

FIELD REPORT 01 · EDS × COSMONUTZ ·
ESPINHO

When the sky blinked.

A custom environmental station watched a 97.9% partial solar eclipse unfold—one complete minute at a time.



DATE

12 August 2026

MAXIMUM

19:32:14 WEST

STATION

Espinho coastal site

99.0%

five-minute light reduction

+229.4 lux

recovery in 15 minutes

111 / 111

complete one-minute
samples

12 controls

nearby evenings
compared

THE SHORT VERSION

The light result is decisive. The thermal result is subtle.

EDS captured an unmistakable eclipse signature in ambient light. The minimum landed inside the exact one-minute sample containing astronomical maximum, then light increased while the Sun continued moving toward the horizon.

Temperature and humidity changed too, but the preselected matched evenings in this archive show that most of those changes overlap ordinary coastal sunset behavior.

DEFENSIBLE PUBLIC CLAIM

“EDS detected the eclipse in local ambient light and captured a possible small thermal response.”

**High confidence**

Eclipse detection through illuminance.

**Suggestive**

Small enhancement of evening cooling.

**Not established**

Humidity, pressure, or dew response caused by eclipse.

ONE PROJECT, FOUR PUBLIC-SAFE ENTRY POINTS

The report, replay, films, and source notes live together.

This canonical archive keeps the narrative report, synchronized replay, published film cuts, and reproducibility notes in one static bundle with relative paths only.

REPLAY

Synchronized event replay

Scrub the telescope proxy, discrete one-minute telemetry, control envelope, and the data-only epilogue after the camera stops.

FILM

6:20 review master

The museum-style field film stays cautious on temperature attribution while making the light result legible to a general audience.

NOTES

Source analysis

The long-form Markdown analysis names the defensible claims, control logic, and known limits without presentation-layer compression.

SCRIPT

Dependency-free asset generator

The Python script documents the expected telemetry export and writes the SVG, JSON, and compact event-window CSV used by this archive.

A NEAR-TOTAL SUNSET ECLIPSE

One hour, fifty minutes of changing light.

Espinho remained outside the narrow path of totality. The station experienced a 97.9% partial eclipse, beginning with the Sun around 22° above the horizon and ending near 1° .

FIRST CONTACT

18:35:08WEST · Sun $\approx 22^\circ$

MAXIMUM

19:32:14

WEST · 97.9% coverage

LAST CONTACT

20:25:33WEST · Sun $\approx 1^\circ$

Circumstances cross-checked against the [local Espinho eclipse calculation](#) and [NASA's 2026 eclipse overview](#).

AMBIENT ILLUMINANCE

A V-shaped signature centered on maximum.

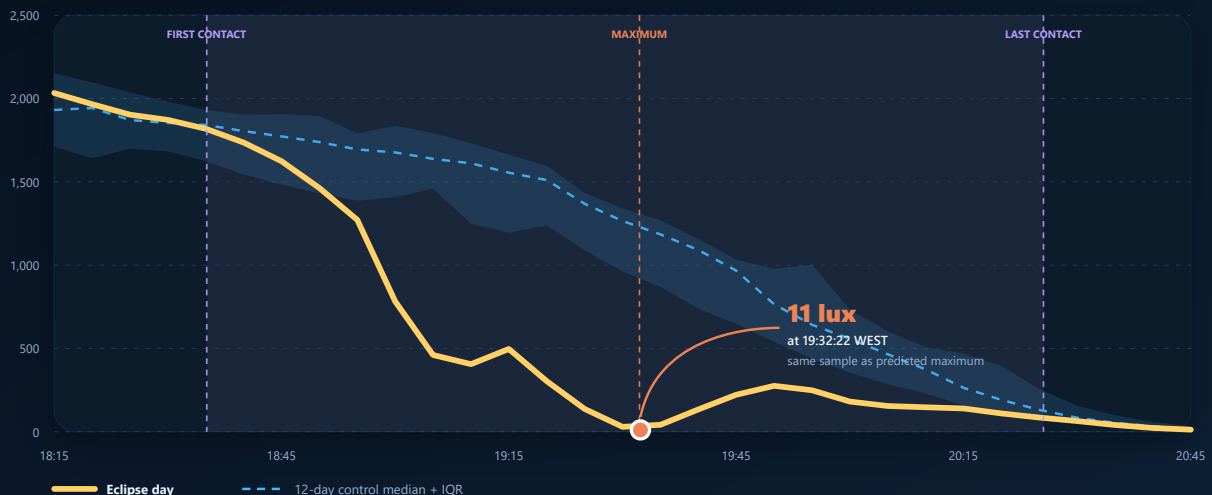
The yellow trace is the eclipse evening. The dashed line and blue envelope summarize 12 nearby evenings at the same local times.

EDS | ECLIPSE EVENT REPLAY

At 19:32, the sky blinked

Ambient light collapsed at astronomical maximum—then rebounded against the sunset trend.

AMBIENT LIGHT (LUX) - FIVE-MINUTE MEAN

**99.0%**

light reduction

+229.4 lux

15-minute rebound

111 / 111

complete one-minute samples

Source: EDS live telemetry · Espinho · 12 Aug 2026 · Times WEST

TIMING

+8 seconds

The 11-lux sample followed predicted maximum by only eight seconds.

DEPTH

−99.0%

The five-minute mean collapsed from 1,818.4 to 17.8 lux.

RECOVERY

+229.4 lux

Light increased after maximum despite the continuing sunset.

WHAT WOULD SUNSET NORMALLY DO?

A sunset curve should not make a V.

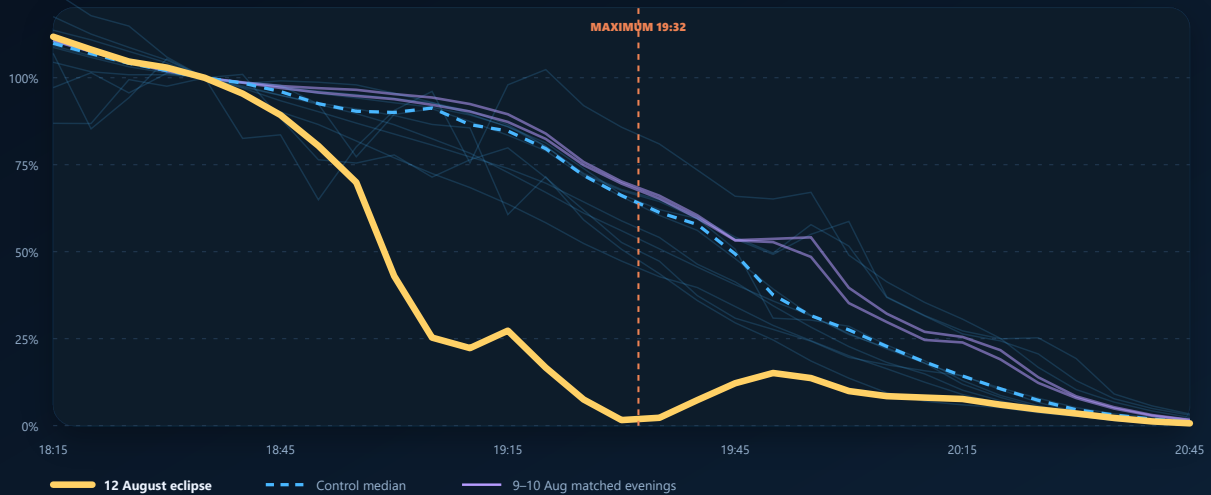
Each evening is normalized to its own light level at first contact. This removes much of the bias from different starting brightness and exposes the distinctive event shape.

EDS | CONTROL-DAY TEST

A sunset curve should not make a V

Each evening is normalized to light at first contact. Only 12 August collapses and rebounds.

LIGHT RELATIVE TO FIRST CONTACT



At maximum: **eclipse light = 1.0% of first-contact light**

The direction reversal after maximum is absent on all 12 controls.

control range = 45.8–83.7%

Source: EDS five-minute means · 5–17 Aug 2026 · Times WEST

ECLIPSE AT MAXIMUM

1.0%

of first-contact light

vs

CONTROL RANGE

45.8–83.7%

of first-contact light

Every control evening continued to darken during the 15 minutes after maximum, declining by 101.6–436.8 lux. The eclipse evening instead recovered by 229.4 lux. A passing cloud could create a brief brightness change, but the depth, timing, and direction reversal together make the eclipse the best-supported explanation in this dataset.

TEMPERATURE, HUMIDITY, DEW POINT, PRESSURE

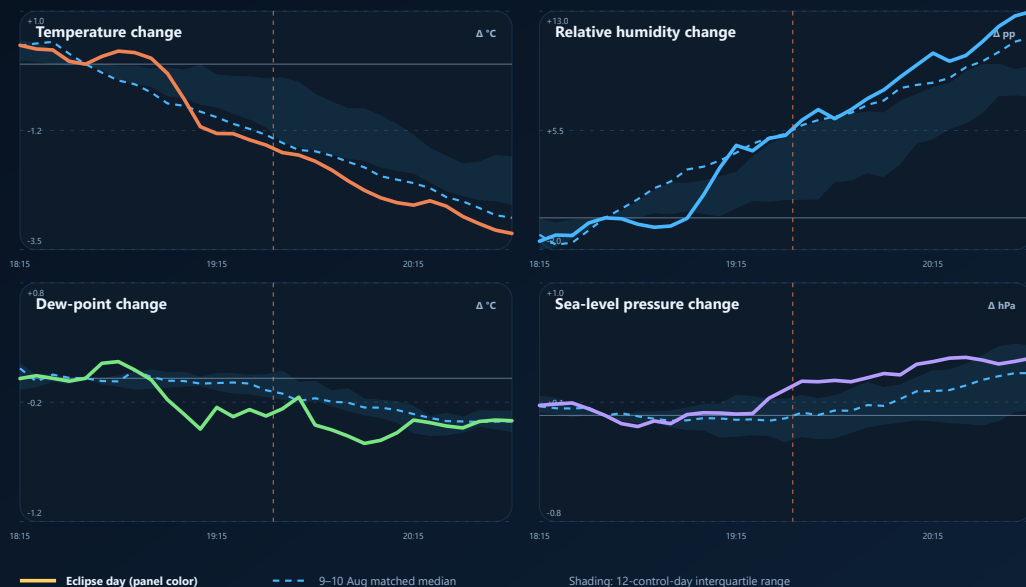
Interesting traces. Careful conclusions.

The eclipse curves are shown as changes from first contact. Dashed lines represent the two closest pre-event evenings; the shaded regions show the wider control distribution.

EDS | ENVIRONMENT RESPONSE

The light signal is decisive. The thermal signal is subtle.

Changes are measured from first contact and compared with matched sunset behavior.



Interpretation: cooling and humidification occurred, but their magnitude overlaps normal coastal sunset behavior.

Source: EDS five-minute means - change from first contact - Times WEST

T

Temperature

–1.59 °C

Only 0.19 °C more cooling than the preselected matched evenings by maximum. Plausible, but not separable with confidence.

RH

Humidity

+5.27 pp

The preselected matched evenings rose 5.49 points. This looks like normal relative-humidity response to evening cooling.

DP

Dew point

–0.36 °C

Much steadier than air temperature. Saturation tendency increased, but no distinct eclipse-driven dew event is established.

P

Pressure

+0.23 hPa

Fully inside normal nearby-day variability and too confounded for eclipse attribution.

FIVE-MINUTE CENTERED MEANS

Move through the event.

Choose a stage to inspect
the local environment. The
printable report presents
the maximum-eclipse state.

MAXIMUM ECLIPSE

19:32:14

WEST

LIGHT

17.8 lux

TEMPERATURE

23.73 °C

HUMIDITY

75.26%

DEW POINT

19.09 °CSEA-LEVEL
PRESSURE**1020.38
hPa**

DEW SPREAD

4.64 °C

INDEPENDENT FIELD SCIENCE, DISCIPLINED METHOD

Simple enough to explain. Careful enough to trust.

This is an observational field study, not a controlled experiment. The goal is to extract the strongest defensible evidence without disguising uncertainty.

01

Read-only extraction

18,442 read-only EDS rows from 5–17 August were used for the wider comparison export, with no database changes.

02

Five-minute means

Centered averaging uses all samples within ± 150 seconds of each target time, reducing the influence of any single noisy reading.

03

Twelve controls

Nearby evenings were compared at the same local clock times.

04

Matched evenings

9 and 10 August are bundled as preselected matched evenings based on pre-contact similarity; the selection rule is documented, not computed inside this archive.

05

Change from baseline

Environmental curves are expressed relative to first contact.

06

Independent timing

Local astronomical contact times were sourced independently from EDS, while camera-clock alignment remains provisional.

CAPTURE INTEGRITY

Every minute accounted for.

111 event-window readings · mean interval 60 s · maximum interval 60 s ·
no dropout between first and last contact



A SMALL STATION WITH A LONG MEMORY

The observer was already outside.

EDS combines a BME280 environmental sensor, BH1750 illuminance sensor, battery telemetry, and continuous time-series storage. The eclipse was not a staged experiment: it was captured because the station was already operating as a persistent local observer.

The BH1750 record is used here as comparative lux, not calibrated solar irradiance. The archive also does not bundle independent wind or cloud observations, so environmental attribution stays deliberately modest.



EDS station development and installed enclosure. These are station-context images, not eclipse photographs.

01 Air temperature, humidity, and pressure

02 Ambient light in lux

03 Derived dew point and sea-level pressure

04 Battery and signal-health context

05 One-minute continuous telemetry

WHAT THIS FIELD REPORT SUPPORTS

A very strong detection. A deliberately modest claim.

01 • DETECTED

The eclipse is written unmistakably into the light data.

The timing, depth, and rebound agree with the astronomical event and separate cleanly from nearby evenings.

02 • POSSIBLE

A small thermal contribution remains plausible.

Cooling was slightly stronger than the preselected matched evenings, but the estimated excess was only 0.15–0.19 °C.

03 • UNPROVEN

No unique humidity, dew, or pressure effect is established.

Those traces overlap routine coastal sunset behavior and lack independent wind or cloud controls.

MY ASSESSMENT

This is an excellent EDS case study precisely because it contains both a spectacular result and a boundary. The system detected a celestial event almost to the minute while also showing why scientific storytelling must distinguish correlation from attribution. That combination—wonder plus restraint—is stronger content than an exaggerated weather claim.

WHAT LIMITS THE CONCLUSION

One event. One station. One sunset.

- ✗ No direct cloud-fraction or wind measurement
- ✗ Eclipse and normal evening cooling overlap
- ✗ Air temperature responds more slowly than light
- ✗ Local airflow and enclosure lag may matter
- ✗ Lux is used comparatively, not as calibrated irradiance

WHAT TO DO NEXT

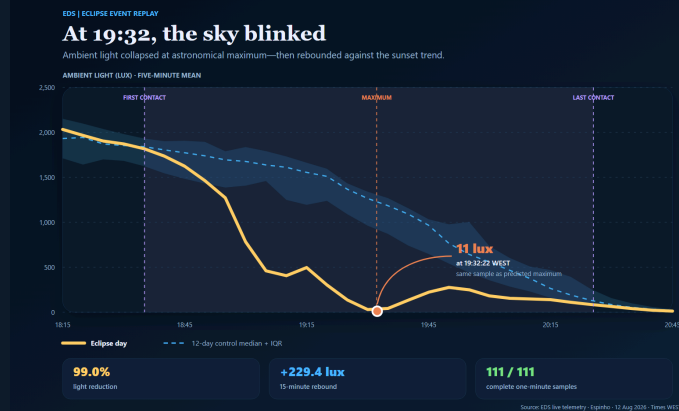
Turn one beautiful trace into a repeatable protocol.

- 01 Add independent cloud, wind, and visibility observations.
- 02 Fit expected sunset curves and examine lagged residuals.
- 03 Quantify enclosure thermal lag on stable clear evenings.
- 04 Preserve this as a named EDS event window.
- 05 Repeat across multiple stations and future eclipses.

MADE TO TRAVEL

One dataset. Four visual stories.

Use the SVG masters for layout work and the PNG exports for direct posting, presentations, and documents.



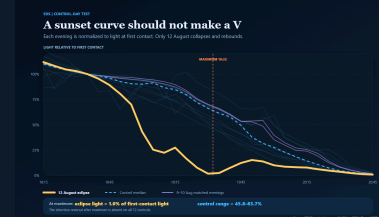
Hero light curve

Landscape article or presentation lead



Social card

Cosmonutz / EDS carousel cover



Control test

Scientific credibility and method

MOVING-IMAGE ARCHIVE

The same evidence, cut for different audiences.

Every cut keeps the same scientific boundaries: decisive light detection, a possible small thermal contribution, and no claimed unique humidity, dew-point, or pressure effect.

RECORDED · HIGH CONFIDENCE

WORKING CAMERA-CLOCK ALIGNMENT

11 lux

Minimum event-window reading · 19:32:22 WEST
Five-minute mean · 17.8 lux · 99.0% below first contact

Review master

6:20 LANDSCAPE MUSEUM CUT

90 S

Science cut

Confidence-led summary for technical viewers and short presentations.

90 S

Silent exhibition loop

Gallery-safe loop with no narration and disclosed telemetry framing.

60 S

Vertical social cut

Maximum, reversal, and restraint in a concise mobile format.

30 S

Vertical explainer

The reversal against sunset does most of the scientific storytelling.

15 S

Maximum reveal

Predicted maximum, 11 lux, and the eight-second offset with no claim of finer sampling cadence.

EIGHT MINUTES AROUND MAXIMUM

The raw minimum, row by row.

Times below are local
WEST. Values are
unaveraged one-minute
station readings.

TIME	LUX	TEMP °C	RH %	DEW °C	SLP HPA
19:28:22	59	23.84	75.56	19.26	1020.29
19:29:22	40	23.80	75.23	19.15	1020.36
19:30:22	24	23.79	75.13	19.12	1020.36
19:31:22	14	23.79	74.84	19.06	1020.36
19:32:22	11	23.72	75.13	19.05	1020.38
19:33:22	15	23.68	75.05	18.99	1020.40
19:34:22	25	23.66	76.14	19.21	1020.42
19:35:22	40	23.64	76.58	19.28	1020.43

Sources

1. [NASA — Total Solar Eclipse on 12 August 2026](#)
2. [Local Espinho eclipse circumstances](#)
3. [Espinho public eclipse notice](#)
4. EDS live **device_data** read-only export, captured 18 August 2026

Reproducibility

The visual assets and derived public dataset are generated by:

`scripts/generate_eclipse_assets.py`

The script expects a read-only telemetry CSV export and writes only into this archive's local **assets/** tree. The bundled 111-row CSV is public-safe, but it is not sufficient by itself to reproduce the wider control metrics or matched-evening selection.

The logo for Environmental Data Station (EDS), consisting of the letters 'EDS' in a bold, blue, sans-serif font.

Environmental Data Station
Independent field report · 18 August 2026