



Operational data assimilation and forecasting with a Hydrodynamic and Water Quality model (EFDC) in Delft-FEWS using OpenDA: example for water quality forecasting for the Han River.

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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 (Liu et al., 2012).

In 2010, an open source initiative for DA (OpenDA, www.openda.org/joomla/index.php) was launched in 2010 to facilitate the generic implementation of various DA algorithms as well as calibration algorithms. This contribution highlights the application of OpenDA within the Delft-FEWS forecast platform (Werner et al., 2012). As an example, the EFDC water quality model, implemented in FEWS NIER, used for water quality forecasts for the four major rivers in Korea is wrapped in OpenDA and used for operational forecasting using data assimilation of available measurements. The coupling of EFDC with OpenDA (using in-memory-exchange of data) and the setup of OpenDA-EFDC in Delft-FEWS is highlighted. Results of applying and displaying data assimilation results within the Delft-FEWS Platform are shown.

Liu et al., 2012. Advancing data assimilation in operational hydrologic forecasting: progresses, challenges, and emerging opportunities, *Hydrol. Earth Syst. Sci.*, 16, 3863–3887, doi:10.5194/hess-16-3863-2012.

Werner et al., 2012. The Delft-FEWS flow forecasting system, *Environ. Model. Softw.*, 40, 65-77, doi:10.1016/j.envsoft.2012.07.01