

CASE FILE 44 / 237UAP00331

237UAP00331

Radar/correlation-focused public UAP report; score 54

NORMAL-OBJECT FAVORED

REPORT NO.	UAP-OM-44-237UAP00331	DISPOSITION	NORMAL-OBJECT FAVORED
PRIMARY CASE	237UAP00331	GENERATED	2026-05-20 18:32 UTC
REPORT TIME	2023-12-23T04:36:00+00:00	OBSERVER	42.23896, -113.00497
SOURCE CASE IDS	237UAP00331		

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

237UAP00331 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N344NB A319 a3cd58 at 24.3 km, azimuth 215.7 deg, elevation 19.79 deg, 2.11 min from report. Dense satellite presence alone is not treated as causation in this packet.

1.1 Key Findings

- Source score 54 based on: radar/primary-return language, negative official correlation, UAP/UFO language.
- Report time used: 2023-12-23T04:36:00+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 N344NB A319 a3cd58 at 24.3 km, azimuth 215.7 deg, elevation 19.79 deg, 2.11 min from report.
- Non-causal context / rejection screens: very dense orbital-object sky background; context only, not causation.
- Objects above horizon: 1114; at/above 10 deg: 541.
- 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

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
237UAP00331	04:36 12/23/2023 Callsign: AAL2003 Origin: DFW	ZLC Operator: AAL Operator Type: Commercial	text extract present	237UAP00331.pdf

3. Original Report Evidence

PRIMARY EXCERPT USED FOR MATCHING	Aircraft reported an unidentified aerial phenomenon off the front side while NW bound at FL340, 41 NM SSW of PIH. The unknown phenomenon was two lights above the horizon that looked like a star, except they were dimming and reappearing. The UAP was not observed on ATC facility radar system. DAL2665 and SWA111 reported the same phenomenon. AWO notified.
REPORT TIME USED	2023-12-23T04:36:00+00:00
OBSERVER COORDINATE USED	42.23896, -113.00497
OBSERVER SOURCE BASIS	aviation_offset:41 NM SSW of PIH (public text extract 237UAP00331)

4. Methodology

1. **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.
2. **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.
3. **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.
4. **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.
5. **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.
6. **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	18788	HISTORICAL ELEMENT ROWS	18788
ABOVE HORIZON AT REPORT MINUTE	1114	AT/ABOVE 10 DEG	541
LARGEST SAME-SKY CLUSTER	538		

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 57360	80.35	86.24	563.84	eastward, setting	23099AJ
NORAD 45087	67.7	81.2	556.92	eastward, setting	20006AV
NORAD 30272	89.15	78.7	868.09	westward, setting	99025YH
NORAD 53600	290.2	78.11	559.19	westward, setting	22104N
NORAD 53206	116.86	77.16	581.97	westward, setting	22084T
NORAD 28343	265.4	74.58	844.73	eastward, setting	91082BG
NORAD 25875	118.79	73.39	1508.86	westward, setting	99041D
NORAD 7828	64.1	73.36	1520.95	eastward, setting	75045H
NORAD 48984	63.41	71.1	1260.38	westward, setting	21060T
NORAD 57451	273.08	69.38	597.8	eastward, setting	23105X
NORAD 53590	135.61	69.34	576.7	westward, setting	22104C
NORAD 45878	197.39	68.64	1141.7	westward, setting	11037CX

5.5 Largest Sky Clusters

#	COUNT	AZIMUTH SPAN	ELEVATION SPAN	MOTION LABELS
1	538	0.24-358.64 deg	10.0-86.24 deg	eastward, level, eastward, rising, eastward, setting, nearly fixed azimuth, setting, westward, level, westward, rising, westward, setting
2	3	265.4-290.2 deg	69.38-78.11 deg	eastward, setting, 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	US: 17, CIS: 7, PRC: 3, UK: 2, GLOB: 1		
OBJECT TYPES	PAYLOAD: 16, DEBRIS: 12, ROCKET BODY: 2		

5.7 Space-Track Metadata for Top Propagated Objects

NORAD	OBJECT NAME	TYPE	OWNER	LAUNCH DATE	DECAY DATE
57360	STARLINK-6348	PAYLOAD	US	2023-07-16	n/a
45087	STARLINK-1185	PAYLOAD	US	2020-01-29	n/a
30272	FENGYUN 1C DEB	DEBRIS	PRC	1999-05-10	n/a
53600	STARLINK-4677	PAYLOAD	US	2022-08-28	n/a
53206	STARLINK-4408	PAYLOAD	US	2022-07-22	n/a
28343	DMSP 5D-2 F11 DEB	DEBRIS	US	1991-11-28	n/a
25875	GLOBALSTAR M028	PAYLOAD	GLOB	1999-07-25	n/a
7828	COSMOS 739	PAYLOAD	CIS	1975-05-28	n/a
48984	ONEWEB-0266	PAYLOAD	UK	2021-07-01	n/a
57451	STARLINK-30216	PAYLOAD	US	2023-07-24	n/a
53590	STARLINK-4689	PAYLOAD	US	2022-08-28	n/a
45878	FREGAT DEB	DEBRIS	CIS	2011-07-18	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	2023122304
CLOUD AMOUNT	99.91%
PRECIPITATION	0.89 mm/hr
10 M WIND	1.63 m/s
TEMPERATURE	0.74 C
RELATIVE HUMIDITY	93.66%
DONKI +/-1 DAY	CME: unavailable; FLR: unavailable; GST: unavailable; HSS: unavailable; IPS: unavailable; MPC: unavailable; RBE: unavailable; SEP: unavailable; WSAEnliSimulations: unavailable

5.10 Horizons Sky Geometry Context

OBJECT	AZ	EL	APP MAG
Sun	283.44	-49.33	-26.78
Moon	193.61	64.85	-11.58
Venus	354.24	-63.83	-4.08
Mars	294.41	-57.27	1.38
Jupiter	205.62	57.75	-2.66

OBJECT	AZ	EL	APP MAG
Saturn	249.18	4.47	0.93

- Sun elevation was -49.3 deg, so this was a dark-sky/nighttime sighting.
- Moon was above horizon at azimuth 193.6 deg / elevation 64.9 deg.
- Planets above horizon: Jupiter (57.7 deg), Saturn (4.5 deg).
- NASA POWER cloud amount for the hour was 99.91%, with precipitation 0.89 mm/hr.

5.11 Free Source Availability and Remaining Work

LAYER	STATUS	CASE-SPECIFIC NOTE
ADSB.LOL HISTORICAL RELEASE LISTING	screened/present	planes-readsb-staging-0 1430.5 MiB; planes-readsb-prod-0 1431.5 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 adslol/globe_history_2023 for 2023-12-23, then filter +/-60 min and 250 nmi around 42.2390,-113.0050.
- NASA POWER/Horizons/DONKI: batch context for 237UAP00331 at 2023-12-23T04:36:00+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/2023/357/04/
GOES GLM LIGHTNING PREFIX	https://noaa-goes18.s3.amazonaws.com/GLM-L2-LCFA/2023/357/04/

5.13 Nearest Weather-Airport Candidates

STATION	NAME	DISTANCE KM	COORDINATE
KBYI	Burley Municipal Airport	71.50	42.54, -113.77
KPIH	Pocatello Regional Airport	81.80	42.91, -112.60
KLGU	Logan-Cache Airport	107.50	41.79, -111.85
KTWF	Joslin Field Magic Valley Regional Airport	124.80	42.48, -114.49
KOGD	Ogden Hinckley Airport	142.30	41.20, -112.01

- KBYI: [IEM ASOS/METAR daily CSV query](#)
- KPIH: [IEM ASOS/METAR daily CSV query](#)
- KLGU: [IEM ASOS/METAR daily CSV query](#)

5.14 Nearest Radiosonde Stations

STATION	NAME	DISTANCE KM	COORDINATE
USM00072572	SALT LAKE CITY/INTNL UT.	185.00	40.77, -111.96
USM00074003	DUGWAY PRVGR	230.50	40.17, -112.93
USM00072582	ELKO; NV.	274.60	40.86, -115.74
USM00072681	BOISE/MUN.; ID.	300.00	43.57, -116.21
USM00072672	RIVERTON; WY.	381.50	43.06, -108.48

5.15 ASOS/METAR Surface Weather Observations

surface visibility ranged 4-10 statute miles; no precipitation was reported in the retained observations; low/broken/overcast cloud layers were present in at least one observation. 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
KBYI	71.50	2023-12-23T04:53:00 +00:00	10.00	BKN06500, OVC09000, M, M	250.00 / 10.00	KBYI 230453Z AUTO 25010KT 10SM BKN065 OVC090 06/03 A2988 RMK AO2 SLP119 T00610028
KPIH	81.80	2023-12-23T04:53:00 +00:00	10.00	OVC09000, M, M, M	350.00 / 6.00	KPIH 230453Z 35006KT 10SM OVC090 04/00 A2988 RMK AO2 SLP134 T00390000
KLGU	107.50	2023-12-23T04:51:00 +00:00	6.00	OVC09500, M, M, M	0.00 / 0.00	KLGU 230451Z AUTO 00000KT 6SM BR OVC095 00/ M02 A2994 RMK AO2 SLP153 T00001022

5.16 NOAA IGRA Radiosonde Wind Profile

Nearest sounding implies mean 0-12 km wind drift toward 251.4 deg at 18.35 m/s; a passive balloon could drift about 132.1 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
USM00072572	SALT LAKE CITY/INTNL UT.	185.00	2023-12-23T00:00 :00+00:00	251.40	18.35	132.10	36.00 at 22195.00 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/2023/357/04/OR_ABI-L2-CMIPF-M6C01_G18_s20233570400221_e20233570409529_c20233570410000.nc](#)
- [ABI-L2-CMIPF/2023/357/04/OR_ABI-L2-CMIPF-M6C01_G18_s20233570410221_e20233570419529_c20233570419590.nc](#)
- [ABI-L2-CMIPF/2023/357/04/OR_ABI-L2-CMIPF-M6C01_G18_s20233570420221_e20233570429529_c20233570429586.nc](#)
- [ABI-L2-CMIPF/2023/357/04/OR_ABI-L2-CMIPF-M6C01_G18_s20233570430221_e20233570439529_c20233570439591.nc](#)

GLM lightning sample objects:

- [GLM-L2-LCFA/2023/357/04/OR_GLM-L2-LCFA_G18_s20233570400000_e20233570400200_c20233570400219.nc](#)
- [GLM-L2-LCFA/2023/357/04/OR_GLM-L2-LCFA_G18_s20233570400200_e20233570400400_c20233570400410.nc](#)
- [GLM-L2-LCFA/2023/357/04/OR_GLM-L2-LCFA_G18_s20233570400400_e20233570401000_c20233570401009.nc](#)
- [GLM-L2-LCFA/2023/357/04/OR_GLM-L2-LCFA_G18_s20233570401000_e20233570401200_c20233570401208.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	2023-12-23T03:21:00+00:00 to 2023-12-23T05:51:00+00:00	RADIUS	300.00 nmi
TRACE FILES SCANNED	39960	TRACKS RETAINED	440
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	6	PLAUSIBLE CANDIDATES	57
REPORTING-AIRCRAFT TRACKS EXCLUDED	3	WEAK CANDIDATES	66

5.19 Top ADS-B Candidate Tracks

AIRCRAFT	STATUS	SCORE	MIN DIST KM	NEAREST DT MIN	ALT FT	AZ	EL
N344NB A319 a3cd58	strong aircraft candidate	76.82	23.90	0.02	26725	215.70	19.79
N297AK B739 a30f85	strong aircraft candidate	75.35	44.30	0.16	36000	71.70	12.18
N287SY E75L a2e9a3	strong aircraft candidate	66.65	59.00	0.01	20050	234.10	5.48
N327NV A319 a38991	strong aircraft candidate	53.34	77.50	4.86	21600	73.00	4.43
N283SY E75L a2dac7	strong aircraft candidate	51.48	34.30	6.64	18000	305.50	5.23
N241SY E75L a2355d	strong aircraft candidate	48.97	42.60	0.04	18050	106.20	4.49
N47282 B38M a5cc13	reporting aircraft track; excluded from support counts	92.08	20.50	0.09	36000	164.40	28.10
N946JL A321 ad2445	reporting aircraft track; excluded from support counts	88.40	4.30	0.13	36000	346.80	67.36

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	2023-12-23T04:36:00+00:00	Directly used in propagation; this is a hard filter, not descriptive context.
LOCATION CONSTRAINT	42.23896, -113.00497	Directly used as observer point for azimuth/elevation/range computation.
COUNT / PATTERN	two-object/light language present	No compact same-launch count match; retained for unresolved report features.
MOTION LANGUAGE	not explicit	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	237UAP00331 is assessed as normal-object favored because the available public evidence gives a case-specific ordinary-object candidate: strong ADS-B aircraft candidate N344NB A319 a3cd58 at 24.3 km, azimuth 215.7 deg, elevation 19.79 deg, 2.11 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

237UAP00331

SKYWATCH INCIDENT REPORT

PRIMARY CODE: UNIDENTIFIED AERIAL PHENOMENON

Date: 04:36 12/23/2023
Status: Closed
POD: DEN
Reporting Facility: ZLC

Callsign: AAL2003
Aircraft: A21N
Tail Number:
Operator: AAL

Origin: DFW
Destination: SEA
New Destination:
Operator Type: Commercial
Paged: YES

REMARKS

Aircraft reported an unidentified aerial phenomenon off the front side while NW bound at FL340, 41 NM SSW of PIH. The unknown phenomenon was two lights above the horizon that looked like a star, except they were dimming and reappearing. The UAP was not observed on ATC facility radar system. DAL2665 and SWA111 reported the same phenomenon. AWO notified.

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": "2023-12-23T04:36:00+00:00",
  "source_excerpt": "Aircraft reported an unidentified aerial phenomenon off the front side while NW bound at FL340, 41 NM SSW of PIH. The unknown phenomenon was two lights above the horizon that looked like a star, except they were dimming and reappearing. The UAP was not observed on ATC facility radar system. DAL2665 and SWA111 reported the same phenomenon. AWO notified.",
  "historical_starlink_element_rows": 18788,
  "observer": {
    "lat": 42.23896176508977,
    "lon": -113.00496918420083,
    "source": "aviation_offset:41 NM SSW of PIH (public text extract 237UAP00331)"
  },
  "case_id": "237UAP00331",
  "starlink_above_horizon_at_report_time": 1114,
  "starlink_catalog_ids_considered": 18788,
  "largest_same-sky_cluster_count": 538,
  "starlink_at_or_above_10_deg": 541,
  "top_starlinks": [
    {
      "azimuth_deg": 80.35,
      "azimuth_plus_2m_deg": 99.32,
      "azimuth_plus_5m_deg": 100.29,
      "element_age_hours": 2.04,
      "element_epoch": "2023-12-23T02:33:35.761824+00:00",
      "elevation_deg": 86.24,
      "elevation_plus_2m_deg": 29.29,
      "elevation_plus_5m_deg": 5.7,
      "epoch_altitude_km": 565.36,
      "ground_track_bearing_deg": 100.43,
      "ground_track_label": "E",
      "launch_date": "23099AJ",
      "launch_designator": "23099AJ",
      "name": "NORAD 57360",
      "norad_id": "57360",
      "range_km": 563.84,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 42.2895,
      "subpoint_lon": -112.5984
    },
    {
      "azimuth_deg": 67.7,
      "azimuth_plus_2m_deg": 122.5,
      "azimuth_plus_5m_deg": 125.67,
      "element_age_hours": 1.05,
      "element_epoch": "2023-12-23T05:39:03.515904+00:00",
      "elevation_deg": 81.2,
      "elevation_plus_2m_deg": 28.02,
      "elevation_plus_5m_deg": 5.01,
      "epoch_altitude_km": 553.52,
      "ground_track_bearing_deg": 127.73,
      "ground_track_label": "SE",
      "launch_date": "20006AV",
      "launch_designator": "20006AV",
      "name": "NORAD 45087",
      "norad_id": "45087",
      "range_km": 556.92,
      "sky_motion_label": "eastward, setting",
      "subpoint_lat": 42.5035,
      "subpoint_lon": -112.1217
    },
    {
      "azimuth_deg": 89.15,
      "azimuth_plus_2m_deg": 354.9,
      "azimuth_plus_5m_deg": 348.82,
      "element_age_hours": 1.9,
      "element_epoch": "2023-12-23T02:41:42.173088+00:00",
      "elevation_deg": 78.7,
      "elevation_plus_2m_deg": 42.74,
      "elevation_plus_5m_deg": 13.63,
      "epoch_altitude_km": 831.07,
      "ground_track_bearing_deg": 345.38,
      "ground_track_label": "NNW",
      "launch_date": "99025YH",
      "launch_designator": "99025YH",
      "name": "NORAD 30272",
      "norad_id": "30272",
      "range_km": 868.09,
      "sky_motion_label": "westward, setting",
      "subpoint_lat": 42.2447,
      "subpoint_lon": -111.1862
    }
  ]
}
```

```

},
{
  "azimuth_deg": 290.2,
  "azimuth_plus_2m_deg": 131.4,
  "azimuth_plus_5m_deg": 130.14,
  "element_age_hours": 0.54,
  "element_epoch": "2023-12-23T04:03:30.881088+00:00",
  "elevation_deg": 78.11,
  "elevation_plus_2m_deg": 33.41,
  "elevation_plus_5m_deg": 6.57,
  "epoch_altitude_km": 550.57,
  "ground_track_bearing_deg": 127.97,
  "ground_track_label": "SE",
  "launch_date": "22104N",
  "launch_designator": "22104N",
  "name": "NORAD 53600",
  "norad_id": "53600",
  "range_km": 559.19,
  "sky_motion_label": "westward, setting",
  "subpoint_lat": 42.5625,
  "subpoint_lon": -114.218
},
{
  "azimuth_deg": 116.86,
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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: 237UAP00331
TIME AND OBSERVER COORDINATE	extracted	2023-12-23T04:36:00+00:00 at 42.23896, -113.00497
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	screened	Hourly weather, sky geometry, and space-weather context where local JSON is present
AIRCRAFT/ADS-B LAYER	screened	39960 trace files scanned; 440 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. *237UAP00331.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-615/493468575/237UAP00331.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>
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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>
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14. OpenSky Network. *REST API documentation*. <https://openskynetwork.github.io/opensky-api/rest.html>
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16. NASA GIBS. *Global Imagery Browse Services API documentation*. <https://nasa-gibs.github.io/gibs-api-docs/>
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20. NOAA NCEI. *Integrated Global Radiosonde Archive*. <https://www.ncei.noaa.gov/products/weather-balloon/integrated-global-radiosonde-archive>
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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/>