NARCliM



Far West

Climate Change Snapshot



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Acknowledgement of Country

The NSW Government acknowledges First Nations people as the first Australian people and the traditional owners and custodians of the country's lands and water. The NSW Government acknowledges the Barundji, Karenggapa, Wadilgali, Malyangaba, Bandjigalia, Wandjiwalgu, Wiljali, Danggali, Barkindji, Barindji and Wongaibon Aboriginal people from the Far West region as having an intrinsic connection with the lands and waters. The landscape and its waters provide the First Nations people with essential links to their history and help them to maintain and practise their traditional culture and lifestyle. Australia's First Nations people have lived in NSW for over 60,000 years and have significant spiritual, cultural and economic connections with its lands, waters, seas and skies.

They are the first astronomers and scientists who have been listening to and caring for Country for generations.

We pay respects to Elders past and present and acknowledge the significance of their traditional knowledge in adapting to changes in climate over tens of thousands of years.

We recognise the importance of their wisdom at this pivotal moment in time.



Photo caption:

The Emu in the Sky is an Aboriginal constellation that is made up of the dark clouds of the Milky Way. With the movement of the earth, the position of the Emu in the Sky changes throughout the year. Aboriginal people in some nations across NSW and Australia relate the position of the Emu in the Sky to the breeding behaviour of the emu on the land. Cultural astronomy teaches us about the relationship between the sky and land; and that we are all interconnected.

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About this snapshot

The New South Wales (NSW) and Australian Regional Climate Modelling (NARCliM) project delivers high-resolution climate change projections for NSW and south-east Australia.

This snapshot summarises the latest NARCliM2.0 projections for temperature, average rainfall, hot days 35°C and above, cold nights under 2°C and severe fire weather (Forest Fire Danger Index greater than 50) at a 4km resolution for NSW and the Australian Capital Territory (ACT). There is information for both a low-emissions scenario (SSP1-2.6), and a high-emissions scenario (SSP3-7.0) to the year 2100 to show the range of plausible climates that may be experienced, depending on our actions to reduce greenhouse gas emissions.

Understanding current warming

NSW and the ACT have already warmed by 1.4°C since national records began in 1910.¹ This local warming figure represents surface air temperature over land in NSW and is not directly comparable to average estimates of global warming which include surface air temperature over both land and ocean. Surface warming occurs faster over land than the ocean. Significant impacts from climate change are already occurring in NSW and are expected to be felt more widely in the future, particularly if concerted global effort is not taken to reduce greenhouse gas emissions and adapt to the expected impacts of climate change.

How to use this snapshot

This snapshot provides a summary of plausible future climate change in the Far West region relative to a baseline of average climate from 1990–2009. The projections for 2050 represent averaged data for 2040–2059 and projections for 2090 represent averaged data for 2080–2099. In translating the projections, it is important to consider the previous historical changes that occurred prior to 1990–2009. For example, national temperature records indicate that NSW has warmed by 0.84°C between 1910–1930 and the 1990–2009 baseline.¹

Modelling climate change at a local level provides detailed insights into how NSW communities, built environments and natural environments will continue to be impacted by climate change. Information in this snapshot can be used in conjunction with detailed information that is available through the AdaptNSW <u>Interactive Map</u> and the <u>Climate Data Portal</u>.

NARCliM climate projections

NARCliM2.0 projections provide nation-leading climate model data that span the range of plausible future changes in climate for south-east Australia at a 4km resolution, and for the broader Australasian region at a 20km resolution. NARCliM2.0 projections are the next generation of NARCliM, building on previous generations delivered in 2014 and 2021. NARCliM is the NSW Government's trusted source of climate information and data for all audiences and sectors. Detailed information on NARCliM can be found at <u>AdaptNSW</u>.

Methods and uncertainty

To help address future uncertainty, NARCliM2.0 is built on a selection of emissions scenarios, global climate models and regional climate models that, together, capture a range of climates that could occur. This is referred to as the NARCliM model ensemble. The NARCliM2.0 model ensemble is made up of different combinations of 5 selected global climate models and 2 regional climate models, giving 10 model combinations in total. Unless otherwise specified, the presentation of data in this snapshot is averaged across a 20-year period from the NARCliM model ensemble.

Combining multiple models through averaging and other statistical methods produces better projections by providing a comprehensive range of possible future climate scenarios. To ensure that NARCliM models adequately simulate regional climate, scientists use them to simulate the past climate and compare the results with actual observations. Outputs undergo rigorous quality control and scientific technical peer review. There is more information on the <u>modelling project</u> and <u>scientific methods</u> at AdaptNSW.

Shared Socioeconomic Pathways

Shared Socioeconomic Pathways (SSPs) are the most recent emissions scenarios adopted in the IPCC's Sixth Assessment Report.

The SSPs describe how greenhouse gas emissions and socioeconomic factors – such as population, economic growth, education, urbanisation and land use – may change in the future. Global carbon dioxide emissions modelled for a low-emissions scenario and a high-emissions scenario are displayed below (Figure 1). For more information on emissions scenarios, visit <u>AdaptNSW</u>.

SSP1-2.6 describes a low-emissions future with a global transition towards sustainable and equitable development.

SSP3-7.0 describes a high-emissions future of regional conflict and development where countries do not collaborate on tackling climate change and do not focus on sustainable and equitable development.



Figure 1. Human-caused global emissions of carbon dioxide - past and projected

Mental health support

Climate change information can be distressing for some readers, with many Australians of all ages experiencing significant eco-anxiety. For supporting information, please visit the <u>Black Dog Institute</u> or <u>Australian Psychological Society</u> or speak with your local healthcare provider.

Projected changes Far West



Low-emissions scenario Hot days per year Hot days per year Average Average ¶\$\$\$ ⊪ò́will increase by: will increase by: temperature temperature 19.6 21.1 increase 30.4 57.6 increase 2050 2090 2050 2090 ↑**2.1°C** 1.2°C Average rainfall Average rainfall 2050 will decrease by: 2050 will decrease by: 15.3% 13.6% 20.0% 17.9% 1.4°C **↑4.2°C** 2050 2090 2050 2090 2090 2090 Severe fire weather Severe fire weather (~) days per year will days per year will increase by: increase by: 15.6 5.4 6.0 8.8 2050 2090 2050 2090

Regional impacts



Data is based on NARCliM2.0 (2024) projections for SSP1-2.6 (low-emissions) and SSP3-7.0 (high-emissions) and is presented relative to the historical climate baseline of 1990-2009. The projections for 2050 represent averaged data for 2040-2059 and projections for 2090 represent averaged data for 2080-2099. Values presented are averages across the NARCliM2.0 model ensemble, and do not represent the full range of plausible climate futures. Regional climate change impacts are used to highlight how the region is likely to be affected by climate change, and impacts are not limited to the examples provided.

High-emissions scenario



The climate of NSW underpins a diverse array of important natural industries, lifestyles and ecosystems. A stable climate is critical to support a range of values in NSW, including our unique food systems, recreational activities and biodiversity.

The Far West is the largest region in NSW and one of the most environmentally diverse, covering 40% of the state. The region consists of the city of Broken Hill and remote towns such as Bourke, Cobar and Walgett. The Barwon-Darling River system connects Far West communities to each other and to the southern shires such as Wentworth and Balranald.



Current climate

The climate of the Far West region is influenced by its low-lying topography and distance from the coast. The eastern fringe experiences the highest rainfall totals in the region, while the central and western parts are very dry. It is hot in the north of the region during summer, with cool winters in the southern and central areas. Milder conditions are found along the southern fringe adjacent to the Victorian border, with cooler summers than the rest of the region.

Landscapes of the region are mostly flat and range from the 'outback' semi-arid desert areas to rich farmlands, rangelands and wetlands. It is traversed by one of Australia's longest river systems, the Barwon-Darling, which is home to some of the world's oldest heritage assets and dotted with historic mining and agricultural towns that are influenced by surrounding states and regions. The region has a high diversity of species and ecosystems, including the internationally recognised Willandra Lakes Region World Heritage Area, 8 national parks and over 12,000 Aboriginal cultural heritage sites.

Table 1. Baseline climate for the Far West

	Average temperature	Hot days	Cold nights	Rainfall	Severe fire weather days
Observed	19.8°C	62.9	15.7	290mm	15.2
Historical model	19.4°C	63.6	11.0	243mm	16.6

Table 1 outlines the annual average values for the 1990–2009 baseline period in this snapshot. All observed data is calculated from Bureau of Meteorology products. Long-term temperature change data is from the long-term temperature record.¹ Observed information and data in graphs come from Australian Gridded Climate Data (AGCD).²



Temperature

The Far West is getting warmer

Temperature is the most robust indicator of climate change. In NSW, 6 of the 10 warmest years on record since 1910 have occurred since 2013. The warmest year on record for both average temperature and maximum temperature in the Far West region was 2019, when average temperature was 1.1°C above the 1990–2009 average.²

Projections

Across the Far West region, average temperatures will increase throughout this century (Figure 2).

Under a low-emissions scenario, the average temperature increase across the region is projected to be less than 0.2°C between 2050 and 2090 (Table 2). However, a major temperature increase of 2.1°C is expected during the same period under a high-emissions scenario. Notably, the temperature projections for 2050 under a high-emissions scenario are expected to exceed the projections for 2090 under a low-emissions scenario.

Temperature increases are expected in all parts of the region (Figure 3) and across all seasons. Northern areas of the region, including Bourke and Walgett, will see the greatest increases in temperature (Figure 3). By 2090, Bourke is likely to experience an increase in temperature of 1.6°C under a low-emissions scenario and 4.6°C under a high-emissions scenario. Comparatively, Wentworth in the south of the region is likely to experience an increase in temperature of 1.2°C under a low-emissions scenario and 3.6°C under a high-emissions scenario.

4.2°C

rise in average temperature across the Far West by 2090 under a high-emissions scenario



6 of 10

record have occurred since 2013



	2050		2090	
	Low-emissions	High-emissions	Low-emissions	High-emissions
Temperature	1.2°C	2.1°C	1.4°C	4.2°C
	(0.6–1.8°C)	(1.0–2.9°C)	(0.7–2.2°C)	(2.8–5.9°C)
Maximum	1.3°C	2.1°C	1.4°C	4.0°C
temperature	(0.7–1.8°C)	(1.0–3.0°C)	(0.7–2.2°C)	(2.9–5.7°C)
Minimum	1.1°C	2.0°C	1.3°C	4.2°C
temperature	(0.6–1.7°C)	(0.9–2.7°C)	(0.7–2.0°C)	(2.7–5.8°C)

Table 2. Projected annual average temperature increase – Far West

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

8°C 6°C 4°C 2°C 0 -2°C 1980 2010 2040 2070 2100 Year Observed temperature - High-emissions (average) High-emissions model range Low-emissions (average) Low-emissions model range - Historical model (average) Historical model range

Figure 2. Historical and projected average temperature change – Far West

The shading around the graphs

The climate change projections presented in this snapshot are relative to the historical climate baseline of 1990–2009. The graphs provide a projected annual average for the 2 emissions scenarios. The range of plausible climate futures across the NARCliM model ensemble is shown by light shading. For historical climate data, both recorded observational data (dark line) and modelling of the past climate in NARCliM2.0 (grey) are presented.



Figure 3. Projected change in average temperature by 2090 for the Far West under A) a low-emissions scenario and B) a high-emissions scenario



Hot days

Hot days will become more frequent

Prolonged hot days where maximum temperatures are 35°C or above increase the incidence of illness and death – particularly among vulnerable people. Seasonal changes in number of hot days could have significant impacts on bushfire danger, infrastructure and native species.

Projections

During the baseline period, the number of hot days in the Far West region generally increased from south to north of the region. Southern areas such as Wentworth had on average 40 hot days per year and northern areas such as Bourke had on average more than 75 hot days per year.

Changes to temperature extremes often have more pronounced impacts than changes in average temperature. Higher maximum temperatures affect health through **heat stress** and exacerbate existing health conditions.

The number of hot days will increase for the Far West region by 2050 for both a low-emissions and a high-emissions scenario, with an even greater increase by 2090 under a high-emissions scenario (Table 3). The number of hot days is projected to increase during spring, summer and autumn, with the largest increase in summer. Under a low-emissions scenario, there is a small increase of only 1.5 additional hot days per year projected across the region between 2050 and 2090 (Table 3). However, an increase of 27.1 additional hot days per year is projected under a high-emissions scenario during the same period.

By 2090, Broken Hill could experience more than double the number of hot days under a high-emissions scenario.

Increases to hot days will occur across all of the region. Northern areas of the region, including Bourke and Walgett, are projected to experience the greatest increases in the number of hot days (Figure 5). By 2090, Bourke will likely experience 25.8 additional hot days per year under a lowemissions scenario and 67.2 additional hot days per year under a high-emissions scenario. A highemissions scenario is projected to nearly double Bouke's baseline period average of 76.7 hot days per year. Comparatively, in the south of the region, Wentworth's baseline period average is 38.4 hot days per year. By 2090, Wentworth is projected to experience an additional 13.2 hot days per year under a low-emissions scenario and 41.0 additional hot days per year under a high-emissions scenario.



Table 3. Projected increase in average annual number of hot days – Far West

2050		2090	
Low-emissions	High-emissions	Low-emissions	High-emissions
19.6 days (6.3 to 32.2 days)	30.4 days (12.1 to 43.8 days)	21.1 days (9.0 to 35.6 days)	57.6 days (36.4 to 83.2 days)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.



Figure 4. Historical and projected change in annual number of hot days – Far West



Figure 5. Projected change in annual number of hot days by 2090 for the Far West under A) a low-emissions scenario and B) a high-emissions scenario

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Cold nights will decrease

Cold nights are those where the minimum temperature drops below 2°C. These are important for the survival of some important plant species. For example, some common temperate fruit species require sufficiently cold winters to produce flower buds.

Projections

Generally, cold nights in the Far West region occur in the eastern areas of the region, with relatively fewer cold nights in western areas near the South Australian border. During the baseline period, the average number of cold nights ranges from more than 20 nights per year near Walgett to less than 5 cold nights per year near Broken Hill. The number of cold nights will decrease for the Far West region by 2050 for both a low-emissions and a high-emissions scenario, with an even greater decrease by 2090 under a high-emissions scenario (Table 4). The number of cold nights is projected to decrease across autumn, winter and spring, with the largest decreases in winter.

By 2090, there could be a greater than 95% reduction in the number of cold nights across the Far West under a high-emissions scenario.



Cold nights will decrease across all of the region, particularly in the east of the region (Figure 7). The greatest decreases are projected to occur east of Walgett and south of Cobar. By 2090, Walgett is projected to have 11.0 fewer cold nights per year under a low-emissions scenario and 21.0 fewer cold nights per year under a high-emissions scenario. A high-emissions scenario is projected to reduce Walgett's 22.1 cold nights per year base period average by more than 95%.

Table 4. Projected decrease in average annual number of cold nights – Far West

2050		2090		
Low-emissions	High-emissions	Low-emissions	High-emissions	
5.7 days (3.5 to 8.9 days)	7.8 days (3.0 to 10.3 days)	6.2 days (3.1 to 8.4 days)	10.5 days (8.5 to 12.8 days)	

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

Figure 6. Historical and projected change in annual number of cold nights – Far West



Figure 7. Projected change in annual number of cold nights by 2090 for the Far West under A) a low-emissions scenario and B) a high-emissions scenario





Rainfall

Rainfall is projected to remain variable

Climate change will influence rainfall patterns and the total amount of rainfall that NSW receives. These changes may have widespread impacts on water security, agricultural productivity and native species' reproductive cycles. For example, eucalypt woodlands and riverine plains in the Far West could struggle to cope with drier conditions.

NSW has experienced rainfall extremes in recent decades, with significant impacts on communities, infrastructure and natural ecosystems.

Modelling rainfall is more difficult than modelling temperature due to the complexities of the weather systems that generate rain. NARCliM projections capture a range of plausible climate futures under the 2 emissions scenarios, including wet and dry outcomes. This means that rainfall is inherently more variable in the NARCliM projections than temperature, and the full range of rainfall projections should be taken into account. This can be explored further on the AdaptNSW Interactive Map.

Annual rainfall across the Far West region averages about 290mm.² Rainfall is nearly uniformly distributed throughout the year, with most rainfall occurring episodically. Eastern areas of the region, such as Walgett and Balranald, experience relatively greater rainfall than western areas such as Broken Hill. The driest year on record was 1940, with an average rainfall of 120mm across the region. Significantly dry years were also experienced in 2018 and 2019, with approximately 130mm of average rainfall in each year.²

Projections

This snapshot provides data on average rainfall change and does not provide data on rainfall extremes and the impacts of climate change on flooding.

Annual average rainfall in the region is projected to remain variable throughout this century (Figure 8). By 2090, on average, annual rainfall is projected to decrease by 14% under a lowemissions scenario and by 18% under a highemissions scenario (Table 5).

By 2090, on average, spring rainfall is projected to decrease by approximately 30% under both emissions scenarios. Areas in the north and west of the region, such as Tibooburra and Broken Hill, are projected to experience greater decreases (Figure 9). On average, spring rainfall in Broken Hill is projected to decrease by 25% under a low-emissions scenario and by 33% under a high-emissions scenario.

Average annual rainfall could decrease across the Far West under both scenarios.

On average, summer, autumn and winter rainfall is projected to change by 20% or less across the region by 2090 under both a low-emissions scenario and a high-emissions scenario. Refer to the <u>Interactive Map</u> for further seasonal information.

Table 5. Projected change to average rainfall – Far West

	2050		2090	
	Low-emissions	High-emissions	Low-emissions	High-emissions
Annual	-15.3%	-20.0%	-13.6%	-17.9%
	(-37.1% to +6.0%)	(-44.3% to +7.7%)	(-31.9% to +32.4%)	(-47.4% to +58.0%)
Summer	-10.9%	-22.6%	-18.6%	-13.4%
	(-47.6% to +41.7%)	(-48.6% to +72.9%)	(-53.4% to +74.5%)	(-44.4% to +55.2%)
Autumn	-16.4%	-18.3%	-6.3%	-16.4%
	(-40.0% to +7.1%)	(-50.8% to +45.3%)	(-35.6% to +42.7%)	(-48.9% to +58.5%)
Winter	-13.6%	-18.2%	–1.9%	-14.0%
	(-25.4% to +34.5%)	(-46.4% to +26.3%)	(–35.8% to +78.0%)	(-57.3% to +114.7%)
Spring	-21.4%	-20.4%	-27.5%	-29.5%
	(-55.0% to +36.2%)	(-52.3% to +19.1%)	(-49.0% to +43.7%)	(-56.6% to +65.7%)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.



Figure 8. Historical and projected change to average rainfall – Far West



Figure 9. Projected change to average rainfall by 2090 for the Far West under A) a low-emissions scenario and B) a high-emissions scenario





Severe fire weather will increase

The Forest Fire Danger Index (FFDI) represents an estimate of fire weather risk. The FFDI is calculated from temperature, relative humidity and wind speed, as well as a number representing fuel dryness.

Severe fire weather (FFDI greater than 50) is most likely in summer and spring. Fire weather was the strongest determining factor of house loss during the Black Summer bushfires.³ The number of severe fire danger days observed for the Far West region is 15.2 days per year on average.² The number of severe fire danger days is generally high across the region, with relatively more severe fire danger days in northern areas of the region such as Tibooburra and Bourke. The record number of severe fire danger days in a year was 2019 with approximately 52.8 days on average across the region, including 58 days recorded at the Broken Hill station and 107 days recorded at the Tibooburra station.⁴

Fire weather was the strongest determining factor of house loss during the Black Summer bushfires.³



FFDI was monitored by weather stations across NSW and the ACT until the introduction in 2022 of the Australian Fire Danger Rating System. FFDI is used in this snapshot as it can be calculated using the NARCliM projections, whereas data used by the <u>Australian Fire Danger Rating System</u> cannot. FFDI also provides a long history of data and gives context to the NARCliM projections.

Projections

The number of severe fire weather days will increase for the Far West region by 2050 for both a low-emissions and a high-emissions scenario, with an even greater increase projected by 2090 under a high-emissions scenario (Table 6). The number of severe fire weather days is projected to increase during spring and summer, with the largest increase in summer.

Under a high-emissions scenario, the number of annual severe fire weather days is projected to more than double in northern areas of the Far West.

Increases to severe fire weather days are projected to occur across the region (Table 6). The greatest increases are projected to occur in northern areas of the region including Bourke and Tibooburra (Figure 11). By 2090, Bourke is projected to experience 7.6 additional severe fire weather days under a low-emissions scenario and 19 additional severe fire weather days under a high-emissions scenario. A high-emissions scenario is projected to more than double Bourke's baseline period average of 18.8 severe fire weather days per year. In the south of the region, Wentworth's baseline period average is 12.1 severe fire weather days. By 2090, Wentworth is projected to experience 3.7 additional severe fire weather days per year under a low-emissions scenario and 9.9 additional severe fire weather days per year under a high-emissions scenario.

Table 6. Projected increase in average annual number of severe fire weather days – Far West

2050		2090	
Low-emissions	High-emissions	Low-emissions High-emission	
5.4 days (-0.3 to 10.5 days)	8.8 days (3.0 to 18.4 days)	6.0 days (0.9 to 14.0 days)	15.6 days (6.7 to 29.3 days)

The bold number is the ensemble average for the period. Underneath the average is the ensemble range.

Figure 10. Historical and projected change to annual number of severe fire weather days – Far West



Figure 11. Projected change to annual number of severe fire weather days by 2090 for the Far West under A) a low-emissions scenario and B) a high-emissions scenario



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Climate change is already impacting the Far West region, particularly through increased temperatures and changes to rainfall patterns. Climate change will continue impacting a variety of important economic, cultural and environmental values.

Supply and wetlands

Increased rainfall variability from climate change is also predicted to have significant impacts on the internationally significant Ramsar Wetlands of the Far West such as the Paroo River Wetlands and Narran Lakes (Dharriwaa). For the Paroo River Wetlands, annual streamflow has already declined by 28% and waterbird abundance declined by 50% from 1981–2020 due to changes in temperature and rainfall. Further climate change impacts on wetland vegetation and waterbird abundance can be expected from increased hot days that cause evaporation and changes to rainfall, particularly under a highemissions scenario.^{7,8}

The impacts of increased hot days, increased temperatures and changes to rainfall on communities, infrastructure and natural ecosystems will be worse under a high-emissions scenario.

Impacts on

Communities and agricultural producers are expected to be increasingly impacted by more hot days over 35°C. This increase will cause increased heat stress for people and could affect livestock during the reproductive phase.⁵ Worse droughts could be possible under a future climate, resulting in significantly lower inflows into the Barwon-Darling River than those experienced in 2017–2020, which would impact town water supplies and agricultural production.⁶

References

¹Long-term temperature record – webpage

² <u>About Australian Gridded Climate Data maps and grids</u> -webpage

³ Price et al. 2020, <u>Probability of house destruction.</u> <u>Theme 3A. People and Property Impacts</u>, *Bushfire Risk* <u>Management Research Hub for the NSW Bushfire Inquiry</u> <u>2020</u>–webpage

⁴ Bureau of Meteorology Station Data – webpage

⁵DRNSW 2024, <u>'Climate Vulnerability Assessment</u> <u>Summary Report</u>', *Department of Primary Industries*, Sydney

⁶ DPE 2023, '<u>Regional Water Strategy–Western</u>', Department of Planning and Environment, Sydney

⁷ OEH 2020, <u>'Ramsar Information Sheet for Site</u> no. 1716, Paroo River Wetlands, Australia', Office of Environment and Heritage, Sydney

⁸ DPIE 2021, '<u>Ramsar Information Sheet for Site no. 995,</u> <u>Narran Lake Nature Reserve</u>', Office of Environment and *Heritage*, Sydney Climate action and information

Climate action

The NARCliM projections for the low-emissions scenario and the high-emissions scenario highlight the stark difference in climate change impacts that will be experienced under each scenario. The differences provide a reminder of the required action across the world to reduce emissions, and specifically within NSW to meet our legislated Net Zero by 2050 emissions reduction targets. This is our best chance at ensuring the future projections under the high-emissions scenario are avoided. The NARCliM projections highlight the importance of taking action to adapt to the impacts of climate change. For more resources on reducing emissions and adapting to the impacts of climate change, visit AdaptNSW.

Information

NARCliM projections are delivered with support from: the ACT, South Australian, Victorian and Western Australian governments; National Computational Infrastructure; Murdoch University; and the University of New South Wales. Detailed information on the methodology and application of the projections can be found on the AdaptNSW website.

Climate change information in this snapshot is delivered as part of the NSW Government's commitment to 'Publish regularly updated and improved local level climate change projections' under Action 3 of the NSW Climate Change Adaptation Strategy.

Photo credits

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Contents:

p.2: The Dark Emu Overhead, Alan Dyer

p.3: Revegetation in Australia, *MarkPlovesan/iStock* p.6: Downtown of Broken Hill city from elevation of open pit historic mine Line of Lode over railway train station and main streets at sunset, *Zetter/iStock* com; Brown rock formation under white clouds, *Pat Whelen/pexels* p.7: The Living Desert and Sculptures, Broken Hill, *Jason Lerace/Destination NSW*; Brown dirt road between green grass field under blue sky, *Dylan Shaw/Unsplash* p.10: Hot day, *Serg64/Shutterstock* p.13: Frost on the farm, MacierPhotography/iStock; Narran Lake Nature Reserve in flood April 2021, Joanna Ocock/NSW DCCEEW p.16: Incoming storm, Smyk_/iStock p.19: Forest fire, byronsdad/iStock p.22: Brindingabba National Park, Joshua J Smith/NSW DPE NSW p23: Putting in a remote Rako line fire control, Michael Jarman/DCCEEW

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