Operational data assimilation for improving hydrologic, hydrodynamic, and water quality forecasting using open tools

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Data assimilation holds considerable potential for improving water quantity (hydrologic/ hydraulic) and water quality predictions. However, advances in hydrologic DA research have not been adequately or timely implemented in operational forecast systems to improve the skill of forecasts for better informed real-world decision making.

In contrast to most operational weather (related) forecast centers operational hydrologic forecast centers often are unable to support & maintain or lack the required computing support to implement such intensive DA calculations. Moreover, it remains difficult to achieve coupling of models, data, DA techniques and exploitation of high performance computing solutions in the operational forecasting process. Several potential components of a future solution have been or are being developed, one of those being the open source project OpenDA (www.openda.org).

The objective of this poster is to highlight the development of OpenDA for operational forecasting and its integration with Delft-FEWS that is being used by more than 40 operational forecast centres around the world. Several applications of OpenDA using open source (and available) model codes from various fields will be highlighted.