

Key findings from Our atmosphere and climate 2017

Our reporting looks at the pressures, state and impacts on the environment and tracks change over time. Here are some key findings from Our atmosphere and climate 2017.

Atmospheric carbon dioxide levels have passed 400 parts per million, the highest levels in at least 800,000 years. Carbon dioxide levels in the atmosphere have increased 23% since 1972. This is the biggest driver of global warming.

Global gross greenhouse gas emissions have risen 51% from 1990 to 2013. This increase in emissions has largely been driven by burning fossil fuels for electricity, heat, transport, manufacturing and construction.

New Zealand's gross greenhouse gas emissions have risen 24% from 1990 to 2015. While agriculture makes up nearly half of our emissions, road transport has had one of the largest increases, increasing 78% in the 26 years to 2015.

New Zealand has experienced a 1°C temperature increase over a century. A one degree increase over a century may seem small but it is a rapid change for the climate and already affecting natural systems slow to adapt.

2016 was New Zealand's hottest year on record. New Zealand has experienced its five hottest years in the last 20 years.

New Zealand's glaciers have lost a quarter of their volume since 1977. The Fox and Franz Josef glaciers have retreated about three kilometres since 1940. It is now too dangerous for tourists to be guided onto the glaciers from the valley floor.

Sea levels have risen 14 to 22cm at four main New Zealand ports since 1916. Warming oceans and melting glaciers are driving global sea-level rise, threatening coastal housing and infrastructure.

Ocean acidity has increased, experiencing a 0.03 pH decrease over the last 19 years. The ocean absorbs excess carbon dioxide in the atmosphere, which increases its acidity. This can make it harder for shellfish to form shells and harm plankton, vital for a healthy food chain.

169,000 hectares of New Zealand forest has been removed from 2000 to 2015 for other land use. In 2015 New Zealand's forests removed 67% of our carbon dioxide emissions. However, if deforestation continues to outpace the area of new forest planted it will reduce the amount of CO₂ forests remove from the atmosphere.

If emissions continue unabated, Earth could warm by more than 4°C by 2100. The greater the warming the higher the global risks from more intense storm events, loss of coastal settlements, to drought and loss of biodiversity. Rapid, substantial reduction in greenhouse gas emissions can reduce these risks.

The global production of ozone-depleting substances has dropped 98% from 1986 to 2015. Global action on restoring the ozone has led the ozone hole to shrink, and it is expected to stop forming by the middle of this century.