

DEPARTMENT of BIOLOGICAL & ECOLOGICAL ENGINEERING
OREGON STATE UNIVERSITY

John S. Selker

Distinguished Professor April 2017- current

Professor - July 2000 – March 2017

Associate Professor - July 1995 - June 2000

Assistant Professor - July 1991 - June 1995

Visiting professorships: INIA Quilamapu, Chile (1998-99; 2000); EPFL, Switzerland (2005-2006); CNRS Toulouse, France (2012); ETH Zurich, Switzerland (2016-17, 2018); University of Rennes, France (2017); Delft Technical University, Netherlands (2017).

EDUCATION

Ph.D., Agricultural Engineering, Hydrology, Cornell University, Ithaca, New York, 1991.

M.S., Agricultural Engineering, Hydrology, Cornell University, Ithaca, New York, 1989.

B.A., Physics (thesis), Reed College, Portland, Oregon, 1981.

CONSULTING AND RESEARCH EXPERIENCE

Ongoing Research (8/91-present)

Professor, Oregon State University Department of Biological & Ecological Engineering. 12 mo. position: 75% research, 25% teaching. Research includes vadose zone processes, basin scale hydrologic analysis, development of distributed environmental sensing systems, hydrological instrumentation, study of colloidal transport processes. Teaching activities include the developing of four courses, and initiation and coordination of campus wide restructuring of hydrology courses and the establishment of the Water Resources Graduate Program.

Co-Director, The Trans-African Hydro-Meteorological Observatory (TAHMO.org; 2011-present)

Founded and lead a novel public-private partnership to measure and make available the observation of the sub-Sahara. Currently the largest single data source for African Weather and climate, with 500 stations reporting 12 parameters each 5 min across 20 countries. Provide all data freely to host countries and researchers, and support by selling data at the continental scale to large companies and agencies.

Co-Director, The Center for Transformative Environmental Sensing (CTEMPs.org; 2009-present)

With Dr. Scott Tyler of UNR, provide training, instruments, and technical support to scientists around the world for the application of distributed temperature sensing (DTS), unmanned aerial systems (UAS) to make critical observation of environmental processes. NSF-supported facility currently in its 4th round of funding, having contributed to the training of over 500 scientists, and over 100 peer-reviewed publications.

Principal Investigator, Openly Published Environmental Sensing laboratory (Open Sensing.org; 2016-present)

Provide novel environmental sensing solutions based on combinations of MEMs sensors, 3-D printed components, microprocessor control systems, and wireless communication to solve distributed environmental sensing problems. Currently funded under a 5-year USDA grant, the lab has hosted researchers from Germany, Switzerland, Taiwan, and Israel, and is currently opening sister OPEnS labs in Ghana (KNUST), Switzerland (ETH-Univ Zurich), Minneapolis (Univ. Minn), and India (IIT).

Co-Owner, SelkerMetrics Engineering (2009-present)

Develop solutions for identification of interactions between groundwater and engineered surfaces using distributed fiber optic temperature sensing. Approx \$250k/yr in revenue.

Post-Doctoral Research Associate, Cornell University (1/91- 6/91)

Designed and built large-scale (2 m x 1.5 m) 2-d chamber for observation of infiltration in unsaturated porous media for investigation of influence of sloping textural interfaces on infiltration.

Ph.D. Research. Rapid Transport to Groundwater: Unstable Flow (9/88-12/90)

Showed the existence of unstable flow in a broader class of environments than previously observed. Derived and experimentally verified exact analytical solutions to the governing 2nd-order non-linear PDE for flow through unsaturated media.

Electric Power Research Institute (EPRI) (89-90)

Consulting Engineer. Statistical model of failure probability of underground petroleum piping systems.

M.S. Research. Modeling Daily Precipitation and Erosion (9/87-12/88)

Developed a novel calibration procedure and derived new 1-parameter precipitation model with 3.8 times lower χ^2 error in fitting historical data than best previous single-parameter model.

Sensor Link Corp (86-87) Everett, WA

Developed analytic model for the temperature response of magnetic proximity switches used in the design the largest manufacturers in the field. Lead engineer mechanical analysis thin shell spring pressure switch.

Consultant for International Development in Africa and Asia (85-87)

Intermediate Technology Development Group (ITDG) Sri Lanka 1985-1987

German Agency for Technical Cooperation (GTZ) Kenya 1985-1986

Volunteer in Technical Assistance (VITA) Somalia 1985

UNICEF Somalia 1985

CARE Kenya 1985

Mouse Systems Corp. (84) Santa Clara, CA

Director of development of high resolution optical mouse including VLSI opto-electronic device. 16 years later continues to be standard equipment on workstations built by SUN and available for PC's.

U.S. Dept. of Agriculture (82-83) at Oregon State University

Designer/engineer precision solid state feed-back controlled experimental chamber for diurnal study of climatic response of micro-biological systems.

Brookhaven National Laboratory / Stanford Linear Accelerator Center (SLAC) (Summers 79-80)

Designed and built ultra-highspeed ($< 10^{-9}$ s) amplifiers and computer-detector interfaces.

Professional Organizations

American Society for the Advancement of Science (Life Member)

American Geophysical Union (Life member)

Editorships

Associate editor, Chilean Journal of Agricultural Research (1998-Current)

Associate editor, Journal of the Soil Science Society of America – Soil Physics (1999-2002)

Associate editor, Advances in Water Resources (2000- 2014)

Associate Editor, Water Resources Research (2004- 2009)

Editor, Water Resources Research (2009-2012)

Other Service

Member, Vadose Zone Committee, AGU. (1995-2015)

Member, Horton Medal Committee, AGU (2000-2003)

Member, Student Poster Evaluation Committee, AGU Hydrology Section (2000-2003)

Convener, Special Section on Nonlinear dynamics in Hydrology, Fall 2000 AGU meeting.
Chair, Consortium of Universities for the Advancement of Hydrologic Science Inc., Standing Committee on Instrumentation. (2001-2009)
Facilitator, NRC special committee panel on groundwater fluxes (2002)
Board of Directors (2002-2009) Consortium of Universities for Advancement of Hydrologic Sciences Inc
Director, National Hydrological Instrumentation Facility (NSF funded) (2005-2009)
Co-Director, Center for Transformative Environmental Monitoring Programs (CTEMPs) (NSF funded 2009-indefinite)

AWARDS

1992 Young Faculty Fellow, U.S. Department of Energy, \$100,000 over two-year period.
1994 Selected as member of Gamma Sigma Delta Agricultural Honor Society.
1994 State of Oregon ESP Team Award for participation in water quality programs in Lane County.
1994 OSU Search for Excellence Award, OSU Extension Service.
1997 OSU Search for Excellence Award, OSU Extension Service.
1998 Cited by Transactions of the ASAE for excellence in Editorial Review
2010 Community Service Award, Consortium of Universities for the Advancement of Hydrological Sciences Incorporated (CUAHSI)
2013 Fellow of the American Geophysical Union (0.1% of members/yr)
2013 National Ground Water Association Jim Heim Award for Science and Technology

PUBLICATIONS

Refereed Journal Articles

1. Selker, J.S., and D.A. Haith. Calibration and Testing of Single Parameter Probability Distributions of Daily Precipitation Amounts. *Water Resour. Res.* 26 (11):2733-2740. 1990.
2. Selker, J.S., D.A. Haith and J. Reynolds. Calibration and Testing of a Daily Rainfall Erosivity Model *Trans. Amer. Soc. Ag. Eng.* 35(5):1612-1618. 1990.
3. Selker, J.S., J.-Y. Parlange, and T.S. Steenhuis. Comment on Baker, R.S. and D. Hillel, Laboratory Tests of a Theory of Fingering During Infiltration into Layered Soil *Soil Sci. Soc. Am. J.* 55:896. 1991.
4. Selker, J.S. Comment on Tensiometer Data Acquisition System for Hydrological Studies Requiring High Temporal Resolution by J.W. Nyhan and B.J. Drennon, *Soil Sci. Soc. Am. J.* 55:1803. 1991.
5. Selker, J.S., P.L. Leclercq, T.S. Steenhuis and J.-Y. Parlange. Fingering Flow in Two Dimensions Part 1: Measurement of Matric Potential. *Water Resour. Res.* 28(9):2513-2521. 1992.
6. Selker, J.S., J.-Y. Parlange, and T.S. Steenhuis. Fingering Flow in Two Dimensions Part 2: Predicting Finger Moisture Profile. *Water Resour. Res.* 28(9); 2523-2528. 1992.
7. Boll, J., J.S. Selker and T.S. Steenhuis. Fiberglass Wicks for Sampling Water and Solutes in the Vadose Zone. *Soil Sci. of Am. J.* 56:701-707. 1992.
8. Selker, J.S., T.S. Steenhuis and J.-Y. Parlange. Wetting Front Instability in Homogeneous Sandy Soils under Continuous Infiltration. *Soil Sci. Soc. of Am. J.* 56(5):1346-1350. 1992.
9. Selker, J.S., L. Graff and T.S. Steenhuis. A Non-Invasive TDR Moisture Measurement Probe. *Soil Sci. Soc. Am. J.* 57:934-936. 1993.
10. Liu, Y., B.R. Bierck, J.S. Selker, T.S. Steenhuis and J.-Y. Parlange. High Intensity X-Ray and Tensiometer Measurements in Rapidly Changing Preferential Flow Fields. *Soil Sci. Soc. Am. J.* 57:1188-1192. 1993.
11. Selker, J.S. Expressions for the Formation of Load Casts in Soft Sediment. *J. Sed. Petro.* 63(6):1149-1151. 1993.
12. Knutson, J., S.B. Lee, W.Q. Zhang, and J.S. Selker. Fiberglass Wick Preparation for use in Passive Capillary Wick Soil-Pore-Water Samplers. *Soil Sci. Soc. Am. J.* 57:1474-1476. 1993.
13. Selker, J.S. Comment on 'Comparison of Three Methods for Assessing Soil Hydraulic Properties' by G.B. Paige and D. Hillel. *Soil Sci.* 157:115. 1994.
14. Knutson, J.H. and J.S. Selker. Unsaturated Hydraulic Conductivities of Fiberglass Wicks and Designing Capillary Wick Pore-Water Samplers. *Soil Sci. Soc. Am. J.* 58:721-729. 1994.

15. Steenhuis, T.S., J. Boll, G. Shalit, J.S. Selker and I.A. Merwin. A Simple Equation for Predicting Preferential Flow Solute Concentrations. *J. Environ. Qual.* 23:1058-1064. 1994.
16. Kelly, S.F., J.S. Selker and J. Green. Short High Resolution TDR Probes to Measure Water Content in High Salinity Soils. *Soil Sci. Soc. Am. J.* 59(1):97-102. 1995.
17. Rimmer, A., T.S. Steenhuis and J.S. Selker. One-Dimensional Model to Evaluate the Performance of Wick Samplers in Soils. *Soil Sci. Soc. Am. J.* 59:88-92. 1995.
18. Rimmer, A., T.S. Steenhuis, J.S. Selker and G. J. Albrecht. Wick Samplers: An Evaluation of Solute Travel Times. *Soil Sci. Soc. Am. J.* 59:235-243. 1995.
19. Schroth, M.H., J.D. Istok, S.J. Ahearn and J.S. Selker. Geometry and Position of Light Nonaqueous Phase Liquid Lenses in Water-Wetted Porous Media. *J. Contam. Hydro.* 19:269-287. 1995.
20. Brandi-Dohrn, F.M., C. Leibundgut, R.P. Dick, and J.S. Selker. Collecting tracers in the vadose zone, *Tracer Technologies for Hydrological Systems*, IAHS 229, 1995.
21. Knutson, J.H. and J.S. Selker. Fiberglass Wick Effects on Solute Travel Time and Dispersion of Application in Monitoring Vadose Zone Chemical Transport. *Soil Sci. Soc. Am. J.* 60:420-424. 1996.
22. Brandi-Dohrn, F., R.P. Dick, M. Hess and J.S. Selker. Suction Cup Sampler Bias in Leaching Characterization of an Undisturbed Field Soil. *Water Resour. Res.* 32:1173-1182. 1996.
23. Selker, J.S. Application of Preferential Flow Concepts to Horticultural Water Management. *Hort. Tech.* 6:107-110. 1996.
24. Selker, J.S., T.S. Steenhuis and J.-Y. Parlange. An Engineering Approach to Fingering of Vadose Pollutant Transport. *Geoderma.* 70:197-206. 1996.
25. Schroth, M.H., S.J. Ahearn, J.S. Selker and J.D. Istok. Characterization of Miller-Similar Silica Sands for Laboratory Hydrologic Studies. *Soil Sci. Am. J.* 60:1331-1339. 1996.
26. Brandi-Dohrn, F.M., R.P. Dick, M. Hess, and J.S. Selker. Field Evaluation of Passive Capillary Samplers. *Soil Sci. Soc. Am. J.* 60:1705-1713. 1996.
27. Brandi-Dohrn, F.M., R.P. Dick, D.D. Hemphill and J.S. Selker. Nitrate Leaching Under a Cereal Rye Cover Crop. *J. Env. Qual.* 26:181-188. 1997.
27. Selker, J.S. Design of Interface Shape for Protective Capillary Barriers. *Water Resour. Res.* 33:259-260. 1997.
28. Kelly, S.F., J.L. Green, J.S. Selker. Fertilizer Ion Movement in a Protected Diffusion Zone. *J. Amer. Soc. Hort. Sci.* 122:122-128. 1997.
29. Fry, V.A., J.S. Selker and S.M. Gorelick. Experimental Investigations for Trapping Oxygen Gas in Saturated Porous Media for In Situ Bioremediation. *Water Resour. Res.* 33:2687-2696. 1997.
30. Boll, J., J.S. Selker, G. Shalit, and T.S. Steenhuis. Frequency Distribution of water and solute transport properties derived from pan sampler data. *Water Resour. Res.* 33: 2655-2664. 1997.
31. Duan, J., J.S. Selker and G. Grant. Evaluation of Stochastic Daily Precipitation Models for the Pacific Northwest, West of the Cascade Range. *Journal of the American Water Resources Association*, 34(3):617-627. 1998.
32. Schroth, M. H., J.D. Istok and J.S. Selker. Three-Phase Immiscible Fluid Movement in the Vicinity of Textural Interfaces. *Journal of Contaminant Hydrology.* 32:1-23. 1998.
33. Selker, J.S. and M.H. Schroth. Evaluation of Hydrodynamic scaling in porous media using finger dimensions. *Water Resour. Res.* 34:1875-80. 1998.
34. Smesrud, J.K. and J.S. Selker. Field Sampling Considerations for the Stem Nitrate Test in Peppermint. *Comm in Soil Sci. and Plant Anal.* 29:3073-3091. 1998.
35. Schroth, M.H., J.D. Istok, J.S. Selker, M. Oostrom and M.D. White. Multifluid flow in Bedded Porous Media: Laboratory, Experimental and Numerical Simulations. *Advances in Water Resources.* 22:169-183. 1998.
36. Selker, J.S., J. Duan, and Y.-J. Parlange. Green and Ampt infiltration into soils of variable pore size with depth. *Water Resour. Res.* 35:1685-1688. 1999.
37. Smesrud, J.K., and J.S. Selker. Post-Harvest Water Requirements of Peppermint. *Commun. Soil Sci. Plant Anal.* 30:1657-166. 1999.
38. Walter, M.T., J.-S. Kim, T.S. Steenhuis, J.-Y. Parlange, A. Heilig, R.D. Braddock, J.S. Selker and J.

- Boll. Funneled Flow mechanisms in a sloping layered soil: Laboratory investigations. *Water Resour. Res.* 36:841-849. 2000.
39. Louie, M.J. and J.S. Selker. Sprinkler Head Maintenance Effects on Water Application Uniformity. *ASCE J. of Irr. and Drainage.* 126:142-148. 2000.
 40. Lockington, D.A., Y.-J. Parlange, M.B. Parlange and J.S. Selker. Similarity Solutions of the Boussinesq Equation. *Adv. Water Resour.* 23:725-729. 2000.
 41. Louie, M.J., P.M. Shelby, J.S. Smesrud, L.O. Gatchell and J.S. Selker. Field evaluation of passive capillary samplers for estimating groundwater recharge. *Water Resour. Res.* 36:2407-2416. 2000.
 42. Smesrud, J.K. and J.S. Selker. An analytical solution for normal irrigation distribution parameters. *ASCE J. Irrig. and Drain. Div., ASCE.* 127(1):45-48. 2001.
 43. Chen, C., R. Sugar, R.J. Roseberg, and J.S. Selker. Effect of micro-sprinkler irrigation on pear fruit growth and post-harvest quality. *HortTechnology.* 11(1):56-61. 2001.
 44. Rupp, D.E., J.S. Selker and J. Simunek. A modification to the Bower and Rice method of slug test analysis for large-diameter, hand-dug wells. *Groundwater.* 39(2):308-314. 2001
 45. Niemet, M., J.S. Selker. A new method for quantification of liquid saturation in 2-d translucent porous media systems using light transmission. *Adv. Water Resour.* 24:651-666. 2001.
 46. Smesrud, J.K. and J.S. Selker. Effect of Soil Particle Size Contrast on Capillary Barrier Performance. *J. Geotech. and Geoenv. Eng.* 127(10):885-888. 2001.
 47. Zhang, L., J.S. Selker, A. Qu, and A.Velayudhan. Numerical estimation of multi-component adsorption isotherms in preparative chromatography: implications of experimental error. *J. Chromatography A.* 934 (1-2):13-29. 2001.
 48. Kelly, S.F. and J.S. Selker. Osmotically driven water vapor transport in unsaturated soil. *Soil Sci. Soc. Am. J.* 65:1634-1641. 2001.
 49. Uesugi, S., R. Yarwood, J.S. Selker and P.J. Bottomley. A model that uses the induction phase of *lux* gene-dependent bioluminescence in *Pseudomonas Fluorescens* HK44 to quantify cell density in translucent porous media. *J. Microbiol. Meth.* 47:315-322. 2001.
 50. Selker, J.S. Breaking the cycle of futility in Hydrosociences. *Hydrol. Process* 16:743-744. 2002.
 51. Chen, C., R.J. Roseberg, and J.S. Selker. Using micro-sprinkler irrigation to reduce leaching in a shrink/swell clay soil. *Agricultural Water Management.* 54(2):159-171. 2002.
 52. Yarwood, R.R., M.L. Rockhold, M.R. Niemet, J.S. Selker and P.J. Bottomley. Noninvasive Quantitative Measurement of Bacterial growth in Porous Media under Unsaturated Flow. *Appl. Env. Microbio.* 68(7):3597-3605. 2002.
 53. Rockhold, M.L., R.R. Yarwood, M.R. Niemet, P.J. Bottomley and J.S. Selker. Considerations for modeling bacterial-induced changes in hydraulic properties of variably saturated porous media. *Adv. Water Resour.* 25:477-495. 2002.
 54. Niemet, Michael R., M.L. Rockhold, N. Weisbrod, and J.S. Selker. Relationships between gas-liquid interfacial surface area, liquid saturation and light transmission in variably saturated porous media. *Water Resour. Res.* 38(8):10.1029. 2002.
 55. Minshew, H., J.S. Selker, D. Hemphill, and R.P. Dick. NLEAP Computer Model and Multiple Regression Prediction of Nitrate Leaching in Vegetable Systems. *HortTechnology.* 12(2):250-256. 2002.
 56. Blume, T., N. Weisbrod, and J.S. Selker. Permeability changes in layered sediments: impact of particle release. *Groundwater.* 40(5):466-474. 2002.
 57. Weisbrod, N., M.R. Niemet, and J.S. Selker. Imbibition of saline solutions into dry and pre-wetted porous media. *Advances in Water Resources.* 25:841-855. 2002.
 58. Flint, L.E., and J.S. Selker. Use of Porosity to Estimate Hydraulic Properties of Volcanic Tuffs. *Adv. Water Res.* 26(5):661-671. 2003.
 59. Deinert, M., J.-Y. Parlange, K.B. Cady, T.S. Steenhuis, and J.S. Selker. Comment on "On the Continuum-Scale Modeling of Gravity Driven Fingers in Unsaturated Porous Media: The Inadequacy of the Richards Equation with Standard Monotonic Constitutive Relations and Hysteretic Equations of State" by Eliassi and Glass. *Water Resour. Res.*, 39 (9):1263, DOI: 10.1029/2002WR001785. 2003.

60. Flint, L.E., A.L. Flint, and J.S. Selker. Influence of Transitional Volcanic Strata on Lateral Diversion at Yucca Mountain, Nevada. *Water Resour. Res.* 39(4) 10.1029/2002WR001503. 2003.
61. Weisbrod, N., M.R. Niemet, and J.S. Selker. A light transmission technique for the evaluation of colloidal transport and dynamics in porous media. *Env. Sci. & Tech.* 37:3694-3700. 2003.
62. Weisbrod, N., M.R. Niemet, T. McGinnis, and J.S. Selker. Water vapor transport in the vicinity of imbibing saline solution: homogenous and layered systems. *Water Resour. Res.* 39 (6) .1145, DOI: 10.1029/2002WR001539. 2003.
63. Selker, J.S. A Cross-Cultural view of the fascination in soil science research: A perspective from Oregon to the Secano. *J. Soil Science and Plant Nutrition*, 3(2):13-21. 2003.
64. Rockhold, M.L., R.R. Yarwood, and J.S. Selker. Coupled Microbial and Transport Processes in Soils, *Vadose Zone J.* 3:368-383. 2004.
65. Selker, J.S., Review of "Modeling Variably Saturated Flow with HYDRUS-2D." *Vadose Zone J.* 3: 725. 2004.
66. Weisbrod, N., M.R. Niemet, M.L. Rockhold, T. McGinnis, and J.S. Selker. Migration of saline solutions into variably saturated porous media. *J. Contam. Hydro.* 72:109-133. 2004.
67. Rupp, D.E., J.M. Owens, K.L. Warren, and J.S. Selker. Analytical methods for estimating saturated hydraulic conductivity in a tile-drained field. *J of Hydro.* 289:111-127. 2004
68. Blume, T., N. Weisbrod, and J.S. Selker. On the critical salt concentrations for particle detachment in homogeneous sand and heterogeneous Hanford sediments. *Geoderma*, 124(1-2):121-132. 2005.
69. Rockhold, M. L., R.R. Yarwood, M.R. Niemet, P.J. Bottomley, and J.S. Selker. Experimental observations and numerical modeling of coupled microbial and transport processes in variably saturated sand. *Vadose Zone J.* 4:407-417. DOI:10.2136/vzj2004.0087. 2005.
70. Li, L., D.A. Lockington, M.B. Parlange, F. Stagnitti, D.-S. Jeng, J.S. Selker, A.S. Telyakovskiy, D.A. Barry, and J.-Y. Parlange. Similarity solution of axisymmetric flow in porous media. *Adv. Water Resour.* 28(10): 1076-1082. 2005.
71. Selker, J.S. and D.E. Rupp. An environmentally driven time integrating water sampler. *Water Resour. Res.* 41. W09201, DOI:10.1029/2005WR004040. 2005.
72. Rupp, D.E. and J.S. Selker. Drainage of a horizontal Boussinesq aquifer with a power-law hydraulic conductivity profile. *Water Resour. Res.* 41. DOI:10.1029/2005WR004241. 2005.
73. Selker, J.S., Hydrologic Measurement Facility Conducts User Survey, *Eos Trans. AGU*, 86(47), 486, 10.1029/2005EO470005. 2005.
74. Rupp, D.E., K. Warren, E. Peachy and J.S. Selker. Diuron in Surface Runoff and Tile Drainage from Two Grass-Seed Fields. *J. Env. Qual.* 35:303-311. 2006.
75. Rupp, D.E. and J.S. Selker. Information, artifacts, and noise in $dQ/dt - Q$ recession analysis. *Adv. Water Resour.* 29(2):154-160. 2006.
76. Burns, E.R., J.Y. Parlange, J.S. Selker, and R.B. Guenther. Thermodynamic Correction for Salts in Variably Saturated Porous Media. *Transport in Porous Media.* 63(3):381-398. 2006.
77. Parker, L.R. Yarwood, and J.S. Selker. Observations of Gas Flow in Porous Media using a Light Transmission Technique. *Water Resour. Res.*, DOI:10.1029/2005WR004080. 2006.
78. Kizito, F., M. Dragila, M. Sène, A. Lufafa, I. Diedhiou, R.P. Dick, J.S. Selker, E. Dossa, M. Khouma, A. Badiane and S. Ndiaye. Seasonal soil water variation and root patterns between two semi-arid shrubs co-existing with Pearl millet in Senegal, West Africa. *J Arid Environ.* 67(3):436-455. 2006.
79. Burns E. R., J.S. Selker, J.-Y. Parlange, and R.B. Guenther. Effects of sodium chloride on constitutive relations in variably saturated porous media, *Water Resour. Res.* DOI:10.1029/2005WR004060. 2006.
80. Robinson, D., J. Selker, B. Bowden, J. Duncan, J. Durant, R. Hooper, J. Jacobs, and R. Knight. Survey Provides Guidance for Consortium's Hydrologic Measurement Facility. *Eos Trans. AGU*, 87(23), 222, 10.1029/2006EO230004. 2006.
81. Ochiai, N., E. Kraft and J.S. Selker. Methods for visualization of colloid transport in pore networks. *Water Resour. Res.* DOI: 10.1029/2006WR004961. 2006.
82. Selker, J.S., M. Niemet, N.G. McDuffie, S.M. Gorelick, and J.-Y. Parlange. The Local Geometry of

- Gas Injection into Saturated Homogeneous Porous Media. *Transport in Porous Media*. DOI: 10.1007/s11242-006-0005-0. 2006.
83. Selker, J.S., L. Thévenaz, H. Huwald, A. Mallet, W. Luxemburg, N. van de Giesen, M. Stejskal, J. Zeman, M. Westhoff, and M.B. Parlange. Distributed Fiber Optic Temperature Sensing for Hydrologic Systems. *Water Resour. Res.* DOI:10.1029/2006WR005326. 2006.
 84. Yarwood, R.R., M.L. Rockhold, M.R. Niemet, J.S. Selker, and P. J. Bottomley. Impact of Microbial Growth on Water Flow and Solute Transport in Unsaturated Porous Media. *Water Resour. Res.* 2006.
 85. Selker, J.S., N. van de Giesen, M. Westhoff, W. Luxemburg, and M. Parlange. Fiber Optics Opens Window on Stream Dynamics. *Geophys. Res. Lett.* DOI:10.1029/2006GL027979. 2006.
 86. Rupp, D.D. and J.S Selker. On the use of the Boussinesq equation for interpreting recession hydrographs from sloping aquifers. *Water Resour. Res.* DOI:10.1029/2006WR005080. 2006.
 87. Barry, D., J.-Y. Parlange, M. Liu, G. Sander, M. Parlange, D. Lockington, F. Stagnitti, S. Assouline, J.S. Selker, D. Jeng, T.S. Steenhuis, L. Li, R. Haverkamp, and W. Hogarth. 2006, Infiltration and ponding, *Encyclopedia of life support systems*, Eolss Publishers Co Ltd, Oxford, England.
 88. Assouline, S., J.S. Selker and J.-Y. Parlange. A simple accurate method to predict time of ponding under variable intensity rainfall. *Water Resour. Res.* DOI:10.1029/2006WR005138. 2007.
 89. Westhoff, M.C., H.H.G. Savenije, W.M.J. Luzemburg, G.S. Stelling, N.C. van de Giesen, J.S. Selker, L. Pfister, and S. Uhlenbrook. A distributed stream temperature model using high resolution temperature observations. *Hydrol. Earth Syst. Sci.*, 11, 1469-1480. 2007.
 90. Burns, E.R., M.I. Dragila, J.S. Selker, R.B. Guenther, J.-Y. Parlange and N. Weisbrod. Correction of the Buckingham–Darcy Law for flow of high strength salts in variably saturated porous media. *Ad. Water Resour* 30:469–482. 2007.
 91. Rockhold, M.L., R.R. Yarwood, M.R. Niemet, P.J. Bottomley, F.J. Brockman, and J.S. Selker. Visualization and Modeling of the Colonization Dynamics of a Bioluminescent Bacterium in Variably Saturated, Translucent Quartz Sand. *Ad. Water Resour.* 30:1593–1607. 2007.
 92. McDonnell, J.J., M. Sivapalan, K. Vache, S. Dunn, G. Grant. R. Haggerty, C. Hinz, R. Hooper, J. Kirchner, M.L. Roderick, J.S. Selker, and M. Weiler. Moving Beyond Heterogeneity and Process Complexity: A New Vision for Watershed Hydrology. *Water Resour. Res.* DOI:10.1029/2006WR005467. 2007.
 93. Kizito F, M. Sene, M.I. Dragila, A. Lufafa, I. Diedhiou, E. Dossa, R.C. Cuenca, J.S. Selker, and R.P. Dick. Soil Water Balance of Annual Crop–Native Shrub Systems in Senegal’s Peanut Basin: The Missing Link. *Agricultural Water Management* 90, 137-148. 2007.
 94. Bou-Zeid, E., H. Huwald, U. Lemmin, J.S. Selker, C. Meneveau and M. B. Parlange. Atmospheric Surface Layer Turbulence over Water Surfaces and Sub-Grid Scale Physics. *Springer Proceedings in Physics, Advances in Turbulence XI*, pg 517-519. DOI 10.1007/978-3-540-72604-3_164. 2007.
 95. Ferre, T.P.A. and J.S. Selker. A Glass Always Half Full: Reconsideration of the Wales Apparatus to Apply Constant Head Boundary Conditions. *Water Resour. Res.* 43, W12503, DOI: 10.1029/2007WR005889. 2008.
 96. Moffett, K.B., S.W. Tyler, T. Torgersen, M. Menon, J.S. Selker, and S.M. Gorelick. Processes Controlling the Thermal Regime of Salt Marsh Channel Beds. *Environ. Sci. Technol.* 42:671-676. 2008.
 97. Robinson, D.A., C.S. Campbell, J.W. Hopmans, B.K. Hornbuckle, S.B. Jones, R. Knight, F. Ogden, J.S. Selker, and O. Wendroth. Soil Moisture Measurement for Ecological and Hydrological Watershed-Scale Observatories: A Review. *Vadose Zone J.* 25:358–389. DOI: 10.2136/vzj2007.0143. 2008.
 98. Tyler, S.W., S.A. Burak, J.P. McNamara, A. Lamontagne, J.S. Selker, and J. Dozier. Spatially Distributed Temperatures at the Base of Two Mountain Snowpacks Measured with Fiber Optic Sensors. *I. J. Glaciology.* 54(187):673-679. 2008.
 99. Selker, J.S. J. Gabrielli, C. Gregory, C. Sayde, N. Tuffillaro, R. Haggerty, A. Kennedy, R. Harris, E. Hester, S. Tyler, M. Hausner, F. Day-Lewis, J. Lane, R. Henderson, R. Tanner, S. Senften, C. Soto,

- A. Sawyer, A. Marzadri, P. Gerla, and B. Gungl. Taking the Temperature of Ecological Systems with Fiber Optics, *Eos Trans. AGU*, 89(20). 2008.
100. Vercauteren N., E. Bou-Zeid, M.B. Parlange, U. Lemmin, H. Huwald, J.S. Selker, C. Meneveau. Subgrid-Scale Dynamics of Water Vapor, Heat, and Momentum over a Lake. *Boundary-Layer Meteorology*. 128:205-228. 2008.
 101. Friesen, J., C. van Beek, J.S. Selker, H. H. G. Savenije, and N. van de Giesen. Tree Rainfall Interception Measured by Stem Compression, *Water Resour. Res.*, 44, W00D15, DOI:10.1029/2008WR007074. 2009.
 102. Tyler, S. W., J.S. Selker, M.B. Hausner, C.E. Hatch, T. Torgersen, C.E. Thodal, and G. Schladow. Environmental Temperature Sensing using Raman Spectra DTS Fiber-Optic Methods. *Water Resour. Res.*, DOI:10.1029/2008WR007052. 2009.
 103. Selker, J.S., J.D. Suter, R.H. Cuenca, B.A. Flugstad, and S.F. Kelly. Tension Infiltrometer Enhancements with Automated Pneumatic Control and More Durable Baseplate. *Water Resour. Res* DOI:10.1029/2008WR007075. 2009.
 104. Kumar, P., T.H. Illangasekare, G.C. Sander, J.S. Selker, and T. Torgersen. Editorial: Building on the Legacy of Water Resources Research. *Water Resour. Res.*, DOI:10.1029/2009WR008174. 2009.
 105. Nadeau D.F., W. Brutsaert, M.B. Parlange, E. Bou-Zeid, G. Barrenetxea, O. Couach, M.-O. Boldi, J.S. Selker, and M. Vetterli. Estimation of Urban Sensible Heat Flux Using a Dense Wireless Network of Observations. *Environ. Fluid Mech.* DOI 10.1007/s10652-009-9150-7. 2009.
 106. Selker, J.S., and T.P.A. Ferre. The Ah Ha Moment of Measurement: Introduction to the Special Section on Hydrologic Measurement Methods. *Water Resour. Res.*, 45, W00D00, DOI:10.1029/2009WR007966. 2009.
 107. Rupp, D.E., R.F. Keim, M. Ossiander, M. Brugnach, and J.S. Selker. Time Scale and Intensity Dependency in Multiplicative Cascades for Temporal Rainfall Disaggregation. *Water Resour. Res.*, 45, W07409, DOI:10.1029/2008WR007321. 2009.
 108. Hoes, O.A.C., W.M.J. Luxemburg, M.C. Westhoff, N.C. van de Giesen, and J.S. Selker. Identifying seepage in ditches and canals in polders in the Netherlands by distributed temperature sensing. Vol. 11, No.2 *International Association of Lowland Technology (IALT)*, ISSN 1344-9656. 2009.
 109. Weisbrod, N., T McGinnis, M.L. Rockhold, M.R. Niemet, and J.S. Selker. Effective Darcy-scale contact angles in porous media imbibing solutions of various surface tensions. *Water Resour. Res.*, VOL. 45, W00D39, doi:10.1029/2008WR006957. 2009.
 110. Feaga, J.B., J. S. Selker, R.P. Dick and D.D. Hemphill. Long-Term Nitrate Leaching Under Vegetable Production with Cover Crops in the Pacific Northwest. *Soil Sci. Soc. Am. J.* 74:186–195. 2009.
 111. Roth, T.R., M. C. Westhoff, H. Huwald, J. A. Huff, J. F. Rubin, G. Barrenetxea, M. Vetterli, A. Parriaux, J. S. Selker and M. B. Parlange, Stream Temperature Response to Three Riparian Vegetation Scenarios by Use of a Distributed Temperature Validated Model, *Environ. Sci. Technol.*, 44 (6), pp 2072–2078, DOI: 10.1021/es902654f. 2010.
 112. Steele-Dunne, S.C., M.M. Rutten, D.M. Krzeminska, M. Hausner, S.W. Tyler, J.S. Selker, T.A. Bogaard, and N.C. van de Giesen. Feasibility of soil moisture estimation using passive distributed temperature sensing. *Water Resour. Res.*, 46, W03534, doi:10.1029/2009WR008272. 2010.
 113. Assouline, S, K. Narkis, S.W. Tyler, I. Lunati, M.B. Parlange, and J.S. Selker. On the Diurnal Soil Water Content Dynamics during Evaporation using Dielectric Methods *Vadose Zone J.*, 9 (3): 709-718. 2010.
 114. Sayde, C., C. Gregory, M. Gil-Rodriguez, N. Tuffillaro, S. Tyler, N. van de Giesen, M. English, R. Cuenca, and J.S. Selker. Feasibility of soil moisture monitoring with heated fiber optics, *Water Resour. Res.*, 46, W06201, doi:10.1029/2009WR007846. 2010.
 115. Selker, J.S. A two-color twist on test taking. *Physics today*, 63(6):60-61. 2010.
 116. Rupp, D.E., O. Reckmann, J. Vergara, H. Uribe, and J.S. Selker. Unconfined aquifer permeability near hand-dug wells in the coastal and interior dryland of the libertador general Bernardo O'Higgins Region, Chile, *Chilean Journal of Agricultural Research*, 71:(2)267-274. 2010.

117. Petrides, A.C., J. Huff, A. Arik, N. van de Giesen, A.M. Kennedy, C.K. Thomas, and J.S. Selker. Shade estimation over streams using distributed temperature sensing, *Water Resour. Res.*, 47, W07601, doi:10.1029/2010WR009482. 2011.
118. Suárez, F., M.B. Hausner, J. Dozier, J.S. Selker and S.W. Tyler. Heat Transfer in the Environment: Development and Use of Fiber-Optic Distributed Temperature Sensing, *Developments*, Chapter 31 in *Heat Transfer*, Marco Aurélio dos Santos Bernardes (Ed.), ISBN: 978-953-307-569-3, InTech, 26 pp. Available from: <http://www.intechopen.com/articles/show/title/heat-transfer-in-the-environment-development-and-use-of-fiber-optic-distributed-temperature-sensing>. 2011.
119. Vercauteren, N., H. Huwald, E. Bou-Zeid, J.S. Selker, U. Lemmin, M.B. Parlange, and I. Lunati. Evolution of Superficial Lake Water Temperature Profile Under Diurnal Radiative Forcing. *Wat. Resour. Res.* 47 W09522, doi:10.1029/2011WR010529. 2011.
120. Suárez, F., M.B. Hausner, J. Dozier, J.S. Selker, and S.W. Tyler, S.W. Heat Transfer in the Environment: Development and Use of Fiber-Optic Distributed Temperature Sensing. pp. 611-636 *In* M.A. dos Santos Bernardes [ed.], *Developments in Heat Transfer*, ISBN 978-953-307-569-3, Intech, doi: 10.5772/19474. 2011.
121. Hausner M.B.; F. Suarez, K. Glander, N.C. van de Giesen, J.S. Selker and S.W. Tyler. Calibrating Single-Ended Fiber-Optic Raman Spectra Distributed Temperature Sensing Data, *Sensors* 11:(11)10859-10879, DOI: 10.3390/s111110859. 2011.
122. Selker, J.S. and R. Stewart. Review of “Soil Physics with HYDRUS: Modeling and Applications,” *Vadose Zone Journal*, 10: 4: 1338-1339, doi:10.2136/vzj2011.0085br. 2011.
123. Thomas, C.K., A.M. Kennedy, J.S. Selker, A. Moretti, M.H. Schroth, A.R. Smoot, N.B. Tuffillaro, and M.J. Zeeman. High-resolution fibre-optic temperature sensing: A new tool to study the two-dimensional structure of atmospheric surface layer flow. *Boundary-Layer Meteorol*, 142: 177-192. DOI: 10.1007/s10546-011-9672-7. 2012.
124. Huwald, H., J.S. Selker, S.W. Tyler, M. Calaf, N.C. van de Giesen, and M.B. Parlange. Carbon monoxide as a tracer of gas transport in snow and other natural porous media, *Geophys Res. Lett.*, 39, L02504, doi:10.1029/2011GL050247. 2012.
125. Stewart, R., M.R. Abou Najm, D.E. Rupp, and J.S. Selker. An Image-Based Method for Determining the Soil Shrinkage Curve, *Soil Science Society of America*, doi:10.2136/sssaj2011.0276n. 2012.
126. Stewart, R., M.R. Abou-Najm, D.E. Rupp, and J.S. Selker. Measurement Tool for Dynamics of Soil Cracks, *Vadose Zone Journal*, v. 11, p. vzj2011.0048, doi:10.2136/vzj2011.0048. 2012.
127. van de Giesen, N., S. Steele-Dunne, J. Jansen, O. Hoes, M. B. Hausner, S.W. Tyler, and J.S. Selker. Double-Ended Calibration of Fiber-Optic Raman Spectra Distributed Temperature Sensing Data. *Sensors*. *Sensors* 12(5), 5471-5485; doi:10.3390/s120505471. 2012.
128. Kizito, F., M.I. Dragila, M. Senè, R.J. Brooks, F.C. Meinzer, I. Diedhiou, M. Diouf, A. Lufafa, R.P. Dick, J.S. Selker, and R. H Cuenca. Hydraulic Redistribution by Two Semi-arid Shrub Species: Implications for Sahelian Agro-ecosystems. *J. Arid Environments*. 83:69-77. 2012.
129. Stewart, R.D., R. Hut, D.E. Rupp, H. Gupta, J.S. Selker. A Resonating Rainfall and Evaporation Recorder, *Water Resour. Res.*, Vol. 48, No. 8, W08601 doi 10.1029/2011WR011529. 2012.
130. Oldroyd, H.J., C.W. Higgins, H. Huwald, J.S. Selker, and M.B. Parlange. Thermal diffusivity of seasonal snow determined from temperature profiles, *Ad. Water Resour.*, ISSN 0309-1708, 10.1016/j.advwatres.2012.06.011. 2013.
131. Kurth, A.-M., N. Dawes, J.S. Selker, and M. Schirmer. Autonomous distributed temperature sensing for long-term heated applications in remote areas. *Geosci. Instrum. Method. Data Syst.*, 2, 71-77, doi:10.5194/gi-2-71-2013. 2013.
132. Troch, P.A. A. Berne, P. Bogaart, C. Harman, A.G. J. Hilberts, S.W. Lyon, C. Paniconi, V.R.N. Pauwels, D.E. Rupp, J.S. Selker, R. Teuling, R. Uijlenhoet, and N. E.C. Verhoest. The importance of hydraulic groundwater theory in catchment hydrology: The legacy of Wilfried Brutsaert and Jean-Yves Parlange. *Water Resour. Res.*, 49(1-18) doi:10.1002/wrcr.20407. 2013.
133. Assouline, S., S.W. Tyler, J.S. Selker, I. Lunati, C.W. Higgins, M.B. Parlange. Evaporation from a shallow water table: Diurnal dynamics of water and heat at the surface of drying sand. *Water Resour. Res* 49(7):1944-7973. DOI 10.1002/wrcr.20293. 2013.

134. Bailey, D.A., J.S. Owen, J. Wagner, and J.S. Selker. In-Situ Performance and Usability of a Distributed, Wireless Sensor Network via Mesh Connectivity at a Production Container Nursery, *Applied Engineering in Agriculture* 29(5): 779-782 DOI: 10.13031/aea.29.10006. 2013.
135. Stewart, R.D., D.E. Rupp, M.R. Abu-Najm, and J.S. Selker. Modeling effect of initial soil moisture on sorptivity and infiltration. *Wat. Resour. Res.*, DOI: 10.1002/wrcr.20508. 2013.
136. Barry, D.A., G.C. Sander, S. Jomaa, L. Yeghiazarian, T.S. Steenhuis and J.S. Selker. Solute and sediment transport at laboratory and field scale: Contributions of J.-Y. Parlange, *Wat. Resour. Res.*, DOI: 10.1002/wrcr.20510. 2013.
137. Bogaart, P.A, D.E. Rupp, J.S. Selker, and Y. van der Velde. Late-Time Drainage from a Sloping Boussinesq Aquifer, *Water Resour. Res.*, DOI: 10.1002/2013WR013780. 2013.
138. Steenhuis, T.S., C.E. Baver, C.R. Stoof, B. Hasanpour, D.A. DiCarlo, and J.S. Selker. Pore scale consideration in unstable gravity driven finger flow. *Water Resour. Res.*, DOI: 10.1002/2013WR013928. 2013.
139. Stewart, R.D. M.R. Abou-Najm, D.E. Rupp, and J.S. Selker, Non-destructive quantification of macropore volume using shear thinning fluid, *Soil Sci. Soc. Am. J.* doi:10.2136/sssaj2013.08.0346. 2014.
140. Selker, J.S., G. Sander, T. Steenhuis, D.A. Barry, and W.P. Kustas, Learning from the scientific legacies of W. Brutsaert and J.-Y. Parlange, *Water Resour. Res.*, DOI: 10.1002/2013WR015147. 2014.
141. Arnon, A, N. Levsky, and J.S. Selker, High resolution temperature sensing in the Dead Sea using fiber optics, *Water Resour Res.* DOI: 10.1002/2013WR014935. 2014.
142. Selker, F.K., and J.S. Selker, Flume testing of underwater seep detection using temperature sensing on or just below the surface of sand or gravel sediments, *Water Resour. Res.* 50, 4530–4534, DOI: 10.1002/2014WR015257. 2014.
143. Read, T., O. Bour, J.S. Selker, V. Bense, T. Le Borgne, R. Hochreutener, and N. Lavenant, Active-Distributed Temperature Sensing to continuously quantify vertical flow in boreholes, *Water Resour. Res.*, 50, 3706–3713, doi:10.1002/2014WR015273. 2014.
144. Selker, J.S., F.K. Selker, J. Huff, R. Short, D. Edwards, P. Nicholson, and A. Chin, Practical strategies for identifying groundwater discharges into sediment and surface water with fiber optic temperature measurement, *Environmental Science: Processes & Impacts*, DOI: 10.1039/C3EM00716B, 2014.
145. Selker, J.S., S. Tyler, and N. van de Giesen, Comment on “Capabilities and limitations of tracing spatial temperature patterns by fiber-optic distributed temperature sensing by L. Rose, S. Krause, and N.J. Cassidy,” *Water Resour. Res.* 50, 5372–5374, doi:10.1002/2013WR014979. 2014.
146. Van de Giesen, N., R. Hut, and J.S. Selker. The Trans-African Hydro-Meteorological Observatory (TAHMO), *WIRES Water*, DOI: 10.1002/wat2.1034, 2014.
147. Arnon, A, N. Levsky, and J.S. Selker. Correcting artifacts in transition to a wound optic fiber: example from high resolution temperature profiling in the Dead Sea, *Wat. Resour. Res.* 50, 5329–5333, doi:10.1002/2013WR014910. 2014.
148. Uribe, H., D.E. Rupp, J.L. Arumí, R.D. Stewart, J.S. Selker, Assessment of current and potential yield of hand-dug wells in a semi-arid zone in south-central Chile using an analytical methodology, *Chilean Journal of Agricultural Research*, 74 (2), 219-224, 2014.
149. Sayde, C., J. Benitez Buelga, L. Rodriguez-Sinobas, L. El Khoury, M. English, N. van de Giesen and J.S. Selker. Mapping variability of soil water content and flux across 1–1000 m scales using the actively heated fiber optic method, *Wat. Resour. Res.*, DOI: 10.1002/2013WR014983. 2014.
150. Benítez-Buelga, J., C. Sayde, L. Rodríguez-Sinobas, and J.S. Selker. Heated fiber optic distributed temperature sensing for measuring soil volumetric heat capacity and water content: A dual probe heat-pulse approach, vol 13 no 11, *Vadose Zone Journal*, doi:10.2136/vzj2014.02.0014. 2014.
151. Scherberg, J., T. Baker, J.S. Selker, and R. Henry. Design of Managed Aquifer Recharge for Agricultural and Ecological Water Supply Assessed Through Numerical Modeling, *Water Resour. Manage.*, DOI 10.1007/s11269-014-0780-2. 2014.

152. Zeeman, M.J., J.S. Selker, and C.K. Thomas. Near-Surface Motion in the Nocturnal Stable Boundary Layer Observed with Fibre-Optic Distributed Temperature Sensing. *Boundary-Layer Meteorol.*, 154:189-205, DOI 10.1007/s10546-014-9972-9, 2015.
153. Stewart, R.D., Z. Liu, D. E. Rupp, C. W. Higgins, and J. S. Selker. A New Instrument to Measure Plot-Scale Runoff, *Geosci. Instrum. Method. Data Syst.* 4, 57–64, doi:10.5194/gi-4-57-2015. 2015.
154. Stewart, R.D., D.S. Moreno, and J.S. Selker. Quantification and scaling of infiltration and percolation from a constructed wetland. *ASCE Journal of Hydrologic Engineering*, doi: 10.1061/(ASCE)HE.1943-5584.0001164. 2015.
155. O'Donnell-Meiningner, T., and J.S. Selker. Bed conduction impact on fiber optic DTS water temperature measurements, *Geosci. Instrum., Methods and Data Systems*, 4, 19–22, doi:10.5194/gi-4-19-2015. 2015.
156. Stewart, R.D., M.R. Abou-Najm, D.E. Rupp, J.W. Lane, H.C. Uribe, J.L. Arumí, and J.S. Selker. Hillslope runoff thresholds with shrink-swell clay soils. *Hydro. Proc.*, 29(4):557–571, DOI: 10.1002/hyp.10165. 2015.
157. Read, T., V. Bense, O. Bour, T. Le Borgne, N. Lavenant, R. Hochreutener, and J.S. Selker. Thermal Plume fibre Optic Tracking (T-POT) test for flow velocity measurement in groundwater boreholes. *Geoscientific Instrumentation, Methods and Data Systems*. 5 (5):161-175. 2015.
158. Selker, J.S., S.W. Tyler, C. Higgins, and M. Wing. Drone Squadron to Take Earth Monitoring to New Heights, *EOS 96(19):8-11 plus cover*, DOI:10.1029/2015EO035405. 2015.
159. Sayde C., C.K. Thomas, J. Wagner, and J.S. Selker, High-resolution wind speed measurements using actively heated fiber optics. *Rev. Geophys. Lett.* 42, doi:[10.1002/2015GL066729](https://doi.org/10.1002/2015GL066729). 2015.
160. Stewart, R.D., D.E. Rupp, M.R. Abou-Najm, and J.S. Selker. A unified model for soil shrinkage, subsidence, and cracking. *Vadose Zone Journal*, 15(3), doi:10.2136/vzj2015.11.0146. 2016.
161. Benítez-Buelga, J., C. Sayde, L. Rodríguez-Sinobas, R. García-Calvo, M. Gil-Rodríguez, and J.S. Selker. Calibration of Moisture Sensing with Subsurface Heated Fiber Optics using Numerical Simulation, *Wat. Resour. Res.*, 52(4): 2985-2995, doi:10.1002/2015WR017897. 2016.
162. Drake, S.A., H. Huwald, M.B. Parlange, J.S. Selker, A.W. Nolin, and C.W. Higgins. Attenuation of wind-induced pressure perturbations in alpine snow. *J. of Glaciology*, 62 (234), 674-683. 2016.
163. Hilgersom K.P., T.H.M. van Emmerik, A. Solcerova, W.R. Berghuijs, J.S. Selker, and N.C. van de Giesen. Practical considerations for enhanced-resolution coil-wrapped Distributed Temperature Sensing. *Geosci. Instrum. Method. Data Syst.*, 5:151-162, DOI 10.5194/gi-5-151-2016. 2016.
164. Huang, X., C.B. Andrews, J. Liu, Y. Yao, C. Liu, S.W. Tyler, J.S. Selker, C. and Zheng. Assimilation of temperature and hydraulic gradients for quantifying the spatial variability of streambed hydraulics. *Wat. Resour. Res.* 52 (8), 6419-6439, doi:10.1002/2015WR018408, 2016.
165. Arnon, A., J.S. Selker, and N.G. Lensky. Thermohaline stratification and double diffusion diapycnal fluxes in the hypersaline Dead Sea. *Limnology and Oceanography*, 61(4), 1214-123, doi: 10.1002/lno.10285. 2016.
166. Stewart, R.D., D.E. Rupp, M.R. Abou Najm, and J.S. Selker. Modeling multi-domain hydraulic properties of shrink-swell soils, *Water Resour. Res.*, 52 (10), 7911-7930, DOI 10.1002/2016WR019336. 2016.
167. Bense, V.F., T. Read, O. Bour, T. Le Borgne, T. Coleman, S. Krause, A. Chalari, M. Mondanos, F. Ciocca, and J.S. Selker (2016), Distributed Temperature Sensing as a downhole tool in hydrogeology, *Water Resour. Res.*, 52, 9259–9273, doi:10.1002/2016WR018869.
168. Dong, J., S.C. Steele-Dunne, T.E. Ochsner, C.E. Hatch, C. Sayde, J.S. Selker, S.W. Tyler, M.H. Cosh, and N. van de Giesen. Mapping high-resolution soil moisture and properties using distributed temperature sensing data and an adaptive particle batch smoother, *Wat. Resour. Res.*, 52(10): 7690–7710, 10.1002/2016WR019031. 2016.
169. Stewart, R., D. Moreno, C.T. Gregory, and J.S. Selker, Evaluation of infiltration discharge as a strategy to meet effluent temperature limits, *ASCE J Sustainable Water in the Built Environment*, 3(1), DOI 10.1061/JSWBAY.0000818. 2017.
170. Drake, S.A., J.S. Selker, and C.W. Higgins. A trace gas method of evaluating interstitial air advection and diffusion in snow. *The Cryosphere Discuss.*, doi:10.5194/tc-2017-9. 2017.

171. Drake, S.A., J.S. Selker, and C.W. Higgins. A low-cost acoustic permeameter. *Geosci. Instrum. Method. Data Syst.*, 6:199–207. doi:10.5194/gi-6-199-2017. 2017.
172. Shakas A., N. Linde, L. Baron, J.S. Selker, M.-F. Gerard, N. Lavenant, O. Bour, and T. Le Borgne. Neutrally-Buoyant Tracers in Hydrogeophysics: Field Demonstration in Fractured Rock. *Geophys. Res. Lett.*, 44 (8), 3663–3671, DOI: 10.1002/2017GL073368. 2017.
173. Cheng, Y., C. Sayde, Q. Li, J. Basara, J.S. Selker, E. Tanner, and P. Gentine. Failure of Taylor's hypothesis in the atmospheric surface layer and its correction for eddy-covariance measurements, *Geophys. Res. Lett.*, 10.1002/2017GL073499, 44 (9), 4287–4295. 2017.
174. van Emmerik, T., S. Steele-Dunne, R. Hut, P. Gentine, M. Guerin, R. Oliveira, J. Wagner, J.S. Selker, and N. van De Giesen. Measuring Tree Properties and Responses Using Low-Cost Accelerometers, *Sensors*, 17(5), 1098; doi:10.3390/s17051098. 2017.
175. Selker, J.S. Analytical estimation show low depth-independent water loss due to vapor flux from deep aquifers, *Wat. Resour. Res.*, 53, 4562–4563, doi:10.1002/2017WR021014. 2017.
176. Assouline, S. and J.S. Selker. Introduction and evaluation of a Weibull hydraulic conductivity - pressure head relationship for unsaturated soils. *Wat. Resour. Res.*, 53, 4956–4964, doi:10.1002/2017WR020796. 2017.
177. Selker, J.S. and S. Assouline. An Explicit, Parsimonious and Accurate Estimate for Poned Infiltration into Soils using the Green and Ampt Approach. *Water Resour. Res.*, 53, 7481–7487, doi: 10.1002/2017WR021020. 2017.
178. Drake, S.A, J.S. Selker, and C.W. Higgins. Wind enhances differential air advection in surface snow at sub-meter scales, *The Cryosphere*. 11, 2075–2087, <https://doi.org/10.5194/tc-11-2075-2017>. 2017.
179. Roques, C., D.E. Rupp, and J.S. Selker. Improved streamflow recession parameter estimation with attention to calculation of $-dQ/dt$. *Ad. Wat. Resour.*, 108:29–43, doi.org/10.1016/j.adwatres.2017.07.013, 2017.
180. Vitale, M., Selker, F., Selker, J., Young, P., Downhole Distributed Temperature Sensing in Fractured Rock. *Journal of the Nevada Water Resources Association*, p. 17–31. DOI: 10.22542/4, 2017.
181. Dezfuli, A.K., C.M. Ichoku, G.J. Huffman, K.I. Mohr, J.S. Selker, N. van de Giesen; R. Hochreutener, F.O. Annor. Validation of IMERG precipitation in Africa. *Journal of Hydrometeorology*. 18:2817–2825, DOI 10.1175/JHM-D-17-0139.1 2017.
182. Pai, H., Malenda, H., Briggs, M., Singha, K., González-Pinzón, R., Gooseff, M., Tyler, S. W. & the AirCTEMPS Team (incl. J.S. Selker). Potential for Small Unmanned Aircraft Systems applications for identifying groundwater-surface water exchange in a meandering river reach. *Geophysical Research Letters*, 44. <https://doi.org/10.1002/2017GL075836>. 2017.
183. Tauro, F, J.S. Selker, and 28 others, Measurements and Observations in the XXI century (MOXXI): innovation and multi-disciplinarity to sense the hydrological cycle. *Hydrological Sciences Journal*, DOI 10.1080/02626667.2017.1420191. 2018.
184. Roques, C., D.E. Rupp, E. Jachens and J.S. Selker. Comment on: "Base flow recession from unsaturated-saturated porous media considering lateral unsaturated discharge and aquifer compressibility," by Liang, X., H. Zhan, Y.-K. Zhang, and K. Schilling (2017), *Wat. Resour. Res.*, 54, 3217–3219. <https://doi.org/10.1002/2017WR022085>, 2018.
185. Selker, F. and J.S. Selker, Investigating Water Movement Within and Near Wells Using Active Point Heating and Fiber Optic Distributed Temperature Sensing, *Sensors*, <https://doi.org/10.3390/s18041023>, 2018.
186. Klepikova, M., C. Roques, S. Loew, and J.S. Selker. Improved characterization of groundwater flow in heterogeneous aquifers using granular polyacrylamide (PAM) gel as temporary grout, *Wat. Resour. Res.*, 54:1410–1419, doi 10.1002/2017WR022259, 2018.
187. Solcerova, A., T. van Emmerik, F. van de Ven, J.S. Selker, N. van de Giesen, Skin effect of fresh water measured using Distributed Temperature Sensing, *Water*, 10, 214; doi:10.3390/w10020214, 2018.
188. Nash, C, P. Noel, G. Gran, and J.S. Selker, A physical framework for evaluating net effects of wet meadow restoration on late summer streamflow, *Ecohydrology*, 11:e1953. <https://doi.org/10.1002/eco.1953> 2018.

189. Kurnianto, S., J.S. Selker, J. Boone Kauffman, D. Murdiyarso, J.T. Peterson, The influence of land-cover changes on the variability of saturated hydraulic conductivity in tropical peatlands, in Mitigation Adaptation Strategies for Global Change. <https://doi.org/10.1007/s11027-018-9802-3>. 2018.

Patents

1. Selker, F.K., and J.S. Selker. Monitoring movement in fluid-containing environment via variable heating. United States Patent 9,557,437, January 31, 2017.

Books/Chapters

1. Steenhuis, T.S., J. Boll, E. Jolles, and J.S. Selker. Field Evaluation of Wick and Gravity Pan Samplers. In: Vadose Zone Characterization and Monitoring: Principles, Methods, and Case Studies. Everett, L., S. Cullen and L. Wilson, Eds. Lewis Press. Chelsea, MI. 1995.
2. Selker, J.S., K. Keller, J. McCord. Vadose Zone Processes. CRC/Lewis Press, Boca Raton, FL. 339 pp. 1999.
3. Hopmans, J.W., J.M. Hendrickx, J.S. Selker. Emerging Techniques for Vadose Zone Characterization. In: Vadose Zone Hydrology. Oxford Press. 1999.
4. Selker, J.S. Passive Capillary Samplers. Section 6.1.3.2 in Methods of Soil Analysis, Part 4. SSSA. Pg 1266-1269. 2002.
5. McCord, J and J.S. Selker. Transport Phenomena and Vulnerability of the Unsaturated Zone. EOLSS Encyclopedia of Life Support Systems. Approx 150 pg, on line at <http://www.eolss.net/>. 2003.
6. Steenhuis, T.S., Y.J. Parlange, Y.-J. Kim, D.A. DiCarlo, J.S. Selker, P.A. Nektarios, D.A. Barry, and F. Stagnitti. Unstable Flow, in: Encyclopedia of Soils in the Environment, Editor-in-Chief: Daniel Hillel, Elsevier Ltd., Oxford, U.K. 2005.

Proceedings and Symposia

1. Steenhuis, T.S., J.R. Hagerman, S.O. Aburime, N.O. Bailey, J.S. Selker and J. Boll. In Situ Vadose Zone Water Quality Sampling: Methods for Preferential Flow Conditions, ASTM Symposium on Ground Water and Vadose Zone Investigations: Through the 1980s and Into the 1990s, San Diego, CA. 36 pp. 1991.
2. Selker, J.S., T.S. Steenhuis, and J-Y. Parlange. Engineering Estimates of Loading via Fingering Flow, the Proceedings of the American Society of Civil Engineers National Conference on Irrigation and Drainage Engineering. pp. 81-87. Honolulu, Hawaii. July 23-25, 1991.
3. Steenhuis, T.S., J.S. Selker, J. Bell, and K-J.S. Kung. Effects of Soil Layering on Infiltration, the Proceedings of the American Society of Civil Engineers National Conference on Irrigation and Drainage Engineering. pp. 74-80. Honolulu, Hawaii. July 23-25, 1991.
4. Boll, J., J.S. Selker, B.M. Nijssen, T.S. Steenhuis, J. VanWinkle and E. Jolles. Water Quality Sampling Under Preferential Flow Conditions. p290-298 IN: R.G. Allen, T.A. Howell, W.O. Pruitt, I.A. Walter, and M.E. Jensen (eds.) Lysimeters for Evapotranspiration and Environmental Measurements, Proceedings of the ASCE International Symposium on Lysimetry. Honolulu, Hawaii. July 23-25, 1991. American Society of Civil Engineers, New York, NY.
5. Selker, J.S., T.S. Steenhuis and J-Y. Parlange. Theory and Laboratory Experiments of Fingering Structure in Unstable Flow, Proceedings of the International Hydrology and Water Resources Symposium, The Institution of Australian Engineers. Perth, Australia. pp. 817-823. October 12-16, 1991.
6. Kung, K-J.S., J. Boll, J.S. Selker, W.F. Ritter and T.S. Steenhuis. Use of Ground Penetrating Radar to Improve Water Quality Monitoring in the Vadose Zone, in Proceedings of Preferential Flow Symposium. pp. 142-149. Hyatt Regency. Chicago, IL. December 16-17, 1991.
7. Liu, Y., T.S. Steenhuis, J-Y. Parlange and J.S. Selker. Hysteretic Finger Phenomena in Dry and Wetted Sands, in Proceedings of Preferential Flow Symposium. pp. 160-172. Hyatt Regency, Chicago, IL, December 16-17, 1991.
8. Frankenfield, J. and J.S. Selker. Fluid Interfacial Geometry at the Pore Scale and its Effects on

- Characteristic Curves. Proceedings of the 14th Annual Hydrology Days. pp 111-122. Colorado State University, Fort Collins, Colorado. Hydrology Days Publications. Atherton, CA. April 5-8, 1994.
9. Selker, J., Weidong Cao and R. Roseberg. Use of the Ultra-Low Rate Application Devices to Eliminate Macropore Flow During Irrigation, Proceedings of the Fifth International Microirrigation Congress, pp 54-59. Hyatt Regency Orlando. Orlando, FL. American Society of Agricultural Engineers. April 2-6, 1995.
 10. Brandi-Dohrn, F.M., C. Liebundgut, R.P Dick and J.S. Selker. Collecting Tracers in the Vadose Zone, Proceedings of the 1995 XXI General Assembly of the International Union of Geodesy and Geophysics, p 173-181 1995 Boulder, CO 12 pp. July 3-14, 1995. Boulder CO.
 11. Selker, J.S. Applying Preferential Flow Concepts to Horticultural Water Management, Salt Management Workshop Proceedings. HortTech. 6:107-110. 1996.
 12. J.-Y. Parlange, T.S. Steenhuis, R.J. Glass, J.S. Selker, Y. Liu, D. DiCarlo, T.W.J. Bauters, P. Culligan and P. Nektarios, 1998, Groundwater recharge by preferential flow, Groundwater and hydrogeology in Taiwan C. Poon, Y. Huang and C. Huang, Eds. National Taiwan Univ. Pub. pp. 1-14.
 13. Weisbrod, N., M.R. Niemet, and J.S. Selker. 2002. Exploration of colloidal transport using a light transmission technique. DIAS Report, October 2002. Plant Production (80):51-57.

Conference Presentations (approximately 300; not listed)

Other Publications

1. Shirey, E. and J.S. Selker. "The History and Development of Ovens," Cookstove News. 4(2). 1984.
2. Selker, J.S. and E. Shirey. "Design Principles of Simple Ovens." Cookstove News 5 (1). 1985.
3. Selker, J.S. and L. F. Childers. How to Make the One-Piece Ceramic Sri Lankan Stove. 1986. ITDG, Rugby, England (25 pp.).
4. Selker, J.S. and L. F. Childers. Clay Tile Manufacture; A Guide, 1986. Intermediate Technology Development Group (ITDG). Rugby, England (39 pp.).
5. Shirey, E. and J.S. Selker. "Testing Commercial Ovens for Efficiency and Overall Performance." Cookstove News. 6(1). 1986.
6. Selker, J.S. How to Build the HEDD High Efficiency Double Drum Oven. first ed. November 1984, second ed., Jan. 1987 (37 pp.). Publication rights purchased by GATE (W. Germany) 1990.
7. Selker, J.S. Wetting Front Instability in Homogeneous Soils Under Continuous Infiltration, Dissertation, Cornell University. January 1991.
8. Steenhuis, T.S., H.M. Van Es, J.-Y. Parlange, P.C. Baveye, M.F. Walter, L.D. Geohring, J.L. Hutson, .L. Richard, J.L. Bell, J. Boll, J. Gannon, Y. Liu, W.E. Sanford, M. Alexander, R.B. Bryant, J.S. Selker, Tan, P. Vandevivere, S.M.L. Verheyden, and J. Vermeulen. Hydrology and the Environment. New York's Food and Life Sciences Quarterly, 20(3):15-19. 1991.
9. Smesrud, J, M. Hess, John Selker. 1998. Western Oregon Irrigation Guides. Oregon Extension Document EM 8713. 46 pp.
10. Sattell, R., R. Dick, D. Hemphill, J. Selker, F. Brandi-Dohrn, H. Minchew, M. Hess, J. Sandeno, S. Kaufman. 1999. Nitrogen Scavenging: Using Cover Crops to Reduce Nitrate Leaching in Western Oregon. Oregon Extension Document EM 8713. 8 pp.
11. Selker, J.S., W. Cao, R. Roseberg. Ultra-low rate irrigation to eliminate macropore flow. International Water and Irrigation. 20:22-26, 2000.
12. Feaga, J. and J.S. Selker. Field Measurements of Nitrate Leaching Below Willamette Valley Row and Mint Crops. OSU Extension service EM8851 January 2004. 7 pp.
13. Feaga, J., R. Dick, M. Louie and J.S. Selker. Nitrates and Groundwater: Why Should We Be Concerned with Our Current Fertilizer Practices? OSU Agricultural Experiment Station Special Report 1050 January 2004. 21 pp.
14. Selker, J.S. Pesticides in Southern Willamette Valley Groundwater. OSU Extension service EC 1565. January 2004. 3 pp.
15. Selker, J.S and David Rupp. Groundwater and Nitrogen Management in Willamette Valley Mint Production. OSU Extension service EM8861. April 2004. 4 pp.
16. Selker, J.S. Irrigation System Maintenance, Groundwater Quality, and Improved Production. OSU

Extension service EM8862. April 2004. 3 pp.

17. Mezzo, J. G. Barrenetxea and J.S. Selker. "Un outil de mesures pour l'environnement urbain", Bulletin technique de la Suisse Romande "Tracés" n°9, p. 22-24, mai 2006.
18. Selker, J.S., Fiber Optics for Environmental Sensing. Sensors 2pp., May 2008

Invited Talks at Institutes and Universities

1997 University of Idaho
1998 University of Concepción, Chillan, Chile
2000 Johns Hopkins University
2000 Desert Research Institute/University of Nevada Reno
2001 Washington State University
2001 University of Idaho
2002 Keynote, Annual Chilean Society of Soil Scientists Meeting, Talca, Chile
2005 University of Arizona
2005 University of Brno
2006 University of Barcelona
2006 University of Cordoba
2006 University of Bologna
2006 University of Brno
2006 Institut de Mécanique des Fluides de Toulouse, France
2006 Technical University of Delft
2006, 2007, 2008, 2009, 2017 Technical University of Madrid
2007 University of Arizona
2008 Penn State University
2009 USGS Reston VA
2010 Reed College department of physics, Portland, OR
2011 Institut de Mécanique des Fluides de Toulouse, France
2011 ETH Zurich
2012 Peking University, Beijing, China
2012 Volcani Institute, Israel
2012 NATO ARW Meeting, Dead Sea, Israel
2012 Geological Survey of Israel
2012 Institute for Lifelong Learning, Corvallis, OR
2013 University of Illinois Urbana Champaign “Ven Te Chow Lecture”
2013 University of Saskatchewan “Distinguished Scientist” Lecture
2014 University of Birmingham, England
2015 CNRS Hydrogeophysics Cargese France Summer School
2015 Geological Survey of Finland
2016 Michigan Tech
2016 ETH Zurich
2016 UC Berkeley Catchment Hydrology Symposium
2017 University of Barcelona
2017 Technical University of Madrid
2017 University of Zurich
2017 ETH Zurich
2017 Freiburg University, Germany
2017 University of Rennes, France
2017 Bayreuth University, Germany
2017 University of Delaware, Mather Lecture.

Grants and Contracts

Approximately \$500,000/yr from NSF, NOAA, USDA, over \$10M in PI funds since coming to OSU.