

THE CURRENT CLIMATE CHANGE IS NOT JUST PART OF A NATURAL CYCLE...

Earth's climate is complex and influenced by many things, particularly changes in its orbit, volcanic eruptions, and changes in the energy emitted from the Sun. It is well known that the world has experienced warm or cold periods in the past without any interference from humans. The ice ages are good examples of global changes to the climate, and warm periods have seen grapes grown across much of Britain.

Over the several hundred thousand years covered by the ice core record, the temperature changes were primarily driven by changes in the Earth's orbit around the Sun. Over this period, changes in temperature did drive changes in carbon dioxide (CO₂). Since the Industrial Revolution (over the last 100 years), CO₂ concentrations have increased by 30% due because to human-induced emissions from fossil fuels.

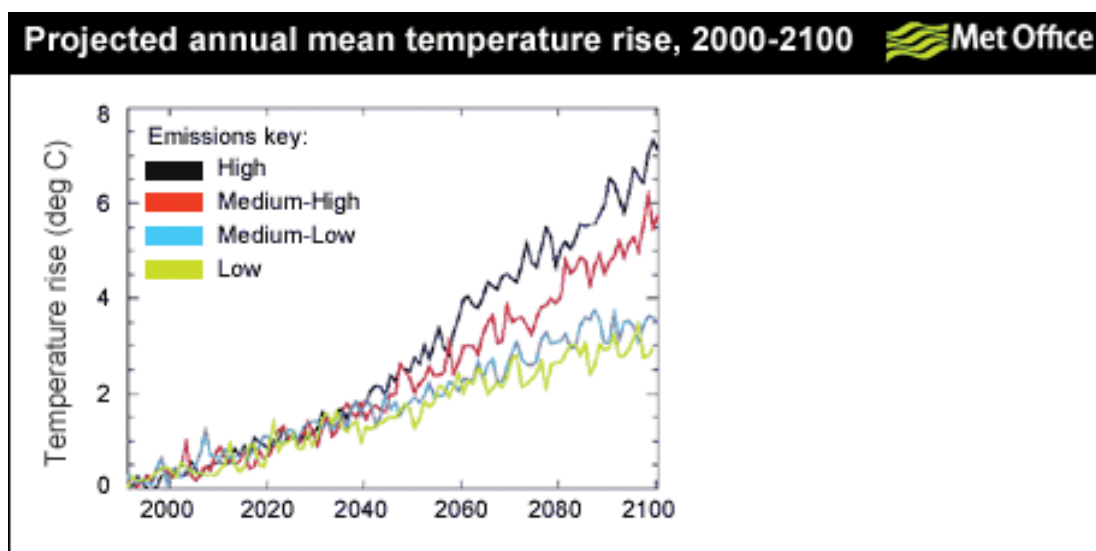
The bottom line is that temperature and CO₂ concentrations are linked. In recent ice ages, natural changes in the climate, such as those due to orbit changes, led to cooling of the climate system. This caused a fall in CO₂ concentrations which weakened the greenhouse effect and amplified the cooling. Now the link between temperature and CO₂ is working in

the opposite direction. Human-induced increases in CO₂ are driving the greenhouse effect and amplifying the recent warming.

If we continue emitting greenhouse gases this warming will continue and delaying action will make the problem more difficult to fix.

The global average temperature will increase by 2 to 3 °C this century – according to one of the Intergovernmental Panel on Climate Change's (IPCC) mid-range estimates (blue line on the graph below). This rise in temperature means that the Earth will experience a greater climate change than it has for at least 10,000 years and it would be difficult for many people and ecosystems to adapt to this rapid change.

These temperature increases are likely to result in an increased frequency and severity of weather events such as heatwaves, storms and flooding. Rising levels of greenhouse gases in the atmosphere could set in motion large-scale changes in Earth's natural systems. Some of these could be irreversible – the melting of large ice sheets will result in major consequences for low-lying areas throughout the world.



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