

Jay Peter Zarnetske

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EDUCATION

- **Oregon State University**, College of Science, Department of Geosciences, Corvallis, OR; Ph.D., Water Resources Science with Ecosystem Informatics minor (expected completion Fall 2011).
- **Utah State University**, College of Natural Resources, Department of Watershed Sciences, Logan, UT; (2006) M.S., Watershed Science.
- **Colby College**, Department of Geology, Waterville, ME; (2000) B.A., Geology with Environmental Science Concentration.
- **School For Field Studies (SFS)**, Centre for Rainforest Studies, Queensland, Australia, (1999) (semester abroad: Socio-technical effects of rainforest degradation on Queensland).

WORK & RESEARCH EXPERIENCE

- 2007- Present** **Fellow, NSF IGERT – Ecosystem Informatics**, Oregon State University (OSU), Corvallis, OR
- 2006-2007** **Graduate Research-Teaching Assistant (joint-appointment)**, OSU
- Research Activities: Groundwater-surface water interactions; stream-nutrient dynamics; flow and transport in the hyporheic zone; hydrogeophysics; transport modeling; stable isotope tracer tests.
 - Educational Activities: teaching assistant for Introductory Geology, Surface Processes, Watershed Hydrology.
- 2003-2006** **Graduate Research Assistant**, Utah State University, Logan, UT
- Research Activities: Groundwater-surface water interactions; fluvial geomorphology; flow and transport in the hyporheic zone; modeling; tracer tests; climate change impacts on surface hydrology.
- 2000-2003** **Hydrogeologist**, Camp, Dresser & McKee Inc. (CDM), Cambridge, MA
- Specialized in hydrogeological and hazardous waste investigations.
 - Experienced in site characterization and remediation program design under specific environmental laws in New England, New York, New Jersey and Michigan; the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).
 - Managed Phase I and Phase II Site Investigations and Phase III Remedial Design Investigations under the Massachusetts Contingency Plan (MCP); RCRA facility investigations/ corrective measures studies (RFI/CMS) under RCRA; and remedial investigations under CERCLA.
 - Designed, directed and participated in subsurface explorations and hydrogeologic investigations; soil, sediment, surface water, groundwater and biota sampling; and managed human health and ecological risk assessment, and corrective measures/feasibility studies.
 - Experienced in the characterization of various natural and anthropogenically altered systems based on the assessment of geologic, chemical, and biological conditions.
- 2000** **Visiting Scholar**, New Jersey Institute of Technology (NJIT), Newark, NJ
- Worked with NJIT research team to enhance the technology of contaminant removal in pneumatically fractured geologic formations through the use of ultrasonic energy.
- 1998-1999** **Intern, Senior Seismic Survey Crew Member**, Maine Geological Survey, Augusta, ME
- Manage personnel and conducted seismic surveying.
 - Map shallow unconfined aquifers, bedrock geology, and potential groundwater contaminant sources.

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PUBLICATIONS

- Brosten, TR, JH Bradford, JP McNamara, MG Gooseff, **JP Zarnetske**, WB Bowden, and ME Johnson. (In press) Multi-offset GPR methods for hyporheic zone investigations. *Near Surface Geophysics*.
- Brosten, TR, JH Bradford, JP McNamara, MG Gooseff, **JP Zarnetske**, WB Bowden, and ME Johnson. (In review) Estimating 3D variation in active-layer thickness beneath arctic streams using ground-penetrating radar. *J. of Hydrology*.
- Zarnetske, JP**, MN Gooseff, WB Bowden, Greenwald MJ, JP McNamara, JH Bradford, and TR Brosten. (2008) Influence of morphology and permafrost dynamics on hyporheic exchange in arctic headwater streams under warming climate conditions, *Geophys. Res. Lett.*, 35, L02501, doi:10.1029/2007GL032049.
- Crook, N, A Binley, R Knight, DA Robinson, **JP Zarnetske**, and R Haggerty. (2008) Electrical resistivity imaging of the architecture of substream sediments. *Water Resour. Res.*, 44, W00D13, doi:10.1029/2008WR006968.
- Gooseff, MN, RA Payn, **JP Zarnetske**, WB Bowden, JP McNamara, and JH Bradford. (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. *J. of Hydrology*, 357: 112-124, doi:10.1016/j.jhydrol.2008.05.006.
- Payn, RA, MN Gooseff, DA Benson, OA Cirpka, **JP Zarnetske**, WB Bowden, JP McNamara, and JH Bradford. (2008) Comparison of instantaneous and constant-rate stream tracer experiments through non-parametric analysis of residence time distributions, *Water Resour. Res.*, 44, W06404, doi:10.1029/2007WR006274.
- Greenwald, MJ, WB Bowden, MN Gooseff, **JP Zarnetske**, JP McNamara, JH Bradford, and TR Brosten (2008) Hyporheic exchange and water chemistry of two arctic tundra streams of contrasting geomorphology, *J. Geophys. Res.*, 113, G02029, doi:10.1029/2007JG000549.
- Bowden, WB, MJ Greenwald, MN Gooseff, **JP Zarnetske**, JP McNamara, J Bradford, and T Brosten (2008) Carbon, nitrogen, and phosphorus interactions in the hyporheic zones of arctic streams draining areas of continuous permafrost, eds. DL Kane, and KM Hinkel, *Ninth International Conference on Permafrost*, Institute of Northern Engineering, 165-170.
- Zarnetske, JP**, MN Gooseff, WB Bowden, TR Brosten, JH Bradford, and JP McNamara. (2007) Transient storage as a function of geomorphology, discharge, and permafrost active layer conditions in Arctic tundra streams, *Water Resour. Res.*, 43, W07410, doi:10.1029/2005WR004816.
- Brosten, TR, JH Bradford, JP McNamara, **JP Zarnetske**, MG Gooseff, and WB Bowden. (2006) Profiles of temporal thaw depths beneath two arctic stream types using ground-penetrating radar. *Permafrost and Periglacial Processes*, 17: 341-355.

THESES

- Zarnetske JP**. (2006) Thesis: Headwater Hyporheic Zones in a Warming Arctic Climate: An Assessment of Hyporheic Dynamics Across Distinct Geomorphic and Permafrost Conditions. Masters Thesis, Utah State University, Logan, UT. pp. 138.
- Zarnetske JP**. (2000) Sound Attenuation in an Artificial Rock Fracture: A Study of *In Situ* Remediation Technology Enhancement. Senior Thesis, Colby College, Waterville, ME. pp. 66.
- Zarnetske JP**. (1999) Performance of a CRRP Mixed-Species Tree Plantation in the Tropics of North Queensland, Australia. Thesis, SFS, Centre for Rainforest Studies, Queensland, Australia. pp. 28.

CONFERENCE PRESENTATIONS (selected; more complete listing available at website)

- Zarnetske, JP**, Haggerty R, Wondzell SM, MA Baker. 2008. Hyporheic Denitrification in an Upland Agricultural Stream: a ¹⁵N Tracer Study. AGU Fall Meeting. *AGU Outstanding Student Presentation Award*
- Haggerty, R, A Argerich, E Martí, **JP Zarnetske**, M Nabelek. 2008. Use and modeling of the "smart" tracer resazurin to quantify metabolically-active transient storage: Field results. Eos Trans. AGU Fall Meeting.

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AWARDS AND RECOGNITION

- *NSF IGERT Fellow*, Ecosystem Informatics, OSU (2007-2010)
- *Water Resources Alumni Award*, OSU (2008) - for leadership and service to OSU hydro-community
- *Outstanding Student Presentation Awards*:
 - AGU Annual Meeting: Outstanding Student Paper Award in Hydrology (2008)
 - Water Resources Graduate Program Meeting, OSU (2007, 2008)
- *Denny Tower Research Award*, Department of Geosciences, OSU (2008)
- *Outstanding Performance Recognition Award (OPRA)*, CDM (2002) – highest individual CDM recognition award for overall performance and leadership
- *Team OPRA*, CDM (2003) for leadership role in ExxonMobil Corporation Remediation Project.
- *Geology Alumni Award*, Colby College (2000) senior award for overall academic achievement, development, and research
- *Distinction in Geology Curriculum*, Colby College (2000)
- *Edith Craig Reynolds Award*, Rensselaer County, New York (1996) – county-wide high school student exhibiting a high standard of citizenship

SERVICE AND ORGANIZATION AFFILIATIONS

- Reviewer: *Water Resources Research, Ninth International Conference on Permafrost, JGR-Biogeosciences*
- Vice President: Hydrophiles - OSU chapter of the Amer. Water Resour. Assoc. and Amer. Inst. of Hydro. (2007-2009)
- Bargaining Team Chair: OSU Coalition of Graduate Employees (2007-2009) - bargained on behalf of all OSU graduate employees
- Co-organizer: Spring Water Seminar Series, OSU (2007-2009)
- Co-organizer: 4th Annual Ecosystem Informatics Symposium, OSU (2009)
- Physical-systems Chair: Ecology Center Seminar, USU (2005-2006)
- Graduate Student Representative: Department of Watershed Sciences, USU (2003-2006)
- Graduate Student Senate Representative: College of Natural Resources, USU (2004-2006)
- Peer Skills Instructor and Evaluator: CDM (2001-2003)
- National Science Foundation Long-term Ecological Research (LTER) Network (sites: H.J. Andrews Experimental Forest and Toolik Arctic Station)
- Member: American Geophysical Union, Geological Society of America, North American Benthological Society, American Association for the Advancement of Science, Hydrophiles, Permafrost Young Researchers Network, Hyporheic Network, Women in Science