Fact-Checked Science

PAPER CHECK · GEOMAGNETISM

Toy dynamos follow the current they’re fed; nothing in this student abstract is galactic

S0 News linked a one-page abstract from a student talk in Tbilisi as more support for its idea that Earth’s magnetic reversals follow a “galactic magnetic reversal” [2 00:01:28–00:01:30][2 00:02:02–00:02:17]. The abstract reports that an “additional external current” can “control reversals” in two toy disk dynamos, Bullard’s and Rikitake’s, and names no galactic or interstellar source [1 Abstract]. The December 2025 paper it builds on matched the reversal record by switching that current in step with the record itself [3 pp. 97–98], and our re-run of its model “reproduces” a made-up record just as well.

By Fact-Checked Science · Published October 26, 2026

OUR ANALYSIS marks our own reasoning and calculations, which here include a re-run of the 2025 paper’s model, and the verdicts are our assessment. Everything else comes from the numbered sources. The abstract [1] is a single page, cited as Abstract for its text and ref. 4 for its fourth reference; for the 2025 paper [3], p. gives a page as printed (94–101), eq. an equation and Fig. a figure; the episode [2] is cited by time in the video.

A student exercise on toy dynamos, not evidence of a galactic cause

OUR ASSESSMENT

1 page
a conference abstract for a 15-minute student talk on July 15, 2026, with no equations, figures or numbers; not peer reviewed [1][4]

240 of 240
made-up reversals the 2025 paper’s model followed when we fed it 20 invented records: its match with the real record is built in, by our re-run

61%
how often the model kept the real record’s polarity when the outside current was a tenth of its own; runs fed invented records match it 54% of the time, by our re-run

THE CLAIMS

OVERSTATED

A paper says that’s exactly how

The presenter, of a “super release at the end of last year” [2 00:01:22–00:01:24], “5 years after we first said it had to be the galactic magnetic reversal at the current sheet local to the solar system” [2 00:01:24–00:01:30]: “A paper comes out saying that’s exactly how the Earth disaster cycle works. The magnetic reversals.” [2 00:01:32–00:01:37]

The “super release” is the December 2025 paper by the abstract’s supervisor, both its students and a colleague, the abstract’s ref. 4 [3][1 ref. 4]. Its abstract says the match supports “the hypothesis of external control of the geodynamo” [3 Abstract], but the match was built in: it switched its outside current with the record itself [3 pp. 97–98], and its conclusion calls the interstellar idea “an interesting question for future research” [3 p. 99]. It says nothing about a current sheet, a disaster cycle or any effect on the rest of the solar system. Our check of S0’s video “THE DISASTER CYCLE – The Evidence” rated an earlier claim about the paper Overstated: A 2025 model of pole flips. See section 2.

OVERSTATED

Outside reversal flipped poles

The presenter: “And as if that wasn’t enough, they tried the extra step of modeling the electric current change of enduring the outside system reversal. And the Earth started having magnetic pole flips.” [2 00:02:02–00:02:13] (“of enduring” is probably “during”.)

The abstract does add an “additional external current” to two toy disk dynamos and says it could “control reversals” in both [1 Abstract]. But the flips are a model’s current following a current the modellers switch, not Earth’s poles. Rikitake’s two disks reverse with no outside current at all [9 Abstract], the abstract names no outside source, and in the 2025 paper the switching copied the reversal record [3 pp. 97–98]. Fed a made-up record, the model follows that just as well, by our re-run. See section 3.

MISLEADING

It worked in the Bullard model

The presenter: “It even worked in the much simpler Bullard model, which I’m not ignoring either.” [2 00:02:13–00:02:17]

The abstract does say so, in one sentence, with no equations, data or figures to show it [1 Abstract]. But Bullard’s single disk cannot reverse by itself [9 Abstract][3 p. 95], so every flip in it is the outside current’s. A Bullard disk we drove the same way followed a made-up record as well as the real one, and stopped following when the current was a tenth as strong, by our re-run. The same abstract also makes Bullard’s disk reverse with no outside current, by adding a time delay [1 Abstract]. See section 3.

MISREAD

Shown acting on the heliosphere

The presenter: “With this new science, they have shown how taking such a local environmental magnetic reversal can begin its work on the heliosphere magnetic field around the whole solar system, slowly impacting each of the items inside the planets. Not like an onoff switch …” [2 00:02:45–00:03:00]

Neither the abstract nor the 2025 paper models the heliosphere or the planets [1][3]. The 2025 paper’s only outside reversal is one it imposes, “a rectangular signal that switches polarity” [3 p. 97]: an abrupt switch at each date of the record, not a slow spread through the solar system. The episode’s other Rikitake paper, whose model reverses spontaneously [8 Abstract], has no outside current at all (see our check of it). See section 4.

TRUE

Outside current steers the model

The abstract: “In both models we’ve managed to control reversals using additional external current.” [1 Abstract]

It holds, for the models. Our re-run of the 2025 paper’s equations reproduces its result: switched in step with the record, the outside current takes the model through all 12 reversals of the last 3.5 million years [3 Fig. 3][13], and a Bullard disk built the same way does the same. It works well only while the outside current is at least about two-thirds as strong as the dynamo’s own, and at a tenth it is close to chance; the abstract claims nothing about what drives Earth’s reversals. See section 3.

1 · THE ABSTRACT

One page, for a 15-minute talk at a student minisymposium

The PDF S0 News linked is the English abstract of a talk by Luka Kezua and Luka Tsulukidze, of the Physical Process Modelling Laboratory for Students in the physics department of Ivane Javakhishvili Tbilisi State University, with Associate Professor Oleg Kharshiladze as their supervisor [1]. They gave it from 15:00 to 15:15 on July 15, 2026, at the TICMI Student’s Minisymposium on Actual Topics of Applied Mathematics and Physics, in the session he chaired, one of eleven talks that afternoon [4][5]. It is a conference abstract (student talk), not peer reviewed: neither the program nor the university’s report mentions any review or proceedings, and the abstract has no DOI [4][5].

The abstract, in its authors’ words

Three of its eight sentences, verbatim, with the authors’ spelling.

> *“Some try to make electromechanical analoges of Earth’s magnetic field to study various physical properties.”*
>
> Kezua and Tsulukidze (2026) [1 Abstract]

> *“In both models we’ve managed to control reversals using additional external current.”*
>
> Kezua and Tsulukidze (2026) [1 Abstract]

> *“Moreover, in Bullard’s dynamo we’ve managed to induce reversals by introducing time delay in the system while Bullard’s classical dynamo doesn’t exibit field reversals.”*
>
> Kezua and Tsulukidze (2026) [1 Abstract]

What it doesn’t contain

No equations, parameters, data, figures or numbers, and no comparison with the reversal record: it states each result in one sentence, with nothing to show it. The words galaxy, galactic, interstellar, current sheet, heliosphere and disaster do not occur in it; its only outside agent is the “additional external current”, whose source it doesn’t name [1 Abstract]. Its four references are Rikitake’s paper of 1958, Cook and Roberts’s of 1970, a 1963 naval laboratory report on coupled disk dynamos, and the December 2025 paper of section 2 [1]. The Georgian version says the same, with two differences: it has an outside factor where the English has an “additional external current”, and its reference list adds Bullard’s paper of 1955. It also adds that by the most accepted theory today the field comes from the dynamo mechanism, the motion of conducting fluid in the core (our translations) [1].

Read fairly

Disk dynamos have long been used to study how a dynamo can reverse [9 Abstract][11 Abstract], and steering a chaotic system with a small push from outside is an established technique: the December 2025 paper calls it “a key method in the control of chaotic systems” [3 p. 95]. In that paper’s runs, though, the push is larger than the dynamo’s own current, an override rather than a nudge (section 2). The students’ project is a legitimate exercise on toy models, and their abstract claims nothing about the galaxy or about what drives Earth’s reversals. The overreach on this page is the episode’s.

Three abstracts and a paper from one group

WHEN	WHAT	WHAT IT ADDS
July 2025	Kezua’s abstract for the university’s student conference, SENS-2025, with Kharshiladze as supervisor [6]	Calls disk dynamos “electric circuit analoges as a ‘toy models’ of Earth’s magnetic field”; the goal is to “try to control reversals using some outer factor and a new parameter” [6]
December 23, 2025	Kharshiladze, Tsulukidze, Kezua and Zilpimiani, *Journals of Georgian Geophysical Society* [3]	An outside current switched in step with the reversal record, and a hypothesis about the Local Interstellar Cloud (section 2)
June 29 – July 11, 2026	Tsulukidze’s master’s thesis abstract for SENS-2026, supervised by Kharshiladze and Frank Stefani [7]	A Rikitake model driven by “a single 95-kyr Milankovitch cycle”, then by orbital forcing in which “the 26-kyr precession is modulated by the 95-kyr eccentricity cycle”; “spectral analysis corroborates the orbital pacing of the system’s reversal dynamics”. No interstellar field [7]
July 15, 2026	**This abstract, by Kezua and Tsulukidze** [1]	**Bullard’s single disk, with an outside current and with a time delay**

The abstract S0 News linked is the highlighted row. The supervisor is the first author of the 2025 paper, and both students are among its authors [3].

2 · THE 2025 PAPER

The paper behind it fed its model the reversal record

Kharshiladze, Tsulukidze, Kezua and Zilpimiani took Rikitake’s two-disk dynamo and added an outside current to the field that threads each disk [3 p. 97]. The paper appeared on December 23, 2025, in *Journals of Georgian Geophysical Society* [3]: the “super release at the end of last year” of the episode’s opening (section 4).

STEP 1

A model that reverses by itself

In Rikitake’s two coupled disks “reversals of electric current and magnetic field occur, unlike the case of a single disk dynamo” [9 Abstract]; the paper calls the model one with “inherent chaotic inversions” [3 Abstract].

STEP 2

An outside current

Added to each disk’s field and “determined by the external magnetic field”: “It is possible that the external magnetic field acting on our system is the interstellar magnetic field found within the Local Interstellar Cloud” [3 p. 97].

STEP 3

Switched with the record

“a rectangular signal that switches polarity in accordance with the real geomagnetic reversal data”, Cande and Kent’s timescale, with “a constant amplitude of ±1” and weak noise [3 pp. 97–98][13].

STEP 4

Compared

“the modified model changes sign at approximately the same moments in time as the actual paleomagnetic observations”, over the last 3.5 million years [3 p. 98][3 Fig. 3].

In the authors’ words

The paper’s framing, its abstract’s headline and its conclusion, verbatim.

> *“The magnetohydrodynamic (MHD) dynamo hypothesis, while still containing unresolved aspects, is the generally accepted theory for the generation of the Earth’s magnetic field.”*
>
> Kharshiladze et al. (2025) [3 p. 94]

> *“Our results show that when the modified Rikitake’s model is driven by an external current whose sign changes are synchronized with real paleomagnetic data, the model successfully reproduces the timing of the geomagnetic reversals, supporting the hypothesis of external control of the geodynamo.”*
>
> Kharshiladze et al. (2025) [3 Abstract]

> *“This suggests that if the interstellar magnetic field in space changes according to a specific rule, it can significantly influence the geodynamo’s behavior and potentially control the timing of magnetic field reversals.”*
>
> Kharshiladze et al. (2025) [3 p. 99]

> *“This hypothesis that the geodynamo may be controlled by the Local Interstellar Cloud’s magnetic fields opens up an interesting question for future research, that needs further theoretical analysis and numerical investigation.”*
>
> Kharshiladze et al. (2025) [3 p. 99]

OUR ANALYSIS

Built in, by design

The outside current was switched at the dates of the real reversals, and the model’s current follows the outside current, so the model “reproduces” the record because it was given the record. The paper’s own Fig. 2 shows the same thing with made-up signals, as the authors report: with a square wave, “inversions in the system occur in correspondence with the rectangular wave” [3 p. 97], and with a sine wave too, “synchronized with the changes in the external current” [3 p. 99]. Our check of S0’s video made this point about the paper (A 2025 model of pole flips, Overstated); section 3 shows it with a made-up reversal record.

The push is also strong. In the paper’s units the outside current in Fig. 3 is ±1, while the dynamo’s own current settles near ±0.62, the plateau of that figure, although the paper estimates the dynamo’s current at 1 to 100 times the outside one [3 p. 97][3 Fig. 3]. And by the paper’s own figures the interstellar field is about 2.5 million times weaker than the field it gives for Earth’s core (10^{-5} against 25, in the same units), with its outside current estimated from currents in interstellar gas, not in the core [3 p. 97].

Where it appeared

Journals of Georgian Geophysical Society has print and online ISSNs and an editorial board with members in Georgia and abroad; it lists the M. Nodia Institute of Geophysics, the affiliation of three of the four authors, as its sponsor, and the paper’s first author is on its editorial team [3]. The paper has no DOI, the journal’s website describes no peer-review process, and the article’s record gives December 23, 2025 for both submission and publication, which can happen when papers handled offline are entered all at once; none of this shows whether it was reviewed. It is under CC BY-NC 4.0, so we have redrawn none of its figures [3].

3 · OUR RE-RUN

Fed a made-up record, the model follows that one just as well

We rebuilt the model from the paper’s eq. 6 and fed it the real reversal record, 20 records we made up with 12 reversals each at random dates, and the real record with weaker outside currents [3 p. 97][13]. The record’s ages come from PmagPy’s table [14]; one script does it all, in a few seconds (section 7).

THE REAL RECORD

OUR ANALYSIS

12 of 12
reversals of the last 3.5 million years followed within 7,000 model years, with the outside current as strong as in the paper’s Fig. 3; the model kept the record’s polarity 98% of the time

20 MADE-UP RECORDS

OUR ANALYSIS

240 of 240
made-up reversals followed, the slowest within 16,100 years; the same runs kept the real record’s polarity only 54% of the time, between 40% and 71%

A TENTH AS STRONG

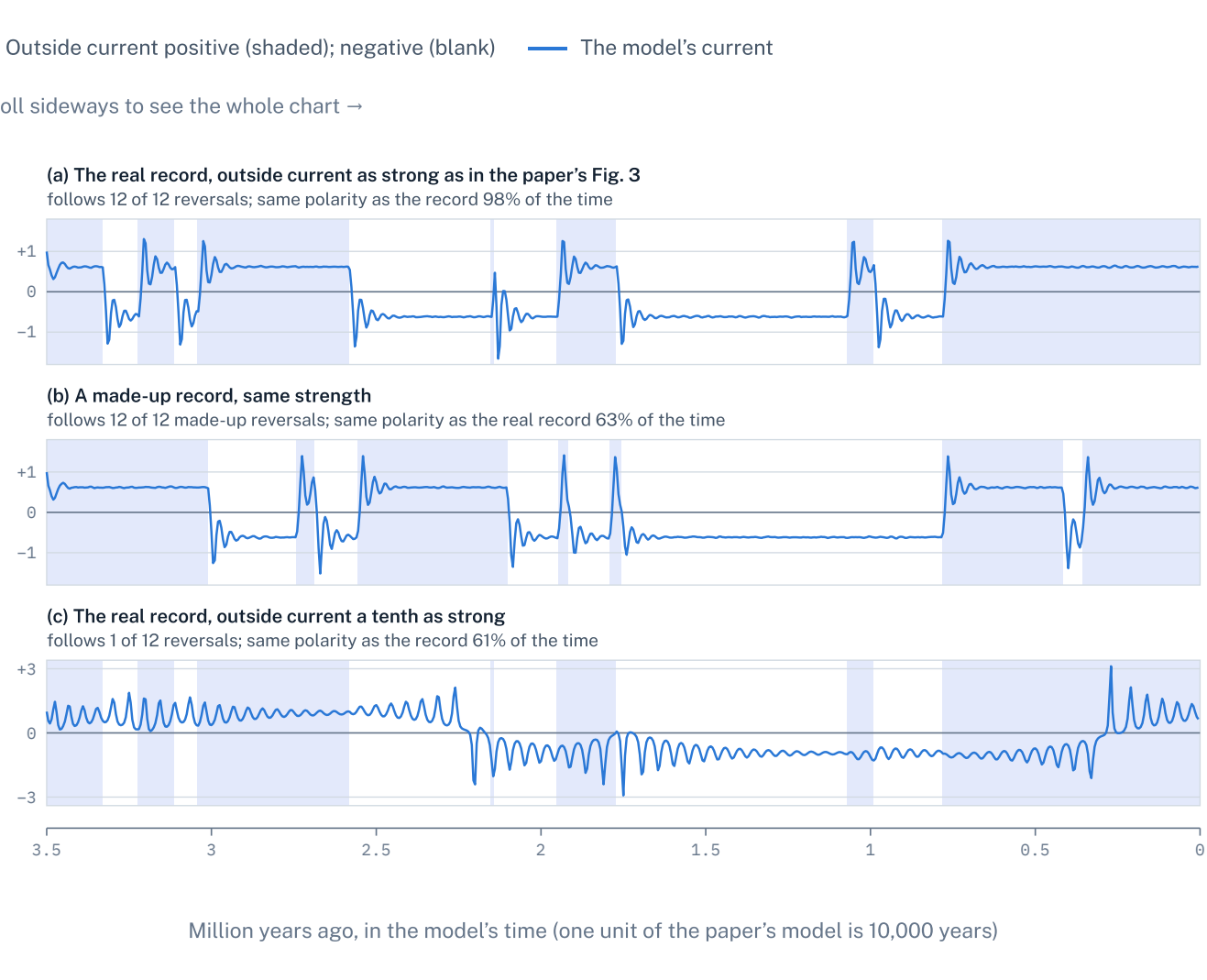
OUR ANALYSIS

1 of 12
real reversals followed when the outside current was a tenth of the dynamo’s own; the model kept the record’s polarity 61% of the time

The model follows whatever it is fed

OUR ANALYSIS

Scroll sideways to see the whole chart →



Our re-run of eq. 6 of [3], with $\mu = 1$ and the starting values of its Figs. 1–2. The outside current is ±1 in (a) and (b) and ±0.1 in (c), each with weak noise, and is positive where the strip is shaded. The real record is Cande and Kent’s, which the paper used [13][14]; the made-up record has 12 reversals at random dates. The current’s scale runs from −1.8 to +1.8 in (a) and (b) and from −3.4 to +3.4 in (c). No figure of the paper is redrawn.

OUR ANALYSIS

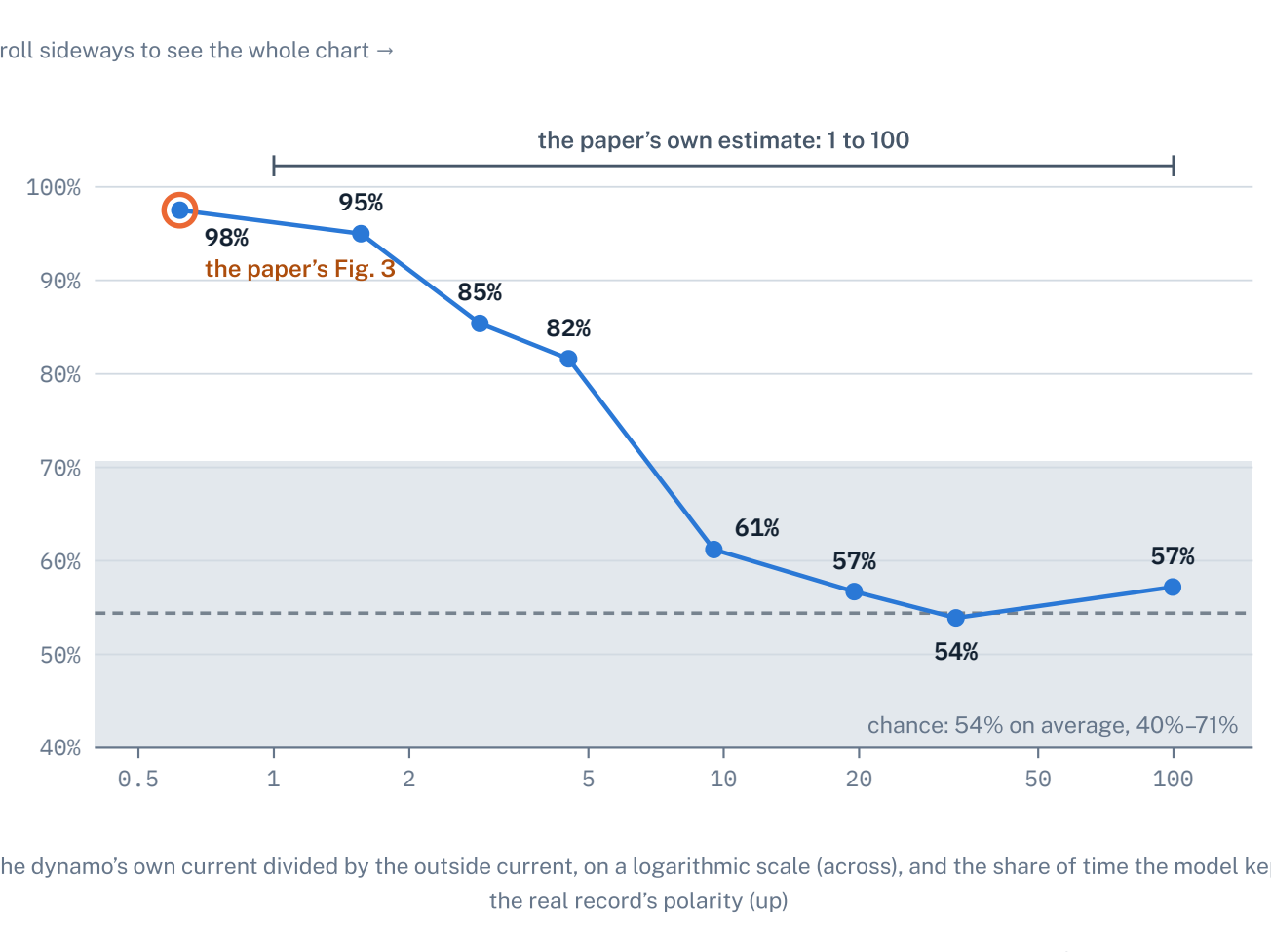
How we know it is the paper’s model

The PDF’s mathematical symbols can’t be extracted as text, so we read eq. 6 from the page layout. Two checks support the reading. With the outside current held at 1, our model settles at 0.618, $(-1 + \sqrt{5}) / 2$, the plateau of the paper’s Fig. 3. And with a square wave whose amplitude, 0.21, we set from the plateau of its Fig. 2(b), the model crosses zero about 12 units after each switch, where that figure shows its flips (read by eye), with the same damped ringing after each one [3 Fig. 2][3 Fig. 3]. The amplitude is our inference; the paper doesn’t state it. With the outside current held constant, the currents settle at a steady value, as the paper says they do [3 p. 97].

How strong must the outside current be?

OUR ANALYSIS

Scroll sideways to see the whole chart →



The dynamo’s own current divided by the outside current, on a logarithmic scale (across), and the share of time the model kept the real record’s polarity (up)

Our re-run [3][13]. The dynamo’s own current is its steady value under each outside current x_0, $(-x_0 + \sqrt{x_0^2 + 4}) / 2$ in the paper’s units; the paper estimates the ratio at 1 to 100 [3 p. 97]. Chance is the 20 runs driven by made-up records, scored against the real record: 54% on average, 40–71%.

OUR ANALYSIS

Bullard’s disk, driven the same way

Bullard’s single disk cannot reverse by itself [9 Abstract][3 p. 95]: in its equations, and in our run without an outside current, its current never changes sign, staying between 0.40 and 1.77. With an outside current added the way the 2025 paper added it to Rikitake’s disks, it followed the real record’s 12 reversals, and a made-up record’s 12 just as well (agreeing with the real record 62% of the time); at a tenth of the strength it followed 1 of 12, and at three hundredths none. The abstract gives no equations for its own Bullard runs [1 Abstract], so this is our construction, an illustration of what “control” can mean.

OUR ANALYSIS

What the re-run shows

First, the match is built in: a made-up record is “reproduced” as well as the real one. Second, it needs a strong push: the model keeps the real record’s polarity 95% of the time or more only while the outside current is at least about two-thirds of the dynamo’s own, and at a tenth, the middle of the paper’s own range on a logarithmic scale, it scores 61%, against 54% for chance. Third, neither model fits “started having pole flips”: Rikitake’s reversed 23 times in 3.5 million model years with no outside current, so the current overrides its flips rather than starting them; Bullard’s never reverses by itself, so every flip in it is imposed.

4 · THE EPISODE

What the episode said, beside the abstract and its parent paper

S0 News’s description lists the PDF as the second of two links under one label, “Rikitake”, after the paper in *Geophysical Journal International* [2]; the episode came to both under an opening about a “super release at the end of last year” [2 00:01:22–00:01:24].

THE EPISODE SAID	THE ABSTRACT AND THE 2025 PAPER	VERDICT
“A paper comes out saying that’s exactly how the Earth disaster cycle works. The magnetic reversals.” [2 00:01:32–00:01:37]	The 2025 paper’s abstract says its match supports “the hypothesis of external control of the geodynamo” [3 Abstract], but the match was built in [3 pp. 97–98], and its conclusion calls the interstellar idea “an interesting question for future research” [3 p. 99]; nothing on a current sheet, a disaster cycle or any effect on the rest of the solar system	OVERSTATED
“The local galactic magnetism controls what’s happening here on Earth and throughout the solar system.” [2 00:01:37–00:01:43]	In neither source; the 2025 paper suggests only that its outside field might be the Local Interstellar Cloud’s [3 p. 97]	Rated on the episode page
“they tried the extra step of modeling the electric current change of enduring the outside system reversal. And the Earth started having magnetic pole flips.” [2 00:02:02–00:02:13]	An outside current added to toy models [1 Abstract]; their flips follow the current the modellers switch, and the record was fed in [3 pp. 97–98]	OVERSTATED
“It even worked in the much simpler Bullard model, which I’m not ignoring either.” [2 00:02:13–00:02:17]	One sentence of the abstract, with nothing to show it [1 Abstract]; a single disk cannot reverse by itself, so its flips are all the outside current’s [9 Abstract][3 p. 95]	MISLEADING
“The current is driven by the local magnetic fields from the center of the galaxy to the sun and to us.” [2 00:02:19–00:02:25]	In neither source. Our check of S0’s video rated the galactic current sheet Unsupported	Not rated here
“With this new science, they have shown how taking such a local environmental magnetic reversal can begin its work on the heliosphere magnetic field around the whole solar system …” [2 00:02:45–00:02:55]	Nothing on the heliosphere or the planets in either [1][3]; the only outside reversal is the 2025 paper’s imposed “rectangular signal” [3 p. 97]	MISREAD
“Most importantly, the way we imagined it 5 years ago is what the top scientists are saying today.” [2 00:03:13–00:03:20]	A student abstract that names no galactic cause [1], and a paper that calls its interstellar idea a question for future research [3 p. 99]	Rated on the episode page

Quotations from the episode are from its automatically generated transcript, with the times of the lines they span [2]; “of enduring” is probably “during”. Where our review of the episode, S0 News of October 26, 2026, rates the same sentences, it gives them the same labels; it rates the galactic sentence of 00:01:37 on its own.

Two groups, not one

The episode moves from the first Rikitake link to this one with “And as if that wasn’t enough, they tried the extra step” [2 00:02:02–00:02:04]. The two come from separate groups, with no author in common. Dániel Jánosi and Mátyás Herein work in Sopron and Budapest, in Hungary, and their model, derived from the core’s own equations, has “spontaneous polarity reversals” [8 Abstract]; this abstract comes from a student lab in Tbilisi [1]. The first link has its own check.

Which paper is the “super release”

The episode doesn’t name it, but the December 2025 paper fits: it was published on December 23, 2025, it concerns reversals and an outside magnetic field, and it is the paper the presenter cited in S0’s video “THE DISASTER CYCLE – The Evidence” (our check) [3]. The abstract cites it as its ref. 4 [1 ref. 4]. It never mentions the episode’s “galactic magnetic reversal at the current sheet local to the solar system” [2 00:01:28–00:01:30].

5 · WHAT DISK DYNAMOS SHOW

Toy dynamos can reverse by themselves; nothing in them points outside the core

Disk dynamos are electrical toys that share some of the mathematics of the flow in Earth’s core. They can show how a dynamo might reverse, not what makes Earth’s reverse.

Bullard’s disk, 1955

A single spinning disk that feeds its own coil. “If there is no electrical load in parallel with the field coil and no friction at the axle, the dynamo can perform oscillations of constant amplitude about its state of steady motion” [10 Abstract]. In its equations, and in our run, the current rises and falls but never changes sign; Rikitake and the 2025 paper both note that a single disk doesn’t reverse [9 Abstract][3 p. 95].

Rikitake’s two disks, 1958

Two disks, each feeding the other’s coil: “It is found that reversals of electric current and magnetic field occur, unlike the case of a single disk dynamo” [9 Abstract]. In 1970 Cook and Roberts showed that the reversals come from the system’s own motion between “the two sheets of the limit surface” [11 Abstract], with no outside push.

The core itself

In 1995 Gary Glatzmaier and Paul Roberts ran a three-dimensional model of the geodynamo that “undergoes several polarity excursions and then, near the end of the simulation, a successful reversal of the dipole moment”, from the core’s own dynamics [12 Abstract]. The episode’s other Rikitake link derives a Rikitake-type model from the core’s own equations, with “spontaneous polarity reversals” [8 Abstract].

The galaxy

Our check of S0’s video found just one galactic current sheet in the scientific literature, a 1978 speculation (The galactic current sheet, Unsupported), and found that a 2021 conference poster the video cited on “nova energy” and the galaxy’s magnetic wave says something else (“Nova energy” and the galaxy’s magnetic wave, Misread). Neither the abstract nor the 2025 paper mentions a current sheet [1][3]. Our guide to Earth’s weakening field sets out what the reversal record shows.

6 · LIMITS

What this check can’t tell us

An abstract, not a paper

The abstract states each result in a sentence, with no equations, parameters, data or figures, so its Bullard runs, with an outside current and with a time delay, can’t be checked [1 Abstract].

Our reading of the 2025 paper’s equations

Its symbols can’t be extracted as text; two of its figures support our reading, not its text [3 Fig. 2][3 Fig. 3].

Our Bullard disk is our own

We added the outside current to Bullard’s equations as the 2025 paper added it to Rikitake’s; the students may have done it differently [1 Abstract].

A model, not the Earth

The re-run tests what the model does, not what drives the geodynamo; that is for simulations of the core and for the record [12 Abstract][13].

Review

Neither the event’s program nor the university’s report mentions a review of the abstracts [4][5], and the 2025 paper’s journal describes no review process [3].

What would change these verdicts

01
For the abstract’s own claim: a re-run, by anyone, in which a strong outside current fails to steer the model’s reversals.

02
For the episode’s claims: an outside current as weak as anything that could reach Earth’s core still setting the timing of the model’s reversals, and an independent record of an outside magnetic field whose reversals match Earth’s without being copied from them.

03
For the Bullard claim: a published account of the students’ Bullard models, with equations and results, showing reversals that the outside current doesn’t simply impose.

7 · REPEAT OUR RE-RUN

One script, no download, a few seconds

Every number from our re-run on this page comes from one script. It needs only Python 3; the reversal record is written into it [13][14].

PY **forced_rikitake.py**
The 2025 paper’s eq. 6 and our Bullard disk, the two checks against its figures, and every run on this page: the real record, 20 made-up records, weaker outside currents and none · 20 KB

Run it

Run `python3 forced_rikitake.py` to print every number from our re-run on this page; `python3 forced_rikitake.py --json results.json` also writes every run and the series behind the two charts. Its random numbers are seeded, so it gives the same numbers every time.

Related checks

- OVERSTATED A 2025 model of pole flips The Disaster Cycle, Fact-Checked
- UNSUPPORTED The galactic current sheet The Disaster Cycle, Fact-Checked
- MISREAD “Nova energy” and the galaxy’s magnetic wave The Disaster Cycle, Fact-Checked

Sources

Bracketed numbers refer to this list. The abstract [1] is a single page: Abstract means its text and ref. 4 its fourth reference. For the 2025 paper [3], p. gives a page as printed (94–101), pp. a span of pages, eq. an equation, Fig. a figure and Abstract its abstract. For the episode [2], times are positions in the video (hours:minutes:seconds). For the other sources, Abstract means the abstract; where only an abstract was read, the entry says so. Links checked October 26, 2026.

1 Kezua, L., and Tsulukidze, L.; supervisor Kharshiladze, O. (2026). Modelling of Earth’s Magnetic Field Reversals in Modified Electromechanical Models. Abstract of a talk at the TICMI Student’s Minisymposium on Actual Topics of Applied Mathematics and Physics, I. Vekua Institute of Applied Mathematics, Ivane Javakhishvili Tbilisi State University, July 15, 2026; the authors are listed with the Physical Process Modelling Laboratory for Students, Department of Physics, Faculty of Exact and Natural Sciences. Conference abstract (student talk), not peer reviewed. One page, posted on the institute’s site by July 10, 2026; no DOI and no licence stated. We read it in full, with its Georgian version, which says the same.

2 SpaceWeatherNews (S0) (October 26, 2026). Galactic Magnetic Reversal Flipping Earth Field | S0 News Oct.26.2026. YouTube video, https://www.youtube.com/watch?v=n5rwUyx_AHA. Quoted from the automatically generated transcript; times are positions in the video. The video’s description lists two links under one label, “Rikitake”: Jánosi and Herein [8] first and this abstract second; the “(1)” and “(2)” in our records are our numbering.

3 Kharshiladze, O. A., Tsulukidze, L. K., Kezua, L. B., and Zilpimiani, D. O. (2025). Control of Inversions of the Earth’s Magnetic Field with Rikitake’s Model. *Journals of Georgian Geophysical Society* 28(2), 94–101, published December 23, 2025. No DOI; the journal describes no review process. CC BY-NC 4.0, as its article page shows. We read the full text (8 pages, with eqs. 1–7 and Figs. 1–3) and the journal’s About and Editorial Team pages. It is the paper behind the video check’s A 2025 model of pole flips.

4 Tbilisi International Centre of Mathematics and Informatics (TICMI), I. Vekua Institute of Applied Mathematics (2026). TICMI Student’s Minisymposium on Actual Topics of Applied Mathematics and Physics, 15 July, 2026: Program, with links to each talk’s abstract. Read.

5 Ivane Javakhishvili Tbilisi State University (July 19, 2026). Student Mini-Symposium on Current Issues in Applied Mathematics and Physics. University news item. Read.

6 Kezua, L.; supervisor Kharshiladze, O. (2025). Control of Reversals in Rikitake’s Model. Abstract of a student talk at SENS-2025, the 13th Student Conference in Exact and Natural Sciences of Ivane Javakhishvili Tbilisi State University, July 7–15, 2025, as its physics program lists it. Conference abstract, not peer reviewed; no licence stated. Read.

7 Tsulukidze, L.; supervisors Kharshiladze, O., and Stefani, F. (2026). Evolution of the Geomagnetic Field: A Multi-scale analysis. Abstract of a master’s thesis listed in the physics program of SENS-2026, the 14th Student Conference in Exact and Natural Sciences, June 29 – July 11, 2026, in the authors’ English, with a Georgian version that says the same. We read both in full. Not peer reviewed; no licence stated.

8 Jánosi, D., and Herein, M. (2026). Grounding Rikitake-like conceptual dynamos in mean-field MHD: the derivation and geophysical scaling of the most basic reversal dynamo model. *Geophysical Journal International* 247(3), ggag390. CC BY 4.0. The first of the episode’s two “Rikitake” links. Here we read only the abstract deposited with Crossref; the paper itself is checked on our page about it.

9 Rikitake, T. (1958). Oscillations of a system of disk dynamos. *Mathematical Proceedings of the Cambridge Philosophical Society* 54(1), 89–105. We read the abstract.

10 Bullard, E. (1955). The stability of a homopolar dynamo. *Mathematical Proceedings of the Cambridge Philosophical Society* 51(4), 744–760. We read the abstract.

11 Cook, A. E., and Roberts, P. H. (1970). The Rikitake two-disc dynamo system. *Mathematical Proceedings of the Cambridge Philosophical Society* 68(2), 547–569. We read the abstract.

12 Glatzmaier, G. A., and Roberts, P. H. (1995). A three-dimensional self-consistent computer simulation of a geomagnetic field reversal. *Nature* 377, 203–209. We read the abstract.

13 Cande, S. C., and Kent, D. V. (1995). Revised calibration of the geomagnetic polarity timescale for the Late Cretaceous and Cenozoic. *Journal of Geophysical Research: Solid Earth* 100(B4), 6093–6095. The reversal record the 2025 paper used [3]. We read the abstract and took the ages of its polarity boundaries for the last 3.58 million years from PmagPy’s table [14].

14 Tauxe, L., Shaar, R., Jonestrask, L., et al. (2016). PmagPy: Software package for paleomagnetic data analysis and a bridge to the Magnetics Information Consortium (MagIC) Database. *Geochemistry, Geophysics, Geosystems* 17(6), 2450–2463. We read the timescale table in its open-source code (PmagPy on GitHub, function get_ts, option ck95) as data; we did not run the package.

METHOD

How this was checked

On October 26, 2026, we checked every statement, number and quotation on this page against its source: the abstract, in English and Georgian [1]; the December 2025 paper it builds on, read in full, with its journal’s pages [3]; the event’s program and the university’s report of it [4][5]; two other abstracts from the same group, one in the authors’ English and Georgian [6][7]; the abstracts of the episode’s other Rikitake paper, of the classic disk-dynamo papers and of the first three-dimensional simulation of a reversal [8] to [12]; the reversal timescale and the table we took it from [13][14]; and the episode’s automatically generated transcript [2], about 20 items in all. No site showed us a bot check, and nothing was blocked.

The verdicts and the items tagged “Our analysis” are our own assessment, built on the cited sources. They include the re-run of the 2025 paper’s model and everything it shows; the comparison of that paper’s outside current with the dynamo’s own; our Bullard disk with an outside current; the judgments that the episode’s “super release at the end of last year” is the December 2025 paper and that this abstract is the source of its sentence about the Bullard model; and our reading of what the abstract leaves out.

We re-ran the 2025 paper’s model from its eq. 6 with the reversal record it used, and checked our reading of its equations, whose symbols can’t be extracted as text from the PDF, against two of its figures. The script, forced_rikitake.py, is hosted under Repeat our re-run; it needs no download, its random numbers are seeded, and it prints every number from our re-run on this page. We could not re-run the abstract’s own Bullard models or its time-delay result, which it does not describe; our Bullard disk is our own construction. We redrew no figure from the paper (CC BY-NC 4.0) or the abstract (no licence stated); both charts are our own.

After the page was built, a fresh reviewer who hadn’t seen the drafting re-ran the script, which reproduced every number, and checked every quotation, locator and source. The changes that followed: the description and the card no longer say the model follows “any” current, since it follows only a strong one; the 2025 paper’s own headline, that its match supports “the hypothesis of external control of the geodynamo”, is now quoted beside its caveat; the quotation behind the first claim ends at “The magnetic reversals.”, because the episode’s next sentence, on “the local galactic magnetism”, is rated on our review of the episode; Tsulukidze’s thesis abstract is quoted from the authors’ English; the page no longer says the abstract has “no results”, or that the 2025 paper models no outside reversal; the script now prints every number from our re-run on the page; and two dozen smaller fixes to citations, locators and wording.

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

MISLEADING	Contains something true but leaves a false impression, usually by leaving out key context.
OVERSTATED	Has some basis but claims much more than the evidence supports.
MISREAD	Cites a real source but gets wrong what it says.
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

Oct 26, 2026 Published on factchecked.science after a full check against the sources. Built from the abstract, the December 2025 paper it builds on, the event’s program and our re-run of that paper’s model: five claims rated on the site’s scale, four of them the episode’s and one the abstract’s own, with two charts drawn from our re-run. A fresh review the same day changed [illegible]