REAL-DATA TEST / PUBLIC SAMPLE

GNSS observation quality

A structured view of a static observation session: what was retained, how the solution varies, and which checks still need review.

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OBSERVATIONS 28 SEP 2026 | PUBLIC TEST SAMPLE 15 OCT 2026

60.5
minutes
Observation duration

3,629
received epochs
Before quality screening

2,895
retained epochs
Used in the final estimate

From observations to a usable estimate

Counts below share the same denominator: all 3,629 received epochs.



- Used in estimate — **2,895 / 79.8%**
- Outliers removed — **503 / 13.9%**
- Quality-gate exclusions — **231 / 6.4%**

Precision needs context.

The session has small local scatter, but the report also records a weighting-model warning and larger variation across archived sessions. Read these results together.

READING ROUTE

02 Observation quality
03 Residual graphics
04 Precision & model
05 Repeatability
06 Reference & limits

Basis: 28 Sep 2026 report and processed observations. Percentages rounded.

01 / OBSERVATION QUALITY

A traceable quality chain

Separate initial data quality screening from the later outlier-removal step. The two operations remove different observations.

PROCESSING STAGE	EPOCHS	SHARE OF RECEIVED
01 **Received observations** — Input record	3,629	100.0%
02 **Passed initial quality gates** — 231 excluded at this step	3,398	93.6%
03 **Used after outlier screening** — 503 removed from valid observations	2,895	79.8%

Why observations were removed



CAPTURE

Static session
u-blox F9P-04B-01
ESP32 WiFi TCP bridge

SAMPLING

1.00 Hz reported
29 data gaps recorded
270 s longest reported gap

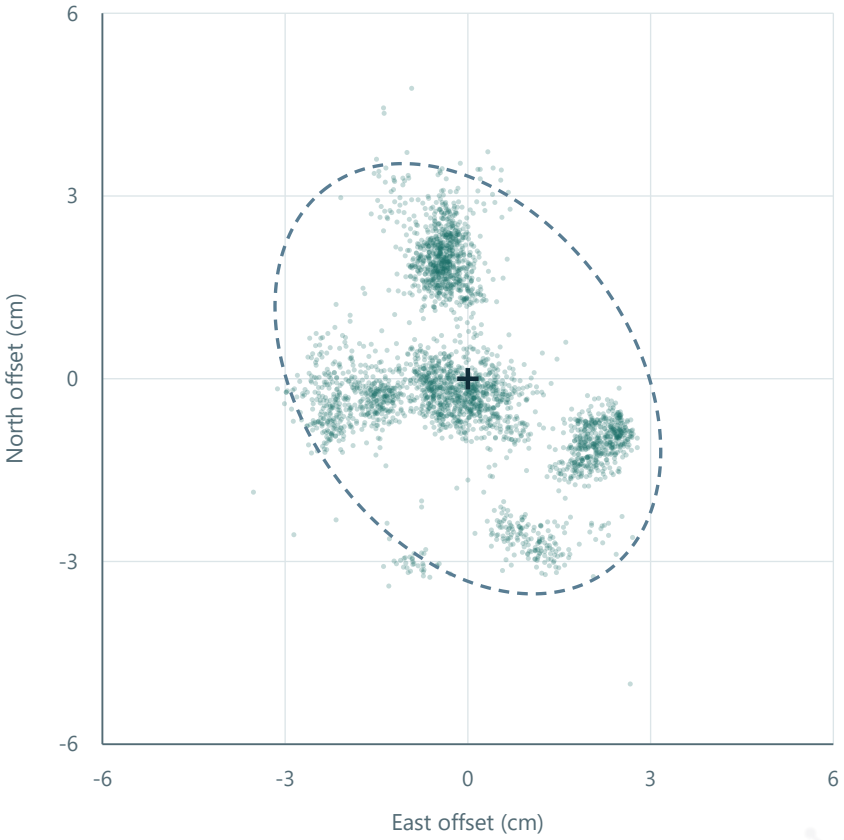
Sources: report pp. 8, 23; workbook Statistical Summary.

02 / RESIDUAL GRAPHICS

See the observation spread

All 2,895 filtered observations are shown relative to the recorded final estimate. Offsets are displayed in centimetres for readability.

HORIZONTAL SCATTER



READ THE PLOT

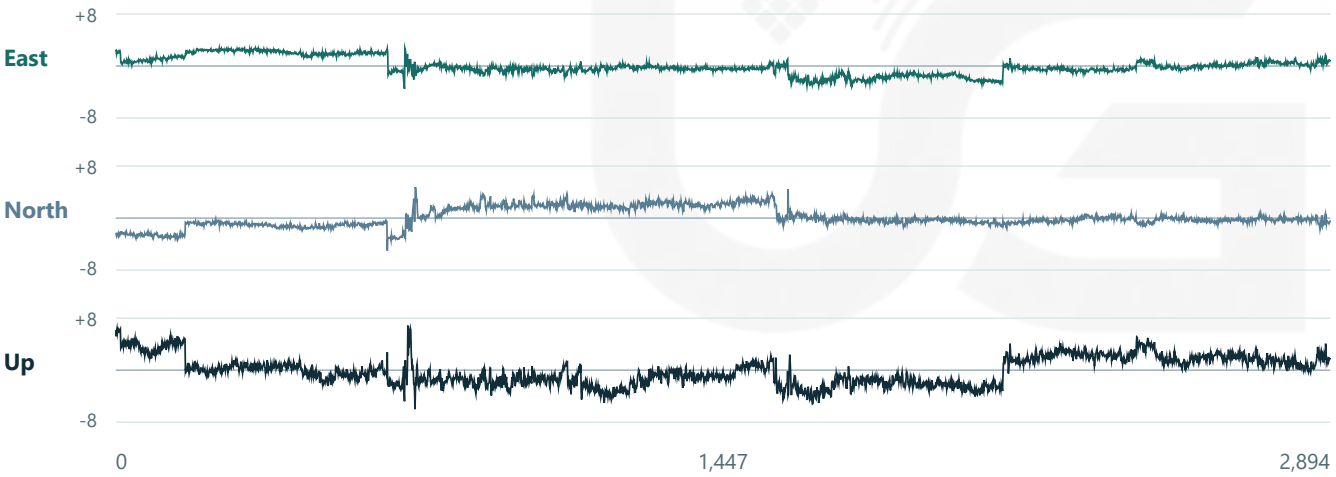
Each dot is a filtered observation. The cross marks the final estimate.

95% ellipse

Reported semi-axes
3.9 cm / 2.7 cm
Orientation: 126° from East

This shows local dispersion. It is not a comparison with an independently surveyed position.

Residuals by observation sequence



Shared vertical scale: -8 to +8 cm. Horizontal axis: filtered observation index.

Basis: filtered workbook observations; recorded final estimate; report p. 24.

03 / PRECISION & MODEL

What one session can establish

Report the spread, the confidence interval and the weighting-model check separately. They answer different questions.

1.3
cm / 1-sigma
East scatter

1.5
cm / 1-sigma
North scatter

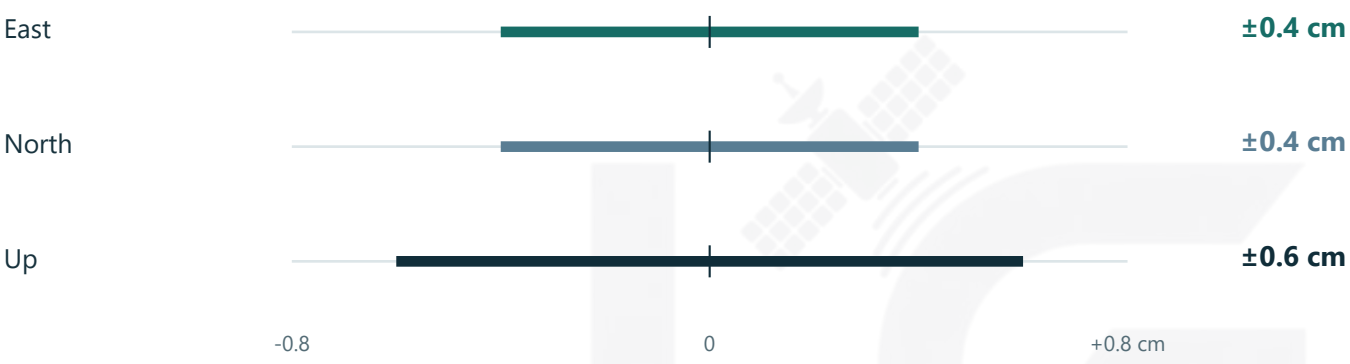
2.1
cm / 1-sigma
Up scatter

43.5
Effective sample size

2,895 retained epochs are temporally correlated.
Reported lag-1 autocorrelation: **0.970**.

95% intervals of the final estimate

Reported half-widths; these are not independent accuracy checks.



Weighting model needs review

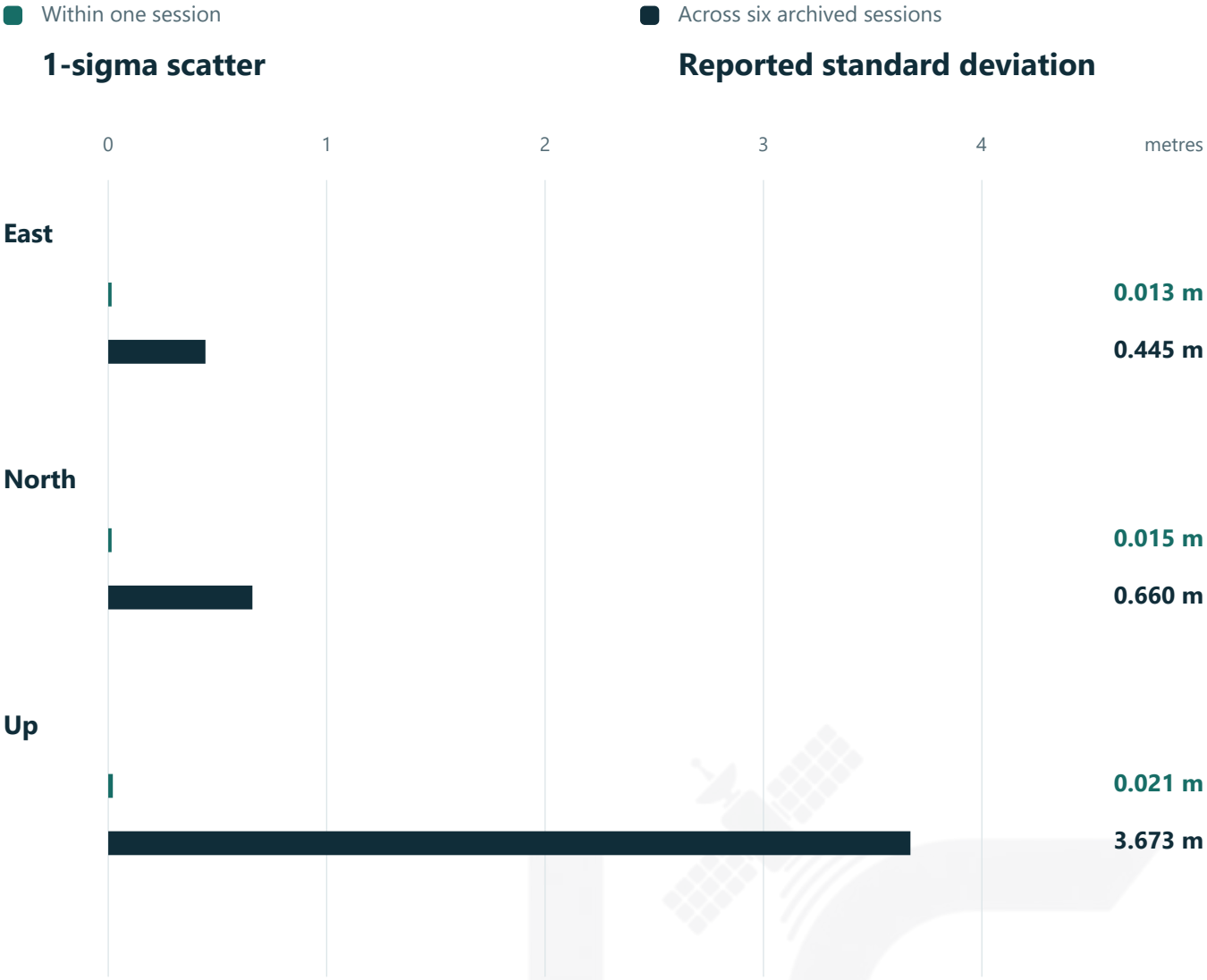
Variance ratio: **2.797**. Reported 95% acceptance band: **0.970-1.030**. The source verdict is outside band; the assumed noise model needs investigation.

Sources: report p. 15; workbook Statistical Summary. Display units converted to cm.

04 / REPEATABILITY

Look beyond a single session

Within-session scatter and variation across archived sessions are different statistics. Show both before drawing an engineering conclusion.



A stronger decision needs external checks.

Confirm that archived sessions are comparable, then use independent control and agreed acceptance criteria. Neither small scatter nor repeatability alone establishes absolute accuracy.

Sources: report pp. 15, 23. Cross-session values are reported, not independently reproduced.

05 / REFERENCE & LIMITATIONS

Method, reference and review

Keep the measurement context next to the results. The items below remain part of the interpretation, not fine print.

Processing	Recorded final estimator: weighted mean of a constant position. Quality gates and outlier screening precede estimation.
Reference frame	WGS84 geographic/ECEF representations are reported (EPSG:4979/4978). The SOI CORS realization and coordinate epoch need confirmation.
Time & height	Observation date: 28 September 2026 UTC. Receiver-geoid heights are approximate; an independent benchmark tie is not established.
Antenna metadata	Antenna height and ARP/APC details are not recorded in the source. These need confirmation for the intended survey use.
Privacy	Absolute coordinates, rooftop location maps and the private site label are excluded from this public sample.

WHAT WAS REDRAWN

Residual graphics use the 2,895 processed workbook observations, transformed to local ENU about the recorded final estimate. Their rounded standard deviations match the source summary. Counts and reported statistics retain their source values.

WHAT IS NOT ESTABLISHED

This is a real-data test presentation, not independent accuracy certification or a client case study. Raw-data processing, calibration and ground truth were not independently revalidated. Suitability for critical applications remains a separate review.

Source review: the original report also contains inconsistent receiver-upgrade and per-satellite wording. Resolve those statements before relying on the full report. Numerical model warnings and archived-session variation are retained here.