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Media coverage of climate change and global warming en *El País*, *El Mundo* y *La Vanguardia*

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Abstract

[ES] **Introducción.** Este artículo aborda la cobertura mediática del cambio climático y del calentamiento global en España a través del seguimiento de la presencia de estos términos en *El País*, *El Mundo* y *La Vanguardia* desde enero de 2000 hasta noviembre de 2014. **Metodología.** A partir de datos de la Universidad de Colorado y de Google Trends, se completa un análisis comparativo de las agendas mediática y ciudadana. **Resultados.** La cobertura en España presenta una tendencia similar a la prensa internacional occidental, si bien existen episodios particulares que las diferencian. Los hitos más importantes remiten a eventos políticos internacionales, acuerdos internacionales, informes científicos del Panel Intergubernamental sobre Cambio Climático y al documental *An Inconvenient Truth*. **Discusión y conclusiones.** La agenda internacional condiciona la agenda nacional, si bien el contexto general evidencia una pérdida de presencia del cambio climático en medios impresos, a pesar de la creciente acumulación de la creciente evidencia empírica acerca del riesgo medioambiental.

[EN] **Introduction.** This article deals with the media coverage of climate change and global warming in Spain by screening the presence of these two topics within *El País*, *El Mundo* and *La*

Vanguardia from January 2000 until November 2014. **Method.** A comparative analysis of media and public agenda are completed using data coming from both the University of Colorado and Google Trends. **Results.** The Spanish press coverage follows a similar trend to the one described by the international Western newspapers, albeit one can also find some differentiating episodes. The main milestones were related with international political events, international agreements, scientific reports of the Intergovernmental Panel on Climate Change and with the documentary *An inconvenient truth*. **Discussion and Conclusions.** The international agenda is setting the national agenda. The general context is returning a decline of the presence of climate change in newspapers, although there is growing empirical evidence about the environmental risk.

Keywords

[ES] cambio climático; calentamiento global; comunicación; cobertura mediática; España.

[EN] climate change; global warming; communication; media coverage; Spain.

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Traducción de **MC Garrido Hornos**, PhD (Universidad de Valladolid)

1. Introduction

The evolution of the attention granted to climate change and global warming started with the alarm raised by scientists. It was amplified by environmentalists, joined afterwards by the public opinion, politicians, economists, companies and other actors, following a dynamic full of feedbacks instead of a sequence of replacement of ones by others (Rivera, 2008: 99). The influences are complex, not linear, and dynamic:

“Even the science and the politics of climate change have determined the way media report and people understand, journalism and public attention have also contributed to build up climate science and political decisions.” (Boykoff, 2009: 120)

In addition, the internal dynamics in the professional practice and the singularities of media companies are also ruled by a complex logic of interaction, leading to a heterogeneous coverage of our topic of study (Carvalho and Burgess, 2005; Fernández-Reyes, 2010a, b). Furthermore, the

interested media debates regarding climate change existence (Boykoff, 2013) are also playing a role in terms of influence, despite the existing agreement in the scientific literature (Cook et al., 2013).

Researches about media coverage started in Western countries like United States, United Kingdom or Germany by measuring the presence of climate change and global warming as agenda topics in the middle of the 1980s, after both being labelled as environmental threats. There was a previous accumulation of scientific evidences during the 1970s and the beginning of the 1980s, but they were leading to disperse references in the media. So, 1985 was chosen as the starting point for most historical series of data (Corbett, Young and Byron, 2009: 13).

Media reporting in Spain started a decade later. A significant part of the Spanish society identified climate change as an object deserving public interest during the second half of the 1990s, although it was already considered as a serious issue in the scientific, environmentalist and political spheres (Meira, 2008: 20; Fernández-Reyes, 2010a: 11).

The attention provided in Australia, New Zealand, Middle East, Asia, Eastern Europe and South Africa was, broadly speaking, low until 1997, when the Kyoto Protocol was negotiated (Boykoff, 2009: 119-120) and commitment to reduce the emissions of greenhouse gases were discussed worldwide. However, there are a lot of countries, mainly those with less financial resources, still demanding research in this topic. Most of them are especially vulnerable to suffer the most severe effects of climate change.

1.1. A sinuous path

Research about media coverage on climate change and global warming is growing. Every country reports episodes of international saliency, often mixed up with other references to local events. These peculiarities establish different curves of attention in every given territory.

During the last years of the 20th century, Weingart, Engels and Pansagrau (2000) pointed out two periods in the climate change coverage in Germany: first, from 1975 to 1987 with a small, but continuous, attention; and second, from 1988 to 1995, with a clear growth. The first Conference of Parties (CoP1), held in 1995 in Berlin, is perceived by these authors as a turning point due to the influence of US media towards a bigger scepticism regarding the anthropogenic causes of climate change. Even so, according Peter and Heinrichs (2009: 59), both climate change and its potential consequences kept a central position in the German public communication those decades. As an example of the fluctuation of media attention around this issue, in 1997 climate change was the second *leit motiv* in the field of environmental information in Germany, whereas two years later, in 1999, it was placed on the twelfth position (Hanke, 2002: 202).

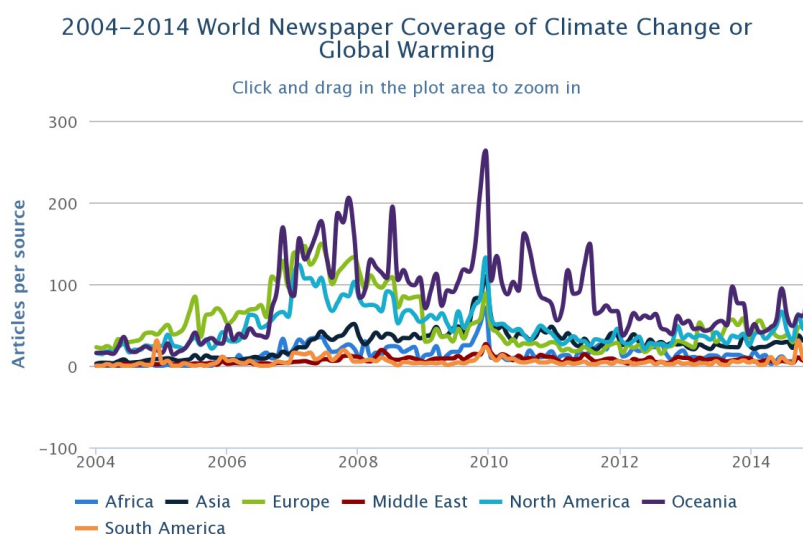
This path of ups and downs was also present at the British press (Carvalho, 2009: 29), as it was proven that levels of coverage fluctuated significantly. Carvalho's study covers the period from 1985 to 2001, showing an increasing trend mainly from 1988 until 1990, a decrease from 1991 to 1996 (also mentioned in Carvalho and Burgess, 2005) with some falls and recoveries, and another increase since 1997 until 2001. After, there will be some phases, like 2005 and even more 2007, with higher media presence. Subsequently, there is decreasing path, only interrupted in 2009 because of the Copenhagen Summit, until 2012, when levels are at the same position as the ones of 2005 and at

the beginning 2006, as the figures of the *Center for Science and Technology Policy Research* proved (Wang *et al.*, 2014).

In the United States, McComas and Shanahan (1999) distinguished diverse periods until the end of the century: first, a progressive growth from 1986 to 1989; second, stability during 1990; and third, another decrease from 1991 to 1993. Trumbo (1995) identified a peak in 1988 and a reduction since the beginning of the 1990s. Corbett, Young and Byron (2009: 5) observed that the coverage in the US declined severely since 1993, fluctuating during the next decade. There is an increase in 2007 due to the presentation of the 4th IPCC Report. Afterwards, there is a constant decrease with some punctual peaks, as the one occurred during the summit in Copenhagen, since 2013, reaching a time when the trend seems to change and starts a slight increase, as the figures illustrate (Wang *et al.*, 2014).

At Western European countries, 1988 is considered as a starting point due to diverse factors. First, the leadership of Margaret Thatcher facing the issue of climate change risks in order to promote nuclear energy and dismantle the coal industry (Carvalho, 2009: 32); second, the speech of James Hansen, a leading NASA scientist, at the US Senate regarding the certainty about climate change and its anthropogenic origin; third, this topic was part of the US Presidential campaign; and fourth, the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) launched the Intergovernmental Panel on Climate Change (IPCC) (Boykoff, 2009: 119).

Figure 1. World press coverage of climate change or global warming (2004-14)



CIRES Center for Science and Technology Policy Research, University of Colorado Boulder, http://sciencepolicy.colorado.edu/media_coverage

Source: Wang, X., et al (2014). World Newspaper Coverage of Climate Change or Global Warming, 2004-2014. Center for Science and Technology Policy Research, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Web. [November 2014]. http://sciencepolicy.colorado.edu/media_coverage.

In addition to those events with an international dimension, there are national particularities related to regional meteorological episodes. These issues are supporting the access of climate change or global warming in the newspapers, although they are sometimes linked to weather issues, instead of climate, leading to a specific type of media stories and speculations about the event (Corbett, Young and Byron, 2009: 20). Some of these episodes have been researched: increase of temperature, El El

Niño or other extreme meteorological events (Carvalho y Burgess, 2005; Corbett, Young y Byron, 2009: 5; Fernández-Reyes, 2012).

Figure 1 presents the regional trends in terms of the amount of media coverage of climate change and global warming. There is a growing curve in the Western countries since the beginning of measurements in 2004, a bigger attention since 2006 and 2007 and a constant decline until the end of 2012 and the beginning of 2013, with the exception of the Copenhagen summit in 2009 and its slight increase. However, these trends are not as evident in Africa, Asia, Middle East and South America.

1.2. Historical evolution of the coverage in Spain

The press coverage of climate change and global warming in Spain presents fluctuations, as it happens in all regions. As we mentioned before, this coverage started during the second half of the 1990s, one decade later than other European countries. However, archives return some notable mentions worth to be taken into consideration.

More than a century ago, back in 1900, the magazine *Alrededor del Mundo* (Around the World), treated the climate variation. An article signed by A. Vela focused the excessive heat during the second half of July, supported by a chart proving that the previous decade was warmer than others. It did not link this meteorological variation with anthropogenic causes, assuming a lack of knowledge that science “should reveal” (Vela, A.; *Alrededor del Mundo*, 1900, quoted by Fernández Sánchez, 2001: 413-414).

Seventeen years after, the newspaper *ABC* included in its supplement *El Sol* a section dealing with scientific news. In 1925, the geographer Juan Dantín Cereceda mentioned the scepticism regarding the possibility of the human impact on climate variation: “A very interesting and also discussed question is the influence of humans on pretended climate changes. A lot has been said about the effects caused on climate by uprooting and reforestation of big areas, but none of the appealed and recurrent arguments is counting with value enough to prove that the human action is able to modify climate to a significant extent (...)” (Dantín, *El Sol*, 1925, quoted by Fernández Sánchez, 2001: 537-538).

During the 1970s, printed media started to pay more attention to this topic. During its first months of circulation, *El País* published an article and a report acknowledging global warming. The first one was authored by Benito R. Mallol, titled “La Tierra se calienta” (The Earth warms), dealt with the cause-effect relations between atmospheric components (Mallol, *El País*, 8 August 1976); the second is a journalistic reportage signed by Alfonso García and titled “El clima mundial va a cambiar” (The World climate will change), mainly focused on the “shocking announcement” by the International Council of Scientific Unions, within the framework of its committee for environmental problems (García, *El País*, 17 October 1976). More recently, climate change started to get a slightly bigger media attention in Spain by 1992, during the Earth Summit, although it has been during the second half of the first decade of 21st century when it has reached its greater prominence (Fernández-Reyes, 2010a).

2. Theoretical coordinates and methodological proposal

Screening the media coverage of climate change and global warming in the Spanish quality press is an objective grounded on diverse intermediate theories within the field of Sociology and Cultural Anthropology of Communication that have merged to explain the mediations performed by the media in the social construction of cognitive configurations of historical events. Piñuel et al. have synthesised these mediations (2013: 72), drawing attention to the way professional routines in journalism play a *cognitive mediation* by selecting *socially relevant environments* of events, *significant data about the events*, and *ritualised stories according models of representation*. This selection of environments, data and stories are conditioned by the relations established between social *actors* exchanging information (the *sources* and *channels* of distribution), by the customary perspectives to represent the environment (*issues*), and by the communication types included in the messages (*genres* and *formats*).

Figure 2. Cognitive and structural mediations of Journalism

STRUCTURAL MEDIATION			
COGNITIVE MEDIATION	<i>Relations between Actors (Sources/Channels)</i>	<i>Relations with the Environment (Topics)</i>	<i>Relations of Communication (Genders/Formats)</i>
<i>Select socially relevant environments of an event</i>	Implication according audiences' segmentation		
	Agenda building of the own media (Lang, G.E.; Lang, K., 1981)	Adscription to "Sections" of the own media (Moles, A., 1972)	Scenarios according "Genres" and "Formats" common and established in the planning (Díaz Arias, R., 2008)
<i>Select significant data about the event</i>	Intelligibility according audiences' habits		
	Agenda setting (McCombs, M; Shaw, D, 1972).	Categorisation according "event's variables" (van Dijk T., 2003)	Discourses according more common "Genres" and "Formats" (Van Dijk T., 1990)
<i>Compose ritualised stories according models of representation</i>	Credibility of the story for the audiences		
	Agenda framing (Scheufele, D., 1999)	Typification according the "ideology" of a media (Lakoff, G., 1996)	Texts according "Genres" and "Formats" of today's "menu" (Barthes, R., 1985)

Source: Piñuel et al. (2013: 72) and authors' elaboration of bibliographic references

By means of the articulation of *cognitive* and *structural* mediations in the available offer of journalistic services, a *social mediation* is reproduced, based on the assumption that consumption reproduces the localised audiences' segmentation (according degree of *implication* towards news), their habits of data searching and interpretation (according levels of intelligibility), and trust on stories (according margins of *credibility*). Lastly, implication, intelligibility and credibility reproduce the configuration of agendas (*agenda building*, *agenda setting* and *agenda framing*) between sources

of news and channels of distribution, but they also reproduce the styles of thematic *adscription*, *categorization* and *typification* in order to face environmental transformations and the rhetoric how the journalistic genres and formats compose typologies of *scenarios*, *discourses* and *texts*, as it is explained in Figure 2.

2.1. Research objectives

This article about the media coverage of climate change and global warming is based on the following purposes:

1. - To identify trends and milestones in the selected press coverage
2. - To compare the national (Spanish) and the international coverages
3. - To illustrate the decrease of media attention between the 4th and 5th IPCC Reports
4. - To prove the diminishing public attention in the amount of queries in Google search engines of the items climate change and global warming, using *Google Trends* as a tool.

2.2. Selection criteria for units of analysis

The *Centre for Science and Technology Policy Research* at the University of Colorado screens fifty newspapers from twenty five countries in seven different regions around the world, targeting keywords as *climate change* or *global warming*. These data are obtained reaching the files via databases as Lexis Nexis, ProQuest and Factiva at the libraries of the University of Colorado. The newspapers' sample is built upon three main factors: geographical diversity (aiming for the wider reach), circulation (privileging those with higher distribution) and the stable access to the files along time (favouring those systems guarantying longer and durable access conditions).

At the project's website, one can find the media coverage of the Spanish press. In this case, data collection is performed by the professional search engine *My News* of the library of the Universidad de Sevilla, entering the keywords "cambio climático" or "calentamiento global" and following the same procedure as the international screening. The newspapers included in the sample are *El País*, *El Mundo* and *La Vanguardia*. The two first ones count with the highest national circulation, whereas the third one is holding the highest regional circulation (also being the fourth one at the national territory). The selected period starts in January 2000 and finishes on November 2014, when the 5th IPCC Synthesis Report is publicly presented.

In Spanish media the use of terms like "cambio climático" and "calentamiento global" is clearly predominant. A previous study regarding the op-eds of four outlets (Fernández-Reyes, 2010a, b) from 1992 until 2008 [1] found that in the initial years of coverage the term "efecto invernadero" (greenhouse effect) was mainly used, although "cambio climático" finally prevailed [2].

In order to quantitatively study the coverage of climate change and global warming we have observed the categories "number of units", "year" and "month". The unit of analysis was every single article where one of the two keywords, or both of them, were present.

Diverse options in order to find a homogenous measurement criterion were tested. First, we used the three own newspapers' search engines, but there were several differences between them. Another initiative was to search with *My News* the digitalized editions of these newspapers. These results

were published at the website of the *Center for Science and Technology Policy Research* by the end of 2013. However, there was a limitation: *My News* was only keeping information since 2010 and we were aiming for a longer period, since 2000, in order to better explore the coverage's evolution.

Finally, we opted for the printed versions of *El País*, *El Mundo* and *La Vanguardia*. It has to be noted that *My News* changed a counting criterion during the selected period: the same information published in different regional editions was initially counted as a single unit, but this was modified in the middle of the period, introducing a separated count of every single news story. Consequently, a news item that in 2004 was counted only once was appearing as 12 or 13 different units in 2013. This change was evident in *El País* since 2009 and in *El Mundo* since 2010, while this modification did not affect *La Vanguardia et al.*

This circumstance altered the counting rules. To avoid this distortion, we considered the same story in different editions as a single unit of analysis, given the fact they all had the same number of characters, which was the most likely option; when the characters' counting returned differences, there were counted as different units. Another slight dysfunction in the system was that, in very few occasions, some news stories published during the first days of a month were compiled in the previous month by *My News* database. We have observed this source of error and it is below the 1% of our universe.

More recently, since September 2014, the data of *El País* are obtained with Factiva in order to increase the homogeneity of the searching process conducted by the *Center for Science and Technology Policy Research*.

It is important to remark that those months with a bigger coverage due to the any special event, media turned much more sensitive to climate change and global warming and they devote more attention to them. They not only grant more space to that special event, but also to other news topics regarding climate change that would have never reached that place within the media agenda otherwise. This inertia is also occasionally present in the previous and/or following month to certain special events. Besides that, many reports alerting about climate change threats and negationist initiatives arise right before international political meeting, trying to influence on them and also increasing the media coverage provided during that phase.

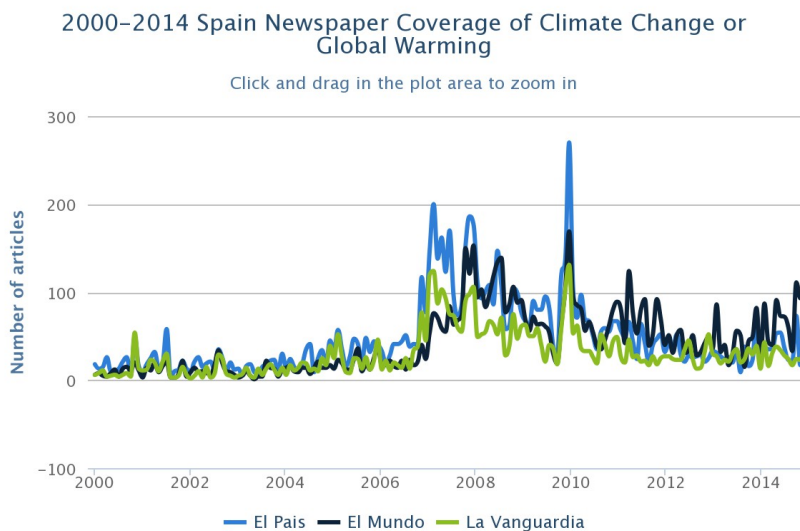
3. Analysis

3.1. Coverage in *El País*, *El Mundo* and *La Vanguardia* (Jan 2000-Nov 2014)

Our analysis starts in 2000, but it is interesting to consider a previous study from 1992 to 2008 about the press op-eds (Fernández-Reyes, 2010a). Within this period, the peaks receiving the highest coverage between 1992 and 1999 are the Earth Summit (United Nations Framework Convention on Climate Change, UNFCCC) in 1992, the second IPCC report in 1995 and the Kyoto Protocol in 1997. In terms of month, November and December are usually in the lead, as most of the Conferences of Parties of UNFCCC are run at this time of the year [3].

The outcomes of using the search engine *My News* (using *Factiva* only for *El País* since September 2014) from January 2000 until November 2014 are presented in the Figure 3.

Figure 3. Spanish press coverage of climate change or global warming (2000-14): individual data per newspaper

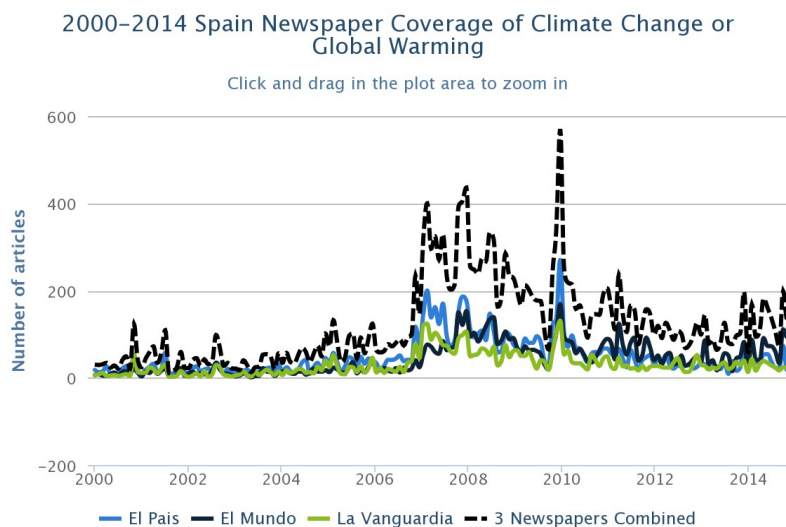


CIRES Center for Science and Technology Policy Research, University of Colorado Boulder, http://sciencepolicy.colorado.edu/media_coverage

Source: Fernández-Reyes, Rogelio (2014). Research groups MDCS and GREHCCO, Web. [November 2014] http://sciencepolicy.colorado.edu/media_coverage/spain

Figure 3 returns a high similitude between the three curves described by the three sampled newspaper. Adding the three individual results included in Figure 3, we can confirm when the peaks of attention clearly occurred. Figure 4 allows us to better identify those episodes receiving more media attention within the selected dailies.

Figure 4. Spanish press coverage of climate change or global warming (2004-14): individual data per newspaper and 3-newspapers accumulated data



CIRES Center for Science and Technology Policy Research, University of Colorado Boulder, http://sciencepolicy.colorado.edu/media_coverage

Source: Fernández-Reyes, Rogelio (2014). Research groups MDCS and GREHCCO, Web. [November 2014] http://sciencepolicy.colorado.edu/media_coverage/spain

Exploring those events related to climate change and global warming gaining more media coverage within the Spanish dailies included in our sample, we reach some interesting findings:

a) Until the end of 2006, a first group of event received a reduced coverage, being among them; the Climate Summit in The Hague (November 2000), the Bonn Summit where the Kyoto Protocol is discussed (July 2000), the coverage of the third IPCC Report is hardly perceived in 2000, the Johannesburg Summit (August 2002); the summit in Buenos Aires (December 2004); the came into force of the Kyoto Protocol (February 2005); the G8 Meeting (July 2005); the Montreal Summit (December 2005), or the Nairobi Summit, the premiere of Al Gore's documentary or the publication of the Stern report in October and November of 2006.

b) A second phase of increase in 2007, reaching up to 4 or 5 times the coverage gathered in the previous years. During this year diverse special events happened, reciprocally feeding their media interest. We have collected and explained them in the next chapter.

c) A decreasing phase, with some waves, from 2008 until 2013, but with a punctual episode reaching an unusual coverage: the Copenhagen Summit by the end of 2009. During these years, the months that excel are: May, June and October in 2008 excel not due to any special event but to an addition of independent episodes; December 2010 as a consequence of the Cancún CoP; and March 2011 without any singular event [4]. In 2013 the media levels have returned to those of 2006.

By the end of 2013 and all along 2014 a trend towards a bigger media attention is perceived, as one can find salient events, as the presentation of the 5th IPCC Report, the New York Climate Summit together with a G20 meeting, and the announcement of the United States and China of reducing their emissions. However, more time is needed to verify if this is only a punctual episode or if it is a new tendency.

Regarding the differences between newspapers, *El País* was the one including more information until the end of 2007 and, after a period until October 2010 with similar proportions to *El Mundo*, was overtaken by *El Mundo*, which is the daily publication prevailing today in terms of mentions to climate change and global warming. *La Vanguardia* is the third in terms of amount of news stories, but in several occasions it also exceeds the other two.

3.2. The year of the media irruption: 2007

The months achieving a higher media attention within the selected Spanish press were December (436 news stories) and November (405) in 2007, and December 2009 (570). The fourth higher-ranked month was February 2007 with 400 items, mainly due to the presentation in Paris of the contribution of WG1 to the fourth IPCC Report and to those salient media events, as the visit of Al Gore to Spain and the two Oscar awards earned by his documentary *An inconvenient truth* [5]. Al Gore became one of the most influencing mediators regarding climate change (Alcibar, 2007; Gozzer and Marti, 2011; Pellizer, 2008; Reig and Alcaide, 2007). The former US Vice-President achieved a remarkable media visibility during 2007, and climate change multiplied its presence as an agenda topic whenever he featured news milestones (Reig and Alcaide, 2007).

If we compare the main landmarks in the Spanish coverage with three leading countries in terms of research tradition, we find that in the United States the three main peaks were in April and December

2007, and December 2009; in the United Kingdom, they were March and June 2007, and December 2009; and in Canada, they were in February and June 2007, and also December 2009. So, these four Western countries return their higher figures twice in 2007 and then in December 2009. Consequently, and even one can always find slight national differences, there is certain parallelism in the coverage of international key events, usually related to the political, scientific and media fields (Al Gore’s documentary) that are mutually reinforcing each other.

Which were the main events in 2007 justifying this wide national and international media coverage? They were important crucial happenings influencing the appearance of peaks in the Spanish and some of the international dailies

Figure 5. Chronology of salient events during 2007

MONTH	MILESTONE
February	Presentation of WG1 contribution to the 4th IPCC report Al Gore visits Spain and “An inconvenient truth” receives two Oscar awards
April	Presentation of WG2 contribution to the 4th IPCC report
May	Presentation of WG3 contribution to the 4th IPCC report
June	Prince of Asturias Award in International Cooperation, granted to Al Gore
October	Peace Nobel Award granted to Al Gore and to the IPCC
November	Presentation of the 4th IPCC Synthesis Report
December	Summit in Bali

Source: Authors’ own elaboration

3.3. Comparison between coverage of the 4th and 5th IPCC Report

Other remarkable similitude between the Spanish and the international coverages is that those months when the different contributions to the 4th IPCC Report and the Synthesis Report were released gained more media presence than the same months when the 5th IPCC Report was launched, as data included in Figure 6 clearly show.

Figure 6. Comparison of the Spanish press coverage between the months when the 4th and 5th IPCC reports were presented

	4th IPCC Report				45h IPCC Report			
	EP	EM	LV	Total	EP	EM	LV	Total
WG1 Contribution	200	76	124	400	16	44	36	96
WG2 Contribution	162	59	103	324	36	40	31	107
WG3 Contribution	123	55	93	271	53	91	38	182
Synthesis Report	186	121	98	405	46	98	37	181
Total	671	311	418	1400	151	273	142	566

Source: Authors’ own elaboration

During February 2007, when the contribution of WG1 to the fourth IPCC Report was presented in Paris, 400 news stories were collected, whereas the same WG contribution to the fifth IPCC Report presented in September 2013 in Stockholm was only covered in 96 reports. The WG2 contribution to the fourth report was presented in Brussels during April 2007 and its coverage reached 324 news pieces, while the same contribution released in March 2014 in Yokohama during March 2007 only reached 107. When the WG3 contribution was presented in Bangkok (May 2007), 271 articles were

published, whereas in April 2014, this presentation held in Berlin produced 182 stories. Lastly, the presentation of the Synthesis Report of the fourth IPCC Report, hosted in Valencia back in November 2007 brought an outcome of 405 articles, while the fifth report, presented in Copenhagen in November 2014, only reached 181 [6].

From a total of 1400 news references in the months were the main WG contributions and the Synthesis Report of the fourth IPCC Report were publicly presented, the coverage has dropped down to 566 articles related to the fifth IPCC Report. So, media coverage decreased until a 40.42% of the space granted in the previous report. It should also be noted that the month with the highest media presence in 2014 was not linked to any of those presentations, as it was September, mainly due the Climate Summit held in New York.

Our findings prove that the fourth IPCC Report gained a higher media visibility than the fifth one, although there is a better knowledge and more grounded scientific evidence about the risks. Contributions to the fifth report confirm and reinforce the results provided by the fourth, as it is based on evidence coming from a bigger number of observations, better climate models, a more solid comprehension about the processes and feedbacks with the climate system (IPCC, 2013, 2014a, b).

We face, as a result, a media paradox: the bigger consolidation of the scientific basis of climate change risks and the smaller uncertainty regarding the phenomenon itself, the less media coverage. This is also connected with another disquieting element: there is a decrease in public attention regarding these issues.

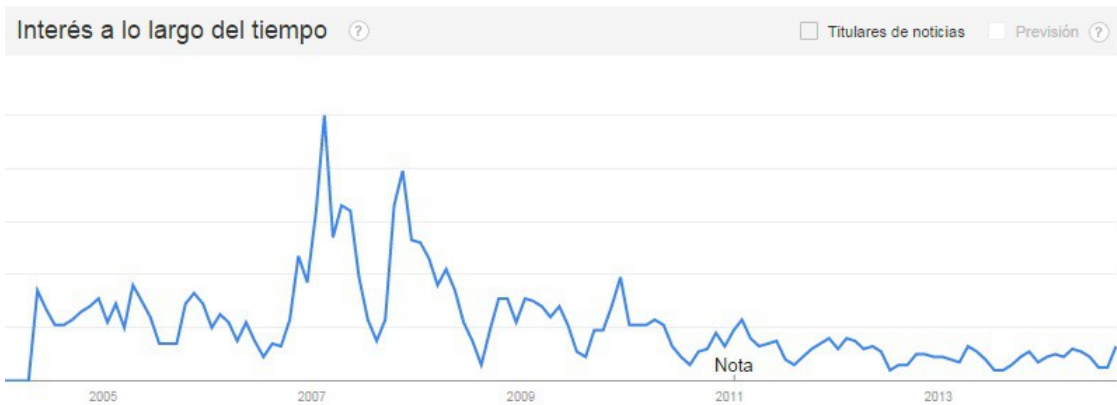
3.4. Google Trends

This is an acknowledged resource in the field of research as a solid and valid index for screening the frequencies of appearance of certain terms that could hypothetically serve as catalysts of interest, attention and presence of an item within public opinion. Following this, it has been previously used to quantify trends of public interest regarding environmental keywords [7].

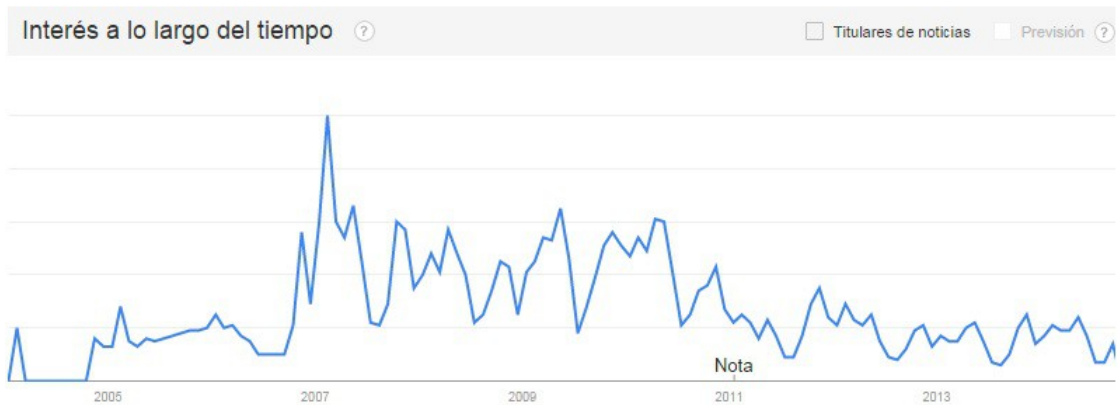
This tool provides monthly cross-national data since 2004, establishing the highest score in the chronological series the 100 value. All remaining data are provided taking this maximum value as a reference. Hence, numbers included in every figure are the amount of searches using a specific query referred to the total amount of queries completed in Google during the established period: they do not represent the total volume of searches, as data are normalised and presented in a 0 to 100 scale.

Anderegg and Goldsmith (2014) used Google Trends results to analyse the public interest about climate change, concluding that there is a strong decrease in public attention towards this issue since 2007.

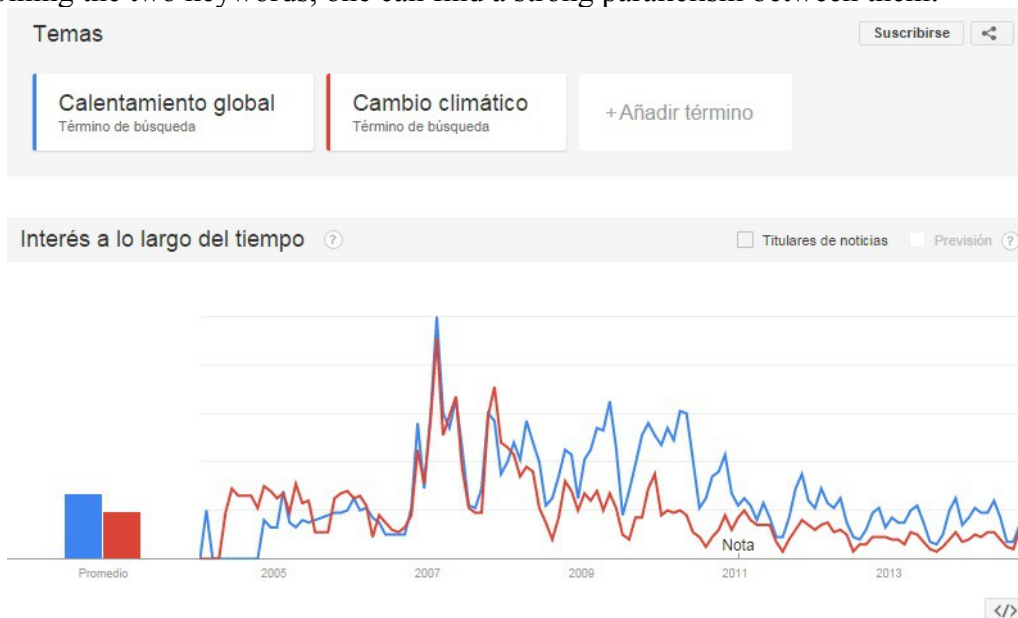
Taking the searches performed via Google in Spain about climate change, our results show a similar pathway as the one presented about the coverage provided by the three sampled newspapers, as we can see in the evolution from 2004 to September 2014:



If we used global warming as our keyword, results are as follows:



And combining the two keywords, one can find a strong parallelism between them:



Google searches describe a similar trend as the coverage of the three Spanish dailies included in this study. The three periods we identified are also perceived: reduced attention until 2006, peak in 2007 and slow decrease until 2013. These results provide some initial support to agenda setting theories

and their mediations in order to value those issues creating media interest and their potential effects in terms of implication, intelligibility and credibility. Further statistical analyses should confirm these initial correlations.

4. Discussion and conclusion

Global media attention to climate change and global warming describe a curved path, as it counts with a constant presence of information in the newspapers, but it follows quite an irregular route, with a lot of ups and downs. We can distinguish three phases in the analysed Spanish press: a) a first set of events getting an incipient and weak coverage since 2006; b) a second period of explosive increase in 2007; and c) a decreasing time, with some curves, from 2008 until 2013, including a punctual episode receiving an unprecedented attention: the Copenhagen Summit by the end of 2009. All along 2014 and the end of 2013, a tendency towards bigger media presence is perceived, although it is necessary to observe it longer in order to check whether it is a punctual episode or a new trend. The echoes of the 5th IPCC Report and the Paris Summit in 2015, where a lot of expectations are placed for reaching an international agreement, are still to be studied in order to confirm the first signals of a turning point.

2007 counted with diverse events contributing to an exceptional coverage: the presentation of different Working Group contributions to the 4th IPCC Report, the influence of Al Gore's documentary, the Bali Summit and the acknowledgement in terms of awards: two Oscar for *An inconvenient truth*, the Peace Nobel Award for both the IPCC and Al Gore, and the International Cooperation Prince of Asturias Award to Al Gore.

The main milestones in terms of climate change and global warming coverage in the analysed Spanish press are linked to: summits of the United Nations Framework Convention on Climate Change, predominantly with the one held in Copenhagen; the scientific contribution of the 4th IPCC Report; the social acknowledgement, in terms of awards, to Al Gore's documentary and to the IPCC; and international political agreements, as the Kyoto Protocol. A certain parallelism is observed with the milestones found in other countries, mainly Western countries, with a longer tradition in terms of media coverage to these issues.

The third IPCC Report remained almost unnoticed, whereas the fourth report received the highest media attention. Besides the relevance of its contributions, this outcome cannot be explained without referring to other simultaneous events during 2007. The fifth report achieved less media coverage although it points that climate change is effectively occurring --and will keep on occurring-- with a smaller degree of uncertainty, and also despite of the growing scientific evidence regarding its risks. We deal with a media paradox: the more consolidated scientific ground about the risks related to climate change, and the less uncertainty regarding its existence, the less media coverage. And at the same time, it is also decreasing the public interest.

In terms of discussion, one can wonder if the hegemonic media are addressing sufficiently the issue of climate change or global warming and if there is an active public interest about these topics.

In order to face the excess of greenhouse gases' emissions, a human reaction closely related to the limits of growth is required. Right after the presentation of IPCC WG2 results, Christiana Figueres, Executive Secretary of UNFCCC, asked oil and gas industries to perform "a drastic change" towards

a low-carbon future: “three quarters of oil and gas reserves must stay on the ground” (*Reuters*, 3 April 2014). “Science is sending us a clear message: to avoid dangerous interferences in the climate system, we cannot keep this *status quo*”, Ottmar Edenhofer exposed in an IPCC press release (13 April 2014) during the presentation of WG3 results. Their conclusion was that “combating climate change requires a Copernican revolution at technological, institutional and human levels, with an immediate start, a global implication and substantial investments”.

Once scientific data and the more impacting quotes about them have been presented, we claim that the Spanish dailies should keep a long-term coverage about climate change and global warming. We also argue that is necessary to rely on a journalism committed with the emergence of a new culture based on sustainability. It is all about promoting a cultural change, a global transition towards another paradigm.

To conclude, when one compares media discourses and the activity regarding environmental risks, one can prove, first, the reduction of the presence of terms like “climate change” and “global warming” while the controversies about these phenomena tend to disappear and the certainty about their effects continuously grows. Second, one can confirm the increase of scientific, social and political actions in order to face them, even there is not a prevalent discourse to make these actions culturally possible. This *status quo* demonstrates a disregard for the social responsibility of journalism, confirmed once again by the dominance of the tendency to “talk about what is being done regarding what is been said” (controversies against consensus in collective action) to the detriment of that discourse dealing with what is being done or could be done to face that which occurs or may occur (Piñuel *et al.*, 2013).

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5. Notes

[1] The analysis is applied on the op-eds of four Spanish publications closer to the ideological position of the four groups with the higher representation at the European Parliament. Widely speaking, they are conservatives (*El Mundo*), socialdemocrats (*El País*), liberals (*Libertad Digital*) and environmentalists (*El Ecologista*). *El Mundo*: the first op-eds in 1997 framed the topic with terms like “greenhouse effect”, although the climate change label soon prevailed; *El País*: between 1992 and 1998 there are five op-eds including references to greenhouse effect, without mentioning climate change at all. Some other times, the term “climate changes” was used, in plural, as one of the

Treats negotiated during the Earth Summit. In the remaining stories one can find a coexistence of “greenhouse effect” and “climate change”, to end the sample with a prevalence of the latter one. *Libertad Digital*: “global warming” is the concept with a greater presence, using “climate change” only occasionally, and “greenhouse effect” almost never. In *El Ecologista* there is a clear prevalence of “climate change”.

[2] There are authors studying these three terms (Carvalho, 2009) while others have even added a fourth one: “greenhouse gas” (Corbett, Young and Byron, 2009).

[3] If we compare the number of op-eds about climate change with the remaining news about the same topic in *El País* (Parrat, 2009: 6), we can find a certain quantitative parallelism.

[4] There are diverse articles referring to the comments of the current Prime Minister, Mariano Rajoy, regarding the position of his cousin about climate change, but it is a small part compared to the full sample.

[5] Al Gore’s documentary, *An Inconvenient Truth*, is the most popular initiative in the Spanish territory when surveyed people were asked to mention a book, a film, a campaign or exhibition regarding climate change.

[6] In this case, the month of presentation (November 2) was not the same as the month when the report was accepted and approved. (27-31 October).

[7] Anderegg y Goldsmith (2014) quote numerous texts to prove it.

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