



## **Impact of time displaced precipitation estimates for on-line updated models**

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### **ABSTRACT**

When an online runoff model is updated from system measurements the requirements to the precipitation estimates change. Using rain gauge data as precipitation input there will be a displacement between the time where the rain intensity hits the gauge and the time where the rain hits the actual catchment, due to the time it takes for the rain cell to travel from the rain gauge to the catchment. Since this time displacement is not present for system measurements the data assimilation scheme might already have updated the model to include the impact from the particular rain cell when the rain data is forced upon the model, which therefore will end up including the same rain twice in the model run. This paper compares forecast accuracy of updated models when using time displaced rain input to that of rain input with constant biases. This is done using a simple time-area model and historic rain series that are either displaced in time or affected with a bias. The results show that for a 10 minute forecast, time displacements of 5 and 10 minutes compare to biases of 60% and 100%, respectively, independent of the catchments time of concentration.

### **KEYWORDS**

Data assimilation, rainfall runoff, storm movement, uncertainty.