Earth: Day Zero — Paper V

Atlas & Research Companion

A Cross-Paper Map of the Frozen Earth: Day Zero Canon

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Frozen Canonical Version v1.0

Frozen canonical atlas and research companion — organizational only; no new claim-bearing mechanism is introduced here.

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Abstract

Earth: Day Zero Papers I–IV are frozen as separate canonical claim modules. Paper I defines the Antarctic Entrance → Hawai'i/Mauna Kea Middle Mountain → Arctic Exit geometry and preserves the later approximately 256 Ma Hawai'i/Paco modification as a sequential reconstruction issue. Paper II asks whether one physically coherent planetary event can generate the three Earth-side response domains while leaving a surviving Earth. Paper III asks whether the same event can place enough predominantly terrestrial material into an Earth-associated state from which the Moon may later evolve. Paper IV asks whether the resulting close Earth–Moon pair forms a mechanically coupled tidal system capable of making a non-negligible contribution to terrestrial magnetic evolution. [1–4]

Paper V introduces no new causal mechanism and does not reopen the frozen papers. Its purpose is organizational: to make the four-paper canon easy to audit, attack, compute, teach, and extend. It maps the dependency order, frozen verdicts, key variables, equations, falsifiers, open research problems, terminology, and explicit claim boundaries. It also identifies where the program deliberately stops so that later work cannot silently migrate untested ideas backward into the frozen canon.

The companion is designed for researchers who want to test a narrow component without first absorbing every page of the series. The governing rule is modularity: a later claim may fail without automatically erasing an earlier surviving claim, while a later claim may not be used to rescue an upstream failure. The series therefore advances only by earned continuity:

$$\text{Geometry} \rightarrow \text{Event Class} \rightarrow \text{Lunar Consequence} \rightarrow \text{Earth–Moon Alternator}.$$

The open scientific work is intentionally left open. This atlas tells a researcher where the unanswered problems are; it does not solve them on the researcher's behalf.

Contents

1. How to Use This Companion

You do not need to read four papers front-to-back before testing one part. This atlas tells you what each paper claims, what it does not claim, and where a useful attack can begin.

Paper V is a navigation layer over frozen Papers I–IV. The source papers remain authoritative for their full arguments, citations, derivations, and exact wording. Where this atlas compresses a claim, the source paper controls. [1–4]

A researcher can use the atlas in four ways:

1. **Audit a claim.** Find the relevant paper, its frozen status, and its falsifiers.
2. **Run a calculation.** Start from the minimum variables and outputs already defined instead of rebuilding the entire hypothesis.
3. **Attack a dependency.** Test whether a downstream claim genuinely inherits an upstream state or quietly changes it.
4. **Extend the program.** Work on an open problem without importing a new mechanism into a frozen paper.

The companion intentionally does not duplicate the full external bibliographies of Papers I–IV. Each frozen paper contains its own literature record. Paper V cites the frozen papers as the canonical source layer and directs specialist readers back to those bibliographies when they need the underlying external literature.

1.1 Researcher Routing Guide

Start with the question closest to your specialty. You do not need to accept the rest of Day Zero before testing one module.

2. The Canon in One Page

The entire four-paper sequence is one staircase: first locate the pattern, then ask whether one event can make it, then ask whether that event can make the Moon, then ask what the new Earth–Moon pair does.

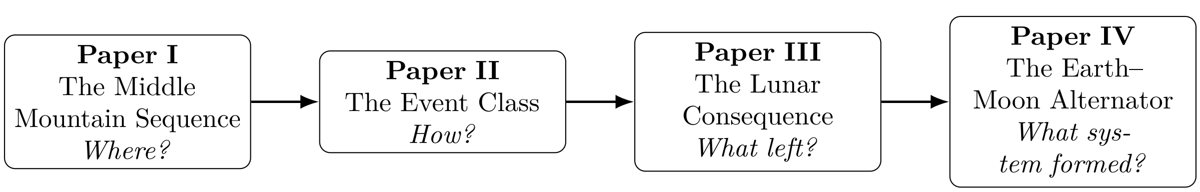

Figure 1: Canonical dependency order. Each paper adds one burden. A downstream paper may fail without automatically erasing an upstream result, but it may not alter the upstream result to save itself.

If you work on...	Start with	Fastest useful question	You do not need to assume...
Geodesy, plate reconstruction, bathymetry, or null-model statistics	Paper I / V	Does the entrance–middle–exit geometry survive independent domain selection and sequence correction?	Any impact mechanism or lunar consequence.
Impact physics, shock propagation, planetary interiors, or hydrocodes	Paper II	Is there one sub-disruptive event state that produces the three Earth-side response domains?	That the event also made the Moon.
Lunar origin, ejecta dynamics, or orbital mechanics	Paper III	Can a Paper-II-surviving event leave enough Earth-associated, Moon-compatible material?	The Earth–Moon Alternator.
Tides, core dynamics, paleomagnetism, or dynamos	Paper IV	Can a physically justified fraction of early tidal forcing matter to terrestrial core dynamics?	That lunar forcing dominates the geodynamo.
Cross-paper model comparison	Paper V	Can one continuous state history survive all modules without downstream retuning?	Any one preferred numerical implementation.

Table 1: Researcher routing guide. Each module is intentionally attackable on its own terms.

Paper	Frozen core	Primary burden	Frozen status
I	Geometry	Are Antarctic Entrance, Hawai'i/Mauna Kea Middle Mountain, and Arctic Exit a coherent recoverable three-domain relationship?	Broad present-state geometry: **BROADLY ADMISSIBLE / POSITIONALLY NON-UNIQUE / NON-DISCRIMINATING**. Historical Middle Mountain: **UNRESOLVED**.
II	Event class	Can one physically coherent event produce all three Earth-side response domains while leaving one recognizable Earth?	**PARTIALLY ADMISSIBLE / UNRESOLVED**.
III	Lunar consequence	Can the same event produce an Earth-associated, broadly Moon-compatible reservoir from the Arctic-exit branch?	**UNRESOLVED**.
IV	Alternator	Does the resulting close Earth–Moon pair provide a mechanically real tidal channel that can make a meaningful magnetic contribution?	**MECHANICAL LAYER SUPPORTED / MAGNETIC CONTRIBUTION UNRESOLVED**.

Table 2: Frozen claim-status map. Status language is inherited from the canonical source papers.

2.1 The Four Claims in One Sentence Each

1. **Paper I:** a recoverable Antarctic Entrance → Hawai'i/Mauna Kea Middle Mountain → Arctic Exit geometry may exist, with the older Hawai'i/Paco state modified later in the ABC sequence.
2. **Paper II:** one physically coherent, sub-disruptive planetary event must be able to produce all three Earth-side response domains without changing parameters between them.
3. **Paper III:** the same event must be able to leave enough broadly terrestrial, dynamically useful material associated with Earth to permit later lunar formation.
4. **Paper IV:** the resulting close Earth–Moon pair is mechanically coupled by tides, while any meaningful Day Zero contribution to terrestrial magnetic evolution remains an additional unresolved test.

These sentences are navigational compressions only. The frozen source papers control whenever a compressed sentence omits a qualification.

3. Paper I Atlas — The Middle Mountain Sequence

Paper I is the map. It asks whether the three places belong in one geometric reconstruction before anybody argues about what caused them.

3.1 Frozen Claim

The canonical sequence is

$$D_{\text{in}} \to D_{\text{mid}} \to D_{\text{out}},$$

with an Antarctic entrance domain, a Hawai'i/Mauna Kea Middle Mountain domain, and an Arctic exit domain. [1]

Paper I is geometry-first. The labels *entrance*, *middle*, and *exit* describe the proposed reconstruction and are not themselves proof of causal formation. The approximately 256 Ma Aegean–Everest–Mariana event enters only as a later ABC Sequencing transformation that may have displaced the older Hawai'i/Paco structure from its formative relationship. That branch predates the canonical Day Zero rebuild and therefore cannot be invented after a mismatch is observed. [1]

3.2 Key Geometric Objects

For entrance and exit unit vectors $\mathbf{e}$ and $\mathbf{x}$, Paper I defines the angular separation

$$\delta(\mathbf{e}, \mathbf{x}) = \cos^{-1}(\mathbf{e} \cdot \mathbf{x}).$$

For non-antipodal endpoints, the great-circle midpoint is

$$\mathbf{m}(\mathbf{e}, \mathbf{x}) = \frac{\mathbf{e} + \mathbf{x}}{\|\mathbf{e} + \mathbf{x}\|},$$

and a candidate Middle Mountain point $\mathbf{h}$ can be compared through

$$r_{\text{mid}} = \cos^{-1}(\mathbf{h} \cdot \mathbf{m})\,.$$

The frozen paper does not assign an after-the-fact tolerance or use the modern Hawai'i summit to manufacture the endpoint geometry. [1]

3.3 What Paper I Earned

The accessible broad modern polar geometry admits Hawai'i/Mauna Kea as an intermediate domain, but without an independently fixed azimuth the result is positionally non-unique. The broad Level-1 result is therefore compatible but non-discriminating. The historical Middle Mountain claim remains unresolved pending sequence-corrected reconstruction of the later 256 Ma modification. [1]

3.4 Cross-Sequence Relief-Extrema Correspondence

The atlas also records a simple visual recurrence across ABC sequences: the Day Zero pair and the later Everest-centered sequence each juxtapose a remarkable low-relief domain with a remarkable mountain extreme. This is a pattern to investigate, not proof of a shared cause.

Paper I already records the measurement distinction that makes the comparison physically interesting. Hawai'i/Mauna Kea is commonly described as Earth's tallest mountain when the full submarine edifice is measured from base to summit, whereas Mount Everest is the highest summit above mean sea level. On the low side, Antarctica contains exceptionally deep continental bedrock beneath its ice sheet, while the Dead Sea is the familiar lowest exposed land surface not covered by water or ice. [1]

Read beside the later approximately 256 Ma ABC reconstruction, the correspondence can be summarized as follows:

Sequence context	**Low-relief observation**	**Mountain observation**
Day Zero	Antarctic subglacial continental bedrock reaches exceptional negative elevation beneath the ice sheet.	Hawai'i/Mauna Kea carries exceptional total relief when measured from submarine base to summit.
Later ~ 256 Ma ABC sequence	Dead Sea: lowest familiar exposed land surface relative to mean sea level.	Mount Everest: highest summit above mean sea level.

Table 3: Cross-sequence relief-extrema correspondence. The entries use different measurement conventions and are therefore not numerically equivalent extrema. The table records a morphological relationship noticed within ABC Sequencing; it does not score the Day Zero geometry or establish common causation.

The scientific question is deliberately left open. The recurrence could reflect a common upstream event class, a repeated planetary response architecture, a selection effect produced by memorable extrema, or coincidence; Paper V does not choose among them. Paper V records the correspondence so that it can be tested independently; Papers I–IV receive no additional evidentiary credit from it.
Interpretive rule. The correspondence is a cross-sequence correlation in descriptive relief roles, not a causal bridge between the two events. Any claim of a shared upstream cause must be earned

independently by event physics, chronology, reconstruction, or a null model that shows the pairing is unusually selective.

3.5 Fastest Ways to Attack Paper I

- Show that the admissible entrance or exit domains are poorly specified or selected after seeing Hawai'i.
- Show that the later Hawai'i/Paco displacement branch cannot be independently reconstructed.
- Show that a properly specified null model makes Hawai'i's middle-domain role unsurprising.
- Show that deep-time reconstruction destroys the claimed recoverability rather than merely adding uncertainty.
- Show that an independently predicted historical middle condition excludes the inherited Hawai'i/Paco domain.

3.6 Paper-I Boundary

Paper I does not establish an impactor, impact energy, Moon formation, the Earth–Moon Alternator, or a physical toroidal mechanism. Its torus-like three-dimensional feature is descriptive only. [1]

4. Paper II Atlas — The Event Class

Paper II takes the map and asks whether one event can physically do all three Earth-side jobs without blowing Earth apart.

4.1 Frozen Claim

Paper II tests event classes rather than one preferred impactor. Its hierarchy begins with the least mechanically demanding explanation and escalates only when required: primary impact plus antipodal response; deeper coupled giant impact; and, only if independently necessary, penetrating or trans-Earth material transfer. [2]

The required sequence is conceptually simple:

$$\begin{aligned}&\text{Antarctic coupling} \to \text{global redistribution} \to \text{Middle Mountain response}\\&\to \text{Arctic response} \to \text{surviving Earth.}\end{aligned}$$

All required outputs must arise from one consistent event state. [2]

4.2 Minimum Collision Coordinates

Paper II reduces the event to a compact starting state:

$$\gamma = \frac{M_I}{M_T}, \qquad \nu = \frac{v_I}{v_{\mathrm{esc}}}, \qquad \Pi_{\min} = \{\gamma, \nu, \alpha \text{ or } b, \mathcal{S}_\oplus\}.$$

Its disruption bookkeeping uses reduced-mass specific impact energy

$$Q_R = \frac{\mu v_I^2}{2M_{\text{tot}}}, \qquad \Psi = \frac{Q_R}{Q^*_{RD}},$$

where Q^*_{RD} is the applicable gravity-regime catastrophic-disruption scale. These are coordinates for a future calculation, not frozen parameter values. [2]

4.3 Toroidal Survival Observation

The canonical paper permits a transient toroidal-like redistribution as one possible sub-disruptive planetary response, but does not require it. Global redistribution is necessary; a torus is not. A toroidal mode receives evidentiary credit only if it emerges from the same self-consistent event and helps describe the surviving response without being imposed as a rescue. [2]

4.4 Fastest Ways to Attack Paper II

- Show there is no event parameter region that generates the three response domains while leaving a recognizable Earth.
- Show realistic propagation cannot generate an Arctic far-side response compatible with the inherited domain.
- Show no meaningful intermediate/Middle Mountain response emerges under the same event state.
- Show entrance, middle, and exit require mutually incompatible impact parameters.
- Show comparison geological histories explain the domains better without the common-cause event.
- For any literal Class-C claim, show far-side material transit is physically impossible in the required state.

4.5 Paper-II Boundary

Paper II does not establish the Moon, orbiting ejecta, a unique impactor, a literal through-Earth projectile, or a validated toroidal deformation mechanism. [2]

5. Paper III Atlas — The Lunar Consequence

Paper III asks the simplest Moon question possible: did enough Earth come out, stay with Earth, and remain capable of becoming the Moon?

5.1 Frozen Claim

Paper III inherits the same event that survived Paper II. It does not get a second collision. The Arctic exit is a source domain, not the finished Moon and not a required perfectly radial launch direction. Later evolution of material is allowed; a second ad hoc source event is not. [3]

5.2 Minimal Mass-Fate Accounting

The lunar branch separates material into final-fate bookkeeping classes: material that reaccretes, material that escapes, and material that remains dynamically associated with Earth long enough to participate in later lunar evolution. The relevant gravitational potential is the evolving post-event system rather than modern Earth imposed backward. [3]

The continuity rule is explicit:

$$\Pi_{\text{Paper II}} = \Pi_{\text{Paper III}}.$$

The post-event angular-momentum bookkeeping is schematically

$$\mathbf{L}_{\text{tot,after}} = \mathbf{L}_{\text{Earth}} + \mathbf{L}_{\text{bound}} + \mathbf{L}_{\text{esc}},$$

with a full calculation required to conserve the total vector and account for the relevant spin and orbital components. [3]

5.3 Four Core Burdens

1. Enough lunar-candidate material must leave in the Arctic-exit branch.
2. Enough useful material must remain associated with Earth rather than promptly reaccreting or permanently escaping.
3. The retained reservoir must be broadly compatible with the Moon's terrestrial, silicate-rich, relatively low-metal character.
4. The Earth plus retained-material state must possess physically workable angular momentum.

5.4 Fastest Ways to Attack Paper III

- Show the Paper-II event cannot eject enough lunar-candidate material.
- Show useful material overwhelmingly reaccretes or escapes.
- Show the retained branch cannot avoid prompt reaccretion or produces an impossible angular-momentum state.
- Show the retained reservoir is compositionally incompatible with the Moon.
- Show lunar formation requires changing the upstream event or adding an unrelated second event.

5.5 Paper-III Boundary

Paper III does not solve a unique debris-disk, vapor, or rapid-accretion pathway; the exact initial lunar orbit; full tidal migration; detailed volatile/differentiation chronology; or the Earth–Moon Alternator. [3]

6. Paper IV Atlas — The Earth–Moon Alternator

Paper IV starts only after the Moon exists. It asks whether the new close Moon creates a persistent mechanical coupling strong enough to matter to Earth's magnetic evolution.

6.1 Two-Layer Claim

The mechanical layer is the firmest component. Tidal torque transfers angular momentum approximately as

$$\frac{dL_{\mathrm{E}}}{dt} \approx -\tau, \qquad \frac{dL_{\mathrm{orb}}}{dt} \approx +\tau,$$

with available tidal power represented schematically by

$$P_{\mathrm{tide}} \sim \tau(\Omega_{\mathrm{E}} - n).$$

The stronger Day Zero claim is that some physically justified fraction of that forcing reaches dynamo-relevant core motion. [4]

Paper IV therefore separates

$$P_{\mathrm{core}} = P_{\mathrm{conv}} + P_{\mathrm{tide}\to\mathrm{core}} + P_{\mathrm{other}}, \qquad 0 \le P_{\mathrm{tide}\to\mathrm{core}} \le P_{\mathrm{tide}},$$

and defines the bookkeeping fraction

$$\epsilon_{\mathrm{core}} = \frac{P_{\mathrm{tide}\to\mathrm{core}}}{P_{\mathrm{tide}}}, \qquad 0 \le \epsilon_{\mathrm{core}} \le 1.$$

No preferred value of ϵ_{core} is frozen. [4]

6.2 Jump-Start Language

The phrase *jump-started Earth's magnetic system* is canonical shorthand for an unresolved major dynamo transition: onset, reset, strengthening, or renewed sustainment. It does not require that Earth possessed no earlier magnetic field or that the Moon literally forms an electrical circuit with Earth. [4]

6.3 Fastest Ways to Attack Paper IV

- Show early lunar tides are too weak to alter terrestrial core dynamics at any relevant stage.
- Show the required core-coupled tidal power exceeds the mechanically available tidal power.
- Show the necessary tidal history contradicts admissible Earth–Moon orbital evolution.
- Show the hypothesis requires a magnetic chronology excluded by robust paleomagnetic evidence.
- Show the mechanism works only by assuming an unsupported literal Earth–Moon electrical circuit.

6.4 Paper-IV Boundary

Paper IV does not establish origin of life, habitability, atmospheric composition, ultraviolet shielding, oxygen production, encentropy, or the duration/intensity of an immediate high-discharge post-Day-Zero electromagnetic state. [4]

7. Cross-Paper Dependency and Failure Propagation

The papers are connected, but they are not chained together so tightly that one failed later idea destroys every earlier observation.

If this fails	What is lost	What can still survive
Paper I geometry	The canonical Day Zero three-domain reconstruction	Later mechanism papers lose their selected Day Zero target and cannot independently rescue it.
Paper II event class	A common physical event producing the three Earth-side domains	Paper-I geometry can remain an observational/reconstruction claim, but no Day Zero causal closure follows.
Paper III lunar branch	The claim that the same Day Zero event produced the Moon	Papers I–II can still survive as an Earth-event reconstruction.
Paper IV alternator	The stronger claim that the new Moon materially contributed to magnetic evolution	Papers I–III remain untouched; the Moon can still exist without the proposed magnetic contribution.

Table 4: Modular failure propagation. Downstream failures do not automatically erase upstream claims, but downstream claims may not be used to repair upstream failures.

The strongest continuity rule across the series is therefore:

> **A downstream paper inherits the upstream state. It may add consequences, but it may not silently retune the event, geometry, or boundary conditions that allowed the upstream paper to survive.**

8. Equation Index

These are not a single solved model. They are the small set of bookkeeping equations that tell an outside researcher what each paper is trying to constrain.

Paper	Object	Purpose
I	$\delta(\mathbf{e}, \mathbf{x}) = \cos^{-1}(\mathbf{e} \cdot \mathbf{x})$	Measure endpoint angular separation rather than assume exact antipodality.
I	$\mathbf{m} = (\mathbf{e} + \mathbf{x})/\|\mathbf{e} + \mathbf{x}\|$	Define the geometric middle for a non-antipodal endpoint pair.

Paper	Object	Purpose
I	$r_{\mathrm{mid}} = \cos^{-1}(\mathbf{h} \cdot \mathbf{m})$	Measure a candidate Middle Mountain residual from an independently determined middle condition.
II	$\gamma = M_I/M_T$, $\nu = v_I/v_{\mathrm{esc}}$	Describe collision mass ratio and speed without selecting a preferred impactor.
II	$Q_R = \mu v_I^2/(2M_{\mathrm{tot}})$	Compare gravity-regime collision severity across mass ratios.
II	$\Psi = Q_R/Q_{RD}^*$	Track event severity relative to an applicable disruption scale.
III	$\Pi_{\mathrm{II}} = \Pi_{\mathrm{III}}$	Prevent Paper III from changing the event that survived Paper II.
III	$\mathbf{L}_{\mathrm{after}} = \mathbf{L}_{\mathrm{Earth}} + \mathbf{L}_{\mathrm{bound}} + \mathbf{L}_{\mathrm{esc}}$	Minimal angular-momentum partition for the post-event lunar branch.
IV	$dL_E/dt \approx -\tau$, $dL_{\mathrm{orb}}/dt \approx +\tau$	Represent the established mechanical tidal exchange.
IV	$P_{\mathrm{tide}} \sim \tau(\Omega_E - n)$	Represent mechanically available tidal power.
IV	$\epsilon_{\mathrm{core}} = P_{\mathrm{tide}\to\mathrm{core}}/P_{\mathrm{tide}}$	Separate total tidal forcing from the portion that actually reaches dynamo-relevant core motion.

9. Terminology Atlas

Several words in Day Zero are labels for reconstruction roles, not claims that the mechanism has already been proved.

Entrance	The proposed Antarctic source-side response domain in the reconstruction. The label does not by itself prove penetration.
Middle Mountain	A geometric/causal role assigned to the inherited Hawai'i/Mauna Kea domain; it is not merely a synonym for "tall mountain."
Exit	The proposed Arctic far-side response/source domain. It does not require a literal intact projectile to traverse Earth unless a stronger Class-C claim is separately made.
Sequence correction	Reversal or accounting of a later, independently registered ABC transformation when reconstructing an older inherited state.
Toroidal-like response	A possible transient redistribution/survival topology in Paper II. Global redistribution is required; a torus is not.
Lunar reservoir	Earth-associated material generated by the same Day Zero event that may later evolve into the Moon. It is not the finished modern Moon.

Alternator	An analogy for long-lived Earth–Moon mechanical coupling and a candidate magnetic consequence. It is not a literal electrical circuit.
Jump-start	Paper-IV shorthand for onset, reset, strengthening, or renewed sustainment of an important stage of terrestrial dynamo evolution.

10. Observation, Reconstruction, and Inference Map

The fastest way to misunderstand Day Zero is to treat an observation, a reconstruction label, and a causal conclusion as if they were the same thing.

Layer	Examples in the canon	What it does not automatically establish
Observation	Present topography/bathymetry, Mauna Kea submarine relief, Arctic/Antarctic physical domains, Earth–Moon mechanical tidal coupling, lunar compositional constraints	A common Day Zero cause
Reconstruction	Antarctic Entrance, Middle Mountain role, Arctic Exit, sequence-corrected Hawai'i/Paco state	That an impact or trans-Earth pathway actually occurred
Physical admissibility	Global impact coupling, survival windows, Earth-bound lunar-forming states, tidal forcing channels	That the specific Day Zero event occupied the required parameter region
Causal interpretation	One formative event generated the three-domain Earth response, Moon, and later alternator	Validation of the full replacement-level framework

Table 6: Layer separation used across the series.

11. Open Research Invitations

This is the part deliberately left for other scientists. Each problem is narrow enough to attack without accepting the whole framework first.

11.1 Geometry and Reconstruction

- Independently specify admissible Antarctic and Arctic domains and quantify how much directional information they actually provide.
- Reconstruct the approximately 256 Ma Hawai'i/Paco modification without using the desired Day Zero result as a calibration target.
- Build explicit null models for middle-domain placement and quantify the selection effect.

- Test whether sequence-corrected Hawai'i/Paco remains compatible with an independently determined historical middle condition.
- Test whether the cross-sequence relief-extrema correspondence in Table 3 survives an explicit global null model, or whether equally striking high–low pairings arise readily by chance or selection.

11.2 Planetary Impact and Survival Physics

- Map the common-cause feasibility window in Π_{min} where one event produces the entrance, middle, and Arctic responses while leaving a recognizable Earth.
- Quantify global propagation, antipodal response, attenuation, melt, and remnant survival under realistic early-Earth states.
- Record whether toroidal-like redistribution emerges naturally in surviving cases; do not impose it.
- Test Class C only if a literal material-transit claim becomes independently necessary.

11.3 Lunar Mass Transfer

- Using only Paper-II-surviving events, partition Arctic-exit material into reaccreted, escaping, and retained Earth-associated branches.
- Determine whether the retained branch can remain dynamically useful rather than promptly reaccreting.
- Compare source provenance, silicate/metal character, and angular momentum with lunar constraints.
- Do not retune the Paper-II event merely to improve the Moon.

11.4 Earth–Moon Alternator

- Starting from a Paper-III-compatible early Earth–Moon state, calculate tidal torque and available mechanical power.
- Bound ϵ_{core} from actual coupling physics rather than choosing a convenient value.
- Test whether the resulting core forcing is dynamically meaningful while remaining compatible with orbital and paleomagnetic constraints.
- Distinguish mechanical coupling, which is established, from the stronger unresolved magnetic contribution.

11.5 Integrated Cross-Paper Test

The strongest eventual test is not four separately optimized fits. It is a single continuous state history:

$$\Pi_I \to \Pi_{II} \to \Pi_{III} \to \Pi_{IV},$$

where each transition preserves the constraints earned upstream. The integrated program becomes materially stronger only when the same event history survives all four modules without prohibited retuning.

12. Quarantined and Deferred Concepts

These ideas may be interesting, but they are not allowed to sneak backward into Papers I–IV as rescue mechanisms.

The following are deliberately outside the frozen four-paper canon unless a later paper develops them independently:

- Wilkes Land as the canonical Day Zero entrance anchor;
- the Mariana Trench as the Day Zero exit;
- any illustrative phone-picked Pacific coordinate as a frozen target;
- a prescribed viscoelastic rotating-Earth mechanism;
- a required toroidal deformation mechanism;
- an immediate global plasma/lightning/high-discharge "fuzzball" aftermath;
- detailed atmospheric reset, ultraviolet shielding, oxygen production, habitability, origin-of-life, or encentropy claims;
- a literal permanent Earth–Moon electromagnetic circuit;
- a unique exact Day Zero date, impactor identity, or exact impact parameter set not independently earned.

This quarantine is methodological, not rhetorical. A future paper may study one of these questions, but it must carry its own evidentiary burden.

13. Researcher Checklist

If somebody wants to challenge or extend Day Zero, these are the rules that keep the work useful.

Before crediting a result, ask:

1. Was the target defined before the result was inspected?
2. Did the calculation use the same upstream event state, or was it retuned downstream?
3. Is an observed feature being confused with a reconstructed role?
4. Is a physically possible mechanism being misreported as evidence that the Day Zero event actually occurred?
5. Was a later ABC transformation independently specified before being used in an earlier-state reconstruction?

6. Does a proposed rescue mechanism emerge naturally, or was it inserted because the model failed?
7. Is the claimed verdict proportional to the selectivity of the test?
8. Would failure of this result falsify only its own module, or is there a valid reason it should propagate upstream?

14. Companion Verdict

Paper V does not decide whether Day Zero is true. It records exactly what has been claimed, what remains open, and what would count as progress.

The frozen Earth: Day Zero canon currently contains four separate adjudicative layers:

1. a geometrically compatible but historically unresolved Middle Mountain reconstruction;
2. a partially admissible but unresolved common-cause event class;
3. an unresolved lunar mass-transfer consequence;
4. an established mechanical Earth–Moon coupling with an unresolved Day Zero magnetic contribution.

No layer is promoted beyond its frozen status. No downstream possibility is allowed to validate an upstream claim by association. The research program remains open precisely where the canonical papers say it is open.

The atlas maps the work. The unanswered physics stays unanswered.

References

[1] Fine, J. B. (2026). *Earth: Day Zero — Paper I: The Middle Mountain Sequence: A Geometry-First Reconstruction of a Formative Earth Event*. Frozen Canonical Version v1.0. Ontomics Research Program.

[2] Fine, J. B. (2026). *Earth: Day Zero — Paper II: The Event Class: A First-Principles Physical Test of the Entrance–Middle Mountain–Exit Sequence*. Frozen Canonical Version v1.0. Ontomics Research Program.

[3] Fine, J. B. (2026). *Earth: Day Zero — Paper III: The Lunar Consequence: A Minimal Exit-to-Moon Continuity Test*. Frozen Canonical Version v1.0. Ontomics Research Program.

[4] Fine, J. B. (2026). *Earth: Day Zero — Paper IV: The Earth–Moon Alternator: A Minimal Tidal-to-Dynamo Coupling Test*. Frozen Canonical Version v1.0. Ontomics Research Program.