

Weather in the News, 2019-2026: Seasonality, Geography and Tone of Global Weather Coverage, and How It Compares with Research and Invention

Fliar BI · Prism Research Layer · Working paper, October 2026 · Dataset and code: github.com/fliarbi/prism-news-api · Licence CC BY-NC 4.0

Abstract

We measure how the weather was covered in a global news index from January 2019 to July 2026, using 480,612 de-duplicated weather articles, and set that coverage beside 35,955 research papers (2015-2025) and 9,541 patent families (2015-2024) on weather and forecasting. Six results stand out:

1. **Seasonality.** January carries the largest share of each year's weather coverage (10.63%), and December to February together carry 28.35%. A second, smaller peak falls in July.
2. **Attention, not weather.** Weather took a 33% smaller share of news in 2020 than in 2019. Its share peaked in January 2026, the month of a large North American winter storm, at 54.57 articles per 10,000.
3. **Geography.** India's share of located weather news is 2.43 times its share of all news. The United States, the largest source of located weather articles (39.23%), is under-represented at 0.81. Sri Lanka (3.38), India and New Zealand (2.2) are the most over-represented of the leading countries. Within India, Himachal Pradesh (3.76), Odisha (1.93) and Sikkim (1.93) lead; within the United States, Mississippi (4.03), Nebraska (3.2), North Dakota and New Mexico (both 2.66).
4. **Tone and urgency.** 63.9% of weather articles are negative in tone (all news: 33.6%), and 53.4% are rated critical priority (all news: 42.6%).
5. **Measurement.** 29.36% of raw matches for weather vocabulary were automated warning bulletins, machine-generated forecasts, page furniture or figurative uses. Counting them would inflate coverage.
6. **Research and invention.** Weather papers grew from 4.52 to 6.42 per 10,000 papers from 2015 to 2025. Weather-forecasting patent families rose from 1.05 to 2.95 per 10,000 patent families from 2015 to 2024 (2.8-fold), and 86.0% of office filings were in China.

Findings stated for citation

- **F1.** Between 2019 and 2025, January carried 10.63% of each year's weather news, and December-February 28.35%, against 25% for an even spread.
- **F2.** Weather took a 33% smaller share of news in 2020 than in 2019 (23.14 vs 34.71 per 10,000 articles).
- **F3.** January 2026 was the peak month for weather news, at 54.57 articles per 10,000.
- **F4.** India's share of located weather news (32.12%) was 2.43 times its share of all news. The United States' (39.23%) was 0.81 times.

- **F5.** The India Meteorological Department was the organisation named most often (32,535 articles as "IMD").
- **F6.** 63.9% of weather articles were negative in tone, 1.9 times the all-news share.
- **F7.** A machine priority rating placed 53.4% of weather articles at critical level, 1.25 times the all-news share.
- **F8.** Severe weather warnings were the most common theme (24.16% of themed articles).
- **F9.** 29.36% of raw weather-vocabulary matches were automated or figurative items.
- **F10.** Weather papers rose 1.42-fold as a share of all papers between 2015 and 2025.
- **F11.** 86.0% of office filings of weather-forecasting patent families (2015–2024) were in China.
- **F12.** Weather-forecasting patent families rose 2.8-fold as a share of all patent families between 2015 and 2024.
- **F13.** Within India, Himachal Pradesh (3.76), Odisha (1.93) and Sikkim (1.93) had the most over-represented weather coverage; Manipur (0.23), Meghalaya (0.33) and Karnataka (0.49) the least.
- **F14.** Within the United States, Mississippi (4.03), Nebraska (3.2), North Dakota and New Mexico (2.66) had the most over-represented weather coverage; New Jersey (0.11) the least.
- **F15.** Weather coverage as a share of Malaysia's news rose 4.4-fold from 2023 to 2025.

1. Introduction

Weather is one of the most constant subjects in the news. Forecasts, warnings and reports of heat, cold, rain and storms appear every day, and national weather services are among the most quoted public agencies. Weather news is also how most people receive warnings that protect life and property. Yet the volume and shape of this coverage are rarely measured as data. Weather services record observations and warnings. Bibliometric studies record research. Few sources record attention: how much of the news the weather takes, and when, where and in what tone.

This paper and its dataset do that. They combine three records for one topic: a global news index, research papers and patents. Each comparison uses a denominator, so that growth in the index or in publishing is not mistaken for growth in interest. The companion dataset publishes an article-level sample (60,124 rows) and full coverage tables, so every figure here can be re-derived. The [Prism News API](#) serves the full history.

2. Data and methods

News. The Prism news index holds articles from outlets worldwide; non-English articles are indexed in English translation. Each article carries its opening text (the first few sentences), a primary location, a graded tone label, an editorial priority rating (1–9), themes, keywords and named organisations. We count unique article identifiers; repeated rows for the same article are removed. When this release was built, 92.88% of the index was readable, so all counts are lower bounds.

Matching. "Weather" is a broad word, and on its own it matches site menus, widgets and figurative uses as often as reporting. An article is therefore about the weather when its opening text contains, as whole words, one of a reviewed list of phrases in three groups:

- weather services and forecasters: *India Meteorological Department, IMD, meteorological department, Met Office, National Weather Service, weather service, Bureau of Meteorology, meteorologist(s)*;
- forecasts and warnings: *weather forecast(s), weather forecasting, weather update(s), weather report, weather alert(s), weather warning(s), weather advisory, weather outlook*;
- weather conditions: *weather conditions, severe, extreme, bad, inclement, cold, hot, wet, wintry, winter and stormy weather, weather system and weather event(s)*.

Five families of matches are excluded:

- templated warning bulletins, such as "weather alert... the flood warning is extended for...";
- machine-generated city forecasts ("the weather forecast for ... indicates that the maximum temperature will be...");
- site menus, weather-app prompts and sports-fixture weather widgets;
- the business-school ranking that shares the abbreviation IMD;
- figurative uses ("under the weather", "weather the storm", "fair-weather").

Together these removed 199,748 of 680,360 raw matches (29.36%). One reviewer read 40 randomly drawn matched openings. In 36, weather, forecasts or weather services were a material element (precision 90%), and in 32 (80%) the weather was the main subject. The four misses were three passing mentions of the weather and one machine-generated city bulletin. A second reviewer re-judged 15 of the 40 openings and reclassified one as a passing mention; the figures above include that correction.

Measures. Coverage over time is expressed per 10,000 articles in the index that month or year, because the index grew from 11,807,177 articles in 2019 to 26,990,006 in 2025. Seasonality uses each year's within-year month shares, averaged over the complete years 2019–2025. Geography, tone, priority and themes use January 2023 – July 2026. Geography is expressed as lift: a country's share of weather articles divided by its share of all located articles. Place tags derived from ordinary words ("Congress", "Earth", "Winter", "Cloud", "Mobile", "Hurricane" and other such words, 714 in all) were treated as unlocated in every location field, which removed 15.3% of city-tagged articles.

Research and patents. Research papers are de-duplicated articles and reviews (2000–2025) with *weather* in the title. Repository deposits and space-weather papers are excluded. Patent families (2005–2024) match forecast, weather-prediction, weather-radar, weather-station, weather-monitoring and meteorological titles, are counted once per filing office, and exclude weather-resistant materials, weather strips and space weather.

3. Results

3.1 How much and when

The index holds 480,612 weather articles from January 2019 to July 2026. Raw counts rose from 40,981 in 2019 to 84,891 in 2025, but the share of all news moved much less: 34.71 per 10,000 in 2019, 36.31 in 2024 and 31.45 in 2025 (Table 1). The low point was 2020, at

23.14 per 10,000. That is 33% below 2019, in the year pandemic coverage expanded; the lowest single month was March 2020 (16.38). The share has since recovered: 2024 stood 1.57 times above the 2020 level. The highest monthly share was January 2026, at 54.57 per 10,000, against 34.18 in December 2025 (Figure 1).

Year	Weather articles	All articles in index	Per 10,000
2019	40,981	11,807,177	34.71
2020	37,561	16,230,014	23.14
2021	50,970	17,281,220	29.49
2022	59,855	19,115,515	31.31
2023	67,485	20,484,506	32.94
2024	84,650	23,311,896	36.31
2025	84,891	26,990,006	31.45

Table 1. Weather articles per year and as a share of the index. 2026 (January-July) is partial and omitted.

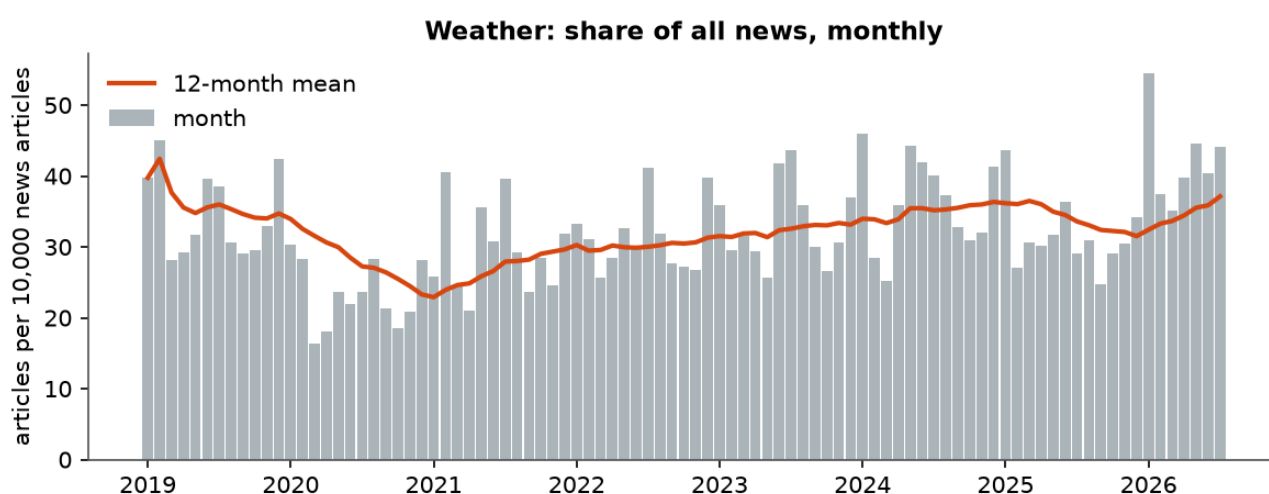


Figure 1. Weather coverage as articles per 10,000 news articles, monthly, January 2019 – July 2026. Bars are months; the line is the 12-month mean.

Coverage is seasonal, though no month dominates (Figure 2). January holds 10.63% of a typical year's weather articles, December 9.32% and February 8.4%, so the northern winter months together hold 28.35%. A second peak falls in July (9.56%), the month of the South Asian monsoon and northern heat. April (7.05%) and March (7.08%) are the quietest months. A likely reason for the winter peak is that snow and cold produce weeks of forecasts, closures and travel notices, though this release does not test it.

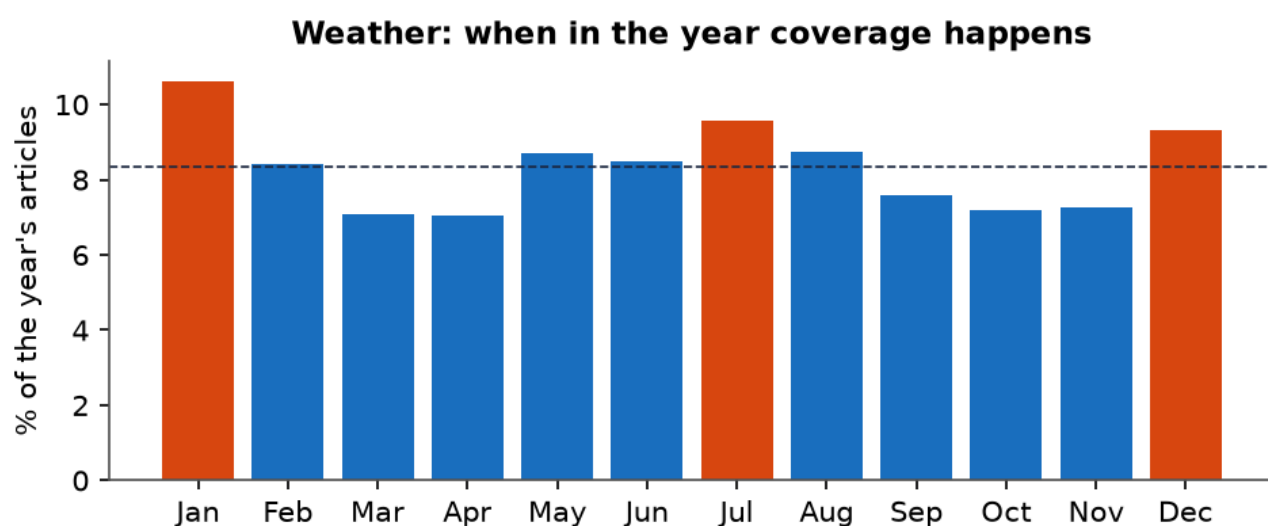


Figure 2. Share of each year's weather articles published in each month, averaged over 2019–2025. Dashed line = an even spread (8.3% per month).

3.2 Where

Between January 2023 and July 2026, 153,369 weather articles carried a primary location. The United States holds the largest raw share (39.23%), but its lift is 0.81: weather takes a smaller share of American news than of news overall. India's share (32.12%) comes with a lift of 2.43. Among the 20 countries with the most located weather articles, the most over-represented are in South Asia and Oceania: Sri Lanka (3.38), India, New Zealand (2.2) and Bangladesh (1.85) (Table 2, Figure 3). China (0.32), France and Nigeria (both 0.37) are the most under-represented of these 20 countries.

Country	Located weather articles	Share %	Lift vs all news
United States	60,171	39.23	0.81
India	49,267	32.12	2.43
United Kingdom	9,282	6.05	1.04
Australia	4,400	2.87	1.34
New Zealand	2,184	1.42	2.2
Canada	1,738	1.13	0.53
Germany	1,311	0.85	0.73
China	1,306	0.85	0.32
Japan	1,231	0.8	0.76
United Arab Emirates	1,188	0.77	1.19
France	1,106	0.72	0.37
Spain	914	0.6	0.61
Italy	847	0.55	0.57
Sri Lanka	822	0.54	3.38
Ireland	794	0.52	0.72

Table 2. Leading countries in located weather news, January 2023 – July 2026, with lift against all located news.

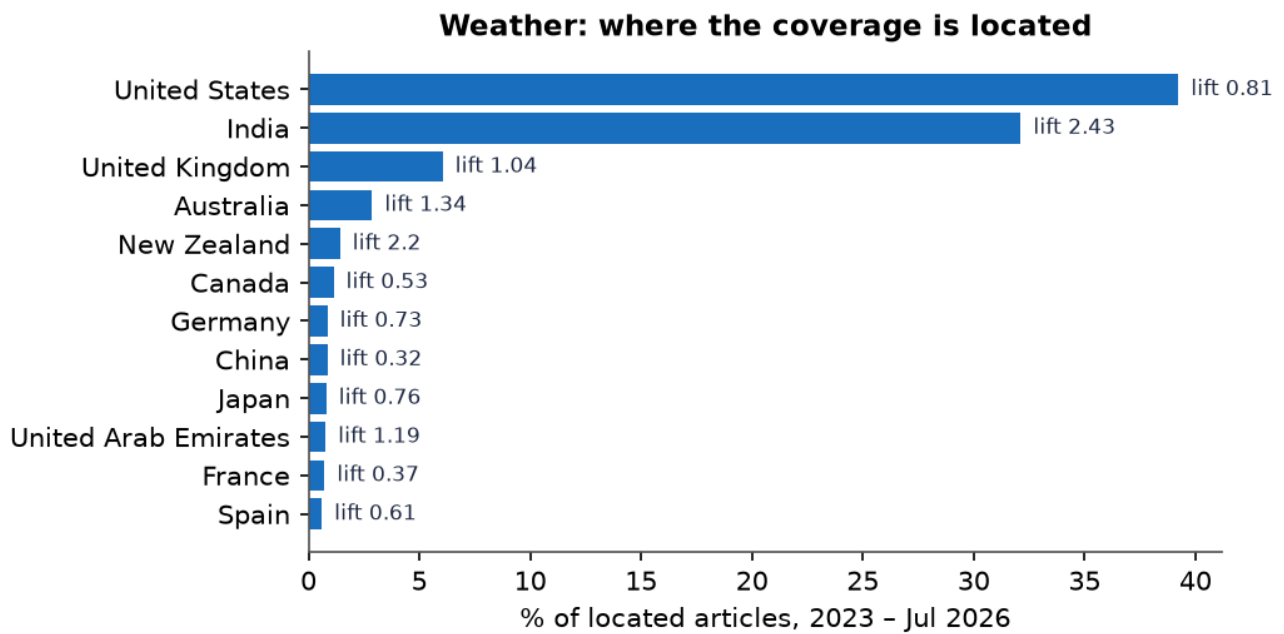


Figure 3. Leading countries by share of located weather articles, 2023 – Jul 2026, labelled with lift against all located news.

The organisations named most often are national weather services. The India Meteorological Department appears as "IMD" in 32,535 articles, 11.17% of all weather articles in the window, and under its full name in 17,917 (the two labels overlap). The US National Weather Service follows (13,243 articles), then the UK Met Office (9,308), the National Oceanic and Atmospheric Administration (4,195) and Australia's Bureau of Meteorology (2,141). No other national weather service is named in as large a share of weather articles as the Indian department.

3.3 Geo intelligence: continents, states and shifting attention

The world map (Figure 4) shows the same pattern at a glance. Weather is over-represented in the news of South Asia (Sri Lanka 3.38, India 2.43, Bangladesh 1.85), Algeria (3.01), the Dominican Republic (2.6), Oman (2.55) and New Zealand (2.2). Iceland (3.12) is set aside: most sampled articles tagged to it carry only compass words such as "South" or "West" as places. Weather is under-represented in Israel (0.18), Russia and Singapore (both 0.23), South Korea (0.25), Iran (0.28), China (0.32), Belgium (0.33), and France and Nigeria (both 0.37). By continent, Oceania (1.63) and Asia (1.59) are over-represented, while North America (0.83), Europe (0.69), Africa (0.61) and South America (0.45) are not (Figure 7, left).

Weather: which countries over- and under-cover the topic

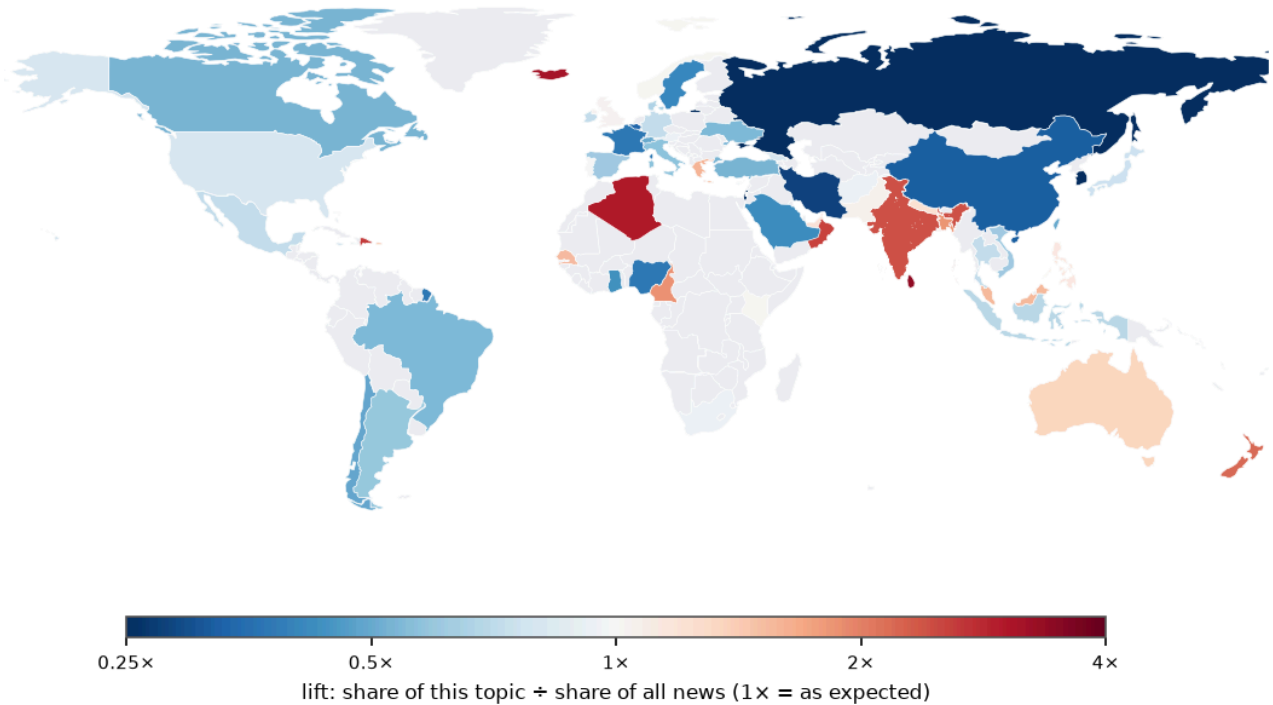


Figure 4. Lift of each country's share of located weather articles, January 2023 – July 2026 (red = over-represented, blue = under-represented, grey = fewer than 100 articles). India is drawn with its official outline.

Within countries, the picture is sharper (Table 3). In India, 47,221 weather articles carry a state. Weather coverage concentrates in the Himalayan states and on the east coast. Measured against each state's share of Indian news, Himachal Pradesh (3.76), Odisha and Sikkim (both 1.93), Delhi (1.63), Kerala (1.57), Rajasthan (1.41) and Uttarakhand (1.39) are the most over-represented. The least represented are Manipur (0.23), Meghalaya (0.33), Karnataka (0.49) and Assam (0.55); Uttar Pradesh (0.63) and Maharashtra (0.68) are also under-represented despite large article counts (Figure 5). Puducherry shows a lift of 13.26, but samples tagged to it are mostly national multi-region bulletins that name its districts Yanam and Karaikal, so it is not read as a regional signal. In the United States, 54,315 weather articles carry a state. Mississippi (4.03), Nebraska (3.2), North Dakota and New Mexico (both 2.66) and Kentucky (2.61) lead by lift. New Jersey (0.11), New York (0.57), Pennsylvania (0.58) and Utah (0.66) are far below their weight in American news (Figure 6). Many Mississippi samples are tagged to Jackson, the seat of a National Weather Service office. Wisconsin, which led the earlier build because the word "winter" was tagged as its place, now stands at 1.72 once such tags are treated as unlocated.

India: state	Articles	Lift	United States: state	Articles	Lift
Himachal Pradesh	2,394	3.76	Mississippi	1,428	4.03
Odisha	1,885	1.93	Nebraska	734	3.2
Sikkim	97	1.93	North Dakota	675	2.66
Delhi	10,017	1.63	New Mexico	506	2.66
Kerala	1,812	1.57	Kentucky	491	2.61
Rajasthan	2,303	1.41	Maine	566	2.42
Uttarakhand	1,473	1.39	Colorado	2,354	2.23
Jammu and Kashmir	1,357	1.22	Alabama	1,375	2.21
<i>Lowest: Manipur</i>	60	0.23	<i>Lowest: New Jersey</i>	1,140	0.11
Meghalaya	74	0.33	New York	3,608	0.57
Karnataka	1,277	0.49	Pennsylvania	1,894	0.58

Table 3. States with the most and least over-represented weather coverage, January 2023 – July 2026 (states with at least 50 weather articles; Puducherry set aside, see text). Lift = the state's share of the country's located weather articles ÷ its share of all located news from that country.

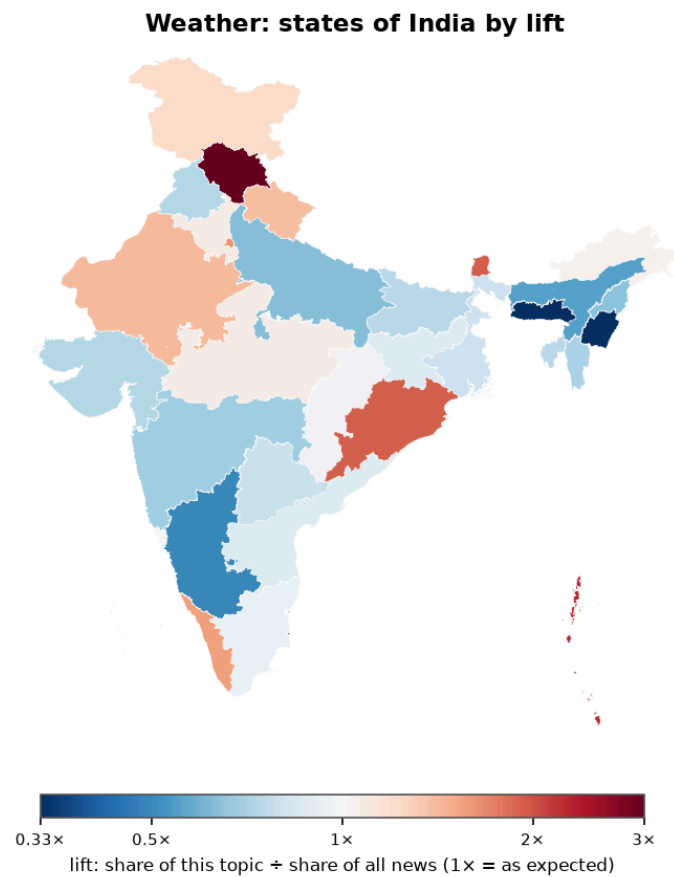


Figure 5. Lift of each Indian state's share of located weather articles against its share of all located Indian news, January 2023 – July 2026. Official outline; Ladakh is drawn within Jammu and Kashmir in the boundary file used.

0.33x 0.5x 1x 2x 3x

lift: share of this topic ÷ share of all news (1x = as expected)

Attention also moves between countries from year to year (Table 4, Figure 7, right). Measured as weather articles per 10,000 of each country's located news, Malaysia rose from 16.98 in 2023 to 74.74 in 2025 (4.4 times), South Africa 2.26 times, Scotland 2.0 times and Ukraine 1.88 times. Ireland (0.38), France (0.42), China (0.44), Italy (0.46) and New Zealand (0.48) fell over the same years. New Zealand's fall follows an unusually high 2023 (123.17 per 10,000).

Rising, 2023 → 2025	2023	2025	Ratio	Falling, 2023 → 2025	2023	2025	Ratio
Malaysia	16.98	74.74	4.4	Ireland	41.19	15.49	0.38
South Africa	21.23	47.98	2.26	France	20.18	8.57	0.42
Scotland	44.07	88.13	2.0	China	20.21	8.85	0.44
Ukraine	16.81	31.59	1.88	Italy	35.17	16.02	0.46
Philippines	30.68	48.29	1.57	New Zealand	123.17	59.09	0.48

Weather coverage is more negative than each country's news overall in almost every country with at least 200 labelled weather articles. Among the 15 countries with the most labelled weather articles, the gap relative to the national baseline is widest in Japan (74.9% negative against 23.3%, 3.21 times), China (72.3% against 27.2%, 2.66 times) and Spain (77.6% against 30.3%, 2.56 times). The ratio is smaller in India (75.2% against 41.2%, 1.83 times) and the United States (64.1% against 33.1%, 1.94 times). The gap is narrowest in Bangladesh (57.7% against 56.8%), and Ukraine is the one listed country where weather news is less negative than its baseline (65.2% against 72.4%).

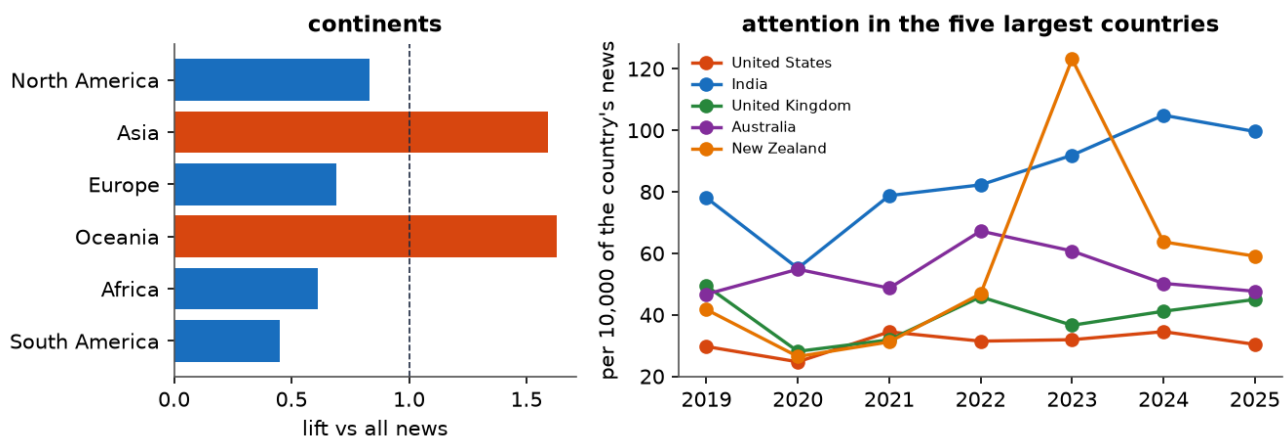


Figure 7. Left: lift by continent, January 2023 – July 2026. Right: weather articles per 10,000 of each country's located news, 2019–2025, for the five countries with the most articles.

3.4 Tone, urgency and themes

Weather coverage is more negative and more urgent than news in general (Figure 8). Among articles with a tone label, 63.9% are negative, against 33.6% across the index (1.9 times). A machine rating of editorial priority puts 53.4% of weather articles at critical level (7 or higher), against 42.6% of all news (1.25 times). Priority is a machine rating of editorial urgency, not an official warning level.

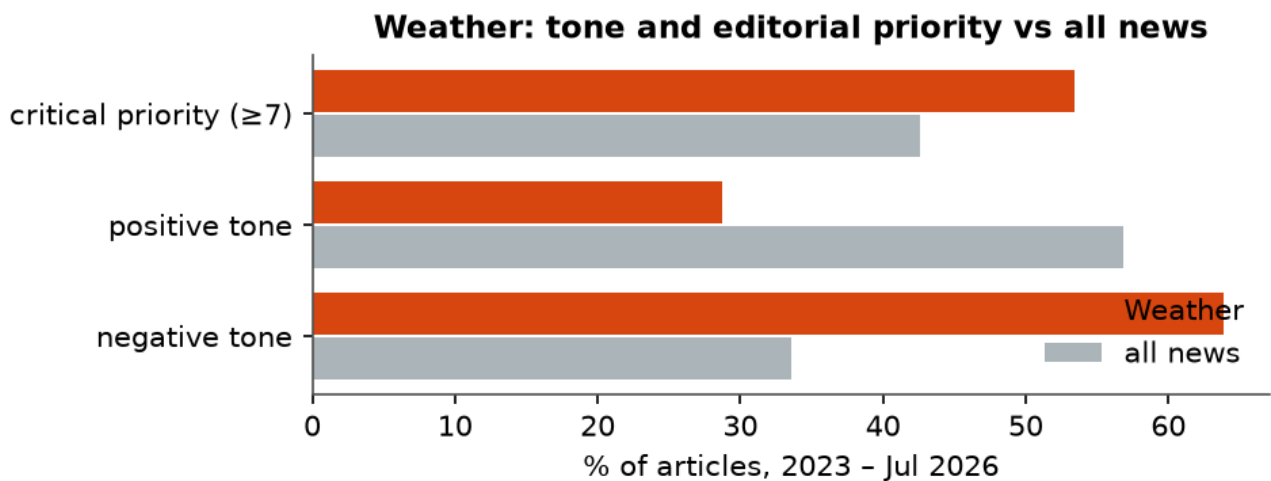


Figure 8. Tone and the share rated critical priority, weather articles vs all news, 2023 – Jul 2026.

Themes show what weather stories are about (Table 5). Severe weather warnings are the most common (24.16% of themed articles), followed by rainfall statistics (16.78%) and forecast updates (15.88%). Thunderstorm and lightning alerts appear in 15.61% of themed articles, 73.97 times their share of all themed news. Monsoon updates, satellite and radar imagery and weather technology are smaller but highly specific to the topic.

Theme	Articles	Share %	Lift
severe weather warnings	45,969	24.16	48.43
rainfall and precipitation statistics	31,931	16.78	58.1
weather forecast updates	30,207	15.88	60.61
thunderstorm and lightning alerts	29,701	15.61	73.97
snowstorm and blizzard alerts	21,938	11.53	66.35
winter weather preparedness	21,218	11.15	66.49
monsoon season updates	11,749	6.17	79.48
satellite and radar imagery analysis	2,575	1.35	88.31

Table 5. Most common and most specific themes in weather coverage (lift against all themed news), January 2023 – July 2026.

3.5 Research attention and invention

Research on the weather grew faster than the scientific literature. Papers with *weather* in the title rose from 4.52 per 10,000 papers in 2015 to 6.42 in 2025, a 1.42-fold increase in share, while the total literature in the corpus grew by a factor of 1.0 over the same years. Between 2015 and 2025, 35,955 such papers were published. The most-cited include work on extreme weather and crop production [1], the progress of numerical weather prediction [2], Arctic amplification and mid-latitude extremes [3], the health risks of hot weather [4], the attribution of extreme events to climate change [7] and, since 2023, machine-learning forecast models [5, 6].

News attention does not track research attention (Figure 9). Research share rose in most years and fastest after 2022, while news share fell in 2020 and has moved with winters and storm seasons since.

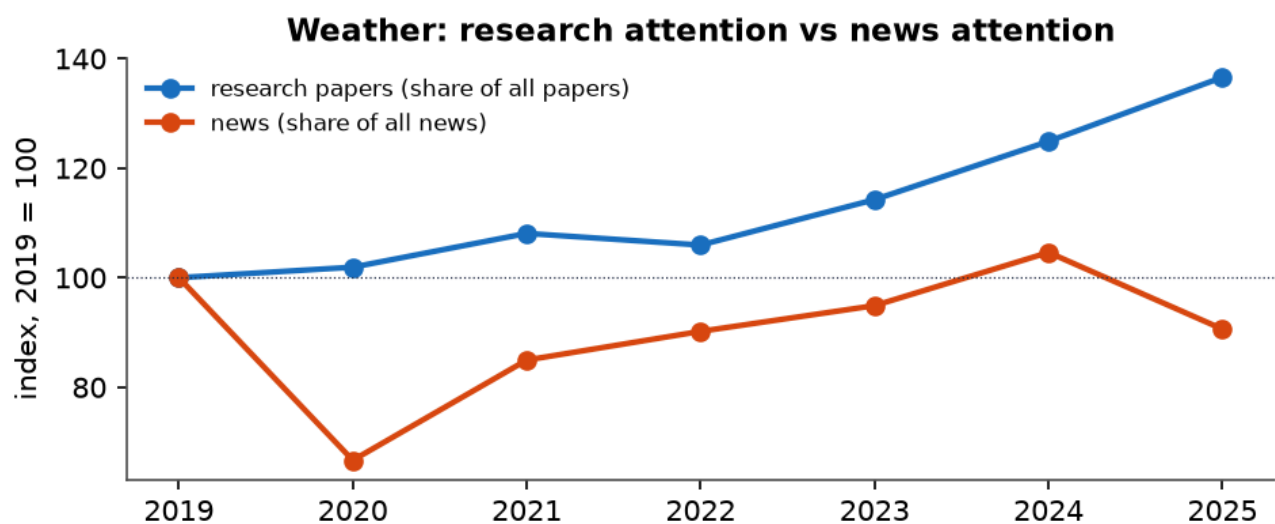


Figure 9. Research papers with weather in the title (share of all papers) and weather news (share of all news), each indexed to 2019 = 100.

Patenting rose faster still. Weather-forecasting and meteorological patent families rose from 1.05 per 10,000 patent families published in 2015 to 2.95 in 2024, a 2.8-fold increase in share. In raw counts, 347 families were published in 2015 and 1,637 in 2024 (4.72 times), while all patent families grew 1.68-fold. China's office holds 86.0% of office filings from 2015 to 2024, followed by South Korea (4.1%) and the United States (3.8%) (Figure 10). The leading technology classes are climate-change adaptation technologies (Y02A, 1,150

families), meteorology instruments and methods (G01W, 992), computing (G06F, 720), business data processing (G06Q, 668) and radar (G01S, 602).

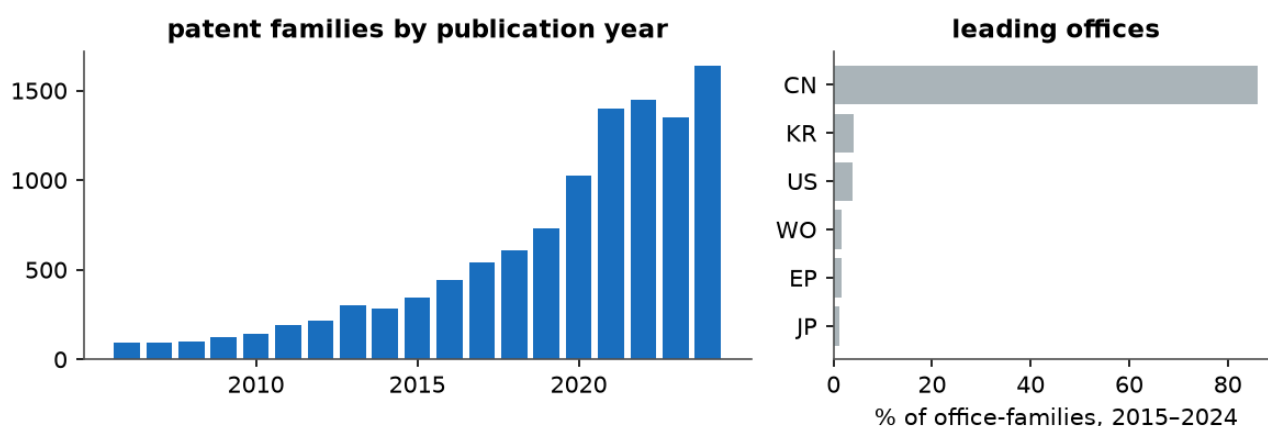


Figure 10. Weather-forecasting and meteorological patent families by publication year (left) and the leading filing offices, 2015–2024 (right).

4. Discussion

Three points matter for anyone who uses news as a record of the weather. First, coverage measures attention. The 2020 trough and the January 2026 peak are measures of how much of the news the weather took in those months, not of how much weather there was; this release does not test what drove them. Second, raw shares mislead. The United States leads weather news in raw terms but is under-represented relative to its weight in the index, while India, where the national weather service's bulletins are reported daily, is over-represented almost two and a half times. Third, a large share of what keyword searches return as "weather news" is not journalism: automated bulletins, machine-generated forecasts and page furniture made up 29.36% of raw matches.

Research, invention and news run on different clocks. Research share grows steadily and rose fastest after 2022, the years in which machine-learning forecast models appear among the most-cited papers. Patent filings grow fastest and are concentrated in one office. News follows the seasons and the big storms. The dataset lets researchers link the three, for example to test whether coverage of a weather service rises after major forecasting failures or successes.

5. Limitations

- **Index availability.** 92.88% of the index was readable at build time, so counts are lower bounds. Shares and lifts are less affected, because the missing part is spread across topics.
- **Coverage after May 2026.** The index thins after May 2026, so 2026 (January–July) is partial and is excluded from year comparisons.
- **Matching.** Matching uses phrases in the article opening. Articles that mention the weather only later, or only with the bare word, are missed, and 10% of hand-checked matches were not about the weather.
- **Machine labels.** Location, tone, priority and themes are machine-labelled. The city field is noisy and is not analysed. The state field misattributes national bulletins to Puducherry for this topic.
- **Place words.** Place tags derived from ordinary words were treated as unlocated (15.3% of city-tagged articles). Location counts are therefore smaller than the raw

tags, and ordinary words outside the 714-word list may still be tagged as places.

- **Outlet mix.** The index over-represents English-language and Northern Hemisphere outlets. This shapes both seasonality and geography.
- **Research and patent counts.** These match titles only. Office shares reflect filing practice; utility models are numerous in China.

Data availability

The dataset (article sample, monthly and country tables, research and patent tables, all metrics) is released under CC BY-NC 4.0 with this paper. The sample holds 60,124 of 480,457 matched articles to 31 July 2026. Full article text, headlines, publishers, later articles and other topics are served by the Prism News API: <https://github.com/fliarbi/prism-news-api> (base URL <https://radar-api.fliarbi.com/news>). A worked query: `prism-news trends "weather forecast" --since 2019-01-01 --until 2026-07-31 --granularity monthly`.

References

1. Corey Lesk et al. (2016). Influence of extreme weather disasters on global crop production. *Nature*. <https://doi.org/10.1038/nature16467>
2. Péter Bauer et al. (2015). The quiet revolution of numerical weather prediction. *Nature*. <https://doi.org/10.1038/nature14956>
3. Judah Cohen et al. (2014). Recent Arctic amplification and extreme mid-latitude weather. *Nature Geoscience*. <https://doi.org/10.1038/ngeo2234>
4. Kristie L Ebi et al. (2021). Hot weather and heat extremes: health risks. *The Lancet*. [https://doi.org/10.1016/s0140-6736\(21\)01208-3](https://doi.org/10.1016/s0140-6736(21)01208-3)
5. Kaifeng Bi et al. (2023). Accurate medium-range global weather forecasting with 3D neural networks. *Nature*. <https://doi.org/10.1038/s41586-023-06185-3>
6. Rémi Lam et al. (2023). Learning skillful medium-range global weather forecasting. *Science*. <https://doi.org/10.1126/science.adi2336>
7. Peter A. Stott (2016). How climate change affects extreme weather events. *Science*. <https://doi.org/10.1126/science.aaf7271>
8. Fliar BI (2026). *Weather in the News 2019–2026: article-level dataset and coverage tables*. Prism News API. <https://github.com/fliarbi/prism-news-api>