NAMS
NATIONAL AGRICULTURAL MONITORING SYSTEM

Climate and Agricultural Update

National Report

Issued January 2009

Copyright

Disclaimer

The National Agricultural Monitoring System (NAMS) is a decision making tool for Government and Industry bodies in evaluating the impact of climate on primary production, and is only one of a series of tools used in assessing such impacts. By accessing the information presented in this document the reader waives and releases the Commonwealth of Australia and other data contributors (see link to partners in the NAMS website) to the full extent permitted by law from all liability for loss or damage arising from the use of, or reliance on, such material, whether or not caused by any negligence on the part of the Commonwealth of Australia, other data contributors or their agents.

In particular and without limit to the generality of the above:

The quality of the data presented in this system cannot be guaranteed. This information should not be used by itself to support decision making; rather it is intended as context only for broader decision making processes

The Australian Government does not guarantee that this file is free from viruses.

Contacts

For further information visit http://www.nams.gov.au, or for enquiries/feedback relating to this report contact the NAMS helpdesk at NAMS@nams.gov.au.

Contributors

The information contained in this report is regularly sourced from the following organisations:

ORGANISATION

Bureau of Meteorology	http://www.bom.gov.au/
Bureau of Rural Sciences	http://www.brs.gov.au/
Department of Primary Industries, New South Wales	http://www.dpi.nsw.gov.au/
Snowy Hydro Limited	http://www.snowyhydro.com.au/
Australian Bureau of Agricultural and Resource Economics (ABARE)	http://www.abare.gov.au/
Department of Agriculture and Food, Western Australia	http://www.agric.wa.gov.au/
Goulburn-Murray Water	http://www.g-mwater.com.au/
Queensland Department of Primary Industries and Fisheries	http://www.dpi.qld.gov.au/
New South Wales Department of Water and Energy	http://www.naturalresources.nsw.gov.au/
Meat and Livestock Australia	http://www.mla.com.au/

Department of Primary Industries and Resources SA Government of South Australia Primary Industries and Resources SA	http://www.pir.sa.gov.au/
Department of Primary Industries, Victoria, Australia Victoria The Place To Be	http://www.dpi.vic.gov.au/
Murray-Darling Basin Authority MURRAY–DARLING BASIN AUTHORITY	http://www.mdba.gov.au/

TABLE OF CONTENTS

1.0 RAINFALL AND TEMPERATURE 6

1.1 RAINFALL 6

1.2 MAXIMUM AND MINIMUM TEMPERATURE ANOMALIES 8

2.0 WATER STORAGES AND ANNOUNCEMENTS 9

2.1 WATER STORAGES (CURRENT TO 8 JANUARY 2009) 10

2.2 WATER ANNOUNCEMENTS 15

3.0 CROP AND LIVESTOCK PRODUCTION 18

3.1 CROPS 18

3.2 LIVESTOCK 20

4.0 CLIMATE OUTLOOK 21

4.1 EL NIÑO SOUTHERN OSCILLATION (ENSO) 21

4.2 RAINFALL OUTLOOK 21

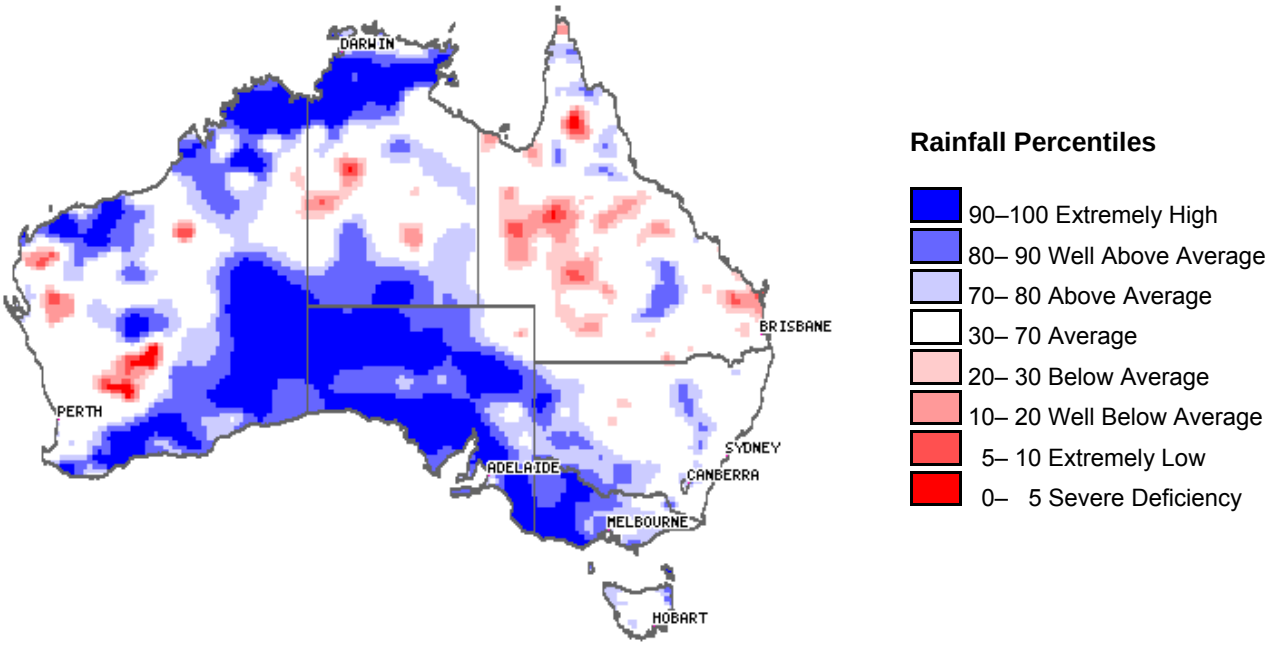
4.3 TEMPERATURE OUTLOOK 22

1.0 Rainfall and temperature

1.1 Rainfall

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 http://www.bom.gov.au/climate/austmaps/.

Rainfall over the last month (December 2008)



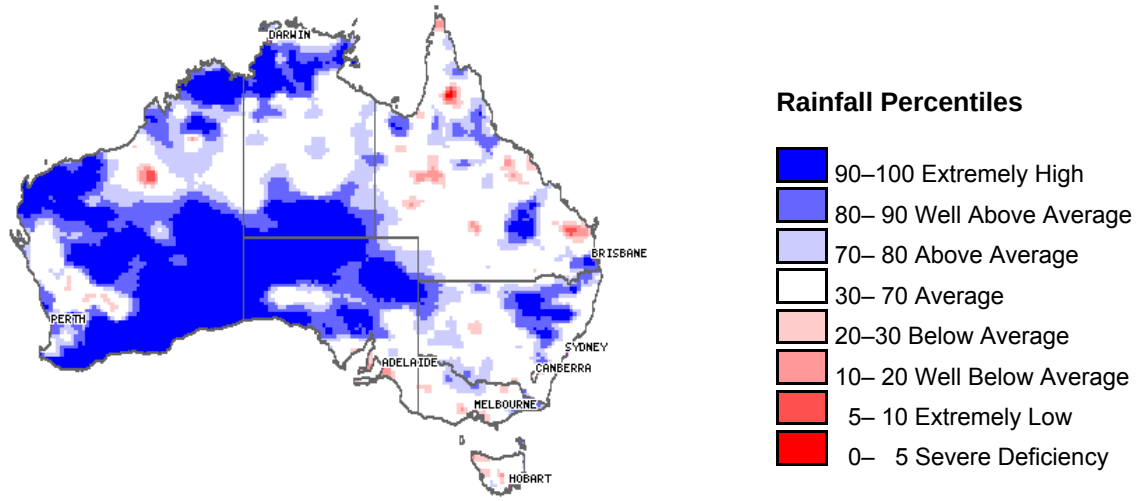
Rainfall percentiles for December 2008.

December was a relatively wet month over much of Australia with national rainfall being 38 per cent above the long-term (1961−90) average (twenty-fifth wettest of 109 years). All states and territories received average to above average rainfall except Queensland. South Australia (184 per cent above average) experienced its fifth-wettest December on record.

Rainfall was in the highest ten percentiles range in a band extending across north of the Northern Territory and the Northern Kimberley in Western Australia, essentially coinciding with the track of Tropical Cyclone Billy and its precursor low-pressure system. Areas south-west of Darwin had their wettest December on record. Other regions in the highest tenth percentile included southern and south-western Western Australia, most of South Australia and western Victoria, with records set in places around Coober Pedy and on the Nullarbor coast.

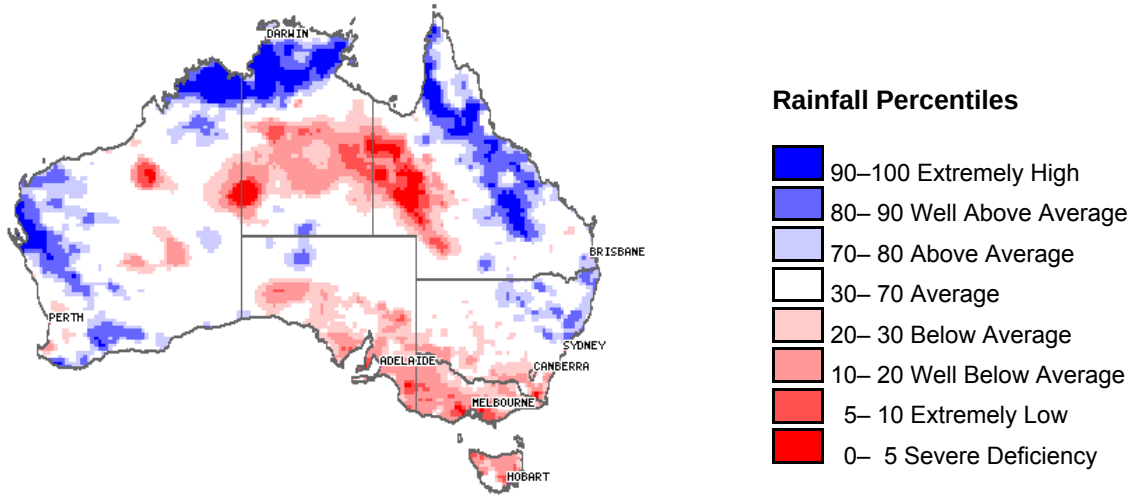
December rainfall over the remainder of the country was below average to average with relatively low rainfall most notably in central Queensland, central Northern Territory and in Western Australia between Perth and Carnarvon.

Ongoing or emerging rainfall situations



Rainfall percentiles for the last three months October 2008–December 2008.

Above average to extremely high rainfall over most of Australia from October to December 2008 resulted in a significant reduction in 3-monthly rainfall deficiencies. Notably, rainfall was extremely high in Western Australia, the northern Australia, central Australia, South Australia, north-eastern New South Wales and parts of Queensland. There were some areas with below average rainfall across eastern Australia.

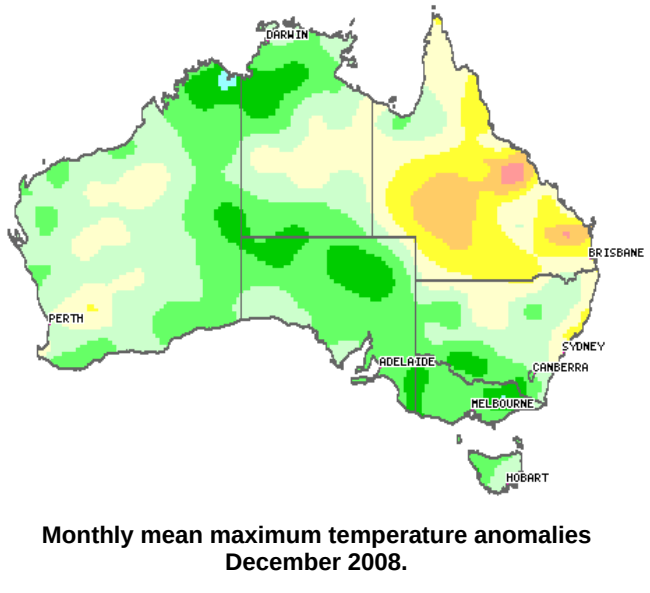


Rainfall percentiles for the last 12 months January 2008–December 2008.

For the 12 month period from January to December 2008, above average rainfall was recorded across northern Australia, eastern Queensland, western Western Australia and north-eastern New South Wales. Rainfall was average to below average across the remainder of the country. Areas of well below average to severely deficient rainfall include Victoria, Tasmania, western Queensland, central Northern Territory and southern South Australia. These rainfall deficient areas include much of Australia's agricultural land.

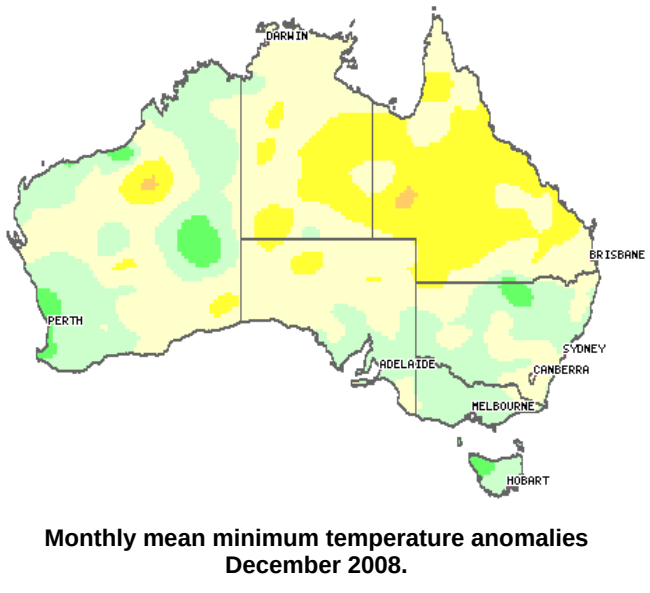
1.2 Maximum and minimum temperature anomalies

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. Temperature anomalies are calculated with respect to the reference period 1961–1990. For further information on temperature anomalies go to: http://www.bom.gov.au/climate/austmaps/.



Monthly mean maximum temperature anomalies December 2008.

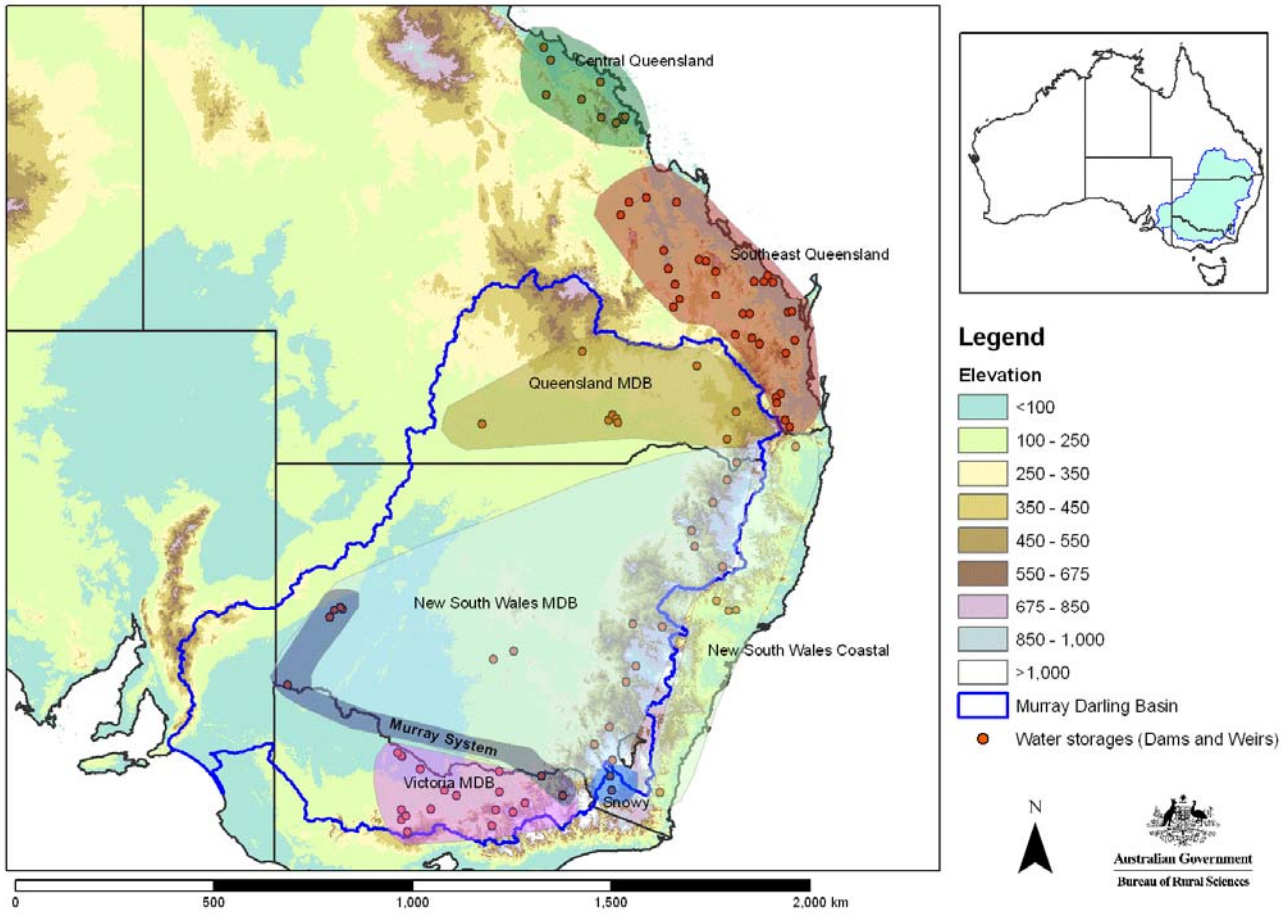
Maximum temperatures in December 2008 averaged over Australia were 0.37 °C below the long-term average for the month (twenty-fifth lowest on record). Daily maxima were at least 1 °C cooler than average across most of the continent with anomalies 2–3 °C below average in northern Australia, northern South Australia and south-eastern Australia. Maximum temperatures ranged from 1 to 4 °C above average in Queensland (ninth-warmest December on record). Above-average maxima were also recorded in coastal New South Wales and south western Western Australia.



Monthly mean minimum temperature anomalies December 2008.

Minimum temperatures in December 2008 averaged over Australia were 0.36 °C above the long-term average for the month (thirteenth highest on record). Most of Queensland and the eastern Northern Territory recorded daily minima that were 1−2 °C above average. Weaker positive anomalies covered the remainder of the Northern Territory, northern South Australia, central Western Australia and south-eastern New South Wales. Some parts of southern Australia recorded below-average minima. Notably, north-western Tasmania, central Western Australia, the west coast south of Geraldton and inland northern New South Wales were 1 to 2 °C below average.

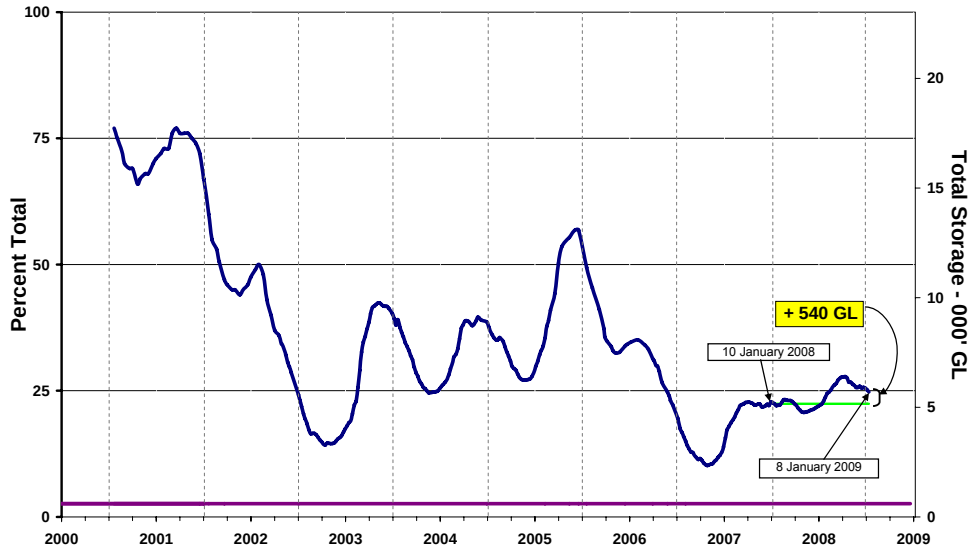
2.0 Water storages and announcements



Water storages in Queensland, New South Wales and Victoria. The blue line indicates the extent of the Murray-Darling Basin. The shaded areas denote the six reporting regions.
Source: Bureau of Rural Sciences.

2.1 Water storages (current to 8 January 2009)

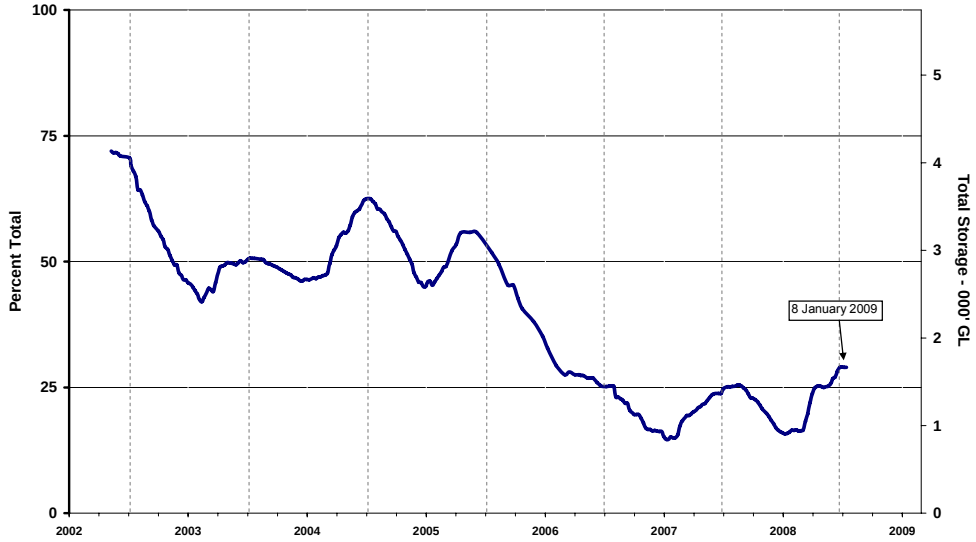
Water storage in the MDB (New South Wales, Victoria and Queensland)



Water storage levels in the Murray-Darling Basin from 1 January 2001 to 8 January 2009. The green line shows the storage level at the same time last year and the purple line shows the dead storage (not calculated).
Source: Bureau of Rural Sciences.

Over the past month storage levels within the Murray-Darling Basin (MDB) have decreased. Storage levels are expected to fall at this time of the year because the peak inflow period is finished and irrigation drawdown has commenced. Storage levels for irrigated agriculture on 8 January 2009 were at 5701 gigalitres (GL) (24.8 per cent of a total capacity of 23 020 GL), a decrease of 175 GL (0.8 per cent of total capacity) over the month[1]. Current storage levels are approximately 540 GL greater than at the same time last year.

Water storage in the Snowy Scheme



Water storage levels in the Snowy Scheme from 6 November 2002 to 8 January 2009.
Source: Bureau of Rural Sciences.

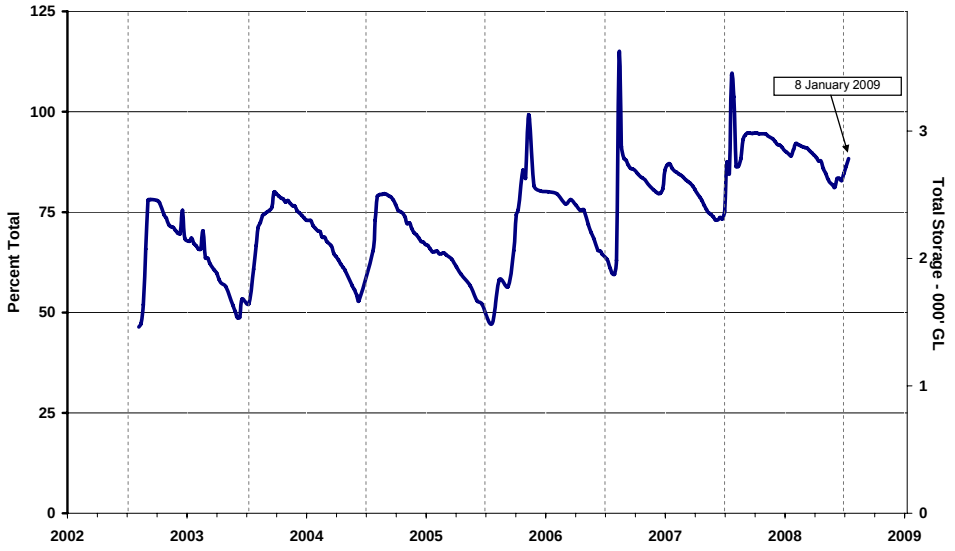
The figure 'Water storage in the MDB' (above top) does not include the capacities of Lake Eucumbene, Tantangara Reservoir and Lake Jindabyne (collectively the Snowy Scheme) which are reserved for hydro-electricity generation and irrigation purposes. Current levels in the Snowy Scheme storages are 1665 GL (29.0 per cent of a total capacity of 5744 GL) (see figure above). This is an increase of 45 GL (0.8 per cent) from last year.

[1] December 2008 National Report contained an error: the correct storage level in the MDB at 11 December 2008 was 5876 GL.

Water storage in Queensland

Water storage levels in Queensland MDB from 3 February 2003 to 8 January 2009.
Source: Bureau of Rural Sciences.

Storage levels in Queensland MDB decreased by 2 GL to 133 GL (72 per cent of a total capacity of 185 GL) over the last month (see figure above). This storage level is approximately 36 GL lower than at the same time last year.



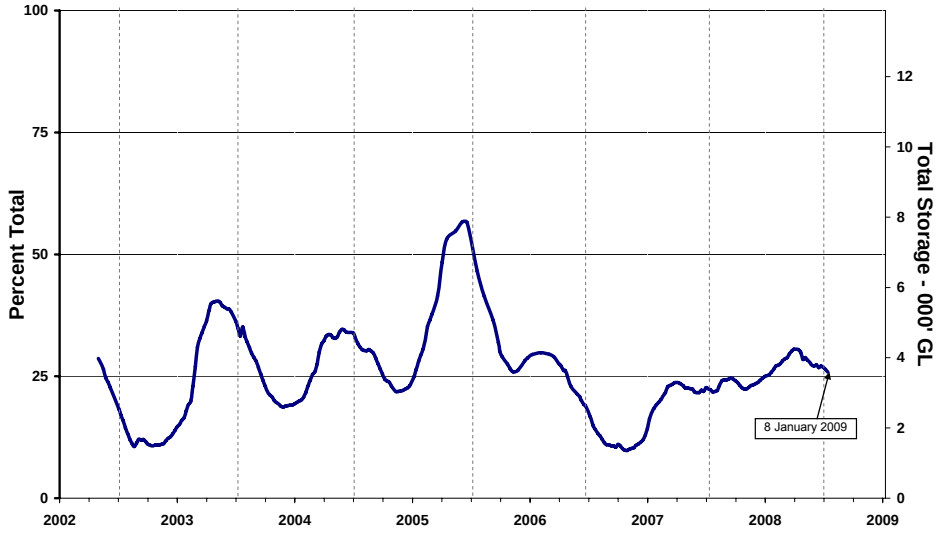
Water storage levels in central Queensland from 3 February 2003 to 8 January 2009.
Source: Bureau of Rural Sciences.

In central Queensland storage levels increased by 155 GL to 2786 GL (83.3 per cent of a total capacity of 3155 GL) over the last month (see figure above). This storage level is approximately 114 GL higher than at the same time last year.

Water storage levels in south-east Queensland from 3 February 2003 to 8 January 2009. Source: Bureau of Rural Sciences.

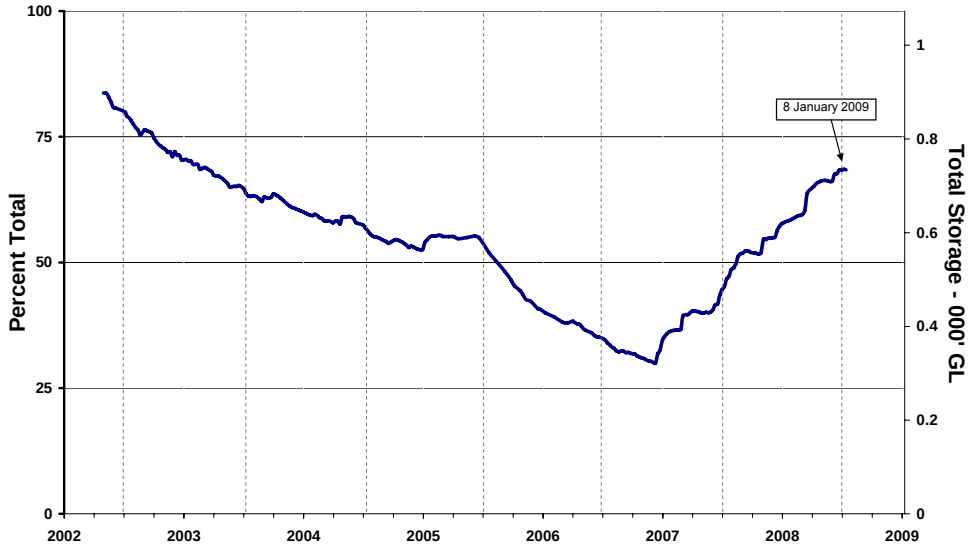
In south-east Queensland storage levels increased by 70 GL to 1925 GL (54.7 per cent of a total capacity of 3517 GL) (see figure above). This storage level represents an increase of 962 GL (27.3 per cent) compared to the same time last year.

Water storage in New South Wales



Water storage levels in northern New South Wales MDB from 28 October 2002 to 8 January 2009. Source: Bureau of Rural Sciences.

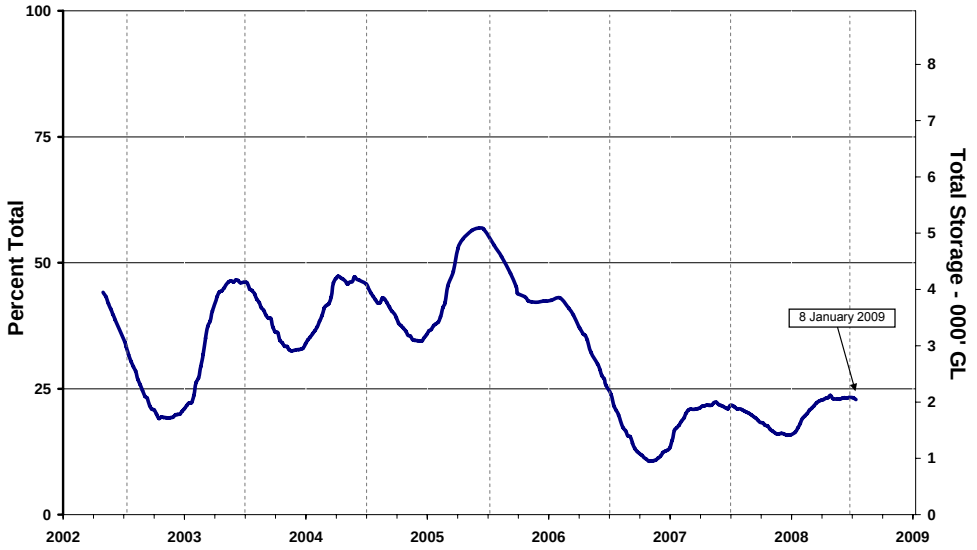
Storage levels in the New South Wales MDB decreased by 129 GL to 3592 GL (25.9 per cent of a total capacity of 13 884 GL) over the last month (see figure above). This storage level is approximately 507 GL higher than at the same time last year.



Water storage levels in coastal New South Wales from 28 October 2002 to 8 January 2009.
Source: Bureau of Rural Sciences.

In coastal New South Wales storage levels increased by 8 GL to 734 GL (68.4 per cent of a total capacity of 1073 GL) over the last month (see figure above). This storage level is approximately 233 GL higher than at the same time last year.

Water storage in Victoria

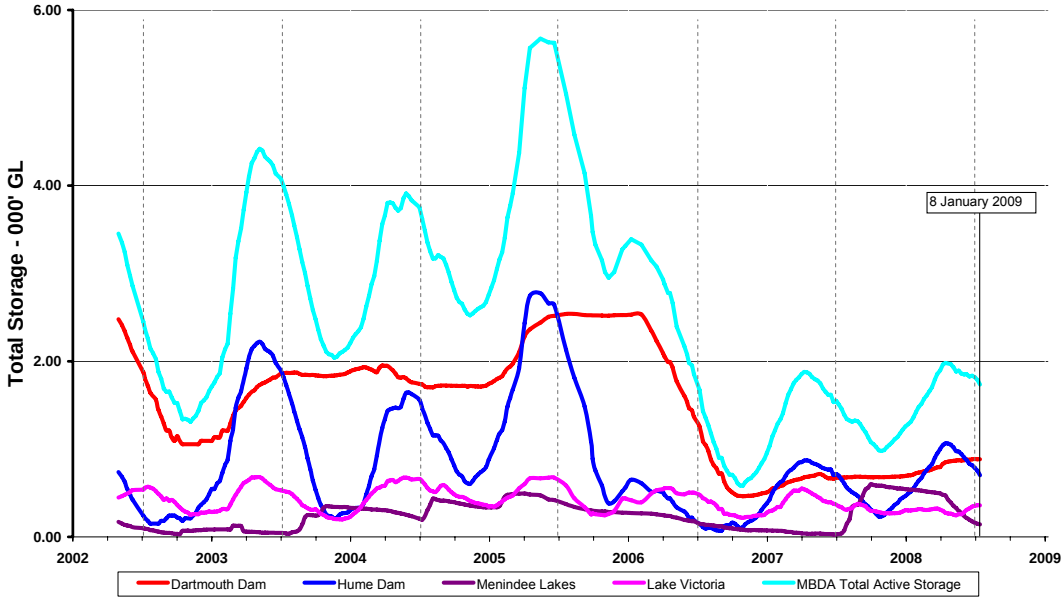


Water storage levels in Victoria MDB from 28 October 2002 to 8 January 2009.
Source: Bureau of Rural Sciences.

Storage levels in Victoria MDB decreased by 23 GL to 2035 GL (22.9 per cent of a total capacity of 8950 GL) over the last month (see figure above). This storage level is approximately 135 GL higher than at the same time last year.

Murray-Darling Basin Authority water storages

- Murray system inflows (excluding inflows to Menindee Lakes and releases from the Snowy Scheme) for December 2008 were about 170 GL, around 40 per cent of the long-term December average of 420 GL.
- At 31 December 2008, total Murray-Darling Basin Authority (MDBA) active storage (excluding Menindee Lakes) was 1794 GL (21 per cent). This is 282 GL higher than at this time last year but well below the end of December long-term average of 6610 GL. A further 150 GL is stored in Menindee Lakes which remains under New South Wales' control. The release from Menindee Lakes (currently 400 ML per day) has been steadily declining as Lake Pamamaroo is drained. The small volume of water remaining in Lake Wetherell will be stored by NSW as a supply of drinking water for nearby towns.
- Small inflows saw storage in Dartmouth Reservoir increase by 6 GL during December to 886 GL (23 per cent of capacity). The release from Dartmouth Reservoir is currently at 350 ML per day, which was temporarily increased to 3000 ML per day, on 12 January 2008, then reduced over the following four days to a achieve a slightly higher base flow of 450 ML per day. Storage in Hume Reservoir decreased by 146 GL to 754 GL (25 per cent of capacity). The release from Hume Dam was increased to 8500 ML per day
- The trend of MDBA water storages updated to 8 January 2009 is shown in the figure below.



Water volumes in the Murray-Darling Basin Authority Storages from 28 October 2002 to 8 January 2009. Source: Bureau of Rural Sciences.

For further information on water storages, go to:

Snowy Scheme
http://www.snowyhydro.com.au/lakeLevels.asp?pageID=360&parentID=6

Queensland
http://www.sunwater.com.au/pdf/water/CurrentStorageSummary.pdf

New South Wales
http://www.statewater.com.au/indexes/index.asp

Northern Victoria
http://www.g-mwater.com.au/water-resources/storage-levels/

Murray–Darling Basin Authority
http://www.mdba.gov.au/

2.2 Water announcements

Announcements for New South Wales (current at 15 January 2009)

- On 15 January 2009 the New South Wales Department of Water and Energy announced an increase in water availability for general security licence holders in the Murray Valley (to 9 per cent) and Murrumbidgee Valley (to 21 per cent).
- Allocation announcements at 15 January 2009 for the major water systems in New South Wales for the 2008–09 water year are summarised in the table below. Per cent change in allocation over the previous month is indicated in the table.

Water system	High Security Licences (%)	Change (%)	General Security Licences (%)	Change (%)
NSW Murray Valley	95	0	9	+5
Murrumbidgee Valley	95	0	21	+7
Lower Darling	100	0	50	0
Macquarie Valley	100	0	5	0
Hunter Valley	100	0	100	0
Lachlan Valley	30	0	0	0
Border Rivers	100	0	0	0
Peel Valley	100	0	80	0

- Inflows to water storages in the Murray and Murrumbidgee Valleys during December have been sufficient to secure an increase in the water allocations to general security licence holders of 5 per cent and 7 per cent, respectively. Irrigators will be able to access their water accounts immediately. Water to meet basic human needs has also been secured for the 2009–10 year.
- With general security allocations for the Murrumbidgee Valley higher than 20 per cent of entitlement, re-crediting of water to environmental accounts has commenced.
- Water allocations for general security licence holders in the Lower Darling remain at 50 per cent entitlement.
- The Department of Water and Energy advised that all inter-valley trades must be lodged by 31 May 2009. The closing date for interstate trades will be notified later.
- The Department of Water and Energy urged all users of unregulated tributaries to the Murrumbidgee River to be mindful of the “cease-to-pump” conditions attached to their licences due to decreased flows in recent weeks.
- Water allocations for the high security licence holders remained unchanged.

Announcements for Victoria (current at 15 January 2009)

- Goulburn-Murray Water (G-MW) announced the updated season allocations on 15 January 2009 (see below).

Water system	High-reliability share (%)	Change (%)
Murray	35	+7
Broken	0	0
Goulburn	29	+6
Campaspe	0	0
Loddon	0	0
Bullarook Creek	0	0

- On 2 January 2009 G-MW announced an increase in seasonal allocations for the Murray and Goulburn systems. With the additional increases announced on 15 January of 2 per cent and 1 per cent, respectively, the high-reliability water shares (HRWS) have increased to 35 per cent in the Murray System and 29 per cent in the Goulburn System. The allocations for all other water systems in northern Victoria remain at zero.
- The increases in seasonal allocations in the Murray and Goulburn systems are largely due to inflows arising from a mid-December 2008 rainfall event, reduced system losses due to favourable weather conditions and ongoing water conservation activities.
- G-MW announced that demand for water in all systems is low due to low water availability and has been further suppressed by several rain events and low temperatures in recent weeks. Future allocation improvements this season depend on inflows and reduced operating water requirements.
- G-MW will announce an update of seasonal allocations for all water systems on 2 February 2009.

Announcements for South Australia (current at 15 January 2009)

- River Murray irrigation allocations will increase from 15 per cent to 18 per cent from 1 February following a slight improvement in the volume of water available to South Australia. According to the Minister for the Murray River, Karlene Maywald, the extra 20 gigalitres available to South Australia—on top of the volume to be reserved for critical human needs for 2009–10—will be used to increase irrigation allocations to provide additional water during summer to both permanent and annual crops.

- The prospect of any significant improvement in River Murray water resources over summer remains low.

- Allocation updates will continue to be issued on the fifteenth of each month and information on water resource conditions will be available on the first of each month or on the first business day.

For further information on water announcements, go to:

Murray-Darling Basin Authority
http://www.mdba.gov.au/

Goulburn-Murray Water
http://www.g-mwater.com.au/news/media-releases/

New South Wales Department of Water and Energy
http://www.naturalresources.nsw.gov.au/

South Australian Department of Water, Land and Biodiversity Conservation
http://www.dwlbc.sa.gov.au/media.html

3.0 Crop and livestock production

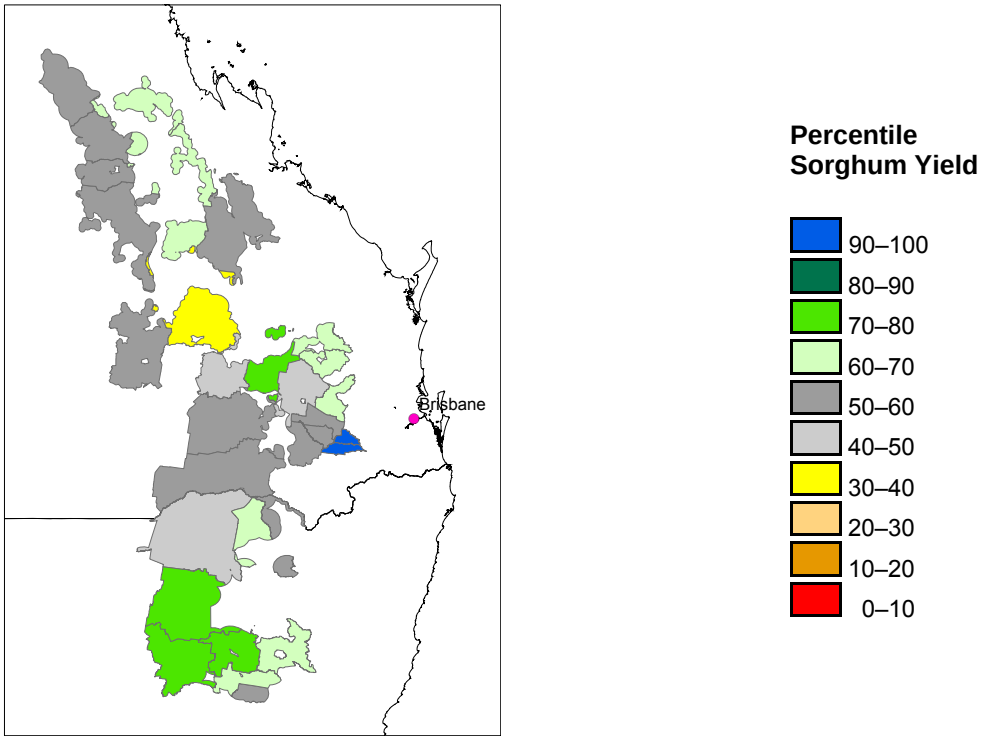
3.1 Crops

Winter Crops

- The ABARE Australian Commodity report released in December 2008 estimates wheat production in Australia to be around 20 million tonnes (Mt). Below average spring rainfall in Victoria, South Australia and southern New South Wales reduced crop estimates in these regions. Rainfall in November and December interrupted the harvest in northern New South Wales and Queensland, and is expected to result in quality downgrading in these regions. Total production in New South Wales is expected to be 6.5 million tonnes, significantly higher than the 2007–08 harvest of 1.8 million tonnes. Production in Western Australia is expected to be 8 million tonnes, an increase of 1.8 million tonnes on the previous season (http://www.abareconomics.com/publications_html/ac/ac_08/ac08_Dec.pdf).
- New South Wales: Harvest is now complete with total winter crops production estimated at about 9.03 million tonnes harvested from approximately 4.48 million hectares. This is a significant increase from last year (http://theland.farmonline.com.au/news/state/agribusiness-and-general/general/rural-resilience-as-drought-bites-deeper/1404769.aspx?src=enews).
- South Australia: Wheat harvest was mostly completed by the end of December despite delays from widespread rainfall. Grain yield and quality were highly variable as crops suffered varying degrees of weather damage. Crop yield of 2.25 million tonnes is estimated to be 25 per cent below the ten-year average (Primary Industries and Resources SA, Crop and Pasture Report, December 2008: http://www.pir.sa.gov.au/__data/assets/pdf_file/0007/92536/dec08cpr.pdf).
- Western Australia: The next Seasonal Update report is due for release on March 2009.
- Victoria: The next Dry Seasonal Conditions in Rural Victoria report is due for release on 5 February 2009.
- Queensland: There was no winter crop update available at the time of this report.

Summer Crops

Predicted sorghum yields for the coming season are provided by the Queensland Department of Primary Industries and Fisheries. The forecast is based on a sorghum stress index model that incorporates water availability, climate data and a soil moisture profile. The following figure shows shire sorghum yield forecasts across Australia based on climate data up to the end of the forecast month and projecting forward based on the long-term average calculated over all available years.



Predicted sorghum yields for the 2008–09 cropping season at 1 January 2009 ranked relative to all years.

- Predicted sorghum yield for Australia at 1 January 2009 is 2.46 tonne per hectare (t/ha), slightly above the long-term median of 2.33 t/ha. This is an increase of 0.05 t/ha estimated at 1 December 2008. Predicted sorghum yields are slightly above the long-term average in both northern New South Wales (3.0 t/ha compared with 2.82 t/ha) and Queensland (2.28 t/ha compared with 2.18) (Queensland Department of Primary Industries and Fisheries: http://www.dpi.qld.gov.au/documents/PlantIndustries_FieldCropsAndPasture/Sorghum-Report-January-09.pdf).

3.2 Livestock

Beef cattle

- A record volume of Australian beef and veal was exported during 2008, reaching 957 479 tonnes shipped weight (swt). This is a 2 per cent increase on 2007 levels (941 400 tonnes swt) and surpasses the 2006 record high (953 932 tonnes swt) (Meat and Livestock Australia, Market News: http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Record+Australian+beef+exports+in+2008.htm).

Sheep and lambs

- Australian mutton exports for the 2008 calendar year increased by 5 per cent on 2007 levels to end at 157 689 swt (Meat and Livestock Australia, Market News: http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Mutton+exports+up+5+in+2008.htm).
- Australian lamb exports in 2008 declined 6 per cent on the record shipments in 2007, to 151 560 tonnes swt. Contributing to the fall were tight domestic lamb supplies, the high Australian dollar during the first half of 2008 and the global financial turmoil that followed later in the year (Meat and Livestock Australia, Market News: http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Supply+and+A+limit+2008+lamb+exports.htm).

For further information on crops and livestock, go to:

Australian Bureau of Statistics
http://www.abs.gov.au/

Australian Bureau of Agricultural and Resource Economics
http://abareconomics.com/

Meat and Livestock Australia
http://www.mla.com.au/

Department of Agriculture and Food Western Australia
http://www.agric.wa.gov.au/

New South Wales Department of Primary Industries
http://www.dpi.nsw.gov.au/aboutus/news/

Primary Industries and Resources South Australia
http://www.pir.sa.gov.au/grains/cpr/

Queensland Department of Primary Industries and Fisheries
http://www.dpi.qld.gov.au/fieldcrops/

The Land Farmonline
http://theland.farmonline.com.au/

4.0 Climate Outlook

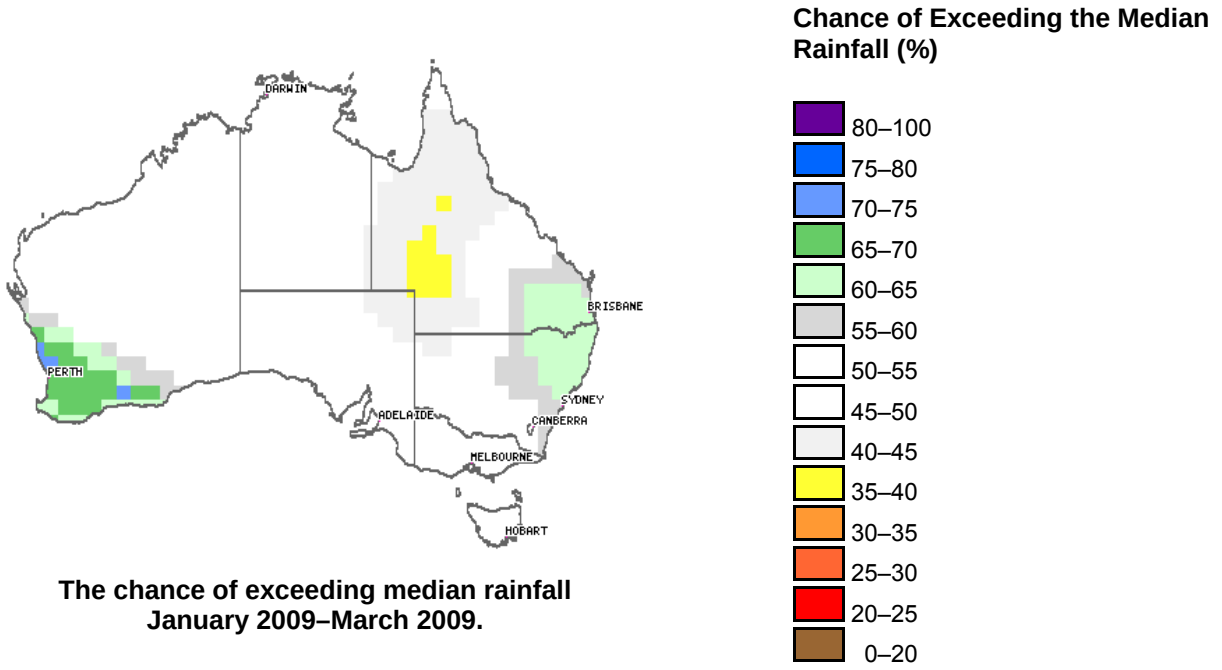
4.1 El Niño Southern Oscillation (ENSO)

On 14 January 2009 the Bureau of Meteorology announced that central and eastern tropical Pacific Ocean cooling may have peaked during December. This is consistent with atmospheric indicators, a number of which have been approaching La Niña phases since October 2008. These include stronger than average trade winds across most of the tropical Pacific and further suppressed cloudiness near the date-line. Sub-surface cool anomalies also persist in the central and eastern equatorial Pacific. The latest 30 day SOI remains strongly positive at +14 on 12 January 2009. The monthly value for December was +13. However, most current model outlooks and warmer sub-surface waters in the western equatorial Pacific suggest that the cooler conditions in the Pacific may not persist beyond southern hemisphere winter 2009. The most likely scenario is for the central and eastern Pacific to warm over the coming months and hence remain neutral. The Indian Ocean Dipole is now neutral and is expected to remain neutral through the rest of the southern summer.

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

4.2 Rainfall Outlook

The Bureau of Meteorology provides seasonal outlooks that are statements about the probability of wetter or drier than average weather over a three-month period. The outlooks are based on the statistics of chance (the odds) taken from Australian rainfall, temperature and sea surface temperature records for the tropical Pacific and Indian Oceans. They are not categorical predictions about future rainfall and they do not indicate the expected rainfall amount for the three-month outlook period.

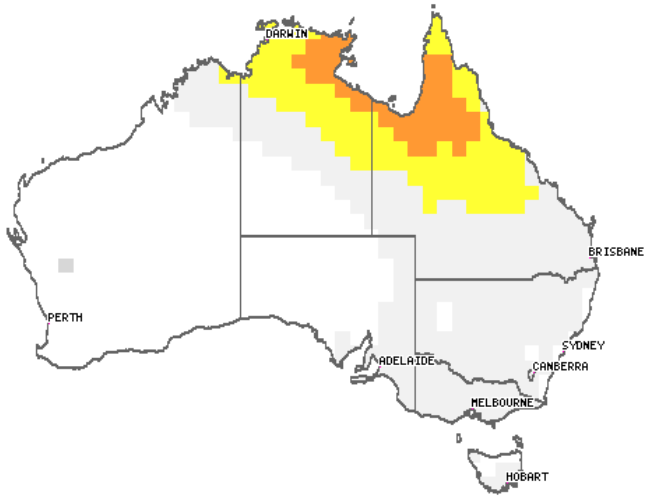


The chance of exceeding median rainfall January 2009–March 2009.

Across much of Australia, above average rainfall and below average rainfall are equally likely from January to March 2009. The likelihood of exceeding median rainfall is higher for south-west Western Australia (60–75 per cent), north-east NSW and south-east Queensland (60–65 per cent). The chance of exceeding the median rainfall in central and south-western Queensland is lower (35–40 per cent).

The pattern of seasonal rainfall odds across Australia is mainly a result of continued warmth in the central Indian Ocean. Outlook confidence is related to how consistently the Pacific and Indian Oceans affect Australian rainfall. During the March quarter, history shows the effect to be moderately consistent through eastern parts of New South Wales and Queensland, large parts of the Northern Territory and over much of southern and western Western Australia. Elsewhere the effect is only weakly or very weakly consistent.

4.3 Temperature Outlook

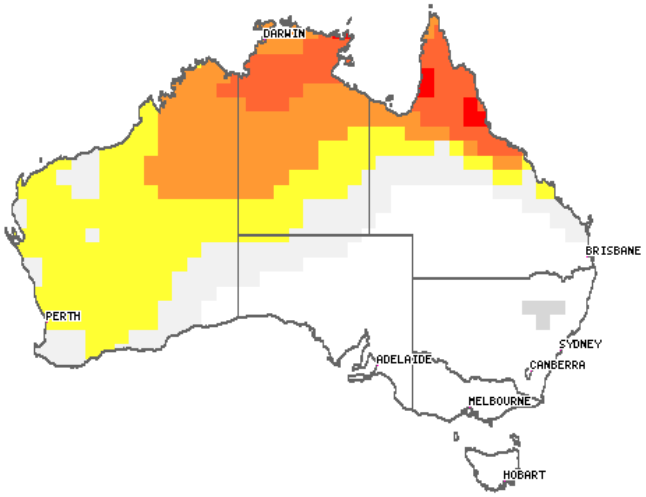


3 Month Temp. Max Outlook (%)

80–100
75–80
70–75
65–70
60–65
55–60
50–55
45–50
40–45
35–40
30–35
25–30
20–25
0–20

The chance of exceeding median maximum temperatures January 2009–March 2009.

Above average maximum temperatures are favoured across northern Australia during the March quarter from the Kimberley, across most of the Northern Territory and into the eastern states and South Australia. Most of Western Australia has an equal chance of above or below average maximum temperatures during this period.



3 Month Temp. Min Outlook (%)

80–100
75–80
70–75
65–70
60–65
55–60
50–55
45–50
40–45
35–40
30–35
25–30
20–25
0–20

The chance of exceeding median minimum temperatures January 2009–March 2009.

Minimum temperatures are likely to be higher than average during the March quarter across Western Australia, the Northern Territory, northern South Australia, and northern Queensland. The rest of the country has an even chance of above or below average minimum temperatures during this timeframe.

History shows the oceans' effect on minimum temperatures during the March quarter to be moderately consistent over most of Queensland, the Northern Territory and northern Western Australia. Elsewhere the effect shows weak to very weak consistency.

For further information on the Bureau of Meteorology seasonal outlooks go to http//www.bom.gov.au/climate/ahead/