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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

PUBLICATIONS

Eilers, J.M. C. Davis, D. Vander Meer, and **K. Vache**. In Review. Nutrient chemistry,
hydrology and algal community composition downstream of three hydropower dams on
the Deschutes River, Oregon, USA.

Vache, K., Meles, M.B., Griffiths, N.A. and Jackson, C.R., 2021. Ensemble modeling of
watershed-scale hydrologic effects of short-rotation woody crop production. *Biofuels,
Bioproducts and Biorefining*.

Wright, M.S., Santelmann, M.V., **Vaché, K.B.** and Hulse, D.W., 2021. Modeling the impact of
development policies and climate on suburban watershed hydrology near Portland, Oregon.
Landscape and Urban Planning, 214, p.104133.

McDonnell, J.J., Gabrielli, C., Ameli, A., Ekanayake, J., Fenicia, F., Freer, J., Graham, C.,
McGlynn, B., Morgenstern, U., Pietroniro, A., Sayama, T., Seibert J., Stewart M., **Vache, K.**,
Weiler M., and Woods, R. 2021. The Maimai M8 experimental catchment database: Forty years
of process-based research on steep, wet hillslopes. *Hydrological Processes*, p.e14112.

McKane, R.B., Brookes, A.F., Djang, K.S., Halama, J.J., Pettus, P.B., Barnhart, B.L.,
Russell, M.J., **Vache, K.B.** and Bolte, J.B., 2020. An integrated multi-model decision
support framework for evaluating ecosystem-based management options for coupled
human-natural systems. Ecosystem-based management, ecosystem services and aquatic
biodiversity: Theory, tools and applications, pp.255-274.

Meles Bitew, M., Jackson, C.R., Goodrich, D.C., Younger, S.E., Griffiths, N.A., **Vaché, K.B.** and Rau, B., 2020. Dynamic domain kinematic modelling for predicting interflow over leaky impeding layers. *Hydrological Processes*, 34(13), pp.2895-2910.
<https://doi.org/10.1002/hyp.13778>

Tullos, D., Walter, C. and **Vache, K.**, 2020. Reservoir Operational Performance Subject to Climate and Management Changes in the Willamette River Basin, Oregon. *Journal of Water Resources Planning and Management*, 146(10), p.05020021.

Plassin, S., Koch, J., Paladino, S., Friedman, J.R., Spencer, K. and **Vaché, K.B.**, 2020. a socio-environmental geodatabase for integrative research in the transboundary Rio Grande/Río Bravo basin. *Scientific data*, 7(1), pp.1-14

Griffiths, N.A., Rau, B.M., **Vaché, K.B.**, Starr, G., Bitew, M.M., Aubrey, D.P., Martin, J.A., Benton, E. and Jackson, C.R., 2019. Environmental effects of short-rotation woody crops for bioenergy: What is and isn't known. *GCB Bioenergy*, 11(4), pp.554-572.

Weijerman, M., Veazey, L., Yee, S., **Vaché, K.**, Delevaux, J., Donovan, M.K., Falinski, K., Lecky, J. and Oleson, K.L., 2018. Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. *Frontiers in Marine Science*, 5, p.425

Han, B., Benner, S.G., Bolte, J.P., **Vache, K.B.** and Flores, A.N., 2017. Coupling biophysical processes and water rights to simulate spatially distributed water use in an intensively managed hydrologic system. *Hydrology and Earth System Sciences*, 21(7), p.3671.

Turner, D.P., Conklin, D.R., **Vache, K.B.**, Schwartz, C., Nolin, A.W., Chang, H., Watson, E. and Bolte, J.P., 2017. Assessing mechanisms of climate change impact on the upland forest water balance of the Willamette River Basin, Oregon. *Ecohydrology*, 10(1).

Eilers, J., **Vache, K.**, Eilers, B., Sweets, R. and Cornett, J., 2016. Assessing the Chemical and Biological Resilience of Lakes in the Cascade Range to Acidic Deposition. *Water, Air, & Soil Pollution*, 227(12), p.432.

Mosquera, G.M., Célleri, R., Lazo, P.X., **Vaché, K.B.**, Perakis, S.S. and Crespo, P., 2016. Combined Use of Isotopic and Hydrometric Data to Conceptualize Ecohydrological Processes in a High-Elevation Tropical Ecosystem. *Hydrological Processes*.

Mosquera, G.M., Segura, C., **Vaché, K.B.**, Windhorst, D., Breuer, L. and Crespo, P., 2016. Insights into the water mean transit time in a high-elevation tropical ecosystem. *Hydrology and Earth System Sciences*, 20(7), pp.2987-3004.

Vaché, K., Breuer, L., Jones, J. and Sollins, P., 2015. Catchment-Scale Modeling of Nitrogen Dynamics in a Temperate Forested Watershed, Oregon. An Interdisciplinary Communication Strategy. *Water*, 7(10), pp.5345-5377.

Higgins, C., Hassanpour, E., M. Calaf, **K. Vache**, M. Parlange. 2015. Wind Turbines and Water in Irrigated Areas. *Agricultural Water Management*, 52, 299-300

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. *Hydrol. Process*, 26: 3896–3910. doi: 10.1002/hyp.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. *Water Resour. Res*, 47, W08519, doi:10.1029/2011WR010604.

Plesca I., E. Timbe, J. Exbrayat, D. Windhorst, P. Kraft, P. Crespo, **K. Vaché**, H. Frede, L. Breuer. 2012. Model intercomparison to explore catchment functioning: Results from a remote montane tropical rainforest. *Ecol Model* 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. B. 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. *Adv in Geosci* 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

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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 P.W. Mote (Eds). College of Oceanic and Atmospheric Sciences, Oregon State University, Corvallis, OR.

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. In: *Proc. of the 16th Nitrogen Workshop: Connecting Different Scales of Nitrogen Use in Agriculture, Torino, Italy, June 28 - July 1, 2009*. Torino: Universita degli Studi di Torino 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., M. Santelmann, and D. Scavia (Eds). Resources For the Future Press. Washington, D.C.

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., M. Santelmann, 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.

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., M. Sivapalan, K. Takeuchi, 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

Eilers, J.M. and **K.B. Vaché**. 2020. Water Quality Modeling of Virginia Lake to Evaluate Treatment Options. Submitted to City of Reno, Nevada.

Eilers, J.M. and **K.B. Vaché**. 2019. Water Quality Study for the Pelton Round Butte Project and the Lower Deschutes River: Monitoring and Modeling. Submitted to Portland General Electric. <https://www.portlandgeneral.com/corporate-responsibility/environmental-stewardship/water-quality-habitat-protection/deschutes-river/deschutes-water-quality>

Eilers, J.M. and **K.B. Vaché**. 2015. Water Quality Modeling of the Lewis River Hydro Project, Washington. Submitted to PacifiCorp.

Eilers, J.M. and **K.B. Vaché**. 2013. Application of a hydrodynamic model (CD-Qual-W2) to assess trout stocking levels in Diamond Lake, Oregon. Report. Submitted to Oregon Department of Environmental Quality.

Eilers, J.M. and **K.B. Vaché**. 2012. Hydrodynamic Modeling of Lemolo #1 Forebay: A Preliminary Assessment. Report. Submitted to PacifiCorp.

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**, B. Eilers, R. Sweets. 2009. Water Quality & Biological Response to Current and Simulated Increases in Atmospheric Deposition of Sulfur and Nitrogen to Four Lakes in the Oregon and Washington Cascade Range. Report. Submitted to USDA FS Air Program.

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

Raulerson, S., Jackson, C.R., Vaché, K.B. and Bitew, M.M., 2020, December. Using Dupuit's equations to build a topographically based and GIS-driven water table model for estimating water table position and transit times. In *AGU Fall Meeting Abstracts* (Vol. 2020, pp. H004-0034).

Crampe, E., Segura, C., Jones, J.A. and Vache, K.B., 2018, December. Hydrometric and Tracer Based Analysis of Hydrologic Storage Across Geologically and Geomorphologically Variable Temperate Catchments. In *AGU Fall Meeting Abstracts* (Vol. 2018, pp. H31L-2094).

Plassin, S., Friedman, J., Paladino, S., Vaché, K., Hanson, K. and Koch, J., 2017, September. Building an agent-based model to explore integrated water management strategies in the Rio Grande/Bravo Basin. In *International Society for Ecological Modelling Global Conference*.

Flores, A.N., Kaiser, K.E., Steimke, A., Leonard, A., FitzGerald, K., Benner, S.G., Vache, K.B., Hillis, V., Bolte, J. and Han, B., 2017, December. Roughing in Human Replumbing of the Water Cycle: Challenges, Opportunities, and Progress in Capturing the Influence of Water Management in Regional Models of Hydrology and Climate. In *AGU Fall Meeting Abstracts*.

Mosquera, G., Lazo, P.X., Célleri, R., Vache, K.B., Segura, C. and Crespo, P., 2016, December. Illuminating the hydrology of a high-elevation tropical ecosystem: Runoff generation in the páramo. In *AGU Fall Meeting Abstracts*.

Vache, K.B., McDonnell, J., Jackson, C.R. and Bitew, M.M., 2016, December. Observation-based Model Development for Groundwater Dominated Catchments. In *AGU Fall Meeting Abstracts*.

Bitew, M.M., Jackson, C.R., Vache, K.B., Griffiths, N., Starr, G., McDonnell, J., Rau, B., Younger, S.E. and Fouts, K., 2016, December. Water Quantity and Water Quality Impacts of Intensive Woody Biomass Feedstock Production in the Southeastern US. In *AGU Fall Meeting Abstracts*.

Mosquera, G., Breuer, L., Windhorst, D., Célleri, R., Lazo, P., Vaché, K. and Crespo, P., 2015, April. A Tale of an Isotope: Where Does the Water Come from in Tropical Andean Ecosystems? A Case of Study in South Ecuador. In *EGU General Assembly Conference Abstracts* (Vol. 17, p. 204).

Hopp, L., Vaché, K.B., Rhatt Jackson, C. and McDonnell, J.J., 2015, April. Modeling subsurface stormflow initiation in low-relief landscapes. In *EGU General Assembly Conference Abstracts* (Vol. 17, p. 9034).

Jackson, C.R., Bitew, M.M., Du, E., Griffiths, N., Hopp, L., Klaus, J., McDonnell, J. and Vache, K.B., 2015, December. Headwater Streams in Porous Landscapes-What's the contributing area?. In *AGU Fall Meeting Abstracts*.

Vache, K., 2015, Back to the basics: Using observations and interpretation to define watershed model structure. A case study in the Upper Coastal Plain, US. In *2015 AGU Fall Meeting*. Agu.

Eilers, J., 2015, Mechanical Harvest to Reduce Fish Biomass and Improve Water Quality in Lemolo Lake, Oregon. In *145th Annual Meeting of the American Fisheries Society*. Afs.

Griffiths, N., Jackson, C.R., Bitew, M., Du, E., McDonnell, J.J., Klaus, J. and Rau, B.M., 2016. Evaluating the effects of woody biomass production for bioenergy on water quality and hydrology in the southeastern United States.

Han, B., Benner, S.G., Glenn, N.F., Lindquist, E., Dahal, K.R., Bolte, J., Vache, K.B. and Flores, A.N., 2014, December. A Framework Predicting Water Availability in a Rapidly Growing, Semi-Arid Region under Future Climate Change. In *AGU Fall Meeting Abstracts* (Vol. 1, p. 1167).

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 H13I-01

Vache, K.B., Jackson, C.R., Bitew, M.M., Blake, J., McDonnell, J.J. and Griffiths, N., 2013, December. Potential impacts of intensive cellulosic biofuel production on water quality and quantity in the Upper Coast Plain, US. In *AGU Fall Meeting Abstracts* (Vol. 1, p. 1158).

Vache, K.B., Bolte, J. and Haggerty, R., 2012, December. An integrated modeling framework to anticipate water scarcity and inform integrative water system response in the Pacific Northwest. In *AGU Fall Meeting Abstracts*(Vol. 1, p. 06).

Bitew, M.M., Jackson, C.R., McDonnell, J., Vache, K.B., Griffiths, N. and Blake, J.I., 2014, December. Dynamic Downslope Travel Distance Modeling: Interflow Modeling from Bottom of Slope Upwards. In *AGU Fall Meeting Abstracts* (Vol. 1, p. 0916).

Blake, J.I., Jackson, C.R., Griffiths, N.A., Klaus, J., Du, E., Vache, K.B. and McDonnell, J.J., 2012, December. Water quality within biofuel production landscape: Integrating flow paths, residence time distribution and mixing dynamics in the stream side management zone. In *AGU Fall Meeting Abstracts* (Vol. 1, p. 1627).

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.

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