CLIMATE COUNCIL

WHAT DOES CLIMATE CHANGE MEAN FOR YOUR LOCAL AREA?

THE FEDERAL ELECTORATE OF FAIRFAX

The Climate Council is an independent, crowd-funded organisation providing quality information on climate change to the Australian public.

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Australia is getting hotter. The ten hottest years on record have all happened since 1980.[1] The summer of 2012/2013 was our hottest on record, and the records kept tumbling in the summer of 2013/2014 when in just 90 days over 156 records for heat, bushfires and drought were broken around the country.[2]

Parts of Australia are getting drier. Climate change will play a role in increasing drought frequency in southern Australia, with decreases in the amount of rainfall potentially as high as 10% by 2030, and 30% by 2070.[3]

Sea levels are rising around Australia. Currently sea levels have been rising at an average of 1.4mm per year, in future this is very likely to increase, with a 1.1 m sea level rise leaving $226 billion in commercial, industrial, road and rail, and residential assets exposed to coastal flooding.[4]

Heatwaves

Heatwaves are becoming hotter, lasting longer and occurring more often, with significant impacts for human health and natural ecosystems.

Figure one shows the warming trend being experienced in Queensland. The summer of 2012/2013 was the hottest on record, and all time-high maximum temperatures were set in Brisbane. Heatwaves in Queensland are becoming more intense, with the average intensity of heatwaves increasing in Brisbane by 1°C.[5]

The major heatwave of 2013/2014 gives an indication of the increasing intensity of heatwaves in Queensland. The sunshine state experienced its area-averaged hottest day on record. For the week ending on the 4th of January, average maximum temperatures were 8°C or more above normal in southern inland Queensland.

More record hot days and associated heatwaves increase the risk of heat-related illnesses and death, particularly in the elderly. Deaths in Brisbane increased by 23% during the 7-26th February period when the temperature increased from 26°C to 42°C.[6]

Some of Queensland's most iconic marsupials are also at risk during extended periods of hot weather. For example, the green ringtail possum cannot control its body temperature when subjected to prolonged temperatures of over 30°C.[7]

Heatwaves are also affecting marine ecosystems. Ocean heatwaves are a well-known cause of bleaching in coral, with bleaching events occurring repeatedly on the Great Barrier Reef since 1970. The Great Barrier Reef has now lost 50% of its coral cover in the last 30 years and underwater heatwaves are contributing to this trend.[8]

High temperatures with high humidity and low air movement can impact on the ability of livestock, leading to loss of appetite, productivity, reproductive vigour, and sometimes death. Dairy cattle air particularly vulnerable to heat stress, which can reduce milk production and quality. This has implications for the electorate of Fairfax that has a diverse range of industries including dairy and beef cattle.

In the future Queensland is likely to experience an increase in hot days and heatwaves.

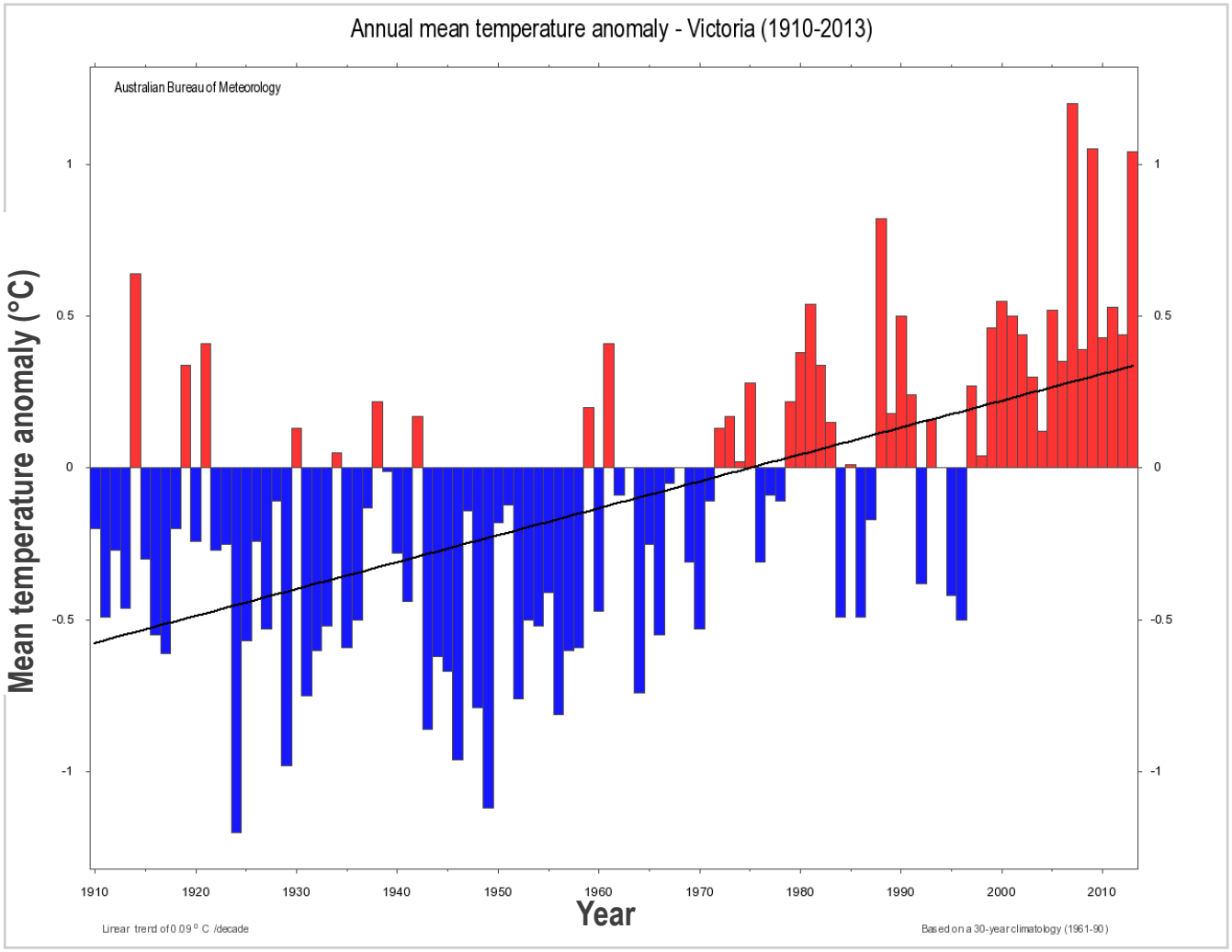


Figure One: Queensland increasing heat (Australian Bureau of Meteorology)

Reduced Rainfall:

Increasing pressure on urban water supplies & agriculture

Queensland is currently experiencing its most widespread drought on record[9] and below average July rainfall has seen an increase in the severity and extent of rainfall deficiencies in Queensland.[10]

Average rainfall in southern Australia is projected to continue to decrease overtime with implications for urban water supplies and agriculture.

During the Millennium Drought, southeast Queensland faced severe water restrictions, that saw average water use in some areas fall to 129 litres per person per day, in comparison to a regional urban consumption of 375 litres under normal operating modes.[11]

The anticipated increased duration of droughts in southeast Queensland is also expected to impact the length of time it takes to refill key water storages in the region. An assessment of climate change impacts on water availability in Moreton catchment has found a decline in inflow into water storages when it rains, and longer breaks between significant 'storage filling events'.[12]

Current droughts are expected to decrease agricultural production, with total winter crop production forecast to fall by 12 percent in 2014-15, with yields likely to be lower than currently projected if timely rainfall is not received.[13]

Bushfires:

Hotter, drier weather in Queensland is driving up bushfire danger weather, with implications for the wellbeing of residents.

The bushfire season is also getting longer, and Queensland could be in for one its worst bushfire seasons in five years.[14]

Increases in hospital admission for asthma and other respiratory diseases in Brisbane have also increased on days where high level of smoke from bushfires have been experienced.

Coastal Flooding:

Billions of dollars worth of damages

Queensland has the greatest combined risk, in term of both quantity and cost for a sea level rise of 1.1 metres. For South-East Queensland the cost of coastal flooding could double by 2030 and quadruple by 2070.[15]

Over half the Australian coastline is vulnerable to recession from rising sea level, with 62% of the Queensland coast at risk. [16]

In Queensland there are 900-1,400 commercial buildings at risk from a sea level rise of 1.1 metres, with replacement costs of between $10-$15 billion.

Queensland also has the highest amount of residential buildings exposed to a sea level rise of 1.1 metres, with between 44,000 and 68,000 residential buildings at risk, at a cost of between $15-$20 billion.

Queensland also has the greatest length (between 420-570km) of rail infrastructure at risk of sea level rise. [17]

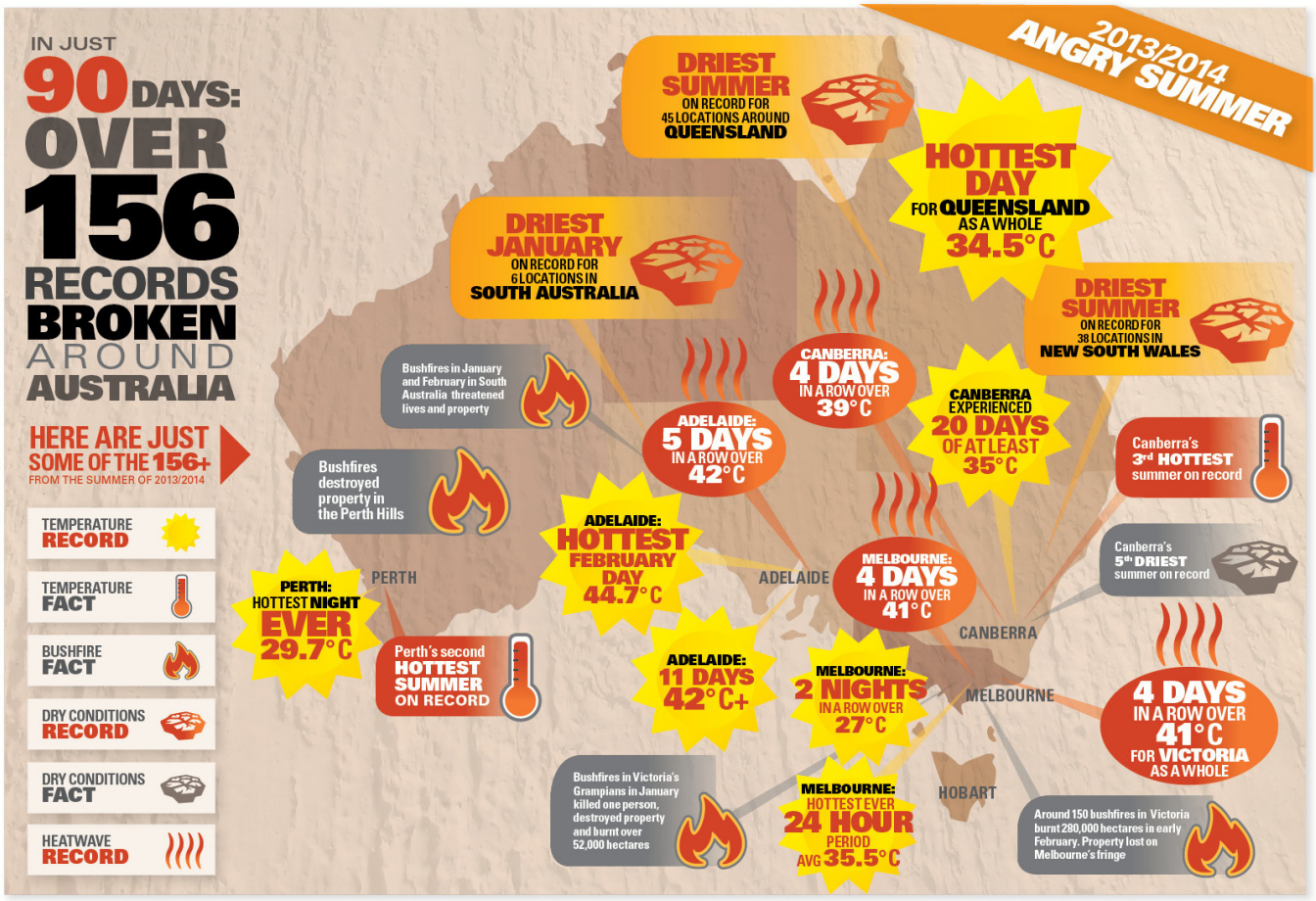
Rising sea levels also pose risks for Queensland's tourism. A substantial proportion of tourism revenue can be attributed directly to marine biodiversity and resources ($5.1 billion annually and 54,000 jobs in the Great Barrier Reef catchment alone) but increased flooding and recession will damage the quality of marine and coastal ecosystems, potentially reducing marine tourism. [18]

The electoral of Fairfax is particularly vulnerable to flooding due to its proximity to the coast.

This is the Critical Decade for Fairfax

Fairfax, and Queensland more broadly, will be seriously impacted by climate change. Heatwaves, bushfires, reduced rainfall and coastal flooding will contribute to declines in human health, slow the growth of the agricultural sector and cause billions of dollars in damages to vulnerable coastal infrastructure.

The impacts of climate change are already being observed. Australia must strive to cut its emissions rapidly and deeply to join global efforts to stabilise the world's climate and reduce the risk of even more extreme events, including bushfires, heatwaves and coastal flooding. This is the critical decade to get on with the job.



Source: BoM 2014a–h; The Age 18 January 2014; The Age 11 February 2014

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Figure Two: Australia's Angry Summer of 2013/14

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