

KATHLEEN M. SMITS, PH.D., P.E.

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Education

2007- 2010 Doctor of Philosophy in Env. Science & Engineering, Colorado School of Mines
1999- 2000 Master of Science in Civil Engineering, Water Resources, U. of Texas, Austin
1995- 1999 Bachelor of Science in Env. Engineering, United States Air Force Academy, CO

Professional Licensure

Professional Engineer – Civil Engineering: Env. and Water Resources (Colorado-#42659, Texas #134203)

Work Experience

Sept 2018 - Present: **Associate Professor, Department of Civil Engineering, The University of Texas, Arlington, TX.**

June 2018- Present: **Associate Director, Lt Col, U.S. Air Force Reserves, Environmental Engineering, Department of Civil Engineering, US Air Force Academy, CO.**

Jan 2012 –Aug 2018: **Associate Professor, Department of Civil and Environmental Engineering, Colorado School of Mines (Assistant Professor Jan 2012 – Aug 2018).**

Aug 2007-May 2018:**Operations Research Analyst, Lt Col, U.S. Air Force Reserves, U.S Northern Command (USNORTHCOM), Peterson AFB, CO.**

Sept 2010-Dec 2011: **Postdoctoral Researcher and Adjunct Faculty, Department of Environmental Science and Engineering, Colorado School of Mines.**

Aug 2007-Aug 2010: **Doctoral Candidate and Research Assistant, Department of Environmental Science and Engineering Colorado School of Mines.**

Jul 2004-Aug 2007: **Assistant Professor, Capt, U.S. Air Force, Dept. of Civil and Environmental Engineering, US Air Force Academy, CO.**

Apr 2002- Jul 2004: **Project Manager, Capt, U.S. Air Force, Civil Engineer Squadron, Langley Air Force Base, VA.**

Dec 2001-Apr 2002: **Chief, Lt, U.S. Air Force, Environmental Engineering Flight, Prince Sultan Air Base, Kingdom of Saudi Arabia.**

Jun 2000-Nov 2001: **Environmental Engineer, Lt, U.S. Air Force, Langley Air Force Base, VA.**

Honors, Awards and Recognitions

- Service Based Learning Fellow, UTA, 2020-2021
- Vadose Zone Journal Associate Editor Excellence Award, 2017, 2018, 2019
- Groundwater Monitoring and Remediation, Top downloaded paper, top citations, 2018
- Shultz Humanitarian Engineering Fellow, Colorado School of Mines, 2016-2018
- Promoted to Lieutenant Colonel, United States Air Force Reserves, 2016
- National Science Foundation (NSF) Faculty Career (CAREER) Award, 2015

- ASTM Geotechnical Testing Journal paper of the year award, 2014
- CH2MHill Graduate Student of the Year Award, Env. Sci. & Eng., CSM, 2011
- Outstanding Student Paper Award, Env. Science & Engineering, CSM, 2011
- Outstanding Student Paper Award, Env. Science & Engineering, CSM, 2010
- Outstanding Student Paper Award in Hydrology, American Geophysical Union Fall Meeting, 2008
- Outstanding Academy Educator Award for the Department of Civil and Environmental Engineering at the U.S Air Force Academy in recognition of superior teaching accomplishments and demonstrated ability to instill high standards of integrity, service and leadership in students, 2007
- Outstanding Cadet in Environmental Engineering Award, 1999

Refereed Journal Publications: (Student authors underlined, post-docs under my supervision *)
hyperlinks provided where available

Summary

44 Peer-Reviewed Manuscripts (5 in review)
 9 Articles as First Author
 20 Articles with Student First Author
 1 Book Chapter
 3 Patent Applications
 94 Meeting Abstracts
 30 Abstracts as First Author
 52 Abstracts with Student First Author.

1. Li, Z., J. Vanderborcht, **K.M. Smits**, 2020. Effect of Soil Layering on Near-surface Soil Hydrological States and Fluxes During Evaporation, *Vadose Zone J.*, *in review*.
2. **Smits, K.M.**, L. McDonald, N.M. Smith, F. Gonzalez, J. Lucena, G. Martinez, O.J. Restrepo, S. Rosas, 2019, Voces Mineras: Clarifying the future of artisanal and small-scale mining collaborations. *Extractive Industries & Society J.*, [doi:10.1016/j.exis.2019.12.003](https://doi.org/10.1016/j.exis.2019.12.003)
3. Schwartz, M., Z. Li, T. Sakaki, A. Moradi, **K.M. Smits**. 2019. Accounting for temperature effects on the performance of soil moisture sensors in sandy soils, *Soil Sci. Soc. Amer. J.*, [doi: 10.2136/sssaj2019.05.0161](https://doi.org/10.2136/sssaj2019.05.0161)
4. Regnery, J., D. Li, J. Lee, **K.M. Smits** and J. O. Sharp. 2019. Hydrogeochemical and microbiological effects of wetting and drying during simulated aquifer recharge at the 2D meso-scale, *Chemosphere*, doi.org/10.1016/j.chemosphere.2019.125116
5. Jayarathne, J.R.R.N., T.K.K. Chamindu Deepagoda, T.J. Clough, M.C.M. Nasvi, S. Thomas, B. Elberling, **K.M. Smits**, 2019. Gas-Diffusivity Based Characterization of Aggregated Agricultural Soils. *Soil Sci. Soc. Amer. J.*, *accepted*.
6. Ulrich, B.A., M. Mitton, E. Lachenmeyer, A. Hecobian, D. Zimmerle, **K.M. Smits**. 2019. Natural gas emission from underground pipelines and implications for leak detection. *Env. Sci. Tech. Lett.*, [doi: 2019067401-406](https://doi.org/10.1021/acs.estlett.2019067401)
7. Schwartz, M., N. Smith, **K.M. Smits**, 2019. Lessons from a changing engineering approach for water and sanitation can improve artisanal and small-scale mining site remediation, *J. Cleaner Production*, *in review*.
8. Gao, B., J. Farnsworth, D. Sinner, **K.M. Smits**, 2019, Study of Evaporation and wind development from permeable undulating soil surfaces under turbulent airflow, *Vadose Zone J.*, *in review*
9. O'Brien, R., T. Phelan, N. Smith, **K.M. Smits**, 2019. Lessons learned from small scale remediation projects to effectively address contamination in developing countries. *Env. Health Perspectives*, *in review*.

10. Mitton, M., **K.M. Smits**, T.K.K. Chamindu Deepagoda, C. Bell, A. Hecobian, D. Zimmerle, 2019, Subsurface methane migration from natural gas distribution pipelines as affected by soil moisture and heterogeneity: Field scale experimental study. **Int. J. Greenhouse Gas Control**, *in review*.
11. Gao, B., H. Davarzani, R. Helmig, & **K.M. Smits**, 2018. Experimental and numerical study of evaporation from wavy surfaces by coupling free flow and porous media flow. *Water Resources Research*, 54. <https://doi.org/10.1029/2018WR023423>
12. Li, Z., J. Vanderborght, **K.M. Smits**, 2018, Experimental and modeling study of soil water transport in porous media and across the land-atmosphere interface, **Trans. Porous Media**, [doi:10.1007/s11242-018-1144-9](https://doi.org/10.1007/s11242-018-1144-9)
13. Moradi, A., J. Sharp, **K.M. Smits**, 2018, Coupled thermally-enhanced bioremediation and renewable energy storage system, **Water**, 10, 1288; [doi:10.3390/w10101288](https://doi.org/10.3390/w10101288)
14. Chamindu Deepagoda, T.K.K., **K.M. Smits**, J.R.R.N. Jayarathne, B. M. Wallen, and T.J. Clough, 2018, Characterization of Grain-Size Distribution, Thermal Conductivity, and Gas Diffusivity in Variably Saturated Binary Sand Mixtures, **Vadose Zone J.**, [doi:10.2136/vzj2018.01.0026](https://doi.org/10.2136/vzj2018.01.0026)
15. Baser, T., Y. Dong, A. Moradi, N. Lu, **K.M. Smits**, S. Ge, D.M. Tartakovsky and J.S. McCartney. 2018. Role of nonequilibrium water vapor diffusion in thermal energy storage systems in the vadose zone, *J. Geotech Geoenv. Eng.*, 144(7): [DOI: 04018038](https://doi.org/10.1061/(ASCE)1090-0268(2018)144:7(04018038)).
16. Deepagoda, T.K.K., M. Mitton, and **K.M. Smits**. 2017. Effect of varying atmospheric conditions on methane boundary layer development in a coupled free flow and porous media domain, **Greenhouse Gases: Sci. & Tech.**, [DOI: 10.1002/ghg.1743](https://doi.org/10.1002/ghg.1743).
17. Regnery, J.* , Z.W. Drumheller, J. Lee, J.E. Drewes, J.E. McCray, T.H. Illangasekare, **K.M. Smits**. 2017. Understanding trace organic chemical attenuation during groundwater recharge by means of a 2D synthetic aquifer. **J. Hydrology**, 548, 641–651, [DOI: 10.1016/j.jhydrol.2017.03.038](https://doi.org/10.1016/j.jhydrol.2017.03.038).
18. Vanderborght, J., T. Fetzer, K. Mosthaf, **K.M. Smits**, and R. Helmig. 2017. Heat and water transport in soils and across the soil-atmosphere interface - Part 1: Theory and different model concepts. **Water Res. Res.**, [DOI: 10.1002/2016WR019982](https://doi.org/10.1002/2016WR019982).
19. Fetzer, T., J. Vanderborght, K. Mosthaf, **K.M. Smits**, and R. Helmig. 2017. Heat and water transport in soils and across the soil-atmosphere interface - Part 2: Numerical analysis. **Water Res. Res.**, [DOI:10.1002/2016WR019983](https://doi.org/10.1002/2016WR019983).
20. Drumheller, Z.W., **K.M. Smits**, T.H. Illangasekare, J. Regnery*, J. Lee, and P. Kitanidis. 2017. Optimal decision making algorithm for managed aquifer recharge and recovery operation using near real-time data: Benchtop scale laboratory demonstration. **Ground Water Monitoring Remed.**, [DOI:10.1111/gwmr.12198](https://doi.org/10.1111/gwmr.12198).
21. Deepagoda, C. T.K.K.* , **K.M. Smits**, and C.M. Oldenburg. 2016. Effect of subsurface soil moisture variability and atmospheric conditions on methane gas migration in shallow subsurface. **Int. J. Greenhouse Gas**. 55, 105-117. [DOI: 10.1016/j.ijggc.2016.10.016](https://doi.org/10.1016/j.ijggc.2016.10.016)
22. Moradi, A., **K.M. Smits**, N. Lu, J. McCartney. 2016. Heat transfer in unsaturated soils with application to borehole thermal energy storage. **Vadose Zone J.**, 15:10. [DOI:10.2136/vzj2016.03.0027](https://doi.org/10.2136/vzj2016.03.0027)
23. **Smits, K.M.**, E. Kirby, W.J. Massman, and L.S. Baggett. 2016. The effect of forest fires on the thermal properties of soils. **Pedosphere**, 26(4): 462–473, [DOI:10.1016/S1002-0160\(15\)60057-1](https://doi.org/10.1016/S1002-0160(15)60057-1).
24. Wallen, B., **K.M. Smits**, T. Sakaki, S. Howington, Chamindu Deepagoda T.K.K.* 2016. Thermal properties of binary sand mixtures evaluated through full water content range. **Soil Sci. Soc. Amer. J.**, 80:3, 592-603, [DOI: 10.2136/sssaj2015.11.0408](https://doi.org/10.2136/sssaj2015.11.0408).
25. Deepagoda, T.K.K.* , **K. M. Smits**, J. Ramirez, and P. Moldrup. 2016. Characterization of thermal, hydraulic, and gas diffusion properties in variably saturated sand grades. **Vadose Zone J.**, 15:4, [DOI: 10.2136/vzj2015.07.0097](https://doi.org/10.2136/vzj2015.07.0097).
26. Fetzer, T., **K.M. Smits**, R. Helmig. 2016. Effect of turbulence and roughness on coupled porous-medium/free flow exchange processes, **Trans.Porous Media**, 114:2, 395–424, [DOI 10.1007/s11242-016-0654-6](https://doi.org/10.1007/s11242-016-0654-6).
27. Pártl, O., Beneš, M., Frolkovič, P., Illangasekare, T., **Smits, K.M.**, 2016. Numerical modeling of non-isothermal gas flow and NAPL vapor transport in soil, **Comp. Phys. Comm.**, 202, 175–187, [DOI:10.1016/j.cpc.2016.01.011](https://doi.org/10.1016/j.cpc.2016.01.011).

28. Phelan, T.J., L.M. Abriola, J. Gibson, **K.M. Smits**, and J.A. Christ. 2015. Development and Application of Screening Model for Evaluating Bioenhanced Dissolution in DNAPL Source Zones **J. Cont Hydrol.**, 183, 1-15, [DOI:10.1016/j.jconhyd.2015.10.001](https://doi.org/10.1016/j.jconhyd.2015.10.001).
29. Trautz, A.C., **K.M. Smits**, A. Cihan. 2015. Continuum scale investigation of evaporation from bare soil under different boundary and initial conditions: An evaluation of non-equilibrium phase change. **Water Resour. Res.**, 51:9, 7630-7648, [DOI: 10.1002/2014WR016504](https://doi.org/10.1002/2014WR016504).
30. Moradi, A., **K.M. Smits**, J. Massey, A. Cihan and J. McCartney. 2015. Impact of coupled heat transfer and water flow on soil borehole thermal energy storage (SBTES) systems: Experimental and modeling investigation **Geothermics**, [DOI:10.1016/j.geothermics.2015.05.007](https://doi.org/10.1016/j.geothermics.2015.05.007).
31. Sakaki, T. and **K. M. Smits**. 2015. Water retention properties of binary mixtures as affected by mixing fraction, **Vadose Zone J.**, 14:2, [DOI:10.2136/vzj2014.06.0065](https://doi.org/10.2136/vzj2014.06.0065).
32. **Smits, K.**, V. Eagen, and A. Trautz. 2015. Exploring the Effects of Atmospheric Forcings on Evaporation: Experimental Integration of the Atmospheric Boundary Layer and Shallow Subsurface. **J. Vis. Exp.** (100), e52704, [DOI:10.3791/52704](https://doi.org/10.3791/52704).
33. Davarzani, H., **K.M. Smits**, R. Tolene and T.H. Illangasekare. 2014. Study of the effect of wind speed on evaporation from soil through integrated modeling of atmospheric boundary layer and shallow subsurface. **Water Resour. Res.**, 50:1, 661-680, [DOI:10.1002/2013WR013952](https://doi.org/10.1002/2013WR013952).
34. Petri, B., T.H. Illangasekare, C. Sauck, T. Sakaki, **K.M. Smits**, R. Fučík, and J. Christ. 2014. Effect of Nonaqueous Phase Liquid Source Morphology on mass transfer in the vadose zone: Experimental and Modeling Study. **Groundwater**, 53:5, 685-698, [DOI: 10.1111/gwat.12284](https://doi.org/10.1111/gwat.12284).
35. Dong, Y., N. Lu, A. Wayllace, **K.M. Smits**. 2014. Measurement of thermal conductivity function of unsaturated soil by using a transient water release and imbibition method. **Geotechnical Testing J.**, 37:6, 980-990, [DOI: 10.1520/GTJ20140046](https://doi.org/10.1520/GTJ20140046).
36. Trautz, A., **K.M. Smits**, P. Schulte, and T.H. Illangasekare. 2013. Laboratory validation and numerical testing of the sensible heat balance and heat-pulse methods to determine in situ soil-water evaporation. **Vadose Zone J.**, 13, [DOI:10.2136/vzj2012.0215](https://doi.org/10.2136/vzj2012.0215).
37. **Smits, K.M.**, A. Cihan, T. Sakaki, S.E. Howington, J.F. Peters, and T. H. Illangasekare. 2013. Experimental and modeling investigation of soil moisture and thermal behavior in the vicinity of buried objects. **IEEE Trans. in Geosci. Remote Sens.**, 51:5, [DOI: 10.1109/TGRS.2012.2214485](https://doi.org/10.1109/TGRS.2012.2214485).
38. **Smits, K.M.**, T. Sakaki, S.E. Howington, J. F. Peters and T.H. Illangasekare. 2013. Temperature dependence of thermal properties of sands over a wide range of temperatures [30-70°C], **Vadose Zone J.**, 12:1, [DOI:10.2136/vzj2012.0033](https://doi.org/10.2136/vzj2012.0033).
39. **Smits, K.M.**, A. Cihan, V. Ngo, T. Sakaki, and T.H. Illangasekare. 2012. An evaluation of models of bare soil evaporation formulated with different land surface boundary conditions and assumptions. **Water Resour. Res.**, 48:12, [DOI: 10.1029/2012WR012113](https://doi.org/10.1029/2012WR012113).
40. **Smits, K.M.**, A. Cihan, V. Ngo, and T.H. Illangasekare. 2012. Reply to comment by Michael D. Novak on “Evaporation from soils under thermal boundary conditions: Experimental and modeling investigation to compare equilibrium and nonequilibrium based approaches.” **Water Resour. Res.**, 48, [DOI:10.1029/2011WR011609](https://doi.org/10.1029/2011WR011609).
41. **Smits, K. M.**, A. Cihan, T. Sakaki, and T. H. Illangasekare. 2011. Evaporation from soils under thermal boundary conditions: Experimental and modeling investigation to compare equilibrium- and nonequilibrium-based approaches, **Water Resour. Res.**, 47, W05540, [DOI:10.1029/2010WR009533](https://doi.org/10.1029/2010WR009533).
42. **Smits, K. M.**, T. Sakaki, A. Limsuwat, and T. H. Illangasekare. 2010. Thermal conductivity of sands under varying moisture and porosity in drainage-wetting cycles. **Vadose Zone J.**, 9, 172-180, [DOI:10.2136/vzj2009.0095](https://doi.org/10.2136/vzj2009.0095).
43. Sakaki, T., A. Limsuwat, **K. M. Smits**, and T. H. Illangasekare. 2008. Empirical two-point alpha mixing model for calibrating the ECH2O EC-5 soil moisture sensor in sands. **Water Res. Res.**, 44: W00D08, [DOI:10.1029/2008WR006870](https://doi.org/10.1029/2008WR006870).
44. Wu, M.Y., **K.M. Smits**, M.N. Goltz, and J.A. Christ. 2008. A screening model for injection-extraction treatment well recirculation system design. **Ground Water Monitoring and Remediation**, 28:63-71, [DOI: 10.1111/j.1745-6592.2008.00212.x](https://doi.org/10.1111/j.1745-6592.2008.00212.x).

45. Schantz, B.J, and **K.M. Burke (Smits)**. 1998. Sustainable construction barriers and possibilities, **The Military Engineer**, 90:29-30.

Patents

Cho, Y., K.M. Smits and J. Duggan. Methane sensor network system for monitoring natural gas leaks from buried pipelines. Preliminary invention disclosure application filed August 2, 2019.

Moradi, A., K.M. Smits and J. Sharp. Coupled thermally-enhanced bioremediation and renewable energy storage system and method. U.S. patent application No. 62/353,475. Filed June 22, 2016.

Drumheller, Z.W., K.M. Smits, T.H. Illangasekare, J. Regnery*, J. Lee, and P. Kitanidis. Simulation-Based Control Optimization Algorithm for Managed Aquifer Recharge and Recovery Systems. Preliminary invention disclosure application filed August 18, 2016.

Book Chapters, Reports, Other Publications

1. Zimmerle, D., **K.M. Smits** and B. Ulrich, 2018. Report to the Colorado Oil and Gas Conservation Commission: Current and near-term technology options to detect leakage of hydrocarbons, water and gas from flowlines. November 6, 2018. 53 pages. Final report.
2. Deepagoda, C.T.K.K., **K.M. Smits**, T.H. Illangasekare. 2015. Task 11: Intermediate scale laboratory and numerical investigation of bottom up verses top down methane inventories. National Energy and Technology Laboratory (NETL). July 30, 2015. 81 pages. Final report.
3. Illangasekare, T.H., **K.M. Smits**, R. Fuick and H. Davarzani. 2015. From pore to the field: Up-scaling challenges and opportunities in hydrogeological and land-atmospheric system. *In* Pore Scale Processes and Up-scaling: Frontiers in Energy and Environment. J. Poate, T.H. Illangasekare, H. Kazemi and R. Kee (eds). [World Scientific: New Jersey](#).
4. **Smits, K.M.**, P. Schulte, T.H. Illangasekare, 2014. The Transport of Chemical Signatures From Buried Targets – Experimental Investigation on the Effect of Soil Moisture & Atmospheric Conditions on Gas Flux. USACOE Engineering Research and Development Center, Vicksburg, MS, Sept 30, 2014, 200 pages. Final Report.
5. Illangasekare, T.H., B. Petri, R. Fučík, C. Sauck, L. Shannon, T. Sakaki, **K.M. Smits**, A. Cihan, J. Christ, P. Schulte, B. Putman and Y. Li. 2014. Vapor Intrusion from Entrapped NAPL Sources and Groundwater Plumes – Process Understanding and Improved Modeling Tools for Pathway Assessment. SERDP Project No. ER-1687, July 28, 2014, 206 pages. Final report.
6. **Smits, K.M.**, T. Sakai and T.H. Illangasekare. 2013. Temporal and spatial distribution of soil moisture in heterogeneous vadose zone with moisture barriers as affected by atmospheric boundary conditions. Army Research Office, Project No. 55120-EV, Final report.
7. Illangasekare, T.H., T. Sakaki, and **K.M. Smits**. 2011. Development of systematic approaches for calibration of subsurface transport models using hard and soft data on system characteristics and behavior, Army Research Office Project No. 45814-EV, Final report.
8. Schnitger, A.L., **K.M. Smits**, and J.A. Christ. 2007. A review of health concerns associated with engineered carbon nanotubes and fullerenes. Institute for National Security Studies (INSS).
9. Pocock, J.B., **K.M. Smits**. 2005. Developing alliance through regional defense environmental cooperation: Building on successes in the Baltic Sea Region. Institute for National Security Studies (INSS).

Invited Presentations

1. **Smits, K.M.**, What's going on underground? CH₄ Connections Methane Emissions Conference, Colorado State University, Fort Collins, Colorado, Sept 18, 2019. **(Invited Presentation)**

2. **Smits, K.M.**, The influence of wind field development above undulating soil surfaces on evaporation behavior, Soil Science Society of America Annual Meeting, San Antonio, TX, November 11, 2019. **(Invited Presentation)**
3. **Smits, K.M.**, Pipeline leakage behavior within the soil environment and atmosphere. Colorado Oil and Gas Conservation Commission (COGCC), January 2017. **(Invited Presentation)**
4. **Smits, K.M.**, Effect of varying atmospheric conditions on methane boundary layer development in a coupled free flow and porous media domain, Nonlinearities and Upscaling in Porous Media (NUPUS) Workshop, U. Stuttgart, Germany, October 2016. **(Invited Presentation)**
5. **Smits, K.M.**, Understanding gas migration and release into the atmosphere. Dept. of Chemical Engineering Seminar Series, U. of Manchester, England, October 2016. **(Invited Presentation)**
6. **Smits, K.M.**, Understanding gas migration and release into the atmosphere. Red Hen Pipeline Workshop, Ft. Collins, CO, September 2016. **(Invited Presentation)**
7. **Smits, K.M.**, Challenges and opportunities to measuring and modelling mass and energy exchanges at the land-atmosphere interface. Gordon Research Conference on Flow and Transport through Permeable Media, Gerona, Spain, August 2016. **(Invited Presentation)**
8. **Smits, K.M.**, Heat and water transfer at the land-atmosphere interface – Interweaving experimental and modeling approaches. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2015. **(Invited Presentation)**
9. **Smits, K.M.**, Study of the effect of soil disturbance on vapor transport through integrated modeling of the atmospheric boundary layer and shallow subsurface. MUSIS Workshop on Interfacial Flow, Potsdam, Germany, March 2015. **(Invited Presentation)**
10. **Smits, K.M.**, Dynamics of interfaces in porous media- Interweaving experimental and modeling approaches. Dept. of Petroleum Engineering Seminar Series, Oct. 2014 **(Invited Presentation)**
11. **Smits, K.M.**, Dynamics of interfaces in porous media- Interweaving experimental and modeling approaches. Association of Environmental Engineering Geologists, Sept. 2014 **(Invited Presentation)**
12. **Smits, K.M.**, Exploring the effects of atmospheric forcings on evaporation, NUPUS workshop on Land/atmosphere interactions, Freudenstat, Germany, March, 2014. **(Invited Presentation)**
13. **Smits, K.M.**, Mass, momentum and energy transfer mechanisms at the land-atmosphere interface – interweaving experimental and modeling approaches, U. Colorado, Boulder, Dept. of Civil and Environmental Engineering, Feb. 2014. **(Invited Presentation)**
14. **Smits, K.M.**, Mass, momentum and energy transfer mechanisms at the land-atmosphere interface – interweaving experimental and modeling approaches. National Center for Atmospheric Research (NCAR) LSM Group, Boulder, CO, Jan. 2014. **(Invited Presentation)**
15. **Smits, K.M.**, A. Cihan. Non-isothermal water vapor transport in shallow subsurface influenced by land-atmosphere boundary conditions: Numerical and experimental studies. Lawrence Berkeley National Laboratory, Atmospheric Science Group, Sept. 2013. **(Invited Presentation)**
16. **Smits, K.M.**, Dynamics of fluid and material interfaces in porous media – observational evidence and numerical experiments, Heiland Lecture, Colorado School of Mines, Feb. 2013. **(Invited Presentation)**
17. **Smits, K.M.**, Experimental and modeling studies of bare soil evaporation formulated with different land surface boundary conditions and assumptions, Institut für Wasser- und Umweltsystemmodellierung, U. Stuttgart, June. 2013. **(Invited Presentation)**

Conference Presentations and Proceedings (presenter underlined)

18. Gao, B., **K.M. Smits**. Study of Evaporation and Boundary Layer Development from Permeable Undulating Soil Surfaces under Turbulent Airflow, American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2019 (poster)

19. Tian, S., **K.M. Smits**, D. R. Legates and W. Tao, Intensified multi-decadal variability on North American Monsoon (NAM) summer precipitation related to AMO as well as monsoon high pressure system, American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2019 (poster)
20. Li, Z., **K.M. Smits**, Evaluating the effect of the surface soil layer on the near-surface state variables during evaporation, American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2019 (poster)
21. Schwartz, M., **K.M. Smits**, Redefining Roles: How a changing engineering approach for water and sanitation can improve artisanal and small-scale mining site remediation, American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2019 (poster)
22. Ulrich, B., Y. Cho, D. Zimmerle, **K.M. Smits**, Gone with the Wind: Natural Gas Emissions from Leaking Underground Pipelines and Implications for Detection Systems, American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2019 (poster)
23. Jayarathne, J.R.R.N., D.T.K.K Chamindu, M.C.M Nasvi, **K Smits**, T.J Clough, S Thomas, B Elberling. Modelling Soil-Gas Diffusivity in Intact Agricultural Soils. (10th International Conference on Structural Engineering and Construction Management, Kandy Sri Lanka. (ICSECM 2019) (poster)
24. Gonzales, F., **K.M. Smits**, L. McDonald, N. M. Smith, J. Lucena, G. Martinez, O.J. Restrepo, S. Rosas, Capacity building in artisanal and small-scale gold mining: An example from Peru, Society for Mining Metallurgy and Exploration, Annual Conference and Expo Pheonix, AZ. Feb 2020 (poster)
25. O'Brien, R., **K.M. Smits**. 2020 Applying Conceptual Site Models to Utilize Social Science Methodologies for Stakeholder Engagement, Association for Environmental Health and Sciences (AEHS) Annual Conference, San Diego, CA, March 16-19, 2020, (poster)
26. Jayarathne, J.R.R.N., T.K.K. Chamindu Deepagoda, M.C.M. Nasvi, **K.M. Smits**, T.J. Clough, S. Thomas, B. Elberling, 2019. Modelling Soil-Gas diffusivity in Aggregated porous media. Submitted to 7th International Symposium on Advances in Civil and Environmental Engineering Practices for Sustainable Development (ACEPS-2019), Galle, Sri Lanka, Oct 2019 (poster)
27. Moradi, A., and **K.M. Smits**. CoupledThermally-EnhancedBioremediationandRenewableEnergy Storage System: Conceptual Framework and Modeling Investigation, InterPore Conference, Valencia, Spain, May 2019. (poster)
28. Bahlmann, L., **K.M. Smits** and I. Neuweiler, Gas Transport through Soils and across the Soil-Atmosphere-Interface dependent on gas density, soil moisture and wind conditions: Darcy-Scale Experiments and Computational Modeling, European Geophysical Union , Vienna Austria, Apr 2019 (poster)
29. Schwartz, M., **K.M. Smits**, T. Phelan and N. Smith, Redefining Roles: How a changing engineering approach for water and sanitation can improve artisanal and small-scale mining site remediation, Society for Mining Metallurgy and Exploration, Annual Conference and Expo, March 2019 (poster)
30. O'Brien, R., N. Smith, T. Phelan and **K.M. Smits**, How Small-Scale Clean-Up Efforts May Be the Way Forward for ASM Environmental Remediation in Developing Countries, Society for Mining Metallurgy and Exploration, Annual Conference and Expo, March 2019 (poster)
31. Gao, B., and **K.M. Smits**, Study of Evaporation from Wavy Surfaces by Coupled Turbulent Air Flow and Porous Media Flow, American Geophysical Union Fall Meeting, Washington D.C., Dec 2018 (poster)
32. Li, Z., and **K.M. Smits**, Evaporation Behavior Analysis from Layered Soil and its Application to Estimating the Soil Property Profile, American Geophysical Union Fall Meeting, Washington D.C., Dec 2018 (poster)

33. Ulrich, B.A., M. Mitton, A. Hecobian and **K.M. Smits**, Effects of Land-Atmosphere Interactions on Methane Emissions from Natural Gas Pipelines and Implications for Detection Systems, American Geophysical Union Fall Meeting, Washington D.C., Dec 2018 (poster)
34. **Smits, K.M.**, Mitton, M., Subsurface Methane Migration from Natural Gas Distribution Pipelines as affected by Soil Moisture and Heterogeneity: Field Scale Experimental Study, American Geophysical Union Fall Meeting, Washington D.C., Dec 2018 (poster)
35. Li, Z., and **K.M. Smits**, Experimental and numerical investigation of evaporation from layered soils, Gordon Research Conference on Flow and Transport Through Permeable Media, Newry, Maine, July 2018 (poster)
36. Gao, B., and **K.M. Smits**. Theoretical and experimental study of evaporation from wavy surfaces by coupling free-flow and porous-media-flow model, Gordon Research Conference on Flow and Transport Through Permeable Media, Newry, Maine, July 2018 (poster)
37. Mitton, M., **K.M. Smits**, Understanding CH₄ leakage from pipelines as affected by soil heterogeneity and moisture, ARPA-E MONITOR meeting, July 18, 2018 (poster)
38. **Smits, K.M.**, Mitton, M., Moradi, A., and T.K.K. Chamindu Deepagoda, Understanding natural gas methane leakage from buried pipelines as affected by soil and atmospheric conditions. American Geophysical Union Fall Meeting, New Orleans, LA, Dec 2017. (presentation)
39. Li, Z., and **K.M. Smits**, Experimental and modeling study of water transport through layered porous media and at the land-atmosphere interface. American Geophysical Union Fall Meeting, New Orleans, LA, Dec 2017. (poster)
40. Gao, B., and **K.M. Smits**. Theoretical and experimental study of evaporation from wavy surfaces by coupling free-flow and porous-media-flow model, American Geophysical Union Fall Meeting, New Orleans, LA, Dec 2017. (poster)
41. Mitton, M., and **K.M. Smits**. Understanding natural gas methane leakage from buried pipelines as affected by soil heterogeneity and moisture. CH₄ connections conference. Ft Collins, CO, Dec 2017 (poster)
42. Gao, B., and **K.M. Smits**. Evaporation from wavy surfaces using a coupled porous media/free flow model. Nonlinearities and Upscaling in Porous Media (NUPUS) meeting, Stuttgart, Germany, October 2017 (presentation).
43. Gao, B., and **K.M. Smits**. Coupled porous media and free flow across a wavy surface, ModFlow and More Conference, Golden, CO, May 2017. (poster)
44. Li, Z., and **K.M. Smits**. Effect of mulch layer on evaporation from soil, ModFlow and More Conference, Golden, CO, May 2017. (poster)
45. Mitton, M., A. Moradi and **K.M. Smits**, Methane emissions under different subsurface conditions, ModFlow and More Conference, Golden, CO, May 2017. (poster)
46. Wolff, E., **K.M. Smits**, and D. Roher, Industrial release fact sheets for the Arizona – Sanora and California – Baja border regions. EPA Border 2020, Fontera 2020 Conference, Washington, D.C., Oct. 2016. (poster)
47. Forsythe, L., and **K.M. Smits**, Utilization of lab scale experimental data and fine resolution modeling to determine optimal representation of physics in large scale modeling. Gordon Research Conference on Flow and Transport Through Permeable Media, Gerona, Spain, Aug. 2016. (poster)
48. Baser, T., J.S. McCartney, A. Moradi, **K.M. Smits**, N. Lu. 2016. Impact of a Thermo-Hydraulic Insulation Layer on the Long-Term Response of Soil-Borehole Thermal Energy Storage Systems. GeoChicago, Chicago, IL. Aug. 2016. (presentation and paper)

49. Moradi, A., and **K.M. Smits**. Pore scale simulation of soil hydraulic and thermal properties using phase field method, InterPore Conference, Cincinnati, Ohio, May 2016. (poster)
50. Moradi, A., **K.M. Smits** and A. Cihan. Pore scale Assessment of Heat and Mass transfer in Porous Medium Using Phase Field Method with Application to Soil Borehole Thermal Storage (SBTES) Systems. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2015. (presentation)
51. Drumheller, Z.W., **K.M. Smits**, J. Lee, T.H. Illangasekare, J. Regnery and P.K. Kitanidis. Development of a control optimization system for real time monitoring of managed aquifer recharge and recovery systems using intelligent sensors. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2015. (poster)
52. Wallen, B.M., **K.M. Smits** and S.E. Howington. Numerical and experimental investigation of soil heterogeneity around landmines in natural soil. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2015. (poster)
53. Deepagoda, C. T.K.K., **K.M. Smits** and T.H. Illangasekare, C. Oldenburg, and A. Cihan. Multiphase Flow and Transport of Methane in Soil under Varying Subsurface and Atmospheric Conditions: A Bench-scale Experimental and Numerical Study Methane emissions under different subsurface and atmospheric conditions: A bench scale experimental and numerical study. TOUGH Symposium, LBNL, Berkeley, CA, Sept. 2015. (poster and extended abstract)
54. Moradi, A., and **K.M. Smits**. Pore scale Assessment of Thermal Conductivity-Saturation Relationship in Porous Medium Using Phase Field Method for Application to Hydrogeological Models. Modflow and More Conference, Golden, CO, June 2015. (poster and extended abstract)
55. Deepagoda, C. T.K.K., **K.M. Smits** and T.H. Illangasekare. Methane emissions under different subsurface and atmospheric conditions: A bench scale experimental and numerical study. Modflow and More Conference, Golden, CO, June 2015. (poster and extended abstract)
56. Wallen, B., **K.M. Smits** and A. Trautz. Comparison of evaporative fluxes from porous surfaces in the unsaturated zone resolved by remotely sensed and in-situ temperature and soil moisture data for use in multiphase modeling. Modflow and More Conference, Golden, CO, June 2015. (poster and extended abstract)
57. **Smits, K.M.**, A. Trautz, B. Wallen and A. Cihan. Study of the effect of soil disturbance on vapor transport through integrated modeling of the atmospheric boundary layer and shallow subsurface. International Society of Porous Media Annual Meeting, Padua, Italy, May 2015. (poster)
58. Fetzer, T., C. Grüniger, **K. M. Smits** and R. Helmig. Coupling free and porous-medium flow via an interface including surface roughness , International Society of Porous Media Annual Meeting, Padua, Italy, May 2015. (poster)
59. Moradi, A., and **K.M. Smits**. Experimental and numerical study of two dimensional heat and mass transfer in unsaturated soil with and application to soil thermal energy storage (SBTES) systems. Hydrology Days. Colorado State University, Ft. Collins, CO, March 2015. (poster)
60. Wallen, B., **K.M. Smits** and S.E. Howington. Thermal conductivity of binary sand mixtures evaluated through the full range of saturation. Hydrology Days. Colorado State University, Ft. Collins, CO, March 2015. (poster)
61. Fetzer, T., C. Grüniger, **K.M. Smits**, J. Vanderborght, and R. Helmig. Analysis of processes and properties at a rough porous-medium free-flow interface. MUSIS Workshop, Potsdam, Germany, March 2015. (poster and presentation)
62. Drumheller, Z.W., J. Regnery, J. Lee, T.H. Illangasekare, P. K. Kitanidis, and **K.M. Smits**, Integrating Predictive Modeling with Control System Design for Managed Aquifer Recharge and Recovery Applications. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (poster)
63. Moradi, A., and **K.M. Smits**. Impact of Coupled Heat Transfer and Water Flow on Soil Borehole Thermal Energy Storage (SBTES) Systems: Experimental and Modeling Investigation. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (poster)

64. Vanderborght, J., K. Mosthaf, T. Fetzer, **K.M. Smits**, E. Shahraeeni and R. Helmig. Heat and water transport in soils and across the soil-atmosphere interface: comparison of model concepts. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (presentation)
65. **Smits, K.M.**, A.C. Trautz, B. Wallen and A. Cihan. Study of the effect of soil disturbance on vapor transport through integrated modeling of the atmospheric boundary layer and shallow subsurface. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (poster)
66. Trautz, A., **K.M. Smits**, T.H. Illangaseare and P. Schulte. Experimental investigation of atmospheric and soil effects on boundary layer development above the land atmosphere interface. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (poster)
67. Wallen, B., A.C. Trautz, and **K.M. Smits**. Comparison of evaporative fluxes from porous surfaces resolved by remotely sensed and in-situ temperature and soil moisture data. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (poster)
68. Phelan, T.J., L.M. Abriola, J.Gibson, **K.M. Smits**, and J.A. Christ. Laboratory Validation of a Screening Model: Exploring the Interplay between Dissolution and Degradation Rates in Ganglia-Dominated Source Zones. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2014. (presentation)
69. Moradi, A., and **K.M. Smits**. Soil moisture and thermal behavior through unsaturation soil affecting soil borehole thermal energy storage (SBTES) systems: Experimental and modeling investigation. Gordon Research Conference. Bates College, ME, July 2014. (poster)
70. Esposito, A., T.H. Illangasekare, **K.M. Smits**, and P. Schulte. Migration of natural gas through sandy soils affected by natural boundary conditions. Gordon Research Conference. Bates College, ME, July 2014. (poster)
71. Trautz, A., **K.M. Smits**, T.H. Illangaseare and P. Schulte. Investigation of the influence of boundary layer turbulent flow on heat and mass and momentum exchange at the land-atmosphere interface. Gordon Research Conference. Bates College, ME, July 2014. (poster)
72. Esposito, A., T.H. Illangasekare, **K.M. Smits**, and P. Schulte. Migration of natural gas through sandy soils affected by natural boundary conditions. Unconventional Resources Technology Conference (URTeC), Denver, CO, Aug. 2014. (presentation)
73. Fetzer, T., K. Mostaf, K.M. Smits and R. Helmig. Coupling porous-medium and free flow under turbulent and rough conditions, International Conference of Computational Methods in Water Resources, CMWR, June 2014. Stuttgart, Germany.
74. Dong, Y., N. Lu, A. Wayllace, and **K.M. Smits**. Simultaneous and continuous measurements of thermal and hydrological properties of sand using Transient Release and Imbibition Method. Unsaturated Soils Conference (UNSAT) 2014. Sydney, Australia.
75. Trautz, A.C., **K.M. Smits**, A. Cihan. Evaporation and condensation in soils: Experimental and modeling investigation to compare non-equilibrium-based approaches under different atmospheric boundary conditions. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2013. (poster)
76. Phelan, T.J., L.M. Abriola, J.Gibson, **K.M. Smits**, and J.A. Christ. Laboratory Validation of a Screening Model: Exploring the Interplay between Dissolution and Degradation Rates in Ganglia-Dominated Source Zones. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2013. (poster)
77. Lee, J., S. Ambikasaran, P.K. Kitanidis, T.H. Illangasekare, and **K.M. Smits**. Hydrogeophysical data assimilation using a fast Kalman filter for managed aquifer recharge and recovery, American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2013. (poster)
78. Mori H., L. Trevisan, T. Sakaki, A. Cihan, **K. M. Smits**, and T. H. Illangasekare. An evaluation of multi-phase flow constitutive models for carbon sequestration model applications: Experimental and modeling study. American Geophysical Union Fall Meeting. San Francisco, CA, Dec. 2013. (poster)

79. Lee, J., A. Parsekian, C. Mawer, R.J. Knight, **K.M. Smits**, T. H. Illangasekare, and P.K. Kitanidis. Managed aquifer recharge and recovery: Simulation, Monitoring and Operation (N3.1), Natural Systems Thrust 2013 IAB Meeting 2013 Berkeley CA Nov. 2013. (poster)
80. Rice, A.K., **K.M. Smits**, P. Schulte and T.H. Illangasekare. Transport of volatile gas dissolved in groundwater through variably saturated soil subjected to natural boundary conditions at the land-atmosphere interface. AEESP, July 2013, Golden CO. (poster)
81. Rice, A., **K.M. Smits**, A. Cihan and T.H. Illangasekare. Effects of Atmospheric Conditions and the Land/Atmospheric Interface on Transport of Chemical Vapors from Subsurface Sources. MODFLOW Conference Proceedings, Golden, CO, May 2013. (poster)
82. Davarzani, H., **K.M. Smits** and T.H. Illangasekare. Study of the effect of wind speed on evaporation from soil through integrated modeling of atmospheric boundary layer and shallow subsurface. European Geophysical Union, Vienna, Austria, April 2013. (poster)
83. Trautz, A., **K.M. Smits**, A. Cihan, and T.H. Illangasekare. Evaporation from soils under diurnal boundary conditions: Experimental and modeling investigation to evaluate nonequilibrium-based approaches. European Geophysical Union, Vienna, Austria, April 2013. (poster)
84. Davarzani, H., **K.M. Smits** and T.H. Illangasekare. Study of the effect of wind speed on evaporation from soil through integrated modeling of atmospheric boundary layer and shallow subsurface. American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 2012. (presentation)
85. Trautz, A., **K.M. Smits**, P. Schulte, A. Cihan, and T.H. Illangasekare. Integration of heat-pulse and sensible heat balance methods to estimate. American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 2012. (poster)
86. Rice, A.K., **K.M. Smits**, K.J. Hoske, P. E. Schulte, and T.H. Illangasekare. The Transport of Chemical Signatures from Buried Targets – Experimental and Modeling Investigation on the Effect of Soil Moisture Conditions on TCE Vapor Flux. American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 2012. (poster)
87. Trautz, A., **K.M. Smits**, and T.H. Illangasekare. Integration of heat-pulse and sensible heat balance methods to estimate. Gordon Research Conference, Les Desibleres, Switzerland, June 2012. (poster)
88. Kirby, E.A., W.J. Massman, and **K.M. Smits**. The effect of forest burn on the thermal properties of soils. Proceedings from Hydrology Days. Colorado State University, Fort Collins, CO, March 2012. (poster)
89. Shannon, L., B. Putman, Y. Li, T.H. Illangasekare and **K.M. Smits**. Evaluating a novel approach for locating preferential vapor transport pathways in the vadose zone – Coupling soft data from electrical resistivity tomography to hard analytic data. Proceedings from Hydrology Days. Colorado State University, Fort Collins, CO, March 2012. (poster)
90. **Smits, K. M.**, V.J. Ngo, A. Cihan, and T.H. Illangasekare. Evaporation from soils subjected to natural boundary conditions at the land-atmospheric interface, European Geophysical Union, Vienna, Austria, April 2012. (poster)
91. Illangasekare, T.H., **K. Smits**, T. Sakaki and A. Cihan. Soil Moisture Processes in the Shallow Subsurface Near Land/Atmospheric Interface- Challenges and New Research Approaches, Invited speaker at “Perspectives for the Future of Hydrology in a Changing Environment. Memorial Session in Honour of Professor Jim Dooge”, European Geological Union, Annual Meeting, Vienna, April 2011. (presentation)
92. **Smits, K. M.**, V.J. Ngo, A. Cihan, T. Sakaki, and T.H. Illangasekare. An experimental and modeling study of evaporation from bare soils subjected to natural boundary conditions at the land-atmospheric interface American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 2011. (poster)
93. **Smits, K. M.**, V.J. Ngo, A. Cihan, T. Sakaki, and T.H. Illangasekare. Numerical simulation on the effect of heterogeneity on evaporation/condensation in soils under diurnal temperature fluctuations, Proceedings from MODFLOW and More, Golden, CO, June 2011. (poster)

94. Illangasekare, T.H., K. Smits, A. Limsuwat and T. Sakaki. Soil moisture processes in the near surface unsaturated zone: experimental investigations in multiscale test systems. Annual Meeting of the International Society for Porous Media (Interpore 2011) Proceedings from Interpore, Bordeaux, France, March 2011. (presentation)
95. Smits, K.M., T. Sakaki, and T.H. Illangasekare. Thermal conductivity of soils as affected by temperature, Proceedings from Hydrology Days. Colorado State University, Fort Collins, CO, March 2011. (presentation)
96. Smis, K.M., A. Cihan, T. Sakaki, and T. H. Illangasekare. Evaporation from soils under thermal boundary conditions: Experimental and modeling investigation to compare equilibrium and non-equilibrium based approaches. Proceedings from 27th Annual Army Science Conference, Orlando, FL, Dec 2010. (poster)
97. Smits, K.M., A. Cihan, T. Sakaki, and T. H. Illangasekare. Shallow subsurface soil moisture behavior as affected by heat source boundary conditions: Experimental and modeling investigation. American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 2010. (poster)
98. Sakaki, T., A. Limsuwat, K. M. Smits, and T. H. Illangasekare. Empirical two-point alpha-mixing model for calibrating the ECH2O EC-5 soil moisture sensor in sands, Hydrologic Measurement Methods, 157-164, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) and American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, Dec 2010. (poster)
99. Smits, K.M., A. Cihan, T. Sakaki, and T. H. Illangasekare. Heat-induced evaporation in the shallow subsurface: Experimental and modeling investigation. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2009. (poster)
100. Smits, K. M., T. Sakaki, A. Limsuwat, and T. H. Illangasekare. Determination of the thermal properties of sands as affected by water content, drainage/wetting, and porosity conditions for sands with different grain sizes, Joint Assembly Spring Meeting, Toronto, Canada. May 2009. (poster)
101. Smits, K. M., T. Sakaki, A. Limsuwat, and T. H. Illangasekare. Determination of the thermal conductivity of sands under varying moisture, drainage/wetting, and porosity conditions- applications in near-surface soil moisture distribution analysis. Proceedings from Hydrology Days. Colorado State University, Fort Collins, CO, March 2009. (poster)
102. Smits, K. M., T. Sakaki, A. Limsuwat, C. C. Frippiat, and T. H. Illangasekare. Spatial and temporal variability of water retention in shallow depths of vadose zone: Experimental investigation, Proceedings of the MODFLOWandMore2008,188-192. (poster)
103. Smits, K.M., C.C. Frippiat, T. Sakaki, G.A. Zyvoloski and T. H. Illangasekare. Modeling spatial and temporal variability of soil moisture in shallow depths of the vadose zone: A comparison of two and three dimensional simulations to capture relevant physical processes. American Geophysical Union Fall Meeting, San Francisco, CA, Dec 2008. (poster)
104. Smits, K.M., T. Sakaki, A. Limsuwat, C. Frippiat, and T.H. Illangasekare. Water retention in heterogeneous shallow unsaturated aquifer zone: Experimental and model validation investigation. MODFLOW Conference Proceedings, Golden, CO, May, 2008. (poster)
105. Gibson, J.L., K.M. Smits, L.M. Abriola, J.A. Christ. Modeling and interpreting the interplay between non-aqueous phase liquid dissolution and degradation rates. American Geophysical Union Fall Meeting, San Francisco, CA, Dec, 2006. (poster)

External Professional Affiliations and Service Activities

- Science Communication Editor, Vadose Zone Journal (2017 – present)
- Associate Editor, Journal of Hydrology (2020 – present)
- Associate Editor, Vadose Zone Journal (2016- present)
- Society Member:

- American Geophysical Union (AGU)
- American Society of Civil Engineers (ASCE)
- Soil Science Society of America (SSSA)
- International Society of Porous Media (InterPore)
- Society of American Military Engineers (SAME)
- Association of Environmental Engineering and Science Professors (AEESP)
- American Society Engineering Education (ASEE)
- Society of Women in Engineering (SWE)
- Tau Beta Pi Honor Society

In the news

- Earth and Space Science News (EoS) magazine, Postcards from the field, Greetings from the lysimeters of Forschungszentrum Jülich, Germany, <https://eos.org/postcards-from-the-field>. Published on 23 August 2019.
- Earth and Space Science News (EoS) magazine, Postcards from the field, Greetings from Colombia! <https://eos.org/postcards-from-the-field>. Published on 23 August 2019.
- Agor, J., 2019. CE's Smits Organizes Workshop to Help Peru's Artisanal Gold Miners <https://www.uta.edu/engineering> Published on 1 May 2019. </news-events/news-archives/2019/05-smits-voces-mineras.php>
- Brown, K., 2019. Detecting fugitive methane leaks for public safety, *Eos*, 100, <https://doi.org/10.1029/2019EO113941>. Published on 14 January 2019. <https://eos.org/articles/detecting-fugitive-methane-leaks-for-public-safety>
- Agor, J., 2019. UTA researcher working to improve response to gas-emission incidents. Published on 3 January, 2019. <https://www.uta.edu/news/releases/2019/01/Smits-gas-leak-research.php>
- Rusch, E., 2018. Tutoring program aims to grow future scientists, engineers. Published 8 January, 2018. <http://www.minesnewsroom.com/news/tutoring-program-aims-grow-future-scientists-engineers>

Teaching Experience

- **The University of Texas at Arlington:** CE 3210 Communication for Civil Engineers; CE 4300/5300 Site Remediation in Developing Communities; CE 5359 Groundwater Contaminant Transport Modeling
- **Colorado School of Mines:** CEEN 580 Environmental pollution: Sources, Characteristics, Transport and Fate, CEEN 475/575 Hazardous Waste Site Remediation/Site Remediation Engineering in Developing Countries, CEEN 310 Fluid Mechanics, EGGN 491/492 Senior Design (serve as faculty advisor, client and technical advisor), CEEN 611 Multiphase Contaminant Transport (co-taught), GEGN 467 Groundwater Engineering
- **U.S. Air Force Academy:** ENGR 210 Introduction to Civil Engineering; CE 362 Introduction to Environmental Engineering; CE 361 Fluid Mechanics; CE 368 Surface and Ground Water Hydrology and Contaminant Transport; CE 351 Civil and Environmental Engineering Field Session/ Environmental Lab