



Australian Government  
Australian Bureau of Agricultural and  
Resource Economics and Sciences

## Australian climate and agricultural monthly update

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April 2011



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## Key issues

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March 2011 was Australia's wettest March on record. The rainfall continues to provide favourable conditions for summer crops and pasture production across most of Australia, with the exception of south-west Western Australia, where rainfall deficiencies remain. Well above average yields are expected for grain sorghum, and the cotton crop is expected to be Australia's largest on record, both despite losses due to flooding earlier in the season. Livestock prices and demand remain high, reflecting the excellent livestock production conditions across the eastern states and the consequent move by producers to rebuild flocks and herds. The seasonal outlook favours wetter conditions over large parts of eastern Australia for the April to June 2011 period.

## Summary

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March 2011 was Australia's wettest March on record, with the exception of parts of Western Australia, particularly the south-west region, where rainfall deficiencies remain. March 2011 inflows to the Murray–Darling Basin remained above average.

Mean maximum temperatures during March 2011 were below average across most of the country, with the exception of parts of south-west Western Australia. Minimum temperatures were generally average across much of the country.

March 2011 rainfall provided favourable conditions for summer crops and pasture production in northern and eastern Australia. Well above average yields are expected for grain sorghum, and the cotton crop is expected to be Australia's largest on record, both despite losses due to flooding earlier in the season. Wetter conditions have increased the prevalence of pest and disease risks in many areas.

Livestock prices and demand remained high throughout March 2011, with producers looking to buy new stock and hold onto existing stock to take advantage of the favourable seasonal conditions.

Key climate indicators in the Pacific Ocean currently indicate a weakening of the current La Niña event. Wetter conditions are favoured across much of eastern Australia over the April to June 2011 period, which may increase the risk of disease to summer crops but will provide a favourable outlook for the winter cropping season in many areas. Rain is needed in Western Australia during April and May 2011 to improve the outlook for the 2011–12 winter cropping season.

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# 1. Climate

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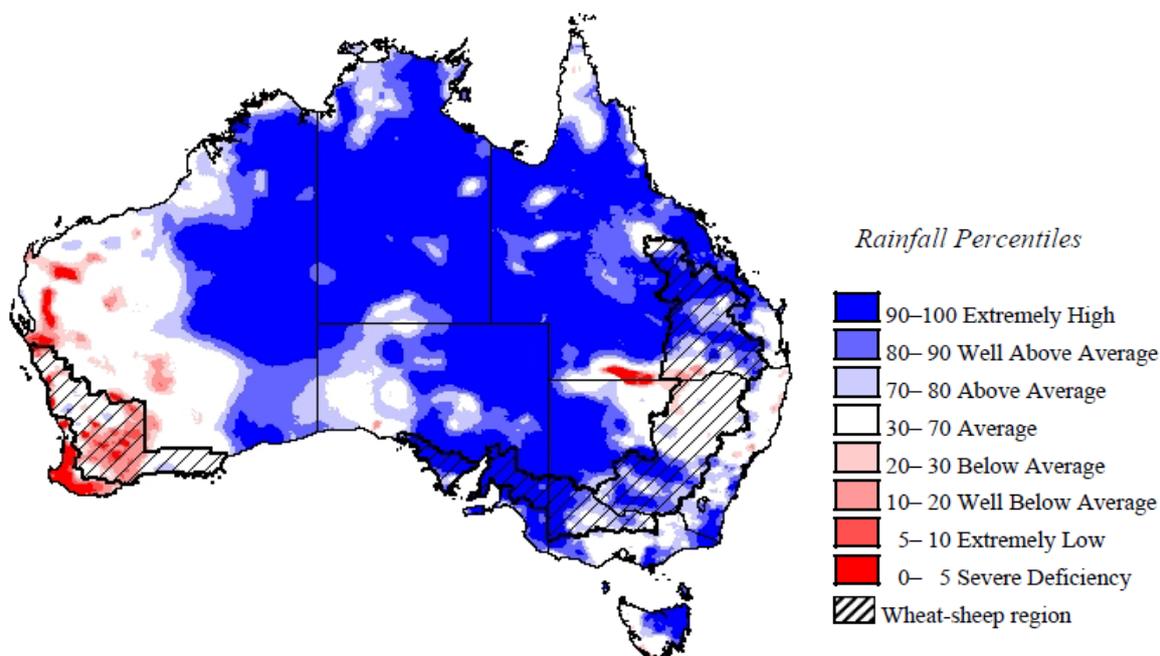
## 1.1 Rainfall

### Rainfall over the past month (March 2011)

March 2011 was Australia's wettest March on record. Above average rainfall was recorded across most of the country. The notable exception was south-west Western Australia, where there are severe rainfall deficiencies for March 2011 and where significant longer term rainfall deficiencies remain.

The tropical north recorded the highest rainfall totals, with tropical lows causing several heavy rainfall events in south-west Queensland, the Kimberley and southern Gulf coast areas. A series of strong low pressure troughs also caused substantial rainfall in southern parts of Australia, with several stations breaking records.

With the exception of south-western areas of Western Australia, March rainfall generally provided favourable conditions for pasture production and summer crops across most of the country.



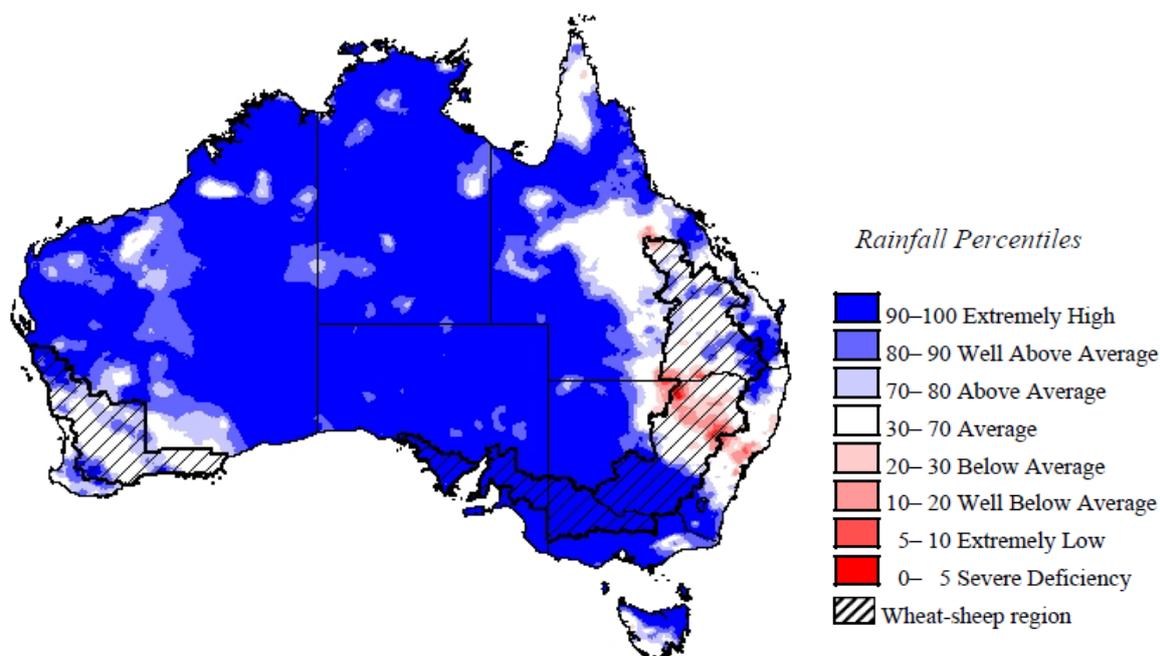
**Rainfall percentiles (March 2011)**

## Rainfall over the past three months (January 2011 to March 2011)

The January to March 2011 period was wet across most of Australia, with extremely high rainfall recorded across large parts of the country.

While rainfall analysis for January to March 2011 shows that rainfall deficiencies are absent in the south-west of Western Australia for that period, there were deficiencies for the month of March and significant long-term deficiencies remain for the 15 months ending March 2011.

Some rainfall deficiencies in summer cropping areas of northern New South Wales may reduce production opportunities for some producers.



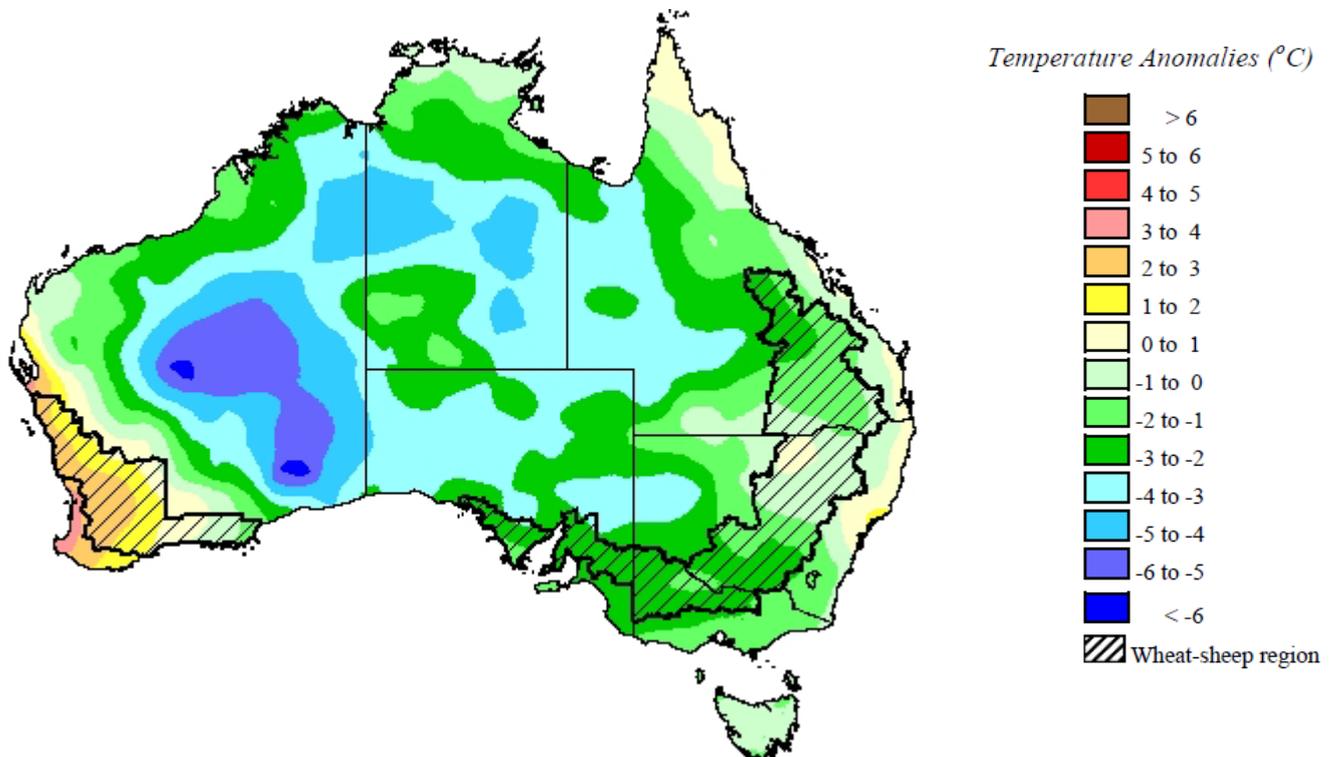
### Rainfall percentiles (January 2011 to March 2011)

Spatial rainfall analyses are based on historical monthly rainfall data provided by the Bureau of Meteorology. For further information on rainfall data and the interpretation of percentile analyses go to [www.bom.gov.au/climate/austmaps/about-rain-maps.shtml](http://www.bom.gov.au/climate/austmaps/about-rain-maps.shtml).

## 1.2 Temperature

### Mean maximum temperature

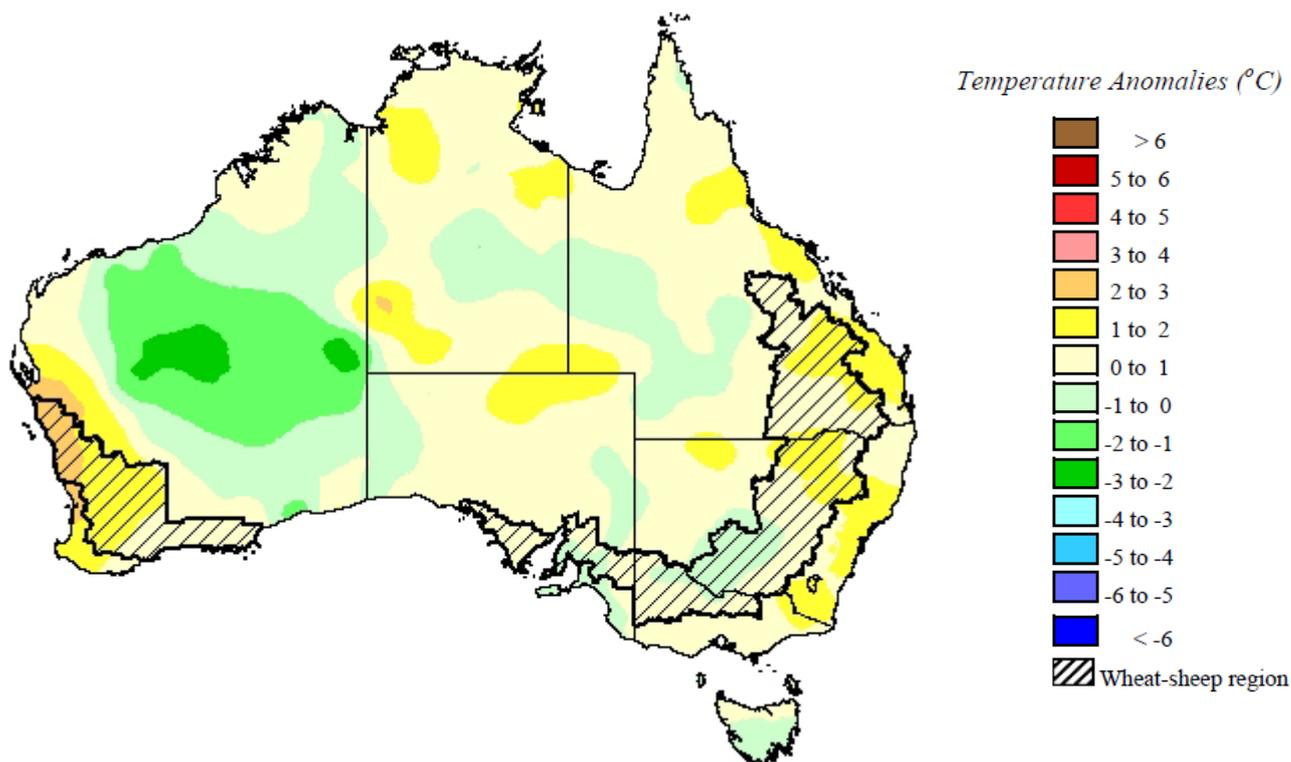
The mean maximum temperature during March 2011 was 1 to 5° C below the long-term March average across most of Australia. Parts of south-western Western Australia were up to 3° C warmer than long-term March average.



Monthly mean maximum temperature anomalies (March 2011)

## Mean minimum temperature

Mean minimum temperatures for much of Australia during March 2011 were mostly average. Minimum temperatures in central Western Australia were up to 2° C cooler than the long-term March average.



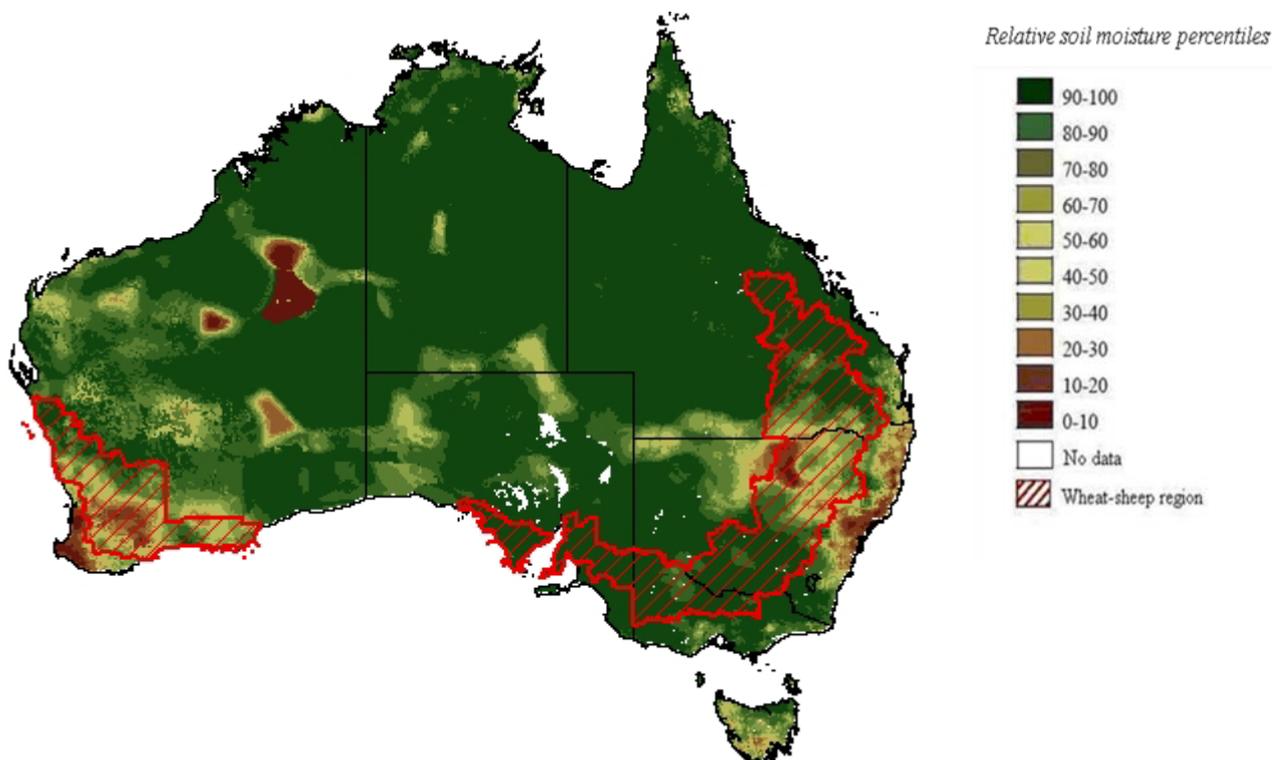
### Monthly mean minimum temperature anomalies (March 2011)

Spatial temperature analyses are based on historical monthly temperature data provided by the Bureau of Meteorology. These temperature anomaly maps show the departure of the maximum and the minimum temperature from the long-term average with respect to the reference period 1961 to 1990. For further information on temperature anomalies go to [www.bom.gov.au/climate/austmaps/](http://www.bom.gov.au/climate/austmaps/).

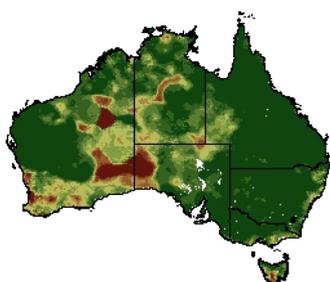
## 1.3 Relative soil moisture

### Upper layer soil moisture

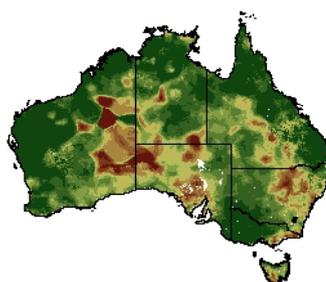
Relative soil moisture in the upper layer of the soil profile was above the 90<sup>th</sup> percentile across most of Australia, reflecting the extremely wet conditions during March 2011. Upper layer relative soil moisture has increased since January 2011, most notably in south-east Australia and central Western Australia. Soil moisture was below average in parts of the south-west and north-west of Western Australia and in parts of eastern coastal areas of New South Wales.



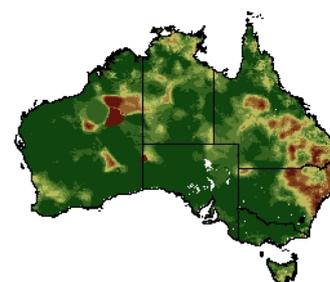
Upper layer soil moisture percentiles  
(March 2011)



December 2010



January 2011

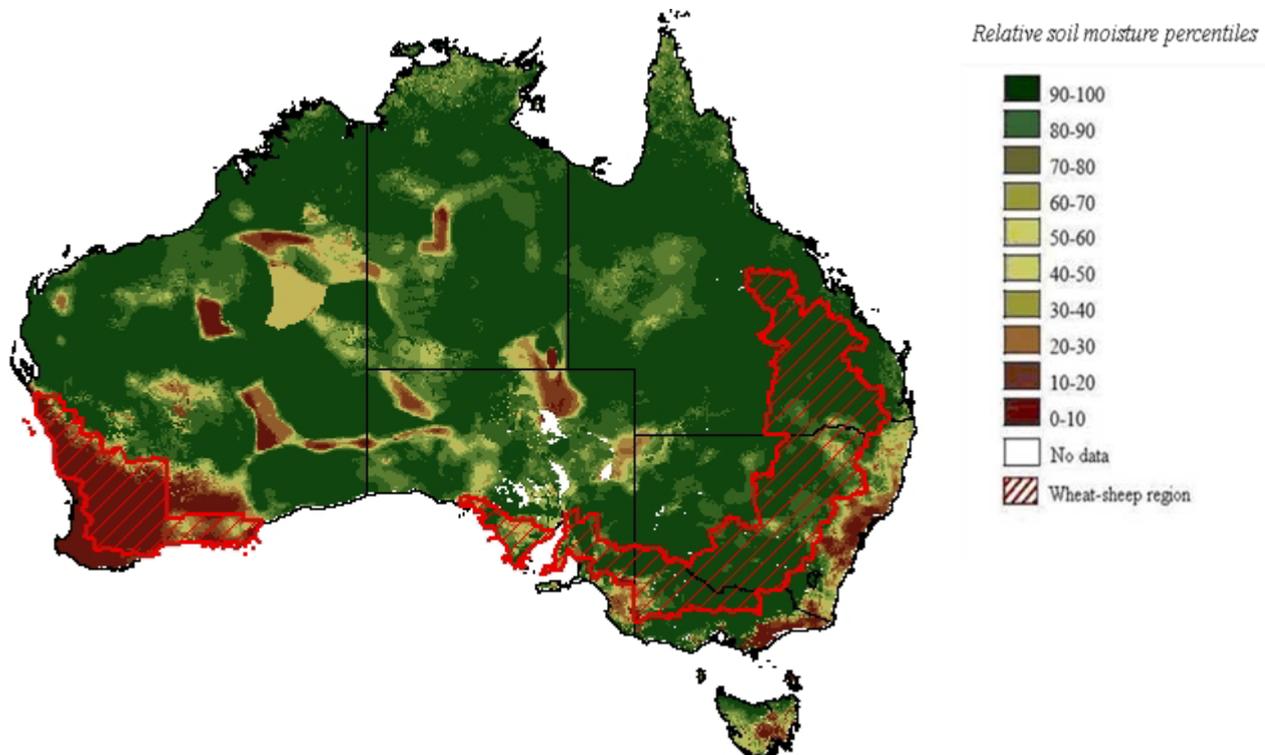


February 2011

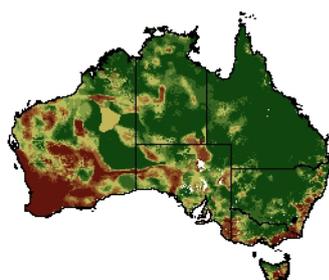
The bulk of plant roots occur in the top 0.3 metres of the soil profile and soil moisture in the upper layer of the soil profile (0.2 metres) is the most appropriate indication of the availability of water, particularly for germinating plants.

## Lower layer soil moisture

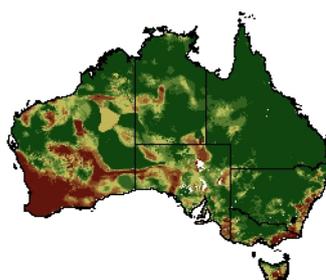
Relative soil moisture levels in the lower layer of the soil profile were above average during March 2011 in most parts of Australia. However, levels remain below average in areas of southern Western Australia and eastern coastal part of New South Wales. Relative lower layer soil moisture has increased slightly since December 2010 across the country. Lower layer soil moisture is a larger, deeper store that is slower to respond to rainfall and tends to reflect accumulated events over seasonal and longer time scales.



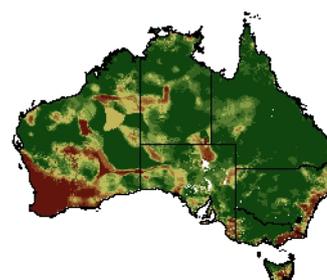
Lower layer soil moisture percentiles  
(March 2011)



December 2010



January 2011



February 2011

The maps in section 1.3 show the relative levels of modelled upper (0 to ~0.2 metres) soil moisture and lower (~0.2 to ~1.5 metres) soil moisture at the end of February 2011 and the three preceding months. This data comes from a collaborative project commenced between the Bureau of Meteorology, CSIRO and the former Bureau of Rural Sciences to develop estimates of soil moisture and other components of the water balance at high resolution across Australia. These maps show soil moisture estimates relative to the long-term average with respect to the reference period 1961 to 1990.

For further information on relative soil moisture go to [www.daff.gov.au/brs/climate-impact/awap](http://www.daff.gov.au/brs/climate-impact/awap)

## 1.4 Climate outlook

### El Niño Southern Oscillation

The current La Niña event has weakened following recent warming in the Pacific Ocean. The event is expected to weaken further over the coming months, with a return to neutral conditions likely by winter.

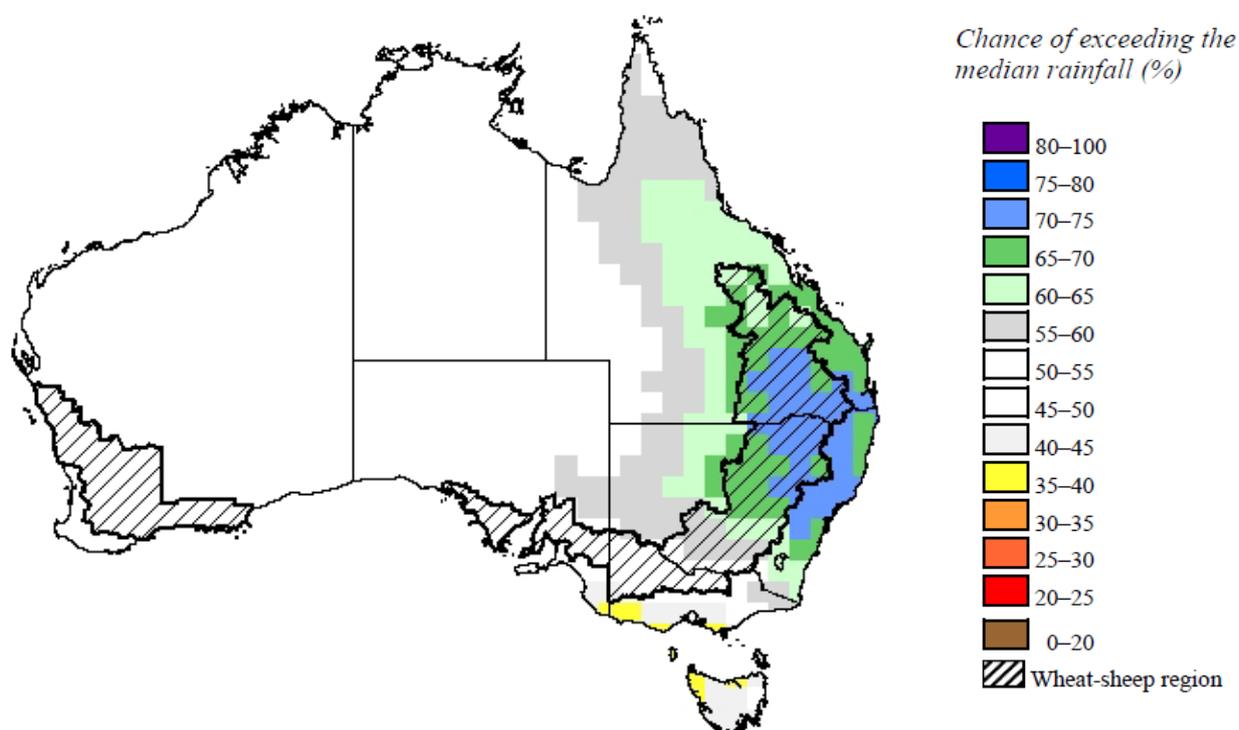
In contrast to the ocean temperatures, atmospheric indicators such as cloudiness, trade winds and the Southern Oscillation Index have shown little trend and remain consistent with a well-developed La Niña event. These indicators are expected to return to neutral over the coming months in response to changes in the ocean.

During La Niña events, tropical cyclone numbers are higher than normal during the November to April period.

For further information on the Bureau of Meteorology interpretation of the El Niño–Southern Oscillation, go to [www.bom.gov.au/climate/enso/](http://www.bom.gov.au/climate/enso/).

### Rainfall outlook

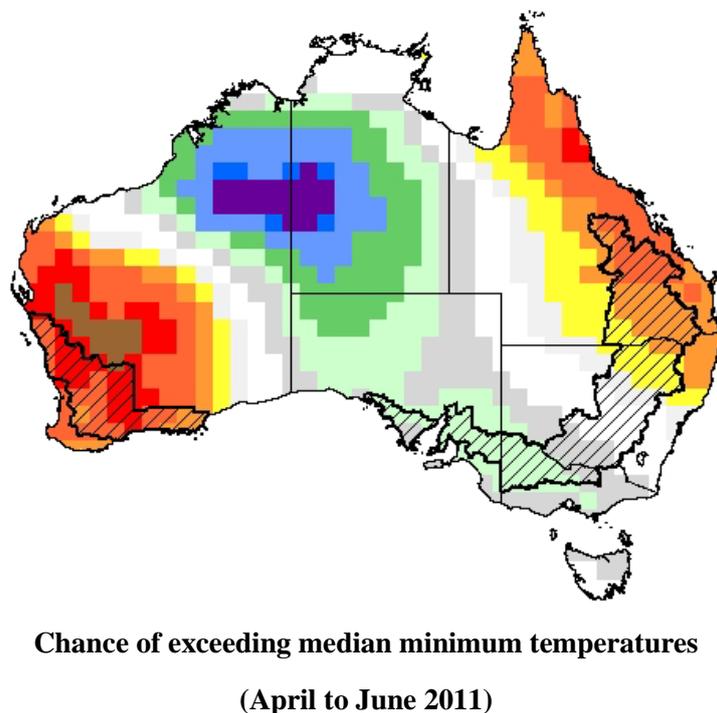
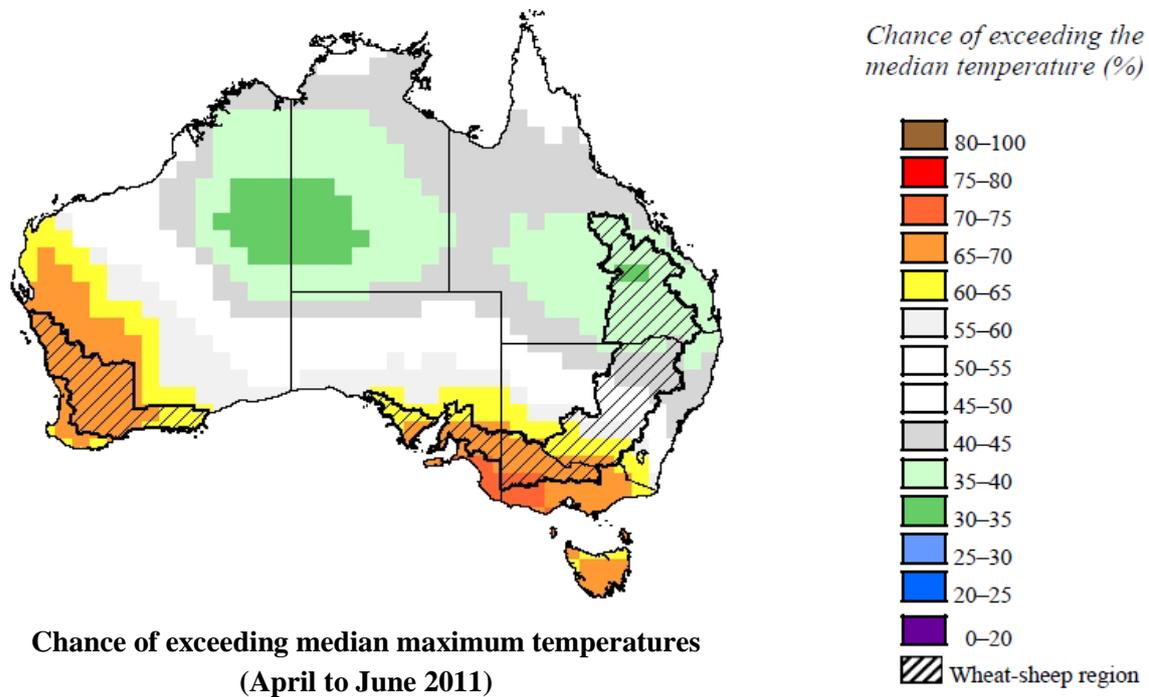
Wetter conditions are favoured across most of the eastern part of Australia for the April to June 2011 period. Drier conditions are favoured for some parts of Victoria and Tasmania. Across the rest of the continent, the chances of exceeding or not exceeding the median rainfall are about the same.



**Chance of exceeding the median rainfall  
(April to June 2011)**

## Temperature outlook

The temperature outlook for the April to June 2011 period favours warmer daytime temperatures over south-west and parts of south-east Australia and warmer night time temperatures across north-east and south-west parts of Australia. Cooler daytime temperatures are favoured across most of the northern half of Australia.



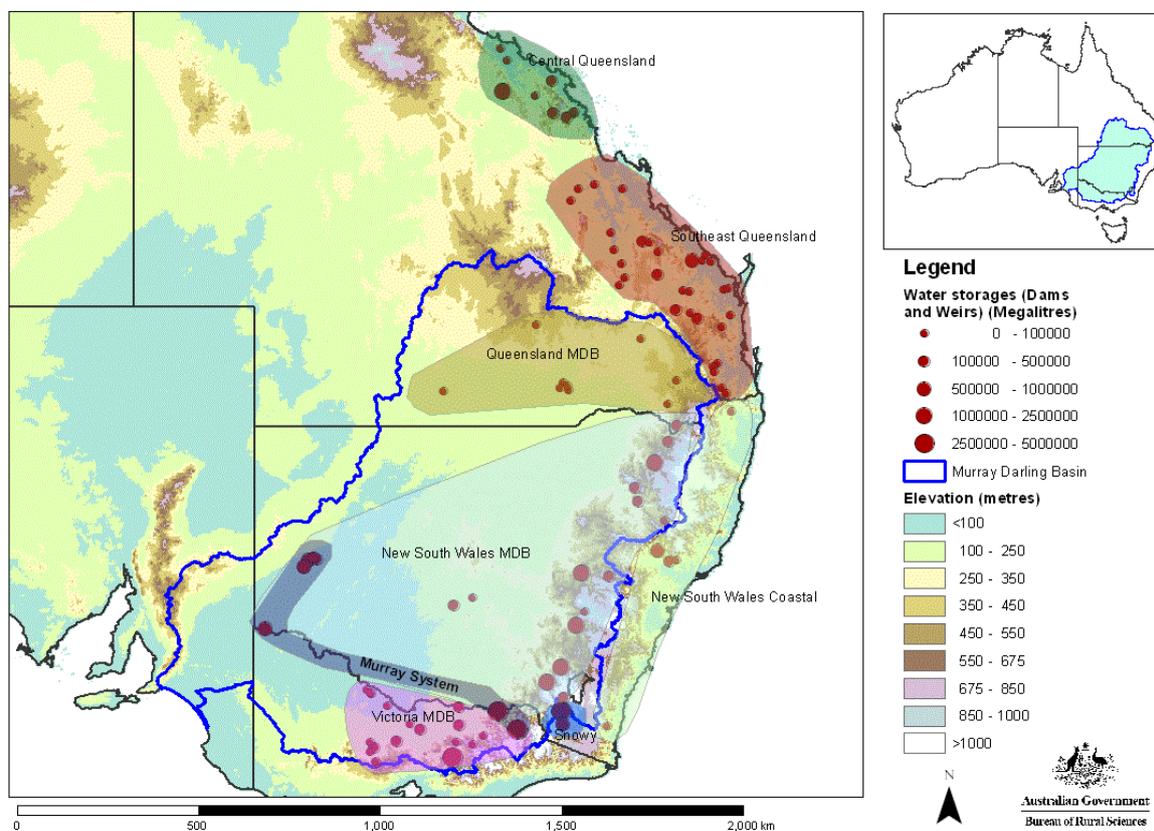
These outlooks are based on the statistics of chance (the odds) and are not categorical predictions. For further information on these seasonal outlooks and their interpretation go to [www.bom.gov.au/climate/ahead/](http://www.bom.gov.au/climate/ahead/).

## 2. Water

### 2.1 Water storages

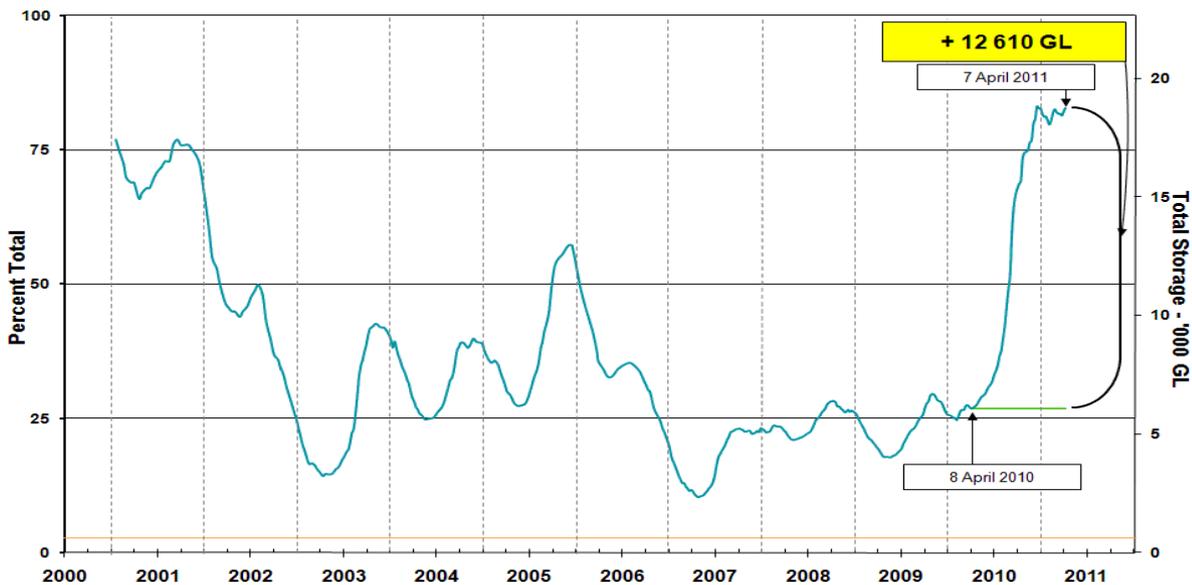
Changes in regional water storage for March 2011 and the previous 12 months are summarised in the table and graphs below (current at 7 April 2011).

Region	Total capacity (GL)	Current volume (GL)	Current volume (%)	Monthly change (GL)	Monthly change (%)	Annual change (GL)
Murray–Darling Basin (MDB)	22560	18681	83	+245	+1	+12610
Snowy Scheme	5744	2271	40	+47	+1	+669
Murray–Darling Basin Authority (MDBA)	9352	7382	76	+257	+3	+5383
Queensland MDB	185	181	98	+1	+1	+55
Central Queensland	3154	3138	99	-11	0	+103
South-east Queensland	3517	3495	99	+2	0	+645
New South Wales MDB	13918	12136	87	+148	+1	+8669
Coastal New South Wales	1074	885	82	-13	-1	+117
Victoria MDB	8488	6366	75	+22	0	+3888



**Water storages in Queensland, New South Wales and Victoria:** The blue line indicates the extent of the Murray–Darling Basin and the shaded areas denote the coverage of the individual reporting regions.

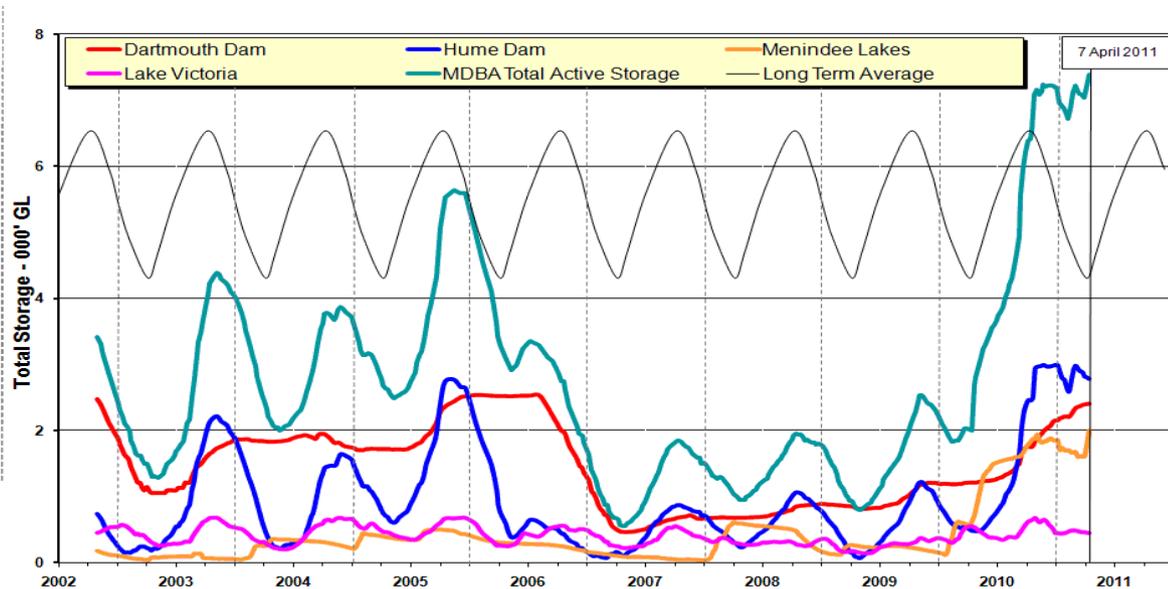
**MDB (New South Wales, Victoria and Queensland)**



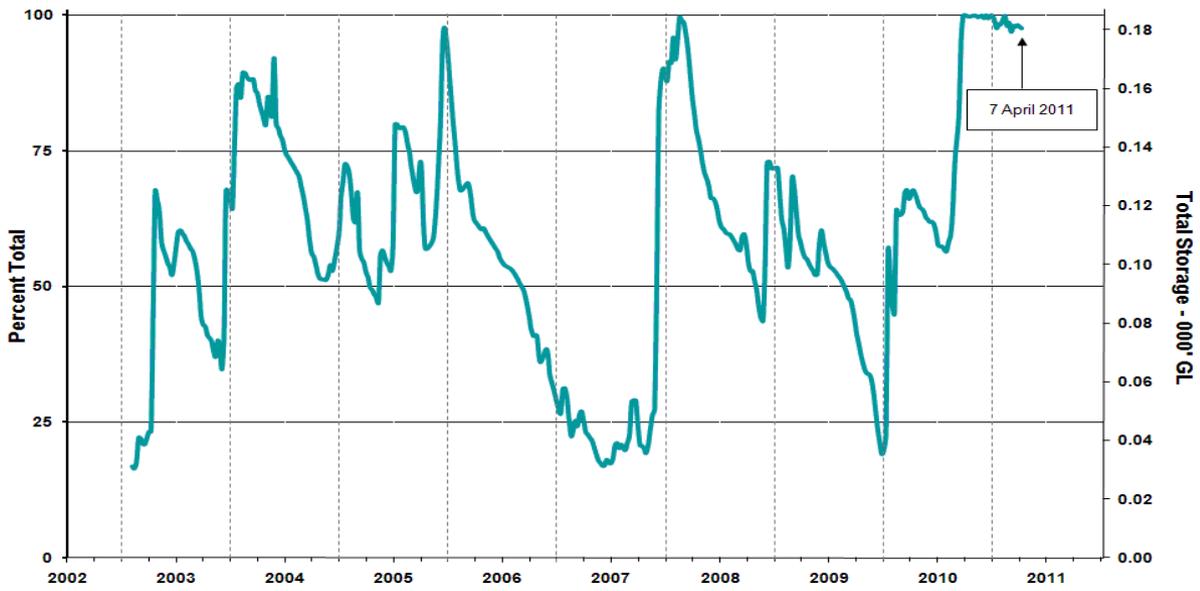
**Snowy Scheme**



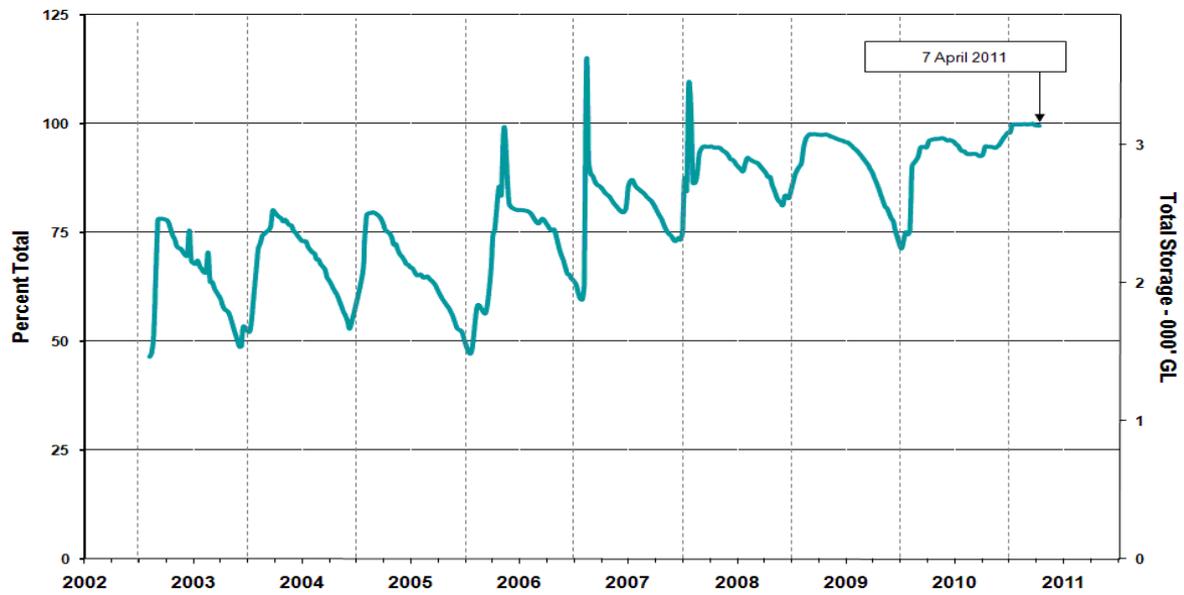
**MDBA – Active storage under the control of the Murray-Darling Basin Authority**



### Queensland MDB



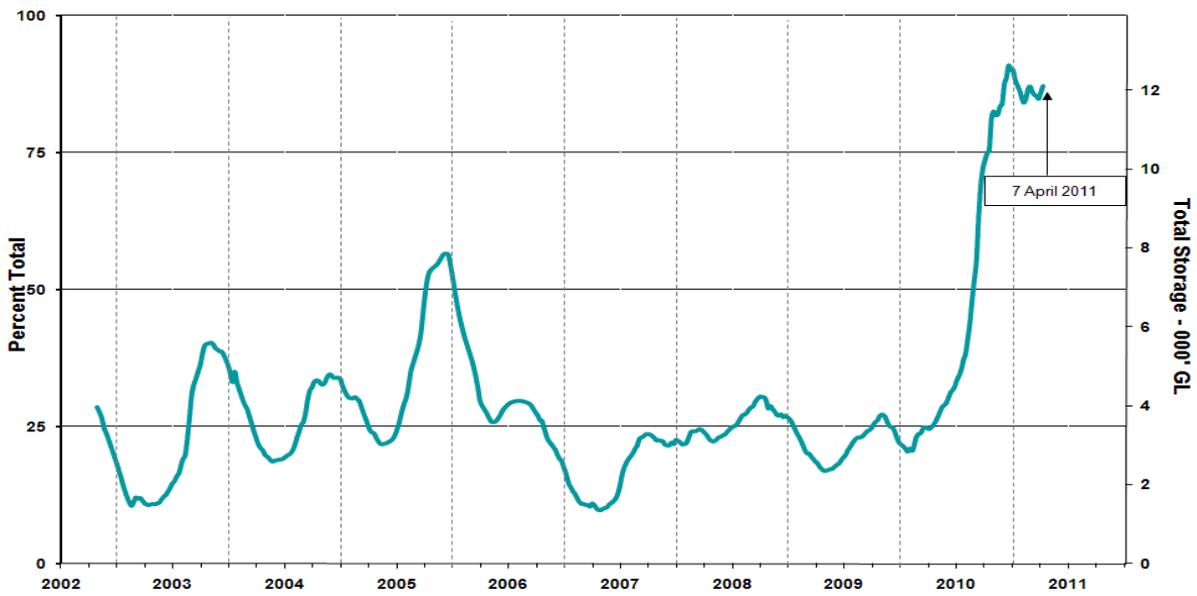
### Central Queensland



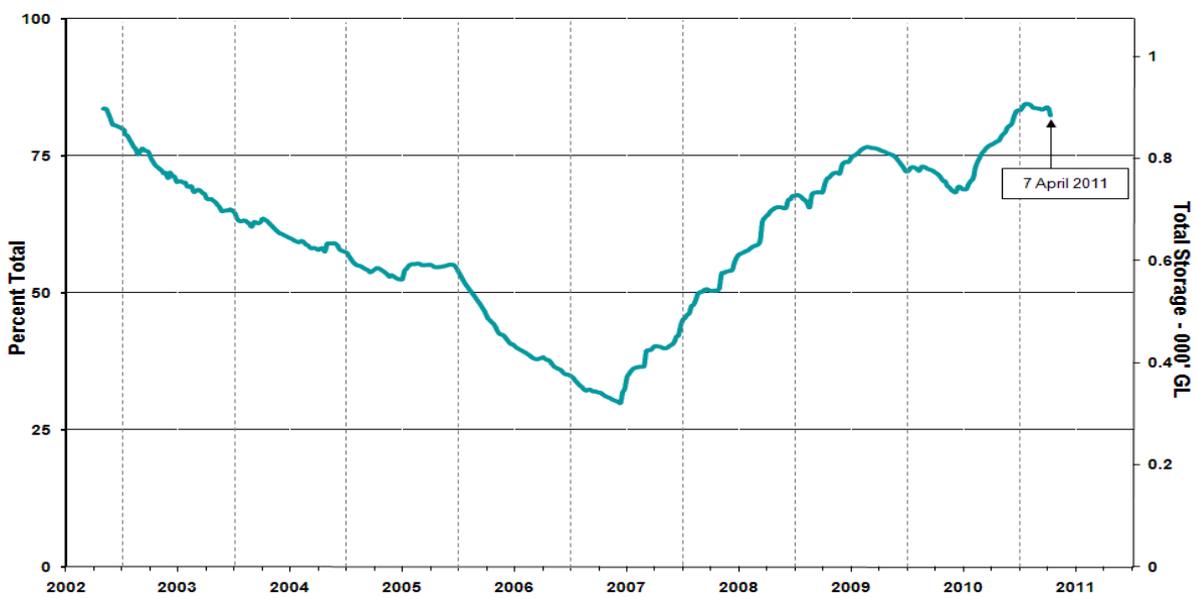
### South-east Queensland



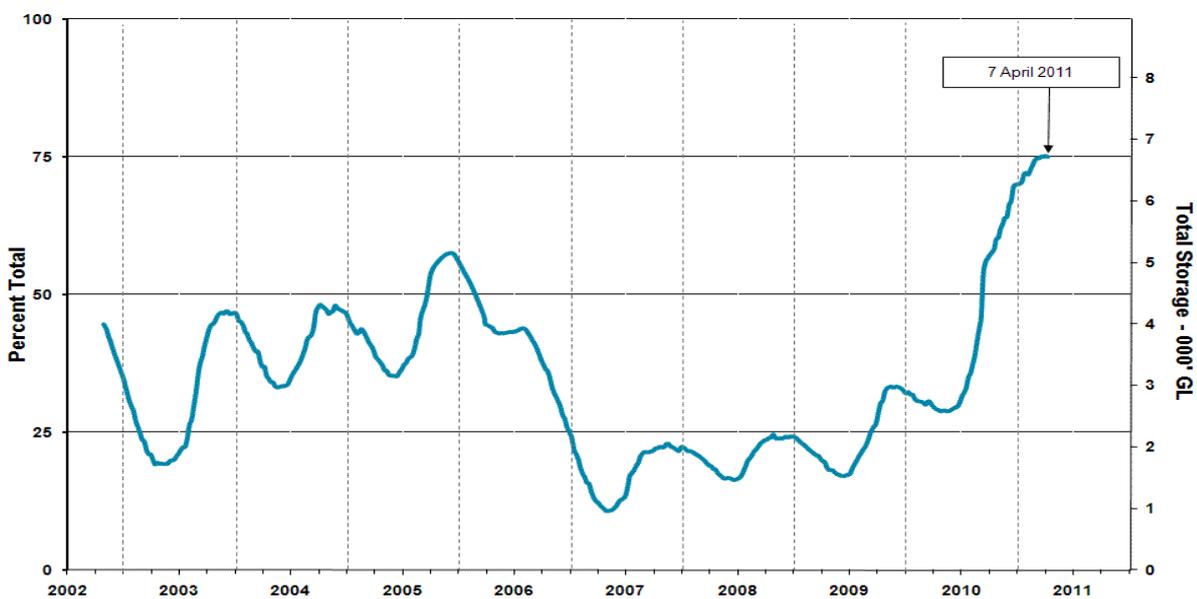
### New South Wales MDB



### Coastal New South Wales



### Victoria MDB



For further information on water storages, go to:

- Snowy Hydro Water Resources:  
[www.snowyhydro.com.au/lakeLevels.asp?pageID=360&parentID=6](http://www.snowyhydro.com.au/lakeLevels.asp?pageID=360&parentID=6)
- Sun Water Queensland:  
[www.sunwater.com.au/pdf/water/CurrentStorageSummary.pdf](http://www.sunwater.com.au/pdf/water/CurrentStorageSummary.pdf)
- New South Wales Water Information:  
[www.waterinfo.nsw.gov.au/](http://www.waterinfo.nsw.gov.au/)
- Goulburn-Murray Water (Northern Victoria):  
[www.g-mwater.com.au/water-resources/storage-levels/](http://www.g-mwater.com.au/water-resources/storage-levels/)
- Murray–Darling Basin Authority:  
[www.mdba.gov.au/](http://www.mdba.gov.au/)

## 2.2 Water allocations

The water allocations and changes over the past month for all licence holders in New South Wales, Victoria and South Australia water systems are summarised in the following table.

	<b>Closing allocations 2009–10 (%)</b>	<b>Increases from 1 March 2011 (%)</b>	<b>Allocations at 1 April 2011 (%)</b>
<b>NSW Murray Valley</b>			
High security	97	0	100
General security	27	0	100
<b>NSW Murrumbidgee Valley</b>			
High security	95	0	100
General security	27	0	100
<b>NSW Lower Darling</b>			
High security	100	0	100
General security	100	0	100
<b>NSW Macquarie Valley</b>			
High security	100	0	100
General security	0	0	100
<b>NSW Hunter Valley</b>			
High security	100	0	100
General security	100	0	100
<b>NSW Lachlan Valley</b>			
High security	10	0	100
General security	0	0	108
<b>NSW Border Rivers</b>			
High security	100	0	100
General security	4.4	0	100
<b>NSW Peel Valley</b>			
High security	100	0	100
General security	100	0	100
<b>Victoria Murray Valley</b>			
High reliability	100	0	100
<b>Victoria Goulburn</b>			
High reliability	71	0	100
<b>Victoria Campaspe</b>			
High reliability	0	0	100
<b>Victoria Loddon</b>			
High reliability	3	0	100
<b>Victoria Bullarook</b>			
High reliability	19	0	100
<b>Victoria Broken</b>			
High reliability	17	0	100
<b>South Australia Murray Valley</b>			
High security	62	0	67

For further information on water announcements, go to:

- New South Wales Office of Water, Department of Environment, Climate Change and Water:  
<http://www.water.nsw.gov.au/Home/default.aspx>
- Media releases:  
<http://www.water.nsw.gov.au/About-Us/Media-Releases/default.aspx>,
- Water allocations:  
<http://www.water.nsw.gov.au/Water-Management/Water-availability/Available-water-determinations/default.aspx> and <http://www.water.nsw.gov.au/Water-management/Water-availability/Water-allocations/water-allocations-summary/default.aspx>
- Available water determinations register:  
<http://www.wix.nsw.gov.au/wma/DeterminationSearch.jsp?selectedRegister=Determination>
- Goulburn-Murray Water:  
<http://www.g-mwater.com.au/>
- Media releases:  
<http://www.g-mwater.com.au/news/media-releases/default.asp>
- South Australian Department of Water:  
<http://www.waterforgood.sa.gov.au/>
- Latest allocation announcement:  
<http://www.waterforgood.sa.gov.au/rivers-reservoirs-aquifers/river-murray/>
- Murray–Darling Basin Authority:  
<http://www.mdba.gov.au/>

## 3. Production

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### 3.1 Summer crops

#### New South Wales and Queensland

Growing conditions for summer crops during March 2010 were generally favourable, although moist conditions in some northern areas have increased disease risks. With the seasonal rainfall outlook predicting wetter conditions for the April to June 2011 period, a wet finish to the summer cropping season will further increase the risk of disease and may cause grain sprouting.

The March 2011 *Seasonal Crop Outlook* for grain sorghum released by the Queensland Department of Primary Industries and Fisheries indicates a very much above average grain sorghum yield at a state and national level.

Cotton harvesting is underway in southern Queensland. There are expectations that the favourable production conditions will produce the largest harvest on record, despite losses due to flooding earlier in the season. It is reported that some crops that were inundated have been saved or have recovered.

### 3.2 Winter crops

The outlook for the 2011–12 winter cropping season is favourable, with adequate upper and lower layer soil moisture in most areas in the eastern states to allow sowing, germination and establishment of crops. Rain is needed in Western Australian cropping regions throughout April and May 2011 to enable sowing.

### 3.3 Livestock

#### Cattle

The favourable conditions for pasture production during March 2011 have maintained competition between the buying sectors.

Cattle numbers reported at Meat & Livestock Australia's (MLA) National Livestock Reporting Service (NLRS) physical markets nationally during March 2011 were similar to numbers received in March 2010, being 1 per cent lower. Cattle numbers received at Queensland markets increased by 41 per cent on March 2010 because of a combination of factors including strong prices and a partial recovery of the rain-affected transport network. Cattle numbers received at markets in NSW, Victoria, South Australia and Western Australia declined on numbers received during March 2010.

The Eastern Young Cattle Indicator (EYCI) reached a record high in March 2011 of 424.50 cents per kilogram carcass weight (cwt). The indicator is a seven-day rolling average produced daily by MLA NLRS. The EYCI includes vealer and yearling heifers and steers (grade scores C2 or C3 of greater than 200 kilograms live weight) from saleyards in New South Wales, Queensland and Victoria. This strong price results from a combination of factors, including rainfall restricting cattle movements to market in previous months, strong restocker demand for young cattle and firm demand from exporters.

#### Sheep

Lamb numbers at MLA's physical markets during March 2011 increased by 14 per cent on the five-year average, with more than 987 500 individuals received. This was an increase of 6 per cent on March 2010 numbers, with the majority of lambs increasing in condition to reach heavy weights as a result of the improved seasonal conditions in eastern parts of the country. The sound seasonal conditions have sustained the demand from restockers, with strong competition underlying the increased prices offered. The exception is in Western Australia, where poorer seasonal conditions have prompted graziers to sell lambs that are reported to be light in condition.

The favourable conditions for pasture production during March 2011 and firm demand have maintained competition between restockers and processors buying sectors. Notably, graziers have been expanding their herds in response to recent production opportunities. The National mutton indicator reached a new record during the month, of 476 cents per kilogram cwt.

<http://www.mla.com.au/Prices-and-markets/Market-news/Mutton-prices-strengthen>

<http://www.mla.com.au/Prices-and-markets/Market-news/EYCI-reaches-new-record>

<http://www.mla.com.au/Prices-and-markets/Market-news/March-cattle-yardings-slip>

<http://www.mla.com.au/Prices-and-markets/Market-news/Heavier-lambs-in-March>

<http://www.mla.com.au/Prices-and-markets/Market-news/Rising-cattle-prices-a-global-hit>

<http://www.mla.com.au/Prices-and-markets/Trends-and-analysis>