

Portrayal of scientific controversy on climate change. A study of the coverage of the Copenhagen summit in the Spanish press.

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Abstract

Controversy has been a relevant element in the coverage of climate change. Several studies emphasize the influence of economic, political, and journalistic factors in the portrayal of controversies on this topic, along the last few decades. Very often this was related to the lobbying action of several political and economic interest groups and resulted in the portrayal of a distorted image of the scientific knowledge on this topic. This paper presents some results of a research project on information about climate change in the Spanish media (*). It analyzes the role of controversy in the current situation of strong scientific consensus on the existence and origin of climate change, through some content analysis of the coverage of the Copenhagen summit on climate change, in December 2009, in the two leading Spanish newspapers (El País and El Mundo). Results indicate that controversy still plays a relevant role in the coverage of this topic, and it is related to the editorial line of each newspaper. When controversy receives ample attention, it is portrayed mainly by means of opinion articles and it is linked to a restrictive presence of the scientific point of view. Balance is used as a legitimization tool, when it is useful to support the editorial line.

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Introduction. Controversy on climate change

To a certain extent, controversy has always existed in the coverage of climate change (CC), along the last few decades. This fact can be explained, on the one hand, by considering that conflict is a well known relevant news value. When science becomes controversial, journalistic practice "recognizes the attractiveness of controversy as news and has cobbled together a variety of strategies to enhance its perception by the audience" (Dunwoody, 1999: 61).

But, on the other hand, controversy has usually appeared when certain groups have organized themselves in order to challenge the scientific consensus on this matter. In the US the position of some lobbies has taken profit from the support of political parties and the journalistic value of balance of opinions. In other countries controversy has been relegated to a minority of the media.

Politicisation of CC, the IPCC reports, the Kyoto protocol, Al Gore's campaign and the affair known as *Climategate*, have been reported by the media as controversial topics.

Politicisation of CC

Although Swedish chemist Svant Arrhenius stated that industrial activities could affect climate in a significant way (Arrhenius, 1986), mass media hardly report on this topic until the 1988 heat wave, when James Hansen, climatologist of the Goddard NASA centre, declares in the US Senate that global warming has begun (Ungar, 1992; Trumbo, 1996; Shanahan and McComas, 1999; Sachsman, 2000). For the first time, the interest of climate science, politics, media and the public concur on this topic and give it some relevance. Global warming becomes a major topic in the US media agenda (Mazur and Lee, 1993; Boykoff and Boykoff, 2004), the United Kingdom (Carvalho and Burgess, 2005) and Germany (Weingart et al., 2000).

Although, in 1988 and 1989, the scientific consensus on global warming is reflected by the press, since 1990 a complex new process starts, in the relationship among science, media and politics, which takes controversial aspects and uncertainties into the media (McComas and Shanahan, 1999; Boykoff and Boykoff, 2004, 2007; Carvalho, 2007; Corbett et al., 2009). In the US, on the one hand, coverage introduces the "duel of scientists" (Trumbo, 1995; Wilson 2000) and, on the other, the White House offers journalists a more controversial framing of global warming, with stories focused on the political, economic and social debate (Shanahan and McComas, 1999:161).

The IPCC reports

The assessment reports published by the Intergovernmental Panel on Climate Change (IPCC) in 1990, 1995, 2001 and 2007 had a great impact in media coverage (Neverla, 2008; Butler and Pidgeon, 2009), but sometimes it is due to the controversy created on their statements or procedures, rather than the actual content of the works.

In 1995, the second IPCC report states that "the balance of evidence, from changes in global mean surface air temperature and from changes in geographical, seasonal and vertical patterns of atmospheric temperature, suggests a discernible human influence on global climate" (IPCC, 1996: 4). Sceptical scientists send a massive attack against the final version of chapter 8 of working group I (Siebenhüner, 2002: 417), which refers to the human contribution to CC. The diffusion of this report in the UK shows significant differences in media coverage: whilst The Guardian and The Independent amplify risks and call to a mobilization of public consciousness on CC, The Times tries to discredit the IPCC (Carvalho and Burgess, 2005:1464). As a consequence of this controversy, which was spread from the Wall Street Journal to other media, several procedures were changed in the IPCC.

In 2001, the IPCC publishes its third assessment report and 16 national science academies sign a joint declaration in support of this scientific group as the most trustable world source of information on CC

causes and effects. This time, coverage in the US and the UK relaxes the degree of controversy (Boykoff, 2007b; Carvalho and Burgess, 2005; Hargreaves et al., 2003).

In 2007, the fourth IPCC report receives extensive coverage but, its credibility was afterwards questioned, when some mistakes were detected in its forecast of the melting of the Himalaya glaciers in 2035 (data obtained from a non-scientific source), as well as in the overestimation of the surface of the Netherlands under the sea level (the mistake came from the Dutch environmental agency). Sceptics spread errors and the media refer to them extensively.

The Kyoto Protocol

International negotiations for the signature of the Kyoto Protocol, in 1997, are a new opportunity for the media to inform about controversy, rather than scientific consensus. Although US democratic president Bill Clinton signs the protocol, he meets a great opposition within the country, which the media reflect (Wilson, 2000). Later on, the so called "umbrella group" was created by Australia, Canada, Russia, Japan and the US, which hinders the start of the protocol. One year after the signature, the New York Times reports that an opposition group to international climate policies, called by the American Petroleum Institute, devoted 600.000 US dollars to refute information on the human contribution to CC. They intend to reach the media, by influencing science writers, editors, columnists and correspondents of tv channels (Boykoff and Rajan, 2007).

The positions of the governments are reflected by the media in Russia, China and India. Russia considers the Kyoto Protocol to be an imposed agreement (Rowe, 2009); China accuses western countries of "climatic terrorism" against its economic development (Tolan, 2007), and Indian media use the term "carbon colonialism" (Billett, 2010). Meanwhile, in Europe, there is hardly a debate about CC and most of the media support the international agreement for the reduction of greenhouse gases.

Al Gore's campaign

In 2006, the impact of Al Gore's international campaign favours visibility of CC (Boykoff and Mansfield, 2008; Nisbet and Kotcher, 2009). Former US Vice-president produces the documentary film *An Inconvenient Truth*, which brings him several awards, including the Hollywood Oscar. Nevertheless, the content of the film give rise to a new controversy, which in the UK reaches the High Court of Justice. Finally, the Court states that the central thesis of the film is correct, although the film includes 9 errors, in a context of alarmism and exaggeration.

The skeptics' answer to *An Inconvenient Truth* is *The Great Global Warming Swindle*. When this film was broadcast on Channel 4, Ofcom -the independent regulatory institution in the UK-, received hundreds of complaints from the audience, arguing that it was not neutral and it manipulated the public.

Climategate

The so called *Climategate* case is constituted by the leaking in November 2009 of several email messages and electronic documents, pirated from scientists of the Climatic Research Unit of the University of East Anglia (UK). Skeptics interpret this as a proof of manipulation, in favour of the theory of anthropogenic CC. They published the documents on the Internet, as a way to call attention from newspapers, radio and television channels (Holliman, 2010).

Perhaps the most polemic email was written by the director of the centre, Phil Jones, which reads as follows: "I've just completed Mike's Nature trick of adding in the real temps to each series for the last 20 years (eg. from 1981 onwards) and from 1961 for Keith's to hide the decline". Michael Mann is a scientist known as the author of the "hockey stick graphic", which reconstructs climate in the last centuries, showing a dramatic increase of temperatures in the late 20th century.

Independent research on hypothetical manipulation of data found no reason to question scientific consensus (Parliamentary Science and Technology Select Committee, 2010; Lord Oxburgh Scientific Assessment Panel, 2010). The final report endorses the integrity and rigour of the scientists but describes the ice hockey graphic as deceitful (Sir Muir Russell Review, 2010).

Factors influencing controversy

While some media show the scientific consensus on CC, others present a controversial coverage of the topic. Particularly, the degree of controversy outstands in the US press due to three factors, at least: the importance of the carbon and petroleum lobbies (economic factor), that find some support from the Bush Administration (political factor), and the journalistic tradition of balance (journalistic factor). Economy, politics and journalistic norms and values also influence coverage and controversies in other countries.

Economic factors

The reduction of greenhouse gases can be interpreted as ballast for economic development. In the late nineties, the US -with an important carbon industry-, Australia -main carbon exporter in the world- and Canada -with important reserves of petroleum-offer resistance to the control of polluting gas emissions. For

the poorest countries, CC is a menace to their progress (Vihersalo, 2008), and the media frame the topic from the point of view of their preoccupation for the vulnerability to impacts of this process (Müller, 2002). CC coverage in the US is influenced by several social actors related to the carbon industry, who can influence the mass media or their sources of information (Williams, 2001). These lobbies achieve that skeptics and those who deny CC have a greater presence in the US media than in other countries, creating a feeling of controversy and conflict (McCright y Dunlap, 2003; Gelbspan, 1998; Demeritt, 2001; Monbiot, 2008).

The relationship between the US media and the economy of the country is shown in the work of Dispensa and Brulle (2003). They analyze two American newspapers, one in Finland - Helsingin Sanomat- and one in New Zealand - New Zealand Herald-. The support to the established science on CC is of 100 per cent in the Finish newspaper, and of 89 per cent in the New Zealand case, but it is much lower in the US media: 43 per cent in The New York Times and 36 per cent in The Washington Post. The researchers state that the US economy is strongly linked to the petroleum industry, which is interested in telling the society that global warming is not a serious problem.

Political factors

So far, we have presented CC coverage from an international perspective. But decisions are made in the national level, according to electoral interests, national discourses and local institutions (Harrison and Sundstrom, 2007:2). This explains why changes in the governments have provoked variations in the coverage in the US (Shanahan and McComas, 1999; Wilson, 2000), the UK (Carvalho, 2005) and Australia, where journalists change from a non critic position to the government which does not support Kyoto (McManus, 2000), to set CC in the media agenda (Howard-Williams, 2009).

Carvalho (2007), focusing on the representation of CC in the British quality press, argues that the discursive reconstruction of scientific claims in the media is strongly entangled with ideological standpoints. Lockwood (2009) shows that ideological positions in the press can distort the discourse on CC and endangers the scientific consensus. These practices mean to be exceedingly confident of the position provided by the political parties and treating the facts about CC not according to legitimacy or efficiency, but according to the ideological position of the newspapers.

The American presidential system may be related to political controversy (Harrison y Sundstrom, 2007; Skolnikoff, 1999). Although President Clinton signals the Kyoto Protocol, the agreement can not be ratified because of the opposition of the Congress. On the contrary, Gavin (2009) mentions the proportional representation system in Germany as one of the causes of the high level of consensus and compromise in this country. Olausson (2009) proposes to study the connection between media framing and the political

environment in which they operate. He states that similarities in the coverage of CC in Sweden, France and Germany point towards the importance of the European politics for the press in different countries of the EU.

Journalistic factors

Boykoff and Boykoff (2004) state that adherence to the journalistic principle of balance is one of the causes of misinformation on CC that takes place in the US in the nineties. Most articles in prestigious newspapers (52.7%) pay the same attention to the point of view that global warming is due to human activities that to the one stating that it is related to natural variations. In a later study, Boykoff (2007a) analyzes coverage in US and UK newspapers. He finds out that controversy about climate science is hardly present in the UK newspapers but it appears in the US press. Another comparative study, in this case about French and US media was carried out by Brossard, Shanahan and McComas (2004). They point out that French journalists do not present as many points of view as US journalists.

In other European countries, media research points towards the fact that journalists frame their articles according to the scientific consensus (Weingart et al., 2000; Carvalho and Pereira, 2008; Peters and Heinrich, 2009; Dirix and Gelders, 2009), and they even omit talking about scientific uncertainties that could be detrimental to the call to action (Peters and Heinrich, 2005, cited in Peters, 2008; Olausson, 2009).

Research questions and method

As explained in the previous section, controversy on CC has been presented by the media in different ways, depending on a number of factors. Along the last few decades, scientific consensus on the existence and the anthropogenic origin of CC has been better established, thus reducing uncertainties. This situation of strong consensus constitutes a new scenario to analyze whether, in spite of this established scientific knowledge, controversy is still presented by the media and, if so, how is it presented and what factors influence this presentation. More specifically, the following research questions are formulated:

RQ1: Is controversy a relevant element in media coverage of CC, in spite of the strong scientific consensus?

RQ2: Is controversy presented in different ways by different media, depending on the specific political standpoints of their editorial line?

RQ3: Is controversy related to the prevalence of a specific focus of the articles and the presence of scientific content in each media?

RQ4: How do the media justify the presentation of controversy?

This paper analyzes the articles on CC published in the two leading Spanish newspapers, during the Copenhagen summit, held in December 2009¹. More specifically, we study the articles published in *El País* and *El Mundo*, containing the term “cambio climático” (climate change), within the period December 5th-20th. All the articles containing this term were selected, regardless of its journalistic genre or section.

The selection of the two newspapers is due to two reasons. Firstly, they are the two Spanish newspapers with the largest distribution in the country. In 2009, average daily circulation of *El País* was of 391.851 copies, while *El Mundo* reached 300.030 (OJD, 2010). Secondly, they maintain different editorial lines. *El País* is located in a center-left wing position, whereas *El Mundo* is considered to be a liberal newspaper, frequently critical with left-wing and close to right wing political positions.

The articles were selected by means of a specialized search engine (“My News”), which allows searching by means of key words on specific media and dates. Articles were coded by the author and two other coders. The code was previously tested with a sample of 10 articles. Following the method used by Harcup and O’Neill (2001), the articles were discussed and coded by the three coders together, trying to minimize the possible subjectivity of the process.

The presence of controversy was marked as positive when any reference to a position contrary to the scientific consensus appeared, regardless of its form or length, including references to the *Climategate* affair. Focus was classified into five different categories (political, economic, scientific, social and mixed) according to the main concern of each article.

Results and discussion

As table 1 shows, both newspapers published 192 articles on CC, during the period of analysis (117 in *El País*, 75 in *El Mundo*). Political focus was the most frequent one (40.6%), followed by the mixed focus (18.7%) and the scientific focus (17.1%). Percentages were similar in both newspapers, although the scientific focus was slightly more frequent in *El País* (18.8%) than in *El Mundo* (14.6%).

¹ The 15th International Conference on Climate Change took place in Copenhagen (Denmark) from the 7th to the 18th of December, 2009, with over 34.000 people, from 192 countries, participating (climate experts, NGO representatives and press members). The aim of the conference was to reach an international agreement to be applied since 1012.

Table 1. Focus of the articles on Climate Change

	Política	Economic	Scientific	Social	Mixed	Total
El País	48 (38.4%)	12 (10.2%)	22 (18.8%)	14 (11.9%)	19 (16.2)	117 (100 %)
El Mundo	30 (40%)	3 (4%)	11 (14.6%)	14 (18.6%)	17 (22.6%)	75 (100%)
Total	78 (40.6%)	15 (7.8%)	33 (17.1)	28 (14.5%)	36 (18.7%)	192 (100%)

Source: author's own elaboration

The high percentage of articles with a political focus can be interpreted as part of a general media trend, which gives special relevance to political coverage. Very often traces show that the articles were produced after "called" information, such as press conferences and news releases provided by political leaders, about specific political aspects, specially the evolution of negotiations during the summit.

The number of articles with a scientific focus is small in both newspapers, considering the importance of scientific knowledge for the topics discussed in the summit. In most cases, this focus is detected in articles originated by each medium (eg. interviews to scientists or experts), or opinion articles, rather than "called" events.

The total number of references to scientific knowledge was 59 in El País and 36 in El Mundo. These figures are referred to any kind of scientific content (eg. contextual information on CC processes, explanation of scientific concepts, etc.).

Tabla 2. References to controversy

	El País	El Mundo	Total
Skeptics	2	13	15
<i>Climategate</i>	4	10	14
Total	6	23	29

Source: author's own elaboration

The relevance given to controversy (table 2) was quite different in each newspaper. While El País minimizes it, by including only 6 references (0.05 references per article). On the contrary, controversy seems to be very relevant for El Mundo, since it includes a total number of 23 references (0.3 per article).

There is no clear relationship between references to controversy and focus of the articles, since both newspapers show similar percentages of focus (table 1) and relatively important differences in the number of articles reflecting controversy (table 2).

The portrayal of sceptical points of view and of the *Climategate* affair seems to be linked to political standpoints and therefore the editorial line of each newspaper. They are both coherent with the consideration of CC traditionally adopted by their respective political standpoints: right-wing groups have often denied the existence and anthropogenic origin of CC, while left-wing groups have accepted it more openly.

There are also some significant qualitative differences in the way each newspaper presents controversy. El País refers to the *Climategate* affair as an scandal of scarce importance, which has received excessive attention in the media. This statement by Jean-Pascal van Ypersele, vice-president of the IPCC summarizes the position of the newspaper: "It's a storm in a glass of water. If we erased from the climate *file* all the pirated emails, our conclusions would not change at all; there are many signs"².

On the other hand, El Mundo mentions this affair 10 times, with 6 of them reflecting the position of individuals or institutions supporting the idea that the *Climategate* case creates serious concern about the rigour of scientific research on CC. This is an example:

This week, a series of amazing events have revealed that some scientists seem to be retouching the results of their research so that they coincide with the points of view of those who finance them. As The New York Times reports this week: "hundreds of private emails stolen from a server at a British University have led to state that climate scientist conspired in order to exaggerate the human influence on CC". One of them confesses in one of the e-mails: "for the moment global warming is what is missing"³.

References to supporting the relevance of the case are in most cases justified by linking it to the point of view of US politicians. Under the headline "Pirated emails reach the Capitol", one of the articles reads as follows:

Republican congressman James Sensenbrenner has accused the scientists involved of "suppression, manipulation, excessive secrecy and service to an ideology" (...) Sensenbrenner promised finally to get to the bottom in the American ramifications of the so called *Climategate*.

² Es una tormenta en un vaso de agua. Si borrásemos del *dossier* climático todos los datos científicos relacionados con los correos pirateados no cambiarían en nada nuestras conclusiones, son muchos los indicios" (El País, 6-12-2009, p. 37).

³ Esta semana una serie de acontecimientos asombrosos han revelado cómo algunos científicos parecen estar retocando los resultados de sus investigaciones para coincidir con los puntos de vista de aquellos que les financian. Como informa el *New York Times* esta semana: «Cientos de *e-mails* privados y documentos robados de un servidor en una universidad británica han conducido a afirmar que científicos del clima conspiraban para exagerar la influencia humana en el cambio climático». Uno de ellos confiesa en uno de los *e-mails*: «De momento, lo que falta es el calentamiento global» (El Mundo, 11-12-2009, p. 25).

This republican congressman assures that the e-mails proof the existence of a "scientific fascism and macarthism"⁴.

The positions supporting more strongly the relevance of the case are included in opinion articles. This is a paragraph included in one written by George F. Will, columnist of The Washington Post:

Spreading of the emails of the Climate Research Unit, in Great Britain, -an entity contributing to the United Nations Intergovernmental Panel on Climate Change- shows the purpose of some scientists to hide or make up data and manipulate the process of peer review and the publication of scientific works. The materials of this unit also show the paranoia of the scientists who are convinced that trying to invent a "consensus" and alert on warming, they constitute a conflicting courageous minority. In fact, never before, in the history of peace times, the academic-mediatic-governmental conglomerate has been so fiercely supported by propaganda in any subject⁵.

Contrary to *El País*, the journalistic norm of balance seems to be linked to the presentation of controversy in *El Mundo*. This position is clearly reflected by showing, in the same page of this article, another one signed by the UK Prime Minister Gordon Brown, who defends the idea that *Climategate* is an irrelevant case:

The Intergovernmental Panel on Climate Change gets together more than 4000 scientists from all over the world. Their last report has accentuated, not diminished, the enormous and diverse corpus of evidence on climate change due to human activities. Its historical relevance can not be ignored as a consequence of the robbery of a handful of e-mails from a university research centre. On the contrary, the harmful antiscientific reaction that these e-mails have generated shows what is at stake⁶.

Three other articles published by *El Mundo* also minimize the relevance of the *Climategate* affair, whereas another one presents a neutral approach. The sources of authority to support this position are mainly scientists; for example, Drew Shindell, NASA climatologist:

⁴ El congresista republicano James Sensenbrenner ha acusado a los científicos implicados de «supresión, manipulación, secretismo y servicio a una ideología» (...) Sensenbrenner prometió finalmente llegar hasta el fondo en las ramificaciones norteamericanas del así llamado 'Climategate'. El congresista republicano asegura que los 'e-mails' han servido para demostrar la existencia de un «fascismo y macarthismo científico» en la cuestión del cambio climático (*El Mundo*, 6-12-2009, p. 39).

⁵ La divulgación de los correos electrónicos de la Unidad de Investigación del Clima en Gran Bretaña –entidad colaboradora del Panel Intergubernamental de Cambio Climático de las Naciones Unidas– pone de manifiesto la voluntad de ciertos científicos de ocultar o maquillar datos y manipular el proceso de revisión cotejada y la publicación de trabajos científicos. Los materiales de la Unidad también evidencian la paranoia por parte de los científicos convencidos de que intentando inventar «el consenso» y alertar del calentamiento, constituyen una minoría valiente y en conflicto. En realidad, nunca antes en la historia en tiempo de paz el conglomerado académico- mediático-gubernamental ha estado tan férreamente apoyado propagandísticamente hablando en ninguna materia. (*El Mundo*, 9-12-2009, p. 31).

⁶ El Panel Intergubernamental sobre el Cambio Climático reúne a más de 4.000 científicos de todos los rincones del mundo. Su último trabajo ha acentuado, no disminuido, el enorme y diverso corpus de evidencias del calentamiento global debido a la acción humana. Su importancia histórica no puede ignorarse por el robo de un puñado de *e-mails* de un centro de investigación universitario. Por el contrario, la dañina reacción anticientífica que han desatado los correos electrónicos ha puesto de manifiesto lo que nos estamos jugando (*El Mundo*, 9-12-2009, p. 31).

There no substance in the e-mails pirated in England”, states this North American climatologist. “In my opinion, this issue reflects how easily climate skeptics can manipulate the media, which pay more attention to this kind of stories than to evidence: glaciers are melting, ice is disappearing from the Arctic, sea levels are rising, ecosystems are moving⁷

Balance is also evident in an editorial article published by El Mundo, at the beginning of the Copenhagen summit. On the one hand, this article emphasizes scientific evidence on CC:

Innumerable measures on CC made with total rigour show that the average temperature of our planet is rising in an abnormal way, and this is linked to the increase of CO₂ in the atmosphere⁸.

Nevertheless, the same editorial article suggests that the *Climategate* affair is very relevant:

The summit starts with a strong background noise provoked by the scandal of the e-mails robbed in one of the main centres for climate studies, at the British University of East Anglia. The e-mails reproduce conversations among researcher about how to “handle” data and use “shortcuts” so that data tally with results. Those who deny or are sceptics with global warming are taking profit of this to reaffirm that CC is a big lie⁹.

Therefore, the journalistic norm of balance is used by El Mundo to justify an ambivalent position. On the one hand, it agrees that evidences on CC are numerous and solid; but, on the other, it covers the *Climategate* affair extensively, mentioning it several times and giving it even more relevance than to the scientific consensus.

The coverage of the *Climategate* affair is often linked to scientific sources denying that CC exists or it is originated by human activities (skeptics). El Mundo mentions this position more frequently (13 times) than El País (2 times). This approach is mainly shown in opinion articles or columns. They mainly use the argument that CC is due to natural cycles, rather than being provoked by human activities, while they do not mention that there is an ample scientific consensus on a totally opposite position.

The sources of epistemological authority to support these statements are mainly scientists belonging to areas different to climate studies. This is an example:

In Seville, a group of friends had lunch with don José Luis Comellas. Comellas is a wise man: professor of contemporary History, a high level musicologist and astronomer, who has published some important books and made several noteworthy discoveries of stars. He explained to us that in the last few years the temperature of Mars has increased by two or three degrees. The

⁷ «No hay nada de sustancia en los *e-mails pirateados* en Inglaterra», afirma el climatólogo norteamericano. «En mi opinión, todo este asunto refleja la facilidad con la que los *escépticos* del clima pueden manipular a los medios, que prestan más atención a este tipo de historias que a la evidencia: los glaciares se están derritiendo, el hielo está desapareciendo en el Ártico, los niveles del mar están subiendo, los ecosistemas se están desplazando» (El Mundo, 6-12-2009, p. 39).

⁸ Innumerable mediciones realizadas con todo rigor demuestran que se está acelerando anormalmente la temperatura media del Planeta, y que va unido al aumento de CO₂ en la atmósfera (El Mundo, 7-12-2009, p. 3).

⁹ La Cumbre arranca con el fuerte ruido de fondo que ha provocado el escándalo de los *e-mails* robados a uno de los principales centros de estudios del clima, el de la Universidad británica de East Anglia. Los correos electrónicos contienen conversaciones entre investigadores sobre cómo «manejar» los datos y usar «atajos» para que los resultados cuadren. Quienes niegan o son escépticos con el calentamiento global –que han bautizado al caso como *Climategate*– ya lo están aprovechando para reafirmar que el cambio climático es una gran mentira (El Mundo, 7-12-2009, p. 3).

conclusion seems to be unavoidable: if planets in the solar system are heating, and clearly humans have nothing to do with this heating, then men must have either nothing to do with heating of planet Earth¹⁰.

The same article continues with some confusing pseudo scientific reasoning, which tries to justify that CC is not provoked by human activities:

A few days ago, I have seen in this news paper the beautiful image of the Antarctic Sea melting with a footnote saying 'The Antarctic is melting, as a consequence of climate change'. For God's sake, in the polar seas, ice melts every summer"¹¹.

Obviously, the fact that polar ice melts naturally every summer, does not exclude the fact that this process is more intense in the last few decades, due to CC.

In some cases, certain scientific facts are presented, trying to support the idea that science is not concluding, thus portraying a hypothetical scientific controversy on the origin of CC. In some cases, some well known scientific arguments are reproduced, avoiding the explanations that the majority of scientists have given to them. This is an example from another opinion article published in El Mundo:

A phenomenon [CC] for which men are told to be responsible, but with no solid proofs. (...) We are blamed for the destruction of the Planet, because of our thirst for industrial development and our obsession with exhaling carbon. We are guilty of the fact that there is no snow on the Kilimanjaro y Greenland is melting. But Hannibal got across the Alps without snow and river Thames was frozen two centuries ago, when capitalism did not exist nor there were too many free men¹².

In this case, the article presents some true scientific facts, but it omits to say that this does not mean that in the present time climate is changing not for natural reasons but because of the human activities, as most scientists accept.

¹⁰ Algunos amigos de Sevilla hemos comido con don José Luis Comellas. Comellas es un sabio: catedrático de Historia contemporánea, musicólogo de altura y astrónomo con libros importantes publicados y varios notables descubrimientos de estrellas. Nos explicó que en los últimos años la temperatura de Marte ha subido dos o tres grados; la conclusión parece entonces inevitable: si los planetas del sistema solar se están calentando, y está claro que nada tiene que ver el hombre con ese calentamiento, tampoco debe tenerlo con el calentamiento del planeta tierra (El Mundo, Edition for Andalucía, 18-12-2009, p. 59).

¹¹ He visto hace unos días en este periódico la hermosa imagen del mar Antártico desheliándose: el pie de foto rezaba algo así. "Vista de la situación actual. La Antártida se derrite a consecuencia del cambio climático". ¡Por Dios! Los hielos de los mares polares se derriten cada verano, y ahora, precisamente, empieza el verano en el hemisferio austral (El Mundo, Edition for Andalucía, 18-12-2009, p. 59).

¹² Un fenómeno del que se responsabiliza a los hombres sin pruebas sólidas. (...). Se nos imputa la destrucción del planeta por nuestro afán en desarrollarnos industrialmente y nuestra manía de exhalar carbono. Tenemos la culpa de que no haya nieve en el Kilimanjaro y de que Groenlandia se derrita. Pero ya Aníbal atravesó los Alpes sin nieve y el Tánmesis se helaba hace dos siglos, cuando no existía el capitalismo ni había demasiados hombres libres (El Mundo, 6-12-2009, p. 8).

Conclusion

Controversy is a very relevant element in the presentation of CC in the Spanish newspapers. The increasingly strong international scientific consensus on the existence and origin of CC does not prevent that media can present a controversial image of climate science, with does not match the current scientific knowledge on this matter. Our study confirms the pattern shown by previous studies -when scientific evidence on CC was no concluding as it is nowadays-, that media can present a very controversial image about scientific knowledge. And this can happen also even when there is a strong scientific consensus on a specific topic. This result diverges from that of previous studies in other European countries, in which the portrayal of controversy was very limited, showing the diversity and complexity of this topic.

The way controversy is presented is related to the editorial line of each media. The newspaper aligned with left-wing political positions (El País), which has openly accepted the existence and the anthropogenic origin of CC, covers controversy in a very limited way, thus giving it a relevance that reflects the scientific consensus. On the contrary, in the newspaper with a liberal editorial line (El Mundo), the importance of controversy on CC is magnified, thus contradicting scientific consensus. This reproduces the patterns of coverage observed in other countries in previous years, confirming that political ideology can work as a filter that prevails to scientific knowledge.

The coverage of controversy is very limited in El País, the newspaper where science plays a more important role (scientific focus of the articles is more frequent and they contain more scientific references). On the contrary, El Mundo, the newspaper in which science is less relevant, magnifies controversy. Therefore, in this medium there exists the risk that the public gets a distorted image about scientific knowledge on CC, as they may receive the idea that controversy among scientists is more important than it is in fact, and knowledge on the existence and origin of CC is not clear even for scientists.

The controversial points of view presented by El Mundo are often linked to US sources. Sometimes these articles try to achieve some epistemological legitimization by including several arguments of competence – reproducing some points of view of scientists-, and some scientific facts. However, this information is not properly situated in context, since the medium does not say that such positions are only supported by a minority of the scientific community, or that the facts proof the existence and origin of CC.

This coverage contributes to spread some pseudo scientific information, since only a few facts are selected and minority points of view are presented without the proper contextual information. This can be regarded as an element of low journalistic quality.

In principle, the portrayal of controversy is apparently legitimized by the adherence to the journalistic norm of balance. However, balance is only applied when it is useful to present points of view linked to the political standpoints of their editorial line. In fact, this apparent balance obliges the media to perform a

difficult ambivalent position, presenting a controversial picture, mainly through opinion articles and, on the other hand, agreeing that there is a strong scientific consensus on this topic, through editorial articles.

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