

The case of the United States

## The symbolic rupture of scientific consensus: An interdisciplinary approach to climate change

BERNARDO DÍAZ NOSTY

Scientific consensus about climate change and the anthropogenic nature of global warming is questioned before actually making it to the media agenda, so that the message reaches the public in a faded form. The interests that exert pressure on the media make it difficult and complex to transmit this consensus to the public opinion. It is not legitimate for social sciences and, more specifically, for the field of communication to participate in the expert discussions that lead to the broad agreement of environmental researchers; however, it is indeed a responsibility of social sciences and, specifically, of research and communication strategies to disseminate the environmental message. This paper analyses the symbolic rupture of scientific consensus in the United States media and the use of an interdisciplinary strategy in environmental policies.

Keywords: Climate change, media, political polarisation, United States.

El consenso científico sobre el cambio climático y la naturaleza antropogénica del calentamiento global sufren un cuestionamiento que es previo a su incorporación a la agenda de los medios de comunicación, por lo que se desvanecen en parte cuando llegan a las audiencias. Sobre los medios presionan intereses que hacen difícil y compleja la traslación del consenso a la opinión pública. Desde las ciencias sociales y, más concretamente, desde el ámbito específico de la comunicación no es procedente intervenir en la discusión experta que conduce al acuerdo amplio de los investigadores ambientales; sin embargo, la proyección pública del mensaje ambiental sí es objeto de las ciencias sociales y, en concreto, de la investigación y las estrategias en comunicación. Se analiza en este trabajo la ruptura simbólica del consenso científico en los medios de comunicación norteamericanos y la estrategia interdisciplinar en las políticas ambientales.

Palabras clave: Cambio climático, medios, polarización política, Estados Unidos.

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[1] The National Academy of Sciences (NAS) states that “climate change research needs to be integrative and interdisciplinary”, and adds:

“The response of human and environmental systems to this spectrum of changes is likewise complex. Given this complexity, understanding climate change, its impacts, and potential responses inherently requires integration of knowledge bases from different areas of the physical, biological, social, health, and engineering sciences” (NAS 2010: 151).

[2] “Through time, research at the climate science-policy-media triple-interface has demonstrated that understanding the role of the media and improving reporting on climate change science and policy are critical to promoting better international environmental governance on climate policy, better links between climate science and policy” (Boykoff 2010: 402).

[3] “We have entered a new era of climate change research. Although there are some uncertainties in the details of future climate change, it is clear that climate change is occurring, is largely due to human activities, and poses significant risks for people and the ecosystems on which we depend” (NAS 2010: 180).

IN LINE WITH THOSE APPROACHES that try to overcome a period in which communication of the scientific alert has proved inefficient, there is a will to adopt a multidisciplinary vision which integrates the diagnosis of the problem, social awareness-raising and the application of corrective measures, (NAS 2010: 151)<sup>1</sup>. Social sciences share the same perspective (Schneider *et al.* 2010; Dyle 2011; Gross 2010) in order to overcome past shortcomings – environmental scientists confronting the rest of the population on their own – and attempt a more integral approach to the problem which includes social mediation mechanisms (Roser-Renouf y Nisbet 2008: 54).

In accordance with this, the human dimension of the problem becomes part of the approach. “Human motivations and various lines of psychological development in individuals have most often been disregarded, and the role of culture, values, and worldviews is only just beginning to receive attention in climate change research.” (O’Brien 2010: 66). These values all play a decisive role in cognitive processes and in the creation of opinion, and are closely related to the ethical dimension of the problem (Irwin 2010; Nanda 2010).

Environmental experts must partner with psychologists and other social scientists “to communicate the science in ways that foster hope and action rather than denial and despair” (Sterman 2008: 533). However, science also has to come closer to democratic culture and ethics, which is what Pielke (2007) defines as “honest mediation”. Maxwell Boykoff raises the need to operate through a triple “science-politics-media” interface (2010: 397)<sup>2</sup>, whereas other authors insist on also tackling aspects such as education (Malika, Krosnick & Langer 2009: 645; Saylan & Blumstein 2011; Basow, Sethi & Ingalls 2009; Kagawa & Selbi 2010), which leave a social sediment in the medium and long run.

### Scientific consensus

In 2008, the United States Congress requested from the National Academy of Sciences (NAS) an analysis on the state of the issue of climate change. In April 2010, the NAS published a study *-Expert credibility in climate change -* based on scientific papers published by the key environmental researchers, 97 per cent of which declare their conviction about the anthropogenic nature of climate change. Shortly after this, the National Research Council of the NAS presented a comprehensive report which repeatedly asserts that the change is taking place and that it is mainly due to human activity<sup>3</sup>.

The work of the NAS, coordinated at the University of Stanford (Anderegg *et al.* 2010), analysed the production of 1,372 researchers, qualified in terms of experience and relevance, through the articles they had published in scientific journals. The results show that only one out of the 50 most renowned scientists in the United States is skeptical about the consensus. Out of the 100 most renowned scientists, three disagree with the majority, and out of the top 200, five disagree with the majority. Out of the 908 scientists who have published over 20 papers, 3 per cent are skeptical about climate change or deny it altogether. Also, according to this study, those who are part of the general consensus are more relevant and have more scientific impact than those who ignore



the evidence of climate change and its origins<sup>4</sup>. This article, as well as the research which underlies it<sup>5</sup>, relies on relative evidence which is also established in broader terms in the results of the Intergovernmental Panel on Climate Change (IPCC).

### Questioning consensus

This questioning of scientific consensus is born and is mainly found in the United States, although its persuasive arguments have reached the rest of the world. It is there that the media and the politicians have defined very polarised positions, thus hindering an agreement between scientific consensus and social consensus. (Hetherington & Weiler 2009: 203). Even if the positions of the Democrat and Republican parties are clearly differentiated, the Democrat administrations have not assumed a leading role in international fora in order to tackle the issue efficiently. Neither Clinton nor Al Gore, as vice-president, managed to sign the Protocol of Kyoto, neither has Obama made any significant progress with respect to what he stated in his electoral program.

The application of the necessary measures to restore a certain degree of ecologic balance in the number one industrial and economic power, which is also the most polluting, would have a direct impact on the whole of its productive-industrial-financial system. But also on the socio-cultural habits associated with the *American way of life*, which is the image that has been portrayed as a success model and even as a feature of national identity. The IPCC reports are often seen as foreign indications, which allows the more conservative and ethnocentric positions to reduce the credibility of international scientists to that of quack doctors and shamans. This line often interprets scientific discourse as a political message coming from abroad which threatens the freedom of United States citizens, or even as a manifestation of dark forces that lead to the "suicide of a superpower" (Buchanan 2011).

The exploitation of scientific consensus in such polarised terms as it makes its way through economic and political filters keep it far removed from social consensus. The fact that a prominent Democrat figure, Al Gore, stood up to denounce climate change was interpreted negatively. He managed to attract the international public opinion thanks to his public relevance, but his political image became associated with scientific consensus. Thus, the criticism directed at the many weaknesses in Al Gore's discourse was also directed at scientists themselves. Skepticism and the denial of the climate phenomenon are associated to the conservative position of the Republican Party, but the substratum of interests that underlie this discourse is very complex from a strategic point of view, and communication factors become more important than scientific response.

Academic literature has striven to prove the evidence of consensus, rather than analyse the different ways in which dissent is constructed, through disinformation, manipulation and propaganda processes. Studies which reveal the inductive role of *think tanks*, underlying economic interests and the role of communicative structures in large corporations (communication managers, public relations, publicity...) tend to come from authors involved with environmental political commitment. The-

[4] "We show that expertise and prominence, two integral components of overall expert credibility, of climate researchers convinced by the evidence of ACC [anthropogenic climate change] vastly overshadows that of the climate change skeptics and contrarians" (Anderegg et al. 2010: 12.108).

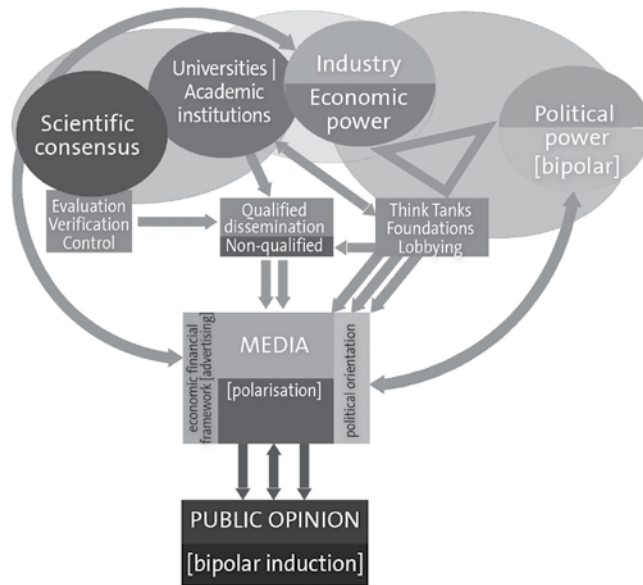
[5] Research Project of the National R+D Plan of the Spanish Government CSO2010-19725 (Comunicación y Cambio Climático: estrategias de traslación mediática del consenso científico a la opinión pública). This project is motivated by previous studies on the difficulty to communicate the scientific message to the public opinion. See Díaz Nosty, B. (2009).



se analyses point out how rhetorical and narrative strategies counteract, in terms of public opinion, the complex scientific discourse, and the difficulties the latter encounters in trying to reach society undistorted (Hulme 2009).

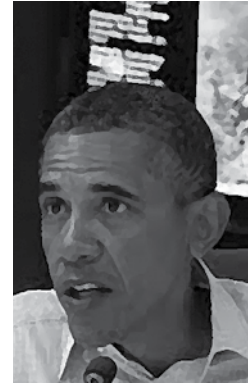
One of the first consequences of content pre-filtering by the media (pre-agenda), is the disappearance of scientific consensus as a narrative argument. The certainty of consensus turns into uncertainties about the reach of climate change, its origin and, even, about scientific consensus itself. In this way, corrective and palliative actions are not, from the point of view of public perception, so necessary or urgent. Also, when the agreement is expressed in the media, it is frequently presented within a sensationalist frame. This questioning usually incorporates political positions and opinions which are not always documented and which are presented in opposition to the scientific argument and at the same time magnifies the unsolved weaknesses of the experts' work [Chart 1].

Chart 1: Interactions in the transmission of scientific consensus to the public opinion.



Political polarisation brings about decreased social awareness with regards climate change. This is an asymmetrical polarisation, due to a shift of the Republican Party towards the right (McCarty, Poole & Rosenthal 2008: 165). Surveys reveal that conservative voters have significantly changed their past opinions about the nature and origin of global warming. Towards the middle of 2011, the United States public opinion believed less in global warming than five years earlier (Leiserowitz *et al.* 2011b), in line with other recent surveys (Gallup 2011, 2010; Pew RC 2009).

That discourse which is critical with scientific consensus and which reaches the public opinion through easily accessible media, such as books, journals, websites and blogs, can be associated with the right-wing expression of the Republican Party. Even its ideological radica-



lisation (McCarthy, Poole & Rosenthal 2008) unfolds in the form of negationist approaches rather than skeptical positions. The use of argumentation and persuasion techniques is similar to that of previous interest-driven distortions of reality, such as those which supported the pseudo-scientific discourse against tobacco being harmful to the health (Oresker & Conway 2011; Diethelm & McKee 2009; Michaels 2008; Rampton & Stauber 2001; Stauber & Rampton 2002). This result is an important driver for the symbolic rupture of consensus on climate change, and it was promoted by the narrative frameworks generated by a very polarised environment. The civil rupture in the United States has been taking place progressively since the middle of the seventies (McCarty, Poole & Rosenthal 2008: 165), became tenser during the Bush Administration (Mooney 2005: 224; Michaels 2008: 192) and is verging on the limit of democratic tolerance during the political time of president Obama<sup>6</sup>.

Climate change is part of the polarisation agenda (Dunlap & McCright 2008; McCright & Dunlap 2011a, 2011b; Manheim 2009), which includes other points of ideological controversy, and is politically armoured, generating dissonance between scientific consensus and social consensus (Sinclair 2008: 340; Petterger 2007). In the conservative pole there are concomitances with religious groups and denominational associations (Parsons 2003: 12) whose discourse tends to condemn the “abuses of science” and “scientific dictatorship”. This is the case, amongst others, of the neo-creationist movement supported by the Discovery Institute “for the renovation of science and culture” and of Intelligent Design, which are trying to rescue American society, diseased by secularism and science, for Christianity.

However, the confrontation against scientific consensus is not only based on political and religious convictions. These convictions coincide, either explicitly or implicitly, with underlying industrial interests which are not always evident in interlocution, despite the fact that they are determinant in shaping the financial accompaniment of the response (Dinan & Miller 2007). The industrial group, with its natural extensions of political representation, deploys a strategy which includes putting pressure on the media (pre-agenda), creative argumentation (*think tanks*) and projecting a positive image (public relations). Sometimes, all this comes together with disdain for democratic ethics and the right to information (Buettner 2010). The industrial group financially feeds the mechanisms that foster a state of tension and uncertainty upon which doubt is bred (Badley 2011; Cox 2009; Oresker & Conway 2010).

### The rhetoric in the discourse

The analysis of the difficulties encountered in conveying the scientific discourse to the media, has so far not focused on the rhetorical aspects much, even if it is true that both the scientific narrative and the media narrative have their own different construction techniques and goals. From the point of view of rhetoric, scientific discourse undergoes verification and validation which are not based on persuasive argumentation, which is the guiding aspect of the constructive logic of opinion leaders and inducers. In scientific discourse, persuasive aspects focus

[6] “This process began in the middle of the seventies, with President Nixon, who referred to what he called the “abuses of science”. It later gained momentum throughout the Republican administrations that followed and particularly with George Bush the “antiscientific president” (Mooney 2005: 224).



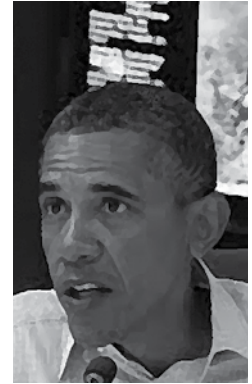
on the opportunity afforded by methodologies and on innovation, and which promotes the evolution of previous knowledge.

As opposed to the relative objectivity of scientific information, the construction of political discourse borders on propaganda or is plainly based on disinformation. The analysis carried out on media content, which has been very present in Anglo-Saxon academic literature in the last ten years, tends to merely quantify information flows and some elemental discourse orientations, but it does not focus that much on the rhetoric of the discourse (Hoffman 2011; Rabe & Borick 2010; Malka, Krosnick & Langer 2009; Cox 2009) and its oscillation between information and disinformation.

In rhetorical terms, the most defined, persistent and efficient strategies are those which have managed to interfere with the social perception of scientific consensus. Synergies become evident in this endeavour, bringing together religious beliefs with political arguments and industrial interests (Schreuder 2009; Pooley 2010; Hoggan & Littelmores 2009). The discourse structure of this alliance takes on forms of expression which are characteristic of disinformation. Propaganda and disinformation employ rhetorical tools based on confrontation, the creation of an enemy or target that needs to be defeated, the denial of the opponent's attributes and the construction of an alternative reality or paradigm. All this creates an air of authority which is generated through the use of ideological nuances and intuitions that are presented as irrefutable values. Appealing and emotional tactics are also employed to discredit scientific consensus, by ridiculing the more visible heads and agents that do not belong to the world of science, such as Al Gore. A continuous information flow is created, so that it is difficult to deploy any resources with which to reply, which are also ongoing and diverse, aimed at the different audiences which the denial strategy is aimed at. When these sources reach the media, they usually succeed in displacing the interest focus, and decontextualising, magnifying or silencing the data and values at stake.

Amongst the multiple manifestations of conservative ideological action (Hetherington & Weiler 2009), there are at least four clear aspects in the social projection of the discourse. The first is of pseudo-scientific nature, is generated by constant activity in conferences and congresses which get wide media coverage, and breeds uncertainty and doubt (Oresker & Conway 2010). Second, there is the political aspect, which relies mainly on public figures of the Republican Party. Third, popular literature: the low profile *best sellers* which are always amongst bibliographical novelties and which feed the least educated readers with the most elemental statements. Fourth, the global irradiation action through Internet by means of initiatives clad in environmental costumes which offer a wide range of webs and blogs and which tend to radically condemn scientists, public figures, authors and media that endorse the consensus (Cox 2009: 151).

The gap between scientific agreement and the social reaction to it can be explained by means of the magnifying glass effect produced by the media when they portray facts or personalities far removed or absolutely alien to the scientific world as relevant. Regardless of the real scope of scientific discrepancies, these have to go through political and media



filters which respond to a long chain of very structured interests. That is where dissent becomes publicly relevant. These expressions become the basis of the arguments disseminated through Internet and an enveloping bibliographical production (Sinclair 2006: 339-343). Pseudo-scientific authors, authors who do not even try to conceal their opportunism and those who take on academic assignments from industry are all very prolific. Their texts are not generally subjected to scientific review and validation, and can therefore spread profusely, particularly whenever their striking statements seem to demolish the arguments underlying proposals to tackle climate change.

The magnifying glass effect is enhanced by amplifying the opinions of a small group of skeptical scientists, thus conveying the idea that there is no consensus to the public opinion. Foundations and *think tanks*, supported by the industry, develop ongoing dissemination strategies and counter the majority voice of the universities and the more specific voice of environmental science with their persuasive capacity, eroding their credibility (Oresker & Conway 2010: 169 and ff.; Bradley 2011: 132); what Powell (2011) describes as “the inquisition on climate science”.

In the attempt to communicate the scientific discourse, these structural features of the media system of the United States (Boyce & Lewis 2009; Boykoff 2011, 2010) also come together with journalism practices which render the message which is transmitted to the public opinion even more inefficient (Pew RC 2009; Lowe *et al.* 2006). These are sensationalist expressions that increase uncertainty in such a way that their alarmist charge is finally attributed to the “bad scientists” who come under the umbrella of consensus. Furthermore, there is the influence of information balancing techniques (Díaz Nosty 2009), which put unqualified individuals on a level with key scientists, a practice which Revklin refers to as the “tyranny of balance” (2007: 151).

### **Polarisation and media agenda**

It seems a paradox that the change in environmental policy that Obama has brought with him to the White House has coincided with growing doubt in the public opinion, despite the fact that the scientific community has reinforced its convictions about the anthropogenic origin of global warming (Fransworth & Lichter 2011). This circumstance seriously hinders the application of public policies (Pooley 2010).

According to a survey on the perception of global warming, there are different hypotheses about the way in which United States society has changed its opinion (Gallup 2011). The economic crisis could have diverted attention from the issue, but it is also possible that citizens “are less worried about the environment when they have Democratic presidents”, because it is assumed that they will take care of the problem better than the Republicans. Gallup’s explanations do not refer to the problem of political polarisation, although this point does come up in the survey results [Table 1].

The ideological component is extremely strong, so that the perception of global warming, which amounts to 72 per cent amongst Democrats, drops to 31 per cent amongst Republicans. These values are between



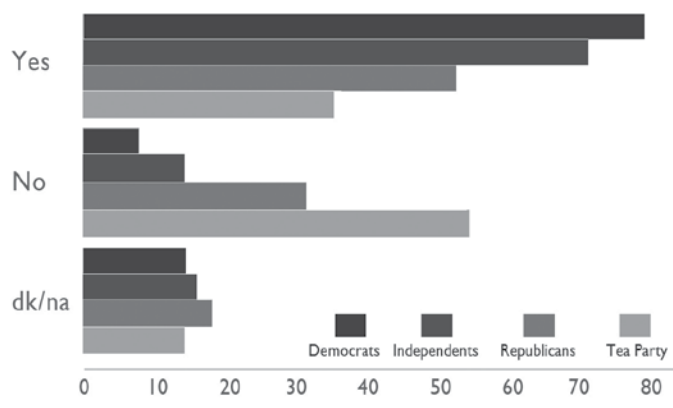
71 per cent and 36 per cent, respectively, regarding the anthropogenic origin of the problem. On the other hand, 67 per cent of Republicans believe that the seriousness of the problem is exaggerated, as opposed to 22 per cent of Democrats [Table 1].

	Democrats %	Independents %	Republicans %	Difference demo.-rep.
Great concern about global warming	72	51	31	41
The effects of global warming are already taking place	62	53	32	30
The media exaggerate the information on climate change	22	43	67	45
Global warming is the result of human activity	71	51	36	35

Source: Gallup, 3-6 March 2011. Compiled by the author.

The hypothesis that climate change has lost positions in the ranking of public opinion priorities also applies to other nations but the fall is less dramatic. The key difference lies in the party gap, in political polarisation. A survey carried out by the Yale Project on Climate Change Communication concludes that polarisation affects the construction of consensus in American society [Chart 2].

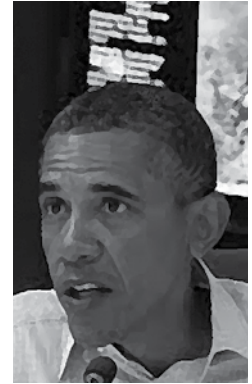
Chart 2: Ideology and opinion regarding the social perception of climate change in the USA (2011).



Source: Yale Project on Climate Change Communication, George Mason University, 2011.

The population is divided into four segments – Republicans, Democrats, Independents and Tea Party – and agreement with scientific consensus reaches 77 per cent amongst Democrats and 72 per cent amongst





Independents, but drops to 53 per cent amongst Republicans and only 35 per cent amongst the Tea Party group<sup>7</sup> (Leiserowitz *et al.* 2011a).

There is a clear correlation between different environmental orientations and political polarisation, and this is not only a communication issue, but also one of “morality and ethics” (Nisbet 2009: 18)<sup>8</sup>. In the political agenda, just like in the media agenda, there is a deep gap separating the core values of the collective mind into two main trends. Scientific consensus about the origin of climate change, which the Democrats advocate, is refuted by the Republicans.

As has been seen, the surveys show that during the Obama Administration, concern for climate change has decreased to the lowest levels in the last fifteen years (Gallup 2011, 2010; Leiserowitz *et al.* 2011; Pew 2009; Rabe & Borick 2010; Nisbet 2009). One reason for this change seems to be the rearrangement of United States citizens’ priorities as a result of the economic crisis, but it is likely that messages against environmental policies have had a stronger influence, as they have become more intense during the Democratic Presidency. The number of books against “the fraud of climate change” that have been published between 2009 and 2011 is unprecedented, as is the case with online activism (O’Neill & Boykoff 2010). Political polarisation has intensified, opening a deep gap between the two main groups in American public opinion. Finally, Obama’s political administration has focused more on the problems generated by the crisis and less on its environmental discourse. These circumstances might create the impression that the problem is not that serious, that scientists can not reach an agreement and that the Government is not too concerned (Antonio & Brulle 2011). 67 per cent of the population thinks that the problem is not going to influence their life or their wellbeing [Chart 3].

For a growing percentage, which represents almost half of the population, the problem has been blown out of proportion; that is to say, there is a belief that it is not that serious. The perception that climate change has a natural origin is becoming more widespread, as the belief in anthropogenic causes is waning. Furthermore, the social perception of scientific consensus is also on the fall, with a drop of 13 points between 2008 and 2010 (Gallup 2011).

A state of opinion has been created in the United States which differs from that of most countries (Manheim 2009), despite the influential role that the American nation plays with regards the whole world. A survey carried out in 2009 showed that the United States population was the least interested in intervention regarding climate change out of a total of 19 countries. Whereas in the United Kingdom, France and Germany that wish, on a scale from 1 to 10, was rated at 8.20, 8.03 and 7.57, respectively, in United States it was only rated at 4.71<sup>9</sup>.

However, the contrast between the public opinions of the United States and Canada is even more striking [Table 2], as their geographical proximity contrasts with the difference in the social perception of climate change (Borick, Lachapelle & Rabe 2011:3), which reinforces the hypothesis of political polarisation as the circumstance which catalyses social dissent regarding the environment. As opposed to 80 per cent of Canadians who believe in the evidence of climate change, only 58 per cent of United States citizens accept that this crisis is a fact.

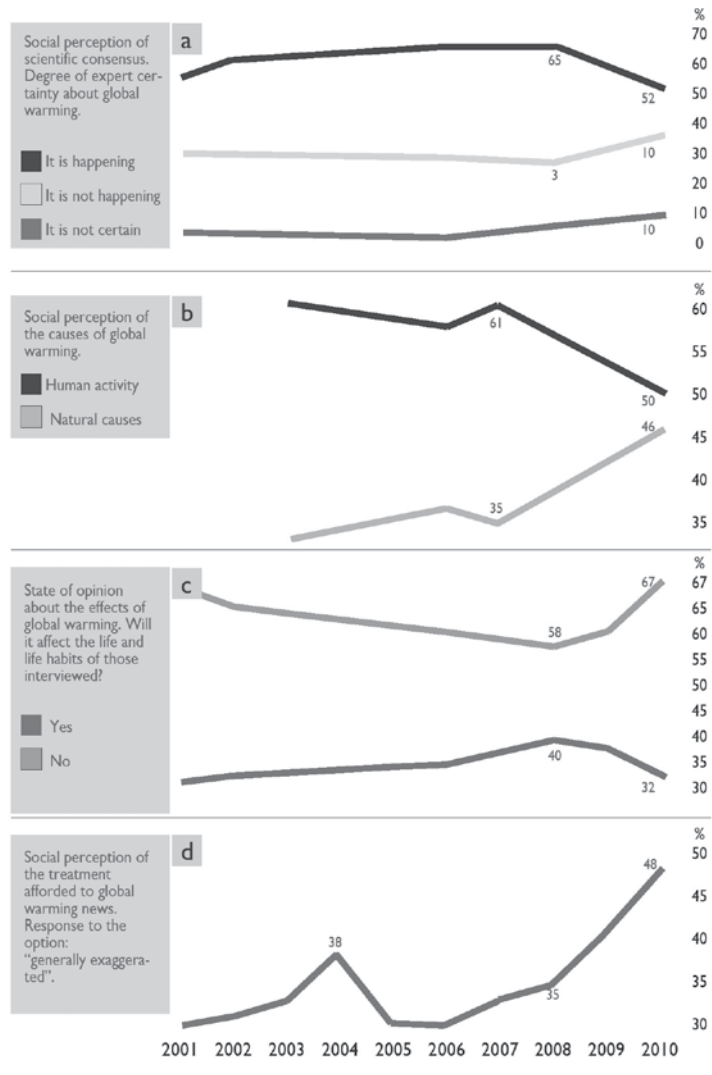
[7] Amongst the Tea Party Movement, 52 per cent deny the theory of evolution.

[8] “Despite two decades of ever-stronger scientific consensus and record amounts of news coverage, the United States still appears locked in a perceptual divide over climate change, particularly along partisan and ideological lines. The interaction between partisanship and selectively framed media portrayals that results in a “two Americas” of climate change” (Nisbet 2009: 22). A problem which Nisbet shifts onto social and cognitive sciences in order to “solve this communication problem” (*Ibid.*).

[9] A new WorldPublicOpinion.org poll (University of Maryland), 2009.



Chart 3: Perception of global warming in American society (Gallup 2010).

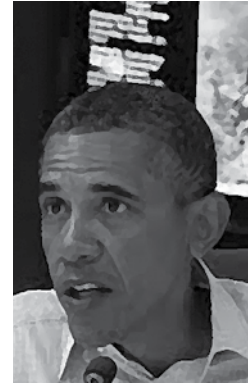


Source: Gallup Social Series Environment Poll, 2010. Compiled by the author.

[10] The scientific journalist Ian Sample published in 2007 leaks which proved that the American Enterprise Institute (AEI), a think tank financed by ExxonMobil, had offered during the years of the Bush Administration 10,000 dollars to authors of articles discrediting IPCC experts (*The Guardian*, London, 02-02-2007).

### Beyond dissent: propaganda and disinformation

Those who magnify the denial of the anthropogenic origin of global warming discredit scientists' arguments, but they accept any opinion, statement or nonsensical idea that refutes the problem (Washington & Cook 2011). They manufacture doubt - "doubt is their product" (Michaels 2008: 3-11) - and they are merchants of an uncertainty (Bradley 2011: 132; Cox 2009: 313; Oreskes & Conway 2010) which ruptures consensus by means of a strategic pressure which is difficult to counteract, given that, in a polarised scenario, every action involves a reaction<sup>10</sup>.



A lot of literature lacking scientific backing denies the problem<sup>11</sup>. These are expressions that can not be isolated from a confrontation context that divides the country into two main axes of the political agenda

Table 2 According to what you read and hear, is there any solid evidence proving that the temperature of the Earth has risen in the last four decades?			
	There is solid evidence that proves global warming	There is no solid evidence proving global warming	It is uncertain
US citizens	58	26	16
Canadian citizens	80	14	6

Source: Borick, Lachapelle and Rabe (2011: 3). Compiled by the author.

(Abramowitz 2011; Baumery Gold 2010; McCarty, Poole & Rosenthal 2008; Sinclair 2006). Climate change, together with stem cells, migration, gay marriage, public health or the theory of human evolution, is one of the dividing issues generating that civil clash that Cahn and Carbone (2011) describe so graphically in the title of their book *Red families v. blue families*.

Global warming is presented, from the conservative side, as proof of how misleading bad scientists can be. False science distorts reality (Ralph B. Alexander, *Global warming false alarm: The bad science behind the United Nations*, Michigan, Canterbury Publishing, 2009), supported by sects that manipulate the public opinion (Garth W. Paltridge, *The climate caper: facts and fallacies of global warming*, Plymouth, TaylorTrade Pub. 2010). The fraud of the “global mafia” (Ian Wishart, *Air Con: The seriously inconvenient truth about global warming*, Auckland, Howling at the Moon Pub. 2009), the expression of corrupt science (Aynsley J. Kellow, *Science and public policy: The virtuous corruption of virtual environmental science*, Cheltenham, Edgard Elgar Pub., 2007).

This critical mass of accumulative arguments gathers extraordinary relevance in the media agenda on climate change, which they have access to thanks to their exaggerated postulates, the audacity of their proposals and personal denunciations against scientists and politicians (Kahan *et al.* 2011). Besides, their powerful Internet presence generates a multiplier effect of very much unchartered consequences (Manheim 2009: 14-15; Romm 2010), which seem to foster an “online jungle” of sorts (Gavin 2009: 134).

The nature of the attacks against scientists, the denial of the positive contribution of their work and even of the existence of a consensus amongst them has mobilised the researchers and academic experts concerned. However, this is not the case with all scientists, which shows another of the weaknesses of a non-interdisciplinary approach of the issue. Science is responding to this persecution actions which affect it as a whole in a fragmented fashion (Diethelm & McKee 2009: 2; Michaels 2008: 173).

[11] Díaz Nosty, B. (2012), “Political polarisation and media agenda in the United States”, III AI-EC International Congress, Tarragona, Spain, 18-01-2012.



As the number one world power, the United States shows a society divided by an ideological gap which prevents agreement, and consequently influences global policies. For all these reasons, scientific consensus disappears as a narrative argument in the media, and scientific certainties become uncertainties for the public opinion. This questioning reduces the risk faced by the industrial interests in the event of

Table 3

Perception that climate change, according to scientists, is not taking place

	Frequency with which the audience watches different channels				
	Never	Rarely	Once a week	2-3 times a week	Almost daily
Fox News	30	37	45	36	60
CNN	51	40	39	25	25
NSNBC	49	34	35	35	20
News Channels	49	41	36	21	13
Public TV	49	41	36	21	13

Source: Ramsay et al. (2010).

environmental intervention policies that would be appropriate for the seriousness of the problem.

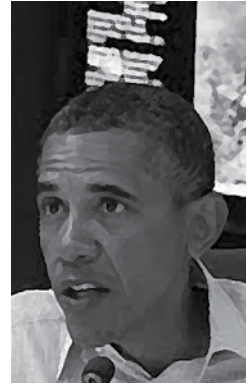
Despite the fact that polarisation partly explains the behaviour of the public opinion, other analyses see it as a result of disinformation and of the “scientific illiteracy” of the population (Mooney and Kirshenbaum 2010), combined with inductions which lead to irrational answers (Specter 2010). A study about disinformation in United States society (Ramsay 2010) exposes the causal relationships between consumption of the media and states of opinion, and shows clearly contrasted perceptions amongst audiences of different information sources on television [Table 3].

Those who declare they usually watch Fox News, the sensationalist conservative channel, express more polarised opinions in comparison to those of people who declare they never watch this channel; thus, in terms of scientific consensus, the differences are as high as 30 percent points.

This situation is also the result of the professional action of public relations (Pooley 2010; Dinan & Miller 2007). Hoggan and Littlemore (2009) place public relations, which employ the most talented professionals in the United States, at the core of the environmental disinformation “crusade” that leads to a result which is “as successful as it is despicable”.

### As a conclusion

The way in which American society becomes polarised creates a dialectic tension which spreads or can spread to other public opinions. A problem of global scope, such as climate change, can hardly be dealt with by means of local responses and demands “global responsibility” (Olausson 2009: 426). A difficult and complex goal, if public opinion in



the most powerful nation in the world is so divided and confronted and threatens to export this dissent to the rest of the world.

Communication becomes central in redefining an international strategy for climate change, which requires both responsibility and ethics in order to face a problem that must be approached with truthful information which is delivered taking into account the audiences' requirements in terms of reception and is unpolluted by interests opposed to transparency. The ideas that appeal to responsibility and political ethics even suggest reorienting the transmission of scientific consensus by means of regulations and legal actions to prevent falsehood and disinformation, as expressions of opacity, from prevailing over transparency. Thus, public policies could stimulate an "active citizenship" (Saylan & Blumstein 2011: 72), which would be aware of the problems of its time. An approach that describes major current problems as a systemic crisis implies that actions aimed at controlling global warming be integrated in a change of paradigm, a new thought and social practice model.

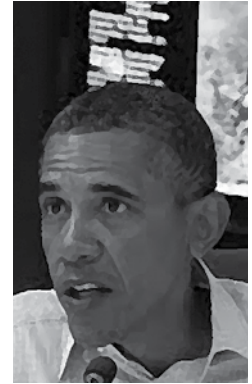
The analysis of the United States experience warns us about the role played by communication in a multidisciplinary strategy which intends to argue in favour of integral policies about climate change. This interdisciplinary strategy, integrating, amongst other vectors, knowledge of social psychology and the formulas to access public opinion, appears, also according to the National Academy of Sciences, as the right kind of action to face the different types of resistance which hinder or delay the communication of scientific consensus.

## Bibliography

- ABRAMOWITZ, A. I. (2011), *The disappearing center: Engaged citizens, polarization, and American democracy*, New Haven: Yale University Press.
- ANDEREGG, W. R.L. (et al) (2010), "Expert credibility in climate change", *PNAS*, vol. 10(27), pp. 12107-12109.
- ANDERSON, A. (2009), "Media, politics and climate change: Towards a new research agenda", *Sociology Compass* 3/2, pp. 166-182.
- ANTONIO, R. J. and ROBERT J. B. (2011), "The unbearable lightness of politics: Climate change denial and political polarization", *The Sociological Quarterly*, 52, pp. 195-202.
- BASOW, R. R., SIMRAN S. and STEPHEN A. I. (2009), "Teaching climate change communication: interdisciplinary approaches", *International Journal of Sustainability Communication*, 4, pp. 78-93.
- BAUMER, D. and HOWARD J. G. (2010), *Parties, polarization, and democracy in the United States*, Boulder: Paradigm Publishers.
- BORICK, C., LACHAPPELLE B. and RABE B. (2011), *Climate compared: Public opinion on climate change in the United States & Canada*, Ann Arbor: Gerald R. Ford School of Public Policy, University of Michigan.
- BOYCE, T. and JUSTIN L., (eds.) (2009), *Climate change and the media*. New York: Peter Lang Verlagsgruppe.
- BOYKOFF, M. (2011), *Who speaks for the climate? Making sense of media reporting on climate change*, Cambridge: Cambridge University Press.
- (2010), "Carbonundrums: The role of the media", in Schneider, S. S. et al. (eds.): *Climate change science and policy*, Washington: Island Press.



- BRADLEY, R. S. (2011), *Global warming and political intimidation: How politicians cracked down on scientists as the Earth heated up*, Amherst: University of Massachusetts Press.
- BUCHANAN, P. J. (2011), *Suicide of superpower: Will America survive to 2025?* New York: St. Martin's Press.
- BUETNER, A. (2010), "Climate change in the media: Climate denial, Ian Plimer, and the staging of public debate", *New Zealand Journal of Media Studies*, vol. 12 (1), pp. 79-97 (<http://www.nzmediastudies.org.nz/issues.php?issue=7&title=Volume+12+No.+1>; consulted: 12-10-2011).
- CAMPBELL-LENDRUM, D. and BERTOLLINI, R. (2010), "Science, media and public perception: implications for climate and health policies", *Bull World Health Organ* (doi:10.2471/BLT.10.077362; consulted: 28-09-2011).
- CAHN, N. and JUNE C. (2011), *Red families v. blue families: Legal polarization and the creation of culture*, New York: Oxford University Press (USA).
- COX, J. R. (2009), *Environmental communication and the public sphere*, London: Sage Publications (2<sup>a</sup> ed.).
- DE CHIARA, F. and MEYER, C.O. (eds.) (2011), *Forecasting, warning and responding to transnational risks*, Basingstoke: Palgrave Macmillan.
- DESSLER, A. E. and PARSON, E. (2010), *The science and politics of global climate change. A guide to the debate*, Cambridge: Cambridge University Press.
- DÍAZ NOSTY, B. (2009), "Moving toward communication solutions for sustainable innovation: Building climate change in the media", *Infoamérica-ICR*, vol. 1, pp. 91-115.
- DICKINSON, J. L. (2009), "The people paradox: Self-esteem striving, immortality ideologies, and human response to climate change", *Ecology and Society*, vol. 14 (1): pp. 34 y ff.
- DIETHELM, P. and MCKEE, M. (2009), "Denialism: what is it and how should scientists respond?", *European Journal of Public Health*, Vol. 19, Núm. 1, pp. 2-4 (doi: 10.1093/eurpub/ckn139; consulted: 03-09-2011).
- DINAN, W. and MILLER, D. (eds.) (2007), *Thinker, faker, spinner, spy: Corporate PR and the assault on democracy*, London: Pluto Press.
- DOYLE, J. (2011), *Mediating climate change (Environmental sociology)*, London: Ashgate Publishing.
- DUNLAP, R. E. and MCCRIGHT A. M. (2008), "A widening gap: Republican and Democratic views on climate change", *Environment Magazine* (septiembre-octubre).
- FRANSWORTH, S. J. and LICHTER, R. S. (2011), "The structure of scientific opinion on climate change", *International Public Opinion Research*. (doi: 10.1093/ijpor/edr033; consulted: 18-09-2011).
- GALLUP (2011), *Gallup Social Series Environment Poll (2000-2011)*.
- GAVIN, N. T. (2009), "The web and climate change politics". Tammy Boyce y Justin Lewis (eds.), *Climate change and the Media*, New York: Peter Lang, pp. 129-142.
- GODEMANN, J. and MICHELSEN, G. (2011), *Sustainability communication: Interdisciplinary perspectives and theoretical foundation*, Berlín: Springer.
- GROSS, M. (2010), *Environmental sociology: European perspectives and interdisciplinary challenges*, Berlín: Springer.
- HANSEN, A. (2009), *Environment, media and communication*, Abingdon: Routledge.
- HETHERINGTON, M. J. and WEILER, J. D. (2009), *Authoritarianism and polarization in American politics*, Cambridge: Cambridge University Press.
- HOFFMAN, A. J. (2011), "Talking past each other? Cultural framing of skeptical and convinced logics in the climate change debate", *Organization & Environment*, 24(1): pp. 3-33. (doi: 10.1177/1086026611404336; last consult: 02-09-2011).
- HOGGAN, J. and LITTLEMORE, R. D. (2009), *Climate cover-up: the crusade to deny global warming*, Vancouver: Greystone Books.



- HULME, M. (2009), *Why we disagree about climate change: Understanding controversy, inaction and opportunity*, New York: Cambridge University Press.
- IRWIN, R. (ed.) (2010), *Climate change and philosophy: transformational possibilities*, New York: Continuum.
- KAGAWA, F. and SELBY, D. (2010), *Education and climate change: living and learning in interesting times*, New York: Routledge.
- KAHAN, D. M., *et al.* (2011), "The tragedy of the risk-perception commons: Culture conflict, rationality conflict, and climate change", Cultural Cognition Project, Working Paper Núm. 89. (SSRN: <http://ssrn.com/abstract=1871503>; last consult: 22-09-2011).
- JENKINS-SMITH, H. and BRAMAN, D. (2011), "Cultural cognition of scientific consensus". *Journal of Risk Research*, vol. 14, pp. 147-174. (SSRN: <http://ssrn.com/abstract=1549444>; consulted: 18-09-2011).
- LEISEROWITZ, A., *et al.* (2011), *Politics & global warming: Democrats, republicans, independents, and the Tea Party*. Yale University and George Mason University, New Haven: Yale Project on Climate Change Communication.
- (2011), *Climate change in the American mind: Americans' global warming beliefs and attitudes in May 2011*, Yale University and George Mason University, New Haven, Yale Project on Climate Change Communication.
- (2008), "Public perception, opinion and understanding of climate change: Current patterns, trends and limitations", *Human Development Report 2007/2008*, UNDP ([http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/leiserowitz\\_anthony.pdf](http://hdr.undp.org/en/reports/global/hdr2007-2008/papers/leiserowitz_anthony.pdf); consulted: 03-09-2011).
- LESTER, L. (2010), *Media and environment: Conflict, politics and the news*, Cambridge (UK): Polity.
- LOWE, T., *et al.* (2006), "Does tomorrow ever come? Disaster narrative and public perceptions of climate change", *Public Understanding of Science* 15, pp. 435-457.
- MALKA, A., KROSNICK, J. A. and LANGER, G. (2009), "The association of knowledge with concern about global warming: Trusted information sources shape public thinking", *Risk Analysis*, Vol. 29, Num. 5, pp. 633-647. (doi: 10.1111/j.1539-6924.2009.01220.x; consulted: 11-09-2011).
- MANHEIM, F. T. (2009), *The conflict over environmental regulation in the United States: Origins, outcomes, and comparisons with the EU and other regions*, New York: Springer.
- MARKOWITZ, G. and ROSNER, D. (2003), *Deceit and denial: the deadly politics of industrial pollution*, Berkeley: University of California Press.
- MCCARTY, N., POOLE, K. T. and ROSENTHAL, H. (2008), *Polarized America: The dance of ideology and unequal riches*, Cambridge: MIT Press.
- MCCRIGHT, A. M. and DUNLAP, R. (2011a), "Cool dudes: The denial of climate change among conservative white males in the United States", *Global Environ Change*, vol. 21(4), pp. 1.167-1.172. (doi: 10.1016/j.gloenvcha.2011.06.003; consulted: 01-10-2011).
- (2011b), "The politicization of climate change and polarization in the American public's views of global warming, 2001-2010", *The Sociological Quarterly*, 52, pp. 155-194.
- MICHAELS, D. (2008), *Doubt is their product: How industry's assault on science threatens your health*, New York: Oxford University Press.
- MOONEY, C. (2005), *The republican war on science*, New York: Basic Books.
- and KIRSHENBAUM, S. (2010), *Unscientific America: How scientific illiteracy threatens our future*, New York: Basic Books.
- MOSER, S. C. and DILLING, L. (coord.) (2008), *Creating a climate change: Communicating climate change and facilitating social change*, Cambridge: Cambridge University Press.



— (2009), “Costly knowledge. Unaffordable denial: The politics of public understanding and engagement on climate change”, in Boykoff, M. (ed.), *The politics of climate change*, Oxford: Routledge, pp. 161-187.

MOSLEY-JENSEN, W. (2011), *The climate change controversy: A technical debate in the public sphere*, Saarbrücken: VDM.

NANDA, VED, (ed.) (2010), *Climate change and environmental ethics*, Piscataway, New Jersey: Transaction Pub.

NAS (NATIONAL ACADEMY OF SCIENCES) (2011), *Advancing the science of climate change*, Washington: National Academy Press.

NISBET, M. C. (2009), “Communicating climate change: Why frames matter for public engagement”, *Environment: Science and Policy for Sustainable Development*, 51(2), pp. 12-23.

— and KOTCHER, J. E. (2009), “A Two-Step Flow of Influence? Opinion-Leader Campaigns on Climate Change”, *Science Communication*, Vol. 30 (3), pp. 328-354.

NORGAARD, K. M. (2011), *Living in denial: climate change, emotions, and everyday life*, Cambridge, MA: MIT Press.

O'BRIEN, K. (2010), “Responding to climate change: The need for an integral approach”, in Esbjörn-Hargens, S. (ed.), *Integral Theory in Action*, Albany: State University of New York Press, pp. 65-79.

— and HOCHACHKA, G. (2010), “Integral adaptation to climate change”, *Journal of Integral Theory and Practice*, vol. 5(1), pp. 89-102.

O'NEILL, S. and MAXWELL B. (2010), “The role of new media in engaging the public with climate change”, en Whitmarsh, L., O'Neill, S. J., and I. Lorenzoni, *Engaging the public with climate change: Communication and behaviour change*, London: Earthscan, pp. 233-251.

OCKWELL, D., WHITMARSH, L. and O'NEILL, S. (2009), “Reorienting climate change communication for effective mitigation. Forcing people to be green or fostering grass-roots engagement?”, *Science Communication*, Vol. 30 (3), pp. 305-327.

OLAUSSON, U. (2009), “Global warming – global responsibility? Media frames of collective action and scientific certainty”, *Public Understanding of Science*, Vol.18, pp. 421-436.

ORESKER, N. and CONWAY, E. (2010), *Marchants of doubt. How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*, New York: Bloomsbury Press.

PARSONS, K. (ed.) (2003), *The science wars: debating scientific knowledge and technology*, New York: Prometheus Books.

PETTERGER, M. E. (ed.) (2007), *The social construction of climate change: power, knowledge, norms, discourses*, Aldershot: Ashgate Publishing.

PEW RESEARCH CENTER, THE (2009), *Scientific achievements less prominent than a decade ago. Public praises science; scientists fault public, media*, Washington: The Pew Research Center.

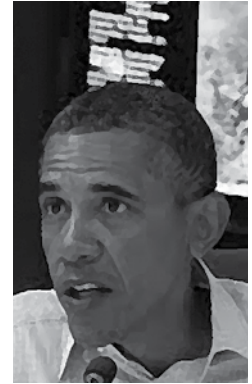
PIELKE, R. (2010), *The climate fix: What scientists and politicians won't tell you about global warming*, New York: Basic Books.

— (2007), *The honest broker: Making sense of science in policy and politics*, Cambridge: Cambridge University Press.

POOLEY, E. (2010), *The climate war: True believers, power brokers, and the fight to save the Earth*, New York: Hyperion.

POWELL, J. L. (2011), *The inquisition of climate science*, New York: Columbia University Press.





- RABE, B. G. and BORICK, C.P. (2010), "The climate of belief: American public opinion on climate change", *Governance Studies*, Num. 31, Washington: Brookings Institution.
- RAMPTON, S. and STAUBER, J. (2001), *Trust us we're experts: How industry manipulates science and gambles with your future*, New York: Penguin-Putnam.
- RAMSAY, C., et al. (2010), *Misinformation and the 2010 election. A study of the US electorate*. WorldPublicOpinion.org y Knowledge Networks. University of Maryland ([www.worldpublicopinion.org/pipa/pdf/dec10/Misinformation\\_Dec10\\_rpt.pdf](http://www.worldpublicopinion.org/pipa/pdf/dec10/Misinformation_Dec10_rpt.pdf); consulted: 29-08-2011).
- REVKIN, A. C. (2007), "Climate change as news: Challenges in communicating", in J. C. Di Mento and P. M. Doughman (eds.), *Climate change: What it means for us, our children, and our grandchildren*, Boston: MIT Press, pp. 139-160.
- ROSER-RENOUF, C. and NISBET, M. C. (2008), "The measurement of key behavioral science constructs in climate change research", *International Journal of Sustainability Communication*, 3: pp. 37-95.
- SAYLAN, C. and BLUMSTEIN, D. T. (2011), *The failure of environmental education (and how to fix it)*, Berkeley: University of California Press.
- SCHNEIDER, S. H., et al. (eds.) (2010), *Climate change science and policy*, Washington: Island Press.
- SCHREUDER, Y. (2009), *The corporate greenhouse: Climate change policy in a globalizing world*, New York: Zed Books.
- SINCLAIR, B. (2006), *Party wars: Polarization and the politics of national policy making*, Norman: University of Oklahoma.
- SPECTER, M. (2010), *Denialism: How irrational thinking harms the Planet and threatens our lives*, London: Penguin.
- STAUBER, J. and RAMPTON, S. (2002), *Toxic sludge is good for you: Lies, damn lies and the Public Relations industry*, Monroe, ME: Common Courage Press.
- STERMAN, J. D. (2008), "Risk communication on climate: Mental models and mass balance", *Science*, vol. 322 (5681), pp. 532-533 (doi: 10.1126/science.1162574; consulted: 20-10-2011).
- WASHINGTON, H. and COOK, J. (2011), *Climate change denial: Heads in the sand*, London: Earthscan Publishing.
- WHITMARSH, L., O'NEILL, S. and LORENZONI, E. (eds.) (2010), *Engaging the public with climate change: Behaviour change and communication*, London: Earthscan.
- WORLD RESOURCES INSTITUTE (2011), *World Resources Report 2010-2011: Decision making in a changing climate*, Washington: WRI.