Fact-Checked Science

EVIDENCE REVIEW · S0 NEWS RESEARCH NOTE

S0's Halloween-storm note: four blasts after a moderate storm are about what chance gives

S0 News's research note 005 counts four transformer and fuse-box explosions logged after note 003 froze its data [1 ¶2], all one to three days after NOAA's G2 and G1 storm days of October 31 and November 1, 2026 [1 ¶3], and says note 003's result "stands emboldened, if anything" [1 ¶4]. The storm dates are right [5], but note 003's data run to November 3, not October 30, so the storm already sits inside them, among storms that note 003's own numbers show doing nothing measurable (our analysis) [2 Methods, Inventory][3]. Two of the four events are confirmed in news reports; we found no report of the other two [7][8]. About 3 days in 10 of 2024–2026 fall one to three days after such a storm [4][5], and four events dated just after one all land in that window about 1 time in 3 to 1 in 10 by chance (our analysis) [3 events].

By Fact-Checked Science · Published November 7, 2026

OUR ANALYSIS marks our own reasoning and calculations: our reading of note 003's data, the storm records side by side, the time-zone conversions, the share of days that follow a storm, the test of the next four explosions dated after a cut-off, and our recomputation of note 003's dose rows. "Exploratory" marks a check added after we had seen the results. The verdicts are our assessment. Everything else comes from the numbered sources. Note 005 [1] has no section names, so its locators are its paragraphs, ¶1 to ¶4; note 003's [2] are its own section names.

The dates fit the storm, but chance often gives such dates, and the storm was already in note 003's data

OUR ASSESSMENT

3 in 10

of the days in 2024–2026 fall one to three days after a day of Kp 5 or more: 29% on GFZ's index, 32% on NOAA's, and 38–40% counting Kp 5− (our analysis) [4][5]

1.06×

note 003's own ratio of explosions, observed to expected, on days 1–3 after storms of Kp 5 or more; this storm is one of the 609 behind it (95% interval 0.95–1.18; our recomputation) [3 daily]

5

explosions dated November 1–3, the storm's days 1–3, already in note 003's frozen data, before note 005's four are counted [3 events]

THE NOTE'S CLAIMS

FALSE

"Note 003 froze the Power-only Electrical Explosions dataset on October 30, 2026."

The note's first paragraph [1 ¶1]

Note 003 says it was "Frozen at 1,677 rows on 3 Nov 2026" [2 Methods, Inventory], its manifest gives its data "as of 3 Nov 2026" [3 manifest], and its daily table runs to November 3 [3 daily]. Five of its rows are dated after October 30, on November 1–3, and 38 carry a "Catch-up" note: 34 read "Catch-up 2026-11-03", and 4 are cut short (our analysis) [3 events]. We can't see the Google Doc's edit history, and no public file shows a freeze on October 30. Either way, the storm and its days 1–3 lie inside note 003's own data. See section 2.

UNVERIFIED

"four more transformer and fuse-box blast events have been logged on the live sheet"

The note's second paragraph, which names El Espinal, Mahuabari/Usiya, Olkhan Ka Bas and El Vedado [1 ¶2]

None of the four is among note 003's 1,677 rows, and the live sheet isn't public (our analysis) [3 events]. Two are confirmed in news reports at the stated place, on the stated date or the night before: two transformers exploded at El Espinal, on Margarita Island, on November 3 [7], and one at El Vedado, Havana, during the night before a report on the morning of November 4 [8]. We couldn't find a report of the two events in India; that doesn't show they didn't happen. See section 4.

TRUE

"Every one of those four event dates falls one to three calendar days after NOAA-observed geomagnetic storming: a G2 storm on October 31 and a G1 storm on November 1."

The note's third paragraph [1 ¶3]

NOAA issued a K-index 6 alert, G2, at 19:14 UT on October 31 and a K-index 5 alert, G1, at 01:17 UT on November 1 [5], and November 2, 3 and 4 fall one to three days after them. Converting the reports' local times [7][8] to UT, with Cuba on daylight time [9], changes nothing (our analysis). Such days are common, though: in 2024–2026, 29–40% of all days fall one to three days after a G1 day (our analysis) [4][5]. See sections 3 and 5.

TRUE

"There was no G3-class storm in this short post-freeze window, so this page is an inventory companion, not a new lag analysis"

The note's fourth paragraph [1 ¶4]

Right, and fairly said. Kp peaked at 6− on GFZ's index [4] and 6.00 on NOAA's [5], short of G3 at Kp 7 [6], and the note makes no count against a baseline, as that paragraph says [1 ¶4]. See section 3.

MISLEADING

"the main result in note 003 ... stands emboldened, if anything, by this event immediately following the data freeze"

The note's fourth paragraph [1 ¶4]

The storm dates and the four events are as the note says, but the storm came before note 003's freeze, not after it, and storms of its size are flat in note 003's own table [2 Claims 4][3 thresholds]. The storm is one of the 609 behind that table's ratio of 1.06 for Kp 5 or more (our analysis) [3 daily]. Note 005 restates note 003's result for "a solar storm" [1 ¶4], but note 003's own numbers put the effect in storms of Kp 7− or more [2 Claims 4]. And four events dated just after a storm all land one to three days after it about 1 time in 3 to 1 in 10 by chance (our analysis) [3 events]. Note 003's main result is checked on our page on that note. See sections 2, 5 and 6.

1 · WHAT THE NOTE SAYS

Four explosions after a Halloween storm, offered as a companion to note 003

S0 News's research note 005 is four sentences under its title, credited to an "internal GrokBot Team 005" [1 Credit]. It builds on note 003, which reports that electrical explosions are more likely one to three days after strong solar storms and is checked on our page on that note [2 Claims 1]. S0 News published both as Google Docs, and the title of its episode of November 7, 2026 names this note's subject [13].

What the note reports

That note 003 froze its data on October 30 [1 ¶1]. That four more "transformer and fuse-box blast events" have since been logged on S0 News's "live sheet": at El Espinal on Margarita Island, Venezuela, on November 3; at Mahuabari/Usiya in Ghazipur and Olkhan Ka Bas in Jhunjhunu, India, on November 2; and at El Vedado, Havana, Cuba, on November 4 [1 ¶2]. That all four fall one to three days after NOAA's G2 storm of October 31 and G1 storm of November 1 [1 ¶3]. And that note 003's result "stands emboldened, if anything" [1 ¶4].

What it doesn't claim

It makes no count against a baseline, and says so: with no G3 storm, it is "an inventory companion, not a new lag analysis" [1 ¶4]. That is a fair caveat, and this page takes the note at its word. What we ask is whether four events can bear the weight its last sentence puts on them. The live sheet isn't public, and neither note links to it [1][2].

2 · THE FREEZE

Note 003's data run to November 3, so the storm is already in them

Note 005 dates note 003's freeze to October 30 [1 ¶1]. Note 003 itself [2 Methods, Inventory], its manifest [3 manifest] and its daily table [3 daily] all run to November 3.

In note 003's words

> *"Frozen at 1,677 rows on 3 Nov 2026, dates 17 Jan 1999 – 3 Nov 2026"*
>
> Note 003 [2 Methods, Inventory]

> *"Inventory as of 3 Nov 2026 (1,677 rows); Kp through 3 Nov 2026."*
>
> Note 003 [2 Data freeze]

> *"Data as of 3 Nov 2026"*
>
> Note 003's manifest [3 manifest]

The last six rows of note 003's data, October 30 to November 3, 2026

DATE (UT)	PLACE	WHAT EXPLODED, AS THE ROW DESCRIBES IT	DATE GRADE
October 30	Izmit, Turkey	a distribution transformer	Confirmed
November 1	**Pančevo, Serbia**	**a transformer station**	**Estimated**
November 1	**Monterrey, Mexico**	**a transformer at a firm, during maintenance**	**Confirmed**
November 2	**Ciudad Ojeda, Zulia, Venezuela**	**a substation**	**Confirmed**
November 2	**Ayacucho, Buenos Aires province, Argentina**	**a street transformer**	**Confirmed**
November 3	**Davanagere, Karnataka, India**	**a roadside distribution transformer**	**Estimated**

Our summary of the rows in note 003's EE_events.csv, by place and date [3 events]; the five dated November 1–3, the storm's days 1–3, are in bold. None of note 005's four is among the 1,677 rows: we searched every row for the four places (our analysis).

Rows were still being added on the freeze day. 38 rows carry a "Catch-up" note: 34 read "Catch-up 2026-11-03", and 4 are cut short; they are dated from December 2019 to October 29, 2026 (our analysis) [3 events]. The rows dated October 27 to November 3 sit together in a block appended to the sheet after its main, date-ordered part. No column records when a row was logged, and our check of note 003 found the same two traces, the catch-up notes and the sheet's order (our page on that note).

OUR ANALYSIS

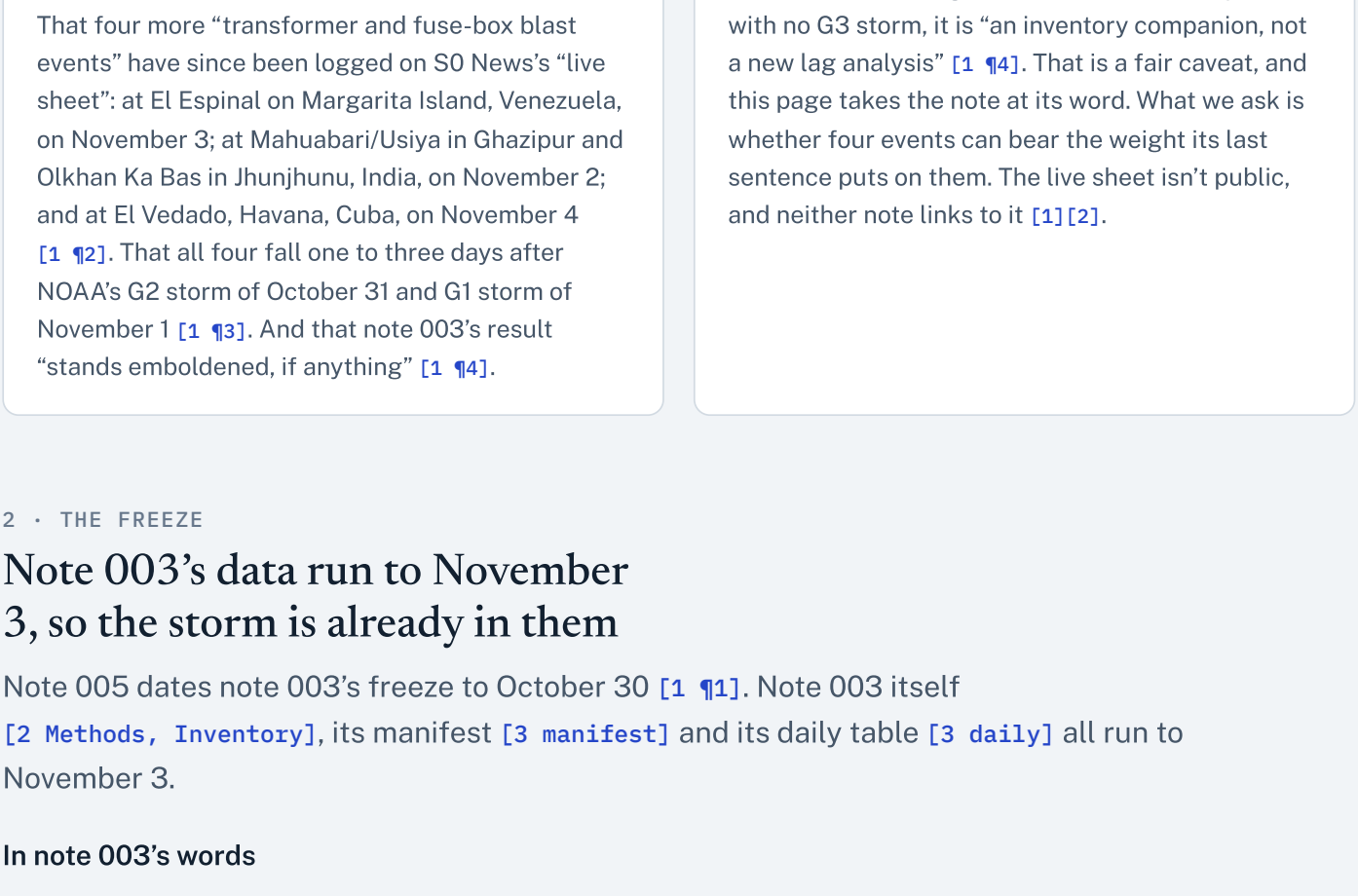
So the storm is inside note 003. We can't see the Google Doc's edit history, and no public file shows a freeze on October 30. Either way, the storm of October 31 and its days 1–3, November 1–3, lie inside note 003's own data. By note 003's own rule for storm episodes, October 31 and November 1 make one storm of Kp 5 or more, dated from its peak on October 31 [2 Methods, Storms]. Its days 1–3 hold the five explosions in bold above, against 1.69 expected, and it is one of the 609 storms behind note 003's ratio of 1.06 at that level (section 6) [3 daily]. Note 003's own threshold table shows it: its row for Kp 5o, 609 storms with 320 explosions against 301.6 expected, reproduces only with this storm included; without it, the row would be 608 storms, 315 against 299.9 [3 thresholds]. So the G1 ratio of 1.06 that note 003 publishes already counts this storm. The Drive folder dates daily_ee_kp.csv to November 3 and EE_events.csv to November 6; no file is dated October 30 [3]. Note 005's four come on top, from the live sheet.

3 · THE STORM

G2 on NOAA's record for three hours; below note 003's storm lines on GFZ's

The storm of October 31, 2026 was G2 on NOAA's record (estimated Kp 6.00, 18–21 UT) [5]; Kp 6− on GFZ's [4], the index note 003 uses, below note 003's own G2 line (6o) and both its storm thresholds [2 Methods, Storms]. GFZ's values for these days are still preliminary [4].

Kp every three hours, October 28 to November 6, 2026, with the explosions dated in those days



Kp, three-hourly, by UT day; hover over a bar or a dot for its value or its place

Our chart of public data: GFZ's three-hourly Kp, preliminary [4], and NOAA's estimated planetary Kp [5]. The lines are NOAA's G1, G2 and G3 at Kp 5, 6 and 7 [6], and note 003's storm lines, A at Kp 7− and B at Kp 6 [2 Methods, Storms]. The dots mark explosions by the UT date their source gives, in note 003's data [3 events] and in note 005 [1 ¶2]; El Vedado's is November 3 or 4 in UT (section 4).

Day by day, on both indices

UT DAY	GFZ, HIGHEST KP	NOAA, HIGHEST ESTIMATED KP	NOAA ALERT
October 30	4+ (4.333), 21–24 UT	4.33, 21–24 UT	K-index of 4, at 22:35 UT
October 31	**6− (5.667), 18–21 UT**	**6.00, 18–21 UT**	**K-index of 5 (G1) at 19:07 UT; K-index of 6 (G2) at 19:14 UT**
November 1	**5o (5.000), 0–3 UT**	**4.67, 0–3 UT**	**K-index of 5 (G1), at 01:17 UT**
November 2–6	3+ or less	3.33 or less	None; G1 watches, which are forecasts, issued on November 4 and 5 for November 6–8

GFZ's Kp [4]; NOAA's alerts and estimated Kp [5]. An alert says a threshold was reached; a watch is a forecast.

Kp runs in thirds, so GFZ's 5.667 is written 6−, a third below 6, not 5+. Labels differ too. Note 003 counts Kp 7− as G3 for its main storm line, line A, but labels its G2 row "Kp>=6o (G2)" and draws its second line, B, at Kp 6 [2 Methods, Storms][3 thresholds]. So on note 003's threshold-table labels (G2 at 6o) October 31 was a G1 day, though by its line-A convention (7− counted as G3) 6− would be G2; either way, neither day reached line A or line B (our analysis) [4]. NOAA's alerts are triggered by its running real-time estimate, which crossed K = 5 at 01:17 UT on November 1, though its final three-hourly estimate for 0–3 UT was 4.67; GFZ gave 5o [5][4].

OCTOBER 31, 2026, ON GFZ'S KP

6−

the storm's highest three-hourly Kp, with a daily Ap of 22; both preliminary [4]

OCTOBER 29–30, 2003, ON GFZ'S KP

9o

the top of the scale, reached in the Halloween storms of 2003, with a daily Ap of 204 and 191, about nine times this storm's [4]

Ap is GFZ's daily amplitude derived from Kp; times 2 nT, it gives the average disturbance at 50° geomagnetic latitude [4].

4 · THE FOUR EVENTS

Two of the four confirmed in news reports; two we couldn't find

We searched for news of each event in Spanish, English and Hindi, and read the reports we found [7][8]. Note 003 counts days in UT, so the time of day matters as well as the date (our analysis).

El Espinal, Margarita Island, Venezuela · November 3

On calle Bella Vista, in the El Espinal sector of Díaz municipality, the two remaining transformers serving the street "colapsaron y detonaron de manera consecutiva" on Tuesday, November 3, leaving dozens of families and shops without power. The chain had begun days earlier, when a first unit exploded and wasn't replaced; after the second blast, the utility's crew took out the protective cut-out on the poles and left. The report gives no cause [7].

El Vedado, Havana, Cuba · November 4

A transformer at the corner of calles J and Novena detonated "durante la noche", cutting power to homes that still had it and to blocks already under scheduled cuts, and sending residents outside for fear of fire. The utility had given no cause; the report sets the failure in the grid's chronic instability and worn distribution networks. It was published at 12:33 UT on November 4 by CubitaNOW, a Cuba-focused news site, and draws on residents' posts on social media [8].

Mahuabari/Usiya, Ghazipur, and Olkhan Ka Bas, Jhunjhunu, India · November 2

We couldn't find a report of either event, after 11 searches for the first and 8 for the second, in English and Hindi. For Usiya, spelled Usia in the one report we found, there was only an older event in the same village [11]. Not finding a report doesn't show that an event didn't happen, and the live sheet, which would show the source S0 News used, isn't public (our analysis).

Local time and UT

EVENT	WHEN, AS REPORTED	OFFSET	UT DATE	DAYS AFTER OCTOBER 31 · NOVEMBER 1
El Espinal	Tuesday, November 3, before the report at 10:59 local [7]	UT−4	November 3	3 · 2
El Vedado	the night before the report at 08:33 local on November 4 [8]	UT−4, as Cuba kept daylight time [9][10]	November 3 or 4	3 or 4 · 2 or 3
Ghazipur, Jhunjhunu	November 2, as the note dates them; no report found [1 ¶2]	UT+5:30	November 1 or 2	1 or 2 · 0 or 1

Our analysis. Every possible UT date falls one to three days after October 31 or November 1, so note 005's count holds in UT. By note 003's own episode rule, though, which dates the days from the storm's peak on October 31 [2 Methods, Storms], November 4 would be day 4.

CONFIRMED · OUR ANALYSIS

2 of 4

events we could confirm in news reports, at the stated place, on the stated date or the night before; both were street distribution transformers [7][8]

GEOMAGNETIC LATITUDE · OUR ANALYSIS

17–32°

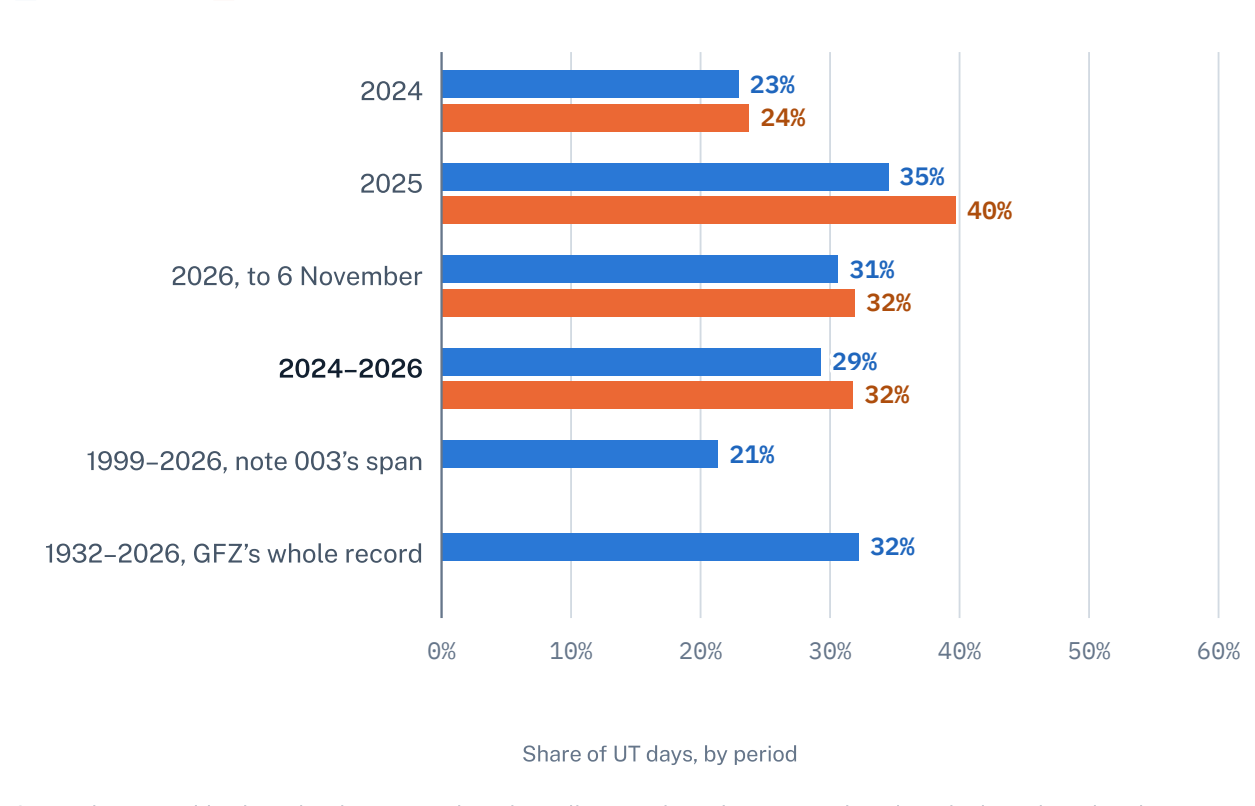
the dipole geomagnetic latitudes of the four places, from IGRF-14; Quebec, for scale, lies at 56° [12]

5 · CHANCE

Four events dated just after a storm all land in its window about 1 time in 3 to 1 in 10

How surprising is it that all four fall one to three days after a storm? That depends on how often such days come round, and on how the four came to be counted together. We fixed the tests before computing them, on GFZ's and NOAA's Kp [4][5] and note 003's own rows [3 events] (our analysis).

Share of days that fall one to three days after a day of Kp 5 or more



Our analysis of public data: the share of UT days that fall one to three days after a day whose highest three-hourly Kp is 5 or more, on GFZ's Kp [4] and on NOAA's estimated Kp [5]. Counting Kp 5− as G1 adds 5 to 15 percentage points, as the table below shows.

Three ways to ask how likely it is that all four land in the window

THE QUESTION	BY CHANCE
Four dates drawn at random from all the days of 2024–2026	0.7–2.7%
The next four explosions dated after a cut-off day that is followed by a storm day, in note 003's data for 2024–2026	18–34%
Four dates, each equally likely to fall on any day from October 31 to November 4, 5 or 6	11–41%

Our analysis of note 003's rows [3 events] and of GFZ's and NOAA's Kp [4][5]. Row 1 asks how often four dates drawn at random from three years would all fall one to three days after a G1 day. Row 2 asks how often, in note 003's own rows, the four explosions dated just after a cut-off that a storm follows all land in the window; the closest variant we registered, cut-offs followed by a day of Kp 6− to 6+ with no G3, gives 11–33% (36 cut-offs). Row 3 asks how often four dates drawn at random from the note's own post-freeze days all land in its window. Note 005 gives only the start of that span, its freeze date; the end dates are our assumption, since the note is undated, and ending the span on November 7, the day we read the note, would give 6%. Rows 1 and 2 range over GFZ's and NOAA's Kp at 5o and 5−; row 3, whose window is the note's own, over its end dates. In row 2, cut-off days next to each other share events, so the count isn't of independent cases. At the 2024–2026 rate of 0.42 dated explosions a day, the fourth comes a median nine days after the cut-off; near 0.8 a day, the rate in late October 2026, the window fills more easily still.

OUR ANALYSIS

Why the first number doesn't apply. The four events weren't drawn at random from three years. They are events logged in the few days after the note's freeze date [1 ¶2], and almost every one of those days falls one to three days after October 31 or November 1. Note 003's own rows show it: after the cut-off of October 30, its next four explosions by date, on November 1 and 2, all fall in the window too [3 events]. So chance alone puts all four in the window roughly 1 time in 3 to 1 in 10, and the coincidence tells us next to nothing about storms.

6 · NOTE 003'S OWN NUMBERS

Note 003's own rows show storms of this size flat

Note 003 puts storms of Kp 5 or more at 1.06 and of Kp 6 or more at 1.07 [3 thresholds], and calls days 1–3 after them "essentially flat" [2 Claims 4][2 Headline values]. Its main result is about stronger storms, of Kp 7− or more, and is checked on our page on that note.

Explosions on days 1–3 after storms, by their highest Kp: our recomputation from note 003's daily table

STORMS	NUMBER	OBSERVED VS EXPECTED	RATIO (95% INTERVAL)	WITH THIS STORM?
Kp 5o or more, note 003's "G1"	**609**	**320 vs 301.6**	**1.06 (0.95–1.18)**	**yes; 1.05 without it**
Kp 6o or more, note 003's "G2"	240	126 vs 117.3	1.07 (0.90–1.28)	no
Kp 7− or more, note 003's main line	127	77 vs 62.5	1.23 (0.97–1.54)	no
Peak from 5o to below 6o, of storms of 5o or more	376	197 vs 187.0	1.05 (0.91–1.21)	yes; 1.04 without it
Peak from 6o to below 7−, of storms of 5o or more	109	48 vs 53.7	0.89 (0.66–1.19)	no
Peak from 6− to below 7−, of storms of 5− or more, counting 6− as G2	196	101 vs 100.4	1.01 (0.82–1.22)	yes; 0.97 without it

Our recomputation from note 003's daily table, by its own episode rule: a storm is a run of days at or above the threshold, dated from its peak, and observed and expected explosions are summed over the three days after the peak [2 Methods, Storms][3 daily]. Every row that note 003's threshold table also gives matches it exactly [3 thresholds]. The intervals are ours, exact Poisson intervals on the observed count; for this row, note 003 gives an adjusted rate ratio of 1.28 (1.01–1.62), from a model adjusted for year, month and weekday [2 Headline values].

OUR ANALYSIS

What this means for "emboldened". On note 003's own numbers, storms like this one are followed by about as many explosions as other days, and this storm is already counted among them. A storm of a size that note 003's own table finds "essentially flat" can't add weight to a result about storms of Kp 7− or more. If it were followed by a real excess, that would sit badly with note 003's own table rather than support it.

A busy few days in the log

Note 003's data and note 005's list together date nine explosions to November 1–4, against about three expected at October's logged rate of 0.77 a day (our analysis) [3 daily][1 ¶2]. That count is descriptive only: it can't be told apart from the rise in logging effort around the freeze. The catch-up notes are dated November 3, the rows dated from October 27 sit in a block appended to the sheet, and the logged rate rose from 0.39 a day in 2024 and 2025 to 0.80 in the 30 days to October 30 [3 events]. And note 005's four were logged after the storm; we can't see how they were found. The rows record the explosions that someone found and logged, not all that happened.

Exploratory, added after we had seen the results: note 003's last storm of Kp 7− or more before the freeze, on October 10, 2026 (Kp 7+), was followed by one logged explosion on days 1–3, against 1.6 expected [3 daily][4]. Single storms say little either way.

7 · THROUGH THE CATASTROPHISM LENS

No sign here of small storms quietly breaking the grid

Could solar storms be quietly breaking grid equipment for days afterwards? These four events give the idea no support (our analysis).

In NOAA's scale What each level of geomagnetic storm can do to power systems.

> *"Weak power grid fluctuations can occur."*
>
> G1, Minor, at Kp 5 [6]

> *"High-latitude power systems may experience voltage alarms, long-duration storms may cause transformer damage."*
>
> G2, Moderate, at Kp 6 [6]

> *"Transformers may experience damage."*
>
> G5, Extreme, at Kp 9 [6]

OUR ANALYSIS

The storm of October 31 was a short G2: Kp 6 for one three-hour interval on NOAA's index, and NOAA's own G2 alert put its "Area of impact primarily poleward of 55 degrees Geomagnetic Latitude" [5]. The four places lie at dipole geomagnetic latitudes of 17–32°, far from the high latitudes where NOAA expects a G2 to trouble power systems [6][12]. Both confirmed failures are street distribution transformers. In Havana the report itself points to a grid in chronic trouble [8], and Cuba kept daylight time this November to reduce the impact of its electricity generation deficit [9]; on Margarita Island the chain began with a unit that had failed days earlier and wasn't replaced [7]. Where storms do damage grid equipment, and which equipment, is covered on our page on note 003 and our page on solar worst cases. The risk from rare, severe storms is real; nothing in these four events points to hidden damage from a moderate one.

8 · LIMITS

What this check can and can't say

The verdicts rest on note 003's own data and on public storm records, and on what news reports we could find (our analysis).

The live sheet

Note 005's events come from S0 News's live sheet, which isn't public [1 ¶2]. We can't see when they were logged, how they were found, or whether others were logged with them.

Logging effort

Note 003's rows record explosions that were found and logged, and the logging varies over time. Our test of the next four explosions dated after a cut-off uses note 003's frozen rows as a stand-in for the live sheet [3 events].

One storm

This is one moderate storm. Nothing here tests note 003's result about strong storms, which is checked on our page on that note.

Two events unconfirmed

We found no report of the two events in India, so their places, dates and kinds are as the note gives them, unverified.

Preliminary Kp

GFZ's Kp for these days is preliminary [4]. If October 31 became 6o, it would just reach note 003's line B and its G2 row, which are flat (1.07, and 0.89 counted by peak); if November 1 became 5−, November 4 would fall outside the window on GFZ's Kp 5o line. No verdict depends on it.

What would change these verdicts

01 A public, dated record showing that note 003 was frozen on October 30, which would change the first verdict.

02 Reports of the two events in India, or the live sheet made public with its entries, which would settle the second.

03 A record in which storms of this size, Kp 5 to 6−, are followed by a clear excess of explosions on days 1–3, which would give this storm some weight and change the fifth.

What would test note 003's own result is different: a storm of Kp 7− or more after November 3, 2026, followed by an excess of explosions on days 1–3, the first test note 003 sets for itself [2 What would prove this wrong].

9 · REPEAT OUR NUMBERS

The rules, the scripts and the derived numbers; the notes, their tables and the news stay with their sources

Every number of ours on this page comes from these files. The scripts fetch note 003's tables [3], GFZ's and NOAA's files [4][5], IGRF-14 and the time-zone database by URL under a plain client name. We host only numbers we derived and the text of SWPC's three alerts, and none of the news pages.

	FILES	DESCRIPTION
TXT	RULES_freeze.txt · RULES_storms.txt · RULES_events.txt	The rules of the freeze check, the storm check and the news search, hashed before any of them ran (the news rules before any search) · 2 KB, 3 KB and 3 KB
TXT	RULES_baserate.txt · RULES_baserate_amendment1.txt · RULES_baserate_amendment2.txt	The rules of the base rate and our recomputation of note 003's dose rows, with two amendments, each hashed before any number it governs existed · 4 KB, 1 KB and 1 KB
TXT	analysis_log.md · HASHES.txt	Our log, with the time and SHA-256 of every rules file, script and output, the one deviation and what was seen before the rules; and the checksums of every file here · 10 KB and 3 KB
PY	fetch_inputs.py	Fetches every input by URL under a plain client name, note 003's tables included, and says which files have changed since our run · 6 KB
PY	check_freeze.py · check_storms.py · swpc_alerts.py · look_recent.py	The freeze check against note 003's rows; GFZ's and NOAA's records for October 28 to November 6; the text of SWPC's three alerts; the first, exploratory look at note 003's latest rows · 6 KB, 6 KB, 2 KB and 1 KB
PY	baserate.py · amendment2.py · context_numbers.py	The share of days after storms, the three chance models, the logged rate and note 003's dose rows; the logging notes and exclusive tiers; the geomagnetic latitudes and GFZ's Kp and Ap for 2003 and 2026 · 12 KB, 5 KB and 3 KB
PY	charts.py · article_text.py	The two charts and the numbers behind them; the reader we used to pull the text out of the news pages, which are not hosted · 13 KB and 2 KB
TXT	freeze.txt · storms.txt · swpc_alerts_2026-10-31_to_11-01.txt	The outputs of the freeze check and the storm check, and the text of NOAA SWPC's alerts K05A and K06A of October 31 and K05A of November 1, 2026, a US government work · 3 KB, 8 KB and 3 KB
TXT	baserate.txt · amendment2.txt · context_numbers.txt	The outputs of the base rate, amendment 2 and the context numbers · 10 KB, 2 KB and 1 KB
CSV	kp_2026-10-28_to_11-06.csv · window_shares.csv	GFZ's and NOAA's three-hourly Kp for October 28 to November 6, 2026, behind the first chart; and the shares behind the second · 3 KB and 1 KB

Run it

In an empty folder `<base>`, `python3 -I fetch_inputs.py <base>` fetches every input, about 8 MB, and says which files have changed since November 7, 2026; SWPC's archive of alerts keeps only about a month. Then `check_freeze.py`, `check_storms.py`, `swpc_alerts.py`, `amendment2.py` and `context_numbers.py`, each with `<base>/downloads` and an output file, and `baserate.py` with `<base>/downloads` and an output folder, give the results listed here; `check_storms.py` takes the nowcast file once more, as a third argument, for comparison. `charts.py <base>/downloads <page folder>` redraws the two charts. Standard library only.

Related checks

PARTLY TRUE A "small" flare? The Disaster Cycle, Fact-Checked

Sources

Bracketed numbers refer to this list. S0 News's research note 005 [1] has no section names, so its locators are Title, Credit (the line under the title) and ¶1 to ¶4, its four paragraphs. For note 003 [2], locators are its own section names: Claims 1 to 5; Methods, with the paragraph's opening word; Headline values; What would prove this wrong; and Data freeze. For the data [3], the locator names the table: events is EE_events.csv, daily is daily_ee_kp.csv, thresholds is PipelineA_storm_threshold_table.csv, and manifest is MANIFEST.md. Kp, the planetary three-hour index, is written in thirds: 5− is 4.667, 5o is 5, 5+ is 5.333 and 6− is 5.667. UT is universal time; nT is the nanotesla. Links checked November 7, 2026.

1 S0 News (Space Weather News) (undated). Halloween 2026 Solar Storm and Four Electrical Explosions. "Space Weather News Research Note from internal GrokBot Team 005", a public Google Doc headed "SPACE WEATHER NEWS & RESEARCH PUBLICATIONS 2026". Undated. Read in full, as text and HTML exports retrieved on November 7, 2026; SHA-256 of our text export: 27e6821e1bed28dfc90e60213e0056fd54f84dd1f060e6be916cce3f0ddfd147. Not peer reviewed. No licence is stated, so we quote and link it and host nothing of it.

2 S0 News (Space Weather News) (undated). Electrical explosions are more likely 1–3 days after a solar storm. "Space Weather News Research Note from internal GrokBot Team 003", a public Google Doc; text export retrieved on November 7, 2026 (SHA-256 9550eb05c827429249a3de95b0a8d8975e4be4eb313a452d063b878db9ddb394). Checked in full on our page on that note; cited here for its freeze, its storm lines and its dose table. Not peer reviewed; no licence is stated.

3 S0 News (Space Weather News) (undated). Derived data for research note 003. Public Google Drive folder of 16 CSV tables, two of them identical copies of EE_events.csv, and two identical copies of MANIFEST.md. We downloaded eleven of the files on November 7, 2026, among them EE_events.csv (1,677 rows; SHA-256 b49acfd2…), daily_ee_kp.csv, PipelineA_storm_threshold_table.csv and MANIFEST.md. No licence is stated: our scripts fetch the tables by URL, and we host only numbers we derived.

4 Matzka, J., Stolle, C., Yamazaki, Y., Bronkalla, O., and Morschhauser, A. (2021). The geomagnetic Kp index and derived indices of geomagnetic activity. *Space Weather* 19, e2020SW002641. Data: Matzka, J., Bronkalla, O., Tornow, K., Elger, K., and Stolle, C. (2021). Geomagnetic Kp index, V. 1.0, GFZ Data Services, CC BY 4.0: the Kp and ap file since 1932 and the nowcast file, as of November 7, 2026. Values from October 1, 2026 on, including those for October 31 and November 1, are preliminary (flag D = 0). Counted by us.

5 NOAA Space Weather Prediction Center. Alerts, watches and warnings, from the archive file alerts.json as read on November 7, 2026: alerts K05A and K06A of October 31 and K05A of November 1, 2026, whose text is hosted with this page, as swpc_alerts_2026-10-31_to_11-01.txt, because the archive keeps only about a month. With the estimated planetary Kp of its planetary K-index product, from its daily geomagnetic data and the quarterly files for 2024–2026 in its FTP archive (ftp.swpc.noaa.gov, pub/indices/old_indices). US government work.

6 NOAA Space Weather Prediction Center (undated). NOAA Space Weather Scales, read on November 7, 2026: geomagnetic storms from G1 (Minor), at Kp = 5, to G5 (Extreme), at Kp = 9, with their effects on power systems. US government work.

7 Reporte Confidencial (November 3, 2026). Vecinos de El Espinal sin luz tras explosión de transformadores. News report, published at 10:59 local time (UT−4) and read on November 7, 2026. Quoted in a few words and paraphrased.

8 CubitaNOW (November 4, 2026). Explosión de transformador provoca pánico y nuevos cortes de electricidad en el Vedado. Report on a Cuba-focused news site, published at 12:33 UT and read on November 7, 2026 (its AMP version); it draws on residents' posts on social media. Quoted in a few words and paraphrased.

9 Portal Cuba (October 25, 2026). Cuba mantendrá horario de verano hasta noviembre de 2027. Government news portal, crediting Prensa Latina, read on November 7, 2026: daylight time is kept until November 7, 2027, to reduce the impact of the deficit in electricity generation.

10 IANA (2026). Time Zone Database, release 2026f, file northamerica: Cuba's rules, and the note of October 24, 2026 that daylight time stays in force until November 7, 2027. Public domain; read on November 7, 2026.

11 Transformer Magazine (March 11, 2025). Four injured in transformer explosion in India. Read on November 7, 2026; it reports an older event in Usia village, Ghazipur district, citing the Times of India.

12 IAGA Working Group V-MOD (2024). International Geomagnetic Reference Field, 14th generation (IGRF-14). Data file, NOAA National Centers for Environmental Information, retrieved on November 7, 2026, the same file, by its SHA-256, as on our page on note 002. We use its dipole terms, carried to late 2026, for geomagnetic latitudes.

13 SpaceWeatherNews (S0) (November 7, 2026). Solar Storm Electrical Explosions, Betelgeuse's Baby | S0 News Nov.7.2026. YouTube video, https://www.youtube.com/watch?v=WXp-m52Qftc, published at 12:50 UT. No transcript was available, so nothing said in the episode is rated here.

METHOD

How this was checked

On November 7, 2026, we checked every sentence of S0 News's research note 005, its title and its four paragraphs, against note 003, its manifest and its data tables [2][3]; against the storm records of GFZ [4] and NOAA [5]; and, for the four events, against news reports in Spanish, English and Hindi, of which we found two [7][8]. Every other statement on this page was checked against its source, 148 references to 13 sources in all.

The verdicts and the items tagged "Our analysis" are our own assessment, built on the cited sources: our reading of note 003's data and logging notes, the storm records side by side, the time-zone conversions, the share of days that follow a storm, the test of the next four explosions dated after a cut-off, our recomputation of note 003's dose rows, and our reading of what the note does and doesn't show. The aside on the storm of October 10, 2026 is exploratory, added after we had seen the results.

We wrote the rules of each check and hashed them before running it: the freeze, the storms, the news search (before any search) and the base rate, with two amendments, one after reading note 003's own threshold table and one after our check of note 003 passed on its numbers, each before our own numbers existed. Before the rules we had seen note 003's daily counts and Kp for October 19 to November 3 and its rows dated from October 20. One rule assumed Havana went back to UT−5 on November 1; Cuba had kept daylight time, so we corrected the conversion, which changes nothing. Note 003's dose rows reproduce exactly from its daily table, and every share was computed from GFZ's and NOAA's files. Not verified: the live sheet, which isn't public; the two events in India; when El Espinal's first transformer exploded; and GFZ's definitive Kp for October 31 and November 1, not yet issued.

After the page was built, a fresh reviewer who hadn't seen the drafting recomputed every number in separate code, and our hosted scripts gave identical outputs. The changes that followed: the fifth verdict's reason now says that the storm came before note 003's freeze, not after it; note 003's 1.01–1.62 is given as the interval of its adjusted ratio of 1.28, not of 1.23; GFZ's Kp is called preliminary only from October 1; the chance models are relabelled, with what each asks, the registered variant closest to this storm, and their end dates marked as our assumption; the busy log of November 1–4 is said to be impossible to tell apart from the rise in logging effort, with no claim about who found the four; El Vedado's date is called consistent, not confirmed; the storm is compared with 2003 on GFZ's Kp and Ap instead of Kyoto's real-time Dst, whose rules ask users to contact the data centre before publishing it; the text of SWPC's three alerts is now hosted; and about twenty smaller fixes.

This page was researched and written with Claude, an AI assistant made by Anthropic, and then re-checked against its sources in a separate verification pass.

The verdicts on this page

FALSE	The evidence contradicts the claim.
MISLEADING	Contains something true but leaves a false impression, usually by leaving out key context.
UNVERIFIED	We couldn't find the source or record it depends on.
TRUE	The evidence supports the claim.

All ten verdicts, and how we check

CORRECTIONS

Corrections and changes

If we get something wrong, we fix it and record the change below with the date. If a correction changes a verdict, the log says what the old verdict was.

Change log

Nov 7, 2026	Published on factchecked.science after a full check against the sources: S0 News's research note 005; note 003, its manifest and its data tables; GFZ's and NOAA's storm records; and news reports of the four events. The rules, scripts and derived numbers are hosted, with the text of SWPC's three alerts; nothing of the notes or their tables is, and none of their figures is redrawn. A fresh review before publication led us to correct the reason for the fifth verdict and the interval we had attributed to note 003's 1.23, to say when GFZ's Kp turns preliminary, to relabel the chance models, and to drop Kyoto's real-time Dst.

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Last updated Nov 7, 2026