



Regional climate impacts of the Southern Annular Mode

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The Southern Annular Mode (SAM) is known to be closely coupled with many aspects of Antarctic climate from the surface to the stratosphere. However, to date there has been limited work examining the effects of the SAM on mid-latitude climate of the Southern Hemisphere. In this study we use station observations of temperature and rainfall to identify the influence of the SAM on land regions over the whole of the Southern Hemisphere. We demonstrate that the positive phase of the SAM is associated with a significant cooling over much of Australia, and a significant warming over Argentina, Tasmania and the south of New Zealand. The positive phase of the SAM is also associated with anomalously dry conditions over southern South America, New Zealand and Tasmania, due to the southward shift of the stormtrack; and to anomalously wet conditions over much of Australia and South Africa. These influences on populated regions of the Southern Hemisphere may have implications for weather and seasonal forecasting, and for future climate change.