Australian Government
Bureau of Rural Sciences

Climate and Agricultural Update

National Report

Issued November 2009

SCIENCE *for* DECISION MAKERS

DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY

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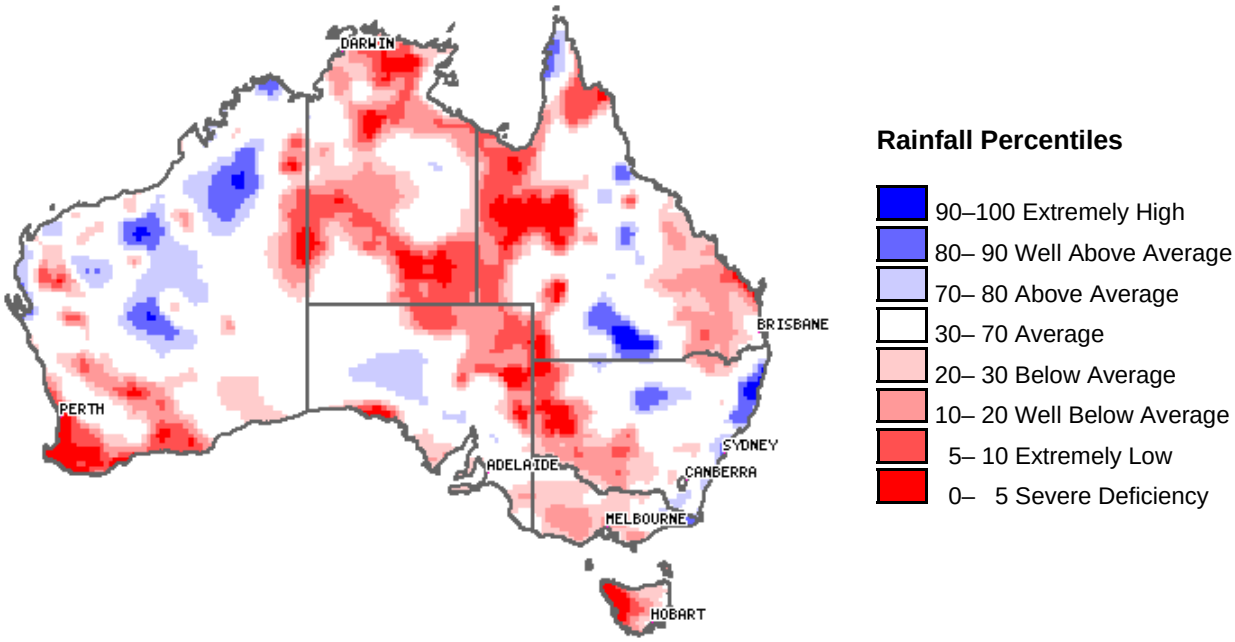
1.0 Rainfall and temperature

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 (October 2009)

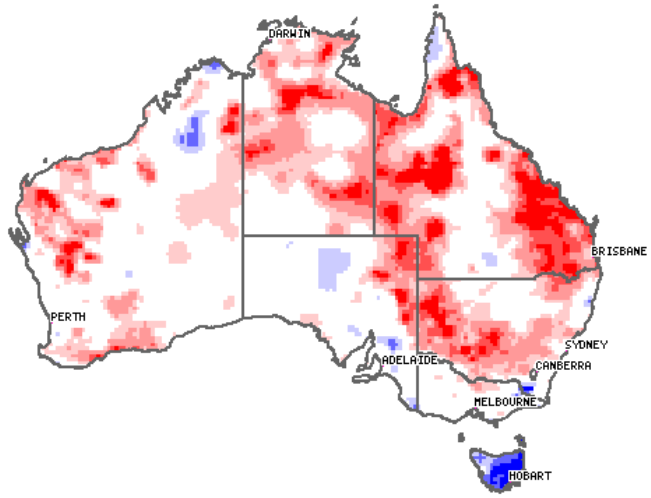


Rainfall percentiles for October 2009

Rainfall for Australia during October 2009 was 45 per cent below the long-term average (twenty-first lowest of 110 years). Rainfall was consistently below average across most areas with all states and territories at least 27 per cent below average. Tasmania had its eighth-driest (49 per cent below) and the Northern Territory recorded 85 per cent below average rainfall.

Rainfall was well below average across large areas of the interior, including parts of South Australia, Queensland and much of the Northern Territory. The south-west of Western Australia had its fifth driest October on record. In contrast, October 2009 rainfall was above average on the south-east coast, large areas of Western Australia and in scattered areas stretching south through Queensland and northern New South Wales.

Ongoing or emerging rainfall situations

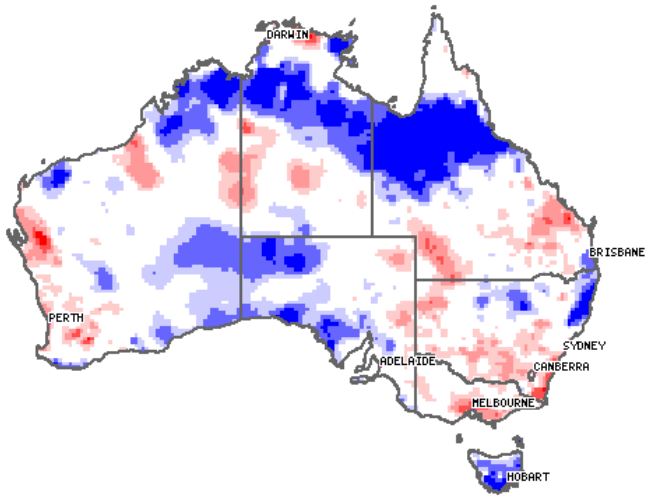


Rainfall Percentiles

- 90–100 Extremely High
- 80– 90 Well Above Average
- 70– 80 Above Average
- 30– 70 Average
- 20– 30 Below Average
- 10– 20 Well Below Average
- 5– 10 Extremely Low
- 0– 5 Severe Deficiency

Rainfall percentiles for the last three months
August 2009 – October 2009

During the past three months, large areas of Australia have experienced below average rainfall. Rainfall deficiencies have eased slightly in the last month across central to southern parts of Queensland, northern New South Wales and the north of Western Australia. Areas of the Northern Territory, south-western New South Wales and western and eastern Queensland are still experiencing severe deficiencies.



Rainfall Percentiles

- 90–100 Extremely High
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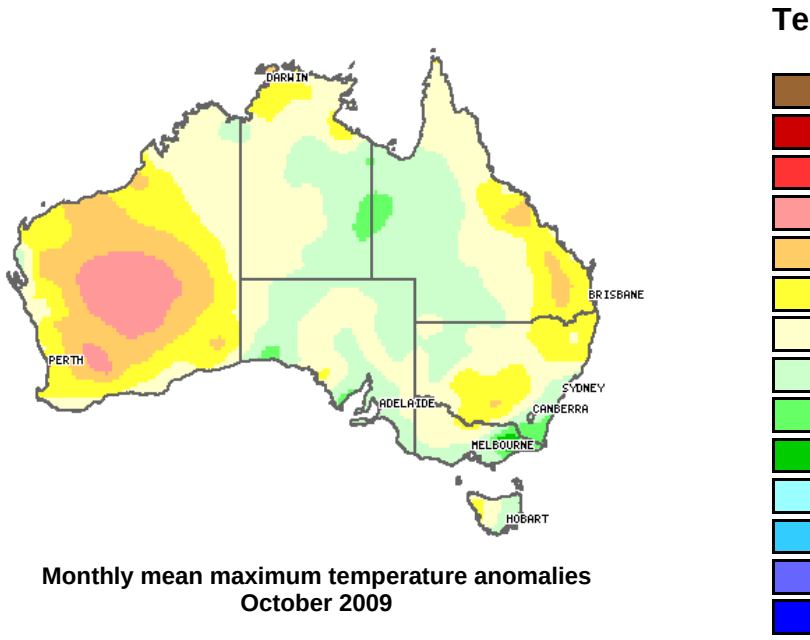
- 10– 20 Well Below Average
- 5– 10 Extremely Low
- 0– 5 Severe Deficiency

Rainfall percentiles for the last 12 months
November 2008 – October 2009

For the 12 month period from November 2008 to October 2009, above average to extremely high rainfall was recorded in a broad band across northern Australia, in parts of Western Australia, western South Australia, northern New South Wales and Tasmania. The 12 month rainfall deficiencies persist across southern New South Wales, southern Queensland and parts of Western Australia.

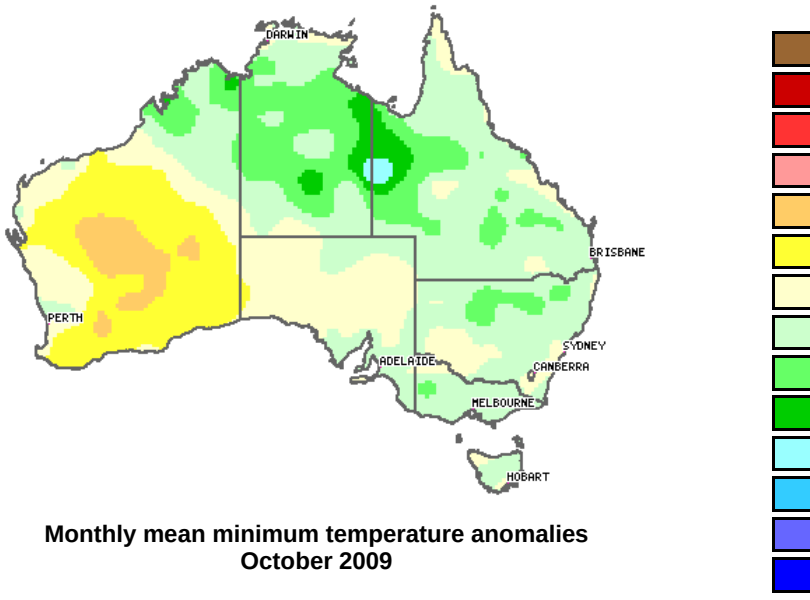
1.2 Maximum and minimum temperature anomalies

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 October 2009

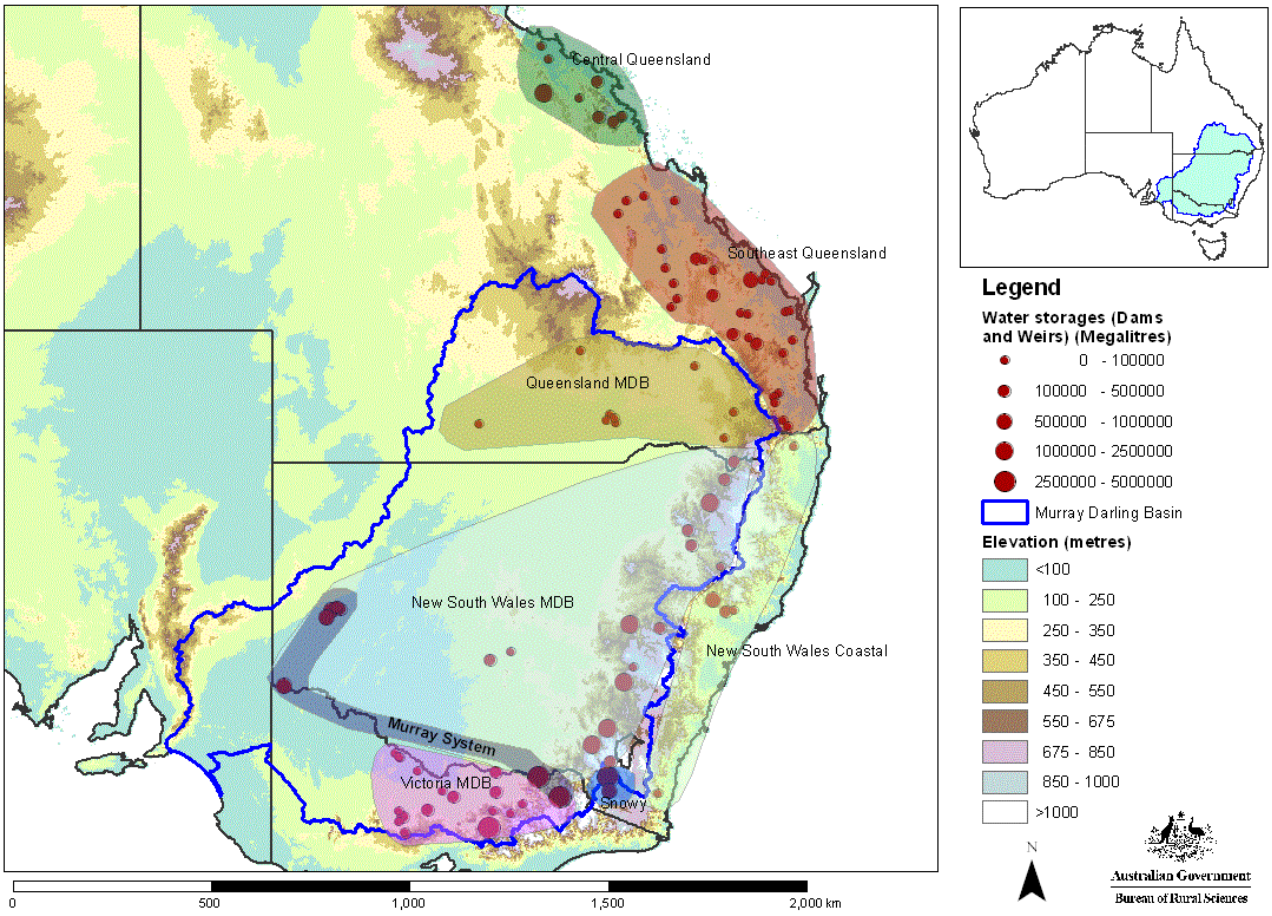
Day-time temperatures in Australia for October 2009 were 0.7 °C above the long-term average, the coolest for October since 2003. Maximum temperatures were slightly above average across all states, except Tasmania, while Western Australia recorded its eighth warmest October day-time temperatures on record. Mean maximum temperatures ranged from 3–4°C above average in parts of Western Australia to 1–3°C below average in parts of eastern Victoria and south-eastern New South Wales.



Monthly mean minimum temperature anomalies October 2009

Night-time temperatures in Australia for October 2009 were 0.17 °C below the long-term average, the coolest since 2003. Nights were warmer across west and south-west of the country, with areas in Western Australia recording minimum temperatures 2–3 °C above average. In contrast, nights were cooler over most of the country, with most of the Northern Territory and areas in Queensland recording night-time temperatures 1–3 °C below average. Mean minimum temperatures were slightly below average in most of New South Wales, Victoria and southern South Australia.

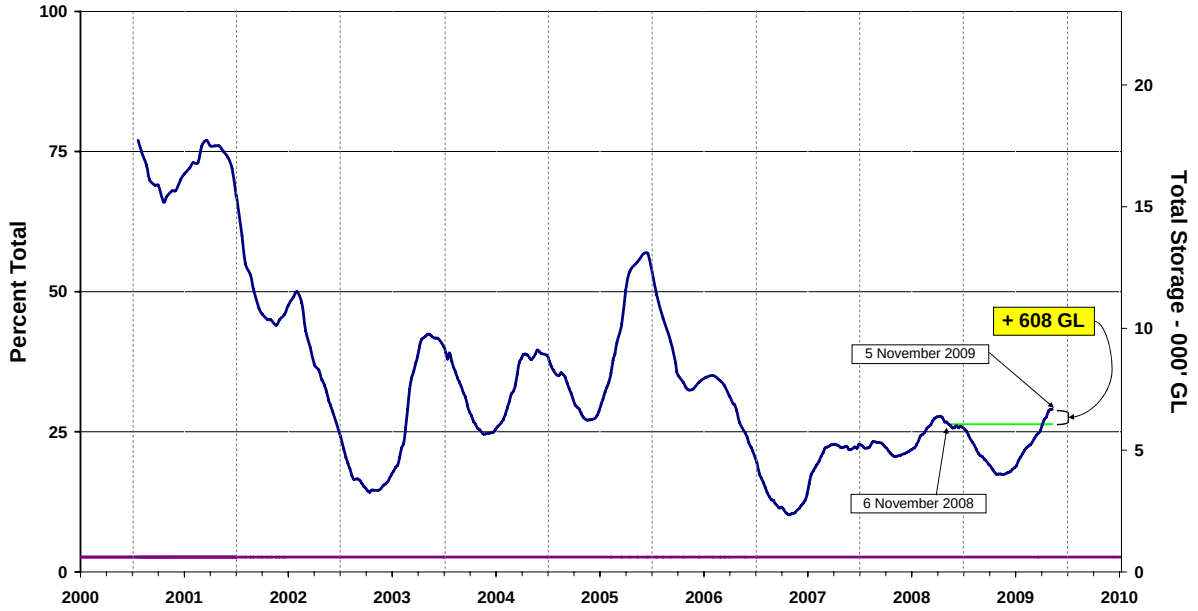
2.0 Water storages and announcements



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 coverage of the individual reporting regions. Source: Bureau of Rural Sciences

2.1 Water storages (current at 5 November 2009)

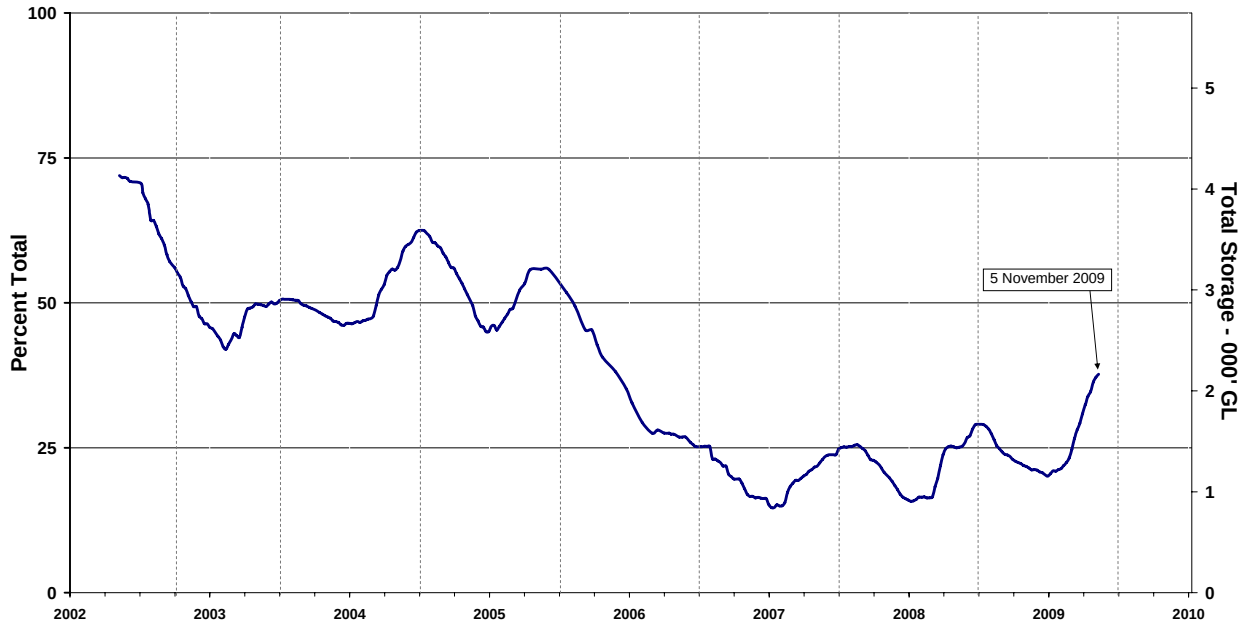
Water storage in the MDB (New South Wales, Victoria and Queensland)



Water storage levels in the Murray-Darling Basin from 1 January 2001 to 5 November 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 increased. Storage levels on 5 November 2009 were at 6673 gigalitres (GL) (29 per cent of a total capacity of 23 020 GL), an increase of 409 GL (approximately 2 per cent of total capacity) over the month. Current storage levels are approximately 608 GL (approximately 3 per cent) higher than the same time last year.

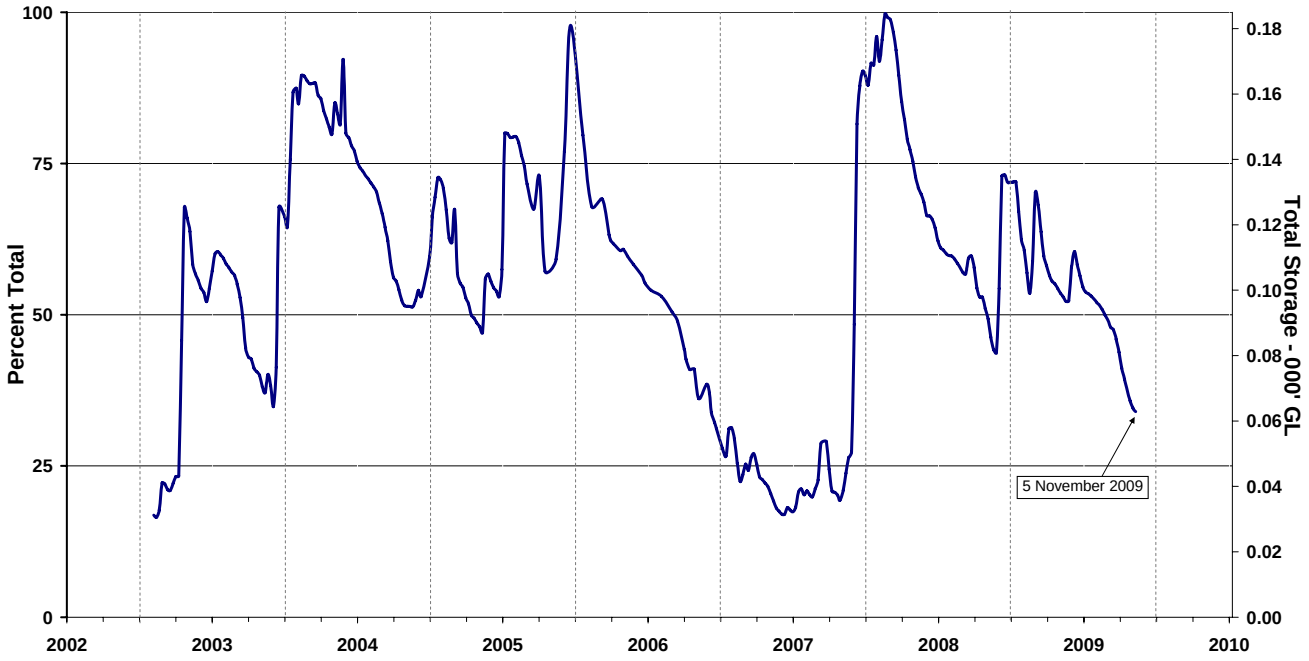
Water storage in the Snowy Scheme



Water storage levels in the Snowy Scheme from 6 November 2002 to 5 November 2009.
Source: Bureau of Rural Sciences

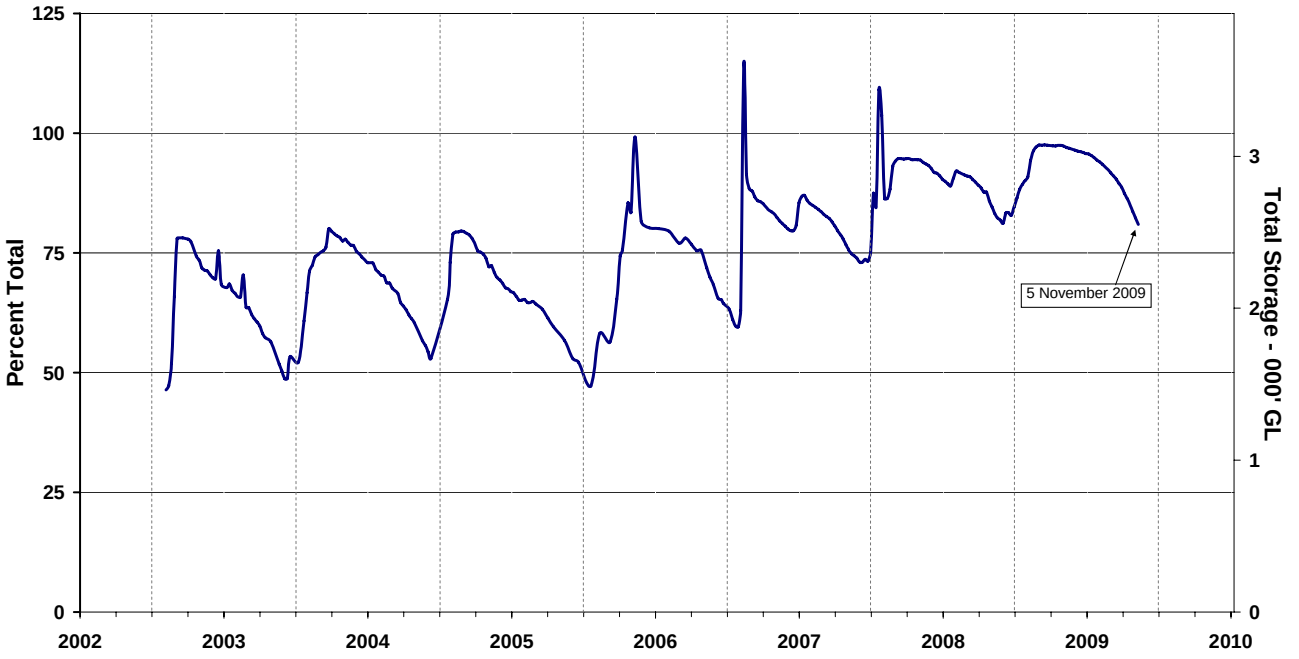
The figure 'Water storage in the MDB' (above top) does not include the capacities of Lake Eucumbene, Tantangara Reservoir and Lake Jindabyne (collectively the Snowy Scheme) which are reserved for hydro-electricity generation and irrigation purposes. The current storage level in the Snowy Scheme is 2165 GL (approximately 38 per cent of a total capacity of 5744 GL), 722 GL (approximately 13 per cent) higher than the same time last year. This is an increase of 220 GL (approximately 4 per cent) on the previous month.

Water storage in Queensland



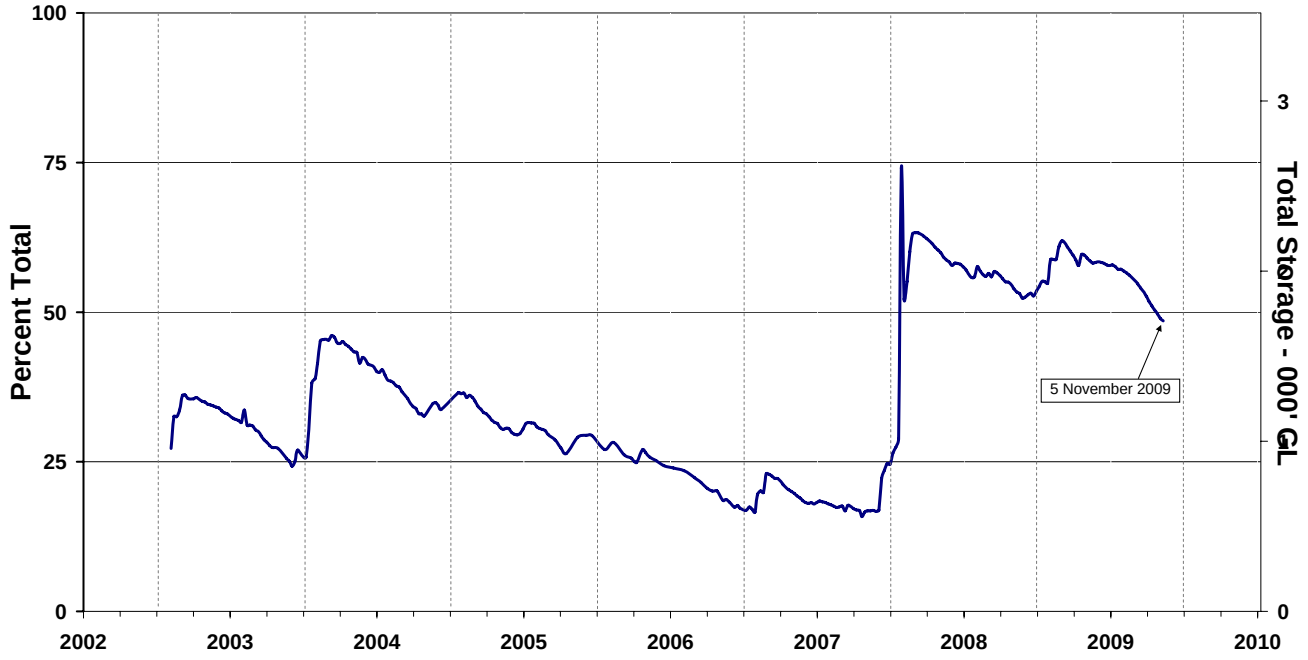
Water storage levels in Queensland MDB from 3 February 2003 to 5 November 2009.
Source: Bureau of Rural Sciences

Storage levels in Queensland MDB decreased over the last month by 9.9 GL to 62.9 GL (34 per cent of a total capacity of 185 GL). The current storage level is approximately 22.8 GL (12 per cent) lower than the same time last year.



Water storage levels in central Queensland from 3 February 2003 to 5 November 2009.
Source: Bureau of Rural Sciences

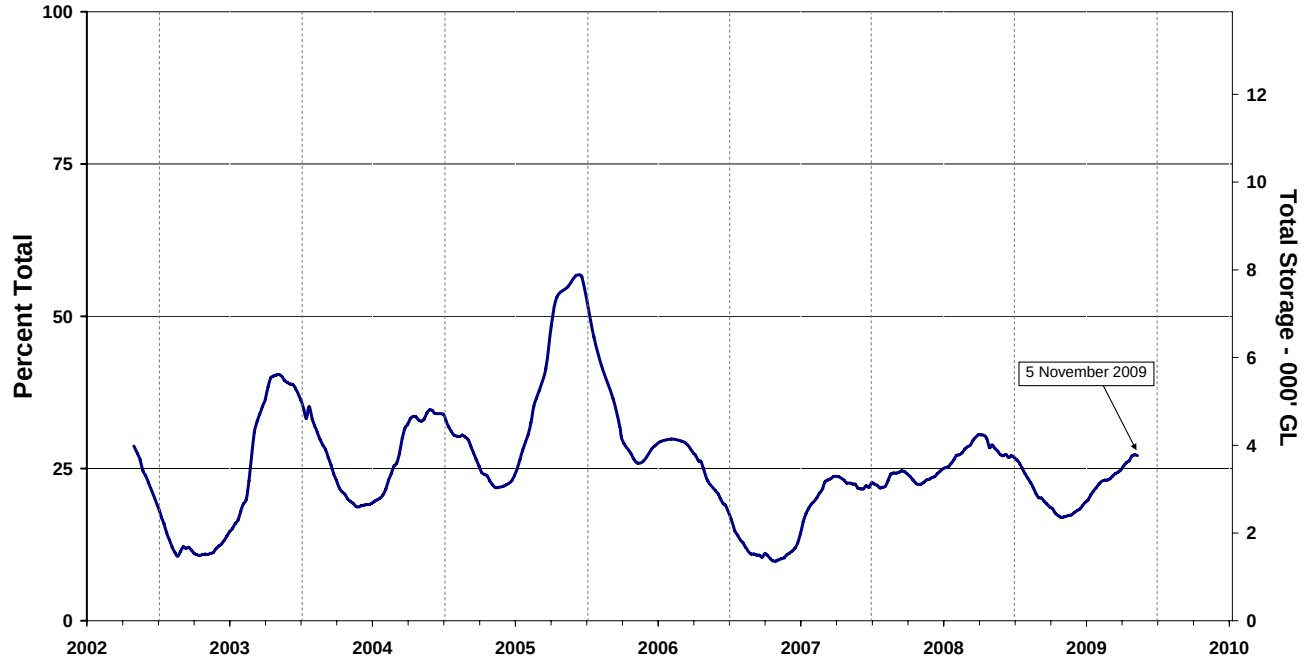
In central Queensland, storage levels decreased over the last month by 169 GL to 2554 GL, which is 81 per cent of a total capacity of 3155 GL. The current storage level is approximately 71 GL (approximately 2 per cent) lower than the same time last year.



Water storage levels in south-east Queensland from 3 February 2003 to 5 November 2009.
Source: Bureau of Rural Sciences

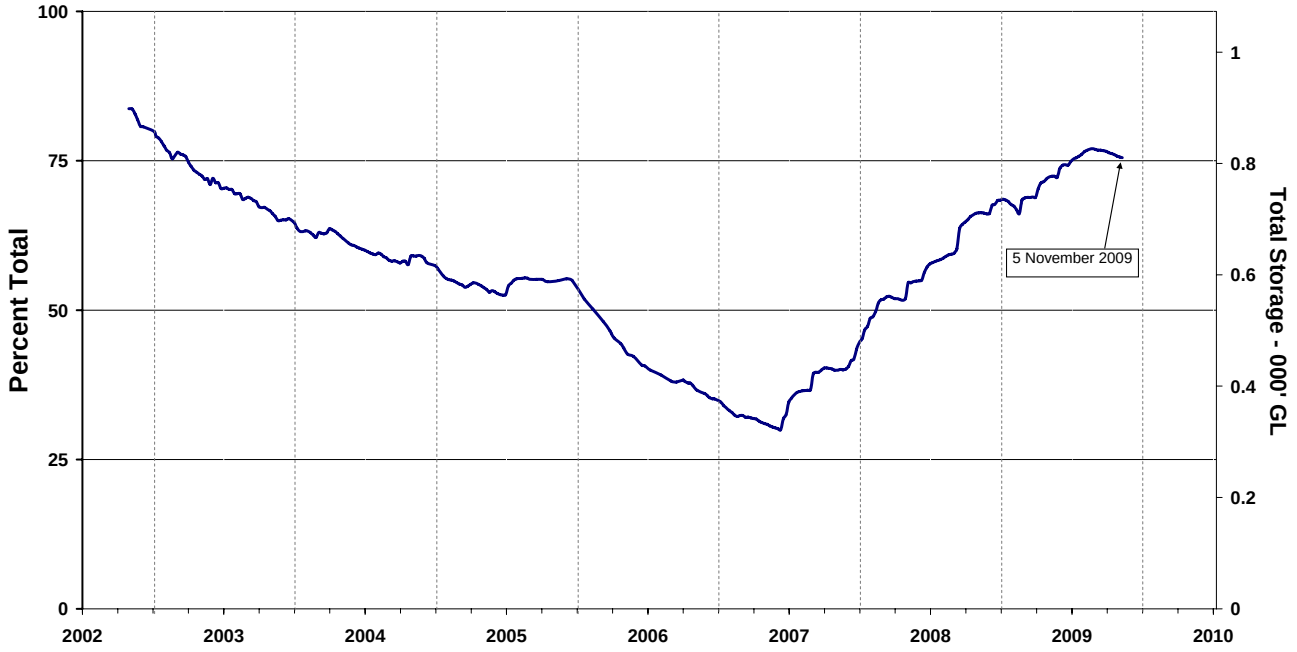
In south-east Queensland, storage levels decreased over the last month by 88 GL to 1708 GL (approximately 46 per cent of a total capacity of 3517 GL). The current storage is approximately 169 GL (5 per cent) lower than the same time last year.

Water storage in New South Wales



Water storage levels in New South Wales MDB from 28 October 2002 to 5 November 2009.
Source: Bureau of Rural Sciences

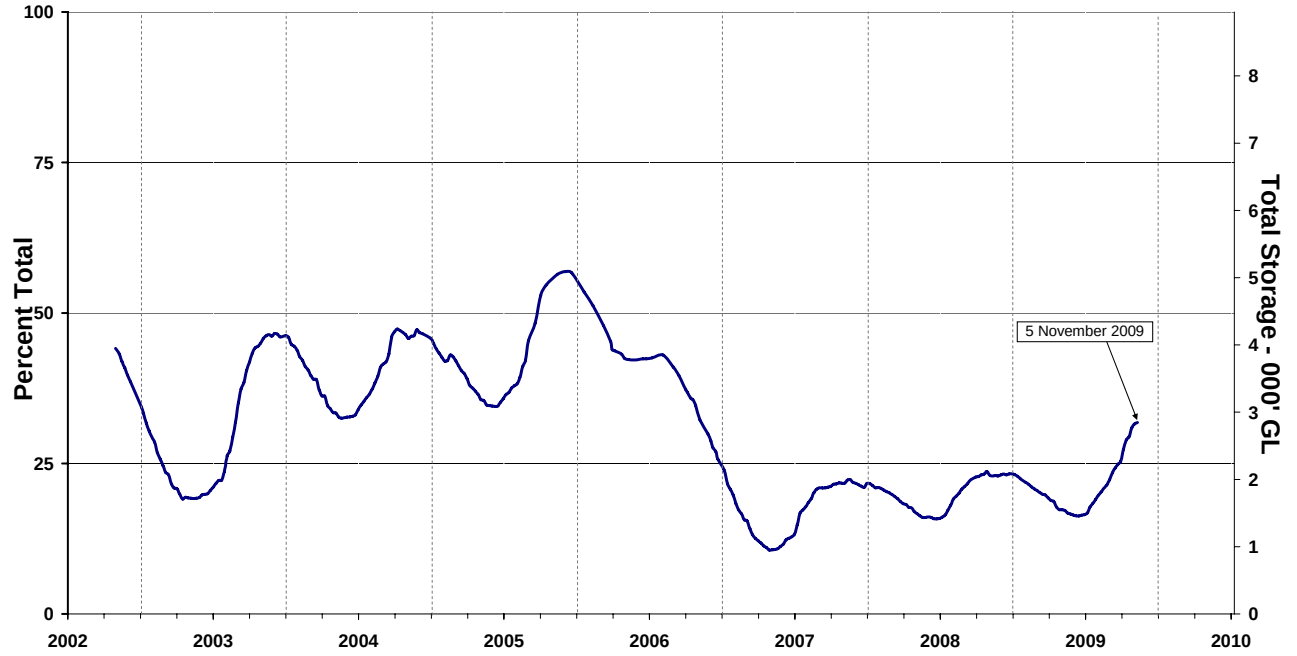
Storage levels in the New South Wales MDB increased over the last month by 162 GL to 3766 GL (27 per cent of a total capacity of 13 884 GL). The current storage level is approximately 165 GL (1 per cent) lower than the same time last year.



Water storage levels in coastal New South Wales from 28 October 2002 to 5 November 2009.
Source: Bureau of Rural Sciences

In coastal New South Wales, storage levels decreased over the last month by 7 GL to 811 GL (approximately 76 per cent of a total capacity of 1073 GL). The current storage level is approximately 99 GL (approximately 9 per cent) higher than the same time last year.

Water storage in Victoria



Water storage levels in Victoria MDB from 28 October 2002 to 5 November 2009.
Source: Bureau of Rural Sciences

Storage levels in Victoria MDB increased over the last month by 258 GL to 2832 GL (approximately 32 per cent of a total capacity of 8903 GL). The current storage level is approximately 790 GL (approximately 9 per cent) higher than the same time last year.

Murray-Darling Basin Authority water storages

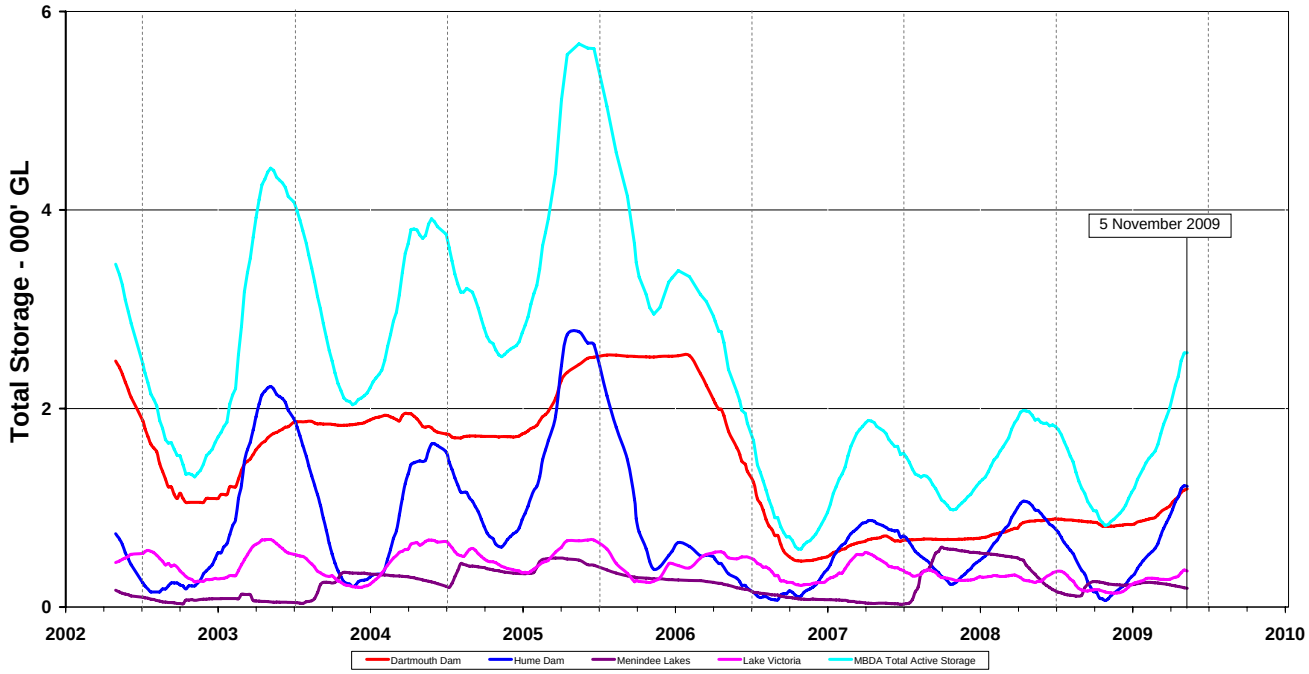
October rainfall was average, or above average across the central catchments of the River Murray system and below average for the northern and southern catchments. Total Murray System inflows for October improved as a result of the higher rainfall compared to the previous three years. Inflows reached 695 GL by the end of October, which is significantly below the long term average for October of 1400 GL.

Murray-Darling Basin Authority (MDBA) active storages at the end of October had increased by 325 GL over the last month to 2561 GL (approximately 31 per cent capacity). This storage level is approximately 678 GL higher than this time last year (1883 GL), and the highest storage volume since October 2006, but remains well below the long-term average of 6530GL. MDBA active storage has now been below average since early 2002.

The total volume of water in all Basin storages managed by the MDBA, or by State governments, increased over the last month. At the start of November 2009, Basin storages held about 6673 GL (29 per cent capacity). Storage in the Snowy Mountains reservoirs (managed by Snowy Hydro) remains low, with Lake Eucumbene improving to 36 per cent capacity, having increased 202 GL over October. Storage in Menindee Lakes, under New South Wales control, is at approximately 11 per cent capacity (190 GL). This compares to approximately 20 per cent capacity at this time last year. Storage in Hume Dam increased during October by 156 GL to 1216 GL (40 per cent capacity). The Hume release has increased to around 12 700 ML/day to meet downstream requirements. Storage in Dartmouth Dam increased during October by 106 GL to 1191 GL (approximately 30 per cent capacity). The release remains at the normal minimum of 200 ML/day.

Storage in Lake Victoria increased during September by 63 GL to 364 GL (approximately 53 per cent capacity). This is slightly higher than the same time last year (247 GL). The lake level is expected to decline slightly over the coming weeks. The flow to South Australia has been increased to 4000 ML/day in response to higher losses and diversions associated with hot weather and will most likely be increased further during November. Further downstream, the weir pool levels at Locks 2 to 6 are all slightly below full supply level (FSL), while Lock 1 is at full supply and the flow there has averaged 1180 ML/day during the past week. The flow is expected to rise towards 1600 ML/day over the coming week.

The trend of MDBA water storages at 5 November 2009 is shown in the figure below.



Water volumes in the Murray-Darling Basin Authority Storages from 28 October 2002 to 5 November 2009.
Source: Murray-Darling Basin Authority

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 allocation announcements

Announcements for New South Wales (current at 5 November 2009)

An increase to general security water allocations in the Murray and Murrumbidgee Valleys was announced on 2 November 2009. The water allocations for all licence holders are summarised in the table below. The units of water allocation changed at the start of the 2009–10 water year from per cent allocations to share units of the available water determination (AWD*).

Water system	High Security Licences (Megalitres per share unit or %)	Change (Megalitres per share unit or %)	General Security Licences (Megalitres per share unit or %)	Change (Megalitres per share unit or %)
NSW Murray Valley	97%	0	10%	+9%
Murrumbidgee Valley	95%	0	14%	+11%
Lower Darling	100%	0	25%	0
Macquarie Valley	1	0	0	0
Hunter Valley	1	0	1	0
Lachlan Valley	0.1	0	0	0
Border Rivers	1	0	0	0
Peel Valley	100%	0	80%	0

* AWDs are expressed as a percentage of the share component where share is expressed as a volume on the licence or as a volume per unit share where the licence share is expressed in unit shares.

October rainfall across Murray and Murrumbidgee catchments, particularly in the Snowy Mountains, has improved inflows and allowed for a number of allocation increases during the month. On 2 November 2009, Murrumbidgee Valley general security allocations increased from 3 per cent on 1 October 2009 to 14 per cent of entitlement. Likewise, inflows in the Murray Valley were sufficient to allow general security allocations to increase from 1 per cent on 1 October 2009 to 10 per cent of entitlement on 2 November 2009.

The improvement in water availability in the New South Wales Murray Valley will ensure that a continuous flow can be delivered into the Wakool River system. This will provide significant environmental benefits and maintain native fish habitat. The additional water availability will also enable current restrictions on irrigation in these tributaries to be removed.

There was no change to allocations in the Lower Darling with general security allocations remaining on 25 per cent of entitlement. Flows into the Darling River have virtually ceased over the last month with releases from the Menindee lakes reduced to the minimum. While flows in the Darling River have remained low, town water supply to Broken Hills is secure for at least 21 months.

Announcements for Victoria (current at 5 November 2009)

On 2 November 2009, Goulburn-Murray Water (G-MW) announced improvements in the seasonal allocations for the Murray and Goulburn systems. The allocations in the Broken, Campaspe, Loddon and Bullarook systems remained at zero.

Seasonal allocations in the Murray system are at 53 per cent of high-reliability water shares (HRWS), which is an increase of 24 per cent over the past month. The seasonal allocation in the Goulburn system is 40 per cent HRWS, which is an increase of 10 per cent over the past month. At the same time last year, the allocations in the Murray and Goulburn systems were 19 per cent HRWS and 14 per cent HRWS, respectively.

The improvements in allocations in the Murray and Goulburn systems are largely due to continued inflows into key system storages. However, with little follow up rain during October 2009, inflows have receded to low rates. Rainfall conditions have improved in the Snowy Mountains and the additional planned releases to the Murray system have helped the allocation increase.

Inflows in the Broken, Campaspe, Loddon and Bullarook systems will provide greater security for the delivery of domestic stock supplies and some carryover from these rivers for the remainder of the season. However, inflows have not been sufficient to fully meet the operation losses and make an allocation for this season.

The outlook for allocations for the remainder of the season will be updated on 16 November 2009. The improvement in the Murray system has exceeded the average inflow scenario for late October and this means that there will be a further improvement to the previous outlook to a 61 per cent allocation for average conditions. The Goulburn system improvement has been close to expectations for the average scenario.

Announcements for South Australia (current at 5 November 2009)

An increase in allocations for South Australian River Murray licence holders was announced on 2 November 2009. River Murray licence holders are now able to access 46 per cent of their entitlement, which is an increase of 21 per cent since the beginning of October 2009.

Rainfall across the Murray-Darling Basin during September and October has meant that an extra 120 billion litres of River Murray water is now available for South Australia, which has allowed the increased allocations for South Australian irrigators. Water has also been allocated to secure the remainder of South Australia's critical human needs water for 2010-11.

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/

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

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

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

3.0 Crop and livestock production

3.1 Crops

Winter Crops

Australia

Despite the variable conditions across regions, Australia's wheat production is forecast to be 22.7 tonnes in 2009–10, which is an upward revision from the June forecast of 22 million tonnes and 1.3 million tonnes higher than the previous year. http://www.abareconomics.com/interactive/09_SeriesPapers/Grains.2/

New South Wales

Yield prospects for winter crops have been reduced as a result of the dry spring and damage resulting from frost in early October. Winter crop production is forecast at 6.66 million tonnes, an 18 per cent decrease on the mid-September estimate of 8.02 million tonnes. As at 30 October, harvesting of faba bean, barley, canola and wheat has commenced in the north. Harvest has also commenced in the western parts of the central and southern areas. Wheat production is forecast at 4.48 million tonnes, barley at 0.90 million tonnes and canola at 0.27 million tonnes.
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Queensland

Earlier planted winter crops are in a better position to fulfil yield potential than late planted crops. The latter were unable to take advantage of stored subsoil moisture as it had moved beyond the root zone, suffered the full effect of no in-crop rainfall and experienced heat wave conditions in late August. This resulted in poor crop establishment and crop failure in some areas. Widespread rainfall in the first week of September arrived just in time for many crops in southern Queensland. Follow up rainfall in September and October provided a boost to yield potential in some cropping regions. http://www.abareconomics.com/interactive/09_SeriesPapers/Grains.2/

Expected winter crop production in Queensland is 23 per cent below the previous year, largely due to dry winter and unseasonably high temperatures in August.
http://www.abareconomics.com/interactive/09_SeriesPapers/Grains.2/

South Australia

Crops in all districts have responded well to rainfall in September and October, although rainfall was received too late to significantly boost yield potential in the Northern Mallee district. Harvesting of barley, peas and canola commenced in northern cropping areas from mid-October, with harvesting of wheat and other crops expected to begin at the start of November. Total crop area is estimated to be 4.03 million hectares with crop production estimated at 8.11 million tonnes. This would be the second largest crop produced in South Australia, after the record crop in 2001.
http://www.pir.sa.gov.au/__data/assets/pdf_file/0008/121103/Nov09cpr.pdf#Spring

Victoria

Yields in the Mallee are expected to be close to their historical average, due to the majority of the region receiving average rainfall throughout winter and spring. Yields in the north-east Mallee are likely to be more variable depending on the soil type — crops on lighter soils are expected to have higher yield potential than those on heavier soils. Winter crops in the Wimmera and Western District appeared to be well placed and there is potential for above average yields. Total winter crop production in Victoria is forecast to reach 5.5 million tonnes in 2009–10, an increase of 80 per cent from the drought affected harvest in 2008–09.
http://www.abareconomics.com/interactive/09_SeriesPapers/Grains.2/

Western Australia

The area sown to winter crops is estimated to have increased to 7.5 million hectares. Despite this increase, winter crop production is forecast to be around 0.58 million tonnes less than last season at 13 million tonnes. The area sown to wheat is estimated to have increased slightly to around 5 million hectares in 2009–10, as the late start to the winter cropping season resulted in a larger area being planted to wheat. Wheat production is forecast to be 8.7 million tonnes, which is a decline of 0.2 tonnes from last season. The area planted to barley is forecast to be down slightly, to 1.2 million hectares, while production is forecast at 2.4 million tonnes, which is 6 per cent lower than last season. http://www.abareconomics.com/interactive/09_SeriesPapers/Grains.2/

Summer Crops

Australia

Total summer crop area is forecast to fall by around 5 per cent to slightly more than 1 million hectares in 2009–10. This forecast decline mainly reflects a less than favourable seasonal outlook by the Bureau of Meteorology for the next few months. Availability of irrigation water remains a critical issue for cotton and rice. At this early stage of the season, the area planted to grain sorghum is forecast at 662 000 hectares in 2009–10, which represents an 8 per cent decline from the area sown last year. However, additional plantings are possible if higher than expected rainfall is received during the planting window. Assuming average yields, grain sorghum production in 2009–10 is forecast to decline by 20 per cent to 1.9 million tonnes.
http://www.abareconomics.com/interactive/09_SeriesPapers/Grains.2/

Soil water conditions and seasonal rainfall outlook at the end of October indicate a low chance of an above median sorghum yield during the 2009–10 summer growing season for most of the north-eastern Australia cropping region. http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/26_3394_ENA_HTML.htm

Queensland

Drier than normal conditions have decreased crop yield expectations in central and southern Queensland. However, for sorghum, the range of likely yield outcomes is variable as it is early in the season. Widespread average to above average rainfall is needed to improve the current poor crop outlook for most of the summer cropping region. http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/26_3394_ENA_HTML.htm)

New South Wales

Prospects for dry land summer crops are generally good following late October rain in northern areas. About 28 per cent of the sorghum crop is currently sown with planting continuing. Prospects remain relatively poor for irrigated crops due to continuing low water levels in storages across the state.
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3.2 Livestock

Beef cattle

Australian beef and veal exports during October 2009 were 79 521 tonnes shipped weight (swt), a decline of 15 per cent year-on-year. This decline was influenced by continued weak demand and a rising Australian dollar, while processors continued to scale back kill days due to limited supply of suitable cattle.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Aussie+beef+exports+contract+in+October.htm

Australian beef and veal exports to Japan were 31 097 tonnes swt, an increase of 2 per cent year-on-year, but 7 per cent below the five-year average for October. From January to October, Australian beef and veal exports to Japan were 300 000 tonnes swt, a decline of 2 per cent year-on-year.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Aussie+beef+exports+contract+in+October.htm

Exports of Australian beef and veal to the US were 16 187 tonnes shipped weight, a 42 per cent decline year-on-year.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Aussie+beef+exports+contract+in+October.htm

Australian beef and veal exports to Korea during October declined 19 per cent year-on-year. Exports from January to October were 92 819 tonnes shipped weight, an 11 per cent decline on the corresponding period in 2008.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Aussie+beef+exports+contract+in+October.htm

Indonesian, Philippine, Chinese and Hong Kong markets exhibited increasing demand for Australian beef and veal exports.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Aussie+beef+exports+contract+in+October.htm

The number of cattle entering Queensland markets in October was 40 per cent below numbers seen in October 2008. The decline in numbers was evident over all categories, particularly in cows. Scattered showers in the latter half of the month encouraged producers to hold onto livestock and also restricted the movement of cattle in some areas. The higher level of turnoff in previous years due to dry conditions, stock losses from flooding earlier in the year, and the attraction of the live export market were also contributing factors. Rainfall in early October encouraged graziers to hold onto stock in Victoria, but lack of rainfall in the later part of the month encouraged producers to offload.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Cattle+market+wrap.htm

At the close of October markets, the Eastern Young Cattle Indicator (EYCI) settled at 304.75¢/kg carcass weight (cwt). The trade steer indicator settled at 169¢, while feeder steer prices ended at 164¢/kg cwt. Japanese ox settled at 162¢ and US cow finished the month at 120¢/kg cwt.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Friday+daily+livestock+summary.htm

Sheep and lambs

Australian lamb exports during October were 16 405 tonnes shipped weight (swt), a 2 per cent increase year-on-year. From January to October lamb exports were 135 873 tonnes swt, a 10 per cent increase on the same period last year and the highest export volume on record for this period. This was influenced by strong demand from the Middle East (34 per cent increase year-on-year), China, Hong Kong and Taiwan (a combined 45 per cent increase year-on-year). This combined with an improvement in the Australian lamb supply, a limited Australian mutton supply and a tight New Zealand lamb supply. Exports to the United States and the European Union declined by 12 per cent year-on-year and 9 per cent, respectively.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Lamb+exports+set+to+hit+record+in+2009.htm

Young lambs comprised 75 per cent of lambs offered in eastern states markets. The number of new season lambs to market across Australia has increased 47 per cent year-on-year this October, with the majority coming from New South Wales. Good seasonal rainfall has seen producers hold onto light lambs which are generally suitable for re-stockers and feeders. This has helped lift the price of light lambs (over $70 per head) which has increased 32 per cent year-on-year.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Lamb+supply+jumps+in+October.htm

The re-stocker lamb indicator settled at 434c/kg, while Merino lamb was 354c/kg carcass weight (cwt). Light lambs settled at 393c/kg cwt. Trade lambs settled at 405c/kg, while heavy lambs finished at 386c/kg. Mutton settled October at 294c/kg cwt, nearly double the value for the corresponding week last year.
http://www.mla.com.au/TopicHierarchy/News/MarketNews/2009/Friday+daily+livestock+summary.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/

Victorian Department of Primary Industries
http://www.dpi.vic.gov.au

4.0 Climate Outlook

4.1 El Niño Southern Oscillation (ENSO)

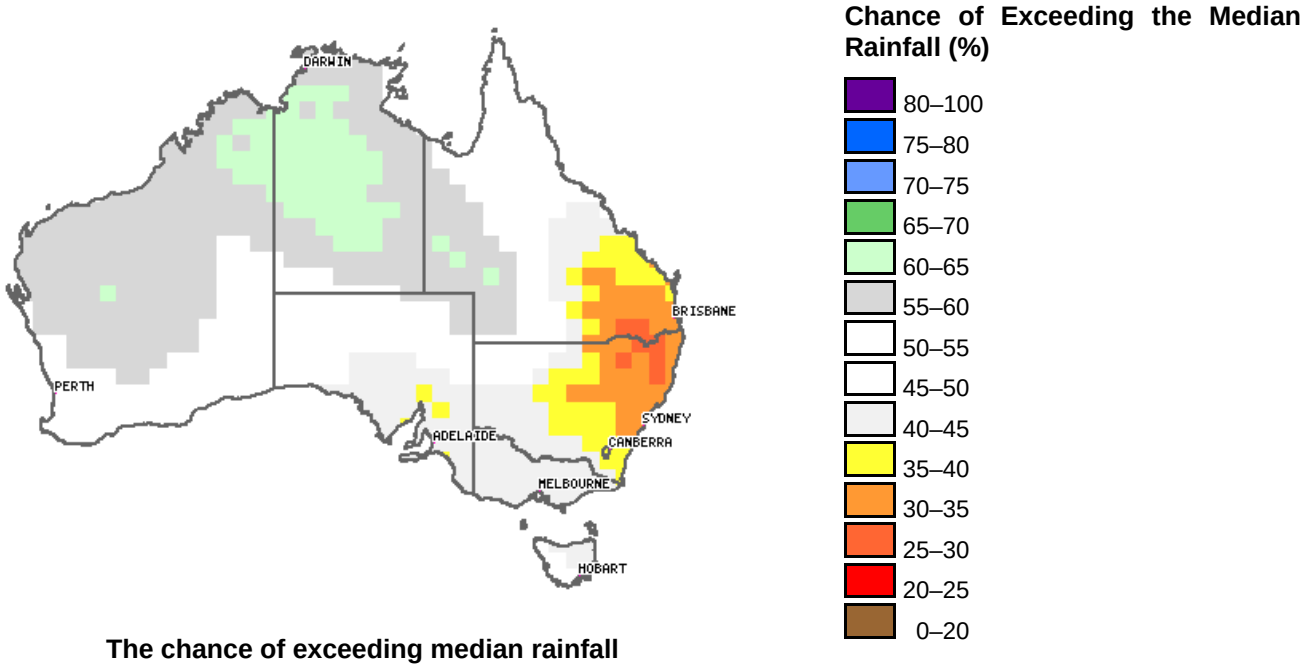
On 28 October 2009, the Australian Bureau of Meteorology announced that ocean surface temperatures in the Pacific have warmed further and now exceed levels typical of an El Niño by the highest margin this year. Cooling has occurred in the Coral Sea and in some areas to the north of Australia. Consequently, ocean conditions are approaching normal in these areas. In the second half of October, equatorial Trade winds eased further with weaker than average Trade flow now extending well into the eastern Pacific. Cloudiness near the date line over past months has generally been greater than the long-term mean and is currently weaker compared to other El Niño events. Recent rainfall patterns over Australia are also typical of an El Niño event. The Southern Oscillation Index fell rapidly during October to –12, its lowest value since 2007.

Leading climate models suggest that tropical ocean temperatures will remain above El Niño thresholds at least until early 2010. In addition, the most recent values of the Indian Ocean Dipole (IOD), as measured by the Dipole Mode Index (DMI), remain neutral. The Bureau's POAMA model suggests neutral IOD conditions will persist over the coming months. Generally, a positive DMI means less rainfall in Australia, particularly the south-east of the country, while a negative DMI is related to enhanced rainfall across Australia.

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

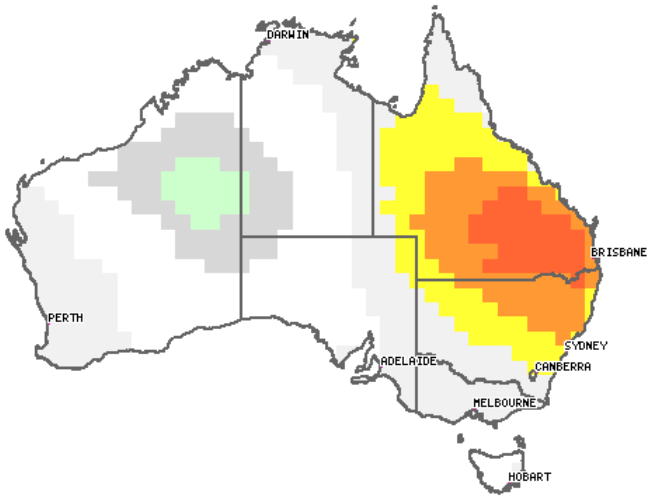
November 2009 - January 2010

The late spring to mid-summer (November 2009 to January 2010) seasonal outlook indicates an increased likelihood of drier than average conditions (25–40 per cent chance of exceeding the median rainfall) across south-eastern Queensland and the eastern half of New South Wales. In the central and western Northern Territory and north-eastern Western Australia, there is an increased likelihood (60–65 per cent) of above average three-monthly rainfall totals.

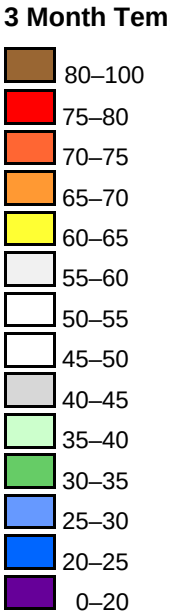
The pattern of seasonal rainfall odds across Australia is a result of above average temperatures in the Indian and Pacific Oceans. Warmer temperatures in the Pacific tend to indicate below average rainfall across eastern

Australia while the warm Indian Ocean temperatures influence wetter than average conditions across west of Western Australia and the tropics.

4.3 Temperature Outlook

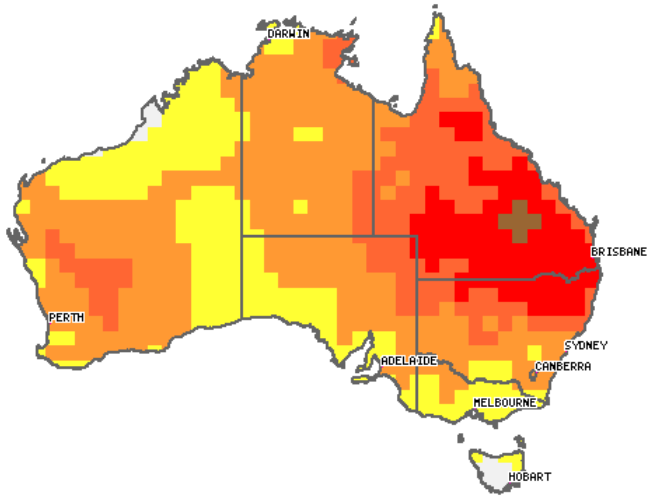


The chance of exceeding median maximum temperatures November 2009 – January 2010

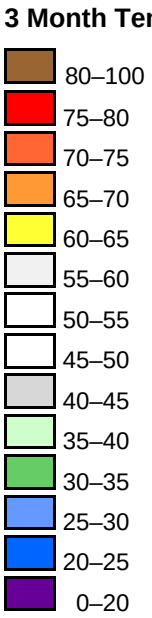


The maximum temperature for November 2009 to January 2010 is likely to be above average across most of eastern Australia. There is a 60 to 75 per cent chance of exceeding the median maximum temperature for most of Queensland and northern and eastern New South Wales. A 35 to 40 per cent chance of exceeding maximum temperatures exists for an area in the east of Western Australia.

The pattern of seasonal temperature odds across Australia is a result of recent warm conditions in the Indian Ocean and a warming Pacific.



The chance of exceeding median minimum temperatures November – January 2009



The average minimum temperature for November 2009 to January 2010 is likely to be above average across most of Australia except for Tasmania. There is a 65 to 75 per cent chance of exceeding the median minimum temperature for much of the country, with values well above 75 per cent in the southern half of Queensland and northern New South Wales.

History shows the oceans' effect on minimum temperatures during November to January to be moderately consistent over most of the country.

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