



From simulation modelling to real-time operational forecasting of regulated river systems: A case study on the Condamine-Balonne catchment, Australia

Julien Lerat (1), Ben Gouweleeuw (1), Peter Thew (2), and Gavin Walker (2)

(1) CSIRO, Land and Water, Canberra, Australia (julien.lerat@csiro.au), (2) CSIRO Information & Communication Technologies Centre, Canberra, Australia

The Condamine-Balonne catchment, located in Southern Queensland, Australia, is being used as a case-study to evaluate new techniques for the modelling of regulated river systems in Australia. When modelling such catchments, the models have to implement long term operating rules to manage complex ensembles of reservoirs and water allocation entitlements. Consequently, they are usually run in simulation mode (or scenarios) over long historical records with little emphasis on short-term dynamics.

We present how this type of simulation models can be linked within an operational forecasting system with the following features:

1. The original simulation software was used. This approach preserved the description of the operating rules that were built in the original model.
2. The model time step was reduced from daily to 6 hourly,
3. A variational updating routine was introduced to correct the forecasts based on recent measurements. An original approach was adopted to restrict the calls to the simulation model and minimize the total calculation time.