Kolloquium
Boden und Wasser

06. November 2014, 16 ct – 18 Uhr
Hörsaal Fahnenbergplatz (Rektoratsgebäude)

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Velocities, celerities, flow and transport – making improvements to hydrological models in the face of data limitations

The difference between velocities and celerities in catchment responses has often been neglected in hydrology but is critical to the consideration of both hydrograph and residence time distributions and improving hydrological models. The difference is important because it implies a scale dependence in the way in which flow and residence times are related, while the distribution of flow velocities including preferential flows that can often be neglected for hydrograph prediction might be critical for reproducing transport processes. McDonnell and Beven (2014) recently reviewed the issues and made a plea for more data sets to be collected that cover both hydrograph and tracer characteristics, while the MIPs model has shown that both flow and transport can be including in a single particle tracking framework (e.g. Davies et al., 2013). The latter was additionally interesting in that dealing directly with velocity distributions resulted in various hypotheses being proposed and (qualitatively) tested in reproducing transport. However, it would be good to move towards more quantitative hypothesis testing that takes more explicit account of the limitations of hydrological data, including the potential for incorporating disinformation into the model testing process.