

Erik C. Porse, Ph.D.

SUMMARY

I am a broadly trained systems analyst with expertise in urban and environmental management. My research bridges **Engineering, Environmental Science, Systems Analysis, and Public Policy** with a focus on resource management for 21st century cities. I have worked in North America, Tanzania, Kenya, Mali, Russia, Japan, Mexico, and throughout Europe.

EDUCATION

- 2011-2014 **University of California at Davis, Ph.D, Civil and Environmental Engineering**
National Science Foundation IGERT Trainee in Ecology
- 2003-2005 **George Mason University, Master of Public Policy**
Science and Technology Policy.
- 1999-2002 **University of Hartford, B.S. in Engineering. Summa Cum Laude,**
Acoustical Engineering and Music.
- 1997-1999 **Virginia Tech University, Biology Major, 87 credits completed.**

RESEARCH AREAS

- Systems Analysis
- Water Resources Management
- Urban and Environmental Sustainability
- Renewable Energy and Energy Retrofits
- Network Analysis

RECENT PRODUCTS

- *Artes* (<https://github.com/erikporse/artes>). Principal architect of the *Artes* model, which simulates and optimizes local water supplies in LA for 9 million people, considering ecological, social, engineering, and economic factors.
- *The LA Water Hub* (<http://waterhub.ucla.edu>). Led the development of a dynamic mapping and visualization site for a multi-year research project on water resources management in Los Angeles.
- *The LA Solar Prioritization Tool* (<http://solar.energyatlas.ucla.edu>). Project manager and lead analyst for development of a prioritization tool for optimizing placement of distributed solar resources in LA County considering consumption, potential on-site generation, and grid constraints in 1.6 million properties.
- *Evaluating the Effects of Turf Replacement Programs in Los Angeles*. Led the drafting of the final report of findings from a multidisciplinary research project to examine the effects of the Metropolitan Water District of Southern California's 2014 turf replacement program during the California drought. The research team included faculty, postdocs, graduate students, and undergraduate students across 2 campuses.

PUBLICATIONS

PEER-REVIEWED ARTICLES:

18. Derenski, Joshua. **Erik C. Porse**, Hannah Gustafson, Dan Cheng, and Stephanie Pincetl. "Spatial and Temporal Analysis of Aggregated Energy Use Data in Los Angeles Schools." (2018). *Energy Efficiency*.
17. **Porse, Erik**, Kathryn B. Mika, Elizabeth Litvak, Kim Manago, Kartiki Naik, Madelyn Glickfeld, Terri Hogue, Mark Gold, Diane Pataki, and Stephanie Pincetl. (2017). "Systems Analysis and Optimization of Local Water Supplies in Los Angeles." *Journal of Water Resources Planning and Management*. 143(9).
16. **Porse, Erik C.**, Joshua Derenski, Hannah Gustafson, Zoe Elizabeth, and Stephanie Pincetl (2016). "Structural, Geographic, and Social Factors in Building Energy Use: Analysis of Aggregated, Account-Level Consumption Data in a Megacity". *Energy Policy*. Vol. 96. September 2016. Pg. 179-192.
15. Pincetl, Stephanie, **Erik C. Porse**, and Deborah Cheng (2016). "Fragmented Flows: Water Supply in Los Angeles County". *Environmental Management*. 58(2). Pg. 208-222
14. **Porse, Erik C.**, Madelyn Glickfeld, Keith Mertan, and Stephanie Pincetl. (2015) "Pumping for the Masses: Evolution of Groundwater Rights in Metropolitan Los Angeles." *Geojournal*. DOI: 10.1007/s10708-015-9664-0.
13. **Porse, Erik C.**, and Jay Lund. (2016) "Network Analysis and Visualizations in California Water: Linking connectivity and resilience." *Journal of Water Resources Planning and Management*. 142(1).
12. Farzan, Shahla, Derek Young, Allison Dedrick, Gabriel Sampson, Matt Hamilton, **Erik Porse**, and Peter Coates. (2015) "Western Juniper Management: Assessing Policies for Improving Greater Sage-Grouse Habitat and Rangeland Productivity." *Environmental Management*. 56:675-683.
11. **Porse, Erik C.**, and Jay Lund (2015). "Network Structure, Complexity and Adaptation in Water Resource Systems." *Civil Engineering and Environment Systems* (Special issue on Resilience). 32(1-2). 143-156.
10. **Porse, Erik C.**, Samuel Sandoval Solis, Belize Lane. (2015). "Integrating Environmental Flows into Multi-Objective Reservoir Management for a Transboundary, Water-Scarce River Basin: Rio Grande/Bravo." *Water Resources Management*. February 2015. 2471-2484.
9. **Porse, Erik C.** (2014). "Risk-based Zoning for Urbanizing Floodplains." *Water Science and Technology*. Volume 70, Issue 11. (Special Issue on Urban Water Management). Pg. 1755-1763.
8. Lane, Belize.A., Samuel Sandoval-Solis, Samuel, and **Erik Porse** (2015). "Environmental Flows in a Human-Dominated System: Evaluating Integrated Water Management Strategies in the Big Bend Reach of the Rio Grande/Bravo Basin." *River Research and Applications*. 31(9). Pgs. 1053-65.
7. **Porse, Erik C.** (2013). "Stormwater Governance in Future Cities." *Water*. Volume 5, Issue 1. March 2013. Pg. 29-52.
6. **Porse, Erik C.** (2007). "Measurement of Music Production and Innovation Networks: Case Studies from Seattle, Austin, and Nashville." *Journal of the Music and Entertainment Industry Association (MEIEA)*. Volume 7, No. 1.

5. Simpson, Harry J., Carl K. Frederickson, Brian H. Houston, **Erik C. Porse**. (2007). "Measurements of Sound Propagation in a Littoral Environment Using a Vertical Synthetic Array." *Journal of the Acoustical Society of America*. Volume 121, Issue 1, pp. 85-97.
4. **Porse, Erik C.** (2006). "MLB and Lobbying: A Perennial Favorite." *Outside the Lines, journal of the Society for American Baseball Research (SABR)*. Volume XII Issue 3. Fall 2006.
3. Soukup, Raymond J. Jon M. Collis, William L. Siegmann, Michael D. Collins, Harry J. Simpson, and **Erik C. Porse**. (2005). "Tank experiments and model comparisons of shallow water acoustics over an elastic bottom." *Journal of the Acoustical Society of America*. April 2005; Volume 117; Issue 4; p. 2576.
2. Simpson, Harry J., Carl K. Frederickson, Brian H. Houston, **Erik C. Porse**, Larry A. Kraus, Alain R. Berdoz, Philip A. Frank, and Steve W. Liskey. (2003). "Very-low-frequency Scattering Experiments from Proud Targets in a Littoral Environment Using a 55-m Rail." *Journal of the Acoustical Society of America*. October 2003. Volume 114, Issue 4, p. 2313.
1. **Porse, Erik C.** (2002). "MTBE: Examining the Oxygenate Requirement and Remediation Costs: A Study in Science and Technology Policy Implementation." *SAE International*. 2002-01-1268.

CONFERENCE PROCEEDINGS

1. **Porse, Erik C.** (2013). *Assessing Infrastructure Decisions to Manage Water Resources in the Valle de México*. Conference Proceedings: World Wide Workshop for Young Environmental Scientists (WWW-YES). Arcueil, Paris, France: École Nationale des Ponts et Chaussées.

BOOK CHAPTERS

2. **Erik Porse** and Stephanie Pincetl. 2017. "The Co-Evolution of Infrastructure, Governance, and Urban Ecology." In *Pragmatic Sustainability: Theoretical and Practical Tools (2nd Ed)*. Editor: Steven Moore. Routledge.
1. Lund, Jay, Rui Hui, Alvar Escriva, **Erik Porse**, Lauren Adams, James Connaughton, Laila Kasuri, Ben Lord, Lucas Siegfried, Reed Thayer, Samuel Sandoval-Solis, Sooyeon Yi. *In Press*. "Reservoir Operation Design." *Handbook of Hydrology: Revised Edition*. Chapter 124.

TECHNICAL REPORTS

12. Stephanie Pincetl, Thomas Gillespie, Diane Pataki, **Erik Porse**, Shenyue Jia, Erika Kidera, Nick Nobles, Janet Rodriguez, and Dong-ha Choi. (2017). "Evaluating the effects of turf replacement programs in Los Angeles." Report to the Metropolitan Water District of Southern California.
11. **Erik Porse**, Eric Fournier, Dan Cheng, Hannah Gustafson, Claire Hirashiki, Felicia Federico, and Stephanie Pincetl. (2017). *Prioritizing the Local of Distributed Solar Electricity Generation in Los Angeles County*. Report to the California Energy Commission

10. Stephanie Pincetl, **Erik Porse**, Hannah Gustaffson, and Joshua Derenski (2016). Implementing Energy Efficiency Programs in California: A Data-Driven Approach. UCLA Institute of the Environment and Sustainability.
9. Stephanie Pincetl, Madelyn Glickfeld, Deborah Cheng, Miriam Cope, Kartiki Naik, and **Erik Porse**, Kristen Holdworth, and Celine Kuklowski (2015). *Water Management in Los Angeles County; a Research Report*. Presented to the John Randolph Haynes and Dora Haynes Foundation. UCLA Institute of the Environment and Sustainability.
8. Elizabeth Weitzel, Alea German, and **Erik Porse**. *Performance of a Hot-Dry Climate Whole-House Retrofit*. Davis Energy Group. 2014.
7. **Porse, Erik C.** (2013). *Managing Arroyos in Los Cabos: Analysis of integrated strategies for sustainable water management and development in Baja California, Sur*. Sustainable Cities International.
6. Mark Berman, Jeremy Springer, Pepper Smith, and **Erik Porse**. *Expert Meeting Report: Energy Savings You Can Bank On*. Alliance for Residential Building Innovation. February 2013.
5. *California Zero Net Energy Buildings Cost Study*. Report written by Davis Energy Group under contract to Pacific Gas and Electric. December 19, 2012. (contributing author).
4. Berman, M.; Smith, P.; **Porse, E.** (2012). *Strategy Guideline: Mitigation of Retrofit Risk Factors*. National Renewable Energy Laboratory. 29 pp.; NREL Report No. SR-5500-56669; DOE/GO-102012-3811.
3. **Porse, Erik C.** (2005). *Technology, Innovation, and Telecommunications Policy in Mexico*. George Mason University School of Public Policy.
2. Soukup, Raymond J., Harry J. Simpson, **Erik C. Porse**, Jason E. Summers, and Robert F. Gragg. *Geoacoustic Physical Modeling Rough Surface Scattering 2 Experiment*. November 24, 2004. NRL/MR-MM/7140--04-8827.
1. Soukup, Raymond J., Harry J. Simpson, and **Erik C. Porse**. *Geoacoustic Physical Modeling Elastic Parabolic Equation 1 Experiment*. November 24, 2004. NRL/MR-MM/7140--04-8826.

RESEARCH EXPERIENCE

- 2017-present California State University, Sacramento- Sacramento, CA
 Research Engineer, *Office of Water Programs*
- Researcher and projects engineer working on integrated water management and stormwater projects in support of state and regional agencies
 - Develop research and publications on systems analysis for urba water management
 - Work with and advise CSUS students
- 2017-present UCLA Institute of the Environment and Sustainability- Los Angeles, CA
 Visiting Assistant Researcher, *California Center for Sustainable Communities*
- Collaborate with UCLA researchers on water and energy management systems analysis projects

- 2016-2017 UCLA Institute of the Environment and Sustainability- Los Angeles, CA
Associate Research Director, *California Center for Sustainable Communities*
- Co-direct current research projects in water and energy management, using data-driven methods to assess sustainable future designs
- 2014-2016 UCLA Institute of the Environment and Sustainability- Los Angeles, CA
Postdoctoral Researcher, *California Center for Sustainable Communities*
- Led systems analysis research examining intersections of physical infrastructure and institutional governance for groundwater, stormwater, and water supply systems in Los Angeles
- 2014 Technical University of Denmark- Copenhagen, Denmark
PhD Fellow
- Research in planning and management of wet-weather stormwater and urban drainage systems for climate change adaptation in Northern Europe
- 2011-2014 University of California, Davis- Davis, CA
Ph.D. Candidate
- Modeled technological, sociological, and environmental factors of evolution in urban water infrastructure, including case study applications in Los Cabos, Mexico, and California
 - Assessed performance, resilience, and connectivity of urban infrastructure networks
- 2011-2014 University of California, Davis- Davis, CA
National Science Foundation REACH IGERT Trainee
- Participated in the Responding to Rapid Environmental Change (REACH) Integrative Graduate Education and Research Traineeship (IGERT), a 2-year program focused on interdisciplinary training.
- 2013 Sustainable Cities International (SCI)- Vancouver, BC, Canada and Los Cabos, Mexico
Affiliated Researcher
- Worked with SCI and a Mexico-based urban sustainability planning organization, IMPLAN, to implement modeling and risk analysis of water planning and management into urban landscape redevelopment projects for mixed recreational and water management ends.
- 2004-2005 George Mason University School of Public Policy- Arlington, VA
Graduate Research Assistant
- Researched theory on technology, culture and economic development, technology forecasting, and procurement in the semiconductor, IT, nanotechnology, and computer industries.
- 2002- 2005 U.S. Naval Research Laboratory- Washington, DC
Research Engineer
- Performed fundamental and applied research and development in acoustics.
 - Develop visual and mathematical *Matlab* algorithms to identify trends in large data sets.

AWARDS

Climate Change and Stormwater Management in Copenhagen. American-Scandinavian Foundation. Research and travel support. Summer 2014.

CHI University Grant Program. Computational Hydraulics International (CHI). Research support. February 2014.

Stormwater Management Practices in Southern California. UC Davis Center for Watershed Sciences. Research and travel support. September 2013-March 2014.

Optimizing Innovative Stormwater Management Practices Using Urban Land Cover. UC Davis REACH IGERT. One year of graduate study support. September 2013-August 2014.

Managing Arroyos in Los Cabos: Analysis of integrated sustainable water management and development in Baja California Sur. UC Davis REACH IGERT. Research support. Summer 2013.

U.S. Mexico Collaborative Solutions for Water Resources Management. University of California Institute for Mexico and the United States (UC-MEXUS). Research and travel support. April 2013.

UC Davis REACH-IGERT Traineeship. University of California, Davis, Department of Evolution and Ecology. Two years of graduate support. 2011-2013.

Tau Beta Pi Laureate. June 2002.

University of Hartford Ribicoff Prize: outstanding graduating senior. May 2002.

Citations of Achievement for Analytical Contributions from FBI Director Robert Mueller

TEACHING EXPERIENCE

- 2009 Earlham College- Tanzania and Richmond, Indiana
Adjunct Professor and East Africa Program co-leader
Courses: Urban and Rural Development, Ecology and Animal Behavior, East African History
- 2005-2007 George Mason University, Department of Public and International Affairs- Arlington, VA
Adjunct Professor
Courses: Research Methods for Social Science (undergraduate)
- 2004-2005 George Mason University School of Public Policy- Arlington, VA
Graduate Teaching Assistant
Courses: Public Policy Evaluation (graduate)

PRESENTATIONS AND POSTERS

20. **Porse, Erik C.**, *The Dollars and Sense of Local Water Supplies in Los Angeles* (2017). UCLA Sustainable LA Grand Challenges Water Research Symposium. Los Angeles, CA.

19. **Porse, Erik C.**, *Dynamic Centrality in an Urban Resource Network* (2017). International Society for Industrial Ecology. Chicago, IL.
18. **Porse, Erik C.**, *Energy Efficiency in Los Angeles Schools* (2017). International Society for Industrial Ecology. Chicago, IL.
17. **Porse, Erik C.**, *Systems Analysis for Local Water Reliance in Los Angeles: The Artes Project* (2017). ASCE Environment and Water Resources International Congress. Sacramento, CA
16. **Porse, Erik C.**, and Stephanie Pincetl. (2016). *Social and Political Dimensions of Urban Water Use in Los Angeles*. Urban Water Demand Research Roundtable workshop. Denver, CO.
15. **Porse, Erik C.**, and Stephanie Pincetl. (2016). *Can Smart Cities Exacerbate Inequality?* Smart + Sustainable Cities workshop. American Association of Geographers 2016 Annual Meeting.
14. **Porse, Erik C.** (2016). *Local Water Use in Los Angeles*. Presentation. 2016 NSF Water, Sustainability, and Climate Pls Workshop. Washington, D.C.
13. **Porse, Erik C.** (December 15, 2015). *Evolving Groundwater Rights and Management in Metropolitan Los Angeles: Implications for Water Supply and Stormwater*. Poster, 2015 American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. (Poster)
12. **Porse, Erik C.** (April 22, 2015). *Managing Water Scarcity in Future Cities: What Makes Sense to Sense?* Center for Information Technology Research in the Interest of Society (CITRIS). Special seminar series on Resilience. University of California, Berkeley.
11. **Porse, Erik C.** (Feb. 9-11, 2015). *Evolution of Groundwater Rights in Metropolitan Los Angeles*. Poster, 2015 NSF Water, Sustainability, and Climate Pls Workshop. Washington, D.C.
10. **Porse, Erik C.** (June 1-5, 2014). *Network Visualization and Analysis for Water Distribution Systems: Examples from California*. 2014 Environmental and Water Resources International (EWRI) Congress. Portland, OR
9. **Porse, Erik C.** (June 1-5, 2014). *Targets, Risks, and Runoff: Metropolitan Scale Stormwater Management*. Poster, 2014 Environmental and Water Resources International (EWRI). Portland, OR
8. **Porse, Erik C.** (February 24-26, 2014). *Connectivity in California Water Resources Infrastructure*. California Water and Environmental Modeling Forum.
7. Climate Change and the Future of Groundwater in California. (2014). **Moderator**. Davis, CA. April 16.
6. UC-Davis Science Communication Workshop. (2014). **Co-Organizer**. Davis, California. March 5-7.
5. Josue Medellin-Azuara, Andrew Bell, Alvar Escriva-Bou, Quinn Hart, Rui Hui, Jay R. Lund, **Erik Porse**, Samuel Sandoval Solis, Nicholas Santos, and David Waetjen. (February 24-26, 2014). *The HOBBS Project at Year One*. California Water and Environmental Modeling Forum.

4. Dedrick, Allison, Shahla Farzan, Matt Hamilton, **Erik Porse**, Gabriel Sampson, and Derek Young. (September 2013). *Managing Juniper for Multiple Goals*. 2013 REACH IGERT Stakeholder Conference. UC Davis (also organized conference).
3. **Porse, Erik C.** (June 2013). *Integrated Decision Modeling for Groundwater Management in the Valle de México*. Worldwide Workshop for Young Environmental Scientists. Paris, France.
2. Sandoval Solis, Samuel; **Porse, Erik C.** (May 2013). *Optimizing Human, Environmental and International Water Management for the Rio Grande/Rio Bravo Basin: The Big Bend National Park*. Presentation at World Environmental and Water Resources Congress (EWRI) 2013. Cincinnati, OH.
1. **Porse, Erik C.** (October 2012). *Environmental Informatics*. TEDx Sacramento Cities 2.0 event. Sacramento, CA.

Over 75 presentations given to policy-makers and high-level political appointees (2005-07)

PEER REVIEWS

Peer-review of articles for: *Environmental Science and Technology*; *Energy Policy*; *Journal of Infrastructure Systems*; *Journal of American Water Resources Association*; *Water Resources Research*; *Journal of Water Resources Planning and Management*; *Environmental Modeling and Software*; *Environment, Development, and Sustainability*, *Urban Water Journal*; *MDPI Water*; *MDPI Hydrology*; *Hydrology: Current Research*, *Journal of Water Supply: Research and Technology*, and *International Journal of Environmental Engineering*.

SKILLS

- Linear and non-linear optimization modeling software, including CPLEX, GAMS, and GUROBI
- *Python*, *Matlab*, and *Visual Basic* programming
- GIS applications, including *GRASS GIS*, *QGIS*, and *ArcGIS*.
- Network analysis software
- HTML, PHP, SQL programming, web design, and website management
- Policy analysis tools including *Lexis-Nexis*, U.S. government sources, and international sources.
- Statistical software packages, including *SPSS*, *SAS*, *GeoDa*, and *R*.

AFFILIATIONS

ASCE & Environmental and Water Resources International Congress
American Geophysical Union member
American Association of Geographers member

LANGUAGES

English- Fluent, Kiswahili- Elementary, German- Intermediate, Spanish- Elementary