

# WHAT DOES CLIMATE CHANGE MEAN FOR YOUR LOCAL AREA?

## THE FEDERAL ELECTORATE OF CURTIN

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

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**WHAT DOES CLIMATE CHANGE MEAN FOR YOUR LOCAL AREA:**  
THE FEDERAL ELECTORATE OF CURTIN

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Australia is getting hotter. The ten hottest years on record have all happened since 1980.<sup>1</sup> 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.<sup>2</sup>

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.<sup>3</sup>

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.<sup>4</sup>

## Heatwaves

Heatwaves are becoming hotter, lasting longer and occurring more often.

Figure one shows the warming trend being experienced in Western Australia.

The number of heatwave days each year has been increasing in Perth, and across Australia as a whole since 1950.<sup>5</sup>

Heatwaves in Perth are becoming more intense with the average intensity of heatwaves increasing by 1.5 °C.<sup>6</sup>

For example, in January 2009, a heatwave occurred where air temperatures were above 45 °C for several consecutive days, causing the deaths of thousands of birds in Western Australia.<sup>7</sup>

## Reduced Rainfall:

### Drought and depleting water resources

Rainfall patterns in Western Australia have changed over the last 40 years. The southwest corner of the state has become markedly drier, with a 15% reduction in rainfall since the mid-1970's.<sup>8</sup>

There is significant evidence that climate change has contributed to this drying trend in the southwest of the state. This has had serious implications for urban water supplies and agriculture.<sup>9</sup>

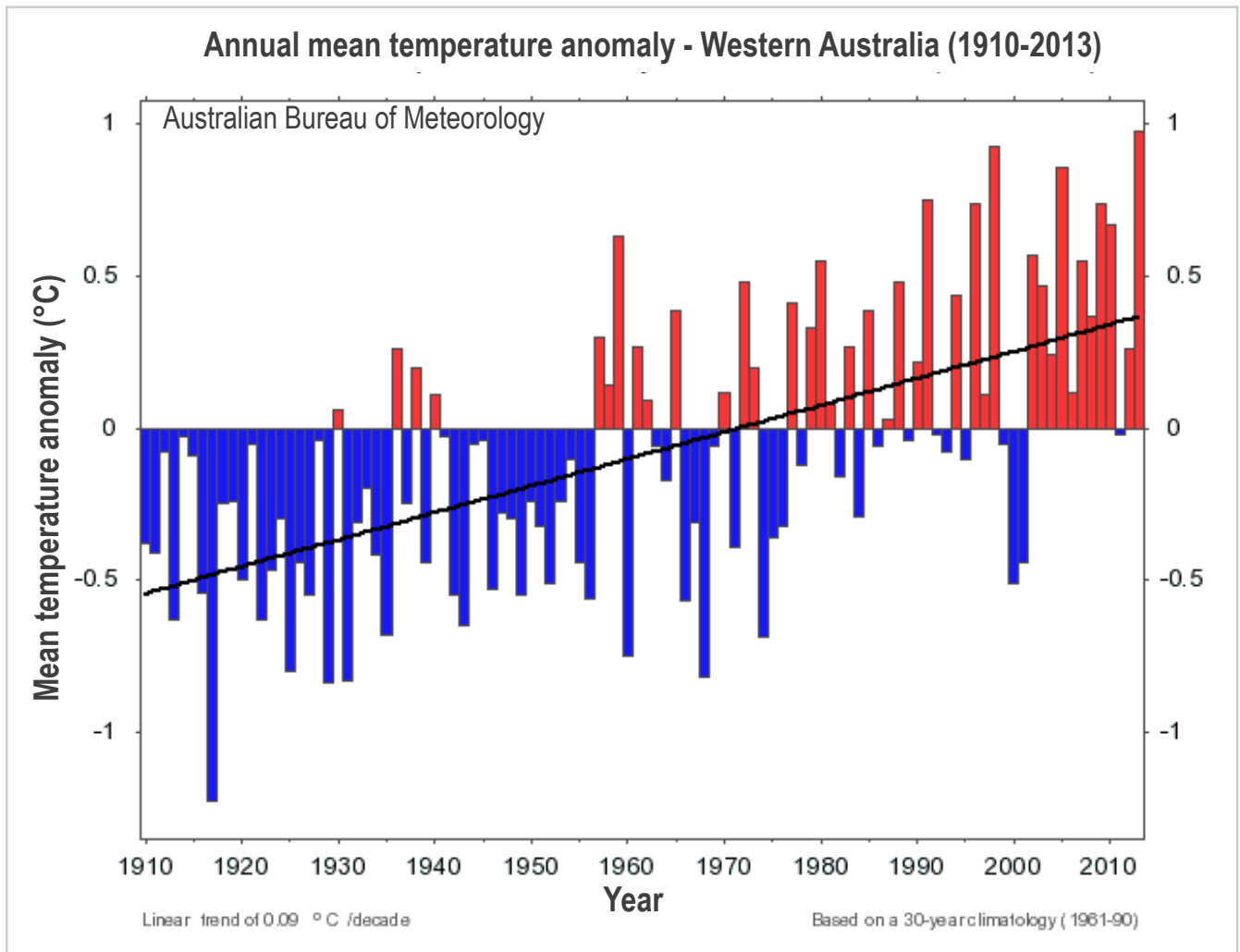


Figure One: Western Australia increasing heat (Australian Bureau of Meteorology)

The Western Australia Department of Water (2009) predicts a supply-demand annual deficit that is potentially as large as 85 gigitalitres (GL) by 2030. Desalination plants, which have been built in all mainland states in Australia, can potentially assist in easing declines in urban water supplies, although they have significantly varied water producing capacity.<sup>10</sup>

A new study examining future drying trends in Australia has projected that drying will be most pronounced over southwest Australia, with total reductions in autumn and winter precipitation potentially as high as 40 percent by the late 21st century. This could have significant implications for the city of Perth, which may need to increase the capacity of the state's desalination plants, or find alternate sources of water, in order to sustain the population of the city.<sup>11</sup>

## Coastal Flooding:

### Billions of dollars worth of damages

Sea levels along the west coast of Australia have been rising at more than double the global average. With a substantial portion of the population living in coastal cities and towns, rising sea levels pose significant risks to Western Australia's coastal infrastructure and iconic sandy beaches.<sup>12</sup>

Over half of the Australian coastline and 40% of the Western Australia coastline is vulnerable to coastal recession under sea-level rise.<sup>13</sup>

In Fremantle, flooding events became three times more frequent during the 20th century as a result of sea-level rise and with just 10 cm of sea level

rise the risks of coastal flooding roughly trebles.<sup>14</sup>

The estimated costs of coastal flooding in Western Australia are significant. A sea level rise of 1.1 meters (a high end scenario for 2100), could cause as much as \$127-\$18.1 billion worth of damage to commercial and light industrial buildings and \$8.7-\$11.3 billion to coastal roads.<sup>15</sup>

Flooding events are likely to damage cities, towns and the supporting infrastructure in low-lying coastal areas and will lead to the erosion of sandy beaches.

Coastal flooding and sea level rise will impact the electorate of Curtin due to its proximity to the coast and Swan river (see figure 2).

## Bushfires:

Hotter, dryer weather is driving up bushfire danger weather in Australia.

On 6 February 2011 a bushfire destroyed 71 homes and damaged a further 39 homes in the Roleystone-Kelmscott area of the Perth Hills in Western Australia.<sup>16</sup>

During the 2011 fire event 517 families were evacuated from their homes.<sup>17</sup>

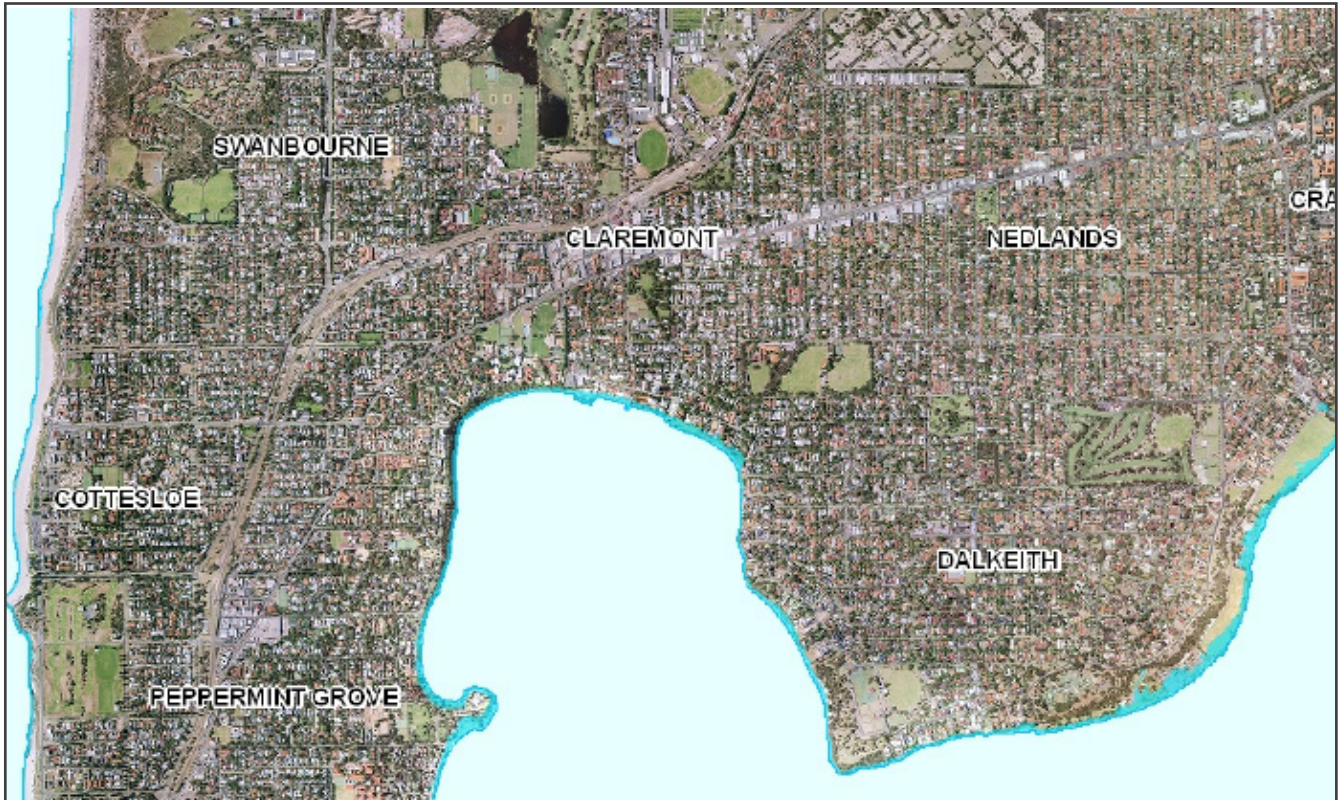
In 2009, 173 lives were lost and over 2000 homes were destroyed in Victoria and Western Australia, in some of the worst bushfire conditions that the country has ever seen.<sup>18</sup>

By 2030 it has been estimated that the number of professional firefighters will need to approximately double (compared to 2010) to keep pace with increased population, asset value and fire danger weather. This has implications for the capacity of fire fighting teams in Western Australia.<sup>19</sup>

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Figure Two:

Simulated coastal flooding from a sea-level rise of 80cm in the federal electorate of Curtin (a medium scenario for 2100 time period) (Geoscience Australia).

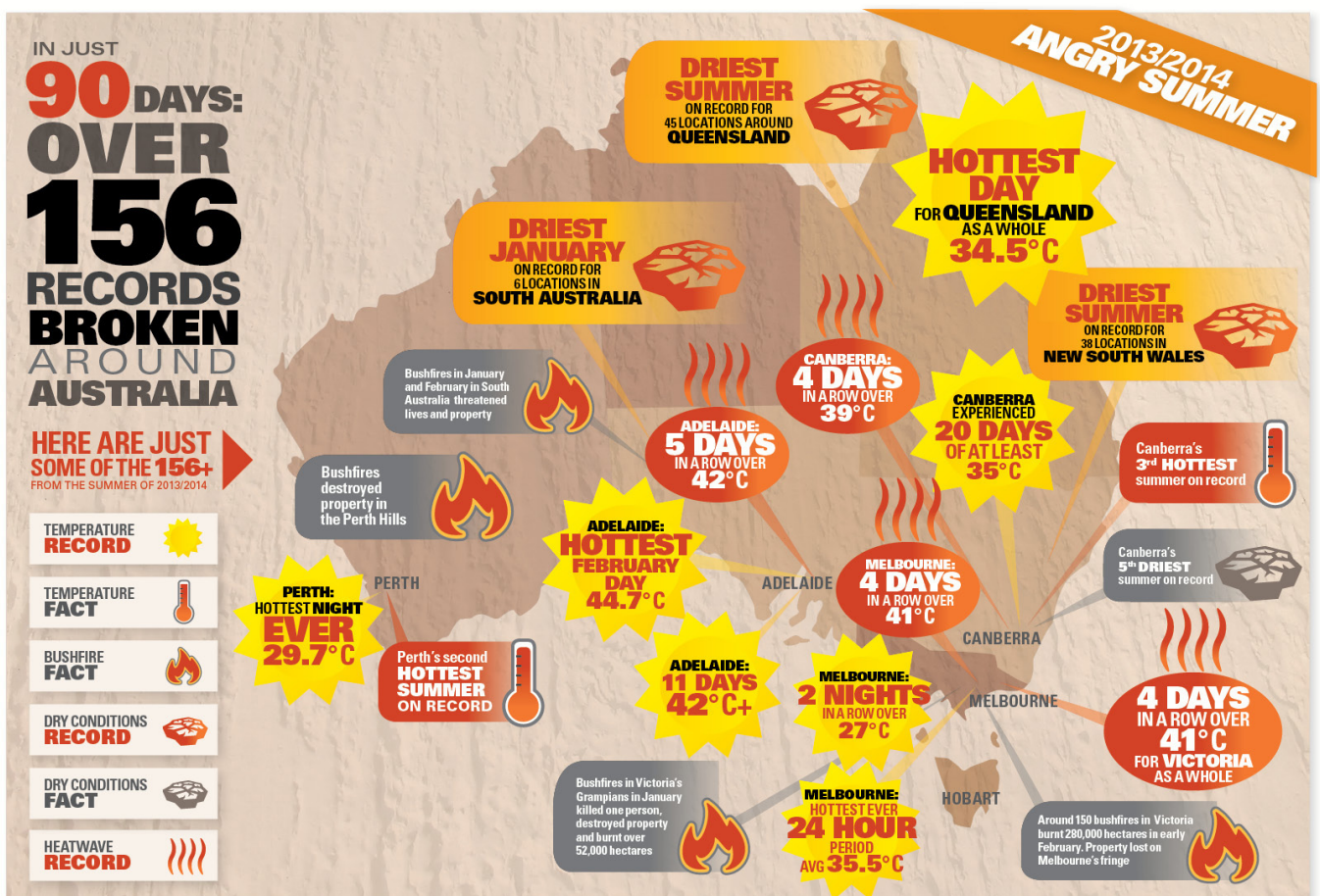


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# This is the Critical Decade for Curtin

Curtin and Western Australia more broadly, will be seriously impacted by climate change. Heatwaves, reduced rainfall and coastal flooding could contribute to an increase in fatalities, environmental damage 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

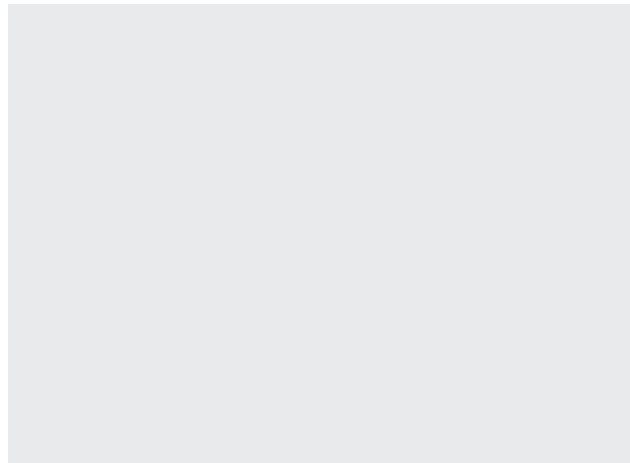
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Figure Three:  
Australia's Angry Summer of 2013/14

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