The increase of 2°C in climate change communication in spanish newspaper *El País*

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Resumen

El objetivo climático de un incremento de la temperatura "por debajo de 2° C" con respecto a los niveles preindustriales es uno de los principales retos al que se enfrenta la civilización actual. A través del análisis de contenido estudiamos los artículos aparecidos en el diario *El País* que mencionan "cambio climático" a la vez que abordan un incremento de temperatura Media mundial en torno a 2° C. Las fechas estudiadas abarcan un periodo de tiempo desde 1976, en el que dicho buscador de *elpais.com* data la primera unidad, hasta el 30 de junio de 2013. El análisis de cómo se está construyendo la representación social del mencionado objetivo climático en los medios de comunicación aporta datos e información que pueden ser de interés para la aplicación de prácticas comunicativas activas y reactivas.

Palabras clave: Cambio climático, Medios de comunicación, Objetivo climático, 2 °C

Abstract.

Climate target of a rise in temperature "below 2 ° C" with respect to pre-industrial levels is one of the main challenges that face today's civilization. Through content analysis we study the articles published in the newspaper El País that mention "climate change" while addressing an increase in average global temperature of around 2°C. The studied dates span a period from 1976 to June 2013 with searcher www.elpais.com. The analysis of how they are building the social representation of the mentioned climate target in the Media provides data and information that may be relevant to the implementation of active and reactive communication practices.

***Keywords**: Climate change, Media, Climate target, 2 ° C*

Introduction.

Human being is causing global change [3] (Duarte, 2006), within a period called Anthropocene [4] (Crutzen and Stoermer, 2000). The UN has warned of "unprecedented" changes on Earth (GEO-5, 2012), in which climate change [5] is emerging as one of the greatest challenges facing mankind. The General Secretary of the United Nations, Ban Ki-Moon, called it "the defining challenge of our time" in the presentation of the Fourth Report of the Intergovernmental Panel on Climate Change in Valencia in November 2007, remarking five years after, in the Doha Summit, "It is an existential challenge for the human race" (04/12/2012).

It is impossible to make accurate predictions about the future of human beings and the rest of the environment. The study of complexity by science can only outline possibilities in scenarios full of great uncertainty in an interconnected world, where economic oscillations, civil or military confrontations, epidemics, technological advances, and other items can change the historic events.

According to the Intergovernmental Panel on Climate Change (IPCC) of the UN, in the first decade of this century there has been a historical record in global emissions of greenhouse gases (GHGs). And emissions continue to grow, reaching concentrations levels not seen since of at least 800,000 years ago (Lüthi et al, 2008). Anthropogenic GHG emissions have continued to increase from 1970 to 2010 with an absolute increase in the last decade of this period (high evidence) (IPCC, 2014b: 6).

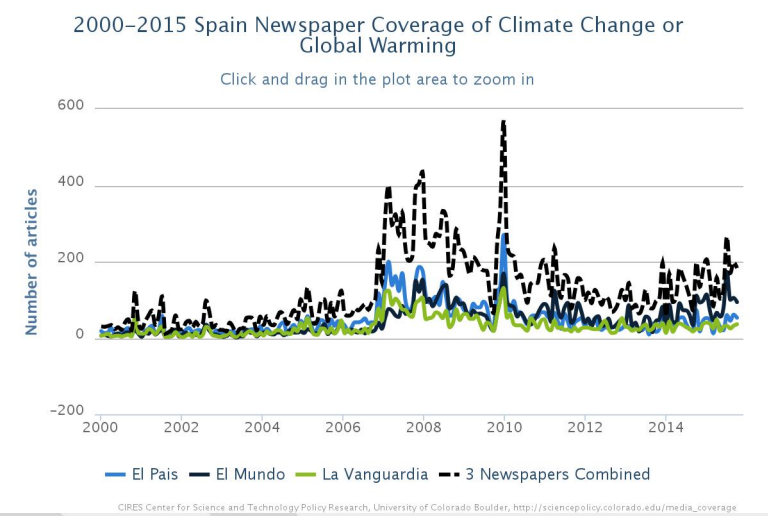
The V Report of the IPCC, submitted between 2013 and 2014, confirms a number of conclusions regarding the reality of climate change, its causes, consequences and solutions: a) "Warming of the climate system is unequivocal" (IPCC, 2013: 4); b) "The human influence on the climate system is clear" (IPCC, 2013: 15); c) "In the last few decades, changes in climate have caused impacts on human and natural systems on all continents and oceans" (IPCC, 2014a: 4) d) "The world society will have to mitigate and adapt to climate change if it wants to effectively prevent harmful climate impacts (robust evidence, high agreement)" (IPCC, 2014b: 50).

The first three messages -which does not involve a reaction- are internationally accepted, although interested Media debates still prevail in certain countries (Painter, 2011; Boykoff, 2013), despite the consensus in the scientific literature (Oreskes 2004; Cook et al, 2013). The last message which itself refers to a reaction that essentially stands is also accepted, but it is not sufficiently attended.

The commitments made in the Copenhagen Accord are insufficient for increasing temperature stays below 2° C[6] (Meinshausen et al, 2009; Victor, 2009; Strachan and Usher, 2012; Peters et al, 2012; Rogelj et al, 2012; Steinacher et al, 2013) as stipulated in the agreement. Nor levels estimated overall GHG emissions in 2020 based on the Cancun Agreement ensures maintaining the temperature change below 2°C[7] (IPCC, 2014b: 12). Similarly, the intent statements of the countries responsible for almost 80%[8] of emissions of greenhouse gases are also insufficient[9] to achieve that goal at the Summit in Paris in late 2015. One month before this Summit, Christiana Figueres, UN representative for Climate Change, referring to a recent report of the EIA, Energy International Agency, said that "if fully implemented the commitments announced in the national plans, rising temperatures would remain at 2.7 degrees" (IAE, 2015).

At the same time, the alarm signals of the advance of climate change multiply and raises the tone of the statements in the IPCC[10]. In Spain[11], in recent years, there has been a weakening of climate change policies, reflected in budget cuts, and in a decreasing Media presence, as we can see in this graph:

Graphic 1. Spanish press coverage in terms of climate change or global warming (January 2000-September 2015) header data and aggregated.



Source: Fernandez-Reyes, Rogelio (2015). MDCS research groups and GREHCCO, Web. [September 2015] http://sciencepolicy.colorado.edu/Media_coverage/spain

Citizens access to knowledge of climate change through scientific information filtered by mediating institutions, mainly the Media, which reinterpret and adapt the scientific contributions according to different purposes, interests, standards, values, target audiences, social contexts, etc. (Meira, 2002; Meira et al, 2013).

The communication of climate change, therefore, is called to catalyze a lot of research. Media reflects - and are decisive actors - the social representation of climate change and sustainability. They can play an important role in facilitating or hindering the resolution of the challenge of exceeding emission of greenhouse gases. They are therefore, essential to face this task.

Since Media influence on the reaction of the public is so important, it is of interest to study how the social representation of climate change is building in a reference newspaper such as *El País*. Specifically it is to analyze an essential aspect: climate target around a 2 °C

increase in temperature with respect to industrial levels. We use the term "around" to include the goal of "2°C" and the aim "below" 2°C.

The climate target "below 2°C".

The IPCC V Synthesis Report, presented in November 2014, warned in his press release, that there is not much time before the window to stay in the room for an increase of 2 °C is closing: "To have a good chance of staying below 2 °C at reasonable costs, should reduce emissions by 40 to 70% worldwide between 2010 and 2050, and reduce them to zero or negative level in 2100", said the IPCC President. What does this figure suppose?

The climate targets arise from the need for address references to the challenge of climate change. His designation is not without its problems by uncertainties, suitability, feasibility or interests, but supposes visible references to meet an essential debate on the limits: reducing emission of greenhouse gases.

The maximum tolerable risk is a social and not a scientific question, but science is able to estimate the risk we take in light of the decision that we will take (Vilar, 2013). However, the IPCC recommends that the average global temperature does not rise more than 2°C compared to pre-industrial levels. The more consensual climate objective is to increase global average temperature "below 2°C" with respect to pre-industrial levels. Others has to do with: not exceed 350 ppmv[12] of atmospheric CO2 (Hansen et al, 2008); the forcing or radiative forcing, that is the energy change in the highest layer of the atmosphere does not exceed pre-industrial levels in more than one watt per square meter; or measurement tools of climate sensitivity[13] or rate of change per decade[14]. Over time, the goal of around 2 °C has emerged as a reference figure in the climate debate. While this target has, as we shall see, with informed criticism, no other has achieved its level of care.

Its approach from the scientific literature has had different prisms (Nordhaus, 1977; Tol, 2007; Randalls, 2010; Jaeger and Jaeger, 2010; Vilar, 2012 a, b). One is the economistic perspective, which considers that the economic costs of climate policy should be kept in

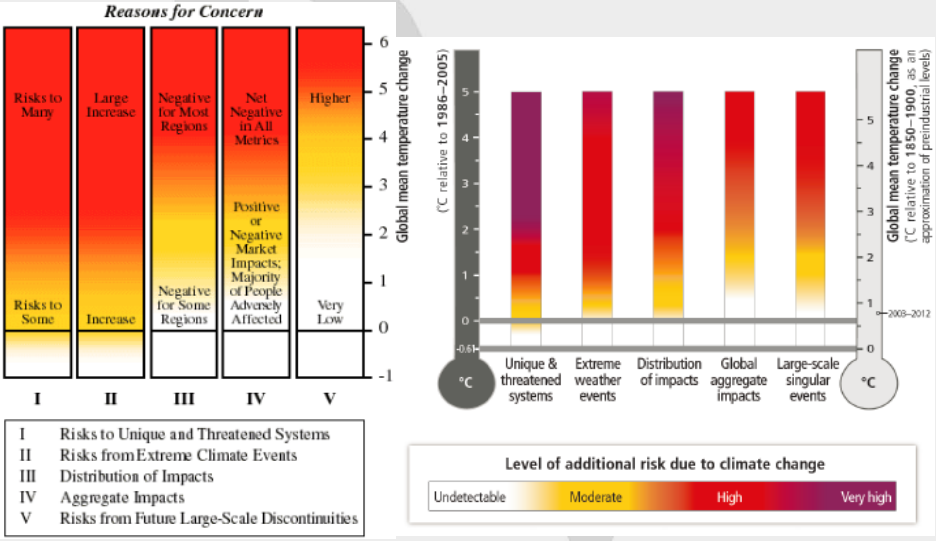
proportion to its benefits. Another has centered on the difficulty of establishing an objective in the context of scientific uncertainty. Another option has chosen to consider it as a focal point, as in this article, evaluated for sustainability and the precautionary principle, having in mind that the discourse of climate stability are questionable if not addressed ethical criticism and direct policy decarbonization (Boykoff et al, 2010).

A first major historical moment in climate change policy for determining climate target was the Framework Convention of the United Nations Climate Change Climate Change, held in Rio de Janeiro in 1992. The resolution set out to achieve: the *stabilization of concentrations of greenhouse gases in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*... (UNFCCC, 1992). Later it was discussed what was considered "dangerous interference". This first moment indicates an essential element, which has prevailed: shows that from the beginning, the objective was not focused on avoiding any damage but define the level from which it is dangerous (Randalls, 2010). This resolution logic in a linear framework, may be wrong in a systemic framework with a wide range of uncertainties.[15]

The international community has agreed on the goal of limiting the increase in global average temperature "below 2°C" in respect of pre-industrial levels. Political environment believes that this objective is based on an agreed conclusion by the scientific community from a threshold between safety and catastrophe, while the scientific community realizes that this objective is a political decision that carries a high risk of impact on some parameters (Richardson et al. 2009, Anderson and Bows, 2011, Hansen and Sato 2011, Hansen et al. 2013). The consideration that this climate target is insufficient has timid references in the political environment, such as the Cancun Agreement, which mentions the objective of 1.5 ° C, or the statements of the secretary of Nations climate change United, Christiana Figueres (*www.elpaís.com*, 02/06/2011). Since the Copenhagen Conference, the objective of 1.5°C has also appeared in the official documents of the UN, and some delegations have suggested that a target of 1°C can be adopted (IPCC, 2014 b).

The impacts can be seen in the following tables, which show, illustratively, the large "reasons for concerns", which summarizes the key risks and facilitate the development of judgments about the "dangerous interference" on climate (*Cambio Climático: Impactos, Adaptación y Vulnerabilidad. Guía resumida del Quinto Informe de Evaluación del IPCC*, p. 33). These are pictures appeared in the IPCC reports, particularly in 2001 and 2014:

Graphic 2. Level of additional risk due to climate change, 2001 and 2014.



Source: IPCC AR3 and AR5 WGII Summary for Policymakers.

After the table published in the Third Report of the IPCC, 2001, the second chart was not published until 2009 (Smith et al, 2009). Although it was proposed to the IV Report in 2007, representatives of countries with strong interests, such as the US, China, Russia and Saudi Arabia opposed to its presentation (Schneider, 2010). The results in Table 2009 and 2014 are quite similar. Let's compare the two tables in the IPCC reports in 2001 and 2014:
The two tables shows that the risk perceived by temperature increase of 2°C above pre-industrial period has grown in the five key risks between 2001 and 2014: **The unique and threatened systems** (such as the European mountains, the Mediterranean area, the Arctic sea ice systems and coral reefs) have gone from being on the threshold of moderate and

high in the 2001 chart to be perceived in high risk in the graph of 2014, only a half Celsius degree from the threshold of very high risk; the risk of **extreme weather events** (heat waves, heavy rains, coastal flooding or drought) has passed to be considered moderate in 2001 to be considered high in 2014; the risk associated with the **distribution of impacts** (these risks are unevenly distributed, being generally higher for people and the most disadvantaged communities) considered moderate in 2001 to be perceived in the high environment of risk in 2014; the risks associated with **global aggregate impacts** (measured in terms of monetary damages, damages to persons and damage to species and ecosystems) has seen as low in 2001 to be considered moderate, close to environment of high in 2014; and **large-scale singular events** (referred to sudden and drastic changes in the physical, ecological or social systems) has passed to be considered of a low risk in 2001 to be perceived with a moderated risk, close to high risk level in 2014.

The precedent paragraph provides two pieces of information: 1) An increase in temperature of 2°C above industrial levels was perceived between low and moderate risk in 2001, while in 2014 happened to be viewed as between high and moderate risk; 2) Existing scientific references when the climate target of 2°C was conceived in the European Union the late twentieth and middle of the first decade of the century (Fernandez, 2014a) were of a minor impact. So the climate target of 2°C could be more justified in the first lustrum of this century, but now has become obsolete by updated scientific information on the key risks and major concerns.

According to the IPCC, without additional efforts to reduce GHG emissions beyond those carried out today, it is expected the growth of emissions to persist by economic activities and the global population. Reference scenarios without additional mitigation, result in increases of temperature on the overall average in 2100 of 3.7°C to 4.8°C compared to pre-industrial levels. This range is based on average values, the range is 2.5°C to 7.8°C when the uncertain climate is included (high confidence) (IPCC, 2014b: 8).

Until recently, the International Energy Agency (IEA) placed the fork of increased long-term temperature between 3.6 and 5.3°C (IEA, 2013). For the World Bank (2012), the world moves on a path that will result in an increase of 4 degrees Celsius (4°C) of the planet's temperature by the end of this century without serious changes in policy.

The latest IEA report, October 30, 2015 however, based on Expected Contributions and Nationally Determined (INDC), is more optimistic: "The contributions INDC have the ability to limit the expected increase in temperature about 2.7 degrees Celsius, which is in no case sufficient, but it is much less than the estimated four, five or more degrees of warming that many have projected excluding INDC" (IAE, 2015).

What volume of mitigation is necessary? The Working Group III of V IPCC Report states that the scenarios that have level of atmospheric concentration of about 450 ppm CO_2 eq. in 2100 (in line with a chance of keeping the temperature change below 2°C compared to preindustrial levels) includes substantial cuts in anthropogenic greenhouse gas emissions by mid-century through large-scale changes in energy systems and ground potential use (high evidence). This is a reduction of global GHG emissions in 2050 from 40% to 70%, and levels of near zero emission GtCO2eq. or below in 2100 (IPCC, 2014b).

Although even the Group I of V Report states that it is not certain that we do not reach 2°C even if it is no longer emit anything[16], chances of getting the increase below 1.5°C exists: "Only a limited number of studies have explored the stage with the best chance to not driving at temperatures below 1.5°C by 2100 compared to pre-industrial levels; These scenarios present atmospheric concentrations below 430 ppm CO_2 by 2100 (high evidence) (...) With these scenarios, global emissions of CO_2-eq in 2050 are between 70-95% below 2010 emissions, and between 110-120% below 2010 emissions by 2100" (IPCC, 2014b).
If the 2°C target is technically feasible, though difficult, more complicated are the goals of 1.5° or 1°C. But, it has to give up the option of achieving the highest goals? The analysis of

how the social representation of the climate target of around 2°C is building in the Media provides data which may possibly be of interest in this debate.

Theoretical framework, assumptions and objectives.

In this paper we are interested in the perspective of the systemic approach. Among the references on limits[17] we highlight the work of Meadows et al (1972, 1992, 2006). Meadows and his colleagues argue that, given the signals have exceeded sustainable limits, there are three ways to react: first, denying or relativizing signals; another, relieving the pressure of limits through technological or economic subtle devices without changing the underlying causes; and the third, recognizing that the present human socioeconomic system is not manageable, that has exceeded its limits and is directed toward collapse. Therefore, it is necessary to change the structure of the system. When physical limits of the Earth are exceeded, the authors suggest two ways to restore a balance: the collapse or a controlled reduction of overall inputs through a deliberate social choice (Meadows et al.,1992).

As a theoretical framework, is in our interest the School of Interpretative Frameworks, born in the US from symbolic interaction, the European School of Sociology and the Theory of Social Representations of Serge Moscovici (1979), which deals with the study of building reality. Based on symbolic interaction theory of interpretive frames, it refers to shared meanings, symbolic structures and cognitive schemata that organize the perception and direction of collective action (Snow and Benfrod, 1988). The Media and its discourses become central elements of the analysis, playing an important role in the interpretation of events, both as witnesses and as actors, to the point that "objects, events and values information transformed into social references acquire an independent autonomous existence of the nature of the facts of which we speak, and to which social protagonists pass against each other to enter competition "(Piñuel, Gaitán y Lozano, 2013: 142).

The aim is to analyze the Media treatment of the limits to climate change in *El País* newspaper, namely climate target of a global average temperature increase of about 2°C above pre-industrial levels.

A pre-analysis study proposed 350 ppmv increased in atmospheric CO_2 over preindustrial levels as another climate target. But this section was avoided by not having enough references for analysis in the studied newspaper.

Methodology

We were looking for a Spanish newspaper of general circulation. We chose *El País* as the newspaper of largest circulation in the Spanish press. The methodology is based on Discourse Content Analysis (Bardin, 1986; Gaitán y Piñuel, 1998). We consider the Content Analysis as a set of techniques for analyzing communications designed to obtain indicators (quantitative or not) for systematic and objective procedures of description of content of messages, allowing the inference of knowledge concerning the conditions of production / reception (inferred variables) of these messages (Bardin, 1986). We follow the proposal of Bardin, who believes that the analysis of content moves between two poles, the rigor of objectivity and the fecundity of subjectivity.

The analysis units comprise information (all journalistic genres included) containing the terms "climate change" and "two degrees", "2°C" or "2 ° C" in the searcher *www.elpais.com*, including printed and digital formats. Studied dates span a period from 1976, said the first unit data search engine, until June 30, 2013.

In each variable is specified on which figure the analysis is being performed. The analysis is performed on three different amounts: the total number of items (272); the number of articles that mention "two degrees", "2°C" or "2 ° C" refers to climate target (201); and the total number of 201 references in the 230 selected items.

The variables are:

1) Units of analysis. The number of articles addressing the terms that interest us are quantified. Sometimes, in the same article may be several references. In this block date categories are studied and if the reference is linked or not to climate objective.

2) Designation of climate target of around 2°C. The contemplated categories are: More than 2°C; 2°C, expressed in the following ways: No more than 2°C or 2 ° C; and Less than 2 °, expressed in the following ways: Less than 2° or below 2°C.

3) Frame, Attribution of responsibility, Consequences and Approach. In Frame variable, categories are: Scientific, Economic, Political, Social, and Others. In this section the variables of Attribution of responsibility (AR) are also studied (includes category: Without AR, Industrialized countries, GHG emitters countries, Human activity, Politicians and Economic Model), Consequences (includes categories: Social, Political, Natural, Economic, Personal and Global) and Approach categories (that includes: About what happens, About what is done, About what it is said).

4) Answers. Categories are: Restoration, Mitigation an Adaptation. In this section, also other variables are studied: Measures (with Political, Social, Economic categories besides Others and Without Approach) and Proposal categories (includes Energy Efficiency, Renewable Energies, Decreased Energy, and Carbon Prints).

5) Source, Referred and Base. In the Source variable, question is: Says who? Journalist, Media, Agency and Opinion categories are contemplated. In the variable Referred the issue is: Who speaks? Who is alluded, attributes, is referenced or reference interview mentions about 2°C? Categories are contemplated: political sphere (UN, Countries, Political representatives, Agreements, Reports), Scientific field (Certain scientists, Scientific community in general, Reports, IPCC), Social

sphere, Economic sphere and Energy sector. In the Base variable question is: In what or who is based? The same categories of Referred variable are used.

6) Degree of questioning of the climate target. Categories considered are: Without question, Shortly questioned, Pretty questioned and Denied.

7) Feasibility of stabilizing emissions below 2°C. Categories contemplated: Is not questioned, is estimated as possible, Is questioned, it is seen as impossible, and Is questioned, it does not arise

Categories were classified into a document Microsoft Office Access 2003. Then, in a later stage of the research, the data were entered into SPSS statistical program. The results were transported to a spreadsheet of Microsoft Office Excel 2003 for charting.

Some test results have been published in previous articles, as we will be quoting. On this occasion, the last of the series, a summary compilation is done and new variables are added.

Analysis

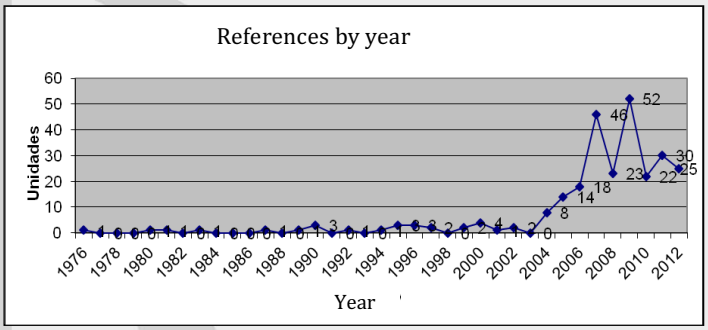
Analysis Units.[18]

As mentioned before, the analysis is carried out on three different amounts: the total number of articles (272); the number of articles that mention "two degrees", "2°C" or "2 ° C" referred to climate target (201); and the total number of references in the 201 230 selected articles.

The results of articles addressing "climate change" and "two degrees", "2°C" or "2 ° C" is 272, of which 201 articles (73.9%) treat the figure as of climate target and 71 (26, 1%) treat it as an another measure. In this section we analyze the 272 items. The climate target is the star item in 30 of the studied stories.

Studied dates span a period from 1976 until June 30, 2013 (in Figure 1 does not include because the 2013 figure covers only 6 months).

Graphic 3. References by year.



Source: Fernandez and Vilar, 2014.

We note that the references about 2°C begin to be numerous since 2004. The reference about 2°C in *El País* was present until 2004 as a measure of the temperature increase expected in the twenty-first century by many scientists[19] Then they took over as climate target. *El País* newspaper began to address this climate target eight years later than it appeared in a European resolution in 1966.

The peaks of increased occurrence of the articles studied are on two key dates: 2007 year in which the IV IPCC Report was presented, and 2009, when the Copenhagen Summit was held. As in other studies on communication of climate change, months of November (31 items) and December (53 items) are those that presented the most references, because in these months the meetings of the UN Framework Convention of Climate Change are organized.

Almost all the stories that specify the reference of measures are linked to industrial levels, which ultimately became the common reference (Bowman et al, 2009). There are 33 references to this scientific review against 1 allusion that links to 1990, a policy review

proposed in the Kyoto Protocol. It is appropriate to take this into account because the Media compares sometimes scientific scenarios studies involving different references.

Designation of climate target around 2°C[20]

When studying how climate objective is designated, we find various formulas. The total number of references studied in this section is 230 because sometimes there are different references in the same story. The references are as follows:

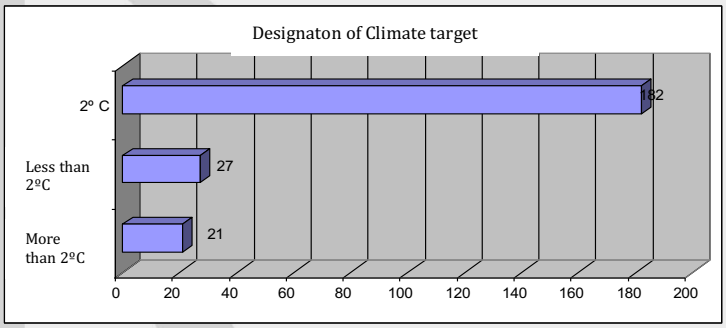
a) Reference to more than 2°C are present in 21 occasions and are closely linked to risk information references.

b) The references to 2°C appear in 182 cases, although expressed differently: one direct and one indirect. The first formula, indirectly, is built on the denial to exceed 2°C (65 references). The prevailing verbs are "avoid", "not rise", "no increase" and "not exceed", accompanied by "more than 2°C". This formula is influenced by the European Union, which is who promotes the proposal of this climate target. This appears in an indirect way in the EU Council in 1996, in another of 2004, in the Commission of the European Communities in 2005 and in the Council of Europe 2005 (Fernandez, 2014). Later it appears in the statements of the G8 and in the Major Economies Forum in 2009.

The other formula points directly at 2°C (117 times). It is the largest. It is also the European Union that appears linked to this reference, being the most repeated expression "limit" warming to 2°C. This formula appears in a resolution of the European Commission and in one from the European Parliament, both in 2005 as well in the contribution of the V Group I Report of the IPCC (2013). The influence seems to be of the European Union. Other expressions and manifestations of risk linked to 2°C, are "dangerous interference", which appeared in Article 2 of the Earth Summit (1992) and was reflected in the Copenhagen agreement (2009); the term "threshold" which appears linked to "security" or "from which";

other compounds comprise terms "damage", "effects" or "consequences" with the "irreversible" or "catastrophic" words.

Graphic 4.- Designation of Climate target.



Source: Fernández (2014 a).

c) References to less than 2 ° C appear 27 times, 4 of which are expressed in the term "less" or "minor" and 23 times with the phrase "below 2 ° C"

The change of references from 2°C to "below" 2°C occurred in the Copenhagen Accord in 2009. Previously, "below" appears as Greenpeace proposal (30/01/2007) and Intermon Oxfam (01/12/2008) in *elpais.com*. But the first reference in the political environment which could be decisive for the adoption of this new formula was, once again, of the European Union, namely the European Environment Agency. In a report entitled "Impacts of climate change in Europe" (*elpais.com*, 29/09/2008), appears the term "below 2°C". Paradoxically, the European Union, the promoter of this figure, would not be part of the small group of countries that shaped the proposal of the Copenhagen Accord at the Summit in this city.

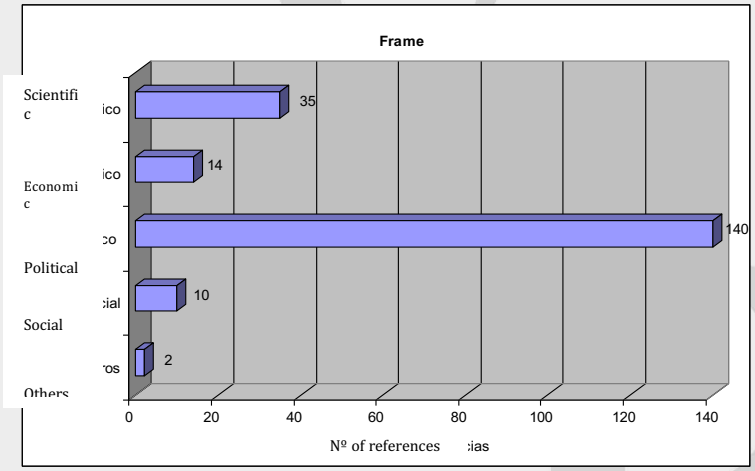
But despite that "below" is the expression recognized in international agreements, later becomes little used, becoming a fairly widespread confusion in policy statements and in the stories of the Media. The resolutions refer to “below”, but in political and mediatic environment and even in the scientific literature are still talking about 2°C. Sometimes,

even on the same documents of the Conference of the Parties the target is addressed in these two ways: in the Summary of the UNFCCC Climate Change Conference in Qatar (COP18), there are three references to limit the rise of temperature as "below" 2°C and one that refers to "limit the global temperature of the agreed limit of 2 degrees" (Conference of the Parties 18, 2012).

Frame, Attribution of responsibility, Consequences and Approach.

In this section, the 201 stories in which appear 2ºC as climate target are studied. Political framing predominates by far above the rest, with 140 units. It follows the Scientific frame, with 35 points; Economic frame with, 14 and Social frame with 10. This preeminence of Political frame is part of a general tendency of the Media to give great importance to political coverage (León y Lara, 2013: 95)

Graphic 5. Frames.



Source: Own Elaboration.

Little recognition is granted to the Scientific, Economic, or Social frames when addressing climate change and climate target.

As for the Attribution of Responsibility frame, most of the stories do not involve allusions to the responsibility for climate change (129). When there is attribution this focuses, first,

on the Industrialized countries (27)[21], followed by the Emitters countries (24) and Human activity (20). The Economic model does not appear linked to the attribution of responsibility[22].

As for the consequences, the analysis shows that in most stories the consequences of climate change are not cited. Where mentioned, the Global consequences appear more often (84), followed by Natural (9), Economics (3) and Social (2).

This segment also looks at how the headlines of all stories are constructed when it appeared the reference of temperature increases around 2°C, distinguishing categories about "what is said", "what happens" and "what is done" (Piñuel, Gaitán y Lozano, 2013). As the authors of these categories exposed, "the social construction of the agenda of events is reproduced by the discourse of journalism, which highlights, in some cases, what is said about what happens (truth / false); in others, what should be done after what is said (good / bad); and finally, in other cases, how is said about what is done (attractive / repulsive)".

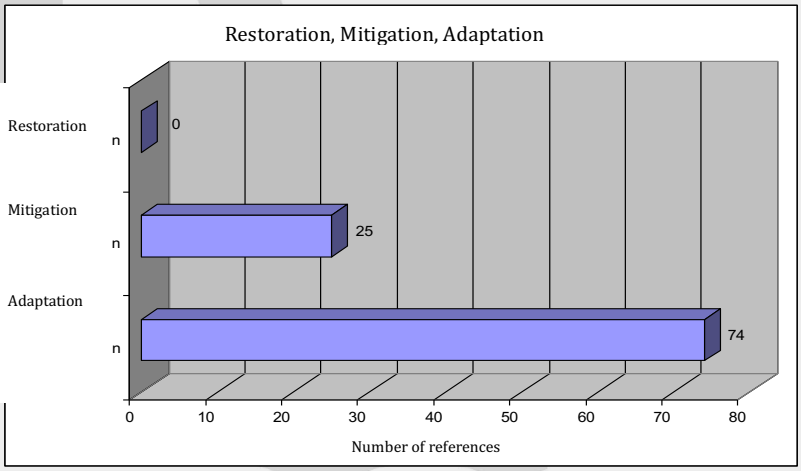
The results in terms of prevalence are: 99 results about "what is said", 62 references about "what happens" and 40 about "what is done". The prevalence in our analysis of the discourse on "what is said" reflects the dominance of the controversy over the observation of "what happens" and "what is done".

Answers[23], Decision Making and Proposals.[24]

Bali Summit (2007) defined, on an equal footing Mitigation and Adaptation as the main pillars of the global fight against climate change[25]. In this section we add another untreated concept: *Restoration*, although we have not found any mention of this connotation. It is therefore seen a capitulation in the recovery of the initial equilibrium or retrace the abuse of greenhouse gases caused by humans.

Mitigation and Adaptation is addressed by studying the frequency of their types (preventive-reactive, public-private, self-planned, source reduction-enhancing sinks). It also examines whether they appear related, if they are questioned and if they are confronted.

Graphic 6. Answers.



Source: Fernández (2014 b).

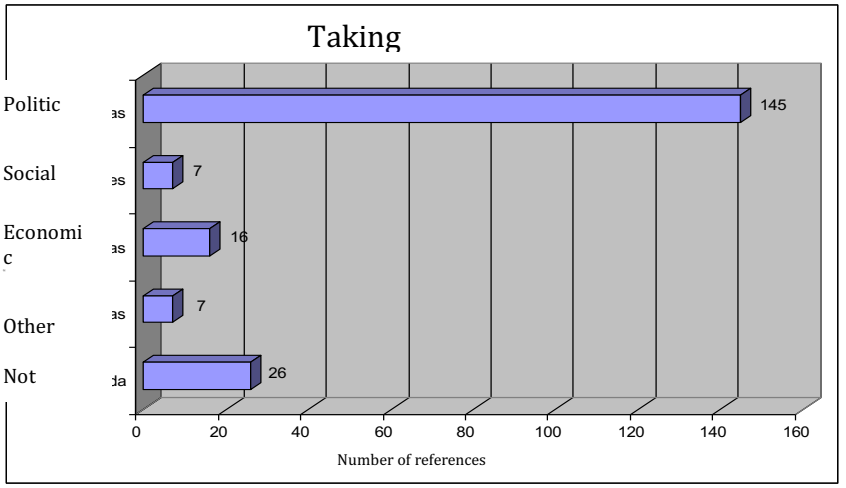
The number of times that terms Adaptation and Mitigation appear in the 272 units addressing climate change and "two degrees", "2 ° C" or "2°C" in the search *elpais.com* are: 74 references to Adaptation and 25 to Mitigation.

In the 74 stories in which the term Adaptation appears, we study whether they were about preventive or reactive variable. 22 times was referred to the reaction and 10 to prevention. The remainder did not specify. As if it is a public or private adaptation public prevails, with 49 appearances, on private, with 2. Both appear simultaneously on 2 occasions, and the rest not specified or did not refer to any of two (several of the stories refer to the adaptation of ecosystems or species). In considering whether it is linked to a planning form or autonomous, planned adaptation prevails, with 59 stories, one independent and one both. The rest is not specified or does not refer to any of the two possibilities.

As Mitigation, a total of 6 reports dealing source reduction. In other 19 cases is not specified in the story if it relates to source reduction or enhancing sinks. Adaptation and Mitigation appears not confronted or questioned in any occasion. They are perceived as complementary in 8 stories

Taking action is studied in the 201 stories that address 2 ° C as climate target. It focuses, mainly, in the Political space, in 145 stories. It is followed, in the distance, by the Economic field with 16, and Social field with 7. Other options and Not addressed have 7 and 26 references respectively.

Graphic 7. Taking actions (measures).



Source: Fernández (2014c).

The proposed solutions are eminently Politics. Little recognition is granted of the Economic and Social fields as protagonists of taking actions.

In analyzing what kind of concrete politic measures appear, we find 68 stories (of the 145 considered) that including Taking Action in the headlines: 30 times refer to Agreements, pacts or roadmaps; 17 focuses on Reduction; and 5, in Change of energy model is proposed. Other stories were grouped in 16 different themes.

We have also analyzed who are protagonists in the headlines of the stories of political measures. We found that in the Summits of the UN or in UN releases are cited in 35 stories; followed by Countries or Regions, with 34 (of which protrude Europe with 12, Spain with 8, and China and the US with 5).

Is of interest the appearance in the Media scene institutions like International Energy Agency[26] and World Bank[27] warning about the effects of the rise of temperature. Both institutions, not considered radical, warn of emission trends and suggest significant changes.

As for the presence of Proposals[28]: analysis opts for studying energy issues such as Energy efficiency, Renewable energy, Energy self-sufficiency and Energy decrease. The first two issues are mainly in the field of Change 1 (reformism), from the hegemonic discourse; and the next two are, mostly, in the scope of Change 2 (change of system or change of the system structure (Fernández 2013), from alternative discourses of social movements, such as the Movement of Transition or the Decrease Movement. The presence of a tool like the Carbon Footprint is also studied.

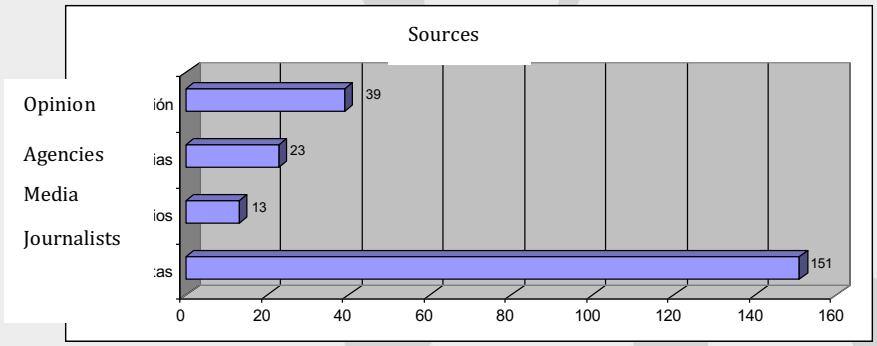
The number of times that these items appear in the 272 stories selected is: Energy efficiency 40 times and Renewable energies 63 times, while the terms Energy Decrease and Energetic Self-sufficiency are not mentioned. We note that the proposals for Energy efficiency and Renewable energy have considerable presence while Energetic drop and Energy Self-sufficiency are not represented. Proposals for Change 1 are 103; while there is no reference to proposed issues from a Change 2 among the selected items. The presence of the carbon footprint (7) is small.

Source, Referred and Base.

In this section 230 references in 201 stories are studied. In Source variable, categories included are: Journalists, Media, Agency and Opinion are contemplated. Sometimes the source represents two different categories. In these cases, that in the first place is selected. In 4 cases there is an identified source.

As main Source, Journalists prevail (151). Rafael Méndez is the most mentioned professional (61 times) followed by Alicia Rivera (21 times). Both are special envoys to different international Climatic meetings. Continues with Opinion Articles (39) from which 5 are publication editorials. The article writer who more treats the issue is Antxon Olave, who appeared in 6 times. Agencies appear as main source in 23 references from which 14 are from EFE. As Media *El País* appear in 7 occasions and *elpais.com* in 6.

Graphic 8.- Sources.



Own Elaboration.

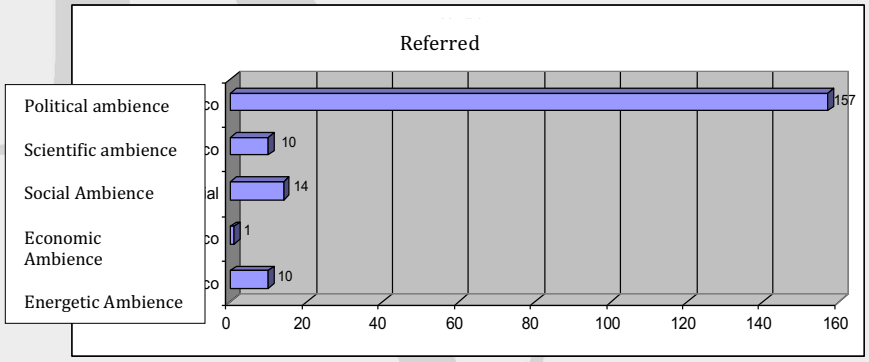
In the Referred variable, question posed is: Who is alluded, or attributes, reference or interview, what mentions the reference about 2°C? We have recorded information available on this subject on 192 occasions, which are classified as follows:

The category Political environment is the largest with 157 allusions. From them, 68 refer to Countries (UE highlights with 34 and G8 with 8), 45 refer to Agreements (31 to Copenhagen and 4 to Cancun), 34 to Political representatives (allusions are varied, being

Merkel who is more mentioned, with 6 allusions). 6 mentions the UN and 4 to political reports.

In the Scientific Area there are allusions to certain scientific personalities in 7 occasions and 3 to IPCC. The social sphere appears in 14 references (5 allude to Greenpeace) while in the Energetic issue is referred 10 times (all to Energy International Agency) and the economic issue there is only 1 mention.

Graphic 9. Referred.

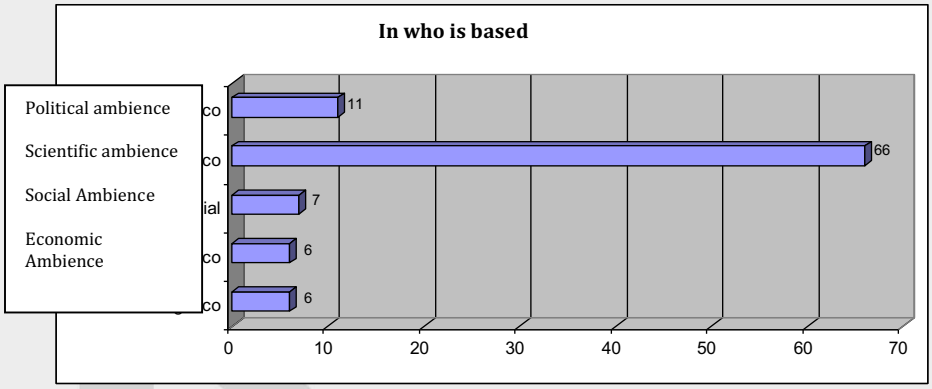


Source: Own Elaboration

Base variable questions: What studies? Reports? or In what is based? Categories of the prior section are maintained. Information about this variable is accounted in 96 occasions.

When those that allude to 2ºC in the studied stories point a support base, this is mainly scientific (66). There is a wide variety of referred scientist and institutions. IPCC with 10 citations is highlighted and Postdam Institute with 7 references. Is surprising the importance of this German institute.

Graphic 10. Base



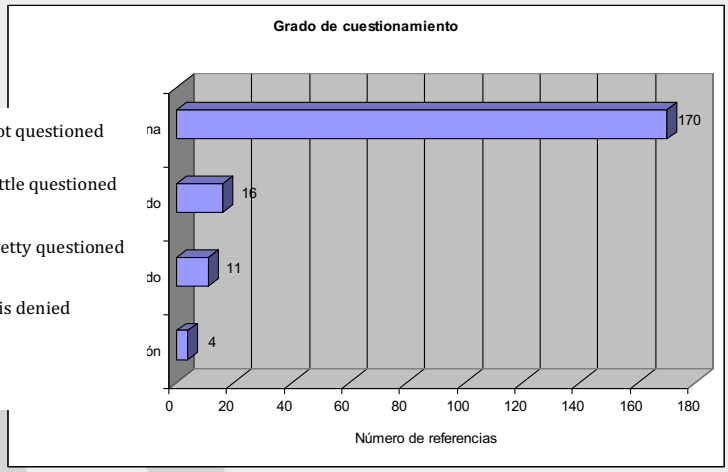
Source: Own Elaboration.

When a basis is pointed for a political report (agencies or government offices), social report (WWF and Greenpeace, mainly), economic study (all refer to World Bank) and energetic report (all refer to IAE), all of them are based in scientific information.

Questioning the climate target.[29]

The degree of questioning of an increase of around 2°C as climate target is minimum in the 201 stories that address this information. In 84.5% of the units it does not arise not be correct.

Graphic 11. Questioning degree.



Source: Fernández y Vilar (2014).

Who denies or question this focal point? Majority of questioning is scientific. In the 31 units that deny or question this point, we can differentiate between:

a) Political reason (10 units): 1) by not recognize this focal point (6 units), as it is the China and US position at this moment[30]. 2) By to be a wrong focal point (3). Is denied to consider it wrong default threshold[31]. 3) Ideological position (1 citation). Is about the skeptical opinion, that denies this climatic target.

b) Scientific reasons (21 units). Of these 21 references there are considerations of two types: 1) Those who question the possibility of achieving stabilize increase temperature at 2°C (5). New focal points of stabilization are proposed: a temperature increases of 3°C and 4°C; 2) those who believe that 2°C is excessive focal point and has to be lower (16). Other focal points are proposed about 1 - 1,5°C and around the figure of 350 ppm CO_2 equivalents.

Of this section is drawn that climate target has been questioned by political motives for two main reasons: for not being recognized (China and EEUUU) or be considered invalid by the

consequences that entails (Sudan and small island states). Casually - or not so casually - the results point to the largest emitters and to affected countries.

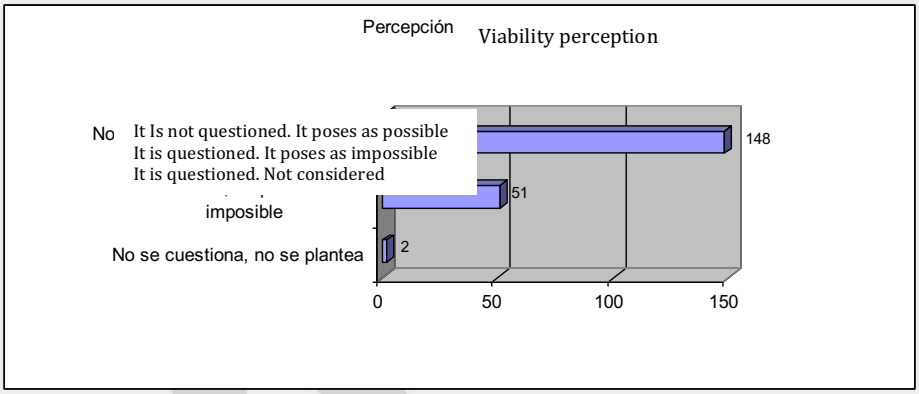
As for scientific reasons there are allusions to 2°C is impossible to achieve as goal of stabilizing and allusions to it is an excessive point to be lowered. The first try to adjust to reality the possibilities of stabilization, while the latter try to refine climate goal for not modifying the climate system.

As an important fact: there is no hint that argues that the 2°C target is a short figure that can be increased.

Viability of achieving emission stabilize below 2°C.[32]

Striking that most stories do not question the viability or consider possible not exceed the threshold of 2°C even when, on numerous occasions, accompanied by estimates that 2°C are outside or unlikely achievement. The explanation we found is that it may be a lesser evil objective as by much of the international community. However, it was invalidated in the same process that was agreed internationally, since commitments to reduce emissions of the countries signing the Copenhagen Accord would imply a temperature increase of between 3 and 3.9°C, as stated Chistiana Figueres Secretary of the UN Climate Change (23/05/2010). Joeri Rogelj et al (2010) and Jasper van Vliet et al (2012) have confirmed this with scientific studies.

Graphic 12. Viability perception.



Source: Fernández y Vilar (2014).

However, the feasibility of stabilizing the average temperature of the Earth to a maximum increase of 2 ° C is not questioned or is not seen as impossible in most of the stories.

The reference of Copenhagen that the increase in global temperature should remain "below 2°C" has been unsuccessful in winning on the goal of "2°C". Journalists writing in *El País*, as José Reinoso (23/12/2009) and Rafael Mendez (23/05/2010), or political representatives, as Wen (23/12/2009) or climate change secretary of United Nations, Christiana Figueres (23/05/2010) addressed the objective as "2°C".

Who question the viability of stabilizing focal point?

Scientists: 18 units. Majority of references, 13, consider very difficult not exceed 2ºC. They anticipates that the threshold be exceeded likely. The other 5 references are of different nature.

Politicians: 20 units. Majority of references, 12, are about incompatibility of proposals of emission reduction from UN countries and the achievement of not exceed 2ºC. Of the other 8 references, 4 are about increasing emissions and upward deviation of the objective of not to exceed the 2ºC. Other 2 refer to a devastating effect.

Social: 3 units. They refer to declarations of ecologist NGO and development criticizing not contain emissions to achieve the goal of not increase temperature in 2ºC.

Economic: 8 units. In this section we have also add the references in which the technological and energetic ambience was mentioned (from International Energy Agency). All of them concurs in not to achieve avoiding the 2ºC.

The two units that put on doubt and not consider the issue, has to do with two information in which China rejects and question the 2ºC as focal point and has no opinion about whether is possible or not to stabilize this threshold.

Another data to take in account is that we have no found references on viability of stabilization at 2ºC in the international commitments agreed in Copenhagen.

Conclusions

The scientific basis of climate change risk is increasingly robust, as the V IPCC Report[33]. The margin of uncertainty that climate change is happening and will continue to happen is declining, while there is a greater force in scientific studies about its risks. The messages that indicate climate change as one of the most important challenges of this time are numerous.

The communication environment and the issue of climate change are called peremptory fields to charge a special role today. In Spain, the Media shows a winding attention in coverage of climate change, with a drop from 2008, after the boiling step in 2007, a trend that is seen to rise from the end of 2013 (Fernandez-Reyes, Piñuel-Raigada Vicente Mariño, 2015).

Given the overreaching in the emission of greenhouse gases, a reaction of the human species closely related to the limits is imposed. One of the key aspects is to score a climate

goal, arising from the need to establish references. His designation is not without problems by uncertainties, suitability, feasibility or interests, but supposes visible references to meet the essential debate on the limits. Over time, the goal of around 2°C has emerged as a reference in figure the climate debate. No other has achieved this level of attention. A care not to compete with the debate for which justifies: the reduction of emissions (Boykoff et al 2010). Boykoff et al believe that the focus of policy has to move from a static focus on quantification of climate stabilization to pursue more dynamic formulations on decarbonizing energy systems. In this sense, the most important task is to achieve substantial decarbonizing targets.

This study provides data on the social representation of the climate target of around 2°C in the Spanish reference newspaper *El País*. Besides being the largest daily circulation in Spain (Ofinica de Justificación de la Difusión, 2012), also it has the American and Brazilian editions. Therefore, their social representation of climate change is important to influence discussions and in making political, economic and social decisions in Spain and to a lesser extent in the American countries of Hispanic and Portuguese languages.

The results of the analysis can provide interesting information to the implementation of active and reactive communication practices, as for professionals of *El Pais* newspaper, and for those of other newspapers that are addressing the coverage of climate objectives. It can also make a contribution to the researchers in the field.

The climate target around 2ºC could be determined, somehow, by have been previously a scientific reference measure on average temperature rising of the planet, becoming over time as the figure of climatic sensibility for XXth century, from which the impacts would be dangerous. Later, incipient scientific studies warned about the risk that suppose go further the threshold of this figure. To this was added the politic decision, European at the beginning and later international, of focusing the negotiation in this figure, considering it

was a consensual conclusion of the scientific community, on the threshold between security and catastrophe.

From the analyzed information it follows that Germany has been able to play a crucial role for the European Union was a precursor of this goal, first of its territory and then proposing it in numerous international events in 2009, such as the G8, in the Forum of Major Economies and the Copenhagen Accord, which was recognized by the international community.

Resolutions in the European political arena began opting for the goal of "2°C" and derived to the reference "below" 2°C from the Copenhagen Summit. Both formulas are a direct influence of the European Union, which is who leaded the proposal of this climate target. But despite that "below" is the recognized expression in international agreements, then it becomes little used, becoming a fairly widespread confusion in the statements and in the stories of the Media. Resolutions reflected the term "below", but in the Political and Media field is still talking about the "2°C", even there is scientific literature that does not reflect this difference.

Results of the analysis shows that climate target around “2ºC” in *El País* newspaper is built as a reference in which: the frames of climate change stories are eminently political; the majority of stories do not deal with responsibility attribution; there is few mentions to consequences, and majority of references are on global consequences. The discourse or “what is said” prevails over “what is done” and “what happens”.

As the responses, the presence of Adaptation over Mitigation prevails, as well as a claudication of the connotation of Restauration. Taking measures is dominated by the Political area, and energetic proposals have a reformist shape.

Mayor sources of the analyzed stories correspond to newspaper professionals. Referred persons and institutions are linked over all, to political area, while its basis is allocated in the scientific environment.

Focal point of "2ºC" is built in *El País* as a reference mainly uncritically about the figure and its viability. When focal point is evaluated, is considered as a too high or an unfeasible figure. None critic have been found that consider that is a short amount nor a reference that defend the sufficiency of internationally acquired commitments after the Copenhagen Accord to be viable stabilizing the temperature "below 2ºC"[34].

Discussion

The human species has exceeded the abuse of greenhouse gases with a considerable potential impact on the natural variability of the Earth. The risk of passing thresholds generating abrupt and irreversible changes increases with increasing temperature. If it is accepted that the human species is predisposed to scenarios that would be reversed very seriously, the need for urgent international and proportional public reaction prevails.[35]

The discourses of stabilizing the climate may have led to unrealistic public expectations that leave open the possibility of future public and political criticism (Boykoff et al., 2010). When comparing the tables concern of the III (2001) and the V IPCC Report (2014) is observed that a temperature increase of 2°C above industrial levels was seen with low to moderate risk in 2001, while in 2014 it has come to be seen as a high to moderate risk. The 2°C climate target could be more justified in the first half of this century based on available scientific information, but now is outdated by recent information on the key risks and major reason for concerns.

The scientific community believes that climate target around "below" 2 ° C is a reference of high risk in some parameters (or very high, according to some authors). We believe that this target is around 2°C is insufficient and unjust from the precautionary principle. We defend that the proposals of a climate target around 1.5 ° C and even 1ºC of national delegations at the UN, must be pursued, including in the debate, with Mitigation and

Adaptation, the today nonexistent connotation of "Restoration" (scientifically, drawdowns of equivalent $C0_2$ from the atmosphere).

The global reference climatologist James Hansen proposed to maintain the level of CO_2 concentration in the atmosphere at 350 ppm or less to preserve climate system similar to the prior pre-industrial levels[36]. Currently round the 397.64 ppm of CO_2 in 2015 (Mauna Loa Observatory) and the trend in the coming years is to further increase this figure. The proposed 350 ppm, despite being less known, is closer to the threshold of safety and away from a dangerous threshold reference. It is closer to the objectives of an increase in temperature around 1 and 1.5 ° C, than to about 2°C. It is not raised in international negotiations, but it is interesting to have it present as an ethical reference from the precautionary principle, social equity and sustainability. Indicates that there is no room for growth of emissions, and this would be reduced ¡now!

There are social movements, business and public initiatives throughout the world who are experiencing with a life or a low carbon activity. Such reactions are rare but valid and effective in a micro-scale, potentially extendable to macro scale. And the Media: how to address the climate targets?

From the results of this research it is suggested to think about different issues that are addressed by the communicative practice of climate change in the newspaper *El País,* in the stories in which appear the climate target around 2ºC. Such issues would be:

- Would not be better in communicating climate change: a greater attention to other frames not only political, a greater presence of attribution of responsibility in the stories, further presence of consequences in the stories and higher prevalence of the treatment of "what is done" and "what happens" over "what is said"?
-

As for the answers:

> Would not be appropriate to promote a balanced treatment (in volume) to Adaptation and Mitigation, not to give about Restoration, to grant more presence of other actors (social, economic, scientific) in addressing the decision-measures, and a greater presence of proposals beyond purely technological in the energy field?

Other considerations have to do with: Whether it would be important to increase the role of climate change in the media, with more balanced information between negative and constructive treatment[37], a treatment of focal point around an increase of 2°C from the risk communication and a reflection on the largely uncritical use of the focal point around 2°C in terms of value of this figure and the viability.

The planetary emergency posed by the challenge of climate change is an incentive for the Media to consider addressing this issue in a special way, thinking about a paradigm shift (Diaz Nosy, 2013; Mercado, 2013). An approach that promote a thorough debate by citizenship. From journalism in transition (Fernandez, 2013), it is appropriate to address the debate to keep the temperature increase as low as possible, about 1°C or 1.5°C from risk information, and tend to reduce concentration of CO_2 in the atmosphere at 350 ppm. Although these objectives are hardly covered by science and politics, are based on scientific research, rely on the precautionary principle and root of sustainability. And redirect the challenge of climate change in the field of ethics and moral justice, with more solid arguments than political ones. Definitely, citizens and nations of low emissions, the new generations, other species and ecosystems are suffering and will suffer the impact of citizens and nations with high emissions.

Press release of the IPCC (04/13/2014)[38] have made it clear that to avoid dangerous interference with the climate system, we cannot continue with the *status quo*, and that containing climate change goes through a substantial immediate turnabout at technological, institutional and human level, starting with global involvement and big investments.

Communication practices, do have in mind this or require an explosion of professional creativity in, in content and in corporate structures?

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[3] Global Change means all environmental changes affected by human activity, with special reference to changes in the processes that determine the functioning of the Earth system, in Duarte (2006: p. 23)

[4] Anthropocene means the geological stage in which humanity has emerged as a new force capable of intervening in the fundamental processes of the biosphere, in Crutzen, PJ and Stoermer, EF (2000: pp. 12 and 13)
[5] Climate change means a change attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods climate. United Nations Framework Convention on Climate Change (1992, p. 3)
[6] This figure is referenced to preindustrial levels throughout all this investigation
[7] They are broadly consistent with scenarios likely to keep the temperature change below 3 °C above pre-industrial levels. "It is estimated that the delay in mitigation efforts beyond those now under way in 2030 will greatly increase the difficulty of the transition to lower levels of long-term issue, and narrows the range of options consisting of maintaining the temperature change below 2 °C compared to pre-industrialization levels (high evidence) "(IPCC, 2014b)
[8] UN plans submitted to mitigating climate change at the end of March 2015
[9] According to the International Climate Action Tracker, which tracks these intent statements of countries, efforts would be "medium" and therefore insufficient. Christiana Figueres, executive secretary of the UNFCCC, also recognized that: "(intentions) clearly do not add up early emission reductions needed to contain the increase in global temperature below two degrees" (*El País*, 02/04 / 2015); "Today we already know that the sum [of mitigation commitments emissions] of all countries puts us in the path of the two degrees," she admitted again in May (*El País*, 27/05 / 2015), but three degrees affirm in September (*El País,* 09/16/2015)
[10] Science conveys a clear message: to avoid dangerous interference with the climate system, we cannot continue with the *status quo*, "Ottmar Edenhofer exposed, in a press release of the IPCC (04/13/2014) in the presentation of results Working Group III, where it is concluded that "combating climate change goes through a Copernican revolution in technology, institutional and human level immediately start global involvement and substantial investments". Following the presentation of the results of the Working Group II of the IPCC V, Christiana Figueres, Executive Secretary of the UN Framework Convention on Climate Change, called on the oil and gas make "drastic change" to low carbon future, "three-quarters of fossil fuel reserves must stay on the ground" (Reuters, 04/03/2014)
[11] Recent studies show a remarkable awareness of the reality of climate change, reduced priority for action to mobilize energies in the Spanish society as well as a marginal presence of denial and skepticism (Meira et al, 2013)
[12] ppmv: parts per million by volume
[13] It is a measure that estimates the temperature change associated with a doubling of carbon dioxide concentration in the atmosphere compared to pre-industrial levels
[14] It is a measure that estimates the temperature change through a number assigned by decades
[15] After the summit in Rio de Janeiro, formal intergovernmental institutions such as the UN Framework Convention on Climate Change, have tried to promote national policies in mitigating emissions. Among the important events is the Conference of the Parties (COP) in Berlin in 1995, where a plan leading to outlined the 1997 Kyoto Protocol, which came into force in 2005, or the COP in Copenhagen (2009) and Paris (2015)
[16] To limit the warming caused solely by anthropogenic emissions of CO2 with a probability> 33%,> 50% and> 66% to less than 2°C from the period 1861 to 1880 will require that from this period CO_2 anthropogenic cumulative emissions remain between 0 and about 1,570 GtC (equivalent to 5,760 GtCO2), between 0 and about 1210 GtC (4,440 GtCO2) and 0 to about 1000 GtC (3,670 GtCO2), respectively "(IPCC, 2013: 27)
[17] Given the overreaching by the emission of greenhouse gases, a reaction of the human species is necessary, closely related to the limits. However, the difficulty to take these limits in a hegemonic economic model based on the continued growth and the belief of unlimited natural resources, leading to an unresolved contradiction that may involve, according to most forecasts, a threshold temperature rise that could lead to dramatic situations in today's civilization and ecosystems to the point that climate change, as expressed Ki-moon, can "get to undermine the various advances that humankind has achieved in recent decades" (GEO 4 2007: xvi) and cause a strong impact on modern civilization. The gradual and sustained reduction of GHG represents thus a major challenge of unusual dimensions

[18] Addressed in Fernandez y Vilar 2014, pp. 85-89
[19] It becomes a reference temperature increase which is referred, almost for all scientists. The possibility of this temperature increase was thought that it could happen at the end of the XXI century. This is consistent with the findings of the IPCC report of 1995, which forecast of increase ranges between 1°C to 3°C, with 2°C being considered as the best estimate (El País, 14/07/1999). It was suggested as a limit value in 1995 and discussed at the Conference of Berlin, where already the increase of 2°C was treated as a maximum value, even if it is not on the information we have analyzed
[20] Addressed in Fernandez R., (2014 a)
[21] In previous research (Fernández Reyes, 2010 http://fama2.us.es/fco/digicomu/38.pdf), in which the presence of climate change in newspaper editorials was studied (1992-2008), appreciated that *El País* focused responsibility to the "industrialized countries". Although not comparable due to the characteristics of the analysis of both studies, we did see an evolution in this newspaper: as emissions of countries known as "developing" became more evident, the assignation has increased in the category of "developing countries". It was striking how many times it appeared US as the "bad guy". In the last five years, China assumes, although differentially, much of the leadership of this attribution of responsibility
[22] We agree with Professor Meira as points the need to help better and more clearly identify how such liability is specified in the activity and behavior of every person, every community and every society. "One thing is to accept that mankind is the main variable that explains climate change and other is recognize the specific responsibility of individuals and societies to which we belong in this causality" (2008: 43). There is a difficulty of the population to understand how climate change affects and projects locally. This phenomenon, known as "farsightedness" is "one of the keys to understanding the light threat perception for everyday life that may result from climate change and has also much to do with the difficulty of identifying our responsibilities, both individual and collective in the generation of climate change and the adoption of response actions facing it" (2008: 22)
[23] Addressed in Fernandez R., (2014 b)
[24] Addressed in Fernández R., (2014 c)
[25] The IPCC considers adaptation to climate change "adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. We can distinguish several types of adaptation, including anticipatory and reactive, private and public, and autonomous and planned. "For mitigation means: "anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases" http://www.ipcc.ch/pdf/glossary/tar-ipcc-terms-sp.pdf
[26] IEA (2013) *Redrawing the Energy-Climate Map*., p. 9
[27] WORLD BANK (2012) *Turn Down the Heat.,* p. ix
[28] The terms "reduce" and "reduction" is present in 321 and 298 stories respectively, in the 272 selected Information The total number of 619 times can serve as an indicator of the role assumed by the action to cut the impact of human activity to address the challenge of climate change. The volume figures is lower when the presence of Proposals to implement this cut is studied
[29] Cfr Fernández y Vilar (2014)
[30] Ma Kai, director of the National Development and Reform Commission, the top economic planning body of China, expressed the following proposal to the EU to prevent the global temperature from rising by more than 2°C compared to 2000: "the figure It has no scientific basis and requires further study" (04/06/2007). China has set a target to reduce carbon dioxide emissions per unit of GDP, but the rapid growth of its economy means that the generation of pollutants has increased in absolute terms. Beijing's priority is "economic development and poverty eradication" (05/06/2007). US attitude is also located at the time: "The agreements should address emissions not at temperatures" (24/06/2009). Todd Stern, sent by the White House, suggested: "The world should forget the objective of 2°C, which many scientists believe very difficult to achieve because they will overcome" (13/08/2012)
[31] Ambassador Lumumba Stanislaus, Sudanese Ambassador and spokesperson for developing countries in the Copenhagen summit G77 + China, said: "the two degrees is devastating for Africa" (09/12/2009). Small island states requested that the possibility of leaving the door open to the focal point is revised to 2°C "to limit it to 1.5 ° C" and so was collected in the Cancun Agreement (11/12 / 2010)

[32] Adressed in Fernández y Vilar (2014)
[33] It should be to have in mind that the uncertainty linked to climate change has a tendency to moderation and a conservative approach in the field of research (Vilar, 2014). Scientists tend to be very cautious, sometimes in excess (Delibes de Castro, 2006: 52)
[34] As discussed above, nor the Cancun Agreement achieve this, and neither the declarations of intent of the countries responsible for almost 80% of emissions of greenhouse gases are sufficient to achieve that goal in the Paris Summit, at the end of 2015 *(El País*, 04/02/2015)
[35] What reduction is accurate? We should move from an average of 7 ton per capita of greenhouse gases at present to 2 tons in 2050, in a world of great inequalities, for stabilizing the climate below 2°C (Ocampo and Stern, country, 17/06/2012). As an example, Qatar has an average of 49.1 ton per capita, USA, 18, Spain 7.2 and Namibia 1.8, according to the Human Development Report 2013
[36] A NASA study says that to avoid an unstoppable rise of sea level for centuries we should be reducing emissions at a rate of 6%. To preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, we must reduce CO_2 emissions to a maximum of 350 ppm. According to Hansen and his team (2011), would reduce emissions at a rate of 6% per year, starting in 2013, and for fifty years, besides reforest everything possible
[37] As shown in the Decalogue on the communication of climate change, adopted at the International Conference on Media and Climate Change, held in Seville in November 2012, organized by Ladecom or GREHCCO: "Whenever possible should complement the alarm with the presentation of possibilities for intervention and alternative solutions "(VV.AA, 2013: 23)
[38] Press release of the IPCC at the presentation of the results of Working Group III on the mitigation of climate change