

Susan S. Hubbard

Associate Laboratory Director & Sr. Scientist
Earth and Environmental Sciences
Lawrence Berkeley National Laboratory
510-486-5266; sshubbard@lbl.gov
<http://eesa.lbl.gov/profiles/susan-hubbard/>

Professional Positions:

- Associate Laboratory Director, Earth and Environmental Sciences Area, a premier Energy Geoscience and Climate & Ecosystems Science Divisions with significant research portfolios in climate science, terrestrial ecosystem science, environmental and biological system science, fundamental geoscience, and subsurface energy geosciences. 2015-Present
 - UC Berkeley, Environmental Science, Policy and Management, Adj Professor 2015-Present
 - Director, Earth Sciences Division, Berkeley Lab, 2013-2015
 - Deputy Director for Programs, Earth Sciences Division, Berkeley Lab, 2010-2013.
 - Senior Geological Scientist, Berkeley Lab: Lead or co-lead of several large, multi-disciplinary, multi-institutional team projects, including PI of the DOE watershed function scientific focus area (SFA), 2010-Present
 - Associate Director, Berkeley Water Center, UC Berkeley, 2007-2011
 - Program Lead, Environmental Remediation and Water Resources Program, 2004-2010.
 - Group Lead, Environmental Geophysics, Berkeley Lab, 2003-present
 - Staff Geological Scientist, Berkeley Lab. Contributed to the development of fields now known as hydrogeophysics and biogeophysics. Applied developed methods to improve understanding of complex subsurface functioning relevant to environmental remediation, water resources, agriculture and ecosystems, 2002-2010
 - Geological Scientist, Berkeley Lab, 1998-2002
 - Geophysicist, ARCO Oil and Gas Co., 1990-1993
 - Geologist, U.S. Geological Survey, Menlo Park, CA, 1985-1987
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Education:

- Ph.D., Civil and Env. Engineering, UC Berkeley, 1998
 - M.S., Geophysics, Virginia Tech
 - B.S., Geology, University of California, Santa Barbara
 - Professional Cert, UC Davis Viticulture, 2009
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Advisory Boards and Editorial Positions (partial list):

- 2018-present, Partnership Board, DOE-BER Cyberinfrastructure ESS-Dive
- 2017-present, Advisory Board, International Soil Modeling Consortium
- 2017-present, Advisory Board, EPA UCB Superfund Program 'Exposome'
- 2016-present, Scientific Advisory Board, UCSB Arctic Data Center
- 2016-present, Advisory Board, Civil and Environmental Engineering Dept, UC Berkeley
- 2015-present, Director's Council, UC Water
- 2015-present, Council member, CCST (California Council on Science and Technology)
- 2015-present, Advisory Board, IDEAS (Interoperable design of extreme scale application software)
- 2014-present, Advisory Board, Radionuclide Waste Disposal, EPSCoR Program, South Carolina
- 2014-2017, Sr Advisor, DOE Advanced Simulation Capability for Environmental Management
- 2013, Helmholtz Association Review Committee
- 2012, Dept of Energy Resources Engineering Review Committee, Stanford
- 2011, Advisory Board, SmartGeo NSF IGERT, Colorado School of Mines
- 2010-2015, BERAC -DOE Biological and Environmental Research Advisory Committee
- 2010-2014, Associate Editor, JGR-Biosciences
- 2010, DOE Environmental Management Technical Advisory Committee
- 2007-2013, Co-Editor, Vadose Zone Journal
- 2007-2010, Associate Editor, Journal of Hydrology
- 2006, Forschungszentrum Jülich German National Laboratory Advisory Board
- 2002-2006 Founder and First Chair, AGU Hydrogeophysics Technical Committee
- 2001-2005, Associate Editor, Water Resources Research

Awards and Recognitions (partial list):

- 2018, Honorary Prof, Beijing Normal University
 - 2017, Fellow, American Geophysical Union (AGU)
 - 2016, Hal Mooney Award, Distinguished Achievements in Near Surface Geophysics
 - 2014, Distinguished Alumni, Civil and Environmental Engineering Academy, UC Berkeley
 - 2014, Soc. for Technical Communication, Distinguished technical communication award
 - 2013, Outstanding Women @ Berkeley Lab recognition
 - 2011, Fellow, Geological Society of America (GSA)
 - 2010, Birdsall-Dreiss Distinguished Lecturer, Hydrological Sciences GSA
 - 2009, Frank Frischknecht Leadership Award, SEG Near Surface Geophysical Society
 - 2009, Top Associate Editor Award, Journal of Hydrology
 - 2008, 'Most Influential Article', SEG Leading Edge recognition
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Service to Scientific Community & DOE (partial list):

- 2018 AGU Macelwane Award Committee
- 2018 GSA Nominations Committee
- 2018 California Water-Data AB1755 Governance & Funding Executive Committee
- 2018 California Produced Water SB1281 Executive Committee
- AGU session co-chair [Fall 2017 meeting](#)
- Executive working group addressing sustainable governance and funding models to aid in California AB 1755 water-data
- Steering committee, addressing Produced water in CA, SB 1281
- 2017, Organizer, Open and Transparent California Water Data Capstone Workshop, Berkeley, Nov 2017
- 2017, Co-Lead, DOE-BER Subsurface Biogeochemistry Workshop, Wash DC, May 2017
- 2017, Co-Lead, Environmental Knowledgebase Workshop, Berkeley, Jan, 2017
- 2016, Co-Chair, BES Basic Research Needs Workshop Water-Energy, Wash DC, Jan 2017
- 2015, Panel Lead, BRN-EM, Basic Research Needs for Environmental Management. Report of the Office of Science Workshop on Environmental Management, July 8-11, 2015.
- 2015, National Laboratory Engagement Day, Technical lead for DOE Subsurface Science, Washington DC
- 2015, UC-DOE Water-Energy Nexus Western US Workshop committee member: Designing water utilities of the future and the role of energy utilities
- 2014-present, UC Global Food Initiative (J. Napolitano initiative), LBNL lead
- 2014-present, Co-lead, National Subsurface DOE 'crosscut'. Involves DOE, 13 National Labs, Universities, industry and stakeholders to develop a program plan to enable adaptive control of subsurface fractures, reactions and flow, as needed to transform the use of subsurface resources for both energy production and energy waste storage.
- 2014, Session Chair, Subsurface fracture control, Rock and Fluid Physics Conference, Shell Technology Center, Amsterdam, 2014
- 2014, Conference Co-Chair, Complex Soil Systems SSSA/Bouyoucos Conference, Berkeley, 2014
- 2012, Session Chair, Geophysical Characterization of Permafrost Systems, Fall AGU, San Francisco
- 2012, Lead Author, Technology Innovation 'Virtual Laboratory' Report, Response to Dr. Bill Brinkman request to DOE-BERAC (DOE/SC-0156)
- 2010, Co-author, DOE-SC "Grand Challenges for Biological and Environmental Research: A Long Term Vision" (DOE/SC-1035, 2010)
- 2010, Co-author and workshop co-lead, DOE-BER "Complex System Science for Subsurface Fate and Transport" (DOE/SC0123, 2010)
- 2010, Contributor, DOE-EM Long-Range Deep Vadose Zone Program Plan (DOE/RL-2010-89, 2011).
- 2010, Session chair, Computational Methods in Water Res., Barcelona, June 2010,
- 2010, Session Chair, Goldschmidt conference, Session Chair Knoxville, TN, June 2010.

- 2010, Co-author, DOE-EM Scientific Opportunities to Reduce Risk in Groundwater and Soil Remediation (PNNL-18516).
- 2008, Co-organizer, Computational Methods in Water Resources Conference, San Francisco
- 2008, Co-organizer, Chapman Conference, Biogeophysics, Portland Maine
- 2006, Contributor, presenter- DOE BES Basic Research Needs for Geosciences: Facilitating 21st Century Energy Needs
- 2002-2006, Chair, AGU Hydrogeophysics Technical Committee
- 2002, Founder, AGU Hydrogeophysics Technical Committee
- 2002-2006, US representative, International Ass. Hydrological Sci. “2020 “Working Group
- 2004, Panelist, DOE BES workshop noninvasive monitoring, Houston Tx
- 2005, Panelist, DOE EM Geop. Characterization and monitoring workshop.
- 2005, Chair, Watershed Characterization Special Session, Fall AGU, San Fran.
- 2004, Chair, Hydrogeophysics Special Session, Fall AGU, San Francisco.
- 2003, Chair, Hydrogeophysics Special Session, Fall AGU, San Francisco
- 2003, Organizer, Coupled Processes DOE Workshop, Berkeley CA, LBNL
- 2003, Chair, Coupled Processes DOE Subsurface Science Session, EMSP,WA
- 2002, Co-Organizer, Hydrogeophysics Advanced Study Inst., Czech Republic
- 2000, Chair, Breakthroughs in Field Scale Bacterial Transport, Fall AGU, S.F.

Invited, Keynote and Plenary Speaking Engagements (partial list)

- Tsinghua University, June 2018
- Peking University, June 2018
- Chinese Academy of Sciences, Tibetan Research Inst Beijing, June 2018
- Chinese Academy of Sciences, Environmental and Ecosystem Science, June 2018
- Beijing Normal University, June 2018
- CA Department of Water Resources, June 2017
- ACS American Chemical Society, California Water Resiliency in an Energy Constrained and Uncertain Climate Future, Washington DC, April 2017
- American Geophysical Society Union Fall Meeting, Session H32D, New Orleans, LA, December 11-15, 2017
- American Geophysical Society Union Fall Meeting, Session H31J, New Orleans, LA, December 11-15, 2017
- Urbana Champaign Illinois University, Distinguished seminar, Dec 2017
- OZCAR France Critical Zone meeting, Nice, March 2018
- Colorado School of Mines Heiland Distinguished Speaker, April 2018
- National Academies Review, Jan 2018
- American Geophysical Union, Fall Meeting, New Orleans, Dec 2017
- University of Illinois Urbana Champaign, October 2017
- California Department of Water Resources, September 2017
- American Chemical Society, Washington DC, August 2017

- UC Berkeley Civil and Environmental Engineering Seminar March 2017
- 27th Annual Intern. Conf. on Soil, Water, Energy, & Air, San Diego, CA, March 2017
- University of Southern California Distinguished Seminar, Los Angeles, CA, March 2017
- American Geophysical Union Fall Meeting, San Francisco, CA, December 2016
- France National Polytechnical Institute, Bordeaux, France, July 7, 2016
- University of Saskatchewan Saskatoon Distinguished Lecturer series, Saskatoon, Canada September 2016
- UC Merced, Oct 2016
- CUAHSI Big Data Workshop, Shepherdstown, WV, July 2016
- Geotech/Geoengineering Distinguished Lecture, UC Berkeley, CA, May 6, 2016
- KOPRI Polar Science Symposium, Plenary Speaker, Seoul Korea, May 2016
- Waterloo Distinguished 'Watertalks' Lecture Series, Waterloo, Ontario, Canada, February 2016
- Water Resource Sustainability Issues on Tropical Islands Conference, Hawaii, December 2015
- American Geophysical Union Fall Meeting, San Francisco, B52C-04, December 2015
- American Geophysical Union Fall Meeting, Union Session Invited San Francisco, CA, December 2015
- European Geophysical Union Invited Speaker, April 2015
- CUAHSI Big Data Bi-Annual Conference, Shepherdstown, WV, July 2014
- University of Wyoming's Department of Geology and Geophysics Distinguished Lecturer Series, November 24, 2014
- Complex Soils Systems 2014 Conference, Berkeley, CA, September 2014
- Jason Group, 'State of Stress in the Engineered Subsurface', June 2014
- US Energy Association, Research needs in Subsurface Energy Science, Arlington, VA, July 2014
- Shell Subsurface Complexity Workshop, Amsterdam, Netherlands, September 2014
- ESPM UC Berkeley Seminar Series, April 2014
- DOE Subsurface Biogeochemistry and Terrestrial Ecosystems PI Meeting, Invited Speaker, Maryland, May 2014
- AGU Invited Speaker, San Francisco, CA, December 2013
- Energy Biosciences Seminar Series, Berkeley, CA, April 15, 2013
- Keynote Presentation, Washington Hydrology Symposium, Tacoma, WA, March 2013
- Stanford Environmental Fluid Mechanics and Hydrology Colloquium, Stanford, CA, February, 2013
- AGU 2012 Invited speaker, H53F-1586 AGU, San Francisco, CA, December 2012
- AGU 2012 invited speaker, H33N-01 Fall Meeting, AGU, San Francisco, CA, December 2012.
- New Perspectives in Integrated Monitoring, Assessment and Management in the Water Sector, Water Research Horizon Conference, Berlin, Germany July 2012
- European Geophysical Union invited speaker 2012, Vienna, Austria, April 2012
- Battelle Chlorinated Conference Keynote, Monterey CA, May 2012
- DOE-BERAC Invited Presentation, 2011
- New Frontiers in Engineering Science for Sustainability, Texas A&M NSF Water Scholar Seminar, Invited, Nov 2011

- University of Nevada, Las Vegas Seminar Speaker, February 2, 2011
- Duke University Distinguished Seminar, February 23, 2011
- Advanced DOE Simulation Capability Workshop, ASCEM Overview Invited Presentation, Washington, DC, January 2011
- Rensselaer University Invited Seminar, May 4, 2011
- NSF Water Scholar Seminar Series Keynote, Texas A&M, College Station, November 2011
- University of Wisconsin, Madison Invited Seminar, September 2010
- Argonne National Laboratory Distinguished Speaker, September 2010
- Northern Illinois University, Dekalb, Seminar, September 2010
- Michigan State, East Lansing, October 2010
- Grand Valley University, Michigan, October 2010
- Groundwater Research Association Distinguished Speaker, Sacramento, CA, August 2010
- Inland Geological Society Invited Speaker, Riverside, CA, July 2010
- Keynote, Computational Methods in Water Resources Keynote Barcelona June 2010
- UC Davis Hydrological Seminar Series, June 2010
- National Groundwater Summit Keynote, Denver, CO, April 2010
- UC Berkeley Civil and Environmental Eng. Seminar Series, April 2010
- DOE ERSP Annual PI Meeting Invited Speaker, Washington, DC, March, 2010
- Distinguished Environmental Lecture, Florida International University, February 2010
- University of Florida Spring Seminar Series, February 2010
- Delaware Environmental Institute Distinguished Lecture, March 5, 2010
- UMass Environmental Lecture Series, March 9, 2010
- K. Douglas Nelson Lecture Series, Syracuse University, March 11, 2010
- Semi-Annual Dawdy Invited Lecture, Department of Geos., San Francisco State University, September 2009.
- Oregon State University Geoscience Seminar Series, January 21, 2010
- Portland Environmental Geology Seminar Series January 2010
- New Mexico Tech Hydrology Seminar, December 10, 2009
- LANL's Frontiers in Geosciences' Distinguished Colloquium, December 2009
- AGU Invited speaker, Fall 2009, San Francisco, December 15, 2009
- AGU invited speaker, Spring 2009, Toronto, Canada
- Stanford Environmental and Fluid Mechanics Seminar Series, Invited Seminar, November 2008
- Association for Env. Health and Sciences Invited platform speaker, San Diego, March 2009
- U.S.G.S. Water Research Division Seminar Series, September 2008
- Gordon Conference Invited Speaker, Flow in Porous Media, Oxford England, July 2008
- NRC Workshop on Uncertainty, sensitivity and parameter estimation for multimedia environmental modeling, July 2007
- AGU invited speaker, Fall Meeting 2007, San Francisco, CA, December 2007
- UC Davis Engineering Seminar Series, May 2007
- AGU invited speaker, Fall Meeting 2006, San Francisco, CA, December 2006
- Geological Society of America Invited Speaker, Philadelphia, PA, November 2006

- Groundwater Resources of California, Long Beach, October 2006
- Oregon State University 'World-Class Women in Water' seminar series, May 2006
- UCB Seismological Laboratory Spring 06 Seminar Series, March 2006
- Platform speaker, Computational Methods in Water Resources (CMWRC), Copenhagen, June 2006
- Invited Keynote, IWAGPR Conference, Delft, Netherlands, May 2005
- UC Merced Environmental Seminar Series, September 2004
- PGE Distinguished Shell Speaker, UT Austin, November 2004
- Waste Management Conference Keynote, 2004
- AGU 'Union Frontier' Lecture, Spring Meeting 2005, Montreal, Canada
- Keynote DOE Characterization and Monitoring Workshop, Salt Lake City, 2004
- Univ of Buffalo, UB Geology Pegrem Speaker Series, March 2004
- University of Kansas at Lawrence, Seminar Speaker, April 2004
- USGS Water Resources Seminar, Menlo Park, CA, May 2004
- Heiland Distinguished Lecturer, Colorado School of Mines, Golden, CO, February 2003
- Vadose zone characterization Series, University of Arizona at Tucson, March 2003
- NRC-180 Precision Agriculture Conference, UC Davis, February 2003
- AGU invited speaker, Spring Meeting 2002, Washington DC
- Geological Society of America invited speaker, Annual Meeting 2001, Boston, MA
- UC Berkeley Environmental Engineering Series, November 2001
- AGU invited speaker Fall Meeting 2001, San Francisco, December 2001
- IAHS Kovacs Colloquium Speaker: Groundwater Resources at Risk, Paris, France, June 2001
- AGU Invited Speaker, Spring Meeting 2001, Washington, DC
- Boise State Geology Seminar Series, Aquifer characterization, November 2000
- UC Davis Hydrology Seminar Series, December 2000

Media & Social Media (Select)

A partial list of interviews, videos and scientific highlights in popular press:

- Genome-to-Watershed Sustainable Systems Project Overview [Video](#)
- Arctic research video story, December 2014: PBS KQED 'Deep Look', [The Hidden Perils of Permafrost.](#)
- Arctic research media highlight, UCB Engineering: [The underground: Studying the Arctic tundra, Innovations, February 2014 issue](#)
- Arctic research media highlight, 'Witness the Arctic' [Arcus Highlight, 2013](#)
- Arctic geophysical research media highlight, 'Imaging Permafrost' 2013 [PNAS highlight on NGEE Geophysical Efforts](#)
- Video, Susan Hubbard, 2013, [YouTube Video describing NGEE project](#)
- Video, Enhanced Microbial Hydrocarbon Recovery, [Susan Hubbard EBI video](#), 2013
- Arctic research media highlight, [Science Today, March 12, 2012](#)
- Arctic research, [NGEE field blog](#)

- Arctic research media highlight, 'Permafrost Science Heats up in the US', [Nature News Dec 19th, 2011](#)
- Precision agriculture media highlight, [Wine Enthusiast](#), 'Water into Wine', May 2009
- Video, Precision agriculture media highlight, Susan Hubbard on CNN - Next@CNN, Nov. 1, 2003 [CNN Video Clip](#) and [Text Summary](#)
- Precision agriculture media highlight, 'Radar in the Vineyard', [Wine Business Monthly](#) Volume X, No. 11, p. 35, Nov,2003.
- Precision agriculture media highlight, [California Agriculture](#) ,Vol. 58, Number 1, Jan. 2004
- Precision agriculture media highlight, [The Economist](#), Dec. 18, 2003
- Precision agriculture media highlight, 'Radar fur die Reben', [Der Spiegel](#) , Dec. 2003, Germany
- Precision agriculture media highlight, [Science News](#), May 29, 2004
- Precision agriculture media highlight, [New York Times](#) April 15, 2004
- Precision agriculture media highlight, 'Cat Scan your Soil', [California Farmer Magazine](#) Dec., 2003
- Precision agriculture media highlight, Yahoo News, April 2004
- Precision agriculture media highlight, [Vitavinicultura](#), Oct. 2003, Chili
- Precision agriculture media highlight, The Toronto Star, Dec., 2004
- Precision agriculture media highlight, [The Daily Cal](#) , Berkeley, 2004
- Precision agriculture media highlight, 'Il buon vino? Lo sceglie il radar', [Corriere](#) , Italy, 2004
- Precision agriculture interview and science story, TECH TV, Nov. 18th, 2003

Publications (partial) full list and citation metrics provided at

<https://eesa.lbl.gov/publication-lists/susan-hubbard/>

1. Hubbard et al., The East River, CO Watershed: A Mountainous Community Testbed for Improving Predictive Understanding of Multi-Scale Hydrological-Biogeochemical Dynamics, in press, Vadose Zone Journal
2. Christensen, J.N., Dafflon, B., Shiel, A., Tokunaga, T., Wan, J., Faybishenko, B., Dong, W., Williams, K.H. Hobson, C., Brown, S.T., Hubbard, S.S. (2018), Isotopic Measurement of the Spatial Variation of Vadose Infiltration to the Aquifer at the Rifle Site, CO, in press, STOTEN
3. Taş, N., Prestat, E., Wang, S., Wu, Y., Ulrich, C., Kneafsey, T., Tringe, S.G., Torn, M.S., Hubbard, S.S., and Jansson, J.K., 2018, Landscape topography structures the soil microbiome in arctic polygonal tundra: Nature Communications, v. 9, doi: 10.1038/s41467-018-03089-z. ([article](#))
4. Peruzzo, L., Schmutz, M., Franceschi, M., Wu, Y., and Hubbard, S.S. (2018), The Relative Importance of Saturated Silica Sand Interfacial and Pore Fluid Geochemistry on the Spectral Induced Polarization Response: Journal of Geophysical Research: Biogeosciences, v. 123, p. 1702–1718, doi: 10.1029/2017jg004364. ([article](#))

5. Wu, Y., Ulrich, C., Kneafsey, T., Lopez, R., Chou, C., Geller, J., Mcknight, K., Dafflon, B., Soom, F., Peterson, J., and Hubbard, S.S. (2018), Depth-Resolved Physicochemical Characteristics of Active Layer and Permafrost Soils in an Arctic Polygonal Tundra Region: *Journal of Geophysical Research: Biogeosciences*, v. 123, p. 1366–1386, doi: 10.1002/2018jg004413. ([article](#))
6. Falco, N., Wainwright, H., Dafflon, B., Leger, E., Peterson, J.E., Steltzer, H., Wilmer, C., Rowland, J., Williams, K.H., Hubbard, S.S. (2018), Vegetation characterization of a mountainous hillslope-floodplain system using remote sensing and machine learning approaches, in press, *JGR-Biosciences*.
7. Newcomer, M.E., Hubbard, S.S., Fleckenstein, J.H., Maier, U., Schmidt, C., Thullner, M., Ulrich, C., Flipo, N., and Rubin, Y. (2018), Influence of hydrological perturbations and riverbed sediment characteristics on hyporheic zone respiration of CO₂ and N₂: *Journal of Geophysical Research: Biogeosciences*, doi: 10.1002/2017jg004090. ([article](#))
8. Mary, B., Peruzzo, L., Boaga, J., Schmutz, M., Wu, Y., Hubbard, S.S., and Cassiani, G., (2018), Small scale characterization of vine plant root water uptake via 3Delectrical resistivity tomography and Mise-à-la-Masse method: *Hydrology and Earth System Sciences Discussions*, p. 1–30, doi: 10.5194/hess-2018-238. ([preprint](#))
9. Tran, A.P., Dafflon, B., Bisht, G., and Hubbard, S.S. (2018), Spatial and temporal variations of thaw layer thickness and its controlling factors identified using time-lapse electrical resistivity tomography and hydro-thermal modeling: *Journal of Hydrology*, v. 561, p. 751–763, doi: 10.1016/j.jhydrol.2018.04.028. ([article](#))
10. Wu, Y., Cheng, Y., Hubbard, C.G., Hubbard, S., and Ajo-Franklin, J.B. (2018), Biogenic sulfide control by nitrate and (per)chlorate – A monitoring and modeling investigation: *Chemical Geology*, v. 476, p. 180–190, doi: 10.1016/j.chemgeo.2017.11.016. ([article](#))
11. Wu, Y., Nakagawa, S., Kneafsey, T.J., Dafflon, B., and Hubbard, S. (2017), Electrical and seismic response of saline permafrost soil during freeze - Thaw transition: *Journal of Applied Geophysics*, v. 146, p. 16–26, doi: 10.1016/j.jappgeo.2017.08.008. ([article](#))
12. Dafflon, B., Oktem, R., Peterson, J., Ulrich, C., Tran, A. P., Romanovsky, V. and Hubbard, S. S. (2017), Coincident above- and below-ground autonomous monitoring to quantify co-variability in permafrost, soil and vegetation properties in Arctic Tundra, *Journal of Geophysical Research: Biogeosciences*, doi: 10.1002/2016jg003724. ([article](#))
13. Leger, E., Dafflon, B., Soom, F., Peterson, J., Ulrich, C., and Hubbard, S. (2017), Quantification of Arctic Soil and Permafrost Properties Using Ground-Penetrating Radar and Electrical Resistivity Tomography Datasets, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, p. 1–12, doi: 10.1109/jstars.2017.2694447. ([article](#))
14. Tran, A.P., Dafflon, B., and Hubbard, S. S. (2017), Coupled Land Surface-Subsurface Hydrogeophysical Inverse Modeling to Estimate Soil Organic Content and explore associated Hydrological and Thermal Dynamics in an Arctic Tundra, *The Cryosphere Discussions*, p. 1–42, doi: 10.5194/tc-2017-1. ([article](#))
15. Tran, A.P., Dafflon, B., and Hubbard, S.S. (2017) Coupled land surface–subsurface hydrogeophysical inverse modeling to estimate soil organic carbon content and explore associated hydrological and thermal dynamics in the Arctic tundra: *The Cryosphere*, v. 11, p. 2089–2109, doi: 10.5194/tc-11-2089-2017. ([article](#))

16. Tsang, C., Lippmann, M., Dobson, P., Tsang, Y., Faybishenko, B., Benson, S., Birkholzer, J., Finsterle, S., Hawkes, D., Hubbard, S., Kneafsey, T., Liu, H., Oldenburg, C., Pruess, K., et al. (2017) Commemorating Dr. Gudmundur “Bo” Bodvarsson (1951–2006), a Leader of the Deep Unsaturated Flow and Transport Investigations: *Water*, v. 10, p. 18, doi: 10.3390/w10010018. ([article](#))
17. Dafflon, B., Oktem, R., Peterson, J., Ulrich, C., Tran, A. P., Romanovsky, V. and Hubbard, S. S. (2017), Coincident above- and below-ground autonomous monitoring to quantify co-variability in permafrost, soil and vegetation properties in Arctic Tundra, *Journal of Geophysical Research: Biogeosciences*, doi: 10.1002/2016jg003724. ([article](#))
18. Dafflon, B., Leger, E., Soom, F., Ulrich, C., Peterson, J., and Hubbard, S. (2016), Quantification of Arctic soil and permafrost properties using ground penetrating radar, 2016 Extended abstract, 16th International Conference on Ground Penetrating Radar (GPR), doi: 10.1109/icgpr.2016.7572663. ([article](#))
19. Wainwright, H. M., Liljedahl, A. K., Dafflon, B., Ulrich, C., Peterson, J. E., and Hubbard, S. S. (2016), Mapping snow depth within a tundra ecosystem using multiscale observations and Bayesian methods, *The Cryosphere Discussions*, p. 1–56, doi: 10.5194/tc-2016-168. ([article](#))
20. Anantharaman, K., Brown, C. T., Hug, L. A., Sharon, I., Castelle, C. J., Probst, A. J., Thomas, B. C., Singh, A., Wilkins, M. J., Karaoz, U., Brodie, E. L., Williams, K. H., Hubbard, S. S. and Banfield, J. F. (2016), Thousands of microbial genomes shed light on interconnected biogeochemical processes in an aquifer system, *Nature Communications*, v. 7, p. 13219, doi: 10.1038/ncomms13219. ([article](#))
21. Arora, B., Dwivedi, D., Hubbard, S. S., Steefel, C. I., and Williams, K. H. (2016), Identifying geochemical hot moments and their controls on a contaminated river floodplain system using wavelet and entropy approaches, *Environmental Modelling & Software*, v. 85, p. 27–41, doi: 10.1016/j.envsoft.2016.08.005, 2016. ([article](#))
22. Tokunaga, T. K., Kim, Y., Conrad, M. E., Bill, M., Hobson, C., Williams, K. H., Dong, W., Wan, J., Robbins, M. J., Long, P. E., Faybishenko, B., Christensen, J. N., and Hubbard, S. S. (2016), Deep Vadose Zone Respiration Contributions to Carbon Dioxide Fluxes from a Semiarid Floodplain, *Vadose Zone Journal*, v. 15, doi: 10.2136/vzj2016.02.0014. ([article](#))
23. Tran, A. P., Dafflon, B., Kowalsky, M. B., Long, P., Tokunaga, T. K., Williams, K. H., and Hubbard, S. S. (2016), Quantifying Shallow Subsurface Water and Heat Dynamics using Coupled Hydrological-Thermal-Geophysical Inversion, *Hydrology and Earth System Sciences Discussions Hydrol. Earth Syst. Sci. Discuss.*, p. 1–39, doi: 10.5194/hess-2016-175. ([article](#))
24. Long, P. E., Williams, K. H., Hubbard, S. S. and Banfield, J. F. (2016), Microbial Metagenomics Reveals Climate-Relevant Subsurface Biogeochemical Processes, *Trends in Microbiology*, doi:10.1016/j.tim.2016.04.006. ([article](#))
25. Faybishenko, B., Hubbard, S. S., Brodie, E., Nico, P., Molz, F., Hunt, A. and Pachepsky, Y. (2016), Preface to the Special Issue of on Soil as Complex Systems, *Vadose Zone Journal*, 15(2), doi:10.2136/vzj2016.01.0005. ([article](#))
26. Newcomer, M. E., Hubbard, S. S., Fleckenstein, J. H., Maier, U., Schmidt, C., Thullner, M., Ulrich, C., Flipo, N. and Rubin, Y. (2016), Simulating bioclogging effects on dynamic riverbed permeability and infiltration, *Water Resources Research*, doi:10.1002/2015wr018351. ([article](#))

27. Tran, A. P., Dafflon, B. and Hubbard, S. S. (2016), iMatTOUGH: An open-source Matlab-based graphical user interface for pre- and post-processing of TOUGH2 and iTOUGH2 models, *Computers & Geosciences*, 89, 132–143, doi:10.1016/j.cageo.2016.02.006. ([article](#))
28. Wainwright, H. M., Orozco, A. F., Bucker, M., Dafflon, B., Chen, J., Hubbard, S. S. and Williams, K. H. (2016), Hierarchical Bayesian method for mapping biogeochemical hot spots using induced polarization imaging, *Water Resources Research*, 52(1), 533–551, doi:10.1002/2015wr017763. ([article](#))
29. Dafflon, B., Hubbard, S. S., Ulrich, C., Peterson, J. E., Wu, Y., Wainwright, H. M. and Kneafsey, T. J. (2016), Geophysical estimation of shallow permafrost distribution and properties in an ice-wedge polygon-dominated Arctic tundra region, *Geophysics*, 81(1), WA247–WA263, doi:10.1190/geo2015-0175.1. ([article](#))
30. Chen, J. S., Hubbard, S. S., Williams, K. H. and Ficklin, D. L. (2016), Estimating groundwater dynamics at a Colorado River floodplain site using historical hydrological data and climate information, *Water Resources Research*, 52(3), 1881–1898, doi:10.1002/2015wr017777. ([article](#))
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Abstracts (selected)

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2. Falco, N., Wainwright, H., Ulrich, C., Dafflon, B., Hubbard, S.S., Williamson, M., Cothren, J., Ham, R., McEntire, J., McIntire, M., Remote Sensing to UAV-Based Digital Farmland, IGARSS 2018, Valencia, Spain, July 22-27, 2018.
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4. Wainwright, H., Dafflon, B., Falco, N., Arora, B., Woodburn, E., Williams, K.H., Hubbard, S.S., Digital Watershed: Advanced Watershed Characterization across Scales, CMWR2018: Computational Methods in Water Resources, Saint-Mola, France, June 3-7, 2018.
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10. Matheus-Carnevali, P., Lavy, A., Dong, W., Thomas, B., Williams, K.H., Tokunaga, T., Wan, J., Hubbard, S.S., Banfield, J.F., Microbial community structure of meander-associated riparian zone topsoil resembles that of a hillslope floodplain site, but differs from deeper samples, DOE JGI User Meeting, Berkeley, CA, March 13-16, 2018.
11. Boaga, J., Mary, B., Peruzzo, L., Schmutz, M., Wu, Y., Hubbard, S.S., Cassiani, G., H31B-1511: 3D electrical resistivity tomography and Mise-à-la-Masse method as tools for the characterization of vine roots, American Geophysical Society Union Fall Meeting, New Orleans, LA, December 11-15, 2017.
12. Newcomer, M.E., Dwivedi, D., Raberg, J. Fox, P.M., Nico, P.S., Wainwright, H.M., Conrad, M.E., Bill, M., Bouskill, N., Williams, K.H., Hubbard, S., Steefel, C.I., H41N-08: Hyporheic Interfaces Serve as Ecological Control Points for Mountainous Landscape Biological

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 21. Tran, A.P., Dafflon, B., Hubbard, S., H31B-1500: Coupled Land Surface-Subsurface Hydrogeophysical Inverse Modeling to Estimate Soil Organic Carbon Content in an Arctic Tundra, American Geophysical Society Union Fall Meeting, New Orleans, LA, December 11-15, 2017.

22. Tas, N., Wu, Y., Ulrich, C., Dafflon, B., Kneafsey, T., Tringe, S.G., Hubbard, S., Jansson, J.K., Deep Look into Permafrost: Multi-Omics Insights into Carbon Cycling, Microbiology Centennial Symposium, Wageningen University, October 2017.
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25. Hubbard, S.S., Wainwright, H.M., Tran, A.P., Wu, Y., Dafflon, B., Monitoring, Scaling and Predicting Interactions Across Critical Zone Compartments using Geophysical Data, AGU-SEG Hydrogeophysics Workshop, Stanford, CA, July 24-27, 2017.
26. Wu, Y., Dafflon, B., Tran, A.P., Leger, E., Peterson, J., Brodie, E., Williams, K.H., Hubbard, S.S., Investigating the Coupling of Root Zone and Hillslope Thermo-Hydro-Bio-Geo-Chemical Dynamics in a Mountainous Watershed Multi-scale Approaches, AGU-SEG Hydrogeophysics Workshop, Stanford, CA, July 24-27, 2017.
27. Dafflon B., Léger, E., Robert, Y., Peterson, J., Ulrich, C., Biraud, S., Tran, A.P., Arora, B., Wainwright, H., Romanovsky, V., Hubbard, S.S., EUCOP 5, France, June 2017.
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33. Schmutz, M., Franceschi, M., Revil, A., Peruzzo, Maury, T., Vaudelet, P., Ghorbani, A., Hubbard, S., (Invited) H31J-04: Spectral Induced Polarization approaches to characterize reactive transport parameters and processes, American Geophysical Society Union Fall Meeting, New Orleans, LA, December 11-15, 2017.

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37. Banfield, J., et al., Standing on the threshold and looking forward: incorporating microbial metabolism into understanding of biogeochemistry (Invited), Plenary 'Goldschmidt Award', Paris, France, August 13-18, 2017.
38. Wu, Y., Dafflon, B., Tran, A., Leger, E., Peterson, J., Brodie, E., Williams, K. and Hubbard, S., Investigating the Coupling of Root Zone and Hillslope Thermo-Hydro-Bio-Geo-Chemical Dynamics in a Mountainous Watershed using Multi-scale Approaches, The 3rd AGU-SEG Hydrogeophysics Workshop: Imaging the Critical Zone, Stanford, CA, July 2017.
39. Wainwright et al, Multi-type Multiscale Observation Platforms for Quantifying and Scaling Above and Below-ground Interactions, 2nd Asian Conference on Permafrost, ACOP 2017, Sapporo, Japan, July 2-6, 2017.
40. Hubbard, S., Wainwright, H., Tran A., Leger, E., Wu, Y., Dafflon, B., Monitoring, Scaling and Predicting Interactions across Critical Zone Compartments Using Geophysical Data, The 3rd AGU-SEG Hydrogeophysics Workshop: Imaging the Critical Zone, Stanford, CA, July 2017.
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42. Hubbard, S., Nico, P., Jones, A., Varadharajan, C., Kosteki, R., Ramesh, R., California Water Resiliency in an Energy Constrained and Uncertain Climate Future, Invited, 254th American Chemical Society National Meeting, Washington DC, August 20-24, 2017.
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44. Dafflon, B., Tran, A., Wainwright, H., Léger, E., Curtis, J., Oktem, R., Peterson, J., Ulrich, C., Soom, F., Wu, Y., Kneafsey, T., Torn, M. and Hubbard, S., Quantifying Multi-Dimensional Relationships to Estimate Arctic Soil Properties and Ecosystem Functioning at Relevant Scales, ESS PI Meeting, Washington, DC, April 25-26, 2017.
45. Matheus-Carnevali P., Williams, K., Dong, W., Hubbard, S. and Banfield, J., Genome-resolved metagenomic and geochemical analysis of East River riparian zone soils supports the 'systems within systems' approach for watershed analysis, Poster, ESS PI Meeting, Washington, DC, April 25-26, 2017.
46. Wainwright, H., Steefel, C., Williams, K., Hubbard, S., Enquist, B., Steltzer, H. and Sarah, T., H11D-06: Mapping Drought Sensitivity of Ecosystem Functioning in Mountainous Watersheds: Spatial Heterogeneity and Geological-Geomorphological Control, American Geophysical Society Union Fall Meeting, San Francisco, December 12, 2016.

47. Dafflon, B., Leger, E., Peterson, J., Ulrich, C., Soom, F., Biraud, S., Tran, A., Wainwright, H., Ajo-Franklin, J. and Hubbard, S., NS23B-08: Investigating Bedrock through Canopy Structure, Organization and Connectivity of an Arctic Watershed. American Geophysical Society Union Fall Meeting, San Francisco, December 13, 2016
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49. Leger, E., Dafflon, B., Thorpe, M., Kreitinger, A., Laura, D., Haivala, J., Peterson, J., Spangler, L. and Hubbard, S., H34A-04: Monitoring CO₂ Intrusion in shallow aquifer using complex electrical methods and a novel CO₂ sensitive Lidar-based sensor. American Geophysical Society Union Fall Meeting, San Francisco, December 14, 2016.
50. Tran, A., Dafflon, B. and Hubbard, S., B53G-0596: Coupled Land Surface-Subsurface Inverse Modeling to Investigate Arctic Hydrological and Thermal Dynamics and Soil Organic Content using Geophysical Data. American Geophysical Society Union Fall Meeting, San Francisco, December 16, 2016.
51. Soom, F., Ulrich, C., Dafflon, B., Wu, Y., Kneafsey, T., López, R., Peterson, J. and Hubbard, S., B43C-0627: Estimating the spatial distribution of soil organic matter density and geochemical properties in a polygonal shaped Arctic Tundra using core sample analysis and X-ray computed tomography, American Geophysical Society Union Fall Meeting, San Francisco, December 15, 2016.
52. Newcomer, N., Hubbard, S., Fleckenstein, J., Maier, U., Schmidt, C., Laube, G., Chen, N., Ulrich, C., Dwivedi, D., Steefel, C. and Rubin, Y., B31H-0573: Hydrological and Climate Controls on Hyporheic Contributions to River Net Ecosystem Productivity (Invited). American Geophysical Society Union Fall Meeting, San Francisco, December 14, 2016.
53. Wan, J., Tokunaga, T., Dong, W., Williams, K., Hobson, C., Kim, Y., Conrad, M., Bill, M., Long, P. and Hubbard, S., Relative Carbon Fluxes from Soil, Deep Valdose Zone and Groundwater to Atmosphere and River of a Semi-Arid Floorplain in Colorado, GSA Annual Meeting, Denver, CO, September 27, 2016.
54. Peruzzo, L., Schmutz, M., Franceschi, M., Hubbard, S., Copper solution concentration influence on the spectral induced polarization signature of different soil constituents, 4th International Workshop on Induced Polarization, Aarhus, Denmark, June 6-8, 2016.
55. Anantharaman, K., Brown, C., Hug, L., Itai, S., Castelle, C., Shelton, A., Bonet, B., Probst, A., Thomas, B., Singh, A., Wilkins, M., Williams, K., Tringe, S., Beller, H., Brodie, E., Hubbard, S. S., and Banfield, J., B11J-0567: 2500 High-quality Genomes Reveal that the Biogeochemical Cycles of C, N, S and H are Cross-linked by Metabolic Handoffs in the Terrestrial Subsurface. American Geophysical Union Fall Meeting, San Francisco, CA, December 14, 2015.
56. Molz, F., Faybishenko, B., Brodie, E., and Hubbard, S. S., H21A-1331: Complexity in Soil Systems: What Does It Mean and How Should We Proceed? American Geophysical Union Fall Meeting, San Francisco, CA, December 15, 2015.
57. Tran, A.P., Dafflon, B., Hubbard, S. S., Bisht, G., Peterson, J., Ulrich, C., Romanovsky, V., Kneafsey, T. Wu, Y., H13E-1596: Coupled Monitoring and Inverse Modeling to Investigate Surface – Subsurface Hydrological and Thermal Dynamics in the Arctic Tundra. American Geophysical Union Fall Meeting, San Francisco, CA, December 14, 2015.

58. Dafflon, B., Peterson, J., Oktem, R., Curtis, J., Ulrich, C., Torn, M., and Hubbard, S. S., B41D-0469: Estimating Soil Properties and Relationship to Landscape Properties in Arctic Tundra using Aerial Platform and Geophysical Monitoring. American Geophysical Union Fall Meeting, San Francisco, CA, December 17, 2015.
59. Wu, Y., Dafflon, B., and Hubbard, S. S., H53C-1671: Geophysical Imaging of Root Architecture and Root-soil Interaction. American Geophysical Union Fall Meeting, San Francisco, CA, December 18, 2015.
60. Ulrich, C., Dafflon, B., Wu, Y., Kneafsey, T., Lopez, R., Peterson, J., and Hubbard, S. S., C11C-0788: Lab-Scale Investigation of Multi-dimensional Relationships between Soil Intrinsic Properties to Improve Estimation of Soil Organic and Ice Content using Novel Core Imaging and Geophysical Techniques in Arctic Tundra. American Geophysical Union Fall Meeting, San Francisco, CA, December 14, 2015.
61. Wainright, H., Liljedal, A., Peterson, J., Dafflon, B., Ulrich, C., Gusmeroli, A., and Hubbard, S. S., C33C-0825: Multiscale Observational Platforms and Bayesian Data Integration to Estimate Snow Depth and Snow-water-equivalent over the Ice-wedge Polygonal Tundra. American Geophysical Union Fall Meeting, San Francisco, CA, December 16, 2015.
62. Hubbard, S. S., Dafflon, B., Tran, A.P., Chen, J., and Wainwright, H., B52C-04: Quantifying Biogeochemical Responses to Hydrological Perturbations in Terrestrial Systems using Geophysical Monitoring and Inversion Schemes. American Geophysical Union Fall Meeting, San Francisco, CA, December 18, 2015.
63. Dafflon, B., Tran, A.P., Wainright, H., Hubbard, S. S., Peterson, J., Ulrich, C., and Williams, K., H54B-02: Quantifying Subsurface Water and Heat Distribution and its Linkage with Landscape Properties in Terrestrial Environment using Hydro-Thermal-Geophysical Monitoring and Coupled Inverse Modeling. American Geophysical Union Fall Meeting, San Francisco, CA, December 18, 2015.
64. Newcomer, M., Hubbard, S. S., Fleckenstein, J., Maier, U., Schmidt, C., Thullner, M., Ulrich, C., Flipo, N., and Rubin, Y., B54B-04: Riverbed Bioclogging and the Effects on Infiltration and Carbon Flux under Climate Variability. American Geophysical Union Fall Meeting, San Francisco, CA, December 18, 2015.
65. Hubbard, S. S., Walck, M., Blankenship, D., Bonneville, A., Bromhal, G., Daley, T., Pawar, R., Polsky, Y., Mattson, E., and Mellors, R., H51M-1561: The DOE Subsurface (SubTER) Initiative: Revolutionizing Responsible use of the Subsurface for Energy Production and Storage. American Geophysical Union Fall Meeting, San Francisco, CA, December 18, 2015.
66. Hubbard, S. S., Agarwal, D., Banfield, J., Beller, H., Brodie, E., Long, P., Nico, P., Steefel, C., Tokunaga, T., Williams, K. H., and the Sustainable Systems SFA 2.0 Team, B31B-0020: Genome-to-Watershed Predictive Understanding of Terrestrial Environments, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
67. Chen, J., Hubbard, S. S., and Williams, K. H., B31B-0022: Estimating groundwater dynamics at a Colorado floodplain site using historical hydrological data and climate information, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
68. Christensen, J. N., Shiel, A. E., Conrad, M. E., Williams, K. H., Dong, W., Tokunaga, T. K., Wan, J., Long, P. E., and Hubbard, S. S., H43N-1174: Uranium and Strontium Isotopic Study of the Hydrology of the Alluvial Aquifer at the Rifle Former U Mine Tailings Site, Colorado, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.

69. Conrad, M., Arora, B., Williams, K. H., Bill, M., Spycher, N., Steefel, C. I., Tokunaga, T. K., and Hubbard, S. S., B31B-0016: Using Concentrations and Isotopic Compositions of CO₂ to Distinguish Microbial Production of CO₂ in Unsaturated Zone Sediments in Hydrogeochemical Models, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
70. Dafflon, B., Hubbard, S. S., Peterson, J., Ulrich, C., Oktem, R., Curtis, J. B., Tran, A. P., Wu, Y., Cable, W. and Romanovsky, V. E., FM14-C11C-0379: Estimating Arctic Tundra Soil Water Content Variability and Relationship to Landscape Properties Using Above- and Below-Ground Imaging, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
71. Dou, S., Dreger, D. S., Peterson, J., Ulrich, C., Dafflon, B., Hubbard, S. S. and Ajo-Franklin, J. B., FM14-C53A-0288: Wavefield Inversion of Surface Waves for Delineating Seismic Structure in Saline Permafrost: A Case History from the Barrow Peninsula, AK, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
72. Gangodagamage, C., Rowland, J. C., Hubbard, S. S., Brumby, S. P., Liljedahl, A., Wainwright, H. M., Sloan V. L., Altmann, G., Skurikhin, A., Shelef, E., Wilson, C. J., Dafflon, B., Peterson, J., Ulrich, C., Gibbs, A., Tweedie, C. E., Painter, S. L., and Wullschleger, S. D., EP31A-3517: Predicting/Extrapolating Active Layer Thickness Using Statistical Learning from Remotely-Sensed High-resolution Data in Arctic Permafrost Landscapes: Improved parameterization of Ice-wedge polygons from LiDAR/WorldView-2 derived metrics, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
73. Hubbard, S. S. and Arora, B., (Chairs), B33B: Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes Across Scales I Posters, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
74. Hubbard, S. S., Agarwal, D., Banfield, J. F., Beller, H. R., Brodie, E., Long, P., Nico, P. S., Steefel, C. I., Tokunaga, T. K., Williams, K. H., and the Sustainable Systems SFA 2.0 Team, B31B-0020: Genome-to-Watershed Predictive Understanding of Terrestrial Environments, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
75. Newcomer, M. E., Hubbard, S. S., Fleckenstein, J. H., Schmidt, C., Maier, U., Thullner, M., Ulrich, C., and Rubin, Y., B31E-0055: Feedbacks Between Bioclogging and Infiltration in Losing River Systems, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
76. Tokunaga, T. K., Wan, J., Dong, W., Kim, Y., Williams, K. H., Conrad, M. E., Christensen, J. N., Bill, M., Faybishenko, B., Hobson, C., Dayvault, R., Long, P. E. and Hubbard, S. S., B44B-07: Water and Carbon Fluxes in a Semi-Arid Region Floodplain: Multiple Approaches to Constrain Estimates of Seasonal- and Depth Dependent Fluxes at Rifle, Colorado, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
77. Tran, A. P., Dafflon, B., Hubbard, S. S., Kowalsky, M. B., Tokunaga, T. K., Faybishenko, B., and Long, P. E., H54B-06: Monitoring Soil Hydraulic and Thermal Properties using Coupled Inversion of Time-lapse Temperature and Electrical Resistance Data, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
78. Ulrich, C., Hubbard, S. S., Peterson, J., Blom, K., Black, W., Delaney, C. and Mendoza, J., NA21A-3870: Geophysical Assessment of the Control of a Jetty on a Barrier Beach and

- Estuary System, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
79. Versteeg, R. J., Bianchi, M., and Chen, J., Hubbard, S. S., and Williams, K. H., B31B-0022: Estimating groundwater dynamics at a Colorado floodplain site using historical hydrological data and climate information, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
 80. Wainwright, H. M., Hubbard, S. S., and Arora, B., (Chairs), B44B: Characterizing Spatial and Temporal Variability of Hydrological and Biogeochemical Processes Across Scales II, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
 81. Wainwright, H. M., Dafflon, B., Smith, L.J., Hahn, M.S., Ulrich, C., Wu, Y., Peterson, J., Curtis, J. B., Torn, M. S., and Hubbard, S. S., FM14-B54F-07: Identifying multiscale zonation and assessing the relative importance of polygon geomorphology and polygon types on carbon fluxes in an Arctic Tundra Ecosystem, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
 82. Walck, M.C., Hubbard, S. S., and Hollett, D., TH15E: DOE Crosscutting Subsurface Initiative: Adaptive Control of Subsurface Fractures and Flow, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
 83. Wan, J., Dong, W., Kim, Y., Tokunaga, T. K., Bil, M., Conrad, M. E., Williams, K. H., Long, P. E., and Hubbard, S. S., B33B-0164: Subsurface Carbon Cycling Below the Root Zone, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
 84. Wu, Y., Kneafsey, T. J., Tas, N., Bill, M., Ulrich, C., and Hubbard, S. S., FM14-B41O-07: Controlled Freeze-thaw Experiments to Study Biogeochemical Process and its Effects on Greenhouse Gas Release in Arctic Soil Columns, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.,
 85. Versteeg, R. J., Bianchi, M., Hubbard, S. S., H13H-1210: Predictive assimilation framework to support contaminated site understanding and remediation, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-19, 2014.
 86. Hubbard, S. S., Geophysical quantification of ecosystem processes across scales and system compartments, ESPM UC Berkeley seminar series, Berkeley, CA, April 2014
 87. Hubbard, S. S., et al., Geophysical imaging of the Arctic Tundra: From microbes to landscapes, KQED, San Francisco, CA May 2014.
 88. Hubbard, S. S., et al., Identifying ecosystem controls through joint use of above and below ground datasets, DOE SBR/PI Meeting, Potomac, MA, May 2014.
 89. Banfield, J., Castelle, C., Hug, L., Wrighton, K., Sharon, I., Brown, C., Kantor, R., Singh, A., Thomas, B., Luef, B., Comolli, L., Williams, K. H., Long, P., Hubbard, S. S., Prediction of the biogeochemical roles of uncultivated bacteria and archaea in the subsurface, Goldschmidt, Sacramento, CA, June 2014.
 90. Christensen, J. N., Shiel, A., Conrad, M. E., Williams, K. W., Dong, W., Tokunaga, T. K., Wan, J., Long, P. E., Hubbard, S. S., Constraints on the hydrology of a riparian site from U and Sr isotopes: The Rifle, Colorado floodplain, Goldschmidt, Sacramento, CA, June 2014.
 91. Banfield, J., Castelle, C., Sharon, I., Hug, L., Brown, C., Kantor, R., Thomas, B., Singh, A., Wilkins, M., Hettich, R., Tringe, S., Williams, K. H., Brodie, E., Beller, H., Hubbard, S. S., Diversity and metabolic potential of the terrestrial subsurface microbiome and its influence

- on biogeochemical cycling, PI meeting SBR DOE, TES SBR PI Meeting, Potomac, MD, May 6-7, 2014.
92. Chakraborty, R., Pettenato, A., Tas, N., Hubbard, S. S., Jansson, J., Metabolic and Growth Characteristics of Novel Diverse Microbes Isolated from Deep Cores Collected from Barrow, Alaska, American Society for Microbiology Meeting, Boston, Massachusetts, May 17-20, 2014.
 93. Freshley, M., Freedman, V., Hubbard, S. S., Wainwright, H., Truex, M., Eddy-Dilek, C., Scheibe, T., Moulton, D. and Marble, J., Advanced Simulation Capability for Environmental Management (ASCEM): A Toolset for Evaluation of Complex Sites, Federal Remediation Technologies Roundtable, May 2014.
 94. Freshley, M., Freedman, V., Hubbard, S. S., Wainwright, H., Scheibe, T., Moulton, D., Dixon, P., and Marble, J., Advanced Simulation Capability for Environmental Management (ASCEM): A Toolset for Groundwater Protection EPRI Groundwater Protection Workshop, Savannah GA, June 24-26, 2014.
 95. Freshley, M., Scheibe, T., Moulton, D., Freedman, V., Hubbard, S. S., Finsterle, S., Steefel, C., Wainwright, W., Flach, G., Seitz, R., Dixon, P., Marble, J., Advanced Simulation Capability for Environmental Management Initial User Release (14134), Waste Management, 2014.
 96. Pugh, J., Birkholzer, J., Dafflon, B., Esposito, R., Hubbard, S. S., Newell, D., Nico, P., Spycher, N., Tinnacher, R., Trautz, R., Varadharajan, C., Wu, Y., Zheng, L., Effects of CO₂ Leakage into Drinking Water Aquifers: Lessons Learned from a Controlled CO₂ Release Field Test, GHGt12, Austin, 2014.
 97. Hubbard, S. S., Agarwal, A., Banfield, J., Beller, H., Brodie, E., Long, P., Nico, P., Steefel, C., Tokunaga, T., Williams, K., Genome-to-Watershed Predictive Understanding of Terrestrial Biogeochemical Functioning: 'Sustainable Systems 2.0', Goldschmidt, Sacramento, CA, June 2014.
 98. Newcomer, M.E., Hubbard, S. S., Fleckenstein, J., Schmidt, C., Maier, U., Thullner, M., Rubin, Y., Seasonal Dynamic Permeability Effects on the Transient Connection Status of a River, International Water Association (IWA) Conference, San Francisco, 2014.
 99. Tas, N. Wang, S., Wu, Y., Smith, L., Ulrich, C., Kneafsey, T., Torn, M., Hubbard, S. S., and Jansson, J., Microbial ecology across polygon features at the NGEE-Arctic Barrow site, Complex Soil Systems Conference, Berkeley, California, September 3-5, 2014.
 100. Tokunaga, T., Wan, J., Dong, W., Williams, K. H., Robbins, M. J., Kim, Y., Faybishenko, B., Conrad, M., Christensen, J., Hobson, C., Gilbert, B., Dayvault, R., Long, P. E., Hubbard, S. S., Determining water and carbon fluxes into groundwater from a semiarid floodplain vadose zone, Goldschmidt, June 2014, Sacramento, CA.
 101. Wan, J., Dong, W., Tokunaga, T., Williams, K., Kim, Y., Conrad, M., Gilbert, B., Long, P., Hubbard, S. S., Carbon transport and transformation from vadose zone to groundwater, Goldschmidt, Sacramento, CA, June 2014.
 102. Wullschleger, S., Hinzman, L., Hubbard, S. S., Rogers, A., Thornton, P., Wilson, C., Landscape change in a warming Arctic - Implications for carbon cycle processes and climate feedbacks at multiple scales, "Vulnerability of Arctic and Boreal Ecosystems Under a Changing Climate", Anchorage, AK, May 18-22 2014.
 103. Dafflon, B., Hubbard, S. S., Wainwright, H., Wu, Y., Dou, S., Ajo-Franklin, J., Peterson, J., Ulrich, C., Gusmeroli, A., Kneafsey, T., Characterization of active layer and permafrost

- variability using geophysical approaches, Department of Energy TES/SBR Joint PI Meeting, Potomac, MD, May 14-15, 2013.
104. Tas, N., Torn, M., Chakraborty, R., Smith, L., Wu, Y., Ulrich, C., Kneafsey, T., Graham, D., Hubbard, S. S., Wullschleger, S., Jansson, J., Microbial ecology across polygon features at the NGEE-Arctic Barrow site, Department of Energy TES/SBR Joint PI Meeting, Potomac, MD, May 14-15, 2013.
 105. Wullschleger, S., Graham, D., Liang, L., Norby, R., Thornton, P., Hubbard, S. S., Torn, M., Riley, W., Rowland, J., Wilson, C., Rogers, A., Hinzman, L., NGEE Arctic: Migrating process-rich knowledge across spatial scales to improve climate prediction, Department of Energy TES/SBR Joint PI Meeting, Potomac, MD, May 14-15, 2013
 106. Wilson, C., Hinzman, L., Wullschleger, S., Bolton, R., Busey, R., Cherry, J., Liljedahl, A., Grosse, G., Gusmeroli, A., Hubbard, S. S., Kholodov, A., Peterson, J. Romanovsky, V., Rowland, J., Wainwright, H., Young, J., Quantifying the interactions of geomorphic hydrologic and thermal processes to improve predictions of climate impacts and feedbacks in the Arctic, Department of Energy TES/SBR Joint PI Meeting, Potomac, MD, May 14-15, 2013.
 107. Hinzman, L. D., Wullschleger, S. D., Wilson, C. J., Rowland, J. C., Hubbard, S. S., Torn, M. S., Riley, W. J., Graham, D. E., Liang, L., Norby, R. J., Thornton, P. E., Rogers, A., Next-Generation Ecosystem Experiment (NGEE Arctic): Opportunities for International Collaboration and Partnership, ISAR - 3 Third International Symposium on the Arctic Research, Tokyo, Japan, January 14-17, 2013.
 108. Hubbard S. S., Dafflon B., Wainwright H., Tokunaga T. K., Ulrich C., Jansson J., Tidenorn M. S., Williams K. H., H41L-04: Characterizing controls on terrestrial environment functioning across scales using geophysical datasets, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 109. Agarwal, D., Pullman, S., Voytek, J., Pastorello, G., Papale, D., Biraud, S., Hubbard, S. S., Torn, M., IN33B-1536: Enabling Mobile Data and Metadata Collection and Submission in Support of AmeriFlux and NGEE Data Collection and Access, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 110. Cheng, Y., Bouskill, N., Hubbard, C., Hubbard, S. S., Surasani, V., Ajo-Franklin, J., Li, L., Rafa, S., Engelbrektson, A., Coates, J., Understanding Microbial Reservoir Souring and Desouring Processes Using Reactive Transport Modeling, B43B-0477: American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 111. Chakraborty, R., Pettenato, A., Tas, N., Hubbard, S. S., Jansson, J., B33G-0561: Isolation and characterization of novel microorganisms from deep cores collected at the Next Generation Ecosystem Experiment (NGEE)-Arctic site in Barrow, Alaska, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 112. Commer, M., Kowalsky, M. Dafflon, B., Wu, Y., Hubbard, S. S., NS33A-1683: Strategies for improving the resolution of electrical and electromagnetic geophysical measurements for three-dimensional inverse modeling of CO₂ movement, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 113. Dafflon B., Hubbard S. S., Ulrich C., Peterson J. E., Wu Y., Wainwright H., Gangodagamage C., Kholodov A.L., Kneafsey T., C43A-0664: Quantifying Arctic terrestrial environment

- behaviors using geophysical, point-scale and remote sensing data, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
114. Dafflon B., Hubbard S. S., Ulrich, C., and Peterson J. E., Estimating arctic soil properties through advanced inversion of electromagnetic induction data (extended abstract), SEG/AGU joint workshop: Cryosphere geophysics: Understanding a changing climate with subsurface imaging, Boise, ID, January 2013.
 115. Dafflon B., Hubbard, S. S., Ulrich, C., Peterson, J. E., Wainwright, H., and Wu, Y., Estimating active layer, ice-wedge and permafrost property distributions in Arctic ecosystem using electrical conductivity imaging (Invited), SEG extended abstract, Houston, TX, September 2013.
 116. Dixon, P., Freshley, M., Schiebe, T., Moulton, D., Hubbard, S. S., Finsterle, S., Steefel, C., Advanced Simulation Capability for Environmental Management User Release and Current Plans, The Geological Society of America (GSA) Annual Meeting and Expo, Denver CO, October 27-30, 2013.
 117. Florsheim, J. L., Ulrich, C., Hubbard, S. S., Borglin, S., Rosenberry, D. O., EP33A-0873: Geomorphic field experiment to quantify grain size and biotic influence on riverbed sedimentation dynamics in a dry-season reservoir, Russian River, CA, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 118. Gangodagamage, C., Rowland, C. J., Skurikhin, A. N., Wilson, C. J., Brumby, S. P., Painter, S. L., Gable, C. W., Bui, Q., Short, L. S., Liljedahl, A. K., Wainwright, H. M., Hubbard, S. S., Dafflon, B., Tweedie, C. E., Kumar, J., Wullschleger, S. D., B51H-0402: Spatial and Spectral Characterization, Mapping, and 3D Reconstructing of Ice-wedge Polygons Using High Resolution LiDAR Data, AGU, San Francisco, CA, December 9-13, 2013.
 119. Hinzman, L., Wullschleger, S., Hubbard, S. S., Graham, D., Wilson, C., Torn, M., Norby, R., Rogers, A., and the entire NGEE-Arctic Team, C31B-0649: Observation Platforms and Data Streams of the Arctic Next Generation Ecosystem Experiment (NGEE-Arctic), American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 120. Jansson, J., Tas, N., Wu, Y., Ulrich, U., Kneafsey, T., Torn, M., Hubbard, S. S., Chakroborty, R., Graham, D., Wullschleger, S., B32C-04: Metagenomics reveals microbial community composition and function with depth in Arctic permafrost cores, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 121. Hubbard, S. S., Graham, D. E., Hinzman, L. D., Liang, L., Liljedahl, A., Norby, R. J., Rogers, A., Rowland, J. C., Thornton, P. E., Torn, M. S., Riley, W. J., Wilson, C. J., Wullschleger, S. D., C33C-07: Improved Climate Prediction through a System Level Understanding of Arctic Terrestrial Ecosystems: Next Generation Ecosystem Experiments (NGEE-Arctic), American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 122. Newcomer, M., Hubbard, S. S., Fleckenstein, J., Schmidt, C., Maier, U., Rubin, Y., H24A-07: Dynamic Permeability and Clogging Processes of Riverbank Filtration Systems, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
 123. Tas, N., Wu, Y., Smith, L., Ulrich, C., Kneafsey, T., Torn, M., Hubbard, S. S., Wullschleger, S., Jansson, J., Metagenomics and microbial community profiling across an Arctic polygon transect, Polar and Alpine Microbiology, Big Sky, MT, Sept 8-12, 2013.

124. Tas, N., Hubbard, S. S., Jansson, J., Isolation and characterization of anaerobic, fermentative and respiratory microbes from permafrost soil, in Polar and Alpine Microbiology, Big Sky, MT, September 8-12, 2013.
125. Chakraborty, R., Pettenato, A., Tas, N., Hubbard, S. S., Jansson, J., Metabolic and growth characteristics of novel diverse microbes isolated from deep cores collected at the Next Generation Ecosystem Experiment (NGEE) - Arctic site in Barrow, Alaska, in American Society for Microbiology Meeting, Boston, MA, May 17-20, 2013
126. Tokunaga, T., Wan, J., Dong, W., Williams, K. H., Robbins, M. J., Kim, Y., Faybishenko, B., Conrad, M.C., Christensen, J. N., Gilbert, B., Dayvault, R. D., Long, P. E., Hubbard, S. S., B23C-0568: Organic carbon inventory and vertical flux through the Vadose Zone into groundwater at the Rifle, Colorado River floodplain site, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
127. Ulrich, C., Hubbard, S. S., Peterson, J., Delaney, C., Blaum, K., and Black, W., H13A-1308: Geophysical Assessment of the Control of a Jetty on a Barrier Beach and Estuary System, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
128. Wainwright H., Hubbard S. S., Dafflon B., Ulrich C., Peterson J. E., Wu Y., Hahn M. S., Torn M. S., Gangodagamage C., Rowland J. C., Wilson C. J., Liljedahl A., Gusmeroli A., Wulschleger S. D., C53C-06, Characterizing subsurface controls on the Arctic ecosystem carbon cycling across scales using geophysical, in-situ and remote sensing datasets, American Geophysical Union Fall Meeting, San Francisco, CA, December 9-13, 2013.
129. Wu, Y., Kneafsey, T., Nakagawa, S., Borglin, S., Cook, P., Torn, M., Jansson, J., Hubbard, S. S., B14E-07: Freeze-thaw Laboratory Column Experiments using Arctic Permafrost Cores: Exploring Controls of Subsurface Heterogeneity on Greenhouse Gas Release, American Geophysical Union Fall Meeting, CA, December 9-13, 2013.
130. Yang, D., Li, M., Chen, J., Hubbard, S. S., H44A-04: Calibration of a distributed forecasting model with input uncertainty using a Bayesian Framework, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
131. Jansson, J., Tas, N., Brodie, e., Graham, D., Kneafsey, T., Torn, M., Wu, Y., Wulschleger, S., Hubbard, S. S., C31C-06: Horizontal and vertical profiling of microbial communities across landscape features at NGEE site, Barrow, Alaska, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
132. Wilson, C., Graham, D., Hinzman, L., Hubbard, S. S., Liang, L., Norby, R., Riley, W., Rogers, A., Rowland, J., Thornton, P., Torn, M., Wulschleger, S., C53A-0807: Scaling process studies and observations in the arctic for improved climate predictability, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
133. Surasani, V. K., Commer, M., Ajo-Franklin, J., Li, L., Hubbard, S. S., B23B-0444: Reactive transport modeling and geophysical monitoring of bioclogging at reservoir scale, 2012 Fall Meeting, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
134. Gusmeroli, A., Liljedahl, A., Peterson, J., Hubbard, S. S., C33C-0668: Effects of spatially variable snow cover on thermal regime and hydrology of an Arctic ice wedge polygon landscape identified using ground penetrating radar and LIDAR datasets, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.

135. Ulrich, C., Hubbard, S. S., Florsheim, J., Rosenberry, D., Borglin, S., Zhang, Y., Seymour, D., and Trotta, M., H131-10: Quantifying Factors That Impact Riverbed Dynamic Permeability at a Riverbank Filtration Facility, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
136. Wu, Y., Hubbard, S. S., Ulrich, C., Dafflon, B., Wulschleger, S., C13C-0640: Complex resistivity method for permafrost studies: freeze thaw transitions in the arctic soils, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
137. Dafflon, B., Hubbard, S. S., Ulrich, C., Peterson, J., Wu, Y., Chen, J. and Wulschleger, S., C22B-04: Depth imaging of active layer and permafrost variability in the Arctic using electromagnetic induction data, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
138. Wainwright, H., Hubbard, S. S., Gangodagamage, C., Dafflon, B., Ulrich, C., Wu, Y., Wilson, C., Tweedie, C., and Wulschlegger, S., B53E-0715: High resolution characterization of heterogeneous arctic tundra subsurface properties using a multiscale bayesian fusion approach with geophysical datasets, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
139. Hubbard, C., Hubbard, S. S., Wu, Y., Surasani, V., Ajo-Franklin, J., Commer, M., Dou, S., Kwon, T., Li, L., Fouke, B., and Coates, J., B23B-0447: Toward optimized bioclogging and biocementation through combining advanced geophysical monitoring and reactive transport modeling approaches, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
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141. Hubbard, S. S., Wainwright, H., Chen, J., Bea, S., Li, L. and Spycher, N., H33N-01: Quantifying physicochemical heterogeneity and critical transitions that influence plume behavior using geophysical approaches and reactive transport modeling, American Geophysical Union Fall Meeting, San Francisco, CA, December 3-7, 2012.
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