Using reconstructed streamflow time-series to develop operational scenarios for near-future water management in Tasmania

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Water resources management requires balancing a wide range of competing social, environmental, and economic demands. The development of realistic management scenarios often depends on limited data with multiple uncertainties. In Tasmania, southeastern Australia, the lack of long-term streamflow time-series reduces confidence in decision-making for water resources management. The longest time-series of measured river flow covers ∼70 years, but most monitoring sites have only been operational for <40 years. Here we present a preliminary streamflow reconstruction from a tree-ring wood properties chronology that extends the streamflow record for the second largest catchment in Tasmania by ∼500 years. We then consider several analytical approaches to incorporating this reconstruction into water management tools and processes. In particular, we focus on characterising the uncertainties in the streamflow reconstruction to provide a context for droughts and floods in the observational record and ensure adequate coverage of potential future variability in our water management scenarios.