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Evaluation of a WRF simulation over South Eastern Australia at multiple time scales.

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The climate of the Murray-Darling Basin (MDB) has been simulated using the Weather Research and Forecasting (WRF) model. WRF was implemented using a 10km horizontal grid and integrated for 24 years from 1985 through 2008. The model simulated climate was evaluated against gridded precipitation and temperature observations from the Australian Water Availability Project (AWAP) and found to perform adequately at time scales ranging from daily to multi-year. WRF is able to reproduce daily and seasonal statistics well. It is able to capture the recent drought well for the basin except for an overestimation of the negative anomaly in the northernmost part of the domain. Examining ENSO cycles showed WRF has good skill at capturing the correct spatial distribution of precipitation anomalies associated with El Nino/La Nina events during this 24 year period. This high resolution simulation allows investigation of land – atmosphere coupling within the basin including identification of the dominant water vapour source regions for events and seasons, and quantification of the precipitation recycling.