



A 2006 Regime Shift in Climate Change Awareness?

Changes in media coverage of climate change in Swedish newspapers

Kristina Gillin

**Natural Resource Management,
Governance and Globalisation
Master's Thesis 2007:5**

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This thesis is written to fulfil the requirements of the Master's Programme:

Natural Resource Management, Governance and Globalisation

a transdisciplinary programme held by the Centre for Transdisciplinary Environmental Research, CTM, at Stockholm University. The one-year programme consists of four courses and the writing of a Master's thesis on a subject related to at least one of the courses.

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Abstract

Public opinion is an important factor that policy makers take into account when creating – or abstaining from creating – new policies. According to scientific consensus, climate change is an area that currently is in dire need of a wide range of new policies and other measures in order to mitigate the effects of global climate change.

To help shed light on the dynamics that increase public awareness of climate change, the primary aim of this thesis is to identify changes in media coverage of climate change in Sweden during 2006. Whether any identified changes in media coverage could cause a subsequent change in public opinion is also discussed.

Four Swedish newspapers with nationwide coverage are analyzed to identify changes in the quantity of media coverage of climate change between January 1995 and April 2007. Manual content analysis is also performed to identify differences in content in articles about climate change between periods of heightened media attention in 2001, 2005 and 2006. Resilience theory is applied in this analysis.

The empirical findings show that media coverage of climate change increased significantly – and rapidly – in November 2006 and continues to be at an elevated level. Compared to the periods of heightened media attention in 2001 and 2005, media coverage in the fall of 2006 focused more on the consequences of climate change, contained fewer references to climate change being a political issue and indicated more that individual households play a role in mitigation. Based on existing scientific literature, the current, unprecedented amount of media coverage of climate change is very likely affecting public opinion – which is providing a window of opportunity for policy makers and others who are concerned with climate change.

Resilience theory suggests that media coverage and public awareness of climate change currently are at a threshold; future events will determine if a regime shift is about to occur – or if media's attention will be directed elsewhere and its coverage of climate change decrease to the levels seen prior to November 2006.

Table of Contents

Introduction.....	5
Theoretical Framework.....	7
Resilience Theory	7
Additional Theories	8
Analytical Tools.....	9
Application of Theories and Contribution	10
Methods.....	11
Case Study Description.....	11
Data Sources	11
Content Analysis.....	12
Reflection on Methods.....	16
Results.....	17
Frequency of Key Words	17
Word Count.....	24
The Content of Articles during Periods of Heightened Media Coverage.....	25
Discussion.....	31
Changes in Media Coverage of Climate Change over Time	31
Effect on Public Opinion	32
Why November 2006?	34
Balancing on a Threshold	35
Conclusions.....	37
References.....	39
Appendix 1: Search Strings	42
Appendix 2: Selection of Articles for Manual Analysis.....	43
Appendix 3: Article Topic	45

Introduction

The total cost incurred by society for an environmental problem increases when there is a delay between the time a problem has been recognized by experts and regulation to resolve it has been passed – and the longer the delay, the higher the overall cost (Scheffer et al 2000; Scheffer et al 2003). The dynamics of policymaking are very complex but attention to a specific issue often goes through a long period of stalemate, followed by a rapid increase in attention and policymaking (Baumgartner 2006); the issue has reached a “tipping point” (Gladwell 2000).

In order to avoid unnecessary delays in environmental policymaking – and the resulting unnecessary costs to society – it is important to better understand the dynamics that cause an issue to move from stalemate to policymaking (Repetto 2006; Scheffer et al 2003). According to Scheffer et al (2003), this is especially important for issues that may have negative, irreversible consequences – such as global climate change. To slow down climate change and mitigate the consequences, the scientific consensus is that a wide range of policies and other measures are yet to be implemented (IPCC 2007 a).

One important factor that policy makers take into consideration when creating – or abstaining from creating – new policies is public opinion (Scheffer et al 2003). According to Maxwell and Randall (1989), public opinion carries considerable political weight in our current, pluralistic society and Ludwig (2001) argues that the values and knowledge of the public are crucial when addressing complex problems like climate change. According to Funtowicz and Ravetz (1992), climate change and other issues with high uncertainty and decision stakes (i.e., “post-normal science”) even require bringing science into the public debate through the media and other public forums.

One source of influence on public opinion is the mass media, even though it is only one of several sources of influence on public opinion (af Wählberg and Sjöberg 2000) and policymaking (de Loë 1999). It is, however, generally agreed that the media plays an important role in shaping the public and political agendas (McCombs and Shaw 1972; de Loë 1999). With media’s agenda-setting function it can, therefore, easily be argued that there is a link between media, the general public and policymaking (de Loë 1999).

During the winter of 2006-07, public awareness of and interest in climate change appeared to increase dramatically worldwide; suddenly “everyone” was talking about climate change. As an example, readers of *Dagens Nyheter* in Sweden voted climate change to be the most important news during 2006¹. Since media has an agenda-setting function (McCombs and Shaw 1972) and plays a role in public opinion formation (Downs 1972), an analysis of media coverage of climate change related issues would help shed light on the dynamics that preceded the apparent, current climate change hype in Sweden.

The primary aim of this thesis is to answer the following research question: How did media coverage of climate change related issues in Sweden change during 2006? In light of the answer to that question, this thesis will also discuss whether any identified changes may have caused a subsequent change in public awareness.

For the analysis, resilience theory is applied since it focuses on the dynamics of rapid shifts (Folke 2006). I expect to find that media coverage of climate change increased during 2006 and that, compared to previous years, more attention was given to the consequences of climate change.

A limitation of this thesis is that it only analyzes media coverage of climate change and is unable to show any empirical findings regarding the effect on public opinion. As mentioned above, public opinion formation is a complex process and mass media is not the only influence. Even so, learning more about changes in media’s reporting of climate change related issues is interesting in itself and will also provide valuable insights regarding the dynamics that preceded the current climate change hype.

The empirical findings in this thesis will show that Swedish news media dedicated substantially more space to climate change related issues toward the end of 2006 and, based on existing scientific literature, I will argue that this increase in media coverage has contributed to increasing public awareness of climate change and its consequences.

¹ Dagens Nyheter. <http://www.dn.se/DNet/jsp/polopoly.jsp?d=2708>, 2007-05-20.

Theoretical Framework

Resilience Theory

With its roots in ecology, resilience theory was initially developed to explain the dynamics of ecosystems that have more than one stable state (Folke 2006). It is used to describe a wide range of different ecosystems, including lakes that can be in a clear or turbid state, coral reefs that can be coral or algae dominated, and savannas that can be grass or shrub dominated.

From a human perspective, one of the stable states is usually more desired than the other (Folke et al 2004). If an ecosystem passes a “threshold” and moves from one state to another, the feedbacks that drive the system dynamics change; the system is experiencing a “regime shift.” The resilience of a system is defined as its ability to withstand disturbances without shifting to its alternate state (Walker and Salt 2006).

A central characteristic of resilience theory is the emphasis on nonlinear dynamics and on negative and positive feedbacks, which enable the system to remain in one state or shift from one to the other, respectively. Variables that affect the system can either be slow (e.g., rising sea level temperatures) or fast (e.g., forest fires) and they are generally referred to as “slow-moving variables” and “disturbances” (Walker and Salt 2006). Another key aspect of resilience theory is its focus on re-organization and change, which can bring a system onto a new trajectory; under the right circumstances, a “window of opportunity” opens up (Folke 2006; Walker and Salt 2006).

Since the initial development of resilience theory, it is now being used for studying a wide range of social-ecological systems (Folke 2006), i.e., systems that are “linked systems of people and nature” (Walker and Salt 2006). Climate change is a process in nature that has the ability to affect ecosystems all over the world (IPCC 2007 b). When the media covers climate change related issues, that can have an impact on public opinion and policymaking, which in turn would affect the climate change process; media coverage of climate change can therefore be viewed as a social-ecological system, and since this thesis is concerned with rapid changes, slow-moving variables, the possibility of multiple states and other aspects of resilience theory, it is determined to be an appropriate theory for this study.

Additional Theories

There are several theories that have similarities with resilience theory, but have emerged from other scientific disciplines. Baumgartner (2006) uses a theory of “punctuated equilibrium” to describe the nonlinear dynamics that are common in policymaking. The term – borrowed from evolutionary biology – refers to a long period of stability, followed by a sudden increase in attention and policymaking in a certain policy arena. Negative feedbacks help create those periods of stalemate, and when there is a “window of opportunity,” positive feedbacks enable a shift in opinion of policy makers from passive to active. One such positive feedback is “media mimicry,” which means that different media outlets are more likely to report on the same news stories as their competitors (Repetto 2006).

Public opinion changes in a nonlinear way as well, as shown by Brock (2006) and Scheffer et al (2003). The model developed by Scheffer et al (2003:494) predicts that “society abruptly shifts to a predominantly active attitude (creating political pressure to regulate the problem) when the perceived severity of the problem has grown sufficiently to reach a critical point.” For complex issues – such as climate change – the shifts in public opinion will be particularly rapid. It is also stressed that competition for attention in mass media is one factor that delays the time for recognition of an environmental problem; when several problems occur simultaneously, the probability of one issue receiving sufficient attention to shift from passive to active decreases (Scheffer et al 2003).

Gladwell (2000) uses a theory of “tipping points” to describe rapid changes in public opinion and social behavior and uses the theory to describe everything from the development of fashion trends to suicide epidemics. In this theory, an important factor that increases the chances that a tipping point will occur is the “stickiness” of the message; if, for example, a movie or product is memorable enough, it is more likely to make people spread the message (Gladwell 2000).

There are no conflicts between resilience theory and the theories described above. On the contrary, scholars from the different areas of study reference each other and point out the similarities between their theories (Brock 2006; Folke 2006; Scheffer et al 2003). They are all applied for analyzing multiple equilibriums, rapid shifts, thresholds and the notion that a small disturbance can cause a system to shift from one stable state to another.

According to Downs (1972), mass media influences public attitudes and follows a cyclical pattern referred to as the “issue-attention cycle.” It consists of the following five stages: 1) the pre-problem stage, 2) alarmed discovery and euphoric enthusiasm of the public, 3) realization by the public of the cost of significant progress, 4) gradual decline of intense public interest, and 5) the post problem stage (Downs 1972). The issue-attention cycle is, however, criticized for its too linear approach (Henry and Gordon 2001).

Analytical Tools

McCombs and Shaw (1972) claim that mass media has an “agenda-setting function,” which means that the media may not be able to tell people *what* to think – but that it is very successful in telling people what to think *about*.

Brock (2006:63) has shown that a shift in public opinion is less likely when there is confusion about an issue and he exemplifies this by stating that “in the debate over manmade climate change, “scientists” working for special interests have muddied the waters by trying to direct attention toward other superficially plausible alternative causes, such as natural cycles, by questioning the measurements, or by contesting the consequences.” This is supported by Scheffer et al (2003:497) who state that the probability of a trigger of an opinion shift decreases if there is a “downplay of the severity of the problem by credible authorities.”

Fear-generating stories may have a higher degree of “stickiness” according to Gladwell (2000) and in the issue-attention cycle, consequences of an environmental problem receive more attention during the upswing of media attention (Downs 1972; McComas and Shanahan 1999). However, climate change is often viewed as a distant threat that has no personal relevance (Lorenzoni et al 2006).

Effective leadership is an important factor that reduces the delay between problem recognition and solution, and the roles of opinion leaders and authorities are especially important regarding complex issues (Scheffer et al 2003). Also Baumgartner (2006) and Brock (2006) stress the importance of leadership in order to create rapid changes. Gladwell (2000) refers to leadership through his “law of the few,” which explains the types of individuals that are needed in order for a tipping point to occur.

Gladwell (2000) also theorizes that, in order to make a message “sticky” enough to make people act, it needs to contain advice that is practical and personal. He exemplifies this by a study that shows that the percentage of students who acted on a message about getting a tetanus shot increased dramatically when a map and the times during which the health clinic was open were added.

Application of Theories and Contribution

The overall theory that is applied in this thesis is resilience theory. In particular, nonlinear dynamics, multiple states, slow-moving variables, disturbances and resilience are used in this study. Since resilience theory has not yet been used in mass media studies (Folke 2006), components of the other general theories described above are used to complement resilience theory when applicable. The aspects of the theories described as analytical tools are used to identify variables that would be valuable in the analysis of media coverage of climate change from a resilience perspective.

The contribution of this thesis is to study media coverage of climate change related issues and discuss its effect on public opinion – from a resilience perspective. In addition, by applying resilience theory in this study, this thesis tests whether resilience theory can add value to mass communication research.

Methods

Case Study Description

To limit the scope of this study, only media coverage in Sweden was analyzed, and to limit the case study further, only newspapers were selected for analysis. The newspapers chosen for this study were the four major newspapers Dagens Nyheter (DN), Svenska Dagbladet (SD), Aftonbladet (AB) and Expressen (EX) – all of which have nationwide distribution. DN and SD are both morning papers with a circulation of 368,000 and 176,000, respectively, while AB and EX are tabloid papers with circulations of 411,000 and 245,000 (Hultén 2004).

The time period selected for analysis of climate change related articles was January 1995 to April 2007. The reason that such a long period was selected was to be able to discover if media coverage was higher in 2006 compared to a relatively long period of time. The starting date was chosen so that the period would include the time before the Kyoto meeting in 1997 (when it was assumed that media attention would be heightened).

A limitation with this case study is that it only studies articles about climate change in newspapers; the public also receives information and forms opinions through television, the Internet and other sources. The Internet was quickly ruled out as a source, however, since it was not widely used in 1995, i.e., the starting year of the selected time period for this study. In addition, time constraints for this thesis prevented analyzing multiple sources of public opinion formation.

In accordance with resilience theory, media coverage of climate change related issues in Sweden was viewed as a social-ecological system in this study (Walker and Salt 2006).

Data Sources

Primary data was used to answer how media coverage of climate change related issues in Sweden changed during 2006. This data consisted of the copy in newspaper articles available in two different online databases: Mediearkivet (for AB and SD) and Presstext (for DN and EX). Both databases supply information on the section of the newspaper in which the article appeared, however, for AB and SD, that data was not available for articles before

August 2005, and the decision was then made not to include that as a variable in the analysis, although that was the initial intent. Mediearkivet provides information on word count of each article while Presstext does not. To obtain the word count for articles extracted from Presstext, the word count function in MS Word was used.

A source of error in the data obtained from Mediearkivet is that the database was slightly unstable; in a few cases, the same search generated different numbers of articles for a given period of time. When this happened, I continued to do the same search until I received the same result in at least two consecutive searches. In addition, when performing a detailed analysis of some of those articles, it was discovered that a few articles appeared twice. When this happened (7 articles out of 424 analyzed in detail) the multiple entries were discarded and the data corrected. However, the majority of articles were not analyzed in detail, and the data therefore likely contains additional minor errors with regards to number of articles per month in AB and SD. Another source of error is that some articles that were obtained through Mediearkivet were discovered to have the same text appearing repeatedly in the same entry, which would cause errors in the word count data. In the eight articles that were discovered to contain such errors, the correct word count was calculated and used instead.

Secondary data was used to support the discussion on the effects of media coverage on public opinion. Such secondary sources were obtained by searching Web of Science and other databases available through the Stockholm University Library. The references used in this thesis are mainly articles in peer reviewed journals and literature printed by university press, such as Yale University Press. References to Internet sites are only made when the sources were determined to have high credibility.

Content Analysis

Since I wanted to study changes over time in large amounts of text, quantitative content analysis was selected since it is suitable for analyzing large amounts of material (Bergström and Boréus 2005). Content analysis can be performed either manually or by computers. The advantage of computer analysis is that very large amounts of copy can be studied, while the advantage of manual analysis is that more complex interpretations can be made (Bergström and Boréus 2005). To combine the advantages of both computer and manual analysis, a stepwise approach was used, see figure 1.

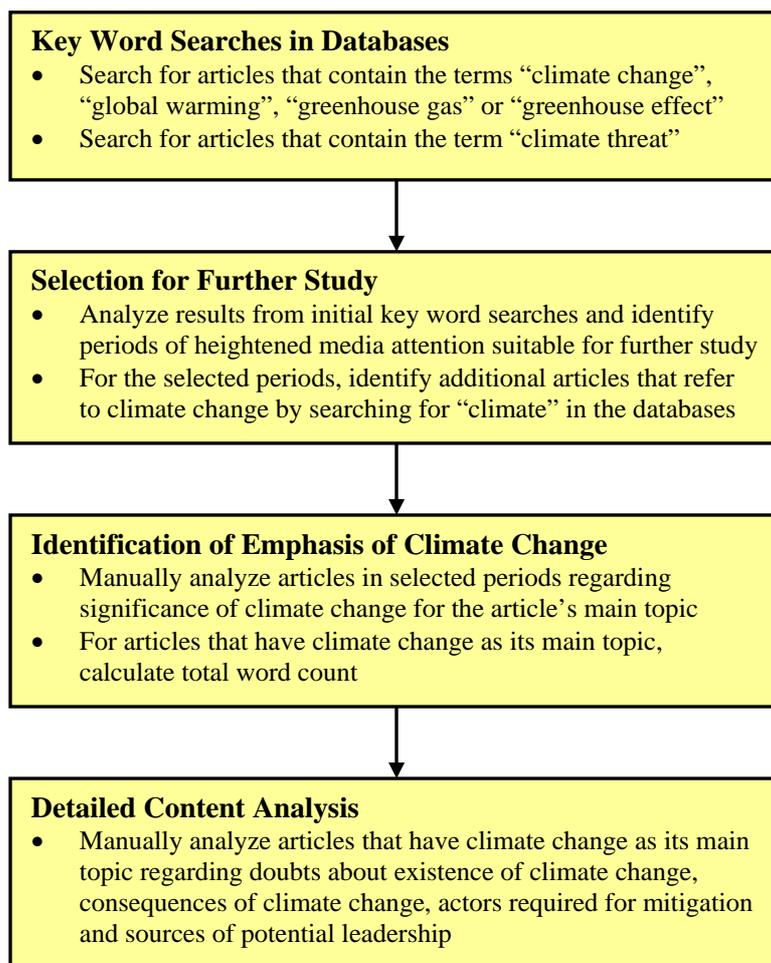


Figure 1. The stepwise approach used in order to combine the advantages of both computer and manual content analysis.

In this stepwise approach, the databases were first searched to identify articles that contained the key words “climate change”, “global warming”, “greenhouse gas” or “greenhouse effect” (“klimatförändring”, ”global uppvärmning”, ”växthusgas” or ”växthuseffekt”). There are many expressions and references that can be made to climate change, but the reason those four were chosen is that they, with a high degree of confidence, refer to climate change related issues only, while, for example, “warmer climate” instead could refer to a warmer climate in another place – not at another time. (In this thesis I will, however, use the term “climate change” consistently.) The exact search strings that were used in the key word searches are provided in Appendix 1.

One term that was analyzed separately was “climate threat” (“klimathot”) since it, compared to the other four terms above, implies the consequences of climate change – and thereby could be considered more fear-generating than the other terms.

In the second step, periods of heightened media attention were selected for further analysis. Since time was a limited resource, a comparison between up to four periods was considered sufficient. The selection process is illustrated in Appendix 2. Before beginning the manual analysis, a key word search for “climate” was performed to complement the initial searches with any additional articles that related to climate change but did not include any of the initial key words, see Appendix 2. The periods of study that were selected, and the number of articles in each period were:

- June-July 2001 (224 articles)
- July-August 2005 (175 articles)
- September-October 2006 (238 articles)
- November 2006 (341 articles)

The total number of articles selected for further study thus was 978. In the third step, those 978 articles were analyzed with regards to the article’s main topic and were categorized as follows:

1. The main topic of the article *is not* related to climate change at all and climate change (including its consequences, solutions, research, etc.) is only mentioned briefly.
2. The main topic of the article *is not* climate change (including its consequences, solutions, research, etc.) but climate change is mentioned more than in category 1.
3. The main topic of the article *is* climate change (including its consequences, solutions, research, etc.) but the article is a single quote, a movie listing or something else that makes it unsuitable for detailed analysis.
4. The main topic of the article *is* climate change (including its consequences, solutions, research, etc.) and the article is a regular article, making it suitable for detailed analysis.

Word count for articles in category 4 was then calculated to be able to make comparisons between different periods of heightened media attention regarding word count. In the fourth and final step, the articles that had climate change as its main topic were analyzed in detail. The coding scheme for this analysis is shown in table 1.

Table 1. The coding scheme (with explanations of variables) used in the manual content analysis of articles to enable comparisons between June-July 2001, July-August 2005, September-October 2006 and November 2006.

Uncertainty	
No	No phrase in the article indicates doubts about the existence of climate change
Yes	At least one phrase indicates doubts about the existence of climate change
Consequences – Type	
Warmer/weather	Warmer temperatures and/or changes in weather
Nature	Increase of natural hazards (floods, forest fires, effects on biodiversity, etc.)
Human	Direct consequences for human wellbeing (diseases, deaths, refugees, etc.)
Economic	Economic consequences
General	Negative consequences are mentioned, but no specific type
Positive	Positive consequences (and which type)
Consequences – Prevalence	
Minor	Consequences are only mentioned briefly
Intermediate	Consequences are not the main topic, but are mentioned more than briefly
Main topic	Consequences are the main topic of the article
Consequences – Affected Area	
Sweden	Mainly consequences in Sweden are mentioned
Europe	Consequences are mainly in other parts of Europe
Other continent	Only consequences on another continent are mentioned
Global	Consequences on several continents or implication of global consequences
Actor for mitigation or solution	
Political	Political actors or agreements are mentioned for resolution
Science and technology	Science and/or technological developments are mentioned for resolution
Industry	Actors from the private industry are mentioned for resolution
Individuals or households	Actions of individuals or households are mentioned for resolution
Leadership	
Political	Individuals or organizations from politics are mentioned and/or quoted
Science and technology	Individuals or organizations from the science or technology sectors
Industry	Individuals or organizations from the private industry
Economic	Individuals or organizations from the economic sector
Environmental	Individuals or organizations from environmental NGOs
Other	Movie stars, musicians, royalties, etc.
Swedish or International	For each of the leadership variables, note whether Swedish or International

As mentioned above, media has an agenda-setting function (McCombs and Shaw 1972) and media coverage with regards to the quantity of coverage was therefore chosen to be analyzed. The variables used in the detailed analysis (as listed in table 1) were selected due to the possibility of observing changes in media content that may be relevant from a resilience perspective, such as provision of leadership (Walker and Salt 2006), if the article is fear-generating (Downs 1972), and whether the article contains references to the need for individuals to contribute to mitigating climate change, i.e., making the message “stickier” (Gladwell 2000). The theories used in the selection of variables for the detailed analysis are described in the Theoretical Framework section, under Analytical Tools.

Reflection on Methods

Quantitative content analysis has, like all methods, its limitations. Compared to several other methods for analyzing text, details that might have been interesting to discover may be lost and, once the variables for analysis have been fixed, it is not possible to change the format of the analysis along the way (Bergström and Boréus 2005).

Despite its limitations, content analysis was considered to be able to answer the research question for this thesis and was therefore selected due to the ability to analyze large amounts of material. Another reason content analysis was selected is that it appeared to be a fairly straight-forward method, and since the coder (i.e., the author of this thesis) did not have any previous experience of text analysis, a simple method was determined to increase coder reliability.

It would have been desired to perform double coding to test coding reliability (Bergström and Boréus 2005) but due to time constraints, that was not possible. However, only one person did all of the coding which, at least, ruled out the possibility of different people interpreting the coding scheme differently.

Results

Frequency of Key Words

Climate Change, Global Warming, Greenhouse Gas or Greenhouse Effect

The initial key word search shows that the number of articles that contain the terms “climate change”, “global warming”, “greenhouse gas” or “greenhouse effect” vary considerably between 1995 and 2006, see figure 2. From 1999 to 2000, the number of articles per year doubled in all the newspapers included in the study. Media coverage continued to rise slightly from 2000 to 2001 and then decreased. After 2003, the number of articles increased again and kept increasing every year in DN and SD.

AB and EX had fewer articles about climate change than DN and SD during all the years included in the study. Between 1995 and 2005, neither AB nor EX went above 100 articles per year, but from 2005 to 2006, media coverage of climate change jumped in both of them – from 70 to 180 articles in AB and from 77 to 184 in EX. For all four newspapers, the year that had the highest number of articles containing at least one of the key words was 2006.

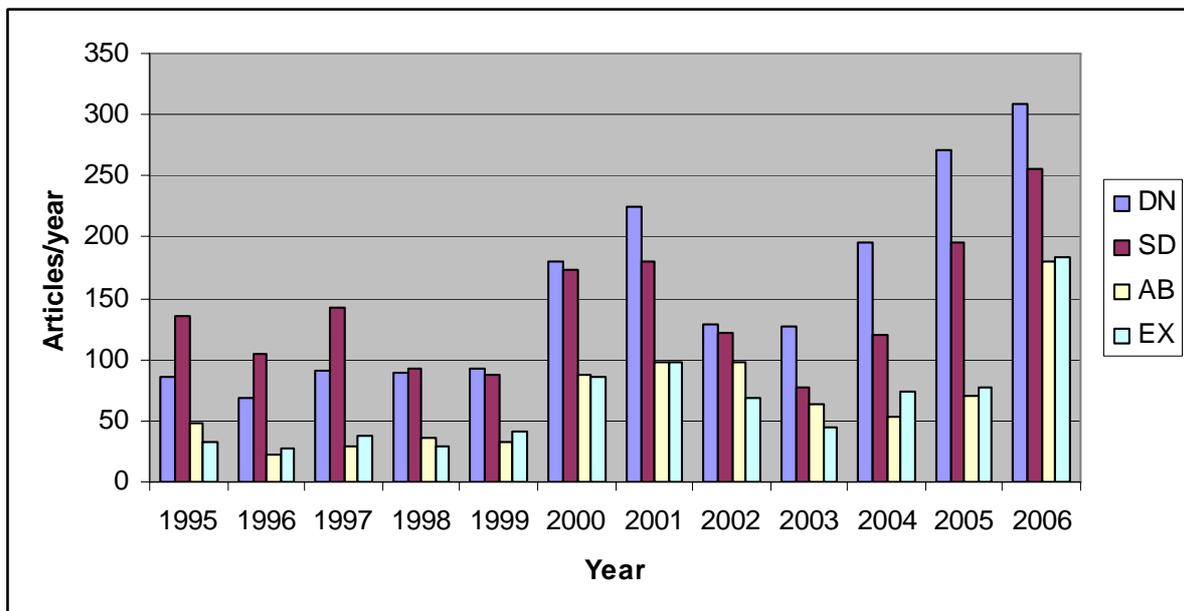


Figure 2. Number of articles per year that contain the terms “climate change”, “global warming”, “greenhouse gas” or “greenhouse effect” from 1995 to 2006.

The results of the same key word search – but broken down by month – are illustrated in figure 3. The figure shows that there are several sharp changes in number of articles also within certain years. In the graph, a few events that likely caused changes in media coverage are also indicated.

Most notably, there is a very high increase in number of articles in all four newspapers toward the end of 2006. Of the years included in this study, all the newspapers have an unprecedented number of articles about climate change related issues at the end of 2006 and beginning of 2007.

Between 1995 and 1999, there is only one major peak in number of articles in DN (15 articles) and SD (28 articles), although media coverage did not increase in AB and EX during that peak. The peak in media coverage occurred in December 1997, when the Kyoto Protocol was negotiated.

Starting 2000, the peaks in media coverage are more frequent – and slightly higher. A few times during 2000-2001, 2002 and 2004-2005, DN and SD had more than 20 – or in rare cases even more than 30 – articles per month that contained at least one of the key words. AB and EX had fewer articles than DN and SD throughout almost the entire period, but toward the end of 2006, media coverage in AB and EX was as high as in DN and SD.

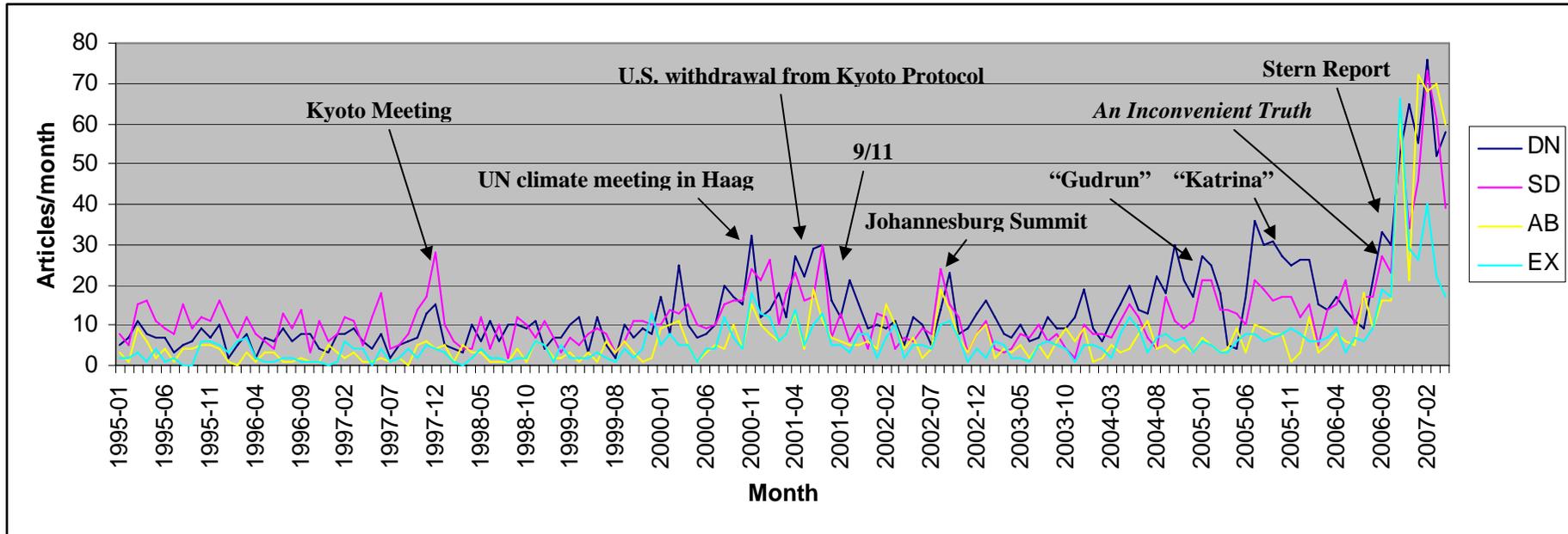


Figure 3. Number of articles per month that contain the key words “climate change”, “global warming”, “greenhouse gas” or “greenhouse effect” from January 1995 to April 2007.

For a closer look at the sharp increase in media coverage at the end of 2006, figure 4 shows the results between January 2006 and April 2007. In the figure, it becomes apparent that the major increase in media coverage happened in November 2006 – and that it occurred in all four newspapers simultaneously. September and October 2006 also saw more articles about climate change in all four papers, compared to the coverage in January-August 2006, but between October and November, the number of articles went from 30 to 53 in DN and from 23 to 58 in SD. In AB and EX, the number of articles increased almost four times; AB went from 16 articles in October to 61 in November and EX from 17 to 66.

After November 2006, media coverage continued to be elevated in all the newspapers. In EX, the number of articles was lower than in the other three, but also EX had a significantly higher number of articles that contained one of the key words during the spring of 2007, compared to the same period in 2006.

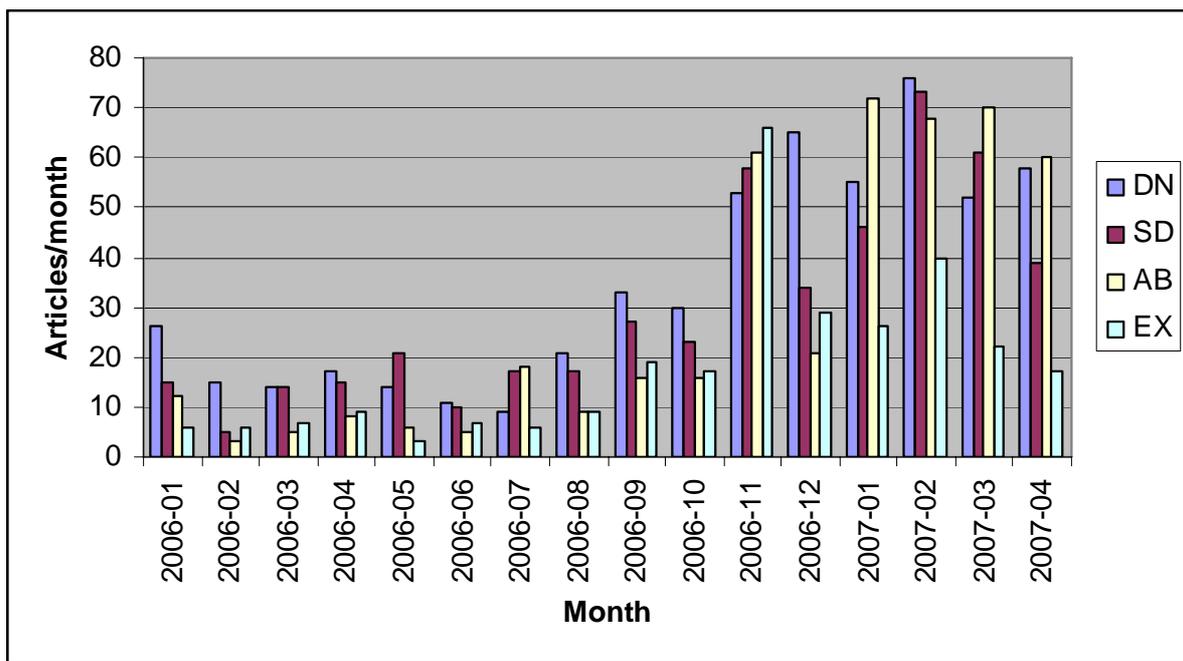


Figure 4. Number of articles per month that contain the key words “climate change”, “global warming”, “greenhouse gas” or “greenhouse effect” from January 2006 to April 2007.

Climate Threat

Before 2006, the term “climate threat” was almost nonexistent in the studied newspapers, see figure 5. The only exception is DN which used the term in 5-10 articles per year in the mid-90s. In 2006, however, the term was suddenly used in all four newspapers. AB, especially, went from hardly using “climate threat” at all to having 44 articles that contained the term in 2006.

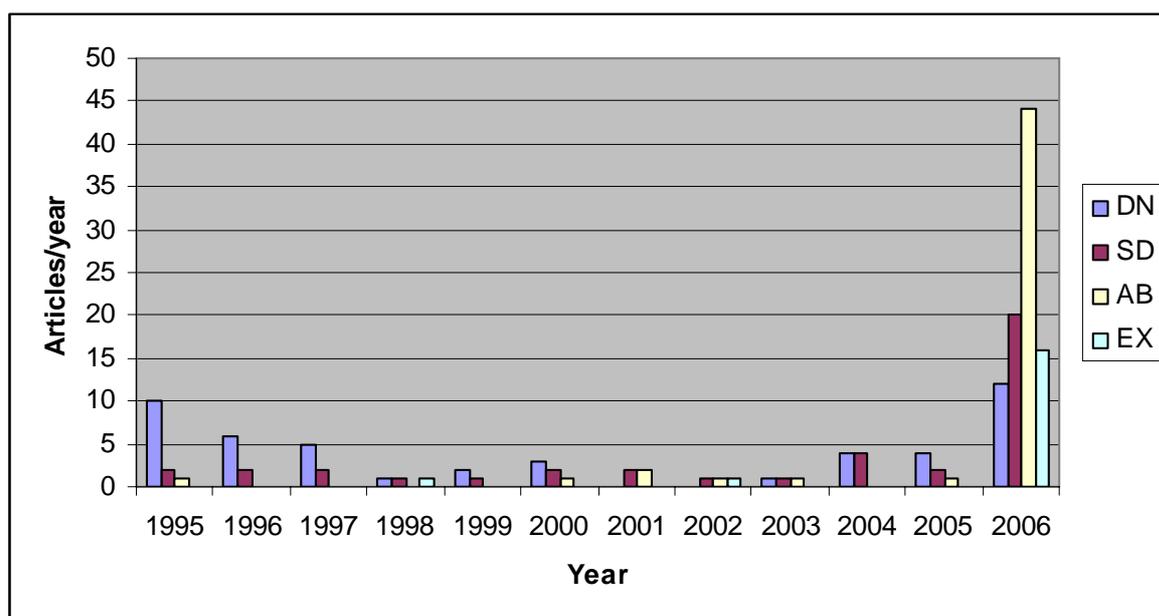


Figure 5. Number of articles per year that contain the key word “climate threat” between 1995 and 2006.

In figure 6, the number of articles that contain the term “climate threat” are broken down by month for January 2006 to April 2007. The figure shows that all four newspapers started using the term on a regular basis in November 2006, but used it very rarely prior to that. During April 2007, which is the last month included in this study, DN, SD and AB all had more than 10 articles per month that contained the term “climate threat.” This supports the results above that there was a significant change in media reporting on climate change related issues in November 2006.

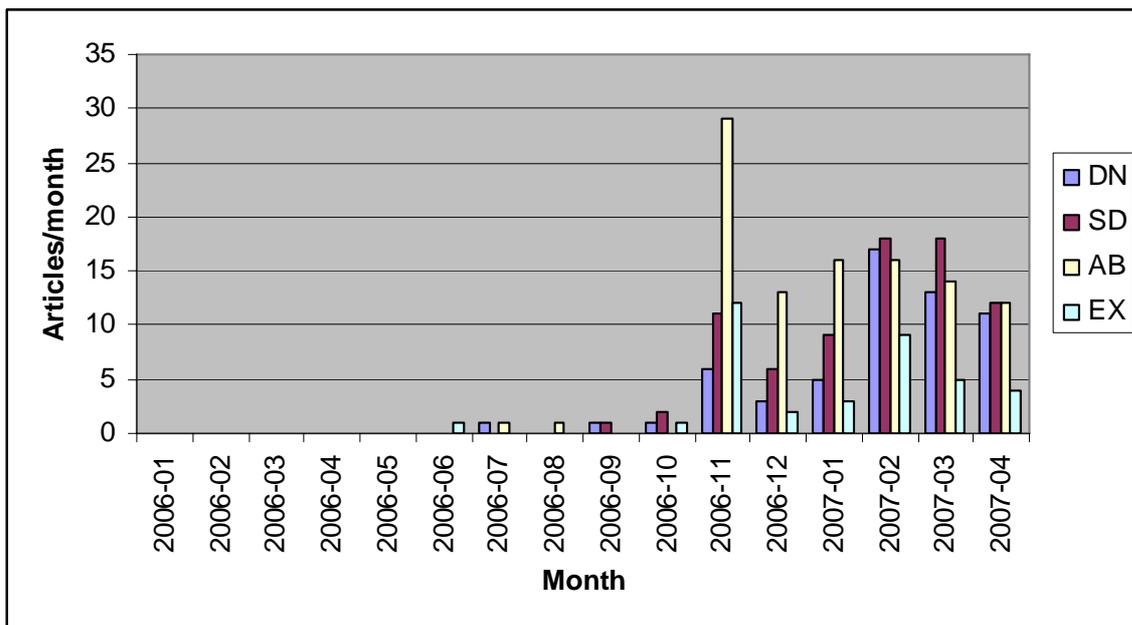


Figure 6. Number of articles per month that contain the key word “climate threat” from January 2006 to April 2007.

Climate Change in Relation to Article Topic

In the manual content analysis of periods of heightened media coverage, all articles that were selected for the study were analyzed regarding the emphasis of climate change in each article. The percentages of articles that had climate change (including its consequences, solutions, research, etc.) as the main topic are indicated in figure 7. This shows that between October and November 2006, the percentage of articles that had climate change as the main topic approximately doubled in all four papers. Only in July 2001 did DN and SD have higher percentages, but for AB and EX, November 2006 was by far the month that had the highest percentage of articles with climate change related issues as the main topic.

All data generated in the analysis of climate change in relation to the article topic is provided in Appendix 3.

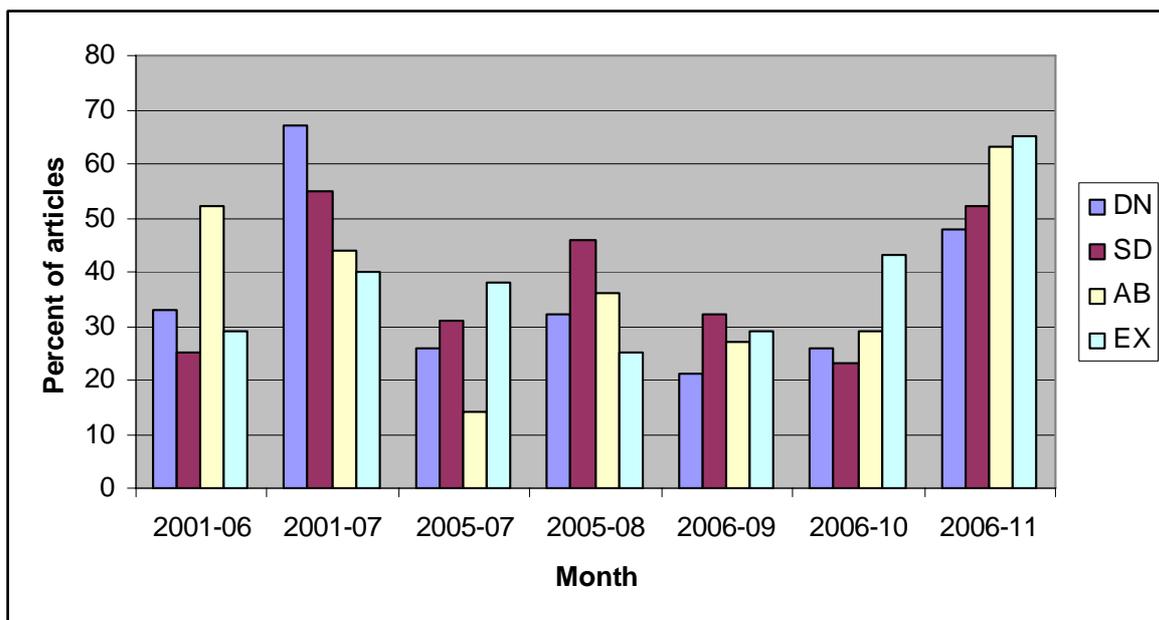


Figure 7. The percentage of articles that mention climate change related issues and have that as its main topic during periods of heightened media attention in 2001, 2005 and 2006.

Word Count

In figure 8, the total word count of articles that had climate change as the main topic is shown. Between October and November 2006, the word count in DN increased more than 3 times, in EX 6.5 times and in SD more than 9 times. The word count in AB increased nearly 20 times! The figure also shows that November 2006 had an unprecedented amount of coverage of climate change in all four newspapers compared to any of the other months that had heightened media attention. This further supports the finding that there was a dramatic increase in media attention between October and November 2006.

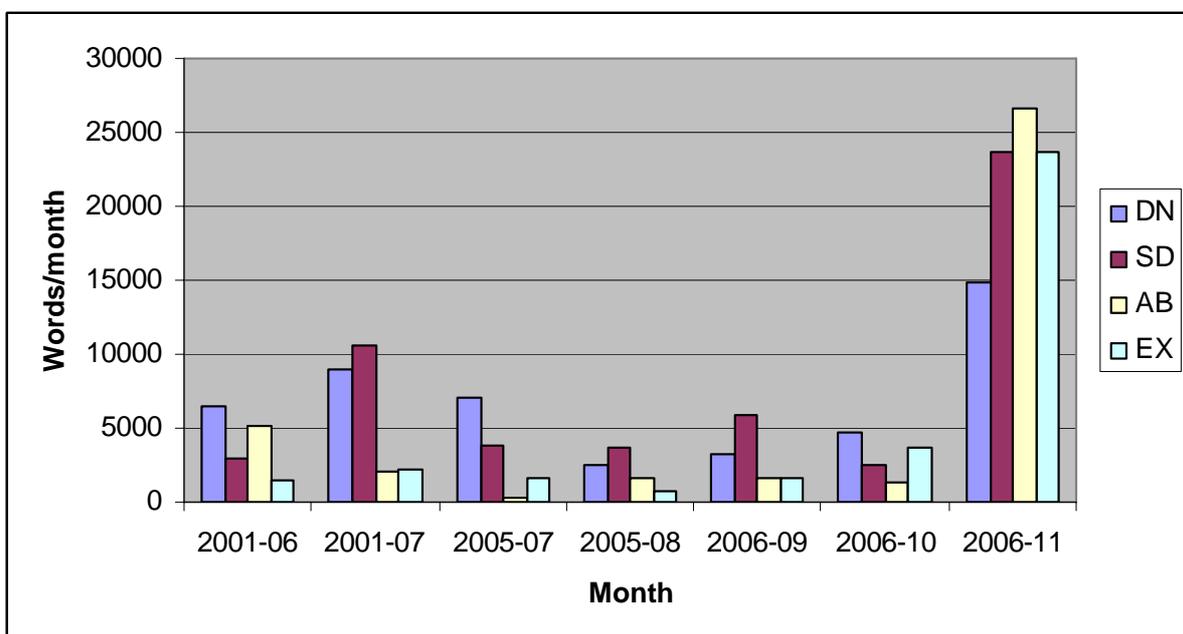


Figure 8. The total number of words per month of articles that have climate change as the main topic during periods of heightened media attention in 2001, 2005 and 2006.

The Content of Articles during Periods of Heightened Media Coverage

In this section, the results of the detailed analysis of articles that had climate change related issues as the main topic are presented. Like earlier results, the data in this section is mainly presented as percentages, to enable easy comparison between the four periods selected for further analysis. It is worth pointing out, however, that the number of articles in EX and AB in this study were low during July-August 2005 (five and six articles, respectively). Conclusions about the content in EX and AB during that particular period are therefore difficult to draw. Due to the large amount of data generated in this step, the data is mainly presented in tables, and the observed changes in content are then discussed in the Discussion.

Indication of Doubt or Uncertainty

The percentages of articles that contain at least one phrase that expresses doubts about the existence or extent of global climate change did not indicate any trends over time, see figure 9. The percentages were generally below 10 percent during all four periods for DN, AB and EX, while SD consistently had a higher percentage of articles that expressed doubts about climate change. It is worth noting that not one of the 56 articles in EX during November 2006 contained any expression of doubts about the existence of climate change.

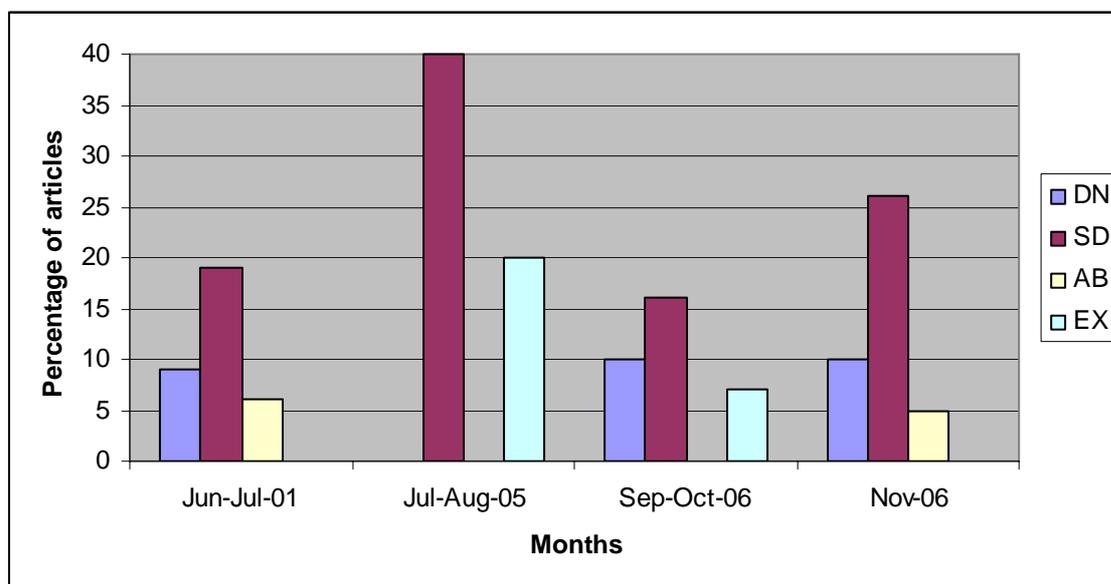


Figure 9. The percentage of articles that contain a phrase that expresses doubts about climate change during periods of heightened media attention in 2001, 2005 and 2006.

Consequences of Climate Change – Prevalence

Table 2 shows the media coverage with regards to the prevalence of the consequences of climate change in the articles. In June-July 2001, there is a high percentage of articles in all four newspapers that make no reference to consequences, but that number is lower during the periods of heightened media attention in both 2005 and 2006. Compared to 2001, the percentage of articles that have consequences of climate change as its main topic is higher in 2006.

Table 2. Prevalence of consequences of climate change during periods of heightened media attention in 2001, 2005 and 2006 – in percent.

DN	Jun-Jul 2001	Jul-Aug 2005	Sept-Oct 2006	Nov 2006
No mention	70	43	35	42
Minor	19	9	15	22
Intermediate	9	17	20	5
Major	2	30	30	30
SD				
No mention	63	35	37	29
Minor	26	25	32	31
Intermediate	-	-	5	19
Major	11	40	26	21
AB				
No mention	44	17	8	38
Minor	22	33	-	38
Intermediate	17	17	25	3
Major	17	33	58	21
EX				
No mention	46	20	33	43
Minor	31	-	27	20
Intermediate	-	40	7	7
Major	23	40	33	30

Consequences of Climate Change – Type

In table 3, the types of consequences that are mentioned in the articles are shown. Most noteworthy is the observation that economic consequences hardly were mentioned until 2006. Consequences for nature and humans also generally received more attention in 2006 than in 2001.

Table 3. Type of consequence of climate change during periods of heightened media attention in 2001, 2005 and 2006 – in percent.

DN	Jun-Jul 2001	Jul-Aug 2005	Sept-Oct 2006	Nov 2006
No mention	70	43	35	42
Weather	21	22	20	25
Nature	9	39	55	38
Human	12	17	20	20
Economic	2	4	20	28
General	-	-	10	5
Positive		4(e)*	5(e)*	2(w), 2(n), 2 (h), 8(e)*
SD				
No mention	63	35	37	29
Weather	22	55	42	31
Nature	11	40	42	36
Human	15	25	26	17
Economic	-	-	11	12
General	4	5	11	10
Positive	-	-	-	5(w), 7(e)*
AB				
No mention	44	17	8	38
Weather	28	67	50	33
Nature	39	67	67	45
Human	28	33	25	26
Economic	-	-	17	7
General	-	-	-	7
Positive	-	-	8(w)*	-
EX				
No mention	46	20	33	43
Weather	31	80	53	28
Nature	31	80	40	48
Human	23	60	20	20
Economic	-	-	13	12
General	8	-	7	4
Positive	8(e)*	-	20(e)*	2(n)*

* w=weather, n=nature, h=human, e=economic

Consequences of Climate Change – Affected Area

As shown in table 4, articles that focused on consequences of climate change in Sweden were generally higher in 2006 than in 2001. There are, however, large differences between the newspapers. In November 2006, DN stands out with 57 percent of the articles that mention consequences being about consequences in Sweden.

Table 4. Affected area from consequences of climate change during periods of heightened media attention in 2001, 2005 and 2006 – in percent.

DN	Affected Area	Jun-Jul 2001	Jul-Aug 2005	Sept-Oct 2006	Nov 2006
	Sweden	8	15	15	57
	Europe	8	8	-	-
	Other continent	-	8	-	9
	Global	46	46	77	26
	No mention*	38	23	8	9
SD					
	Sweden	10	23	17	20
	Europe	-	15	-	7
	Other continent	20	15	17	-
	Global	20	31	25	33
	No mention*	50	15	42	40
AB					
	Sweden	10	20	36	11
	Europe	-	-	-	-
	Other continent	30	-	-	8
	Global	30	80	36	36
	No mention*	30	-	27	44
EX					
	Sweden	29	-	30	6
	Europe	29	25	-	3
	Other continent	-	-	-	19
	Global	14	75	40	50
	No mention*	29	-	30	22

* Articles that mention consequences of climate change but give no reference to an affected area

Actor for Mitigation or Solution

Table 5 shows the percentage of different actor groups that are mentioned as playing a role in mitigation or finding solutions to climate change. One trend that can be observed is that, since 2001, there is less focus on political solutions. Another clear trend is that there is an increase in the percentage of articles that mention individuals as an actor for mitigation. In November 2006, individuals were mentioned as actors in more than 60 percent of the articles in both AB and EX.

Table 5. Actors mentioned for mitigation or solution of climate change during periods of heightened media attention in 2001, 2005 and 2006 – in percent.

DN	Actor	Jun-Jul 2001	Jul-Aug 2005	Sept-Oct 2006	Nov 2006
	Political	79	43	60	62
	Science	14	22	10	20
	Industry	16	9	20	25
	Individuals	14	48	30	22
SD					
	Political	89	70	47	52
	Science	15	25	21	21
	Industry	26	-	26	31
	Individuals	4	15	26	29
AB					
	Political	67	17	8	55
	Science	17	17	-	9
	Industry	6	17	-	17
	Individuals	17	-	8	62
EX					
	Political	69	60	33	41
	Science	8	40	7	12
	Industry	15	-	7	21
	Individuals	-	60	33	64

Leadership

Table 6 shows the number of articles that either quote or mention individuals or organizations that, potentially, could be viewed as providing leadership. Note that the table provides absolute numbers, since so many categories contained very few articles. The numbers are for Swedish and international actors respectively. Worth pointing out is that November 2006 saw a large increase in “Other” celebrities being quoted or mentioned. In the fall of 2006, economic actors were also mentioned on several occasions for the first time.

Table 6. Actors quoted or mentioned – potentially providing leadership – during periods of heightened media attention in 2001, 2005 and 2006 – in absolute numbers. (Swedish/International).

DN	Actor	Jun-Jul 2001	Jul-Aug 2005	Sept-Oct 2006	Nov 2006
	Political	19/23	3/7	6/6	17/12
	Science	3/6	4/6	1/3	6/4
	Industry	3/2	1/-	1/-	5/1
	Economic	-/1	-/-	-/4	-/5
	NGO	2/1	2/3	-/1	2/2
	Other*	-/-	2/1	-/1	2/2
SD					
	Political	12/20	7/7	3/10	16/20
	Science	1/7	3/5	4/6	10/6
	Industry	3/1	-/2	-/4	6/7
	Economic	-/-	-/-	-/3	-/4
	NGO	2/8	1/8	-/-	4/3
	Other*	-/-	1/-	3/4	7/5
AB					
	Political	9/11	-/-	-/2	25/23
	Science	2/1	2/3	5/3	16/7
	Industry	-/1	-/-	-/-	7/2
	Economic	-/-	-/-	-/2	-/2
	NGO	-/-	-/1	-/-	9/4
	Other*	-/2	-/-	1/1	10/3
EX					
	Political	8/7	-/4	3/6	16/9
	Science	3/2	1/-	4/3	6/8
	Industry	1/1	-/-	-/1	4/1
	Economic	-/-	-/-	-/-	-/4
	NGO	1/1	-/2	2/1	30/3
	Other*	-/-	-/1	1/2	15/2

* Musicians, actors, royalties and other celebrities

Discussion

Changes in Media Coverage of Climate Change over Time

The ups and downs in media coverage between January 1995 and October 2006 appear to follow what is expected. It is not within the scope of this study to analyze those changes in detail, but it is worth pointing out a few events that likely influenced the shape of the curve in figure 3. Media coverage increased during major, international climate meetings, such as the Kyoto meeting in 1997 and the World Summit on Sustainable Development in Johannesburg 2002 (Lane 2006). Although the issue-attention cycle has been shown to be less valid in countries outside of the U.S. (Brossard et al 2004), the curve in figure 3 can likely also be explained, at least in part, by that cycle (Downs 1972). Competition for media attention can explain the drop in media coverage of climate change following the 9/11 attacks (Lane 2006).

However, according to resilience theory, the major increase in media coverage in November 2006 may be an indication of something different. The increase is of another magnitude compared to previous periods of heightened media attention and coverage has continued to be elevated for at least six months. In April 2007 (the last month included in this study), media coverage in DN and AB was still as high as it was in November 2006. In SD, media coverage was also higher in April 2007 than during any month prior to November 2006. Only EX showed signs that may be interpreted as a trend of decreasing interest in climate change. The large and rapid increase in media coverage of climate change – and the fact that it happened in all four newspapers simultaneously – was enabled by “media mimicry” acting as a positive feedback (Repetto 2006).

Compared to previous periods of heightened media attention, the change in media coverage in November 2006 was mainly the quantity. Regarding changes in content, a statistical analysis might reveal further findings, however, such an analysis was determined to be beyond the scope of this thesis and only some of the obvious observations are therefore discussed below.

Effect on Public Opinion

The scientific literature provides numerous, concrete examples of media's influence on public opinion and, in turn, on policymaking. To illustrate, a sample is provided below of issues that, like climate change, are complex, controversial and fear-generating.

In California, a smoke free bar law was enacted after health advocates had used the media to influence the public, which in turn put pressure on the state legislature (Magzamen et al 2001). Yates and Stroup (2000) found that media coverage concerning pesticides affects public opinion, as well as policymaking in the U.S., and they show that the connection is nonlinear; media coverage is especially influential when the levels of coverage are high, while low media coverage has no effect. It has also been shown that media coverage influences public beliefs about HIV transmission routes, but that the public beliefs do not influence the media, i.e., the influence is in one direction only – from the media to the public (Hertog and Fan 1995). In Canada, media played an important role in affecting public opinion about a local dam project, but its influence on policymaking was mixed; policymaking was affected by media coverage when the provincial government believed that media reflected public opinion, but when media was believed to be biased, there was no influence (de Loë 1999). In Europe, public opinion about the enlargement of the E.U. is affected when media coverage is high and media's messages are consistent; if media coverage is two-sided, there is no significant effect on public opinion (de Vreese and Boomgaarden 2006).

When combining the empirical findings in this thesis with existing research about media's role in public opinion formation, it is difficult to imagine how media could *not* have had an impact on public opinion after the large and rapid increase in media coverage on climate change in November 2006. With media's agenda-setting function (McCombs and Shaw 1972), the significant shift in amount of media coverage sent the message to the public that climate change was very important to think about. When media coverage is high, it is also more likely to affect both public opinion and policymaking (Yates and Stroup 2000) and influence public risk perception (af Wählberg and Sjöberg 2000). In addition, the low percentage of articles that questions climate change gives readers a sense of consensus and public opinion is therefore more likely to shift (Brock 2006; Scheffer et al 2003).

In the fall of 2006, the economic consequences of climate change gained media's attention, and that likely caught the attention of actors that previously had not been concerned with climate change. Consequences for nature and humans also gained more attention and the percentage of articles that did not mention consequences at all was lower. The sudden, widespread use of the term "climate threat" also implies an emphasis on the consequences. Since the consequences of climate change certainly can be considered fear-generating, this likely had an effect on public opinion (Lowe et al 2006). Compared to previous periods of heightened media coverage, media also dedicated more attention to the consequences of climate change in Sweden specifically and not just the consequences elsewhere or on a global scale. This may have affected the public toward realizing that climate change is not a distant phenomenon (Lorenzoni et al 2006).

Compared to 2001, when the focus mainly was on political solutions, recent years show a higher percentage of articles that mention other actors that play a role in mitigation of climate change. The increase in articles that mention that individuals are needed and how they can contribute is, in accordance with Gladwell (2000), especially important in bringing about rapid shifts.

An indication that public opinion – and also support for policymaking to mitigate the problem – has in fact shifted is that, according to a survey reported in early March 2007, the public support for the Stockholm congestion tax was 67%, which was higher than ever before².

The question of whether the public will also change its behavior as a result of the increased media coverage goes beyond the scope of this thesis. It is, however, worth stressing the importance of re-organization and change in resilience theory. During windows of opportunity, a social-ecological system can transform and move onto a new, better (or worse) trajectory (Walker and Salt 2006). To anyone who is worried about the trajectory the world is currently on regarding climate change, this aspect of resilience theory provides hope.

² Dagens Nyheter. <http://www.dn.se/DNet/jsp/polopoly.jsp?a=624821>, 2007-05-27.

Why November 2006?

Resilience theory would suggest that the rapid increase in media coverage in November 2006 was caused by multiple factors. Slow-moving variables have been decreasing the resilience of the “climate change ignorance regime” for decades. Such slow-moving variables include an increasing scientific consensus about the science behind climate change and the observed warming of the climate system (IPCC 2007 c). With resilience decreasing, disturbances are more likely to trigger a regime shift and in the fall of 2006, there were several events that acted as disturbances and eventually pushed the system from the ignorance regime. It is not within the scope of this study to make a complete analysis of the factors that contributed to the shift, but a few likely disturbances are discussed.

At the end of the summer 2006, two movies that relate to climate change were showing in Swedish movie theatres. *The Planet* is a Swedish production about “global change,” and climate change is being portrayed as a key factor. In the fall of 2006, *The Planet* was also shown on Swedish television as a four-part series.

The other movie that was showing in movie theatres was Al Gore’s documentary, *An Inconvenient Truth*. In the movie, the consequences of climate change are vividly illustrated, but it also contains messages of hope that the problems can be solved. The closing captions, for example, include instructions on how we as individuals can contribute to mitigating climate change, and as Gladwell (2000) points out, clear instructions on how to act increase the “stickiness” of a message. There are several clips in the movie where Al Gore is portrayed as a true leader; people are applauding, cheering and taking photos of him and as shown by Brock (2006) and Scheffer et al (2003), strong leadership increases the chances that an opinion shift will occur.

At the end of October 2006, the *Stern Review* (on the economics of climate change) was released and it shocked the world with its findings. In the report, it is estimated that “if we don’t act, the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more” (HM Treasury 2006:vi). It is worth noting that the Stern report could explain why the issue-attention cycle may have been broken in November 2006; where, normally, the realization by the public of the cost of

significant progress would lead to a decline in interest, the Stern report made it clear that it would be costlier if we did *not* act.

On November 1, a first report was provided from a large study that looks at Sweden's vulnerability to climate change (SOU 2006). Also this report illustrates the high costs that climate change may cause.

In the beginning of November 2006, both AB and EX launched campaigns that encouraged readers to join in the efforts to mitigate climate change. A wide range of celebrities were quoted saying that they had joined the campaigns and practical advice on what individuals can do to help was provided. This increased the "stickiness" of the message in two ways: the celebrities provided leadership and the practical advice helped readers act (Gladwell 2000).

In resilience theory, windows of opportunity are central in discussions about regime shifts. The idea is therefore offered that, in the wake of the national elections that were held on September 17, 2006, there was suddenly space available on media's agenda. It is also worth mentioning that there was an unusually warm fall in Sweden 2006 and that many record temperatures were set.

As mentioned above, "media mimicry" acted as a positive feedback that enabled the large and rapid increase in media coverage (Repetto 2006), and once the resilience of the system was low enough, the disturbances listed above acted together to trigger the shift from the "climate change ignorance regime."

Balancing on a Threshold

At the time of concluding this thesis, it is not possible to determine whether media coverage of climate change related issues will wane and return to the levels seen prior to November 2006, or if we are witnessing a true regime shift in media coverage – and possibly a resulting regime shift in public opinion. Whether the desired state is a "climate change ignorance regime" or a "climate change awareness regime" is not discussed here but is left as food for thought.

Resilience theory suggests that the studied system currently is at a threshold. Actions of individuals and advocacy groups on both sides of the issue will influence the resilience of the

system, and external events may act as large disturbances that have the ability to push the system into either of the two regimes. Major terrorist attacks or other security concerns that *can not* be linked to climate change would likely shift media's attention elsewhere and bring the system back to a state of ignorance (Lane 2006). A lack of new, interesting information could cause "boredom" and increase the risk of media's attention turning away from climate change (Henry and Gordon 2001). If media attention stops, that increases the risk that a public attitude also shifts back from active to passive (Scheffer et al 2003).

If, on the other hand, major events that *can* be linked to climate change were to happen, a true regime shift of the system would likely occur. Examples of such events include a new "Katrina" hitting the U.S., other tragic events such as large-scale forest fires or floods in the industrialized part of the world, and local catastrophes such as another storm like "Gudrun." It can be assumed that the higher the economic consequences of such an event, the more likely the shift into a stable "climate change awareness regime." In the hopeful absence of such a disturbance, resilience theory would give the following advice to advocacy groups and others who wish to influence the system in a way that increases the chances that media coverage continues to stay high:

Leaders that are charismatic (Scheffer et al 2003) and well connected (Gladwell 2000; Folke et al 2005) are crucial in bringing about rapid shifts. Getting popular celebrities involved in the climate change debate would therefore be an important step. It would further help to continually supply the media with new, interesting information to avoid boredom (Henry and Gordon 2001) – especially information about the local effects of climate change. It is also important to keep in mind the balance between the seriousness of climate change and the message that the problems can be solved; without optimism, both the media and the public may lose interest more quickly. A final recommendation is to make the messages "stickier" by trying to spread practical information about how individuals can contribute to solving the problem (Gladwell 2000).

Conclusions

In November 2006, the amount of media coverage concerning climate change suddenly increased significantly in Sweden and “climate threat” became a regularly used term in Swedish newspapers. Compared to October 2006, the number of articles that mentioned climate change increased by a factor of 2-4 in the four newspapers included in this study – and the total word count of articles that had climate change as the main topic increased by a factor of 3-20. After November 2006, media coverage of climate change related issues remained at an elevated level and was still very high in April 2007, when this thesis concluded.

Resilience theory suggests that the rapid increase in media coverage was caused by a combination of factors. Scientific consensus and a slowly warming climate (IPCC 2007 c) acted as slow-moving variables that enabled a rapid shift when there was a window of opportunity. Disturbances that eventually caused the shift include an unusually warm fall, new reports about the economic consequences of climate change, the movie *An Inconvenient Truth* and climate campaigns in both AB and EX. The large and rapid increase in media coverage was enabled by a positive feedback known as “media mimicry” (Repetto 2006).

The rapid increase in media coverage, the low percentage of articles that question the existence of climate change and the fact that media coverage continues to stay at an elevated level are very likely affecting public awareness of climate change. In addition, the change in content from mainly political references to more messages that individual households play a role in mitigation is increasing the “stickiness,” making a shift in public opinion more likely (Gladwell 2000).

According to resilience theory, media coverage and public awareness of climate change currently are at a threshold; future events will determine if a regime shift is about to occur or if media’s attention will be directed elsewhere and coverage of climate change decline. The current threshold is providing a window of opportunity for policy makers that are concerned with climate change. It is equally a window of opportunity for cleantech companies, environmental NGOs and other stakeholders that have an interest in climate change being high on the public and political agendas.

To help maintain media's – and the public's – interest in climate change, it is important to continually supply the media with new, interesting information, especially information about the local effects of climate change. Engaging celebrities that can provide strong leadership would also increase chances of media coverage remaining at a high level. It is further important to try to instill optimism and keep a balance between the seriousness of climate change and the message that the problems can be solved. However, a more detailed analysis would be required to answer the question of how resilience could be affected in order to increase chances of a stable “climate change awareness regime.”

Another interesting area for further research would be to conduct comparable studies of media coverage of climate change in other countries. Such studies could, for example, reveal if *An Inconvenient Truth* helped trigger similar spikes in media coverage elsewhere, and if the sharp increase in coverage in Sweden is exclusive or if it is part of “media mimicry” on a global scale.

This thesis shows that resilience theory can be applied successfully and add new perspectives in studies of mass media. Future research may therefore benefit if insights from resilience and mass communication theories were to be combined further.

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Appendix 1: Search Strings

The search strings that were used in the database searches are provided in the table below. To ensure that the searches only generated articles that included the key words “global” (global) and “warming” (uppvärmning) – in that order and without any other words appearing in between (which could have generated articles that did not refer to climate change) – the search strings for Mediearkivet and Presstext are slightly different.

Search Strings for the Database Searches	
“Climate Change”, “Greenhouse Effect”, “Greenhouse Gas” or “Global Warming”	
Mediearkivet	klimatförändring* OR växthuseffekt* OR växthusgas* OR (global* ONEAR/0 uppvärmning*)
Presstext	klimatförändring* OR växthuseffekt* OR växthusgas* OR (global* uppvärmning*)
“Climate Threat”	
Mediearkivet and Presstext	klimathot*
Additional Articles that Contain Words Starting with “Climate”	
Mediearkivet and Presstext	klimat*

Appendix 2: Selection of Articles for Manual Analysis

The two months preceding the sharp increase in media coverage in 2006 also had more articles about climate change related issues than the monthly average during the studied period. Additional two-month periods, to enable comparisons between periods of heightened media coverage, were selected as follows:

The initial key word search showed that, in addition to 2006, there were prolonged periods of increased media coverage during 2001 and 2005. To select a two-month period for each of those years, the number of articles in all four papers was calculated and the two consecutive months with the highest total number of articles selected. This resulted in the following four time periods being selected for manual analysis: June-July 2001, July-August 2005, September-October 2006 and November 2006.

2001												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
DN	14	18	12	27	22	29	30	16	12	21	15	9
SD	26	10	18	23	16	17	30	7	13	6	10	4
AB	8	6	8	13	4	19	11	7	6	5	5	6
EX	12	6	8	14	5	10	13	5	5	3	8	8
Total	60	40	46	77	47	75	84	35	36	35	38	27

2005												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
DN	27	25	18	5	4	17	36	30	31	27	25	26
SD	21	21	14	14	13	10	21	19	16	17	17	12
AB	7	5	3	4	9	3	10	9	8	8	1	3
EX	6	5	3	3	6	8	8	6	7	8	9	8
Total	61	56	38	26	32	38	75	64	62	60	52	49

2006												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
DN	26	15	14	17	14	11	9	21	33	30	53	65
SD	15	5	14	15	21	10	17	17	27	23	58	34
AB	12	3	5	8	6	5	18	9	16	16	61	21
EX	6	6	7	9	3	7	6	9	19	17	66	29
Total	59	29	40	49	44	33	50	56	95	86	238	149

When searching for additional articles that were about climate change, but that did not contain the key words “climate change” (klimatförändring), “global warming” (global uppvärmning), “greenhouse gas” (växthusgas) or “greenhouse effect” (växthuseffekt), a search for words starting with “climate” (klimat) was performed to find articles that contained terms such as “climate issue” (klimatfråga), “climate meeting” (klimatmöte) and “climate politics” (klimatpolitik). From that search, articles that had already been identified in the initial search were discarded, as were articles that did not refer to anything related to climate change (e.g., the climate at a tourist destination or the equipment for regulating the climate in a car). The table below illustrates the number of articles that were generated in each search. It also includes adjustments (in parentheses) due to data errors that were discovered later, during the manual analysis. The total number of articles selected for further study therefore was 978.

Number of Articles for Manual Content Analysis								
DN								
	2001-06	2001-07	2005-07	2005-08	2006-09	2006-10	2006-11	Total
Initial search	29	30	36	30	33	30	53	241
Additional articles	17	12	7	8	10	12	30	96
Total	46	42	43	38	43	42	83	337
SD								
Initial search	17 (-1)	30	21	19	27	23	58 (-2)	192
Additional articles	8	8	8	5	10	9 (-1)	24	71
Total	24	38	29	24	37	31	80	263
AB								
Initial search	19	11	10	9	16	16 (-1)	61 (-2)	139
Additional articles	2	5	4	2	6	6	33	58
Total	21	16	14	11	22	21	92	197
EX								
Initial search	10	13	8	6	19	17	66	139
Additional articles	7	7	0	2	2	4	20	42
Total	17	20	8	8	21	21	86	181
Total Number of Articles for Manual Content Analysis								
	2001-06	2001-07	2005-07	2005-08	2006-09	2006-10	2006-11	Total
Articles per month	108	116	94	81	123	115	341	978
Articles per period	224		175		238		341	978

Appendix 3: Article Topic

The table below provides the percentage of articles in each of the following categories:

1. The main topic of the article *is not* related to climate change at all and climate change (including its consequences, solutions, research, etc.) is only mentioned briefly.
2. The main topic of the article *is not* climate change (including its consequences, solutions, research, etc.) but climate change is mentioned more than in category 1.
3. The main topic of the article *is* climate change (including its consequences, solutions, research, etc.) but the article is a single quote, a movie listing or something else that makes it unsuitable for detailed analysis.
4. The main topic of the article *is* climate change (including its consequences, solutions, research, etc.) and the article is a regular article, making it suitable for detailed analysis.

Percent of Articles in Each Category							
DN							
	2001-06	2001-07	2005-07	2005-08	2006-09	2006-10	2006-11
Category 1	37	14	49	39	56	52	31
Category 2	30	19	26	29	21	21	16
Category 3	0	0	0	0	2	0	5
Category 4	33	67	26	32	21	26	48
SD							
Category 1	42	26	38	38	46	55	36
Category 2	33	18	31	8	22	23	11
Category 3	0	0	0	8	0	0	0
Category 4	25	55	31	46	32	23	52
AB							
Category 1	24	19	64	55	45	43	11
Category 2	24	25	21	9	14	19	8
Category 3	0	12	0	0	14	10	18
Category 4	52	44	14	36	27	29	63
EX							
Category 1	41	30	50	38	38	24	20
Category 2	18	5	12	12	10	24	10
Category 3	12	25	0	25	24	10	5
Category 4	29	40	38	25	29	43	65