

SUSA H. STONEDAHL

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CURRENT POSITION

ST. AMBROSE UNIVERSITY, DAVENPORT, IA

ASSISTANT PROFESSOR, *ENGINEERING AND PHYSICS DEPARTMENT (2011-PRESENT)*

EDUCATION

NORTHWESTERN UNIVERSITY, EVANSTON, IL

Ph.D., Environmental Engineering & Science (2011)

Thesis: Investigation of the Effect of Multiple Scales of Topography on Hyporheic Exchange

Advisor: Aaron I. Packman

MS, Environmental Engineering & Science (2004)

CARLETON COLLEGE, NORTHFIELD, MN

BA, Double Major: Physics and Mathematics (2003)

Magna Cum Laude

Senior Physics Integrative Exercise (Thesis): Physics of Catfish

Senior Mathematics Integrative Exercise (Thesis): Aperiodic Tiling

Study Abroad (Graz, Austria)

JOURNAL ARTICLES (REFEREED)

4. **Stonedahl, S.H.**, Harvey, J.W., Wörman, A., Salehin, M., and Packman, A.I., 2010, A multiscale model for integrating hyporheic exchange from ripples to meanders, *Water Resources Research*, 46, W12539, doi:10.1029/2009WR008865.
3. Gaillard, J.-F., Chen, C., **Stonedahl, S.H.**, Lau, B.L.T., Keane, D.T., and Packman, A.I., 2008, Imaging of colloidal deposits in granular porous media by x-ray difference microtomography, *Geophysical Research Letters*, 34(18), L18404, doi:10.1029/2007GL030514 [Cover article and Editor's highlighted article].

2. Wörman, A., Packman, A.I., Marklund, L., Harvey, J.W., and **Stone***, **S.H.**, 2007, Fractal topography and subsurface water flows from fluvial bedforms to the continental shield, *Geophysical Research Letters*, 34(7), L07402, doi:10.1029/2007GL029426 [Editor's highlighted article].
1. Wörman, A., Packman, A.I., Marklund, L., Harvey, J.W., and **Stone***, **S.H.**, 2006, Exact three-dimensional spectral solution to surface-groundwater interactions with arbitrary surface topography, *Geophysical Research Letters*, 33(7), L07402, doi:10.1029/2006GL025747 [Editor's highlighted article].

*Name changed from Stone to Stonedahl in 2007

JOURNAL ARTICLES (IN-PREPARATION)

2. **Stonedahl, S.H.**, Harvey, J.W., and Packman, A.I., 2011, Interactions between topographic scales produce nonlinear hyporheic exchange patterns (*In-Progress*)
1. **Stonedahl, S.H.**, Harvey, J.W., Detty, J. M., Aubeneau, A. F, and Packman, A.I., 2011, Multi-scale Modeling of Groundwater-surface water interactions: Testing the Limits of Predictability in an Agricultural Stream (*Almost Submitted*)

OTHER PUBLICATIONS/PRESENTATIONS

19. **Stonedahl, S.H.** and Stonedahl, F. 2011, Think-Tac-Toe: When are puzzles solvable? MAA:MathFest, Lexington, KY
18. **Stonedahl, S.H.**, Harvey, J.W., and Packman, A.I. 2011, Complex Interactions of Topographic Scales Affecting Hyporheic Exchange in Fluvial Systems, *NICO Complexity Conference*, Northwestern University, Evanston, IL
17. **Stonedahl, S.H.**, 2011, Ripples to Meanders: A Multi-Scale Three-Dimensional Hyporheic Exchange Model. Physics and Geoscience Seminar, Skidmore College, February 10, 2011 Saratoga Springs, NY [Invited presentation]
16. **Stonedahl, S.H.**, 2011, Ripples to Meanders: A Multi-Scale Three-Dimensional Hyporheic Exchange Model. Civil, Construction, and Environmental Engineering Seminar, North Carolina State University, January 13, 2011 Raleigh, NC [Invited presentation]
15. **Stonedahl, S.H.**, 2011, Ripples to Meanders: A Multi-Scale Three-Dimensional Hyporheic Exchange Model. Environmental Engineering and Science Seminar, Northwestern University, January 7, 2011 Evanston, IL [Invited presentation]
14. Stonedahl, F. and **Stonedahl, S.H.**, 2010, Heuristics for Sampling Repetitions in Noisy Landscapes with Fitness Caching, *Proceedings of the 2010 Genetic and Evolutionary Computation Conference*, Portland, OR

13. Aubeneau, A. F., **Stonedahl, S. H.**, Harvey, J. W., Packman, A. I., 2010, Improved Modeling of Hyporheic Exchange Using CTRW: First Application to Field Data, ASLO/NABS
12. McPhillips, L.E., Harvey, J.W., Packman, A.I., Tobias, C.R., Jerolmack, D.J., Bohlke, J.K., Henry, E.J., Larsen, L.G., Aubeneau, A., Drummond, J., Duerenberger, K., Hucks-Sawyer, A., Lettrich, M., Martin, R., Maglio, M., Mroczkowski, S., and **Stonedahl, S.**, 2010, Hydrogeomorphic drivers of stream ecological processes: the 2009 Clear Run, NC studies, ASLO/NABS
11. **Stonedahl, S.H.** and Stonedahl, F., 2009. Quantifying Fitness Landscapes' Robustness to Noise and Uncertainty. NICO's Complexity Conference, Northwestern University, Evanston, IL
10. Packman, A. I., Harvey, J. W., Wörman, A., Cardenas, M. B., Schumer, R., Jerolmack, D. J., Tank, J. L., and **Stonedahl S. H.**, 2009, Multi-scale surface-groundwater interactions: processes and implications, AGU Joint Assembly, Toronto, Ontario
9. **Stonedahl, S.H.**, Harvey, J.W., Wörman, A., Packman, A.I., 2007, Modeling hyporheic exchange in flumes and streams using a spectral scaling based pumping model. Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract H11-1542
8. Wörman, A., Marklund, L. , Packman, A.I., Harvey, J.W. and **Stonedahl, S.H.**, 2007, Fractal scaling for surface water-subsurface water interaction through the earth's crust. Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract U52A-02
7. Packman, A.I. , Chen, C., **Stonedahl, S.H.**, Cortis, A., Harvey, J.W., Wörman, A., Boano, F., Ridolfi, L., Revelli, L. , Linking surface topography, subsurface structure, and solute transport in rivers, Stochastic Transport and Emergent Scaling in Earth-surface Processes, 4-7 November 2007, Incline Village, Nevada
6. **Stone*, S.H.**, 2006, Predicting hyporheic exchange in streams on the basis of a priori estimates of stream physical characteristics. Environmental Engineering and Science Seminar, Northwestern University, February 22, 2006 Evanston, IL [Invited presentation]
5. **Stone* ,S.H.**, Harvey, J.W., Packman, A.I., Wörman, A., 2005, Predicting hyporheic exchange of water and solutes in streams on the basis of a priori estimates of stream physical characteristics, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H43C-0513
4. **Stone*, S.** Cheng, C. , Keane, D.T., Gaillard, J.-F. , and Packman, A.I. , 2004, Use of 3D x-ray microtomography to observe the structure of colloidal zirconia deposits in sand columns, Eos Trans. AGU, 86(52), Fall Meet. Suppl., Abstract H33A-0456
3. **Stone*, S.H.**, Heil. T., Dahl. A.L., Gaillard, J.-F., Quintana, J.P.G. , 2003, Polycapillary Optics for Micro-XRF and Spatially Resolved XAS, *APS User Activity Reports 2002*, Vol.4
2. **Stone*, S.**, Heil, T., Dahl, A.L., Gaillard, J.-F., and Quintana, J.P.G., 2003, Polycapillary Optics for Micro-XRF and Spatially Resolved XAS, XAFS-XII Conference, Malmö, Sweden.

1. **Stone*, S.**, Heil, T. E., Dahl, A.L., Peltier, E., and Gaillard, J.-F., 2002, Quantitative fluorescence imaging of an arsenic hyper-accumulating fern, 25th Annual Midwest Environmental Chemistry Workshop, Chicago, IL.

TEACHING EXPERIENCE

ST. AMBROSE UNIVERSITY

Assistant Professor 8/11-Present

- PHYSICS 203 College Physics I Fall 2011
- PHYSICS 203L College Physics Lab Fall 2011

NORTHWESTERN UNIVERSITY

McCormick Tech Tutor (Teaching Assistant position) 9/09-6/10

Teaching Assistant

- PHYSICS 130-1 Classical Mechanics Summer 2008
- PHYSICS 130-2 Electricity and Magnetism Summer 2008

EES Teaching Experience Spring 2006

SERTS (Science and Engineering Research and Teaching Synthesis) Spring 2006 & 2007

Grader (Northwestern University)

- GEN_ENG 205-1 Engineering Analysis I Fall 2010
- CIV_ENG 340 Fluid Mechanics II Spring 2009
- CIV_ENG 440 Environmental Transport Processes Fall 2008
- CIV_ENG 260 Fundamentals of Environmental Engineering Spring 2006 & 2007
- CIV_ENG 360 Environmental Impact Evaluation Spring 2005

CARLETON COLLEGE

Mathematics Tutor (Math Skills Center) 9/00-6/03

Calculus Prefect 1/02-6/02

Grader (Mathematics Department) 9/02-6/03

NORTH SHORE HOME EDUCATORS

MATHCOUNTS Instructor/Coach 9/08-Present

Team ranked 5 th place in the state of Illinois	2011
STAMPS Instructor (Summer Training in Mathematical Problem Solving)	Summer 2010
Math Olympiad Instructor	9/06-6/09

ACADEMIC TUTORING CENTERS

Physics/Math/ACT Tutor (Highland Park)	9/08-6/10
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EXPERIENCE

NORTHWESTERN UNIV., CIVIL AND ENVIRONMENTAL ENGINEERING (EVANSTON, IL)

Graduate Research Assistant	9/03-Present
Collaborative Research Experience (SLU, Uppsala, Sweden)	Summer 2003
Research Experience for Undergraduates	Summer 2002

Univ. Wisconsin-Milwaukee Physics (Milwaukee, WI)

Research Experience for Undergraduates	Summer 2001
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AWARDS/ACHIEVEMENTS/SCHOLARSHIPS

McCormick Student Art Fair: Commedia Dell'arte Award	2011
Northwestern ASCE Popsicle Stick Bridge Design Competition Winner	2010
Quest HPC Development Allocation (25,000 CPUs)	2010
Terminal Year Fellowship	2008
Murphy Fellowship	2003-2004
Inducted into Sigma Xi	2003
National Merit Scholarship	1999-2003
Lutheran Brotherhood Scholarship	1999-2003

PROFESSIONAL SERVICE

Program Design Etopia Production of QED (Northwestern)	2010
Demonstrated at Career Day for Girls (Northwestern)	2006, 2009-2011

Demonstrated at Take Our Daughters to Work Day (Northwestern)	2007, 2009, 2011
Demonstrated for the Meaningful Science Consortium (Northwestern)	2011
Demonstrated at Communiversy Day (Northwestern)	2009
CEGS (Civil and Environmental Graduate Society) Board Member	2006-2008
CEEGAB (Civil and Environmental Engineering Graduate Advisory Board)	2004-2005

REVIEWER

Geophysical Research Letters, Journal of Hydrology, Water Resources Research

PROFESSIONAL AFFILIATIONS

American Geophysical Union (AGU)

American Society of Civil Engineers (ASCE)

Environmental & Water Resources Institute (EWRI)

Society of Women Engineers (SWE)