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Contrast of the journalistic coverage of climate change and global warming in Spain and in the international sphere: IV-V IPCC Reports and Bali-Copenhagen-Paris

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Introduction

Abstract. This article addresses the contrast between media coverage of climate change and global warming in Spain and internationally, focusing on the contrast in the months that the IV and the V IPCC Report were published, and in the months that the Bali, Copenhagen and Paris Summits were celebrated. **Methodology.** The presence of the terms "cambio climático" and "calentamiento global" from January 2000 to June 2017 is studied, through data collected at CIRES, University of Colorado. **Results.** Coverage in Spain is similar to the international press. It is possible to differentiate five stages, present in both areas. **Discussion and Conclusions.** The international agenda, mainly political, conditions the national agenda, although both maintain singularities. The general context evidences an insufficient presence of climate change and global warming in printed media, which is not proportional to the growing empirical evidence manifested by the scientists about the risk involved.

Keywords

climate change; global warming; communication; media coverage.

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1. Introduction. 2. Theoretical framework, objectives and methodology. 3. Analysis. 3.1. Coverage trends in Spain and internationally. 3.2. Contrast in the months of the coverage of the IV and the V

Report of the IPCC. 3.3. Contrast in the months of the Summits of Bali, Copenhagen and Paris. 4. Discussion and conclusions. 5. References.

Translation: **Juan Carlos Águila Coghlan**

1. Introduction

Public perception of climate change has progressed differently in different nations over time (Capstick et al, 2015). Its evolution began with the alert of the scientists, with the feedback of people from social, political, economic and media fields, among others. Influences are complex, non-linear and dynamic (Boykoff, 2009: 120).

Media coverage of climate change and global warming is determined by different elements. In some countries still dominate media debates on its recognition and on the anthropogenic influence (Boykoff 2013; Painter, 2011) although a broad consensus prevails in the scientific literature (Cook et al, 2013). The work of the journalist and the peculiarities of newspaper companies show that climate change and global warming are not treated in a homogeneous way. (Carvalho and Burgess 2005, Fernández-Reyes, 2010, Mancinas, 2013). On the other hand, the emergence of new, and more immediate problems, arising from the economic crisis or corruption are indicated as factors that have been able to influence the reduction of coverage in the Spanish context (Heras, 2015: 251). The 2008 crisis caused a fall in advertising income, which meant less availability of paper and cut in newsrooms. This, coupled with the change in the business model of newspapers due to the incidence of electronic editions, is other elements that have been pointed as influential elements (Picó, 2013:186). Although, as will be seen later, the international agenda has a considerable weight in national coverage.

Western countries were pioneers in research on media treatment by studying the monitoring of climate change and global warming in the mid-1980s. In Spain, public interest in these issues was consolidated in the second half of the 1990s. Although previously there were areas that already perceived that this was an important issue (Meira, 2008, Fernández-Reyes, 2010). Media coverage in Spain presents undulations as in other countries and in international coverage, with historical allusions (Fernández-Reyes, Piñuel-Raigada, Vicente-Mariño, 2015).

Research on this field are increasingly numerous (Doulton and Brown, 2009); Boykoff, 2011). Each country covers episodes of international importance, alternated with references to nearby events (Goebbert et al, 2012). These singularities mark specific undulations in the profiles of this treatment in each territory. Among the first studies carried out on the coverage of climate change at the end of the 20th century and the first decade of the 21st century are those of Weingart, Engels and Pansagrau (2000), Peter and Heinrichs (2009) on Germany; Carvalho, (2009), Carvalho and Burgess (2005) on the British press; McComas and Shanahan (1999), Trumbo (1995), Boykoff and Boykoff (2004), Boykoff (2007), Corbett and Durfee (2004), Corbett, Young and Davis B. (2009) on USA; Brossard, Shanahan and McComas on France (2004); Farbotko (2005) in Australia; Lyytimäki and Tapio (2009) in Finland; Good (2008) about Canada. In some cases, they make comparisons with other countries. Subsequently, numerous nations have joined the field of research. Some research has focused on the study of international coverage in a comparative way (Holt and Barkemeyer, 2012); Boykoff et al. (2004-2017) [1]; Schmidt et al, (2013). There are still countries lagging behind, with fewer resources,

in which an activation of research is needed. Many of them are especially vulnerable to the severe effects of climate change.

Several articles have addressed quantitative coverage of the presence of climate change and global warming in the Spanish media: Águila, 2015; Arcila-Calderón, Mercado, Piñuel y Suárez-Sucre, 2016; Arévalo, 2012; Blanco, Quesada and Teruel, 2013; Caceres, Sánchez and Morales, 2012; Domínguez, Lafita and Mateu, 2016; Erviti y León, 2017; Erviti, 2013; Fernández Parrat, 2009; Fernández-Reyes, Piñuel and Vicente-Mariño, 2015; Fernández-Reyes, 2009; Gaitán and Piñuel, 2012; Leon and Erviti, 2015; Lopera, 2013; Lopera and Moreno, 2014; Lozano, Sánchez y Morales, 2017; Lozano, 2013; Piñuel, Gaitán and Lozano, 2012; Quesada, Blanco y Teruel, 2015; Reig and Alcaide, 2007; Rueda, 2014; Teso 2015, among other investigations. It has also been addressed in collective works such as Piñuel et al (2012), Fernández-Reyes and Mancina-Chavez (2013), Fernández-Reyes and Tourinho (2013), León (2013), Piñuel (2013), León (2014a, b) Piñuel (2016), Fernández-Reyes R, Piñuel J.L, Tourinho I.M. and Carvalho A. (2015), Piñuel (2016) and Fernández-Reyes (2017b).

The knowledge of media coverage of climate change and global warming is important to active policies proposals (Meira et al, 2009, 2011, 2013, Teso, 2015, Heras, 2015). In Spain, "social attitude, media attitude and political attitude towards climate change seem closely related, giving the subject a limited relevance" (Heras, 2015:27) [2]. Although the Spaniards consider it is to be a real problem and in a greater or lesser extent caused by human activity, it does not occupy a prominent place among the problems considered most important by the citizens. And "without communication and social deliberation, is difficult to achieve the necessary social consensus and social will to move towards a resilient and low carbon society facing the climate change" (Heras, 2015: 251 y 15). The 'bottleneck' limiting human responses to climate change is not so much technological as social and political (Heras, Meira and Benayas, 2016).

This article aims to know the similarities and differences between the national coverage in Spain and the international one. To do this, their trends are studied and the months of coverage of the IV and V IPCC Reports are compared. It also analyzes the three peaks with the greatest coverage in the historical series, such as the Bali, Copenhagen and Paris Summits, in the months analyzed. In an earlier article, coverage in Spain was addressed (Fernández-Reyes, Piñuel-Raigada, Vicente-Mariño, 2015). On this occasion the analyzed period is expanded (from January 2015 to June 2017), a newspaper is studied (*Expansión*), and the novelty of the study of the Spanish and international coverage is provided in comparative perspective. Likewise, another article studies the comparison of the Copenhagen and Paris Summits (Fernández-Reyes, 2016b). On this occasion, one more Summit (Bali), one more newspaper (*Expansion*) is added, and part of the counting methodology is changed, improving the quality of the results.

2. Theoretical Framework, Objectives and Methodology

As a theoretical framework we are interested in the school of interpretive frameworks, born from the American symbolic interactionism and the European school of sociology, as well as the theory of social representations of Sergi Moscovici (1979), which addresses the construction of reality. On the basis of symbolic interactionism, the theory of interpretive frameworks refers to shared meanings, symbolic structures, and cognitive schemas that organize the perception and direction of collective action (Snow and Benfrod, 1988). The media and their discourses become central elements of the analysis, playing

a prominent role in the interpretation of events, working out once as witnesses and as actors. The applied methodology is content analysis (Bardin 1986, Gaitán and Piñuel, 1998).

Objectives we set in this article are:

1. To study the tendencies of national and international coverage
2. To study the coverage in the months that the IV and V IPCC Report were published, and in the months that the Bali, Copenhagen and Paris Summits were celebrated, comparatively between the Spanish and International ambits

For the study of trends in national and international coverage, the data provided by the Center for Science and Technology Policy Research (CIRES) of the University of Colorado are used, in the period between January 2000 and June 2017 in the Spanish case, and from January 2004 to June 2017 in the international case.

The selected Spanish newspapers [3] are *El País*, *El Mundo*, *La Vanguardia* and *Expansión*. The first two are those of greater diffusion. *La Vanguardia* is the main regional newspaper, while *Expansión* is in the economic sphere according to the data of the OJD (Office of Justification of the Diffusion), available at <http://www.introl.es/medios-controlados/> with data referring to 2015. *El Mundo*, *La Vanguardia* and *Expansión* are studied with the *My News* search engine since 2000. *El País* is counted with *My News* from 2000 to 2004 and with *Factiva* from 2004.

The international journals are fifty headlines from around the world with which CIRES works from the University of Colorado, testing the terms “*climate change*” “or” “*global warming*”. These data are obtained through the Lexis Nexis, ProQuest and Factiva databases. The selection of newspapers takes into account three main factors: geographical diversity, circulation, and reliable access to archives over time.

The account of the information of the Spanish newspapers in *My News* is made accounting the information. Prior to June 2016, the accounts of the same headline were counted with different numbers of characters, which generated some distortion in the accounts of *El País* and *El Mundo*, now corrected [4]. For this reason and the inclusion of a new newspaper, *Expansión*, some results shown in previous research are modified [5].

The study counts for months, not milestones. It is observed that the significant events generate an opening to a greater treatment of the topic of climate change or global warming. This phenomenon also occurs in the month or months before and after, sometimes without establishing definite feedback links between events and published information. Numerous reports from different areas that warn of the severity of climate change and neglected or skeptical initiatives appear just prior to international policy meetings or IPCC reporting, with the aim of influencing results or interpreting them, to increase the coverage at that stage.

It should be noted that the majority of media coverage does not imply a change in public opinion (Leiserowitz, 2004) [6]. The influence of historical events is sometimes shown indirectly in media coverage. At other times it is not seen in the short term and at other times they acquire an autonomous existence independent of the nature of the facts of which it is spoken (Piñuel, Gaitán and Lozano,

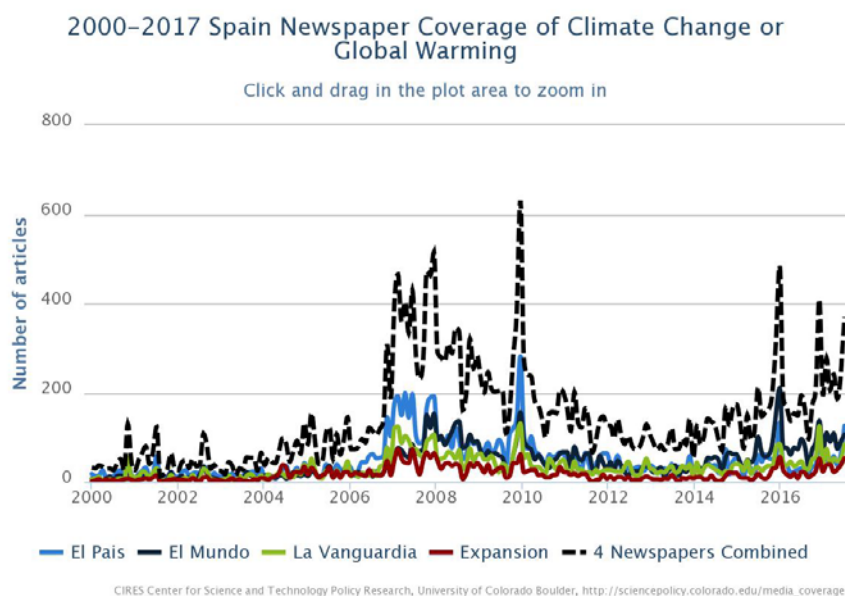
2013). Despite this, it is considered that media coverage in the press is an indicator to contemplate when approaching the relevance attributed by society to climate change and global warming.

3. Analysis

3.1. Trends in the media coverage of climate change and global warming in Spain and contrast with international coverage

The analysis performed starts from the year 2000[7]. It allows seeing in perspective the evolution of the coverage of climate change and global warming. The result of the analysis, from January 2000 through My News search engine until June 2017, (with Factiva for *El País* from January 2004) in the newspapers *El País*, *El Mundo*, *La Vanguardia* and *Expansión*, is as follows:

Graphic 1. Coverage Spanish press of the terms climate change or global warming (jan 2000-jun 2017) header data and aggregates



Source: Fernández-Reyes, Rogelio, 2017a. Spain Newspaper Coverage of Climate Change or Global Warming, 2000-2017. University of Seville, [Http://sciencepolicy.colorado.edu/media_coverage/spain](http://sciencepolicy.colorado.edu/media_coverage/spain)

Graph 1 shows a certain similarity in the profiles of the weavers, with greater or less coverage, between the newspapers analyzed. Adding up the amounts provided by each journal is observed, more clearly by the dashed line, what are the peaks in the coverage of the selected press. For months, November and December stand out, dates in which the majority of climatic summits of the UNFCCC have been celebrated.

One could distinguish five stages in coverage of climate change and global warming in Spain according to the newspapers analyzed, which update the results of previous research (Fernández-Reyes; Piñuel-Raigada; Vicente-Mariño, 2015):

a) A first stage with little coverage, from 2000 to September 2006, among which stand out: November 2000, month in which The Hague Summit was held; July 2001: Bonn Climate Summit, where the

Kyoto protocol is addresses (coverage of the IPCC III Report is not appreciable this year); August 2002: Johannesburg Summit; December 2004: Buenos Aires Summit; February 2005: Entry into force of the Kyoto Protocol; July 2005: G8 Meeting; And December 2005: Montreal Summit. At this stage there is a first phase of stability, between 2000 and 2003, and another of increasing coverage from 2004.

b) A second boiling phase, between October 2006 and December 2007, which multiplies the coverage of previous years. At the end of 2006, more media attention began, presumably related to the presentation of the IV IPCC Report months later. In October-November 2006: The Nairobi Summit was held, the Al Gore documentary was released and the Stern Report was published. In 2007 there are numerous special episodes that feedback. They highlight the impact of the IPCC and Al Gore, who shared the Nobel Peace Prize. The IPCC was particularly impressed by the presentation of contributions from the different Working Groups and the Synthesis Report of the Fourth Report. Al Gore was one of the most influential mediators in the field of communication with his visit to Spain, the echo of his documentary and the reception of prizes (Alcíbar, 2007; Gozzer and Domínguez, 2011; Pellisser, 2008; Reig and Alcaide, 2007).

c) A downhill phase, with undulations from January 2008 to approximately August 2013, but with a one-off episode that attracted unusual coverage: The Copenhagen summit at the end of 2009. In these years excel the months of June and October 2008, without any special event, but rather a set of episodes independent of each other; In November and December 2010 the Cancún summit stands out; And unveiled without any special event, March 2011 [8]. In 2013 the coverage falls to levels similar to those of the first half of 2006.

d) A new phase ascendant from approximately September 2013 to December 2015 at the time of the Paris Summit. The contribution of Working Group I to the V Report of the IPCC is presented in September 2013. Working Group II, III and the Synthesis Report are presented in March, April and November 2014, respectively. The greatest coverage in 2014 occurs in the months of September, November and December. The World Summit on Climate in New York and the World March against Climate Change coincide in September, mobilizing hundreds of thousands of citizens; In November, the G20 was committed to fighting climate change, and the US and China announced an agreement to cut emissions; In December 2014 the Climate Summit was held in Lima. In 2015 the main peaks appear in June, November and December. In June the Francisco Pope's encyclical *Laudate Si* is published; from August 2015 coverage remains at high levels: this month Obama announces his plan to reduce US emissions in USA; In September the Pope visits the USA, addressing the climate challenge in their speeches; and from October to December the Paris event catalyzes numerous references.

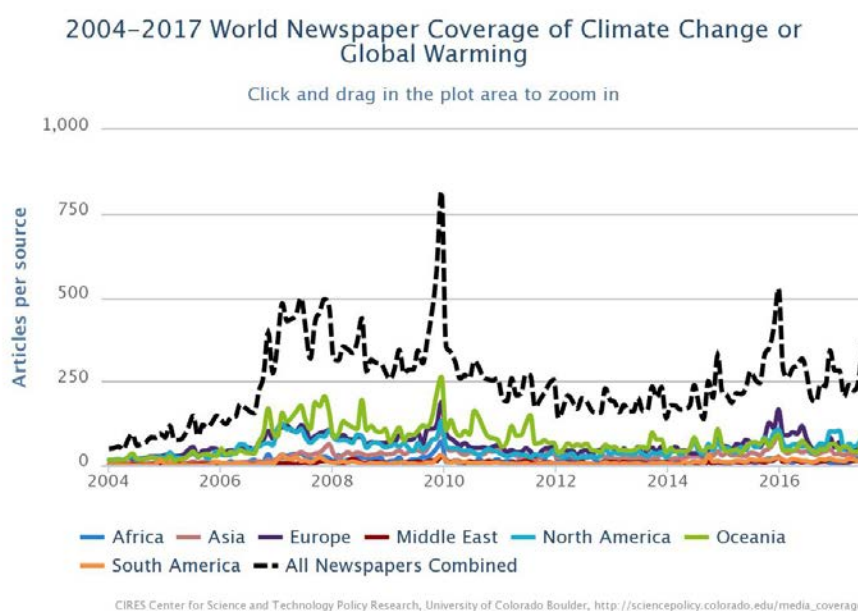
e) In the absence of the temporal perspective, a new stage is perceived with higher levels than in previous years. In principle there is a fall in media coverage after the Paris Summit throughout 2016, and a notable rise in November 2016, in which Trump's victory as president of the United States came to generate a greater number of allusions to the terms analyzed than the Marrakesh Summit. Subsequently, some stabilization is perceived, with higher levels than in previous years, in which two peaks of attention stand out that coincide with the appointment of Donald Trump as president (January 2017) and with his decision to withdraw to the US. of the Paris Agreement (June 2017). With this, Trump becomes the milestone in this new stage. A protagonism linked to a negative connotation, due to its attitude towards climate change, which is a novelty in the historical series [9].

In studying the peaks with the greatest coverage, we observed that, in the first stage, they have to do mostly with the months in which the UNFCCC Climate Summits take place. Another issue that had media attraction was the Kyoto Protocol. The second stage, boiling, had the Fourth Report of the IPCC and Al Gore as major players, along with the UNFCCC Bali Summit. The third stage, with a decrease, had its greatest peak around the Copenhagen Summit, and to a lesser extent the Cancun Summit. In the fourth stage, the IPCC is again present with its V Report (with much less coverage than the previous one), and there are several events (commitments of countries of greater influence, marches of the citizenship, protagonism of the Pope) that appear focused towards the Paris Summit, in December 2015, which stands out as a new milestone in coverage. Trump is the protagonist in the last stage.

The importance of the prominent role played by the UNFCCC Summits in the media coverage of climate change and global warming in Spain is highlighted. The media agenda is pre-eminently catalyzed by international political events. The three main peaks have coincided with the Summits of Copenhagen, Paris and Bali.

As for the differences between the newspapers, it is perceived that *El País* was the media that more information had until the end of 2010, and after a period with similar proportions to *El Mundo*, until the end of 2013, *El Mundo* will prevail to the present. *La Vanguardia* has historically been third in volume of information, although, starting in January 2016, the catalan newspaper began to rank second, ahead of *El País*. *Expansion*, of economic scope, is the newspaper with less coverage.

Graphic 2. International coverage of the terms climate change or global warming (jan 2004- jun 2017): data by region and aggregate



Source: Boykoff, M et al (2017). World Newspaper Coverage of Climate Change or Global Warming, 2004-2017. Center for Science and Technology Policy Research, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Web. [acces: http://sciencepolicy.colorado.edu/media_coverage.]

While research on national domains prevails, it is important to study comparisons with other regions (Anderson, 2009: 176). If it is compared the stages of the Spanish coverage with the international one, a considerable similarity is appreciated. At the international level, five stages can also be distinguished: a) A first stage of low coverage between 2004 and August 2006; b) Another stage, boiling, between September 2006 and throughout 2007; c) A downturn phase between 2008 and August 2013, with a special peak: the Copenhagen Summit in December 2009; d) A new stage of increase that takes place between September 2013 and the Paris Summit in December 2015; e)) A stage with more attention than in previous years, with peaks in months in which Trump assumes a special role. These are the same trends as the coverage in Spain. Parallelism is more consistent with the global scope and with less similarity in the regions of Africa, Asia, the Middle East and South America.

The five major milestones of Spanish coverage have to do with the Copenhagen and Paris Summits and with three peaks in 2007. These data coincide with international coverage, although in the case of Spain the three peaks of 2007 were in February, October and December, months in which the contribution of Working Group I to the Fourth IPCC Report was presented, Al Gore visited Spain and two Oscars were awarded for "An Inconvenient Truth" (February); the Nobel Peace Prize was awarded for Al Gore and for the IPCC (October), and the Bali Summit was held (December). In the international coverage the peaks of 2007 were in February (with the international events already mentioned), June (month of the G8 meeting in Germany, where the subject of the climatic change was treated) and November [10].

Graph 3. Comparison of national and international press coverage of the terms climate change or global warming (January 2004-December 2016)

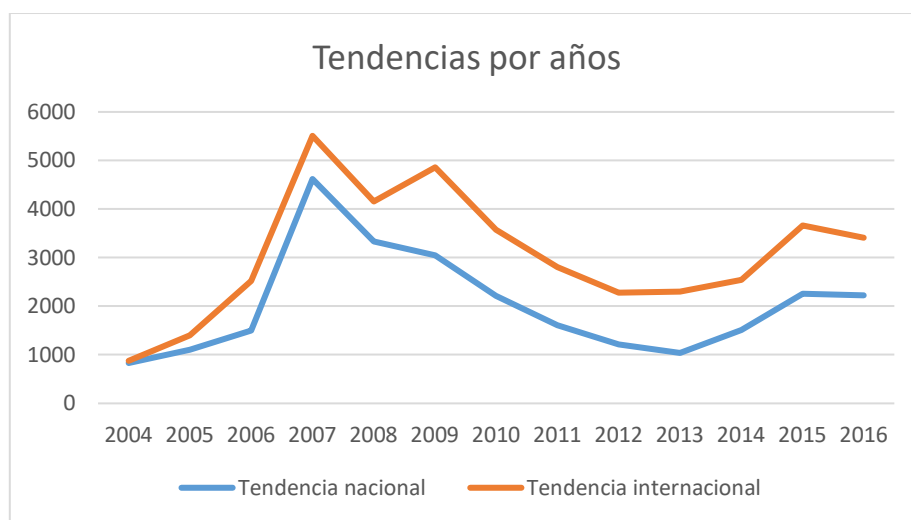


Source: Authors' calculations based on data from CIRES [11]

The national pattern in Spain is similar to patterns of western countries like USA, UK, and Canada, but is different from other countries, like Australia, where the Paris Summit is mistreated, or India where the events of 2007 had no repercussion. Therefore, it should be noted that national coverage has special parallelism with the coverage of Western countries.

Spanish and international accounting have different methodologies. In the Spanish case, the result is the sum of the four newspapers analyzed, while in international accounting, it takes the total number of articles of each month in each region and is divided by the number of sources searched during that month. Therefore, the comparison is not based on whole numbers but on trends. As can be appreciated in the graphics 3 and 4, there is considerable parallelism.

Graphic 4. Comparison of national and international press coverage of the terms climate change or global warming by years (2004-2016)



Source: Own elaboration based on CIRES data [12]

3.2. Contrast between the coverage of the IV and the V IPCC Report, in a compared perspective to the international scope

One of the outstanding similarities in national versus international coverage is that the months in which the contributions of the different Working Groups (WGI, WGII, WGIII), as well as the Synthesis Report in the IV IPCC Report were produced, had greater coverage of climate change and global warming than the V Report, as the data in Tables 2 and 3 clearly demonstrate.

In February 2007, when the contribution of Working Group I to the Fourth Report (Paris) was presented, in the newspapers analyzed 465 reports were recorded, compared to 97 that were recorded in the contribution of the same group to the V Report, in September 2013 (Stockholm); In April 2007, month of the contribution of Working Group II of the Fourth Report (Brussels), the number of information was 404, compared with 102 in March 2014 (Yokohama); In May 2007, when the contribution of Group III (Bangkok) was presented, the figure was 334, while in this V Report (Berlin) in April 2014 it was 142. In November 2007, when the Synthesis Report of the Fourth Report (Valencia) was presented, 462 information were recorded, while in November 2014, the month of the presentation of the V Report (Copenhagen), was 165 [13].

Of 1655 articles of the contributions of the different Working groups and of the Report of Synthesis of the Fourth Report appeared in the indicated months, it has become to 506 articles in the V Report.

That is, it has fallen 69.43%. In international coverage it has fallen, as can be seen from Table 3, by 52.77%. The decline has been more pronounced in national coverage.

Table 2. Comparison of journalistic coverage in the months that the IV and the V IPCC Report were presented in Spanish newspapers

	IV Report IPCC					V Report IPCC				
	EP	EM	LV	Ex	Total	EP	EM	LV	Ex	Total
Contribution of WG 1	192	76	124	73	465	26	26	36	9	97
Contribution of WG 2	199	59	103	43	404	33	32	31	6	102
Contribution of WG 3	144	55	93	42	334	44	54	38	6	142
Synthesis Report	189	121	98	54	462	46	62	37	20	165
Total	724	311	418	212	1655	149	174	142	41	506

Source: Own elaboration based on CIRES data

As a result, the months in which the IV Report was presented had more media coverage in Spain and in the international context than the V Report, despite the fact that there is a greater knowledge of the risk and a greater scientific strength in the latter. The contributions of the V Report of the IPCC confirmed and reinforced the results of the IV Report, which is based on new evidence drawn from a larger number of observations, improved climate models, a better understanding of processes and feedback from the climate system (IPCC, 2013, 2014a, b). We are, therefore, faced with a *media paradox*: there was a greater consolidation of the scientific base of the risk of climate change, less uncertainty about the phenomenon, but less media coverage (Fernández-Reyes, Piñuel-Raigada and Vicente-Mariño, 2015).

Table 3. Comparison of the journalistic coverage in the months that the IV and the V Report of the IPCC in the international scope were presented

	IV Report IPCC	V Report IPCC
Contribution of WG 1	494,41	238,35
Contribution of WG 2	457,06	164,82
Contribution of WG 3	467,54	175,01
Synthesis Report	519,36	337,18
Total	1938,04	915,36

Source: Own elaboration based on CIRES data

3.3. Contrast between the Summits of Bali, Copenhagen and Paris

In this section, we study the three main peaks in the historical series of coverage in Spain: the months in which the Summits of Bali (2007), Copenhagen (2009) and Paris (2015) were held. The Bali Summit came at the end of 2007, the year with the greatest effervescence in media coverage. In December, 515

references were counted with the terms "cambio climático" or "calentamiento global". The month of the appointment in the Danish capital added, in December 2009, 630 references, whereas in December 2015 they fell to 484. Therefore, there was a minor treatment in the month of the French appointment.

It is also noted that the proportion of newspapers has changed. *El País* had a greater proportion of references in the months of the Summits of Bali, with 192, and Copenhagen, with 281, than *El Mundo*, which added 153 and 156, respectively. In Paris, *El Mundo* added 210, *El País* 133, *La Vanguardia* 85 and *Expansión* 56. *El Mundo* relieved *El País* as the newspaper with the greatest number of references in its printed version.

If we make a comparison with other countries through the data offered by CIRES, we observe similarities in the evolution with the USA [14] and with the UK, and differences with countries such as Australia and Japan, where the coverage in the month of the Paris Summit had little relevance. As for the comparison with international coverage, the result of the percentage of decline is very similar. As can be seen in Table 4, between the Bali and the Copenhagen Summit there was an increase of 122.33% in national coverage and 107.76% in international coverage. Between Copenhagen and Paris, the decline was very similar: national coverage fell 23.18%, while in the international sphere it fell 25.16%.

Table 4. Comparison of the national and international journalistic coverage of the Bali Summits (2007), Copenhagen (2009) and Paris (2015)

	Bali Summit	Copenhagen Summit	%
National coverage	515	630	122,33
International coverage	496,29	534,81	107,76

	Copenhagen Summit	Paris Summit	%
National coverage	630	484	76,82
International coverage	714,60	534,81	74,84

Source: Own elaboration based on CIRES data [15]

For Boykoff it is important to consider the context to explain the decline in media coverage between the two Summits. This professor of the University of Colorado and director of the CIRES points as an important element a modification in the paper that have acquired the blogs and specialized sites, that have been able to reduce the volume of the information in the main newspapers [16]. On the other hand, in Copenhagen, there were several elements with special media appeal, such as the active role in the Obama talks, the impact of the *Climategate*, or the tension between the participating countries. The Paris Summit, however, was backed by previous work that generated more confidence, making it more fluid.

Obama's position and the *Climategate* case did not have as much media appeal in Spain [17]. In Copenhagen it may be interesting to value the expectations that were created during the two previous years (remember that 2007 was the year of the media development of this issue). Climate change generated a new and great interest, looking at the main international event in which a reaction was expected.

The Paris Summit did not have the novel element of a summit in which there were many expectations, as Copenhagen implied. This element, coupled with "climatic fatigue", the difficulty of keeping media attention in a risky event (Capstick, 2015) and the change in media tendencies cited by Boykoff may be interesting elements to take into account the time to interpret the decline in coverage.

4. Conclusions and discussion

Science has shown clear conclusions about climate change. The V IPCC Report (2014) confirms that climate warming is clear as well as human influence, which has already generated impacts on all continents and oceans, and that mitigation and adaptation will be necessary to avoid harmful climatic impacts. Empirical evidence about the risk posed by climate change increases with each new report.

In Spain, as Heras explains, the reality of climate change and its anthropogenic nature is mostly recognized. And, to a certain extent, they also acknowledge its dangerousness, as well as the need to take action to avoid dangerous change, although it is not a problem considered important or relevant. Communication has played a crucial role in this recognition, mediating between science and society, while, as a general tendency, media are aligned with the collective tendency to "look elsewhere" (Heras 2015: 251-278). This is a marginal issue for the Spanish media (Leon 2014b: 16)

It is observed that the main markers of the coverage of climate change and global warming in the analyzed Spanish press appear mainly in the months in which the Summits of the United Nations Framework Convention on Climate Change are celebrated, especially the Summit Copenhagen, Paris and Bali, while many actors from other areas take advantage of these events to mobilize their efforts. COPs, therefore, have a catalytic effect. Other elements that have had special repercussions have had to do with the months in which scientific reports of the IPCC were presented: the III Report went unnoticed, the IV Report had a great media coverage, whereas the V Report was reduced considerably with respect to the previous Report. The Kyoto Protocol, the documentary *An Inconvenient Truth* by Al Gore, political agreements and declarations (Trump), international events, documents such as the Stern report or the encyclical *Laudate Si*, extreme weather events among other things, are of great media attraction that feed the coverage, at least temporarily, making room among other everyday issues with informational appeal. It would be opportune to investigate what issues are addressed in the everyday beyond such markers.

The coverage of the written press on climate change and global warming describes a sinuous path both nationally and internationally, with considerable parallelism. It can be concluded that the tendency of the international agenda has a considerable influence on the tendency of the national agenda. Five stages defined in the Spanish press analyzed, can be distinguished, coupled with the international press: a) a first series of events that had an incipient and limited coverage until the end of 2006; b) a second boiling phase, in 2007; c) a downward phase, with undulations, from 2008 to 2013, with a special episode that attracted unusual coverage: the Copenhagen summit at the end of 2009; and d) a stage of advancement from the end of 2013 to the Paris Summit in December 2015; and e) a stage of promotion between January 2016 and June 2017 compared to previous years, with ups and downs.

There is no proportion between evidence of risk and media coverage. The months of the presentation of the V IPCC Report have a lower coverage than the months of the IV Report. And the same has happened between the months of the Summits that have aroused more expectations: Copenhagen and

Paris. This is despite a greater power in scientific studies on risks. There is, therefore, a *mediatic paradox*.

The parallelism between international and national coverage, as well as the observation of the importance of the UNFCCC Summits and international politics in media coverage, can give upsurge to two considerations: a positive one, since climate change is tackled global collective action; on the other hand, it can be raised: is the problem of climate change being derived and delegated to the international scope, losing local or immediate protagonism? The disproportionate role of international politics (Carvalho 2010: 175-176) decreases strongly in the nearest scales, carrying the impression that the problem is addressed essentially on the global scale (Heras, 2015: 251 and 278). Likewise, the projection of the challenge in future scenarios may be holding back a greater potential for reaction in the present. As a result, the spatial and temporal closeness is a task that challenge the journalistic exercise.

Based on the scientific data, we consider that the Spanish newspapers have to maintain coverage on climate change and global warming more continuous over time, proportional to the increase in knowledge of the risks involved. Equally, we argue that the commitment of *journalism in transition* (Fernández-Reyes, 2016a) is necessary with the commitment to facilitate the emergence of a whole new culture based on sustainability. It is about favoring a whole cultural change, a global transition towards another paradigm.

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5. Notas

[1] ICE CaPs: International Collective on Environment, Culture and Politics, Center for Science & Technology Policy Research, University of Colorado

[2] "Climate change appears to generate little interest in the social field (there is little talk, little debate, no social priorities), in the media (it is issued, it is published little) and apparently also in the political arena (little cited, occupies a secondary place in political agendas, is not relevant in electoral programs)", explains Heras

[3] Noguera points out that the proportion of information on climate change in the spanish scenario is 35.8% in the press and 23.3% in television (Noguera, 2013: 59)

[4] A small dysfunction appears on specific occasions when the information of the beginning of the month may appear in the previous month in the base of My news. We have counted which error and does not reach 1%. Another small dysfunction is that very rarely can not open news files, so you can't find out if it is information that is repeated with another name. On the other hand, on the few

occasions when the searched terms are present in advertising, it is accounted for only once, although it appears several days. This follows the rule of not repeating informations that appear on different days

[5] In July 2017 we begun to study information by information in the count of information on "climate change" and "global warming" in Spain (http://sciencepolicy.colorado.edu/icecaps/research/media_coverage/spain/index.html) . All the files are opened to correct some minor deficiencies of the My News search engine, such as accounting independently, marginal notes or texts in boxes that belong to a single unit. Text to text is studied, discarding repeated informations on the same day or in different regional editions and possible failings of My News in the identification of informations. With this, the accounts of the information are more clearly defined

[6] The screening of the film *El día de mañana* (2004), seen by 30 million spectators in the USA, generated more than 10 times the media coverage in the United States of the 2001 IPCC report. Leiserowitz *et al.* argued that attitudes towards climate change were modified, although national surveys conducted immediately before and after the film's launch concluded that they did not significantly alter national public opinion (Capstick *et al.*, 2015)

[7] A previous 1992-2008 study of press editorials (Fernández-Reyes, 2010) showed that peak coverage between 1992 and 1999 coincided with the Earth Summit (1992), with the IPCC's Second Report (1995)) and the Kyoto Protocol (1997)

[8] There are several articles related to the comment of the President of the Government, Mariano Rajoy, on the opinion of his scientific cousin on climate change, but supposes a small proportion with respect to the total, but could influence to a greater coverage

[9] George W. Bush was described as "the toxic Texan" (*El Mundo* editorial 06/15/2001) or "Bush the Polluter" (*El Mundo* editorial March 31, 2001) for his stance at the signing of the Kyoto Protocol, but did not get to have the media role that Trump in deciding the withdrawal of his country from the Paris agreement

[10] The CIRES data include the Oceania papers in November 2007, especially *The Australian*, which deals in particular with the terms "Climate change" or "global warming" in the celebration of the federal elections. Possibly, the international peak in this month is influenced by a set of circumstances in the previous months and later

[11] Data obtained on August 1, 2017

[12] Data obtained on March 22, 2017

[13] On this occasion, the month of presentation (November 2) did not coincide with the month of acceptance and approval (27-31 October)

[14] One striking element is that TV coverage in the US was lower in 2015 than in 2014 according to a study by Media Matters for America. Despite the fact that 2015 is considered an exceptional year for climate news: several hotter months on record, the presentation of the Pope's encyclical, the

Obama Energy Plan, the discovery that Exxon financed disinformation campaigns knowing the dangers climate change, the rejection of the Keystone pipeline and, above all, the Paris Summit.
<http://www.theguardian.com/environment/climate-consensus-97-per-cent/2016/mar/07/during-the-most-important-year-for-climate-news-tv-coverage-fell?>

[15] As discussed above, international and national accounting have different methodologies. Tendencies are measured

[16] <http://www.climatechangenews.com/2016/03/07/why-did-paris-climate-summit-get-less-press-coverage-than-copenhagen/>

[17] Ander egg & Goldsmith (2014) points the importance of Climategate and Glacieregate at the global level in Google searches in November between 2009 and 2010. However in the newspapers of the Spanish media analyzed, we did not find an outstanding treatment of these subjects (Fernández, Piñuel y Vicente, 2015).

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