

Volcanoes in the News, 2019-2026: Event Peaks, Geography and Tone of Global Volcano 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 volcanoes were covered in a global news index from January 2019 to July 2026, using 47,980 de-duplicated volcano articles, and set that coverage beside 19,403 research papers (2015–2025) and 322 patent families (2015–2024) on volcanoes. Six results stand out:

1. **Single events, not seasons.** Volcano news is made of peaks. January 2022, the month of the Hunga Tonga–Hunga Ha’apai eruption, was the largest, at 13.46 articles per 10,000. December 2019 (Whakaari / White Island) followed at 13.23. December and January together hold 26.17% of a typical year's coverage.
2. **Falling attention.** The annual share was highest in 2021 (5.11 per 10,000) and fell by 34.1% between 2023 and 2025, to 2.55 per 10,000.
3. **Geography.** By lift, Tonga (191.14), Guatemala (85.26), Iceland (67.1) and Indonesia (49.64) are the most over-represented countries. The United States, the largest source of located articles (25.8%), is under-represented at 0.53. Within the United States, Hawaii (105.6) and Alaska (26.84) lead by lift.
4. **Shifting attention.** Volcano coverage as a share of Iceland's news fell from 271.92 per 10,000 in 2023 to 63.05 in 2025. In Guatemala it rose from 194.52 to 486.01.
5. **Tone and urgency.** 57.8% of volcano articles are negative in tone (all news: 33.6%), and 62.6% are rated critical priority (all news: 42.6%). Indonesia's volcano news is 90.9% negative.
6. **Research and invention.** Volcano papers fell from 2.96 to 2.02 per 10,000 papers between 2015 and 2025. The patent side is small, and China's office holds 79.9% of filings counted by office.

Findings stated for citation

- **F1.** January 2022 was the peak month for volcano news, at 13.46 articles per 10,000 news articles.
- **F2.** December 2019 was the second-largest month, at 13.23 per 10,000.
- **F3.** 2021 had the largest annual share between 2019 and 2025 (5.11 per 10,000), 2.1 times 2020.
- **F4.** December and January held 26.17% of each year's volcano news (2019–2025 average), a pattern that follows the timing of a few large eruptions.
- **F5.** The share of news given to volcanoes fell by 34.1% between 2023 and 2025.
- **F6.** Tonga (191.14), Guatemala (85.26), Iceland (67.1) and Indonesia (49.64) were the most over-represented countries; the United States was at 0.53.

- **F7.** Oceania (2.32) and South America (2.26) were the most over-represented continents.
- **F8.** 57.8% of volcano articles were negative in tone, 1.72 times the all-news share.
- **F9.** 62.6% of volcano articles were rated critical priority, 1.47 times the all-news share.
- **F10.** Eruption evacuation was carried by 51.16% of themed volcano articles.
- **F11.** Aviation regulation appeared in volcano news 57.03 times as often as in all news.
- **F12.** Volcano papers fell 31.8% as a share of all papers between 2015 and 2025.
- **F13.** China's office held 79.9% of volcano-related patent filings counted by office (2015–2024).
- **F14.** Within the United States, Hawaii (105.6), Alaska (26.84) and Oregon (3.94) had the most over-represented volcano coverage; New York (0.57) was the most under-represented.
- **F15.** Volcano coverage as a share of Iceland's news fell from 271.92 per 10,000 in 2023 to 63.05 in 2025.
- **F16.** Indonesia's volcano news was 90.9% negative, against 32.8% for Indonesian news overall.

1. Introduction

Volcanic eruptions are rare in any one place but frequent worldwide. When one happens, news is often the first public record of who was evacuated, which flights were grounded and how far the ash spread. News also decides which eruptions the wider public hears about. Most eruptions stay local. A few become global stories for weeks.

Eruption catalogues record volcanic events, and bibliometric studies record research. Few sources record attention: how much of the news volcanoes take, when, where and in what tone. This paper and its dataset measure that attention. 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 (12,064 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. An article is about volcanoes when its opening text contains *volcano*, *volcanoes*, *volcanic eruption(s)*, *volcanic activity*, *volcanic ash*, *volcanologist(s)* or *lava flow(s)* as whole words. Broader words such as *eruption* and *lava* were not used, because they also name outbreaks of violence and a phone brand. Four families of matches are excluded:

- figurative uses ("like a volcano", "an emotional volcano");

- food, product and venue names (volcano rolls and bowls, vaporisers, a water park) and music releases;
- the bioinformatics "volcano plot";
- machine-translation residue, in which a word such as "volcano" is repeated without meaning ("the volcano of the volcano is a volcano, a volcano...").

Together these removed 2,594 of 50,574 raw matches (5.1%). One reviewer read 40 randomly drawn matched openings, and 15 of them were re-judged in a second review. 37 used the words in their geological sense, on Earth or on other planetary bodies (precision 92.5%). In 23 (57.5%) a volcano or volcanic activity was the main subject. The three false positives were one remaining piece of translation residue, a figurative passage in a sports profile and an indoor show of artificial lava.

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. Month shares use each year's within-year 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 volcano articles divided by its share of all located articles. States are measured against all located news from the same country. Place tags derived from ordinary words ("Congress", "Earth", "Winter", "Cloud", "Mobile", "Hurricane" and others, 714 words 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 *volcano*, *volcanism*, *volcanology*, *volcanic eruption*, *volcanic ash*, *volcanic activity*, *volcanic hazard* or *lava flow* in the title. Repository deposits and the "volcano plot" of catalysis and gene-expression studies are excluded. Patent families (2005–2024) use a narrower title rule (volcano, volcanic eruption, volcanic ash, lava flow), are counted once per filing office, and exclude toys, decorative objects, cooking devices and vaporisers.

3. Results

3.1 How much and when

The index holds 47,980 volcano articles from January 2019 to July 2026. Raw counts rose from 4,091 in 2019 to 6,879 in 2025, but the share of all news did not (Table 1). The share was 3.46 per 10,000 in 2019, fell to 2.43 in 2020, and peaked at 5.11 in 2021. It then declined to 2.55 in 2025, 34.1% below 2023.

Year	Volcano articles	All articles in index	Per 10,000
2019	4,091	11,807,177	3.46
2020	3,944	16,230,014	2.43
2021	8,833	17,281,220	5.11
2022	7,274	19,115,515	3.81
2023	7,930	20,484,506	3.87
2024	6,735	23,311,896	2.89
2025	6,879	26,990,006	2.55

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

Monthly coverage is a series of spikes (Figure 1). The highest monthly share was January 2022, the month of the Hunga Tonga–Hunga Ha’apai eruption and tsunami, at 13.46 per 10,000 (2,240 articles). December 2019, the month of the Whakaari / White Island eruption

in New Zealand, followed at 13.23. September 2021, when the Cumbre Vieja eruption on La Palma began, reached 10.64, and January 2020, the month of the Taal eruption in the Philippines, 8.86. These attributions rest on timing alone.

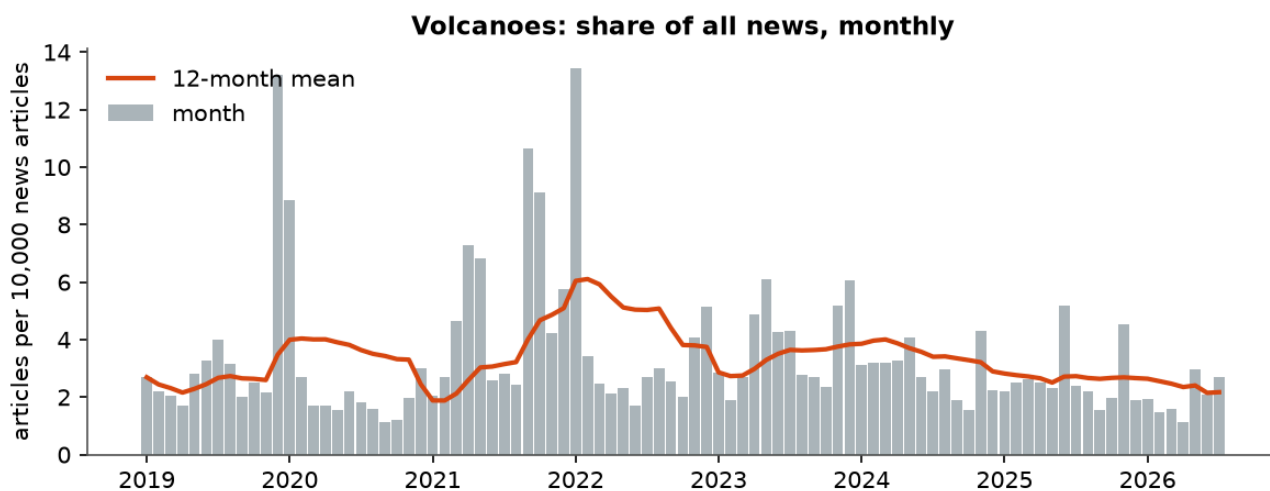


Figure 1. Volcano coverage as articles per 10,000 news articles, monthly, January 2019 – July 2026. Bars are months; the line is the 12-month mean.

Because coverage comes in spikes, the month profile (Figure 2) reflects which eruptions fell when. January (13.93%) and December (12.24%) together hold 26.17% of a typical year's volcano articles, against about one-sixth for an even spread. October is the quietest month (6.42%). This is event clustering in a short record, not a season.

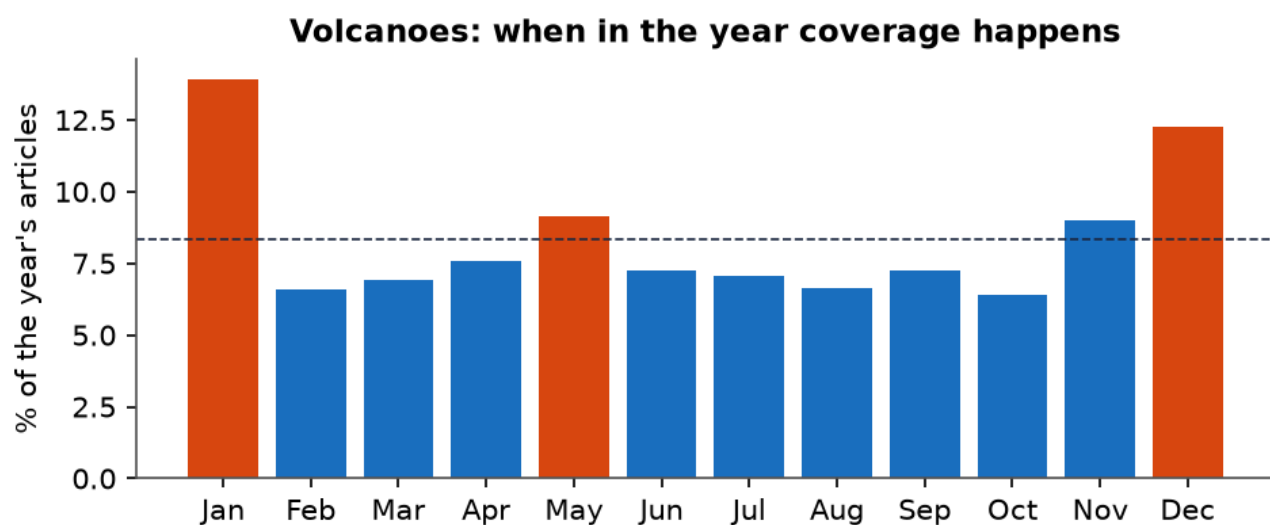


Figure 2. Share of each year's volcano articles published in each month, averaged over 2019–2025. Dashed line = an even spread (8.3% per month).

3.2 Where

Between January 2023 and July 2026, 10,346 volcano articles carried a primary location. The United States holds the largest raw share (25.8%), but its lift is 0.53: volcanoes take a smaller share of American news than of news overall. The most over-represented countries are small volcanic states and archipelagos: Tonga (191.14), Guatemala (85.26) and Iceland (67.1), followed by Indonesia (49.64) and the Philippines (19.07) (Table 2, Figure 3). India, with 3.35% of located articles, has a lift of 0.25. The United Kingdom (0.34) and China (0.39) are also well below parity.

Country	Located volcano articles	Share %	Lift vs all news
United States	2,669	25.8	0.53
Indonesia	1,428	13.8	49.64
Iceland	819	7.92	67.1
Philippines	622	6.01	19.07
Italy	585	5.65	5.84
India	347	3.35	0.25
Japan	323	3.12	2.94
New Zealand	283	2.74	4.23
Mexico	239	2.31	7.47
United Kingdom	205	1.98	0.34
Russia	200	1.93	2.57
Guatemala	200	1.93	85.26
Australia	151	1.46	0.68
France	122	1.18	0.6
Chile	119	1.15	6.14
Spain	112	1.08	1.11
China	105	1.01	0.39
Tonga	101	0.98	191.14

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

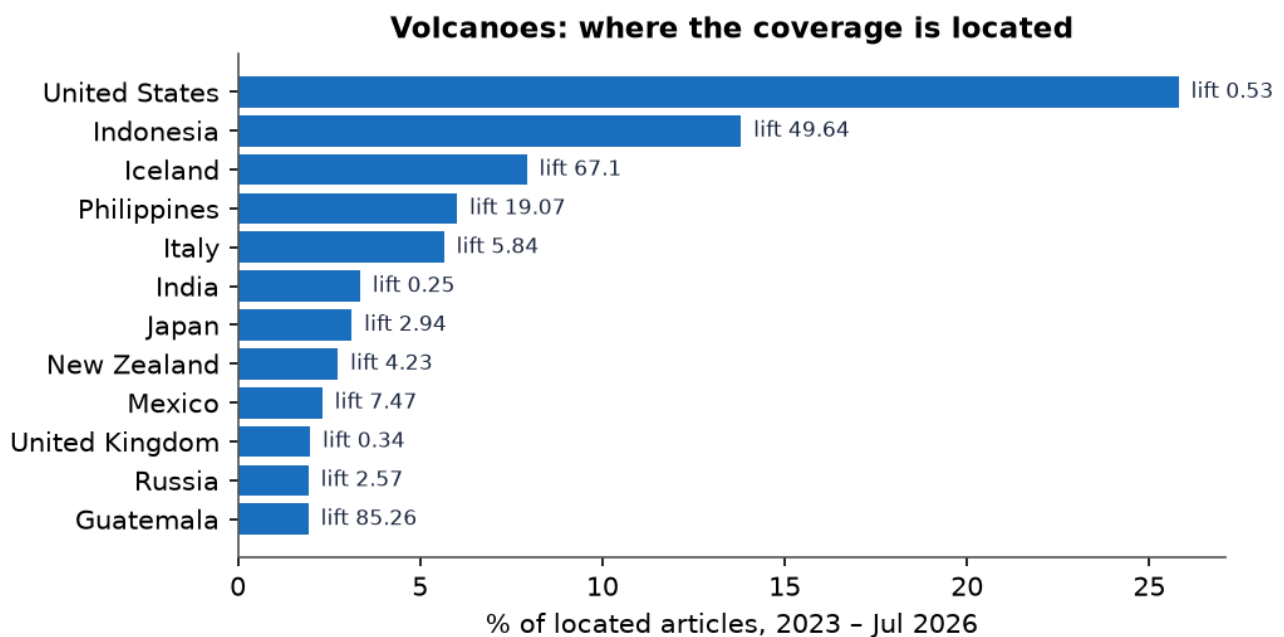


Figure 3. Leading countries by share of located volcano articles, 2023 – Jul 2026, labelled with lift against all located news.

3.3 Geo intelligence: continents, states and shifting attention

The world map (Figure 4) shows the pattern at a glance. Volcano news is over-represented around the Pacific (Tonga, Indonesia, the Philippines, Japan, New Zealand, Mexico, Guatemala and Chile), in Iceland, Italy and Russia, and under-represented in the United Kingdom, France, China, India, Australia and the United States. By continent, Oceania (2.32) and South America (2.26) are the most over-represented, followed by Europe (1.32) and Asia

(1.24). North America (0.67) and Africa (0.58) are under-represented (Figure 6, left). Lift compares each continent with its own share of located news, so it measures attention, not volcanic activity.

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

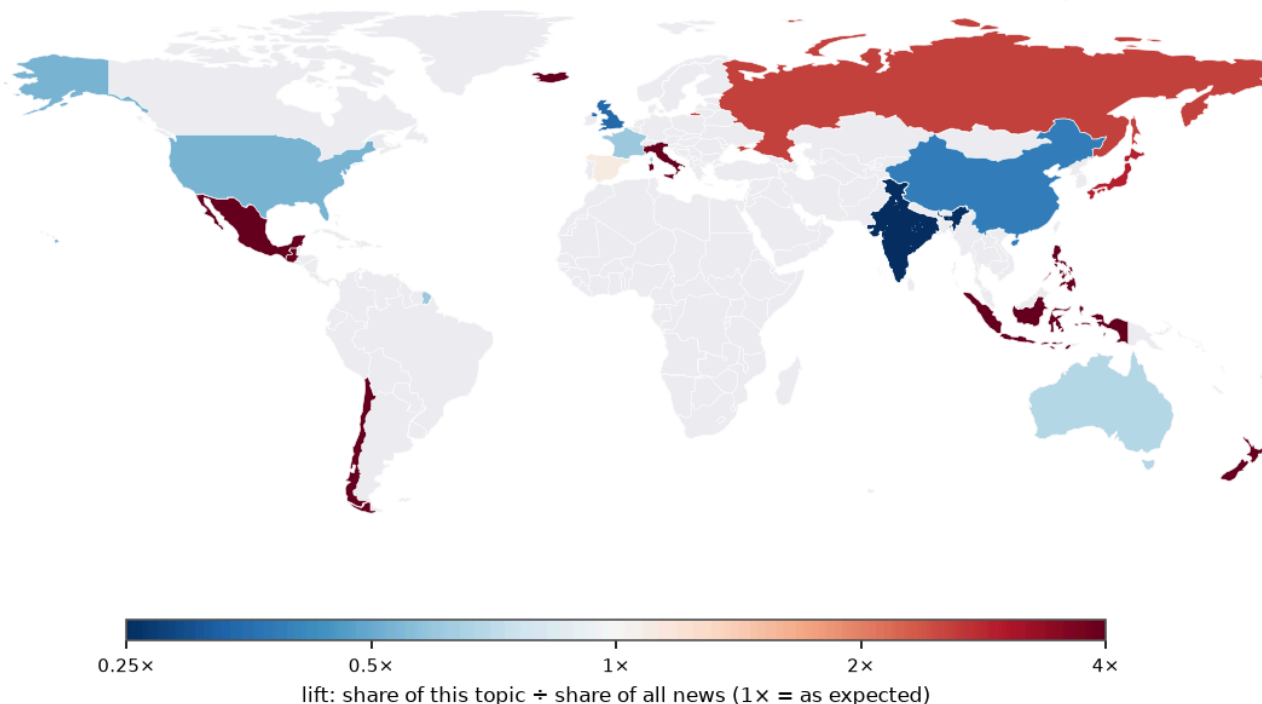


Figure 4. Lift of each country's share of located volcano articles, January 2023 – July 2026 (red = over-represented, blue = under-represented, grey = fewer than 100 articles). India is drawn with its official outline.

Within the United States (Table 3, Figure 5), volcano coverage concentrates in the states with active volcanoes. Of 2,312 located American volcano articles, Hawaii holds 31.83%, 105.6 times its share of American news. Alaska (26.84), Oregon (3.94) and Washington (1.75) follow, all states of the Pacific volcanic arc. New York (0.57) is the most under-represented state with at least 50 articles. Texas (0.95), Florida (1.0) and California (1.07) sit close to parity. Only nine states pass 50 articles. Texas and Kentucky stood out in an earlier build because ordinary words were read as towns there; with those tags treated as unlocated, neither does.

State, highest lift	Articles	Lift	State, lowest lift	Articles	Lift
Hawaii	736	105.6	New York	153	0.57
Alaska	126	26.84	Texas	130	0.95
Oregon	91	3.94	Florida	125	1.0
Washington	106	1.75	California	247	1.07
Colorado	61	1.36			

Table 3. US states with the highest and lowest lift in volcano coverage, January 2023 – July 2026, states with at least 50 articles. Lift = the state's share of located US volcano articles ÷ its share of all located US news.

Volcanoes: states of United States by lift

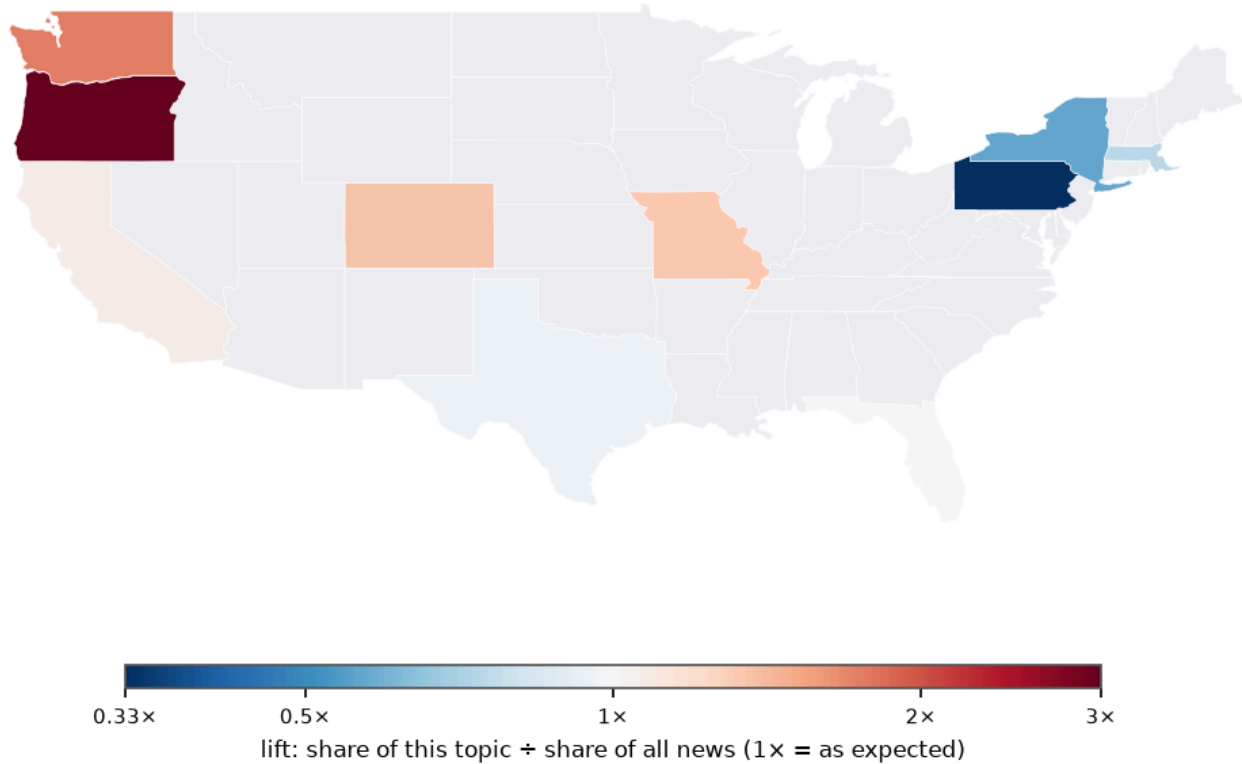


Figure 5. Lift of each US state's share of located volcano articles against its share of all located US news, January 2023 – July 2026.

India has too few located volcano articles for a state analysis. Only 267 carry a state, and only Delhi (121) passes 50 articles. No India state map is drawn for this topic.

Attention also moves between countries from year to year (Table 4, Figure 6, right). Measured as volcano articles per 10,000 of each country's located news, Iceland stood at 271.92 in 2023 and 288.79 in 2024, and fell to 63.05 in 2025. The Philippines fell from 95.7 to 26.86 and Mexico from 43.76 to 8.49 over the same years. Guatemala rose from 194.52 to 486.01, and India from 0.37 to 1.55, the latter from a very small base. Tone, measured against each country's own news, is most negative relative to baseline in Indonesia (90.9% negative against 32.8%), Iceland (82.9% against 33.5%) and the Philippines (87.1% against 39.4%). Among the ten countries with a tone baseline, the United States shows the smallest gap (45.1% against 33.1%).

Country	2023	2024	2025	Negative %, volcano	Negative %, all news
Iceland	271.92	288.79	63.05	82.9	33.5
Guatemala	194.52	99.47	486.01	-	-
Indonesia	112.55	227.33	110.47	90.9	32.8
Philippines	95.7	36.17	26.86	87.1	39.4
Mexico	43.76	13.62	8.49	68.6	37.4
Italy	17.58	16.35	15.7	57.1	29.4
New Zealand	13.51	10.57	12.17	70.4	45.7
Japan	9.69	5.88	9.63	55.8	23.3
Russia	7.7	6.14	6.65	-	-
United States	1.58	1.47	1.4	45.1	33.1
India	0.37	0.32	1.55	67.9	41.2

Table 4. Volcano articles per 10,000 of each country's located news, 2023–2025, and the negative share of volcano articles against that country's news overall (January 2023 – July 2026). A dash marks a country outside the ten with a tone baseline.

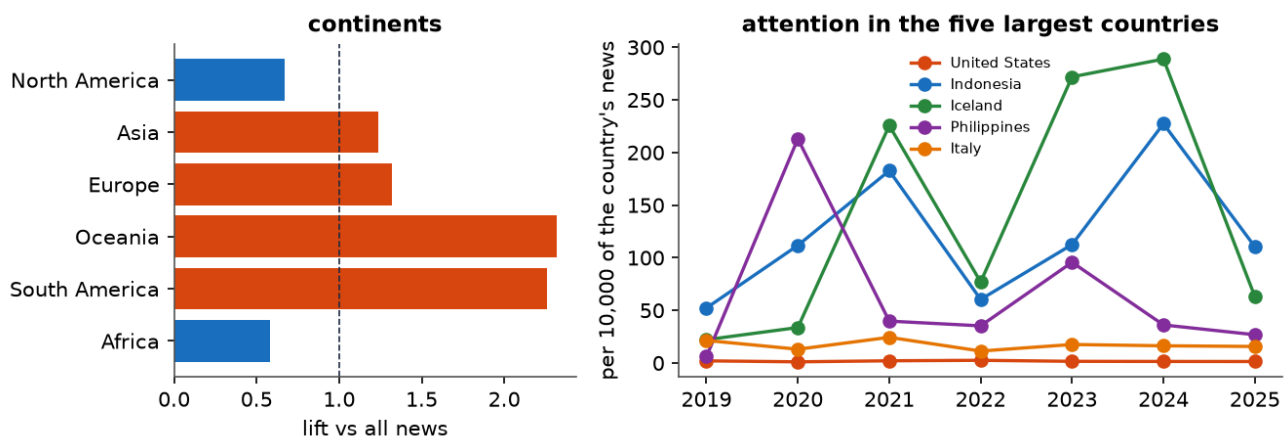


Figure 6. Left: lift by continent, January 2023 – July 2026. Right: volcano articles per 10,000 of each country's located news, 2019–2025, for the five countries with the most articles.

3.4 Tone, urgency and themes

Volcano coverage is more negative and more urgent than news in general (Figure 7). Among articles with a tone label, 57.8% are negative, against 33.6% across the index (1.72 times). The priority rating, a machine estimate of editorial urgency, puts 62.6% of volcano articles at critical level (7 or higher), against 42.6% of all news (1.47 times). A large minority of volcano stories are travel, science and space stories, which carry a positive tone.

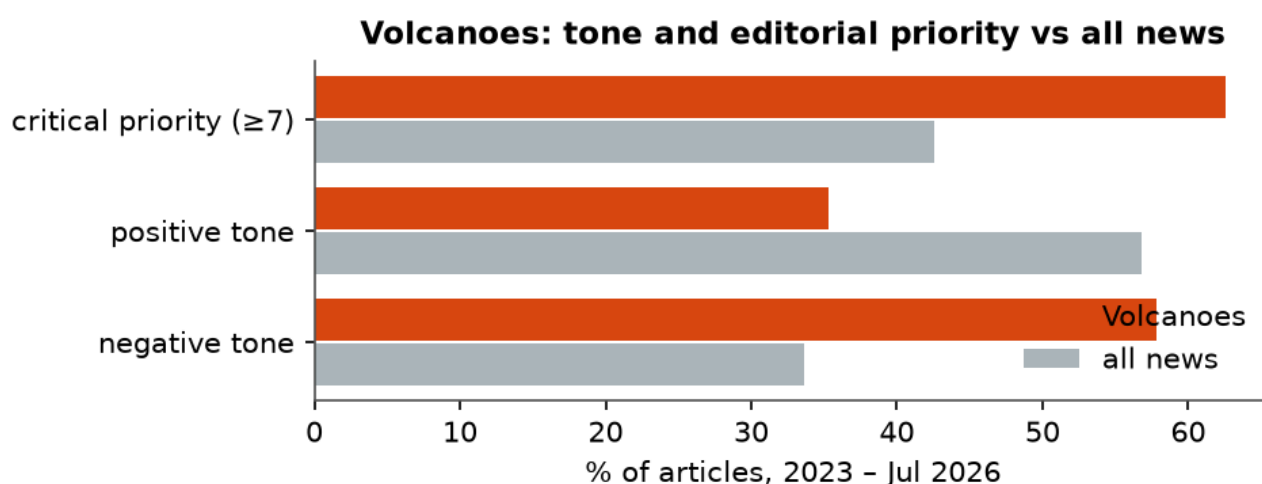


Figure 7. Tone and the share rated critical priority, volcano articles vs all news, 2023 – Jul 2026.

Themes show what volcano stories are about (Table 5). Eruption evacuation is the most common theme (51.16% of themed articles), followed by volcanic hazard assessment (26.3%). Magma dynamics, igneous rocks, geothermal energy and planetary geology are smaller but highly specific to the topic. Aviation themes recur: aviation environmental regulation appears in 1.68% of themed volcano articles, 57.03 times its rate in all news. Themes do not say whether flights were disrupted.

Theme	Articles	Share %	Lift
volcanic eruption evacuation strategies	7,867	51.16	1442.9
volcanology and volcanic hazard assessment	4,045	26.3	1981.17
igneous rock formation and classification	891	5.79	1171.08
magma chamber dynamics and crystallization	832	5.41	2000.84
tsunami early warning system effectiveness	656	4.27	72.74
geothermal energy systems and exploration	488	3.17	1248.83
planetary geology and extraterrestrial materials	261	1.7	296.85
aviation environmental regulations	258	1.68	57.03

Table 5. Leading themes in volcano coverage, with lift against all themed news, January 2023 – July 2026.

The organisations named most often include monitoring agencies, led by the US Geological Survey (674 articles) and the Philippine Institute of Volcanology and Seismology (466), alongside news agencies and broadcasters. The list also holds tagging errors, so it is not analysed further.

3.5 Research attention and invention

Research on volcanoes did not keep pace with the scientific literature. Papers with volcano terms in the title fell from 3.21 per 10,000 papers in 2019 to 2.02 in 2025, and from 2.96 in 2015, a 31.8% fall in share over 2015–2025. In absolute terms, 2,074 such papers appeared in 2015 and 1,419 in 2025. Between 2015 and 2025, 19,403 papers were published in all. The most-cited include work on the climate forcing of eruptions over the past 2,500 years [1], the 2018 eruption of Kīlauea [2] and volcanic triggers of the Little Ice Age [3]. Others study ash dispersion from the 2010 Eyjafjallajökull eruption [4, 5], the 2010 Merapi eruption [6], the impacts of ash on infrastructure [7] and what controls explosive and effusive eruption styles [8].

News attention does not track research attention (Figure 8). Research share drifted down from 2019, while news share jumped in 2021 and has fallen since 2023.

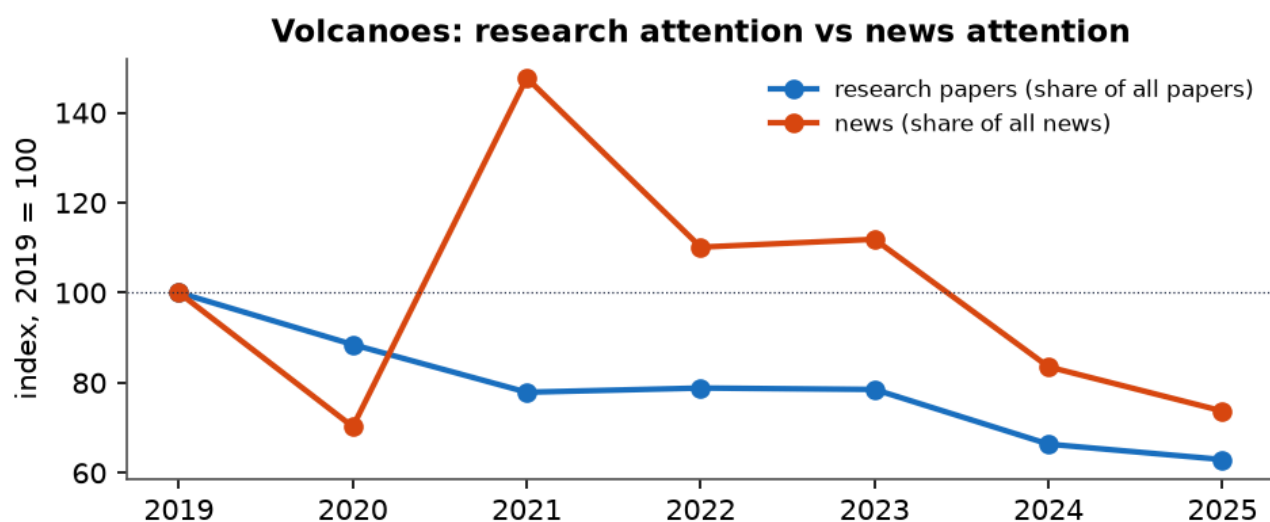


Figure 8. Research papers with volcano terms in the title (share of all papers) and volcano news (share of all news), each indexed to 2019 = 100.

The patent side is small: 322 volcano-related patent families were published between 2015 and 2024, between 18 and 46 a year (Figure 9). Counted once per filing office, China's office holds 79.9% of filings, followed by the United States (5.9%), South Korea (4.0%) and Japan (4.0%). The leading technology class is cement and concrete materials (C04B, 40 families), followed by measurement and analysis (G01N, 11). Patents are therefore a weak signal for this topic.

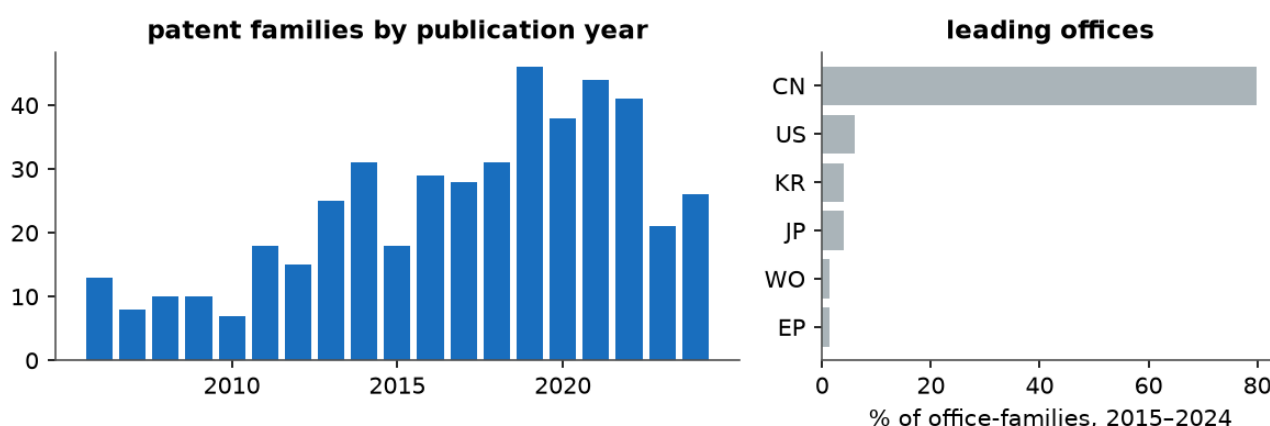


Figure 9. Volcano-related patent families by publication year (left) and the leading filing offices, 2015-2024 (right).

4. Discussion

Three points matter for anyone who uses news as a record of volcanic activity. First, coverage is made of events. The largest months coincide with a handful of eruptions (Whakaari, Taal, Cumbre Vieja, Hunga Tonga-Hunga Ha'apai and the Reykjanes eruptions), and the month profile reflects when they happened. A seven-year record is too short to show any cycle. Second, raw shares mislead. The United States leads volcano news in raw terms but is under-represented relative to its weight in the index, while small volcanic states such as Tonga, Guatemala and Iceland devote a far larger share of their news to volcanoes. Third, keyword searches return noise that must be removed, here mainly translation residue and figurative language.

Research, invention and news run on different clocks. Research share drifts slowly down. Patenting is small and concentrated in one office, and its leading class is building materials.

News follows the large eruptions. The dataset lets researchers link the three, for example to test whether eruptions with heavy coverage are followed by research activity on the same volcano.

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 the article opening. Articles that mention volcanoes only later are missed, and 7.5% of matches in the hand check were not about volcanoes. Planetary volcanism and travel stories are included.
- **Machine labels.** Location, tone, priority and themes are machine-labelled. The city field is noisy and is not analysed.
- **Place tags from ordinary words.** Place tags derived from ordinary words (such as "Earth", "Winter" or "Hurricane") were treated as unlocated, which removed 15.3% of city-tagged articles; some genuine places that share a name with an ordinary word are lost, and some remaining tags may still be wrong.
- **Outlet mix.** The index over-represents English-language outlets and has few African outlets. This shapes the geography.
- **Research and patent counts.** These match titles only. Conference abstracts are included among papers. The patent counts are small and dominated by one office.

Data availability

The dataset (article sample, monthly, country and state tables, research and patent tables, all metrics) is released under CC BY-NC 4.0 with this paper. The sample holds 12,064 of 47,974 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 "volcano" -since 2019-01-01 --until 2026-07-31 --granularity monthly`.

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