

Making sense of seasonal outlooks

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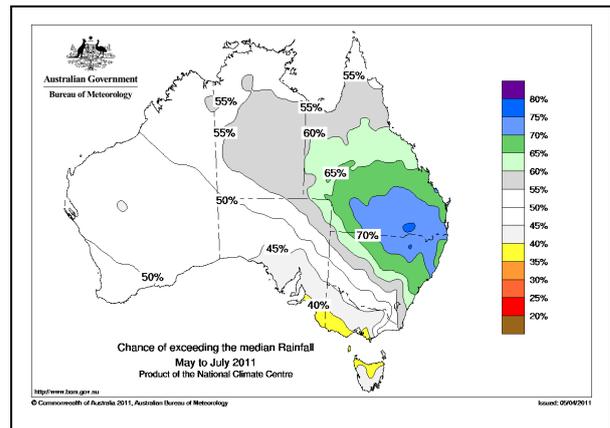
Most farmers regularly use short term weather forecasts to make operational decisions such as timing of spray applications or sowing. Weather forecasts up to two weeks in advance are now readily available from a number of sources including the Australian Bureau of Meteorology (BoM). Weather forecasts are presented in a deterministic manner i.e. you will receive 10mm of rainfall on Monday afternoon. Due to the inherent chaos of the global climatic system, forecasts beyond 14 days are generally less certain and are presented in terms of chance of occurrence or probability i.e. 65% chance of exceeding median rainfall values for the next three months. Uncertainty levels always increase over longer forecast periods.

In making longer term seasonal rainfall forecasts up to 3 months ahead, climatologists use observed changes in ocean temperatures and atmospheric circulation patterns as a guide to the potential of water vapour being present in the atmosphere at a level that could produce useful rain into the future.

The uncertainty of trigger systems operating to make any moisture present condense and fall on a specific area gives a level of risk to this type of forecast, hence the use of probabilities.

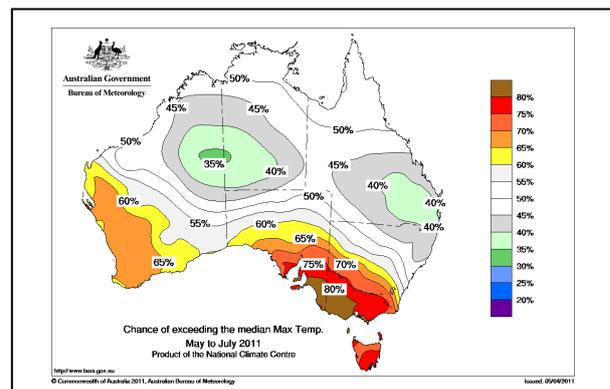
Bureau of Meteorology seasonal outlook

Since the 1980's the BoM have been issuing regular monthly seasonal rainfall and temperature outlooks. These outlooks, developed by the National Climate Centre, are based on statistical correlations using the historic record for sea surface temperature in the Pacific and Indian Oceans, and historic temperature and rainfall records. They are most commonly presented as a % chance of exceeding the historic median for a range of values for a specific period. Median rainfall refers to the point at which half the time rain has been greater than the value and half the time it has been less.

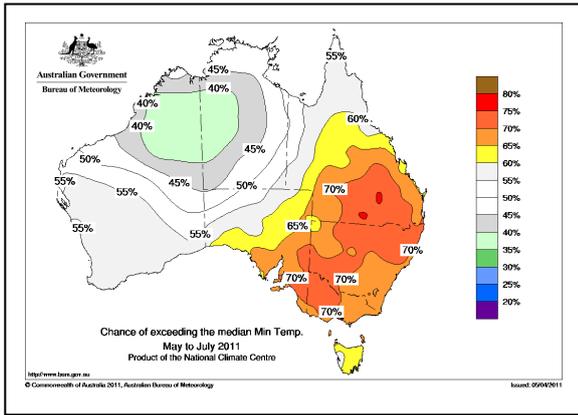


This image is the rainfall outlook for May to July 2011. Shadings indicate chance of exceeding historic median values. Cooler colours indicate higher probabilities and warmer colours lower probabilities.

Rainfall forecasts are available at http://www.bom.gov.au/climate/ahead/rain_ahead.shtml



This image is the maximum temperature outlook for May to July 2011. Shadings indicate chance of exceeding historic median values. Warmer colours indicate higher probabilities and cooler colours lower probabilities



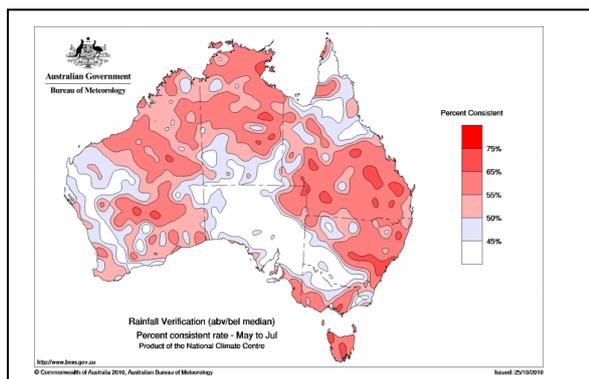
This image is the minimum temperature outlook for May to July 2011. Shadings indicate chance of exceeding historic median values. Warmer colours indicate higher probabilities and cooler colours lower probabilities

Temperature forecasts are available at

http://www.bom.gov.au/climate/ahead/temps_ahead.shtml

Forecast skill

When using any climate forecast product it is important to assess the historical skill of the model from which the product is derived to make accurate forecasts at that time of year. Due to changes in atmospheric circulation, the autumn period is the most difficult time to make forecasts and the period with the least skill. Farmers can assess the skill of each BoM seasonal outlook by viewing the confidence/verification maps attached to each forecast period.



This image shows confidence levels for the May – June period. Pink indicates higher historic skill levels, white no skill.

Verification maps are available for each 3 monthly period from <http://www.bom.gov.au/jsp/sco/verif/>

By reviewing the associated confidence/verification maps users can weight the outlook and make

better risk management decisions. Users living in areas shaded as red and dark pink can place more faith in the forecast than those areas shaded grey or white.

As the oceans and atmosphere continue to warm through the enhancement of the greenhouse effect, previously established correlations between ocean temperatures, atmospheric circulation and Australia climatic patterns are slowly eroding the usefulness of statistical climate forecast products. It is envisaged that the next generation of dynamic seasonal forecast products will overcome this issue.

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (May 2011). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of NSW Department of Primary Industries or the user's independent adviser.
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