

FE 538 Field Hydrology Reading List

One “must-read” paper is bolded for each teaching module. Students should read these papers prior to the field course. Additional readings are provided in PDF format at the the Hillslope and Watershed Hydrology SHAREPOINT website:

<http://watershd.forestry.oregonstate.edu/default.aspx>. Go to the FE 538 Field Course document (listed on the left hand side of webpage). Individual folders are named for each teaching module. A select few of the additional readings are not available as PDFs. We will have a hard copy of these accessible during the week long field course.

Snow Hydrology Module (instructor: Adam Mazurkiewicz)

Berris, S.N., R.D. Harr, (1987), Comparative snow accumulation and melt during rainfall in forested and clear-cut plots in the western Cascades of Oregon., *Water Resour. Res.*, 23(1), 135-142.

Gray, D.H. M., D.H. Male, (1981), Snowcover ablation and runoff, in *Handbook of snow*. Pergamon Press.

Harr, R. D., (1981), Some characteristics and consequences of snowmelt during rainfall in Western Oregon, *J. Hydrol.*, 53, 277-304.

Link, T., D. Marks (1999) Distributed simulation of snowcover mass- and energy-balance in the boreal forest, *Hydrological Processes* 13, 2439-2452.

Marks, D., J. Kimball, D. Tingey, T. Link (1998), The sensitivity of snowmelt processes to climate conditions and forest cover during rain-on-snow: a case study of the 1996 Pacific Northwest flood., *Hydrological Processes*. 12, 1569-1587.

Storck, P., D.P. Lettenmaier, S.M. Bolton (2002), Measurements of snow interception and canopy effects on snow accumulation and melt in a mountainous maritime climate, Oregon, United States., *Water Resour. Res.*, 38(11), 1223.

WS10 Hillslope Module (instructor: Willem van Verseveld)

Beven, K. J. (2001), On hypothesis testing in hydrology, *Hydrol. Process.*, 15, 1655-1657.

Beven, KJ and Kirkby, M J. 1979 A physically based variable contributing area model of basin hydrology *Hydrol. Sci. Bull.*, 24(1),43-69.

Hewlett, J. D., and A. R. Hibbert (1963), Moisture and energy conditions within a sloping soil mass during drainage., *Journal of Geophysical Research*, 68, 1081-1087.

McDonnell, J. J., (1990), A rationale for old water discharge through macropores in a steep, humid catchment., *Water Resour. Res.*, 26(11), 2821-2832.

McGuire, K. J., M. Weiler, and J. J. McDonnell (in review), Integrating tracer experiments with modeling to assess runoff processes and water residence time, *Adv. Water Resour.*

Ranken, D. W., (1974), Hydrologic properties of soil and subsoil on a steep, forested slope, M.S., Oregon State University, Corvallis

Brooks, E., J. Boll, and P.A. McDaniel, 2004, A hillslope-scale experiment to measure lateral saturated hydraulic conductivity, *WRR*, 40, W04208, doi. 10.1029/2003WR002858.

WS10 Stream Module (instructor: Chris Graham)

Freer, McDonnell, Beven, Peters, Burns and Hooper (2002) The role of Bedrock Topography on Subsurface Storm Flow. *WRR* 38.

Genereux, D. P., H. F. Hemond, and P. J. Mulholland. (1993) Spatial and temporal variability in streamflow generation on the west fork of Walker Branch Watershed, *J. Hydrol.*, 142, 137– 166, 1993

Haggerty, Wondzell and Johnson (2002). Power-law residence time distribution in the hyporheic zone of a 2nd-order mountain stream. *Geophysical Research Letters*, 29 (13).

Harr, R. D., (1977) Water flux in soil and subsoil in a steep forested slope, *Journal of Hydrology*, 33, 37–58.

Hinton, M. J., S. L. Schiff, and M. C. English. (1993) Physical-properties governing groundwater-flow in a glacial till catchment, *J. Hydrol.*, 142, 229–249.

Tromp van Meerveld (2006). Threshold Relations in Subsurface Stormflow: 1. A 147 Storm Analysis of the Panola Hillslope. *WRR* 42.

McDonnell. (1997) Comment on “The changing spatial variability of subsurface flow across a hillside”. *Journal of Hydrology (NZ)* 36

Woods R, Rowe L. (1996) The changing spatial variability of subsurface flow across a hillside. *Journal of Hydrology (NZ)* 35

Stream-riparian groundwater Module (instructor: April James)

Anderson, K., S.M. Wondzell, M.N. Gooseff, and R. Haggerty, 2005, Patterns in stream longitudinal profiles and implications for hyporheic flow at the H.J. Andrews Experimental Forest, Oregon, USA, *Hydrol. Process.*, 19, 2931-2949.

Bencala, K.E., 1993, A perspective on stream-catchment connections, *J. N. Am. Benthol. Soc.*, 12(1), 44-47.

Bond, B.J., J.A. Jones, G. Moore, N. Phillips, D. Post and J.J. McDonnell, 2002, The zone of vegetation influence on baseflow revealed by diel patterns of streamflow and vegetation water use in a headwater basin, *Hydrol. Proc.*, 16, 1671-1677.

Harvey, J.W., and Bencala, K.E., 1993, The effect of streambed topography on surface-subsurface water exchange in mountain catchments, *WRR*, 29(1), 89-98.

Kasahara, T. and S. M. Wondzell, 2003, Geomorphic controls on hyporheic exchange flow in mountain streams, *WRR*, 39(9), 1005, doi:10.1029/2002WR001386.

Sear, D.A., Armitage, P.D. and Dawson, F.H., 1999, Groundwater dominated rivers, *Hydrol. Process.* 13, 255-276

Wondzell, S. M. 2006, Effect of morphology and discharge on hyporheic exchange flows in two small streams in the Cascade Mountains of Oregon, USA, *Hydrol. Process.*, 20, 267-87.

WS10 Hillslope Modelling Module (instructor: Nicolas Zegre)

Harr, R. D., (1977), Water flux in soil and subsoil on a steep forested slope, *J. Hydrol.*, 33, 37-58.

Legates, D.R. and G.J. McCabe, Jr. 1999. Evaluating the use of “goodness-of-fit” measures in hydrologic and hydroclimatic model validation. *Wat. Res. Res.* 35 (1). 233-242

McGuire, K. and J. McDonnell. Summary and Analysis of Soil Hydrologic Properties for Watershed 10, H.J. Andrews Experimental Forest. (personal comm.).

Oreskes, N., Shrader-Frechette, K., and K. Belitz, 1994, Verification, validation, and confirmation of numerical models in the earth sciences, *Science*, New Series, vol. 263, no5147, 641-646.

Loague, K., J.E. Vanderkwaak, 2004, Physics-based hydrologic response simulation: platinum bridge, 1958 Edsel, or useful tool, *Hydrol. Process.*, 18, 2949-2956.