

Climate Science and Denial Thoughts

BY RICHARD MILNE

There are still plenty of people who are uninformed about climate science, or simply resistant to change or suspicious of scientists. Unfortunately, these people are influencing our government. Here are a few thoughts.

In climate science, it is important not to conflate well-established historical trends (e.g. of surface temperatures and greenhouse gases) with predictions from mathematical models, which are less certain. Previous global climate models from several countries tend to under-predict the atmospheric heating that we are now seeing. Global climate models do not (and probably cannot) consider critical tipping points and positive feedback loops such as loss of albedo as Arctic ice melts; loss of carbon sequestration through forest fires; and increasing rates of methane emissions from clathrates as ambient temperature increases.

Climate science draws from many disciplines including physics and chemistry; applied mathematics; ecology; and studies of the atmosphere, land and oceans. Because it is complex it requires collaboration across many disciplines to come to plausible conclusions.

The Intergovernmental Panel on Climate Change (IPCC) comprises several hundred climate scientists who have reviewed over 70,000 research papers. The IPCC has published many reports as climate science has developed. *The Sixth Assessment Report* (October 2023) summarises much of this information. Here is the first point in its *Summary for Policy Makers*:

‘Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850-1900 in 2011–2020. Global greenhouse gas emissions have continued to increase, with unequal historical and ongoing contributions arising from unsustainable energy use, land use and land-use change, lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals (high confidence). {2.1, Figure 2.1, Figure 2.2}’

Members of the fossil fuel industry have known about the adverse impact of their products on the environment since the 1970s. They have put enormous resources into climate denial to protect their profits. One of their techniques is to hire retired scientists (including some Nobel Laureates who have no particular expertise in climate science) to spread misleading information. Since I have been following the literature, denial has developed this way:

- nothing significant is happening, so don't worry!
- if anything is happening, it is minor and can be ignored ('climate alarmism')
- temperature data are 'unreliable'
- climate science is (still) 'unsettled' (and it never will be settled!)

- the climate has always changed, so don't worry!
- if anything is happening, it is part of a natural process, and humans have no control over it
- if anything is happening, humans can adapt to it, so don't worry!
- something is happening, but this is not caused by greenhouse gases, so humans can do nothing about it except learn to adapt
- something is happening but mitigation is too costly to do anything; we are better to put the money into adaptation and/or relieving poverty
- climate scientists are chasing grant money to 'prove' global warming
- nobody has proved that warming is caused by carbon dioxide, which is an 'essential plant food'.

All these false and/or misleading points are being made repeatedly in public forums. Here is a useful summary of brief responses to many of the denialist arguments that are commonly presented: <https://skepticalscience.com/argument.php>

Here is a critique of '*Climate: The Movie*' which is circulating in NZ at <https://skepticalscience.com/climate-the-movie-a-hot-mess-of-cold-myths.html>

For more information on climate science, I can highly recommend this book, published by Dr Kevin Trenberth, an applied mathematician and career climate scientist, now retired in Auckland: "*The changing flow of energy through the climate system*" (CUP 2023)

Finally, here is my tongue-in-cheek comment in LinkedIn which has received plenty of attention, mostly from climate deniers:

Far before the Holocene, God said: "Let there be Religion" and it was so! It was the religion of 'Global Warming' which came to be called 'Climate Change' as it became better understood. Its main proponents were hundreds of climate scientists who looked very hard at converging lines of evidence, reviewed and debated each-others' studies, and published conclusions that troubled the Fossil Fuel Industry and many Politicians. Then Satan (the Great Deceiver) said: "Let there be a Counter-Religion and let us call it 'Climate Denial.' It shall be based on cherry picked data, alternative facts, illogical arguments and red herrings, and secretly funded by the Fossil Fuel Industry. Let it keep repeating this manta: 'the science is not settled so let us continue business as usual.' Let it become politicised because the public is more likely to doubt politicians than scientists." And it was so!