

Utilising CORDEX projections to assess runoff changes in Victoria

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Abstract: Current and previous generations of global climate projections suggest likely declines in future runoff in Victoria, with large uncertainty in the magnitude of changes (Zheng *et al* 2024). Coupled Model Intercomparison Project phase 5 (CMIP5) based global and regional datasets show that the uncertainty in rainfall projections within and across the different climate projection datasets is the main contributor to the large range in future projections of hydrological metrics in the region (Chiew *et al* 2022).

In this study, we reassess runoff projections for Victoria using the new dynamically downscaled climate projections available from the CMIP6 based CORDEX Australasia dataset. The CORDEX-CMIP6 dataset contains more ensemble members than the previous generation, generated using four regional model configurations to form a sparse matrix of projections (Grose *et al* 2023). Using rainfall-runoff models, we model runoff for catchments in Victoria using the traditional empirical scaling approach and bias-corrected precipitation from the regional models. The study aims to provide an improved understanding and interpretation of runoff projections developed from different hydrological modelling approaches informed by different climate change projection products, to guide development of next generation hydroclimate projections.

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