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International Panel on the Information Environment

Converging Evidence, Uneven Ground

A Strategic Review of Climate Information Integrity Research in Six Languages



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SYNOPSIS

Threats to public understanding of climate arise in every language, but scientists publish the evidence about such trends almost entirely in English, from and about a narrow set of countries (SR2025.1). What do researchers who are writing in other languages find? Where do findings converge, and what gaps remain?

Through the Global Initiative for Information Integrity on Climate Change, the United Nations and UNESCO asked the IPIE to evaluate global research trends.

This is a strategic review of the most prominent science published in Arabic, Chinese, French, Portuguese, Russian, and Spanish, alongside the main body of English-language research. The assessment applied nearly 90 translated search terms, including simplified and traditional Chinese script, across 32 scientific databases between June and July 2026. The review provides four key findings:

1. **Research is converging on how evidence about climate change is manipulated and misused, and on organized resistance to science across all studied languages.** Each literature independently finds similar tactical evolutions, from climate denialism to policy obstruction.
2. **Initiatives defending climate information integrity are emerging slowly.** None appear in Chinese, French, or Russian research, though the Intergovernmental Panel on Climate Change (IPCC) remains a credible reference globally.
3. **Shared blind spots mark every literature.** Few studies track trends across platforms, and researchers rarely have the data access needed to study them systematically in their own languages.
4. **The uneven geography of knowledge production threatens climate action.** The communities most exposed to climate impacts are the least visible in the published evidence.

Two policy priorities follow:

- Researcher access to diverse data, including social media data held by technology firms, remains a critical policy priority.
- Climate strategy must include information integrity, with multilingual responses informed by the global research community.

This strategic review provides the first multilingual map of research on information integrity about climate. Sound climate policy requires protecting public understanding of climate issues worldwide, regardless of language.

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SECTION 1. INTRODUCTION

Information integrity about climate science is critical to identifying climate change threats and risks and to structuring collective responses. In its scientific assessment, "Information Integrity about Climate Science: A Systematic Review," the IPIE established that powerful actors intentionally produce and circulate misleading information about climate change (SR2025.1). These actors include corporations, governments, and political parties. Their narratives spread across broadcast, digital, and interpersonal information channels. They erode public trust and create a feedback loop between scientific denialism and political inaction.

That assessment reviewed 300 of the most prominent research outputs (SR2025.1, p. 19), primarily peer-reviewed research articles, drawn from the work of hundreds of researchers over the preceding decade. It also identified a critical limitation in the evidence base itself: a deep gap in research on climate information integrity in the Global South. In that region, climate impacts are often most acute yet least documented.

Research on information integrity about climate is concentrated in two ways: it is produced by and usually about countries in the Global North and it is primarily written by English-language scholars using data from English-speaking communities. Research on climate-relevant information integrity in the Global South remains poorly documented (SR2025.1, p. 3). A structural bias compounds the problem: databases commonly used for literature reviews, such as Web of Science and Scopus, overrepresent English-language output [1]. This skews relevance filters and masks uneven access to data. For example, the IPIE's 2025 systematic review identified 2,276 unique publications on this topic (SR2025.1, p. 17). By design, the review selected only English-language publications from 2015 onward, and 269 met the normalized citation threshold (SR2025.1, p. 18). Within

that sample, 70 publications focused solely on the United States, while the entire continent of Africa appeared in a single publication (SR2025.1, pp. 22–23). This concentration in the Global North reflects structural inequalities in global knowledge production and publication [2]. In Norway, for example, 87% of national scientific output is published in English. Scopus and Web of Science index only 72% and 69% of that output, respectively [1]. Addressing this imbalance is especially urgent because the Global North bears historical responsibility for the climate crisis (SR2025.1, p. 6).

This restriction and gap reflect how scientific prominence is measured: citation indices reward work published in English and embedded in Global North research networks. Despite scholars worldwide investigating climate information integrity in their own languages and contexts, their analyses may not enter the global conversation or shape scientific consensus. A complete account of the climate information environment requires hearing from these research communities directly, rather than through the filter of international citation counts.

Through the Global Initiative for Information Integrity on Climate Change, the United Nations and UNESCO therefore asked the IPIE to evaluate global trends in this research. This Technical Paper reports a strategic review of research published in six languages: Arabic, Chinese, French, Portuguese, Russian, and Spanish. It addresses three questions. What are the most prominent scientific findings on information integrity about climate in each language? Where do these findings converge and diverge? What gaps and initiatives characterize each literature?

SECTION 2. METHODS

To answer these questions, the IPIE conducted a strategic review of research on climate information integrity published in six non-English languages. It identified the most prominent research within each language rather than exhaustively enumerating every relevant publication. Where a systematic review aims at completeness within a defined corpus, it prioritizes depth, contextual judgment, and comparability across literatures searched under unequal conditions. The review proceeded in five steps: cataloging the research databases serving each language, translating the search string, conducting the searches, screening for eligibility and prominence, and coding the results into a structured database.

Research Databases by Language

The first step identified the academic databases and citation indices serving each language. While this catalog is comprehensive, it has several limitations: not all databases provide full-text access; some are intermittently unavailable online; and many do not consistently report download statistics, citation metrics, impact factors, peer-review status, publication dates, or other basic citation details. These gaps result in restricted access to full-text content. The catalog spans 32 unique databases, with Redalyc serving both the Portuguese and the Spanish literatures.

Search Strings and Translations

The initial search string aimed to capture the subthemes of information integrity about climate and was developed for the larger study of English-language resources:

(climate change OR climate-change OR global warming) AND
(misinformation OR disinformation OR greenwashing OR conspiracy OR denial OR obstruction OR skepticism OR contrarianism)

This string was translated into each target language. Each translation incorporated the original keywords and context-specific variants used in the academic literature, documented in Appendix A.

Search Procedure

Between June and July 2026, we conducted the strategic review of the most prominent research on climate information integrity in the six non-English languages: Arabic, Chinese, French, Portuguese, Russian, and Spanish. Searches ran across the 32 unique databases cataloged above, supplemented by three discovery tools: Google Advanced Search with language-specific parameters, Oxford University Library Search, and the University of Oxford's internal ChatGPT-based research tool. In each language, we applied the core search string and its translated variants to titles, abstracts, and author keywords. Terms were adapted where direct equivalents for "information integrity" and related concepts were unavailable.

Eligibility and Prioritization

A publication qualified for inclusion if it substantively addressed both themes, climate change and information integrity, as a stated focus rather than a passing mention. The same two reviewers judged this throughout the review. Each entry had to be published between 2016 and 2026, written in the target language, and available in the form of retrievable full text. Eligibility extended beyond peer-reviewed articles to theses and institutional reports, reflecting the fact that locally significant work often appears outside conventional journals. Any exclusion,

based on these criteria, was recorded as a named limitation. Traditional and Simplified Chinese were grouped together.

We prioritized publications by thematic relevance within each language separately, applying a low, medium, and high rubric of thematic centrality. Doubtful cases were resolved through consultation between the raters. Consistent with the qualitative, consolidative procedure of the IPIE's 2025 systematic review, no formal inter-rater statistic was computed (SR2025.1, p. 22). Bibliometric indicators served only as tiebreakers: the Arab Citation and Impact Factor (Arcif), the Chinese Social Sciences Citation Index (CSSCI), Dialnet Métricas, Field-Weighted Citation Impact (FWCI), and the Russian Index of Science Citation (RISC) were used, and downloads only as a last resort. The metric, value, rank, and access date of each paper were recorded. The results were stratified by recency, since citation counts mechanically penalize newer work.

In each language, we first identified the four to five most prominent eligible articles. From these, we selected the three most explicitly addressing climate information integrity as their substantive focus. A noted limitation was the difficulty of identifying authors' full institutional affiliations; several regional databases and journals do not report affiliations consistently.

Coding and Classification

Each publication was geographically tagged. Geographical tagging primarily reflected the research's geographical focus, the country or region investigated, coded in the database as "Study Country" and "Study Region," respectively. Where studies examined multiple countries or operated at regional or global scales, this was recorded. This approach enabled the evidence base to be searched and investigated according to the contexts in which climate information integrity issues are studied.

An additional coding dimension concerned research originating from the Global South, determined primarily by the institutional affiliation of the lead or corresponding authors. Leadership in research production is an important dimension of research equity. Publications that investigated Global South regions but were led by Global North authors and institutions were therefore not classified as Global South research.

Thematic categories were developed inductively from the corpus during coding and consolidated against the thematic framework of the IPIE's 2025 systematic review. Categories include, where applicable, climate denialism and skepticism, conspiracy narratives, fact-checking and verification, greenwashing, information resilience and pre-bunking, intentional distortion of climate-related information, media and journalism, policy and governance, public attitudes and behavior, science communication, and social media and digital platforms.

Key Publications and Research Initiatives

These searches identified key research publications addressing climate information integrity in each language, along with information integrity initiatives identified in the published record. The full list of initiatives appears in Appendix B, and the full list of publications appears in Appendix C.

Identifiable initiatives spanned four types: civil society networks, such as Brazil's Observatório do Clima; governmental bodies, such as Egypt's Ministry of Environment, which corrects misleading climate-related information through its official platforms; national fact-checking clusters, such as Spain's Maldita Ciencia, Newtral, and Verificat; and university research hubs, such as the computer science research group at the Universidade Federal de Minas Gerais (UFMG). The Intergovernmental Panel on Climate Change (IPCC) recurred across publications in different languages as the reference point for verifying scientific consensus.

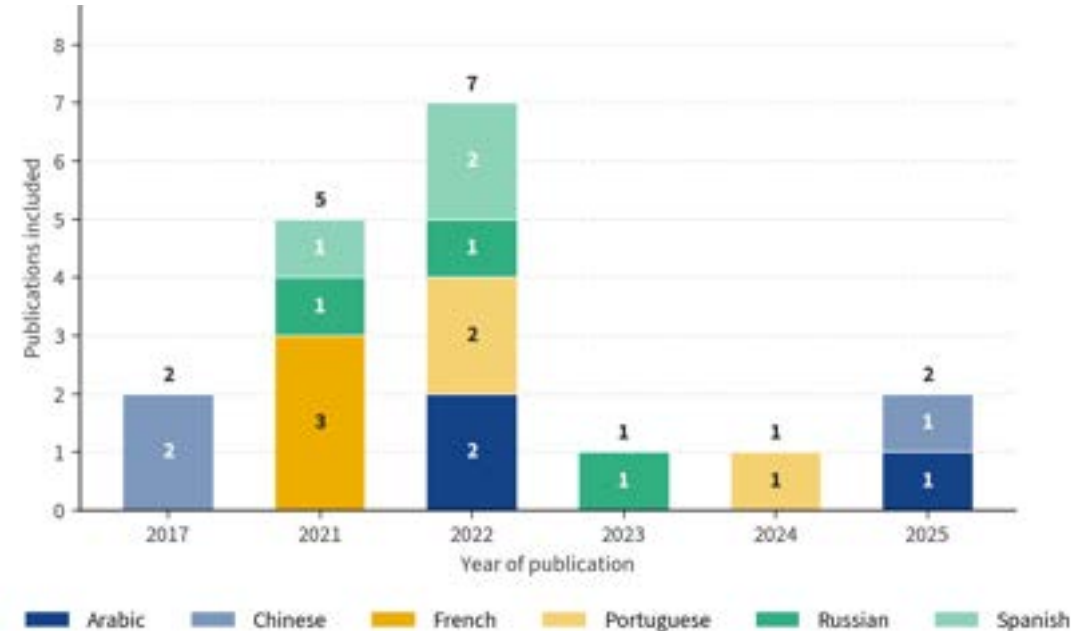
Initiatives were notably harder to identify than publications, and articles rarely named the programs that the authors worked within.

The Multilingual Research Database

The final database comprises 18 publications, the three most influential per language, spanning publication years 2017 to 2025. Figure 1 presents this corpus by publication year, broken down by language.

This open-coded qualitative database supports comparative analyses across languages, regions, and thematic areas of research on climate information integrity. Each record includes a standardized set of metadata: publication language, first author institution, publishing institution or journal, and country of the publishing institution or journal. Each publication is also tagged with the country and region it investigates. These variables allow users to assess whether a publication both investigates the Global South and is Global South-led in its inquiry. This helps users identify where evidence on threats to climate information integrity has been generated and assess the literature's geographical coverage.

Figure 1. Final Corpus by Year and Language.



SECTION 3. THEMATIC TRENDS IN THE RESEARCH

This section identifies thematic trends in the research cataloged by this strategic review and the research gaps that recur across languages. Themes refer to the coded categories of inquiry described in Section 2. Trends refer to patterns in those themes across the literatures. The patterns reported here describe the 18 publications in this corpus, the most prominent three per language, rather than the entirety of published scholarship in that language. Appendix D provides the full comparative analysis per language of the main contributions and gaps.

Converging Research

Research is converging on how evidence about climate change is manipulated and misused. Table 1 shows that scientists across these languages shared a core concern. Researchers examined how climate denial is constructed and circulated to undermine information integrity, and how to counter it. Every corpus documented some form of organized or rhetorical resistance to climate science. This resistance was framed variously as denial, obstructionism, skepticism, or a critique of "alarmism."

Table 1. Similarities Across the Research Literatures.

Shared thread	How it appears across the six literatures
Core concern	How denial is constructed and circulated to undermine information integrity, and how it is countered
Discursive shift	Move from denying warming to obstructing policy responses
Media attention	All examine the traditional press, social platforms, or both
Resistance framing	Every corpus notes organized resistance to climate science
Shared gaps	Cross-platform investigation missing in four of the six literatures

Several literatures independently identified a discursive evolution away from outright denial of the physical science of climate change. The Spanish literature described a move toward “climate action obstructionism” [3], [4]. French scholarship noted a shift toward endorsing geoengineering as a depoliticization strategy [5]. Brazilian work characterized denialism as a strategic “dispositif,” a heterogeneous network of discourses, institutions, laws, and administrative measures functioning as strategic relations of force [6], [7]. Each describes the same underlying move: a turn from denying warming to obstructing policy responses. This convergence is powerful validation precisely because these scholars did not cite each other or work from shared English-language framings. Independent replication across linguistic silos is strong evidence of a discourse claim of this kind. Attention to the media environment was also common throughout, spanning the traditional press, social platforms, or both.

The differences among the literatures lie primarily in emphasis and the object of study, nuancing the convergence rather than negating it (see Table 2). Arabic and Portuguese scholarship centered on empirical, platform-based investigation. Arabic work examined information-seeking behavior around events, such as the 27th Conference of the Parties (COP27) [8], while Portuguese work examined ecosystems of misleading climate content on Facebook and Instagram [9]. French and Chinese scholarship was more textual [10], [11] and interpretive, focusing on linguistic formulas and media representations of scientific consensus [12], [13]. The political framing also differed markedly by context. Brazilian work explicitly tied the manipulation of climate information to the extreme right, the government of Jair Bolsonaro, and the agribusiness lobby. Russian scholarship instead approached the climate agenda through economic adaptation and energy-sector interests, treating “ecological alarmism” itself as the object of critique. Religious framing appeared in both the Arabic and the Brazilian corpora, though it was deployed differently in each.

Table 2. Differences Across the Research Literatures.

Language	Distinctive focus	Distinctive gap
Arabic	Social-media information seeking around events; denialist YouTube frames	No investigation of organized financing or campaigns aimed at threatening information integrity
Chinese	Media framing of climate developments	Digital and social media threats understudied versus the traditional press
French	Discourse shift from skepticism toward endorsing geoengineering solutions	Little experimental testing of methods for correcting misunderstandings, or inoculating against information operations
Portuguese	Links denialism to Bolsonaro, agribusiness, and religious end-times framing	Cross-platform dynamics on Telegram and WhatsApp remain unexamined
Russian	Frames climate action as an economic threat to the energy sector	Scarce domestic data; heavy reliance on Western contexts
Spanish	Shift from denial to policy obstruction through harassment and doubt	Lacks evaluation of literacy programs and toxic-content detection methods

Emerging Initiatives

As detailed in the methods section above, initiatives defending information integrity about climate were more difficult to identify than publications and are only slowly emerging in the published record. None were identifiable in the Chinese, French, or Russian corpora. The published record also lags recent developments: publications appearing by mid-2026 were largely completed earlier, before many newer initiatives formed. The finding is not that such initiatives are absent from the world, but that they remain rare, newly emerging, and largely unexamined by the scientific literature.

Shared Blind Spots

Shared blind spots mark every literature. Four of the six identified the same gap: a lack of investigation into organized, social-media-based, and cross-platform threats to information integrity. The Arabic, Chinese, Portuguese, and Russian corpora each noted that existing work skews toward traditional media or single platforms. The Arabic and Russian corpora both had a shortage of domestic

empirical data and relied on Western contexts. Researchers rarely have the data access needed to systematically study these trends in their own languages.

Where gaps diverged, they reflected each literature's stage of inquiry. The French and Spanish literatures had established their discursive investigations, and both then identified an absence of experimental evaluation. French work lacked tests for inoculation and correction effectiveness. Spanish work lacked evaluation of climate literacy programs and of methods for detecting misleading content. Taken together, the shared and divergent gaps suggest a global evidence base that remains largely descriptive.

The Uneven Geography of Knowledge Production

The uneven geography of knowledge production threatens climate action. One caveat governs this finding: a language is not a proxy for a position in the world economy. Russian-language research comes from a high-income economy with extensive scientific infrastructure. Portuguese-language research may originate in Portugal, Brazil, or six lusophone countries in Africa, and French spans a similar range from France and Canada to Francophone Africa. The reach of these languages across continents largely reflects colonial legacies, and the material conditions of research differ sharply within each language. Where this paper distinguishes richer from poorer economies, it relies on the World Bank's income-based classification rather than language, and it uses the term "Global South" sparingly when engaging the international policy conversation.

That distinction surfaces what a solely language-based analysis would obscure. Research on climate information integrity is overwhelmingly concentrated where resources, funding, and academic infrastructure already cluster. The capacity to study threats to climate information integrity clusters in high-income economies and well-resourced institutions, which shape both what questions get asked and whose information environments get scrutinized.

The underrepresentation is stark. Sub-Saharan Africa, much of South and Southeast Asia, Latin America outside Brazil, the Pacific Island states, and the Arabic-speaking world are all thinly represented in the peer-reviewed record surveyed here, both as sites of study and as bases from which research is authored. These are, in many cases, precisely the regions where climate change is most acute and where threats are most existential. Where research on these regions exists, it often comes from institutions in high-income economies. Incentives may compound the pattern: where governments hesitate on climate policy, researchers may have fewer reasons to publish on this topic in their own languages, and much of the real debate may live in non-reviewed literature.

This uneven geography of knowledge production is itself a threat to climate action. Communities in many low- and middle-income countries confront climate change as an immediate material threat, and they are focused on flooding, drought, and displacement. Research from high-income economies more frequently examines public discourse. The evidence base is too thin and too unevenly funded to support confident claims about how climate information integrity operates across much of the world, and sound climate policy cannot be built on evidence that excludes the most exposed regions.

SECTION 4. CONCLUSION

Threats to public understanding of climate arise in every language, but the scientific evidence about those threats is published almost entirely in English. This imbalance denies policymakers a clear view of how climate information is used and misused worldwide, and it makes the communities most exposed to climate impacts the least visible in the published evidence. This strategic review addressed that imbalance by mapping the most prominent research in Arabic, Chinese, French, Portuguese, Russian, and Spanish across 32 scientific databases.

The findings reveal striking convergence. Every literature documents organized resistance to climate science, and scholars working independently identify the same shift in tactics: from denying that warming is happening to obstructing the policies meant to address it. Shared blind spots also mark every literature. Few studies investigate trends across platforms, corrections are rarely tested experimentally, and researchers seldom have the data access needed for systematic study in their own languages. Initiatives defending climate information integrity are only slowly emerging in the published record, with none identifiable in the Chinese, French, or Russian corpora, though the IPCC recurs everywhere as a credible reference. And the uneven geography of knowledge production is itself a threat to climate action because research capacity clusters in wealthy economies while many regions most exposed to climate change remain unstudied and unheard.

The published record, however, trails the world it describes. The IPIE is aware of many initiatives formed too recently to appear in the scientific literature cataloged here. In Brazil alone, civil society has organized around the Rede Brasileira de Integridade da Informação Climática, and the National Association on Social and Environmental Research (ANPPAS) convenes researchers across the field. That these initiatives are invisible in the corpus reflects the timing of

scholarly publication, not the absence of action. Although their emergence is encouraging, the scientific community has yet to analyze their impact.

Three limitations should temper how readers interpret these findings. The corpus is deliberately small, comprising the three most prominent publications per language, so the patterns reported here describe the cataloged sample rather than each literature in full. Additional or alternative keywords would have captured other articles, but the core set was retained because it is the one used by the scientific community and the most comparable across the languages. Finally, the review covered formally published research, and part of the real debate may live in non-reviewed literature, particularly where government hesitancy on climate policy gives researchers fewer incentives to publish on this topic in their own languages.

The linguistic map itself carries history. The global reach of the languages surveyed here largely reflects colonialism, and where research on the most exposed regions exists, it often comes from institutions in high-income economies studying those regions rather than speaking from them. Reading these findings responsibly means holding the gaps in view alongside the evidence.

Two policy priorities follow. Researcher access to diverse data, including social media data held by technology firms, remains a critical policy priority because without it, researchers cannot expose the cross-platform blind spots documented in the literature. Policymakers should also initiate and fund responses in multiple languages, where such efforts are rare, and deliberately draw on the full global research community beyond English-language scholarship.

The gaps documented here point to concrete next steps. For example, systematic consultation with practitioners who manage climate-sensitive sites, such as nature reserves and ecosystems, would capture how threats to information integrity are experienced locally, reaching beyond what the published record can

show. A technical assessment of the narrative strategies and funding mechanisms behind climate obstruction, particularly in low- and middle-income countries, would close a gap that several literatures name but none has yet investigated. Such work should be co-designed with researchers based in the regions most exposed. Future work should also reach the gray literature and policy documents of the countries most affected.

Sustained effort to include research from these diverse countries, in their own languages, belongs on the standing agenda of the international research community rather than in one-time mapping exercises.

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APPENDICES

Appendix A. Research Databases and Search Terms

Identifying Research Databases in Each Language Community

Arabic

- Al Manhal (https://almanhal.com): full-text searchable database of scholarly publications from the Arab-speaking world.
- Arabic Citation Index (ARCI) (searched through Web of Science at https://www.webofscience.com): the first local-language citation index for the Middle East and North Africa region, hosted on Web of Science and funded by the Egyptian government.
- Arcif (Arab Citation & Impact Factor) (https://emarefa.net/arcif/): the Arabic impact factor and citation database, an initiative of the e-Marefa platform (e-Marefa: https://www.emarefa.net).
- Dar Almandumah (https://www.mandumah.com): a Saudi company specializing in Arabic scholarly databases for peer-reviewed research; search platform at https://search.mandumah.com. We identified an article through snowball sampling that is hosted on this platform.

Chinese

- CNKI (China National Knowledge Infrastructure) (overseas portal https://oversea.cnki.net): note that in March 2023 CNKI announced the termination of access for universities and research institutions outside mainland China, which is consistent with our preliminary observation that the search query returned no publications.
- CQVIP (VIP Chinese Journal Database) (https://www.cqvip.com, English interface at https://en.cqvip.com): one of the three largest Chinese academic databases, alongside CNKI and Wanfang Data.

- CSSCI (Chinese Social Sciences Citation Index) (http://cssci.nju.edu.cn): developed by the China Social Science Research Evaluation Centre at Nanjing University.
- Wanfang Data (https://www.wanfangdata.com.cn): one of the three major academic databases in mainland China, covering journals, dissertations, conference proceedings, patents, and standards.
- Airiti Library (華藝線上圖書館) (https://www.airitilibrary.com): main full-text database for Taiwanese and overseas-Chinese academic journals, theses, and conference papers. Includes the CEPS Chinese electronic journal database and CETD theses. The TCI-HSS Taiwan Citation Index, Humanities and Social Sciences is accessible through Airiti (臺灣人文及社會科學引文索引資料庫). It is built by the National Central Library in Taiwan (Chinese Taipei) with the National Science and Technology Council and covers Taiwanese and overseas-Chinese humanities and social-science journals, theses, and scholarly books from 2000.
- NDLTD Taiwan (臺灣博碩士論文知識加值系統) (https://ndltd.ncl.edu.tw): National Central Library's thesis and dissertation system, which is the counterpart to Wanfang's dissertation coverage.
- HKU Scholars Hub (https://hub.hku.hk): University of Hong Kong's open-access institutional repository (research outputs, theses). First institutional repository in Hong Kong that stores open full text of HKU-affiliated authors.
- HKUST SPD Institutional Repository (https://repository.hkust.edu.hk): HKUST's open-access repository of peer-reviewed outputs and accepted manuscripts.

English

- Google Scholar (https://scholar.google.com)
- PubMed and MEDLINE (https://pubmed.ncbi.nlm.nih.gov)

- Scopus (https://www.scopus.com)
- Web of Science Core Collection (https://www.webofscience.com)
- These four are well-established platforms; URLs are the standard access points rather than search-verified, unlike the regional databases above.

French

- Cairn.info (https://www.cairn.info): an online platform offering electronic versions of francophone publications from social sciences and humanities (English edition: https://shs.cairn.info/?lang=en).
- Érudit (https://www.erudit.org): the principal platform for francophone journals in North America.
- HAL / HAL-SHS (https://hal.science): the multidisciplinary national open archive chosen by the French scientific and university community; the SHS sub-portal is https://shs.hal.science.
- OpenEdition Journals, formerly Revues.org (https://journals.openedition.org): an open-access electronic publishing platform for francophone humanities and social sciences.
- Persée (https://www.persee.fr): a portal offering free open access to scientific publications, created in 2003 and affiliated with ENS Lyon and the CNRS.

Portuguese

- LA Referencia (https://www.lareferencia.info): a Latin American network of open-access repositories spanning ten member countries.
- Periódicos CAPES (https://www.periodicos.capes.gov.br)
- Plataforma Lattes (https://lattes.cnpq.br): CNPq's integrated database of CVs, research groups, and institutions; the largest database of Brazilian science.

- Qualis (CAPES journal classification), accessed through Plataforma Sucupira (https://sucupira.capes.gov.br): a journal classification system managed by CAPES, not a bibliographic database (legacy Qualis search: https://sucupira-legado.capes.gov.br).
- Redalyc (https://www.redalyc.org)
- SciELO Brasil (https://www.scielo.br)

Russian

- CyberLeninka (https://cyberleninka.ru): an open-access library of Russian scholarly writing across the humanities, social, and natural sciences.
- eLIBRARY.RU (https://www.elibrary.ru): hosts the Russian Index of Science Citation (RISC); the Russian Science Citation Index has been developed since 2005 by the Scientific Electronic Library eLIBRARY.RU.
- Russian Science Citation Index (RSCI), searched through Web of Science (https://www.webofscience.com): created in partnership with eLibrary.ru, with content selected to reflect the most influential scholarly literature in Russian.
- CEEOL (https://www.ceeol.com): a repository of humanities and social sciences scholarship in Russian and other regional languages published across Central, Eastern, and Southeastern Europe.

Spanish

- CLASE, accessed through Biblat (https://biblat.unam.mx): a bibliographic database created in 1975 at UNAM, covering social sciences and humanities journals from Latin America and the Caribbean.
- CLACSO (Red de Bibliotecas) (https://www.clacso.org): Consejo Latinoamericano de Ciencias Sociales. Digital library at https://biblioteca.clacso.edu.ar.

- Dialnet (https://dialnet.unirioja.es): an open information system for Spanish-language journals, administered by the Universidad de La Rioja.
- Latindex (https://www.latindex.org): an open-access portal for scientific journals from Latin America, the Caribbean, Spain, and Portugal, established in 1995 at UNAM.
- Redalyc (https://www.redalyc.org)
- SciELO (https://www.scielo.org): a bibliographic database and cooperative open-access publishing model established in Brazil in 1997, now spanning 16 countries.

Section 2 (Research Databases by Language) sets out the limitations of these databases.

Selection Methodology

The core English-language search string is set out in Section 2 (Search Strings and Translations). The translated versions were:

Arabic: (تغير المناخ OR الاحترار العالمي) AND (معلومات مضللة OR تضليل معلوماتي OR تضليل OR شك مناخي OR تشكيك OR عرقلة OR إنكار المناخ OR مؤامرة OR غسيل أخضر)

Chinese: (**气候**变化 OR **全球**变暖) AND (错误信息 OR **虚假信息** OR 误导信息 OR **洗**绿 OR **漂**绿 OR **阴**谋论 OR **否**认 OR **气候阻碍** OR 怀疑主义 OR **气候**怀疑论)

(**氣候**變化 OR **全球**暖化) AND (**錯誤資訊** OR **虛假資訊** OR **誤導資訊** OR **洗綠** OR **漂綠** OR **陰謀論** OR **否認** OR **氣候阻礙** OR **懷疑主義** OR **氣候懷疑論**)

French: (changement climatique OR réchauffement climatique OR réchauffement planétaire) AND (désinformation OR mésinformation OR greenwashing

OR écoblanchiment OR complot OR complotisme OR négationnisme OR climatoscepticisme OR scepticisme climatique OR obstruction OR climato-scepticisme)

Portuguese: (mudança climática OR mudanças climáticas OR aquecimento global) AND (desinformação OR informação falsa OR greenwashing OR lavagem verde OR conspiração OR negacionismo OR ceticismo climático OR obstrução climática OR contrarianism OR negação climática)

Russian: (изменение климата OR глобальное потепление OR климатические изменения) AND (дезинформация OR ложная информация OR гринвошинг OR экологический камуфляж OR теория заговора OR отрицание климата OR климатический скептицизм OR скептицизм OR противодействие климатической политике OR климатический обструкционизм)

Spanish: (cambio climático OR calentamiento global OR calentamiento del planeta) AND (desinformación OR información errónea OR greenwashing OR lavado verde OR conspiración OR negacionismo OR escepticismo climático OR obstrucción climática OR contrarianism OR negación del cambio climático)

The string was adapted as necessary for individual languages and databases. In many cases, terms for disinformation did not always have direct equivalents.

Appendix B. Key Research Initiatives Addressing Climate Information Integrity

Table B1 shows the initiatives identified from the published record, grouped by language community and alphabetized within each group.

Table B1. Initiatives Identified in Multilingual Climate Research.

	Initiative	Type	Location	Focus
Arabic				
	Egyptian Environmental Affairs Agency (EEAA)	Government ministry	Egypt	Maintains official social media pages and digital platforms to monitor environmental news.
Chinese				
	No discrete initiatives identifiable from the published record.			
English				
	Center for Climate Change Communication (George Mason University)	University research hub	United States	Develops evidence-based strategies to communicate scientific consensus and inoculate the public against politically motivated disinformation.
	Climate Action Against Disinformation (CAAD)	Advocacy group	International	Produces analytical reports and briefings exposing the nature and scope of climate disinformation campaigns. CAAD is a global coalition of civil society groups advancing information integrity.
	Consensus Project	Communication initiative	International	Uses data visualization, such as consensus charts, to highlight the expert agreement on anthropogenic global warming. Their consensus methodology has been previously contested by some skeptic-aligned commentators.

	Covering Climate Now	Journalism initiative	International	Partners with media outlets that aim to improve the accuracy and frequency of climate-related reporting.
	Skeptical Science	Communication initiative	International	Maintains a database of climate-related myths, providing peer-reviewed scientific refutations for each contrarian claim. Their stance is being skeptical about climate change skepticism.
	Yale Program on Climate Change Communication	University research hub	United States	Produces large-scale studies on public perceptions of climate science and designs effective messaging for diverse audiences.
French				
	No discrete initiatives identifiable from the published record.			
Portuguese				
	Departamento de Ciência da Computação, UFMG	University research hub	Brazil	Within the Department of Computer Science at UFMG a cluster of faculty focus on misinformation detection and computational social science
	NetLab (Laboratório de Estudos de Internet e Redes Sociais, UFRJ)	University research hub	Brazil	A central hub for analyzing the socio-environmental disinformation ecosystem and tracking its dynamics on social media.
	Observatório do Clima (Climate Observatory)	Civil society network	Brazil	A network of civil society organizations monitoring climate policy and environmental spending to ensure transparency and scientific accountability.
Russian				
	No discrete initiatives identifiable from the published record.			
Spanish				
	AEMET (Agencia Estatal de Meteorología)	Government agency	Spain	The state meteorological agency, a primary source

				of accurate climate data that has acted to counter climate-related conspiracy theories and online harassment.
	Climate Social Science Network (CSSN)	Research network	International	Academic research network housed at Brown University studying the actors and tactics behind climate obstruction; funded in part by the High Tide Foundation and Sequoia Climate Fund.
	Fact-checking network (Maldita Ciencia, Newtral, EFE Verifica, Verificat, AFP Factual)	Fact-checking network	Spain	Specialized initiatives that investigate and debunk pseudo-scientific claims, deepfakes, and misleading media narratives about the climate.
	Scientist Rebellion (Rebelión Científica)	Advocacy group	International	Academics such as climate scientists use public advocacy and civil disobedience to campaign for governmental climate-related action and civil resistance to climate failure.
	THINKClima	University research project	Spain	A research project at Universitat Pompeu Fabra examining the communication strategies and discursive influence of think tanks obstructing climate-related action in Europe.
International				
	Intergovernmental Panel on Climate Change (IPCC)	Intergovernmental body	International	The primary international body for assessing climate science, providing the physical science basis and expert consensus used by other integrity initiatives to verify information.

Note: Initiatives proved markedly harder to identify than publications, as articles rarely named the wider programs within which authors worked. No discrete initiatives were identifiable for the Chinese, French, or Russian corpora.

Appendix C. Sources Database

Table C1 shows the full database of sources per language community. If you have conducted research on climate disinformation and would like to contribute to the database, please contact secretariat@IPIE.info.

Table C1. The Three Most Influential Sources Per Language Community.

Language	Citation	English title	Study region	Study country	First author institution	Publishing institution or journal	Country of publishing institution or journal	Thematic focus
Arabic	ر .الشريف‘ ,التماس الجمهور المصري للمعلومات حول التغيرات المناخية في مواقع التواصل الإجتماعي وإتجاهاته نحو قمة المناخ 2022 ,’المجلة المصرية لبحوث الأعلام, vol. 2022, no. 80, pp. 563–610, Jul. 2022, doi: 10.21608/ejsc.2022.264336.	Climate change information seeking through social networking sites and Egyptians’ public attitudes toward COP27	Middle East	Egypt	MTI Modern University for Technology and Information	Egyptian Journal of Media Research	Egypt	Climate disinformation on social media, info-seeking behavior
Arabic	ج. ع. ا. ع. ا. حنفي, ‘معالجة الإعلام الرقمي لمخاطر التغيرات المناخية’, المجلة المصرية لبحوث الأعلام, vol. 2022, no. 80, pp. 531–578, Jul. 2022, doi:10.21608/ejsc.2022.266168.	Digital media’s treatment of the risks of climate change: An analytical study of digital content on YouTube	Middle East	Egypt	Cairo University	Egyptian Journal of Media Research	Egypt	Framing of climate risk on YouTube
Arabic	ج. محمود محمد اسماعيل, ‘أثر تصميم العلامة التجارية الخضراء علي التضليل البيئي (ظاهرة الغسْل الاخضر)’, Journal of Intellectual Property and Innovation Management, vol. 8, no. 4, pp. 123–145, Dec. 2025, doi:10.21608/jipim.2025.469518.	The impact of green-brand design on environmental deception (the greenwashing phenomenon)	-	Egypt	Helwan University	Scientific Journal of Intellectual Property and Innovation Management	Egypt	Greenwashing

Chinese	张增一李晓丹, '对中国报纸关于"气候门"事件的报道的话语分析,' 科学与社会, vol. 7, no. 1, pp. 95–107, 2017, doi: 10.19524/j.cnki.10-1009/g3.2017.01.095.	The discourse analysis on Chinese newspaper reports of "Climate Gate"	East Asia	Mainland China	University of Chinese Academy of Sciences	Science & Society	China	Climate-skepticism ("Climategate") coverage
Chinese	李美華, '台灣報業媒體網路平台氣候變遷風險溝通：2009～2016年的歷時性分析,' 中華傳播學刊, no. 32, Dec. 2017, doi: 10.6195/cjcr.2017.32.02.	Climate change risk communication of mainstream newspaper internet platforms in Taiwan: A longitudinal analysis from 2009 to 2016	East Asia	Taiwan (Chinese Taipei)	National Chiao Tung University	Chinese Journal of Communication Studies	China	Climate-change risk communication
Chinese	金权 and 王慧, '反"绿洗"气候变化诉讼：进展、难题及中国因应,' 江苏大学学报（社会科学版）, vol. 27, no. 4, pp. 76–90, 2025.	Anti-greenwashing climate change litigation: developments, difficulties and China's response	North America, Europe, East Asia	United States, Mainland China, Italy	Shanghai University of Finance and Economics	Journal of Jiangsu University (Social Sciences Edition)	China	Climate-related environmental law; greenwashing and litigation
French	R. Hourcade and A. Wagener, "Le climatoscepticisme: une approche interdiscursive," *Mots*, vol. 127, no. 127, pp. 9–22, 2021.	Climate skepticism: An interdiscursive approach	Europe, North America	France, United States	University of Rennes	Mots. Les langages du politique	France	Climate-skepticism
French	E. Schürgers, "Circulation du mot climatosceptique : trajectoire et enjeux sociodiscursifs d'une formule," *Mots*, vol. 127, pp. 23–41, 2021	Circulation of the word "climate skeptic" : trajectory and socio-discursive stakes of a formula	Europe	France, Belgium	Université de Liège	Mots. Les langages du politique	France	"Climatosceptique" in francophone media
French	J. Gouzouazi and C. Noûs, "Du climatoscepticisme à la valorisation de l'ingénierie climatique : les métamorphoses d'un argumentaire conservateur," *Mots*, vol. 127, pp. 81–96, 2021.	From climate skepticism to the promotion of climate engineering: the metamorphoses of	North America	United States	Université de Strasbourg	Mots. Les langages du politique	France	Geoengineering and depoliticization

		a conservative argument						
Portuguese	J. C. H. Miguel, "A 'meada' do negacionismo climático e o impedimento da governamentalização ambiental no Brasil," *Soc. estado*., vol. 37, no. 1, pp. 293–315, Apr. 2022, doi: 10.1590/s0102-6992-202237010013.	The "mesh" of climate denialism and the obstruction of environmental governmentalization in Brazil	South America	Brazil	Federal University of São Paulo	Revista Sociedade e Estado	Brazil	Political sociology of climate denialism
Portuguese	R .M .Santini and C .E .Barros , "Negacionismo climático e desinformação online :uma revisão de escopo," *Liinc em revista* ,vol .18 ,no .1 ,pp .e5948–e5948 ,2022.	Climate denialism and disinformation online: a scope review	Global	-	Federal University of Rio de Janeiro	Liinc em Revista	Brazil	Online disinformation and denial
Portuguese	P. Medeiros, D. Salles, T. Magalhães, B. Melo, and R. M. Santini, "Greenwashing e desinformação: A publicidade tóxica do agronegócio Brasileiro nas redes," *Comunicação e sociedade* (Braga.), vol. 45, pp. 1–26, 2024.	Greenwashing and disinformation: The toxic advertising of Brazilian agribusiness on social media	South America	Brazil	Federal University of Alagoas	Comunicação e Sociedade	Brazil	Greenwashing; anti-environmental lobby; digital advertising for agribusiness
Russian	А. И. Пыжев, "Климатическую повестку никто не отменял: почему это важно для российской экономики?," ECO, vol. 52, no. 7, pp. 31–50, Jul. 2022, doi: 10.30680/ECO0131-7652-2022-7-31-50.	The climate agenda is still on the agenda: why is it important for the Russian economy?	Eurasia	Russia	Siberian Federal University	ECO	Russia	Climate skepticism versus anthropogenic causes of global warming; economics of the climate agenda
Russian	Т. И. Хайнацкая, "Environmental Alarmism as a Political Discourse Экологический алармизм как политический дискурс," South-	Ecological alarmism as a political discourse	Global	-	Primakov National Research Institute of	South-Russian Journal of Social Sciences	Russia	Eco- and climate-alarmism discourse;

	Russian Journal of Social Sciences Южно-российский журнал социальных наук, vol. 22, no. 2, pp. 53–73, 2021, doi: 10.31429/26190567-22-2-53-73.				World Economy and International Relations			politicization and polarization of climate science communication
Russian	Н .П .Воронина ,“Greenwashing : a legal mechanism to counteract Гринвошинг :правовой механизм противодействия,” Вестник Университета имени О.Е .Кутафина (МГЮА ,(no .3 ,pp . 28–36 ,Jun .2023 ,doi : 10.17803/2311-5998.2023.103.3.028-036.	Greenwashing: a legal mechanism to counteract	Eurasia	Russia	Kutafin Moscow State Law University	Courier of Kutafin Moscow State Law University (MSAL)	Russia	Greenwashing or deceptive environmental claims; legal countermeasures
Spanish	M .Á .Abellán López, “El cambio climático :negacionismo , escepticismo y desinformación,” *tabularasa* ,no .37 ,pp .283–301 , Jan .2021 ,doi : 10.25058/20112742.n37.13.	Climate change: negationism, skepticism, and misinformation	Global	-	University of Valencia	Tabula Rasa	Colombia	Distinguishing denialism, skepticism, contrarianism
Spanish	N .Almiron and J .A .Moreno, “Más allá del negacionismo del cambio climático .Retos conceptuales al comunicar la obstrucción de la acción climática,” *Ambitos* ,no . 55 ,pp .9–23 ,2022 ,doi : 10.12795/Ambitos.2022.i55.01.	Beyond climate change denialism. Conceptual challenges in communicating climate action obstruction	Europe	Spain	Universitat Pompeu Fabra	Ámbitos. Revista Internacional de Comunicación	Spain	Climate-communication theory and “denialism”
Spanish	T. Moreno Olmeda, “Del negacionismo climático al obstruccionismo: el argumentario de la inacción y su amplificación en YouTube,” *Dilemata*, no. 38, pp. 119–134, 2022.	From climate change denial to obstructionism: Arguments for inaction and their amplification on YouTube	Europe	Spain	Spanish National Research Council (CSIC)	Dilemata, Revista Internacional de Éticas Aplicadas	Spain	Climate obstructionist and inaction discourse and amplification through media

Appendix D. Summary of Findings by Language Community

Table D1 shows the main contributions, regional patterns, and gaps in climate information integrity research across six language communities.

Table D1. Climate Information Integrity Research Across Six Language Communities.

Language	Findings	Regional patterns	Gaps
Arabic	Sources have focused on the public's information-seeking behavior regarding climate change, particularly surrounding major events like COP27. Social media platforms are identified as the primary source of information due to their speed and the perceived weakness of traditional media coverage. However, content analysis of YouTube material reveals the presence of denialist frames, such as claims that climate change is a "lie" or a conspiracy, often supported by quoting contrarian "experts" or religious interpretations. The literature emphasizes that while awareness of climate-related risks is high, there is a clear need for professional media training to correct misleading information.	Research is heavily clustered around international summits like COP27. There is a significant focus on the role of social media and networking sites as a "first source" for environmental information. Some public discourse uses religious texts to either support environmental care or, conversely, to deny the human cause of climate change. The main methodologies include descriptive statistics, surveys, and content analysis.	A lack of investigation into organized disinformation campaigns and the financial structures behind Arabic-language climate disinformation.
Chinese	Scholarship has focused on media representations of scientific consensus, such as exploring how newspaper coverage of the 2009 "Climategate" incident tended to weaken scientific uncertainty by framing the incident as a minor episode that did not shake the fundamental international consensus on climate change.	Discourse often centers on the "political correctness" of climate-related action within international negotiations. Furthermore, media strategies aim to uphold the credibility of international scientific bodies like the IPCC against Western "skeptical" influences.	Little or no investigation of social media-based disinformation within the Chinese digital ecosystem since most available sources focus on traditional print media rather than modern digital platforms.
French	Scholarship heavily emphasizes discourse analysis and the linguistic "formulas" used in media. It investigates the rhetorical evolution of conservative arguments, noting a shift from literal skepticism toward endorsing geoengineering as a depoliticization strategy. Some literature connects	Scholarship has placed particular attention on terminology and discourse, investigating how terms like "climatosceptique" circulate and consolidate a discursive consensus.	Experimental research on the effectiveness of disinformation corrections, such as inoculation, is less often seen.

	climate denialism to anti-vegan and anti-vegetarian discourses in online spaces.		
Portuguese	Brazilian scholarship explores climate denialism as a strategic "dispositif" used by conservative-liberal groups to impede environmental governance. A significant portion of disinformation is identified within agribusiness advertising, where "greenwashing" is used to criminalize social movements and promote denial regarding the sector's environmental impact. Furthermore, research characterizes an ecosystem of disinformation on platforms like Facebook and Instagram, where narratives often mix pseudo-science with apocalyptic or religious rhetoric.	Disinformation is explicitly linked to the rise of the extreme right and the government of Jair Bolsonaro, which was identified as a major propagator of denialist discourse. The agribusiness sector is highlighted as a primary driver of the anti-environmental lobby, using paid digital advertising to shape public perception. A unique pattern in Brazil is the framing of climate change as a sign of the "end times" or a divine plan, particularly in Facebook groups.	Lacking investigation into cross-platform dynamics of disinformation, especially on encrypted messaging apps like Telegram and WhatsApp. There have been increasing calls for scholars to address local socio-cultural specificities of denialism.
Russian	Scholarship examines the climate agenda through the lens of economic and social adaptation, often discussing the "energy transition." Some camps critique "ecological alarmism" as a product of eschatological thinking or as a political discourse used to influence the labor market and international negotiations.	There has been a pattern of framing climate concerns as "alarmist" rhetoric that may disrupt economic stability. Russian sources also place strong emphasis on the implications of climate policy for the energy sector.	A lack of empirical data regarding domestic online disinformation campaigns within Russia, with most citations referring back to Western contexts.
Spanish	Scholarship identifies a transition from literal denial to "climate action obstructionism." This "new denialism" accepts the science but uses disinformation to attack activists, scientific institutions, and media outlets to cast doubt on policy solutions. Many scholars call for climate literacy programs as a defense against climate disinformation.	Scholarship tends to look at aggressive digital harassment and disinformation targeting climate activists and scientists. Scholarship has also identified a shift in climate denial discourse, where the focus has moved from "classic" denial, which denies the physical existence of global warming, to "climate action obstructionism," which accepts that the planet is warming but actively works to block, delay, or weaken policy responses.	Gaps in evaluating the results of climate literacy programs and in developing more robust methodologies for detecting "toxic" information in Spanish-speaking online communities.

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Large Language Models (LLMs) were used to support specific stages of this work, including cross-checking human-identified thematic patterns. AI-based translation tools were used to translate and double-check translations between English and all other languages. Editors used AI tools at the proofing stage. All AI-generated or AI-assisted content was critically reviewed, verified, and revised by the lead human author, who takes full responsibility for the final version of the work.

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