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Biological and Ecological Engineering, Oregon State University
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Professional Preparation

University of Washington, Geological Sciences, Bachelor of Science, 1994.
Oregon State University, Bioresource Engineering, Emphasis: Water Resource Engineering,
Doctorate of Philosophy, 2003

Appointments

2009 – present Assistant Professor, Senior Research, Biological and Ecological Engineering,
Oregon State University
2005 – 2009 Research Hydrologist, Institute for Landscape Ecology and Resources
Management, Justus Liebig University Giessen, Germany
2003 - 2005 Post-Doctoral Research Associate, Department of Forest Engineering, Oregon State
University

RESEARCH GRANTS

In Review

Higgins et al. Role: CoPI. Do wind turbines increase evaporation? In Review at National
Science Foundation. \$347,901

Funded

Vaché, K.B. 2013. Role: PI. An Analysis of Potential Water Use and Water Quality Impacts on
Upper Coastal Plain Watersheds under Intensive Woody Biofuel Management. Funded by US
Forest Service. \$167,340

Vaché, K.B. 2012. Role: PI. Simulation of the effects of large scale biofuel production at the
Savannah River Site. Funded by US Forest Service. \$149,137

Vaché, K.B. 2010. Role: PI. Willamette Valley Pesticide Risk: An Alternative Futures Approach
to Integrated Pest Management. Funded by US Environmental Protection Agency. \$97,000

McDonnell et al. 2010. Role: Collaborator. Collaborative Research WSC Category 2:
Anticipating water scarcity and informing integrative water system response in the Pacific
Northwest. Funded by National Science Foundation. \$3,832,363

Frede, H.G., L. Breuer, and K.B. Vaché. 2008. Role: CoPI. Ensemble modeling of
hydrological and nitrogen fluxes in mesoscale catchments. Funded by
Deutschesforschungsgemeinschaft (DFG). \$196,536.

Frede, H.G., L. Breuer, and K.B. Vaché. 2007. Role: CoPI. Matter fluxes in Inner Mongolia as influenced by stocking rate: Regional water balance and matter flow. Funded by Deutsches Forschungsgemeinschaft (DFG). \$276,000.

Frede, H.G., L. Breuer, and K.B. Vaché. 2007. Role: CoPI. Biodiversity and sustainable management of a megadiverse mountain ecosystem in southern Equator: B3.2 Hydro-biogeochemical catchment modeling framework. Funded by Deutsches Forschungsgemeinschaft (DFG). \$296,000.

Vaché, K.B. and J. McDonnell. 2004. Role: CoPI. Data Incorporation and Technology Transfer: An Addendum to Modeling Meso Scale Flows in the Maybeso Catchment, SE Alaska. Funded by United States Forest Service. \$35,240.

Vaché, K.B. and J. McDonnell. 2004. Role: CoPI. Moving Beyond the Theory Impasse in Catchment Hydrology – a workshop. Funded by Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI). \$8750.

McDonnell, J., K. Vaché, and G. Grant. 2004. Role: CoPI. The Willamette River, OR Watershed: A Hydrology for the Environment, Life, and Policy (HELP) Basin. Designation by the HELP network, a joint venture between the World Health Organization (WHO) and United Nations Educational, Scientific, and Cultural Organization (UNESCO).

Publications

Refereed Journals – Published

Crespo, P., A. Buecker, J. Feyen, **K. Vaché**, H. Frede, L. Breuer. 2012. Identification of the runoff generation processes in a montane cloud forest basin combining Mixing Model Analysis and Mean Transit Time. In Press at *Hydrol. Processes* doi: 10.1002/hup.8382.

Barthold F., C. Tyralla, K. Schneider, **K. Vaché**, H. Frede, L. Breuer. 2011. How many tracers do we need for end member mixing analysis (EMMA)? A sensitivity analysis. In Press at: *Water Resour. Res.* DOI: 10.1029/2011WR010604

Plesca I., E. Timbe, J. Exbrayat, D. Windhorst, P. Kraft, P. Crespo, **K. Vaché**, H. Frede, L. Breuer. 2012. Understanding catchment complexity through model intercomparison - results from a remote montane tropical rainforest. *Ecol Model.* ISSN: 0304-3800 DOI: 10.1016/j.ecolmodel.2011.05.005

Asbjornsen, H., S. Alvarado-Barrientos, G. Goldsmith, K. Rebel, F. Van Osch, M. Rietkerk, J. Chen, S. Gotsch, C. Tobón-Marin, D. Geissert, A. Gómez-Tagle, **K. Vaché**, T. Dawson. 2011. Ecohydrological Advances and Applications in Plant Water Relations 1 Research: A Review. *J of Plant Ecol* 4(1-2) 3-22.

Kraft, P., **K. Vaché**, H. Frede, L. Breuer. 2011. CMF: A hydrological programming language extension for integrated catchment models. *Environ Model Softw*, 26 828-830.

Barthold F., J. Wu, **K. Vaché**, K. Schneider, H. Frede, L Breuer. 2010. Identification of geographic runoff sources in a data sparse region: hydrological processes and the limitations of tracer-based approach. *Hydrol. Proc.*, 24(16)2313-2327. DOI: 10.1002/hyp.7678.

A. Buecker, Crespo, P., H-G. Frede, **K.B. Vaché**, P. Cisneros and L. Breuer. 2010. Identifying controls on water chemistry of tropical cloud forest catchments - combining descriptive approaches and multivariate analysis" *Aquat Geochem.* 16(1)127-149.

Kraft, P., **K.B. Vaché**, H-G. Frede, L. Breuer. 2010. Using Python as a coupling platform for integrated catchment models. *Advances in Geosciences.* 27:51-56 doi:10.5194/adgeo-27-51-2010..

Breuer, L., **K.B. Vaché**, S. Julich, and H. Frede. 2008. Approaches to investigating nitrogen dynamics of future changes in mesoscale catchments. *Hydrolog. Sci. J.*, 53(5) 1059-1074.

Fröhlich, H., L. Breuer, H. Frede, and **K.B. Vaché**. 2008. Inferring the effect of catchment complexity on mesoscale hydrologic response. *Wat. Res. Res.*, 44, W09414, doi:10.1029/2007WR006207.

Barthold, F.K., T. Sayama, K. Schneider, L. Breuer, **K.B. Vaché**, H.-G. Frede, and J. J. McDonnell. 2008. Gauging the ungauged basin: a top-down approach in a large semiarid watershed in China. *Adv. in Geosci.*, 18, 3–8.

Schneider, K., L. Breuer, **K.B. Vaché**, B. Ketzer, and H. Frede. 2008. Evaluation of evapotranspiration methods for model validation in a semi-arid watershed in northern China. *Adv. in Geosci.*, 11, 37–42.

Fröhlich, H, L. Breuer, H. Frede, and **K.B. Vaché**. 2007. Spatial and temporal patterns of surface water chemistry in the mesoscale River Dill catchment, Germany. *Hydrol. Proc.*, 22(12) 2028-2043.

Dunn, S., J. McDonnell, and **K.B. Vaché**, 2007. Factors influencing streamwater residence time: A virtual experiment approach. *Water Resour. Res.*, 43(6), W07301, doi: 10.1029/2006WR005467.

McDonnell, J.J., M. Sivapalan, **K.B. Vaché**, S. Dunn, R. Haggerty, C. Hinz, R. Hooper, J. Kirchner, M. Roderick, and M. Weiler. 2007. A new vision for watershed science: From descriptions of landscape heterogeneity and process complexity to new organizing principles. *Water Resour. Res.*, 43(7), W07301, doi: 10.1029/2006WR005467.

Vaché, K.B. and J.J. McDonnell. 2006. A process-based rejectionist framework for evaluating catchment runoff model structure. *Water Resour. Res.*, 42, W02409, doi: 10.1029/2005WR004247.

Vaché, K.B., J. McDonnell, and J.P. Bolte. 2004. On the use of multiple criteria for a

posteriori parameter estimation. *Geophy Res Let* 31, L21504, doi: 10.1029/2004GL021577.

Woodsmith, R., **K.B. Vaché**, J. McDonnell, and J. Helvey. 2004. The Entiat Experimental Forest: A unique catchment-scale dataset of watershed behavior after forest fire. *Water Resour. Res.*, 40, W11701, doi:10.1029/2004WR003296.

Santelmann, M., K. Freemark, D. White, J. Nassauer, M. Clark, C. Coiner, R. Cruse, B. Danielson, J. Eilers, S. Polasky, **K.B. Vaché**, D. Debinski, and J. Wu. 2004. Alternative futures for agricultural watersheds. *Landsc. Ecol.* 19, 357–374.

Vaché, K.B., J. Eilers, and M.V. Santelmann. 2002. Water quality modeling of alternative agricultural scenarios in the U.S. Corn Belt. *J. Am. Water Resour. Assoc.* 38(3): 773-787.

Sullivan, T.J., Charles, D.F., Bernert, J.A., McMartin, B., **K.B. Vaché**, and J. Zehr. 1999. Relationship between landscape characteristics, history, and lakewater acidification in the Adirondack Mountains, New York. *Water Air Soil Poll.* 112, 407-427.

Sullivan, T.J., Eilers, J.M., Cosby, B.J., and **K.B. Vaché**, 1997. Increasing role of nitrogen in the acidification of surface waters in the Adirondack Mountains, New York. *Water Air Soil Poll.* 95, 313-336.

Books/Chapters

Chang, H., J. Jones, M. Gannett, D. Tullos, H. Moradkhani, **K. Vache**, H. Parandvash, V. Shandas, A. Nolin, A. Fountain, S. Johnson, I. Jung, L. House-Peters, M. Steele, B. Copeland. Chapter 3: Climate change and freshwater resources in Oregon, in *Oregon Climate Impact Assessment*. Dello, K.D. and Mote, P.W. (eds). College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR. pp. 69-150.

Drouet, J., P. Cellier, S. Duret, O. Maury, P. Durand, C. Flechard, J. Salmon-Monviola, M. Theobald, U. Dragosits, C. Braban, N. Hutchings, J. Olesen, T. Dalgaard, K. Schelde, L. Breuer, P. Kraft, **K. Vaché**, K. Butterbach-Ball, A. Bleeker, A. Frumau, J. Bienkowski, A. Kedziora, E. Magliulo, P. Magliulo, M. Sutton, M. 2009. Integrating nitrogen interactions at the farm and landscape scales to assess the impact of management scenarios. Grignani, C. [Hrsg.]. Proc.of the 16th Nitrogen Workshop : Connecting Different Scales of Nitrogen Use in Agriculture, Torino, I, June 28 - July 1, 2009. Torino : Universita degli Studi di Torino, 2009 S.521-22. ISBN 978-88-902754-2-5.

Vaché, K.B., Eilers, J.E., and M.V. Santelmann. 2007. Water Quality Modeling for Evaluation of Alternative Agricultural Scenarios. In: From the Corn Belt to the Gulf: Ecological and Societal Implications of Alternative Agricultural Futures. Nassauer, J, Santelmann, M. and D. Scavia, Eds. Resources For the Future Press. Washington, D.C.

Breuer, L., W. Reiher, T. Pohlert, J. Huisman, B. Weinmann, **K.B. Vaché**, M. Bach, S. Gäth and H. Frede. 2007. Integrated assessment of potential impacts on water and soil related ecosystem services due to the European Common Agricultural Policy. In: Reducing the Vulnerability of Societies to Water Related Risks at the Basin Scale. IAHS Publ. 317 ISBN 978-1-901502-29-9K.

Santelmann, M.V., D. White, K. Lindsay, J. Nassauer, J. Eilers, **K.B. Vaché**, B. Danielson, R. Corry, M. Clark, S. Polasky, R. Cruse, J. Sifneos, H. Rustigian, C. Coiner, J. Wu, and D. Debinski. 2007. An integrated assessment of alternative Iowa landscape futures and implications for Corn Belt agriculture, In: From the Corn Belt to the Gulf: Ecological and Societal Implications of Alternative Agricultural Futures. Nassauer, J, Santelmann, M. and D. Scavia, Eds. Resources For the Future Press. Washington, D.C.

Vaché, K.B. and J.J. McDonnell. 2006. Process-based strategies for model structural improvement and reduction of model prediction uncertainty. In: PUB: Promises and Progress. M. Sivapalan, Ed. IAHS Publication 303, Wallingford, Oxon, U. K.

McDonnell, J.J., B. McGlynn, **K.B. Vaché**, and I. Tromp van Meerveld. 2006. A perspective on hillslope hydrology in the context of PUB. In: Prediction in Ungauged Basins: International Perspectives on the State of the Art and Pathways Forward. Franks, S.W., Sivapalan, M., Takeuchi, K., and Y. Tachikawa, Eds. IAHS Publication 301, Wallingford, Oxon, U. K.

Vaché, K.B., J. McDonnell, and K.J. McGuire. 2006. Hillslope experimental evidence and catchment model structure: reconcilable or irreconcilable? In: Physically Based Models of River Runoff and their Application to Ungauged Basins, Proceedings, of the NATO Advanced Workshop. O'Connell, P.E. and L. Kuchment, Eds. Newcastle-upon-Tyne, UK.

Santelmann, M., K. Freemark, D. White, J. Nassauer, M. Clark, B. Danielson, J. Eilers, R. Cruse, S. Galatowitsch, S. Polasky, **K.B. Vaché**, and J. Wu. 2001. Applying Ecological Principles To Land-Use Decision Making In Agricultural Watersheds. In: Applying Ecological Principles to Land Management. Dale, V. and R. Haeuber, Eds. Springer-Verlag, NY.

Selected Non-peer Reviewed Publications

Bolte, J. and **K.B. Vaché**, 2010. Envisioning Puget Sound. Report. Submitted to Puget Sound Nearshore Ecosystem Project.

Eilers, J.M. and **K.B. Vaché**, 2007. Model Development of Water Quality and Fish Interactions in Odell Lake, Oregon. Report. Submitted to Oregon Department of Environmental Quality.

Jenkins, J., Jepson, P., Bolte, J., and **K.B. Vaché**, 2004. Watershed-based ecological risk

assessment of pesticide use in Western Oregon: A Conceptual Framework. Final Report. Submitted to Oregon Department of Agriculture.

Vaché, K.B. and J.M. Eilers. 2004. Application of the SWAT model in the Sprague River Watershed. Submitted to the Klamath Tribes.

K.B. Vaché. 2004. Modeling current and historic discharges in the Upper Hangman. Submitted to the Spokane Nation.

Vaché, K.B. and J.M. Eilers. 1996. Water Quality Sampling of Muddy Creek Watershed, Benton County, Oregon. Final Report. Submitted to Cascade Pacific RC&D. E&S Environmental Chemistry.

Vaché, K.B. and J.A. Bernert. 1997. Geographic Nutrient and Total Sediment (GNATS) Model Description and User Guide, Version 1.0. Final Report. Submitted to the Oregon Department of Environmental Quality. E&S Environmental Chemistry, Inc.

Hulse, D. (ed.), L. Goorjin, D. Richey, M. Flaxman, C. Hummon, D. White, K. Freemark, J. Eilers, J. Bernert, **K.B Vaché**, J. Kaytes, D. Diethelm. 1997. Possible Futures for the Muddy Creek Watershed, Benton County, Oregon. The University of Oregon.

Raymond, R.B., Eilers, J.M., **Vaché, K.B.**, and J.W. Sweet. 1997. Limnology of Lake Billy Chinook and Lake Simtustus, Oregon. Final Report. Submitted to Portland General Electric. E&S Environmental Chemistry.

Eilers, J.M., Sweets, P.R., Charles, D.F., and **K.B Vaché.** 1998. A diatom calibration set for the Cascade Mountain Ecoregion. Final Report. Submitted to PacifiCorp. E&S Environmental Chemistry, Inc.

Eilers, J.M. and **K.B Vaché.** 1998. Lake response to atmospheric and watershed inputs in the Goat Rocks Wilderness, WA. Final Report. Submitted to Weyerhaeuser Paper Co. Inc. E&S Environmental Chemistry, Inc.

Eilers, J.M., Gubala, C.P., Sweets, P.R., and **K.B Vaché.** 1998. Limnology of Summit Lake, Washington: Its acid-base chemistry and paleolimnology. Final report. Submitted to Mt. Baker-Snoqualmie National Forest. E&S Environmental Chemistry, Inc.

PROFESSIONAL PRESENTATIONS

Jackson, C.R., K.B. Vache, E. Du, J.J. McDonnell, and J.I. Blake. 2011. Modeling issues in up-scaling field and small watershed biogeochemistry data from biomass production experiments. Ecological Society of America Annual Meeting 2011, August 8-12, Austin, TX.

Barthold, F.K., C. Tyrally, K. Scheider, K. B. Vaché, H.-G. Frede L. Breuer. 2011. End member mixing analysis (EMMA): Estimating the Value of Large Tracer Sets Versus Small Tracer Sets. *EGU Abstract EGU2011-8129*

Barthold, F.K., P. Kraft, K. B. Vaché, H.-G. Frede L. Breuer. 2010. Estimating storage dynamics by combining top-down and bottom-up approaches. *Eos Trans. AGU*, Fall Meet. Suppl., Abstract H131-01

Vache, K.B., J. Bolte. 2010. INVITED. Envision future landscape trajectories: An alternative futures approach to understanding dynamics of landscape change. Humboldt Institute for Biodiversity Research, Bogota, Colombia.

Barthold, F., C. Tyralla, J. Wu, L. Breuer, K. Vache and H.G. Frede. 2009. EMMA: Estimating the value of large tracer sets versus small tracer sets. Joint International Convention of the 8th IAHS Scientific Assembly and 37th IAH Congress. Hyderabad, India.

Bücker, A., P. Crespo, L. Breuer, K.B. Vaché and H.G. Frede. 2009. Improving the process understanding of ungauged basins through hydrochemical surveys of springs, seeps and River water – comparison of methods. Joint International Convention of the 8th IAHS Scientific Assembly and 37th IAH Congress. Hyderabad, India.

McDonnell, J., K.B. Vaché, T. Sayama, C. Graham. 2008. Re-thinking streamflow generation theory from the bottom-up: A hydrogeology approach. 1st International Conference on Hydrogeology. College Station, PA.

Kraft, P., K. B. Vaché, L. Breuer, H-G. Frede. 2008. A solute and water flux library for catchment models. iEMSs 2008:International congress on Environmental Modeling and Software.

Vaché K., Breuer, L. 2008. Modelling of organic and inorganic nitrogen dynamics across ecosystem spheres. NitroEurope Open Science Conference - Reactive Nitrogen and the European Greenhouse Gas Balance. Ghent, Netherlands.

Vaché K. 2008. INVITED. Climate change modeling and studies. California/Nevada Floodplain Management Association Annual Conference. San Diego, California.

Vaché K., R. Shubitani, J. McDonnell. 2008. A spatially-distributed approach to evaluating the source area response to climate change and its potential benefits to current flood control and associated management strategies. California/Nevada Floodplain Management Association Annual Conference. San Diego, California.

Wu, J., Barthold, F.K., L. Breuer, K. B. Vaché, K. Schneider, H.-G. Frede. 2008. Understanding catchment hydrology in semiarid steppe ecosystems of China by isotopic composition: a case study of the Xilin catchment. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H51E-0819.

Barthold, F.K., J. Wu, K. B. Vaché, L. Breuer, H.-G. Frede. 2008. Elucidating hydrologic process understanding using a multi-tracer approach at different scales in the grasslands of Inner Mongolia. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H31E-0932.

McGuire, K.J., J.J. McDonnell, K.B. Vache, M. Weiler. 2007. INVITED. The value of tracer data in catchment modeling and process representation. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H53I-01.

Barthold, F.K., K. Schneider, L. Breuer, K. B. Vaché, H.-G. Frede, and J. J. McDonnell. 2007. Identification of Water Source Areas Using a Multi Tracer Approach in a Semiarid Catchment in Inner Mongolia, PR China. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H51B-0456.

Julich, S., Breuer, L., Vaché, K., Frede, H. 2007. Evaluation of Distributed Model Structures in Catchment Scale Modeling to Capture Heterogeneous Landscape Characteristics. *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H11C-0662.

Eilers, J. and K. Vaché. 2007. The Roles of Internal Seiche Dynamics and Fish Stocking on Water Quality in Odell Lake, Oregon. American Institute of Hydrology, Reno, Nevada.

Schneider, K., Breuer, L., Vaché, K., and H. Frede. 2007. Does it runoff when it rains? - Challenges in model calibration in a semi-arid catchment in northern China. 4th International SWAT Conference, Delft, The Netherlands.

Julich, S., Breuer, L. Vaché, K., and H. Frede. 2007. Distributed model structures in catchment scale modeling. 4th International SWAT Conference, Delft, The Netherlands.

Vaché, K., Jones, J., McDonnell, J.J., Bond, B., Lathja, K., Harmon, M., Sollins, P., Haggerty, R., McKane, B., Perakis, S., and S. Johnson. 2007. Ecosystem effects on nitrogen cycling in an unpolluted coniferous forest. European Geophysical Union, Vienna, Austria.

Metta, J., Bolte, J., Vaché, K., Jepson, P., Jenkins, J., and J. McDonnell. 2006. A watershed-scale, fully distributed model of pesticide fate/transport. Geological Society of America, Philadelphia, Pennsylvania.

Vaché K., Breuer, L., Huisman, J.A., Frohlich, H., and H. Frede. 2006. Rainfall runoff modeling and the incorporation of a geochemically-based geographic source separation in a large meso-scale catchment. *Geophysical Research Abstracts*, Vol. 8, 06816.

Fröhlich, H., Breuer, L., Huisman, J.A., Vaché, K., and H. Frede. 2006. Use of spatiotemporal water quality data to conceptualise tracer based hydrological models in mesoscale river basins. *Geophysical Research Abstracts*, Vol. 8, 07264.

Schneider, K., Breuer, L., Huisman, S., Vaché, K., Archer, N., and H. Frede. 2006. Modelling regional water fluxes in a semiarid environment - a case study from the Xilin River catchment, Inner Mongolia (PR China). *Geophysical Research Abstracts*, Vol. 8, 02353.

Seibert, J., McDonnell, J.J., Vaché, K.B. 2005. Thinking Inside the box: A way to Improve the Dialog Between Experimentalist and Modeler in Watershed Hydrology. , *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H53H-02

Vaché, K.B., McDonnell, J., and G. Grant. 2005. The Willamette Valley HELP Basin. European Water Resources Conference, Menton, France.

Goodrich, D.C., Stakhiv, E.Z., Browning-Aiken, A., Vaché, K., Ortiz-Zayas, J.R., Blanco, J.F., Scatena, F.N., and R.G. Varaday. 2005. The HELP Experience in North America. ASCE-EWRI Annual Meeting, Williamsburg, Virginia.

Vaché, K.B. and J. McDonnell. 2005. Catchment residence times as independent criteria to evaluate model structural error. *Geophysical Research Abstracts*, Vol. 7, 02896.

Dunn, S.M., McDonnell, J.J., and K.B. Vaché. 2005. Evaluating controls on modeled residence times generated by a conceptual semi-distributed hydrological model. *Geophysical Research Abstracts*, Vol. 7, 05446.

McDonnell, J., Vaché, K.B., and K. McGuire. 2005. Isotope tracers and terrain analysis techniques: Regionalization of soil water, groundwater, and stream water residence time. VIIth IAHS Scientific Assembly, Foz do Iguacu, Brazil.

McDonnell, J. and K.B. Vaché. 2005. Process-based strategies for model structural improvement and reduction of model prediction uncertainty. VIIth IAHS Scientific Assembly, Foz do Iguacu, Brazil.

McDonnell, J., and K.B. Vaché. 2005. Representing flowpath heterogeneity in distributed models at the mesoscale: A case study from the HJ Andrews watershed. VIIth IAHS Scientific Assembly, Foz do Iguacu, Brazil.

McDonnell, J. and K.B. Vaché. 2004. Gauging the ungauged basin: From field reconnaissance to long term instrumentation. International Instrumented Watershed Symposium (IIWS), Edmonton, Alberta.

Vaché, K.B., Jenkins, J., Jepson, P., and J. Bolte. 2004. Watershed-based Ecological Risk Assessment of Pesticide Use in Western Oregon: A Model-based Approach. Fourth SETAC World Congress, Portland, Oregon.

Woodsmith, R., Vaché, K.B., McDonnell, J., Seibert, J., and J. Helvey. 2004. The Entiat Experimental Forest: A unique opportunity to examine hydrologic response to wildfire.

USFS Advancing Fundamental Sciences Conference, San Diego, California.

Vaché, K.B., McDonnell, J., Graham, C., and J. Ekanayake. 2004. A new laboratory instrument for defining near-saturation wetting-drying and capillary conductivity. *Eos Trans. AGU*, 85(47), Fall Meet. Suppl.

McDonnell, J. and K.B. Vaché. 2004. Invited. From process heterogeneity at the hillslope scale to model predictability at the catchment scale. *Eos Trans. AGU*, 85(47), Fall Meet. Suppl.

Johnson, A., Vaché, K.B., and R. Edwards. 2004. Ground saturation following various harvest treatments: implications of modeled and statistical analysis. *Eos Trans. AGU*, 85(47), Fall Meet. Suppl.

Vaché, K.B., McDonnell, J., and K. McGuire. 2004. Mesoscale watershed modeling and the role of soft data. *Eos Trans. AGU* 85(17), Spring Meet. Suppl.

Poor, C., Vaché, K.B., Godwin, D., Bennett, J., Blatchford, C., Cox, M., Dewey, M., Kizito, F., Melick, J., Mitchell, R., Mutti, J., Nicholas, J., Parker, L., Pennington, J., Schmalenberg, J., Spelts, K., and J. McDonnell. 2004. Improvement of process description in conceptual runoff models in ungauged basins: A case study of landuse effects on water quantity *Eos Trans. AGU* 85(17) Spring Meet. Suppl.

Seibert, J., McDonnell, J., Woodsmith, R., and K.B. Vaché. 2004. Quantification of fire impacts on catchment hydrology using a model approach. Joint meeting of European Geophysical Union and American Geophysical Union, Nice, France. EGU04-A-06596.

McDonnell, J., Vaché, K.B., and J. Seibert. 2003. Invited. Constraining parameter values with Soft Data: An Experimentalist's view of parameter estimation.. XXIII General Assembly of the International Union of Geodesy and Geophysics, International Association of Hydrological Sciences, Sapporo, Japan.

Vaché, K.B., McDonnell, J., and K. McGuire. 2003. Incorporating field intelligence into conceptual rainfall-runoff models. *Eos Trans. AGU*, 84(46), Fall Meet. Suppl.

Eilers, J. and K.B. Vaché. 2003. Nutrient export and salmon populations in the Tenmile Lake (Oregon, USA) watershed during the 20th century. American Fisheries Society International Conference on Restoring Nutrients to Salmonid Ecosystems.

Bolte, J., Santlemann, M., Adamus, P., Smith, C., Li, J., Jepson, P., Lamy, F., Vaché, K., and C. Langpap. 2001. Integrating Ecological, Economic, and Social Goals in Restoration Decisionmaking. Integrated Decision-Making for Watershed Management Symposium: Processes and Tools, Chevy Chase, Maryland.

Vaché, K.B., Bolte, J., Rupp, D., Uribe, H., and J. Selker. 2001. A distributed hydrologic model with application to a semi-arid Chilean catchment. *Eos Trans. AGU*, 82(47) Fall

Meet. Suppl.

OSU Classes Taught

Multi-Scale Modeling in Hydrology (WRE 599) Spring 2013
Regional Hydrological Modeling (BEE 549) Winter 2009, Winter 2013.

JOURNAL REVIEWER FOR

Journal of the American Water Resources Association
Journal of Hydrology
Water Resources Research
Hydrological Processes
International Journal of Engineering Education
Hydrological Sciences Journal
Water South Africa

PROFESSIONAL ACTIVITIES

Instructor, Integrative assessment and planning methods for a sustainable land-use in humid and semiarid regions, The Universidad Técnica Particular de Loja UTPL and the Dresden International University interdisciplinary summer school in Loja, Ecuador for young scientists from universities of Latin America. Sept, 2006.

Participant, Workshop, From Catchment Scale Process Conceptualisation to Predictive Capability, Ballater, Scotland, May, 2007.

Co-Convener, PUB Vision workshop on Moving Beyond the Theory Impasse in Catchment Hydrology, June, 2004.

Co-Convener, Surface Water Committee, Canadian Geophy Union-AGU, 2004.
Watershed Classification and Intercomparison. Eos Trans. AGU 85(17), Spring Meet. Suppl.

Member, American Geophysical Union

Member, American Water Resources Association

Member, International Association of Hydrological Sciences