference, Phoenix, USA, March 2015.
- **Wainwright, H.M.**, B. Dafflon, L.J. Smith, M.S. Hahn, J.B. Curtis, Y. Wu, C. Ulrich, J.E. Peterson, M.S. Torn and S.S. Hubbard, “Identifying multiscale zonation and assessing the relative importance of polygon geomorphology on carbon fluxes in an Arctic Tundra Ecosystem,” B54F-07, AGU Fall meeting, San Francisco, USA, December 2014.
- **Wainwright, H.M.**, A. Flores-Orozco, M. Bückler, B. Dafflon and K.H. Williams, “Reactive transport modeling parameterization using geophysical datasets,” Complex Soil Systems Conference, Berkeley, USA, September 2014.

- **Wainwright, H.M.**, S. Molins, J.A. Davis, B. Arora, B. Faybishenko, H. Krishnan, S. Hubbard, G. Flach, M. Denham and C. Eddy-Dilek, J.D. Moulton, K. Lipnikov, C. Gable, T. Miller and M. Freshley, “Optimizing monitoring and remediation strategies at the Savannah River Site F- Area, using the Advanced Simulation Capability for Environmental Management (ASCEM),” Complex Soil Systems Conference, Berkeley, USA, September 2014.
- **Wainwright, H.M.**, Y. Zhang, S.A. Finsterle, J.T. Birkholzer, “Uncertainty quantification in CO₂ storage systems; impacts of different CO₂ storage scenarios,” XX. International Conference on Computational Methods in Water Resources, Stuttgart, Germany, June 2014.
- **Wainwright, H.M.**, S.S. Hubbard, B. Dafflon, C. Ulrich, J.E. Peterson, Y. Wu, M.S. Hahn, M.S. Torn, C. Gangodagamage, J.C. Rowland, C.J. Wilson, A. Liljedahl, A. Gusmeroli, S.D. Wullschleger, “Characterizing subsurface controls on the Arctic ecosystem carbon cycling across scales using geophysical, in-situ and remote sensing datasets,” C53C-06, AGU Fall meeting, San Francisco, USA, December 2013.
- Hubbard, S.S. B., Dafflon, **H.M. Wainwright**, T.K. Tokunaga, C. Ulrich, J. Jansson, M. Torn, K.H. Williams, “Characterizing Controls on Terrestrial Environment Functioning Across Scales using Geophysical Datasets (Invited),” H41L-04, AGU Fall meeting, San Francisco, USA, December 2013.
- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, J.T. Birkholzer, “Improved Understanding of Global Sensitivity Analysis: Applications to CO₂ Storage Systems,” MODFLOW and More conference 2013, Golden, USA D, June 2013.
- **Wainwright, H.M.**, S.S. Hubbard, C. Gangodagamage, J.C. Rowland, A. Liljedahl, A. Gusmeroli, B. Dafflon, C. Ulrich, J. Peterson, Y. Wu, C. Wilson, C. Tweedie and S. Wullschleger, “High Resolution Characterization of Heterogeneous Arctic Tundra Subsurface Properties using a Multiscale Bayesian Fusion Approach with Geophysical Datasets,” B53E-0715, AGU Fall meeting, San Francisco, December 2012.
- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, Y. Jung and J. Birkholzer, “iTOUGH2 Global Sensitivity Analysis Module: Applications to CO₂ Storage Systems,” TOUGH Symposium 2012, Lawrence Berkeley National Laboratory, Berkeley, California, September 2012.
- **Wainwright, H.M.**, S. S. Hubbard, C. Gangodagamage, B. Dafflon, C. Ulrich, Y. Wu, C. Wilson, C. Tweedie and S. Wullschleger, “Multiscale Bayesian Fusion Approach using Geophysical and Remote Sensing Data for Characterizing Arctic Tundra Hydrogeochemical Properties,” Tenth International Conference on Permafrost, Salekhard, Russia, June 2012.
- **Wainwright, H.M.**, S. Finsterle, Q. Zhou, J. Birkholzer, “Uncertainty Quantification of the CO₂ Storage System for a Hypothetical GCS Project in the Southern San Joaquin Basin in California,” Conference on Computational Method on Water Resources Research (CMWR), June 2012.
- Hubbard, S. S., C. Gangodagamage, B. Dafflon, **H.M. Wainwright**, J. E. Peterson, A. Gusmeroli, C. Ulrich, Y. Wu, C. Wilson, J. Rowland, C. Tweedie and S.D. Wullschleger, “Quantifying and relating land-surface and subsurface variability in permafrost environments using LiDAR and surface geophysical datasets,” EGU General Assembly, Vienna, Austria, April 2012.
- Birkholzer, J., G. Bromhal, **H. Wainwright**, Y. Zhang, G. Pau, S. Mohaghegh, S. Amini, G. Zvoloski, “Predicting Key Reservoir Relationships for Storage Security (with Reduced Order Models),” 11th Annual Carbon Capture and Sequestration, Utilization (CCUS) Conference, May 2012.

- **Wainwright, H.M.**, D. Sassen, S.A. Bea, J. Chen and S.S. Hubbard “ Reactive Facies: An Approach for Parameterizing Plume-Scale Reactive Transport Models Using Multi-Type Multi-Scale Datasets,” DOE-SBR Annual Meeting, Washington D.C., April 2012.
- **Wainwright, H.M.**, D. Sassen, J. Chen and S.S. Hubbard, “Multiscale Hydrogeophysical Data Assimilation for Plume-scale Subsurface Characterization,” AGU Fall Meeting H52C-06, San Francisco, December 2011.
- **Murakami, H.**, S. Finsterle, Q. Zhou and J.T. Birkholzer, “Uncertainty Quantification and Global Sensitivity Analysis of CO₂ Migration and Pressure Buildup for a Hypothetical GCS Project in the Southern San Joaquin Basin in California,” 11th Annual Conference on Carbon Capture Utilization & Sequestration, Pittsburgh, Pennsylvania, May 2011.
- **Murakami, H.**, X. Chen, M. Hahn, M. Over, M Rockhold, V Vermeul, G Hammond, J Zachara and Yoram Rubin, “Sequential Bayesian Geostatistical Inversion and Evaluation of Combined Data Worth for Aquifer Characterization at the Hanford 300 Area,” AGU Fall Meeting, December 2010.
- Chen, X., **H. Murakami**, M. Hahn, G Hammond, M Rockhold and Y. Rubin, “Three-Dimensional Bayesian Geostatistical Aquifer Characterization at the Hanford 300 Area using Tracer Test Data,” AGU Fall Meeting, December 2010.
- **Murakami, H.**, X. Chen, M.S. Hahn, M.L. Rockhold, V.R. Vermeul and Y. Rubin, “Bayesian Geostatistical Inversion Framework for Probabilistic Risk Assessments of Groundwater Contamination,” Japan Geoscience Union Meeting, Makuhari, Chiba, Japan, May 2010.
- **Murakami, H.**, X. Chen, M.S. Hahn, Y. Liu, M.L. Rockhold, V.R. Vermeul, and Y. Rubin, “Stochastic Three-dimensional Aquifer Characterization at the Hanford 300 Area,” DOE-SBR 5th Annual PI Meeting, Washington D.C., March 2010.
- **Murakami, H.**, X. Chen, M.S. Hahn, Y. Liu, M.L. Rockhold, V.R. Vermeul, Y. Rubin, “Bayesian Geostatistical Inversion Framework for Characterizing Three-Dimensional Hydraulic Conductivity Field: An Application to the Hanford 300 Area,” Waste Management symposia, Phoenix, Arizona, March 2010.
- Rubin, Y., F. de Barros, X. Chen, **H. Murakami**, M.S. Hahn, “Elements of a Comprehensive Approach for Modeling Uncertainty,” Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H51N-01, December 2009.
- **Murakami, H.**, X. Chen, M.S. Hahn, Y. Liu, M.L. Rockhold, V.R. Vermeul, Y. Rubin, “Three-dimensional Characterization of A High-K Aquifer at the Hanford 300 Area and Retrospective Analysis of Experimental Designs,” Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H43F-1082, December 2009.
- Chen, X., **H. Murakami**, M.S. Hahn, M.L. Rockhold, V.R. Vermeul, Y. Rubin, “Integrating Tracer Test Data into Geostatistical Aquifer Characterization at the Hanford 300 Area,” Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H43F-1095, December 2009.
- **Murakami, H.**, X. Chen, H. Bai, M.L. Rockhold, V.R. Vermeul and Y. Rubin, “Integrating Scale-dependent Hydrogeological Data using a Bayesian Geostatistical Framework,” DOE-ERSP 4th Annual PI Meeting, Lansdowne, Virginia, April 2009.
- **Murakami, H.** and Y. Rubin, “A Bayesian Geostatistical Inversion Method for Hydrogeological Data Integration in Probabilistic Risk Assessments,” Waste Management symposia, Phoenix, Arizona, March 2009.

- **Murakami, H.** and J. Ahn, “Development of Geologic Repository Models for Design and Decision Making,” 16th Pacific Basin Nuclear Conference, Aomori, Japan, 2008.
- **Murakami, H.** and J. Ahn, Development of Compartment Models for Radionuclide Transport in Repository Region, 12th International High-Level Radioactive Waste Management Conference, Las Vegas, Nevada, 2008.
- **Murakami, H.** and J. Ahn, “Compartment Model for a Geologic Repository with Stochastic Approach,” Transactions, 95, page 173-174, Winter Meeting, Albuquerque, NM, American Nuclear Society, November 2006.

SERVICE TO DOE

- 2015 – present: Member, U.S. Department of Energy, Ecosystem Science Model-Data Integration Working Group
- 2014 – present: Deputy lead of the site application thrust in the Advanced Simulation Capability for Environmental Management project (U.S. Department of Energy, Office of Environmental Management)

SCIENTIFIC COMMUNITY SERVICE

- Dec. 2014-2016: Session Chair, American Geophysical Union, “Characterizing spatial and temporal variability of hydrological and biogeochemical processes across scales”
- Dec. 2015: Organizer, American Geophysical Union, Town Hall Meeting, “A critical gap in data management: integration workflows for models and data.”
- Journal reviews: Water Resources Research, Journal of Hydrology, Journal of Environmental Radioactivity, Journal of Geophysical Research – Biogeosciences, Computers & Geosciences, International Journal of Greenhouse Gas Control

SERVICES AT LAWRENCE BERKELEY NATIONAL LABORATORY

- 2015 – present: Leadership team, Institute for Resilience Communities (<http://www.irc-berkeley.org/>)
- 2015 – present: Member, Diversity and Inclusion Working Group, Lawrence Berkeley National Laboratory, Earth and Environmental Sciences Area.
- 2015: Member, Division/Area Reorganization Working Group, Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division, Earth and Environmental Sciences Area.
- 2015 – present: Lead, Digital Ecosystem Initiative Working Group, Lawrence Berkeley National Laboratory, Climate and Ecosystem Sciences Division, Earth and Environmental Sciences Area

SUPERVISION/MENTORING

- Bhavna Arora, Postdoctoral Scholar at LBNL (2012-)
- Christoph Steefel, Student Assistant (2015), currently at UC-San Diego
- Akiyuki Seki, Visiting Researcher (2015-2016), currently at Japan Atomic Energy Agency
- Sarah Trutner, Science Undergraduate Laboratory Internship Program (2016-)
- Franziska Schmidt, PhD student in Nuclear Engineering at UC-Berkeley (2016-)
- Nicola Falco, Postdoctoral Scholar at LBNL (2016-)

RESEARCH SUPPORT

Project Title: Next Generation Ecosystem Experiment (NGEE Arctic)
Source of Support: Department of Energy (SC/BER)
Total Award Amount: \$6M/yr
Total Award Period Covered: 5/2012 – 5/2018
Location of Project: Oak Ridge National Lab (PI: S. Wullschleger)

Project Title: LBNL Sustainable Systems Science Focus Area 2.0
Source of Support: Department of Energy (SC/BER)
Total Award Amount: \$6.9M/yr
Total Award Period Covered: 10/2013 – 9/2016
Location of Project: Berkeley National Lab (PI: S. Hubbard)

Project Title: Advanced Simulation Capability for Environmental Management (ASCEM)
Source of Support: Department of Energy (SC/EM)
Total Award Amount: \$4.0M/yr
Total Award Period Covered: 10/2011 – 9/2016
Location of Project: Los Alamos Lab (PI: P. Dixon)
* I am leading the site application at the Savannah River Site (\$200K/yr)

Project Title: National Risk Assessment Partnership (NRAP)
Source of Support: Department of Energy (SC/FE)
Total Award Amount: \$1.25M/yr (for LBNL)
Total Award Period Covered: 10/2013 – 9/2016
Location of Project: National Energy Technology Lab (PI: G. Bromhal)

Project/Proposal Title: Environmental Restoration related to the Fukushima Nuclear Accident
Source of Support: Japanese Atomic Energy Agency (Japan)
Total Award Amount: \$500K/yr
Total Award Period Covered: 4/2015 – 3/2017
Location of Project: Lawrence Berkeley National Laboratory (PI: J. Birkholzer)
* I am leading the data integration of multiscale contamination measurements (\$133K/yr)