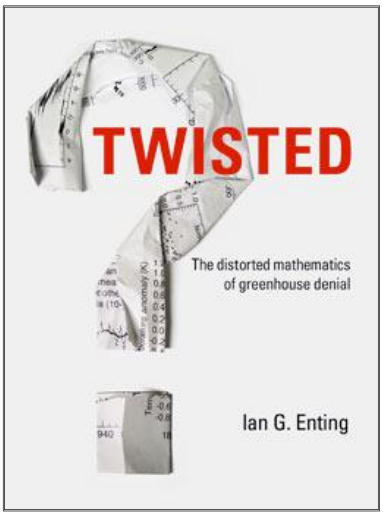
TWISTED

The Distorted Mathematics of Greenhouse Denial

Highlighting the use of mathematics and statistics to inform and disinform public debate



About the book

Enting's analysis exposes the numerous contradictions in the arguments of the 'greenhouse sceptics' and suggests they are far from constituting an alternative to mainstream climate science.

Simple graphical illustrations are used to show that some representations of the data are misleading. In other cases quotes from the sceptics are lined up side by side to show that what passes, in public debate, for an alternative view of science is an inconsistent set of fragments.

"....importantly this book shows, in a non-technical way, how these scams are being foisted into public discussion."

Finally the author presents calculations of the actual emission levels that would be required to stabilise CO2 concentrations. This is an update of calculations that he contributed to the pre-Kyoto IPCC report on Radiative Forcing of Climate. The new calculations demonstrate the extent to which delays in mitigation have increased the difficulty in stabilising greenhouse gases. This defines the real cost of greenhouse denial.

Who should read this book?

This book highlights the use of mathematics and statistics to inform and disinform public debate. It is accessible to the general public and is useful for school project work.

About the Author

Ian Enting is a Professorial Fellow in the ARC Centre of Excellence for Mathematics and Statistics of Complex Systems based at The University of Melbourne. From 1980 to 2004 he worked in CSIRO Atmospheric Research, primarily on modelling the global carbon cycle. He was one of the lead authors of the chapter CO2 and the Carbon Cycle in the 1994 IPCC report on Radiative Forcing of Climate. Prof. Enting has published many scientific papers, mainly on mathematical physics and carbon cycle modelling, and a monograph on mathematical techniques for interpreting observations of CO2 and other trace gases.

Visit Ian's website.

Purchasing *TWISTED*
Please email Spellbound Interpretation or contact Ian Enting directly.

TWISTED - Chapter Summaries

1 The big picture

Human induced climate change, the scientific assessment and the existence of a 'pretend debate' created for the purposes of spreading confusion. ". . . by delaying action on the basis of a noisy disinformation campaign, Australia risks being dragged kicking and screaming into a low-carbon world".

2 Mathematics and evidence

Consistency in science and mathematics.

2.1 Mathematics The power of mathematics.
2.2 Science *How evidence evolves: Copernicus to Newton — Darwin to the double helix.*
2.3 Evidence and statistics *Emphasising some of the key points, in particular that failure to find evidence from an isolated or irrelevant study doesn't prove that other evidence is absent.*
2.4 Who's who? The sceptics *Some of those whose arguments are often quoted.*
2.5 Why greenhouse denial isn't science *How legitimate scepticism has been assembled into a greenhouse 'denial movement' and cataloguing the inconsistency that results.*

3 What has happened?

Temperature change, particularly over the last century.

3.1 The trends *The actual data.*
3.2 The stories *An example of distortion, taken from Michael Crichton's book State of Fear.*

4 Why it happened

Increasing greenhouse gases as the cause of global warming.

4.1 The greenhouse effect *The expected warming. Committed warming.*
4.2 The scams *How the relation between CO2 and temperature is misrepresented.*
4.3 No correlation between fuel use and temperature? *Analysing the sequence of distortions by which an original paper which is valid—but largely irrelevant as a test of greenhouse forcing—is co-opted into climate-change denial arguments.*
4.4 On radiative forcing *Yet another case where the numbers don't stack up.*

5 What is likely?

What do the processes discussed in chapter 4 imply for the future?

5.1 Mathematical Modelling *Types of model and what they can do.*
5.2 Scientists in the '70s predicted an ice age *A common claim with a flimsy basis.*

6 Evaluating evidence

Fitting it together.

6.1 Distorting evidence *A catalogue: lies, bait-and-switch, ignoring qualifiers, guilt-by-association, and irrelevant factoids.*
6.2 The IPCC *The role of the Intergovernmental Panel on Climate Change—joint winner with Al Gore of the 2007 Nobel Peace Prize. Why the conclusions are a lot less susceptible to political manipulation than is claimed by critics from both sides.*
6.3 Geology *On the spurious claim that climate science is ignoring geology.*
6.4 Retreating faster than glaciers — the sceptics' brief *In 2006, some of the most prominent of the 'greenhouse sceptics' testified to the US Supreme court that the expected warming from increasing greenhouse gases was 1.8 degrees Celsius over the 21st century.*
6.5 Summary *Emphasing the distinction between scepticism and denial.*

7 The risks

Is the IPCC underestimating the risks ahead?

7.1 Feedbacks *The issues where there is real scientific debate.*
7.2 Complexity and climate *Some aspects of climate change are hard. Some are easy enough that as early as 1896, Arrhenius could predict a 5 degree Celsius warming from doubling CO2.*
7.3 Feedbacks in action *Some of the data behind analysis of feedbacks, including the correlations between temperature and greenhouse gases in the Vostok ice core. Why criticism of Al Gore's use of these data misses their true significance.*
***7.4* What is alarmist?** *The distortions do not all come from one side – an attempt to 'hose down' some of the wilder claims about climate change.*

8 Beyond the pretend science

Some aspects of the 'pretend debate' that go beyond the science.

8.1 Alleged motivations *Ranging from half-truths to downright weird.*
8.2 Gagging *Comparing claims that sceptics are being gagged, to the reality of political pressure particularly in Australia and the USA and the so-called 'culture of fear' at CSIRO.*
8.3 Left-vs-right *Proposing that characterising climate change as a left-vs-right issue is misdirection.*

9 The cost of denial

Why it matters.

9.1 Progress of climate science *Much of the increasing certainty about climate change comes from watching it happen.*
9.2 Beyond the great victory *The Kyoto Protocol, discussing various commentaries on Australia's position.*
9.3 Achieving targets *Some new calculations showing the emissions that would be required to stabilise the amount of CO2 in the atmosphere.*

10 Take home messages

Quoting Richard Feynmann: ***". . . reality must take precedence over public relations, for nature cannot be fooled"***