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RCM hydrological cycles and projected changes in climate over southern Africa

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Two regional climate models (RCMs) are used to downscale 10 years of control and 10 years of future (2070-2079) southern African climate, as simulated by the HadAM3P general circulation model forced with the A2 SRES emissions scenario. Changes in early and late summer season total rainfall, rain days and surface temperature are presented for the projected future climate. The two RCMs indicate broadly consistent changes over the region as a whole, with changes in rain days statistically significant over larger areas than changes in total rainfall. However, time- and location- dependent differences are apparent, especially in the simulated magnitude of change, due to different representations of each model's internal physics and local hydrological cycle. The results suggest that for high resolution impact assessment, climate change projections using multiple RCMs should preferably be employed