

CASE FILE 07 / 237UAP00338

237UAP00338

Radar/correlation-focused public UAP report; score 84

NORMAL-OBJECT FAVORED

REPORT NO.	UAP-OM-07-237UAP00338	DISPOSITION	NORMAL-OBJECT FAVORED
PRIMARY CASE	237UAP00338	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2024-01-16T03:55:00+00:00	OBSERVER	34.67607, -108.31300
SOURCE CASE IDS	237UAP00338		

Abstract

This case file evaluates a reported UAP sighting against historical Starlink orbital elements. The primary external-object candidate is a 3-object same-launch group from 2023-07-07, spanning azimuth 49.6-65.37 deg and elevation 17.35-26.82 deg. The analysis distinguishes plausible geometric overlap from unresolved witness-language features.

This is a standalone independent analysis prepared from public-source records and public orbital datasets. It is not an official government determination, classification marking, or agency-authored report.

1. Executive Summary

237UAP00338 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate 4bb19a at 15.5 km, azimuth 183.2 deg, elevation 34.48 deg, 4.41 min from report. Dense satellite presence alone is not treated as causation in this packet.

1.1 Key Findings

- Source score 84 based on: radar/primary-return language, negative official correlation, high-altitude report, maneuvering/motion anomaly, UAP/UFO language.
- Report time used: 2024-01-16T03:55:00+00:00.
- External object layer used: Starlink.
- Disposition standard: NORMAL-OBJECT requires case-specific causal fit. Satellite density above the horizon is context only and cannot by itself resolve the report.
- Case-specific ordinary-object evidence: strong ADS-B aircraft candidate 4bb19a at 15.5 km, azimuth 183.2 deg, elevation 34.48 deg, 4.41 min from report.
- Non-causal context / rejection screens: substantial orbital-object sky background; context only, not causation.
- Remaining hard features: hard maneuver language.
- Objects above horizon: 271; at/above 10 deg: 119.
- Top compact same-launch/designator group: 3 objects from 2023-07-07.
- No explicit Starlink/balloon wording was found in the source excerpt used for ranking.

1.2 Bottom Line

NORMAL-OBJECT FAVORED: A case-specific ordinary-object candidate exists from source language, orbital geometry, launch-object context, or compact trajectory grouping. Dense ordinary sky traffic alone is not treated as causation.

2. Source Control

The source-control table identifies the public report records reviewed for this case and lists public access links where available. The table is included so this PDF remains interpretable when distributed by itself.

CASE ID	REPORT DATE FIELD	FACILITY / TITLE	TEXT EXTRACT	PUBLIC PDF LINK
237UAP00338	03:55 01/16/2024 Callsign: JTZ839 Origin: LBB	ZAB Operator: JTZ Operator Type: Commercial	text extract present	237UAP00338.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon while W bound at FL400, 45NM ESE of ZUN. The unknown phenomenon was 2 white lights approximately 30NM in front of them rapidly maneuvering towards them then climbing 5,000 to 6,000 feet "faster than anything he has ever experienced." The UAP was not observed on ATC facility radar systems. DAL543 (ATL..LAS) and SKW3290 (GJT.. PHX) reported seeing the same lights. No evasive action taken by any aircraft. AWO advised.
REPORT TIME USED	2024-01-16T03:55:00+00:00
OBSERVER COORDINATE USED	34.67607, -108.31300
OBSERVER SOURCE BASIS	aviation_offset:45NM ESE of ZUN (public text extract 237UAP00338)

4. Methodology

- Spacetime extraction.** The report time and observer coordinate were extracted from the public text report and normalized to UTC. Aviation fixes/radials were resolved during earlier preprocessing where applicable.
- External object dataset.** The object layer used historical Space-Track/TLE-derived Starlink element rows. The analytic mode for this case is historical Starlink element propagation and same-launch/designator sky grouping.
- Propagation.** Orbital elements were propagated to the report minute and observer location. For launch-object checks, samples around the report minute were retained. For Starlink group checks, objects above the horizon were clustered by sky position and filtered for same-launch groupings.
- Comparison.** The output was compared against the report's count of lights, direction cue, motion language, altitude/radar language, and whether the file itself already suggested a satellite explanation.
- Causation standard.** Mere object presence above the horizon is treated as background context only. A normal-object disposition requires a case-specific causal fit, such as a named launch object, a compact same-launch trajectory group, or source language that directly supports that object class.
- Disposition assignment.** *Identified* means a specific normal object fits the report spacetime and the hard reported features do not materially conflict. *Normal-object favored* means a case-specific ordinary aerospace/orbital candidate exists, but it is not a full named identification. *Insufficient* means the file is too thin to carry high anomaly value. *High-value unresolved* is used when radar, video, rapid maneuver, or multi-witness features remain after reasonable normal-object checks.

5. External Object Evidence

5.1 Search Volume and Density

This table is a screening layer only. Objects above the horizon show background opportunity; they do not establish causation unless a specific object or compact trajectory group matches the reported behavior.

STARLINK CATALOG IDS CONSIDERED	5353	HISTORICAL ELEMENT ROWS	5310
ABOVE HORIZON AT REPORT MINUTE	271	AT/ABOVE 10 DEG	119
LARGEST SAME-SKY CLUSTER	87		

5.2 Same-Launch / Same-Designator Candidate Groups

#	LAUNCH DATE	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS	MEMBERS
1	2023-07-07	3	49.6-65.37 deg	17.35-26.82 deg	eastward, setting	STARLINK-5517, STARLINK-5049, STARLINK-6350

5.3 Primary Group Members

OBJECT	NORAD	LAUNCH	AZ	EL	RANGE KM	APPARENT MOTION	ELEMENT AGE H
STARLINK-5517	57249	2023-07-07	52.61	26.82	1097.47	eastward, setting	1.1
STARLINK-5049	57246	2023-07-07	65.37	20.4	1302.0	eastward, setting	1.09
STARLINK-6350	57226	2023-07-07	49.6	17.35	1431.33	eastward, setting	1.13

5.4 Bright-Sky Context: Top Starlink Objects by Elevation

OBJECT	AZ	EL	RANGE KM	APPARENT MOTION	LAUNCH DATE
STARLINK-6177	91.67	76.35	576.18	westward, setting	2023-06-12
STARLINK-30913	128.03	67.03	551.79	westward, setting	2023-11-20
STARLINK-3551	313.55	63.87	597.32	westward, setting	2022-03-03
STARLINK-2739	41.9	63.56	607.68	eastward, setting	2021-05-26
STARLINK-5095	73.53	59.27	646.77	westward, setting	2023-06-12
STARLINK-31002	335.11	59.14	563.89	eastward, setting	2023-12-03
STARLINK-5727	42.16	56.82	662.64	eastward, setting	2023-02-12
STARLINK-30519	271.16	55.54	667.75	westward, setting	2023-09-30
STARLINK-2521	174.74	50.55	691.9	westward, setting	2021-05-26
STARLINK-2704	87.92	48.87	708.47	westward, setting	2021-05-26
STARLINK-5262	188.03	47.53	710.28	westward, setting	2022-10-28
STARLINK-4507	148.07	44.35	744.91	westward, setting	2022-08-10

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	87	0.56-358.84 deg	10.0-59.27 deg	eastward, rising, eastward, setting, nearly fixed azimuth, rising, nearly fixed azimuth, setting, westward, rising, westward, setting
2	15	111.59-156.3 deg	11.94-44.35 deg	

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
				eastward, setting, westward, rising, westward, setting
3	6	174.19-192.39 deg	10.26-24.87 deg	westward, rising, westward, setting
4	2	313.55-335.11 deg	59.14-63.87 deg	eastward, setting, westward, setting
5	2	41.9-42.16 deg	56.82-63.56 deg	eastward, setting

5.6 Space-Track SATCAT Enrichment

Space-Track SATCAT metadata was pulled as a cached subset for NORAD catalog IDs appearing in this packet's evidence tables. This section adds owner/type/status context to the propagated object candidates.

PACKET SATCAT SUBSET ROWS	5370	FETCHED	2026-05-19T01:19:50+00:00
THIS CASE NORAD IDS CHECKED	33	SATCAT ROWS MATCHED	33
TOP OWNERS	US: 33		
OBJECT TYPES	PAYLOAD: 33		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
56880	STARLINK-6177	PAYLOAD	US	2023-06-12	n/a
58388	STARLINK-30913	PAYLOAD	US	2023-11-20	n/a
51887	STARLINK-3551	PAYLOAD	US	2022-03-03	n/a
48639	STARLINK-2739	PAYLOAD	US	2021-05-26	n/a
56885	STARLINK-5095	PAYLOAD	US	2023-06-12	n/a
58495	STARLINK-31002	PAYLOAD	US	2023-12-03	n/a
55587	STARLINK-5727	PAYLOAD	US	2023-02-12	n/a
57985	STARLINK-30519	PAYLOAD	US	2023-09-30	n/a
48648	STARLINK-2521	PAYLOAD	US	2021-05-26	n/a
48643	STARLINK-2704	PAYLOAD	US	2021-05-26	n/a
54207	STARLINK-5262	PAYLOAD	US	2022-10-28	n/a
53403	STARLINK-4507	PAYLOAD	US	2022-08-10	n/a

5.9 NASA / NOAA / ADS-B Expansion Layer

This source layer adds free NASA context that was previously missing from most packet cases. It is contextual evidence; it does not replace aircraft, satellite, balloon, or radar causation tests.

HOURLY UTC	2024011603
CLOUD AMOUNT	58.56%
PRECIPITATION	0.0 mm/hr
10 M WIND	3.84 m/s
TEMPERATURE	-3.22 C
RELATIVE HUMIDITY	79.56%
DONKI +/-1 DAY	CME: unavailable; FLR: 1; GST: 0

5.10 Horizons Sky Geometry Context

OBJECT	AZ	EL	APP MAG
Sun	272.51	-42.66	-26.78
Moon	253.84	18.03	-9.09
Venus	310.68	-71.61	-3.99
Mars	281.01	-58.68	1.40
Jupiter	239.83	53.90	-2.47
Saturn	259.77	-5.08	0.98

- Sun elevation was -42.7 deg, so this was a dark-sky/nighttime sighting.
- Moon was above horizon at azimuth 253.8 deg / elevation 18.0 deg.
- Planets above horizon: Jupiter (53.9 deg).
- NASA POWER cloud amount for the hour was 58.56%, with precipitation 0.0 mm/hr.
- DONKI event counts in +/-1 day: GST=0, FLR=1.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1366.0 MiB; planes-readsb-prod-0 1366.0 MiB
ADSB TRACKS DOWNLOADED	not yet exhausted	Requires targeted extraction from large daily history archives before claiming aircraft exhaustion.
NOAA GOES IMAGERY	not yet exhausted	Needed for cloud/lightning visual context.
NOAA GOES ABI/GLM MANIFEST	screened/present	Public S3 object availability for the report hour.
NOAA NEXRAD WEATHER RADAR	not yet exhausted	Weather radar only; not ATC radar.
NOAA IGRA RADIOSONDE	screened/present	Needed for balloon drift plausibility.
ASOS/METAR WEATHER OBSERVATIONS	screened/present	Nearest station surface observations around report time.

- ADSB.lol historical: extract aircraft traces from adsblol/globe_history_2024 for 2024-01-16, then filter +/-60 min and 250 nmi around 34.6761,-108.3130.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00338 at 2024-01-16T03:55:00+00:00.
- NOAA GOES: pull nearest ABI/GLM products for the UTC hour and render cloud/lightning map.
- NOAA NEXRAD: select nearest radar stations and render Level-II/III weather radar sweep around event time.
- NOAA IGRA: find nearest radiosonde station launches bracketing the event and model wind drift for balloon-like descriptions.
- Space-Track gp_history/decay: fetch exact historical element rows and decay/reentry status for top candidate NORAD IDs.

5.12 Weather, Imagery, and Balloon Query Plan

This plan identifies the concrete free sources needed for the next case-specific weather and balloon checks. These are not treated as completed exclusions until the data are downloaded and plotted.

GOES SATELLITE	GOES18
GOES ABI PREFIX	https://noaa-goes18.s3.amazonaws.com/ABI-L2-CMIPF/2024/016/03/
GOES GLM LIGHTNING PREFIX	https://noaa-goes18.s3.amazonaws.com/GLM-L2-LCFA/2024/016/03/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KGUP	Gallup Municipal Airport	102.50	35.51, -108.79
KAEG	Double Eagle II Airport	147.90	35.15, -106.79
KABQ	Albuquerque International Sunport	160.70	35.04, -106.61

STATION	NAME	DISTANCE KM	COORDINATE
KSOW	Show Low Regional Airport	161.90	34.26, -110.01
KTCS	Truth or Consequences Municipal Airport	186.60	33.24, -107.27

- KGUP: [IEM ASOS/METAR daily CSV query](#)
- KAEG: [IEM ASOS/METAR daily CSV query](#)
- KABQ: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072365	ALBUQUERQUE/INT.; NM.	159.50	35.04, -106.62
USM00072376	FLAGSTAFF; AZ	325.60	35.23, -111.82
USM00072364	SANTA TERESA; NM.	346.00	31.87, -106.70
USM00074626	WFO PHOENIX;	361.70	33.45, -111.95
USM00072274	TUCSON; AZ	366.30	32.23, -110.96

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 10-10 statute miles; no precipitation was reported in the retained observations; no low broken/overcast cloud ceiling was evident in the retained station observations. Surface ASOS/METAR observations describe airport-level weather and visibility; they do not by themselves prove conditions at the sighting altitude or line of sight.

STATION	DISTANCE KM	NEAREST OBS UTC	VIS SM	SKY	WIND DEG/KT	METAR
KGUP	102.50	2024-01-16T03:53:00 +00:00	10.00	CLR, M, M, M	50.00 / 3.00	KGUP 160353Z AUTO 05003KT 10SM CLR M06/M08 A3007 RMK AO2 SLP241 T10561078
KAEG	147.90	2024-01-16T03:47:00 +00:00	10.00	CLR, M, M, M	0.00 / 0.00	KAEG 160347Z 00000KT 10SM CLR M04/M09 A3003
KABQ	160.70	2024-01-16T03:52:00 +00:00	10.00	FEW25000, M, M, M	280.00 / 3.00	KABQ 160352Z 28003KT 10SM FEW250 03/M05 A3003 RMK AO2 SLP165 T00331050 \$

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 241.9 deg at 18.36 m/s; a passive balloon could drift about 132.2 km in two hours under this crude layer-average model. Radiosonde winds are sparse station soundings; balloon drift remains approximate without launch time, ascent rate, object altitude, and exact line-of-sight bearing.

STATION	NAME	DISTANCE KM	SOUNDING UTC	MEAN DRIFT BEARING	MEAN SPEED M/S	2H DRIFT KM	MAX WIND
USM00072365	ALBUQUERQUE /INT.; NM.	159.50	2024-01-16T00:00 :00+00:00	241.90	18.36	132.20	34.60 at 2229.00 m

5.17 NOAA GOES ABI/GLM Public File Manifest

GOES public S3 objects are listed for the report hour where available. This is an availability manifest, not yet a rendered satellite image.

SATELLITE	GOES18	BUCKET	noaa-goes18
ABI SAMPLE FILES	12	GLM SAMPLE FILES	12

ABI sample objects:

- [ABI-L2-CMIPF/2024/016/03/OR_ABI-L2-CMIPF-M6C01_G18_s20240160300214_e20240160309522_c20240160309593.nc](#)
- [ABI-L2-CMIPF/2024/016/03/OR_ABI-L2-CMIPF-M6C01_G18_s20240160310214_e20240160319522_c20240160319586.nc](#)
- [ABI-L2-CMIPF/2024/016/03/OR_ABI-L2-CMIPF-M6C01_G18_s20240160320214_e20240160329522_c20240160329589.nc](#)
- [ABI-L2-CMIPF/2024/016/03/OR_ABI-L2-CMIPF-M6C01_G18_s20240160330214_e20240160339522_c20240160340007.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2024/016/03/OR_GLM-L2-LCFA_G18_s20240160300000_e20240160300200_c20240160300208.nc](#)
- [GLM-L2-LCFA/2024/016/03/OR_GLM-L2-LCFA_G18_s20240160300200_e20240160300400_c20240160300420.nc](#)
- [GLM-L2-LCFA/2024/016/03/OR_GLM-L2-LCFA_G18_s20240160300400_e20240160301000_c20240160301010.nc](#)
- [GLM-L2-LCFA/2024/016/03/OR_GLM-L2-LCFA_G18_s20240160301000_e20240160301200_c20240160301215.nc](#)

5.18 ADSB.lol Historical Aircraft Track Extraction

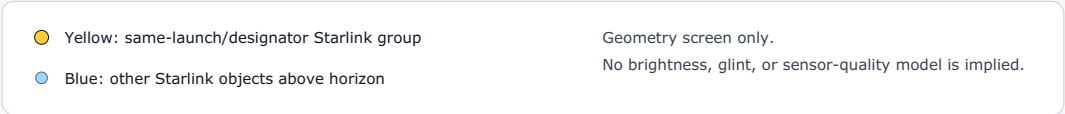
This layer uses the downloaded ADSB.lol daily history archive to test actual aircraft tracks near the report coordinate and minute. It is not treated as a primary-radar substitute; it is a transponder/receiver-derived aircraft screen.

ARCHIVE WINDOW	2024-01-16T02:55:00+00:00 to 2024-01-16T04:55:00+00:00	RADIUS	250.00 nmi
TRACE FILES SCANNED	41321	TRACKS RETAINED	520
SUPPORT STATUS	aircraft strong candidate present	BEST-CANDIDATE NOTE	ordinary-object favored if the report's count, color, direction, and motion can be reconciled with the candidate track(s).
STRONG CANDIDATES	8	PLAUSIBLE CANDIDATES	55
REPORTING-AIRCRAFT TRACKS EXCLUDED	4	WEAK CANDIDATES	75

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
4bb19a	strong aircraft candidate	87.90	15.30	0.05	34975	183.20	34.48
N753AN B772 aa253b	strong aircraft candidate	80.71	32.90	0.07	35000	144.00	17.04
N587UW A321 a791c0	strong aircraft candidate	75.76	34.50	0.13	32000	203.30	14.39
N572FE MD11 a75659	strong aircraft candidate	72.53	37.00	1.54	35975	333.40	15.18
N331FR A20N a39a13	strong aircraft candidate	71.75	63.30	0.12	36000	309.30	8.54
N720EV CRJ7 a9a404	strong aircraft candidate	71.46	54.70	2.12	37000	163.40	11.41
N361NW A320 a41144	strong aircraft candidate	70.73	1.30	0.04	33975	98.20	16.29
N630NK A320 a83ef2	strong aircraft candidate	60.54	74.00	0.09	36025	35.60	7.50

6. Annotated Evidence Figure



Generated figure copied from the local evidence-plot output. It is included as an analytic visualization, not as original sensor imagery.

7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2024-01-16T03:55:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	34.67607, -108.31300	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	three-object/light language present	Primary same-launch group contains 3 propagated objects in a compact sky sector.
MOTION LANGUAGE	climbing	Apparent motion labels in the object table provide a plausible but not definitive comparison.
RADAR / OFFICIAL CHECK	not observed on ATC radar	No ATC radar return can be consistent with distant orbital objects or visual aircraft-light hypotheses, but it does not prove the match.
ANALYTIC DISPOSITION	normal-object	237UAP00338 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate 4bb19a at 15.5 km, azimuth 183.2 deg, elevation 34.48 deg, 4.41 min from report. Dense satellite presence alone is not treated as causation in this packet.

8. Caveats, Limitations, and Collection Gaps

- No raw cockpit video, ATC replay, radar plot, or witness interview transcript was reviewed unless explicitly stated in the public source text.
- Aviation-derived coordinates can represent a nearby fix/radial or report point, not necessarily the actual line-of-sight intercept point.
- Starlink visibility depends on illumination, observer altitude, atmospheric conditions, and apparent brightness; this analysis tests geometry, not photometry. No brightness model is used unless explicitly stated elsewhere in the case file.
- TLE propagation is appropriate for screening and reconstruction but is not a substitute for authoritative operational ephemerides.
- When many satellites are above the horizon, generic presence is weak evidence and is not treated as causation. The report emphasizes named launch-object checks or compact same-launch trajectory groups.
- Normal-object favored is not the same as a perfect named-object identification; it requires a case-specific ordinary-object candidate stronger than simple object density.

Appendix A. Public Report Text Extracts

237UAP00338

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 03:55 01/16/2024
Status: Closed
POD: DEN
Reporting Facility: ZAB

Callsign: JTZ839
Aircraft: E55P
Tail Number:
Operator: JTZ
Paged: YES

Origin: LBB
Destination: LAS
New Destination:
Operator Type: Commercial
MOR Init: YES
MOR ID: ZAB-M-2024/01/15-0006

REMARKS

Aircraft reported an unidentified aerial phenomenon while W bound at FL400, 45NM ESE of ZUN. The unknown phenomenon was 2 white lights approximately 30NM in front of them rapidly maneuvering towards them then climbing 5,000 to 6,000 feet "faster than anything he has ever experienced." The UAP was not observed on ATC facility radar systems. DAL543 (ATL..LAS) and SKW3290 (GJT.. PHX) reported seeing the same lights. No evasive action taken by any aircraft. AWO advised.

Appendix B. Computational Evidence Digest

This appendix preserves the principal computed values used in the assessment, shortened to the fields most relevant to audit and review.

```
{
  "report_time_utc": "2024-01-16T03:55:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon while W bound at FL400, 45NM ESE of ZUN. The unknown phenomenon was 2 white lights approximately 30NM in front of them rapidly maneuvering towards them then climbing 5,000 to 6,000 feet \"faster than anything he has ever experienced.\" The UAP was not observed on ATC facility radar systems. DAL543 (ATL..LAS) and SKW3290 (GJT.. PHX) reported seeing the same lights. No evasive action taken by any aircraft. AWO advised.",
  "historical_starlink_element_rows": 5310,
  "observer": {
    "lat": 34.67607320207889,
    "lon": -108.31299575500765,
    "source": "aviation_offset:45NM ESE of ZUN (public text extract 237UAP00338)"
  },
  "case_id": "237UAP00338",
  "starlink_above_horizon_at_report_time": 271,
  "starlink_catalog_ids_considered": 5353,
  "largest_same-sky_cluster_count": 87,
  "starlink_at_or_above_10_deg": 119,
  "same_launch_sky_groups": [
    {
      "azimuth_range_deg": [
        49.6,
        65.37
      ],
      "count": 3,
      "elevation_range_deg": [
        17.35,
        26.82
      ],
      "ground_track_labels": [
        "ESE"
      ],
      "launch_date": "2023-07-07",
      "members": [
        {
          "azimuth_deg": 52.61,
          "azimuth_plus_2m_deg": 77.54,
          "azimuth_plus_5m_deg": 90.7,
          "element_age_hours": 1.1,
          "element_epoch": "2024-01-16T05:00:58.159008+00:00",
          "elevation_deg": 26.82,
          "elevation_plus_2m_deg": 12.67,
          "elevation_plus_5m_deg": -0.33,
          "epoch_altitude_km": 567.82,
          "ground_track_bearing_deg": 110.79,
          "ground_track_label": "ESE",
          "launch_date": "2023-07-07",
          "name": "STARLINK-5517",
          "norad_id": "57249",
          "range_km": 1097.47,
          "sky_motion_label": "eastward, setting",
          "subpoint_lat": 39.3364,
          "subpoint_lon": -99.9905
        },
        {
          "azimuth_deg": 65.37,
          "azimuth_plus_2m_deg": 82.21,
          "azimuth_plus_5m_deg": 92.36,
          "element_age_hours": 1.09,
          "element_epoch": "2024-01-16T05:00:11.135808+00:00",
          "elevation_deg": 20.4,
          "elevation_plus_2m_deg": 8.35,
          "elevation_plus_5m_deg": -2.97,
          "epoch_altitude_km": 565.42,
          "ground_track_bearing_deg": 113.03,
          "ground_track_label": "ESE",
          "launch_date": "2023-07-07",
          "name": "STARLINK-5049",
          "norad_id": "57246",
          "range_km": 1302.0,
          "sky_motion_label": "eastward, setting",
          "subpoint_lat": 38.3516,
          "subpoint_lon": -96.5661
        }
      ],
      {
        "azimuth_deg": 49.6,
        "azimuth_plus_2m_deg": 67.79,
        "azimuth_plus_5m_deg": 79.83,
        "element_age_hours": 1.13,
        "element_epoch": "2024-01-16T05:03:00.806400+00:00",
        "elevation_deg": 17.35,
```

```

        "elevation_plus_2m_deg": 7.25,
        "elevation_plus_5m_deg": -3.37,
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Appendix C. Source Exhaustion Checklist

This checklist records which source layers were actually applied to this individual report. It separates checked evidence from unexhausted collection gaps so the disposition is auditable when the PDF is read alone.

SOURCE LAYER	STATUS	CASE-SPECIFIC NOTE
NARA PUBLIC UAP/FAA REPORT	reviewed	Source IDs: 237UAP00338
TIME AND OBSERVER COORDINATE	extracted	2024-01-16T03:55:00+00:00 at 34.67607, -108.31300
ORBITAL OBJECT PROPAGATION	screened	Starlink
SPACE-TRACK SATCAT METADATA	screened	33 NORAD IDs checked; 33 matched in local SATCAT subset
LAUNCH-OBJECT/SUPGP LAYER	not applicable	not a launch-object case
NASA/JPL KNOWN SMALL-BODY LAYER	not selected	CAD/Horizons secondary screen included when this case had NEO-relevant timing/ geometry
NASA POWER/HORIZONS/DONKI CONTEXT	screened	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	screened	41321 trace files scanned; 520 tracks retained; aircraft strong candidate present
NOAA GOES IMAGERY LAYER	not exhausted	Cloud/lightning imagery layer for the report hour
NOAA GOES ABI/GLM MANIFEST	screened	Public S3 object listing for the report hour
NOAA/NEXRAD WEATHER RADAR LAYER	not exhausted	Weather radar only; not ATC/primary radar
NOAA IGRA RADIOSONDE LAYER	screened	Balloon drift plausibility layer
ASOS/METAR SURFACE WEATHER	screened	Nearest station visibility, cloud, wind, precipitation, and METAR observations
WEATHER/BALLOON SOURCE PLAN	planned	Nearest weather-airport, GOES, and radiosonde queries are listed where local plan JSON is present
FINAL ANALYTIC DISPOSITION	normal-object favored	Presence-only satellite density is context only; a stronger case-specific fit is required for normal-object disposition

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2. National Archives and Records Administration. *Record Group 615: Unidentified Anomalous Phenomena Records Collection*. <https://www.archives.gov/research/topics/uaps/rg-615>
3. National Archives and Records Administration. *Bulk Downloads for Records Related to Unidentified Anomalous Phenomena (UAPs)*. <https://www.archives.gov/research/catalog/catalog-bulk-downloads/uap-bulk-download>
4. National Archives Catalog. *Records from the Federal Aviation Administration Relating to Unidentified Anomalous Phenomena, National Archives Identifier 493468575*. <https://catalog.archives.gov/id/493468575>
5. National Archives direct digital object. *237UAP00338.pdf, FAA UAP report record copied from RG 615 bulk digital objects*. <https://s3.dualstack.us-east-1.amazonaws.com/NARAprdstorage/lz/electronic-records/rg-615/493468575/237UAP00338.pdf>
6. Hugging Face dataset. *oxzoid/space-track-tle-history: historical TLE archive used for Starlink screening*. <https://huggingface.co/datasets/oxzoid/space-track-tle-history>
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9. NASA POWER. *Hourly point API documentation for meteorological context*. <https://power.larc.nasa.gov/docs/services/api/temporal/hourly/>
10. NASA/JPL Solar System Dynamics. *Horizons API documentation for observer geometry and apparent magnitude queries*. <https://ssd-api.jpl.nasa.gov/doc/horizons.html>
11. NASA. *DONKI space weather API documentation*. <https://api.nasa.gov/>
12. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
13. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
14. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
15. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
16. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
17. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
18. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
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21. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
22. Celestrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
23. Celestrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>