THE BINNACLE

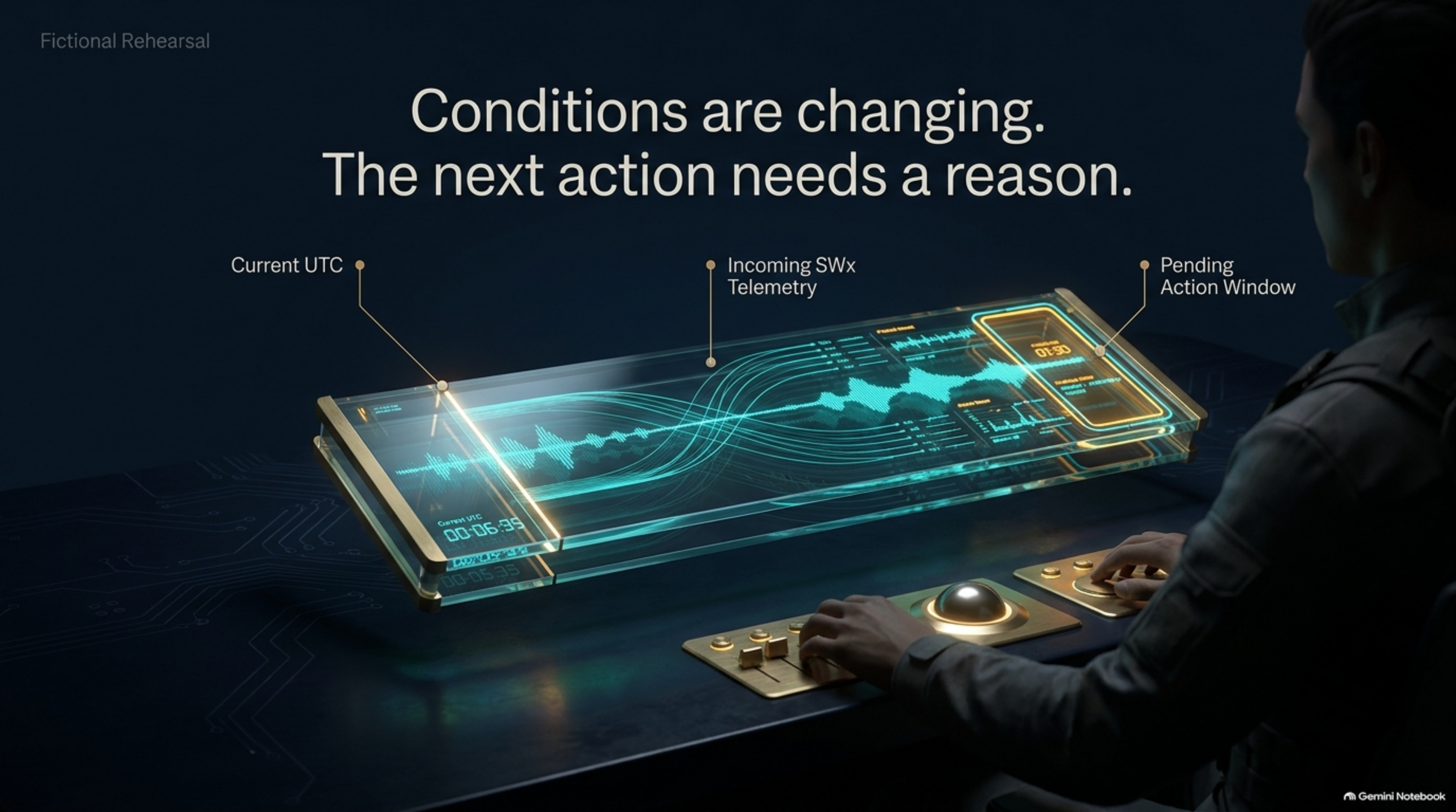
Space Weather Decision Desk



A record of what was known when a decision was made.

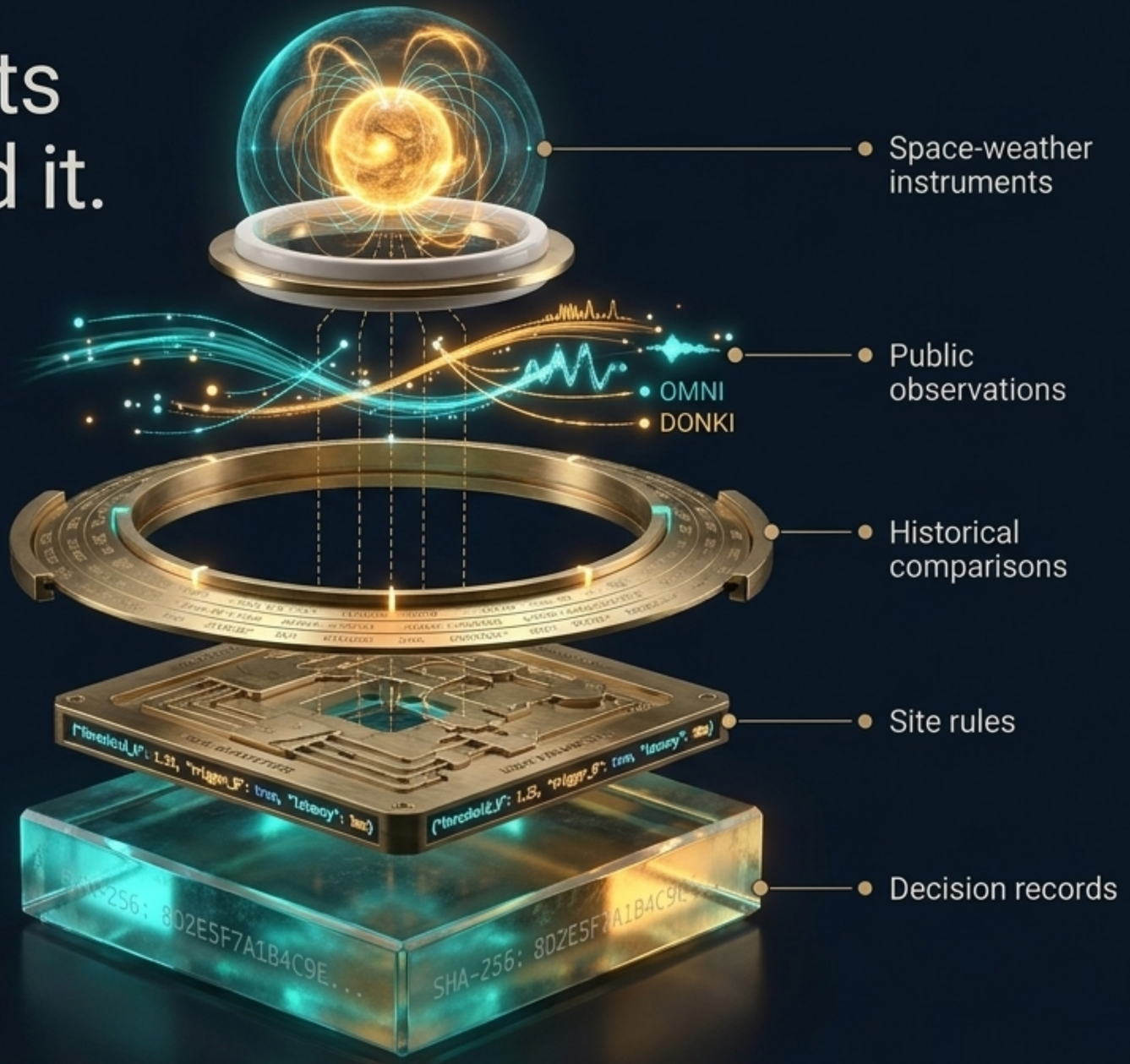
Gemini Notebook

Conditions are changing.
The next action needs a reason.



Gemini Notebook

Each decision connects to the evidence behind it.



Gemini Notebook

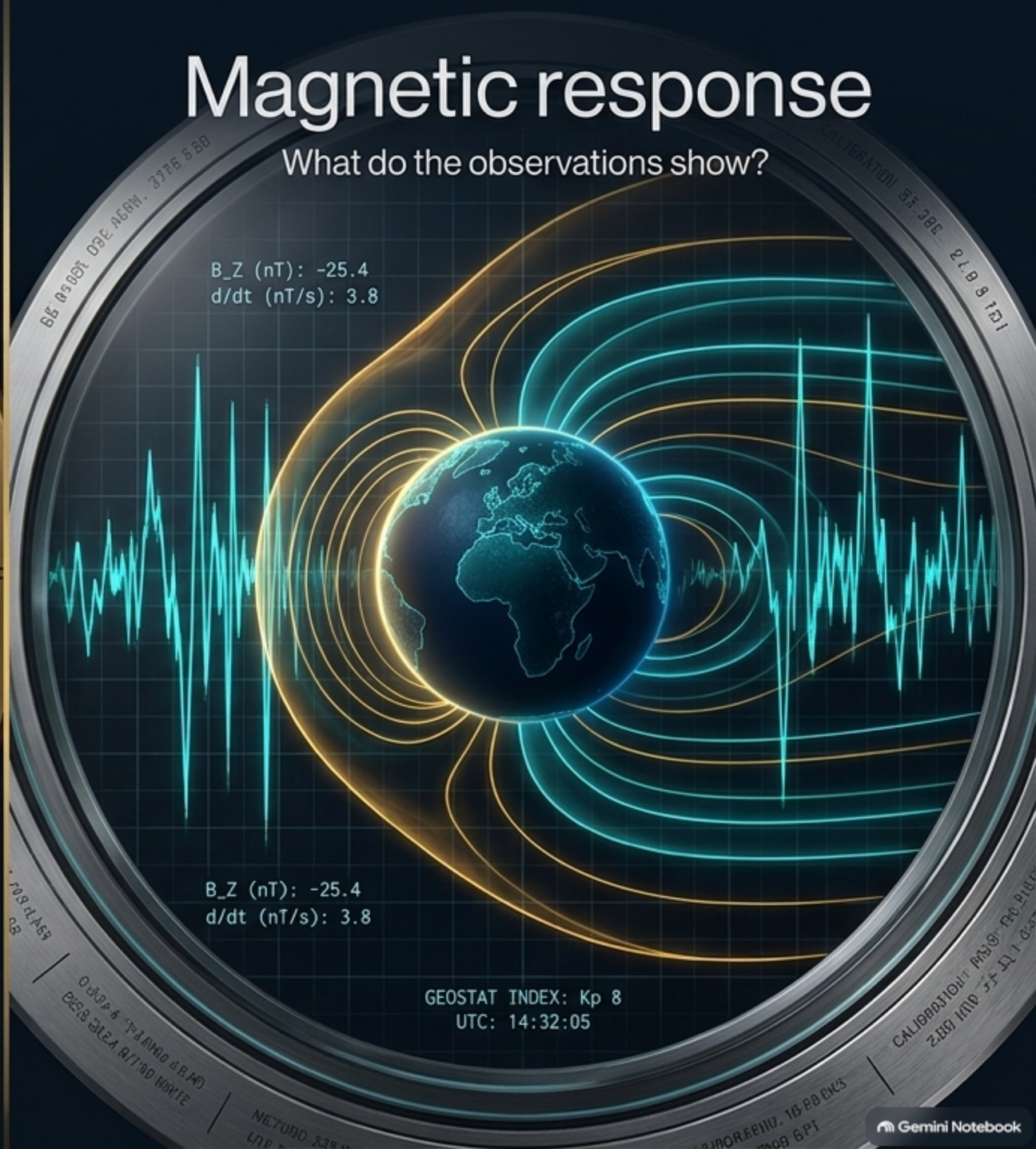
Ejection view

Where might the disturbance travel?



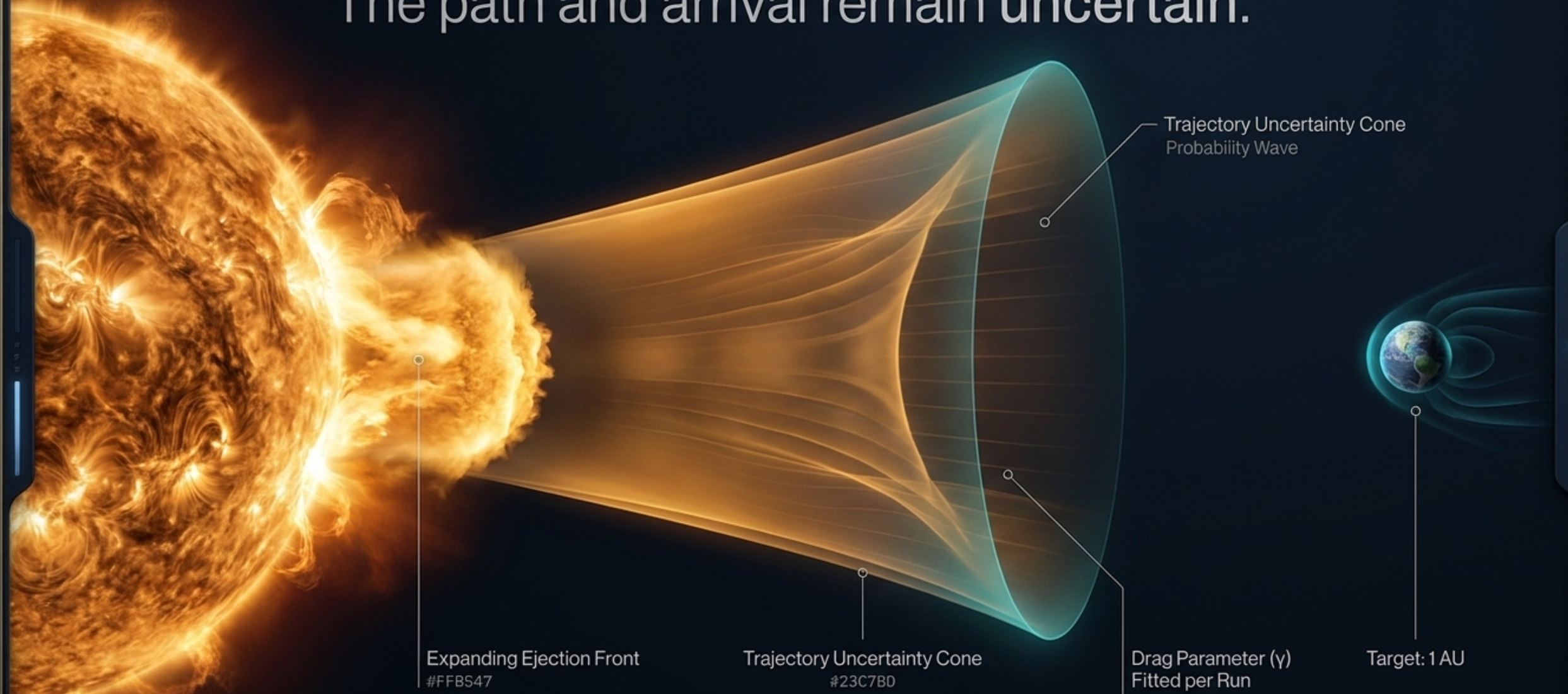
Magnetic response

What do the observations show?



Gemini Notebook

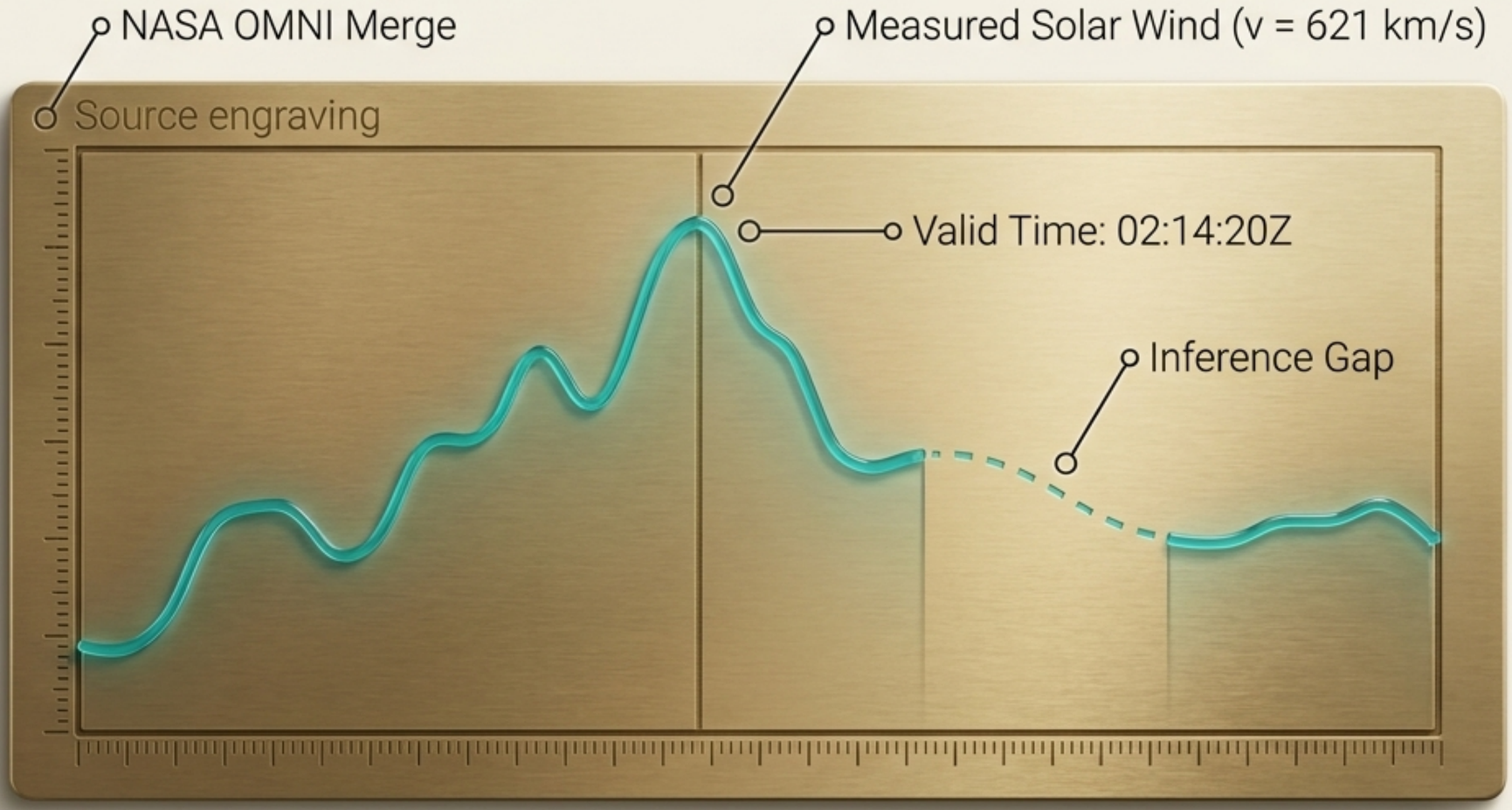
The path and arrival remain **uncertain.**



Conceptual Illustration (Not to scale)

Gemini Notebook

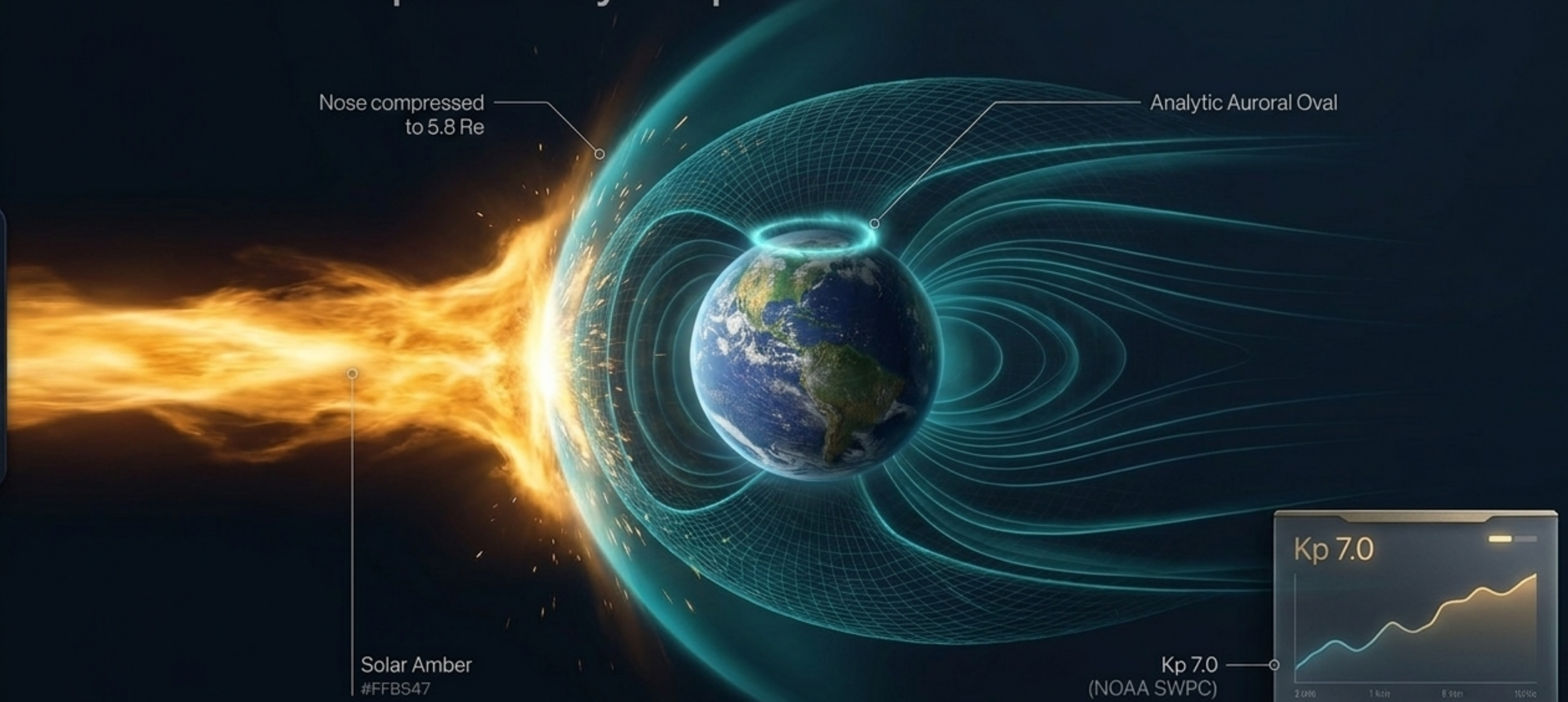
A reading has a value, a time, and a source.



Schematic representation

Gemini Notebook

The planetary response has its own record.



Gemini Notebook

Reviewers need to know where the evidence came from.

Coverage

Complete

Source

GFZ Potsdam
(Geomagnetic Record)



Retrieval time

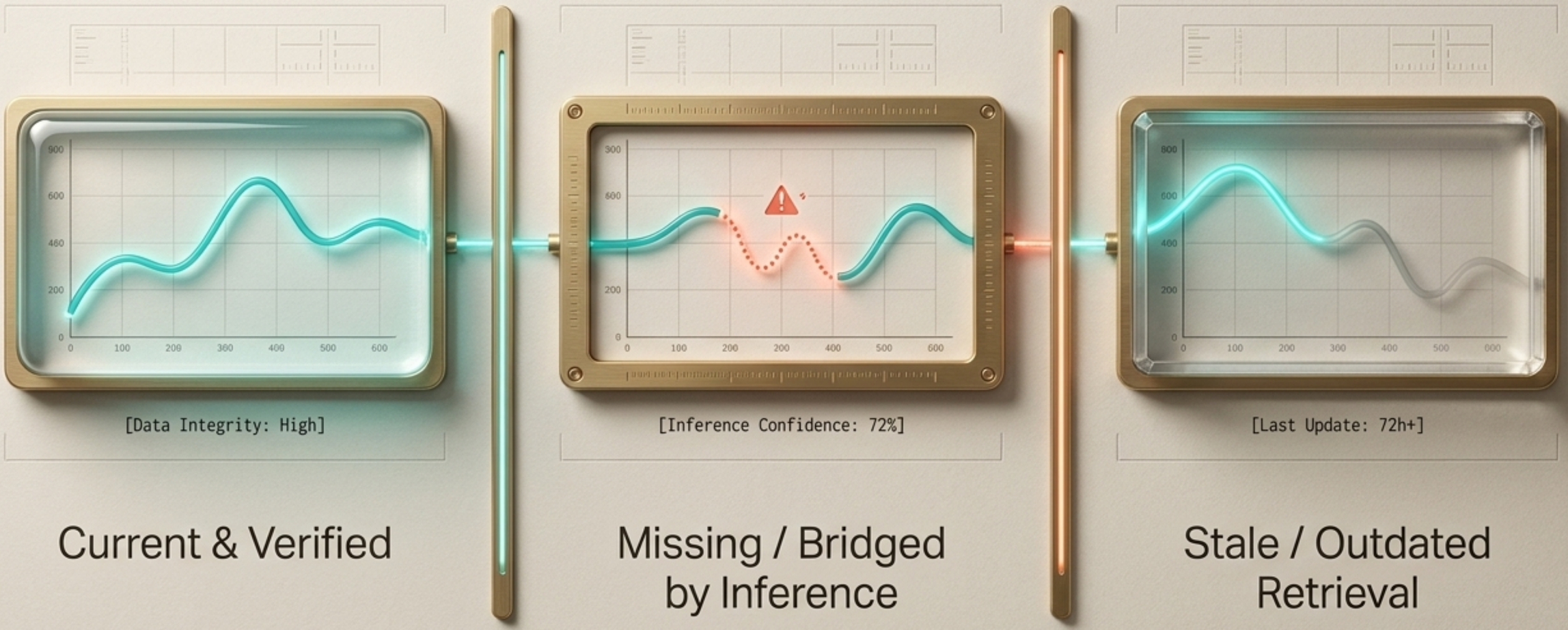
04 Jul 05:15Z

Observation time

04 Jul 05:00Z

Gemini Notebook

Uncertainty belongs in the decision record.



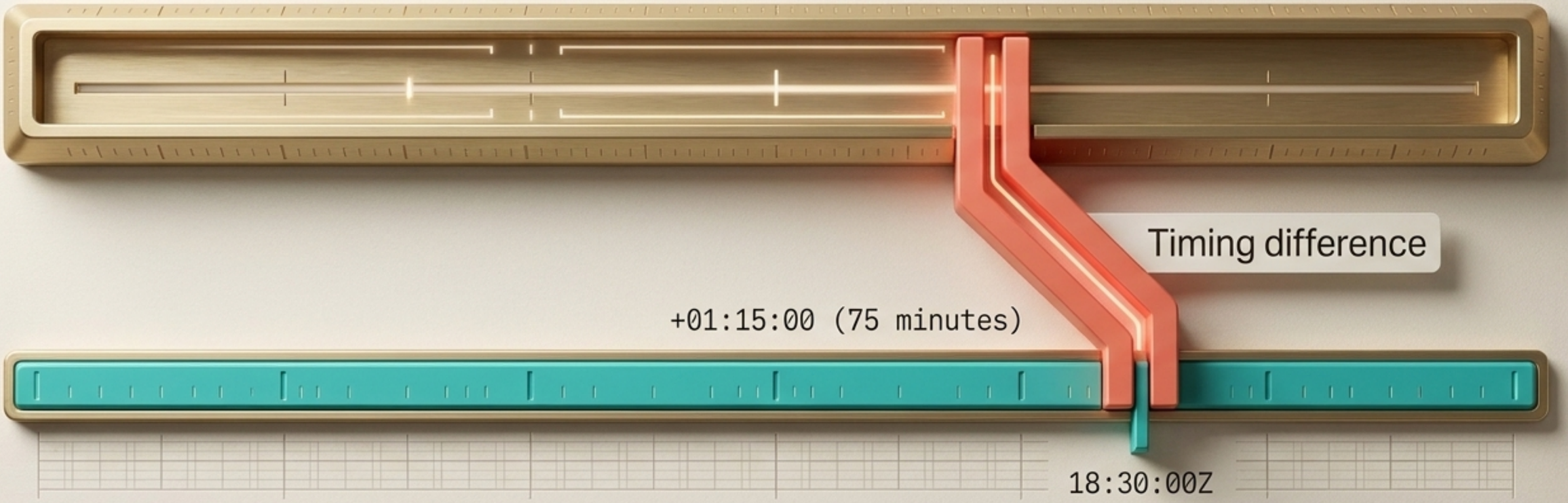
Current & Verified

Missing / Bridged by Inference

Stale / Outdated Retrieval

Gemini Notebook

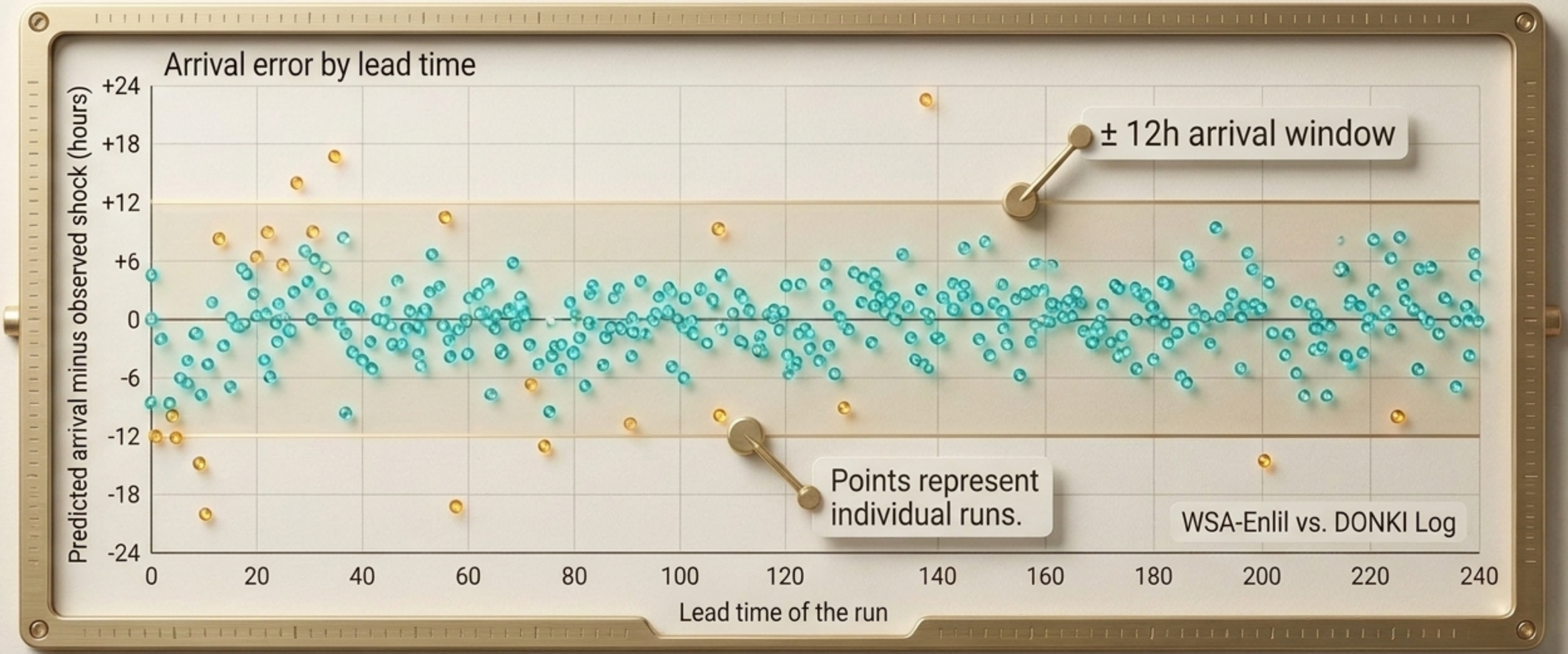
Forecast window (WSA-Enlil)



Recorded shock (DONKI catalog)

Gemini Notebook

One example cannot establish forecast performance.



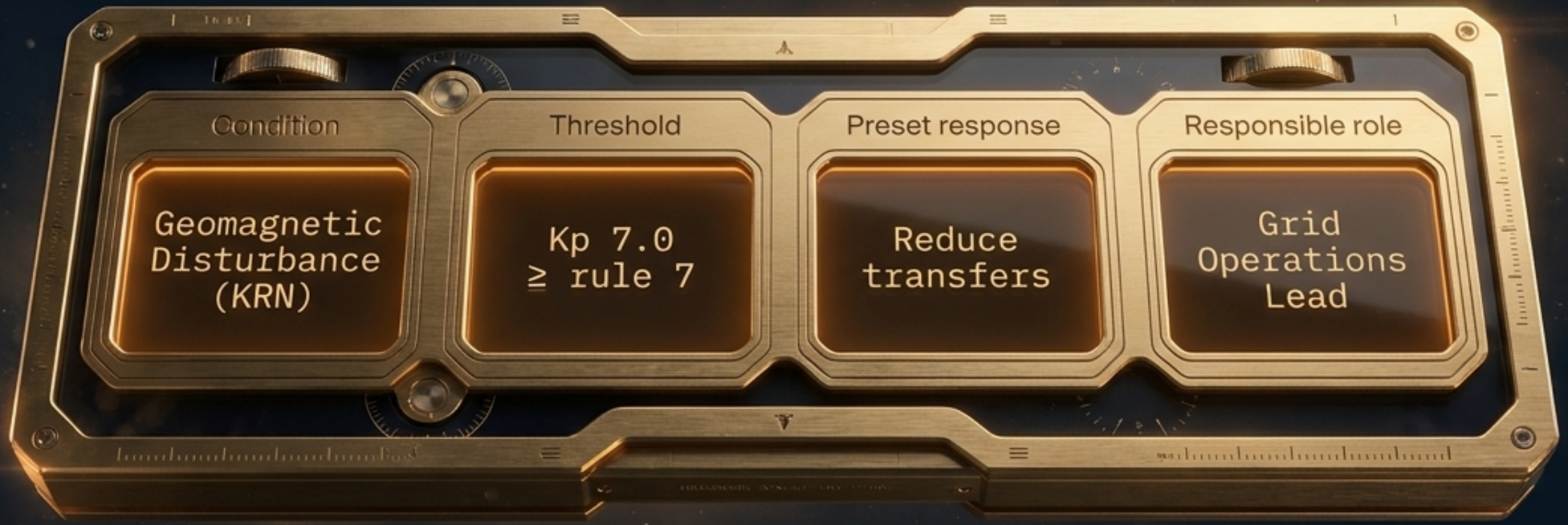
Gemini Notebook

The response depends on the site’s operating rules.



Gemini Notebook

The procedure exists before the pressure arrives.



Rehearsal Site Procedure

Gemini Notebook

The rehearsal makes the decision process inspectable.



Review



Context



Action



Record

Gemini Notebook

The record preserves the context of the choice.











Gemini Notebook

Linked hashes support checks for changes.



`studio.evidence.v1 pack payload: {seq, type, ts, actor, payload, prev, hash}`

Gemini Notebook

Integrity verification depends on a trusted reference.

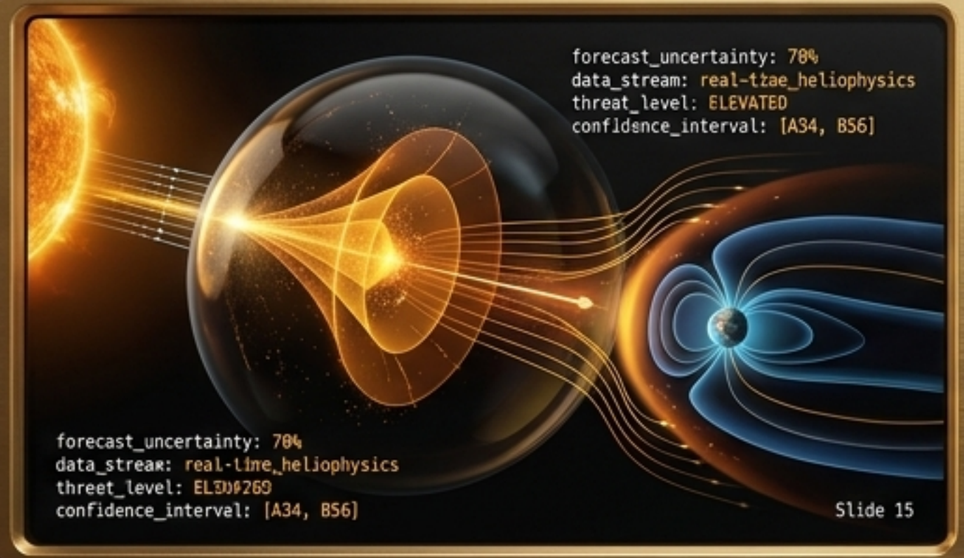
It does not establish whether the original observation or decision was correct.



Gemini Notebook

A fair review keeps those perspectives separate.

Known at the time



Observed afterward

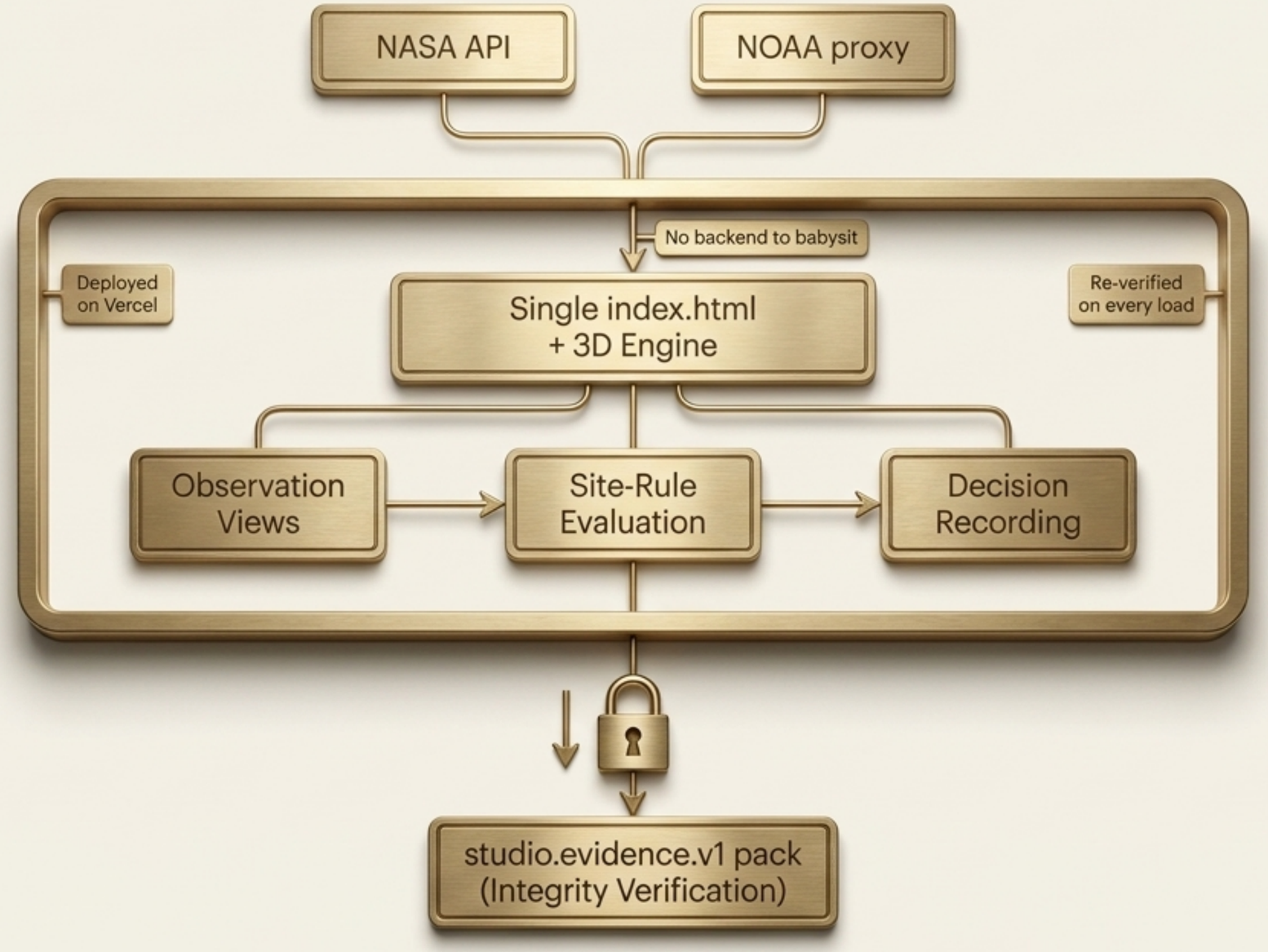
Shock log

log_id:	0xBF4A2B1D
timestamp:	2024-05-21T14:30:00Z
event_type:	INTERPLANETARY_SHOCK
source:	STEREO-A
magnitude:	X2.1
impact_time:	2024-05-21T16:45:00Z
status:	CONFIRMED



Gemini Notebook

Conceptual Architecture



Gemini Notebook

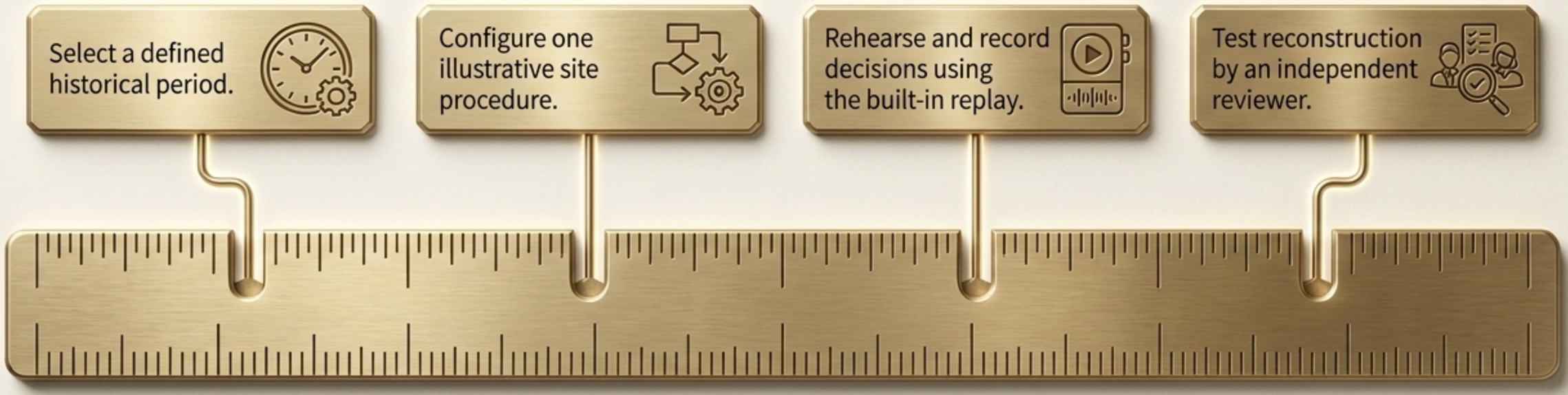
A workspace for rehearsal, analysis, and recorded decisions.



Official forecasting and warnings remain with the relevant authorities (NOAA SWPC).

Gemini Notebook

Proposed Pilot.



The first test is whether another person can reconstruct the decision.

Gemini Notebook

THE BINNACLE

What was known. What was decided. What the record can verify.



Gemini Notebook

Technical Reference

Forecast arrival 	Observed shock 
Observation time 	Retrieval time 
Missing data 	Measured value 
Hash linkage  0x2aF3...e9B1	Independently trusted verification 
Recorded evidence 	Evidence of correctness 

Gemini Notebook

Sources and Evidence Status

Scientific Background

Vršnak et al. (2013)
Drag-based model

Shue et al. (1998)
Magnetopause

Data Sources

NASA DONKI
(CMEs, shocks)

NASA OMNI merge
(Solar wind, Dst)

GFZ Potsdam
(Geomagnetic)

NOAA SWPC
(Forecasts, scales)

Product Documentation & Illustrative Material

studio.evidence.v1
payload definition

Identification of fictional rehearsal sites (Transmission substation under auroral oval)

Gemini Notebook