

REW Closure: what should it look like?

Most applications of the REW concepts have used either simple conceptual or Darcy-Richards based methods for deriving closure fluxes for the water mass balance equations. In both these cases REW elements have been treated as lumped units with no explicit consideration of scale or the effect of the difference between celerities and velocities in the element. This is an oversimplification and it should surely be possible to do better (see Beven, 2012, Ch.9). Here we consider the Multiple Interacting Pathways (MIPs) model as a sub-element parameterisation that includes the effects of preferential flow pathways by allowing a gravity driven velocity distribution of particles representing the water within the REW. The MIPs model has successfully reproduced celerities and velocities, hydrographs and tracers, at the scale of a hillslope plot and small catchment (Davies et al., 2011, 2012). We explore the possibility of using the MIPs formulation to take account of scale effects at the REW scale.