



Drain discharge monitoring to estimate plot scale groundwater recharge

Antoine Di Ciacca (1,2), Bertrand Leterme (1), Diederik Jacques (1), Jan Vanderborght (3,2)

(1) Institute for Environment Health and Safety, Belgian Nuclear Research Centre, Mol, Belgium, (2) Division of Soil and Water Management, KU Leuven, Heverlee, Belgium, (3) Agrosphere Institute, Forschungszentrum Jülich GmbH, Jülich, Germany

Spatially and temporally distributed representation of groundwater recharge is known as an important issue in hydrogeological modelling. Therefore, monitored groundwater recharge data are crucial to parameterize and/or validate groundwater flow models. Generally, river base flow measurements are used for this purpose with the assumption that these catchment-scale spatially aggregated measurements are suitable to assess the internal catchment behaviour. However, the signal of different soil and vegetation types is lost and this limits our ability to validate mechanistic, process-based models used at the plot scale. A suitable alternative in lowland drained areas could lie in monitoring drain discharge. The present poster describes the set-up of such a monitoring device in a ditch drain located in the Kleine Nete catchment (Belgium). To calculate groundwater recharge rate from drain discharge monitoring, some intermediate steps are required. The contributing area has to be delimited and the contribution of recharge water from this area has to be separated from other possible sources (e.g. deeper groundwater flow, run-off). To handle this, some assumptions regarding the features of the plot and some additional measurements have been used.