

Everything you need to know about Climate Change

What is climate change? When we talk about 'climate change' we're talking about the changes to our climate over long periods of time. It doesn't just mean having a wet summer or having a couple of really blowy days every now and then; climate change means long-term changes to the climate.



Why is it happening? The [Intergovernmental Panel on Climate Change \(IPCC\)](#) is the United Nations body for assessing the science related to climate change. In 2021-22, the IPCC released their [sixth assessment report](#). This is the most up-to-date physical understanding of the climate system and climate change. The report makes it clear that climate change it is unequivocal that human influence has warmed the atmosphere, ocean and land, mostly due to the greenhouse effect.

Naturally occurring greenhouse gases form a blanket around the Earth, trapping heat from the sun in our atmosphere and keeping the Earth at a steady temperature where life can thrive. However, in recent years human activities have seen an increase in the amounts of these heat-trapping gases entering the atmosphere. This has meant that more heat from the sun is being trapped in our atmosphere. As more heat is trapped in our atmosphere, the temperature rises. This is known as global warming.

As a result of these gases building up around our planet, the lower atmosphere of our planet warms, changing long-established climates around the world and leading to some extraordinary weather, such as increased flooding, increased droughts in usually dry places, and an increase in the frequency and severity of bushfires, amongst others.

Basically, we're making too much pollution for the earth to deal with naturally, and this is changing the state of our planet.

What human activities? Carbon Dioxide or CO₂ is the most significant greenhouse gas released by human activities. Fossil fuel burning (oil, coal) has produced about three-quarters of the increase in CO₂ from human activity over the past 20 years. Most of the rest is due to land-use change, particularly deforestation because fewer trees can't soak up the gases as effectively.

Methane is also an issue, and is produced when vegetation is burned, digested or rotted with no oxygen present. Garbage dumps, rice paddies, and burping and farting cows and other livestock also release lots of methane.



What is the impact? It is hard enough to predict what will happen with the weather next week, let alone what will happen with the climate over a long period of time. Scientists have developed a range of models to help them determine some of the ways the climate might change, and the potential impacts of those changes. In recent years, we have started to see some of these impacts already.

Impacts we might see include:

- Global temperatures will continue to rise – However, temperatures will not rise evenly across the globe; some places will experience more warming than others.
- Changes to agricultural production – In some places, growing seasons could be extended as much as two or three months, while in other hotter and drier conditions will limit the growing season. Food supplies are expected to be negatively impacted in some areas.
- Changes in precipitation – Some places can expect more rain and some can expect less.
- Changes to ecosystems – Global warming causes land and ocean life to migrate away from areas that have become too warm, and towards areas that previously were too cool. We can also expect extinctions of some existing species that will have nowhere to migrate.
- Bushfires – In Australia we can expect the number of extreme fire risk days to increase.
- Increase in the number and severity of heatwaves – This is predicted to affect human health, agricultural production, and the health of ecosystems, plants and animals.
- Extreme weather – We can expect an increase in the intensity, frequency and duration of extreme weather events.

And scientists predict it could get worse. The IPCC report states that global surface temperature will continue to increase until at least mid-century under all emissions scenarios considered.

Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO₂ and other greenhouse gas emissions occur in the coming decades.

The report describes five possible climate futures, where #1 is not great and #5 is extremely bad. If we want to keep global warming at less than two degrees, which the IPCC says is the best-case scenario, we need to reduce our CO₂ and greenhouse gas emissions significantly and start right away.

'Net zero' or 'carbon neutral' are terms that refer to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere. Getting to net zero means we can still produce some emissions, so long as we're doing something else to reduce the greenhouse gases already in the atmosphere at the same time, kind of like balancing a set of scales ([more info](#)).

So, what can you do?

- Learn more – Visit Cool Australia’s Digital Library to read or watch more about climate change. And watch: [Cool Australia Presents... Climate Change](#)
- Cut your energy use – Make simple changes in your energy use such as turning lights off, replacing light bulbs with new energy-efficient bulbs, and unplugging electronic devices when not in use. In winter, wear a jumper instead of increasing the heat. And in summer, take something off before turning up the air conditioner.
- Consider your transport – Leave the car at home and walk, cycle and use public transport where possible to reduce your CO2 emissions.
- Switch to renewable energy providers – Switching to energy produced by renewable resources such as wind, solar, and hydro, is the simplest and most effective way to avoid producing carbon emissions.
- Refuse, reduce, reuse and recycle – Cut the waste, save on resources and eliminate unnecessary emissions. Do you really need it? Think carefully about all your purchases, and where possible, choose the greenest option.
- Get involved – Send a letter to a politician or join a group like AYCC (Australian Youth Climate Coalition – <https://www.aycc.org.au/>).
- Spread the word – Let the people around you know that reducing greenhouse gas emissions will also build healthier communities, spur economic innovation and create new jobs.