OFFICE OF THE DIRECTOR OF NATIONAL INTELLIGENCE

Preliminary Assessment: Unidentified Aerial Phenomena

25 June 2021

SCOPE AND ASSUMPTIONS

Scope

This preliminary report is provided by the Office of the Director of National Intelligence (ODNI) in response to the provision in Senate Report 116-233, accompanying the Intelligence Authorization Act (IAA) for Fiscal Year 2021, that the DNI, in consultation with the Secretary of Defense (SECDEF), is to submit an intelligence assessment of the threat posed by unidentified aerial phenomena (UAP) and the progress the Department of Defense Unidentified Aerial Phenomena Task Force (UAPTF) has made in understanding this threat.

This report provides an overview for policymakers of the challenges associated with characterizing the potential threat posed by UAP while also providing a means to develop relevant processes, policies, technologies, and training for the U.S. military and other U.S. Government (USG) personnel if and when they encounter UAP, so as to enhance the Intelligence Community's (IC) ability to understand the threat. The Director, UAPTF, is the accountable official for ensuring the timely collection and consolidation of data on UAP. The dataset described in this report is currently limited primarily to U.S. Government reporting of incidents occurring from November 2004 to March 2021. Data continues to be collected and analyzed.

ODNI prepared this report for the Congressional Intelligence and Armed Services Committees. UAPTF and the ODNI National Intelligence Manager for Aviation drafted this report, with input from USD(I&S), DIA, FBI, NRO, NGA, NSA, Air Force, Army, Navy, Navy/ONI, DARPA, FAA, NOAA, NGA, ODNI/NIM-Emerging and Disruptive Technology, ODNI/National Counterintelligence and Security Center, and ODNI/National Intelligence Council.

Assumptions

Various forms of sensors that register UAP generally operate correctly and capture enough real data to allow initial assessments, but some UAP may be attributable to sensor anomalies.

EXECUTIVE SUMMARY

The limited amount of high-quality reporting on unidentified aerial phenomena (UAP) hampers our ability to draw firm conclusions about the nature or intent of UAP. The Unidentified Aerial Phenomena Task Force (UAPTF) considered a range of information on UAP described in U.S. military and IC (Intelligence Community) reporting, but because the reporting lacked sufficient specificity, ultimately recognized that a unique, tailored reporting process was required to provide sufficient data for analysis of UAP events.

- As a result, the UAPTF concentrated its review on reports that occurred between 2004 and 2021, the majority of which are a result of this new tailored process to better capture UAP events through formalized reporting.
- Most of the UAP reported probably do represent physical objects given that a majority of UAP were registered across multiple sensors, to include radar, infrared, electro-optical, weapon seekers, and visual observation.

In a limited number of incidents, UAP reportedly appeared to exhibit unusual flight characteristics. These observations could be the result of sensor errors, spoofing, or observer misperception and require additional rigorous analysis.

There are probably multiple types of UAP requiring different explanations based on the range of appearances and behaviors described in the available reporting. Our analysis of the data supports the construct that if and when individual UAP incidents are resolved they will fall into one of five potential explanatory categories: airborne clutter, natural atmospheric phenomena, USG or U.S. industry developmental programs, foreign adversary systems, and a catchall "other" bin.

UAP clearly pose a safety of flight issue and may pose a challenge to U.S. national security. Safety concerns primarily center on aviators contending with an increasingly cluttered air domain. UAP would also represent a national security challenge if they are foreign adversary collection platforms or provide evidence a potential adversary has developed either a breakthrough or disruptive technology.

Consistent consolidation of reports from across the federal government, standardized reporting, increased collection and analysis, and a streamlined process for screening all such reports against a broad range of relevant USG data will allow for a more sophisticated analysis of UAP that is likely to deepen our understanding. Some of these steps are resource-intensive and would require additional investment.

AVAILABLE REPORTING LARGELY INCONCLUSIVE

Limited Data Leaves Most UAP Unexplained…

Limited data and inconsistency in reporting are key challenges to evaluating UAP. No standardized reporting mechanism existed until the Navy established one in March 2019. The Air Force subsequently adopted that mechanism in November 2020, but it remains limited to USG reporting. The UAPTF regularly heard anecdotally during its research about other observations that occurred but which were never captured in formal or informal reporting by those observers.

After carefully considering this information, the UAPTF focused on reports that involved UAP largely witnessed firsthand by military aviators and that were collected from systems we considered to be reliable. These reports describe incidents that occurred between 2004 and 2021, with the majority coming in the last two years as the new reporting mechanism became better known to the military aviation community. We were able to identify one reported UAP with high confidence. In that case, we identified the object as a large, deflating balloon. The others remain unexplained.

- **144** reports originated from USG sources. Of these, **80** reports involved observation with multiple sensors.
    - Most reports described UAP as objects that interrupted pre-planned training or other military activity.

UAP Collection Challenges

Sociocultural stigmas and sensor limitations remain obstacles to collecting data on UAP. Although some technical challenges—such as how to appropriately filter out radar clutter to ensure safety of flight for military and civilian aircraft—are longstanding in the aviation community, while others are unique to the UAP problem set.

- Narratives from aviators in the operational community and analysts from the military and IC describe disparagement associated with observing UAP, reporting it, or attempting to discuss it with colleagues. Although the effects of these stigmas have lessened as senior members of the scientific, policy, military, and intelligence communities engage on the topic seriously in public, reputational risk may keep many observers silent, complicating scientific pursuit of the topic.
- The sensors mounted on U.S. military platforms are typically designed to fulfill specific missions. As a result, those sensors are not generally suited for identifying UAP.
- Sensor vantage points and the numbers of sensors concurrently observing an object play substantial roles in distinguishing UAP from known objects and determining whether a UAP demonstrates breakthrough aerospace capabilities. Optical sensors have the benefit of providing some insight into relative size, shape, and structure. Radiofrequency sensors provide more accurate velocity and range information.

But Some Potential Patterns Do Emerge

Although there was wide variability in the reports and the dataset is currently too limited to allow for detailed trend or pattern analysis, there was some clustering of UAP observations regarding shape, size, and, particularly, propulsion. UAP sightings also tended to cluster around U.S. training and testing grounds, but we assess that this may result from a collection bias as a result of focused attention, greater numbers of latest-generation sensors operating in those areas, unit expectations, and guidance to report anomalies.

And a Handful of UAP Appear to Demonstrate Advanced Technology

In **18** incidents, described in **21** reports, observers reported unusual UAP movement patterns or flight characteristics.

Some UAP appeared to remain stationary in winds aloft, move against the wind, maneuver abruptly, or move at considerable speed, without discernable means of propulsion. In a small number of cases, military aircraft systems processed radio frequency (RF) energy associated with UAP sightings.

The UAPTF holds a small amount of data that appear to show UAP demonstrating acceleration or a degree of signature management. Additional rigorous analysis are necessary by multiple teams or groups of technical experts to determine the nature and validity of these data. We are conducting further analysis to determine if breakthrough technologies were demonstrated.

UAP PROBABLY LACK A SINGLE EXPLANATION

The UAP documented in this limited dataset demonstrate an array of aerial behaviors, reinforcing the possibility there are multiple types of UAP requiring different explanations. Our analysis of the data supports the construct that if and when individual UAP incidents are resolved they will fall into one of five potential explanatory categories: airborne clutter, natural atmospheric phenomena, USG or industry developmental programs, foreign adversary systems, and a catchall "other" bin. With the exception of the one instance where we determined with high confidence that the reported UAP was airborne clutter, specifically a deflating balloon, we currently lack sufficient information in our dataset to attribute incidents to specific explanations.

Airborne Clutter: These objects include birds, balloons, recreational unmanned aerial vehicles (UAV), or airborne debris like plastic bags that muddle a scene and affect an operator's ability to identify true targets, such as enemy aircraft.

Natural Atmospheric Phenomena: Natural atmospheric phenomena includes ice crystals, moisture, and thermal fluctuations that may register on some infrared and radar systems.

USG or Industry Developmental Programs: Some UAP observations could be attributable to developments and classified programs by U.S. entities. We were unable to confirm, however, that these systems accounted for any of the UAP reports we collected.

Foreign Adversary Systems: Some UAP may be technologies deployed by China, Russia, another nation, or a non-governmental entity.

Other: Although most of the UAP described in our dataset probably remain unidentified due to limited data or challenges to collection processing or analysis, we may require additional scientific knowledge to successfully collect on, analyze and characterize some of them. We would group such objects in this category pending scientific advances that allowed us to better understand them. The UAPTF intends to focus additional analysis on the small number of cases where a UAP appeared to display unusual flight characteristics or signature management.

UAP THREATEN FLIGHT SAFETY AND, POSSIBLY, NATIONAL SECURITY

UAP pose a hazard to safety of flight and could pose a broader danger if some instances represent sophisticated collection against U.S. military activities by a foreign government or demonstrate a breakthrough aerospace technology by a potential adversary.

Ongoing Airspace Concerns

When aviators encounter safety hazards, they are required to report these concerns. Depending on the location, volume, and behavior of hazards during incursions on ranges, pilots may cease their tests and/or training and land their aircraft, which has a deterrent effect on reporting.

- The UAPTF has 11 reports of documented instances in which pilots reported near misses with a UAP.

Potential National Security Challenges

We currently lack data to indicate any UAP are part of a foreign collection program or indicative of a major technological advancement by a potential adversary. We continue to monitor for evidence of such programs given the counter intelligence challenge they would pose, particularly as some UAP have been detected near military facilities or by aircraft carrying the USG's most advanced sensor systems.

EXPLAINING UAP WILL REQUIRE ANALYTIC, COLLECTION AND RESOURCE INVESTMENT

Standardize the Reporting, Consolidate the Data, and Deepen the Analysis

In line with the provisions of Senate Report 116-233, accompanying the IAA for FY 2021, the UAPTF's long-term goal is to widen the scope of its work to include additional UAP events documented by a broader swath of USG personnel and technical systems in its analysis. As the dataset increases, the UAPTF's ability to employ data analytics to detect trends will also improve. The initial focus will be to employ artificial intelligence/machine learning algorithms to cluster and recognize similarities and patterns in features of the data points. As the database accumulates information from known aerial objects such as weather balloons, high-altitude or super-pressure balloons, and wildlife, machine learning can add efficiency by pre-assessing UAP reports to see if those records match similar events already in the database.

- The UAPTF has begun to develop interagency analytical and processing workflows to ensure both collection and analysis will be well informed and coordinated.

The majority of UAP data is from U.S. Navy reporting, but efforts are underway to standardize incident reporting across U.S. military services and other government agencies to ensure all relevant data is captured with respect to particular incidents and any U.S. activities that might be relevant. The UAPTF is currently working to acquire additional reporting, including from the U.S. Air Force (USAF), and has begun receiving data from the Federal Aviation Administration (FAA).

- Although USAF data collection has been limited historically the USAF began a six-month pilot program in November 2020 to collect in the most likely areas to encounter UAP and is evaluating how to normalize future collection, reporting, and analysis across the entire Air Force.
- The FAA captures data related to UAP during the normal course of managing air traffic operations. The FAA generally ingests this data when pilots and other airspace users report unusual or unexpected events to the FAA's Air Traffic Organization.
- In addition, the FAA continuously monitors its systems for anomalies, generating additional information that may be of use to the UAPTF. The FAA is able to isolate data of interest to the UAPTF and make it available. The FAA has a robust and effective outreach program that can help the UAPTF reach members of the aviation community to highlight the importance of reporting UAP.

Expand Collection

The UAPTF is looking for novel ways to increase collection of UAP cluster areas when U.S. forces are not present as a way to baseline "standard" UAP activity and mitigate the collection bias in the dataset. One proposal is to use advanced algorithms to search historical data captured and stored by radars. The UAPTF also plans to update its current interagency UAP collection strategy in order bring to bear relevant collection platforms and methods from the DoD and the IC.

Increase Investment in Research and Development

The UAPTF has indicated that additional funding for research and development could further the future study of the topics laid out in this report. Such investments should be guided by a UAP Collection Strategy, UAP R&D Technical Roadmap, and a UAP Program Plan.

APPENDIX A - Definition of Key Terms

This report and UAPTF databases use the following defining terms:

Unidentified Aerial Phenomena (UAP): Airborne objects not immediately identifiable. The acronym UAP represents the broadest category of airborne objects reviewed for analysis.

UAP Event: A holistic description of an occurrence during which a pilot or aircrew witnessed (or detected) a UAP.

UAP Incident: A specific part of the event.

UAP Report: Documentation of a UAP event, to include verified chains of custody and basic information such as the time, date, location, and description of the UAP. UAP reports include Range Fouler[1] reports and other reporting.

[1] U.S. Navy aviators define a "range fouler" as an activity or object that interrupts pre-planned training or other military activity in a military operating area or restricted airspace.

APPENDIX B – Senate Report Accompanying the Intelligence Authorization Act for Fiscal Year 2021

Senate Report 116-233, accompanying the Intelligence Authorization Act for Fiscal Year 2021, provides that the DNI, in consultation with the SECDEF and other relevant heads of USG Agencies, is to submit an intelligence assessment of the threat posed by UAP and the progress the UAPTF has made to understand this threat.

The Senate Report specifically requested that the report include:

1. A detailed analysis of UAP data and intelligence reporting collected or held by the Office of Naval Intelligence, including data and intelligence reporting held by the UAPTF;
2. A detailed analysis of unidentified phenomena data collected by:
    a. Geospatial Intelligence;
    b. Signals Intelligence;
    c. Human Intelligence; and
    d. Measurement and Signatures Intelligence
3. A detailed analysis of data of the Federal Bureau of Investigation, which was derived from investigations of intrusions of UAP data over restricted U.S. airspace;
4. A detailed description of an interagency process for ensuring timely data collection and centralized analysis of all UAP reporting for the Federal Government, regardless of which service or agency acquired the information;
5. Identification of an official accountable for the process described in paragraph 4;
6. Identification of potential aerospace or other threats posed by the UAP to national security, and an assessment of whether this UAP activity may be attributed to one or more foreign adversaries;
7. Identification of any incidents or patterns that indicate a potential adversary, have achieved breakthrough aerospace capabilities that could put U.S. strategic or conventional forces at risk; and
8. Recommendations regarding increased collection of data, enhanced research and development, additional funding, and other resources.