

# Metaphors in Science and Society: The Case of Climate Science and Climate Scientists

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## *Abstract*

This article explores the creative use of metaphor in science and society by focusing in particular on the use of religious metaphors in debates about climate science and climate politics during the 2009 ‘climategate affair’. The article begins with providing an overview of various aspects of the creative use of metaphor in general, including a short excursion into the history of metaphor analysis, namely an exploration of the psychology of metaphor proposed by Gertrude Buck at the end of the 19th century. The article then switches to the early 21st century with a focus on climategate, when the hacking of private emails and data by climate scientists invigorated the debate about climate science and its influence on climate policy, including discussions of the meaning of theory, evidence, consensus and belief. The initial climategate affair of 2009 was followed by a variety of other ‘gates’ which are also briefly studied. The conclusion of the article explores the implications of the use of religious metaphors in debates about climate change for public understanding of science and climate change and for the social standing of science itself.

*Keywords: metaphor, science, climate science, climategate affair*

Philosophy is a battle against the bewitchment of our intelligence by means of language.  
—Ludwig Wittgenstein

## **1. Introduction**

The topic of metaphors in science has been explored by numerous scholars, from, at least, Mary Hesse and Thomas Kuhn to George Lakoff and beyond (see Hoffman, 1980; Baake, 2003; Rentetzi, 2005). In this article I do not want to repeat such efforts, but look instead

at metaphor in science from a different, political, point of view. I also want to focus not only on ‘science’ but also, and more importantly, on ‘scientists’, as an integral part of the scientific process, something that has been largely overlooked in the immense literature on metaphor and science.

I will start this article with an overview of what I see as the creative power of metaphor, a power that for the most part is a positive one (and celebrated in the literature on science and metaphor under titles such as *Making Truth*, Brown, 2003). This is also a power that, indeed, we all have and use, sometimes without knowing we are doing so, whether we are scientists or not (Geary, 2011). I shall briefly discuss what this power might involve. I will then go on to summarise some findings from a small study of creative political metaphor use during the 2009 ‘climategate’ affair (Nerlich, 2010). In the 2009 event religious metaphors were used to frame (climate) science and (climate) scientists in very negative ways. This has serious implications: for the relationship between science and society; for how (climate) scientists see themselves and for how society sees (climate) science and scientists; for the status of the authority of science and scientific knowledge in contemporary societies; for which research is regarded as reliable and credible; and, more importantly, for trust in science, especially as a foundation for difficult policy decisions around climate change.

Climategate also led to political polarisation, especially in the United States (Painter, 2011) and to what one can call political paralysis with regard to climate change policies. More positively, perhaps, climategate started a societal discussion in parts of the blogosphere and traditional media of some essential tenets of science (knowledge, truth, evidence, consensus, certainty and uncertainty and scepticism). In a final part I will discuss the consequences this has for science and society and the world we create for ourselves to live in. This creation of the world depends on science and society working together. It also depends on science and society understanding each other and therefore on the language and metaphors that circulate in and between science and society.

## **2. The Creative Power of Metaphor in Science and Society**

The German philosopher Hans Vaihinger wrote a century and a half ago in his book *The Philosophy of ‘As if’*: “All cognition is the perception of one thing through another.” (Vaihinger, 1924, p. 29) (written about 1870) And one should add: All perception is the cognition of one thing through another. As James Gleick pointed out in his book *Chaos: Making a New Science*: “‘You don’t see something until you have the right metaphor to let you perceive it,’ [Robert Stetson] Shaw said, echoing Thomas S. Kuhn.” (Gleick, 1987, p. 262)

Metaphors are based on the (mental) perception of one thing through another, of seeing something *as* something (else). They enable us to establish bridges between the known and the unknown, the familiar and the unfamiliar, the unimaginable and the imaginable, for example between computers and viruses; genes and computers; clocks

and universes, humans and machines, science and religion. This means that metaphors enable us to see the world and think the world. They also provide us with certain perspectives from which to do so. *Metaphors are the mind's eyes*. They are also the mind's tools to create the world we live in. They have not only perceptual and cognitive, but also performative and political force, as they commit those who create and use them to accepting a system of standard beliefs or commonplaces associated with them (see Black, 1962; Rentetzi, 2005). The visions of the world that we create through metaphors make us act on the world in the way we see it or want to see it (Bono, 1990) or, indeed, prevent us from acting in or on the world. What is perceived as real or not real is real in its consequences. The case in question in this article is climate change.

As centuries of research into metaphor and cognition have shown, metaphors are not just language and language is not just a device to label phenomena. Language (including metaphor), thought and action are always intrinsically intertwined. Realising the creative power of metaphor in this network enables us, most importantly, “to abandon the idea that the aim of thought is the attainment of a God’s-eye view” (Rorty, 1991, p. 12). Metaphor frees the mind up to see the world from a human-eye view and also to transform it from a human-eye view. It enables us to reduce complexity to human scale. This means however that metaphors can be used for good or evil: “Metaphor is never innocent: It orients research and fixes results” (Derrida, 1978, p. 17; quoted in Hedgecoe, 1999, p. 209). It also orients public perception of research and of its results.

Before I come to the small empirical study of political metaphor use in action, I would like to point out that a theory of metaphor as pervasive to cognition is an old one and was not created in the 1980s, as is so often assumed (see Nerlich & Clarke, 2001). One of the many thinkers to discuss the topic of metaphor from a ‘modern’ perspective was a 19th-century psychologist, Gertrude Buck (see Vivian, 1994). In her view, a child calling a bird’s nest a house uses metaphor just as much as Newton might have done when calling the universe a clockwork. They both use metaphors to express the inexpressible. One might say, metaphorically, that they both use metaphors as ladders to access new conceptual spaces, ladders that can later be thrown away, once the child learns about birds and what is conventionally called their nests, or once physicists learn that the universe is ... perhaps a membrane (but actually, what the universe *is* still lies beyond our grasp and metaphors are the only thing we have to ‘knock on heaven’s door’, Randall, 2011).

Buck asked in 1897: “Is it not possible that the same psychological process of *growing differentiation in perception* may lie at the root of both phenomena?” (quoted in Vivian, 1994, p. 99, italics added), that is, the naïve use of metaphor by the child and the more creative or poetic one by, say, Newton. As Murry wrote three decades after Buck: “Metaphor is as ultimate as speech itself, and speech as ultimate as thought. [...] Metaphor appears as the instinctive and necessary act of the mind exploring reality and ordering experience” (Murry, 1931, pp. 1-2)... or disordering it.

There is, however, a difference between this instinctive use of metaphor on the one hand and the more creative, poetic and in some instances political use of metaphor on

the other, as poetic metaphor is: “a straightforward attempt to communicate to another person the maker’s vision of an object as it appeared to him at the moment of expression ... the writer is simply taking a snap-shot at his own process of perception in one of its intermediate stages” (ibid.). It is, in a way a ladder into a certain person’s or social group’s conceptual universe and makes us partake of their vision of the world (or not). Buck argues that “the force brought by metaphor to bear upon the reader’s mind is considerably greater than that put forth by plain statement. While the latter avails only to propel the reader’s thought along an accustomed and preferred channel, metaphor forces it to fall in with that of the writer, to trace the writer’s branching idea back to its source and then to follow its ramifications beyond the point of actual expression, to traverse a road that may be wholly new, a country hitherto unseen” (ibid.). And this can have social and political consequences, as cognitive scientists have recently (re)discovered (see Thibodeau & Boroditzky, 2011).

It should be stressed that metaphors as ladders leading into new conceptual spaces or ‘countries hitherto unseen’, used by children, scientists, or indeed anybody, can fail. Some are good ladders and some are faulty ladders. One has to test out which ones work and which ones don’t. This is why, as has recently been claimed, children are instinctive scientists (Cook et al., 2011) and, I should add, scientists are instinctive and creative children, in the sense of not being afraid or inhibited by social norms to test out new, sometimes precarious, metaphorical ladders and to abandon those that fail the test. Some ladders however become so popular (conventional) and stable (such genes as the ‘book of life’) that nobody even sees them anymore and that can be dangerous too (Nerlich & Hellsten, 2004; Hellsten & Nerlich, 2008). And finally, some ladders are intentionally placed to mis-lead, as we will see in the rest of this article. Being aware of and alert to the creative power of metaphor and how it shapes perception, cognition and action is therefore as important when doing science as it is when engaging society with science.

Let us now explore one of Buck’s ‘new countries hitherto unseen’ that can be reached by metaphor, and this time the new country is scientists themselves. For many people ‘scientists’ are still a new country hitherto unseen. That is why so many stereotypes of scientists continue to permeate people’s perception and understanding (the mad hair, the white coat, the alchemical paraphernalia, the manic German accent, etc.). One would think that in a society dominated by science and technology, knowledge about scientists and how they work would be widespread and that spreading misinformation about scientists might be difficult to achieve. However, some metaphorical framings of science and scientists seem to be amongst the most stable (and faulty) metaphorical ladders there are. Whenever a new scientific breakthrough is announced, especially in the biosciences, various narratives, myths and clichés are used to metaphorically frame them and the scientists that help to achieve them. So scientists invariably ‘play God’, or ‘Prometheus’ or ‘Frankenstein’, ‘open Pandora’s box’, create a ‘brave new world’ and so on. These hubristic, religious and quasi-religious framings (what Dorothy Nelkin called ‘God-talk’; Nelkin, 2004) obscure the way scientists really work but are almost inevitable when

reporting on scientific breakthroughs (Radford, 2009). What is perhaps rarer and quite counterintuitive in media reporting on science is to establish a link between scientists and ‘God’ that focuses not on hubris but on fraud. However, this is, as we shall see, what happened during ‘climategate’.

I have said that metaphor enables us to see something as something (else). In this article I focus on metaphors making people see someone (scientists) as someone else. And whereas in the general literature on science and metaphor the focus is usually on the creative and constructive force of metaphor, the focus here is on the more destructive and disordering force that metaphor may have in certain circumstances. Having said this, this is only one point of view on what the metaphors under discussion do. From another point of view they are indeed constructive; they create and order the world in certain ways for certain people, and they do this very successfully indeed.

I will summarise findings from an earlier study (Nerlich, 2010) of the metaphorical framing of climate scientists during the so-called ‘climategate’ affair of 2009, as this has quite deep implications for how science is perceived and how one communicates about science, but also for how science perceives itself. I will show that the religious framing of scientists, especially in the blogosphere, had repercussions for the understanding of some fundamental tenets of science, such as the status of certainty and uncertainty, consensus and scepticism. I will end by reflecting on the social and political consequences of this ‘creative’ metaphorical framing.

### **3. Climategate 2009**

On 20 November 2009, two weeks before an important international meeting of climate scientists, policy makers and activists, an unknown individual or group breached the server of the Climate Research Unit (CRU) at the University of East Anglia (UK) and copied thousands of emails and computer files to various locations on the Internet. The story first broke in the climate sceptic blogosphere (see Hoffman, 2010; Holliman, 2011; Leiserowitz et al., in press). Climate sceptics (also called climate change deniers or denialists), that is, broadly speaking, groups of people who believe that the human influence on the climate has been dramatically overplayed compared to natural processes and other external influences (<http://bit.ly/wFRqVP>)<sup>1</sup>, alleged that the emails revealed that CRU scientists had manipulated climate data and suppressed critical voices. Various committees have now investigated the allegations and published reports, finding no evidence of fraud or scientific misconduct.

However, the repercussions can still be felt, especially in the United States where climate change denial has become part of an anti-science stance that permeates thinking on the right of the political spectrum. This became topical yet again in October 2011, when a scientist, who had, in general, been sympathetic to concerns voiced by climate sceptics, revealed that research carried out at the University of Berkeley confirmed many of the claims made by scientists vilified by climate sceptics in the climategate affair

(the Berkeley Earth Surface Temperature study or BEST) (Muller, 2011). The new data strengthened existing evidence as well as the credibility of climate science. However, climate sceptics who had previously accused scientists of trickery, deceit, scams and conspiracy, surprisingly, did so again (e.g. Rose, 2011) and the pro and anti climate science positions that had emerged did not really shift. About a month later, in November 2011, more or less on the anniversary of the initial release of hacked emails in 2009, a second batch of about 5000 emails was released just before another important climate summit. This second version of climategate will not be studied here but a cursory reading of some comments and blogs confirms that at least some of the religious metaphors of scientists and science discussed below are still in circulation, such as “I applaud those that are releasing the emails, they should shine light on who the high priests are in the religion of AGW [anthropogenic global warming]”, to give only one example (see <http://hotair.com/archives/2011/11/22/climategate-2-0/>)

The 2009 affair came to be known as ‘climategate’, the BEST study as ‘climategate-gate’, and the release of the 5000 additional emails as ‘climategate 2.0’ or ‘climategate, the sequel’. As Matthew Nisbet, a climate change communication specialist, pointed out after the first ‘gate’, “the now commonly used term ‘ClimateGate’ (sic) to refer to the case of the East Anglia stolen emails is an extremely effective frame device that instantly—if not falsely—conveys that there is wrongdoing, politicization, and a cover-up on the part of mainstream scientists.” (Nisbet, 2009)

#### **4. Framing Scientists and the Process of Science**

Climate sceptics or deniers on the one hand (e.g. [wattsupwiththat.com](http://wattsupwiththat.com)) and defenders of science in general and climate science in particular (e.g. [scepticalscience.com](http://scepticalscience.com)) are most active in the blogosphere. I shall therefore concentrate here on dissecting some discourses deployed in some corners of this sphere—albeit only a very small corner.

There is an increasing interest in the study of blogs by discourse analysts. As Greg Myers has pointed out in his book *The Discourse of Blogs and Wikis* (2010, p. 3): “if blogs are becoming important in political, social and economic life, we need to know how they work, just as we need to know about political speeches, journalism and advertisements. The persuaded have to know what the persuaders are doing.” For pragmatic reasons I chose Lexis Nexis Professional which has been traditionally used to study press coverage of various debates in science and society and now also provides access to some blogs via Newstex. ‘Newstex Blogs On Demand’ makes available full-text blog content from premier Weblogs (creators of ‘content rich’ blogs; see [premierweblogs.com](http://premierweblogs.com)) in a wide variety of categories including art, career, economics, environment, finance, food, health, law, marketing, medical, technology, video games and many more (see [newstex.com](http://newstex.com)). I chose a one-month period from 18 November 2009, just before the leak of the emails, to 18 December, the end of COP15 and used the search word ‘climategate’. It should be stressed that this corpus is very limited and does not contain major and influential blogs,

such as *Watt's Up With That* for example or the blog by James Delingpole, generally credited with the creation of the term 'climategate' (<http://blogs.telegraph.co.uk/news/author/jamesdelingpole/>). However, results emerging from my small-scale analysis can be seen as indicative of the political stance assumed by such blogs and some of the arguments and rhetoric they use (see for example <http://www.climategate.com/category/religion>).

The corpus contains 921 blog postings, which is, it should be stressed, only a fraction of the blogs published on climategate at the end of 2009. A first, shallow, reading of the blogs was used to ascertain what type of metaphorical framing was used in the blogs and it was found that most metaphors tended to be religious ones. 97 passages containing religious metaphors were extracted. These passages were then submitted to a close reading through which individual metaphors, metaphor clusters, groupings and ultimately overarching conceptual metaphors, in our case SCIENCE IS RELIGION, were extracted together with the main themes in which these metaphors were used, for example to challenge 'scientific consensus' or 'truth', to frame global warming as a myth and so on. The main topics for discussion or the main themes running through the blogs and where metaphors were used as rhetorical devices will be discussed in the following sections of this article.

By framing or conceptualising science metaphorically as religion or myth, opponents to the theory of AGW (anthropogenic global warming) and its political consequences, created their own myth or story of science as fraud or untruth. This then made the conclusions they draw from their stories and arguments, using a variety of metaphors, namely that no political action needs to be taken with regard to climate change, feel natural, and like common sense. It should be stressed that the religious metaphors used in the blogs echo, to some extent, those used in mainstream newspapers even before the 2009 climategate affair, as Woods et al. have shown in their 2010 study 'The use of religious metaphors by UK newspapers to describe and denigrate climate change' (Woods et al., 2010). They also seem to be spreading and be quite persistent, as Svoboda has recently stated in a study for the *Yale Forum on Climate Change & the Media*. He asked the question:

[H]ow does this use of religious language affect the public understanding of climate change? To answer this question, the *Forum* analyzed more than 250 op-eds, blog posts, and books published between 2005 and the present. The results suggest that this religious language may be most effective in fortifying the opinions of those using it: Calling global warming a "religion" effectively neutralizes appeals to "the scientific consensus." (Svoboda, 2012)

As already mentioned, most of the blogs studied here were largely written by people affiliated with the conservative right, with a smattering of libertarian radicals and a few lone voices from the so-called liberal elite sprinkled amongst them (about 10 out of 921). In the following I shall first explore what one can call the master-metaphor that pervaded these blogs, namely SCIENCE IS RELIGION before examining its repercussions for

issues of evidence, theory, consensus and so on as fundamental tenets of scientific discourse.

#### 4.1 Science is religion

The *Compact Oxford English Dictionary* gives as one of the meanings of ‘religion’: “a particular system of faith and worship” and as one of the meanings of science “a systematically organized body of knowledge on any subject” (online).<sup>2</sup> Climate sceptics generally mapped this meaning of religion onto this meaning of science in various ways. They claim that the emails show that climate scientists, rather than increasing knowledge, tried to buttress their fabricated system of faith and that this then destroyed the credibility and the integrity of science as a whole. This also meant that, according to climate sceptics, having ‘faith’ in science was unwarranted, even dangerous, whereas, obviously, having faith in their own sceptical endeavour is fine.

Although the overall metaphorical and conceptual mapping underlying some of the climategate anti-science discourse can be encapsulated as SCIENCE IS RELIGION, it is actually much more complex and extends into other aspects of what one can call ‘religion’ in a broad sense, such as cults, the church, faith and so on. These various aspects of ‘religion’ are used by the bloggers to conceptualise various aspects of science in a negative way, such as scientific theories, scientists, their dissemination activities, the confidence they have in the results achieved, the predictions they can extrapolate from them, the policies based on science and so on.

- Scientists (are): “messiah”, (confirmed, true) “believers”, “zealots”, “prophets”, “apostles”, “wizards and warlocks”, “gurus”, “false priests”, “high priests”, “unchallengeable priesthood”, “clerics”, “acolytes”, “adherents”, “evangelists”, “the converted, man-made global warming illuminati”.
- Science (is): “cult”, “fear-mongering climate-change faith-system”.
- Scientific theories (are): “dogma”, “myth”, “gospel”, “bible”.
- Scientific consensus (is): “orthodoxy”, “collectivism and Godism”, “canon”, “singing from the same hymn sheet”.
- Scientific dissemination (is): “crusade”, “preaching”.
- Scientific confidence (is): “belief”, “religious conviction”, “almost religious type beliefs”, “devotion”, “worship”.
- Scientific predictions (are): “prophecies”, “doomsday prophecies”.
- Scientists interacting with sceptics (is): “cult in which nay-sayers must be crushed”, and where sceptics are “heretics”, “witches”.

Some of these metaphorical mappings had been used before (see Dunlap, 2004; Woods et al., 2010), first to denigrate environmentalists and environmentalism and then, more recently, climate science (see McKewon, 2012). During the climategate affair they became the basis of rather paradoxical arguments against scientists (some of whom, one should

say, were also environmentalists) and science. More importantly, as my data demonstrate, they also became a way of dismissing traditional notions of theory, knowledge, truth and evidence, consensus and certainty and what it means for a science to be settled. When quoting blogs I will highlight metaphors in bold, but not all quotes containing metaphors could be included in the analysis.

#### 4.2 Theories, truth and evidence

By framing science as religion, climate sceptics conceptualise scientific knowledge about the influence of human activities on the atmosphere as unassailable dogma, orthodoxy or truth, which cannot be questioned or shaken by new evidence. As one of them pointed out: “No amount of evidence will dent the **cult’s** belief in AGW” (as quoted in: The Moderate Voice, 7 December). Paradoxically, some climate sceptics (mostly not those that are actual scientists and deal with real data) took a very small number of casually written emails as conclusive evidence that the theory of anthropogenic global warming is not only wrong but a fraud, despite the fact that it is, as most scientists agree, based on a “massive body of evidence that has been collected over decades by hundreds of climate scientists” (The Moderate Voice) or, as *Nature* put it, on “multiple, robust lines of evidence, including several that are completely independent of the climate reconstructions debated in the e-mails” (quoted in Midwest Voice, 14 December).

The ‘problem’ is that the majority of climate scientists actually think they are right (after having worked on the issues and theories for many years and having accumulated evidence). However, climate sceptics still think they are wrong and therefore accuse them of abandoning scientific norms and of engaging in scientific fraud which they conceptualise as religion. They seem cleverly to project what Karl Popper called “the wrong view of science” onto scientists by implying that they “crave to be right” (Popper, 1959/2002, p. 281) and framing this in religious terms. What climate scientists believe to be the truth, insofar as science can ever approximate it, their detractors frame as Truth without empirical foundation, that is, religious truth which they equate with ‘falsehood’ or fraud. This means that while on the one hand they want people to believe that ‘truth is out there’ which can be used to refute claims about climate change, truth claims by those who support claims about climate change are deemed to be of a religious nature, i.e. not amenable to checking against the ‘truth’ held to be out there, or, if checked, found to be wanting. Climate sceptics’ own beliefs in ‘the truth’ (which, according to them, climate scientists try to ‘hide’), namely that there is either no (man-made) climate change or that it is all just part of a natural cycle, are, however, not subjected to the same sceptical scrutiny and religious deconstruction.

Many sceptics also accuse climate scientists not only of ignoring scientific evidence in order to support their theories, but also of ignoring the ‘evidence’ of fraud, which, they said, was staring them in the face in the emails:

Combined with the ignoring of the evidence of cooking the books from the Climategate,

this is not exactly anything to inspire confidence in the rationality of the **Great and Obaminable Church of Glowbull Warming** in all its various **denominations** and iterations. (RadioactiveChief, 9 December)

Even when faced with plausible evidence the whole thing might be a fraud, global warming **believers** simply found a way to assert that evidence was not necessary. (PA Pundits, 23 November)

Some critics then demanded to let “the scientific evidence speak for itself” (ShrinkWrapped, 8 December), which can be positively interpreted as demanding more transparency and access to data. But letting the evidence speak for itself is inherently problematic. To whom would this scientific evidence ‘speak for itself’? Who would be able to listen and understand? Scientists, most probably, who have been doing this for decades and who then speak to the public or politicians about what the evidence might mean. This meaning is not self-evident. Data actually do not speak for themselves. They have to be interpreted against the backdrop of a theory. Some sceptics have rather paradoxical views about this. As one US Senator proclaimed: “The truth is the truth [...] The facts are the facts. This whole theory of manmade global warming is just that: It is a theory.” (Trail Blazers Blog, 8 December) However, it is not ‘just a theory’. In the same way as evolution is not ‘just a theory’. The senator, like some creationists in the US, employs the lay meaning of ‘theory’, i.e. as a mere hunch or speculation, something with no more authoritative status than ‘for argument’s sake’. However, theory in science means something quite different. “It is a well-supported, well-documented explanation for certain observations. It ties together all the facts about something, providing an explanation that fits all the observations and can be used to make predictions” (see <http://www.notjustatheory.com/>). And, so far, the theory of AGW fits that, second, meaning of theory.

### 4.3 Certainty and consensus

Climate scientists and environmentalists have known for a long time that

Special interest groups and policymakers opposed to legislative action to reduce human emissions of CO<sub>2</sub> and other greenhouse gases often cite “uncertainty” in climate change science to justify their position. While there is much uncertainty in climate science (and there always will be), many researchers in the field insist that this uncertainty does not justify the lack of a policy response. In fact, scientists know a great deal about climate change, and there is a strong scientific consensus that the Earth is warming significantly, primarily due to human activities. (Briscoe, 2004)

As Antilla has shown in her 2005 study entitled “Climate of skepticism”, “the popular press uses a number of methods to frame climate science as uncertain, including ‘through

the practice of interjecting and emphasizing controversy or disagreement among scientists’; this often creates drama and provides journalists ‘with a guise of objectivity’ (p. 90)” (Antilla, 2005, p. 340).

Surprisingly, in framing science as religion, those opposed to political action on climate change cited not *uncertainty* but *certainty* as the stumbling block:

We [have] returned to the **Dark Age** of corruption, delusion, **superstition** and unreason. The **Global Warming religion** is as virulent and insidious as all mind-bending **cults of absolute certitude**, and yet it has become **mainstream orthodoxy** and infallible **spirituality** faster than any **faith-based cult** in history. It has its **clerics** and its passionate **prophets**; it has its machinery and lucrative industry; it has its urgent way and irrefutable truth. It awaits only its **messiah**. The Copenhagen Summit is the **Ecumenical Council** for the **religion of the age**. (EU Referendum, 8 December, italics added)

Bloggers used religious metaphors, such as those highlighted in bold, to frame climate scientists as being overly confident of the results of their studies, that is, as overly certain; confidence was equated with religious dogma and certainty with false certainty. In this context they also tried to undermine what, until climategate, had been increasingly regarded as a scientific consensus by collocating consensus with ‘manufactured’, ‘phony’ and so on and by comparing it to the consensus that surrounded phrenology, eugenics and Piltdown man. This means that the consensus that exists is questioned as a false consensus on the one hand and as being too consensual on the other—what many critics call a climate science ‘orthodoxy’. As one of the blogs pointed out:

The **apostles** of the **religion** of anthropogenic global warming desperately want people to **believe** their flimsy theory about the earth warming due to human activity is based on science, settled science they tell us, where there is consensus of all scientists with no disagreement in the scientific community. (Dakota Voice, 18 December)

Here scientific consensus is framed as allowing ‘no disagreement between scientists’, which contradicts scientific understanding of consensus and agreement. As Mike Hulme has stressed in his book *Why We Disagree About Climate Change*: “A consensus approach allows for a range of different beliefs and judgements to be recognised. Indeed, reaching a consensus implies, by definition, that a range of different views exist and are expressed.” (Hulme, 2009, p. 91) This is quite different to religious ‘agreement’ about what to believe or not.

By accusing climate scientists of too much certainty and too much consensus, they imply that some sort of conspiracy must be at work. This is quite different to media coverage of climate change five years earlier and as studied by Antilla (2005, p. 352) for example where she found that: “These press reports perpetuate the myth of a lack of international scientific consensus on anthropogenic climate change—and thereby succeed

in maintaining public confusion.”

Both arguments, the older one, that there should be more certainty, and the newer one, that there is too much certainty, make political action impossible, that is, they paralyse it. Asking for total certainty is based on a rather outdated view of science (Peat, 2002) and in effect asks for the impossible. It therefore makes politics—to be regarded as ‘the art of the possible’ (Otto von Bismark, 1867)—impossible. On the other hand efforts are made to undermine any existing consensus (Doran & Kendall Zimmermann, 2009) by framing it in religious terms as ‘dogmatism’, which again makes political action impossible, as it undermines the credibility of scientists (who are portrayed as priests, clerics, acolytes, fundamentalists and so on) and makes it much easier to adopt and foster a position of social “inertia”, political “inaction” and even “gridlock” (see McCright, 2007, pp. 201, 204). This also confuses the general public and makes climate change and science communication even more difficult.

#### 4.4 Belief and trust

As in the case of ‘theory’, climate sceptics exploit certain meanings of the words *belief*, *believe* and *believer* which are opposed to the way they are commonly used in science, and more akin to religious belief. The word *belief* alone has, as pointed out in the *Compact Oxford English Dictionary*, at least three meanings: 1 a feeling that something exists or is true, especially one without proof. 2 a firmly held opinion. 3 (belief in) trust or confidence in. 4 religious faith (online). Now, the majority of scientists can be said to ‘believe’ in climate change or the theory of AGW in the sense of having confidence in their science, of trusting in what they have established and having a firmly held opinion or conviction. This belief is based on some sort of ‘proof’, whereas religious belief is generally not. Some religions demand blind faith instead, something that climate critics accuse climate scientists of fostering. This problem is only accentuated by seeing religion itself as being only about belief systems rather than as practices or rituals (Mike Hulme, p.c.).

Climategate ‘believers’ claim that climate scientists produce a type of science that is no longer open to revision and has therefore turned into a belief system in the sense of a faith. As one blogger wrote, climategate “[s]uggests that their predictions now are uncheckable, unfalsifiable—in short, not science but **faith**” (Patrick McIlheran: Right On, 7 December).

As a result of the exposure of The CRU Papers, we now know that claims of such changes were fraudulently fabricated and perpetrated by the **priests** and **believers** of the fear-mongering climate-change **faith system**.

And, just as fraudulent claims by the **false priests** of any other **fear-mongering religion claiming** to be saving your soul in some non-confirmable way say nothing about the metaphysics of theology, so too the protection-racket extortions being perpetrated by the **false priests** of abnormal climate change say nothing about the epistemology of science. [...] The AGW movement has been exposed as a **religious belief** and a political cash cow, not science.

(Ed Driscoll, 29 November)

Some bloggers claim that climate science trumps traditional religions in demanding more faith from believers:

Every **religion** requires a certain amount of **faith** or **belief**, since every religion contains at least some claims which cannot be empirically verified. But in order to **believe** the **religion** of anthropogenic global warming, **adherents** put **believers** in most of the traditional **religions** of the world to shame. (Dakota Voice, 10 December)

## 5. Conclusion

The religious framing of climate science, consensus and certainty has serious implications for public understanding of science, especially for understanding the central role of uncertainty, scepticism and doubt in science (Sim, 2006) (as well as, some argue, religion, see Lane, 2011). Unlike religion, science generally has a healthy respect for uncertainty and, as J. B. S. Haldane put it in 1927, ‘a duty to doubt’ (Haldane, 1927). This conflicts with some popular views of science as purveyor of unadulterated truth and certainty.

The religious framing also has implications for climate change mitigation efforts, as it leaves climate communicators in a lose-lose situation. If climate change scientists and communicators say that they are ‘certain’ (as far as that is possible) about something or have reached a consensus about something, the religious framing permits climate sceptics or deniers to accuse scientists of religious dogmatism or even fraud. If, however, scientists are more open about uncertainties (and they are increasingly told to do so; e.g. May, 2001), they can be accused of not doing good enough science, that the science is not sound, and so on. In both cases the credibility of climate scientists and climate science can easily be undermined. The end result in any case is political paralysis and social inertia (Fox Keller, 2011).

This also means that where once scientists might have dared to speak of the existence of a solid consensus or of a science that was at least relatively settled or certain (or indeed of having ‘faith’ in their data or ‘believing’ a theory to be ‘true’), they now increasingly extol instead the virtues of constructive ‘organised scepticism’ (which means that scientific claims must be exposed to critical scrutiny before being accepted) (Merton, 1942, 1979), as opposed to what some might call destructive (organised) scepticism in which climate change deniers engage for political purposes. This discursive move was for example employed by Martin Rees, then President of the Royal Society, in his 2010 Reith Lectures entitled ‘Scientific Horizons’ (Rees, 2010); it was also the core argument put forward in an article entitled ‘Science as organised scepticism’ by Robert May, former President of the Royal Society, for a special issue of the *Philosophical Transactions of the Royal Society* (May, 2011).

Whether evoking this principle of scientific conduct can dispel the myth of science

as religion (in the sense of religious fraud) is however rather doubtful, given comments/headlines such as these from *The Guardian* for example: “Martin Rees makes a religion out of science so his bishops can gather their tithe: The BBC’s reverence for genes, space and bugs gives its Reith lecturer a claim to public money based on faith, not reason.” (Jenkins, 2010)

The rhetorical moves, including the use of religious metaphors, employed during and after the climategate controversy, had important repercussions for the public understanding or perception of science and scientists as well as for science communication and engagement with science, more so in the US than in Europe.

Nationally representative surveys conducted in 2008 and 2009 found significant declines in Americans’ climate change beliefs, risk perceptions, and trust in scientists. [...] The results demonstrate that Climategate had a significant effect on public beliefs in global warming and trust in scientists. The loss of trust in scientists, however, was primarily among individuals with a strongly individualistic worldview or politically conservative ideology. Nonetheless, Americans overall continue to trust scientists more than other sources of information about global warming. (Leiserowitz et al., 2012, p. 818)

At the beginning of this article I extolled the virtues of metaphor as allowing humans to perceive the world, understand the world and transform the world according to their own image. This power is sometimes a double-edged sword. My analysis of the debate about climate change, climate science and climate scientists has shown how metaphor can be used to particular political ends, something that is almost a truism. However, in this case it is more dangerous perhaps than in routine political discourse, as metaphor use in the context of the climate change debate may shape thoughts and actions that are extremely detrimental to the public understanding, valuation and trust in scientific knowledge, that is, they may undermine public engagement with science as a trusted good and with scientists as trustees.

In my introduction to this article I used a metaphor for metaphor, that is, of metaphors as ladders into new conceptual spaces. During the climategate affair religious metaphors for science were used to direct attention away from science and the scientific process and to undermine norms and tenets of science by which most scientists live (perhaps more snakes than ladders?). They were used to conceptualise science as fraud and scientists as priests, conspirators or merchants of faith-based theorems. There is now a backlash against this type of framing (in some sense a repositioning of metaphorical ladders) of science and scientists by authors of books entitled for example *Merchants of Doubt* (Oreskes & Conway, 2010), a book which tells, as it says on its blurb, “the troubling story of how a cadre of influential scientists have clouded public understanding of scientific facts to advance a political and economic agenda”.

As Andrew Hoffman has pointed out: “While the scientific, technical and policy components of the climate change issue are of critical importance, climate change is also a

cultural issue. More importantly, it is a highly contested cultural issue in which competing movements engage in discursive debates—or framing battles—over the interpretation of the problem and the necessity of solutions.” (Hoffman, 2010) These cultural battles, which are also battles over metaphor, are still raging (and Climategate 2 will surely be followed by Climategate 3 in due course) and need continued attention.

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### Notes

- 1 One could write a whole paper on what constitutes a ‘climate sceptic’. For the beginning of such an attempt at definition, see a blog post by Dennis Bray, but this is really only a beginning: <http://klimazwiebel.blogspot.com/2010/11/climate-change-skeptics-strictly.html>
- 2 It can be argued (Mike Hulme, p.c.) that this is a rather narrow definition of religion which served the framing purpose rather well. However, such definitions of religion tend to place too much emphasis on ‘belief(s)’ rather than on ‘practices’. Indeed it is this focus on religion as ‘belief’ over ‘practice’ that allows this metaphorical subversion of science to proceed.

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