

Monitoring Climate Change and COP28 in European Online News Media

2024



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Key Findings

The purpose of this document is to illustrate, using Text Mining techniques, what topics related to climate change are discussed in the European online media landscape. We intend to provide an overview of the most recurrent viewpoints and reporting trends related to this topic. Then we describe the media related to the event and how this relates to the previously identified reporting topics. The sources of our analysis include some of the most important online mainstream media outlets in the 27 Member States. Furthermore, we include findings on unverified sources.

This report summarises the findings of the analysis on data from mainstream sources, collected between 1 November 2022 till 22 February 2024, and unverified sources, for the period from 15 October 2022 to 30 November 2023.

- Climate change news account for 1.2% of all online mainstream media in the investigated period. In December 2023, the volume on climate change even accounts for 2.0% of the total mainstream media. That is 60% more coverage on climate change news than the monthly average during the total reporting period.
- The mainstream media clearly picks up events related to climate change. These events and reports are important for raising awareness and driving action on climate change.
- The event that triggers most articles is COP28 in 2023 with daily peaks almost twofold of the second most covered event COP27 in 2022.
- The most widely reported topics are implications of climate change and the phase out of fossil fuels. Less attention is put on the coverage of sustainable development and renewable energy sources.
- German media contributes most media volume to climate change news. Beside the EU-wide covered topics, Germany deals with budget issues to fund climate projects.
- The most mentioned persons are Sultan Al Jaber, whose role as COP28 president as well as the head of an oil company was highly criticised in the media, as well as António Guterres, the United Nations secretary-general, advocating for the need to end fossil energy.
- Climate change news in unverified media follows similar reporting trends as in mainstream media. However, unverified news frequently misrepresent information by misinterpreting actual events and statements. The most important narratives refer to the ineffectiveness of climate policies. For this, unverified sources make more use of persuasion techniques compared to mainstream media, for COP27 and COP28 predominantly Loaded Language.

1. Background

Climate change has become an increasingly important topic in the media over the past few years, as the effects of global warming become more evident and pressing. Moreover, it represents a complex and multifaceted issue, encompassing various aspects such as the burning of fossil fuels, deforestation, and environmental policies.

The media has an essential role in informing the public about the latest developments, updates, and potential solutions to this pressing issue. It plays significant role in shaping public perception and attitudes towards climate change measures and policies. The topics and reporting intensity in which climate change is depicted in media can influence how readers perceive the severity and urgency of the issue, as well as the effectiveness of proposed solutions. For example, sensationalised or alarmist reporting may lead to heightened anxiety or fatigue among the public, while balanced and informative reporting can help to promote understanding and action. Additionally, media coverage can also influence public support for specific climate change policies and initiatives.

Therefore, we intend to provide an overview of the most recurrent reporting trends and topics related to climate change news. To understand the trending headlines, we highlight the main reporting peaks throughout the preceding months, covering media coverage between November 2022 and February 2024. This includes the Conference of the Parties (COP), the international climate meeting held by the United Nations, COP27 in 2022 and COP28 in 2023. By examining how the media portrays climate change news, we can better understand the public perception of the issue and the role of media in shaping that perception.

To identify the most relevant topics covered in the main peak occurring at the same time that the COP28 was held, we apply an automated topic-clustering algorithm that unveils the main topics appearing in media. (For more information, please consult the Annex of attached to this report.)

Data is collected by Europe Media Monitor (EMM) on a selection of the most important EU27 online media sources from 1 November 2022 till 22 February 2024. In total, we cover 581 mainstream sources. The number of the sources per country are weighted based on the countries' population. For section 4, the investigation of mis/disinformation narratives was performed on 460 unverified sources for the period from 15 October 2022 to 30 November 2023.

Furthermore, we summarise the findings of an analysis prepared by JRC T.5 Disinformation team which was performed on climate change news in unverified sources.

For a more specific description of the methodology and applied technology, please refer to the Annex.

2. Overview of reporting on climate change

In this chapter, we show an overview of media reporting about climate change based on the main reporting peaks over the analysed period.

Overall, climate change news account for 1.2% of all online mainstream media in the investigated period (253,675 articles in total). We found the highest reporting peaks around the dates of main global climate events.

We identified slightly higher reporting volume at the beginning of the period that falls on the days of the COP27 event (6 to 20 November 2022, Egypt). Especially the initiation of the event and the proposed discussion points in the different attending countries received heightened attention. Nevertheless, climate change news reach the highest peaks around the COP28 event (30 November to 12 December 2023, United Arab Emirates), and in the period preceding the conference.

In December 2023, the volume accounts for 2.0% of the total mainstream media, meaning 60% more coverage on climate change news than the monthly average of the reporting period, while in November 2023 the same values equal to 1.8% and 51% respectively (See [Table 2](#) in the Appendix).

Preceding the COP28 event, media coverage is boosted as the event's credibility is criticised for representatives of the oil industry and gas lobbyists being among the organisers. UN Secretary-General António Guterres points out that leaders can no longer lay off of climate change topics. Moreover, it is highlighted that China and USA are holding discussions but the disagreement on climate remains. The media reports also on the European Parliament voting on its position at COP28, to end fossil fuel subsidies. Moreover, news include the European Parliament's decision to include nuclear power as a green technology and to support the certification of carbon removals (20 to 21 November 2023).¹

Other COP28 related issues were picked up by media earlier, when the Intergovernmental Panel on Climate Change (IPCC) published its Sixth Assessment Report, which provides direct scientific input to the first global stocktake process at COP28 (March 2023).² News sources also shed light on the release of the COP28 Presidency's plan to fast-track the energy transition and boost climate finance. Meanwhile the EU declares to push for a complete fossil fuel phaseout far before 2050 (13 July 2023). (For a more detailed analysis on reporting topics during COP28, see section 3.)

In addition, we identified an increased reporting volume during September 2023 (1.8% of the total mainstream media, meaning a 50% higher monthly coverage). This increase is mostly related to global climate strikes as well as the SoTEU – State of the Union address of European Commission's President Ursula von der Leyen who defends her green legacy and aims to promote climate protection. Moreover, the Africa Climate Week & Summit 2023 (4 to 8 September 2023)³; as well as the G20 Summit 2023 (9 to 10 September 2023)⁴ are subject of the media reporting.

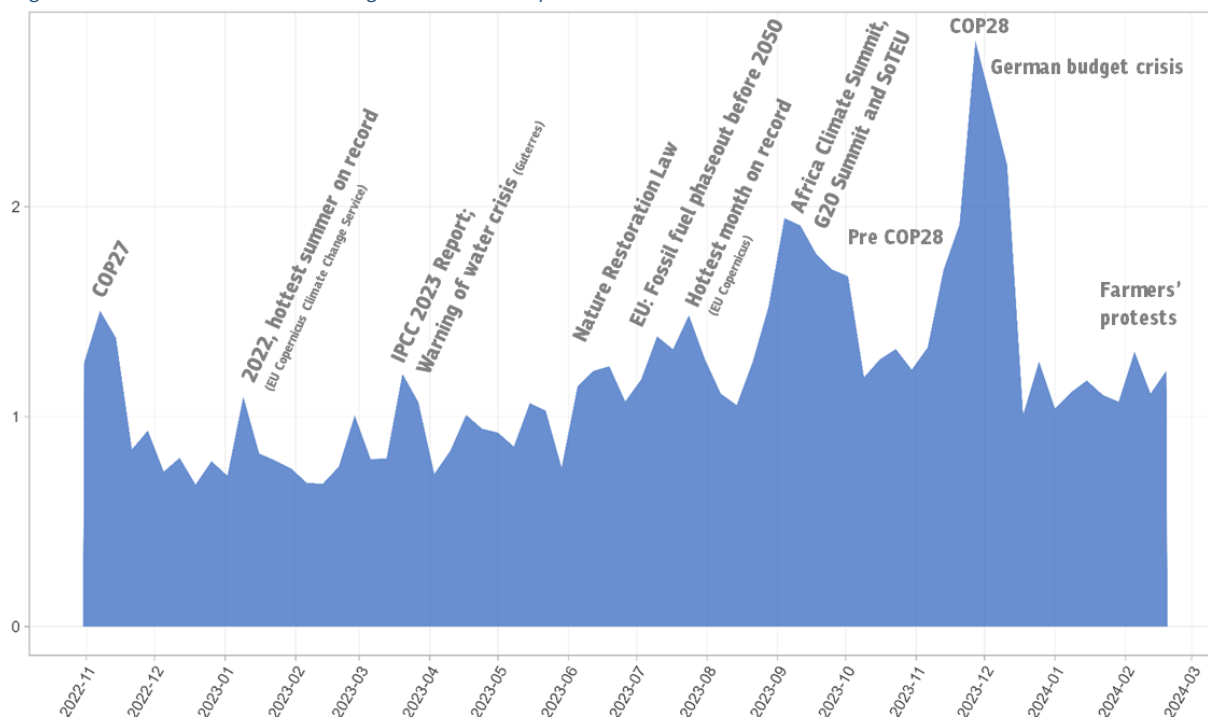
¹ Besides, the media volume on 20 November 2023 is dominated by German reporting on the budget crisis in Germany and Karlsruhe judgement on Germany's debt brake, raising the question of sources to fund the planned climate change actions. Moreover, the media picks up on the UN declaring that Greenhouse gas emissions and temperatures are at high levels, while in Argentina the newly elected President Javier Milei denies climate change.

² <https://www.ipcc.ch/assessment-report/ar6/>

³ <https://www.unep.org/events/conference/africa-climate-week-summit-2023>

⁴ <https://www.consilium.europa.eu/en/press/press-releases/2023/09/09/g20-new-delhi-leaders-declaration/>

Figure 1 – Share of climate change news in European mainstream media



Timeline with relevant news volumes as percentage share of the total mainstream media. EMM “EE24campaign” index. Period: 2022-11-01 to 2024-02-22. Weekly aggregated data.

Other policy-relevant news generating significant media coverage include the controversial EU’s Nature Restoration Law which is on the agenda of the European Parliament’s Environment Committee. Different voices are covered; one of them Agriculture Commissioner Janusz Wojciechowski who warns to push the farmers not any further. At the same time, the German Vice Chancellor Robert Habeck, representing The Greens, has agreed to ease the climate protection law with the aim to leverage economic growth (14 to 15 June 2023).

More recently, the media attention on climate change news increases covering the debates in the European Parliament on new climate change legislation and the European Commission’s recommendation of reducing emissions by 90% until 2040, pointing this out as a just transition while Greenpeace and WWF criticise that there are no specific dates set for the end of fossil fuels. Farmers protest were widely covered as agriculture is affected by climate change (e.g. by poor harvest) and the changing policies for a green transition. In this context, European Parliament adopting its position for negotiations with Member States on the Commission proposal on NGTs (the “new GMOs”)⁵, as well as the pesticide proposal and its withdrawal as a concession to the ongoing farmer protests received wide coverage (6 November 2023).⁶

On a more general level, we found that negative effects of climate change in the last years, and expected repercussions in the years to come (e.g. experts warning of more severe and longer heatwaves), and climate protests often make the headlines, generating important reporting peaks (See the subsequent section on climate protests in the country comparison).

⁵ For an in-depth analysis of the European media coverage on GMOs and NGT before and after the legislative proposal, refer to Zsuzsanna Pásztor, Theresa Reitis-Münstermann, Vitalba Crivello, Monitoring GMOs and New Genomic Techniques in European Online Media News, European Commission, 2024, JRC137057.

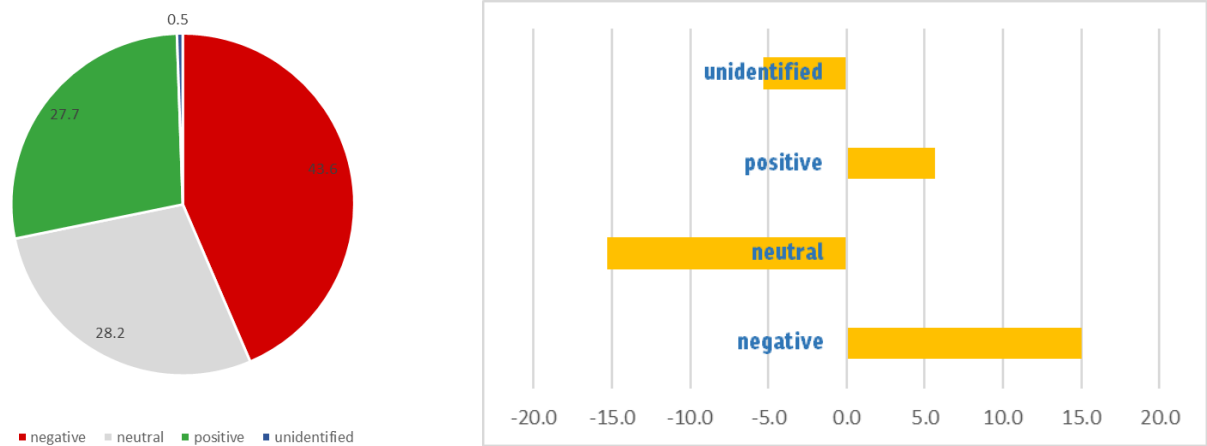
⁶ <https://www.20minutes.fr/planete/4074620-20240206-crise-agricole-tour-maintenant-riposte-agriculteurs-bio>

For instance, the media picks up information provided by Copernicus Climate Change Service’s Global Climate Highlights, according to which 2022 was the warmest summer Europe on record.⁷ The following year, a similar release confirms that July 2023 is set to be the hottest month ever recorded.⁸ In parallel, coverage emerges on Spain, Greece and Italy, as heatwaves affect Southern Europe. Moreover, the UN assessment of the Montreal Protocol on ozone layer recovery is reported.⁹ (10 January 2023). Moreover, Guterres’ warnings of a water crisis, which currently threatens 10% of the people worldwide¹⁰ received attention (UN water conference, 22 March 2023)¹¹. Scientists are picked up in the news, warning that hurricanes are becoming more intense which requires a new level 6 on the scale to measure hurricanes’ intensity. Additionally, news articles highlight the danger to ski resorts’ existence in the face of climate change. Furthermore, media spotlight that weather disasters have killed nearly 200 000 people in Europe during the last 40 years. Moreover, the UN refugee agency makes the headlines informing that the number of people forcibly displaced around the world has climbed to a record 110 million people (14 to 15 June 2023).

Tonality of reporting

Figure 2 shows that the overall sentiment is mainly negative (43.6%). The negative sentiment is 15 percent points higher than for the total mainstream media. This shows that the topic climate change is reported on with more negative connotated headlines. Even though the reporting shows less positive (27.7%) than negative sentiment, there is a difference of 5 percent points to the positive reporting of total mainstream media, showing that the topic is triggering more negative but also positive connotated news.

Figure 2 – Sentiment of climate change news and difference for mainstream media at EU level



Left: Data aggregated by sentiment. Right: Percentual sentiment difference of climate change news compared to total mainstream media. EMM “EE24campaign” index. Period: 2022-11-01 to 2024-02-22.

⁷ <https://climate.copernicus.eu/copernicus-2022-was-year-climate-extremes-record-high-temperatures-and-rising-concentrations>

⁸ <https://wmo.int/news/media-centre/july-2023-set-be-hottest-month-record> <https://climate.copernicus.eu/july-2023-warmest-month-earths-recent-history>

⁹ <https://news.un.org/en/story/2023/01/1132277>

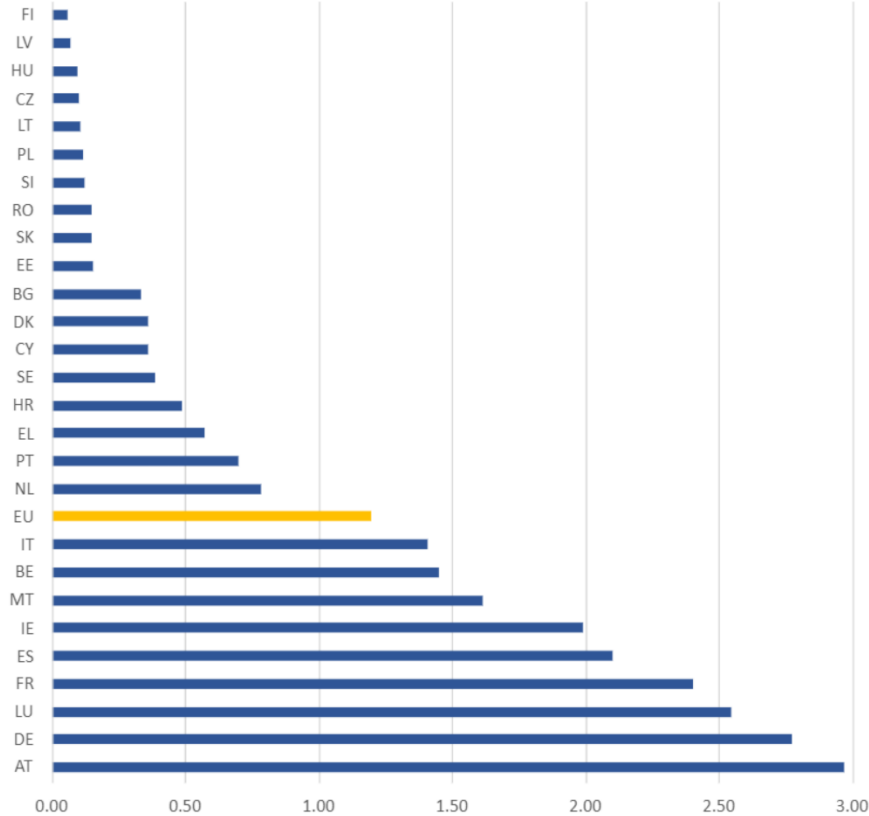
¹⁰ <https://www.unwater.org/publications/un-world-water-development-report-2023>

¹¹ For an in-depth analysis of the European media coverage on water crisis and scarcity from April 2022 to June 2023, refer to Reitis-Münstermann et al., Monitoring Water Scarcity in European Online Media News, European Commission, 2024, JRC136642.

Country comparison

There are significant country differences of the reporting volume in our dataset.¹² In order to compare the extent of the topic for each country, we present the share of the country’s total reporting that revolve around climate change in [Figure 3](#) below. Especially in Austria, Germany and Luxembourg the media attention on climated change related topics is with more than 2.5% the highest, followed by France, Spain and Ireland (higher than 1.9%).

Figure 3 – Climate change news’ share of total mainstream media



Country comparison of climate change news coverage based on share of total media volume. Source: EMM “EE24campaign” index. Period: 2022-11-01 to 2024-02-22. For absolute and relative volumes, see Table 1.

We found wide media coverage, especially in Germany, on climate activism.

- Climate protests held by [Fridays for Future](#) together with the labour union Verdi (3 March).
- Budget issues of the German coalition in the government and the “[First climate action before the Human Court](#)”. The media across the member states sheds light on the UN’ historic resolution on legal obligations to fight climate change, led by Vanuatu (29 March).
- Actions of climate activities as well, [blocking the traffic at several German airports](#). This makes up a major part in German reporting but also media across the EU picks the actions and repercussions for the flight traffic in other countries (13 July 2023).
- German media has reported on a study by Bertelsmann-Stiftung showing that a majority of 18 to 30 year old Germans have confidence in democracy but [lack trust in politics](#) and the government, among other factors due to the handling of the climate crisis ([6 February 2024](#)).

¹² The number of sources have been weighted to the total population of each Member State, the system does not allow for an in-depth country comparison due to biases. This is mainly due to language differences and the quality of translation of the relevant keywords and their combinations.

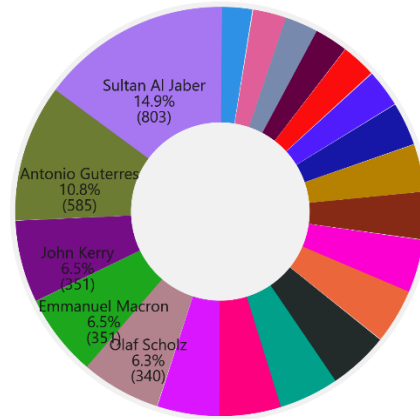
3. Relevant topics of main peak during COP28

In this chapter, we focus on the main peak of climate change news, from 30 November 2023 to 13 December 2023, coinciding with COP28.¹³ To detect the main topics we conducted an automated cluster analysis performed by an algorithm on the title of 11,386 articles. This helped to better identify articles that are semantically close to each other (see Figure 4).

Figure 4 – Automated topic clusters and most mentioned entities during main peak

Cluster numbers and keywords:

- 20.4% **Cluster 1** - cop28, climate, change, fund, agreement
- 13.8% **Cluster 2** - climate, fossil, conference, dubai, summit
- 13.7% **Cluster 3** - cop28, climate, dubai, conference, summit
- 8.6% **Cluster 4** - cop28, fossil, fuels, agreement, draft
- 8.3% **Cluster 5** - climate, year, sunak, green, charles
- 6.6% **Cluster 6** - climate, cop28, dubai, fossil, fuels
- 4.6% **Cluster 7** - climate, change, protection, government, court
- 3.4% **Cluster 8** - budget, traffic, light, crisis, government
- 3.3% **Cluster 9** - gaza, israel, war, hamas, macron
- 3.2% **Cluster 10** - year, hottest, warmest, climate, ever
- 3.1% **Cluster 11** - activists, climate, green, venice, canal
- 2.3% **Cluster 12** - cop28, countries, triple, nuclear, energy
- 1.0% **Cluster 13** - emissions, co2, global, record, fossil



Note: Clustering was performed on headlines. Headlines not similar to any of the groups are not considered in the distribution across topics.

Source: EMM “EE24 campaign” index. Period: 2023-11-30 to 2023-12-13.

The automated clusters shows different angles and focal points of the media coverage during the period of the COP28 event.

The main aspect of the highest peak in climate change news relates to fossil fuels (clusters 2, 4, 6 and 13). The respective reporting accounts for 30.2% of the grouped articles. This includes mostly the dispute over fossil energy, dividing the COP participants. The Dubai Climate Summit saw disagreements over the phasing out of fossil fuels, even though the World Climate Conference aimed to move away from fossil fuels in line with UN leader Guterres stating that the climate "in collapse" due to fossil energy. Moreover, the record high levels of global CO2 emissions are highlighted. Eventually, at the COP28 Global Climate Change Conference, parties were called on to transition away from fossil fuels. The conference highlighted the need for a transition towards cleaner energy sources in order to combat climate change.

Most reporting comes from the countries with the highest representation and reporting volume in our source selection, especially Germany, a country heavily dependent on fossil fuels. The most mentioned entity in this context is Sultan Al Jaber, whose role as COP28 president as well as the head of an oil company is frequently criticised in the media, as well as António Guterres, the United Nations secretary-general, who advocates for the need to end fossil energy.

¹³ We include news items from 13 December 2023 to include the reporting of the day after the COP28 ended.

The second biggest topic (clusters 1 and 12) revolves around sustainable development and renewable energy sources and accounts for 22.7% of the clustered articles on climate change news.

At the UN COP28 climate conference, the Emirates announced funds for climate projects, highlighting the event's focus on sustainable development and efforts to combat climate change. Despite challenges and controversies, the conference saw progress with over 110 countries signing a declaration to triple energy from renewable sources by 2030. Additionally, most reporting coming from Germany and France; Germany launched the Climate Club, aiming for a climate-neutral industry, and France celebrated a "victory of multilateralism" after reaching a climate agreement. These commitments aim to address climate change and promote sustainable energy sources.

Similar to the articles focussing on fossil fuels, Sultan Al Jaber and António Guterres are most mentioned but in this context also the then US special envoy for climate - John Kerry - and French President Emmanuel Macron appear frequently in the news.

Another 13.7% of relevant articles (cluster 3) point out the proceedings and reactions to the COP28. The media focusses on the event's agenda, participants' statements and country perspectives, as well as protest activities related to the event.

Moreover, different topics and events happening apart from COP28 receive media attention:

- In 8.3% of the articles (cluster 5), the media generally spotlights climate warming as well as climate protection measures. In particular, the dispute between British Prime Minister Rishi Sunak and Greek Prime Minister Kyriakos Mitsotakis makes the headlines.
- In 4.6% of the articles (cluster 7), the discussion of irreversible tipping points of climate change and the urgent call for climate protection is subject of media reporting. A large share relates to the lawsuit against the German government for insufficient climate protection.
- Another focal point, accounting for 3.4% of the climate change news (cluster 8), of which 94.4% originates from German media, refers to the budget crisis in Germany. This topic is mostly framed in a political angle as the government was forced to find a solution to fund climate protection projects. Even though experts warn of potential burdens on the economy due to the crisis.
- The Israel-Hamas conflict comes up in 3.3% of the climate change news (cluster 9) as climate activist Greta Thunberg sided with Palestine supporters, accusing Israel of genocide.
- In 3.2% articles on climate change news (cluster 10), the media sheds light on July 2023 being set to be the hottest month on record, surpassing previous records. This unprecedented global warming highlights the urgent need for climate action and raises concerns about the future of our planet.
- Media attention is also garnered by climate activists who staged a protest in Venice, colouring the iconic Canal Grande bright green. This accounts for 3.1% of climate change news (cluster 11). The protest aimed to raise awareness about climate change and the COP 28 summit.

4. Climate change in unverified sources

JRC Disinformation team conducted an automated analysis on climate-related news to discover main narratives on climate change, collected from both mainstream media and unverified sources. The investigation of mis/disinformation narratives related to climate change was performed on 460 unverified sources for the period from 15 October 2022 to 30 November 2023: almost 45 000 news articles were identified.

The analysis shows similar reporting trends both for mainstream media and unverified news around main events, nevertheless unverified sources often distort information by misinterpreting real events and statements.

The analysis highlights UN Secretary-General António Guterres warning “*the era of global boiling has arrived*” in July 2023 (the hottest month ever record according to Copernicus Climate Change Service’s Global Climate Highlights), as this statement was widely used by unverified sources and climate change denialists. The most important argument regarding this were claims related to the ineffectiveness of climate policies, accusations of creating climate panic and hysteria, or the portrayal of climate policies and “radical” climate actions as “an instrument to push for more government control, higher taxes, and ‘global governance’ by globalist organisations like the UN and the World Economic Forum.”

Further automated analysis unveils that:

- The predominant narrative in unverified sources is “Climate policies are ineffective/flawed”;
- Unverified sources make more use of persuasion techniques compared to mainstream media (65% against 40%);
- The top persuasion technique for all sources and for both COP27 and COP28 is Loaded Language, but while mainstream media appeal to fear, authority and values when describing climate-related issues, unverified sources predominantly use Name calling- Labelling and often question the reputation of the authorities responsible to mitigate the climate change impact;

An additional analysis on images suggests a coordinated action for influencing the debate around COP28 on X/Twitter.

For more detail, see: Kotseva, B., Faggiani, N., Kovacikova, K., Nikolaidis, N., Vianini, I., and Linge, J., *Climate change in the news. COP28 and COP27 in mainstream and unverified sources*, European Commission, 2023, JRC136426.

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Appendix

We retrieved articles from a curated list of EMM sources that mention, in the title and/or text, one of the arguments established in a pre-defined category called “ClimateChangeNews” and “COP28”. The final lists of keywords are listed below, hereby, the following syntax applies:

- “%” is a placeholder for 0, 1 or more letters
- “_” can stand for exactly one letter, it does not denote a blank/punctuation.
- “+” is used to build or unite term strings (E.g. olympic+games), replacing one or more blanks/punctuations. It does not work with the following typographic symbols: “&” and “-”.
- The query works case-insensitive.

Climate Change News

Articles are selected if at least one of the following keywords appear in the title and/or text:

EU-Emissionshandelssystem, eu+emission+trading+system, eu+emissions+trading+system, european+union+s+emissions+trading+system, european+emission+trading+system, european+union+emissions+trading+scheme, eu+emissions+trading+scheme+s, eu+emissions+trading+scheme, eu+s+emission+trading+system, 2030+climate+and+energy+framework, 2030+framework%, acción%+por+el+clima, alterações+climáticas, amenaza+climática, annual+conference%+on+climate+change, aquecimento+global, azione+per+il+clima, azioni+per+il+clima, bourse+du+carbone, bufala+su+clima, bufale+sul+clima, calentamiento+global, cambiamenti+climatici, cambiamento+climatico, cambio+climático, cancún+agreement%, captage+et+stockage+du+dioxyde+de+carbone, captura+de+CO2, captura+y+almacenamiento+de+CO2, carbon+leakage, quadro+2030+per+il+clima, 2030+climate, carbon+market, carbon+permits, carbon+tax, changement+climatique, changement+climatique+anthropique, clean+development+mechanism, climate+action, climate+change, climate+crisis, climate+deniers, climate+emergency, climate+hoax, climate+polic%, climate+scam, climate+target%, climate+threat%, climate+warming, CO2-abgabe%, CO2-Abscheidung, CO2-afvang+en, CO2-Sequestrierung, CO2-steuer, comercio+de+derechos+de+emisión, comércio+de+emissões, comércio+internacional+de+emissões, conferenza+annuale+sul+clima, conferenza+sul+clima, conferenze+annuali+sul+clima, conferenze+sul+clima, confinement+du+dioxyde+de+carbone, conférence+des+parties, Cop+26, Cop+27, Cop+28, COP26, Cop26+s, COP27, Cop27+s, COP28, Cop28+s, crise+climatique, crisi+climatica, davek+na+ogljik, dérèglement+climatique, een+europese+green+deal, emergencia+climática, emergenza+climatica, emissiehandel, emission+allocation, emission+trading, emissions+allowance%, emissions+standard%, emissions+trading, emissions+trading+system, emissionsrechteland, emmission+allowances, enfriamiento+global, EU+s+gröna+giv, EU-Emissionshandel, europa+roheline+kokkulepe, euroopan+vihreän+kehityksen+ohjelma, european+green+deal, europejski+zielony+_ad, europas+zaliasis+kursas, europiski+zeleni+plan, europäisch%+grüner+deal, europæiske+grønne+pagt, európai+zöld+megállapodás, európska+zelená+dohoda, evropski+zeleni+dogovor, fit+for+55, fit+for+55%+Klimapaket%, fit+for+55%+paket%, fit+for+55+package%, fit+für+55+paket%, fitfor55, fondo+verde+del+clima, fonds+vert+pour+le+climat, global%+Erwärmung, global+cooling, global+warming, globale%+Erwärmung, globale+opvarmning, globalne+ocieplenie, globalno+segrevanje, globalno+zagrevanje, globalno+zatopljenje, globálnom+oteplování, globální+oteplování, green+climate+fund, green+deal+europeo, greenhouse+effect, greenhouse+effect%, greenhouse+gas%, Greta+Thunberg%, Greta+Thunbergová, grüner+klimafonds, il-pakkett+fit+for+55, impuesto+sobre+el+carbono, kioton+pöytäkirja, Kjotski+protokol, kjótsky+protokol, kjótský+protokol, klar+til+55-pakke, klimaatbeleid, klimaatfonds, klimaatsverandering, klimaatverandering, Klimabedrohung%, Klimabetrug, klimaforandringer, klimakrise, Klimaleugner, Klimapolitik%, Klimaschutz, klimatförändring, klimatické+zmeny, klimatska+kriza, klimatska+promjena, klimatske+promjene, klimatskih+promjena, Klimaveränderung, Klimawandel, Klimawechsel, Klimaänderung, klimátske+spremembe, Kohlenstoffsteuer, kopumu+fit+for+55, kyoto+protocol, kyoto+protokolü, Kyoto-aftalen, kyoto-protocol, kyoto-protokoll, Kyotoprotokollet, menace+climatique, montreal+protocol, montreal-protokoll, Montreal-protokollen, mudança+do+clima, mudanças+climáticas, mutament_+climatic_, negacionistas+del+cambio+climático, negazionist_+del+clima, normas+de+emisiones, négationnist%+du+changement+climatique, opatření+fit+for+55, opwarming+van+de+aarde, pacte+vert+pour+l+europe, pacto+ecológico+europeu, pacto+verde+europeo, pactul+verde+european, paket+za+cilj+od+55%, paketet+fit+for+55, paketi+eesmärk+55, paketet+fit+for+55, paquete+de+medidas+objetivo+55, paris+agreement%, patt+ekologjiku+ewropew, politica+climatica, politique+climatique, política+climática, pripravljeni+na+55, promjena+klime, promjene+klime, pronti+per+il+55%, protocole+de+kyoto, protocole+de+kyōto, protocollo+di+kyoto, protocollo+di+kyōto,

protocollo+di+Montreal, protocolo+de+kioto, protocollo+de+montreal, protocolo+de+quioto, protocolul+de+la+Kyoto, protokol+iz+kyota, protokól+z+kioto, refroidissement+global, riscaldamento+globale, réchauffement+climatique, réchauffement+global, réchauffement+planétaire, réchauffementclimatique, scambio+di+quote+di+emissione, sekwestracja+CO2, sekwestracja+dwutlenku+węgla, sprememb_+podnebja, spremembe+podnébja, surriscaldamento+climatico, surriscaldamento+globale, tassa+sulle+emissioni+carboniche, tassa+sulle+emissioni+di+carbonio, tass_+sul+carbonio, taxe+carbone, tiszta+fejlesztési+mechanizmus, UN+climate+conference, united+nations+environment+programme%, urgence+climatique, verdrag+van+kyoto, zelená+dohoda+pro+evropu, zmena+podnebia, zmiana+klimatu, Γκρέτα+Τούνμπεργκ, Ευρωπαϊκή+Πράσινη+Συμφωνία, κλιματική+αλλαγή, παγκόσμια+θέρμανση, Протоκόλλο+του+Κιότο, борьба+с+изменением+климата, глобално+загревање, Глобално+загревање, глобално+затопляне, Глобалнь%+потеплен%, глобалнь%+потеплен%, глобальное+охлаждение, глобальное+потепление, глобальноепотеплениеэтообман, Грета+Тунберг, Европейски+зелен+пакт, зелена%+сделка+героwegeu, изменен%+климат%, изменение+климата, изменение+на+климата, климатическая+мистификация, климатическая+угроза, климатический+кризис, климатическое+мошенничество, климатични+промени, отрицатели+климата, парников%+газ, парников%+газ%, парников%+эффект%, потепление+климата, промени%+в+климата, Протокол+из+Кјота, captura+y+almacenamiento+de+carbono, торговля+квотами+на+эмиссии+парниковых+газов, торговля+эмиссионными+квотами, чрезвычайная+климатическая+ситуация

Additional tables

Table 1 – Volume and share of climate change news per country

Country	Climate Change News	Country share (%)	CCN Share of mainstream media (%)
AT	22989	9.1	3.0
BE	9159	3.6	1.5
BG	2889	1.1	0.3
CY	1704	0.7	0.4
CZ	561	0.2	0.1
DE	74237	29.3	2.8
DK	1415	0.6	0.4
EE	304	0.1	0.2
ES	8592	3.4	0.6
FI	39939	15.7	2.1
FR	276	0.1	0.1
EL	37492	14.8	2.4
HR	3071	1.2	0.5
HU	661	0.3	0.1
IE	12306	4.9	2.0
IT	15457	6.1	1.4
LT	618	0.2	0.1
LU	3049	1.2	2.5
LV	204	0.1	0.1
MT	1866	0.7	1.6
NL	1856	0.7	0.8
PL	1182	0.5	0.1
PT	8547	3.4	0.7
RO	1479	0.6	0.1
SE	2501	1.0	0.4
SI	329	0.1	0.1
SK	992	0.4	0.1
EU	253675	100.0	1.2

EMM “EE24campaign” index. Period: 2022-11-01 to 2024-02-22.

Table 2 – Monthly volume of climate change news and share of total mainstream media

Year	Month	Climate change articles	Difference to monthly average	Share of total mainstream media
2022	November	16967	7.0	1.2
	December	10144	-36.0	0.8
2023	January	11988	-24.4	0.9
	February	9299	-41.3	0.7
	March	14425	-9.0	1.0
	April	11394	-28.1	0.9
	May	13467	-15.1	0.9
	June	15048	-5.1	1.1
	July	16861	6.3	1.3
	August	14899	-6.0	1.2
	September	23768	49.9	1.8
	October	18702	18.0	1.3
	November	23907	50.8	1.8
	December	25335	59.8	2.0
2024	January	15237	-3.9	1.1
	February	12234	-22.8	1.2
Total		253675		1.2

EMM “EE24campaign” index. Period: 2022-11-01 to 2024-02-22.

Annex

About the authors

Text Mining & Analysis Competence Centre (TMA-CC)

The Text Mining & Analysis Competence Centre (TMA-CC) is specialised in making sense of vast amounts of text through computing and analytics. It is an in-house consultancy and innovation service supporting EU Institution's policymakers, investigators and analysts in their knowledge-intensive tasks by providing consultancy and advanced analytical tools in the field of text mining.

The TMA-CC aims to be an incubator for text mining ideas and solutions within the European Commission - a single focal point where expertise is concentrated, then shared and applied to the benefit of its clients.

Please check https://knowledge4policy.ec.europa.eu/text-mining_en for more information on TMA-CC.

European Science and Media Hub

The European Science-Media Hub (ESMH), operating under the political responsibility of the European Parliament Panel for the Future of Science and Technology (STOA), is a platform to promote networking, training and knowledge sharing between the European Parliament, the scientific community and the media.

The ESMH creates a network among policy-makers, scientists and media involving science, academia, educational and research entities, and professional associations of journalists and scientists. For journalists and media representatives, the ESMH organises training sessions and workshops on current technological developments, both as subjects of their reporting and as means of facilitating their work. Via media monitoring and media intelligence tools, the ESMH follows the most popular topics in the field of science and technology on different platforms including journals, newspapers and social media.

The ESMH makes information available to journalists, other media and citizens about new scientific developments, as well as about scientific topics that attract media attention, and promotes information based on evidence.

Check <https://sciencemediahub.eu/> for more information, methodology and technology.

Europe Media Monitor

Europe Media Monitor (EMM) is a tool developed and maintained by the Text and Data Mining Unit of the Joint Research Centre (JRC) of the European Commission. The main purpose of EMM is to provide monitoring of a large set of online media, reducing the information flow to manageable proportions by clustering related news, categorising articles and applying Language Technology tools to derive further metadata, such as recognising and disambiguating entities in the text, extracting quotes by and about people, applying sentiment/tonality analysis and more. Since 2018, EMM can also grab content from live Twitter streams.

A lot of EMM's functionalities are freely available. To access the tool that best fits your need, please check https://knowledge4policy.ec.europa.eu/text-mining/topic/europe-media-monitor-emm_en.

Source selection

The manually curated list of Mainstream media outlets used for this report is composed of 581 EU27 online media sources monitored by Europe Media Monitor (EMM). This sample of sources represents the most popular open news websites in each EU country in terms of visitors. The number of outlets per country was weighted based on the member states' population. The name of the index being used is [pi_ee24campaign].

The EcommMisinfo source index includes unverified sources which have been identified by independent fact checkers and other independent experts as frequently spreading mis- or disinformation. This only includes news pages, not social media channels. There are not unverified sources from all EU member states included and the number of available sources among EU countries varies and changes over time, as the compilation of data is determined, among other things, by access, availability and the work of fact-checkers and independent experts.

Keyword-based article selection

Articles relevant to the topic are selected by searching for a pre-established set of relevant combined keywords that appear in the title or text of the article. To obtain the selected keywords in all official EU languages for this report, we translated the keywords automatically from English to all EU languages by using the European Commission's E-Translation services.

Automated sentiment detection

The EMM system contains automatically classified sentiment (negative, positive, neutral) on the article level each of the articles. EMM classifies each article with one label, indicating the most strongly expressed sentiment. More specifically, the analysed data obtained through classical supervised Machine Learning (ML) models. A "support vector machine" (SVM) model is used for obtaining separately sentiment and emotion data. These sentiment data are obtained through two distinct models that have been used in previously released (EC internal) reports produced by JRC's Competence Centre on Text Mining and Analysis (TMACC) and Disinfo Team at JRC T.5.

There are 2 phases in the algorithm. The first one is to transform the text data into a high dimensional vector. The second one is an optimisation of the parameters of a mapping function between the high dimensional vector representing the text data, and a low dimensional (L dimensions if there are L labels) vector representing the likelihood or probability of each label for the input text. In our case the vector is 3 dimensional for sentiment (neutral, negative, positive). The algorithm assigns weights to some string in the text. To understand the meaning, the algorithm splits the text into small group of words. In our case the text is split in unigrams (when single words are considered) or bigrams (when each two adjacent words are considered), and if these strings are appearing in the text, then they will have an impact on the output probabilities. For example, if the string 'I love' appears in a text, the likelihood for this text to be positive will be a bit higher. The process ends when the system is outputting a distribution of probability, meaning that for each label we get a probability value between 0 and 1, with the sum of the probabilities equal to 1. As a final step, the algorithm will take the sentiment label that has the highest value (the value is its probability) as output.

How accurate is this model?

The systems performing sentiment vary in accuracy depending on text types and languages. The classical Machine Learning model currently implemented in EMM covers five languages (EN, FR, DE, ES and IT), while for other languages, the text is first translated into English before the model is applied. While automated machine translation is an efficient way to get timely results in a multi-lingual context, its performance is dependent on the use of the languages: for widely spoken languages, the performance may be much better than for those that are spoken less widely.

For the five languages covered during the training of the model, benchmarks suggest the EMM Sentiment and Emotion model accuracy is between 60% and 70%, which is comparable to state-of-the-art performance. For other languages, the sentiment and emotion analysis are performed on the text translation to English, which may lead to up to 5% loss in performance.

The lack of transparency of automated machine learning algorithms is a well-known issue. Knowing which piece of text is attributed to a specific label (e.g. negative) could significantly improve the explainability and the interpretability of the models, but this function is not yet integrated in EMM.

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For the above-mentioned reasons, any explanation of the sentiment data need to be handled with caution.

TMACC is working on the implementation of better performing Deep Learning (DL) models and on targeted sentiment and emotion analysis that makes it possible to search in shorter pieces of text, e.g. paragraphs or sentences.

Names entities recognition

Names Entities Recognition has been done using the NEROne module which has been developed in the context of the Europe Media Monitoring project. For detailed information, see: *Guillaume Jacquet, Jakub Piskorski, and Sophie Chesney. 2019. Out-of-context fine-grained multi-word entity classification. In Proceedings of the 34th ACM/SIGAPP Symposium On Applied Computing (SAC 2019).*

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EU law and related documents

For access to legal information from the EU, including all EU law since 1951 in all the official language versions, go to EUR-Lex (eur-lex.europa.eu).

Open data from the EU

