

Future climate projections of severe convective wind events from a convection-permitting regional climate model (BARPA)

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Recent advances in regional climate modelling include finer-scale simulations that can partially resolve deep convective processes. These convection-permitting models can help provide insight on how regional distributions of hazardous convection could evolve in possible future climates. However, the use of these models for representing climatologies of severe wind gusts related to convection has not been explored in detail, including for Australian regional climate. As a result, future projections of this hazard have mostly been estimated using changes in the large-scale environment from global climate models, with significant uncertainties related to this method. Here, we present findings on the ability of a regional, convection-permitting climate model (BARPA) in representing severe wind gusts associated with convection in southeastern Australia. We also examine future changes in the frequency and intensity of severe convective wind events as represented by this convection-permitting model, and compare these with changes in the large-scale environment from the global climate model that forces these simulations.