

CASE FILE 74 / 237UAP00353

# 237UAP00353

Radar/correlation-focused public UAP report; score 50

NORMAL-OBJECT FAVORED

REPORT NO.	UAP-OM-74-237UAP00353	DISPOSITION	NORMAL-OBJECT FAVORED
PRIMARY CASE	237UAP00353	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2024-02-14T09:30:00+00:00	OBSERVER	34.63206, -87.78649
SOURCE CASE IDS	237UAP00353		

## Abstract

This case file evaluates a reported UAP sighting against the available orbital-object layer. No compact same-launch group fully identifies the file by itself. The final disposition is assigned under a normal-object favored standard, where ordinary aerospace/orbital explanations are preferred when they reasonably fit the report.

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

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237UAP00353 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N352DN A321 a3ec93 at 36.0 km, azimuth 91.2 deg, elevation 15.41 deg, 7.90 min from report. Dense satellite presence alone is not treated as causation in this packet.

## 1.1 Key Findings

- Source score 50 based on: radar/primary-return language, maneuvering/motion anomaly, UAP/UFO language.
- Report time used: 2024-02-14T09:30:00+00:00.
- External object layer used: public LEO catalog objects.
- 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 N352DN A321 a3ec93 at 36.0 km, azimuth 91.2 deg, elevation 15.41 deg, 7.90 min from report.
- Non-causal context / rejection screens: very dense orbital-object sky background; context only, not causation.
- Remaining hard features: hard maneuver language.
- Objects above horizon: 1023; at/above 10 deg: 505.
- No compact same-launch/designator group survived the report threshold.
- 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

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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
237UAP00353	09:30 02/14/2024 Callsign: DAL757 Origin: PHX	ZME Operator: DAL Operator Type: Commercial	text extract present	<a href="#">237UAP00353.pdf</a>

### 3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon off their front while E bound at FL370, 50NM W of HSV. The unknown phenomenon was described as multiple lights orbiting well ahead and above at varying altitudes. The UAP was not observed on ATC facility radar system.
REPORT TIME USED	2024-02-14T09:30:00+00:00
OBSERVER COORDINATE USED	34.63206, -87.78649
OBSERVER SOURCE BASIS	aviation_offset:50NM W of HSV (public text extract 237UAP00353)

### 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 public LEO catalog objects element rows. The analytic mode for this case is historical public LEO catalog objects 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.

PUBLIC LEO CATALOG OBJECTS CATALOG IDS CONSIDERED	20391	HISTORICAL ELEMENT ROWS	20391
ABOVE HORIZON AT REPORT MINUTE	1023	AT/ABOVE 10 DEG	505
LARGEST SAME-SKY CLUSTER	505		

No compact same-launch/designator group survived the report threshold. In this condition, satellite density remains context only and cannot by itself resolve a report with hard features.

### 5.2 Same-Launch / Same-Designator Candidate Groups

#	LAUNCH DATE	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS	MEMBERS
No same-launch group identified.						

### 5.3 Primary Group Members

OBJECT	NORAD	LAUNCH	AZ	EL	RANGE KM	APPARENT MOTION	ELEMENT AGE H
No members available.							

### 5.4 Bright-Sky Context: Top public LEO catalog objects Objects by Elevation

OBJECT	AZ	EL	RANGE KM	APPARENT MOTION	LAUNCH DATE
NORAD 7196	336.48	86.68	1512.1	westward, setting	73086FE
NORAD 45463	286.29	81.02	386.63	eastward, setting	20021D
NORAD 23493	144.85	80.56	1949.58	westward, setting	94085R
NORAD 2702	239.1	80.35	1075.69	westward, setting	66076D
NORAD 55383	288.34	79.08	570.55	westward, setting	23013BE
NORAD 47532	265.69	77.33	1059.86	eastward, setting	21007A
NORAD 47536	287.74	75.04	1069.62	eastward, setting	21007E
NORAD 13030	156.88	74.09	609.48	westward, setting	82001D
NORAD 21184	127.32	74.07	1626.09	westward, setting	91009AX
NORAD 45500	121.29	72.3	841.87	westward, setting	80073U
NORAD 47533	264.34	71.33	1086.21	eastward, setting	21007B
NORAD 43089	145.89	67.17	2198.51	westward, setting	17086C

### 5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	505	0.13-359.59 deg	10.0-86.68 deg	eastward, level, eastward, rising, eastward, setting, nearly fixed azimuth, rising, westward, level, westward, rising, westward, 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	30	SATCAT ROWS MATCHED	30
TOP OWNERS	CIS: 13, US: 11, PRC: 5, UK: 1		
OBJECT TYPES	DEBRIS: 15, PAYLOAD: 14, ROCKET BODY: 1		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
7196	DELTA 1 DEB	DEBRIS	US	1973-11-06	n/a
45463	CZ-2C R/B	ROCKET BODY	PRC	2020-03-24	2024-04-25
23493	SL-19 DEB	DEBRIS	CIS	1994-12-26	n/a
2702	SCOUT A DEB	DEBRIS	US	1966-08-18	n/a
55383	STARLINK-5531	PAYLOAD	US	2023-01-26	n/a
47532	YAOGAN-31 D	PAYLOAD	PRC	2021-01-29	n/a
47536	YAOGAN-31 F	PAYLOAD	PRC	2021-01-29	n/a
13030	SL-8 DEB	DEBRIS	CIS	1982-01-07	2025-12-12
21184	SL-8 DEB	DEBRIS	CIS	1991-02-12	n/a
45500	METEOR 2-6 DEB	DEBRIS	CIS	1980-09-09	n/a
47533	YAOGAN-31 E	PAYLOAD	PRC	2021-01-29	n/a
43089	FREGAT DEB (TANK)	DEBRIS	CIS	2017-12-26	n/a

5.9 NASA / NOAA / ADS-B Expansion Layer

NASA POWER/Horizons/DONKI batch context had not yet been written for this case at packet build time.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1699.0 MiB; planes-readsb-prod-0 1700.0 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 2024-02-14, then filter +/-60 min and 250 nmi around 34.6321,-87.7865.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00353 at 2024-02-14T09:30:00+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	GOES16
GOES ABI PREFIX	<a href="https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2024/045/09/">https://noaa-goes16.s3.amazonaws.com/ABI-L2-CMIPF/2024/045/09/</a>
GOES GLM LIGHTNING PREFIX	<a href="https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2024/045/09/">https://noaa-goes16.s3.amazonaws.com/GLM-L2-LCFA/2024/045/09/</a>

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KMSL	Northwest Alabama Regional Airport	20.20	34.75, -87.61
KHSV	Huntsville International Airport	92.60	34.64, -86.77
KTUP	Tupelo Regional Airport	98.80	34.27, -88.77
KHUA	Redstone Army Air Field	100.90	34.68, -86.68
KCBM	Columbus Air Force Base	125.40	33.64, -88.44

- KMSL: [IEM ASOS/METAR daily CSV query](#)
- KHSV: [IEM ASOS/METAR daily CSV query](#)
- KTUP: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072230	BIRMINGHAM; AL	186.30	33.18, -86.78
USM00072327	NASHVILLE/METROPOLITAN; TN.	210.40	36.23, -86.55
USM00072215	PEACHTREE CITY; GA.	329.00	33.36, -84.57
USM00072235	JACKSON/ALLEN C. THOMPSON FIEL	333.80	32.32, -90.08
USM00072340	LITTLE ROCK/ADAMS FLD; AR.	409.30	34.84, -92.26

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 6-10 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
KMSL	20.20	2024-02-14T09:53:00 +00:00	10.00	CLR, M, M, M	0.00 / 0.00	KMSL 140953Z AUTO 00000KT 10SM CLR 01/M01 A3024 RMK AO2 SLP239 T00111006
KHSV	92.60	2024-02-14T09:53:00 +00:00	6.00	CLR, M, M, M	90.00 / 3.00	KHSV 140953Z AUTO 09003KT 6SM BR CLR 02/01 A3023 RMK AO2 SLP239 T00170006 FZFRANO \$
KTUP	98.80	2024-02-14T09:53:00 +00:00	10.00	CLR, M, M, M	0.00 / 0.00	KTUP 140953Z AUTO 00000KT 10SM CLR 02/00 A3023 RMK AO2 SLP238 T00170000 \$

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 88.7 deg at 18.33 m/s; a passive balloon could drift about 132.0 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
USM00072230	BIRMINGHAM; AL	186.30	2024-02-14T12:00:00+00:00	88.70	18.33	132.00	65.30 at 12030.00 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	GOES16	BUCKET	noaa-goes16
ABI SAMPLE FILES	12	GLM SAMPLE FILES	12

ABI sample objects:

- [ABI-L2-CMIPF/2024/045/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20240450900208\\_e20240450909516\\_c20240450909573.nc](#)
- [ABI-L2-CMIPF/2024/045/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20240450910208\\_e20240450919517\\_c20240450919571.nc](#)
- [ABI-L2-CMIPF/2024/045/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20240450920208\\_e20240450929517\\_c20240450929581.nc](#)
- [ABI-L2-CMIPF/2024/045/09/OR\\_ABI-L2-CMIPF-M6C01\\_G16\\_s20240450930208\\_e20240450939516\\_c20240450939568.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2024/045/09/OR\\_GLM-L2-LCFA\\_G16\\_s20240450900000\\_e20240450900200\\_c20240450900215.nc](#)
- [GLM-L2-LCFA/2024/045/09/OR\\_GLM-L2-LCFA\\_G16\\_s20240450900200\\_e20240450900400\\_c20240450900416.nc](#)
- [GLM-L2-LCFA/2024/045/09/OR\\_GLM-L2-LCFA\\_G16\\_s20240450900400\\_e20240450901000\\_c20240450901018.nc](#)
- [GLM-L2-LCFA/2024/045/09/OR\\_GLM-L2-LCFA\\_G16\\_s20240450901000\\_e20240450901200\\_c20240450901215.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	2024-02-14T08:00:00+00:00 to 2024-02-14T11:00:00+00:00	RADIUS	300.00 nmi
TRACE FILES SCANNED	54663	TRACKS RETAINED	510
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	2	PLAUSIBLE CANDIDATES	42
REPORTING-AIRCRAFT TRACKS EXCLUDED	1	WEAK CANDIDATES	128

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
N352DN A321 a3ec93	strong aircraft candidate	70.31	2.40	0.00	28425	91.20	15.41
N313DN A321 a3524e	strong aircraft candidate	57.94	36.00	0.14	34975	154.90	7.60
N830MH B764 ab5975	reporting aircraft track; excluded from support counts	95.81	2.10	0.12	36975	30.90	79.39





## 7. Analytic Comparison

CRITERION	REPORT EVIDENCE	ANALYTIC TREATMENT
TIME CONSTRAINT	2024-02-14T09:30:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	34.63206, -87.78649	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	multiple-object/light language present	No compact same-launch count match; retained for unresolved report features.
MOTION LANGUAGE	orbit	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	237UAP00353 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N352DN A321 a3ec93 at 36.0 km, azimuth 91.2 deg, elevation 15.41 deg, 7.90 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

## 237UAP00353

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 09:30 02/14/2024

Status: Closed

POD: DEN

Reporting Facility: ZME

Callsign: DAL757

Aircraft: B764

Tail Number:

Operator: DAL

Paged: YES

Origin: PHX

Destination: ATL

New Destination:

Operator Type: Commercial

MOR Init: YES

MOR ID: ZME-M-2024/02/14-0001

REMARKS

Aircraft reported an unidentified aerial phenomenon off their front while E bound at FL370, 50NM W of HSV. The unknown phenomenon was described as multiple lights orbiting well ahead and above at varying altitudes. The UAP was not observed on ATC facility radar system.

## 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": "2024-02-14T09:30:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon off their front while E bound at FL370, 50NM W of HSV. The unknown phenomenon was described as multiple lights orbiting well ahead and above at varying altitudes. The UAP was not observed on ATC facility radar system.",
  "historical_starlink_element_rows": 20391,
  "observer": {
    "lat": 34.63206352693774,
    "lon": -87.78649158360662,
    "source": "aviation_offset:50NM W of HSV (public text extract 237UAP00353)"
  },
  "case_id": "237UAP00353",
  "starlink_above_horizon_at_report_time": 1023,
  "starlink_catalog_ids_considered": 20391,
  "largest_same-sky_cluster_count": 505,
  "starlink_at_or_above_10_deg": 505,
  "top_starlinks": [
    {
      "azimuth_deg": 336.48,
      "azimuth_plus_2m_deg": 203.36,
      "azimuth_plus_5m_deg": 201.1,
      "element_age_hours": 1.82,
      "element_epoch": "2024-02-14T11:19:18.577056+00:00",
      "elevation_deg": 86.68,
      "elevation_plus_2m_deg": 61.31,
      "elevation_plus_5m_deg": 30.64,
      "epoch_altitude_km": 1443.08,
      "ground_track_bearing_deg": 198.91,
      "ground_track_label": "SSW",
      "launch_date": "73086FE",
      "launch_designator": "73086FE",
      "name": "NORAD 7196",
      "norad_id": "7196",
      "range_km": 1512.1,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 35.2164,
      "subpoint_lon": -88.0968
    },
    {
      "azimuth_deg": 286.29,
      "azimuth_plus_2m_deg": 87.23,
      "azimuth_plus_5m_deg": 88.48,
      "element_age_hours": 2.68,
      "element_epoch": "2024-02-14T12:10:30.487584+00:00",
      "elevation_deg": 81.02,
      "elevation_plus_2m_deg": 22.29,
      "elevation_plus_5m_deg": 1.39,
      "epoch_altitude_km": 324.29,
      "ground_track_bearing_deg": 88.18,
      "ground_track_label": "E",
      "launch_date": "20021D",
      "launch_designator": "20021D",
      "name": "NORAD 45463",
      "norad_id": "45463",
      "range_km": 386.63,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 34.7745,
      "subpoint_lon": -88.3835
    },
    {
      "azimuth_deg": 144.85,
      "azimuth_plus_2m_deg": 49.11,
      "azimuth_plus_5m_deg": 34.82,
      "element_age_hours": 23.32,
      "element_epoch": "2024-02-13T10:10:57.512928+00:00",
      "elevation_deg": 80.56,
      "elevation_plus_2m_deg": 69.67,
      "elevation_plus_5m_deg": 43.09,
      "epoch_altitude_km": 1884.15,
      "ground_track_bearing_deg": 26.65,
      "ground_track_label": "NNE",
      "launch_date": "94085R",
      "launch_designator": "94085R",
      "name": "NORAD 23493",
      "norad_id": "23493",
      "range_km": 1949.58,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 32.8145,
      "subpoint_lon": -86.2774
    }
  ],
}
```

```

{
  "azimuth_deg": 239.1,
  "azimuth_plus_2m_deg": 191.5,
  "azimuth_plus_5m_deg": 186.79,
  "element_age_hours": 11.23,
  "element_epoch": "2024-02-13T22:16:04.702944+00:00",
  "elevation_deg": 80.35,
  "elevation_plus_2m_deg": 45.07,
  "elevation_plus_5m_deg": 17.13,
  "epoch_altitude_km": 1063.99,
  "ground_track_bearing_deg": 182.05,
  "ground_track_label": "S",
  "launch_date": "66076D",
  "launch_designator": "66076D",
  "name": "NORAD 2702",
  "norad_id": "2702",
  "range_km": 1075.69,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 33.9081,
  "subpoint_lon": -89.2212
},
{
  "azimuth_deg": 288.34,
  "azimuth_plus_2m_deg": 121.05,
  "azimuth_plus_5m_deg": 120.45,
  "element_age_hours": 1.05,
  "element_epoch": "2024-02-14T10:32:58.279488+00:00",
  "elevation_deg": 79.08,
  "elevation_plus_2m_deg": 34.35,
  "elevation_plus_5m_deg": 7.18,
  "epoch_altitude_km": 565.4,
  "ground_track_bearing_deg": 119.01,
  "ground_track_label": "ESE",
  "launch_date": "23013BE",
  "launch_designator": "23013BE",
  "name": "NORAD 55383",
  "norad_id": "55383",
  "range_km": 570.55,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 34.9093,
  "subpoint_lon": -88.8185
},
{
  "azimuth_deg": 265.69,
  "azimuth_plus_2m_deg": 16.68,
  "azimuth_plus_5m_deg": 26.6,
  "element_age_hours": 1.59,
  "element_epoch": "2024-02-14T11:05:37.805568+00:00",
  "elevation_deg": 77.33,
  "elevation_plus_2m_deg": 53.59,
  "elevation_plus_5m_deg": 21.62,
  "epoch_altitude_km": 1022.18,
  "ground_track_bearing_deg": 30.01,
  "ground_track_label": "NNE",
  "launch_date": "21007A",
  "launch_designator": "21007A",
  "name": "NORAD 47532",
  "norad_id": "47532",
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  "ground_track_bearing_deg": 30.41,
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## Appendix C. Source Exhaustion Checklist

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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: 237UAP00353
TIME AND OBSERVER COORDINATE	extracted	2024-02-14T09:30:00+00:00 at 34.63206, -87.78649
ORBITAL OBJECT PROPAGATION	screened	public LEO catalog objects
SPACE-TRACK SATCAT METADATA	screened	30 NORAD IDs checked; 30 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	not exhausted	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	screened	54663 trace files scanned; 510 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

## References and Source Links

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1. National Archives and Records Administration. *Records Related to Unidentified Flying Objects (UFOs) and Unidentified Anomalous Phenomena (UAPs) at the National Archives*. <https://www.archives.gov/research/topics/uaps>
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. *237UAP00353.pdf, FAA UAP report record copied from RG 615 bulk digital objects*. <https://s3.dualstack.us-east-1.amazonaws.com/NARAprodstorage/lz/electronic-records/rg-615/493468575/237UAP00353.pdf>
6. Hugging Face dataset. *oxzoid/space-track-tle-history: historical TLE archive used for public LEO catalog objects screening*. <https://huggingface.co/datasets/oxzoid/space-track-tle-history>
7. Space-Track.org. *Public source for the underlying U.S. Space Surveillance Network TLE distribution referenced by the historical TLE archive*. <https://www.space-track.org/>
8. Space-Track.org. *API documentation for SATCAT and catalog metadata classes used for local enrichment*. <https://www.space-track.org/documentation#/api>
9. ADSB.lol. *Interactive API documentation and OpenAPI definition*. <https://api.adsb.lol/docs>
10. ADSB.lol. *Historical open-data release documentation*. <https://www.adsb.lol/docs/open-data/historical/>
11. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
12. OpenSky Network. *Historical data via Trino documentation*. <https://openskynetwork.github.io/opensky-api/trino.html>
13. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
14. NASA Earthdata. *Common Metadata Repository search API documentation*. <https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html>
15. NOAA / AWS Open Data. *GOES public dataset registry*. <https://registry.opendata.aws/noaa-goes/>
16. NOAA / AWS Open Data. *NEXRAD public dataset registry*. <https://registry.opendata.aws/noaa-nexrad/>
17. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
18. Iowa Environmental Mesonet. *ASOS/AWOS/METAR data download service*. <https://mesonet.agron.iastate.edu/request/download.phtml>
19. CelesTrak. *Spacetrack Report No. 3: Models for propagation of NORAD element sets*. <https://celestrak.org/NORAD/documentation/spacetrk.pdf>
20. CelesTrak. *Supplemental GP element sets documentation and current endpoint index*. <https://celestrak.org/NORAD/elements/supplemental/>