

Northumbria Research Link

Citation: Ruiu, Maria (2021) Representation of climate change consequences in British newspapers. *European Journal of Communication*, 36 (5). pp. 478-493. ISSN 0267-3231

Published by: SAGE

URL: <https://doi.org/10.1177/0267323120978727>
<<https://doi.org/10.1177/0267323120978727>>

This version was downloaded from Northumbria Research Link:
<http://nrl.northumbria.ac.uk/id/eprint/44800/>

Northumbria University has developed Northumbria Research Link (NRL) to enable users to access the University's research output. Copyright © and moral rights for items on NRL are retained by the individual author(s) and/or other copyright owners. Single copies of full items can be reproduced, displayed or performed, and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided the authors, title and full bibliographic details are given, as well as a hyperlink and/or URL to the original metadata page. The content must not be changed in any way. Full items must not be sold commercially in any format or medium without formal permission of the copyright holder. The full policy is available online: <http://nrl.northumbria.ac.uk/policies.html>

This document may differ from the final, published version of the research and has been made available online in accordance with publisher policies. To read and/or cite from the published version of the research, please visit the publisher's website (a subscription may be required.)



**Northumbria
University**
NEWCASTLE



UniversityLibrary



Representation of climate change consequences in British newspapers

Journal:	<i>European Journal of Communication</i>
Manuscript ID	EJC-20-0035.R2
Manuscript Type:	Full Length Article
Keywords:	Climate change, climate change consequences, climate scepticism, global warming, media reporting
Abstract:	This paper explores British newspaper descriptions of the impact of climate change across three time periods. It shows a reduction in representing the consequences of climate change as "out of human control". It also shows a decrease in adopting alarming and uncertain descriptions within the centre-left group, whereas mocking the effects of climate change is a peculiarity of right-leaning narratives. The complexity of climate narratives produces a variety of representations of the consequences of climate change, which in turn might increase "uncertainty" in public understanding of climate change.

SCHOLARONE™
Manuscripts

Representation of climate change consequences in British newspapers

Abstract

This paper explores British newspaper descriptions of the impact of climate change across three time periods. It shows a reduction in representing the consequences of climate change as “out of human control”. It also shows a decrease in adopting alarming and uncertain descriptions within the centre-left group, whereas mocking the effects of climate change is a peculiarity of right-leaning narratives. The complexity of climate narratives produces a variety of representations of the consequences of climate change, which in turn might increase “uncertainty” in public understanding of climate change.

Keywords: Climate change; climate change consequences; global warming; media reporting.

Introduction

Previous findings highlighted that the public perceives a generalised alarmism spread by media messages around climate change in the UK (Whitmarsh, 2011), which in turn is counterproductive for individual engagement (O'Neill & Nicholson-Cole, 2009). While the literature focuses on public reaction to specific media messages, limited efforts have been devoted to exploring the variety of representations of the effects of climate change by British newspapers. The media are immersed in specific political systems, which in turn have an influence on the media model. This becomes relevant when considering that 60% of national newspaper circulation in the UK is controlled by two companies (Rupert Murdoch's News Corp UK and Lord Rothermere's Daily Mail Group). The percentage increases to 71% when Trinity Mirror is included (Media Reform Coalition, 2015). Hallin and Mancini (2004, p. 208) argue that the British press “has always mirrored the divisions of party politics”, especially in news content (see also Curtice, 1999). This partisan division is particularly evident when considering the representation of the consequences of climate change by newspapers. In fact, some studies showed that reference to the catastrophic effects of climate change is a peculiarity of left-leaning UK newspapers (Carvalho, 2005, 2007), whereas mockery is characteristic of the right-wing (Ereaut & Segnit, 2006).

Describing climate change in certain ways has implications, not only in terms of making the issue salient, but also for the public understanding of science. This is important because a coherent representation of the effects of climate change that is based on action-oriented messages might contribute towards increasing public engagement (Hart & Feldman, 2016). In contrast, framing such consequences as disputable, out of human control and uncertain might increase confusion. Hence, the present paper extends research on the framing of climate change by investigating news articles retrieved from eight British newspapers in three time periods (from 1988 to 2016). The focus on the British context reflects the key role

1
2
3 played by Britain in the international politics of climate change and the fact that its news
4
5 articles are reproduced by English-speaking print media around the world (Painter & Gavin,
6
7 2016).
8
9

10 The first section reviews the literature on the representation of consequences in
11
12 climate change narratives. The second section and its related sub-section describe the
13
14 methods used for both analysing and extracting a sample of articles. The third section reports
15
16 the results of a regression analysis aimed at exploring different descriptions of the
17
18 consequences of climate change. Finally, considerations and conclusions suggest some
19
20 implications of this study.
21
22

23 24 25 **Literature Review** 26 27

28 The literature on media reporting on climate change frequently refers to the
29
30 representation of conflicts within the scientific community (McKnight, 2010; Painter & Ashe,
31
32 2012; Painter & Gavin, 2016) despite the almost unanimous consensus about the severe
33
34 consequences of climate change and its anthropogenic causes (Boykoff, 2013; Capstick &
35
36 Pidgeon, 2014; Freudenburg & Muselli, 2010; Hobson & Niemeyer, 2013; Rahmstorf, 2012).
37
38 Several studies focused on how the media frame climate change (Boykoff, 2013; Ivanova et
39
40 al., 2013; Malhotra, 2015) and identify a tendency to distort scientific results (Tosse, 2013;
41
42 Vestergard, 2011) and provide misleading information (Ahchong & Dodds, 2012; Jennings &
43
44 Hulme, 2010). Framing is used to describe the way a message is constructed and organised to
45
46 make certain aspects salient (Gamson & Modigliani, 1989). Framing concerns the
47
48 “interpretive schemas” that drive the understanding of a given phenomenon (Scheufele &
49
50 Tewksbury, 2007). Following this definition, climate change has been framed in different
51
52 ways in relation to a multiplicity of factors. Shanahan (2007) refers to six frames targeted at
53
54 audiences, which might engage specific segments of the public, but disengage some others. In
55
56
57
58
59
60

1
2
3 a similar attempt to classify the variety of frames adopted by the media to define science-
4 related issues, Nisbet (2009) identified eight additional frames. However, one of the main
5 recurrent findings is the adoption of “conflict frames” to represent scientific knowledge
6 (McKnight, 2010; Olausson, 2010; Painter & Ashe, 2012; Painter & Gavin, 2015). Three
7 main controversial aspects (Painter, 2011; Painter & Gavin, 2016; Rahmstorf, 2004) are
8 related to a) the existence; b) the anthropogenic causes, and c) the impact of climate change.
9 Specifically, some forms of scepticism, such as in the case of “impact sceptics”, recognise the
10 anthropogenic causation of climate change, but claim that the impact may be positive, far in
11 the future or unknown (Painter & Ashe, 2012; Painter & Gavin, 2016). However, many
12 studies have focused on either exploring media reporting on the existence and anthropogenic
13 contribution to climate change, or on media effects on public opinion. Only limited efforts
14 have been devoted to investigating the representation of consequences (Murphy, 2015;
15 Painter & Gavin, 2016; Pasquaré & Oppizzi, 2012; Weathers & Kendall 2016). In fact, even
16 when exploring the effects of media messages on public engagement, the literature
17 emphasises the negative effects of representing climate change as uncontrollable, while
18 marginalising other strategies such as in the case of “mocking” climate change (Carvalho,
19 2007; Carvalho & Burgess, 2005; Ereaut & Segnit, 2006).

20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
However, a number of studies found that media reporting has shifted towards
scientific consensus (Boykoff & Boykoff, 2004; Boykoff, 2007; Gibson et al., 2015;
Grundmann & Scott, 2014; Jang & Hart, 2015) especially in UK newspapers (Author, 2020;
Grundmann & Krishnamurthy, 2010; Matthews, 2015; Nerlich et al., 2012). Despite an
increasing recognition of the existence of climate change, some elements of the media
coverage were found to enhance feelings of uncertainty around scientific evidence and the
action needed (Leiserowitz, 2006; Von Burg, 2012). These elements were mainly identified
through the adoption of a “Pandora's Box” narrative style (Nisbet, 2009), which is based on

1
2
3 fatalism (Kumpu, 2013). Therefore, the literature highlights that those forms of
4
5 sensationalism oriented to catastrophe-narrative styles negatively influence public
6
7 engagement (Howell, 2011; Jacobsen, 2011; Milburn & McGrail, 1992; Nerlich & Jaspal,
8
9 2014; Sakellari, 2014; Salvador & Norton, 2011) by both affecting the credibility of science
10
11 (Klemm et al., 2016; Von Burg, 2012) and producing “apathy” (Greitemeyer, 2013; Wibeck,
12
13 2014).
14
15

16
17 The aforementioned findings suggest that climate change narratives have increasingly
18
19 embraced scientific consensus. Moreover, the narratives of “catastrophe” have been found to
20
21 be “unscientific” (Hulme, 2009; Taylor & Nathan, 2002) or at least counterproductive if
22
23 alternatives are not provided. This suggests that the increasing integration of scientific
24
25 consensus in climate reporting should coincide with a decrease in representing climate
26
27 change as “uncontrollable”, because science tends to avoid a “language of catastrophe”
28
29 (Hulme, 2006). In contrast, scientific language is more likely to be “alarming” (Risbey,
30
31 2008), which means that, despite describing climate change as severe/catastrophic, human
32
33 intervention can still contain the negative effects (Risbey, 2008). In line with these findings,
34
35 the first hypothesis assumes the following:
36
37
38

39
40 *Hypothesis 1:* the representation of the consequences of climate change as “out of
41
42 human control” has decreased across the three blocs of years compared to the representation
43
44 of climate change as “controllable”.
45
46

47
48 Moreover, a consistent body of research has shown that sceptical orientations (Connor
49
50 & Higginbotham, 2013; Ereaut & Segnit, 2006; Whitmarsh, 2011) are often connected to the
51
52 perception of reporting as “exaggerated” (Poortinga et al., 2011; Tranter & Booth, 2015).
53
54 Previous literature highlights that the “speculation about worst-case scenarios”, without
55
56 mentioning how to solve the problem, produces feelings of uncertainty (Ereaut & Segnit,
57
58 2006) and “panic” (Chang, 2012). In contrast, positive news may enhance people's
59
60

1
2
3 engagement and action (Berry et al., 2007). Therefore, following these lines of interpretation,
4
5 the increase in scientific knowledge should coincide not only with a decrease in describing
6
7 “uncontrollable” scenarios, but also with a decrease in reporting uncertainty around the
8
9 consequences of climate change. However, the emphasis on the risks and negative
10
11 connotations of the effects of climate change has mainly been attributed to left-leaning
12
13 orientations (Carvalho, 2007; Carvalho & Burgess, 2005; Ereaut & Segnit, 2006). This
14
15 suggests that the decrease in representing climate change as “out of human control” in left-
16
17 leaning narratives may also depend on a shift towards representing the effects of climate
18
19 change as either “controllable” (through intervention) or without specific connotations (in
20
21 terms of their positive or negative impacts). For this reason, the second research hypothesis is
22
23 split into three sub-hypotheses:
24
25

26
27
28 *Hypothesis 2a:* centre-left coverage has increasingly represented the consequences of
29
30 climate change as alarming but controllable.
31
32

33
34 *Hypothesis 2b:* centre-left coverage has increasingly adopted neutrality to describe the
35
36 consequences of climate change (no connotations, either positive or negative).
37

38
39 *Hypothesis 2c:* centre-left coverage has decreasingly represented uncertainty around
40
41 the consequences of climate change.
42

43
44 The literature highlights that the media “negotiate” the meaning of climate change
45
46 with interest groups when framing the problem (Lück et al., 2018). This has been connected
47
48 to their dependency upon external financial support that might influence their content
49
50 (Edwards & Cromwell, 2006). This suggests that the use of “mockery” might result from
51
52 sceptics' attempts to diminish climate science credibility. In fact, the use of mockery has been
53
54 recognised to “trivialise” alarmism and promote scepticism (Carvalho, 2005, 2007; Ereaut &
55
56 Segnit, 2006; Von Burg, 2012), and this has been mainly attributed to conservative
57
58 orientations (Buell, 2003; Von Burg, 2012).
59
60

Therefore, the third hypothesis assumes the following:

Hypothesis 3: the centre-right-leaning coverage has increasingly mocked the consequences of climate change across the three time blocs.

Sample criteria

A sample of 958 news articles (including both news and editorials) was retrieved from eight British newspapers and their Sunday and online versions. The political orientation of the newspapers was established according to a YouGov survey (2017) on people's perception of the political orientation of newspapers in the UK. The newspapers included in the centre-right group were *The Daily Mail*, *The Daily Express*, *The Sun*, *The Times*, and *The Daily Telegraph*. Those included in the centre-left were *The Guardian*, *The Daily Mirror*, and *The Independent*. The Nexis/Lexis database was used to retrieve the news articles using the following keywords: “climate change”, “global warming”, and “greenhouse effect” (Carvalho, 2007). Only those articles containing keywords-related terms (“climate/climatic”, “warm/warming”, and “greenhouse/greenhouse effect”) in the headline were included in the analysis. These articles were grouped into three blocs (1988-1997; 1998-2007; 2008-2016). This choice was an appropriate compromise to analyse a reasonable number of articles that could be representative of each bloc-population. Once the letters and duplicates were removed, 9789 items were initially retrieved and grouped into three blocs of ten years. The first bloc starts with the IPCC institution and the emergence of the climate change issue in public debate and ends with the definition of the Kyoto Protocol. Since the protocol was signed by the end of the year (December 1997), 1998 was considered the starting point of the second bloc. This is an historical moment for climate change discourse because for the first time the Kyoto Protocol established binding targets for reduction of greenhouse gases (Carvalho, 2007). Finally, following Doulton and Brown (2009), by 2006/2007 optimism (used to mean “Climate change will be beneficial”) disappears from the more conservative

UK newspapers (replaced by potential catastrophe discourses) and crisis discourses (“disaster strikes”) dominate the progressive papers.

The final sample was generated as a NItems/NSample and chronologically extracted (Boykoff & Boykoff, 2004). “NItems” corresponds to the number of articles retrieved from Lexis/Nexis per each bloc, and “NSample” to the number of articles needed to provide a sample that is representative of each bloc with 95% confidence level and 5% margin error. Therefore, the sample was generated by including every 2nd item of the 1988-1997 group, every 5th of the 1998-2007 group, and every 20th of the 2008-2016 group. This made it possible to respect both the difference in the number of articles over the three blocs (sample larger in years with higher news coverage) and the real disproportion between the number of articles published by left-leaning and right-leaning newspapers (see Table 1).

Table 1

Sample of articles per bloc of years and political orientation

Years	N articles retrieved from Lexis/Nexis	Sample Centre-Right	Sample Centre-left
1988-1997	396	36	161
1998-2007	1933	88	301
2008-2016	7460	112	260
Total	9789	236	722

Methods

A framing analysis of a sample of 958 news articles from 1988 to 2016 retrieved from eight British newspapers was conducted by including both tabloids and broadsheets, which are the most sold formats in the UK (BBC, 2020). Tabloids are usually identified as “popular” press, whereas broadsheet are seen as “quality” newspapers (usually characterised by more in-depth analysis) (BBC, 2020). However, as argued by Boykoff and Mansfield

(2008), the analysis of connections between media representations and environmental communications should consider that large segments of the population read tabloids.

The decision to split the sample into two macro-groups and label them as “centre-right” and “centre-left” derives from a difficulty, documented in the literature, in attributing a specific and undisputable political orientation to newspapers (Edwards & Cromwell, 2006). The newspapers were selected in relation to their presence on the market throughout the period. Therefore, the number of newspapers that belong to the centre-left and centre-right, as well as the number of articles, is unequal because it reflects the real picture of the entire period. The frame was conceived as a “cluster of frames elements” (Matthes & Kohring, 2008) by identifying internal sub-categories. The conceptualisation of this frame as a multilevel cluster also depends upon a previous study conducted by the Author (2020). This study highlighted the need for further exploration of the consequences of climate change beyond the mere scientific consensus. In fact, it showed no significant changes in reporting the existence of consequences over time, but identified a need to explore the multidimensional representation of climate change by including categories such as “out of human control” or beneficial effects. Each category was identified by reviewing the literature that focuses on framing of climate change and adapted in relation to the information emerging from direct reading of the articles. Therefore, a coding scheme sourced from previous studies was developed (see Table 2). Entman (1993) identifies that the foundation of framing lies in the process of selection and making a piece of news salient through provision of judgments, identification of agency and potential victims, categorisation, and generalisation. Looking at the indicative example reported in Table 2, mockery was conceptualised as a category because it i) judges the claims of climate change advocates’ as “alarmist” (therefore, underestimating the problem), ii) identifies the BBC as an agent, and

iii) its audience as potential victim, iv) labels those responsible as “warmists” and generalises the judgment to those who are “desperate to whip up alarm” over global warming.

After reading and coding around 10% of the entire sample (92 newspaper articles), the original categories were adapted to the emerging traits. This 10% was re-coded by following the adjusted coding scheme (Table 2). Finally, a second researcher applied the adjusted coding scheme to the same sample of articles, meeting the accepted criteria for inter-coder reliability (Krippendorff alpha value of .82, see Hayes & Krippendorff, 2007). Table 2 reports the sub-categories, the sources, and indicative coding examples.

The articles were read in their entirety and paragraphs with a focus on consequences were identified. Therefore, the focus of analysis is represented by the portion of the news article in which the consequences are discussed. The three hypotheses were explored through descriptive and multinomial regression analyses.

Table 2

Categories included in the frame to describe climate change consequences

<u>Category</u>	<u>Definition</u>	<u>Coding example</u>
Mockery	The consequences of climate change are mocked/dismissed (see also Ereaut & Segnit, 2006)	It was another bad week for the “warmists”, now more desperate than ever to whip up alarm over an overheating planet [...]. To promote its cause the BBC website even posted a video explaining how warming would be made worse by 'negative feedback'. This scientific howler provoked much amusement and derision on expert US blogs. (Booker, 2009)
Uncertainty	The consequences of climate change are likely	The scenes might not be as dramatic as the mass migration and wars over diminishing resources

	to be negative, but not measurable (see also Heal & Kristrom, 2002).	that some predict, but they do show changes [...]. (Jowitt, 2007: 24)
Neutrality	Consequences are evaluated neither positive nor negative (Elgesem et al., 2015)	Overall, the world is getting warmer due to increasing greenhouse gas emissions that trap the sun's heat. (Zolfagharifard, 2015)
Alarming but controllable	The severe consequences of climate change can be controlled through intervention (Risbey, 2008).	reducing global warming to 2C, beyond which the impacts would start to become irreversible, 'will require large-scale changes [...]'. (Spencer, 2014)
Out of human control	The consequences of climate change are irreversible/beyond human control (see also Dirikx & Gelders, 2010)	'The changes are out of all proportion to anything that anyone has experienced in modern times', says Dr Wad-ham, and he fears much worse. (Simons, 1997: 8)

Results

To explore the effect of both political orientation and bloc of years on the representation of the consequences of climate change, a Multinomial Logistic Regression was performed given that the categories included in this frame are not ordered (Kwak & Clayton-Matthews, 2002). The Multinomial Logistic Regression is an appropriate method to explain the relationship between a categorical dependent variable (nominal) with more than two levels (categories) and one or more independent variables. It compares each level to a

reference category, which is usually represented by the most frequent. The category “alarming but controllable” was adopted as a reference since it is the most frequent one (43% of cases) (El-Habil, 2012). Table 3 shows the distribution of categories per political orientation and bloc of years. The reference to the categories included in the frame was identified in 769 cases out of 958 articles.

Holding the political orientation constant, the bloc of years has a significant effect on adopting “uncertainty” in describing consequences ($p=.002$ in the first bloc and $p=.006$ in the second bloc), “neutrality” (relative to the first bloc of years, $p=.008$), and describing consequences as “out of human control” ($p=.009$ in the first bloc and $p=.036$ in the second bloc). This suggests that, extending these considerations to the entire population of articles, those articles belonging to the first two blocs are more likely to adopt “uncertainty” to describe the consequences rather than alarming traits. Moreover, the adoption of neutrality is more likely than representing “alarming but controllable” effects in the first bloc compared to the third one. However, there are no statistically significant differences in adopting this category compared to “alarming but controllable” category between the second and the third bloc.

Table 3
Distribution of categories per political orientation and bloc of years

Category	1988-1997		1998-2007		2008-2016		Total	Total						
	Centre Right	%	Centre Left	%	Centre Right	%	Centre Left	%						
Mockery	6	19	0	0	24	32	4	2	29	29	3	2	59	80
Uncertainty	6	19	32	23	20	26	50	22	8	3	32	17	34	7
Neutrality	10	31	43	31	16	21	36	16	23	10	48	25	49	114
Alarming but controllable	8	25	51	37	11	14	122	53	38	17	101	53	57	127
Out of human control	2	6	12	9	5	7	18	8	3	1	8	4	10	274
Total	32		138		76		230		101		192		209	560

1
2
3 H1 related to a generalised decrease in describing climate change as “out of human
4 control” is supported given that this scenario is more likely to be present in the first two blocs
5 than in the third one, compared to the representation of climate change as alarming but
6 controllable (see Table 4). This happens regardless of the political orientation of the
7 newspapers.
8
9

10
11
12 For the centre/left-leaning narratives the mockery of consequences is absent in the
13 first bloc, slightly increases in the second bloc and decreases in the third bloc. The
14 representation of “alarming but controllable” consequences prevails across the three blocs.
15 However, Figure 1 shows that in the third bloc there is a reduction in describing the
16 consequences of climate change as out of human control, alarming but controllable, and
17 uncertain for the centre/left-leaning articles, and an increase in neutrality. These results reject
18 H2a due to a decrease in the alarming categories across the three blocs for the centre-left.
19 However, the decrease in uncertainty and the increase in neutrality for this group support H2b
20 and H2c respectively. This might suggest a shift towards recognising the reality of the
21 consequences caused by climate change, without providing evaluations (either positive or
22 negative). Even though the adoption of uncertainty does not show statistically significant
23 differences between the centre-left and the centre-right, uncertainty is more likely to be
24 adopted in the first two blocs. Moreover, the centre-right appears to be more likely to use
25 uncertainty compared to the “alarming but controllable” category than their counterparts
26 (despite not statistically significant, the multinomial log-odds are expected to increase 1.59
27 times for centre-right articles).
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49

50
51 Differences in the representation of the consequences of climate change between
52 centre/right and centre/left-leaning newspapers were statistically significant for the categories
53 of mockery and neutrality relative to “alarming but controllable” (respectively $p=.000$ and
54 $p=.003$) (Table 4). Therefore, holding the bloc of years constant, the multinomial log-odds of
55
56
57
58
59
60

adopting both mockery and neutrality compared to “alarming but controllable consequences” would be expected to increase for articles belonging to a centre/right-leaning newspaper. Moreover, the multinomial log-odds for an article belonging to centre/right-leaning newspapers to adopt mockery frames are higher than any other kind of representation of consequences. These results support H3 about the tendency of the centre/right-leaning newspapers to adopt mockery frames more than any other kind of representation of consequences.

However, Figure 1 shows that, in addition to mockery, a simultaneous increase in both neutrality and alarm characterises the third bloc. This suggests that centre-right narratives can follow different directions by e.g. trivialising climate change or, in contrast, supporting the idea that climate effects can be tackled. Therefore, even though the mockery of climate change is a peculiarity of the centre-right group, the articles belonging to this group do not follow a unique direction.

Table 4

Multinomial Logistic Regression Analysis predicting the description of consequences (N articles= 769)

Categories		B	SE	Exp(B)
Mockery	Intercept	-3.752*	.429	
	1988-1997	-.279	.506	.757
	1998-2007	.280	.323	1.323
	2008-2016	Ref.		
	Centre/right	3.710*	.428	40.835
	Centre/left	Ref.		
Uncertainty	Intercept	-1.368*	.193	

	1988-1997	.861*	.277	2.365
	1998-2007	.644*	.234	1.905
	2008-2016	Ref.		
	Centre/right	.464	.248	1.590
	Centre/left	Ref.		
Neutrality	Intercept	-.860*	.162	
	1988-1997	.647*	.242	1.911
	1998-2007	-.206	.221	.813
	2008-2016	Ref.		
	Centre/right	.661*	.226	1.937
	Centre/left	Ref.		
Out of human control	Intercept	-2.630*	.332	
	1988-1997	1.140*	.435	3.128
	1998-2007	.813**	.388	2.255
	2008-2016	Ref.		
	Centre/right	.368	.389	1.444
	Centre/left	Ref.		
<p>*p<.01 **p<.05 Notes. Model Fit: chi-square=110.418 (p=0.000); Goodness of Fit: Person chi-square=15.396 (p=.052); Deviance chi-square=13.964 (p=.083); Nagelkerke=.207 The reference category is alarming but controllable</p>				

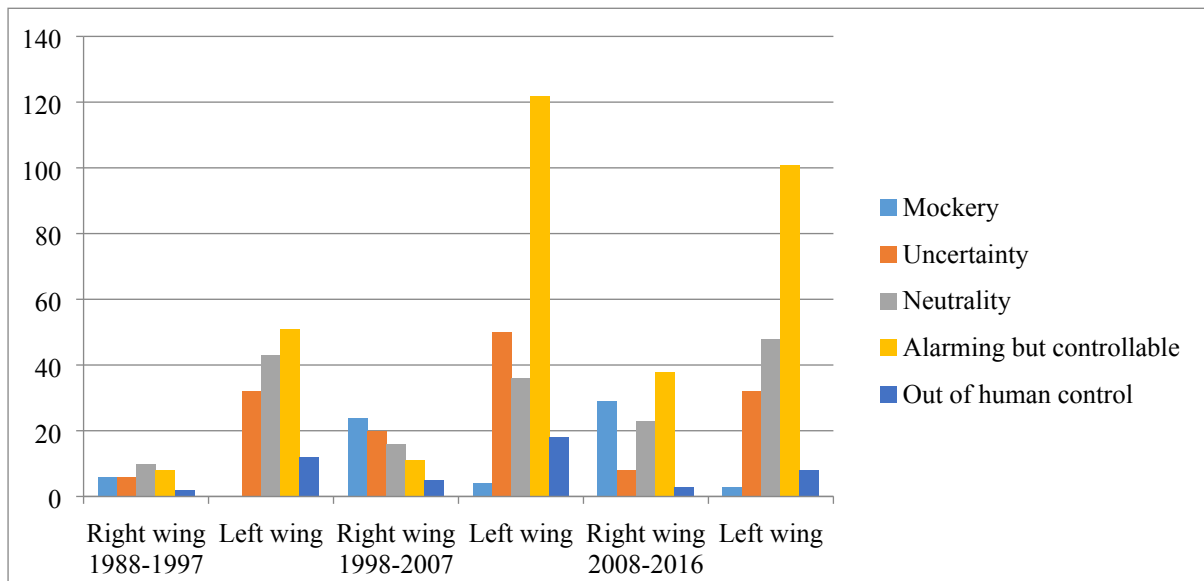


Figure 1. Distribution of categories included in the “consequences frame” across the three blocs (absolute values)

Considerations and conclusions

The analysis supported a generalised decrease in representing the consequences of climate change as out of human control, regardless of the political orientation of newspapers. It also showed differences between centre-left and centre-right newspapers. In fact, the centre-right group is more likely to adopt mockery and neutrality compared to the representation of controllable consequences. Even though the framing of climate change as “alarming but controllable” is a peculiarity of the centre-left, its use decreases in the third block by suggesting a shift in centre-left narratives towards neutrality. In fact, in the third bloc the adoption of neutrality increases whereas framing climate change as both “out of human control” and “alarming but controllable” decreases, further reinforcing a preference for neutrality in this bloc.

An increase of mockery by the centre-right is also supported. However, an increasing adoption of alarm to describe the effects of climate change (which, however, can be contained if action is taken) by the right-leaning articles was also observed. The use of both

1
2
3 mockery and “alarm” to frame the consequences in the right-wing oriented narratives shows
4
5 that not only mockery characterises right-leaning narratives (see Carvalho, 2005, 2007;
6
7 Carvalho & Burgess, 2005; Ereaut & Segnit, 2006), but the increasing mention of alarming
8
9 consequences in this group across the three blocs suggests that the reference to severe but
10
11 controllable consequences is no longer exclusive to left-leaning narratives. These results are
12
13 in line with the disappearance of optimism in conservative newspapers identified in
14
15 2006/2007 by Doulton and Brown (2009), and their replacement with discourses related to
16
17 the damages caused by climate change. In contrast, “crisis-oriented” discourses dominate in
18
19 the progressive newspapers. This is also in line with Nerlich et al. (2012) who found that the
20
21 UK, unlike the US, focuses on finding solutions, which in turn suggests that climate change
22
23 can be “tackled”.
24
25
26
27

28 The analysis showed that the description of climate change as “out of human control” for
29
30 the centre-left group decreases in the third bloc. This might be contextualised in light of an
31
32 increasing awareness around the potential side effects of framing climate change as out of
33
34 human control when describing its impact, which as noted, can contribute towards causing
35
36 feelings of powerlessness. It is only possible to speculate on this point, however, these results
37
38 show the complexity and variety of climate change narratives, which present specific traits in
39
40 relation to the political orientation of newspapers. In this direction, the originality of this
41
42 paper relies on showing how climate change narratives have become complex, and the focus
43
44 on consequences is relevant to understanding this complexity. This paper showed that such
45
46 complexity can be partially explained by both the political orientation of newspapers and the
47
48 period considered. These results suggest a need for shifting the focus from the
49
50 existence/causes of climate change towards its consequences. In previous work, the author
51
52 (2020) found that in the same period, an increasing consensus around the existence of climate
53
54 change and its causes could be identified. However, this study highlighted the need to
55
56
57
58
59
60

1
2
3 investigate additional aspects of climate change narratives that still contribute towards
4 emphasising scepticism in newspaper reporting. In this previous study, the attention to
5 consequences was limited to the representation of scientific consensus around
6 certainty/uncertainty of consequences. The apparent increase of consensus around
7 consequences suggested a need to re-conceptualise the consequences frame by considering a
8 variety of framing attributesⁱ. Therefore, the originality of the present paper also relies on
9 identifying specific attributes of the consequences of climate change by expanding the
10 consequences frame beyond the mere recognition of their existence.
11
12
13
14
15
16
17
18
19
20

21 The sample included in this study is representative of three groups of years. One limit of
22 this approach is the loss of power that a continuous variable could have provided in capturing
23 the evolution of narratives over time. However, the analysis of the adoption of a
24 “consequences frame” within each bloc provides the opportunity to compare the presence of
25 specific categories across the blocs. For example, it shows that even though the description of
26 climate change as “alarming but controllable” is a peculiarity of the centre-left, neutrality is
27 the only category that grows between the second and the third bloc in this group. In contrast,
28 there is a tendency for the centre-right to mock the consequences of climate change, which
29 might contribute towards inflaming hostility against scientists.
30
31
32
33
34
35
36
37
38
39
40
41

42 It is generally recognised that news media adopt sensationalism to attract and drive
43 people's attention towards specific (non)-intervention strategies (Bennett, 2005; Figenschou
44 & Thorbjørnsrud, 2016; Kim & Wanta, 2018). Even though the present study showed a
45 decrease in representing climate change as uncontrollable, several studies that focus on the
46 public perception of climate change highlighted that the UK public perceive a generalised
47 media alarmism around climate change (Whitmarsh, 2011). However, the presence of both
48 mockery and alarm around the consequences in the same political group can contribute
49 towards creating a “confusing image” of climate change. For their part, individuals have to
50
51
52
53
54
55
56
57
58
59
60

1
2
3 interpret contradictory and misleading information, and this has been found to cause loss of
4 confidence on the reality of climate change (Somerville & Hassol, 2011). The main
5 implications of these results relate to both theoretical and empirical levels. The
6 conceptualisation of the consequences frame, which includes several categories plus
7 mockery, offers the possibility of observing the complexity of climate narratives. In fact, this
8 work suggests that mockery can be conceptualised as a frame given that it includes
9 judgments, selection, label and derision of agents (climate change advocates), identification
10 of victims (those exposed to “false alarmism”) and generalisation of these judgments about
11 climate change. This study identified a complex variety of representations of the
12 consequences of climate change that might increase “confusion”, and therefore might
13 contribute towards affecting readers' confidence in climate science.
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

References

- 1
2
3
4
5
6 Katrina, Ahchong and Rachel Dodds (2012) 'Anthropogenic climate change coverage in two
7
8 Canadian newspapers, the Toronto Star and the Globe and Mail, from 1988 to 2007'.
9
10 Environmental Science and Policy 15(1): 48–59.
11
12
13 BBC (2020) 'Newspapers'. Available at
14
15 <https://www.bbc.co.uk/bitesize/guides/zps4qty/revision/1>.
16
17
18 Lance, Bennett (2005) 'News as Reality TV: Election Coverage and the Democratization of
19
20 Truth'. *Critical Studies in Media Communication* 22(2): 171-177.
21
22
23 Tanya, Berry, Joan, Wharf-Higgins and Patti-Jean Naylor (2007) 'SARS wars: An
24
25 examination of the quantity and construction of health information in the news
26
27 media'. *Health Communication* 21: 35–44.
28
29
30 Christopher, Booker (2009, February 22) 'Climate change rhetoric spirals out of control'. *The*
31
32 *Daily Telegraph*. Available at
33
34 [https://www.telegraph.co.uk/comment/columnists/christopherbooker/4742293/Climate](https://www.telegraph.co.uk/comment/columnists/christopherbooker/4742293/Climate-change-rhetoric-spirals-out-of-control.html)
35
36 [e-change-rhetoric-spirals-out-of-control.html](https://www.telegraph.co.uk/comment/columnists/christopherbooker/4742293/Climate-change-rhetoric-spirals-out-of-control.html)
37
38
39 Maxwell, Boykoff (2007) 'Flogging a dead norm? Newspaper coverage of anthropogenic
40
41 climate change in the United States and United Kingdom from 2003 to 2006'. *Area*
42
43 39(4): 470–481.
44
45
46 Maxwell, Boykoff. (2013) 'Public Enemy No. 1: Understanding Media Representations of
47
48 Outlier Views on Climate Change'. *American Behavioral Scientist* 57(6): 796–817.
49
50
51 Maxwell, Boykoff and Jules Boykoff (2004) 'Balance as bias: Global warming and the US
52
53 prestige press'. *Global Environmental Change* 14(2): 125–136.
54
55
56 Maxwell, Boykoff and Jules Boykoff (2007) 'Climate change and journalistic norms: A case-
57
58 study of US mass-media coverage'. *Geoforum* 38(6): 1190–1204.
59
60

- 1
2
3 Maxwell, Boykoff and Maria Mansfield (2007) ‘Ye Olde Hot Aire’: reporting on human
4 contributions to climate change in the UK tabloid press’. *Environmental Research*
5
6 Letters 3(2).
7
8
9
10 Frederick, Buell (2003) *From apocalypse to way of life: Environmental crisis in the*
11
12 *American century*. New York: Routledge.
13
14 Linda, Connor and Nick Higginbotham (2013) ‘Natural cycles in lay understandings of
15 climate change’. *Global Environmental Change* 23(6): 1852-1861.
16
17
18
19 Stuart, Capstick and Nicholas Pidgeon (2014) ‘What is climate change scepticism?
20 Examination of the concept using a mixed methods study of the UK public’. *Global*
21
22 *Environmental Change* 24(1): 389–401.
23
24
25
26 Anabela, Carvalho (2005) ‘Representing the politics of the greenhouse effect’. *Critical*
27
28 *Discourse Studies* 2(1): 1–29.
29
30
31 Anabela, Carvalho (2007) ‘Ideological cultures and media discourses on scientific
32 knowledge: Re-reading news on climate change’. *Public Understanding of Science*
33
34 16(2): 223–243.
35
36
37
38 Anabela, Carvalho (2008) ‘Media(ted) discourses and climate change: A focus on political
39 subjectivity and (dis)engagement’. *WIREs Climate Change* 9(2): 172–179.
40
41
42
43 Anabela, Carvalho and Jacquelin Burgess (2005) ‘Cultural circuits of climate change in U.K.
44 broadsheet newspapers, 1985-2003’. *Risk Analysis* 25(6): 1457-1469.
45
46
47 Chingching, Chang (2012) ‘News Coverage of Health-related Issues and its Impacts on
48 Perceptions: Taiwan as an Example’. *Health Communication* 27(2): 111–123.
49
50
51 Miles, Costello (2011, November 16) ‘Polar bear airdrop shows climate plight’. *The Times*.
52 Available at [https://www.thetimes.co.uk/article/polar-bear-airdrop-shows-climate-](https://www.thetimes.co.uk/article/polar-bear-airdrop-shows-climate-plight-57w02hb2232)
53
54
55
56
57
58
59
60

- 1
2
3 Curtice, John (1999) 'Was it The Sun Wot Won it Again? The Influence of Newspapers in
4 the 1997 Election Campaign'. Working paper No.75, Oxford: Centre for Research
5 into Elections and Social Trends.
6
7
8
9
- 10 Astrid, Dirikx and Dave Gelders (2010) 'Ideologies Overruled? An Explorative Study of the
11 Link between Ideology and Climate Change Reporting in Dutch and French
12 Newspapers'. *Environmental Communication: A Journal of Nature and Culture* 4(2):
13 190-205.
14
15
16
17
18
- 19 Hugh, Doulton and Katrina Brown (2009) 'Ten years to prevent catastrophe? Discourses of
20 climate change and international development in the UK press'. *Global
21 Environmental Change* 19: 191-202.
22
23
24
25
- 26 David, Edwards and David Cromwell (2006) *Guardians of Power: The Myth of the Liberal
27 Media*. London, UK: Pluto.
28
29
- 30 Abdalla, El-Habil (2012) 'An Application on Multinomial Logistic Regression Model'.
31 *Pakistan Journal of Statistics and Operation Research* VIII(2): 271-291.
32
33
34
- 35 Dag, Elgesem, Lubos, Steskal and Nicholas Diakopoulos (2015) 'Structure and Content of
36 the Discourse on Climate Change in the Blogosphere: The Big Picture'.
37 *Environmental Communication* 9(2): 169-188.
38
39
40
41
- 42 Robert, M., Entman (1993). Framing: Toward Clarification of A Fractured Paradigm. *Journal
43 of
44 Communication*, 43(4), 51-58.
45
46
47
48
- 49 Gill, Ereaud and Nat Segnit (2006) *Warm words. How are we telling the climate story and can
50 we tell it better?* London, UK: Institute for Public Policy Research.
51
52
53
- 54 Tine, Figenschou and Kjersti Thorbjørnsrud (2015) 'Faces of an invisible population: Human
55 interest framing of irregular immigration news in the United States, France, and
56 Norway'. *American Behavioral Scientist* 59(7): 783–801.
57
58
59
60

- 1
2
3 William, Freudenburg and Violetta Muselli (2010). 'Global warming estimates, media
4 expectations, and the asymmetry of scientific challenge'. *Global Environmental*
5 *Change* 20(3): 483–491.
6
7
8
9
10 William, Gamson and Andre Modigliani (1989) 'Media Discourse and Public Opinion on
11 Nuclear Power: A Constructionist Approach'. *American Journal of Sociology* 95(1):
12 1-37.
13
14
15
16
17 Timothy, Gibson, Richard, Craig and Allison Harper (2015) 'Covering global warming in
18 dubious times: Environmental reporters in the new media ecosystem'. *Journalism*
19 17(4): 417–434.
20
21
22
23
24 Tobias, Greitemeyer (2013) 'Beware of climate change skeptic films'. *Journal of*
25 *Environmental Psychology* 35: 105–109.
26
27
28
29 Reiner, Grundmann and Ramesh Krishnamurthy (2010) 'The Discourse of Climate Change:
30 A Corpus-based Approach'. *Critical Approaches to Discourse Analysis across*
31 *Disciplines* 4(2): 125–146.
32
33
34
35
36 Reiner, Grundmann, R. and Max Scott (2014) 'Disputed climate science in the media: Do
37 countries matter?' *Public Understanding of Science* 23(2): 220–235.
38
39
40 Sol, Hart and Lauren Feldman (2016). 'The Impact of Climate Change-Related Imagery and
41 Text on Public Opinion and Behavior Change'. *Science Communication* 38(4): 415-
42 441.
43
44
45
46
47 Andrew, Hayes and Klaus Krippendorff (2007) 'Answering the call for a standard reliability
48 measure for coding data'. *Communication Methods and Measures* 1(1): 77-89.
49
50
51
52 Geoffrey, Heal and Bengt Kristrom (2002) 'Uncertainty and climate change'. *Environmental*
53 *and Resource Economics* 22(1–2): 3–39.
54
55
56 Mark, Henderson (2001, July 21) 'World has 15 years to stop global warming'. *The Times*.
57 Retrieved from Lexis/Nexis database
58
59
60

- 1
2
3 Roger, Highfield (2004, September 29) 'Can these bugs save the planet? A project to combat
4 climate change is seeking to enhance the life-giving properties of the Earth's smallest
5 creatures'. The Daily Telegraph: 18.
6
7
8
9
- 10 Kersty, Hobson and Simon Niemeyer (2013) 'What sceptics believe: The effects of
11 information and deliberation on climate change scepticism'. Public Understanding of
12 Science 22(4): 396–412.
13
14
15
16
- 17 Rachel, Howell (2011) 'Lights, camera ... action? Altered attitudes and behaviour in response
18 to the climate change film The Age of Stupid'. Global Environmental Change 21(1):
19 177–187.
20
21
22
23
- 24 Mike, Hulme (2009) Why we disagree about Climate Change: Understanding Controversy,
25 Inaction and Opportunity. Cambridge: Cambridge University Press.
26
27
28
- 29 Mike, Hulme (2006, November 4) 'Chaotic world of climate truth'. BBC News. Available at
30 news.bbc.co.uk
31
32
- 33 Grant, Jacobsen (2011) 'The Al Gore effect: An Inconvenient Truth and voluntary carbon
34 offsets'. Journal of Environmental Economics and Management 61(1): 67–78.
35
36
37
- 38 Mo, Jang and Sol Hart (2015) 'Polarized frames on "climate change" and "global warming"
39 across countries and states: Evidence from Twitter big data'. Global Environmental
40 Change 32: 11–17.
41
42
43
- 44 Neil, Jennings and Mike Hulme (2010) 'UK newspaper (mis)representations of the potential
45 for a collapse of the Thermohaline Circulation'. Area 42(4): 444-456.
46
47
48
- 49 Juliette, Jowitt (2007, April 1) 'Is Britain warming? Just look around you'. The Observer: 24.
50
51
- 52 Daniel, Hallin and Paolo Mancini (2004) Comparing Media Systems. Three models of Media
53 and Politics. Cambridge: Cambridge University Press.
54
55
56
57
58
59
60

- 1
2
3 Ana, Ivanova, Mike, Schäfer, Inga, Schlichting and Andreas Schmidt (2013) 'Is There a
4
5 Medialization of Climate Science? Results from a Survey of German Climate
6
7 Scientists'. *Science Communication* 35(5): 626-653.
8
9
- 10 Jeesun, Kim and Wayne Wanta (2018) 'News framing of the U.S. immigration debate during
11
12 election years: Focus on generic frames'. *The Communication Review* 21(2): 89-115.
13
14
- 15 Celine, Klemm, Enny, Das and Tilo Hartmann (2016) 'Swine flu and hype: a systematic
16
17 review of media dramatization of the H1N1 influenza pandemic'. *Journal of Risk*
18
19 *Research* 19(1): 1-20.
20
21
- 22 Ville, Kumpu (2013) 'A climate for reduction? Futures imagined in newspaper coverage of
23
24 UN climate summits'. *Futures* 53: 53-62.
25
26
- 27 Chanyeong, Kwak and Alan Clayton-Matthews (2002) 'Multinomial Logistic Regression'.
28
29 *Nursing Research* 51(6): 404-410.
30
31
- 32 Anthony, Leiserowitz (2006) 'Climate change risk perception and policy preferences: The
33
34 role of affect, imagery, and values'. *Climatic Change* 77(1-2): 45-72.
35
36
- 37 Dan, Lewis (2006, March 29) 'Going green at home won't save the planet Climate change is
38
39 as much about economics as it is about science'. *The Daily Telegraph*: 18.
40
41
- 42 Julia, Lück, Hartmut, Wessler, Antal, Wozniak and Diógenes Lycarião (2018)
43
44 'Counterbalancing global media frames with nationally coloured narratives: A
45
46 comparative study of news narratives and news framing in the climate change
47
48 coverage of five countries'. *Journalism* 19(12): 1635-1656.
49
50
- 51 Jörg, Matthes and Matthias Kohring (2008) 'The content analysis of media frames: Toward
52
53 improving reliability and validity. *Journal of Communication*' 58(2): 258-279.
54
55
- 56 Julian, Matthews (2015) 'Maintaining a politicised climate of opinion? Examining how
57
58 political framing and journalistic logic combine to shape speaking opportunities in
59
60

- 1
2
3 UK elite newspaper reporting of climate change'. *Public Understanding of Science*
4
5 26(4): 467-480.
6
7
8 David, McKnight (2010) 'A change in the climate? The journalism of opinion at News
9
10 Corporation'. *Journalism* 11(6): 693–706.
11
12 Media Reform Coalition (2015) 'Who own the UK Media?'. Available at
13
14 <http://www.mediareform.org.uk/>
15
16
17 Michael, Milburn and Anne McGrail (1992) 'The Dramatic Presentation of News and Its
18
19 Effects on Cognitive Complexity'. *Political Psychology* 13(4): 613-632.
20
21
22 Raymond, Murphy (2015) 'The Media Construction of Climate Change Quiescence: Veiling
23
24 the Visibility of a Super Emitter'. *Canadian Journal of Sociology* 40(3): 331–354.
25
26
27 Brigitte, Nerlich, Richard, Forsyth and David Clarke (2012) 'Climate in the News: How
28
29 Differences in Media Discourse Between the US and UK Reflect National Priorities'.
30
31 *Environmental Communication: A Journal of Nature and Culture* 6(1): 44–63.
32
33
34 Brigitte, Nerlich and Rusi Jaspal (2014) 'Images of Extreme Weather: Symbolising Human
35
36 Responses to Climate Change'. *Science as Culture* 23(2): 253–276.
37
38
39 Matthew, Nisbet (2009) 'Communicating climate change: Why frames matter for public
40
41 engagement'. *Environment* 51(2): 12-25.
42
43
44 Saffron, O'Neill and Sophie Nicholson-Cole (2009) 'Fear Won't Do It. Promoting positive
45
46 engagement with climate change through visual and iconic representations'. *Science*
47
48 *Communication* 30: 355–379.
49
50
51 William, Oddie (1997, August 20) 'Now it's time Greenpeace came clean'. *Daily Mail*: 8.
52
53
54 Ulrika, Olausson (2010) 'Towards a European identity? The news media and the case of
55
56 climate change'. *European Journal of Communication* 25(2): 138-152.
57
58
59 James, Painter (2011) *Poles apart: The international reporting of climate scepticism*. Oxford,
60
UK: Reuters Institute for the Study of Journalism.

- 1
2
3 James, Painter and Teresa Ashe (2012) 'Cross-national comparison of the presence of climate
4 scepticism in the print media in six countries, 2007–10'. *Environmental Research*
5
6 Letters 7(4): 1–8.
7
8
9
10 James, Painter and Neil Gavin (2016) 'Climate Skepticism in British Newspapers, 2007–
11
12 2011'. *Environmental Communication* 10(4): 432-452.
13
14
15 Federico, Pasquaré and Paolo Oppizzi (2012) 'How do the media affect public perception of
16
17 climate change and geohazards? An Italian case study'. *Global and Planetary Change*
18
19 90-91: 152–157.
20
21
22 Wouter, Poortinga, Alexa, Spence, Lorraine, Whitmarsh, L., Stuart, Capstick Nick Pidgeon
23
24 (2011) 'Uncertain climate: An investigation into public scepticism about
25
26 anthropogenic climate change'. *Global Environmental Change* 21(3): 1015-1024.
27
28
29 Stefan, Rahmstorf (2012) 'Is journalism failing on climate?' *Environmental Research Letters*
30
31 7(4): 1–3.
32
33
34 Stefan, Rahmstorf (2004) *The climate sceptics*. Potsdam: Potsdam Institute for Climate
35
36 Impact Research.
37
38 James, Risbey (2008) 'The new climate discourse: Alarmist or alarming?' *Global*
39
40 *Environmental Change* 18: 26–37.
41
42
43 Maria, Sakellari (2014) 'Cinematic climate change, a promising perspective on climate
44
45 change communication'. *Public Understanding of Science* 24(7): 1–15.
46
47
48 Salvador, Michael and Todd Norton (2011) 'The Flood Myth in the Age of Global Climate
49
50 Change'. *Environmental Communication: A Journal of Nature and Culture* 5(1): 45–
51
52 61.
53
54
55 Dietram, Scheufele and David Tewksbury (2007) 'Framing, agenda setting, and priming: The
56
57 evolution of three media effects models'. *Journal of Communication* 57(1): 9-20.
58
59
60

- 1
2
3 Mike, Shanahan (2007) 'Talking about a revolution: climate change and the media'.
4
5 International Institute for Environment and Development, IIED Brief, 1-4.
6
7 Paul, Simons (1997, December 1) 'Could global warming turn Britain into a new Siberia?'
8
9 Daily Mail: 8.
10
11
12 Richard, Somerville and Susan Hassol (2011) 'Communicating the science of climate
13
14 change'. *Physics Today* 64(10): 48–53.
15
16 Ben, Spencer (2014, April 11) 'Could we SUCK UP climate change? Excess carbon dioxide
17
18 could be absorbed by crops and stored in disused mines'. Daily Mail. Available at
19
20 [http://www.dailymail.co.uk/sciencetech/article-2602474/Could-SUCK-UP-climate-](http://www.dailymail.co.uk/sciencetech/article-2602474/Could-SUCK-UP-climate-change-Excess-carbon-dioxide-absorbed-specially-developed-crops.html)
21
22 [change-Excess-carbon-dioxide-absorbed-specially-developed-crops.html](http://www.dailymail.co.uk/sciencetech/article-2602474/Could-SUCK-UP-climate-change-Excess-carbon-dioxide-absorbed-specially-developed-crops.html)
23
24
25 Neil, Taylor and Subhashni Nathan (2002) 'How science contributes to environmental
26
27 reporting in British newspapers: a case study of the reporting of global warming and
28
29 climate change'. *Environmentalist* 22(4): 325–331.
30
31
32 Sunniva, Tosse (2013) 'Aiming for Social or Political Robustness? Media Strategies Among
33
34 Climate Scientists'. *Science Communication* 35(1); 32–55.
35
36 Bruce, Tranter and Kate Booth (2015) 'Scepticism in a changing climate: A cross-national
37
38 study'. *Global Environmental Change* 33: 154-164.
39
40
41 Gunver, Vestergard (2011) 'From journal to headline: The accuracy of climate science news
42
43 in Danish high quality newspapers'. *Journal of Science Communication* 10(2); 1–7.
44
45
46 Ron, Von Burg (2012) 'Decades Away or The Day After Tomorrow? Rhetoric, Film, and the
47
48 Global Warming Debate'. *Critical Studies in Media Communication* 29(1): 7–26.
49
50
51 Mike, Wade (2007, November 27) 'Scots scientists lead project to find crops for a warmer
52
53 world'. *The Times*: 9.
54
55
56
57
58
59
60

1
2
3 Melinda, Weathers and Brenden Kendall (2016) 'Developments in the Framing of Climate
4
5 Change as a Public Health Issue in US Newspapers'. *Environmental Communication*
6
7 19(5): 593–611.
8
9

10 Lorraine, Whitmarsh (2011) 'Scepticism and uncertainty about climate change: Dimensions,
11
12 determinants and change over time'. *Global Environmental Change* 21(2): 690–700.
13

14 Victoria, Wibeck (2014) 'Enhancing learning, communication and public engagement about
15
16 climate change – some lessons from recent literature'. *Environmental Education*
17
18 Research 20: 387–411.
19

20
21 YouGov (2017) 'How left or right-wing are the UK's newspapers?' Available at
22
23 <https://yougov.co.uk/news/2017/03/07/how-left-or-right-wing-are-uks-newspapers/>
24
25

26 Ellie, Zolfagharifard (2015, March 9) 'Climate change is set to speed up to rates not seen for
27
28 1,000 years, warn scientists'. *Daily Mail*. Available at
29
30 [https://www.dailymail.co.uk/sciencetech/article-2986735/Global-warming-happening-](https://www.dailymail.co.uk/sciencetech/article-2986735/Global-warming-happening-FASTER-Climate-change-set-speed-rates-not-seen-1000-years-warn-scientists.html)
31
32 [FASTER-Climate-change-set-speed-rates-not-seen-1000-years-warn-scientists.html](https://www.dailymail.co.uk/sciencetech/article-2986735/Global-warming-happening-FASTER-Climate-change-set-speed-rates-not-seen-1000-years-warn-scientists.html)
33
34

35
36
37 ⁱ The different conceptualisation of the consequences frame also explains a slightly higher number of articles
38 (769) in which the reference to specific types of consequences was identified. In fact, in the previous work the
39 reference to certainty/uncertainty was found in 758 cases.
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60