

Climate Change Goes Public

Five Studies Assess the Impact of 'The Day After Tomorrow' in Four Countries

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While the DVD version of Hollywood's Climate Change blockbuster 'The Day After Tomorrow' (TDAT) is on sale, a small group of scientists held a workshop at the Potsdam Institute for Climate Impact Research (PIK) on 21. and 22. October 2004 to discuss and compare the results of five studies from four countries (Germany, Japan, the United Kingdom, and the United States of America) that all had one goal: to assess the public impact of the film. The cinema version of TDAT has earned about 550 Mio. US \$, and has been viewed by about 100 Mio. People all over the world. The film is now No. 5 of all disaster movies, and no. 1 of the new genre of 'Global Warming Movies' which it helped to create. Now the former genre leader 'Waterworld' is ranked only second.

Given its enormous commercial success the question remains whether or not watching the film might have had an impact on the public awareness of climate change and the willingness to do something against its occurrence or impacts. Many climate scientists were rather skeptical here, some even suspected a negative impact given the way the filmmakers had (mis-)used the results of climate science. Still, as it is impossible to deduce the public impact of a film from the product alone, a more substantiated assessment of the film's impact could only come from scientific studies. Fortunately, five studies world wide have been conducted to do the job, most of them independently of one another. First results of some of the studies have already been published or are on their way to the public. Nevertheless the really interesting point is if and how a global media event like the simultaneous launch of TDAT in almost 80 countries across the globe—a nice real experiment in our globalized media world—has affected the public with different cultural and political backgrounds in different countries. The Potsdam workshop was designed to tackle exactly this question.

By mere accident the five studies cover the most important markets of the film, which are: (1) USA, (2) Japan, (3) United Kingdom, (4) Germany, accounting for about 60 Mio. viewers. Participating scientists from the five studies were:

- USA: Anthony Leiserowitz (Decision Research)
- Japan: Midori Aoyagi-Usui (National Institute for Environmental Studies, NIES)
- UK: Suraje Dessai and Tom Lowe (Tyndall Center for Climate Change Research)
- UK: Andrea Manica (Department of Zoology, University of Cambridge)
- Germany: Fritz Reusswig, Julia Schwarzkopf (Potsdam Institute for Climate Impact Research, PIK), Philipp Pohlenz (University of Potsdam)

The five studies follow very different methodological approaches. Some are more quantitatively oriented and used standardized questionnaires, others allowed for open

questions, and others again used focus group discussions to get a more fine-grained picture of the changes the film might have triggered in people's attitudes.

Nevertheless, the main research foci of the studies are more or less the same:

- Socio-demographic information on the viewers
- Assessment of the film by the viewers
- Perception of climate change (risk assessment, mental models)
- Climate policy preferences
- Individual climate protective action

All studies were presented according to a common scheme. The following table presents some of the preliminary results. Further analysis is in progress. Missing entries indicate that the relevant dimension was not addressed by the study or at least not in the same manner as in most others. The participants agreed upon follow-up research within a common framework, and joint publication activities.

Table 1: Preliminary Results of the Five Impact Studies to TDAT

Study Aspect	Germany (PIK/ECF)	Japan (NIES)	United Kingdom (Tyndall/UEA)	United Kingdom (Cambridge)	United States (Decision Research)
<i>Method</i>	Questionnaires, Focus Groups	Questionnaires	Questionnaires, Focus Groups	Questionnaires	Web based survey
<i>Sampling</i>	Film goers, N=1118	Film goers, N=384	Film goers, N=301	Film goers, N=200	General Public and film goers, N=529
<i>Perceived Likelihood</i>	Decrease	Decrease	Decrease	-	Increase
<i>Understanding of the Climate Change</i>	More complex, less clear about future changes	More complex, less clear about future changes	More complex, less clear about future changes	Less clear about future changes	More complex, less clear about future changes
<i>Concern</i>	-	-	Slight increase	Increase	Increase
<i>Attitudes to Climate Policy</i>	Strengthens support	-	-	No change	Strengthens support
<i>Motivation to Individual Action</i>	No change	Slight increase	Slight increase	No change	Increase

Three out of five studies detected a decrease in the perceived likelihood of a global climate change in the eyes of the viewers. Only in the US case viewers reacted with an increase of their subjective probability. One explanation for this is that four out of five studies noted a clear change in the mental model of climate change due to the uncommon scenarios provided by TDAT: a rapid cooling instead of a slow warming. The role of the oceans and the thermohaline circulation (THC) was new to most viewers, and the film has shaken the public understanding of climate change. One reaction to this re-framing of the mental model of climate change was a drop in the perceived likelihood of such an event to happen. As most people do not know where the science in TDAT ends and fiction starts, this creates a challenge and a window of opportunity for science and science communication in the area of climate change—and some institutes have already reacted. People are less clear about future changes, and in some cases film viewers adhere more to false models of climate change than

non-viewers (UK, Cambridge study). The exceptional reaction of US viewers with regard to perceived likelihood might be explained by the very different initial conditions in the States compared to Europe and Japan: US citizens seem less informed and less concerned about climate change than their counterparts in other countries. Having seen the film might raise their awareness, whereas Europeans and Japanese have been irritated on a rather high level of awareness and concern.

With regard to the relevance of the studies one should keep in mind that—at least in democracies—any public policy to mitigate against the causes of climate change depends on some degree of public support. Here the film seems to have played a positive role in Germany and the US, whereas in the UK no change was detected. Furthermore, given the complexity of causes, individual lifestyle and consumption decisions are relevant for the global climate, and more so as countries become richer. Here the film has had a positive impact in the US and Japan, whereas we detect no changes in Germany. The two UK studies give mixed evidence.

The *United Nations Framework Convention on Climate Change* (UNFCCC), an internationally binding document that has experienced a major strengthening recently as Russia has ratified the Kyoto protocol to that convention, includes an article on public awareness and education with regard to climate change. This article 6 has experienced a certain degree of neglect by the international and research communities, as compared to the prominence of other major articles (e.g. Art. 2 on dangerous climate change). The success and impact of 'The Day After Tomorrow', as explored by the five studies, indicates that we should be more attentive to the issue of awareness raising and education—and slightly more optimistic too. Given the new genre of 'Global Warning' films, now lead by a climate change blockbuster, researchers and policy makers should note the fact that a new global player has entered the arena of awareness rising and environmental education: the film industry, providing entertainment, and information as a by-product. As many more people go to the cinema than read a peer-reviewed article on climate change (or even the IPCC reports), we must definitely count in this new area of climate change communication.