



OpenDA-WFLOW framework for improving hydrologic predictions using distributed hydrologic models

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Data assimilation (DA) holds considerable potential for improving hydrologic predictions (Liu et al., 2012) and increase the potential for early warning and/or smart water management. However, advances in hydrologic DA research have not yet been adequately or timely implemented in operational forecast systems to improve the skill of forecasts for better informed real-world decision making.

The objective of this work is to highlight the development of a generic linkage of the open source OpenDA package and the open source community hydrologic modeling framework Openstreams/WFLOW and its application in operational hydrological forecasting on various spatial scales. The coupling between OpenDA and Openstreams/wflow framework is based on the emerging standard Basic Model Interface (BMI) as advocated by CSDMS using cross-platform webservices (i.e. Apache Thrift) developed by Hut et al. (2016). The potential application of the OpenDA-WFLOW for operational hydrologic forecasting including its integration with Delft-FEWS (used by more than 40 operational forecast centers around the world (Werner et al., 2013)) is demonstrated by the presented case studies. We will also highlight the possibility to give real-time insight into the working of the DA methods applied for supporting the forecaster as mentioned as one of the burning issues by Liu et al., (2012).