

Climate Modelling Nonsense

The less a thing is known, the more fervently it is believed - Montaigne

In effect a new religion has grown out of secular humanism. Global warming is the central tenet of this new belief system in much the same way that the Resurrection is the central tenet of Christianity. Al Gore has taken a role corresponding to that of St. Paul in proselytizing the new faith.

There are major differences however. Whereas it is not possible to call oneself a Christian without entertaining the central belief in the Resurrection, it is certainly possible to be deeply concerned with the order and condition of humanity and so call oneself a humanist without entertaining a corresponding belief in anthropogenic global warming (AGW). Belief in a Resurrection which supposedly occurred some 2000 years ago is a matter of personal faith, whereas AGW is a scientific hypothesis which can and should be tested by observation. Imagine the consequences both to science and to secular humanism should this hypothesis turn out to be untrue and the dire predictions of the climate models fail to materialize.

The quasi-religious nature of AGW is evidenced by the rancour which is generated when people like me express scepticism about the theory. Scepticism is part and parcel of science which has, until recently, been a “small-l liberal” pursuit in which the opinions of doubters were respected. Now we sceptics are called “deniers” and, by implication, lumped in with neo-Nazi conspiracy theorists who question the Holocaust. The accusation that we are somehow in the sway of the oil companies and similar big business interests is commonplace and indeed is the chief argument of non-scientist supporters of the AGW theory. This echoes the “work of the Devil” argument of fundamentalist Christians; it is a mental trick by which the faithful avoid facing the real issues.

Why then do a majority of scientists support the theory? I believe it is largely a matter of loyalty. Very few of us physicists know enough genetics to justify our belief in Darwin’s theory of evolution by natural selection but most of us support it because we believe it to be the outcome of rigorous scientific processes similar to those carried out in our own discipline. Most scientists would support the AGW theory for much the same reason.

By accident of history I find myself in the opposing camp. I was trained as a physicist and was granted a PhD for my postgraduate work in upper atmosphere physics. In the early eighties I joined CSIRO’s Division of Oceanography and worked in surface gravity waves (ocean waves) for a time. Much of the theoretical side of oceanography entails fluid dynamics which, because of its heavy mathematical load, is regarded as a sub-discipline of applied mathematics rather than of physics. Because of this, in my view,

many practitioners of oceanography and climatology have a cavalier disregard for experimental testing and an unjustified faith in the validity of large scale computer models.

Later in my career I was involved in running and refining numerical fluid dynamical models so I gained some insight into how this modeling is done and how rigorously such models need to be tested. Naval architects and aerodynamical engineers do such testing in wave tanks and wind tunnels. Meteorologists regularly test model “skill”. Climatologists don’t seem to have a concept of testing and prefer to use the term “verification” instead; i.e. they do not seek to invalidate their models; they only seek supporting evidence.

My scepticism about AGW arises from the fact that as a physicist who has worked in closely related areas, I know how poor the underlying science is. In effect the scientific method has been abandoned in this field.

Back in the early 1990s when I was still working for CSIRO and the early versions of the AGW started to gain currency, I was rather bemused by the passions which were aroused in my colleagues and the gullibility with which predictions of future climate disaster were accepted. Surely the jury is still out, I thought. I remained agnostic about the theory. More recently, after reading the literature and looking in detail at the output of one well known climate model (HadCM3) I have changed my stand. I now believe it is nonsense for the following reasons.

First there is the argument, commonly used by Al Gore and others, that CO₂ forms a layer like a blanket or greenhouse window pane high in the atmosphere which traps long wave infra-red radiation so making the surface of the earth warmer. This is misleading. Certainly CO₂ is an infra-red absorber but, like most IR absorbing gases its absorption rate depends on concentration and pressure and is at a maximum at the ground. The atmosphere is a gas not a solid and bits of it move up and down carrying heat as they move. As a meteorological balloon climbs higher in the atmosphere, the measured temperature falls off with increasing height. This phenomenon is referred to as the lapse rate and it has been known and described for more than a century. The lapse rate is determined by the thermodynamic properties of the gases that make up the atmosphere and has little to do with radiation. The convection term completely dominates radiation term in the relevant equation.

Second there are the climate models themselves. In discussions with colleagues, arguments always seem to come down to “But the models show ...” Those who use this argument seldom have modelling experience themselves and share the lay public’s naïve faith in the value of large computer models.

I have been a fluid dynamical modeller and I know how flaky numerical models can be for even a relatively small chunk of fluid like the Derwent Estuary. The models are

highly unstable and need to be carefully cosseted in order to perform at all realistically. One reason for their inherent instability is that the mesh size of the model grid (typically hundreds of metres to hundreds of kilometers) is always much larger than the scale at which friction and molecular diffusion operate (millimeters or less). These are the forces which act to damp down oscillations by converting free energy to heat. In order to get around this difficulty, in order to keep a model stable, it is common practice to set certain parameters such as eddy viscosity unrealistically high to compensate for the absence of molecular friction. This is reasonable if we are using the model to gain insight into underlying processes, but it means that fluid dynamic models are not much good at predicting the future. There is no exact correspondence between model and reality and the two soon part company. Fluid mechanics and celestial mechanics are very different disciplines.

I recently became interested in seafloor volcanism and I had the idea of comparing the output of a climate model with the actual observations to see if I could find places on the ocean surface where temperature variations, attributable to sub-sea volcanoes, were significantly greater than variations predicted by the model. I used a variance method and I found that the predicted variances bore little resemblance to the observations. It was obvious to me that the model had been over-damped; the viscosity term had been set too high, presumably in the interests of greater stability.

Why then would such an over-damped model predict recent global temperature increases so well (which it does)? The answer is that an over-damped model will always regress to some sort of mean or trend line. Climate models include a number of adjustable parameters and these are tweaked to tune the model to known data. My belief is that early models did not show much increase in global temperature with increasing atmospheric CO₂ levels for the reason set out above. However an ingenious trick was used to make this happen. It is called “water vapour positive feedback” and appears to be used in all the IPCC climate models. Without it, the climate models would show negligible increase in global temperature with increasing atmospheric CO₂. Water vapour positive feedback is only an assumption; but, importantly for the modellers, it is an assumption which makes the models work. There is little experimental evidence that it is true, and radiometer data collected by NASA scientist Roy Spencer and others indicate that it is not true.

Most of us have our cherished beliefs about how things work. “If there is a heavy autumn crop of hawthorn berries it will be a cold winter”. Sometimes these are true and sometimes not. Many are just superstitions. Science and superstition are distinguished from one another by testing. Scientific theories are tested, superstitions are not.

A scientific theory is not tested merely by looking for confirmations but by conscientiously trying to “break” the theory, by trying to disprove it. The AGW theory is encapsulated in the Intergovernmental Panel on Climate Change (IPCC) assessment reports. The models discussed in these reports have not been tested in this way. These

reports include sections on “Verification and Validation” but none on testing. “Verification” means that only data which support the theory are examined and data which do not support it are ignored. Indeed the authors of this section in the IPCC Third Assessment Report specifically dismiss the need for rigorous testing when they state: *our evaluation process is not as clear cut as a simple search for “falsification”* (Section 8.2.2 on page 474). Effectively what they are saying is: *proper scientific testing is too hard and we are not going to bother doing it.*

The implication is that climate prediction, as it is carried out by those organizations which come under the aegis of the IPCC, is not science. It is a superstition similar to astrology or homeopathy.

The IPCC is promoting the AGW proposition as if it were an established scientific theory when it is not.

If the IPCC were a pharmaceutical company it could face fraud charges for doing this. This is a good analogy. The IPCC claims to have diagnosed a planetary disorder, global warming, and has proposed a remedy, the limitation of man-made carbon dioxide production. They have produced no convincing *scientific* evidence that either the diagnosis or the cure is valid.

When I discuss this with informed lay people I commonly encounter the response “So what if the science is a little suspect. Surely it is a good thing to limit emissions anyway?”

Well, no, it isn't. A whole new regimen for emission capping and trading is about to come into existence. A necessary condition for the reduction of atmospheric CO₂ is that major carbon dioxide producing nations cooperate in limiting emissions. I believe that is highly unlikely to happen, because international diplomacy is insufficiently evolved for such a goal to be achieved. Given the highly emotive, quasi-religious attitude of many westerners to this issue there is likely to be a good deal of resentment generated should some countries fail to live up to their obligations. Wars have been fought about less.

This situation can only be exacerbated should global temperature continue to fall as it has been doing for the last five years.

Not only will carbon trading lead to problems between nation states but internally different lobbies already clamour for specialist treatment. Carbon trading is proposed as a free-market operation so avoiding heavy-handed government regulation. Perhaps so, but some sort of authority will be needed to monitor the details of how much carbon is being sequestered or released in each situation. Carbon credits will be available for planting trees, say, but what happens when saplings are eaten by wallabies or mature forests are

consumed by bushfires? Monitoring and accreditation structures of Byzantine complexity will need to come into existence.

Will carbon trading minutiae favour the most effective lobby groups? Both the oil and coal industries are positioning themselves to appear benign. Natural gas is “cleaner” than coal we are told, while coal itself is soon to become so much “cleaner” if industry pronouncements are to be believed. Who is to say otherwise? When a political structure is set up which is based on a lie, we can expect further lies to proliferate. Meanwhile, less influential groups such as farmers can expect to be hounded by “Carbon Police”.

Whatever the status of AGW scientifically, it is certainly a political Truth. It is now a key plank in the platforms of two out of three of the major political parties in this country and the third genuflects piously from time to time. Like Chartism and Communism in earlier times, AGW is providing a rallying cry for reform. The zeal with which alternative energy programs are being pushed by government is perhaps desirable and long overdue. This push may have happened anyway as fossil fuel reserves become depleted and fuel costs rise. Nevertheless AGW has certainly precipitated activity in this area.

Well and good, but this still represents an unfortunate distortion, because the emphasis is placed on limiting emissions rather than on limiting consumption. It is my view that Australia’s large coal reserves and large distances could make coal driven railways a viable future transport option as oil and natural gas become scarce and expensive. The present demonisation of coal as a major “polluter” makes any switch from oil to coal unlikely.

This country, and the world at large, have many real political, demographic and environmental issues to contend with. We do not need to create problems where none exist. The present hysteria diverts money and attention away from problems which do need to be solved. In my view, terrorism, the proliferation of nuclear weapons and pandemic disease are far bigger threats to my family’s comfort and security than are global warming and putative “tipping points”.

There is a danger that conservation failures will be blamed on “Climate Change”. This happened recently when the removal of feral cats caused a rabbit population explosion on Macquarie Island. Incompetent environmental management resulted in such massive erosion problems that 11 species of birds are now threatened. Climate change has provided a convenient alternative view of the cause of this disaster. Likewise the flooding of oceanic islands by “rising sea levels” has more to do with the removal of coral reefs for construction projects than with global warming *per se*.

Over the last few years, with remarkable rapidity, AGW has gone from being a scientific curiosity to being a politically correct catechism. Nowadays it is not merely politically correct, it is politically essential. Somehow this nineteenth century oddity has outlasted *Das Kapital* to become the banner of millions of environmentally concerned westerners. It seems to fulfill a human need for sacrifice, a need to “put something back”. It is the ancient myth about guilt and sin and redemption in a new guise. People are entitled to

entertain whatever apocalyptic view of the future they choose but such ideas have nothing to do with science. Climate prediction is not science, it is pseudo-science and sooner or later more real scientists are going to wake up to this fact.

In the conduct of human affairs it is surely preferable that we base our actions on reason and evidence rather than on piety and myth.

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