

## VALIDATED OR EVALUATED

### The IPCC's Models

It is a time to pull back and summarise what we are doing here.

We are concerned about the effects of global warming. To get to these effects, we have to have a theory and then use it to give us something useful. We have already discussed the theory, so how do we go about “getting something useful from it”.

There are two interdependent steps here. Using the theory will only give us an idea of what the future global temperatures might be. When we are confident that these future temperatures are correct, we can then try and forecast what effects will be caused by these temperatures.

The IPCC uses its computer models in the first step of predicting future temperatures. The accuracy of the second step of identifying the effects we are interested in, is solely dependent on the correct forecasting of the future temperatures. A poor job in predicting future temperatures will mean the resulting predicted effects of global warming are next to useless.

If you have spent a lot of time dropping objects from a tower, observing, measuring, and recording what happens to them, you will build up knowledge about this field of study. Given time, a science will develop and you may be able to use all this knowledge to predict what will happen when you drop objects from different heights from different towers before you actually drop them.

When you finally come to drop the objects from the new towers, you can then measure the performance and compare it with your predictions you made about this performance. If your predictions match reality, then you will gain confidence that your knowledge might be sound and more importantly, the generic rules you have derived from this area of knowledge have been **validated**, and can be confidently used to predict what might happen in the future.

However, if reality does not match your predictions then you have some very serious gaps in your knowledge. In turn, this lack of knowledge has undermined the veracity of your generic rules about dropping objects from towers. In future you will be wasting your time making predictions until you have discovered more to fill these gaps in your knowledge. Your knowledge and generic rules have **not been validated** in an observed activity in the real world.

This process can be carried out using computers where software engineers build a model using all your generic rules which allows you to change the variables (e.g. Tower heights, different objects) so you can simulate what might happen in the future. Good models that have been **validated** (i.e. their results match or are very close to real world experiences) can be extremely useful to scientists. Bad models

that **cannot be validated** suffer from the “garbage in will give you garbage out” syndrome.

What comes out might look good (with a laser colour printer) and have tremendous precision, but unfortunately will still be garbage. Also be aware that modelling, per se, is not science, and computer modelling is undertaken by software engineers who generally have no understanding of the science being used, and the scientists using the model will generally have little knowledge about the software engineering within the models.

Most of us that read about the IPCC models will become lost very quickly, and those that do not are likely to be the scientists and software engineers using them. However, you should persevere because some alarm bells do ring.

First and foremost, the models have **never been validated**. In other words, even with perfect hindsight, the models still cannot simulate what has happened in the past. Yet they are being used to predict what will happen in the future.

Second, there is a long list of variables and feed-back loops that do affect global temperatures but if most of them are included, the models become unstable and produce nothing that is even close to reality. Consequently, the models being used are simplified, so much so that some critics believe their over-simplification makes them next to useless.

These simplified models can match a few years of past climate reality, but when modified to match more years successfully, they no longer match the first set of years.

The models have never been able to replicate forty percent of the climate in the past century when the planet was cooling. As a layman, that does not surprise me as the theory is so focussed on warming for political reasons.

To this day, no one can explain why these cooling periods start (and why the warming periods stop), how cold they will be, and how long they will last. Obviously, we have the same knowledge gaps about the warming periods. Yet we are being told we have the ability to make comparatively accurate forecasts of global temperatures 25, 50, 75, and 100 years in advance, that will allow us to confidently spend trillions of dollars. Can you hear the alarm bells?

Not surprisingly for heating models, in the first 15 years, they did predict heating but in reality, the actual heating was nowhere as bad as the models predicted. They then failed completely to predict the decade after 1998 when global warming had stopped and has seen a decade with cooling years.

The ideological goal of punishing man for heating the planet with CO<sub>2</sub> is blinding these so-called “scientists” to what could be a significant number of other factors that affect global temperatures. Both the Green’s propaganda machine and

most politicians in the West do not want to hear that, so no-one gets to hear about global warming stopping, in the hope that it will resume soon and we can then “paint out” the history of this last few decades.

A New Zealand scientist, Dr. Vincent Gray, involved for many years in the IPCC process, describes how the ‘Sir Humphreys’ of the IPCC hid the weakness of their models by ignoring his advice. Not surprisingly, we, the media, and our politicians fall for this deceit.

Dr Gray’s suggestion that the politicians should be warned not to use anything coming from the climate models as they were not **validated** was ignored by the IPCC. Using “language deception”, the politicians were encouraged to make decisions using the **unvalidated** models.

Part of Dr. Gray’s paper explaining this is below.

## 1. INTRODUCTION

Despite persistent efforts, the Intergovernmental Panel on Climate Change (IPCC) has never succeeded in the task set to it by the Framework Convention on Climate Change (FCCC), of supplying sound scientific evidence for the belief that human emissions of greenhouse gases are harming the climate.

The evidence that has been supplied is based on unsound scientific methods and mathematics. This paper is an attempt to summarise some of it. (*Gray’s paper has 21 pages and this is only a partial excerpt about “validation” and “evaluation”.*)

### 7.1 Validation Versus Evaluation

*The First IPCC Report (Houghton et al 1990) had a Chapter "Validation of Models". When I pointed out that no model has ever been validated, they changed the word "validated" to "evaluated" no less than fifty times in the next draft*

*Computer models use a range of scientific "laws" and parameters to simulate the climate system. Computer engineers use a process called "validation" before the model can be considered suitable for use. This procedure requires not only an ability of a model to simulate past behaviour of a system, but it must also be shown capable of future prediction to a required level of accuracy over the expected range*

***No computer model of the climate has ever been validated in this sense. There is no discussion in any IPCC Report as to how such a process should be carried out.***

*Instead models are "evaluated". This process falls far short of "validation". In many cases it consists merely of an opinion that the parameters and equations in the model are generally acceptable. They draw from the opinions of those who have a financial interest in the models, a series of levels of "confidence" to which spurious levels of "probability" are applied.*

*"Simulation" which may involve adjustment of the often inaccurately known parameters of the model to a climate sequence is also considered a successful "evaluation".*

## **7.2 SCENARIOS**

*Forecasting future climate would require a combination of a properly validated climate model with a "scenario" of future behaviour of the climate. The IPCC has developed several series of "Emissions Scenarios" which they combine with their "evaluated" models to provide future estimates of the behaviour of the climate.*

*They have, however, resolutely refused to check whether any of their scenarios actually comply with the future climate as it evolves. They even deny that this is possible:*

*"Since scenarios deal with the future they cannot be compared with observations" (Houghton et al 1995)*

*A study I made in 1998 (Gray 1998) showed that none of the early scenarios agreed with emerging reality and the later scenarios were no better (Gray 2002). They include a "projection" that the world coal industry production will increase 12.2 times by 2100, and another that the per capita income of South Africa will be four times greater than that of the USA by that date (Castles and Henderson 2003)*

## **7.3 PREDICTIONS AND PROJECTIONS**

*Forecasting requires the combination of a properly validated model with a plausible and frequently updated system of futures scenarios.*

*"Scenarios are not predictions of the future and should not be used as such" (Houghton et al 1992).*

*They have, as a result, refused to make any "predictions" throughout their reports. Instead they make "projections", defined as follows (Solomon et al 2007. Glossary):*

*"Projections are distinguished from predictions in order to emphasize that projections involve assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realised, and are therefore subject to substantial uncertainty"*

*So here is an admission of the substantial uncertainty of all their "projections", which is compounded by the fact that they do not attempt to check whether any of them correspond with the actual emerging behaviour of the climate.*

## **7.4 THE OPINIONS OF EXPERTS**

*Having produced "projections" of the climate, based on "evaluated" models combined with unchecked "scenarios", the IPCC was faced with the problem of*

*“evaluating” these “projections” in a situation where they were unable to make “predictions” or “forecasts”.*

*Since there was no scientific way to do this they decided to rely entirely on the “opinions” of the “experts” who produced the models, most of whom have a financial interest in their success.*

*In order to render this system of what is essentially expert guesswork, they have erected a system of levels of “likelihood” for the various outcomes of their “projections”. Each level is assigned a numerical “probability”, which has no scientific or statistical significance.*

## **9 CONCLUSION**

*These examples show that the IPCC depends on unsound and mathematically unacceptable methods to compile its “evidence” that human-induced greenhouse gas emissions are harming the climate.*

The best statement of the reality of our current knowledge of the climate was made in Chapter 1, of Houghton et al 2001.

*"The fact that the global mean temperature has increased since the late 19th century and that other trends have been observed does not necessarily mean that an anthropogenic effect on the climate has been identified. Climate has always varied on all time-scales, so the observed change may be natural".*

The authors of this true statement have been punished in "Climate Change 2007 (Solomon et al 2007), as the entire first Chapter has been replaced with a "Historical Overview of Climate Change Science" which is little more than a publicity document for the IPCC.

The IPCC never makes "forecasts". But this does not seem to worry the politicians and the general public who do not understand that the gut feelings of people financially dependent on a model are the only basis for these "projections". They cheerfully convert them into certain forecasts, sufficient to consign the world to an economically damaging assault on energy supply.

**Dr. Vincent Gray, expert reviewer for the IPCC and author of *The Greenhouse Delusion: A Critique of 'Climate Change 2001,'* Wellington, N.Z.22**

I hope your confidence in the IPCC models is growing by the minute! The following quotes should help this process. The first is by W. Kininmonth whose suspicions that the science and predictions of anthropogenic global warming had extended beyond sound theory and evidence were crystallised following the release of the Third IPCC Report

*“The impact of human activity is yet to be established in the context of change to the climate system. Radiative forcing, whether by natural or anthropogenic causes, is only linked to climate change through the use of computer models. There continues to be imponderables about the extent of natural forcing through the influence of variations in solar irradiance and galactic cosmic rays. There is tantalizing evidence that these latter are effective in moderating climate but the theories still lack fully developed and evaluated process descriptions. Also, the necessary substantial body of observations for validation is incomplete.*

*At their current stage of development, computer models of the climate system are constrained by the need to maintain a stable 'climatology' that approximates what currently prevails on earth. In the absence of extensive data, their development is also constrained by perceptions about how processes of the climate system should respond over time. As a consequence, computer models are an agent for a self-fulfilling prophecy - their projections accord with prior expectations.*

*These criticisms of the current state of computer model development should not be interpreted as reason for abandoning the technology. In the early 1970s computer models for weather forecasting were similarly the subjects of criticism but within two decades their skill had advanced to a stage where they consistently outperformed all other techniques. A similar trend of improvement is expected with computer models of the climate system. However progress is likely to be slower because of the added complexity of the complete climate system and the lack of data relating to important climate processes, especially of the ocean.”*

**“Climate Change: A Natural Hazard” by William Kininmonth, Multi-Science Publishing Co. Ltd., Brentwood Essex, 2004, pages 205, 206. Kininmonth is Australia’s leading meteorologist, representing Australia in the IPCC and other International bodies throughout the 1990s.**

To me this last paragraph sends me a message that can be applied to the whole science of climate change: “Don’t call us, we will call you when we have something useful from this science”. I have a growing suspicion that this theory about global warming has jumped out of the backyard of the scientists working on it well before it was ready.

Some paragraphs of more technical criticism from an article by Kininmonth in *The Age*:

*“In tackling future climates, planners and policymakers have two options: they can learn from past climates, tempered by known uncertainties about the causes of variability and slow change; or they can commit their destiny to the projections of computer models. The latter course was advocated by a 1985 UN-sponsored*



conference of experts who met in Villach, Austria, to discuss the potential impacts of carbon dioxide on climate.

*The theme of the conference statement was that, because of the computer-modelled impact of rising concentrations of carbon dioxide on global temperature, it would be wrong to base future planning on past climate statistics — human activity was causing a shift in climate. This is the theme followed by the UN's Intergovernmental Panel on Climate Change, the fabled IPCC.*

*Some would claim that these options are not alternatives because the computer models incorporate known science and can replicate past climates. This is a false claim and overlooks the known limitations of computer models.*

*In July 2007, after the release of the IPCC fourth assessment report, Frank Wentz and colleagues of Remote Sensing Systems, California, published a paper in the prestigious international journal, Science. This paper reported a finding of the international Working Group on Numerical Experimentation that the computer models used by the IPCC significantly underestimated the rate of increase of global precipitation with temperature. The computer models give a 1-3% increase of precipitation with every degree centigrade while satellite observations, in accordance with theory, suggest that atmospheric water vapour and precipitation both increase at a rate of 7 % for each degree centigrade rise.*

*It is, therefore, not surprising that over inland Australia the computer models project a drying trend. But the trend is specious and only a manifestation of computer model deficiency.*

*Underestimation of precipitation and evaporation increase in the computer models has even more far-reaching ramifications for the veracity of global temperature projections. Evaporation is crucial for regulating surface temperature because evaporation takes latent heat from the surface — the more evaporation then, the cooler the surface temperature.*

*An increase in atmospheric carbon dioxide enhances the greenhouse effect through the increase in back radiation at the surface. In response to this additional energy, there is a rise in surface temperature until the increasing energy loss from the surface (the sum of the surface radiation and evaporation of latent energy) balance the increase in back radiation. Clearly, underestimation of evaporation of latent energy must be offset by an additional increase in surface radiation that requires a higher surface temperature; the incremental increase of surface temperature must be anomalously high to achieve a new energy balance.*

*Of more significance is the effect of underestimation of increase in surface latent energy on the internal feedback processes that amplify the direct forcing from carbon dioxide. The incremental increase in surface temperature also raises the temperature of the lower atmosphere and the concentration of water vapour, itself a*

*powerful greenhouse gas. The back radiation caused by the increased temperature and water vapour of the atmosphere causes a further incremental increase in surface temperature, a positive feedback.*

*The mathematics of feedback processes follows a standard formulation and the amplification is related to the ratio of the rate of increase of back radiation with temperature to the rate of increase of surface energy loss with temperature. As long as the ratio is less than unity the feedback is stable. Correct specification of the evaporation component restricts the ratio to less than 0.5 and the amplification factor to less than two.*

*Overall, the global surface temperature increase from a doubling of carbon dioxide concentration will be restricted to about 0.5 degrees.*

*Underestimation of the evaporation increase, as in the current computer models, will lead to an anomalously high amplification factor. The reported error leads to amplification factors ranging from three to more than four, and to temperature sensitivities from doubling carbon dioxide being as large as 2.5 degrees. The latter is of the same order of magnitude as reported by IPCC.*

*Those computer models with extreme underspecification of surface evaporation are in fact approaching computational instability. These specific computer models have a much exaggerated response to carbon dioxide and their response has been misinterpreted as a potential for "runaway global warming".*

*This has led to unfounded claims of "tipping points" and "irreversibility" of the climate trends, and that the danger from anthropogenic global warming is even greater than IPCC has projected. In reality, runaway global warming is an illogical concept. Even in the tropics, the sun's intense radiation is unable to warm below a few hundred metres and this thin lens overlays a very cold abyss 3000-4000 metres in depth. Dramatic short duration changes in global temperature are observed with variations in entrainment of cold subsurface water into the ocean surface layer, such as during El Nino and La Nina events."*

### **The Age, Business Section, William Kininmonth July 8, 2008**

Finally, one further quote, on the lack of professional standards. Remember that trillions of dollars and thousands of lives are "riding on" the validity of this work.

*"I am of the opinion that most scientists engaged in the design, development, and tuning of climate models are in fact software engineers. They are unlicensed, hence unqualified to sell their products to society. In all regular engineering professions, there exists a licensing authority. If such an authority existed in climate research, I contend, the vast majority of climate modelers would vainly attempt certification. Also, they would be unable to obtain insurance against professional liability,"* Tennekes said.



**Atmospheric scientist Dr. Hendrik Tennekes, a scientific pioneer in the development of numerical weather prediction and former director of research at The Netherlands' Royal National Meteorological Institute, and an internationally recognized expert in atmospheric boundary layer processes, took climate modelers to task for their projections of future planetary doom in a February 28, 2007 post on Climate Science.**