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Department of Biodiversity,  
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# Climate change

## Evidence of our changing climate

### OUR CLIMATE IS CHANGING

The 'greenhouse effect' is a natural phenomenon that enables life on Earth to survive. Greenhouse gases such as carbon dioxide and methane trap heat from the sun in the atmosphere creating our warm liveable climate. The 'enhanced greenhouse effect' is caused by increased levels of greenhouse gases resulting in more heat being trapped in the Earth's atmosphere.

Climate changes due to the enhanced greenhouse effect are often referred to as 'global climate change' or 'global warming'.

Levels of greenhouse gases are now higher than ever before and are rising at a faster rate. There is worldwide scientific agreement that the enhanced greenhouse effect is already causing higher average air temperatures in the lower atmosphere, changed rainfall patterns and rising sea levels, including in Western Australia (WA).

### WHAT ARE THE MAIN OBSERVED CHANGES IN WA?

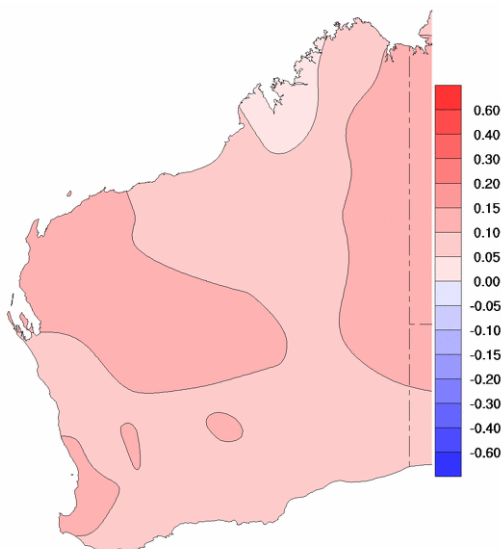
Observed temperatures for all of WA have increased by approximately 0.8°C since 1910 (Figure 1(a)), with most of the increase occurring since 1950 (Figure 1(b)). The highest temperature increase (0.20 to 0.30°C per decade) between 1950 and 2008 are observed in areas of inland WA with most of WA experiencing an increase of 0.15 to 0.20°C per decade (Figure 1(b))

### GLOBAL CONSENSUS

The Intergovernmental Panel on Climate Change (IPCC) is a scientific intergovernmental body set up by the World Meteorological Organization (WMO) and by the United Nations Environment Program (UNEP) to provide a comprehensive and objective view on the complex issue of climate change. Governments that are part of the WMO and UNEP can participate in decision-making in the IPCC. The decision-making process is carried out in plenary sessions where reports and work programs are approved. Scientists from these member countries form the core of IPCC. They review, contribute and write the reports of the IPCC.

In its Fourth Assessment Report published in 2007, the IPCC concluded there was a greater than 90 per cent chance the temperature increases since the mid-twentieth century have been caused by greenhouse gas emissions from human activities rather than from natural processes.

(a) Trend in mean temperature 1910–2008 (°C/10 years)



(b) Trend in mean temperature 1950–2008 (°C/10 years)

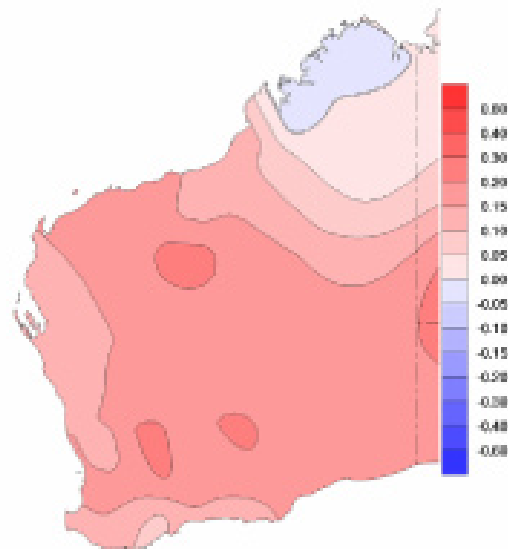


Figure 1: (a) Trend in mean temperature 1910–2008 (b) Trend in mean temperature 1950–2008 (Source: BoM)

# Climate change

Rainfall for most parts of WA between 1900 and 2007 has increased, with the highest increase recorded in the northern part of WA (Figure 2). Rainfall in south west WA however has decreased with the most significant decrease in the Augusta to Albany region (Figure 2) and parts of the south coast.

## Trend in annual total rainfall 1910–2008 (mm/10 years)

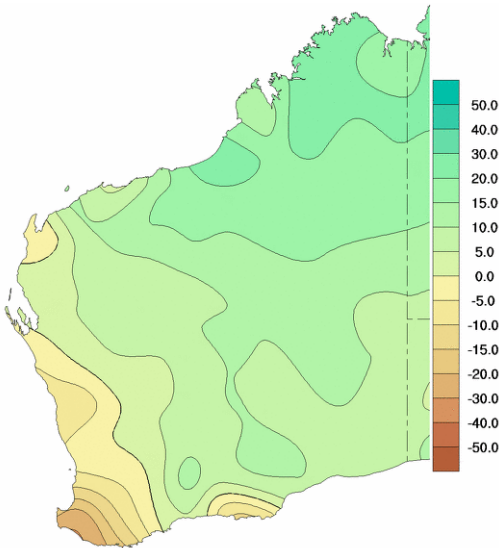


Figure 2: Trend in Annual Total Rainfall 1910-2008 (Source: BoM)

The decrease in south-west WA's rainfall has caused a reduction in water entering our dams. Average inflow between 2001 and 2006 is 81.8 gigalitres (GL), which is less than 25 per cent of the average inflow between 1911 and 1974 (Figure 3).

## Trend in annual total rainfall 1910–2008 (mm/10years)

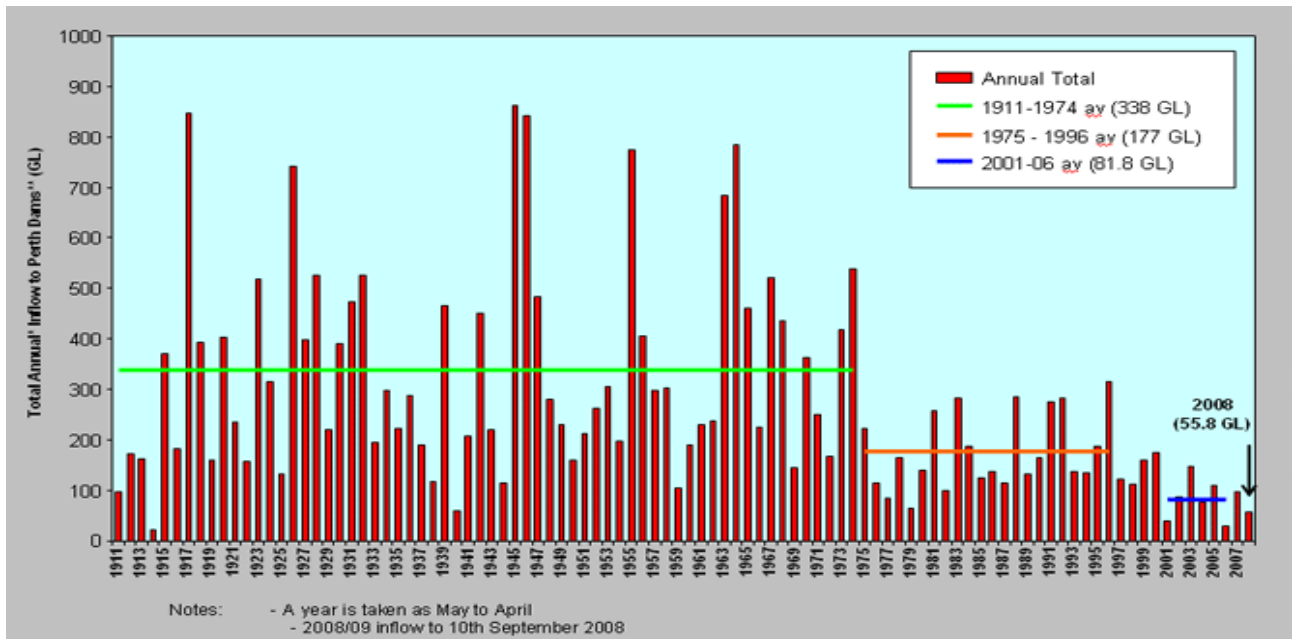


Figure 3: Decreasing average inflow into our dams (Source: Water Corporation)