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Session abstract

<u>Title:</u> Data assimilation in hydraulics, hydrology and water resources

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Many mathematical models of water systems are far from perfect. Errors may be introduced by poorly known parameters in the model or by uncertainties associated with the input and the boundary conditions. To overcome these problems and to improve the model data assimilation techniques can be employed to incorporate measurements into the model simulation. Data assimilation techniques can be used for model calibration but are also able to combine measurements with model results for real-time prediction problems. With the development of complex numerical models for many applications in hydraulics, hydrology and water resources, data assimilation has become an important component of numerical modeling systems. The complexity, nonlinearity and high dimensionality of these models make the application of data assimilation very challenging. The aim of this session is to gather and discuss recent theoretical and practical progress relevant to data assimilation and inverse problems. Topics of interest include, but are not limited to:
-Modeling uncertainty
-Monte Carlo simulation
-Ensemble Kalman filtering
-Particle filtering
-Variational data assimilation
-Model calibration
-Applications in hydraulics, hydrology and water resources