

List of Publications of Olaf Ippisch

May 7, 2024

Refereed Publications

- [1] J. Boike, O. Ippisch, and K. Roth. Thermal and hydrological dynamics of a mud boil - any clues about its formation? *Journal of Geocryology and Glaciology*, 24(5):538–543, 2002.
- [2] J. Boike, L. Hinzman, P. P. Overduin, V. Romanovsky, O. Ippisch, and K. Roth. A comparison of snow melt at three circumpolar sites: Spitsbergen, siberia, alaska. In *8th International Conference on Permafrost, Zuerich, Switzerland*, pages 79–84, 2003.
- [3] J. Boike, K. Roth, and O. Ippisch. Seasonal snow cover on frozen ground: Energy balance calculations of a permafrost site near Ny-Ålesund, Svalbard. *J. Geophys. Res.*, 108(D2):4–1/4–11, 2003.
- [4] A. Bayer, H.-J. Vogel, O. Ippisch, and K. Roth. Do effective properties for unsaturated weakly heterogeneous media exist? an experimental study. *Hydrol. Earth Syst. Sci.*, 9(5):517–522, 2005.
- [5] O. Ippisch, H.-J. Vogel, and P. Bastian. Validity limits for the van genuchten-mualem model and implications for parameter estimation and numerical simulation. *Adv. Water Res.*, 29(12):1780–1789, 2006.
- [6] K. Schneider, O. Ippisch, and K. Roth. Novel evaporation experiment to measure soil hydraulic properties. *Hydrol. Earth Syst. Sci.*, 10(6):817–827, 2006.
- [7] H.-J. Vogel, I. Cousin, O. Ippisch, and P. Bastian. The dominant role of structure for solute transport in soil. experimental evidence and modelling of structure and transport. *Hydrol. Earth Syst. Sci.*, 10(4):495–506, 2006.
- [8] A. Carminati, A. Kaestner, O. Ippisch, A. Koliji, P. Lehmann, R. Hassanein, P. Vontobel, E. Lehmann, L. Laloui, L. Vulliet, and H. Flühler. Water flow between soil aggregates. *Transport in Porous Media*, 68:219–236, 2007.
- [9] A. Carminati, A. Kaestner, R. Hassanein, O. Ippisch, P. Vontobel, and H. Flühler. Water infiltration through soil aggregates: neutron radiography and modeling. *Adv. Water Res.*, 30(5):1168–1178, 2007.
- [10] A. Samouëlian, H.-J. Vogel, and O. Ippisch. Upscaling hydraulic conductivity based on the topology of the sub-scale structure. *Adv. Water Res.*, 30(5):1179–1189, 2007.

- [11] J. Boike, O. Ippisch, P. P. Overduin, B. Hagedorn, and K. Roth. Water, heat and solute dynamics of a mud boil, spitsbergen. *Geomorphology*, 95(1):61–73, 2008.
- [12] H.-J. Vogel, A. Samouëlian, and O. Ippisch. Multi-step and two-step experiments in heterogeneous porous media to evaluate the relevance of dynamic effects. *Adv. Water Res.*, 31(1):181–188, 2008.
- [13] H.-J. Vogel and O. Ippisch. Estimation of a critical spatial discretization limit for solving richards equation at large scales. *Vadose Zone Journal*, 7(1):112–114, 2008.
- [14] M. Rossi, P. Lehmann, N. Ursino, O. Ippisch, and H. Flühler. Solute mixing during imbibition and drainage in a macroscopically heterogeneous medium. *Water Resour. Res.*, 43:1242–1252, 2007.
- [15] M. Rossi, O. Ippisch, and H. Flühler. Solute dilution under imbibition and drainage conditions in a heterogeneous structure: modeling of a sand tank experiment. *Adv. Water Res.*, 31:1242–1252, 2008.
- [16] H.-J Vogel, U. Weller, and O. Ippisch. Non-equilibrium in soil hydraulic modelling. *J. Hyd.*, 393(1-2):20–28, 2010.
- [17] K. Schneider-Zapp, O. Ippisch, and K. Roth. Numerical study of the evaporation process and parameter estimation analysis of an evaporation experiment. *Hydrol. Earth Syst. Sci.*, 14:765–781, 2010.
- [18] U. Weller, O. Ippisch, M. Käthe, and H.-J. Vogel. Direct measurement of unsaturated hydraulic conductivity in soil including temporal dynamics, hydraulic non-equilibrium and hysteresis. *Vadose Zone Journal*, 10:654–661, 2011.
- [19] J. Fahlke und O. Ippisch P. Bastian, C. Engwer. An unfitted discontinuous galerkin method for pore-scale simulations of solute transport. *Mathematics and Computers in Simulation*, 81:2051–2061, 2011.
- [20] P. Bastian, O. Ippisch, and S. Marnach. Benchmark 3d: A mimetic finite difference method. In *Finite Volumes for Complex Applications VI Problems & Perspectives: FVCA 6, International Symposium, Prague, June 6-10, 2011*, Springer Proceedings in Mathematics, pages 961–968. Springer Berlin Heidelberg, 2011.
- [21] M. Bechtold, J. Vanderborght, O. Ippisch, and H. Vereecken. Efficient random walk particle tracking algorithm for advective dispersive transport in media with discontinuous dispersion coefficients. *Water Resources Research*, 47:W10526, 2011.
- [22] M. Bechtold, J. Vanderborght, L. Weierhändler, M. Herbst, T. Günther, O. Ippisch, R. Kasteel, and H. Vereecken. Upward transport in a 3-d heterogeneous laboratory soil under evaporation conditions. *Vadose Zone Journal*, 11(2), 2012.

Theses

- [23] O. Ippisch. Modellentwicklung zum gekoppelten Transport von Wasser, Wärme und Gasen in Abraum aus dem Braunkohletagebau. Bayreuther Bodenkundliche Berichte 58, 1997.
- [24] O. Ippisch. *Coupled Transport in Natural Porous Media*. PhD thesis, University of Heidelberg, 2003.

Course Material

- [25] O. Ippisch. Introduction to scientific programming, 2009. Vorlesungsskript.
- [26] O. Ippisch. Commas e6: Software development / numerical programming ii, 2008. Vorlesungsskript.
- [27] O. Ippisch. Numeric of flow and transport in porous media, 2013. Vorlesungsskript.

Nonrefereed Publications

- [28] O. Ippisch, I. Cousin, and K. Roth. Wärmeleitung in porösen Medien: Auswirkung der Bodenstruktur auf Wärmeleitung und Temperaturverteilung. *Mitteilgn. Dtsch. Bodenkundl. Gesellsch.*, 87:405–408, 1998.
- [29] O. Ippisch, J. Boike, and K. Roth. Messung und Modellierung des Wasser- und Wärmehaushaltes von Permafrostböden. *Mitteilgn. Dtsch. Bodenkundl. Gesellsch.*, 91/I:189–190, 1999.
- [30] B. Schultze, O. Ippisch, B. Huwe, and W. Durner. Dynamic nonequilibrium during unsaturated water flow. In M. Th. van Genuchten, F. J. Leij, and L. Wu, editors, *Proc. Int. Workshop on Characterization and Measurement of the Hydraulic Properties of Unsaturated Porous Media*, pages 877–892, Riverside, CA, October 22-24 1997. University of California.
- [31] P. Bastian, O. Ippisch, F. Rezanezhad, H. J. Vogel, and K. Roth. Numerical simulation and experimental studies of unsaturated water flow in heterogeneous systems. In R. Rannacher et al., editor, *Reactive Flows, Diffusion and Transport*. Springer, Berlin-Heidelberg, 2005.
- [32] O. Ippisch, J. Boike, P. Bastian, and K. Roth. Simulation des Wasser-, Wärme- und Stofftransports in gefrierenden Böden. *Mitteilgn. Dtsch. Bodenkundl. Gesellsch.*, 96/I:93–94, 2001.
- [33] O. Ippisch, H. Graf, H.-J. Vogel, and P. Bastian. Bestimmung hydraulischer Parameter in heterogenen Böden mit inverser Modellierung. *Mitteilgn. Dtsch. Bodenkundl. Gesellsch.*, 103:135–136, 2004.
- [34] O. Ippisch, P. Bastian, A. Samouëlian, and H.-J. Vogel. Hydraulic parameter estimation in heterogeneous porous media. In *Proc. CMWR 2006, Copenhagen, Denmark*, 2006.
- [35] P. Bastian, O. Ippisch, F. Rezanezhad, H. J. Vogel, and K. Roth. Numerical simulation and experimental studies of unsaturated water flow in heterogeneous systems. In W. Jäger et al., editor, *Reactive Flows, Diffusion and Transport*. Springer, Berlin-Heidelberg, 2007.
- [36] O. Ippisch and M. Blatt. Scalability test of $\mu\phi$ and the parallel algebraic multigrid solver of dune-istl. In B. Mohr and Wolfgang Frings, editors, *Jülich Blue Gene/P Extreme Scaling Workshop 2011, Technical Report FZJ-JSC-IB-2011-02, April 2011*, 2011.