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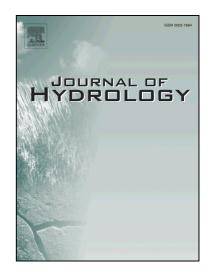
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Development and Application of a Large Scale River System Model for National Water Accounting

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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