



Statistical performance evaluation in urban drainage – an example of groundwater infiltration

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ABSTRACT

Inflow and infiltration (I/I) have a number of negative effects on the operation of drainage systems. Measures to reduce I/I are applied in many municipalities. However, the effect is only assessed on rare occasions. While a number of guidelines and studies exist on how to quantify I/I, only little is known about the effect of the measures. To one part this results from limiting the quality assurance to the actual measure, e.g. leak-tightness of rehabilitated sewers. For a second part, this is due to lacking methods to separate the effect from external factors like rainfall or hydrological conditions. This study presents the paired use of a reference catchment and regression analysis to illicit the effect of rehabilitation on groundwater infiltration. Comparing the results of the novel approach to the performance assessment in an ad-hoc manner revealed for the case study a crude overestimation of the effect for the traditional approach. While the regression analysis evaluated the effect to 24%, the traditional approach assesses the performance in the range between 38% and 61% depending on the season during the monitoring.

KEYWORDS

treatment catchment, reference catchment, rehabilitation, performance assessment