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The usefulness of climate change films

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ABSTRACT

Climate change films are relevant to geographers working in sub-disciplines, such as environmental management, climate science and visual studies. This paper assesses the usefulness of climate change films in light of ongoing debates in science communication and climate change communication about the best-known and most popular movies. Using a handful of English-language films as a sample, the paper asks how the usefulness of climate change films is to be determined if not by sole reference to the accuracy or truthfulness of factual information. The paper demonstrates that all types of films (from award-winning science documentaries to Hollywood blockbusters) have been debated and critiqued, especially in regard to scientific verisimilitude and image integrity. Usefulness is therefore not a matter of film type. Nor is it simply a matter of accuracy, because films containing inaccuracies have their supporters as well. The paper evaluates usefulness in terms of the work that climate change films do and the methods they use. I argue that the two key criteria for determining usefulness are teachability and integrity. In conclusion, I reinforce calls to detach the issue of usefulness from accurate science per se. Useful films are educative, truthful and trustworthy, in ways not always intended by filmmakers.

> "Although it seems counter-intuitive, the public's difficulty in distinguishing fact from fiction has rendered cinema a useful tool within conventional pedagogical situations and for informal science education (ISE)".
>
> Kirby, 2014, p. 105

> One of the surest ways to misunderstand images would be to read them as if they could be real or true…The assumption that films can show audiences the 'truth' is deeply ideological".
>
> Mboti, 2010, p. 318

1. Introduction

Film analysis is a point of connection between the physical sciences and the social sciences and humanities, as the quotes above show. Beyond academia, proliferation of film festivals, video competitions and global campaigns suggest that interest in climate change films has never been greater. Recent festivals include the 2009 Indigenous Voices on Climate Change Film Festival held in Denmark; the Clima Film Festival 2014 held in India; and the 2015 Handle Climate Change Film Festival in China. The 30th Guadalajara International Film Festival (2015) hosted the launch of Film4Climate, a global campaign spearheaded by the World Bank Group's Connect4Climate initiative. As part of its mission to raise awareness about climate change through cinema, Film4Climate introduced its Global Video Competition (for filmmakers aged 14–35) in 2016.

In this context, a comprehensive review of all climate change films is clearly not possible. The paper's chosen sample is a handful of English-language films with global reach through viewing platforms, such as cinema, television and the internet. Some of the most widely distributed films in the sample have already inspired much analysis and debate within two complementary fields of research. One is science communication, which includes studies of film consultancy (the role played by science advisers in film production), film content and audience reception of scientific images and messages. Therein so-called Hollywood Science or science fiction blockbusters are a genre of particular interest due to its audience reach (Perkowitz, 2007). Concerns have been raised about the scientific accuracy or 'verisimilitude' (i.e. appearance of truth, or believability) of some of these films (Kirby, 2014). The extent to which these should be the determining criteria for usefulness remains contested, however. As Perkowitz (2007, p. 213) notes in his book *Hollywood Science: Movies, Science and the End of the World*, "although getting the science right matters a great deal…that isn't always the only consideration – even sometimes for the scientists themselves."

The other main field is climate change communication, especially work on visual communication and public engagement. Sengupta (2013) distinguishes between films that address climate change directly and those that reference it indirectly or implicitly. Published papers focus largely on the former category and on three films within it in

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particular. These are: the Hollywood film *The Day after Tomorrow* (2004, hereafter TDAT); *An Inconvenient Truth* (2006, hereafter AIT) starring politician turned climate activist Al Gore; and *The Great Global Warming Swindle* (2007, hereafter TGGWS). The paper therefore reviews academic debates about the production, content and audience reception of these much-discussed feature-length films. In order to contribute to those debates and not simply appraise them, the sample also includes two more recent, largely unstudied but equally relevant examples of climate change films. These are: *Cowspiracy* (2014) and *Climate Change by Numbers* (2015, hereafter CCBN).

If climate change films cannot offer a complete view of climate change due to the nature of the subject matter and the nature of film (Hulme, 2009; Perkowitz, 2007), then climate change films are necessarily imperfect. Nonetheless, readings in philosophy of science and in science communication suggest these films do have the potential to be useful – even those that do not present science all that accurately. For Thomas Kuhn, accuracy was only one of five characteristics of a good scientific theory, the others being consistency, scope, simplicity, and fruitfulness (cited in Thompson, 2012). There is also more to science (including science in cinema) than theory and factual information. So-called systems of science include scientific methods and norms, interactions among scientists, science policy, and research funding (Kirby, 2014).

The question for this paper then, is not whether climate change films are useful or not. The issue is how the usefulness of such films is to be determined if not by sole reference to the accuracy or truthfulness of factual information. A possible answer for science education is the criterion of authenticity, which arguably "serves as a better lens [than accuracy] through which to see science in cinema" (Kirby, 2014, p. 99).

The paper focuses on the educative dimension of climate change films because this is important in human as well as physical geography. For example, Simon Dalby has called for a geographic pedagogy that includes values, such as justice, and a demonstration of how different modes of production and consumption are responsible for climate change in the current Anthropocene era (Dalby, 2014). As in other writings in climate change communication, pedagogy here is about purposeful education and not only public understanding; it is about moving people to take action on climate change by (among other things) consuming less energy and otherwise changing their own behaviour.

With these points in mind, the paper begins with an overview of types of climate change film and a review of some notable debates and critiques. Part two shows that all climate change films are limited in some way and therefore imperfect. However, the same could be said of most branches of science, including climate science and its models. The film CCBN makes exactly that point; it argues for the trustworthiness of climate science despite its inevitable imperfections. So despite some innate limitations and flaws, climate change films can be useful in raising awareness, encouraging understanding and motivating behavioural change.

To determine usefulness, the next sections consider the work that climate change films do and the methods they use. I argue that the two key criteria for determining usefulness are *teachability* and *integrity*. Whereas the former term attaches principally to the educative and affective aspects of climate change communication, the latter is about ensuring the credibility of images and messages through truthfulness, openness and honesty in communication. Teachability and integrity relate directly to climate change films. They also link to significant broader themes in science communication and climate change communication, namely public understanding *of* science and public trust *in* science.

In conclusion, I reinforce calls to detach the issue of usefulness from accurate science while broadening the scope beyond the concept of authenticity per se. Useful films are educative, truthful and trustworthy, in ways not always intended by film-makers.

2. Types of climate change films

> "Both entertainment and factual forms play with repetition and difference, and with realism in conjunction with melodrama…For many, the contemporary ultra-high-budget blockbuster is the most unpromising media form of all to evoke in relation to environmentalism".
>
> Branston, 2007, p. 215

Films can be defined in various ways. The special effects, big-budget film TDAT has been labelled as: a blockbuster (Hammond and Breton, 2014; Hobbs-Morgan, 2015); a "spectacular, fictional film" (Von Burg ,2012, p. 8); science fiction or Hollywood Science (Perkowitz, 2007); an "issue event movie" (Branston, 2007, p. 220); and "cli-fi" (O Heigeartaigh, 2014, p. 1). These distinctions reflect a number of considerations, i.e. size of budget, commercial appeal, audience reach and issue salience; last but not least is the question of scientific accuracy.

The award-winning film TDAT mingles scientific information and scenarios of abrupt climate change with invented characters, a fictional plot and a debatable timeline. Its central protagonist is a paleo-climatologist whose warnings of impending catastrophe fall on deaf political ears. The spectacular consequence is a sudden slowdown of the Gulf Stream ocean current, which produces apocalyptic global effects. Critics argue that the film's temporality is not scientifically accurate (Hobbs-Morgan, 2015; Von Burg, 2012). The unrealistic rate of global warming and special effects mean that the film as a whole is 'science fiction' in a dual sense; it is fictional science as well as fiction + science.

And yet, the film has been viewed as a positive contributor to both public engagement and science education (Von Burg, 2012). Alongside detractors and sceptics are a number of scientists who applaud the filmmakers' efforts to publicise an urgent problem and need for political action (Von Burg, 2012). In terms of science education, TDAT has been defended on the grounds that, like all good science fiction, it is premised on "scientific reality" (Von Burg, 2012, p. 16). Despite its inaccuracies it "can be used to teach real science" and "contribute to science education" (Perkowitz, 2007, pp. 220 and 225). In sum, the debate is not about whether or not TDAT is scientifically accurate. The issue is whether such a film can still educate, affect and motivate behavioural change.

The quote at the beginning of this section suggests that a possible response is to dismiss all films oriented toward public entertainment and melodrama as 'fiction' in favour of more 'factual' forms, such as "medium budget 'issue' films" and "theatrical documentaries" (Branston, 2007, p. 226). In describing TGGWS as "a much more conventional science documentary" than AIT, Mellor (2009, p. 137) suggests that both are a factual form in some way. In terms of a simple fact/fiction dichotomy, TGGWS and AIT would then belong in the same category and automatically out rank any blockbusters. Instead of flattening the differences between those two films in that way, Greitemeyer (2013) distinguishes between 'climate change affirming' films, such as AIT, and 'climate change sceptic' films, such as TGGWS. For Greitemeyer (2013), the key difference is their aims. Whereas Al Gore uses AIT to raise awareness of global warming and promote behavioural change, TGGWS aims to show that such change is not warranted because climate change is driven by solar rather than human activity.

A *less* conventional science documentary is CCBN, which was aired on television in the UK by the British Broadcasting Corporation (BBC) in 2015. Although climate change affirming in its insistence on Earth's temperature rise, the film's central claim is that understanding climate change requires a basic explanation of some relevant statistics. CCBN focuses on how three key numbers have been derived by climate scientists. These are: 0.85 degrees, the amount of warming the planet has undergone since 1880; 95%, the degree of certainty in climate science that at least half of the warming since 1950 is anthropogenic; and one trillion tonnes, the cumulative amount of carbon that can be burnt before the planet reaches dangerous levels of climate change. According