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**Development and Application of a Large Scale River System Model for National Water Accounting
in Australia**

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Abstract:

Existing global and continental scale river models, mainly designed for integrating with global climate models, are of very coarse spatial resolutions and lack many important hydrological processes, such as overbank flow, irrigation diversion, groundwater seepage/recharge, which operate at a much finer resolution. Thus, these models are not suitable for producing water accounts, which have become increasingly important for water resources planning and management at regional and national scales. A continental scale river system model called Australian Water Resource Assessment River System model (AWRA-R) has been developed and implemented for national water accounting in Australia using a node-link architecture. The model includes major hydrological processes, anthropogenic water utilisation and storage routing that influence the streamflow in both regulated and unregulated river systems. Two key components of the model are an irrigation model to compute water diversion for irrigation use and associated fluxes and stores

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