

List of Publications, Anke Hildebrandt

Highlighted publications:

- **Jim Dooge Award** for outstanding paper in the EGU Journal "Hydrology and Earth System Science" in the year 2016 for: "A thermodynamic formulation of root water uptake" by Hildebrandt et al. (2016) (number 29 below) (two publications were awarded in 2016)
- **Editors choice** of the Science magazine: "Forest on the edge: Seasonal cloud forest in Oman creates its own ecological niche", by Hildebrandt and Eltahir (2006) (number 1 below)

Journal articles (ISI-listed outlets, chronological order)

2018

- (40) Fischer, C., Leimer, S., Roscher, C., Ravenek, J., de Kroon, H., Kreuziger, Y., Baade, J., Beßler, H., Eisenhauer, N., Weigelt, A., Mommer, L., Lange, M., Gleixner, G., Wilcke, W., Schröder, B., **Hildebrandt, A.** Plant species richness and functional groups have different effects on soil water content in a decade-long grassland experiment. *Journal of Ecology*, doi: 10.1111/1365-2745.13046.
- (39) Guderle, M., D. Bachmann, A. Milcu, A. Gockele, M. Bechmann, C. Fischer, C. Roscher, D. Landais, O. Ravel, S. Devidal, J. Roy, A. Gessler, N. Buchmann, A. Hildebrandt. Dynamic niche partitioning in root water uptake facilitates efficient water use in more diverse plant communities. *Functional Ecology* 32(1): 214-227. doi: 10.1111/1365-2435.12948.

2017

- (38) Chen, H., N. J. Oram, K. E. Barry, L. Mommer, J.v. Ruijven, H.d. Kroon, A. Ebeling, N. Eisenhauer, C. Fischer, G. Gleixner, A. Gessler, O. González Macé, N. Hacker, **A. Hildebrandt**, M. Lange, M. Scherer-Lorenzen, S. Scheu, Y. Oelmann, C. Wagg, W. Wilcke, C. Wirth, A. Weigelt. Root chemistry and soil fauna but not soil abiotic conditions explain the effects of plant diversity on root decomposition. *Oecologia* 185(3): 499-511.
- (37) Metzger, J., N. Dalla Valle, T. Wutzler, J. Filipzik, R. Lehmann, M. Roggenbuck, D. Schelhorn, J. Weckmüller, K. Küsel, K.U. Totsche, S. Trumbore, **A. Hildebrandt.** Tracing spatial variation of canopy water fluxes to the soil with high resolution data. *Hydrological Processes*, doi: 10.1002/hyp.11274.
- (36) Van Stan, J.T., Norman, Z., Meghoo, A., Friesen, J., **Hildebrandt, A.**, Coté, J.-F., Moldanado, G. Edge to stem variability in wet canopy evaporation from an urban tree row. *Boundary Layer Meteorology* 165: 295-310. doi: 10.1007/s10546-017-0277-7.
- (35) Weisser, W.W., C. Roscher, S. Meyer, A. Ebeling, , G. Luo, E. Allan, H. Beßler, R. Barnard, N. Buchmann, F. Buscot, C. Engels, C. Fischer, M. Fischer, A. Gessler, G. Gleixner, S. Halle, **A. Hildebrandt**, H. Hillebrand, H. de Kroon, M. Lange, S. Leimer, X. Le Roux, A. Milcu, L. Mommer, P. Niklaus, Y. Oelmann, R. Proulx, C. Scherber, M. Scherer-Lorenzen, S. Scheu, T. Tschardtke, M. Wachendorf, C. Wagg, A. Weigelt, W. Wilcke, E.-D. Schulze, B. Schmid, N. Eisenhauer. Biodiversity effects on ecosystem

functioning in a 14-year grassland experiment: patterns, mechanisms, and open questions. *Basic and Applied Ecology* 23: 1-74, doi: 10.1016/j.baae.2017.06.002.

- (34) Wollschläger U., D. Borchard, M. Brauns, M. Cuntz, P. Dietrich, J. H. Fleckenstein, K. Friese, J. Friesen, **A. Hildebrandt**, G. Jäckel, N. Kamjunke, K. Knöller, S. Kögler, R. Krieg, R. Kumar, A. Marx, R. Merz, C. Mueller, A. Musolff, H. Norf, M. Vieweg, C. Rebmann, F. Reinstorf, M. Rode, K. Rinke, L. Samaniego, H.-J. Vogel, M. Weitere, S. Zacharias, M. Zink. The Bode Catchment as part of the TERENO Harz/Central German Lowland Observatory: A platform for integrated, interdisciplinary hydrological research. *Environmental and Earth System Sciences* 76: Art. 29. doi:10.1007/s12665-016-6327-5.
- (33) Wright, A.J., H.d. Kroon, E.J.W. Visser, T. Buchmann, A. Ebeling, N. Eisenhauer, C. Fischer, **A. Hildebrandt**, J. Ravenek, C. Roscher, A. Weigelt, W.W. Weisser, L.A.C.J. Voeselek, L. Mommer. Plant species are less negatively affected by flooding when growing in species-rich plant communities. *New Phytologist* 213(2): 645-656. doi: 10.1111/nph.14185
- (32) Chen, H., L. Mommer, J.v. Ruijven, H.d. Kroon, C. Fischer, A. Gessler, **A. Hildebrandt**, M. Scherer-Lorenzen, C. Wirth, A. Weigelt, Plant Species Richness negatively affects root decomposition in grasslands. *Journal of Ecology* 105 (1): 209-218. doi: 10.1111/1365-2745.12650

2016

- (31) Zimmermann, A., S. Voss, J.C. Metzger, **A. Hildebrandt**, B. Zimmermann, Capturing heterogeneity: The role of a study area's extent for estimating mean throughfall. *Journal of Hydrology* 542: 781-789. doi: 10.1016/j.jhydrol.2016.09.047
- (30) Hertzog, L., A. Ebeling, S.T. Meyer, N. Eisenhauer, C. Fischer, **A. Hildebrandt**, C. Wagg, W. W. Weisser. 2016. High Survival of *Lasius niger* during Summer Flooding in a European Grassland. *PLoS ONE* 11(11): e0152777. doi: 10.1371/journal.pone.0152777
- (29) **Hildebrandt, A.**, A. Kleidon, and M. Bechmann. 2016. Thermodynamics of root water uptake. *Hydrology and Earth System Sciences* 20: 3441-3454, doi: 10.5194/hess-20-3441-2016
- (28) Milcu, A., W. Eugster, D. Bachmann, M. Guderle, Ch. Roscher, D. Landais, O. Ravel, A. Gessler, M. Lange, A. Ebeling, W. Weisser, J. Roy, **A. Hildebrandt**, N. Buchmann. 2016. Plant species and functional diversity increase grassland productivity-related water vapour fluxes: a combined Ecotron and modeling approach. *Ecology* 97(8): 2044-2054. doi: 10.1890/15-1110.1
- (27) Van Stan, J., L. Elliott, **A. Hildebrandt**, C. Rebmann, J. Friesen. 2016. Interacting bark structure and rainfall conditions impact stemflow variability in a temperate beech-oak forest, Central Germany. *Hydrological Science Journal* 61: 2071-2083. doi: 10.1080/02626667.2015.1083104
- (26) Renner, M., S. K. Hassler, T. Blume, M. Weiler, **A. Hildebrandt**, M. Guderle, S. J. Schymanski, and A. Kleidon. 2016. Dominant controls of transpiration along a hillslope transect inferred from ecohydrological measurements and thermodynamic limits. *Hydrology and Earth System Sciences* 20: 2063-2083, doi: 10.5194/hess-20-2063-2016.

- (25) Arnold, S., S. Attinger, K. Frank, P.W.J. Baxter, Possingham, H.P., **A. Hildebrandt**. 2016. Ecosystem management along ephemeral rivers under severe uncertainty of future flood regimes. 2016. *River Research and Applications*. 32(3), 219-233. doi: 10.1002/rra.2853.

2015

- (24) Fischer, C., J. Tischer, C. Roscher, N. Eisenhauer, J. Ravenek, G. Gleixner, S. Attinger, B. Jensen, H. de Kroon, L. Mommer, S. Scheu, **A. Hildebrandt**. 2015. Plant species diversity affects infiltration capacity in an experimental grassland through changes in soil properties. *Plant and Soil*. 397: 1-16. doi: 10.1007/s11104-014-2373-5.
- (23) Arnold, S., S. Attinger, K. Frank, **A. Hildebrandt**. 2015. Assessing the structural adequacy of alternative ecohydrological models using a pattern-oriented approach. *Ecological Modelling*. 316: 52-61. doi: 10.1016/j.ecolmodel.2015.08.003.
- (22) Wright, A., A. Ebeling, H. de Kroon, C. Roscher, A. Weigelt, N. Buchmann, T. Buchmann, C. Fischer, Hacker, N., **A. Hildebrandt**, S. Leimer, L. Mommer, Y. Oelmann, S. Scheu, K. Steinauer, T. Strecker, W. Weisser, W. Wilcke, N. Eisenhauer. 2015. Stability in a changing world: the role of diversity when disturbance increases ecosystem function. *Nature communications* 6, 6092. doi: 10.1038/nomms7092.
- (21) Guderle, M. and **Hildebrandt, A.** 2015. Using measured soil water contents to estimate evapotranspiration and root water uptake profiles – a comparative study. *Hydrology and Earth Systems Sciences*. 19: 409-425. doi: 10.5194/hess-19-409-2015

2014

- (20) Bechmann, M., C. Schneider, A. Carminati, D. Vetterlein, S. Attinger, **A. Hildebrandt**. 2014. Parameterizing complex root water uptake models – the arrangement of root hydraulic properties within the root architecture affects dynamics and efficiency of root water uptake. *Hydrology and Earth System Sciences* 18, 4189–4206. doi: 10.5194/hess-18-4189-2014.
- (19) Fischer, C., C. Roscher, B. Jensen, N. Eisenhauer, J. Baade, A. Attinger, S. Scheu, W. Weisser, **A. Hildebrandt**. 2014. How do earthworms, soil texture and plant composition affect infiltration in a managed grassland along a plant diversity gradient? *PLoS ONE* 9(6): e98987.
- (18) Mueller, E.N., L. van Schaik, T. Blume, J.H. Fleckenstein, N. Fohrer, K. Geißler, Gerke, H.H., J. Carus, T. Graeff, C. Hesse, **A. Hildebrandt**, F. Hoelker, P. Hunke, K. Koerner, J. Lewandrowski, D. Lohmann, K. Meinikmann, A. Schibalski, B. Schmalz, B. Schroeder, B. Tietjen. 2014. Scales, spheres, feedbacks and key challenges of ecohydrological research from a German perspective. *Hydrologie und Wasserwirtschaft* 58(4): 221-240, doi: 10.5675/HyWa_2014,4_2.
- (17) Milcu, A., C. Roscher, D. Bachmann, A. Gockele, M. Guderle, D. Landais, C. Piel, C. Escpape, S. Devidal, O. Ravel, N. Buchmann, A. Gessler, G. Gleixner, **A. Hildebrandt**, J. Roy. 2014. Canopy diversity of leaf nitrogen concentration and light use drive grassland plant diversity effects on carbon fluxes and water use efficiency. *Ecology Letters* 17: 435-444. doi 10.1111/ele.12243.
- (16) Leimer, S., Y. Kreuziger, S. Rosenkranz, H. Bessler, C. Engels, **A. Hildebrandt**, Y. Oelmann, W. Weisser, C. Wirth, W. Wilcke. 2014. Plant diversity effects on the water

balance of an experimental grassland. *Ecohydrology* 7, 1378–1391. doi: 10.1002/eco.1464.

2012

- (15) Tessema, S. G., D. Mirgorodsky, D. Merten, **A. Hildebrandt**, S. Attinger, and G. Büchel. 2012. Hydrochemical characterization of groundwater system of biodiversity experimental field: Jena, Germany. *Environmental Earth Sciences*. doi: 10.1007/s12665-012-2171-4.

2011

- (14) Tessema, S. G., D. Mirgorodsky, D. Merten, **A. Hildebrandt**, S. Attinger, and G. Büchel. 2011. Effect of river Saale groundwater hydrochemistry of the Jena Biodiversity Experiment Field: A hydrogeochemical modeling approach. *11th international multidisciplinary scientific geoconference (SGEM 2011), Vol II*. 807-814.
- (13) Carminati, A., C. L. Schneider, A., B. Moradi, M. Zarebanadkouki, D. Vetterlein, H.-J. Vogel, **A. Hildebrandt**, U. Weller, L. Schueler, and S. E. Oswald. 2011. How the Rhizosphere May Favor Water Availability to Roots. *Vadose Zone Journal* 10:988. doi: 10.2136/vzj2010.0113.
- (12) Kalbacher, T., J.-O. Delfs, H. Shao, W. Wang, M. Walther, L. Samaniego, C. Schneider, R. Kumar, A. Musolff, F. Centler, F. Sun, **A. Hildebrandt**, R. Liedl, D. Borchardt, P. Krebs, and O. Kolditz. 2011. The IWAS-ToolBox: Software coupling for an integrated water resources management. *Environmental Earth Sciences* 65:1367–1380. doi: 10.1007/s12665-011-1270-y.
- (11) Kalbacher, T., C. L. Schneider, W. Wang, **A. Hildebrandt**, S. Attinger, and O. Kolditz. 2011. Modeling Soil-Coupled Water Uptake of Multiple Root Systems with Automatic Time Stepping. *Vadose Zone Journal* 10:727. doi: 10.2136/vzj2010.0099.
- (10) Alexandrov, G. A., D. Ames, G. Bellocchi, M. Bruen, N. Crout, M. Erechtkoukova, **A. Hildebrandt**, F. Hoffman, C. Jackisch, and P. Khaite. 2011. Technical assessment and evaluation of environmental models and software: Letter to the Editor. *Environmental Modelling & Software* 26:328–336. doi: 10.1016/j.envsoft.2010.08.004.

2010

- (9) Kalbacher, T., C. L. Schneider, W. Wang, **A. Hildebrandt**, S. Attinger, and O. Kolditz. 2010. Computational efficient modelling of soil-coupled 3D root water uptake for multiple root systems. Page conference paper XVIII *International Conference on Computational Methods in Water Resources*. Barcelona.
- (8) Proulx, R., C. Wirth, W. Voigt, A. Weigelt, C. Roscher, S. Attinger, J. Baade, R. L. Barnard, N. Buchmann, F. Buscot, N. Eisenhauer, M. Fischer, G. Gleixner, S. Halle, **A. Hildebrandt**, E. Kowalski, A. Kuu, M. Lange, A. Milcu, P. a. Niklaus, Y. Oelmann, S. Rosenkranz, A. Sabais, C. Scherber, M. Scherer-Lorenzen, S. Scheu, E.-D. Schulze, J.

Schumacher, G. ¹Schwichtenberg, J.-F. Soussana, V. M. Temperton, W. W. Weisser, W. Wilcke, and B. Schmid. 2010. Diversity Promotes Temporal Stability across Levels of Ecosystem Organization in Experimental Grasslands. *PLoS ONE* 5:e13382. doi: 10.1371/journal.pone.0013382.

- (7) Raedig, C., C. F. Dormann, **A. Hildebrandt**, and S. Lautenbach. 2010. Reassessing Neotropical angiosperm distribution patterns based on monographic data: a geometric interpolation approach. *Biodiversity and Conservation* 19:1523–1546. doi: 10.1007/s10531-010-9785-1.
- (6) Schneider, C. L., S. Attinger, J.-O. Delfs, and **A. Hildebrandt**. 2010. Implementing small scale processes at the soil-plant interface – the role of root architectures for calculating root water uptake profiles. *Hydrology and Earth System Sciences* 14:279–289. doi: 10.5194/hess-14-279-2010.

Vor 2009

- (5) Arnold, S., S. Attinger, K. Frank, and **A. Hildebrandt**. 2009. Uncertainty in parameterisation and model structure affect simulation results in coupled ecohydrological models. *Hydrology and Earth System Sciences* 13:1789–1807. doi: 10.5194/hess-13-1789-2009.
- (4) **Hildebrandt, A.**, and E. A. B. Eltahir. 2008. Using a horizontal precipitation model to investigate the role of turbulent cloud deposition in survival of a seasonal cloud forest in Dhofar. *Journal of Geophysical Research* 113:1–11. doi: 10.1029/2008JG000727.
- (3) **Hildebrandt, A.**, and E. A. B. Eltahir. 2007. Ecohydrology of a seasonal cloud forest in Dhofar: 2. Role of clouds, soil type, and rooting depth in tree-grass competition. *Water Resources Research* 43:1–13. doi: 10.1029/2006WR005262.
- (2) **Hildebrandt, A.**, M. Al Aufi, M. Amerjeed, M. Shamma, and E. A. B. Eltahir. 2007. Ecohydrology of a seasonal cloud forest in Dhofar: 1. Field experiment. *Water Resources Research* 43:1–13. doi: 10.1029/2006WR005261.
- (1) **Hildebrandt, A.**, and E. A. B. Eltahir. 2006. Forest on the edge: Seasonal cloud forest in Oman creates its own ecological niche. *Geophysical Research Letters* 33:2–5. doi: 10.1029/2006GL026022.

Other publication

Anthonj, C., S. Beskow, F. Dornelles, A. Terumi Fushita, C. Alves Gelharte, P. Galvao, P. Gatti J, B. Gluecker, **A. Hildebrandt**, D. Karthe, P. Kotsila, K. Krause, A. Kledson Leal Silva, P. Lehmann, P. Moura, N. Andricoli Periotto, J. L. Rodrigues Filho, D.R. Lopes dos Santos, F. Selge, T. Silva, R.M. Soares, M. Strohbach, A. Suhogusoff, I. Wahnfried, I. Zaseda. *Water in Urban Regions: Building Future Knowledge to Integrate Land Use, Ecosystem Services and Human Health*. Science Policy Report, German National Academy of Sciences Leopoldina. ISBN: 978-3-8047-3332-9.
