JEFFERY S. HORSBURGH

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3-3-2016

Education

Ph.D. Civil and Environmental Engineering, Utah State University, Logan, UT, 2009. Dissertation: Hydrologic Information Systems: Advancing Cyberinfrastructure for Environmental Observatories. Advisor: David G. Tarboton

M.S. Civil and Environmental Engineering, Utah State University, Logan, UT, 2001. Thesis: Statistical Analysis of Regional Geographic Information Systems (GIS) Data to Predict Water Quality in Streams. Advisor: David K. Stevens

B.S. Environmental Engineering, Utah State University, Logan, UT, 1999, *Magna Cum Laude*.

Professional Experience

Assistant Professor: 2013 – Present, Department of Civil and Environmental Engineering and Utah Water Research Laboratory, Utah State University, Logan, UT.

Research Assistant Professor: 2009 – 2013, Utah Water Research Laboratory, Department of Civil and Environmental Engineering, Utah State University, Logan, UT.

Research Engineer, Director – Environmental Management Research Group: 2001 – 2009, Utah Water Research Laboratory, Utah State University, Logan, UT.

Research Technician: 2000 – 2001, Utah Water Research Laboratory, Utah State University, Logan, UT.

Research Assistant: 1999 – 2000, Utah Water Research Laboratory, Utah State University, Logan, UT.

Summer Fellow: Summers 1997, 1998, Idaho National Engineering and Environmental Laboratory (INEEL), Idaho Falls, ID.

Expertise

My research and training are in watershed hydrology, surface water quality, Environmental Engineering, and environmental information systems. I focus on the development of new technology to increase the understanding of environmental processes. This includes the use of Geographic Information Systems for data analysis and dissemination, observation systems and sensor networks, data models, development of information systems that support environmental observations, and modeling techniques for surface water hydrology and water quality.

Awards

USU Civil and Environmental Engineering Department, 2015-2016 Outstanding Researcher, February 2016.

International Environmental Modelling and Software Society, Early Career Research Excellence Prize, June 2014.

USU Civil and Environmental Engineering Department, 2013-2014 Outstanding Researcher, February 2014.

Environmental Modelling & Software, Outstanding Reviewer Award for high quality reviews provided to the journal, January 2014.

American Water Resources Association, Award for Outstanding Student Presentation at AWRA's Spring Specialty Conference, GIS and Water Resources V, March 17-19, 2008.

Professional Affiliations

American Geophysical Union (2008 – present).

American Water Resources Association (2007 – Present).

International Environmental Modelling and Software Society (2014 – Present).

Research Funding

Current Research Grants (USU portion of collaborative awards listed)

National Science Foundation, CAREER: Cyberinfrastructure for Intelligent Water Supply (CIWS): Shrinking Big Data for Sustainable Urban Water, **J.S. Horsburgh**, $507,082, 2/1/2016 – 1/31/2021.

William Penn Foundation, Supporting Citizen Science with the Delaware River Watershed Initiative Cluster Teams, D. Arscott, A. Aufdenkampe, **J.S. Horsburgh**, $220,000 (in collaboration with Stroud Water Research Center), 1/1/2016 – 12/31/2017.

National Science Foundation, Collaborative Research: SI2-SSI: The Community-Driven BiG CZ Software System for Integration and Analysis of Bio- and Geoscience Data in the Critical Zone, A. Aufdenkampe, K. Lehnert, R. Cheetham, **J.S. Horsburgh**, E. Mayorga, $116,765 (in collaboration with Stroud Water Research Center, Columbia U., U. of Washington and others), 12/1/2013 – 11/30/2016.

National Science Foundation, Integrated Data Management System for Critical Zone Observatories, **J.S. Horsburgh**, D.G. Tarboton (in collaboration with Stroud Water Research Center, U. Washington, and San Diego Supercomputer Center), $110,002, 12/1/2012 – 3/31/2016.

National Science Foundation, Collaborative Research: SI2-SSI: An Interactive Software Infrastructure for Sustaining Collaborative Community Innovation in the Hydrologic Sciences, D.G. Tarboton, D.P. Ames, J. Arrigo, J.L. Goodall, D.R. Maidment, **J.S. Horsburgh**, (in collaboration with U. of North Carolina Chapel Hill, U. of Texas at Austin, Purdue U., and San Diego Supercomputer Center) $2,401,939, 7/1/2012 – 6/30/2017.

National Science Foundation, iUTAH-innovative Urban Transitions and Aridregion Hydro-sustainability, T. Crowl, M. Baker, D. Jackson-Smith, **J.S. Horsburgh** (Utah EPSCoR Track 1 proposal in collaboration with U. of Utah, Brigham Young U., and others), $20,000,000, 8/1/2012 – 7/31/2017.

Completed Research Grants (USU portion of collaborative awards listed)

National Science Foundation, Developing a Community Information Model and Supporting Software to Extend Interoperability of Sensor and Sample Based Earth Observations, **J.S. Horsburgh**, K. Lehnert, A. Aufdenkampe, I. Zaslavsky, E. Mayorga, $551,176, 8/1/2012 – 7/31/2015.

National Science Foundation, CI-WATER: Cyberinfrastructure to Advance High Performance Water Resource Modeling, D.G. Tarboton, **J.S. Horsburgh**, D.E. Rosenberg, $924,000 (in collaboration with Brigham Young U., U. of Utah, and U. of Wyoming), 9/1/2011 – 8/31/2015.

National Science Foundation, DataNetONE (Observation Network for Earth), U. of New Mexico, Sub award to Utah State U., **J. S. Horsburgh**, $87,121, 8/1/2009 – 7/31/2014.

National Science Foundation, EAGER: Collaborative Research: Interoperability Testbed-Assessing a Layered Architecture for Integration of Existing Capabilities, **J.S. Horsburgh**, (in collaboration with

UNC, GMU, WHOI, OGC, UC Boulder, UIUC/NCSA, RENCI, UNC-CH, UCSD, and Colorado State University), $18,000, 4/1/2012 – 3/31/2013.

Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), Development of an Implementation plan for Operationalizing the CUAHSI Hydrologic Information System and HydroServer Development and Maintenance, **J.S. Horsburgh**, $54,298, 6/1/2011 – 9/30/2012.

United States Geological Survey, Drought Index Information System Development, D. G. Tarboton, **J. S. Horsburgh**, $97,584, 1/1/2010 - 6/30/2012.

National Science Foundation, WSC Category 1 - Hydrologic and Ecological Impacts of Changes in Human Water Resource Management in Response to Climate Change, D. B. Jackson-Smith, C. Sims, **J. S. Horsburgh**, B. T. Neilson, D. E. Rosenberg, $149,942, 10/1/2010 – 9/30/2011.

National Science Foundation, Integrated Data Management and Web Presence at the Critical Zone Observatories: CZO Desktop, U. of Colorado at Boulder, Sub award to Utah State U., D. G. Tarboton, **J. S. Horsburgh**, $65,000, 10/2009 - 9/2011

National Science Foundation, Development of a Science Plan for the Water and Environmental Research Systems (WATERS) Network, P. I. Jeff Dozier, U. of California Santa Barbara, Sub award to Utah State U., D. G. Tarboton, **J. S. Horsburgh**, $31,095, 10/1/2008 to 12/31/2009.

Inland Northwest Research Alliance (INRA), INRA Constellation of Experimental Watersheds (ICEWATER), D. G. Tarboton, **J. S. Horsburgh**, $146,000, 11/15/2008 – 9/30/2010.

State of Utah, Division of Forestry, Fire, and State Lands, An Internet Based Great Salt Lake Information System (GSLIS), **J. S. Horsburgh**, D. G. Tarboton, $67,897, 10/2008 – 9/2010.

National Science Foundation, CUAHSI Hydrologic Information System, D. R. Maidment, D. G. Tarboton, I. Zaslavsky, J. Goodall, M. Piasecki, $4,500,000 to the U. of Texas at Austin for the Period 1/15/2007 to 12/31/2011. $80,000 per year subcontract to Utah State U.

Utah State University Water Initiative, State of Idaho Department of Environmental Quality, Continuous Water Quality Monitoring of Mud Lake to Support Evaluation of Effects of Bear River Water Diverted into Bear Lake, **J. S. Horsburgh**, D. K. Stevens, N. O. Mesner, $51,524 ($27,524 from USU and $26,000 from IDEQ), 2006 – 2008.

National Science Foundation, Tools for Environmental Observatory Design and Implementation: Sensor Networks, Dynamic Bayesian Nutrient Flux Modeling, and Cyberinfrastructure Advancement, D. S. Stevens, D. G. Tarboton, **J. S. Horsburgh**, N. O. Mesner, $350,000, 11/2006-10/2009.

United States Bureau of Reclamation, An Information System for Science Based River Management (IIMS), D. K. Stevens, T. Hardy, **J. S. Horsburgh**, $910,559, 9/2006-9/30/2010.

Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI), Development of Data Visualization, Management, and Processing Tools for the CUAHSI HIS Observations Data Model, **J. S. Horsburgh**, D. K. Stevens, $19,484, 9/2006 – 2/2007.

Bear River Commission, USEPA Targeted Watersheds Program, Dynamic Water Quality Modeling to Support Water Quality Trading in the Bear River Basin, D. K. Stevens, **J. S. Horsburgh**, N. O. Mesner, $169,216, 6/2005 – 9/2008.

Cirrus Ecological Solutions (State of Utah, Department of Environmental Quality), Technical Support for TMDL Development: Upper Bear River Watershed, **J. S. Horsburgh**, $21,188, 3/2005 – 6/2006.

Bear River Commission, USEPA Targeted Watersheds Program, Development of an Internet Based Watershed Information System and Water Quality Trading Program in the Bear River Basin, David K. Stevens, **J. S. Horsburgh**, N. O. Mesner, T. Glover, $452,587, 10/2004 – 9/2008.

USDA CSREES, Evaluation of the Effects of Conservation Practices on Water Quality within the Biophysical Setting of a Watershed: Little Bear River Watershed, D. K. Stevens, **J. S. Horsburgh**, N. O. Mesner, D. Jackson-Smith, D. L. Sorensen, $645,000, 9/2004 – 9/2009.

University of Utah, Long Term Hydrologic Observatory Website for the Great Salt Lake Basin, **J. S. Horsburgh**, $15,767, 2004.

Utah State University Water Initiative, Development of an Internet Based Laboratory Watershed Information System for the Bear River Basin, **J. S. Horsburgh**, $18,869, 3/2004 – 6/2006.

National Science Foundation, Development of Informatics Infrastructure for the Hydrologic Sciences, P.I. David Maidment, University of Texas at Austin. Sub award to Utah State University, D. G. Tarboton, $86,325, 3/2004-10/2007.

Utah State University Water Initiative, Real Time Water Quality Monitoring in the Logan River, **J. S. Horsburgh**, $14,160, 3/2004 – 6/2006.

Psomas (State of Utah, Department of Environmental Quality), Technical Support for TMDL Development: Strawberry Reservoir Watershed, D. K. Stevens, **J. S. Horsburgh**, $14,998, 3/2004 – 8/2004.

Cirrus Ecological Solutions (State of Utah, Department of Environmental Quality), Technical Support for TMDL Development: Echo Reservoir Watershed, D. K. Stevens, **J. S. Horsburgh**, D. P. Ames, $35,505, 7/2003 – 6/2005.

Cirrus Ecological Solutions (State of Utah, Department of Environmental Quality), Technical Support for TMDL Development: Otter Creek and East Fork Sevier River Watershed, **J. S. Horsburgh**, D. P. Ames, $42,946, 12/2002 – 12/2005.

Cirrus Ecological Solutions (State of Utah, Department of Environmental Quality), Technical Support for TMDL Development: Newton Reservoir and Clarkston Creek Watershed, **J. S. Horsburgh**, D. P. Ames, $23,174, 9/2002 – 3/2004.

Whatcom County, WRIA 1 Watershed Management Project, T. Hardy, M. McKee, D. Stevens, D. G. Tarboton, M. Kemblowski, J. Kaluarachchi, D. Sorenson, $2,319,446, 2000 - 2005.

State of Idaho, Department of Environmental Quality, Technical Support for TMDL Development: South Fork Payette River, D. K. Stevens, $16,446, 6/2000 – 6/2002.

USEPA, Better Assessment Science Integrating Point and Nonpoint Sources (BASINS) Training, D. K. Stevens, $225,000, 7/1999 – 6/2002.

Idaho National Engineering and Environmental Laboratory, Development of a User Driven Decision Support System for Water Availability and Quality Management, U. Lall, D. Stevens, R. Price, D. G. Tarboton, J. Kaluarachchi, Q. Weninger, T. Glover, G. Urroz, $2,275,000, 1997 - 2000.

Publications and Presentations

Journal Papers in Print or Press
*(Student Authors in Italics and Underlined - ** = Graduate Student, * = Undergraduate Student)*

1. **Horsburgh, J. S.**, Aufdenkampe, A. K., Mayorga, E., Lehnert, K. A., Hsu, L., Song, L., Spackman Jones, A., Damiano, S. G., Tarboton, D. G., Valentine, D., Zaslavsky, I., Whitenack, T. (2016). Observations Data Model 2: A community information model for spatially discrete Earth observations, *Environmental Modelling & Software*, 79, 55-74, doi:10.1016/j.envsoft.2016.01.010.

2. **Horsburgh, J. S.**, **Morsy, M. M.**, Castronova, A., Goodall, J. L., **Gan, T.**, Yi, H., Stealey, M. J., and D.G. Tarboton (2015). HydroShare: Sharing diverse environmental data types and models as social objects with application to the hydrology domain, *Journal of the American Water Resources Association (JAWRA)*, doi:10.1111/1752-1688.12363.

3. **Buahin, C. A.** and **J.S. Horsburgh** (2015). Evaluating the simulation times and mass balance errors of component-based models: An application of OpenMI 2.0 to an urban stormwater system, *Environmental Modelling & Software*, 72, 92-109, doi:10.1016/j.envsoft.2015.07.003.

4. Jones, A.S., **J. S. Horsburgh**, S.L. Reeder, **M. Ramirez*, **J. Caraballo* (2015). A data management and publication workflow for a large-scale, heterogeneous sensor network, *Environmental Monitoring and Assessment*, 187:348, doi:10.1007/s10661-015-4594-3.

5. **Horsburgh, J. S.**, S. L. Reeder, A. Spackman Jones, **J. Meline* (2015). Open source software for visualization and quality control of continuous hydrologic and water quality sensor data, *Environmental Modelling & Software*, 70, 32-44, doi:10.1016/j.envsoft.2015.04.002.

6. Hale, R. L., ***A. Armstrong*, M. A. Baker, S. Bedingfield, ***D. Betts*, ***C. Buahin*, M. Buchert, T. Crowl, R. R. Dupont, J. R. Ehleringer, J. Endter-Wada, C. Flint, J. Grant, S. Hinners, **J. S. Horsburgh**, D. Jackson-Smith, A. S. Jones, C. Licon, S. E. Null, ***A. Odame*, D. E. Pataki, D. Rosenberg, M. Runberg, ***P. Stoker*, and C. Strong (2015), iSAW: Integrating structure, actors, and water to study socio-hydro-ecological systems, *Earth's Future*, 3, doi:10.1002/2014EF000295.

7. **Horsburgh, J. S.**, and S. Reeder (2014), Data visualization and analysis within a Hydrologic Information System: Integrating with the R statistical computing environment, *Environmental Modelling & Software*, 52, 51-61, doi:10.1016/j.envsoft.2013.10.016.

8. **Horsburgh, J. S.**, D. G. Tarboton, R. P. Hooper, and I. Zaslavsky (2014). Managing a community shared vocabulary for hydrologic observations, *Environmental Modelling & Software*, 52, 62-73, doi:10.1016/j.envsoft.2013.10.012.

9. ***Spackman Jones, A.*, **J. S. Horsburgh**, N. O. Mesner, R. J. Ryel, and D. K. Stevens (2012), Influence of sampling frequency on estimation of annual total phosphorus and total suspended solids loads, *Journal of the American Water Resources Association*, 48(6), 1258-1275, doi:10.1111/j.1752-1688.2012.00684.x.

10. Ames, D. P., **J. S. Horsburgh**, Y. Cao, J. Kadlec, T. Whiteaker, and D. Valentine (2012), HydroDesktop: Web services-based software for hydrologic data discovery, download, visualization, and analysis, *Environmental Modelling & Software*, 37, 146-156, doi:10.1016/j.envsoft.2012.03.013.

11. Spackman Jones, A., D. K. Stevens, **J. S. Horsburgh**, and N. O. Mesner (2011), Surrogate measures for providing high frequency estimates of total suspended solids and total phosphorus concentrations, *Journal of the American Water Resources Association*, 47(2), 239-253, doi:10.1111/j.1752-1688.2010.00505.x.

12. **Horsburgh, J. S.**, D. G. Tarboton, D. R. Maidment, and I. Zaslavsky (2011), Components of an integrated environmental observatory information system, *Computers & Geosciences*, 37(2), 207-218, doi:10.1016/j.cageo.2010.07.003.

13. Jackson-Smith, D. B., M. Halling, E. de la Hoz, J. P. McEvoy, and **J. S. Horsburgh** (2010), Measuring conservation program BMP implementation and maintenance at the watershed scale, *Journal of Soil and Water Conservation*, 65(6), 413-423, doi:10.2489/jswc.65.6.413.

14. **Horsburgh, J. S.**, A. Spackman Jones, D. K. Stevens, D. G. Tarboton, and N. O. Mesner (2010), A sensor network for high frequency estimation of water quality constituent fluxes using surrogates, *Environmental Modelling & Software*, 25, 1031-1044, doi:10.1016/j.envsoft.2009.10.012.

15. **Horsburgh, J. S.**, D. G. Tarboton, M. Piasecki, D. R. Maidment, I. Zaslavsky, D. Valentine, and T. Whitenack (2009), An integrated system for publishing environmental observations data, *Environmental Modelling & Software*, 24, 879-888, doi:10.1016/j.envsoft.2009.01.002.

16. **Horsburgh, J. S.**, D. G. Tarboton, D. R. Maidment, and I. Zaslavsky (2008), A relational model for environmental and water resources data, *Water Resources Research*, 44, W05406, doi:10.1029/2007WR006392.

17. Goodall, J. L., **J. S. Horsburgh**, T. L. Whiteaker, D. R. Maidment, and I. Zaslavsky (2008), A first approach to web services for the National Water Information System, *Environmental Modelling & Software*, 23(4), 404-411, doi:10.1016/j.envsoft.2007.01.005.

18. Maidment, D. R., I. Zaslavsky, and **J. S. Horsburgh** (2006), Hydrologic data access using web services, *Southwest Hydrology*, 5(3). (Available at http://www.swhydro.arizona.edu/archive/V5_N3/feature1.pdf)

Journal Papers Under Review
*(Student Authors in Italics and Underlined - ** = Graduate Student, * = Undergraduate Student)*

1. Jones, A., **Horsburgh, J.S.**, Jackson-Smith, D., *Ramirez, M.*, Flint, C., and *J. Caraballo* (2015). A Web-based, interactive visualization tool for social environmental survey data, *Environmental Modelling & Software* (Submitted).

Book Chapters

1. Meals, D. W, Mesner, N., Jackson-Smith, D., Stevens, D., **Horsburgh, J.**, Sorensen, D., Luloff, A. E., and D. L. Osmond (2012), Little Bear River Watershed, Utah: National Institute of Food and Agriculture-Conservation Effects Assessment Project, Chapter 21 in: *How to Build Better Agricultural Conservation Programs to Protect Water Quality: The National Institute of Food and Agriculture-Conservation Effects Assessment Project Experience*, Edited by D.L. Osmond, D.W. Meals, D.LK. Hoag, and M. Arabi, Soil and Water Conservation Society, Ankeny, IA, 387 pp.

2. Neilson, B. T., Stevens, D. K., and **J. S. Horsburgh** (2005), TMDL development approaches, In: *Total Maximum Daily Load: Approaches and Challenges*, Edited by Tamim Younos, PenWell Corporation, Tulsa, OK, 343 pp.

Theses

1. **Horsburgh, J. S.** (2008), Hydrologic Information Systems: Advancing Cyberinfrastructure for Environmental Observatories, Ph.D. Dissertation, Utah State University, Logan, UT. (Available at http://digitalcommons.usu.edu/etd/219/)

2. **Horsburgh, J. S.** (2001), Statistical Analysis of Regional Geographic Information Systems (GIS) Data to Predict Water Quality in Streams, M.S. Thesis, Utah State University, Logan, UT, 144 pp.

Conference Proceedings Papers

1. Heard, J., D. G. Tarboton, R. Idaszak, **J. S. Horsburgh,** D. Ames, A. Bedig, A. M. Castronova, A. Couch, P. Dash, C. Frisby, T. Gan, J. Goodall, S. Jackson, S. Livingston, D. Maidment, N. Martin, B. Miles, S. Mills, J. Sadler, D. Valentine, and L. Zhao (2014). An architectural overview of HydroShare, a next-generation hydrologic information system, In: Proceedings of the 11th International Conference on Hydroinformatics, 17-21 August, New York City, NY.

2. **Horsburgh, J. S.**, A. Spackman-Jones, S. Reeder (2014). ODM Tools Python: Open source software for managing continuous sensor data, In: Proceedings of the 11th International Conference on Hydroinformatics, 17-21 August, New York City, NY.

3. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh,** J. Heard, D. Ames, J. L. Goodall, L. E. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, D. Valentine, and D. Maidment (2014), A resource centric approach for advancing collaboration through hydrologic data and model sharing, In: Proceedings of the 11th International Conference on Hydroinformatics, 17-21 August, New York City, NY.

4. **Horsburgh, J. S.** (2014). Toward integrated environmental modeling using research data infrastructures, In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), Proceedings of the 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2.

5. **Horsburgh, J. S.**, A. Spackman-Jones, S. Reeder (2014). Automating data management and sharing within a large-scale, heterogeneous sensor network, In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), Proceedings of the 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2.

6. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh,** J. Heard, D. Ames, J. L. Goodall, L. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, D. Valentine, D. Maidment (2014). HydroShare: Advancing collaboration through hydrologic data and model sharing, In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), Proceedings of the 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2.

7. Burian, S. J., **J. S. Horsburgh,** D. E. Rosenberg, D. P. Ames, L. C. Hunter, and C. Strong (2013), Using interactive video conferencing for multi-institution, team-teaching, In: American Society for Engineering Education (ASEE) Annual Conference Proceedings, 23-26 June, Atlanta, GA.

8. Taurob, S., L. C. Pouchard, N. Noy, **J. S. Horsburgh**, and G. Palanisamy (2012), ONEMercury: Towards Automatic Annotation of Environmental Science Metadata, In: Proceedings of the 2nd International Workshop on Linked Science 2012—Tackling Big Data (LISC2012) - LinkedScience.org.

9. Tarboton, D. G., D. R. Maidment, I. Zaslavsky, D. P. Ames, J. Goodall, R. P. Hooper, **J. S. Horsburgh**, D. Valentine, T. Whiteaker, and K. Schreuders (2011), Data Interoperability in the Hydrologic Sciences, In: Proceedings of the Environmental Information Management Conference, Santa Barbara, CA, 28-29 September.

10. Piasecki, M., D. Ames, J. Goodall, R. Hooper, **J. S. Horsburgh**, D. Maidment, D. Tarboton, and I. Zaslavsky (2010), Development of an Information System for the Hydrologic Community, In: Proceedings of the 9th International Conference on Hydroinformatics HIC 2010, Tianjin, China, September 7-11.

11. **Horsburgh, J. S.**, D. G. Tarboton, K. A. T. Schreuders, D. R. Maidment, I. Zaslavsky, and D. Valentine (2010), HydroServer: A platform for publishing space-time hydrologic datasets, In: Proceedings of the AWRA Spring Specialty Conference on GIS and Water Resources, Orlando, FL, March 29 – 31.

12. Ames, D. P., **J. S. Horsburgh**, J. Goodall, D. G. Tarboton, T. Whiteaker, and D. R. Maidment (2009), Introducing the open source CUAHSI Hydrologic Information System desktop application (HIS Desktop), in Anderssen, R. S., R. D. Braddock, and L.T.H. Newham (eds) 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation, Modelling and Simulation Society of Australia and New Zealand and International Association for Mathematics and Computers in Simulation, July 2009, pp. 4353-4359, ISBN: 978-0-9758400-7-8.

13. Tarboton, D. G., **J. S. Horsburgh**, D. R. Maidment, T. Whiteaker, I. Zaslavsky, M. Piasecki, J. Goodall, D. Valentine, and T. Whitenack (2009), Development of a community Hydrologic Information System, in Anderssen, R. S., R. D. Braddock, and L.T.H. Newham (eds) 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation, Modelling and Simulation Society of Australia and New Zealand and International Association for Mathematics and Computers in Simulation, July 2009, pp. 988-994, ISBN: 978-0-9758400-7-8.

14. Neilson, B. T., C. Bandaragoda, M. E. Baker, **J. S. Horsburgh**, and D. K. Stevens (2009), Watershed Modeling for Water Quality Trading, In: Proceedings of the AWRA Summer Specialty Conference on Adaptive Management, Snowbird, UT, June 29 - July 1.

15. Stevens, D. K. and **J. S. Horsburgh** (2003), GIS-Based Watershed Information System Including Water Quality and Streamflow Data Analysts, pp. 420-427 in Total Maximum Daily Load (TMDL) Environmental Regulations II, Conference Proceedings, 8-12 November 2003, Albuquerque, New Mexico, USA, ed. Ali Saleh., 8 November 2003. ASAE Pub #701P1503.

16. Stevens, D. K., **J. S. Horsburgh**, B. T. Neilson, and B. Lunt (2002), GIS-based Watershed Data Viewer and Water Quality Data Analyst, In: Proceedings of the WEF, National TMDL Science and Policy 2002 Specialty Conference, Phoenix, AZ, November 13-16.

17. Baldwin, C. K. and **J. S. Horsburgh** (2001), A Bayesian Method for Environmental Prediction, In: Proceedings of the AWRA Summer Specialty Conference on Decision Support Systems for Water Resources Management, Snowbird, UT. June 27-30.

18. **Horsburgh, J. S.** and C. K. Baldwin (2001), KNNBN – Regional Prediction of Water Quality in Data Poor Watersheds, In: Proceedings of the AWRA Summer Specialty Conference on Decision Support Systems for Water Resources Management, Snowbird, UT, June 27-30.

19. **Horsburgh, J. S.** (2000), Water Quality Estimation from Regional Characteristics, In: Proceedings of the Twentieth Annual ESRI International User Conference, San Diego, CA, June 26-30.

Technical Reports

1. Pellerin, B. A., B. A. Bergamaschi, and **J. S. Horsburgh** (2012), In Situ Optical Water-Quality Sensor Networks - Workshop Summary Report, United States Geological Survey Open-File Report 2012–1044.

2. D. Arctur (Ed.), L. Bermudez (Ed.), D. Ames, N. Booth, Y. Choi, J. Goodall, R. Hooper, **J. Horsburgh**, S. Jirka, D. Maidment, G. Percivall, F. Salas, K. Schreuders, J. Seppi, D. Tarboton, D. Valentine, T. Veluppillai, P.A. Vretanos, T. Whiteaker, I. Zaslavsky (2011), OGC Engineering Report: CUAHSI Profile of OGC Web Services Standards for Water Observations Data, OGC 11-013r5, Version 0.31, Open Geospatial Consortium, Inc., https://portal.opengeospatial.org/files/?artifact_id=44834.

3. Tarboton, D. G., D. R. Maidment, I. Zaslavsky, D. P. Ames, J. Goodall, and **J. S. Horsburgh** (2010), CUAHSI Hydrologic Information System 2010 Status Report, Consortium of Universities for the Advancement of Hydrologic Science, Inc., 34 p. (Available at http://his.cuahsi.org/documents/CUAHSIHIS2010StatusReport.pdf)

4. Tarboton, D. G., and **J. S. Horsburgh (2008)**, Observations Data Model, Chap. 3, in CUAHSI Hydrologic Information System: Overview of Version 1.1, Consortium of Universities for the Advancement of Hydrologic Science, Inc., Washington, D. C. (Available at http://his.cuahsi.org/documents/HISOverview.pdf)

5. Tarboton, D. G., **J. S. Horsburgh**, and D. R. Maidment (2008), CUAHSI Community Observations Data Model (ODM) Version 1.1 Design Specifications, (Available at http://his.cuahsi.org/)

6. **Horsburgh, J. S.**, D. G. Tarboton and D. R. Maidment (2005), A Community Data Model for Hydrologic Observations, Chapter 6, in *Hydrologic Information System Status Report, Version 1*, Edited by D. R. Maidment, p.102-135, (Available at http://www.cuahsi.org/docs/HISStatusSept15.pdf)

7. Neilson, B. T., **J. S. Horsburgh**, D. K. Stevens, M. R. Matassa, J. N. Brogdon, and A. Spackman (2004), Comparison of Complex Watershed Models' Predictive Capabilities: EPRI's Watershed Analysis Risk Management Framework (WARMF) vs. USEPA's Better Assessment Science Integrating Point and Nonpoint Sources (BASINS/WinHSPF), Utah Water Research Laboratory, Utah State University, Logan, UT.

Invited Presentations

1. **Horsburgh, J. S.** (2015), Hydrology Domain Cyberinfrastructures: Successes, Challenges, and Opportunities (*Invited*), Abstract H42A-07 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

2. **Horsburgh, J. S.**, A. K. Aufdenkampe, K. A. Lehnert, E. Mayorga, L. Hsu, L. Song, I. Zaslavsky, D. Valentine (2014). Information requirements for integrating spatially discrete, feature-based earth observations (*Invited*), Abstract IN44A-07 presented at the 2014 AGU Fall Meeting, San Francisco, CA, 15-19 December.

3. **Horsburgh, J. S.** (2014). Toward integrated environmental modeling using research data infrastructures (*Invited*), 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA.

4. **Horsburgh, J. S.**, A. Spackman-Jones, S. Reeder (2014). Automating data management and sharing within a large-scale, heterogeneous sensor network (*Invited*), 7th International Congress on Environmental Modelling and Software, June 15-19, San Diego, California, USA.

5. **Horsburgh, J. S.**, A. K. Aufdenkampe, K. A. Lehnert, E. Mayorga, D. G. Tarboton, I. Zaslavsky, D. W. Valentine, Tom Whitenack (2013). Extending the interoperability of sensor and sample based earth observations using a community information model (*Invited*), Abstract H11E-1197 presented at the 2013 AGU Fall Meeting, San Francisco, CA, 9-13 December.

6. **Horsburgh, J. S.**, A. Spackman Jones, S. Reeder, J. Patton, J. Caraballo, M. Ramirez, and N. Mouzon (2013). Using CUAHSI HIS to support large scale collaborative research in Utah (*Invited*), CUAHSI HIS Cyberseminar, 5/1/2013.

7. **Horsburgh, J. S.** (2012), Sensors, cyberinfrastructure, and water quality in the Little Bear River: Adventures in continuous monitoring (*Invited*), 2012 SACNAS National Conference: Creating a Healthy World through Science, Diversity & Technology, Seattle, WA, 11-14 October.

8. **Horsburgh, J. S.,** A. K. Aufdenkampe, K. A. Lehnert, K. A. T. Schreuders, D. G. Tarboton, D. Valentine, and I. Zaslavsky (2011), Advancing an Information Model for Environmental Observations (*Invited*), Abstract IN32A-03 presented at the 2011 AGU Fall Meeting, San Francisco, CA, 5-9 December.

9. **Horsburgh, J. S.**, A. Spackman Jones, D. K. Stevens, D. G. Tarboton, and N. O. Mesner (2011), Sensors, Cyberinfrastructure, and Water Quality Monitoring in the Little Bear River: Adventures in Continuous Monitoring (*Invited)*, presented at the USGS/CUAHSI Workshop on Optical Sensors, Shepherdstown, WV, 8-10 June.

10. **Horsburgh, J. S.**, D. G. Tarboton, D. R. Maidment, I. Zaslavsky, D. P. Ames, J. L. Goodall, R. P. Hooper (2011), Advancing a Services Oriented Architecture for Sharing Hydrologic Data (*Invited*), presented at the European Geosciences Union General Assembly, Vienna, Austria, 3-8 April.

11. **Horsburgh, J. S.**, A. Spackman-Jones, D. K. Stevens, D. G. Tarboton, and N. O. Mesner (2010), A Study of High Frequency Water Quality Observations in the Little Bear River Utah, USA (*Invited*), Abstract B42C-07 presented at the 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 December.

Conference Presentations, Posters, and Abstracts
*(Student Authors in Italics and Underlined - ** = Graduate Student, * = Undergraduate Student)*

1. Jones, A., **Horsburgh, J. S.**, **Matos, M.*, **Caraballo, J.* (2015). Equipment Management for Sensor Networks: Linking Physical Infrastructure and Actions to Observational Data, Abstract IN11D-1793 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

2. Aufdenkampe, A., Mayorga, E., **Horsburgh, J. S.**, Lehnert, K., Zaslavsky, I. (2015). Integration of bio- and geoscience data with the ODM2 standards and software ecosystem for the CZOData and BiG CZ Data projects, Abstract IN13A-1820 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

3. ***Gan, T.*, Tarboton, D. G., **Horsburgh, J. S.**, Dash, P., Idaszak, R., Yi, H., Blanton, B. (2015). Collaborative Sharing of Multidimensional Space-time Data Using HydroShare, Abstract H43A-1475 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

4. Tarboton, D. G., Idaszak, R., **Horsburgh, J. S.**, Ames, D., Goodall, J., Band, L., Merwade, V., Couch, A., Hooper, R., Maidment, D., Dash, P., Stealey, M., Yi, H., ***Gan, T.*, Castronova, A., Miles, B., Li, Z., Morsy, M. (2015). Advancing Collaboration through Hydrologic Data and Model Sharing, Abstract H42A-04 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

5. Tarboton, D. G., Idaszak, R., **Horsburgh, J. S.**, Ames, D., Goodall, J., Band, L., Merwade, V., Couch, A., Hooper, R., Maidment, D., Dash, P., Stealey, M., Yi, H., *******Gan, T.***, *******Gichamo, T.***, *******Yildirim, A.***, Liu, Y., Clearing your Desk! Software and Data Services for Collaborative Web Based GIS Analysis, Abstract IN51C-04 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

6. Ames, D. P., Li, Z., Qiao, X., Tarboton, D. G., Idaszak, R., **Horsburgh, J. S.**, Merwade, V., Miles, B., Swain, N., Lineberger, R., Rice, E. (2015). Web-Based Data Visualization and Analysis using HydroShare and the Open Source Tethys Platform, Abstract H43A-1473 presented at the 2015 AGU Fall Meeting, San Francisco, CA, 14-18 December.

7. Couch, A., Tarboton, D. G., Idaszak, R., **Horsburgh, J. S.**, Yi, H., Stealey, M. (2015). A social model of hydrologic data protection and sharing, presented at the 3rd CUAHSI Hydroinformatics Conference, Tuscaloosa, AL, 13-17 July.

8. *******Gan, T.***, Tarboton, D. G., **Horsburgh, J. S.**, Dash, P. (2015). Collaborative Sharing of Multidimensional Space-time Data Using HydroShare, presented at the 3rd CUAHSI Hydroinformatics Conference, Tuscaloosa, AL, 13-17 July.

9. **Horsburgh, J. S.**, *******Morsey, M.***, Castronova, A., Goodall, J. L., *******Gan, T.***, Yi, H., Stealey, M., Tarboton, D. G. (2015). HydroShare: Sharing Diverse Hydrologic Data Types and Models as Social Objects within a Hydrologic Information System, presented at the 3rd CUAHSI Hydroinformatics Conference, Tuscaloosa, AL, 13-17 July.

10. *******Buahin, C. A.***, **Horsburgh, J.S.** (2015). Computational Penalties of Component Based Models: An Urban Stormwater Component-Based Modeling Application Using OpenMI, Presented at: Utah State University Spring Runoff Conference, Logan, UT, 31 March – 1 April.

11. *******Leonardo, M.***, *******Abdallah, A. M.***, **Horsburgh, J. S.**, Rosenberg, D. E. (2015). Low-Cost Smart Water Meter for Sustainable Water Monitoring and Conservation, Presented at: Utah State University Spring Runoff Conference, Logan, UT, 31 March – 1 April.

12. Yang, B., **Horsburgh, J. S.**, ******Blackmore, P.***, Dragonetti, L., Wall, H. (2015). Green Infrastructure Performance in Stormwater Quality: Two-Year Assessment of a Landscape Architecture Foundation Case Study, Presented at: Council of Educators in Landscape Architecture, Kansas State University, Manhattan, KS, 24-28 March.

13. *******Leonardo, M.***, *******Abdallah, A. M.***, **Horsburgh, J. S.**, Rosenberg, D. E. (2015). Low-Cost Smart Water Meter for Sustainable Water Monitoring and Conservation, Presented at: Intermountain Sustainability Summit, Weber State University, Ogden, UT, 5 March.

14. Aufdenkampe, A., E. Mayorga, E., **J. S. Horsburgh,** K. Lehnert, I. Zaslavsky, D. Valentine, S. Richard, R. Cheetham, F. Meyer, C. Henry, G. Berg-Cross, A. Packman, E. Aronson (2014). The community-driven BiG CZ software system for integration and analysis of bio- and geoscience data in the critical zone, Abstract IN41A-3649 presented at the 2014 AGU Fall Meeting, San Francisco, CA, 15-19 December.

15. Castronova, A., **J. S. Horsburgh**, A. S. Jones (2014). A relational model for simulation data to promote interdisciplinary collaboration, Abstract H13H-1212 presented at the 2014 AGU Fall Meeting, San Francisco, CA, 15-19 December.

16. Jones, A. S., **J. S. Horsburgh** (2014). Implementation of cyberinfrastructure and data management workflow for a large-scale sensor network, Abstract IN41A-3645 presented at the 2014 AGU Fall Meeting, San Francisco, CA, 15-19 December.

17. Tarboton, D. G., J. S. **Horsburgh,** P. Dash, *******T. Gichamo***, *******A. Yildirim***, N. Jones (2014). Data services in support of high performance computing-based distributed hydrologic models, Abstract H13H-1211 presented at the 2014 AGU Fall Meeting, San Francisco, CA, 15-19 December.

18. Valentine, D., A. Aufdenkampe, **J. S. Horsburgh,** L. Hsu, K. Lehnert, E. Mayorga, L. Song, I. Zaslavsky, T. Whitenack (2014). Development of an information exchange format for the

Observations Data Model Version 2 using OGC Observations and Measures, Abstract IN31D-3753 presented at the 2014 AGU Fall Meeting, San Francisco, CA, 15-19 December.

19. Spackman Jones, A., **J. S. Horsburgh,** S. Reeder (2014). Cyberinfrastructure for data management and sharing within a large-scale, heterogeneous sensor network, Presented at: Global Fair and Workshop on Long-Term Observing Systems of Mountain Social-Ecological Systems, Reno NV, July 2014.

20. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh,** J. Heard, D, Ames, J. L. Goodall, L. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, D. Valentine, D. Maidment (2014). HydroShare: Advancing Collaboration Through Hydrologic Data and Model Sharing, Presented at: 7th International Congress on Environmental Modelling & Software, San Diego, CA, June 2014.

21. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh,** J. Heard, D, Ames, J. L. Goodall, L. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, D. Valentine, D. Maidment (2014). HydroShare: Advancing Collaboration Through Hydrologic Data and Model Sharing, Presented at: American Water Resources Association GIS and Water Resources VII – Data to Decisions, Snowbird, UT, May 2014.

22. **Horsburgh, J. S.**, S. Reeder, *J. Patton*, A. Spackman-Jones (2014). ODM Tools Python: Open source software for managing hydrologic and water quality time series data, Presented at: National Water Quality Monitoring Council 9th National Monitoring Conference, Cincinnati, OH, April 2014.

23. Spackman-Jones, A., **J. S. Horsburgh, *M. Ramirez**, *J. Caraballo* (2014). Managing Monitoring Equipment: A Sensor Extension for the CUAHSI Observations Data Model, Presented at: National Water Quality Monitoring Council 9th National Monitoring Conference, Cincinnati, OH, April 2014.

24. Lehnert, K., L. Song, L. Hsu, **J. S. Horsburgh,** A. K. Aufdenkampe, E. Mayorga, D. Tarboton, and I. Zaslavsky (2014). ODM2 (Observations Data Model): The EarthChem use case, Geophysical Research Abstracts, Vol. 16, EGU General Assembly 2014, Abstract number EGU2014-12113.

25. **Gan, T.**, D. G. Tarboton, J. S. Horsburgh, and P. K. Dash (2014). A new approach to share multidimensional gridded and space time data online, Presented at: Utah State University Spring Runoff Conference, Logan, UT, April 2014.

26. Spackman Jones, A., **J. S. Horsburgh**, S. Reeder (2014). Implementation of a workflow for streaming sensor data for a large-scale hydrologic monitoring network, Presented at: Utah State University Spring Runoff Conference, Logan, UT, April 2014.

27. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh**, D. Ames, J. L. Goodall, L. E. Band, V. Merwade, A. Couch, J. Arrigo, R. P. Hooper, D. W. Valentine, D. R. Maidment (2013). HydroShare: An online, collaborative environment for the sharing of hydrologic data and models, Abstract IN11A-1510 presented at the 2013 AGU Fall Meeting, San Francisco, CA, 9-13 December.

28. Idaszak, R., D. G. Tarboton, D. Ames, J. A. S. Arrigo, L. E. Band, A. Bedig, A. M. Castronova, L. Christopherson, J. Coposky, A. Couch, P. Dash, ***T. Gan*, J. Goodall, K. Gustafson, J. Heard, R. P. Hooper, **J. S. Horsburgh**, S. Jackson, H. Johnson, D. R. Maidment, ***P. Mbewe*, V. Merwade, ***B. Miles*, S. Reeder, T. Russel, C. Song, A. Taylor, S. Thakur, D. W. Valentine, T. L. Whiteaker (2013). HydroShare: Applying professional software engineering to a new NSF-funded large software project, Abstract IN22A-05 presented at the 2013 AGU Fall Meeting, San Francisco, CA, 9-13 December.

29. Hicks, S., S. G. Damiano, K. M. Smith, J. Olexy, **J. S. Horsburgh**, E. Mayorga, A. K. Aufdenkampe (2013). An open-source wireless sensor stack: From Arduino to SDI-12 to Water One Flow, Abstract H43H-1572 presented at the 2013 AGU Fall Meeting, San Francisco, CA, 9-13 December.

30. Yang, B., **J. Horsburgh**, and *P. Blackmore* (2013). Stormwater Quality in Utah's Largest Green Infrastructure Community Development: A Pilot Study. Presented at: 2013 American Water Resources Association (AWRA) Conference, Portland, OR, 4–7 November.

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31. **Horsburgh, J. S.**, A. K. Aufdenkampe, K. Lehnert, E. Mayorga, D. Tarboton, I. Zaslavsky, and D. Valentine (2013). ODM2: Developing a community information model and supporting software to extend interoperability of sensor and sample based earth observations, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

32. **Horsburgh, J. S.**, S. Reeder, **J. Patton*, and A. Spackman Jones (2013). ODM Tools Python: Data management software for hydrologic time series, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

33. Aufdenkampe, A. K., I. Zaslavsky, K. A. Lehnert, **J. S. Horsburgh,** E. Mayorga, and D. G. Tarboton (2013), The Integrated Data Management System for Critical Zone Observatories, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

34. ****_Gan, T._**, D. G. Tarboton, and **J. S. Horsburgh** (2013), Representing Gridded and Space-time Data in HydroShare, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

35. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh,** D. Ames, J. Goodall, L. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, and D. Valentine (2013), HydroShare: An Online, Collaborative Environment for the Sharing of Hydrologic Data and Models, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

36. Valentine, D., D. G. Tarboton, **J. S. Horsburgh,** R. Idaszak, T. Russel, J. Coposky, D. Ames, J. Goodall, L. Band, V. Merwade, A. Couch, A. Bedig, J. Arrigo, R. Hooper, and T. Whitenack (2013), Processing Workflow for Preparing Data for Hydroshare, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

37. Yang, B. and **J. S. Horsburgh** (2013). Green Infrastructure Design in the Intermountain West, USA: A Case Study of Daybreak Master-Planned Community, International Association for China Planning (IACP) Conference, Shanghai, China, June 29-July 1.

38. Spackman Jones, A., **J. S. Horsburgh,** **J. Caraballo*, **M. Rarmirez* (2013). Managing sensor infrastructure using a sensor extension for the ODM2 data model, Presented at: CUAHSI Conference on Hydroinformatics and Modeling, Logan, UT, July 2013.

39. Tarboton, D. G., R. Idaszak, **J. S. Horsburgh,** D. Ames, J. Goodall, L. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, and D. Valentine (2013), Community Approaches to Hydrologic Data and Model Sharing Using Cloud Resources, Presented at: 2013 World Environmental & Water Resources Congress Symposium on Cloud Computing in Water and Environmental Engineering and Science, May 2013.

40. **Horsburgh, J. S.**, S. Reeder, and **J. Patton* (2013). iUTAH Cyberinfrastructure to support data collection and management for the GAMUT monitoring network, Presented at: Utah State University Spring Runoff Conference, Logan, UT, April 2013.

41. **Horsburgh, J. S.**, A. Spackman Jones, and **J. Caraballo* (2013). Cyberinfrastructure to support large scale collaborative water research, Presented at: Utah State University Spring Runoff Conference, Logan, UT, April 2013.

42. Tarboton, D. G., F. L. Ogden, N. Jones, and **J. S. Horsburgh** (2012), Advancing cyberinfrastructure to support high resolution water resources modeling, Abstract IN11B-1463 presented at the 2012 American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, 3-7 December.

43. Tarboton, D. G., D. P. Ames, **J. S. Horsburgh,** and J. L. Goodall (2012), Combining data from multiple sources using the CUAHSI Hydrologic Information System, Abstract IN11F-03 presented at the 2012 American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, 3-7 December.

44. Tuarob, S., L. C. Pouchard, N. Noy, **J. S. Horsburgh,** and G. Palanisamy (2012), ONEMercury: Towards Automatic Annotation of Earth Science Metadata, Abstract IN41A-1482 presented at the 2012 American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, 3-7 December.

45. Tarboton, D. G., R. Idaszak, D. Ames, **J. S. Horsburgh**, J. Goodall, L. Band, V. Merwade, A. Couch, J. Arrigo, R. Hooper, and D. Valentine (2012), HydroShare: An online collaborative environment for the sharing of hydrologic models and data, presented at the ECI Fifty Years of Watershed Modeling – Past, Present, and Future conference, Boulder, CO, 24-26 September.

46. Tarboton, D.G., R. Idaszak, D. Ames, J. Goodall, **J. S. Horsburgh**, L. Band, V. Merwade, C. Song, A. Couch, D. Valentine, R. Hooper, J. Arrigo, D. Maidment, T. Whiteaker (2012), HydroShare: An online, collaborative environment for the sharing of hydrologic data and models, presented at the CUAHSI 3rd Biennial Colloquium on Hydrologic Science and Engineering, Boulder, CO, 16-18 July.

47. Jones, A., **J. S. Horsburgh** (2012), Adventures in monitoring: Maintaining sensor networks and managing the flood of data, presented at the Utah State University Spring Runoff Conference, Logan, UT, 3-4 April.

48. **Horsburgh, J. S.**, D.G. Tarboton (2012), HydroServer: A platform for sharing space-time hydrologic datasets, presented at the Utah State University Spring Runoff Conference, Logan UT, 3-4 April.

49. Whiting B., **J. S. Horsburgh** (2012), Improving estimates of suspended sediment concentration and flux in the Little Bear River watershed, presented at the Utah State University Spring Runoff Conference, Logan, UT, 3-4 April.

50. Tarboton, D.G., D.R. Maidment, I. Zaslavsky, D.P. Ames, J.L. Goodall, R.P. Hooper, **J. S. Horsburgh** (2012), The CUAHSI community Hydrologic Information System, presented at the AWRA Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources VII, New Orleans, LA, 26-28 March.

51. Tarboton, D.G., D.R. Maidment, I. Zaslavsky, D.P.Ames, J.L. Goodall, R.P. Hooper, **J. S. Horsburgh** (2011), The CUAHSI Community Hydrologic Information System, Abstract IN53D-07 presented at the 2011 AGU Fall Meeting, San Francisco, CA, 5-9 December.

52. K.A. Schreuders, D.G. Tarboton, **J. S. Horsburgh**, A. Sen Gupta, S. Reeder (2011), Enhancing Access to Drought Information Using the CUAHSI Hydrologic Information System, Abstract H43H-1325 presented at the 2011 AGU Fall Meeting, San Francisco, CA, 5-9 December.

53. Stevens, D. K., A. Spackman Jones, **J. S. Horsburgh**, N. O. Mesner (2011), Surrogate Measures for Providing High Frequency Estimates of Total Suspended Solids and Total Phosphorus Concentrations, presented at the Water Environment Association of Utah Annual Conference, St. George, Utah, 5-8 April.

54. Sen Gupta, A., D. G. Tarboton, **J. S. Horsburgh**, K. A. T. Schreuders, S. Reeder (2011), Developing an Upper Colorado Drought Information System Using the CUAHSI Hydrologic Information System, presented at the Utah State University Spring Runoff Conference, Logan, Utah, 29-30 March.

55. **Horsburgh, J. S.**, D. G., Tarboton, K. A. T Schreuders, K. S. Patil (2010), Toward Federated Security and Data Access Control within a Services Oriented Architecture for Publishing Hydrologic Data, Abstract H43B-1234 presented at the 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 December.

56. Ames, D. P., J. Kadlec, Y. Cao, D. Grover, **J. S. Horsburgh**, T. Whiteaker, J. L. Goodall, D. W. Valentine (2010), HydroDesktop: An Open Source GIS-Based Platform for Hydrologic Data Discovery, Visualization, and Analysis, Abstract H43B-1236 presented at the 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 December.

57. Tarboton, D.G., **J. S. Horsburgh**, K. A. T. Schreuders, D. R. Maidment, I. Zaslavsky, D. Valentine (2010), The HydroServer Platform for Sharing Hydrologic Data, Abstract H53H-03 presented at the 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 December.

58. Tarboton, D. G., D. R. Maidment, I. Zaslavsky, **J. S. Horsburgh**, T. Whiteaker, M. Piasecki, J. Goodall, D. Valentine, and T. Whitenack (2010), Sharing Hydrologic Data with the CUAHSI Hydrologic Information System, in Proceedings of the AWRA Spring Specialty Conference on GIS and Water Resources, Orlando, FL, 29 – 31 March.

59. Ames, D. P., J. Kadlec, and **J. S. Horsburgh** (2010), HydroDesktop: A Free and Open Source Platform for Hydrologic Data Discovery, Visualization, and Analysis, in Proceedings of the AWRA Spring Specialty Conference on GIS and Water Resources, Orlando, FL, 29 – 31 March.

60. Whitenack, T., D. Valentine, I. Zaslavsky, M. Piasecki, D. G. Tarboton, **J. S. Horsburgh**, T. Whiteaker, D. P. Ames, and D. R. Maidment (2010), Hydrologic Metadata Catalog and Semantic Search Services in CUAHSI HIS, in Proceedings of the AWRA Spring Specialty Conference on GIS and Water Resources, Orlando, FL, 29 – 31 March.

61. Ames, D., J. Kadlec, **J. S. Horsburgh**, D. R. Maidment (2009), Introducing the CUAHSI Hydrologic Information System Desktop Application (HydroDesktop) and Open Development Community, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H51H-0862.

62. **Horsburgh, J. S.**, D. G. Tarboton, K. Schreuders, D. P. Ames, J. P. McNamara, L. A. Marshall, B. L. McGlynn, D. L. Kane, A. Tidwell, J. Boll, N. W. Hinman, M. E. Barber (2009), INRA Constellation of Experimental Watersheds: Cyberinfrastructure to Support Publication of Water Resources Data, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H51H-0858.

63. Tarboton, D. G., D. R. Maidment, I. Zaslavsky, **J. S. Horsburgh**, T. Whiteaker, M. Piasecki, J. L. Goodall, D. W. Valentine, T. Whitenack (2009), Sharing Hydrologic Data with the CUAHSI Hydrologic Information System (*Invited*), Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract H51H-0854.

64. Kadlec, J., D. P. Ames, T. Veluppillai, **J. S. Horsburgh** (2009), Introducing the CUAHSI Hydrologic Information System Desktop Application (HydroDesktop) and Open Development Community, Presented at the AWRA Annual Water Resources Conference, Seattle, WA, 9 – 12 November.

65. **Horsburgh, J. S.**, D G. Tarboton, D. R. Maidment, I. Zaslavsky (2009), Components of an Integrated Environmental Observatory Information System, Presented at the AWRA Summer Specialty Conference on Adaptive Management, Snowbird, UT, June 29 - July 1.

66. **Horsburgh, J. S.**, D. G. Tarboton, K. Schreuders, J. McNamara, D. Ames, L. Marshall, D. Kane, A. Tidwell, J. Boll, N. Hinman, and M. Barber (2009), INRA constellation of experimental watersheds: Cyberinfrastructure to support publication of water resources data, Presented at the Utah State University Water Initiative Spring Runoff Conference, Logan, UT, 2-3 April.

67. Allen, C., **J. S. Horsburgh**, and N. O. Mesner (2009), Continuous water quality monitoring: Assessing the current sediment and nutrient trapping capabilities of Mud Lake, Presented at the Utah State University Water Initiative Spring Runoff Conference, Logan, UT, 2-3 April.

68. Spackman Jones, A., N. O. Mesner, **J. S. Horsburgh**, R. J. Ryel, and D. K. Stevens (2009), Impact of sampling frequency on annual load estimation of total phosphorus and total suspended solids, Presented at the Utah State University Water Initiative Spring Runoff Conference, Logan, UT, 2-3 April.

69. Tarboton, D. G., **J. S. Horsburgh**, D. R. Maidment, T. Whiteaker, I. Zaslavsky, M. Piasecki, J. Goodall, D. Valentine, and T. Whitenack (2009), Development of a community Hydrologic Information System, Presented at the Utah State University Water Initiative Spring Runoff Conference, Logan, UT, 2-3 April.

70. Spackman Jones, A., N. Mesner, **J. S. Horsburgh**, R. Ryel, and D. K. Stevens (2009), Impact of sampling frequency on annual load estimation, Presented at the USDA CSREES National Water Conference, St. Louis, MO, 8-12 February.

71. Tarboton, D. G., **J. S. Horsburgh**, T. L. Whiteaker, D. R. Maidment, and I. Zaslavsky (2008), Accessing and sharing data using the CUAHSI Hydrologic Information System, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract C21A-0504.

72. **Horsburgh, J. S.**, D. K. Stevens, D. G. Tarboton, N. O. Mesner, and A. Spackman Jones (2008), Sensors, cyberinfrastructure, and examination of hydrologic and hydrochemical response in the Little Bear River Observatory Test Bed, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract H43K-04.

73. Stevens, D. K., **J. S. Horsburgh** (2008), Monitoring needs in support of waste load allocation. Western Governors Association/Western States Water Council Water Information Needs & Strategies Symposium, Salt Lake City, UT, 19-21 Nov.

74. **Horsburgh, J. S.**, D. G. Tarboton, D. R. Maidment, and I. Zaslavsky (2008), Using the Observations Data Model in Hydrologic Information Systems, Presented at the CUAHSI Biennial Colloquium on Hydrologic Science and Engineering, Boulder, CO, 14-16 July.

75. **Horsburgh, J. S.**, A. Spackman, D. K. Stevens, D. G. Tarboton, and N. O. Mesner (2008), Using GIS in Creating an End-to-End System for Publishing Environmental Observations Data, Presented at the AWRA Spring Specialty Conference on GIS and Water Resources V, San Mateo, CA, 17-19 March.

76. Stevens, D. K., N. O. Mesner, **J. S. Horsburgh**, A. Spackman Jones, R. Ryel, D. Jackson-Smith, J. H. Lee (2008), High Frequency Monitoring System To Assess Water Quality Constituent Loading, USDA/CSREES National Water Conference, Reno, NV, 5-8 Feb.

77. Tarboton, D. G., **J. S. Horsburgh**, D. R. Maidment, and I. Zaslavsky (2008), Using an Observations Data Model in Hydrologic Information Systems, Presented at the AWRA Spring Specialty Conference on GIS and Water Resources V, San Mateo, CA, 17-19 March.

78. **Horsburgh, J. S.**, A. Spackman, D. K. Stevens, D. G. Tarboton, and N. O. Mesner (2008), An end-to-end system for publishing environmental observations data, Presented at the Utah State University Water Initiative Spring Runoff Conference, Logan, UT, March 31-April 1.

79. Tarboton, D. G., **J. S. Horsburgh**, D. R. Maidment, I. Zaslavsky, M. Piasecki, and J. Goodall (2007), Developing a Community Hydrologic Information System, Presented at the Environmental Sensing Symposium, Boise State University, Boise, ID, 25-26 October.

80. **Horsburgh, J. S.**, D. G. Tarboton, I. Zaslavsky, D. R. Maidment, and D. Valentine (2007), Deployment and Evaluation of an Observations Data Model, *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H11K-05.

81. **Horsburgh, J. S.** and D. G. Tarboton (2007), Development of a Community Hydrologic Information System, Presented at the Utah State University Water Initiative Spring Runoff Conference, Utah State University, Logan, UT, 5-6 April.

82. Tarboton, D. G., D. K. Stevens, **J. S. Horsburgh**, and N. O. Mesner (2007), Building towards a Hydrologic Observatory in the Great Salt Lake Basin, Presented at the Utah State University Water Initiative Spring Runoff Conference, Utah State University, Logan, UT, 5-6 April.

83. Mesner, N. O., **J. S. Horsburgh**, D. K. Stevens, D. L. Sorenson, R. Ryel, and D. Jackson-Smith (2007), Comparison of Water Quality Monitoring Techniques: Detecting Change in a Variable Environment, Presented at the Bear River Symposium, Utah State University, Logan, UT, 5-7 September.

84. Spackman, A., D. K. Stevens, D. G. Tarboton, N. O. Mesner, and **J. S. Horsburgh** (2007), Surrogate measures for providing high frequency estimates of total suspended solids and phosphorus concentrations in the Little Bear River, Presented at the Bear River Symposium, Utah State University, Logan, UT, 5-7 September.

85. Stevens, D. K., D. G. Tarboton, **J. S. Horsburgh**, and N. O. Mesner (2006), Little Bear River Test-Bed: Tools for Environmental Observatory Design and Implementation, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H21F-1437.

86. Tarboton, D. G., **J. S. Horsburgh**, I. Zaslavsky, D. R. Maidment, D. Valentine, and B. Jennings (2006), A Community Data Model for Hydrologic Observations, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H21F-1431.

87. Stevens, D. K., **J. S. Horsburgh**, N. O. Mesner, T. Glover, A. Caplan, and A. Spackman (2006), Integrating Historical and Realtime Monitoring Data into an Internet Based Watershed Information

System, Presented at the 2006 National Water Quality Monitoring Council National Monitoring Conference, San Jose, CA, 7-11 May.

88. Stevens, D. K., **J. S. Horsburgh**, N. O. Mesner, D. Jackson-Smith, D. L. Sorenson, R. Ryel, (2006), A real-time water quality monitoring network for investigating the strengths and weaknesses of existing monitoring techniques, Presented at the 2006 National Water Quality Monitoring Council National Monitoring Conference, San Jose, CA, 7-11 May.

89. **Horsburgh, J. S.**, D. K. Stevens, and J. Goodall (2006), Time Series Analyst – An Internet Based Application for Analyzing Environmental Time Series, Presented at the AWRA Spring Specialty Conference on GIS and Water Resources IV, Houston, TX, 8-10 May.

90. Tarboton, D. G., **J. S. Horsburgh**, D. R. Maidment, I. Zaslavsky, D. Valentine, and B. Jennings (2006), Testing a Community Data Model for Hydrologic Observations, Presented at the AWRA Spring Specialty Conference on GIS and Water Resources IV, Houston, TX, 8-10 May.

91. **Horsburgh, J. S.**, D. K. Stevens, D. L. Sorenson, N. O. Mesner, D. Jackson-Smith, and R. Ryel (2006), Real time water quality monitoring for investigating the strengths and weaknesses of existing monitoring techniques, Presented at the Water Environment Association of Utah (WEAU) Conference, St. George, UT, March 2006.

92. Ames, D. P. and **J. S. Horsburgh** (2005), A Slinky Space Streamflow Estimator for TMDLs: Time Series Analysis Meets Geostatistics, AWRA Annual Conference. Seattle, Washington, November 2005.

93. **Horsburgh, J. S.** (2005), An Internet Based Watershed Information System for the Bear River Basin, Presented at the Utah Nonpoint Source Conference, Salt Lake City, UT, 27-29 September.

94. **Horsburgh, J. S.** (2004), Development of an Internet Based Laboratory Watershed Information System for the Bear River Basin, Presented at the Utah State University Water Initiative Spring Runoff Conference, 25-26 March.

95. Ames, D. P. and **J. S. Horsburgh** (2003), MapWindow GIS, a Data Distribution Solution, Presented at the Utah Geographic Information Council Annual Conference, 8-10 September.

Teaching Experience

Courses

Spring 2016: CEE 5190 / 6190 Geographic Information Systems for Civil Engineers, Undergraduate and Graduate Level Course in Civil and Environmental Engineering

Fall 2013 – 2015: CEE 6110 – Hydroinformatics, Graduate Level Course in Civil and Environmental Engineering

Fall 2012: CEE 6930 – Hydroinformatics, Graduate Level Course in Civil and Environmental Engineering

Training and Workshops

Instructor, Software Tools for Sensor Networks, Training presented at the Long Term Ecological Network (LTER) Network Office, Albuquerque, NM, April 22-25, 2013.

Instructor, Software Tools for Sensor Networks, Training presented at the Long Term Ecological Network (LTER) Network Office, Albuquerque, NM, May 1-4, 2012.

Presenter, Data Visualization and Analysis Using the HydroDesktop HydroR Plug-in, Webinar presented as part of the CUAHSI Fall Webinar Series, October 25, 2011.

Instructor, Publishing Data Using HydroServer, Training Workshop presented at the CUAHSI Conference on Hydrologic Data and Information Systems, Logan, UT, June 2011.

Instructor, Weather Stations for Irrigation Management, Short Course Sponsored by United States Department of Agriculture, Presented in Erbil, Iraq, March 27-April 7, 2011

Instructor, CUAHSI Hydrologic Information System Workshop, Presented at the Second CUAHSI Biennial Science Meeting, Boulder, CO, July 19-21, 2010.

Instructor, CUAHSI Hydrologic Information System Training for INRA Constellation of Experimental Watersheds (ICEWATER) Data Managers, Boise, ID, July 2008.

Instructor, CUAHSI Hydrologic Information System – Pre-conference seminar, AWRA Spring Specialty Conference, GIS and Water Resources V, San Mateo, CA, March 16, 2008.

Instructor, Better Assessment Science Incorporating Point and Nonpoint Sources (BASINS) Software Training, week long training course sponsored by USEPA, Presented at Utah State University, 2000 – 2002.

Graduate Student Supervision ("*" Denotes Major Advisor)

Current

*Miguel Leonardo, Ph.D., Civil and Environmental Engineering, 2013 – present

*Anthony Melcher, Ph.D., Civil and Environmental Engineering, 2013 – present

*Caleb Buahin, Ph.D., Civil and Environmental Engineering, 2013 – present

*Bryce Mihalevich, M.S., Civil and Environmental Engineering, 2014 – present

Ali Salha, Ph.D., Civil and Environmental Engineering, 2011 – present

Tian Gan, Ph.D., Civil and Environmental Engineering, 2012 – present

John Koudelka, Ph.D., Civil and Environmental Engineering, 2012 – present

Adel Abdallah, Ph.D., Civil and Environmental Engineering, 2012 – present

Nazmus Sazib, Ph.D., Civil and Environmental Engineering, 2013 – present

Tseganeh Gichamo, Ph.D., Civil and Environmental Engineering, 2012 – present

Leah Meeks, Ph.D., Civil and Environmental Engineering, 2012 – present

Tyler King, Ph.D., Civil and Environmental Engineering, 2014 – present

Colin Bagley, M.E., Civil and Environmental Engineering, 2014 – present

Justin Dietrich, M.E., Civil and Environmental Engineering, 2014 – present

Trinity Stout, M.S., Civil and Environmental Engineering, 2014 – present

Enjie Li, Ph.D., Environment and Society, 2014 – present

David Betts, Ph.D., Watershed Sciences, 2015 – present

Completed

*Brant Whiting, M.S., Civil and Environmental Engineering, 2014

Avirup Sen Gupta, Ph.D., Civil and Environmental Engineering, 2014

Prajith Dev, M.E., Civil and Environmental Engineering, 2013

Ruba Mohamed, M.S., Civil and Environmental Engineering, 2012

Shannon Clemens, M.S., Civil and Environmental Engineering, 2012

Brady Worwood, M.S., Civil and Environmental Engineering, 2011

Erick Conde, M.S., Civil and Environmental Engineering, 2011

Professional Activities

2014 – International Conference on Hydroinformatics – International Scientific Committee

2013 – National Science Foundation Critical Zone EarthCube Community Workshop Organization Committee

2011 – Environmental Information Management Conference Organizing Committee

2011 – CUAHSI/USGS Optical Sensor Workshop Organization Committee

Reviewer for the following Journals:

Advances in Water Resources

ASCE Journal of Computing in Civil Engineering

Computers & Geosciences

Ecological Informatics

Environmental Modelling & Software

Geomorphology

Hydroinformatics

Hydrological Processes

Institution of Civil Engineers (ICE) - Water Management

International Journal of Environmental Research and Public Health

Journal of Environmental Informatics

Journal of Hydrometeorology