CURRICULUM VITAE

JOHN H. BRADFORD

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EDUCATION

Ph.D. Geophysics, January 1999, Rice University, Houston, Texas
B.S. Physics, 1994, University of Kansas, Lawrence, Kansas (with Distinction, Departmental Honors)
B.S. Engineering Physics (*concentration in chemical engineering*), 1994, University of Kansas, Lawrence, Kansas (with Highest Distinction)

Dissertation Title: Characterizing Shallow Aquifers with Wave-Propagation Based Geophysical Methods: Imaging and Attribute Analysis

Thesis Advisors: Manik Talwani, Emeritus Professor, Rice University
Dale Sawyer, Professor, Rice University

PROFESSIONAL EXPERIENCE

Professor, Boise State University, Boise, ID (8/11-present)
President, Society of Exploration Geophysicists, 2015-2016
Visiting Professor, China University of Geosciences, Wuhan, China, (6/16)
Herbette Fondation Fellow, University of Lausanne, Lausanne, Switzerland, (2/12 – 5/12)
Associate Professor, Boise State University, Boise, ID (8/08 - 8/11)
2nd Vice President, Society of Exploration Geophysicists (10/09-10/10)
Director, Center for Geophysical Investigation of the Shallow Subsurface (1/06-1/09)
Assistant Professor, Boise State University, Boise, ID (8/05 - 7/08)
Research Professor, Boise State University, Boise, ID (6/01 - 8/05)
Academic Professional Research Scientist, Univ. of Wyoming, Laramie, WY (4/99 - 6/01)
Research Scientist, Houston Advanced Research Center, The Woodlands, TX (8/97 - 9/98)
Research Associate, Houston Advanced Research Center, The Woodlands, TX (5/97 - 8/97)
Research Associate, Houston Advanced Research Center, The Woodlands, TX (5/95 - 8/95)
Infantryman, 101st Airborne Division, US Army, 1986-1989

AWARDS AND HONORS
SEG Life Membership, Society of Exploration Geophysicists, 2012
Harold Mooney Award, Near Surface Geophysics Section, SEG, 2010
Best Paper, SAGEEP 2009
Named one of Houston's best and brightest: Technology Houston, 1999
Torkild Rieber Award for academic excellence in geology, Rice University, 1998
Schlumberger Fellowship (not accepted), Rice University, 1997
Samuel P. Worden Endowed Award for innovation in geophysics, Rice University, 1997
U.S. EPA STAR Graduate Fellow, 1995-1997
Outstanding Senior in Physics, University of Kansas, 1994
Outstanding Senior in Engineering Physics, University of Kansas, 1994
Stranathan Award for Outstanding Junior in Physics, University of Kansas, 1993
Engineering Alumnus Scholar, University of Kansas, 1991-1994
Charles Spahr Engineering Scholarship, University of Kansas, 1991

COURSES TAUGHT
GEOPH 300: Physics of the Earth (undergraduate)
GEOPH 305: Applied Geophysics (undergraduate)
GEOPH 465/565: Seismic Methods (undergraduate/graduate)
GEOPH 540/640: Electromagnetic and Seismic Wave Propagation (graduate)
GEOPH 460/560: Electrical and Electromagnetic Methods (undergraduate/graduate)
GEOPH 466/566: Snow and Ice Physics (undergraduate/graduate)
GEOPH 502: Properties and Processes in Geophysics II (graduate)

GRADUATE STUDENTS
Diego Domenzain Gonzalez, PhD Aspirant, Boise State University
Aida Mendieta, MS Candidate, Boise State University
Tate Meehan, MS Candidate, Boise State University
Andrew Gase, MS Candidate, Boise State University
Travis Nielson, MS Candidate, Boise State University
Kyle Lindsay, MS 2015, Boise State University
Esther Babcock, PhD 2014, Boise State University
Emily Hinz, PhD 2012, Boise State University
Joel Brown, PhD 2012, Boise State University
Josh Nichols, MS 2010, Boise State University
Troy Brosten, PhD 2008, Boise State University
Scott Hess, MS 2006, Boise State University
Jake Deeds, MS 2002, University of Wyoming

JOURNAL ARTICLES
(* - indicates student first author, **-indicates invited paper)

1. *Hetrick, H.F., H.P. Marshall, J.H. Bradford, J.P. McNamara, and D. Eiriksson, *in review*, Quantifying the role of lateral flow of water in a sloped alpine snowpack: Spatiotemporal patterns in soil moisture and snowmelt: Water Resources Research.

2. *Pirot, G., N. Linde, J. Bradford, G. Mariethoz, *in review,* Efficient probabilistic inversion with Graph Cuts: Application to the Boise Hydrogeophysical Research Site: Water Resources Research.
3. Soulsby, C., J. Bradford, J. Dick, J.P. McNamara, J. Geris, J. Lessels, M. Blumstock, and D. Tetzlaff, *in press*, Using geophysical surveys to test tracer-based storage estimates in headwater catchments: Hydrological Processes.
4. *Babcock, E.L., A.P. Annan, and J.H. Bradford, *in press*, Cable effects in ground-penetrating radar data and implications for quantitative amplitude measurements: Journal of Environmental and Engineering Geophysics.
5. *Schmid, L., J. Schweizer, J. Bradford, H. Maurer, 2016, A synthetic study to assess the applicability of full-waveform inversion to infer stratigraphy from upward-looking ground-penetrating radar data: Geophysics, 81, WA213-WA223.
6. Bradford, J.H., Babcock, E., HP Marshall, and Dickins, D.F., 2016, Targeted reflection-waveform inversion of experimental ground-penetrating radar data for quantification of oil spills under sea ice: Geophysics, 81, WA59-WA70.
7. Bradford, J., 2015, Reverse-time prestack depth migration of GPR data from topography for amplitude reconstruction in complex environments: Journal of Earth Science, 26, 791-798.
8. *Babcock, E., and Bradford, J.H., 2015, Quantifying the GPR response to ultra-thin layers of non-aqueous phase liquid contaminants: Interpretation, 3, SAB23-SAB31.
9. *Babcock, E., and Bradford, J.H., 2015, Electrical anisotropy in sea ice and a dual-polarization radar system to mitigate the effects of preferential attenuation in imaging sea ice: Cold Regions Science and Technology, 118, 105-111, doi:10.1016/j.coldregions.2015.06.012.
10. *Lindsay, K., Bradford, J., Silliman, S., Yalo, N., and Boukari, M., 2015, Seismic imaging to help understand and manage water quality in coastal Bénin, West Africa: Geophysics, 80, WB35-WB42.
11. *Babcock, E. and Bradford, J.H., 2015, Reflection waveform inversion of ground-penetrating radar data for characterizing thin- and ultra-thin layers of non-aqueous phase liquid contaminants in stratified media: Geophysics, 80, H1-H11.
12. *Babcock, E. and Bradford J., 2014, Quantifying the basal conditions of a mountain glacier using a targeted full-waveform inversion: Bench Glacier, Alaska: Journal of Glaciology, 60, 1221-1231.
13. Bradford, J.H., Lindsay, K., Silliman, S., Yalo, N., and Boukari, M., 2014, Urban seismology for groundwater characterization in a developing country: Challenges and rewards: The Leading Edge, 33, 1336-1340.
14. Klotzche, A., van der Kruk, J., Bradford, J., and Vereecken, H., 2014, Detection of spatially limited high-porosity layers using crosshole GPR signal analysis and full-waveform inversion: Water Resources Research, 50, doi:10.1002/2013WR015177.
15. *Thoma, M.J., Barrash, W., Cardiff, M.C., Bradford, J., Mead, J., 2014, Estimating unsaturated hydraulic functions for coarse sediment from a field-scale infiltration experiment: Vadose Zone Journal, 13, 1-17.
16. Bradford, J.H., Nichols, J., Harper, J.T., Meierbachtol, T., 2013, Compressional and EM wave velocity anisotropy in a temperate glacier due to basal crevasses and implications for water content estimation: Annals of Glaciology, 56, 168-178.
17. **Bradford, J.H. and Babcock, E., 2013, The need to adapt the exploration model from

the oil patch to contaminated-site characterization: A case from Hill AFB, Utah, USA: The Leading Edge, 32, 750-756.
18. *Eiriksson, D., Whitson, M., Luce, C.H., Marshall, H.P., Bradford, J., Benner, S.G., Black, T., Hetrick, H., McNamara, J.P., 2013, An evaluation of the hydrologic relevance of lateral flow in snow at hillslope and catchment scales: Hydrological Processes, 25, 640-654.
19. *Moghadas, D., André, F., Bradford, J.H., van der Kruk, J., Vereecken, H., and Lambot, S., 2012, Electromagnetic induction antenna modeling using a linear system of complex antenna transfer functions: Near Surface Geophysics, 10, 237-247.
20. *Mikesell, T.D., van Wijk, K., Haney, M.M., Bradford, J.H., Marshall, H.P., 2012, Monitoring glacier surface seismicity through time and space using Rayleigh waves: Journal of Geophysical Research – Earth Surface, VOL. 117, F02020.
21. *Brown, J., Bradford, J., Harper, J., Pfeffer, W.T, Humphrey, N., and Mosley-Thompson, E., 2012, Georadar-derived estimates of firn density in the percolation zone, western Greenland ice sheet: Journal of Geophysical Research – Earth Surface, 117, F1, doi:10.1029/2011JF002089.
22. *Brown, J., Harper, J., Pfeffer, W.T., Humphrey, N., Bradford, J., 2011, High resolution study of layering within the percolation and soaked facies of the Greenland icesheet, Annals of Glaciology.
23. *Hinz, E.A, and J.H. Bradford, 2010, Ground-penetrating radar reflection attenuation tomography with an adapative mesh: Geophysics, 75, WA251–WA261, doi: 10.1190/1.3467874.
24. Harper, J.T., Bradford, J.H., Humphrey, N.F., and Meierbachtol, T.W., 2010, Vertical extension of the subglacial drainage system into basal crevasses: Nature, 467, 579-582, doi:10.1038/nature09398.
25. Bradford, J.H., Dickins, D.F., and Brandvik, P.J., 2010, Detection of snow covered oil spills on sea ice using ground-penetrating radar: Geophysics, 75, G1-G12, doi: 10.1190/1.3312184.
26. Martin, A.J., Wyld, S.J., Wright, J.E., Bradford, J.H., 2009, The Lower Cretaceous King Lear Formation, northwest Nevada: Implications for Mesozoic orogenesis in the western U.S. Cordillera: Geological Society of America Bulletin, doi:10.1130/B26555.1.
27. *Brosten, T.R., Bradford, J.H., McNamara, J.P., Gooseff, M.N., Zarnetske, J.P., Bowden, W.B., and Greenwald-Johnston, M.E., 2009, Estimating 3D variation in active-layer thickness beneath arctic streams using ground-penetrating radar: Journal of Hydrology, 373, 479-486
28. *Hess, S., Fairley, J.P., Bradford, J.H., Lyle, M., Clement, W., 2009, Evidence for composite hydraulic architecture in an active fault system based on 3D seismic reflection, time-domain electromagnetics, and temperature data: Near Surface Geophysics, 7, 341-352.
29. Bradford, J.H., Harper, J.T., and Brown, J., 2009, Complex dielectric permittivity measurements from ground-penetrating radar data to estimate snow liquid water content in the pendular regime: Water Resources Research, 45, W08403, doi:10.1029/2008WR007341.
30. *Brown, J.M., Harper, J.T., Bradford, J.H., 2009, A radar transparent layer in a temperate valley glacier: Bench Glacier, Alaska: Earth Surface Processes and Landforms, 34, 1497-1506.

31. *Brosten, T.R., Bradford, J.H., McNamara, J.P., Gooseff, M.N., Zarnetske, J.P., Bowden, B.W., Johnston, M.E., 2009, Multi-offset GPR methods for hyporheic zone investigations: Near Surface Geophysics, 7, 244-257..
32. *Brown, J., Nichols, J., Steinbronn, L., and Bradford J., 2009, Improved GPR interpretation through resolution of lateral velocity heterogeneity: Example from an archaeological site investigation: Journal of Applied Geophysics, 68, 3-8, doi:10.1016/j.jappgeo.2008.08.014.
33. Bradford, J.H., Nichols, J., Mikesell, D., Harper, J., 2009, Continuous profiles of electromagnetic wave velocity and water content in glaciers: an example from Bench Glacier, Alaska, USA: Annals of Glaciology, 50(51), 1-9.
34. **Bradford, J.H., Clement, W., and Barrash, W., 2009, Estimating porosity with ground-penetrating radar reflection tomography: A controlled 3D experiment at the Boise Hydrogeophysical Research Site: Water Resources Research, 45, WOOD26, doi:10.1029/2008WR006960.
35. *Meierbachtol, T.W., Harper, J.T., Humphrey, N.F., Bradford, J.H., Shaha, J., 2008, Air compression as a mechanism for the underdamped slug test response in fractured glacier ice: Journal of Geophysical Research (Earth Surface), 113, F04009, doi:10.1029/2007JF000908.
36. **Bradford, J.H., Dickins, D.F., and Liberty, L.M., 2008, Locating oil spills under sea ice using ground-penetrating radar: The Leading Edge, 27, 1424-1435.
37. Gooseff, M.N., Payn, R.A., Zarnetske, J.P., Bowden, W.B., McNamara, J.P, and Bradford, J.H., 2008, Comparison of in-channel mobile-immobile zone exchange during instantaneous and constant rate stream tracer additions: Implications for design and interpretation of non-conservative tracer experiments: Journal of Hydrology, 357, 112-124.
38. *Payn, R.A., Gooseff, M.N., Benson, D.A., Cirpka, O.A., Zarnetske, J.P., Bowden, W.B., McNamara, J.P., and Bradford, J.H., 2008, Comparison of instantaneous and constant-rate stream tracer experiments through non-parametric analysis of residence time distributions: Water Resources Research, 44, W06404, doi:10.1029/2007WR006274.
39. *Greenwald, M.J., Bowden, W.B., Gooseff, M.N., Zarnetske, J.P., McNamara, J.P., Bradford, J.H., and Brosten, T.R., 2008, Hyporheic exchange and water chemistry of two Arctic tundra streams of contrasting geomorphology: Journal of Geophysical Research (Biogeosciences), 113, G02029, doi:10.1029/2007JG000549.
40. Bowden, W., M. Gooseff, J. H. Bradford, A. Balser, A. Green, and B. J. Peterson. 2008. Sediment and nutrient delivery from thermokarst features in the foothills of the North Slope, Alaska: Potential impacts on headwater stream ecosystems: Journal of Geophysical Research (Biogeosciences), 113, G02026, doi:10.1029/2007JG000470.
41. **Bradford, J.H., 2008, Measuring water content heterogeneity using multi-fold GPR with reflection tomography: Vadose Zone Journal, 7, 184-193, doi:10.2136/vjz2006.0160.
42. *Zarnetske, J.P., Gooseff, M.N., Bowden, W.B., Greenwald, M.J., Brosten, T.R., Bradford, J.H., and McNamara, J.P., 2008, Influence of morphology and permafrost dynamics on hyporheic exchange in Arctic headwater streams under warming climate conditions: Geophysical Research Letters, 35, L02501, doi:10.1029/2007GL032049.
43. Bradford, J. H., C. R. Johnson, T. R. Brosten, J. P. McNamara, and M. Gooseff, 2007, Imaging thermal stratigraphy in fresh water lakes using georadar. Geophysical Research

Letters, 34, L24405, doi:10.1029/2007GL032488.

44. Bradford, J.H., and Wu, Y., 2007, Instantaneous spectral analysis: Time-frequency mapping via wavelet matching with application contaminated site characterization by 3D GPR: The Leading Edge, 26, 1018-1023.
45. *Zarnetske, J.P., Gooseff, M.N., Brosten, T.R., Bradford, J.H., McNamara, J.P., and Bowden, W.B., 2007, Transient storage as a function of geomorphology, discharge, and permafrost active layer conditions in arctic tundra streams: Water Resources Research, doi:10.1029/2005WR004816.
46. Bradford, J.H., 2007, Frequency dependent attenuation analysis of ground-penetrating radar data: Geophysics, 72, J7-J16.
47. *Brosten, T.R., Bradford, J.H., McNamara, J.P., Zarnetske, J.P., Gooseff, M.N., Bowden, W.B., 2006, Profiles of temporal thaw depths beneath two arctic stream types using ground-penetrating radar: Permafrost and Periglacial Processes, 17, 341-355.
48. **Bradford, J.H., Liberty, L.M., Lyle, M.W., Clement, W.P., and Hess, S., 2006, Case History: Imaging complex structure in shallow seismic-reflection data using pre-stack depth migration: Geophysics, 71, B175-B181.
49. Bradford, J.H. and Deeds, J.C., 2006, Ground-penetrating radar theory and application of thinbed offset-dependent reflectivity: Geophysics, 71, K47-K57.
50. Bradford, J.H., 2006, Applying reflection tomography in the post-migration domain to multi-fold ground-penetrating radar data: Geophysics, 71, K1-K8.
51. Bradford, J.H., and Harper J.T., 2005, Wavefield migration as a tool for estimating spatially continuous radar velocity and water content in glaciers: Geophysical Research Letters, 32, L08502
52. Bradford, J.H., McNamara, J.P., Bowden, W., and Gooseff, M.N., 2005, Measuring thaw depth beneath peat-lined arctic streams using ground-penetrating radar: Hydrological Processes, 19, 2689-2699.
53. Harper, J.T., and Bradford, J.H., 2003, Snow stratigraphy over a uniform depositional surface: Spatial variability and measurement tools: Cold Regions Science and Technology, 37, 289-298.
54. Bradford, J.H., 2002, Depth characterization of shallow aquifers with seismic reflection - Part I: The failure of NMO velocity analysis and quantitative error prediction: Geophysics, 67, 89-97.
55. Bradford, J.H., and Sawyer, D.S., 2002, Depth characterization of shallow aquifers with seismic reflection - Part II: Pre-stack depth migration and field examples: Geophysics, 67, 98-109.
56. Bradford, J.H., Sawyer, D.S., Zelt, C.A., and Oldow, J.S, 1998, Imaging a shallow aquifer in temperate glacial sediments using seismic reflection profiling with DMO processing: Geophysics, 63, 1248-1256.

BOOK CHAPTERS

Haney, M.M., Decker, K.T., Bradford, J.H., 2010, Group velocity and permittivity structure derived from guided GPR pulses: in Miller, R.D, Bradford, J.H., Holliger, K., eds., Advances in Near Surface Seismology and Ground-Penetrating Radar, Society of Exploration Geophysicists, Tulsa, OK.

Bradford, J.H., 2010, Integrated hydrostratigraphic interpretation of 3D seismic reflection and pseudo 3D ground-penetrating radar data: in Miller, R.D, Bradford, J.H., Holliger, K.,

eds., Advances in Near Surface Seismology and Ground-Penetrating Radar, Society of Exploration Geophysicists, Tulsa, OK.

MAGAZINE ARTICLES

Bradford, J.H., 2015, SEG Presidents Page: Time to retool: The Leading Edge, 34 (11), 1304.

Bradford, J.H., 2014, SEG Presidents Page: The season of change: The Leading Edge, 33 (12), 1320.

Doll, W.E., Miller, R.D., Bradford, J.H., 2012, The emergence and future of near-surface geophysics: The Leading Edge, 31 (6), 684-692.

Bradford, J.H., 2010, SEG President's Page: The role of technical sections within the SEG: The Leading Edge, 29(8), 888.

Bradford, J.H., 2010, SEG President's Page: What does it mean to be an international society?: The Leading Edge, 29(5), 504.

EDITED BOOKS

Miller, R.D., Bradford, J.H., and Holliger, K., eds., 2010, Advances in near surface seismology and ground-penetrating radar: Society of Exploration Geophysicists, Tulsa, OK.

CURRENT AND PAST FUNDED RESEARCH GRANTS AND CONTRACTS

Co. P.I. "Collaborative Research: GreenTRACs: a Greenland traverse for accumulation and climate studies", NSF Arctic Natural Sciences, Marshall HP and JH Bradford, 1/1/2015-12/31/2017, **($355,338)**

Co. P.I. "Collaborative Research: Computational techniques for nonlinear joint inversion", NSF Division of Mathematical Sciences, Mead J and Bradford JH, 7/1/14-6/30/17, **($314,128)**

Lead P.I. "Detecting Oil in Sea Ice Using FMCW Radar: Testing a New Airborne System", Oil Spill Recovery Institute, Bradford JH and Marshall HP, 4/1/14-3/30/15, **($179,732)**

Lead P.I. "Seismic imaging to help understand and manage water quality in coastal Bénin, West Africa", Geoscientists *without* Borders™, 10/1/12-9/30/14, (**$89,664)**

Co. P.I. "Remote Sensing of the Cryosphere: Calibration and Validation", NASA EPSCoR, 9/1/10-8/31/13, Marshall, H.P., Bradford, J.H., van Wijk, K., McNamara, J., Flores, A., **($749,938)**

Co. P.I. "Quantifying lateral flow of water on alpine slopes using high resolution geophysical techniques", NSF Hydrology, 3/1/10-2/28/13, Marshall, H.P., Bradford, J.H., McNamara, J., **($228, 963)**

Co. P.I. "Detecting oil on and under sea ice using ground-penetrating radar: Proposal for developing a new airborne system", DF Dickins Assoc. Ltd., Marshall, HP, Bradford, JH,11/20/09 - 10/15/11, **($206,000)**

Co. P.I. "Measuring and Modeling Hydrologic Fluxes and States from Aquifer to Atmosphere at Multiple Scales", Army Research Office, Environmental Sciences Division; Barrash, W.B., Flores, A., Bradford, J.H., Malama, B., McNamara, J., Howington, S., Illangasekare, T., Hubbell, J., 8/3/09-8/2/12, **($665,880)**

Lead P.I. "GPR Survey of Hailey Cemetery", Blaine County, Idaho; Bradford, J.H., 7/13/09-10/31/09, **($13,856)**

Lead P.I. Detection of Oil on and Under Ice – Phase III: Evaluation of Higher-Powered Airborne Radar Systems to Detect Oil Under Ice and Field Testing Existing Technology to Map Oil Under Snow, U.S. Department of Interior, Mineral Management Services (Subcontract to D.F. Dickins and Assoc. Ltd.); Bradford, J.H., 11/1/06-10/31/07, **($85,330)**

Co P.I. Time-lapse 3D GPR characterization and monitoring of near-surface groundwater and contaminant flows: Phase II, DOE Small Business Innovation Research Program; Collaborative proposal with 4th Wave Imaging Inc. and CGISS, 9/06 - 8/08, **($199,920)**

Lead P.I. 2006 Field Spill to Test: New and Innovative Equipment and Technologies for the Remote Sensing, Detection and Tracking of Oil in and Under Ice, U.S. Department of Interior, Mineral Management Services (Subcontract to D.F. Dickins and Assoc. Ltd.); Bradford, J.H., 11/1/05-11/15/06, **($73,666)**

Co P.I. A site survey in support of IODP drilling proposal 626-Full "Cenozoic Pacific equatorial age transect: Following the paleo-equator", National Science Foundation Ocean Drilling Program; Lyle, M., Lyle, A., Bradford, J., 9/05 - 8/08, **($470,918)**

Co P.I. Time-lapse 3D GPR characterization and monitoring of near-surface groundwater and contaminant flows, DOE Small Business Innovation Research Program; Collaborative proposal with 4th Wave Imaging Inc. and CGISS, 6/05 - 6/06, **($100,000)**

Lead P.I. Collaborative Research: Water storage and routing within glaciers via planar voids, a new model of glacier hydrology, National Science Foundation; Bradford, J., Clement, W., Harper, J. Humphrey, N., 3/1/05-2/28/08, **($297,826)**

Co P.I. New and innovative equipment and technologies for the remote sensing and surveillance of oil in and under ice, U.S. Department of Interior, Mineral Management Services (Subcontract to D.F. Dickins and Assoc. Ltd.); Bradford, J.H., Liberty, L., 9/1/04-8/30/05, **($39,977)**

Lead P.I. Utilizing Ground-Penetrating Radar and Solute Tracer Experiments to Determine the Extent of the Hyporheic Zone in Mountain Streams, USDA National Research Initiative; Bradford, J.H., Gooseff, M.N., McNamara, J., 9/1/04-8/30/06, **($89,090)**

Lead P.I. Imaging shallow stratigraphy and bedrock at Tamarack Resort using shallow seismic reflection, HydroLogic, Inc., Bradford, J., Liberty, L., 4/29/04 - 6/30/04, **($34,500)**

Co P.I. Will climate change effect hyporheic processes in Arctic streams? An assessment of interactions among geomorphology, hydrology, and biochemistry in Arctic stream networks, National Science Foundation; Bowden, W., Gooseff, M., McNamara, J., Bradford, J.H., 8/1/03-7/31/06 **($608,708)**

Lead P.I. Material property estimation for direct detection of DNAPL using integrated ground-penetrating radar velocity, imaging, and attribute analysis, U.S. Department of Energy; Bradford, J.H., Smithson, S.B., and Holbrook, W.S., 9/15/99-9/14/04 **($648,308)**

Lead P.I. Characterizing shallow aquifers using geophysical methods, 1995, U.S. EPA STAR graduate fellow program, August 1995 - August 1997, Bradford, J.H., **($68,000)**

UNIVERSITY SERVICE

Department

Chair, Department of Geosciences Tenure and Promotion Committee, 2008-present
Department seminar coordinator, 2010/2011
CGISS Director, 1/2006 -1/2009
Geophysics graduate curriculum committee member, 2009
INRA Geophysics workshop, Organizer and lecturer, 2008
Geophysics faculty search committee chair, 2007-2008
Geophysics graduate program coordinator, spring 2008
Geophysics faculty search committee chair, 2006 - 2007
Geophysics undergraduate curriculum revision committee member, 2006-2007
Established and organized internal Geosciences research seminar, 2005 - 2009
INRA Geophysics workshop for graduate fellows, Cadre member, 2005-2006

University

COAS Tenure and Promotion Policy Revision Committee, 2015-present
COAS Full Professor Promotion Committee, 2016
BSU Centers and Institutes working group, 2008 - 2010
COAS Tenure and Promotion Committee, 2008, 2009
COAS Honors and Awards Committee, 2012

GEOPHYSICS COMMUNITY SERVICE

Organizing Chair, SEG Near Surface Asia Pacific Conference, 2014/2015
Associate Editor for *Geophysics* special issue on cryosphere geophysics, 2015
NSF panel member, Polar Programs, Antarctic Glaciology, 2014
President/President-Elect/Past-President, SEG Near Surface Geophysics Section, 2011-2013
Associate Editor for Annals of Glaciology special issue on Cryosphere Geophysics, 2013
Lead organizer for SEG/AGU workshop on Cryosphere Geophysics, January 2013
Chair, EEGS/SEG Merger Task Force, SEG, 2011-2014
Chair, Near Surface Strategic Implementation Task Force, SEG, 2010-2012
Chair, SEG/AGU Collaboration Committee, 2010-2012
Member, SEG Nominations Committee, 2011, 2012
Associate Editor, *Near Surface Geophysics,* (2009-2012)
Associate Editor, *Geophysics*, (2005-2008)
Society of Exploration Geophysicists, Near Surface Section, Advisory Committee, 2008
Society of Exploration Geophysicists, Near Surface Section, Publications Committee, 2008
AGU Hydrogeophysics Technical Committee, 2006-2009
Journal Reviewer for: Nature, Geophysics, Geophysical Research Letters, Environmental and Engineering Geoscience, Journal of Applied Geophysics, Journal of Environmental & Engineering Geophysics, Groundwater, Cold Regions Science and Technology, Water Resources Research, Journal of Glaciology, Geophysical Prospecting, Vadose Zone Journal, Near Surface Geophysics, Polar Research, Planetary and Space Science
Proposal Reviewer for: US National Science Foundation (several each year), Swiss National Science Foundation, Netherlands Organisation for Scientific Research
Convened Sessions or Workshops at: SEG 2012 Fall Meeting, SEG 2011 Fall Meeting, AGU

2011 Fall Meeting, 2010 AGU Meeting of the Americas, Iguassu Falls, Brazil; 2010 International Conference on Environmental and Engineering Geophysics, Chengdu, China; 2009 SEG annual international meeting; Symposium on the Application of Geophysics to Environmental and Engineering Problems 2009; AGU 2008 fall meeting; European Association of Geoscientists and Engineers 2007 annual meeting; AGU 2007 fall meeting; 2006 SEG annual international meeting.

INVITED TALKS

"Seismic imaging for groundwater management in coastal Bénin, West Africa: Successes and lessons learned", Colloquium at China University of Mining and Technology, Beijing, China, June 2016.

"Reverse time migration from topography to image GPR data in complex terrain", Keynote address, 7th International Conference on Environmental and Engineering Geophysics, Beijing, China, June 2016.

"Reverse time migration from topography to image GPR data in complex terrain", Colloquium for the Department of Geophysics, China University of Science and Technology, Hefei, China, June 2016.

"Adapting the Oil Exploration Model to Contaminated Site Characterization: A Cost Benefit Perspective", Colloquium for the Department of Civil Engineering, National Chiao Tung University, Hsinchu, Taiwan, April 2016.

"Estimating hydrologic parameters from water table dynamics using coupled hydrologic and ground-penetrating radar inversion", Keynote address at the 9th Conference on Groundwater Resources and Protection Associated with the 2016 Cross-Strait Symposium on the Application of Groundwater and Hydrogeology, National Chiao Tung University, Hsinchu, Taiwan, April 2016.

"Adapting the Oil Exploration Model to Contaminated Site Characterization: A Cost Benefit Perspective", Keynote address, 3rd International Conference on Engineering Geophysics, Al Ain, Abu Dhabi, United Arab Emirates, November 2015.

"Estimating hydrologic parameters from water table dynamics using coupled hydrologic and ground-penetrating radar inversion", University of Kyoto, Japan, November 2015.

"Reverse time migration imaging of ground-penetrating radar data in complex environments", American Geophysical Union, 2014 Fall Meeting, San Francisco, December 2014.

"Estimating hydrologic parameters from water table dynamics using coupled hydrologic and ground-penetrating radar inversion", Keynote address, 15th International Conference on GPR, Brussels, Belgium, July 2014.

"Reverse-time prestack depth migration of GPR data from topography for amplitude reconstruction in complex environments", Keynote address, 6th International Conference on Environmental and Engineering Geophysics, Xi'an, China, June 2014.

"Toward fully integrated hydrologic and surface geophysical data for improved characterization of dynamic hydrologic processes", 3rd Near-Surface Geophysics Workshop, China University of Geosciences, Wuhan, China, June 2014

"Prestack depth migration and reflection tomography for near-surface model building", Keynote address, SEG/DGS Workshop on Near Surface Modeling and Imaging, Manama, Bahrain, March 2014.

"NAPL detection with ground-penetrating radar", American Geophysical Union, 2013 Fall Meeting, San Francisco, December 2013.

"Compressional and EM Wave Velocity Anisotropy in a Temperate Glacier due to Basal Crevasses and Implications for Water Content Estimation", 5th International Conference on Environmental and Engineering Geophysics, Changsha, China, June 2012.

"The Search for the Lost Graves of the Chinese Miners in Hailey, Idaho, USA", 14th International Conference on GPR, Shanghai, China, June 2012.

"Detecting oil spills on, in, and under sea ice using ground-penetrating radar: Field tests and modeling developments", Norwegian Polar Institute, Tromso, Norway, April 2012.

"Compressional and EM Wave Velocity Anisotropy in a Temperate Glacier due to Basal Crevasses and Implications for Water Content Estimation", University of Swansea, Swansea, UK, March 2012.

"Compressional and EM Wave Velocity Anisotropy in a Temperate Glacier due to Basal Crevasses and Implications for Water Content Estimation", University of Lausanne, Lausanne, Switzerland, February 2012.

"Compressional and EM Wave Velocity Anisotropy in a Temperate Glacier due to Basal Crevasses and Implications for Water Content Estimation", American Geophysical Union, 2011 Fall Meeting, San Francisco, 2011.

"Frequency dependent attenuation of GPR data as a tool for material property characterization: A review and new developments", Keynote address, International Workshop on Advanced GPR 2011, Aachen, Germany, 6/2011

"Integrated analysis of seismic refraction and GPR data for estimation of soil moisture and porosity", American Geophysical Union, 2010 Fall Meeting, San Francisco, 12/2010

"Non-linear attenuation analysis of FMCW radar data for soil property characterization", American Geophysical Union, 2010 Fall Meeting, San Francisco, 12/2010

"International Collaboration and Scientific Societies: Observations from the SEG", American Geophysical Union, 2010 Meeting of the Americas, Iguazu Falls, Brazil, 8/2010

"Locating LNAPL contamination in the field using GPR velocity anomalies: Examples from Hill AFB, Utah, USA", 4th International Conference on Environmental and Engineering Geophysics, Chengdu, China, 6/2010

"Acquisition, Processing, and Analysis of Continuous Multi-Offset GPR Data for Problems in Hydrogeophysics: Is it Worth the Cost?", American Geophysical Union, 2009 Fall Meeting, San Francisco, 12/2009

"Estimating Debye parameters from GPR reflection data using spectral ratios", European Association of Geoscientists and Engineers, Near Surface 2009, Dublin, Ireland, 9/2009.

"Detecting oil in ice and snow with ground-penetrating radar", United States and Canada northern oil and gas research forum: Current status and future directions in the Beaufort Sea, North Slope and Mackenzie Delta, Anchorage, AK, 10/08.

"Ground-penetrating radar for characterization of shallow groundwater systems", National Groundwater Association Groundwater Exp and Annual Meeting - 2007, Orlando, FA, 12/07.

"Developments with ground penetrating radar to detect and map oil trapped under ice", International Oil and Ice Workshop - 2007, Anchorage, AK, 10/07.

"Advanced processing and acquisition to image within and beneath shallow water bodies with ground-penetrating radar", 2007, EAGE workshop on high resolution geophysics for shallow water, London, UK.

"Imaging the subsurface with ground-penetrating radar: An introduction", 2007, Idaho Museum of Mining and Technology, Boise, ID.

"Imaging Beneath and Within Shallow Water Bodies using Ground-Penetrating Radar", 2007, Department of Geological Sciences, University of Idaho.
"Acquisition and Processing of Multi-Fold Ground Penetrating Radar Data for Characterization of Contaminated Groundwater Systems", 2006, Department of Geology, University of Kansas.
"Fundamentals of GPR Investigation and application in LNAPL detection", 2002, School of Civil Engineering, Purdue University.
"LNAPL detection using GPR attribute analysis", 2002, Department of Civil and Environmental Engineering, Utah State University.
"Fundamentals of GPR Investigation", 2000, Department of Geology and Geophysics, Rice University.

SHORT COURSES

"Ground-penetrating radar reflection tomography", 2 day short course at National Chiao Tung University, Hsinchu, Taiwan, April 2016
"Advanced ground-penetrating radar analysis", 5 day short course at China University of Geosciences, Wuhan, China, June 2016

PROFESSIONAL MEMBERSHIPS

American Geophysical Union
International Glaciological Society
Society of Exploration Geophysicists
Environmental and Engineering Geophysical Society
European Association of Geoscientists and Engineers

OUTREACH ACTIVITIES

"Geophysical Methods for Characterizing Geothermal Resources", presentation in cooperation with the Idaho Department of Water Resources to the City Council, Lava Hot Springs, ID, March 2004.
Media Day at the Boise Hydrogeophysical Research Site, research demonstration for Boise local media, October, 2006.
"Imaging the subsurface with ground-penetrating radar: An introduction", Invited talk for the Idaho Museum of Mining and Technology, 2007.
Guest on BSU Radio's "New Horizons in Education", hosted by BSU president Bob Kustra, Dec. 2007.
"Investigating Polar Response to Climate Change using Geophysical Tools", Boise State University sponsored lecture as part of national Focus the Nation Initiative, January, 2008.
"Ground-penetrating radar for detection of crude oil spills in the Arctic environment", March, 2008, Workshop for the following agencies: Alaska Department of Conservation, US Environmental Protection Agency, North Slope Borough, Alaska Clean Seas, Inc.
Appeared on German public television's "Fascination Earth" series. This episode was focused on the effects of climate change in Alaska. Filmed segment in 2008 on Worthington Glacier in Alaska.

Primary organizer of SEG/AGU sponsored workshop at Boise State University, "Cryosphere geophysics: Understanding a changing climate with subsurface geophysics", January 2013.

ABSTRACTS AND PROCEEDINGS PAPERS

Bradford, J.H., J. Rozar, D. Wilkins, and R. Ford, 2016, Reverse time migration from rugged topography to image ground-penetrating radar data in complex environments: 7th International Conference on Environmental and Engineering Geophysics, Beijing, China, June 2014.

Dick, J., D. Tetzlaff, J. Bradford, and C. Soulsby, 2015, Integrating hydrogeophysics and hydrological tracers to characterise the spatial structure of groundwater storage in the critical zone of montane environments: Abstract H51R-05 presented at 2015 Fall Meeting, AGU, San Francisco, CA.

Moysey, S., A. Mangel, B. Lytle, and J Bradford, 2015, High-Resolution Time-Lapse Monitoring of Unsaturated Flow using Automated GPR Data Collection: Abstract NS44A-03 presented at 2015 Fall Meeting, AGU, San Francisco, CA.

Gase, A., J. Bradford, and B. Brand, 2015, Ground penetrating radar and active seismic investigation of stratigraphically verified pyroclastic deposits: Abstract NS41A-1916 presented at 2015 Fall Meeting, AGU, San Francisco, CA.

Nielson, T., J. Bradford, and W.S. Holbrook, 2015, Geophysical investigation of differences in weathering depths between the north and south facing slopes of a small catchment in the Reynolds Creek Critical Zone Observatory: Abstract EP31B-1006 presented at 2015 Fall Meeting, AGU, San Francisco, CA.

Nielson, T., and J. Bradford, 2015, Sensitivity of refraction inversion to smooth and blocky velocity gradients: SEG 2015 Annual International Meeting and Exhibition, New Orleans, LA, Expanded Abstracts, 2313-2317.

Bradford, JH, E. Babcock, and DF Dickins, 2015, Targeted Reflection-Waveform Inversion of Ground-Penetrating Radar Data for Quantification of Oil Spills under Sea Ice: 2015 Arctic Technology Conference, Copenhagen, Denmark.

Eilar, C., Mikesell, D., Malcolm, A., and Bradford, J., 2014, Characterizing Rayleigh Wave Velocity and Amplitude Anisotropy in an Alpine Glacier: Abstract NS34A-05 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Lindsay, K., Irving, J., and Bradford, J., 2014, Three-dimensional Inversion of High Resolution Ground-penetrating Radar for the Stochastic Structure of Velocity Heterogeneity of a Fluvial Aquifer: Abstract H51B-0595 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Donnelly, W., Bradford, J., Seyfried, M., 2014, Seismic refraction and electrical resistivity tomography to investigate subsurface controls on vegetation distribution in a mountain watershed: Abstract H51D-0630 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Bradford, J.H., 2014, Reverse time migration imaging of ground-penetrating radar data in complex environments: Abstract NS21B-3877 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Rozar, JK., Bradford, J., Ford, R., Wilkins, D., 2014, Using Ground Penetrating Radar to Image Paleotopography and Structural Controls at Coral Pink Sand Dunes, Kane County, Utah: Abstract EP43B-3566 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Klotzsche, A., van der Kruk, J., Bradford, J., Vereecken, H., 2014, Characterizing Spatially Limited High-Porosity Layers in Aquifers Using Crosshole GPR Full-Waveform and Waveguide Amplitude Analysis: Abstract H54B-01 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Marshall, H.P., Evans, S., Robertson, M., Hetrick, H., Eiriksson, D., Dean, J., Karlson, A., Hedrick, A., Bradford, J., McNamara, J., Flores, A., Kohn, M., Rodriguez, C., Liquid water dynamics in unsaturated snow: the role of lateral flow: Abstract C22B-01 presented at 2014 Fall Meeting, AGU, San Francisco, CA.

Bradford, JH, Thoma, M., and Barrash, W, 2014, Estimating hydrologic parameters from water table dynamics using coupled hydrologic and ground-penetrating radar inversion: 15th International Conference on GPR, Brussels, Belgium, July 2014.

Bradford, JH, 2014, Reverse-time prestack depth migration of GPR data from topography for amplitude reconstruction in complex environments: 6th International Conference on Environmental and Engineering Geophysics, Xi'an, China, June 2014.

Lindsay, K. Bradford, J., Silliman, S., Yalo, N., Boukari, M., 2014, Seismic imaging to help understand and manage water quality in coastal Benin, West Africa: SEG 2014 Annual International Meeting and Exhibition, Denver, CO.

Bradford, J.H., 2014, Picking refractions in ground-penetrating radar data: Its not about the first breaks: Post-Convention Workshop, Towards Robust First-arrival Picking SEG 2014 Annual International Meeting and Exhibition, Denver, CO.

Bradford, J.H., 2012, GPR prestack amplitude recovery for radiation patterns using a full wave-equation, reverse-time migration algorithm: SEG 2012 Annual International Meeting and Exhibition, Las Vegas, NV.

Bradford, J.H., 2011, Frequency dependent attenuation of GPR data as a tool for material property characterization: A review and new developments: International Workshop on Advanced GPR 2011, June 2011, Aachen, Germany.

Lindsay, K., Bradford, J.H., Marshall, H.P., 2011, Estimating liquid water content in snow from frequency dependent attenuation analysis of pulsed and FMCW radars: Symposium on the Application of Geophysics to Environmental and Engineering Problems 2011, Charleston, SC.

Park, E., Bradford, J.H., 2011, Characterizing permafrost thaw anomalies with GPR and electrical resistivity: Symposium on the Application of Geophysics to Environmental and Engineering Problems 2011, Charleston, SC.

Decker, K.T., Haney, M.M., and Bradford, J.H., 2010, Inversion of Guided Waves in GPR Data for 2D Permittivity and Conductivity Profiles in the Alaskan Arctic: Abstract H12B-07 presented at 2010 Fall Meeting, AGU, San Francisco, CA.

Smith, K.L., Mikesell, T.D., van Wijk, K., Walter, F.T., and Bradford, J.H., 2010, Capturing fracture propagation in a glacier using passive seismology: Abstract C43!-0522 presented at 2010 Fall Meeting, AGU, San Francisco, CA.

Thoma, M.J., Bradford, J.H., and Barrash, W., 2010, Ground penetrating radar response to water table drawdown and vadose zone dewatering: Abstract H11K-03 presented at 2010 Fall Meeting, AGU, San Francisco, CA.

Bradford, J.H., 2010, Simultaneous estimation of water saturation and porosity in the vadose zone by common parameterization of seismic p-wave and GPR velocities (Invited): Abstract NS44A-03 presented at 2010 Fall Meeting, AGU, San Francisco, CA.

Bradford, J.H., and Marshall, H.P., 2010, Estimating complex dielectric permittivity of soils

from spectral ratio analysis of swept frequency (FMCW) ground-penetrating radar data (Invited):Abstract H21K-06 presented at 2010 Fall Meeting, AGU, San Francisco, CA.
Barrash, W., Bradford, J.H., Cardiff, M.A., Dafflon, B., Johnson, B.A., Malama, B., Thoma, M.J., 2010, Integrated Site Investigation Methods and Modeling: Recent Developments at the BHRS (Invited): Abstract H24E-04 presented at 2010 Fall Meeting, AGU, San Francisco, CA.
Bradford, J.H., 2010, 2D ground-penetrating radar AVO response to a 3D dielectric permittivity anomaly: GPR 2010, 13th International Conference on Ground-Penetrating Radar, Lecce, Italy
Bradford, J.H., 2010, Locating LNAPL contamination in the field using GPR velocity anomalies: Examples from Hill AFB, Utah, USA: International Conference on Environmental and Engineering Geophysics, Chengdu, China
Mikesell, TD, van Wijk, K, Bradford, JH, Haney, MM, 2009, Passive icemology: seismic signals related to glacier dynamics at Bench Glacier, Alaska, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract C12A-05.
Park, ES, Bradford, JH, Bowden, WB, 2009, Investigating subsurface characteristics of thermokarst features using ground-penetrating radar, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract C51A-0450.
Harper, JT, Humphrey, NF, Pfeffer, WT, Brown, JM, West, D, Bradford, JH, 2009, Firn densification and meltwater runoff in western Greenland, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract C34B-04.
Bradford, JH, 2009, Acquisition, Processing, and Analysis of Continuous Multi-Offset GPR Data for Problems in Hydrogeophysics: Is it Worth the Cost? (Invited)Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H52B-01.
Bradford, J.H., 2009, Estimating Debye Parameters from GPR Reflection Data Using Spectral Ratios: Symp. Appl. Geophys. Env. Eng. Prblm: Ft Worth, TX, Env. Eng. Geophys. Soc.
Nichols, J., Bradford, J., Harper, J., Meierbachtol, T., and Humphrey, N., 2008, Detection of Fracture Induced Anisotropy in Temperate Glaciers Using Georadar: Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract NS43A-1178
Thoma, M.J., Malama, B., Bradford, J., Barrash, W., Johnson, B., Hinz, E., and Murray, S., 2008, Using Ground Penetrating Radar to Monitor Transient Unconfined Aquifer Response to Pumping: : Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H51M-06
Brown, J.M., Bradford, J.H., Harper, J.T., Pfeffer, J.T., Hjmphrey, N.F., 2008, Change in Firn Densification Rates to 80 m Depth Across the Percolation Zone of Western Greenland: Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract C31B-0490
Barrash, W., Bradford, J., Malama, B., 2008, Boise Hydrogeophysical Research Site: Control Volume/Test Cell and Community Research Asset: Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H51K-07
Bradford, J.H., Nichols, J., Mikesell, D., Harper, J.T., and Humphrey, N., 2008, In-situ measurement of the elastic properties in a temperate glacier using SH, P, and 3D seismic reflection analysis: Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract NS41A-02
Bradford, J.H., and Dickins, D.F., 2008, Detecting oil in ice and snow with ground-penetrating radar: United States and Canada northern oil and gas research forum: Current status and future directions in the Beaufort Sea, North Slope and Mackenzie Delta, Anchorage, AK.
Bradford, J.H., and Oldow, J.S., 2008, High-Resolution Seismic Reflection to Measure Displacement along Shallow, Hidden Faults In the Northern Basin and Range: 2008 GSA

Ann. Mtg., Geol. Soc. Amer., GSA Abstracts with Programs.
Bradford, J.H., Nichols, J., Mikesell, D., and Harper, J.T., 2008, Continuous multi-fold acquisition and analysis of ground-penetrating radar data for improved characterization of glacier structure and water content: 2008 International Symposium on Radioglaciology: Madrid, Spain, International Glaciological Society
Brosten, T.R., Bradford, J.H., McNamara, J.P., Zarmetske, J.P., Gooseff, M.N., Bowden, W.B., and Greenwald, M.J., 2007, Estimating 3D Variation in Active-Layer Thickness Beneath Arctic Streams Using Ground- Penetrating Radar, Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H21B-0509.
Bowden, W.B., Greenwald, M.J., Gooseff, M.N., McNamara, J.P., Bradford, J., Zarnetske, J.P., and Brosten, T., 2007, Stoichiometry of Carbon, Nitrogen, and Phosphorus Regeneration Interactions in the Hyporheic Zones of Arctic Streams Draining Areas of Continuous Permafrost: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract B42A-05.
Bradford, J.H., Clement, W., Nichols, J., Brown, J., Mikesell, D., Harper, J., Humphrey, N., and Tshetter, T., 2007, Geophysical imaging of a temperate glacier's hydrologic system in 1, 2, and 3 dimensions: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H23H-06.
Zarnetske, J.P., Gooseff, M.N., Bowden, W., Greenwald, M.J., Brosten, T.R., Bradford, J.H., McNamara, J.P., 2007, Influence of Morphology and Permafrost Dynamics on Surface Water - Groundwater Exchange in Arctic Headwater Streams under Present and Enhanced Thaw Conditions: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H31G-0740.
Steinbronn, L. , Bradford, J., Liberty, L., Dickins, D., Brandvik, P.J., 2007, Oil Detection In and Under Sea Ice Using Ground-Penetrating Radar: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H31G-0740.
Gooseff, M.N., Cardenas, M.B., Zarnetske, J.P., Bowden, W.B., Greenwald-Johnston, M., McNamara, J.P., Bradford, J.H., Brosten, T.R., 2007, Channel-Streambed Interactions Over and Under Ice: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H23J-02.
Brown, J.M., Bradford, J., Harper, J.T., Pfeffer, W.T., Humphrey, N.F., 2007, Ice penetrating radar surveys along the EGIG line in the percolation zone of Western Greenland: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract NS11A-0161.
Nichols, J.D., Bradford, J., Harper, J., Mikesell, D., 2007, Englacial Characterization of a Temperate Glacier Using 3D Multioffset Multi-channel GPR: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract NS11A-0166.
Mikesell, D., Bradford, J.H., van Wijk, K., Raza, T., 2007, Exploring the Possibilities of Passive Seismic Interferometry to Image Temperate Glaciers: Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract NS11A-0153.
Bradford, J.H., and Wu, Y., 2007, Instantaneous Spectral Analysis: Time-frequency Mapping via Wavelet Matching with Application to 3D GPR Contaminated Site Characterization: Symp. Appl. Geophys. Env. Eng. Prblm: Denver, CO, Env. Eng. Geophys. Soc.
Brown, J.M., Harper, J.T., Bradford, J.H., and Humphrey, N.F., 2006, Temporal Variation of Depth of the Radar-Transparent Layer Within Bench Glacier, AK, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract C31A-1233.
Meierbachtol, T.W., Harper, J.T., Humphrey, N.F., and Bradford, J., 2006, Englacial and Subglacial Water Flow Elucidated by Active and Passive Borehole Experiments: Bench Glacier, Alaska, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract C31A-1229.
Nichols, J.D., Bradford, J., and Harper, J., 2006, Multi-channel, Multioffset, GPR Data

Acquisition on a Temperate Alpine Glacier, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract C41A-0303.

Tschetter, T.J., Humphrey, N.F., Harper, J.T., and Bradford, J.H., 2006, Monitoring Meltwater Generation and Transport in a Ripe Glacial Snowpack, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract C21C-1177.

Cozzetto, K., Gooseff, M., Neupauer, R., McNamara, J., Brosten, T., Bradford, J., and Bowden, B., 2006, Investigations of Hyporheic Temperature Regimes in Arctic Alaska Streams Using Time Series Analysis Techniques, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract B23A-1062.

Bradford, J., and Clement, W., 2006, Accuracy and precision of porosity estimates based on velocity inversion of surface ground-penetrating radar data: A controlled experiment at the Boise Hydrogeophysical Research Site, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract H43G-06.

Harper, J.T., Humphrey, N.F., Pfeffer, W.T., and Bradford, J.H., 2006, Linking Water to Sliding Dynamics at the Full-Glacier Scale, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract C54A-07.

Brosten, T.R., Bradford, J.H., McNamara, J.P., Gooseff, M.N., and Bowden, W.B., 2006, Using Multi-offset GPR Data to Estimate Porosity Variations Beneath Stream Channels, *Eos Trans. AGU, 87*(52), Fall Meet. Suppl., Abstract H43G-07.

Bradford, J.H., 2006, Pre-stack Analysis of Multi-Fold GPR Data for Characterization of Shallow Groundwater Systems: Society of Exploration Geophysicists Hydrogeophysics Workshop, Summer 2006, Vancouver, BC.

Bradford, J.H., 2006, Frequency dependent attenuation analysis of ground-penetrating radar data: SAGEEP 2006 Proceedings, Symp. Appl. Geophys. Env. Eng. Prblm: Seattle, WA, Env. Eng. Geophys. Soc., 1532-1544.

Brosten, T.R., Bradford, J.H., McNamara, J.P., Bowden, W.B., Gooseff, M.N., Zarnetske,J.P., 2005, Characterizing subsurface active-layer permafrost beneath arctic streams using 3D ground-penetrating radar, Eos Trans. AGU, 86(52), Fall Mtg, Suppl., Abstract C31A-1115.

Zarnetske, J.P., Gooseff, M.N., Bowden, W.B., Johnston, M.E., McNamara, J.P., Bradford, J.H., and Brosten, T.R., 2005, Effect of morphology and permafrost on hyporheic dynamics in two tundra streams on the North Slope of Alaska, Eos Trans. AGU, 86(52), Fall Mtg, Suppl., Abstract C21C-1114.

Bradford, J., Harper, J., Hess, S., and Allen, A., 2005, Three-dimensional GPR investigation of intraglacial hydrologic structures, Eos Trans. AGU, 86(52), Fall Mtg, Suppl., Abstract C13B-0299.

Brown, J.M., Harper, J.T., Bradford, J.H., and Humphrey, N.F., 2005, Time variability of radar reflections from englacial and subglacial waters, Eos Trans. AGU, 86(52), Fall Mtg, Suppl., Abstract C13B-1076.

Harper, J.T., and Bradford, J.H., 2005, Field validation of a new method for inverting GPR measurements for the liquid water content of snow, Eos Trans. AGU, 86(52), Fall Mtg, Suppl., Abstract C21A-1005.

Bradford, J.H., 2005, Measuring lateral and vertical electromagnetic velocity in the vadose zone using GPR reflection tomography: 75th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, NSE-2.7, 1089-1092.

Bradford, J.H., Liberty, L. M., and Dickins, D.F., 2005, Oil exploration at less than 2 m depth:

Instantaneous attribute analysis of ground-penetrating radar data for detection of crude oil under sea ice: 75th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, NSE-3.5, 1113-1116.

Brosten, T.R., Bradford, J.H., McNamara, J.P., Bowden, W., Gooseff, M.N., 2004, Time lapse imaging of thaw bulb development beneath arctic streams using ground-penetrating radar: Eos Trans. AGU, 85(47), Fall Meet. Suppl., C13B-0279.

Zarnetske, J.P., Gooseff, M.N., Bowden, W.B., Bradford, J.H., McNamara, J.P., Hill, K.R., 2004, Seasonal Evolution of Hyporheic zones in Arctic tundra streams, North Slope, Alaska: Eos Trans. AGU, 85(47), Fall Meet. Suppl., H21B-1010.

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Bradford, J, Liberty, L., Lyle, M., Clement, B., and Hess, S., 2004, Imaging complex structure in shallow seismic-reflection data using pre-stack depth migration: 74th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, NSG-4.3.

Hess, S., Bradford, J., Lyle, M., Liberty, L., and Myers, R., 2004, 3D High-resolution geophysical characterization of the Borax Lake Hydrothermal System in the Alvord Basin, southeastern Oregon: 74th Ann. Internat. Mtg., Soc. Expl. Geophys., Expanded Abstracts, NS33-A.14.

Bradford, J.H., 2004, Acquisition and Processing of Multi-Fold GPR Data for Characterization of Shallow Groundwater Systems: Eos. Trans., 85(17), Jt. Assem. Suppl., NS41A-06.

Bradford, J.H., 2004, 3D multi-offset, multi-polarization acquisition and processing of GPR data: a controlled DNAPL spill experiment: SAGEEP 2004 Proceedings, Symp. Appl. Geophys. Env. Eng. Prblm: Colorado Springs, CO, Env. Eng. Geophys. Soc., 514-527.

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Bradford, J.H., McNamara, J.P., Bowden, W., and Gooseff, M.N., 2003, Imaging depth-of-thaw beneath arctic streams using ground-penetrating radar: Eos Trans. AGU, 84(46), Fall Meet. Suppl., C21B-0818.

Hess, S., Paul, C., Bradford, J., Lyle, M., Clement, W., Liberty, L., Myers, R., Donaldson, P, 2003, Geophysical Characterization of the Borax Lake Hydrothermal System in the Alvord Desert, Southeastern Oregon: Eos Trans. AGU, 84(46), Fall Meet. Suppl., B11D-0717.

Bradford, J.H., Clement, W.C., 2003, Using GPR to estimate water content at the Hanford Site: Acquisition and Processing Methodologies: 2003 GSA Ann. Mtg., Geol. Soc. Amer., GSA Abstracts with Programs, 35(6), 449.

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