

Curriculum Vitae

H.J. (Ilja) van Meerveld
Hydrology and Climate Group
Department of Geography
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Main research interests

- Hillslope and watershed hydrology
- Forest hydrology
- Hillslope - riparian connectivity
- Intermittent streams
- Soil erosion
- Watershed modeling
- Peat hydrology and bog restoration

Work experience

2014-present

Senior Researcher

Department of Geography, University of Zurich, Zurich, Switzerland

2011-2014

Universitair Docent (Assistant Professor)

Faculty of Earth and Life Sciences, Dynamic Earth & Resources Cluster, Critical Zone

Hydrology Group, VU University, Amsterdam, The Netherlands

Courses taught: Catchment Response Analysis; Ecohydrology; Unsaturated Zone and Near-Surface Hydrological Processes; Isotope Hydrology; Field Course Hydrology Portugal; Soil and Environment

2006-2011

Assistant Professor

Department of Geography, Simon Fraser University, Burnaby, Canada

Courses taught: Quantitative geography; Hydrology; Advanced hydrology; Research design and analytical techniques in physical geography; Directed readings; Physical geography field school

2004-2006

Post-doctoral Research Assistant

Environmental Fluid Mechanics group, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

Education

2000-2004

PhD Student / Graduate Research Assistant

Department of Forest Engineering, Oregon State University, Corvallis, OR, USA

Thesis title: Hillslope hydrology: from patterns to processes

1998-1999

International Masters Program in Environmental Science

University of Greenwich, UK / Saxion Universities, Deventer, the Netherlands

Internship: CSIRO, Griffith, NSW, Australia

Thesis title: Comparison of the institutional arrangements for conjunctive water use in three irrigation areas in Australia

1993-1998

BSc and MSc in Physical Geography with specialization in hydrology

Department of Earth Science, Vrije Universiteit, Amsterdam, the Netherlands

Internship: NASA Goddard Space Flight Center, Greenbelt, MD, USA

Thesis title: Application of a semi-distributed model to the White Gull Creek catchment, Saskatchewan, Canada, with special emphasis on the influence of water-logging conditions on evapotranspiration in different land use units

Publications

* = student I mentored

- Rinderer, M. *, H.J. van Meerveld, and J. Seibert (2014) Topographic controls on shallow groundwater levels in a steep, prealpine catchment: When are the TWI assumptions valid?, *Water Resources Research* 50: 6067-6080.
- van Meerveld, H.J., E.J. Baird*, and W.C. Floyd (2014) Controls on sediment production from an unpaved resource road in a Pacific maritime watershed. *Water Resources Research* 50, 4803-4820.
- Howie, S.A.* and H.J. van Meerveld (2013) Regional and local patterns in depth to water table, hydrochemistry and peat properties of bogs and their laggs in coastal British Columbia, *Hydrol. Earth Syst. Sci.*, 17, 3421-3435, doi:10.5194/hess-17-3421-2013.
- Lutz, S.R.* , van Meerveld, H.J., Waterloo, M.J., Broers, H.P., and van Breukelen, B.M. (2013) A model-based assessment of the potential use of compound-specific stable isotope analysis in river monitoring of diffuse pesticide pollution, *Hydrol. Earth Syst. Sci.*, 17, 4505-4524, doi:10.5194/hess-17-4505-2013.
- Parlange, J.Y., W.L. Hogarth, B.C.P. Heng, G.C. Sander, D.A. Barry, A. Brovelli, S. Jomaa, M.B. Parlange, P.B. Hairsine, T.S. Steenhuis, H.J. van Meerveld and C.W. Rose (2012) Erosion of soils due to rainfall impact – an interpolation method, *Ecohydrology* 5(5): 575-579.
- Buttle, J.M., S. Boon, D.L. Peters, C. Spence, H.J. van Meerveld and P.H. Whitfield (2012) An overview of temporary stream hydrology in Canada, *Canadian Water Resources Journal* 37(4): 279-310.
- Huxter, E.H.* and H.J. van Meerveld (2012) Intermittent and perennial streamflow regime characteristics in the Okanagan, *Canadian Water Resources Journal* 37(4): 391-414.
- McGee, D., S. Boon and H.J. van Meerveld (2012) Impacts of rural water diversions on prairie streamflow, *Canadian Water Resources Journal* 37(4): 415-424.

Publications continued

- Peters, D.L., S. Boon, E. Huxter*, C. Spence, H.J. van Meerveld and P.H. Whitfield (2012) Zeroflow: A pub (prediction in ungauged basins) workshop on temporary streams: summary of workshop discussions and future directions, *Canadian Water Resources Journal* 37(4): 425-431.
- Welch, L.A.*, D.M. Allen and H.J. van Meerveld (2012) Topographic controls on deep groundwater contributions to mountain headwater streams and sensitivity to available recharge, *Canadian Water Resources Journal* 37(4): 349-371.
- Haight, D.R.W.* and H.J. van Meerveld (2011) Spatial Variation in Transient Water Table Responses: Differences between an Upper and Lower Hillslope Zone, *Hydrological Processes* 25(25): 3866-3877.
- Howie, S.* and I. Tromp-van Meerveld (2011) The Essential Role of the Lagg in Raised Bog Function and Restoration: A Review, *Wetlands* 31: 613-622.
- Penna, D., H.J. Tromp-van Meerveld, A. Gobbi, M. Borga, and G. Dalla Fontana (2011) The influence of soil moisture on threshold runoff generation processes in an alpine headwater catchment, *Hydrology and Earth System Sciences* 15: 689-702.
- Crooks, V.A., H. Castleden, and I. Tromp-van Meerveld (2010) Teaching Research Methods Courses in Human Geography: Critical Reflections, *Journal of Geography in Higher Education* 34: 155-171.
- James, A.L., J. J. McDonnell, I. Tromp-van Meerveld, and N.E. Peters (2010) Gypsies in the palace: experimentalist's view on the use of 3-D physics-based simulation of hillslope hydrological response, *Hydrological Processes* 24: 3878-3893.
- Jomaa, S., D.A. Barry, A. Brovelli, G.C. Sander, J.-Y. Parlange, B.C.P. Heng, and H.J. Tromp-van Meerveld (2010) Effect of raindrop splash and transversal width on soil erosion: Laboratory flume experiments and analysis with the Hairsine-Rose model, *Journal of Hydrology* 395: 117-132.
- Tromp-van Meerveld, H.J., and J.J. McDonnell (2009) Assessment of multi-frequency electromagnetic induction for determining soil moisture patterns at the hillslope scale, *Journal of Hydrology* 368:56-67.
- Clark, M.P., D.E. Rupp, R.A. Woods, H.J. Tromp-van Meerveld, N.E. Peters, and J.E. Freer (2009) Consistency between hydrological models and field observations: linking processes at the hillslope scale to hydrological responses at the watershed scale, *Hydrological Processes* 23: 311-319.
- Tromp-van Meerveld, H.J. and M. Weiler (2008) Hillslope dynamics modeled with increasing complexity, *Journal of Hydrology* 361: 24-40.
- Tromp-van Meerveld, H.J., J.-Y. Parlange, D.A. Barry, M.F. Tromp, G.C. Sander, M.T. Walter, and M.B. Parlange (2008) Influence of sediment settling velocity on mechanistic soil erosion modeling, *Water Resources Research* 44, W06401, doi:10.1029/2007WR006361.
- Tromp-van Meerveld, H.J., A.L. James, J.J. McDonnell, and N.E. Peters (2008) A reference data set of hillslope rainfall-runoff response, Panola Mountain Research Watershed, United States, *Water Resources Research* 44, W06502, doi:10.1029/2007WR006299.
- Tromp-van Meerveld, H.J., N.E. Peters and J.J. McDonnell (2007) Effect of bedrock permeability on subsurface stormflow and the water balance of a trenched hillslope at the Panola Mountain Research Watershed, Georgia, USA, *Hydrological Processes* 21: 750-769.

Publications continued

- Lehmann, P., C. Hinz, G. McGrath, H.J. Tromp-van Meerveld and J.J. McDonnell (2007) Rainfall threshold for hillslope outflow: an emergent property of flow path connectivity, *Hydrology and Earth System Sciences* 11: 1047-1063.
- Walker, J.D., M.T. Walter, J.-Y. Parlange, C.W. Rose, H.J. Tromp-van Meerveld, B. Gao, and A.M. Cohen (2007) Reduced raindrop-impact driven soil erosion by infiltration, *Journal of Hydrology* 342: 331-335.
- Tromp-van Meerveld, H.J. and J.J. McDonnell (2006) On the interactions between the spatial patterns of topography, soil moisture, transpiration and species distribution at the hillslope scale, *Advances in Water Resources* 29: 293-310.
- Tromp-van Meerveld, H.J. and J.J. McDonnell (2006) Threshold relations in subsurface stormflow 1. A 147 storm analysis of the Panola hillslope, *Water Resources Research* 42, W02410, doi:10.1029/2004WR003778.
- Tromp-van Meerveld, H.J. and J.J. McDonnell (2006) Threshold relations in subsurface stormflow 2. The fill and spill hypothesis, *Water Resources Research* 42, W02411, doi:10.1029/2004WR003800.
- Keim, R.F., H.J. Tromp-van Meerveld and J.J. McDonnell (2006) A virtual experiment on the effects of evaporation and intensity smoothing by canopy interception on subsurface stormflow generation, *Journal of Hydrology* 327: 352-364.
- Tromp-van Meerveld, H.J. and J.J. McDonnell (2005) Comment to 'Spatial correlation of soil moisture in small catchments and its relationship to dominant spatial hydrological processes, *Journal of Hydrology* 286: 113-134', *Journal of Hydrology* 303: 307-312.
- Uchida, T., I. Tromp-van Meerveld and J.J. McDonnell (2005) The role of lateral pipe flow in hillslope runoff response: An intercomparison of nonlinear hillslope response, *Journal of Hydrology* 311: 117-133.
- Weiler, M., J. McDonnell, I. Tromp-van Meerveld and T. Uchida (2005) Subsurface Stormflow, in: *Encyclopedia of Hydrological Sciences*. Ed. by M. Anderson, John Wiley & Sons, Ltd., Vol. 3: 1719-1732.
- McDonnell, J.J., B. McGlynn, K. Vache and H.J. Tromp-van Meerveld (2005) A perspective on hillslope hydrology in the context of PUB, in: *Predictions in Ungauged Basins: International Perspectives on the State of the Art and Pathways Forward*, Ed. by S. Franks, M. Sivapalan, K. Takeuchi and Y. Tachikawa, IAHS publication 301: 204-212.

In press

- Castleden, H., V.A. Crooks and H.J. van Meerveld (in press) Examining the public health implications of drinking water-related behaviours and perceptions: A face-to-face exploratory survey of residents in eight coastal communities in British Columbia and Nova Scotia, *The Canadian Geographer/Le Géographe Canadien*, Manuscript: 01-14-TCG-165.
- Penna, D., H.J. van Meerveld, O. Oliviero, G. Zuecco*, R.S. Assendelft*, G. Dalla Fontana, and M. Borga (in press) Seasonal changes in runoff generation in a small forested mountain catchment, *Hydrological Processes*, doi: 10.1002/hyp.10347.

In review

- van Meerveld, H.J., J. Seibert, and N.E. Peters (in review) Hillslope-riparian-stream connectivity and flow directions at the Panola Mountain Research Watershed, *Hydrological Processes*.
- Zuecco G^{*}, D. Penna, H.J. van Meerveld, and M. Borga (in review) A new index to characterise hysteresis between hydrological variables at the runoff event timescale, *Hydrological Processes*, Manuscript: HYP-14-0830.
- Howie, S.A.^{*}, and H.J. van Meerveld (in review) Classification of vegetative lagg types and hydrogeomorphic lagg forms in bogs of coastal British Columbia, Canada, *The Canadian Geographer/Le Géographe Canadien*, Manuscript: 10-14-TCG-232.

Other publications

- Penna, D., Oliviero, O., Assendelft, R.^{*}, Zuecco, G., Meerveld, I.v., Anfodillo, T., Carraro, V., Borga, M., Fontana, G.D. (2013) Tracing the Water Sources of Trees and Streams: Isotopic Analysis in a Small Pre-Alpine Catchment, *Procedia Environmental Sciences* 19, 106-112.
- Baird, E.J.^{*}, W. Floyd, I. van Meerveld, and A.E. Anderson (2012) Roads Surface Erosion Part 1: Summary of effects, processes, and assessment procedures, *Streamline Watershed Management Bulletin* 15 (1): 1-9.
- Baird, E.J.^{*}, W. Floyd, and I. van Meerveld (2012) Road Surface Erosion Part 2- Evaluation of the Water Quality Effectiveness Evaluation (WQEE) for the Honna River, Haida Gwaii, *Streamline Watershed Management Bulletin* 15 (1): 10-17.
- Boon, S., H.J. van Meerveld, E.H. Huxter^{*}, D.L. Peters, C. Spence and P.H. Whitfield (2012) Introduction to special issue: Prediction in ungauged basins (PUB) workshop on temporary streams, *Canadian Water Resources Journal* 37(4): 275-278.
- Howie, S.^{*}, P. Whitfield, R. Hebda, and I. van Meerveld (2012) Lags of raised bogs in coastal British Columbia, Canada: Hydrology, hydrochemistry, and vegetation at the mire margin, *Proceedings of the 14th International Peat Congress*, Stockholm, Sweden, June 3-8, 2012, Extended Abstract 11, 6 p.
- Aasen, H.^{*}, N. Hedley, and I. Tromp-van Meerveld (2010) Connecting Expert Field Research With Conceptual Learning: A User-driven 3D Geovisualization Interface to Explore Temporal and Spatial Properties of Transient Groundwater Responses, in: *Proceedings of the 3rd ISDE Digital Earth Summit, Nessebar, Bulgaria, June, 12-14, 2010*, Eds. T. Bandrova and M. Konecny, ISBN: 978-954-724-039-1.
- Tromp-van Meerveld, I., H. Castleden, V. Crooks, E. Baird^{*} and R. Johnston (2009) Final report on 'Dialogues on Drinking Water Quality' held on July 29-31 in Bamfield and Anacapa, BC
- Christen, E. and I. van Meerveld (2000) Institutional arrangements in the Shepparton Irrigation Region, Victoria, Australia, *International Water Management Institute*, Report no. 99, 64 p.

Seminars, conference and workshop presentations (2010-present)

* = student I mentored

- van Meerveld, I., (2014) Controls on hillslope-stream connectivity and threshold catchment response, AGU Chapman Conference on Catchment Spatial Organization and Complex (*Invited*)
- van Meerveld, I., J. Zhang*, and S. Bruijnzeel (2014) Effects of reforesting degraded grassland on hydrological flow pathways on Leyte, the Philippines (EGU2014-14873), European Geophysical Union meeting, Vienna, Austria.
- van Meerveld, I., J. Zhang* (2013) Effects of tropical reforestation on hydrological processes: A case study in Leyte, the Philippines, University of Padova, Dipartimento Territorio e Sistemi Agro-forestali, Italy. (*Invited*)
- van Meerveld, I., E. Baird*, and B. Floyd (2013) Controls on sediment production from unpaved forest roads in the Honna watershed, Canada (EGU2013-8429), European Geophysical Union meeting, Vienna, Austria.
- van Meerveld I., and S. Spencer* (2013) Stemflow amount, intensity and timing in a mature forest in coastal British Columbia, Canada (EGU2013-11317), European Geophysical Union meeting, Vienna, Austria.
- Blume, T., I. van Meerveld, and T. Graeff (2013) The Experimental Hydrology Wiki (EGU2013-13216), European Geophysical Union meeting, Vienna, Austria.
- Oliviero, O., R. Assendelft*, D. Penna, G. Zuecco, I. van Meerveld, M. Borga, and G. Dalla Fontana (2013) Hydrological response of a forested mountain catchment: a tracer-based experimental analysis (EGU2013-9574), European Geophysical Union meeting, Vienna, Austria.
- D. Penna, O. Oliviero, R. Assendelft, G. Zuecco, N. Mantese, V. Carraro, T. Anfodillo, H.J. van Meerveld, M. Borga, G. Dalla Fontana (2013) Do trees and streams have the same source of water? Isotopic evidence from a small pre-alpine catchment, Four decades of progress in monitoring and modelling of processes in the soil-plant-atmosphere system: Applications and Challenges, Naples, Italy.
- Huxter, E.H.* and H.J. van Meerveld (2012) Streamflow regime characteristics of intermittent and perennial streams in the Okanagan Basin, British Columbia, PUB symposium Completion of the IAHS decade on Prediction in Ungauged Basins and the way ahead, Delft, The Netherlands.
- van Meerveld, H.J. (2012) Influence of Antecedent Moisture Conditions on Inter-rill Soil Erosion, Hydrologic Discovery Through Physical Analysis - Honoring the Scientific Legacies of Wilfried H. Brutsaert and Jean-Yves Parlange, Cornell University, Ithaca, NY. (*Invited*)
- van Meerveld, I. (2012) Small scale variations in hillslope groundwater responses: on the usefulness (and un-usefulness) of groundwater measurements, University of Zurich, Switzerland. (*Invited*)
- van Meerveld, I. (2012) Sediment production from forest roads, Albert-Ludwigs-Universität Freiburg, Institut für Hydrologie, Germany. (*Invited*)
- Tromp-van Meerveld, I. (2011) What do British Columbia's coastal residents think about their drinking water?, University of Lethbridge Women Scholars Speaker Series, Lethbridge, AB, Canada (*Invited*)
- Tromp-van Meerveld, I. and V.A Crooks (2011) Public perceptions on drinking water in coastal British Columbia, Association of American Geographers meeting, Seattle, WA, USA.

Presentations continued

- Baird, E. * and I. Tromp-van Meerveld (2011) Controls on sediment production from forest roads in a Pacific Maritime watershed, Association of American Geographers meeting, Seattle, WA, USA.
- Baird E. * and I. Tromp-van Meerveld (2011), Controls on sediment production from forest roads in a pacific maritime watershed, Western Division of the Canadian Association of Geographers meeting, Burnaby, BC, Canada.
- Cheng, Y-C. * and I. Tromp-van Meerveld (2011), The ins and outs of Burns Bog: a look into the water balance of a large ombrotrophic bog in the Fraser Valley, Western Division of the Canadian Association of Geographers meeting, Burnaby, BC, Canada.
- Howie, S.A. * and I. Tromp-van Meerveld (2011) Lagg Forms of Raised Bogs in Coastal British Columbia: Hydrological, Hydrochemical, and Peat Characteristic Gradients, Canadian Geophysical Union meeting, Banff, AB, Canada.
- Howie, S. * and I. Tromp-van Meerveld (2011), Vegetation variation across lagg forms of raised bogs in coastal British Columbia, Western Division of the Canadian Association of Geographers meeting, Burnaby, BC, Canada.
- Huxter, E.H. * and I. Tromp-van Meerveld (2011) Streamflow Characteristics in the Southern Okanagan, PUB Workshop on Intermittent Streams, Drumheller, AB, Canada.
- Spencer S.A. * and I. Tromp-van Meerveld (2011) Stemflow and Preferential Flow Paths in a Mature Forest in Coastal British Columbia, Canadian Geophysical Union meeting, Banff, AB, Canada.
- Spencer S.A. * and I. Tromp-van Meerveld (2011), Stemflow in a mature coastal British Columbia forest, Western Division of the Canadian Association of Geographers meeting, Burnaby, BC, Canada.
- Shrimmer, J. * and I. Tromp-van Meerveld (2011) The influence of discharge on hyporheic exchange in a small urban stream, Canadian Geophysical Union meeting, Banff, AB, Canada.
- Tromp-van Meerveld, H.J., D. Penna, H. McMillan, and A.L. James (2010) Comparison of the relationships between antecedent wetness indices and runoff response for four small experimental catchments, Canadian Meteorological and Oceanographic Society/Canadian Geophysical Union meeting, Ottawa, ON, Canada.
- Aasen, H. *, N. Hedley, and I. Tromp-van Meerveld (2010) Connecting Expert Field Research With Conceptual Learning: A User-driven 3D Geovisualization Interface to Explore Temporal and Spatial Properties of Transient Groundwater Responses, 3rd ISDE Digital Earth Summit, Nessebar, Bulgaria.
- Haught, D.R. * and I. Tromp-van Meerveld (2010) Spatial variation in water table responses across a hillslope, Eos Trans. AGU, 91, Fall Meet. Suppl., Abstract H11G-0898.
- Penna D., H.J. Tromp van-Meerveld, A. Gobbi, and M. Borga (2010), Non-linearity of runoff generation processes in an alpine headwater catchment, Geophysical Research Abstracts, Volume 12, 13437.

Conferences, conference sessions, and workshops organized

- *European Geosciences Union, General Assembly 2014, Vienna, Austria, April 2014*
(together with D. Penna and L. Hopp)
Session HS 2.3 (oral and poster): Understanding catchment and hillslope responses: from changing states and non-linearities to emergent behaviours
- *European Geosciences Union, General Assembly 2013, Vienna, Austria, April 2013*
(together with D. Penna and L. Hopp)
Session HS 2.10 (oral and poster): Understanding catchment response: from changing states to changing behaviours
- *Western Division of the Canadian Association of Geographers annual meeting, Burnaby, BC, March 10-12, 2011* (together with V.A. Crooks)
- *Zero Flow: A PUB (Predictions in Ungauged Basins) Workshop on Intermittent Streams, Drumheller, AB, February 23-25, 2011* (together with 5 others)
- *Canadian Meteorological and Oceanographic Society/Canadian Geophysical Union meeting, Ottawa, June 2010*
Session: Classification, modeling, and inter-comparison studies of environmental controls on catchment response (together with A.L. James)
- *Canadian Geophysical Union/American Geophysical Union Meeting, Toronto, May 2009*
Session H11C: Hydrogeophysics: State of the Science I (together with J. van der Kruk)
Session H13B: Advances in Modeling of Hydrologic Systems III Posters (together with A.L. James)
Session H74A: Controls on Hydrologic Processes across Scales (together with A.L. James)
- *Dialogues on Drinking Water Quality, Bamfield and Anacla BC, July 2009*
Four MITACS sponsored workshops/community dialogues on drinking water quality and health in Anacla and Bamfield, BC, 29-31 July, 2009 (together with H. Castleden and V.A. Crooks)

Service (2010-present)

Editorial board: Hydrology and Earth System Sciences
Editor special issue: Canadian Water Resources Journal
Journal reviewer: Hydrological Processes, Water Resources Research, Hydrology and Earth System Sciences, Journal of Hydrology, Hydrogeology Journal, Vadoze Zone Journal, Canadian Water Resources Journal, Australian Journal of Soil Science
Proposal reviewer: MITACS Accelerate program
 Natural Science and Engineering Research Council of Canada (NSERC)
 Coordinator EGU Outstanding Student Poster (OSP) Awards Hydrological Sciences Division
 Moderator Experimental Hydrology Wiki

Affiliations

- American Geophysical Union
- European Geosciences Union
- International Association of Hydrological Sciences