

CLIMATE SKEPTICISM PRESENCE AND CHANGING CLIMATE JOURNALISM
SOURCING PRACTICES IN THE 2023 BRITISH COLUMBIA WILDFIRE COVERAGE

by

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Abstract

In 2023, Canada experienced one of the worst wildfire seasons in its history, with over 16.5 million hectares of land being burnt. These record-breaking wildfires required evacuations, posed physical and mental health risks, and required multiple levels of government emergency response. As wildfires have become increasingly intense, scientists have come to the consensus that climate change is a factor which is contributing to the worsening of these fires through increased global temperatures, changing seasonal patterns, and increased droughts.

Media coverage of the wildfires combined event-driven reporting and climate journalism. Climate journalism has been an area of rapid change in journalism studies. Climate journalism has been moving away from previous ideas of objectivity and bothsidesism, and instead moving towards a subjective stance where climate change is not treated as a subjective ideal, but is instead treated as an objective fact, changing the way that different voices in climate journalism are represented. Climate journalism aligns with journalistic sourcing practices as certain groups, such as government officials, receive high media representation, and other groups experience less representation.

This research project explored how different sources are represented in the 2023 Canadian wildfire media coverage, using both quantitative and qualitative analysis. It investigated which sources were the most likely to assert a connection between climate change and wildfires, and to understand how reluctance and skepticism are represented. Findings suggest that skeptic voice presence in media is decreasing, and that event-driven crisis reporting platforms a microcosm of dominant government sources. The results advance an understanding of how science communication is represented by sources, and which sources contribute to shaping the current representation of climate change in the media during a crisis event.

Lay Summary

This thesis explores how present climate skepticism is in coverage of the 2023 Canadian wildfires and seeks to better understand how this coverage fits into journalism sourcing practices.

This thesis utilized both quantitative and qualitative news story analysis to determine which sources connected climate change and wildfires most frequently, and to determine what stances these sources had in connection to climate change, such as explicitly naming climate change as a driver of wildfires. The study found that the sourcing patterns were reflective of current climate journalism sourcing practices, finding dominance of government and scientific voices and no presence of climate skepticism. This thesis highlighted the importance of understanding how science communication works in journalism, and how scientific uncertainty is represented by journalists, and the importance of continuing to understand how dominance of news coverage can contribute to wider journalistic sourcing practices.

Preface

This thesis is original, unpublished, independent work by the author, Brianna Reeve.

Table of Contents

Abstract	iii
Lay Summary	iv
Preface	v
Table of Contents	vi
List of Tables	vii
List of Figures	viii
Acknowledgements	ix
Dedication	x
1 Introduction	1
2 Literature Review	5
2.1 Journalistic Sourcing Practices	6
2.2 Objectivity Norms in Journalism	12
2.3 Climate Change Skepticism	24
2.4 Wildfires in the Media	28
2.5 Conclusion	37
3 Methodology.....	38
3.1 Quantitative Analysis	38
3.2 Outlet Selection	39
3.3 Article selection	41
4 Findings	43
5 Discussion.....	47
References	58

List of Tables

Table 1 Stories Per Outlet	42
Table 2 Source Viewpoint Breakdown	44

List of Figures

Figure 1 Source breakdown	43
Figure 2 Reluctant source breakdown.....	45
Figure 3 Breakdown of source opinions and amounts.....	46

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Dedication

I dedicate my thesis to my late grandmother, Jean Pittao. Although she is no longer here, her love and support shaped me into the person that I am today. She was the first person to encourage my love of language and school, and everything I have done has been to make her proud. I hope to continue carrying on her legacy for the rest of my life.

1 Introduction

During the summer of 2023, wildfires raged across Canada in an unprecedented fashion, tearing across the landscape and breaking previous records (Natural Resources Canada, 2023). The wildfires burnt through over 16.5 million hectares of land, decimating the annual burnt land average of 2.5 million hectares (Natural Resources Canada, 2023). Not only did the wildfires deeply affect the landscapes through which they were burning, but they also impacted the lives of people in living in Canada and the United States, with Canadians experiencing evacuations, loss of homes and property, physical and mental health concerns (Natural Resources Canada, 2023; Chen, 2023). Eight firefighters lost their lives over the 2023 season (Luigi, 2023). In the United States, cities along the Canada-U.S. border experienced the secondary effects of wildfire smoke, eliciting responses not just from Canadian government officials, but also from those on American officials (Lin, 2023; Oladipo, 2023).

Despite being an unprecedented wildfire season, it was not a season that was entirely unpredicted (Canada Research Chairs, 2023). With wildfires in Canada being one of the major cyclical natural disaster events that the country sees annually, they have been the topic of much study, and in particular, how climate change has been affecting, and as many scientists, have concluded, worsening, the wildfire season in Canada (Pine, 2007; Natural Resources Canada, 2023; Lindsay & Pelai, 2024).

Like many other global weather events, climate change acts as a contributing factor to the events becoming worse, and often, more unpredictable (Natural Resources Canada, 2023; Canadian Council of Forest Ministers, 2016). Canada's worsening wildfires are no different, with scientists concluding that rising global temperatures, changing seasons, and increased drought periods, which are all linked to climate change, have contributed to the worsening of the

Canadian wildfire season, driving wildfires that are larger, last longer, and are harder to control (Natural Resources Canada, 2023; Canadian Council of Forest Ministers, 2016).

As these wildfires continued to rage through Canada, particularly after the 2021 wildfire season that decimated much of the ground in British Columbia, news outlets responded with a plethora of news coverage to keep the Canadian news audience informed about changing evacuation areas, developing fires, and larger picture views of wildfires and updates on what could be expected for the rest of the wildfire season (CBC News, 2023; O'Neill, 2023; Tutton, 2023). While wildfires were covered in the event-driven context, they were also linked to climate change, and the news reflected this connection as well (Ziafati, 2023; Jiang, 2023; Shingler & Bruce, 2023). Although the existence of climate change is widely accepted by Canadians in general (Canseco, 2023), Canada was not immune to climate skepticism, particularly in connection to wildfires, which was seen in the platformed government voices of Danielle Smith and Doug Ford, both of whom publicly spoke out against a connection between wildfires and climate change (Jones, 2023; Derowiz, 2023). As such, journalists were required not only to respond to the event-driven nature of wildfires wherein they had to communicate to the audience factors that may be affecting them, but there was an additional added layer of climate journalism being conducted.

Climate journalism has undergone extensive research over the past few years as the consensus towards climate change among the general population has changed and shifted towards a perspective of acceptance (Canseco, 2023; Coletto, 2021). It has also seen as a shift because journalism values have begun to change, shifting towards an approach to reporting on climate change that is more focused on presenting climate change as an objective stance, rather

than as a subjective one which required voices on either side of the argument to be platformed (Hiles & Hinnant, 2014; Bruggemann & Engesser, 2017; Boykoff & Boykoff, 2004).

However, while journalism has been changing, it has not completely stopped skepticism from being present in media, despite it being a minority-held belief (Canseco, 2023; Imundo & Rapp, 2021; Coletto, 2021). As seen with the cases of Danielle Smith and Doug Ford and the attention that their comments received, particularly as government leaders, skepticism still has a media voice.

The importance of this thesis lies in the fact that the Canadian wildfires are not expected to improve, but rather worsen in the near future (Canada Research Chairs, 2023; Climate Atlas of Canada, n.d.; Mersereau, 2024). As climate change is continuing to worsen, scientists have agreed that there is not an optimistic outlook for the future of Canada's wildfires, but rather, that these issues will only increase, and that wildfire seasons similar to the one seen in 2023 could be repeated in the future (Climate Atlas of Canada, n.d.; Zadorsky, 2024).

As there is no expected near-future improvement coming to the situation with Canadian wildfires, this furthers the importance to address the research gap on wildfire media coverage that exists in journalism. Although wildfires are a topic of heightened research, the intersection of wildfires and media coverage is an understudied topic. Studies on wildfire coverage are sparing, and even lesser so are those that focus on how journalistic sourcing practices are reflected in wildfire coverage in Canada.

The research gap reveals a need for a study that investigates the intersection of climate journalism, wildfire coverage, and sourcing practices. As climate journalism has developed over the years, it is important to investigate how journalism practices within climate reporting develop, looking specifically at sourcing practices. Evaluating who gets a voice in journalism is

key to understanding how representation in the news is functioning, and in determining who the primary sources are helps to provide a better understanding about how possible agenda-setting is working within the journalism sphere (Coleman et al., 2009). Evaluating how agenda-setting is working in a topic such as the intersection of wildfires and climate change is invaluablely important because it helps to provide an understanding as to what messages the audience is receiving about how wildfires and climate change is connected, what is affecting or driving wildfire development, and understanding who the most prominent voices are that are speaking to the public about wildfires.

This thesis stands to address this research gap. Through an analysis of sourcing practices during the 2023 Canadian wildfires, it intends to evaluate sourcing patterns within voices discussed climate change and wildfires. Evaluating these sourcing patterns will provide insights into who is most likely to connect climate change and wildfires in news stories, which parties are most represented in media coverage of wildfires, and to evaluate whether or not the 2023 wildfire coverage followed journalistic trends of platforming skeptic voices in an attempt to be objective.

Using quantitative and qualitative means, this thesis seeks to provide an overview of the sourcing patterns of print news that is produced for British Columbia, Canada, over the peak 2023 wildfire season. It adds to the research which will allow journalists to reflect on sourcing patterns and decisions, providing research that contributes to the wider sphere of evaluating who gets a voice in the news, and what views the most prominent news voices are providing to the audience.

2 Literature Review

Voice representation is a vital facet of journalism studies, as it provides insights into what are the leading voices in journalism, the messages of these dominant voices, and how diversity is reflected in the voices seen in the media (Berkowitz, 2009; Hertzum, 2022; van der Meer et al., 2016). Complexity is added to the issue of voice representation when evaluating how climate change is reported, due to the role that climate change denialism and skepticism has played in the media, particularly with an overrepresentation of skeptic voices in media (Bruggemann & Engesser, 2017; Hiles & Hinnant, 2014). Journalists have seen a recent shift, with climate reporters contending with the need to continue to adhere to journalistic standards of objectivity and balance, which can lead to skeptic voices having a media platform (Hiles & Hinnant, 2014; Bruggemann & Engesser, 2017). In response, some journalists have assessed the scientific consensus on climate change to exclude skeptic voices from the sources used in stories (Hiles & Hinnant, 2014). This thesis investigates both voice representation as well as the sources which draw a connection between climate change and wildfires, thus providing an insight into evolving journalistic practices in Canadian wildfire coverage.

This literature review will begin with an overview of the importance of source selection in journalism and will then move into source representation, specifically in climate reporting news stories. Then, it will interrogate the practice of objectivity in journalism, while again looking at how recent shifts in climate reporting have led to the decrease of the journalistic notion of objectivity in the traditional sense of story balance, and focusing on the stances that climate reporters take on discussing climate change. The literature review will then look to integrate the scientific background on climate change denialism, focusing on the prevalence of climate change denialism in Canada, and the different ways that climate skeptics are classified,

as well as the different arguments that are made by climate denialists. Lastly, scientific background on wildfires in Canada will be provided, to round out the knowledge that is being evaluated from sources in the analysis.

2.1 Journalistic Sourcing Patterns

In journalism, one of the most important factors in a news story are the sources. Sources are the platformed voices which provide stories with context, information, humanizing centres of the story, and more (Hertzum, 2022; van der Meer et al., 2016; Berkowitz, 2009). Investigating sourcing can provide insights into who a story represents, which are the most prominent voices in media coverage, and where the gaps in media representation lies (Berkowitz, 2009; Hertzum, 2022). As my thesis will be focusing on how different voices are represented in the media coverage of the 2023 Canadian wildfires, it is imperative to review the literature currently available in journalism research to look deeper into how journalists utilize sources. This includes how source selection affects representation in the media ecosystem, how source selection has specifically impacted the area of climate reporting, and who the primary voices in wildfire and climate reporting are. Investigating what voices were given platforms by media outlets, and how these voice representations differ is crucial because sources are active players in the media environment, and evaluating who is given a platform, and how that may affect journalists, news outlets, and media coverage of a crisis event such as the 2023 wildfires on a whole.

Journalistic Practices and Trends in Source Selection

For most modern news practices, stories must utilize sources for a variety of reasons. Sources provide journalists with contextual information for news stories, can provide opinions representative of the public, provide information not accessible to a journalist, and can humanize stories (Hertzum, 2022; van der Meer et al., 2016; Berkowitz, 2009). Investigating the trends of

which voices are the most represented in journalism and how journalists select their sources is important because sources give journalists power, but also receive the power of being given an active voice on a media platform (Berkowitz, 2009; Hertzum, 2022).

In evaluating how journalists select their sources, it must be broken down into different practices that influence sourcing decisions. As a journalistic practice, sourcing is considered vital to building a well-rounded story, having voices to support a stance or humanize an aspect of the story which will appeal to audiences, and as a journalistic practice, there are certain sourcing techniques that have come to define how sources are selected by journalists (Berkowitz, 2009; Ward, 2009; Skogerbo, et al. 2015, pg. 104).

One part of the driving motivation behind why journalists choose their sources in ways that they do is driven by the fact that journalists are expected to produce work on quick deadlines and can often be expected to produce multiple stories on these tight deadlines (Hertzum, 2022; van der Meer et al., 2016). The nature of having to produce on tight deadlines has made it so that timeliness and accessibility are among the most highly rated qualities that journalists look for in a source (Hertzum, 2022; van der Meer et al. 2016). In a profession where timely responses are required due to the tight deadlines of stories and being easily accessible for a journalist to conduct an interview, these factors are highly influential in determining which sources are given voices in a story.

While these technical factors that influence sourcing practices by route of availability are important to evaluate, several other factors are highly influential among journalistic sourcing practices, and these include the values that are evaluated more contentiously in journalism research. Although ease of access is important to featuring a source voice, among the other chief factors of importance is the credibility of the source (Hertzum, 2022; van der Meer et al., 2016).

The standard of credibility ensures that the sources that are used have the expertise and qualifications necessary to speak on a given topic (Hertzum, 2022; van der Meer et al. 2016). Within credibility, it was also noted that sources can sometimes be seen as more credible if the journalist has worked with them before, if they have been quoted in other media who has presumably vetted the source, or through eyewitness status wherein a person witnessed an event firsthand (Hertzum, 2022; van der Meer et al. 2016).

In looking at credibility, there are multiple factors that a journalist evaluates to determine what makes a source credible, and there are journalistic trends that have shown which types of sources are most commonly deemed credible. One review by Hertzum that investigated source preference among journalists found that in 8 out of 11 studies, experts are considered a top-3 source, and that these expert sources are typically academics, researchers, scientists, or healthcare providers that are regarded as being high in credibility by their peers (2022). Experts have largely been proven to be among the most featured sources in journalism, which may be due to several different factors (Hertzum, 2022; Lehrman & Wagner, 2018; Albæk, 2011). These factors could be willingness of the experts to comment on stories, ease of access, high credibility, and a need for journalists to access information that only experts would have (Hertzman, 2022; van der Meer et al., 2016; Albæk, 2011). In a study on source selection, credibility was the factor most positively associated with inclusion of the sources, organizations, and the public, but not of news agencies (van der Meer et al., 2016). A secondary factor of being evaluated as knowledgeable also had a positive effect on inclusion as a source for organizations and news agencies, but not for the public (van der Meer et al., 2016). These results indicate that not only is credibility highly influential for source inclusion, but it is especially important when journalists

are vetting organizations as sources, and that there is a degree of variable standards to which journalists hold both the public and agencies or organizations (van der Meer et al., 2016).

Although these trends are prevalent among all beats of reporting, additional research has been done to look into how these trends show in crisis reporting. One study that investigated how journalists select news sources when reporting on crisis events was also particularly relevant to my thesis, and the study evaluated over 200 Dutch journalists who had actively reported on a crisis, and how they responded to the determining factors around finding sources during a crisis event (van der Meer et al., 2016). In general, it was found that journalists had a clear preference for using other news agencies as source material during crisis reporting because of perceived credibility and timely responses, used especially if the organization being quoted is close to the crisis itself (van der Meer et al., 2016). Another study found that in times of crisis, reporters also show a high reliance on traditional, authoritative sources, which can include political figures, police, and others in positions of high societal power (Jha & Izard, 2005). Generally, this indicates that when reporting on a crisis, journalists tend to interact within a microcosm of sources by placing a high value on news agencies and authoritative voices, which could lead to multiple sources citing the same information without having any new input (van der Meer et al., 2016; Jha & Izard, 2005; Lehrman & Wagner, 2018).

Bias in Source Selection

Although sourcing trends and practices in journalism have strived for fairness, the power structures that have been at play in journalism have also created gaps. When sourcing practices and trends are evaluated, these gaps have shown to be catered to giving a larger platform to some voices and diminishing the presence of others. It has been found that there is an underrepresentation of female and minority-ethnic sources in comparison to white and male

sources (Hertzum, 2022; Ward, 2009; Lehrman & Wagner, 2018). These voices have not been recognized as formally in the journalistic space, although there has been a large push in recent years to move towards journalism that balances minority voices more fairly, giving them a platform where traditional journalism has not allowed for them to have one (Ward, 2009; Lehrman & Wagner, 2018).

There has also been recognition that there is a bias in journalistic sourcing standards towards using expert sources, and that this use of expert sources can be highly skewed. In journalism, a small group of experts is repeatedly used as news sources, and excludes the larger population of experts, which creates a microcosm and reliance on certain expert sources (Albæk, 2011; Merkley, 2020; Berkowitz, 2009; Laursen & Trapp, 2019). Interest groups are also underrepresented in media coverage, possibly due to journalists holding predisposed views of these groups, and are often used as supplementary voices, contrasted with official sources, such as government sources, which tend to be portrayed as authoritative and impartial (Hertzum, 2022; Albæk, 2011; Berkowitz 2009; Laursen & Trapp, 2019). An additional layer of consideration must be given to the use of expert sources because, as Lehrman and Wagner articulate, the lack of diverse voices is partially driven because “People of color tend to be absent from the business section, the health and science sections, and other types of stories about daily life. This is important to notice because these narratives provide a normative picture of society.” (2018, p. 30). The literature highlights that this issue is one of media representation, and that journalists should focus on ensuring that they present marginalized groups accurately and to avoid stereotyping (Lehrman & Wagner, 2018, p. 30).

The microcosm of expert sources that are used continuously in journalism practices, and the lack of representation of diverse sources show that although journalism continues to follow

best practices surrounding sources, bias is still prevalent in the industry, and when evaluating sourcing in an academic thesis, these biases are vital to be aware of. Investigating how bias may be present in the overrepresentation of a small group of experts or the lack of representation of interest groups is particularly relevant to my thesis because it will be looking at how both groups are represented in media coverage, and it can provide foundational background as to why some of these voices may be under- or over- represented.

Journalist-Source Relationship

In addition to investigating how sourcing trends work in the journalism industry, it is also important to evaluate how the journalist-source relationship works, as this relationship is one of the vital aspects of how sourcing practices work. The journalist-source relationship represents a relationship where both parties hold alternating, yet often equal, power, with the ability to give and represent information in the way that they wish it to be communicated (Berkowitz, 2009; Fisher, 2018; Broersma et al., 2013). Berkowitz explains that the power paradigm that journalists interact and their sources exchange in is dependent the exchange of information (2009, p. 166). When a source provides a journalist with a quote, interview, or information that is required for a news story, the journalist gains power because the journalist now has the ability to platform a specific voice with an expressed stance (Berkowitz, 2009, p. 166).

This power-paradigm is further complicated when looking at how these sources and journalists interact with one another because, as Berkowitz laid out in his description of the relationship between the two, neither enters the relationship with objective neutrality, but rather, each party stands to gain something from the other (Berkowitz, 2009; Broersma et al. 2013; Fisher, 2018). Sources are not objective providers of information, but rather have motivations of their own, actively engaging in the power exchange of providing information to a journalist

(Berkowitz, 2009; Broersma et al., 2013; Fisher, 2018). They act as a figure of authority on a topic and have the ability to promote certain messages to the media that could allow them to gain public influence or garner attention to a specific issue, under which Berkowitz provides the example of a source promoting an environmentalist position after an oil spill to garner more attention for environmental awareness (2009, pg. 168).

The power dynamic between the journalist and the source is both constant and ever shifting as the power alternates between the two (Broersma et al., 2013). It is important, however, to acknowledge that not only is a journalist not completely unbiased in how they utilize sources, but that sources themselves are not unbiased. Instead, subjectivity must be considered when evaluating sources and predominant narrative voices in the news. In the case of evaluating sources in climate reporting, this balance and exchange of power is particularly relevant as climate presents an opportunity for sources to gain or lose narrative control, to a degree which they could either desire or not enjoy.

2.2 Objectivity Norms in Journalism

Few norms have influenced the practice of journalism as significantly as the notion of objectivity. Originally established as a way of moving away from partisan news outlets and into non-partisan reporting, the norm of objectivity was established as a guiding foundation of journalistic ethics and norms for decades (Schudson, 2001; Munoz-Torres, 2012; Wallace, 2019, pg. 40-41; Meyers 2020). Objectivity was originally established to keep a journalist's thoughts, opinions, and personal biases out of reporting, and obtain an 'objective' accounting of the situations the news covered, and to initiate a sense of fairness and factuality into reporting (Schudson, 2001; Wallace, 2019; Mindich, 1998, pg. 1-2). Gaye Tuchman distinguished objectivity from what could be thought of in a sociological lens, but rather defined it as a process

of “second guessing” from a journalistic perspective (1972). The process of “second guessing” refers to the hierarchical process of criticism a reporter goes through when publishing and refers to “facts” not in the sense of absolute truth. Rather journalists work with the information that is readily available to them and that they are able to check as diligently as possible, and that the concept of objectivity refers to when reporters gather facts in an unbiased, detached, and impersonal manner that would allow them to create a distance between themselves and what Tuchman called “facts” of a news story (Tuchman, 1972, pg. 662-663).

While the tenets of fair representation and factuality have remained important aspects of journalism, a recent paradigm shift away from valuing objectivity in journalism has occurred, wherein journalists have begun to recognize that objectivity is not an accurate term because journalists can carry implicit biases, which, when not examined under the guise of objectivity, can cause troubling issues in representation, storytelling, power dynamics, and more (Wallace, 2019; Mindich, 1998; Meyers 2020; Bird & Dardenne 2009, pg. 205). Meyers characterizes the paradoxical relationship between objectivity, journalism, and bias through the statement “[Objectivity norms] means that all news providers can only approach their work from a normative and political perspective; all are, that is, “biased.” But because nearly all outlets market themselves as objectively neutral – see Fox News’ “fair and balanced” motto – one of the results is that trusting consumers falsely believe they are getting unbiased news from their chosen outlets” (2020). Under the norm of objectivity, bias is complicitly built into the structures of power within the journalistic system. A modernized version of journalism more closely reflects the values of impartial journalism, wherein a journalist has the ability to recognize possible personal influences, values, or opinions that may affect the way a story is presented or reported on (Wallace, 2019; Bird & Dardenne, 2009, pg. 205-206). The term “impartial

journalism” closely reflects the values of objectivity, and is often used interchangeably, however, some scholars prefer to use “impartial journalism” to differentiate a new journalistic approach from the tradition of objectivity practices (Wallace, 2019; Bird & Dardenne, 2009).

One of the key values of objectivity was the idea of fair and balanced reporting (Schudson, 2001; Meyers, 2020; Munoz-Torres, 2012). While some journalists throughout history have recognized the problematic issue of objectivity, and that true objectivity was not a possible ideal, a supplemental way of attempting to reach true objectivity was to employ the use of fair and balanced reporting (Schudson, 2001; Meyers, 2020; Munoz-Torres, 2012). Similar to objectivity, balance and fairness was initially established as a way for journalists to counter personal biases that may affect a story and assert a baseline in which multiple voices would have the opportunity to be voiced in a news story (Schudson & Anderson, 2009, pg. 93-94; Meyers, 2020).

While balance is an important and key aspect of journalistic, as well as appropriate, representation of both sides of a debate in a news story, this attempt to create balance for the sake of remaining objective can go too far, misrepresenting the sides of an argument, or giving a sense of balance when that is not represented in the wider public. This issue is known as false balance objectivity, or bothsidesism, and creates critical problems in journalism as it can cause issues with fair representation, treatment of minority groups, and alter public perception in a way that is not reflective of an argument and primary voices in it (Imundo & Rapp, 2021; Boykoff & Boykoff, 2004; Benham, 2019). False balance objectivity can be referred to in many different ways, including bothsidesism, “balance as bias”, or other terminology (Boykoff & Boykoff, 2004, Imundo & Rapp, 2021). “Balance as bias” is a term that was coined by Boykoff and Boykoff and came from a study which investigated how a news outlet’s consistent use of

opposing voices that were not reflective of the general population created a biased stance wherein the news outlet was platforming disproportionate voices that were only representative of a minority-held belief (2004). The term was then coined, and has been used by other scholars, to describe news stories that utilize techniques of false balance, as seen in the case where the US prestige press did not reflect the opinions held by the scientific community (Boykoff & Boykoff, 2004).

False balance has proven to be an issue in journalism due to this multitude of reasons. Whether a journalist purposefully misrepresents the voices in an argument, or does so unintentionally, the consequences can drastically change public perception of an argument. The approach of impartiality-as-bias, or false balance reporting, can lead to a limited and narrow range of opinions being given platforms in a news story, whereas the journalist is choosing to select opposite opinions to give a sense of fairness and balance to a story where balance might not be reflective of the reality in which a journalist is situated. Of particular consequence is the way that false balance objectivity can present itself in the form of climate reporting, wherein climate denier arguments are given a platform that is not representative of the larger scientific and public communities' perceptions.

Climate Change and False Balance

As the public perception about climate change has begun to shift towards general acceptance of climate change the widely accepted scientific norm, the journalistic approach to the topic has also seen a shift. Spanning across all political sides, climate change journalism has seen changes around how and when to quote specific sources and has seen a general shift away from attempting to strive for an objective journalistic approach (Boykoff & Boykoff, 2004; Hiles & Hinnant, 2014; Hackett, 2017, pg. 42). Instead, the concept of what an objective journalistic

approach to climate reporting has begun to change. Climate reporting used to be considered objective if a news article featured sources on both sides of the climate change debate but has since shifted to more accurately reflect the general scientific consensus, rather than striving to achieve a false sense of balance (Bruggemann & Engesser, 2017; Hiles & Hinnant, 2014).

As climate change denial has decreased in the general population, it has also seen an albeit slower decrease of representation without the media sphere (Bruggemann & Engesser, 2017; Canseco, 2023). Particularly, the use of climate change deniers to ‘balance’ stories that forwarded messages about climate change and global warming used to be particularly prevalent among the journalistic community (Bruggemann & Engesser, 2017; Boykoff & Boykoff, 2004; Imundo & Rapp, 2021; Hiles & Hinnant, 2014). Boykoff and Boykoff are one example of a study which looked at representation of the anthropogenic nature of climate change and found that such a gap in false balance objectivity was present, with almost 80% of the articles studied over a 14-year period from 1988 to 2002 using the balanced approach that gave voice to both those in support and those against climate change measures, finding that coverage shifted from the discussion of whether or not climate change was scientifically supported to what actions should be taken to combat climate change (Boykoff & Boykoff, 2004, pg. 131). This study is just one of many other studies that have found similar false balance approaches, particularly when climate change first became a prevalent issue featured in news coverage, wherein journalists used a balanced approach to address what had not yet been deemed as a full climate crisis, and scientific consensus was not as certain about the causes and effects of climate change, although the IPCC reports had received strong scientific initial support (Hiles & Hinnant, 2014; Imundo & Rapp, 2021).

Studies on the use of false balance approach to climate reporting are particularly important because the featuring of contrarian voices problematizes media climate coverage because they platform the minority-held belief that climate change is not human-driven and affecting the world (Imundo & Rapp, 2021; Bruggemann & Engesser, 2004; Canseco 2023). False balance gives a disproportionate view of how prevalent these opinions are and alter the public's perception of how prevalent these voices are (Imundo & Rapp, 2021; Fahy, 2017). This perception can affect the wider audience in believing that climate change denial is more prevalent than it is, creating, therefore, a bias in favour of climate contrarians by seeking out these minority voices to feature in climate reporting, and decreasing the public's trust in how much scientific certainty there is supporting climate change (Imundo & Rapp, 2021; Fahy, 2017; Bruggemann and Engesser, 2017).

This disproportionate voice has been found represented in several different studies, which have largely concluded that the number of climate change contrarians that are quoted is not reflective of the number of people and experts in society that hold the belief, instead giving them an elevated voice in climate reporting (Bruggemann and Engesser, 2017; Imundo & Rapp, 2021). Studies and results vary, however; in one study of media produced between January 2011 and December 2012, by Bruggemann and Engesser it was found that climate change contrarians were quoted in every fifth article, despite a secondary finding that the views of the IPCC were only challenged in 2-4% of media articles (2017, pg. 62). These results are similar to other findings of climate change denial representation in the climate reporting sphere, with studies also finding that the effect of including these contrarian voices in climate reporting can lead to the general audience having lower estimations on the extent of scientific consensus, less likely to believe

that climate change is occurring and human-driven, and confusion about the impacts of climate change and driving factors (Imundo & Rapp, 2021; Boykoff, 2013).

Although it is important to study the number of climate change contrarians that are given a platform in climate change reporting, it is also important to understand the secondary effects that a news story may have on these voices. Some studies have argued that it is important not only to look at the amount of climate change contrarians that are quoted, but to look at the context in which they are quoted (Bruggemann & Engesser, 2017). Bruggemann and Engesser, who initially found that contrarians are quoted in every fifth article, highlighted the importance of this contextualization of climate change denial quotes, emphasizing that although climate change contrarians were quoted frequently, they were not framed in a positive light by the news story (2017). They also found that 69% of the articles that included contrarians portrayed them negatively (Bruggemann & Engesser, 2017). This finding is particularly relevant and important for my thesis work because while false balance objectivity can be present in news coverage, contextualization can provide insights into the messages that the mass media audiences are receiving more so than the initial outset that a statistical analysis would give a person.

Journalistic Objectivity and Climate Coverage

While it is important to investigate the circumstances under which false balance objectivity works in the news industry, and how it can impact climate reporting, it is also important to evaluate how these norms of objectivity are shifting in the news industry. The shifting norms of objectivity are particularly relevant when looking at climate reporting, which has been adapting to the changing public and scientific consensus surrounding climate change.

In the post-partisan media landscape, journalists began to approach reporting the news objectively, working to not show a personal bias or expressing a specific stance or opinion

(Schudson, 2001; Schudson & Anderson, 2009; Hackett, 2017). Recently, there has been a shift among climate reporters towards taking a more nuanced stance on the topic of climate change (Hackett, 2017; Hiles & Hinnant, 2014; Schafer & Painter, 2020). This shift has moved climate journalism away from the “balance as bias” phenomenon that Boykoff and Boykoff coined, and instead is allowing journalists to become more accurate in their portrayal of the scientific consensus on climate change, and therefore, more objective in their reporting (Boykoff & Boykoff, 2004; Hiles & Hinnant, 2014; Schafer & Painter, 2020). This shift has also allowed journalists to begin presenting climate change as a factual stance, rather than a contentious one, following the scientific discourse and acceptance of climate change (Bruggemann & Engesser, 2017; Hiles & Hinnant, 2014).

Studies on these shifting norms in climate journalism have found various reasons as to why journalists have become motivated to shift away from the traditional approach to climate reporting and have moved towards a more nuanced approach that relies on scientific evidence and consensus about climate change. As climate change has begun to have impacts on the general population, and people are beginning to see impacts on their daily lives, journalists have become to feel more comfortable asserting the stance that climate change is happening, with about half of the journalists in a study by Hiles and Hinnant treating climate change as a fact and half attributing it to a source (2014). Many journalists have noted a shift away from the need for false balance stories, and no longer feel the need to quote contrarians in an attempt to create balance between the two sides for the climate change discussion, and rather focus on platforming scientific voices and sources that will support the belief that climate change is happening and is human driven (Bruggemann & Engesser, 2017; Hackett, 2017; Boykoff & Boykoff, 2013).

Some have cited that the decision to feature contrarian voices is a purposeful decision, with the inclusion of contrarians to negatively feature these voices (Hiles & Hinnant, 2014; Bruggemann & Engesser, 2017). This is tied to what Bruggemann and Engesser found, wherein contrarians are quoted, but are not portrayed positively (2017). Instead, Bruggemann and Engesser found additionally that journalists who reported that they did not personally believe in climate change tended not to quote contrarians as much as journalists who did believe in climate change, due to not wanting personal bias to be influential (2017).

This contextualization of how journalists are both shifting the previous normative values around climate change and how to handle climate skeptics to balance the sources in the stories that they tell provide insight into how norms not only change, but how journalism interacts with the scientific sphere, and how journalists contend with the traditional need for balance when that balance could be possibly misleading. It is valuable for my thesis work as understanding how journalists think of themselves in their reporting on climate change as necessary to help understand why they make the choices they do, such as giving voice to certain sources.

Climate Reporting and Journalistic Sourcing Practices

When evaluating a topic such as wildfires and climate change, it is vital to look at not only general journalistic practices and trends in sources, but also to investigate more closely trends within the climate reporting sphere. Climate reporting presents its own trends and practices when evaluating sources, particularly when looking at how different voices on either side of the climate change argument are platformed.

Studies have shown that in the global context, Canada is above average in terms of how much news coverage is dedicated to climate change (Hase et al., 2021; Stoddart et al., 2015). Canada fits in with climate change coverage pattern trends from the Global North, which in

comparison to the Global South, tends to provide more coverage to climate change issues (Hase et al., 2021). One study found that in comparison to the other countries being studied, Canada was the country with the second most-frequent coverage of climate stories, with 0.67% of total media coverage in a given month being dedicated to climate-specific issues. (Hase et al., 2021). This could be due to Canada's higher than average experience of global warming, which is driven by its large land mass and high northern latitude, where it has been found that Canada is experiencing twice the global average of global warming, and three times as much in the Canadian Arctic (McBean, 2024).

In climate reporting, generally, the same trends that are seen in mainstream media topics are also seen (Stoddart et al., 2015; Fjaestad, 2007; Foxwell-Norton, 2017). These trends include primarily quoting experts and government officials, and these sources are given the largest voice (Parks, 2019; Merkley, 2020; Foxwell-Norton, 2017). This follows similarly with general sourcing trends, and particularly tracks closely with the realm of crisis reporting, wherein these sources are the ones that are approached most often for comment due to the nature of timeliness with crisis reporting (van der Meer et al., 2016). Studies focused solely on Canadian content, especially when looking at Canadian climate coverage, are not substantial or frequent, and are not widely available, however, many studies have been conducted on U.S. content, and with similarities of being regionally close to one another, similar economic status, and similar media cultures, these studies can provide helpful insights into the Canadian media landscape. However, it is important to note that the U.S. has higher levels of climate change denial in the general population and within the political sphere (Tyson et al., 2023; Pasquini et al., 2023). While U.S. media content analysis can provide some insights into Canada's media landscape, it is important

to consider the differences in how the general populations of both countries think about climate change.

When looking at the primary voices in climate change, among the top-most cited are scientific experts and government officials (Parks, 2019). This follows similarly to the sourcing trends that have been seen with mainstream media, where experts and government officials make up two of the three top sources in news stories (Hertzum, 2022). One study which looked at business representation in the media, which is one of the less represented groups, found that, while business statements that both support and oppose climate change receive news coverage, the statements put out by businesses that oppose climate change receive heightened news coverage, increasing the amount of business coverage (Wetts, 2020).

In looking at the breakdown of who the primary voices are in climate change, there is also the ability to look at how sources discuss climate change in the media. It has been found that certain groups who are present in the sourcing environment are more willing to make connections between climate change and crisis terminology (Parks, 2019). One study found that “journalists accounted for 44.4% of climate and crisis co-occurrences, followed by politicians and policymakers at 23.1%, advocates at 15.4%, scientists at 10.4%, businesspeople at 4.0%, and non-expert citizens or other source types at 2.7%” (Parks, 2019, pg. 90). Additionally, the study found that although citizens labelled climate change as a crisis 90% of the time, they only accounted for 2.7% of the sources in the sample (Parks, 2019, pg. 91). It is important to note that this study is limited by the investigation specifically into crisis terminology, which is not as commonly used as climate change in general.

Another study corroborated these findings, finding that in Great Lakes region news coverage, 68.8% of sources used in climate reporting were non-science sources, and 31.2% were

scientific sources (Takahashi, 2016). Although the study did not investigate further into the non-science source breakdown, it provides helpful contextualization as it focused on climate sources within Canadian newspapers (Takahashi, 2016).

In another supporting study on non-Western countries, government sources were found to be quoted most frequently, with scientific sources following, and United Nations officials or affiliated groups being quoted third-most frequently, comprising the final position of the top three most frequently quoted sources (Comfort et al., 2019, pg. 336). The most significant change was seen over the course of the time period studied was the use of business or industry sources, which increased approximately 0.25% with every year that the study investigated, whereas activist voices, members of the public, and news organizations remained stable and lower than business or industry voices (Comfort et al., 2019, pg. 336). Although the study was focused on non-Western countries, it provides a helpful overview as to what sources are the most prevalent in climate change coverage and reflects the patterns that have been seen in both Canadian and North American climate coverage studies (Parks, 2019; Hertzum, 2022; Wetts, 2020; Comfort et al., 2019).

The benefits of evaluating studies that have investigated how climate stories utilize sources and the breakdown as to the extent of which the stories use individual types of sources is invaluable. These studies have helped to lay out the nuances and importance of the evaluation that needs to be conducted. Relying on studies that have already looked at the impact of sourcing on news stories, particularly news stories about climate crisis events, provides insight into how to regard the journalist-source relationship, and to understand how the power dynamics work between sources and journalists in these scenarios.

2.3 Climate Change Skepticism

To evaluate and integrate climate change into my thesis, a review of the current scientific landscape about climate change and its general scientific acceptance is required. To establish a baseline of the consensus of climate change, this thesis will follow the statistic that 97% of scientists agree that climate change is occurring and human-driven to some capacity (Oreskes, 2004; Cook et al., 2013, pg. 1; Lynas et al., 2021). While there have been some arguments put forward that this statistic is not reflective of the scientific community, significant research to quantify and validate the statement, including the work by John Cook, and the statistic has been endorsed by official sources such as NASA (Cook et al., 2013, pg. 1; Carlton et al., 2015; NASA, n.d.) Within the climate scientist population, only 2% of the top 50 climate researchers did not support anthropogenic climate change claims (Anderegg et al., 2010). For this thesis, it will be regarded as a statement of fact that most of the scientific community is supportive of the claim that climate change is occurring and is human driven in some capacity.

With it being established that the claim that climate change is occurring and human-driven is strongly supported by the scientific community, the literature review now turns to investigate the studies that have been conducted surrounding climate change skepticism and how prevalent contrarian voices are in Canada. Climate change contrarianism is a minority-held belief, which has been proven by many studies across the globe (Funk, 2021; Coletto, 2021; Canseco, 2023; Martel-Morin, 2022). A recent nationally representative study conducted by Research Co in 2022 found that 69% of Canadians agreed with the claim that global warming is a fact and is mostly caused by anthropogenic emissions, and 20% agreed that global warming is a fact and is mostly caused by natural changes (Canseco, 2023). The study found that only 5% of participants agreed that global warming is a theory that not yet been proven (Canseco, 2023).

These recent results fall in line with the larger body of research which agrees that climate contrarianism is a minority belief, and that the general Canadian population generally agree that climate change is human-driven and have concerns about it, although general population acceptance that climate change is anthropogenic is significantly lower than scientific support (Canseco, 2023; Martel-Morin, 2022; Funk, 2021). In looking at climate change support among the population, there is another secondary level of concern surrounding levels of support for the claim that climate change is human driven, which the IPCC has stated is a large influence on climate change, which also intersects with contrarian beliefs (IPCC, 2021).

In studying contrarianism, it is important not to assume that all contrarians have the same stance on climate change (Wullenkord, 2022; Haltinner & Sarathchandra, 2021; Norgaard, 2019). Contrarians can cite a variety of different beliefs which influence their stances, and while it can be beneficial for studies to focus on a specific type of contrarian, for the purpose of this thesis it is important to include all forms of climate contrarians (Haltinner & Sarathchandra, 2021, Norgaard, 2019). When looking at a broad view of contrarianism in the media, it is important not to cut out any types of contrarians because the analysis is not set up to evaluate types of contrarianism, but instead look at the entire spectrum of contrarianism. While there are several different ways to classify climate contrarians, I will be utilizing the classifications outlined by Haltinner and Sarathchandra (2021). The four categorizations that they establish cover the spectrum of contrarianism, and are as follows:

1. Epistemic deniers: people who do not believe in climate change, and do not believe it is impacted by human activity.
2. Epistemic doubters: people who are both unsure if climate change is occurring, and if human activity impacts the climate.

3. Attribution deniers: people who believe that the climate is changing but attribute it to natural causes and not human activity.
4. Attribution doubters: people who believe that climate change is occurring but are unsure if it is human caused.

(Haltinner & Sarathchandra, 2021, pg. 1-2)

The belief that climate change denial is a spectrum is not an unfounded one, with scientists concluding that a spectrum is rather the best way of characterizing skeptics so as not to generalize beliefs ((Wullenkord, 2022; Haltinner & Sarathchandra, 2021; Norgaard, 2019).

Similar to the spectrum of climate change beliefs, scientists have also concluded that there is a spectrum of climate change denial arguments, with authors Washington and Cook also setting out helpful parameters about the spectrum of possible climate change denial arguments in their book (Washington & Cook, 2011; Medimorec & Pennycook, 2015). They asserted that the five types of climate denial arguments that are most frequently used are:

1. Conspiracy theories
2. Fake experts
3. Impossible expectations
4. Misrepresentations and logical fallacies
5. Cherry-picking

(Washington & Cook, 2011, pg. 43)

The outlining of different types of climate change denial arguments is helpful when evaluating whether or not a statement by a source is a form of climate contrarianism because they go on to give further examples of the arguments, and although I will not be investigating specifically the

types of arguments being made, it will help to evaluate whether a statement is contrarian and provide a further basis for justification as to why a statement is evaluated the way it is.

Climate change denial can be presented in many different forms, as outlined in the general research into climate change denial and the different forms of argument outlined by Washington and Cook (2011). These forms of argument can also represent the broad spectrum under which climate change contrarians can fall. The various perspectives that may be expressed in the news about the 2023 Canadian wildfires will require careful contextualization of the comments that are being made, as well as an understanding of the full spectrum of comments that can be made, and the various perspectives people can hold about climate change.

In the context of my thesis looking at climate change and climate change contrarians, one of the important distinctions in evaluating the spectrum of climate contrarians and denialists is to understand how these labels can limit or interact with one another. To make these distinctions, I suggest that the method of evaluation laid out by Bruggemann and Engesser (2017) is the most effective as it provides a method of evaluation that is most appropriate for this study. They lay out the following terminology:

“We call actors who challenge the climate change frame in public debates ‘contrarians’ rather than ‘skeptics’ or ‘deniers,’ following a suggestion by McCright (2007) and O’Neill and Boykoff (2010). There are few climate scientists among the contrarians; the group is comprised of people from different backgrounds, many of whom are closely connected to professional lobbyists and the ‘denial machine’ (Dunlap and McCright, 2011) – i.e., their professional activities are part of a strategy to prevent pro-active climate policymaking (Boussalis and Coan, 2016). Contrarians as visible speakers in public debates need to be distinguished from both individual citizens who may have

doubts about climate change and from actors who challenge more specific claims in the climate debate that are not part of the basic consensus outlined above.”

(Bruggemann & Engesser, 2017, pg. 59)

This study will not be determining the different types of skepticism or denial that may be expressed by source voices, but rather how contrarian stances are represented by source voices in the media coverage. Thus, it is important to use a method of evaluation for these voices that will not wrongfully label a voice as something that is not, particularly when there are subtle differences between denialism and skepticism.

2.4 Wildfires in the Media

In Canada, natural disasters can occur across different regions, drastically changing the landscape through floods, earthquakes, avalanches, hurricanes, and more (Government of Canada, 2015). Of these natural disasters, wildfires are one of the more prevalent (Government of Canada, 2015). As a result of these wildfires, there is a wide breadth of research knowledge to be pulled from regarding wildfire behaviour, patterns, and science. Wildfire science helps to explain Canada’s cyclical wildfire season and how these seasons have changed over the years (Pyne, 2007).

In recent years, wildfires have come to pose an additional threat to Canadians. In 2021, Canada experienced one of the worst wildfire seasons on record to that time, costing the province of British Columbia over \$500 million in wildfire suppression costs (Larsen, 2021; Government of British Columbia, 2023). In 2023, Canada once again saw widespread and record-breaking wildfires. These wildfires were especially significant: they amounted to the most land burned, costing the country with both suppression costs and insured costs, and leading to health concerns due to wildfire smoke that were seen in both Canada and the United States (Bush, 2023; Natural

Resources Canada, 2023; Public Health Agency of Canada, 2023; Lindsay, 2024). As such, the Canadian wildfires presented as a complex series of events which required responses from multiple actors, including government officials, researchers and scientists, citizens, and industry professionals (Natural Resources Canada, 2023). More importantly, as opposed to some other natural disasters where there may be one centralized event which required response, Canada experienced over 6,132 wildfires, seen across almost every Canadian province and territory (Natural Resources Canada, 2023; NASA, 2023).

The stories about the Canadian wildfires have investigated many different topics, including climate change and how it impacted the wildfires, health impacts on the population, the impacts of wildfires and evacuations on citizens, and more (D'Andrea, 2023; Lindsay, 2024; Milman, 2023). This makes the topic of the 2023 Canadian wildfires an excellent candidate for a journalism study as the news that was produced over the course of the 2023 wildfire season, over the course of multiple events, allows for a comprehensive overview of the type of reporting that was done.

The 2023 Canadian wildfire season poses a particularly strong subject of study due to the extreme destructiveness of the season. While Canada does experience a cyclical fire season, the 2023 wildfire season posed new risks to Canada's landscape, the economy, citizen health, agriculture, and more (Pyne, 2007, pg. 166; Natural Resources Canada, 2023). Although an in-depth knowledge on Canada's wildfire system is beyond the scope of this thesis, an overview of the literature helps to evaluate why the 2023 Canadian wildfire season is being considered as a climate crisis event wildfire season by some, and how the coverage of these wildfires represents different source voices.

The yearly average of land burnt by wildfires in Canada is 2.5 million hectares per year since 1990, although there has been a gradual increase in the annual area burned yearly (Natural Resources Canada, 2023; Coogan et al., 2019). The current fire landscape reveals that there are two leading causes for fires: human-caused, wherein human-nature interactions result in a fire, and nature-caused, where the ignitions are caused by lightning, and each of these accounts for roughly 50% of fires (Coogan et al., 2019; National Forestry Database, 2023). The impact of each differs, with human-caused ignitions resulting in 10% of the area burned in total by wildfires, and nature-caused ignitions account for the remaining 90% of land burnt (Coogan et al., 2019; National Forestry Database, 2023; Hanes et al., 2018).

While wildfires are naturally occurring and have, and will continue to, shape the Canadian landscape, they have also become intertwined with climate change as the global temperature continues to rise (Natural Resources Canada, 2023). Climate change has become what some scientists consider to be an exacerbating factor in wildfire activity, due to the impact factors such as variable fuels, changing weather, warmer climates, and drier soil and forests (Coogan et al., 2019; Abatzoglou & Williams, 2016). Canada has seen an increase in both wildfire activity and severity, indicating that the exacerbation by climate change is affecting the Canadian wildfire system (Coogan et al., 2019; Barnes et al., 2023; Natural Resources Canada, 2023). The complexity behind how wildfires are impacted by climate change makes it difficult to determine exactly how a single wildfire may have been altered by climate change, as factors can include differences such as short-term atmospheric changes, long-term weather pattern changes, temperature increase, precipitation levels, atmospheric moisture, or vegetation growth which are all factors linked to wildfires that could be impacted or altered by climate change (Coogan et al. 2019, World Weather Attribution, 2023). Increased lightning strikes may also be seen as a result

of climate change, which could result in an increase in lightning-caused wildfires and more land area being burnt (Aftergood & Flannigan, 2022). Canada utilizes the Fire Weather Index to predict wildfire patterns, and its current predictions show that Canadian wildfire activity will worsen, that these worsening factors will be region-dependent, and that it will likely be concentrated in areas that have lower humidity, higher temperatures, and have changing rainfall patterns (Coogan et al., 2019). Trend analysis reveals that the season, which is currently estimated to run between May and September, will increase by two weeks, starting a week earlier and ending one week later (Coogan et al., 2019).

In looking at the effect of climate change on Canadian wildfires, the Government of Canada supported and republished a case study on the 2023 Quebec wildfires to gather a comprehensive view on the wildfires that affected all of Canada, as well as because it had seen an early start to the 2023 wildfire season. The study found that “climate change made the extreme intensity of this fire season at least two times more likely than under preindustrial climate while the persistence of these conditions were at least seven times more likely.” (Natural Resources Canada, 2023; World Weather Attribution, 2023). Furthermore, they found that wildfire-prone weather conditions in Quebec were 50 percent more intense because of climate change caused by human activity, while the peak intensity recorded was 20 percent higher” (Natural Resources Canada, 2023; World Weather Attribution, 2023). Although the scientists were not able to attribute a single wildfire to climate change, they evaluated wildfire patterns and the impacts of climate change to interpret how likely it is that climate change contributed to the wildfire severity and frequency seen in 2023 (World Weather Attribution, 2023).

While climate change is a contributing factor to the increasing severity of the wildfire seasons that Canada is experiencing, the research being conducted does not draw a strict causal

relationship between the two. Instead, Coogan et al.'s statement encapsulates the relationship that they have found between climate and wildfires, that "Importantly, climate is not the only factor influencing area burned, as fire management, topography, insect outbreaks, and fuel characteristics, among others, can also play a role" (Coogan et al., 2019). The evaluation of the multicausal relationship between climate change and wildfires is important to evaluate because while climate change can lead to worsening fires, scientific sources are reluctant to draw a definitive conclusion on the exact degree to which climate change affects wildfires, particularly in not attributing the cause of a wildfire or a specific degree of influence that climate change has on a fire (Coogan et al., 2019, Wotton et al., 2010). Instead, this thesis will follow the scientific consensus that the relationship that climate change has with wildfires is a complex form of causation, wherein climate change can exacerbate wildfires, but individual wildfires typically cannot be attributed to climate change.

As the 2023 Canadian wildfires burnt over a 16.5 million hectares of land, beating the previous 2021 record-setting wildfires and spanning across nearly all Canadian provinces and territories shows the importance of examining the coverage of these heat events and interpreting the messages communicated to audiences (Natural Resources Canada, 2023). Examining how the media handled coverage of the unprecedented fire season is important not only to prepare for the future, because there is no indication that the effects of climate change will lessen soon, and it is important to evaluate on an on-going basis how the media handles responding to crisis events. Wildfires provide a similar moment in which journalists can report on what are deemed climate crisis events while also mediating how the journalistic sphere communicates messages about wildfires and climate.

A wider scope of understanding about how wildfires are portrayed in the media is vital. One of the impacts of media coverage of wildfires is the possibility of spreading misinformation about fires, which can cause confusion about the causes, impacts, or context of a wildfire, and can hinder society's ability to adequately prepare for future fire events (Jones et al., 2022, pg. 392). Misinformation can take several different forms, including the spread of false information, but can also be caused by the over-simplification of complex wildfire causes and consequences, which can alter public perceptions (Jones et al., 2022, pg. 392). Journalists may be complicit in this type of misinformation spreading, with weight-of-evidence stories and the balance of objectivity (Jones et al., 2022, pg. 392). Public speculation has come about wildfire misinformation, with news outlets responding to online discourse about how online platforms provide a space for conspiracy theorists to spread misinformation about wildfire causes (Alam, 2023; Weingarten, 2023).

In journalism studies, this type of misinformation impact science reporting. In many instances, a difference arises in the type of communications that scientists and journalists have to use when discussing scientific events (Fjaestad, 2007, pg. 121, Summ & Volpers, 2016). This could arise from the difference inherent in how journalists and scientists communicate via published work: scientists typically work on longer pieces that are published in scientific journals, whereas journalists provide news pieces on quicker timelines for large audiences (Fjaestad, 2007, pg. 122). These gaps can occur when scientific findings are particularly relevant to the public's knowledge and can reveal the different priorities that the public have versus the priorities that scientists have when communicating to the public about scientific findings (Summ & Volpers, 2016). In the context of wildfires, this could be particularly relevant when reviewing the representations of wildfires in the media because, looking back at the issues highlighting by

Jones et al., because their work focuses on the way that misinformation can disinform the public (2022). In their report, they highlight that wildfires are particularly susceptible to these gaps in information communication because of the cyclical nature of wildfires (Jones et al., 2022) With wildfires being a recurring issue in Canada every year, it increases the need for prebunking, a method in which potential misinformation gaps are addressed before an event occurs, putting resources in place to combat such misinformation (Jones et al., 2022; Lewandowsky & Linden, 2021). When evaluating wildfire media coverage, the gaps are particularly relevant because of how could potentially link to when or how a connection between wildfires and climate change is made, as seen with the issues addressed in climate objectivity and balance as bias scenarios.

When looking at wildfire media coverage, there are also thematic categories into which coverage can be separated. The scope of wildfire coverage is much wider, including issues such as ecological, social, and financial impacts represented in coverage (Sachdeva & McCaffrey, 2022; Cordner & Schwartz, 2018; Hopke 2019). These themes can represent a variety of different outlooks or narratives that are used to characterize wildfires and are important to study because, although my thesis focuses on climate change, it is important to understand the wider sphere into which wildfire coverage fits (Sachdeva & McCaffrey, 2022; Cordner & Schwartz, 2018; Hopke 2019).

Important themes that have been found in wildfire coverage include several different perspectives. Among these, some of the most common include fire-specific stories, which include firefighting efforts, developments in a fire, and fire management (Sachdeva & McCaffrey, 2022). These stories and their prevalence make logical sense as stories that report on these details inform the public about possible threats to safety and dissemination of key knowledge on fire developments (Sachdeva & McCaffrey, 2022). Similar to stories about fire

management efforts, fire survival stories and deaths resulting from fires were also commonly seen (Sachdeva & McCaffrey, 2022; Corder & Schwartz, 2018). These stories can elicit an emotional response from audiences as they tend to show more personalized stories, reflecting on the human experience (Sachdeva & McCaffrey, 2022; Corder & Schwartz, 2018).

After the most popular themes, the breakdown reveals that climate change is often one of the minority themes that are presented in wildfire media coverage (Sachdeva & McCaffrey, 2022; Corder & Schwartz, 2018). As my thesis will be focusing on the intersection of wildfire coverage and climate change, this is an essential topic to study to gain background knowledge. Having an informed background on the current landscape of wildfire reporting is vital, particularly looking at how often climate change is covered, and how prevalent climate change narratives are in coverage. Climate change coverage has increased over recent years, which could reveal the increase in climate change inclusion in wildfire coverage that studies have found (Schmidt et al., 2013; Sampei & Aoyagi-Usui, 2009). Generally, however, climate change is not found to be a predominant theme in wildfire coverage, despite increasing general climate change coverage rates in recent years. (Sachdeva & McCaffrey, 2022; Hopke, 2019; Corder & Schwartz, 2018). On a national basis, Canada has been found to have stronger coverage of climate change issues, particularly in relation to heat-related events (Hopke, 2019). One study that focused on heat-event coverage found that climate change was mentioned more commonly in Canada, India, and the United Kingdom than it was found in China and the United States (Hopke, 2019). This provides helpful contextualization for how Canadian coverage deals with climate change and wildfire connections. However, it is important to note that while studies located in the United States are helpful due to regional proximity and experiencing similar wildfire patterns, the media coverage does not accurately reflect the Canadian media landscape,

particularly when investigating media connections (Hopke, 2019, pg. 501). Similarly, another level of analysis in the study revealed that extreme heat event media coverage in Canada showed a significant increase when comparing the 2013 to 2018 coverage, such that climate change coverage level was 7.98% of heat wave and wildfire coverage in 2013, and 19.15% in 2018, which is consistent with other findings that climate change attention has been increasing in the media steadily for years, as well as in line with increasing extreme heat events (Hopke, 2019, pg. 502).

Climate change, however, remains a minority topic in wildfire coverage (Cordner & Schwartz 2018; Hopke, 2019). One study on the media coverage surrounding the 2015 Carlton and Okanagan wildfires in Washington found that “Newspaper coverage was also generally quiet about climate change. Only 15% of Carlton articles and 9% of Okanogan articles mentioned climate change (or synonyms)”, supporting the claim that while wildfire coverage intersects with climate change, it is not one of the most prevalent topics (Cordner & Schwartz, 2018, pg. 497). Some have argued that this is a gap in wildfire coverage, and that although the coverage has been increasing, there are still opportunities to connect stories to climate change that are not taken (Davidson et al., 2019).

Sourcing in wildfire stories has also been evaluated, which is of particular importance to my thesis, as it will be looking at sources in Canadian wildfire stories. Similar to other disaster event coverage, source voices in wildfire stories found that government representatives and officials were the most frequently cited sources (Cordner & Schwartz 498; Walker et al., 2020). More specifically, fire officials were the most frequently cited, which can include wildfire response management officials, firefighters, or others (Cordner & Schwartz 498; Walker et al., 2020). This is a reasonable finding as fire officials can provide updates about wildfire growth or

extinguishing efforts, evacuation orders, extent of damage, and issues that would be extremely important to citizens (Walker et al., 2020; Cordner & Schwartz, 2018). Following fire officials, other prevalent sources included community leadership, citizens, federal government officials, and activist groups (Cordner & Schwartz, 2018; Walker et al., 2020). The breakdown provided in these studies which focused on wildfire-specific coverage is especially helpful because it creates a background through which from which to build my source analysis off of and provides a more issue-specific breakdown of which are the predominant voices in wildfire stories.

2.5 Conclusion

After a thorough review of the literature pertaining to journalistic practices of objectivity, sourcing, balance, and climate change, this thesis will further contribute to the study of journalism through the lens of climate reporting. It will evaluate how climate journalists utilize source voices that discuss climate change in news stories about the 2023 Canadian wildfires through quantitative research on source representation in climate news. Although there is research being conducted on wildfire news stories and sourcing, climate change objectivity in the news, and false balance, there are very few, if any, studies being conducted on the intersection of wildfires, climate change reporting, and source representation in Canada. This research is becoming particularly relevant due to the changing impacts of climate change on worsening wildfires in Canada, and evaluating how journalists contend with discussing climate change in the context of a crisis such as wildfires is increasingly important. Evaluation of the news coverage of the worst wildfire season to date in Canada will allow a comprehensive view of how climate change objectivity is changing in the Canadian newsroom, and how sourcing analysis may reveal the voices that are most represented in the current media landscape.

3 Methodology

The study analyzes news stories from local, national and digital media outlets about the 2023 Canadian wildfires that include climate change commentary, using a codebook developed for this study. The codebook was developed by drawing on previous sourcing studies (Cordner & Schwartz, 2018; Comfort et al., 2019; Davidson et al., 2019; Hopke 2019) to analyze source representation in news stories about climate change and wildfires. It was developed by integrating both quantitative and qualitative analysis factors as a mixed-model approach was most appropriate for this research.

3.1 Quantitative analysis

To study the sourcing patterns, a quantitative analysis was conducted on determining the types of sources, and how frequently they were quoted. The stories in the pool were analyzed via several different quantitative means to establish a baseline analysis for the sourcing patterns used in the stories, using Microsoft Excel. The way that the sources were categorized was based off of how similar media studies have categorized sources, with several options including an “other” option (Comfort et al., 2019; Cordner & Schwartz, 2018; Hopke 2019).

A stance analysis was then conducted on the sources, which was a part of the qualitative analysis that was conducted as a part of this research. A stance analysis evaluates the sentiment that is expressed by an author, or in the case of this thesis, a source, and place it into a larger context to help understand the opinion being expressed within a subjective context (Luo et al., 2021; Aldayal & Magdy, 2021).

The method of evaluation chosen utilized the direct word connections that a source made to evaluate their stance. This included evaluations if a source made a direct connection between climate change and wildfires, if a source expressed skepticism, and if a source expressed

reluctance. This analysis approached climate change connections as an opinion that had to be explicitly stated by a source rather than placing assumptions on sources. This section of the codebook was established following review of other studies that have used different approaches to determine how sources express opinions, and how to evaluate these opinions (Parks, 2019; van der Meer et al., 2016; Hertzum, 2022).

The sources were organized into seven categories, namely government sources, scientific, citizen, industry professional, industry worker, journalist, and other. “Government” refers to those who hold a position in public office, and while these sources are often political, they are evaluated based on being government spokespeople. “Industry professional” referred to those that were higher officials in the forestry-adjacent profession, which may include CEOs, owners, or managers, and “industry worker” refers to those who work directly with wildfires, including firefighters, forestry workers, and others that fit into this categorization. The term “other” was used for all those who did not fall into the other categories outlined. While there was the potential to open up more categories of classification for sources, it was limited due to the scope of the thesis. “Other” was used to refer to climate non-profit groups, organizations, and industry-adjacent professionals who were speaking on behalf of businesses and not as citizens.

3.2 Outlet selection

In selecting the outlets, a variety of factors were considered. To examine sourcing patterns, it was important to evaluate news outlets that catered to a variety of audiences and had multiple levels of regional impact. Factiva was chosen as the third-party method of gathering stories because it allowed for searches to be conducted by region, key words, sources, and date ranges, which aligned with the needs of this study. Factiva is widely used by academics and is considered to be a qualified source for gathering news stories for analysis (Dow Jones, n.d.)

Factiva was used to identify the top 10 regional sources for British Columbia, which included articles with the words “climate change” and wildfires. As this thesis is focused on British Columbia news publishers, Reuters was removed from the coding as it is an international news agency. CBC appeared twice in the list with one entry referring to its website and the other to broadcast transcripts. Since this study does not include broadcast, the CBC transcripts were removed from the list, resulting in a sample of eight outlets. The Vancouver Sun and The Province are owned by Postmedia and share resources, so they were included under the Postmedia results, rather than as separate sources. The final sample of publications was as follows:

- Canadian Press
- Postmedia (Vancouver Sun and The Province)
- Globe and Mail
- CBC.ca
- Abbotsford News
- Toronto Star
- Kelowna Capital News
- Victoria Times Colonist

The sample provided a suitable mix of national and local news outlets. National outlets were selected as they could appeal to a widespread geographical audience and covered major events. Local outlets were relevant to this thesis is focused on British Columbia and events in the province.

The time period chosen to evaluate news that is most relevant to wildfire events. News stories were evaluated between the time period of May 1, 2023, through September 30, 2023.

This time period was selected because it is representative of the most active part of the wildfire season, with the expectation that the news stories written about wildfires this time period will be largely event-driven as wildfires were actively burning (Government of Canada, 2023; Canadian Red Cross, n.d.; Government of British Columbia, 2023).

3.3 Article selection

The search for articles was conducted using Factiva, using the parameters of the keywords ‘wildfires’ and ‘climate change’, and limited to the time period of May 1, 2023, to September 30, 2023 yielded 473 stories. These were then filtered for relevance to this study. Articles were filtered out so that only stories which had sources mentioning “wildfires” and “climate change” were found, and articles that contained non-relevant uses of “climate change”, such as in job titles, were removed. Other ways of referencing “climate change”, such as “global warming”, were not counted. Any repeated articles were removed from the pool, and re-published stories, such as ones from Canadian Press by other news outlets were removed as well. The study focused on analyzing unique stories that were published rather than being weighted to analyze the stories that would be most representative of what British Columbians were reading. This additional level of filtering left 76 stories to be analyzed. The source had to speak the word “climate change” in order to be counted in the story, and the story had to be centralized around wildfires. In total, this resulted in 89 sources for analysis.

Table 1 shows the breakdown of how many stories from each news outlet were analyzed.

Source	Total Stories
Canadian Press	10
Postmedia	17
CBC	15
Globe and Mail	11
Abbotsford News	15
The Times Colonist	2
Kelowna Capital	3
Toronto Star	2

Table 1 Stories Per Outlet

Another quantitative stance study was conducted by coding sources to determine opinion expression. For the purpose of this thesis, opinions were sorted into three potential categories. The category “pro-climate” referred to sources that make any explicit connection between wildfires and climate change, such as referring to them in the same sentence. “Pro-climate” was not taken as referring to a pro-climate change stance, but rather, that a source supported the connection between wildfires and climate change to some capacity. The category “neutral” refers to when climate change is mentioned by the source, but there is no explicit connection to wildfires made. The term “anti-climate” refers to when any skeptic opinions were expressed, which would explicitly speak against a connection between climate change and wildfires.

A secondary level of analysis was conducted on the sources. The secondary level looked at what this thesis has deemed as “reluctance”. The term “reluctant” was used to refer to when a source expressed that climate change was a contributing factor to wildfires but did not deem it to be a causal relationship between climate change and wildfires. “Reluctant” was evaluated separately from skeptic, recognizing that general scientific consensus was that climate change is a contributing factor to wildfires, having a correlational relationship and not a causal one. This was evaluated separately from pro-climate, neutral and anti-climate opinions because a source could express a pro-climate or neutral view while also expressing a reluctant view, and an overview of how present reluctance was the intent of this evaluation.

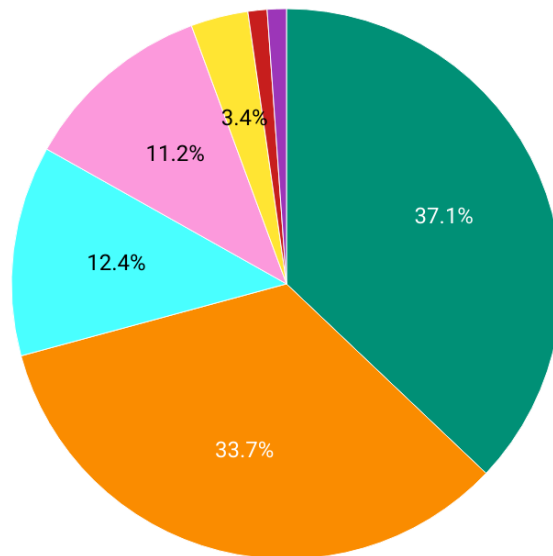
4 Findings

Breakdown of sources

An analysis of 89 sources showed that the most frequently quoted were government voices, which comprised 37.1% (33) of the voices (Figure 1). Scientific voices were the second-most frequently found sources, comprising 33.7% (30). The third-most frequently found sources were citizen voices, which comprised 12.4% (11) of the sources. The remainder broke down into 11.2% (10) of other sources, 3.4% (3) journalist sources, 1.1% (1) industry professional, and 1.1% (1) industry worker.

Source Breakdown

Government Scientific Citizen Other Journalist Industry Professional Industry Worker



Created with Datawrapper

Figure 1 Source Breakdown

Sourcing frequency was also analysed to find out how often sources were quoted in any given story. It was found that 47.2% (42) of sources were quoted more than four times in the

stories. In other stories, 13.5% (12) of sources were quoted four times, 10.1% (9) of sources were quoted three times, 14.6% (13) of sources were quoted twice, and 14.6% (13) of sources were quoted once. In general, most sources were quoted four or more times.

Stance of sources

Out of the 89 sources, 56.2% (50) expressed a pro-climate view, meaning they made explicit connection between wildfires and climate change. 43.8% (39) of the sources expressed a neutral view, meaning they mentioned climate change as a potential factor and no sources were found to have an anti-climate view. Table 2 shows the breakdown of how many pro-climate and neutral source viewpoints were expressed per source type.

Source Type	Pro-climate view	Neutral view
Government	17	16
Scientific	24	5
Citizen	5	7
Industry Professional	1	0
Industry Worker	1	0
Journalist	2	1
Other	4	6

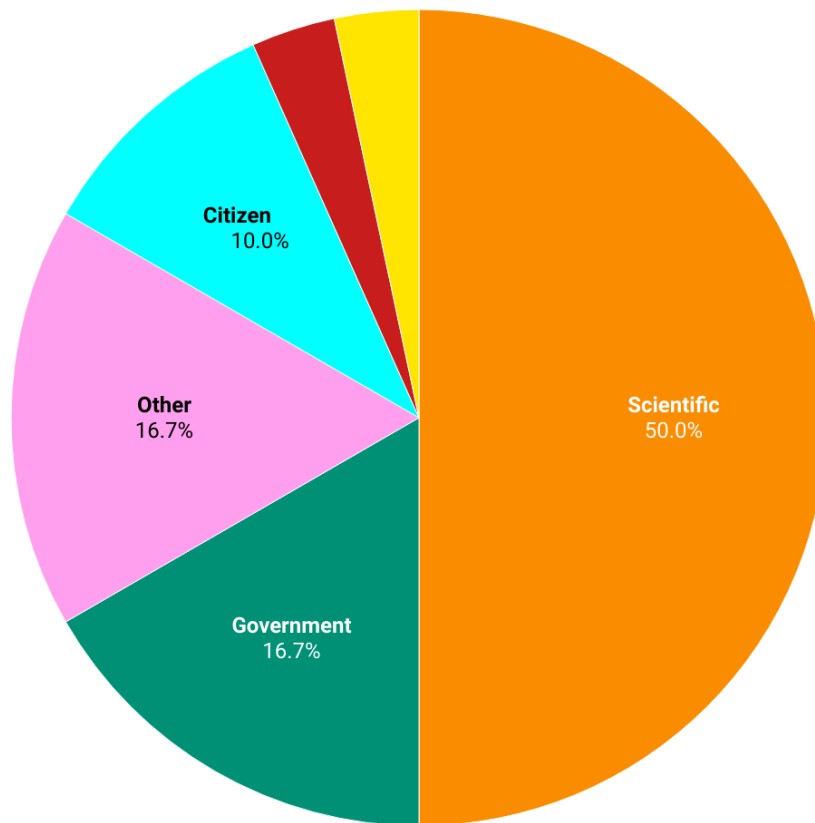
Table 2 Source Viewpoint Breakdown

Of the 89 sources evaluated, 33.7% (30) of them expressed a reluctant view, meaning they mentioned climate change as a contributing but not a direct causal factor of wildfires. Reluctance was not included in Table 2 because it was evaluated separately from pro-climate, neutral, and anti-climate opinions because a source could express a pro-climate or neutral view while also expressing a reluctant view. The breakdown of the sources which expressed a reluctant opinion can be found in Figure 2. Of the sources examined, scientific sources most commonly expressed a reluctant opinion, with 50% (15) of the reluctant voices being scientific sources. The second-most common reluctant sources were government and other sources, which each comprised

16.7% (5) sources expressing a reluctant opinion. 10% (3) of reluctant opinions were citizen sources, 3.3% (1) of journalist sources expressed reluctance, and 3.3% (1) industry professional expressed a reluctant opinion.

Reluctant Source Breakdown

Scientific Government Other Citizen Industry Professional Journalist



Created with Datawrapper

Figure 2 Reluctant Source Breakdown

Source frequency

This study further analysed how many stories included multiple sources (Figure 3). In 41 stories, one pro-climate source was quoted, and in 3 stories, two pro-climate sources were quoted. One story quoted four or more pro-climate sources. Among the stories that featured

neutral sources, 30 stories quoted one neutral source. One story quoted two neutral sources, and one story quoted four or more neutral sources. None of the stories quoted any anti-climate sources.

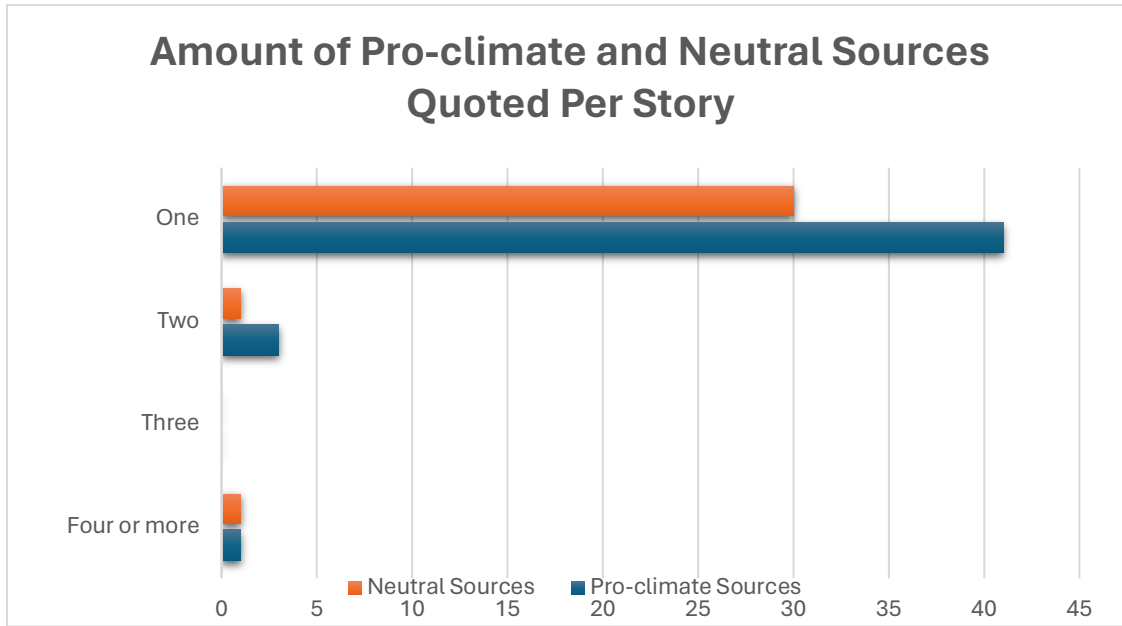


Figure 3 Breakdown of Source Opinions and Amounts

5 Discussion

Through investigating the patterns in sourcing in the coverage of the 2023 Canadian wildfires, this study contributes to a more comprehensive understanding of what voices are platformed in media coverage of wildfires. Previous studies have identified the presence of climate skepticism in coverage media (Imundo & Rapp, 2021) and have found the prevalence of government and scientific voices in media coverage of climate change (Parks, 2019; Merkley, 2020; Foxwell-Norton, 2017). This study sought to build on this research by investigating sourcing practices in a regional, event-driven context. It advances an understanding of climate journalism sourcing patterns through three key findings; the absence of skepticism, the dominance of government voices, and the difference between the stances of scientific and government sources.

Skepticism

Existing studies on the climate journalism have found the presence of climate skeptic voices, with every 1 in 10 stories presenting a skeptic voice, often in attempt to utilize a “balanced” approach by providing a platform for both pro- and anti- climate voices (Imundo & Rapp, 2021; Bruggemann & Engesser, 2017). However, this study found no skeptic voices quoted in any of the stories analyzed. While this contrasts with research that reporting still gives some voice to skeptics (Imundo & Rapp, 2021), it supports the wider trend of a decline in the use of skeptic sources. The presence of skeptic voices has been steadily declining as climate change becomes more widely accepted by the public, and journalism practice shifts towards a more nuanced stance in asserting climate change as a supported fact (Bruggemann & Engesser, 2017; Hiles & Hinnant, 2014; Boykoff & Boykoff, 2013). These results fall into the wider context of climate journalism, which has been slowly shifting towards no longer including climate skeptic voices (Hackett, 2017; Boykoff & Boykoff, 2013; Bruggemann & Engesser, 2017). The

inclusion of climate skeptic voices was far more present when climate change was first covered in news media but has since decreased as climate journalism has shifted away from the need to present climate change as a debate (Hackett, 2017; Boykoff & Boykoff, 2013; Bruggemann & Engesser, 2017). The lack of skeptic voices suggests that climate change is becoming a stated fact for journalists, eradicating the need for skeptic voice inclusion, particularly in event-driven coverage.

The shift away from climate change coverage featuring skeptic voices was most noticeable in one of the news stories analyzed. The CBC News story focused on the development of conspiracy theories in an online environment, and how wildfires contributed to politically charged theories. Even in a news story discussing conspiracy theories and how skeptics were playing a role in the development of such theories, no skeptic voices were quoted. This example serves as an illustration of how journalists are moving away from positively platforming skeptic voices (Hiles & Hinnant, 2014; Boykoff & Boykoff, 2013; Hackett, 2017).

The lack of skeptic voices may be due to nature of the story sample. The subject was wildfires in British Columbia. Even though the sample included national outlets, the reporting was from British Columbia which, as a province, has a strong public stance in support of climate change mitigation, with a 2022 study finding that 87% of British Columbia residents reporting that climate change has impacted people in their province (Clean Energy Canada, 2022). These results follow similarly to a study conducted in 2020, which found that over 60% of British Columbia residents were personally concerned about climate change (Canseco, 2020). On a legislative level, the province has also shown increased support for climate policies, being the first province to introduce a carbon tax in 2008 (Fairbrother & Rhodes, 2023). Studies of media coverage in other provinces, such as Alberta, which is a province that has a lower level of public

support for the claim that anthropogenic climate change is occurring, may lead to different results. In a recent study, only 39% of Alberta residents stated that they believed that climate change was a very serious threat (Lloyd's Register Foundation, 2023). The province is also heavily reliant on fossil fuels, with Alberta being the largest producer of crude oil, accounting for over 80% of Canada's crude oil production, and has historically been governed by conservative leaders (Canada Energy Regulator, 2024; Elections Alberta, n.d.). Over the same time period that was investigated in this study, the Alberta premier Danielle Smith commented arson was driving some of the record-breaking wildfires that the province was experiencing, rather than climate change (Derworiz, 2023). The difference in political party leadership between British Columbia and Alberta provides opportunities for future research to investigate how government leaders' positions on climate change may change the media coverage and sourcing patterns.

Dominance and repetition of government voices

This study found a dominance of government sources, accounting for 37% of voices represented. Government voices were the most frequently used sources, which aligns with other journalism studies showing that government officials are among the most highly platformed voices in media coverage (Parks, 2019; Merkley, 2020; Foxwell-Norton, 2017). The dominance of government voices may also be representative of crisis journalism sourcing practices, which privilege official sources as they are deemed most relevant to responding to a crisis event (van der Meer et al., 2016; Jha & Izard, 2005). As the time period that was chosen for this research was the period when wildfires in British Columbia were most active, the reporting being done was largely crisis-driven. Research has indicated during crisis reporting, journalists are more likely to rely on established authoritative sources, which includes political figures (Jha & Izard, 2005). This is also directly relevant to the wildfires being covered because Canada's wildfire

response plan indicates that emergencies are managed at the local and provincial level before being addressed by the federal government event so it is likely that journalists covering the wildfires in BC would have sought comment from local and provincial offices about responses to the crisis (Natural Resources Canada, 2021)

These results indicate that when reporters are working in a crisis and event-driven reporting environment, they are more likely to include government sources. This draws attention to the way that sourcing practices work within the journalism sphere, and how journalists access sources. It has been established that journalists tend to use sources that are easier to access and tend to re-use sources that they have an established relationship with (Hertzum, 2022; van der Meer et al., 2016; Albæk, 2011). For the use of government voices found in this research, this trend may be applicable. This also ties to an important secondary finding in the research. When evaluating the government sources used, there was a high frequency of repetition of certain government sources. Given the context of a wildfire emergency, it is perhaps not surprising that Bowinn Ma, the Minister of Emergency Management and Climate Readiness of British Columbia, was the most frequently used source of all the voices analyzed out of the pool of 89 voices, being quoted in 9 stories (Legislative Assembly of British Columbia, n.d.).

This is a significant finding because Ma's voice accounts for 27.3% of the government voices studied. Prime Minister Justin Trudeau comprised 5 of the 89 total voices that were analyzed and 5 of the 33 government voices analyzed, accounting for 15.2% of the government voices analyzed. The repetition of these voices is vital to examine because the use of two sources in multiple sources, by multiple outlets, account for 42.5% of the government voices examined in this study. The multiplicity of repeated government voices reveal that not only are government

voices the dominant voice category, but they are also repeated, with a few select voices comprising almost half of the recorded government voices.

In the dominance of government voices, it is also important to reiterate the regional focus of this research and the limitations that imposes. With the study being limited to British Columbia, this highlights the issue of being set in a region which has historically functioned under Liberal and New Democratic Party governments (James-Abra & Robinson, 2022; The Canadian Encyclopedia, 2022). In the future, this study should be opened to other provinces which may have different political affiliations, or in a comparison of different countries, to assess how source representation may differ.

When looking at the dominance of a few specific sources in the overall source breakdown, it speaks to how the repetition of a single voice or source may cause a skew in the direction or opinion that these repeated sources express, rather than representing a comprehensive overview of the entire government spectrum. The repeated use of the sources may also be linked to other journalistic trends, with reporters relying on who they consider to be an authoritative source during times of crisis, namely the Minister of Emergency Management (Jha & Izard, 2005). However, even in crisis reporting this has been noted as a problem, as this results in a microcosm of sources used by journalists, and multiple outlets citing the same source without having new information to be added to the discussion, which may be the case in the overrepresentation of Ma and Trudeau's voices (van der Meer et al., 2016; Jha & Izard, 2005; Lehrman & Wagner, 2018). While it makes sense that Ma and Trudeau are cited often as they are both heavily involved in providing emergency measures at the provincial and federal level, it is important to note how sourcing patterns in the media can create these microcosms.

Furthermore, the repetition of government sources was not reflected in other groups studied, indicating that the microcosm of government sources is connected to the privileging of official voices during crisis-driven reporting. The second-most quoted group, scientific voices, had very little repetition of sources, with only one person being quoted three times, and one quoted twice. Overall, the repeated sources only made up 16.6% of the scientific coverage, in contrast to the 42.5% of government voices being repeated sources.

The variance of scientific sources seen in contrast to the repeated use of the same government sources suggests that journalists did not rely on pre-existing scientific contacts and instead reached out to sources that were accessible, credible, and available (Hertzum, 2022; van der Meer et al., 2016; Albæk, 2011). Whereas government sources were largely limited to those in specific government positions, as seen with the reuse of quoting Ma and Trudeau, who are both a part of the provincial and federal government emergency responses, the breakdown of scientific sources displayed a much wider spectrum of sources. Scientific sources ranged from forestry professors and researchers to PhD candidates and climate change researchers and professors.

The wide spectrum of sources makes sense, given that the coverage that is being analyzed is highly centralized to event-driven general reporting assignments, as opposed to science reporting, where a specialist journalist may have established contacts. Daily reporting assignments often require a quick turnaround times for stories, which may have led to journalists relying on experts who were available and willing to be interviewed in a timely manner. Moreover, it is possible that the range of experts may have also been influenced by sources taking time off during the summer. The type of journalists covering the wildfires, deadline constraints, the seasonal nature of the wildfires help to explain why this study did not identify

one or more distinct scientific voices in the same way as the distinct government voices that emerged.

Further research could be done into evaluating how journalists differ in the ways that they choose government and scientific sources, and how scientific sourcing patterns differ when it is a general assignment story in comparison to being covered by a science journalist. Similarly, research can be expanded into looking at how distinct scientific voices are developed in media, and how this intersects with when scientific sources feel comfortable speaking on a climate crisis to the media.

Reluctance of science communication

The third key finding of this research is that scientific voices are more likely to express reluctance in their comments on wildfires and climate change. This finding ties into the larger topic of scientific communication and in communicating scientific uncertainty through a media perspective (Zehr, 2000; Jensen, 2008; Ratcliff & Wicke, 2022). Scientific voices expressed the most reluctance, which defined as a reluctant to solely attribute the worsening of wildfires to climate change. Rather they acknowledged climate change as one factor, talking about it as correlational rather than a causal factor. In other contexts, such a stance has been labelled as uncertainty.

Scientific uncertainty has been closely linked to climate change in the media, with Zehr finding that scientific uncertainty was over-represented in media discussions about climate change (2000). The use of uncertainty in discussing climate change from a scientific perspective is not new. However, it has an impact on how the public interprets such uncertainty in the media. The expression of uncertainty can alter public perception of a source's trustworthiness (Jensen, 2008; Jensen et al., 2016; Ratcliff & Wicke, 2022). While uncertainty had positive effects

through increased public trust in a scientist when scientists expressed uncertainty about their own research, it caused negative interpretation effects when scientists expressed uncertainty about other scientists' research (Jensen, 2008). As the many of the scientists in the news stories were speaking generally about climate change and not about specific research they had conducted, it may increase public distrust in their comments if following the pattern that Jensen laid out (2008). Since scientific sources expressed more reluctance than any other source groups, further research could consider how this shapes public perceptions and interpretation of the science of climate change, particularly as it relates to wildfires. However, in discussing scientific uncertainty, it is also equally important to understand how uncertainty is expressed when looking at a complex causal relationship such as the one between wildfires and climate change. As previously stated, as over 97% of scientists support that anthropogenic climate change is occurring and is human driven to some capacity, future research would be necessary to investigate what type of uncertainty is expressed by sources, and how different types of uncertainty expressions affect the audience (Oreskes, 2004; Cook et al., 2013, pg. 1; Lynas et al., 2021). For example, uncertainty may be expressed by a source in being able to claim that a particular wildfire was exacerbated to a certain degree by climate change but does not express uncertainty that climate change exacerbates wildfires on a more generalized level in Canada. The expression of scientific uncertainty in connection to Canadian wildfires is an area that future research should investigate further into understanding how the public perceives scientific perspectives and how to interpret these messages.

This intersection of journalism and science communication brings about insight into one of the vital roles of journalists, and even more so, of climate and science journalists. As journalists are the intermediary agent responsible for facilitating the transfer of knowledge from

sources to the general audience, they also become responsible for facilitating how that knowledge is framed. As Peters and Dunwoody explain, journalists have several ways to possibly contend with uncertain scientific sources, explained as:

“If journalists perceive scientific uncertainty in the claims they want to report on, they have several options: they can ignore the uncertainty and report on the scientific claims as if these claims were certain, they can abstain from publishing the story or part of the story, or they can account for the perceived uncertainty via various rhetorical forms or by applying the balance norm and including competing views in their coverage”

(Peters & Dunwoody, 2016)

It is important for journalists to evaluate how they are portraying reluctance as it can impact public perception. Expressing scientific uncertainty in a health science context “may produce small, inconsistent effects on a number of potentially important cognitions such as fatalism, backlash, and overload.” (Jensen et al., 2016. p. 47). Further research could evaluate how reluctance is framed and what the consequences are of this, as well as investigating how often scientific sources express reluctance in a media landscape setting, and how this affects the public’s perception of climate change.

Conclusion

Through studying the patterns in sources who connected climate change and wildfires in news stories about the 2023 Canadian wildfires, this study has sought to better understand sourcing practices in event-driven crisis reporting. The analysis of sourcing practices showed that government and scientific sources were most represented. The main contribution of this research is the lack of skeptical voices linking climate change and wildfires, supporting climate journalism trends that show a fall in the inclusion of skeptic voices in media (Boykoff &

Boykoff, 2004; Hiles & Hinnant, 2014; Bruggemann & Engesser, 2017). A secondary finding is that government voices are the most likely to be cited in the media coverage related to climate change and wildfires, in the context of event-driven crisis reporting. A second contribution is the lack of skeptical voices linking climate change and wildfires, supporting climate journalism trends that show a fall in the inclusion of skeptic voices in media (Boykoff & Boykoff, 2004; Hiles & Hinnant, 2014; Bruggemann & Engesser, 2017). This research has also found that among all groups, scientific sources were the most likely to recognize climate change as a contributing factor to worsening wildfires, but not as a driving force, in line with other scientific uncertainty practices (Zehr, 2000; Peters & Dunwoody, 2016). Sourcing practices matter as because “the interaction between these two parties represents a long-term, yet dynamic influence on society: the ability to shape ongoing meanings in a culture,” (Berkowitz, 2009, p. 102).

This research has highlighted the importance of investigating media coverage of wildfires and climate change at a time when climate journalism is beginning to move towards to more nuanced coverage of climate change, and Canada is experiencing heightened wildfire activity (Natural Resources Canada, 2023; Bruggemann & Engesser, 2017; Hiles & Hinnant 2014).

This research on sourcing practices in the coverage of wildfires in British Columbia by national, provincial and local news outlets could expanded in several ways. As a largely liberal province which has a strong basis of citizen support for climate change, the news media produced for this province may be more skewed to portray a certain perspective (Canseco, 2020; Clean Energy Canada, 2022; James-Abra & Robinson, 2022; The Canadian Encyclopedia, 2022). These regional differences could be further expanded further if research is conducted in other countries, particularly those that do not support climate change as much as Canada, such as Israel or Nigeria, which have lower levels of climate change support (Fagan & Huang, 2019).

Other differences may also be found in regions where media cultures differ from Canada's media market, such as China (Duan & Miller-Carpenter, 2019). In a news market where both market-oriented and party-sponsored content is created, differences may arise from what was found in this thesis, which was centered in a Canadian market (Duan & Miller-Carpenter, 2019). Such research would shed light on how sourcing practices contribute to the public's understanding of climate change.

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