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Specialized Journalism in the face of Climate Obstructionism. The case of Maldito Clima

El periodismo especializado ante el obstruccionismo climático. El caso de Maldito Clima

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Abstract

The research focuses on the contribution of the journalistic project entitled Maldito Clima to fight against misinformation and on the development of new communication strategies to combat climate obstructionism from environmental journalism. The aim is to review the specialised journalist's role when facing the main climate crisis disinformation narratives. Through a combination of quantitative (social networking analysis) and qualitative methodologies (personal interviews), the aim was to analyse the verification patterns and structures, the types and procedures of misinformation in order to identify the common narratives and actors involved in the spread of fake news about climate change. The growing concern of citizens on this issue, together with a high level of scepticism, require an update of journalistic practice in the coverage of environmental issues. The state-of-the-art review, the fieldwork and the observation of dissemination and fact-checking processes carried out in the first semester of life of the new project of the Maldito.es Foundation enabled us to draw a series of conclusions to develop a decalogue of good journalistic practices to face climate inaction and obstructionism.

Keywords

Climate change; climate obstructionism; disinformation; scepticism; scientific narrative; environmental journalism; Twitter; verification.

Resumen

Esta investigación aborda la contribución del proyecto periodístico Maldito Clima a la lucha contra la desinformación y el planteamiento de nuevas estrategias comunicativas para combatir el obstruccionismo climático desde el periodismo ambiental. El objetivo es revisar el papel del periodista especializado frente a las principales narrativas de desinformación relacionadas con la crisis climática. A través de una combinación de metodologías cuantitativas (análisis de redes sociales y de verificaciones) y cualitativas (entrevistas personales), se busca reconocer los patrones y estructuras de verificación, las tipologías de desinformaciones y los procedimientos para identificar las narrativas y actores comunes en la difusión de contenidos falsos sobre el cambio climático. La creciente preocupación de la ciudadanía por este tema y el alto índice de escepticismo y obstruccionismo requieren una actualización de la práctica periodística en la cobertura de las cuestiones medioambientales. La revisión del estado de la cuestión, el trabajo de campo y la observación de los procesos de difusión y fact-checking realizados en el primer semestre de vida del nuevo proyecto de la Fundación Maldito.es nos permitirá extraer una serie de conclusiones para elaborar un decálogo de buenas prácticas periodísticas frente al inaccionismo y el obstruccionismo climático.

Palabras clave

Cambio climático; desinformación; escepticismo; narrativa científica; obstruccionismo climático; periodismo ambiental; Twitter; verificación.

1. Introduction

After half a century of increasing media coverage, the persistent skepticism surrounding Climate Change (CC) leads us to investigate the role of specialized journalism in the fight against environmental disinformation (Bigas, 2019; Boykoff, 2015 and 2013). Despite the scientific consensus on the anthropogenic origin of this phenomenon and the obvious disasters and natural consequences caused by global warming, the journalistic handling of this reality has contributed to an increasing distortion of the initial message (Fernández Reyes et al. 2015; Gozzer and Domínguez, 2011).

In this context, the content generated and/or distributed by users through social networks has also fed a series of common narratives, polarizing the "collective intelligence" (Bessi et al. 2015) based on unfounded rumors and conspiracy theories. In this way, a transnational issue has taken shape that requires the cooperation of journalists and specialized experts on a global scale to ensure veracity and quality of information, considering that resources and the level of media and climate literacy differ according to each context (Kunelius, 2019).

Until now and given that there was no minimum consensus on the part of the media regarding the handling and coverage of CC, it was not possible to generate effective social awareness of the seriousness of this phenomenon and its treatment in the media - on many occasions - was marked by the ideological alignment determined by the pressure groups of the moment (Blanco Castilla et al. 2013).

This research aims to identify the main narratives in news coverage of CC that have fostered and entrenched an incredulous, skeptical or obstructionist stance (Abellán-López, 2021; Akerlof et al. 2013; Dunlap, 2013; Hoffman, 2011). To this end, we have examined the profile of the so-called "climate deniers" through the different reports and data provided by the Centro de Investigaciones Sociológicas (Center for Sociological Research, CIS in its Spanish initials) to detect the most sensitive issues in Spanish public opinion. Based on this information, we analyze the denials made by *Maldito Clima* during its first six months of development and operation (April-October 2022) and interview Maribel Ángel-Moreno and Fermín Grodira, journalists responsible for the Maldita.es Foundation project against disinformation: journalism, education, research, and data in new formats.

The case study joins the initiatives that have been carried out by Maldita.es to promote a critical approach to media discourse and combat disinformation on certain topics of interest, such as *Maldito Bulo*, *Maldita Migración*, *Maldito Feminismo* and *Maldita Tecnología*, among others. *Maldito Clima* is supported by the European Climate Foundation and aims to help citizens interpret the information circulating on social networks, refuting false content through scientific evidence and expert testimony to explain "how the climate crisis is already a reality that affects health, the economy, energy, urban planning, agriculture and migration" (Maldito Clima, 2022a). Based on the results obtained in this research, a decalogue of good practices is proposed to combat climate obstructionism and infoxication, to confront manipulation and disinformation from the perspective of environmental journalism.

The starting hypotheses for this study were as follows:

H1.- Faced with a continuous heat wave, fact-checking organisations not only verify more dubious content, but these verifications are the most shared on social networks such as Twitter. There is thus an alignment between the media agenda, the disinformation agenda, and the social agenda.

H2.- CC-related disinformation has become increasingly global, and narratives are adapted to local contexts based on geographic and climatic events and catastrophes.

H3.- Obstructionists establish increasingly varied narratives by intervening in the public agenda to hinder awareness and implementation of environmental measures.

1.1. The climate obstructionist: inaction and boycott against environmental policy

The dissonance between the scientific consensus and the social consensus on climate issues is increasingly evident. While around 97% of scientific publications confirm the existence of CC, only 57-67% of the general public perceive this consensus as real (Cook et al. 2017; Leiserowitz et al. 2015). According to the Hoofnagle brothers (2007), creators of the popular science platform ScienceBlogs:

Denialism is the employment of rhetorical tactics to give the appearance of argument or legitimate debate, when in actuality there is none. These false arguments are used when one has few or no facts to support one's viewpoint against a scientific consensus or against overwhelming evidence to the contrary. They are effective in distracting from actual useful debate using emotionally appealing, but ultimately empty and illogical assertions.^[1]

This definition has been widely cited in studies on climate denialism, such as the research by Diethelm & McKee (2009), who further identify its five main characteristics: the identification of conspiracies; the use of false experts; the discrediting of the scientific field by citing isolated research (not representative of the general consensus); the use of misrepresentations and fallacies; or the creation of unrealistic expectations about the possibilities of science. On this last point, as an illustrative example, we find the case of those who deny CC by pointing to the absence of records that predate the invention of the thermometer. From his online course on climate denialism, Professor John Cook (edX, n.d.) of the University of Queensland, synthesizes this categorization using the following conceptual map:

Figure 1: Five characteristics of climate change science denialism”^[2]

5 CHARACTERISTICS OF SCIENCE DENIAL



Source: Skeptical Science

According to Kari Marie Norgaard, the three dimensions of environmental denialism and obstructionism are: “literal (simple refusal to accept evidence), interpretive (denial based on interpretation of the evidence) and implicatory (refusal based on the change or response that would be necessary if the evidence were accepted)” (Norgaard cited in Boykoff, 2015).

For their part, Jiménez and Martín (2022: 526) point out that they reserve “the use of denialism exclusively for the denial of the existence of climate change, understanding that the rest of the close but not identical positions are rather forms of climate skepticism”. Indeed, beyond denialism, there are positions of greater impact on climate inaction that transcend even skepticism and come closer to the definition of obstructionism.

However, one of the problems in distinguishing between obstructionist and denialist narratives is that they are often part of the construction of the same imaginary and are only differentiated by the attitude - impossible to know unless the source is identifiable - and the interests that may lead to these narratives being defended.

The terminological perspective is decisive in understanding the lack of consensus around CC, as the naming of its main actors carries wide-ranging connotations. For example, Boykoff (2015) echoes the more general categorization of skeptics, naysayers, and denialists. According to Abellán-López (2021: 289), in the Anglo-Saxon sphere, “the use of the term skeptic arouses rejection (...) because skepticism is part of scientific research and that is why part of the climate literature insists on the term contrarians”. In line with this idea, Boykoff defines skepticism as “(...) an intrinsic and necessary attitude in scientific research. However, applying it to defend fringe views on climate change has not been so positive” (2015). The term “opposition”, according to Boykoff (2015), is less provocative than “denialism” or “skepticism”.

In this research we prefer to refer to “obstructionism”, as we agree with Moreno (2022: 121) that this term “(...) is clearer in Spanish than others such as ‘contrarianism’ (*contrarianismo*), ‘delay’ (*retardismo*) or ‘countermovement’ (*contramovimiento* or CCCM), and underlines that what these actors share is the defense of the economic status quo potentially threatened by climate policies”.

Before delving deeper into obstructionism, it will be useful to know the two predominant types of climate skepticism according to Capstick and Pidgeon: “(...) epistemic skepticism, relating to doubts about the status of climate change as a scientific and physical phenomenon; and response skepticism, relating to doubts about the efficacy of action taken to address climate change.” (2014: 389). Below, we reproduce some illustrative statements of both typologies:

Epistemic skepticism:

- There is too much contradictory evidence about CC to know if it is really happening (*Trend skepticism about evidence base*).
- Current CC is part of a pattern that has been going on for millions of years (*Attribution skepticism*).
- There are a lot of very different theories about climate change, and little agreement about which is right (*Skepticism about scientific consensus and expertise*).
- Scientists have hidden research that shows CC is not serious (*Skepticism about climate science conduct*).
- CC is a scam (*Skepticism about scientific climate conduct*).
- Scientists have in the past changed their results to make CC appear worse than it is (*Skepticism about climate science conduct*).
- Even if we do experience some consequences from climate change, we will be able to cope with them (*Impact skepticism*) (Capstick and Pidgeon, 2014: 395).

Reactive skepticism (close to obstructionism):

- Climate change is so complicated, that there are very little politicians can do about it (*Political skepticism*).
- There is no point in me doing anything about climate change because no-one else is (*Personal skepticism*).
- The actions of a single person don't make any difference in tackling CC (*Individual skepticism*).
- People are too selfish to do anything about CC (*Folk psychology skepticism*).
- The media are often too alarmist about CC (*Portrayal/Communication skepticism*).
- CC has now become a bit of an outdated issue (*Climate 'fatigue' skepticism*) (Capstick and Pidgeon, 2014: 395).

As we can see, epistemic skepticism is based on the one hand, on scientific contradictions regarding evidence, consensus, results, and inaccuracies in the modus operandi of researchers. Likewise, the attribution to human factors is questioned, as well as the seriousness of CC. With regard to reactive skepticism, which is close to obstructionism, responses at the individual, social and political levels are fundamentally questioned.

Arguments are usually offered based on presupposing the motivations of others (popular psychology) and the representation and communication of the phenomenon are criticized, which leads to a feeling of fatigue in relation to everything to do with CC.

Regarding the Spanish context, Jiménez and Martín (2022: 526 and 530) argue that "(...) in recent years it has become evident that skepticism about climate change is part of a dialectical battle where linguistic aspects have been gaining importance, perhaps because the problem is no longer whether climate change is real, but other adjacent issues (are)" and they emphasize that "(...) the ideological component has been recurrently identified by the literature as a decisive factor in explaining the abundance of denialist news in some countries".

These authors underline the importance of ideological framing in climate skepticism, mainly linked to a critique of environmentalism and political representatives of left-wing parties. They also highlight as a common vector the generalization of the idea that the right to dissent against political correctness is not usually opposed to the existence of CC, but to political measures and, mainly, in relation to public spending (2022: 533). This idea is shared by Heras (2018: 122) who indicates that "(...) the tendency to justify the system seems to be closely related to the defense of one's own interests: those who are more favored by the system tend to get involved in its justification more enthusiastically than those who are not favored".

For their part, Almiron and Moreno (2022: 11) point out that the risk of trivializing the opposition to the environmental struggle prevents us from facing "(...) the real distribution of responsibilities in the climate crisis". And they highlight that one of the problems is that "(...) in the case of climate change, in Spanish, denialism (ideology, denialism) is also confused with denial (attitude, denial) -the latter a state of mind

that not only underlies explicit denialism but is also found among those who do not deny literal climate change but do deny its implications-".

We agree with them in highlighting the predominant role of "obstructionists", as these "(...) are united in perceiving as a threat any disruption of the status quo that opposes their interests" (2022: 13) and, as such, we consider these narratives to be primarily responsible for the obstruction of climate policies.

We therefore argue that growing obstructionism may pose a greater threat to the advancement of climate awareness and implementation of environmental measures than the declining influence of denialists and skeptics. The latter limit themselves to questioning anthropogenic CC from a pseudo-scientific approach, but without exerting any real influence on political decision-making. Climate obstructionists, on the other hand, are characterized by opposing and blocking environmental policies, not so much by denying or not believing in the existence of global warming, but by their disagreement with changing the current financial and economic regime or by simple ideological opposition within the public sphere.

From this perspective, we should note that there is a close relationship between various forms of obstructionism and certain business spheres, particularly in some sectors affected by energy consumption and agricultural-livestock exploitation (Almiron, 2020; Almiron and Moreno, 2021). In this case, climate dissent has traditionally been conducted from the shadows, fueling the discrediting of climate activists, or paralyzing the implementation of concrete measures to reduce pollution.

In this regard, the Climate Social Science Network points out three interventionist lines of obstructionism consisting of: meddling in the public agenda to force the desired framing to be accepted as common sense; favoring the discrediting of actions to address CC; and influencing political decision-making so that the climate cause is not supported (CSSN, 2021: 3). Its timeframe for action consists of three stages:

1.- Long term (*five years and beyond*): creation and maintenance of a cultural and intellectual infrastructure based on the collaboration of academics, organizations, training programs, etc. that contribute to the legitimization of its discourse.

2.- Medium term (*up to five years*): legitimization of the ideological apparatus and formulation of concrete policy proposals by recruiting influential social agents through think tanks, legal organizations, and public relations services.

3.- Short term (*depending on the legislative cycle*): influencing public opinion through greenwashing campaigns (e.g., in favor of fossil fuels); citizen mobilization to show public support for certain policy positions; and lobbying strategies through the financing of certain actions by corporations and associations or by contacting those responsible for public affairs to influence legislative outcomes (CSSN, 2021: 4).

In this sense, the expansion and reinforcement of the obstructionist narrative by some mass media forces us to review what has been the role of the specialized journalist in reporting on the climate crisis.

In recent years, moreover, the effect of echo chambers and the propagation of false content and strategic disinformation have contributed to the discrediting of CC, a serious problem on a global scale that requires examining the evolution of news coverage of this phenomenon.

1.2. Specialized journalism versus climate change disinformation

The relationship between the political agenda, public opinion and the media is decisive to understand the evolution in the level of awareness based on the measures that have been adopted from the public sphere (Boykoff and Lueddecke, 2016) about CC. In the last two decades, the discourse has been shifting from the scientific sphere to that of public debate. Likewise, the media tone and emphasis are increasingly moderate and, as Maribel Ángel-Moreno, journalist responsible together with Fermín Grodira for *Maldito Clima*, points out: "clear or evident denialism is restricted to a specific number of media"^[3]. This leads to a greater sophistication in the approach of the narratives against climate action by the obstructionists.

Among the studies related to the treatment and press coverage of CC, in our country the work of Jiménez and Martín (2022: 528) stands out when dealing with the analysis of skeptical arguments in the Spanish print and digital media between 2015 and 2021. In their results they observed a striking concentration of skeptical content in the Opinion section, with almost three quarters of the total (74.2%) and 6.1% in interviews.

Along these lines, Parratt et al. (2020) analyzed the Spanish press treatment of CC in the three most widely read paid dailies (El País, El Mundo and ABC) during 2017, the year in which then President

Donald Trump announced the withdrawal of the United States from the Paris Agreement. The authors highlighted that "(...) the data extracted reveal that the distribution of texts by month was very uneven. June was the month in which most texts were published (15.2%)^[4], followed by March (10.6%), January (10.4%) and July (9.5%)" and they also found a higher presence of texts on weekdays, with weekends being when most press is read. Furthermore, the scarce presence (2.7% of the texts) of information on the front pages of the newspapers analyzed is striking, nil in the case of ABC where articles of this type are usually published in the Society section, while in El País they are found in more relevant sections such as Economy or mostly in International (Parratt et al., 2020: 635 and 642). Just a few months later, according to the study published by Pew Research Center (2019) in the spring of 2018, 81% of the Spanish population considered CC as the main international threat.

For their part, Arcila et al. recall that "(...) previous studies evidence an increase in media coverage of CC during certain specific international events, especially during the celebration of the Conferences of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC), the so-called Climate Summits" (2015: 108). In this sense, they found that the sources used in news about CC from 2006 to 2009 was mainly politicians (42.33%), followed by experts (41.86%), social entities and activists (4.42%), affected people (1.40%) and witnesses (0.93%) (2015: 113).

From the point of view of taxonomies of obstructionism, Lamb et al. (2020: 2) point out four categories: redirection of responsibility; advocacy of non-transformative solutions; emphasis on downsides; and surrender. In response to these, Abellán-López points to literacy as one of the ways out of this scenario and stresses that "with the acquisition of certain basic competencies and the appropriate conceptual tools, people should be in a position to evaluate information on climate change and make informed and responsible decisions" (2021: 297). In line with this approach, Heras points out that:

Discarding the idea that denial is the result of a lack of information or a deficit of scientific culture, in recent years various responses to denialist disinformation campaigns have been proposed. These responses include a) ignoring the detractors; b) exposing their communication strategy, based on manipulation; c) revealing their motivations; d) refuting the myths they spread; and e) demanding accountability from their sponsors (2022: 119).

In order for environmental journalism not to contribute to climate obstructionism, it is necessary to understand the dynamics of disinformation, assuming that "(...) the scientific world also has the challenge of facing the truth, half-truths and disinformation" (López-Borrull and Ollé, 2019).

Despite the fact that there are more and more fact-checking initiatives on the international scene, fact-checking of scientific content is still a minority. One of the first examples in our country was *Maldita Ciencia*, which emerged in the networks on June 27, 2018. In their research on this project, Molina-Cañabate and Magallón-Rosa point out that "false information that has, in appearance, a scientific nature spreads easily through social networks because the consumer of information cannot easily contrast them nor know which reliable sources to turn to" and, on the other hand, they point to the need for there to be "(...) an independent verifying entity that, far from the academic or scientific language, can disprove false information in a way close to the public that (without prior knowledge on the subject and barely without realizing it) has contributed to viralize it" (2020: 19).

The problem of the effectiveness of debunking is one of the questions with the fewest short-term answers. After studying 126,000 stories or rumors spread between 2006 and 2017, Vosoughi et al. (2018) state that on Twitter false information with the appearance of news spreads with greater speed than true information, especially regarding terrorism, natural disasters, and scientific topics.

According to Davis et al. (2020), the dispersion of disinforming content and narratives follows a pattern similar to that of biological viruses, the increasing complexity of which requires determining whether it is an unintentional spread or an orchestrated strategy. This is particularly significant in terms of the pressures exerted by climate obstructionists, given the magnitude of the interests involved in slowing down the implementation of concrete measures to combat climate change on a global scale.

In the evolution of specialized journalism, Graiño highlights three main stages: the Promethean stage -in which the professionalization of science journalists is null or incipient-; the divine messaging stage -when there is greater consolidation, but still with an excessive dependence on the scientific sector-; and the political-social curatorship stage -with a more symmetrical relationship between the journalist and the scientist-. In this last phase, "science journalists cease to present themselves as messengers of scientists and come to consider themselves as the social outpost of the democratic control of scientists. It is characterized by structural (economic-structural and agglutinative-structural) and democratic (democratic-political and democratic-informative) discourses" (Graiño, 2014: 288-289). This last stage entails the consolidation of the intermediation power of science journalists, the establishment of a symmetrical relationship with scientists and the need to establish new ways of communication with

society to guarantee the right of access to information on topics of high interest, such as CC.

As we pointed out at the beginning of this research paper, even today the level of development of environmental journalism depends on the specific context, since the resources available and the level of literacy of both information professionals and citizens differ considerably from one part of the world to another. Sticking in this case to the Spanish environment, we can point out that, being in the third stage, the work of the environmental journalist in relation to climate obstructionism is a major issue.

The visible seriousness of the effects of CC imposes the development of informative coverage from a very demanding ethical point of view -which often conflicts with the growing uncertainty-, a challenge that is linked to the difficult mission of recovering confidence in the journalistic profession. Environmental journalists also have an important role to play in helping to promote greater climate awareness. To this end, it is essential that they are also able to identify the main issues and narratives related to the environment and disinformation.

It is important to remember that, until not so long ago, the main environmental issues were the subject of disinformation narratives on: fires, CC, the difference between diesel vehicles/electric cars, deforestation, water transfers, renewable energies, coal and fossil fuels, transport, nuclear energy, waste and incineration, and coasts and ecosystems.

In this context, the response framework was mainly that of climate skepticism. Until recently, CC has traditionally been discredited through derisive language (e.g., "climate hoax"). From this perspective, there were several easily identifiable concepts: "dieselazo" (raising the tax on diesel fuel), climate apocalypse, subsidized renewables, expensive renewables, heating pollution, deforestation myth, etc.

However, recent lessons that have been learned indicate that, to promote greater climate awareness, it is essential that we first learn about the action mechanisms of disinformation narratives of this type. In this sense, the first element of analysis is the need to frame the phenomenon.

1.3. Degree of concern and detection of disinforming narratives of the hottest summer in Spain: the case of *Maldito Clima*

According to the State Meteorological Agency, in 2022 "Spain has experienced the hottest summer in its data series (...which) started in 1961, with an average anomaly of +2.2°C" (AEMET, 2022). Being the third warmest August worldwide (along with 2017 and 2021) and the warmest in Europe (*Maldito Clima*, 2022b), media attention has led to increased public attention to the CC phenomenon. Therefore, it is particularly relevant to know the perception of Spaniards on the subject and what the predominant narratives of disinformation have been.

Table 1: Summary of thermal behavior in August 2022

	Average temperature		
	Av. August temp (°C)	Anomaly	Character
Peninsular Spain	24.7	+2.0	Very hot
Balearic Islands	27.3	+1.9	Very hot
Canary Islands	23.5	+0.7	Hot

Source: AEMET, 2022

Regarding the degree of concern of Spaniards about CC, the survey conducted on current issues by the CIS in April 2022 yielded significant data about the profile of 89.4% of Spaniards concerned about this issue.

Age is not a particularly significant factor in the degree of concern, ranging from 87.7% in the population over 65 years of age to 91.9% of the 25–34-year-olds surveyed. However, certain characteristics related to the ideological positions of the respondents are relevant in corroborating the conclusions of the aforementioned academic studies on the ideological impact on the belief in CC, with 95.6% of respondents who place themselves more to the left compared to 81.9% of people who place themselves more to the right (CIS, 2022a).

The data also show that 89.1% of those surveyed "believe that we are currently witnessing climate change" compared to 8.2% who say that we are not witnessing it and 2.4% who respond DK/NO (CIS,

2022a). In this sense, it is noteworthy that it will not be until the Barometer of September 2022 when the CIS specifically asks about the existence of CC. Among the measures to combat it, those interviewed "strongly agree" with encouraging the use of public transport (59.9%), increasing subsidies to improve energy efficiency in homes (51.4%) and in companies (33.7%) or limiting heating to a temperature no higher than 19 degrees in public buildings and shopping centers (33.3%) (CIS, 2022b).

We should also point out that in the time series of main problems for Spaniards collected by the CIS, CC does not appear until the Barometer of October 2022: in it, only 2% place it among the three main problems (CIS, 2022c). However, the media agenda and the visible consequences of extreme weather phenomena mean that in November 2022 it is already in ninth position among the top 10 problems for 7.9% of those surveyed (CIS, 2022d), as shown in Table 2.

Table 2: November 2022 Barometer on the main problem currently existing in Spain

Question 7. What, in your opinion, is the main problem that currently exists in Spain? And the second? And the third?. (SPONTANEOUS RESPONSE). (MULTI-RESPONSE).

	First problem	Second problem	Third problem	Total
The economic crisis, problems of an economic nature	18.0	11.2	4.8	34.1
Unemployment	14.1	11.4	6.0	31.4
Health care	3.6	12.3	10.7	29.6
Political problems in general	11.8	4.8	2.8	19.4
Education	2.1	5.6	8.8	16.5
Bad behavior of politicians	6.3	2.1	1.9	10.3
Citizen insecurity	1.2	3.9	3.7	8.8
Government and political parties or specific politicians	7.1	1.2	0.5	8.8
Climate change	1.7	2.7	3.4	7.9

Source: CIS, 2022d: 4.

From the point of view of perception of the future, and together with the striking rise in position, it stands out that in November 2022 Spaniards were more concerned about CC (80.1%) than the invasion of Ukraine by Russia (74.5%), ranking sixth among the problems that most affected them personally, behind the economic crisis, health, unemployment, education, and employment-related issues (CIS, 2022d: 2, 4-6).

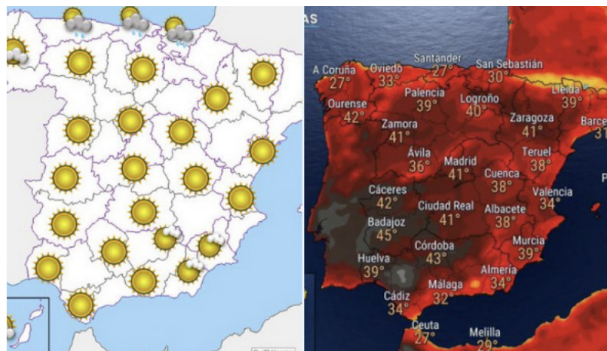
The growing concern of Spanish citizens about CC is also confirmed by the data offered by *Maldita.es* (2022b) in the report for the third quarter of 2022. During the last summer, this media reported having received more than 300 queries about the media coverage of this issue in which three clear discursive patterns predominated:

- 1.- The repetition of the "it has always been hot" narrative.
- 2.- The conspiracy about a "chromatic change" in the weather forecast maps to increase the sensation of heat.
- 3.- The attribution of the blame for forest fires to environmentalists and the distortion of environmental protection laws.

Regarding the first point, the worrying factor for scientists is the upward trend of the average temperature and not the occasional temperature rises in the past. To this end, one of the most commonly used disinformation strategies is the "cherry picking" technique (Cook et al. 2018), which consists of making a biased selection of data to launch a series of conclusions that are not representative of the totality of the available data. In this type of narratives, anecdote predominates instead of scientific evidence (Cook, 2020; Lewandowsky, 2020), resorting to the decontextualization of previously published information.

Maldita.es (2022b) indicates that another of the most repeated new hoaxes points out that it is the weather maps that are changing and not the climate. To corroborate this position, in Figure 2 we see that this type of disinformation compares current maps of reddish colors with others from the past in which greens and ochers predominate, without specifying that they represent different realities, even mixing information from different television channels -that is why the colors differ so significantly-.

Figure 2: The conspiracy about the “chromatic change”



Source: Disinformation Quarterly Report (Maldita.es, 2022b).

While the first two patterns fit prevalently in the line of action of denialists and skeptics, the third one is closer to the obstructionist action model.

By way of example, two photographs went viral, disseminated as if it were Spain in 2022, when in fact the events occurred in Greece in 2017 and not even the area of the fire was the same -the wind farm to which it refers-. This is information that had previously been disproved by Greek fact checkers in 2018 and subsequently by *Maldito Clima* (2022c), *Disinfocheck* in Belgium and Luxembourg (RTL Lëtzebuerg, 2022) and *Faktencheck* in Germany (Nicolaus, 2022). A direct attack on renewables is resorted to through manipulated content to disassociate climate fires from CC and, again, through false contextualization.

Maldito Clima (2022b) corroborates the upward trend of obstructionist dynamics, noting that news coverage during the summer of 2022 focused on the phenomena associated with CC (heat waves, droughts, and fires) rather than on measures to curb it and, as we found in the present study, many of the disinformation narratives typified by *Nature* (Coan et al., 2021) have been replicated. In the taxonomy proposed by Coan et al. from the study of 255,449 documents from the top 20 conservative think tanks and 33 anti-CC blogs published from 1998 to 2020, five categories of claims were identified: (1) CC is not happening, (2) it is not us, (3) it is not a bad thing, (4) the solutions will not work, and (5) climate scientists/scientists are unreliable. The research authors corroborated the three types of skeptical discourses previously raised by Rahmstorf (2004) on trend (based on inaccuracy in measuring the evolution of CC), attribution (doubts about the impact of human activity on CC), and impact (positive effects of CC).

2. Methodology

The main objective of this study is to analyze the role of specialized journalism and new organizations involved in the dissemination of climate discourse in addressing the main disinformation narratives that have favored obstructionism in the coverage of the climate crisis in recent years.

This is a mixed type of research (qualitative, descriptive-exploratory, and cross-sectional quantitative) which highlights an international literature review, the contribution of a methodology that combines public and private data, as well as the development of a decalogue of good practices based on the results obtained.

Firstly, a documentary review of the main works related to skepticism, obstructionism and CC has been carried out, which has facilitated the identification of a series of communicative strategies that have been reiterated over the last decades.

In order to delimit the framework under study, a categorization of the differentiating characteristics of climate deniers, skeptics and obstructionists was established. Subsequently, we proceeded to describe the profile of the so-called “climate deniers” in Spain through the different reports and data provided by the *Centro de Investigaciones Sociológicas* (Sociological Research Center).

After reviewing previous studies on the role of scientific journalism in the fight against CC disinformation, the fieldwork consisted of analyzing the *Maldito Clima* journalistic project and the denials made by this initiative during its first six months of development (20 April 2022-19 October 2022).

We have also analyzed the dissemination patterns of the *Maldito Clima* Twitter account during the period analyzed, a total of 973 tweets. For this purpose, the open-source tool T-Hoarder was used, an open software alternative that allows tweet tracking, data filtering and can also display summary and analytical information about Twitter activity regarding a certain topic or event (Congosto et al, 2017). The advantage of analyzing the data provided by Twitter is that it allows a sample that can be easily delimited and measured to be obtained (Molina-Cañabate and Magallón-Rosa, 2020: 13).

Recall that the initial database provided by the Twitter API collects the following information: tweet ID number, date, author, text, retweets, and favorites, whether it contains a photo or video, etc. The text analysis tool Voyant Tools was also used to identify semantic patterns in the dissemination of verifications.

In this methodological framework, the research questions posed were:

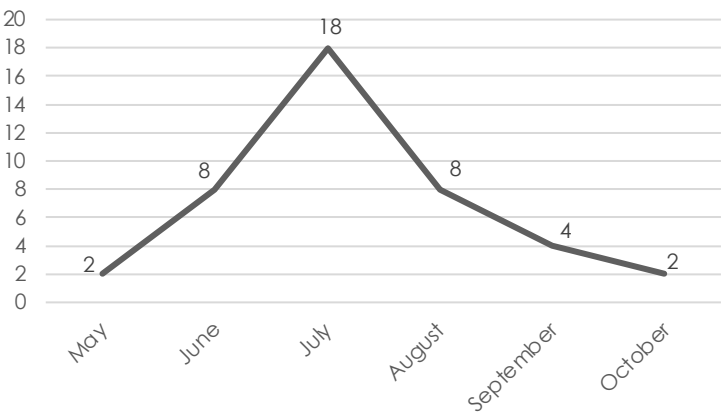
- 1- What are the main narratives related to CC verified by *Maldito Clima*?
- 2.-What differences are there in the verification work on CC and other sections of *Maldita.es*?
- 3.- What percentage of verifications refer to Spain? Is there any differential pattern?
- 4.- Are there preferential formats in the dissemination of disinformation?
- 3.- Who are the main verified actors in *Maldito Clima*?
- 4.- What kind of disinformation is the most likely to reappear?
- 5.- What causes can we identify in the reappearance of certain narratives?

3. Results

The development of a new project such as *Maldito Clima* allows us to identify patterns that have not been visible to date and also to establish typologies that allow us to implement early warning mechanisms.

During the period analyzed, between April and October 2022, *Maldito Clima* published 42 informative pieces related to the subject of analysis (one of them was also published in Spanish and English). Thus, and if we focus on the time variable, the distribution of verifications per month was as follows:

Figure 3: Number of verifications per month of *Maldito Clima*

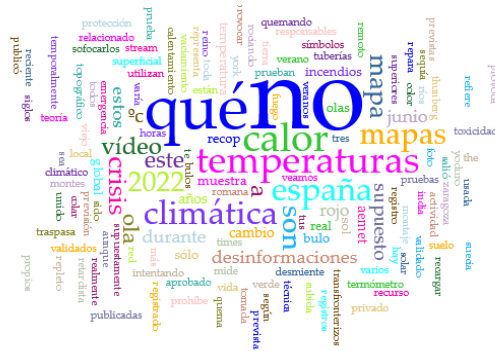


Source: *Maldito Clima*. Graph compiled in-house.

Therefore, the first results allow us to understand quickly and visibly that the verifications increase significantly in the month of June and reach the peak -from a quantitative point of view- with the heat wave of July 2022 (Maqueda, 2022).

In this regard, we must emphasize that between July 20 and July 29, 2022, 14 of the 42 verifications monitored by the journalistic organization occurred. That is, of the total number of verifications monitored in the 6 months of *Maldito Clima's* life, one third took place between July 20 and July 29, 2022.

Figure 4: Most repeated Spanish words in the *Maldito Clima* denials



Source: Maldito Clima/Voyant Tools

On the other hand, and continuing with the methodological analysis, we must indicate that the corpus of denials -through *Maldito Clima* headlines- had a total of 975 words, of which these were the most frequent: no (41); *what* (18); *heat* (10); *temperatures* (9); *climatic* (8).

In order to search for semantic patterns, the same analysis was performed with the total number of tweets published by *Maldito Clima* with a sample of 29,482 words (see Figure 4). In the same analysis, the most repeated terms were identified as *Maldita* (Damned) (221), *Maldito Clima* (Damned Climate) (191), *WhatsApp* (115), *hoy* (today) (113), *Telegram* (112), *España* (Spain) (109) and *calor* (heat) (103).

The analysis of the tweets published indicates three common patterns:

- 1.- Verifications attempt to link responses temporally. Example: Today.
- 2.- There is feedback between the different projects of *Maldita.es*.
- 3.- The main platforms of verified content are made explicit: WhatsApp and Telegram.

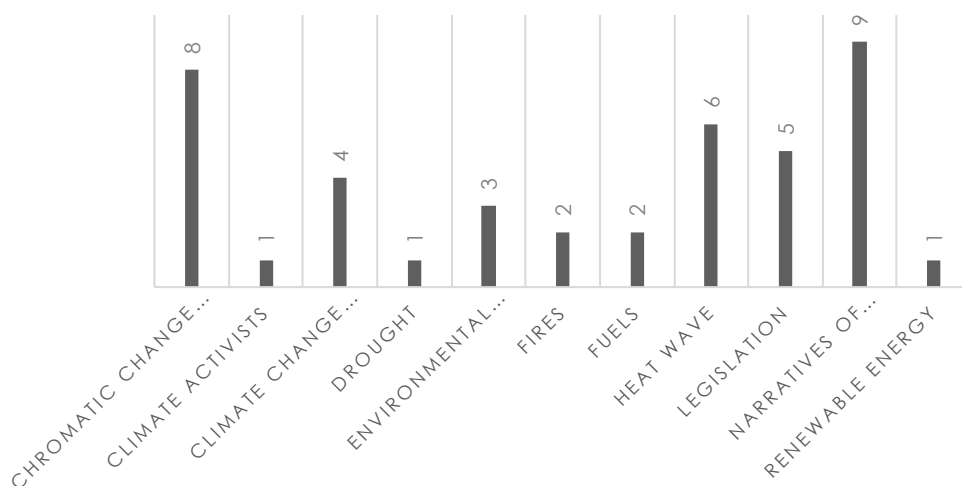
The study of the verifications also allowed us to discover that the resources used for verification are mainly:

- Material compiled in-house.
- Newspaper library.
- Reverse image search.
- Experts.
- Scientific literature.
- Official sources (press releases, databases, Official State Gazette, etc.).

Among the conclusions drawn, we see that one of the characteristics of the pieces published by *Maldito Clima* is that they all conclude with a notice about the first date of publication of the article in question and most of them have the date of the update at the beginning.

On the other hand, the following topics were identified among the verified narratives: behaviors of climate activists, CC as a historical phenomenon, chromatic changes of maps, related to fuels, environmental crimes and economic interests, renewable energies, fires, legislation, specific narratives of denialism and/or obstructionism, verifications directly linked to the different heat waves or those related to drought.

Figure 5: Main narratives verified by Maldito Clima



Source: Maldito Clima. Graph compiled in-house.

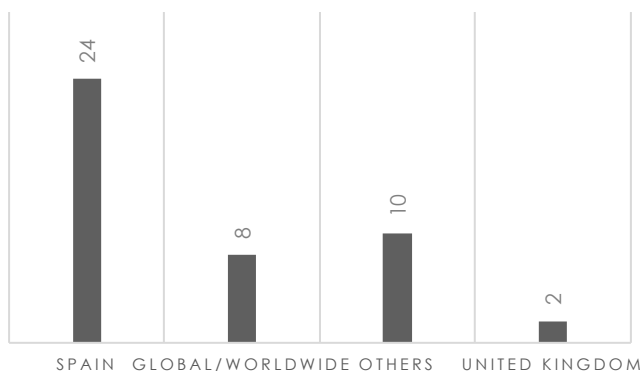
In this regard, it is important to note that general narratives that fall under denialism and obstructionism are the most frequent (up to 9 out of 42), followed by those referring to weather map color changes (8 out of 42) and those relating specifically to heat waves (6 out of 42).

It is also noteworthy that there are a significant number of checks referring to other countries: India and Pakistan, Australia, Sweden, etc. In fact, on some occasions several countries appear in the same verification (India and Pakistan, Portugal and Spain, Russia and Spain, etc.).

Only one of the 42 verifications was translated into English. The headline in Spanish read: "La teoría de la conspiración que traspasa fronteras sobre el "cambio cromático": por qué son engañosas las comparativas de mapas del tiempo que supuestamente exageran las temperaturas con el color rojo" (The conspiracy theory that crosses borders about the "chromatic change": why weather map comparisons that supposedly exaggerate temperatures with the color red are misleading) (Maldita.es, 2022a).

Perhaps the most relevant finding of our research is that only 24 of the 42 verifications (54.5%) referred to supposed information related to Spain. In this sense, there are eight verifications that are explanatory posts about the climate emergency and that can be considered geographically as global information.

Figure 6: Country-by-country verifications of Maldito Clima disinformation



Source: Maldito Clima. Graph compiled in-house.

Finally, we sought to combine the temporal variable with the viralization variable. As can be seen in the table of most shared verified content, the July heat wave not only led to more dubious content being

verified, but these verifications were also the most shared on Twitter. Regarding this last point, the top five most shared verifications on *Maldito Clima* were posted between July 18 and July 29, 2022.

Table 3: Most shared verifications on Twitter from the *Maldito Clima* account

Date	Text	Retweets
19/07/2022	No, Antena 3 has not manipulated these weather maps: one represents the level of weather warnings and the other the predicted maximum temperature #HeatWave https://t.co/CtGFpv5Hw	74
18/07/2022	No, in August 1957 it did not reach 50°C in Spain as this front page of a weekly newspaper of the time that has now gone viral https://t.co/yaHXCikOtA claims.	46
20/07/2022	No, this map of UK temperatures that is disseminated as if it were from 2022 is not current: it is a forecast from 2016 https://t.co/ZoxcmlbQ5X	35
29/07/2022	Disinformation blaming environmentalists and environmental protection laws for forest fires https://t.co/zddzMd0yZF	28
18/07/2022	No, they have not colored a weather map of Sweden with what in 1986 was a normal summer in red https://t.co/la4CcLMPmT	25

Source: *Maldito Clima*. Table compiled in-house.

4. Discussion of results

Until now, scientific journalism linked to the media had established the informative guidelines in everything related to CC, however, the emergence of different actors trying to establish communicative strategies to involve citizens in the problem, in response actions and in possible solutions is modifying the communicative patterns to face and confront the development of climate obstructionism.

In a context of information fatigue, one of the underlying problems that emerge is that an excess of negative news may end up generating indifference and inaction among citizens.

Likewise, one of the most identified and repeated bad practices referred to television talk shows that put scientists and non-experts on the same level to establish a debate on CC that was not framed in rational arguments but in emotional shortcuts that appealed to individual experiences.

In this regard, we consider it useful to establish a proposal for a decalogue to serve as a starting point to continue building a discourse based on a journalism of solutions:

- 1.- We consider it appropriate to renew the terminology related to CC in order to leave behind the polarization around denialism and establish a typology that distinguishes between obstructionists and skeptics.
2. It is recommended that verifications that affect global narratives or that refer to different countries be published in English and that agreements with the fact-checkers of different countries are made to publish them in the original language of the country as well.
- 3.- It is essential to introduce, whenever possible, an in-house expert source -beyond general statements or reports- when verifying possible disinformation.
4. It would be advisable for news organizations to broaden their base of experts in order to reduce a possible gender gap by contextualizing and deepening the verified information^[5].
5. When establishing climate literacy and dissemination strategies, it is also necessary to establish segmented messages for different age groups, with adapted formats and languages.
6. Each medium and each social network has its own language and code. It is important to adapt messages to each network or platform and to each recipient.
7. It is important to understand the consequences of the climate crisis by using names and concrete examples that allow us to put a face to a global phenomenon and establish mechanisms for personal and group identification^[6].

8. Fact-checking organizations such as *Maldita.es* must establish different dissemination metrics for already verified content that repeatedly reappears chronologically or temporally. The objective should be to try to stop the chain of circulation and viralization as quickly as possible.

9.- We consider it essential to give a greater role to users through co-creative dynamics and collective verification based on open science projects and collaborations between different organizations that are much more transversal.

10. Specific international events have become critical from the point of view of disinforming incentives and need a specific coverage not only of the event but also of the narratives that aim to be integrated and then normalized in the context of their being held.

5. Conclusions

The hypotheses put forward in this work aimed to analyze the relationship between the increase in heat waves and the increase in the number of verifications; to understand whether the disinformation narratives related to CC are increasingly global; and, finally, to study whether CC obstructionists establish increasingly varied narratives in an attempt to align the media agenda, the disinformation agenda and the social agenda shared by the public.

From the interview with the people in charge of *Maldito Clima*, some of the key ideas that had been adopted as a starting point for the research were corroborated. Since climate denialism is limited to very few media outlets, it is clear that alternative channels of networks and platforms have become the scene of conflict of certain obstructionist narratives. In this context, it is evident that the dissemination in networks reaches younger profiles that operate under different logics of viralization (as for example everything that happens through the impact of TikTok in the number of views and likes). For this reason, from an informative and communicative point of view, it is not only about adapting the language, but also the codes to reach different audiences and trying to increase their involvement in the climate crisis.

Regarding the main narratives identified in the verifications of *Maldito Clima*, it is important to note that there are three main typologies that account for more than half of the verifications carried out in the period analyzed: the generic ones that are included within denialism and obstructionism, those related to the color changes of weather maps and those that refer to heat waves in a specific way.

We consider it interesting to continue analyzing the structure and semantics of the verifications, but above all of the original hoaxes and disinformation themselves, trying to look for temporal, semantic and structural patterns in them.

On the other hand, it is relevant to note that 45.5% of the verifications made were not directly linked to Spain, a fact that allows us to understand the global magnitude of the phenomenon and its ideological nature, but also how certain narratives circulate globally and adapt to local contexts.

Finally, and once the trends identified here have been identified, we consider that it would be advisable to establish planned research when continuous heat waves are announced and confirmed to analyze how disinformation content circulates and what route it takes, to propose strategies for detecting and stopping disinformation chains and to continue delving into linguistic, narrative and format patterns.

6. Specific contribution of each signatory

Contributions	Signers
Conception and design of the work	1-2
Documentary research	1-2
Data collection	1-2
Data analysis and critical interpretation	1-2
Revision and approval of versions	1-2

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We thank Maribel Ángel-Moreno and Fermín Grodira for their availability and access to the data on *Maldito Clima* necessary for the preparation of this research.

Translator: Harvey Holtom.

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The authors declare that there is no conflict of interest.

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Footnotes

1. In the original version, all translations from English to Spanish have been made by the authors of this article.
2. Fake experts (*Falsos expertos*); Logical fallacies (*Falacias lógicas*); Impossible Expectations (*Expectativas imposibles*); Cherry Picking (*Selección de cerezas -o acto de manipulación para escoger solo aquellos datos que refuerzan el discurso del emisor-*); Conspiracy Theories (*Teorías conspiradoras*). Magnified Minority (*Minoría magnificada*); Cortina de humo (*Red Herring*); Tergiversación (*Misrepresentation*); salto a las conclusiones (*Jumping to Conclusions*); Falsa dicotomía (*False Dichotomy*).
3. Interview conducted by the authors of the research on November 4, 2022.

4. On June 5, World Environment Day is celebrated.

5. At *Maldita* they are aware of this possible bias/lack and published the following tweet in September 2022: "#SUPERPOWERFUL, WE ARE LOOKING FOR YOU. At @maldita we want to increase the presence of women experts in our work. Are you a scientist, researcher, engineer, do you know a lot about a subject? Your knowledge makes you Superpowerful: join us! <https://cutt.ly/u0dPl4t>". See: <https://cutt.ly/d0dPgx>

6. This is one of the main recommendations that *Maldito Clima* journalists Fermín Grodiera and Maribel Ángel-Moreno gave us in their interview.