



Australian Centre for Sustainable Catchments
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Australian Centre for
Sustainable Catchments

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Research Title

Roadtest; an intercomparison of equatorial climate indices in their performance as a predictor of Australian rainfall

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Description: From its invention, the Southern Oscillation Index (SOI) (Walker & Bliss 1937) has evolved as a simple, yet elegant predictor of weather in the Pacific Basin. A great leap forward occurred in 1996 (Stone et al. 1996) linking the SOI to Australian precipitation using non parametric statistical methods. The Stone et al. (1996) method is a practical, reliable medium term (up to five months ahead) forecasting tool that is relatively easily understood by farmers and decision makers alike.

Subsequent to the 1980s, remote sensing applications have blossomed explosively (Sarewitz & Pielke Jr 1999) closely followed by a plethora of climate indices incorporating them. Apart from Baird et al. (2011) there are a dearth of studies that try to isolate an index or groups of indices that outperform others in terms of Australian precipitation and even this work is somewhat limited in its scope. My study is aimed at utilising higher performing climate indices to fill in the gaps of our understanding in this area.

The purpose of this study is to compare the ability of the currently known 13 equatorial climate indices, either singly or in combination, for the prediction of Australian rainfall. The study uses contemporary 0.5⁰ gridded resolution maps of Australian precipitation (Jones et al. 2009) 1886-2010 which are compared to various climate indices (NOAA-ESRL Physical Sciences Division 2011). Methodology is by a Pearson correlation coefficient test detrended using a spectral windowing technique. Various monthly, seasonal and term climatologies are also applied to isolate intra and interannual variability associated with major Pacific climate modes.

References:

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