

## **MACROSCALE HYDROLOGIC MODELING**

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Research in WCRP's GEWEX program requires the development and application of macroscale hydrological models, which can address the basic questions related to the terrestrial water and energy budgets at continental to global scales. Over the last decade, the author has been involved in research to develop, with collaborators at the University of Washington, VIC, a process-resolving, macroscale hydrologic model. The development has followed a strategy of (i) utilizing data from small-scale climate studies (e.g. FIFE, BOREAS, SGP'97, etc.) to develop basic model parameterizations, (ii) apply the model at medium spatial scales to understand scaling issues and to develop remote sensing parameterizations, and (iii) apply the model at continental to global scales for budget studies and related hydrological research. The talk will discuss recent applications which include a 17-year, daily global water budget analysis, analyses of high latitude Arctic hydrology, use within a Land Data Assimilation System for assimilation in weather prediction models, and coupling to remote sensing observations.