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Stuart Soroka

Stephen J. Farnsworth
University of Mary Washington, sfarnswo@umw.edu

Lori Young

Andrea Lawlor

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Stuart Soroka, *McGill University*

Stephen J. Farnsworth, *University of Mary Washington*

Lori Young, *University of Pennsylvania*

Andrea Lawlor, *McGill University*

Contact:
Stephen J. Farnsworth
Professor, Political Science
University of Mary Washington
sfarnswo@umw.edu

Abstract: This paper presents results from a content analytic study of U.S. and Canadian evening news programs on energy and environmental topics from 1999 to 2009. The analysis reveals the importance of coverage of weather and natural disasters in both countries — importance not just in terms of the volume of coverage, but in the role that coverage plays in driving discussion of broader, more thematic coverage of pollution and climate change. Indeed, causality tests reveal that coverage of climate change, pollution and related issues are strongly affected by — or, rather, dependent on — coverage of disasters and other weather events.

Keywords: news media, environmental news, event-driven coverage

Introduction

With the apparent rise in the number of droughts, floods, wildfires, hurricanes and the possibility of greater ocean navigation due to thawing in the Northwest Passage, North Americans have been paying increasing attention to environmental matters during recent years. Hurricanes like Katrina and record summer heat waves are used as evidence of the existence of global climate change, while skeptics point to record snow falls to demonstrate that global warming is a myth, or at least less severe than many believe. The acrimonious nature of that debate reflects the fact that any major effort to try to reverse climate change likely involves huge economic costs across the global economy.

Despite playing a critical role in public opinion and policy development relating to the environment, the nature and structure of media coverage for this issue area nevertheless remains largely underexplored. This paper seeks to help fill this gap. It does so by focusing on media coverage of environmental issues in the U.S. and Canada; we focus in particular on what past work suggests is the tendency for media coverage of major, long-term environmental issues to be driven almost entirely by short-term environmental events and disasters.

Our analysis confirms the expectation that, for leading television networks in Canada and the U.S., environmental coverage is event-driven (rather than driven by the growing severity of environmental problems, for instance). Drawing on an automated content analysis of almost a decade of nightly television newscasts, this paper empirically demonstrates the predominance of "episodic" rather than "thematic" (Iyengar 1991) coverage in both countries. As we demonstrate in this paper, very few differences exist between the coverage of environmental issues in both countries, despite their varied opinions on, and political approaches to handling the environment as an issue. Results suggest that, despite what many regard as a growing severity of environmental issues, there appears to be little room in competitive media for a sustained discourse on environmental politics.

Event-Driven News and the "Issue-Attention Cycle"

Anthony Down's (1972) landmark discussion of the "issue-attention cycle" serves as a useful starting point for an analysis of media coverage of environmental issues. Downs argues that public attention to domestic matters goes through a five-stage process from the recognition of a problem to its eventual decline in public consciousness. Using environmental issues as a working example, Downs suggests that events function as catalysts for engaging with existing problems. The public then reacts to the problem, assesses the prospects for change, and eventually moves beyond the issue. The cycle for a specific issue concludes with a "post-

problem" state, where attention paid to this topic has largely evaporated and public concern has shifted to some new issue area. The topic in question may receive "spasmodic recurrences of interest" (Downs 1972: 40) from time to time in this final stage, but such attention is fleeting.

Downs' argument focuses on public opinion, but it pertains equally well to media coverage. Indeed, a small body of work explores media environmental coverage in terms of Downs' issue-attention cycle (e.g., Trumbo 1996; McComas and Shanahan 1999). Downs' work is theoretical, and it does not lend itself easily to empirical testing. That said, we regard Downs' insights as a useful starting point. For Downs, issue salience is driven by specific events — not just at the appearance of new issues, but over the lifetime of those issues. Indeed, Downs leaves little space for the long-term salience of ongoing, unresolved issues, at least in the absence of a string of "focusing events." This event-driven tendency fits with current accounts of media coverage (see below); we believe it fits environmental coverage especially well.

Challenges in Covering Environmental News

Academics who study North American media routinely offer largely critical assessments of the relevance and salience of news content, particularly with respect to television news. Studies fault reporters for a range of problems, including: focusing on the trivial, being too closely tied to official sources, not providing their viewers with enough context to understand contentious policy options, their bias, and for a lack of technical proficiency in the matters about which they write (Entman 2004; Farnsworth and Lichter 2006, 2011; Herman and Chomsky 1988; Iyengar 1991; Iyengar and Kinder 1987; Larson 2001; McChesney 1999; Patterson 1994). Moreover, biases in reporter coverage and the heavy reliance on conflict to frame the news – key concerns in other areas of media coverage – also appear in environmental news, despite the long-term relevance of the issue. As a result, news coverage of the environment tends to move away from discussions of scientific consensus and towards disagreements among politicians. This leaves news consumers with an incomplete understanding of environmental issues, as we discuss below.

Research focused on environmental news coverage frequently debates whether journalistic norms create misleading news stories. Even with major issues that have been repeatedly featured in the media, such as the global warming debate, scholars note that attempting to provide roughly equal treatment of both sides of a story can "distort" the reality of widespread scientific agreement regarding climate change (Boykoff 2005). Rather than focus on the preponderance of scientific evidence that supports the global warming hypothesis, scholars argue that U.S. news reports have tended to give roughly equal weight to skeptics with little peer-reviewed evidence (Boykoff 2005; Mooney 2004).

Other journalistic norms may also obscure the widespread expert acceptance of scientific findings. Reporters often prefer conflict frames to increase news consumer interest, but the news reports that emerge often lack sufficient context (Iyengar 1991; Iyengar and Kinder 1987). Emphasizing the conflict frame of environmental debates decreases public awareness of the scientific consensus regarding the existence of human-triggered climate change (Corbett and Durfee 2008; Nisbet and Myers 2007). Content analyses of climate change news in the *New York Times*, the *Washington Post*, the *Los Angeles Times* and the *Wall Street Journal* from 1998 through 2002, for instance, suggest that the journalistic attempts to be even-handed sowed far greater public doubts about global warming than exist within the scientific community (Boykoff and Boykoff 2007). Studies of television news have found that these attempts to provide balance in stories can make scientific findings on climate change appear to the public as far more tentative than they actually are (Boykoff 2007a). For example, the percentage of Americans who believe that "most scientists think that global warming is happening," fell from 47 percent in 2008 to 34 percent in 2010 (Leiserowitz, Maibach & Roser-Renouf, 2010).

Efforts by the Bush administration and Republicans in Congress to insert greater levels of doubt into scientific findings on climate change have impacted coverage of environmental issues (Inhofe 2003; Revkin 2005, 2006). However, reporters have tended to move away from the even-handed reporting approach that critics say misled the public about the extent of scientific consensus on global warming

(Boykoff 2007b; Rich and Merrick 2007). Even so, environmental discourse that is based to a significant degree on current events appears to be susceptible to redirection by a few unfavorable developments. Record snows in the Eastern U.S. during the winter of 2009-2010, coupled with the "climate-gate" email scandal in Britain, have provided ammunition to climate change skeptics (Broder 2010; Revkin 2009).

Additional problems with media coverage of environmental science have emerged in other studies. First, scientific uncertainty and other technical matters tend to be papered over by reporters who don't mention that correlation is not causation, or that preliminary findings are tentative (Murray et al. 2001). Complexities, in other words, are too often ignored in favor of a more compelling and definitive, if less accurate, narrative. In cases where the scientists offer an interpretation that is too nuanced or too technical but perhaps more accurate, reporters are tempted to rely on environmental activists who are quicker with a pithy quote, even though they may not possess the credentials of the less-quotable scientific experts (Lichter and Rothman 1999). Part of the problem may be the relatively limited scientific expertise possessed by many reporters, which may make them more susceptible to marginal claims of potential health hazards. Reporters may not appreciate, for example, the relatively small dangers posed by pesticides on apples or Bisphenol A (BPA) in water bottles when compared to cigarette smoking or obesity (Murray et al. 2001; Lichter 2009).

Media coverage of environmental issues also becomes problematic, when elected officials weigh in on environmental concerns because political issues tend to become increasingly prominent in the public discussion. That is, the interaction of politics and environment in the media tends to reduce attention to scientific matters and refocus concern on estimations of politically viable policy options (Miller et al. 1990; Wilkins and Patterson 1991). Of course more accurate public awareness of the scientific consensus regarding climate change and its likely severity could affect what policy options citizens would be willing to support.

The third, and perhaps most relevant, problem in environmental coverage by the media is that the very long-term nature of the environmental processes being examined by scientists works against the traditional newsroom norms of timeliness and novelty (McCright and Dunlap 2003; Trumbo 1995). While news coverage can focus intensely on scientific issues when a hurricane makes landfall or when a severe drought decimates crop yields, media attention can evaporate as quickly as it emerges (Mazur 2009; Mazur and Lee 1993). For instance, content analysis of climate change reports in the *New York Times* and *Washington Post* from 1980 to 1995 shows an attention cycle of media interest in global warming, where coverage increases in the early stages of discussion, often in the wake of disasters like damaging hurricanes or floods, but erodes over time (McComas and Shanahan 1999). Early coverage was anchored by dire projections from scientists, while a middle phase of coverage focused on disagreements among scientists to maintain interest and a later phase of reduced coverage concentrated on the economic costs and political debates over potential remedies (McComas and Shanahan 1999). The rapid turnover of issues in mainstream news works against gradual long-term stories like climate change, particularly if the dire early predictions do not appear to come to pass shortly after they are made (Stevens 1993).

Unsurprisingly, some research finds a strong connection between environmental coverage and major events — or, more precisely, a lack of environmental coverage in the absence of major weather or climate events. For instance, a comparison of global warming news in top circulation newspapers in the US and the UK found a much greater volume of coverage in the UK; however, the number of news reports in both nations increased notably, and temporarily, around key environmental events, such as new expert reports on greenhouse gas emissions caused by air travel (a key issue of the G8 summit in June 2005), and the release of Al Gore's film, *An Inconvenient Truth*, a year later (Boykoff 2007a).

The biggest challenge in media coverage of environmental politics may be, then, that despite the long-term nature of many environmental issues, environmental news is really not all that different from other types of news. As with coverage of crime, politics or economics, events with immediate impacts are both easier and more attractive to cover than continuous monitoring of a known issue. And in the absence of such events, regardless of the actual state of the

environment, environmental issues will disappear from the media agenda.

Cross-Border News Contrasts and Similarities

A second dimension of interest in event-driven media coverage of the environment is whether cross-national differences exist in news content between Canada and the U.S. In the past, cross-national research has found considerable similarity in news coverage regarding a variety of governing issues in the U.S. and Canada (Farnsworth 2009; Farnsworth et al. 2007, 2010; Soderlund et al. 1994; Wittebols 1992, 1996). Overlaps in the news agendas of the two countries often emphasize geographic and cultural proximity (Soroka 2002a, 2002b; Soderlund et al. 1994; Mazur 2009; Wittebols 1992, 1996). In addition, past research has found great similarities in reporter norms and media outlet approaches employed on both sides of the border (Hallin and Mancini 2004).

Although Canadian media also face some of the same criticisms regarding the relative lack of substance in coverage, these studies suggest that Canadian news fares somewhat better in international news content comparisons than do U.S. media. Researchers who have examined news coverage of U.S. and Canadian national elections and party nomination contests found more extensive coverage of substantive policy issues in north-of-the-border news reports (for instance, Andrew et al. 2006, 2008; Farnsworth et al. 2009; Gidengil 2008; Gidengil et al. 2002). Differences in foreign affairs coverage in two nations have been attributed partly to Canada's less "hawkish" public opinion on military policy (Adams 2003; Brooks 2006; Haglund 2006; Pew 2009).

Where environmental coverage is concerned, we might also expect some differences in American and Canadian media content. Some environmental events are common to the two countries,[1] but others are not.[2] And the 9/11 attacks upon the U.S. and the subsequent decisions by the Bush administration to engage in a "war on terror" in Iraq, Afghanistan and elsewhere created conditions in which environmental news may have faced a greater barrier for airtime on newscasts produced south of the border (Bennett et al. 2007; Cohen 2008; Entman 2004).

Thinking more broadly, Canada appears to exhibit a marginally more progressive political environment regarding issues of climate change than does the U.S., at least over the period studied here (2000-2009). Much of this period sees George W. Bush in the presidency along with Republican control of at least one chamber of Congress, placing the GOP in an unusually strong position to push forth its policy agenda in Washington. During this period, leading U.S. political figures expressed skepticism regarding a range of scientific findings, including those relating to climate change (e.g., Boykoff 2007a; Clayton 2007; Inhofe 2003; McCright and Dunlap 2003; Revkin 2005; Rich and Merrick 2007). Given the heavy reliance of U.S. reporters on official sources of information, particularly in the executive branch, one might accordingly expect less attention to scientific matters in U.S. television news.

In contrast, Canadian public opinion has tended to be somewhat more environmentally-conscious. In 2009 surveys conducted by the Pew Research Center (2009), Canadians, by a margin of 54 percent to 41 percent for Americans, said they were more willing to pay higher prices to address global climate change. Canadians were also more willing to protect the environment even if it were to slow economic growth and cost jobs - 76 percent of Canadians said they supported the economic sacrifice, as compared to 64 percent of Americans surveyed. The more pro-environmental climate in Canada - both in terms of governing parties and public sentiment — may well be echoed in media coverage. This is of course an empirical question which we address below.

Data

The body of content-analytic data used here relies on a comprehensive database of all news stories related to the environment from NBC and CTV, from 1999 to 2009. NBC, which possesses the most popular evening newscast, is owned by a for-profit company. Many Canadian news studies examine CBC, the government-assisted broadcaster. That network, however, lags behind CTV and Global – two key private sector competitors – for audience share and advertising revenue (Fraser 2000; Raboy 1996). We use CTV in this study in part because of these higher ratings, but

also because of its for-profit status, which allow for a more effective comparison with NBC.

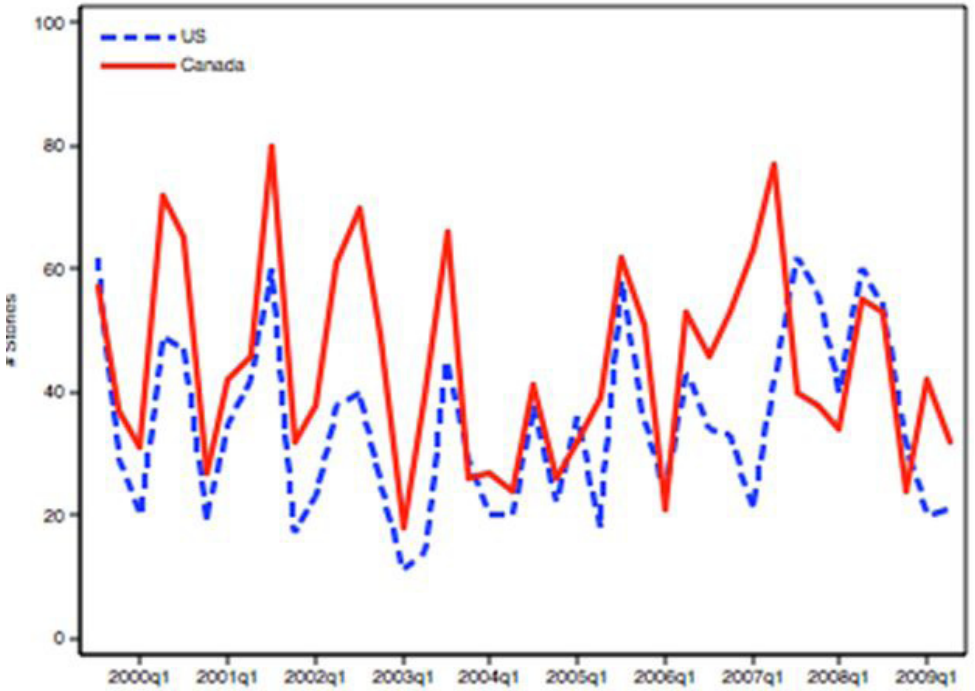
Data are gathered using full-text indices in LexisNexis, an electronic news / information database that hosts a range of broadcast transcripts and published news from a variety of international sources. By querying the database by news source (NBC and CTV) and time period (1999-2009) using Nexis' own thematic coding, we obtained full transcripts of stories for which the environment was a "major theme." In total, the database includes 4,113 NBC stories and 2,675 CTV stories. The complete dataset includes stories on evening news programs, morning news programs, and some lengthier magazine-style programming; the difference in the number of stories on NBC and CTV is due mainly to the fact that NBC news magazine programs appear to be more reliably covered in Nexis. For the analysis below, we rely on the program most reliably indexed and most directly comparable across the two networks: evening news. Thus, we analyze 1,396 NBC evening news stories and 1,789 CTV evening news stories. We code only the text, not the visual images in the broadcast. For the purposes of this study, textual analysis adequately captures topics and is more reliable than the analysis of images would be. Total frequencies are plotted quarterly in Figure 1.

General Trends

We begin with a very simple but important observation: overall, there is somewhat more environmental reporting on CTV than NBC. Though neither country's coverage of environmental news can be characterized as static, the total number of stories in Canada outweighs that of the U.S., both over the entire period observed and for every quarter shown in Figure 1, with the exception of several quarters in 2007.

Two other trends are particularly notable in Figure 1. The first is the fact that coverage of environmental issues has *not* increased markedly over the decade. There is seasonal variance, to be sure — this appears to be a consequence of varying coverage of seasonal weather events, particularly involving the high temperatures and severe storms common during the summers. But the pattern seen in Figure 1 is consistent with Downs' observation that more mature policy issues would be marked by "spasmodic" bursts of attention rather than increasing or even sustained discussion. The fact that the overall levels of coverage of environmental issues have not changed over the last decade may be surprising to some; and it is equally true

Figure 1. Frequency of environmental coverage, nightly news only, quarterly



of both the Canadian and U.S. media samples.

The second key observation is not so much a trend as a lack of one. The full significance of Hurricane Katrina is clearly not reflected in these data. The scope and magnitude of Hurricane Katrina — classified by FEMA as the largest natural disaster to hit the U.S. in its history — should surely warrant intense coverage. Yet, there is only a brief, and by no means drastic, increase in U.S. environmental coverage in 2005; nor is there an increase in the quarters or years following Katrina that reflect the magnitude of the event.

Why would the largest domestic natural disaster fail to be reflected in our sample? Hurricane Katrina was of course covered by the media in great detail, but not consistently as an environmental issue. Once the immediate storm had passed, coverage of Katrina focused on a loss of life and property, issues with governance and politics, such as FEMA and the response of the Bush administration, or issues of law-and-order (reports of violence and looting in the aftermath). There was, in fact, very little spill-over into environmental coverage. Indeed, most Katrina stories in the Nexis database are coded as "disaster" rather than "environment" coverage; Hurricane Katrina thus makes very little direct impact on the data presented here. Moreover, it appears to have had very little indirect impact; that is, there is no prolonged, increase in the level of attention given to environmental issues following Katrina. There is a spike in coverage mid-2005 around the time of Katrina — a brief instance of somewhat heightened attentiveness to environmental issues. This brief, event-driven attention is, as we shall see in more detail below, a characteristic of environmental coverage throughout the period investigated here. Lack of Katrina coverage is powerful evidence, we should note, of just how disconnected from thematic concerns environmental news coverage can be. The climate-related dimensions of this massive storm were quickly replaced in news media discourse by other matters that minimize the environmental dimensions and concentrate on political and economic concerns.

Table 1 shows the distribution of topics and subtopics in our data. We capture the prominence of issues in stories using an iterative automated process. We begin by generating a list of frequencies for all substantive words and phrases in the stories using WordStat, excluding common words (e.g. "a" and "the") and those that lack substantive meaning in the environmental context (e.g. "cent" or "game"). We then take the most frequent words and phrases relating to the environment and build a dictionary of commonly-used terms. These terms do not capture all relevant information on a given topic. We may identify "oil" as a relevant term, for instance, but be interested in a number of related themes, such as "oilsands" — regardless of whether "oilsands" appears as a frequently-used word. Additionally, we are interested in other terms, such as "acid rain," or "FEMA," in spite of their relatively low frequency in the dataset. Finally, we organize these terms into conceptually discrete topics and subtopics to reflect our theoretical interest in broader coverage of pollution and climate change versus event-driven coverage of natural disasters and weather.

A story is coded as a given topic or subtopic if at least two keywords for that category are present in the text.[3] The resulting codes thus are indicators of the prevalence of specific topics relating to various environmental issues. For instance, an article on acid rain almost certainly includes the words "acid rain," and there are few articles that include those words and do not, at least in part, deal with the issue. It is possible for an article to use the words "acid rain" in passing and then not deal with the issue in any detail, but these instances are likely to be relatively infrequent.

Some of our issues are identified by single words; others include several. The entire dictionary is listed in the Appendix. Note, finally, that our approach to topic coding allows stories to deal with multiple topics: in a given article, keywords on pollution mean that we will identify the story as dealing with pollution; while other keywords on oil mean that we will *also* identify the story as dealing with energy. Thus, the total number of stories in each topic will sum to more than the total number of stories in the study. This is readily apparent in Table 1, which shows a breakdown of topic coverage by network.

Table 1 suggests that the distribution of Canadian stories is somewhat different from that of the U.S. The number of stories that we would typically regard as "environmental" coverage — stories using the language

Table 1. Frequency of Major and Minor Topics by Country, Nightly News Only

	US		CA	
	#	% of articles	#	% of articles
Pollution / Climate Change	411	29.4%	611	34.2%
Acid Rain	2		8	
Aid	200		191	
Carbon	75		56	
Climate Change	67		147	
Emissions	90		184	
Global Warming	104		121	
Greenhouse Gases	62		156	
Pollution	164		326	
Ozone	12		19	
Energy	396	28.4%	431	24.1%
Blackout	8		7	
Electricity	101		84	
Energy	129		101	
Gas	138		127	
Prices	18		12	
Hydro	22		29	
Nuclear	41		41	
Power Plant	46		35	
Oil	174		215	
Prices	9		4	
Sands	1		10	
Spills	21		26	
Weather / Disasters	777	55.7%	856	47.8%
Floods	249		207	
Fires	197		263	
Hurricanes	214		102	
Storms	302		185	
Droughts	114		53	
Rain	444		407	
Wind	316		278	
Ice	675		718	
Weather	235		306	
Tornado	35		23	
Events	194	11.7%	534	29.8%
Katrina	159		63	
Kyoto	29		313	
Walkerton	6		158	
Actors	416	29.8%	506	28.2%
Government	336		417	
Environmental Group	66		96	
Green Party	0		14	
FEMA	49		21	
Drinking Water	64	4.6%	155	8.7%
Health	142	10.2%	193	10.8%
Parks / Reserves	126	9.0%	60	3.4%
Wildlife	164	11.7%	210	11.7%
Total # Articles	*1396*		*1789*	

of pollution, or climate change, or global warming — is slightly greater (proportionally-speaking) on the Canadian network; NBC has somewhat more disaster and weather coverage. Indeed, in the NBC coverage, slightly more than half of all stories on the environment focus on weather and storms. That said, coverage of weather and storms plays only a slightly less prominent role on CTV.

Figure 2. Frequency of major topic coverage, nightly news only, quarterly

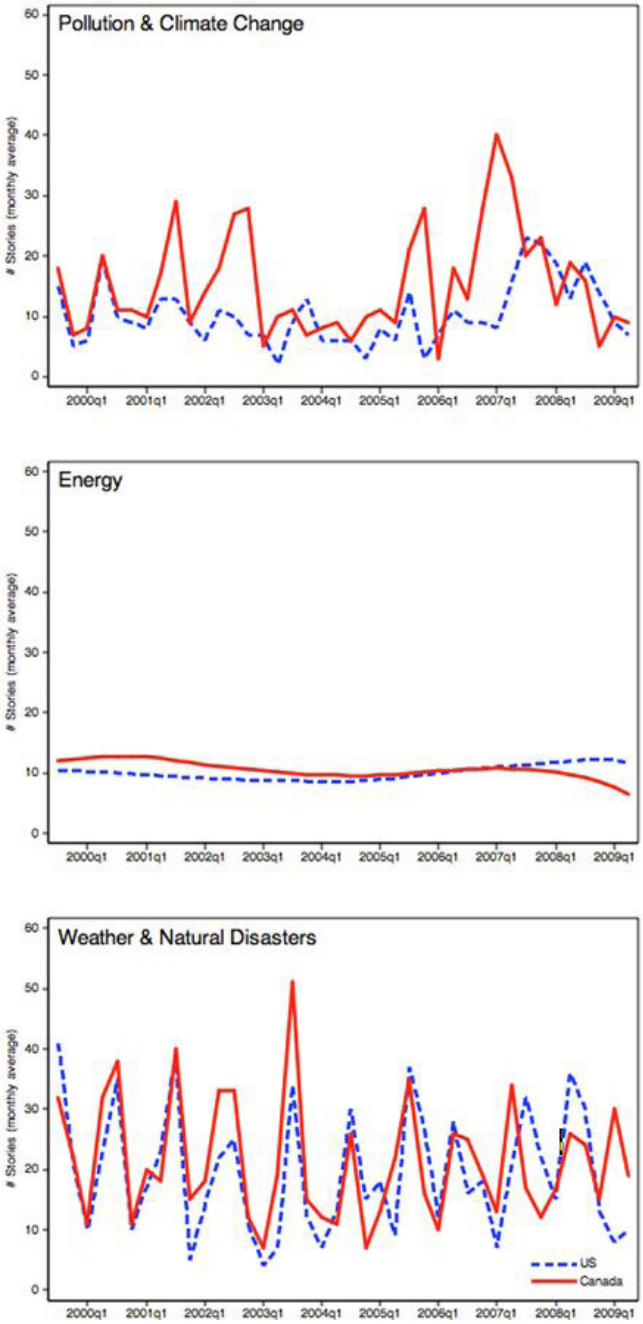


Figure 2 shows over-time trends in the three major content category areas found in Table 1: (1) pollution/climate change, (2) energy, and (3) disasters/weather. As noted above, issue categories are not coded as mutually exclusive, so an article identified as being about weather can also be identified as being about climate change. Indeed, climate change stories will almost by definition include weather keywords. In the U.S., 78 percent of all pollution/climate change stories include weather keywords; in Canada, 63 percent of stories do so.[4] Should we include these stories as "weather" stories, "global warming" stories, or both? We believe the second option is most appropriate — a story that includes pollution/climate change keywords likely involves a theme above and beyond just weather. The pollution/climate change and disasters/weather articles illustrated in Figure 2 (and listed under disasters/weather in Table 2) reflect this distinction. That is, the disasters/weather category includes articles that use words we categorize as "disaster" or "weather," *without* using words that suggest the article has another thematic focus.

Breaking down total coverage into these constituent units provides some telling detail. Most notably, coverage of each of the three major themes has not risen (or fallen) considerably in the last decade. There are variations over time, to be sure; these variations are brief periods when coverage of one issue or another increases or decreases. But the overall level of coverage has not changed significantly over time.

It is also the case that coverage of pollution/climate change and energy is exceeded by that of weather and natural disasters. And there are, for the most part, relatively similar trends over time in coverage of weather and natural disasters across the two countries. This similarity is a consequence of coverage of events such as snowstorms that hit the east coast in both countries, drought suffered by both the U.S. Midwest and Canadian Prairies, and flooding that occurred in the Pacific Northwest region spanning geographical boundaries, all of which were prevalent during the period covered.

Events and Environmental News

The link between event-driven disaster and

weather reports and coverage of pollution and climate change is not readily evident in part in Figure 2. These are quarterly data, however, and we expect both that (a) the link between disasters/weather coverage and pollution coverage will occur over a much shorter time interval, and (b) the effect of the former on the latter will be brief. This relationship is analyzed more systematically in Table 2. The table presents results from a relatively simple Granger causality test — a statistical test of the temporal relationship between the number of articles relating to disasters/weather and the number of articles dealing with pollution/climate change.

Analyses rely on weekly data,[5] and Granger tests proceed as follows. Total coverage of disasters/weather from a given week is regressed on the previous week's coverage of disasters/weather, as well as the previous week's coverage of pollution/climate change. Results show, controlling for past coverage of disasters/weather, whether pollution/climate change coverage systematically leads to disasters/weather coverage. The same model is also estimated in the opposite direction: pollution/climate change coverage is regressed on last week's coverage of pollution/climate change, and last week's coverage of disasters/weather. Drawing on both models, we have a good sense for the extent to which disasters/weather coverage leads pollution/climate change, and vice versa.

Both models are estimated simultaneously using OLS vector autoregression; estimated coefficients are shown in Table 2. Results for the U.S. are shown in the first two columns. In the first column, we see that current coverage of disasters/weather is related to the previous week's coverage of disasters/weather. The coefficient is .29 and is statistically significant. The same is not true for the previous week's coverage of pollution/climate change. That is, there is no relationship between current coverage of weather or disasters and the preceding week's reports on pollution or climate change.

The second column includes the model for current coverage of pollution or climate change. Here, we see that current coverage of pollution and climate change is related to last week's coverage of climate change (a coefficient of .08), but also to last week's coverage of disasters and events (a coefficient of .11). There is, then, a clear, unidirectional causal effect: coverage of pollution and climate change is systematically (and positively) led by coverage of weather and disasters. (Put differently, coverage of disasters and events "Granger-causes" coverage of pollution and climate change.)

The same appears true for Canada, albeit less so. There is no effect of pollution/climate change coverage on disasters/weather coverage; and there is a strong hint ($p < .10$) of disasters/weather coverage affecting the coverage of pollution/climate change, though

Table 2. Coverage of Natural Disasters/Weather and Pollution/Climate Change

	US		Canada	
	DV: Disasters/ ather $_t$	DV: WePollution/Climate Change$_t$	DV: Disasters/ eather$_t$	DV: W Pollution/Climate Change$_t$
Disasters/Weather $_{t-1}$	.290*	.111*	.315*	.061[a]
	(.042)	(.026)	(.109)	(.035)
Pollution/Climate Change $_{t-1}$	.079	.080[a]	.019	.259*
	(.071)	(.044)	(.051)	(.043)
Constant	1.002*	.562*	1.114*	.776*
	(.104)	(.065)	(.109)	(.090)
R-sq	.092	.046	.101	.079

N=520. * $p < .05$; [a] $p < .10$. Estimates rely on weekly data. Cells contain coefficients from an OLS vector regression, with standard errors in parentheses.

here the coefficient slips just below standard levels of statistical significance. Even so, these Granger results using weekly data suggest that substantive coverage of environmental themes such as air pollution, global warming and climate change increases *after* major weather-related disasters and events. Indeed, one interpretation — drawing on the literature discussed above — is that coverage of pollution and climate change is *dependent* on weather-related disasters and events.

Discussion and Conclusions

Environmental news coverage, in both the U.S. and Canada, depends to a significant degree on ongoing events. As hypothesized, reporters apparently find it hard to write about climate change absent such things as high temperatures and weather-related disasters. A sustained conversation on the environment is unlikely, our findings suggest, absent a steady stream of floods, hurricanes, ice storms, power blackouts and other climate mayhem. Downs wrote that, "Ironically, the cause of ecologists would therefore benefit from an environmental disaster like a 'killer smog' that would choke thousands to death in a few days" (Downs 1972: 47). Indeed, our study of a decade of environmental news content suggests that media coverage during this period was marked by repeated and accelerated progression through a series of boom and bust cycles of attention driven largely by the existence of event-driven weather and disasters. The Katrina disaster in New Orleans, for example, triggered only a brief increase in climate change discussion on NBC, as the story rapidly moved away from weather-related concerns to the federal government's problematic response.

Where cross-border differences are concerned, our study suggests that they are relatively limited. Compared to NBC's news reports, CTV's segments tended to be slightly less focused on disasters and current weather conditions. As hypothesized, Canadian news has a bit more to say than U.S. news about climate change. Pollution was covered more extensively in Canada than in the U.S.; so too was the Kyoto agreement, which Canada's Parliament ratified and which the U.S. Senate did not even formally debate.

In the most important comparison, though, Granger tests reveal that U.S. news may depend somewhat more on weather-related crises to serve as the "news peg" on which to hang stories about climate change and pollution than does CTV news. In other words, from the perspective of generating a sustained environmental discourse, NBC falls short of CTV. This is not all that surprising, as other cross-border comparisons have also graded Canadian news more favorably than their American counterparts in terms of the proportion of substantive coverage (cf., Farnsworth et al. 2009; Gidengil et al. 2002). Of course some of the differences may be the result of somewhat different audience preferences and political environments, with Canadian viewers more interested in environmental news and Canadian politicians more likely to talk about these themes (Adams 2003; Brooks 2006; Pew 2009). And we should not forget that differences in coverage, where they exist, are relatively small.

That said, environmental news coverage in both countries suffers from the same "short-termitis" that affects coverage of elections, where the horse-race tends to trump discussion of more substantive matters, or the "now this" short-attention span of news treatment of policy issues more generally (Iyengar 1991; Iyengar and Kinder 1987; Postman 1985). The world has been warming steadily for decades, but news coverage tends to rely on some breaking news event to open the door for much of the climate change news ultimately presented to the public. Our findings suggest that environmental news is covered a lot like crime news, where the old reporter motto "if it bleeds, it leads" is modified with "if it blows, it goes."

Highly specialized policy matters, including foreign/military policy and budgets, are arenas where governmental officials often have significant advantages in their ability to frame the debate (Bennett et al. 2007; Entman 2004; Farnsworth and Lichter 2006). Is this also the case for environmental news? In some ways, the obvious answer is no: exogenous shocks to the news agenda - like hurricanes and flooding – have a considerable influence on coverage. Weather news, after all, is not nearly as susceptible to government framing efforts as are such things as military action or intelligence reports (Bennett et al. 2007; Farnsworth 2009). Yet is it still striking that the coverage of environmental matters, including the relative prominence of stories on pollution, was not

greatly affected by partisan transfers of power. Whether the change was to the administration of former oil industry executive George W. Bush in 2001 or Stephen Harper of energy-rich Alberta in 2006, the volume of environmental coverage did not change much relative to that of their predecessors. Coverage in both countries was surprisingly consistent over time.

The complexities of environmental policy making are clearly not well-served by the event-driven coverage we have seen in this issue area. Future research projects may do more to link media content to public opinion. We can note a correlation between more substantive coverage and a greater public willingness to accept economic trade-offs north of the border. But further study of the relationship between the kind of event-driven media coverage examined here and public opinion on environmental matters seems warranted. There is more to explore regarding the general consequences of event-driven media content, as well as the need to examine further the impact that such coverage has on public policy issues, particularly those relating to the environment.

Notes

1. E.g., prevailing wind currents in North America routinely carry the particulates of air pollution generated in the U.S. industrial heartland into Canada; water pollution in the Great Lakes and border area waters are not contained by international boundaries (Davey 2008; Likens and Franklin 2009). Rising global temperatures also trigger specific national security concerns for the northern reaches of the continent, most notably the possibility that polar region ice melting will lead to an increasingly navigable Northwest Passage through Canada's far north (Beauchamp and Huebert 2008).

2. The health of timber stands likely would generate greater news interest north of the border given the greater role that lumber plays in the Canadian economy, particularly as the moderating winters seems to be increasing the damage wrought by mountain pine beetles (Abbot et al. 2009). The oil sands initiative would likely be a greater focus in Canadian media, given the concentration of such production facilities in Alberta and the likelihood that the pollution generated largely would remain in Canada (Pasqualetti 2009). On the other hand, the greater vulnerability of the U.S. to hurricanes and the major hurricanes such as Katrina and Rita suggest greater focus in U.S. media (Bennett et al. 2007).

3. Or rather, two keyword mentions — if just one keyword appeared twice, it was coded as being related to the topic.

4. Of course, a far greater proportion of disasters/weather stories do not deal with pollution/climate change. Across both the U.S. and Canada, roughly one third of all disasters/weather stories in the sample include pollution/climate change keywords.

5. The results presented here are robust to a number of possible specification changes. For instance: (1) We can run the analysis using smaller, even daily, time intervals; doing so produces similar results as using weekly data. (2) Granger tests can also be conducted with more than one lag of each series. We might test the possibility that the past four weeks' coverage on one theme leads current coverage on another, for instance. All our initial tests suggested that most effects occurred within a one-week period; and results are in no case reversed by using a different number of lags. (3) For the models presented here, the disasters/weather series is a combination of the articles falling into the disasters/weather category in Table 1, as well as Katrina and Walkerton coverage; pollution/climate change coverage is a combination of the articles falling into that category in Table 1, as well as Kyoto coverage. But again, including or excluding the effects makes no difference to results – regardless, Granger results show the effects discussed in the text.

References

Abbot, Brant, Brad Stennes, G. Cornelis van Kooten 2009. "Mountain pine beetle, global markets, and the British Columbia forest economy," *Canadian Journal of Forest Research* 39:1313.

Adams, Michael. 2003. *Fire and Ice: the United States, Canada and the Myth of Converging Values*. Toronto: Penguin Canada.

Andrew, Blake, Antonia Maioni, and Stuart Soroka. 2006. "Just When You Thought it was Out, Policy is pulled back in." *Policy Options* March: 74-79.

Andrew, Blake, Lori Young, and Stuart Soroka. 2008. "Back to the Future: Press Coverage of the 2008 Canadian Election Campaign Strikes Familiar and Unfamiliar Notes." *Policy Options* November: 79-84.

Beauchamp, Benoit, and Rob Huebert. 2008. "Canadian sovereignty linked to energy development in the Arctic." *Arctic* 61: 341-343.

Bennett, W. Lance, Regina G. Lawrence, and Steven Livingston. 2007. *When the press fails: Political*

power and the news media from Iraq to Katrina. Chicago: University of Chicago Press.

Boykoff, Maxwell. 2005. "The disconnect of news reporting from scientific evidence." *Nieman Reports*, Harvard University, Winter: 86.

Boykoff, Maxwell. 2007a. "From convergence to contention: United States mass media representations of anthropogenic climate change science." *Transactions of the Institute of British Geographers* 32: 477-489.

Boykoff, Maxwell. 2007b. "Flogging a dead norm? Newspaper coverage of anthropogenic climate change in the United States and the United Kingdom from 2003-2006." *Area* 39: 470-481.

Boykoff, Maxwell T., and Jules M. Boykoff. 2007. "Climate change and journalistic norms: A case study of US mass media coverage." *Geoforum* 38: 1190-1204.

Broder, John M. 2010. "Climate change debate is heating up in deep freeze." *New York Times* February 10.

Brooks, Stephen. 2006. *As Others See Us: The Causes and Consequences of Foreign Perceptions of America*. Peterborough, ON: Broadview Press.

Clayton, Mark. 2007. "Study finds White House manipulation on climate science." *Christian Science Monitor* December 12.

Cohen, J.E. 2008. *The Presidency in the Era of 24-Hour News*. Princeton, NJ: Princeton University Press.

Corbett, Julia B., and Jessica Durfee. 2008. "Testing public (un)certainty of science: Media representations of global warming." *Science Communication* 26: 129-151.

Davey, Monica. 2008. "Great Lakes officials seek aid from US and Canada." *New York Times*, February 27.

Downs, Anthony. 1972. "Up and down with Ecology – The 'issue-attention cycle.'" *The Public Interest* 28: 38-50.

Entman, Robert M. 2004. *Projections of Power: Framing News, Public Opinion and Foreign Policy*. Chicago: University of Chicago Press.

Farnsworth, Stephen J. 2009. *Spinner in Chief: How Presidents Sell Their Policies and Themselves*. Boulder, CO: Paradigm.

Farnsworth, Stephen J., and S. Robert Lichter. 2006. *The Mediated Presidency: Television News and Presidential Governance*. Lanham, Md.: Rowman & Littlefield.

Farnsworth, Stephen J., and S. Robert Lichter. 2011. *The Nightly News Nightmare: Media Coverage of US Presidential Elections, 1988-2008*. Lanham, Md.: Rowman & Littlefield. Third edition.

Farnsworth, Stephen J., S. Robert Lichter, and Roland Schatz. 2009. "CBC News Coverage of Canada's 2006 Liberal Leadership Candidates." *American Review of Canadian Studies* 39: 290-302.

Farnsworth, Stephen J., Stuart Soroka, and Lori Young. 2007. "Canadian TV news on Bush and Iraq: No more hostile than top US network." *Policy Options* July/August: 88-94.

Farnsworth, Stephen J., Stuart Soroka, and Lori Young. 2010. "The International Two-Step Flow in Foreign News: Canadian and US Television News Coverage of US Affairs." *International Journal of Press/Politics* 15(4): 401-19.

Fraser, Matthew. 2000. "The CBC's Choice: Constellations or Core Competencies?" Policy Options September: 43-49.

Gidengil, Elisabeth. 2008. "Media Matter: Election Coverage in Canada." In *The Handbook of Election News Coverage Around the World*, Jesper Stromback and Lynda Lee Kaid, eds. New York: Routledge.

Gidengil, Elisabeth, Andre Blais, Neil Nevitte, and Richard Nadeau. 2002. "Priming and Campaign Context: Evidence from Recent Canadian Elections." In *Do Political Campaigns Matter? Campaign Effects in Elections and Referendums*, David M. Farrell & Rudiger Schmitt-Beck, eds. London: Routledge.

Haglund, David G. 2006. "Quebec's 'America Problem': Differential Threat Perceptions in the North American Security Community." *American Review of Canadian Studies* 36: 552-567.

Hallin, Daniel C., and Paolo Mancini. 2004. *Comparing Media Systems: Three Models of Media and Politics*. New York: Cambridge University Press.

Herman, Edward S., and Noam Chomsky. 1988. *Manufacturing Consent: The Political Economy of the Mass Media*. New York: Panetheon.

Inhofe, James. 2003. "The science of climate change." U.S. Senate floor statement, July 28.

Iyengar, Shanto. 1991. *Is Anyone Responsible? How Television Frames Political Issues*. Chicago:

University of Chicago Press.
Iyengar, Shanto, and Donald R. Kinder. 1987. *News That Matters*. Chicago: University of Chicago Press.
Larson, Stephanie. 2001. "Poll coverage of the 2000 presidential campaign on network news." Paper delivered at the 2001 Annual Meeting of the American Political Science Association, San Francisco.
Leiserowitz, A., Maibach, E., & Roser-Renouf, C. 2010. *Climate change in the American mind: Americans' global warming beliefs and attitudes in January 2010*. New Haven, CT: Yale Project on Climate Change.
Lichter, S. Robert, and Stanley Rothman. 1999. *Environmental Cancer: A Political Disease?* New Haven: Yale University Press.
Lichter, S. Robert. 2009. "Are chemicals killing us? Experts speak out." STATS (May 21 report). URL: http://stats.org/stories/2009/are_chemicals_killing_us.html, downloaded August 2, 2009.
Likens, Gene E., and Jerry F. Franklin. 2009. "Ecosystem thinking in the Northern Forest – and Beyond." *Bioscience* 59: 511-3.
Mazur, Allan. 2009. "American generation of environmental warnings: Avian influenza and global warming." *Human Ecology Review* 16: 17-26.
Mazur, Allan, and Linling Lee. 2003. "Sounding the global alarm: Environmental issues in the US national news." *Social Studies of Science* 23: 681-720.
McChesney, Robert. 1999. *Rich Media, Poor Democracy: Communications Politics in Dubious Times*. New York: Times Press.
McComas, Katherine, and James Shanahan. 1999. "Telling Stories about Global Climate Change: Measuring the Impact of Narratives on Issue Cycles." *Communication Research* 26: 30-57.
McCright, Aaron M., and Riley E. Dunlap. 2003. "Defeating Kyoto: The conservative movement's impact on US climate change policy." *Social Problems* 50: 348-373.
Miller, Mark M., Jeff Boone, and David Fowler. 1990. "The emergence of greenhouse effect on the issue agenda." *News Computing Journal* 7: 25-38.
Mooney, Chris. 2004. "Blinded by science: How 'balanced' coverage lets the scientific fringe hijack reality." *Columbia Journalism Review* November/December.
Murray, David, Joel Schwartz, and S. Robert Lichter. 2010. *It Ain't Necessarily So: How media make and unmake the scientific picture of reality*. Lanham, MD: Rowman & Littlefield.
Nisbet, Matthew C., and Teresa Myers. 2007. "Twenty years of public opinion about global warming." *Public Opinion Quarterly* 71: 444-470.
Pasqualetti, Martin. J. 2009. "The Alberta oilsands from both sides of the border." *Geographical Review* 99:341-343.
Patterson, Thomas E. 1994. *Out of Order*. New York: Vintage.
Pew Research Center for the People and the Press. 2009. "Confidence in Obama lifts US image around the World." URL: pewglobal.org/reports/pdf/264.pdf, downloaded August 18, 2009.
Pew Research Center for the People and the Press. 2010. "Public's Priorities for 2010: Economy, Jobs, Terrorism." URL: /people-press.org/report/584/policy-priorities-2010, downloaded May 10. 2010.
Postman, Neil. 1985. *Amusing Ourselves to Death*. New York: Penguin.
Raboy, Marc. 1996. "Canada: The Hybridization of Public Broadcasting." In *Public Broadcasting for the 21st Century*, ed. Marc Raboy. Luton, UK: University of Luton Press.
Revkin, Andrew. 2005. "Bush aide edited climate reports." *New York Times* June 8.
Revkin, Andrew. 2006. "Climate expert said NASA tried to silence him." *New York Times* January 29.
Revkin, Andrew. 2009. "Hacked E-mail is new fodder for climate dispute." *New York Times* November 20.
Rich, Robert F., and Kelly R. Merrick. 2007. "Use and misuse of science: Global climate change and the Bush administration." *Virginia Journal of Social Policy and the Law* 14: 223-252.
Stevens, W.K. 1993. "Scientists confront renewed backlash on global warming." *New York Times* September 14.
Soderlund, Walter, Ronald H. Wagenberg, and Ian C. Pemberton. 1994. "Cheerleader or Critic? Television News Coverage in Canada and the United States of the US Invasion of Panama." *Canadian Journal of Political Science* 27: 581-604.
Soroka, Stuart. 2002a. *Agenda-Setting Dynamics in Canada*. Vancouver: University of British Columbia Press.

Soroka, Stuart. 2002b. "Issue attributes and agenda-setting by media, the public and policymakers in Canada," *International Journal of Public Opinion Research* 14: 264-285.

Trumbo, Craig. 1995. "Longitudinal modeling of public issues: An application of the agenda-setting process to the issue of global warming." *Journalism and Mass Communication Monographs* 152: 1-57.

Trumbo, Craig. 1996. "Constructing Climate Change: Claims and Frames in US News Coverage of an Environmental Issue." *Public Understanding of Science* 5: 269-283.

Wittebols, James H. 1992. "Media and the Institutional Perspective: U.S. and Canadian Coverage of Terrorism." *Political Communication* 9: 267-278.

Wittebols, James H. 1996. "News from the Noninstitutional World: U.S. and Canadian Television News Coverage of Social Protest." *Political Communication* 13: 345-361.

Wilkins, Lee, and Philip Patterson. 1991. "Science as symbol: The media chills the greenhouse effect," in *Risky Business: Communication Issues of Science, Risk and Public Policy*, eds. Lee Wilkins and Philip Patterson. Westport, CT: Greenwood, 159-176.

Dr. Stuart Soroka is an associate professor of political science and William Dawson scholar at McGill University. He can be reached at stuart.soroka@mcgill.ca

Dr. Stephen J. Farnsworth is a professor of political science and director of the Center for Leadership and Media Studies at the University of Mary Washington. He can be reached at sfarnswo@umw.edu

Lori Young is a doctoral student at the University of Pennsylvania. She can be reached at lyoung@asc.upenn.edu

Andrea Lawlor is a doctoral student at McGill University. She can be reached at andrea.lawlor@mail.mcgill.ca

Appendix: Topic Keywords

Pollution / Climate Change	
Acid Rain	acid rain
Air	air
Carbon	Carbon
Climate Change	climate change
Emissions	emission*
Global Warming	global warming
Greenhouse Gases	greenhouse gas*
Pollution	pollution, pollute, pollute*, toxic, toxin*
Ozone	Ozone
Energy	
Blackout	blackout
Electricity	electric*
Energy	energy
Gas	gas, excluding greenhouse gas
Prices	gas price*, price of gas, gas cost*, cost of gas
Hydro	hydro
Nuclear	nuclear
Power Plant	power plant*
Oil	oil
Prices	oil price*, price of oil, oil cost*, cost of oil
Sands	oil sands, oilsands
Spills	oil spill*
Disasters / Weather	
Floods	flood*
Fires	forest fire*, wildfire*, wild fire*
Hurricanes	hurricane*
Storms	storm*
Droughts	drought*
Rain	rain*
Wind	wind*
Ice	ice
Weather	weather
Tornado	tornado*
Events	
Katrina	Katrina
Kyoto	Kyoto
Walkerton	Walkerton
SARS	SARS
Actors	
Government	Environnent Canada, Environnemental Protection Agency, EPA
Environmental Group	Ducks Unlimited, environmental group, Friends of the Earth, Greenpeace, World Wildlife Fund, WWF
Green Party	Green Party
FEMA	FEMA
Drinking Water	drink water, drinking water, water pollution, water supply, water level
Health	asbestos, asthma, breathe, cancer, carcinogen, respiratory, sickness, illness
Parks / Reserves	federal park, forest ranger, forest reserves, national park, provincial park, state park, Parks Canada, national forest
Wildlife	wildlife, endangered species, endangered animal