Australian Government
Bureau of Meteorology

Verifying the accuracy of seasonal climate outlooks – an update

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Seasonal rainfall outlooks have been issued by the Bureau of Meteorology since the late 1980s, whilst minimum temperature and maximum temperature outlooks have been issued from 2000. For almost the entire period, the outlooks have been represented by a map of Australia with the probability of the parameter predicted (total rainfall, mean minimum temperature and mean maximum temperature) exceeding the median.

At the Fifth International Verification Methods Workshop, which was held in Melbourne in December 2011, the present authors delivered a paper verifying the accuracy of these outlooks (Stern and Pollock, 2011). The current paper utilises the methodology applied then to provide an update of that work. The verification methodology for each State, season and prediction element, is as follows:

The outlook is set equal to +1 should there be a region with >60% probability of exceeding the median of the prediction element and no region with <40% probability of exceeding the median of the prediction element.

The outlook is set equal to -1 should there be a region with <40% probability of exceeding the median of the prediction element and no region with >60% probability of exceeding the median of the prediction element.

All other outlooks are set equal to 0.

The observed value is set equal to the observed area averaged anomaly.

The correlation coefficient between the outlook and the observations is calculated for each State, season and prediction element. The correlation coefficients calculated on the data derived as described above are positive for most States, seasons and prediction elements, especially those for spring and summer rainfall outlooks. From the correlation coefficients, the % variance explained by the forecasts is determined.

Figure 1 *Overall skill displayed by the rainfall, maximum temperature and minimum temperature seasonal climate outlooks: positive for most states and seasons, especially for the Northern Territory, Queensland, Western Australia and New South Wales.*

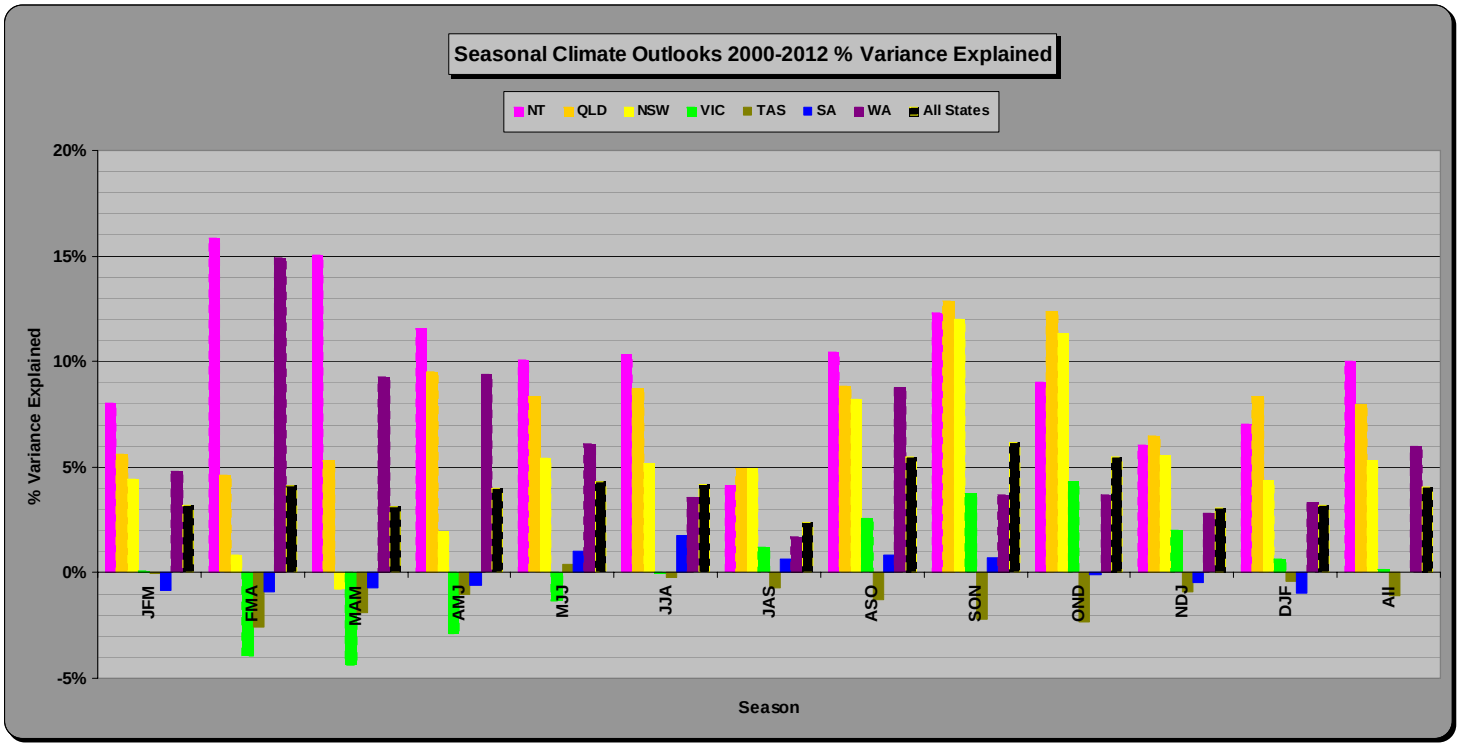

Figure 2 *Skill displayed by the rainfall seasonal climate outlooks: especially positive in the second half of the calendar year for the Northern Territory, Queensland, Western Australia, New South Wales and Victoria. Little skill during the first half of the calendar year.*

Figure 3 *Skill displayed by the maximum temperature seasonal climate outlooks: positive for most seasons (the exception being mid-year); strongest skill shown by maximum temperature outlooks for the Northern Territory and Queensland in the first half of the calendar year.*

Figure 4 *Skill displayed by the minimum temperature seasonal climate outlooks: especially positive in the first half of the calendar year for the Northern Territory and Western Australia. Little skill during spring.*

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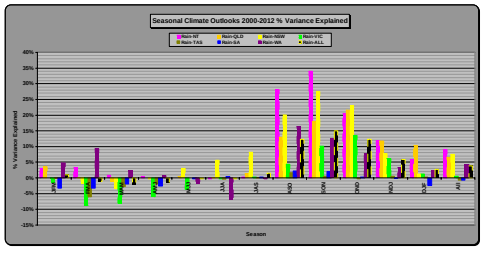

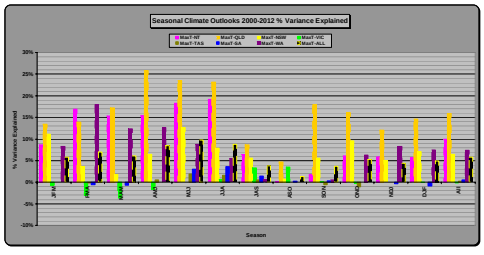

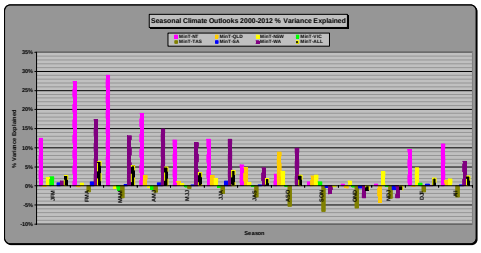

Reference: Stern H and Pollock J, 2011: Verifying the Accuracy of Two Decades of Seasonal Climate Outlooks. 5th International Verification Methods Workshop, 1 - 7 December 2011, Melbourne, Australia (go to http://cawcr.gov.au/events/verif2011/ppt/H_Stern.pdf for a copy of the 2011 presentation).