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Analytics

# Unidentified Aerial Phenomena Special Overview 2021

*Case Study on Preliminary Assessment  
by The Office of The Director of US National Intelligence*

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From year to year, interest in UAP is growing and gaining more weight. **SpaceTech Analytics** had analysed the UAP landscape over the period of last 15 years relying on credible publicly available sources.

On **June 25th** Office of the Director of National Intelligence (ODNI) published a report called “**Preliminary Assessment: Unidentified Aerial Phenomena**” concerning the question of existence and the means of evaluation of the information related to the UAP (Undefined Aerial Phenomena).

This Overview summarizes the report and provides Special Case Study on it. Besides, it expands the theme to a global scale and briefly retells the story of humanity to catch the UAP observed. Since 2004, there have been about 200 UAP cases reported worldwide. Also, there are new advanced technologies (SMART, CORE3D, IARPA) to monitor and discover UAP. However, the challenge is to coordinate international cooperation, develop standardized approaches and provide sufficient funds.

In light of the techno-signatures received from outer space, potential challenges and threats regarding UAP are discussed here.

As result, the brand new reality implies a need to define and elaborate on relevant policies and technologies. **SpaceTech Analytics** discusses the current and future developments and makes a few projections concerning the future social impacts.

## Introduction

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Publication of the report is going to cause increased attention to the UAP all over the world. Additionally, researchers who studied and addressed these issues will be now de-stigmatized. Their scientific works are expected to be more frequently highlighted. There is possibility for them to receive certain acknowledgments and become opinion-makers in this area.

The “Preliminary Assessment: Unidentified Aerial Phenomena” report is a phenomena itself, which is going to become a trigger for follow-up acknowledgment of UAP in other countries besides the US. Consequently, a number of new reports provided by these countries within the next 2 years are expected to appear. All of the UAP-related reports, disclosures, and discoveries will be monitored and analyzed in our new overviews and case studies .

The recent 9-page US Report apparently is only tip of the iceberg. Clearly, there is a sealed, fuller report which was presented to the Congress. The Report is aiming to provide means to define and elaborate on relevant policies and technologies for the U.S. military and other U.S. Government (USG) personnel.

Due to the growing UAP recognition, data appearance and potential development of the area, SpaceTech Analytics presents a special case study **Unidentified Aerial Phenomena Global Overview 2021**.

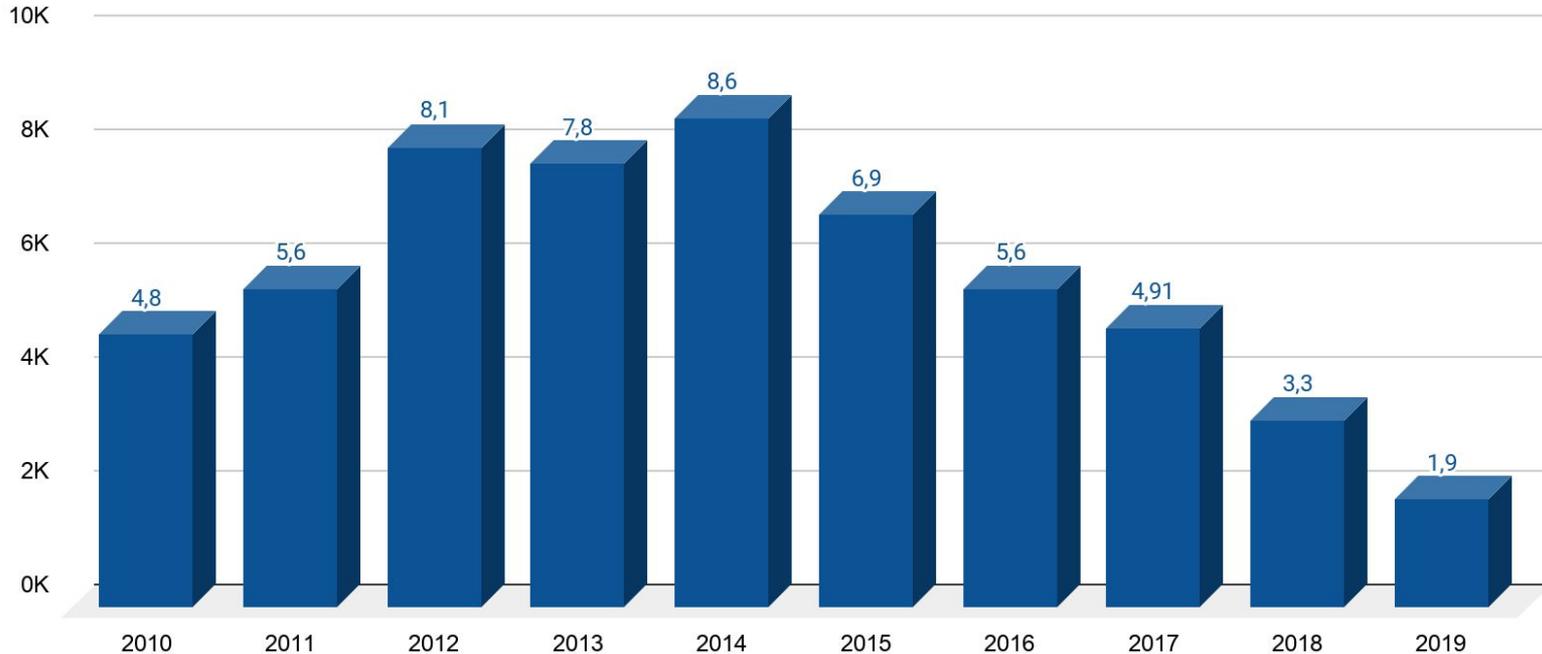
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graph LR; A[Preliminary Assessment: Unidentified Aerial Phenomena] --> B[Unidentified Aerial Phenomena Global Overview 2021]
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**Preliminary Assessment:  
Unidentified Aerial Phenomena**



**Unidentified Aerial Phenomena  
Global Overview 2021**

## UAP Sightings by Year in USA, 2010-2019



There is a **clear downward trend on UAP sightings in the United States**, which may be caused by the **development of entertainment technologies**, making people spend less time outside.

## World Map of Single or Group Sightings

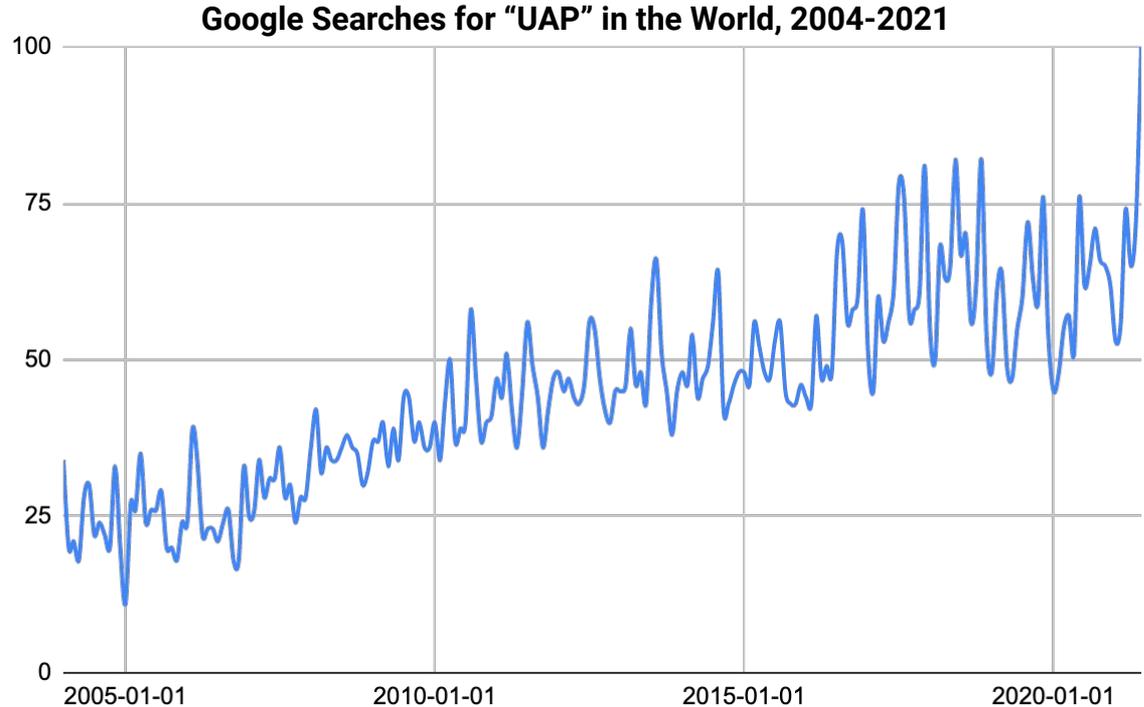


## UAP Global Overview and Statistics

Interest in UAPs has risen from a lull over the past years, **with a peak occurring these days in response to newly released research** "Preliminary Assessment: Unidentified Aerial Phenomena" by the Office of the Director of National Intelligence (ODNI).

**The chart to the right is a clear indication that the published review has increased attention to the UAPs worldwide.**

Obviously, the government's UAP program and the report **have spawned a news cycle that has shot references about UAP back into the mainstream.**

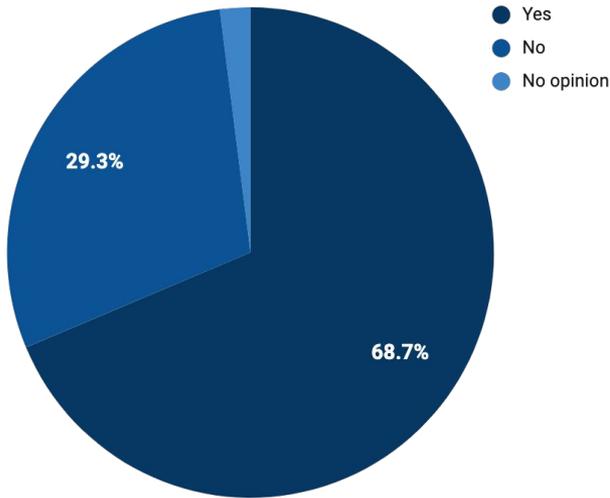


**Note:** The numbers on this graph show the popularity of a search term relative to the high point on the graph for a particular region and time period. **100 is the peak popularity of a term.** 50 means that the popularity of the term is half as high.

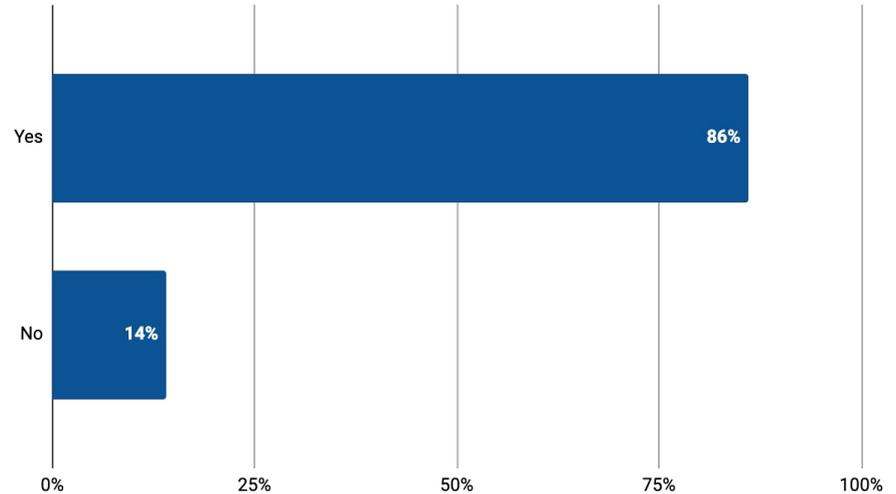
# UAP Global Overview and Statistics

A Gallup poll, made in 2019, found that **68% of Americans believe the government wasn't being completely clear about the UAPs**. However, regardless of what Americans thought of the government's awareness of them, **86% of U.S. adults said they have heard of or read about unidentified aerial phenomena**. That's why the publication of the Pentagon's research caused such a resonance worldwide.

Does the U.S. government know more about UPAs/UFPs than it is telling?



Do you hear or read about UAP/UFO?



# Preliminary Assessment by Office of The Director of National Intelligence - Report

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# Preliminary Assessment: Unidentified Aerial Phenomena

## 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.

# Preliminary Assessment: Unidentified Aerial Phenomena

## 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.

# Preliminary Assessment: Unidentified Aerial Phenomena

**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.

# Preliminary Assessment: Unidentified Aerial Phenomena

## 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<sup>1</sup> reports and other reporting.

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<sup>1</sup> 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.

# Policies and Conclusions

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## US Report Overview and Conclusions / UAP Recognition

Probably one of the most important takeaways of the report is the UAP recognition. Moreover, it states in the report that data gathering and analysis have been executing for **17 years straight**. During this period, 144 unresolved UAP-related incidents were documented. One of the first question arises whether or not general public will be able to assess the data of such incidents, including the comments from governmental authorities.

As was mentioned before, the recognition of the UAP will **reshape the structure of the current opinion-makers**, including scientists who have been studying such phenomena. This, in turn, might also affect the current R&D focus and existing policies of all types. The unclassified origin of this report brings some other issues, namely the report **does not provide any solid or groundbreaking conclusions**, and many issues remain, it should put an end to years of intragovernmental infighting over the subject.

The proposal of the scientific study of UAPs, University of Colorado. The study of UAP was deemed to be not scientifically interesting.

The most famous UAP encounters in modern aviation history involving pilot sightings, radar tracking, and objects caught on video remained unsolved.

Deputy Secretary of Defense approved the establishment of an Unidentified Aerial Phenomena Task Force (UAPTF). UAPTF should detect, analyze and catalog UAPs that could potentially pose a threat to U.S. national security, improving the understanding of the nature and origins of UAPs.

1966-1968

2004-2015

Aug. 4, 2020

## US Report Overview and Conclusions / Information Gathering

The amount of data officially gathered is still quite limited, but it states in the report that some clusterization analysis was performed which showed the existence of observation patterns, at the same time, such **observational correlations could be biased due to different reasons**, as discussed in the report.

It is clear now that there is no single explanation for all of the UAP-related reports. At the same time, ODNI proposes **five categories of possible UAP sources: airborne clutter, natural atmospheric phenomena, USG or industry developmental programs, foreign adversary systems, other**. Such classification may help in future data evaluation and analysis. Here is proposed the expanded classification, based on the international praxis.

The assessment means proposed in the report will be deeply connected to the employment of **artificial intelligence and machine-learning algorithms** for additional clustering and recognition analysis. This technologies shall be applied to the historical data evaluation too.

### UAP expanded classification categories

Airborne Clutter

Natural Atmospheric or Other Phenomena

Human-related Phenomena

Industry Developmental Programs

Unclassified Governmental Technology

Unclassified Private Technology

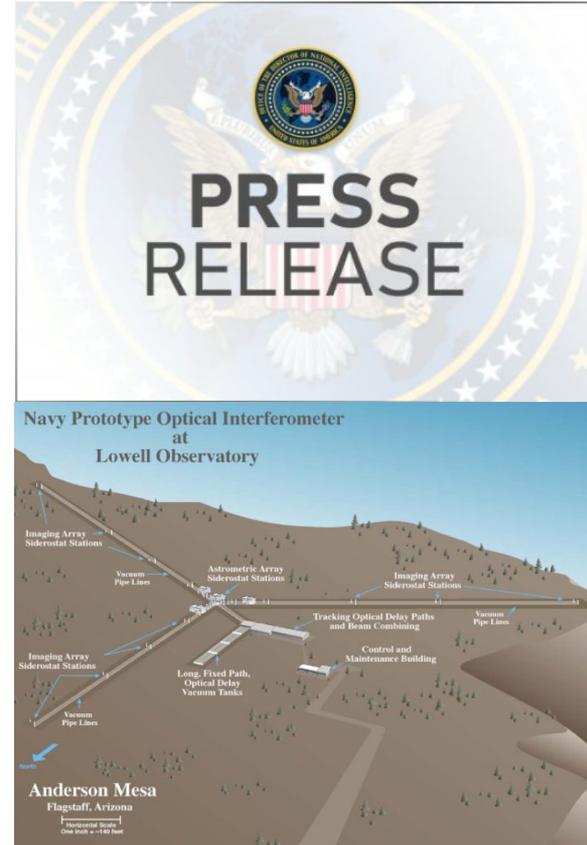
Other

## US Report Overview and Conclusions / Programs

As it was clearly stated in the report, there is an urgent need in additional financing of the UPA-related programs. As for now, **Space-based Machine Automated Recognition Technique Program** (SMART) and **Creation of Operationally Realistic 3D Environment** (CORE3D) could be treated as such programs. Another example of the potentially useful programs is **Amon-Hen** that worked on innovative, low-cost approaches for passive, ground-based interferometric imaging of GEO satellites.

Such programs are mainly related to the activity of **Intelligence Advanced Research Projects Activity** (IARPA). In case of additional financial support, it is forecasted that more entities of such nature will emerge since it is important to consolidate the process of data gathering and data evaluation.

At the same time, the probability of such support is definitely high since, as it was mentioned in the report, **UAP might pose threats not only to flight safety but also to the whole national security of the United States**. This might also bring some additional support to the research laboratories and universities as R&D centers. Another question that arises is whether or not such support will affect educational system, bringing more opportunities for faculties.



# US Report Summary

## UAP recognition

- The report states that since 2004 there were at least **144 unresolved UPA-related incidents**. Over that time period, such phenomena were being taken more seriously.
- The US government has publicly acknowledged that strange aerial sightings by Navy pilots and others are worthy of legitimate scrutiny.
- Although the report does not provide solid or groundbreaking conclusions, and many issues remain, it should put an end to years of intragovernmental infighting over the subject.

## The Need For Further R&D

- The report emphasizes the need to prioritize and guide future theoretical and observable studies. This relates, in particular, to non-radio "techno-signatures" – that is, observable manifestations of technology, particularly those that could be detected through astronomical or other means.
- Considering the nature of UAPs, there is a need for a coherent explanation that will accommodate and connect all the facts of the events. For this purpose, interdisciplinary scientific investigation is necessary.
- The crucial point is to end frivolous speculation and **develop a professional approach to studying the problem**. It implies a need to expand the coordination between agencies, standardize the reporting, increase investment in research, etc. The approach should account for possible social and security threats as well as benefits.

## Unknown Nature of UAPs

- The stigma associated with reporting such phenomena has ended, and it is now officially recognized as very real. Moreover, **the 5 potential UAP sources framework was proposed in the report**.
- According to the title, this preliminary report is only the beginning of something much bigger. As we move forward from here, the consequences of further targeted research could have unpredictable and profound effects on our understanding of physics, with all that implies for science-fictional technology advancement, and of our place in the universe.

# US Policy and Agencies / Agencies Involved in Unidentified Aerial Phenomena (UAP) Monitoring

## Congressional Intelligence and Armed Services Committees

### Office of the Director of National Intelligence

USD (I&S)

NGA

Navy

NOAA

DIA

NSA

Navy/ONI

NGA

### Department of Defense Unidentified Aerial Phenomena Task Force

FBI

Air Force

DARPA

NIM-Emerging and Disruptive Technology

NRO

Army

FAA

National Counterintelligence and Security Center

National Intelligence Council

The mission of the task force is to detect, analyze and catalog UAPs that could potentially pose a threat to US national security. As DOD has stated previously, the safety of personnel and the security of operations are of paramount concern. The Department of Defense and the military departments take any incursions by unauthorized aircraft into training ranges or designated airspace very seriously and examine each report. This includes intrusion checks, which are initially reported as a UAP, where the observer cannot immediately determine what is being observed.

# US Policy and Agencies / US Policy Agenda: Unidentified Aerial Phenomena (UAP)

## Security

Ongoing Civil Airspace Concerns

Potential National Security Challenges

Overall Lack of Data

Possible Foreign Systems Threat

Lack of Legal Basis

Lack of Coordination between Agencies

UAPs pose a safety hazard to flights and may pose a broader threat if, in some cases, they represent sophisticated fundraising against US military activities by a foreign government or demonstrate disruptive aerospace technology to a potential adversary.

The UAPTF indicated that additional research and development funding could contribute to further exploration of the topics outlined in this report. Such investments should be governed by the UAP Collection Strategy, the UAP R&D Technical Roadmap and the UAP Program Plan.

The long-term goal of the UAPTF is to expand its scope to include additional UAP events documented by a wider range of US government personnel and technical systems. As the dataset grows, the UAPTF's ability to use data analytics to identify trends also improves.

## Research

Standardize the Reporting

Expand Data Collection

Increase Investment in Research

Deepen the Analysis

Coordination between Agencies

Sole Responsibility of the Agency

Most of the UAP data comes from US Navy reports, but efforts are underway to standardize incident reporting across the US military and other government agencies to ensure that all relevant data is collected in relation to specific incidents and any US action that may be relevant. The UAPTF is currently working on receiving additional reports, including from the United States Air Force (USAF), and has begun receiving data from the Federal Aviation Administration (FAA).

The UAPTF is looking for new ways to increase the collection of UAP clustered areas when US forces are not present, as a way to determine basic "standard" UAP activity and reduce data collection bias. One suggestion is to use advanced algorithms to search for historical data captured and stored by radars. The UAPTF also plans to update its current inter-agency UAP collection strategy to leverage appropriate DoD and IC collection platforms and methods.

# Investigational Programs & International UAP Cases

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## Investigational programs

In January of 2021 IARPA announced the launch of the **Space-based Machine Automated Recognition Technique Program (SMART)**.

The goal of this program is to **automate the quantitative analysis of space-based imagery to perform a broad-area search for natural and anthropogenic events and characterize their extent and progression in time and space**. The SMART program aims to develop capabilities in the spectral and temporal domains, enabling seamless integration and fusion (i.e. absolute calibration) of data from multiple sensors to deliver a comprehensive representation of seven natural or anthropogenic evolving events.

The SMART program may **help with the limited data problem**, which leaves most UAP unexplained. However, it will require innovations in new computing approaches and calibration techniques in order to rapidly and reliably compare thousands of images from multiple sensors registered in space and time.

At the same time it is important to understand that SMART program isn't created specifically for the UPA-related purposes, therefore we forecast the emergence of the additional strictly UAP-focused programs akin to SMART in order to evaluate all existing information in a standardized manner.

**The SMART program will also leverage algorithmic approaches to:**

Search for specific activities

Detect and monitor activities throughout time and over broad areas

Characterize the progression of events and activities temporally and categorically

## Investigational programs

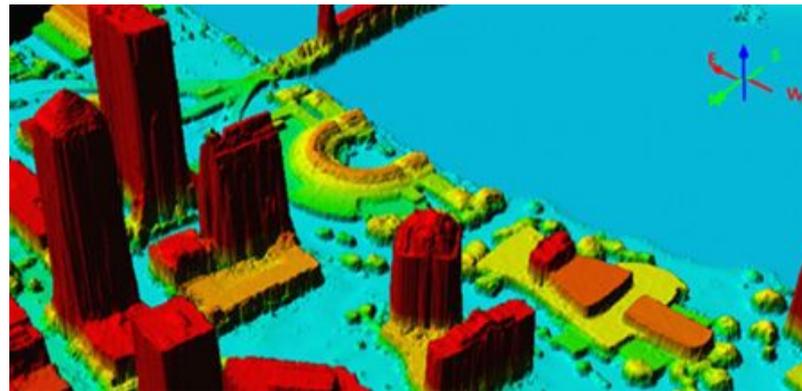
**Intelligence Advanced Research Projects Activity (IARPA)** plays a critical roles in the UAP-related assessment system. IARPA was founded in 2006 as an organization within the Office of the Director of National Intelligence responsible for leading research to overcome complex challenges relevant to the United States Intelligence Community. Its main goal is to **“envision and lead high-risk, high-payoff research that delivers innovative technology for future overwhelming intelligence advantage”**. IARPA invests in multi-year research programs, in which academic and industry teams compete to solve a well-defined set of technical problems, regularly scored on a shared set of metrics and milestones.



CORE3D



Currently for now, one of the big projects executing by IARPA is Creation of Operationally Realistic 3D Environment (CORE3D). The CORE3D program aims to develop technology that generates, in an automated way, **accurate 3D object models with real physical properties**, from multiple data sources including commercial satellite panchromatic and multi-spectral imagery for global coverage, and airborne imagery and Geographic Information System (GIS) vector data for improved resolution and fidelity.



## Investigational programs

On the other hand, UAP-unrelated investigational programs play significant role in the process of the UAP analysis since they provide additional information about the atmospheric or other physical process on other planets. Such information, in turn, might help us to understand our own geophysical phenomena. These programs can also provide additional means for the UAP-related programs. As for United States, probably one of the most recent and advanced are **The Juno Mission, The InSight Mission and Mars and Jupiter exploration** missions. These programs could also provide technical solutions for UAP programs since different types of sensors and detectors play key role for satellites, robots and other SpaceTech solutions.

### The Juno Mission

Launched in 2011, the Juno mission is expected to continue until September 2025 or the end of its life, whichever comes first. The Juno spacecraft has already made discoveries about:

- Jupiter's interior structure,
- magnetic field, and magnetosphere
- have found its atmospheric dynamics to be far more complex than scientists previously thought.

Juno will further continue to observe both the gas giant and the planet's rings and its moons, including "close flybys" of Ganymede, Europa, and Io.

### The InSight Mission

It is extended for two years, running through December 2022. InSight's spacecraft deployed its highly sensitive seismometer to expand the understanding of Mars' crust and mantle. The mission team collected data demonstrating the robust tectonic activity of Mars.

- In April 2019, the InSight lander recorded the first-ever "Mars quake."
- In September 2019, the InSight lander detected bizarre bursts of magnetic pulses on Mars.

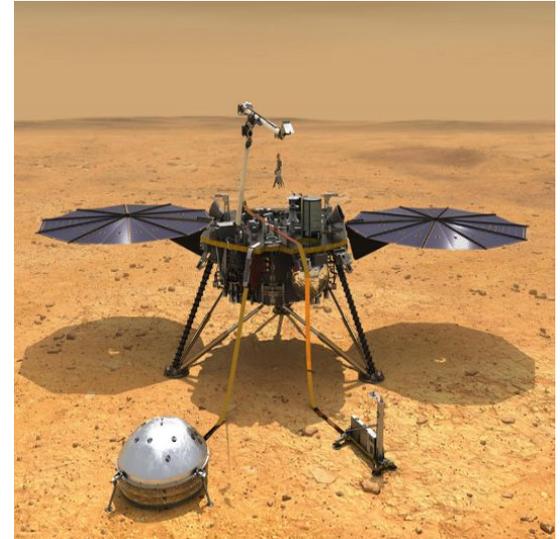
# Investigational programs

## Two main NASA missions: Mars and Jupiter exploration

Citing discoveries that have "produced exceptional science," NASA has decided to add several years to two of its planetary science missions: the Jupiter Juno mission and the Mars InSight lander.

"The Senior Review has validated that these two planetary science missions are likely to continue to bring new discoveries, and produce new questions about our solar system," said Lori Glaze, director of the planetary science division at NASA Headquarters in Washington.

It is well-known that atmospheric processes on Jupiter and Mars differ dramatically from ones could be observed on Earth. Such projects might seem unrelated to the UPA programs but, as was mentioned before, the technologies created during the preparation for these programs might help scientists, pilots and other related personnels in data aggregation. These programs might also provide additional policy suggestions when it comes to the reporting.



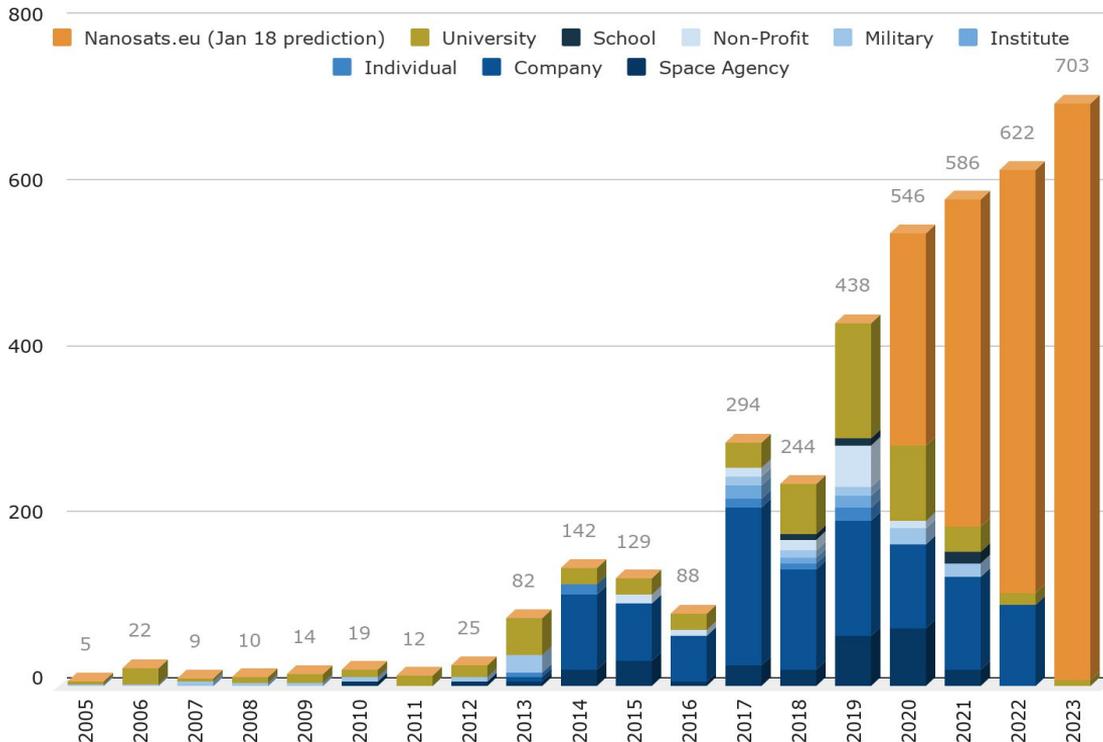
# Investigational programs

## The Beginning of the Small Satellite Era

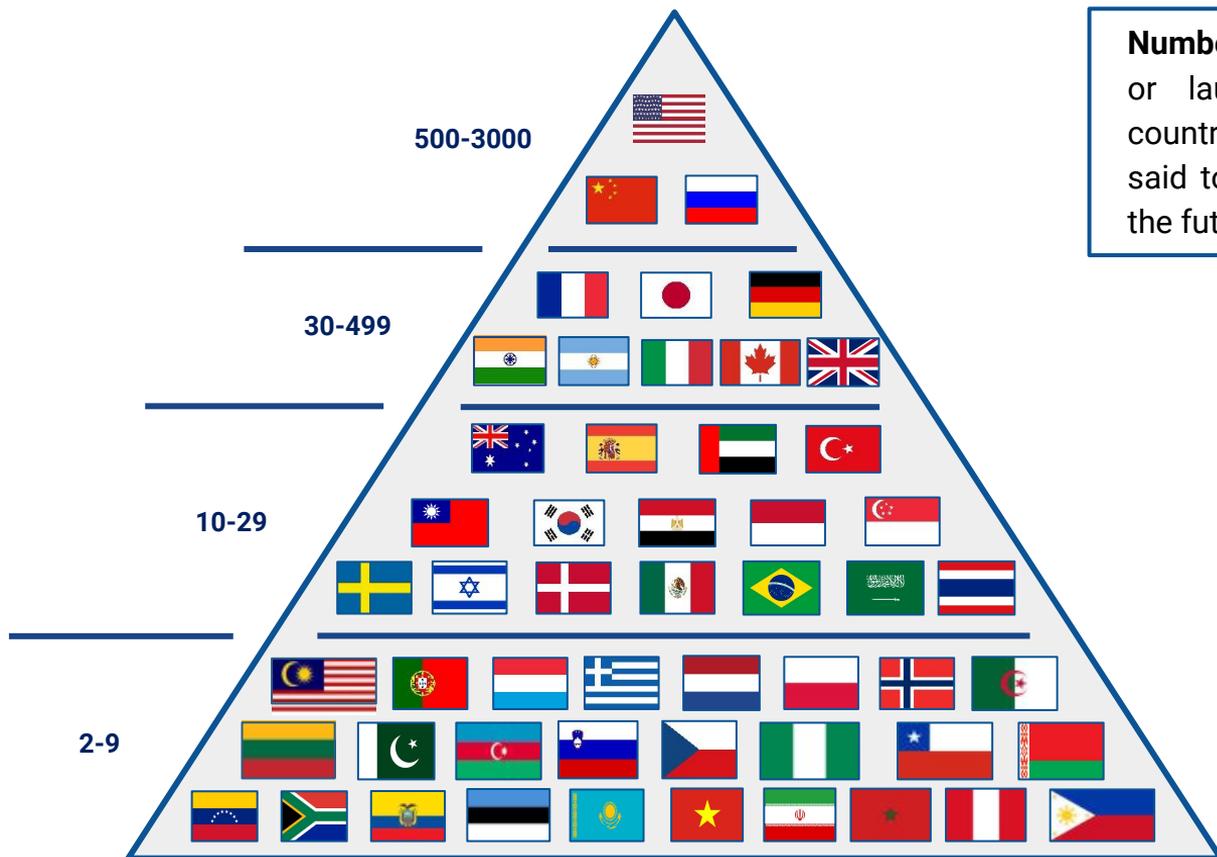
Small and Nano Satellites are important technical solutions for both present and future UAP programs since they allow to monitor and analyze enormous amount of information and are less expensive in comparison to the classical satellites. After the acknowledgement of the UAP by the US Government, we forecast the participation of other countries in this “informational race”.

In this situation small satellites will play the key role as one of the collaboration technical solution. The country which possess the most profound small satellite system will take the lead in this race and, thus, will be able to promote its own interests worldwide. This may, in turn, affect the economy of this country in strictly positive way.

## Nanosatellite Launches by Organisations



# Investigational programs



**Number of satellites** either owned or launched by country. Top countries like USA or China are said to be the most prepared for the future UAP race.





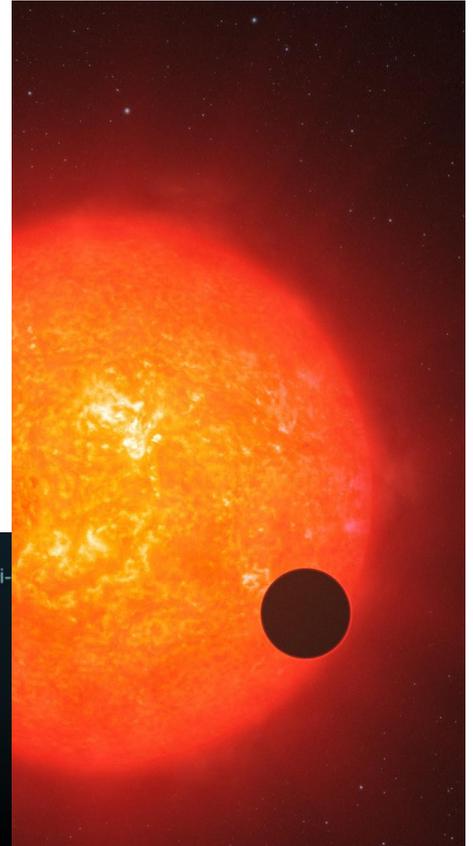
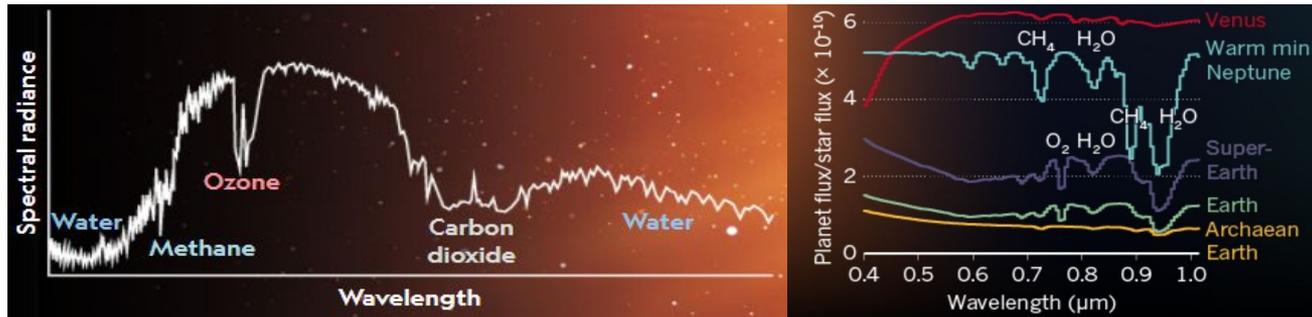
Radio telescope Robert C. Byrd

**Search for Extraterrestrial Intelligence** (or **SETI**) is a collective term for a scientific search for intelligent extraterrestrial life, involving monitoring electromagnetic radiation for signs of transmissions from civilizations on other planets. Most of the work is done with the help of radio telescopes looking for radio or laser transmissions. It is a pretty rare occasion that such telescope stumbles upon a signal that is not considered to be normal or known, but even if it does, there is a long procedure before it can become a candidate for extraterrestrial transmission. First, the telescope is moved away from the signal and returned back. The signal must disappear and reappear again to prove that the signal is coming from the telescope's field of view. Then known Earth or near-Earth sources, such as satellites, must be ruled out as originators of the signal. Same goes for known natural extraterrestrial sources, such as pulsars. Afterwards the signal must be confirmed by another radio telescope.

The project called **Breakthrough Listen** is made to search for intelligent extraterrestrial communications in the Universe. The project uses radio wave observations from the Green Bank Observatory and the Parkes Observatory, and visible light observations from the Automated Planet Finder. All data generated from the project are available to the public. The first results were published in April 2017, and the further updates are expected every 6 months.

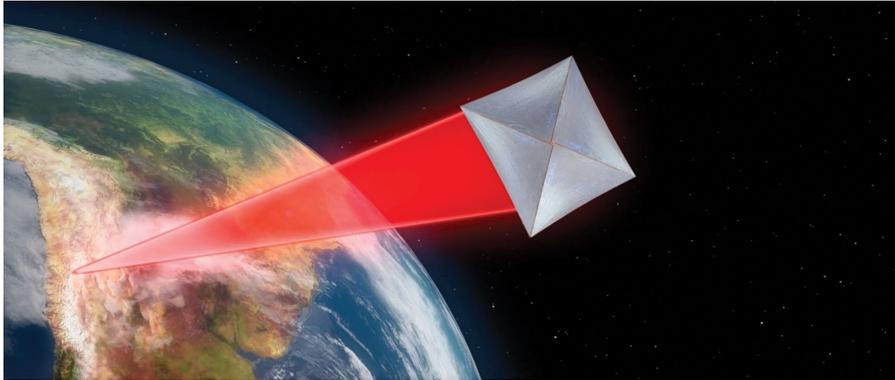
# Investigational Programs

There is a crucial thing in SETI. In order to find life, you first have to find planets that are habitable. In order to be considered habitable the planet should remain its orbit not too close and not too far from its star, because the equilibrium temperature influences the possibility of liquid water being present on the planet's surface. The star shouldn't have frequent and powerful solar flares, because otherwise any life form would be wiped out by a deadly dose of radiation. Humanity knows about **47** potentially habitable planets, and **11** of them are quite likely to have water on their surfaces. Moreover there are theoretically at least **25 millions** of Earth-sized planets in Milky Way that lay in the habitable zone of their stars, but it is not clear if there is any life there. That is why such thing as **biosignatures** exists. Those are mostly gases, such as **Ozone, Methane, Carbon Dioxide** or **Water**, that carbon-based lifeforms need or produce. Spectral characteristics of the starlight transmitted through the planet's atmosphere reveal the gases within. So seeing such gases in the atmosphere leads us to a conclusion, that life is really possible on that planet.



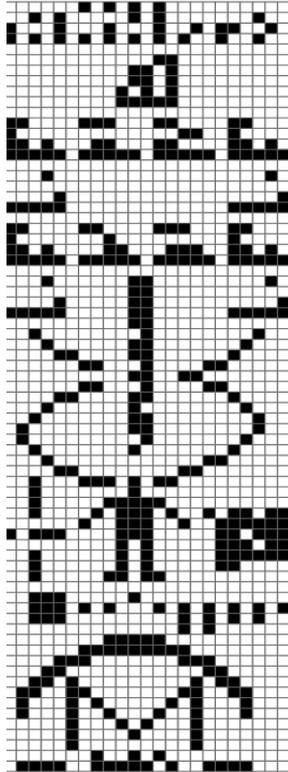
# Investigational Programs

**Starshot Breakthrough** is a project that aims to launch a tiny vehicle with a speed of one fifth of the speed of light to the closest star system Proxima Centauri, that is situated only in 4,2 light years from Solar System. The idea is to survey the planet called **Proxima b**, because it lays in the habitable zone of its planet and spectral analysis shows that it is likely to have fluid water on it surface. Moreover, the latest signal **BLC-1**, that is considered to be a possible techno-signature, was received from the same star system. The technology is that a set of lightweight probes are launched from the low Earth orbit and propelled by nearly a billion laser beams, creating a pulse with the power of 100 gigawatts for several minutes.



The probes have a quarter inch chip each, that weighs five grams and fulfills the function of a camera, laser transmitter, computer and a navigation system. The crucial point of the technology is a giant featherweight foil sail that will be pushed by the laser beam. The information received by the probes in approximately 20 years after the launch will be transmitted back to Earth via laser, that will travel home for another 4 years. The scientists expect to prove the existence of liquid water on the planet.

## Investigational Programs



A representation of the 1679-bit Arecibo message.

**Messaging to Extra-Terrestrial Intelligence (METI)** also known as Active SETI is an initiative by a group of astronomers and astrobiologists made to contact the extraterrestrial intelligence with mostly radio messages. In 2010, **Douglas A. Vakoch** of the SETI Institute proposed to integrate the Active SETI and Passive SETI programs to engage in an articulated, ongoing, and developing set of experiments to contact another civilisation, considering all the problems like the Fermi Paradox. Articulated in this case means a well-designed message that could be interpreted by any sapient organism, that doesn't know anything about human alphabet or culture. For example Arecibo message has an encoded information about our numerical system, the chemical composition of DNA, a representation of a human and the population, Solar System and an image of a telescope that sent the message in binary code There were other messages like **Cosmic Call** or **Teenage Message** that mostly represented such encoded messages or musical compositions. Physical messages like Pioneer Plaque, that was attached to Pioneer 10 and 11, also count as METI. It had a picture of naked humans, the telescope and some graphical syphers telling about Solar System and how to find it.



## Unidentified Aerial Phenomena / Persons

**Type:** Sighting

**Authority:** US Government

These still shots are from the video that leaked out in 2017 and **was confirmed** to show **unidentified aerial phenomena** by **Pentagon** in 2020.

“The Department of Defence is releasing the videos in order to clear up any misconceptions by the public on whether or not the footage that has been circulating was real, or whether or not there was more to the videos. The aerial phenomena observed in the video remain

characterized as ‘unidentified’”

*U.S. Department of Defence.*

*“I’ve talked to those Navy pilots. They know that they saw something. I’ve asked our scientists here at NASA, if they’ll see if they can help us have any understanding of something that we do not know what it is”*

Bill Nelson, former astronaut and NASA Administrator.



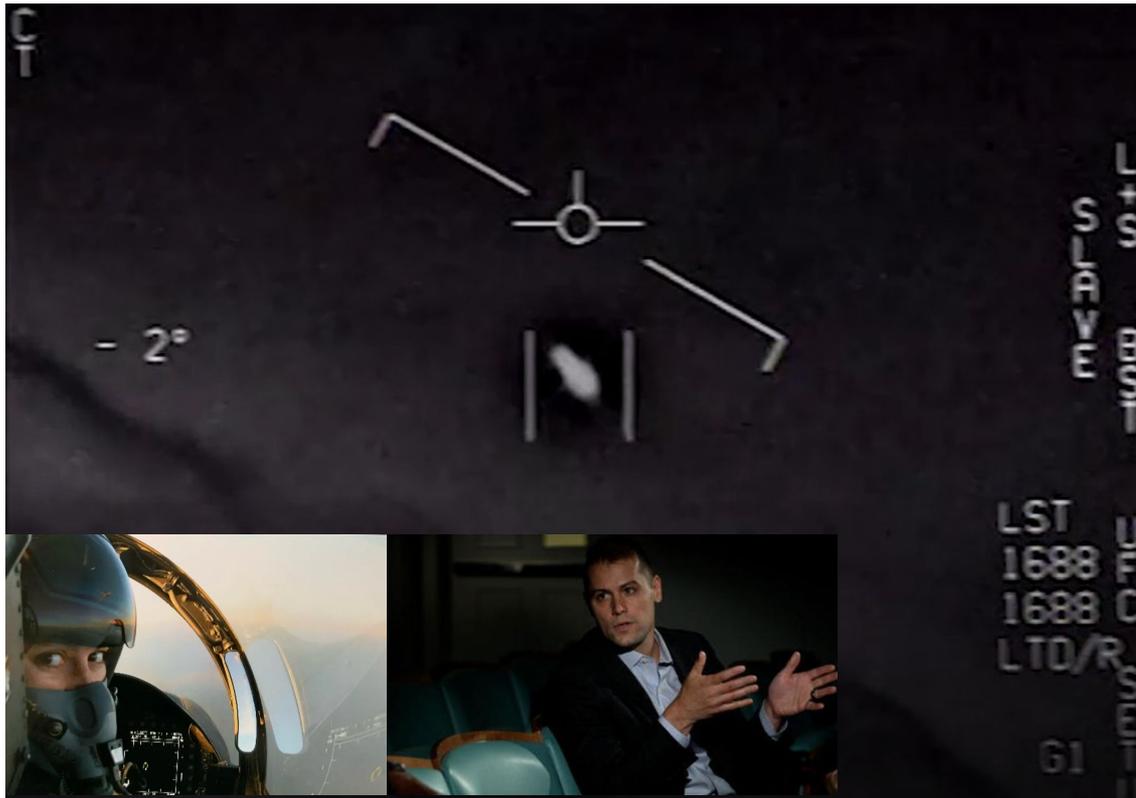
# Unidentified Aerial Phenomena / Persons

**Type:** Sighting

**Authority:** US Air Force

Lt. Ryan Graves, an F/A-18 Super Hornet pilot spotted flying objects that had no visible engine or infrared exhaust plumes, but that they could reach 30,000 feet and hypersonic speeds. *“These things would be out there all day”; “Keeping an aircraft in the air requires a significant amount of energy. With the speeds we observed, 12 hours in the air is 11 hours longer than we’d expect”.*

Former Navy Lt. Cmdr. Alex Dietrich saw the flying object over the Pacific Ocean in 2004, which was also captured by a camera and radar. She described a *“little white Tic-Tac-looking object”* that had *“no predictable movement, no predictable trajectory”*



## Unidentified Aerial Phenomena / Persons

**Type:** Sighting

**Authority:** Former Director, Advanced Aerospace Threat Identification Program

Luis Elizondo, the former head of a government-funded UFO program explained the observables associated with UAPs, and says current observation technology has record them underwater. *“There’s five distinct observables that set this technology as I mentioned earlier aside from everything we have in our inventory. The first is hyper sonic velocity, the ability to change directions instantly... the third observable is a bit like ‘cloaking,’ we call it low observability, but the fourth observable is... trans-medium travel... the ability for an object to not only fly in our atmosphere low and high altitudes but also potentially in a vacuum environment like space and even underwater... We’ve seen these things, they’ve been recorded not only in our atmosphere, but there’s data to suggest that they’ve also been tracked by some of our capabilities underwater as well”.*



## International UAP Cases

**Type:** Statement

**Authority:** Former Israeli Space Security Chief

According to Haim Eshed, former Israeli Space Security Chief, humanity has been in contact with extraterrestrials from a so-called "**galactic federation**".

*"They have been waiting until today for humanity to develop and reach a stage where we understand, in general, what space and spaceships are"* Eshed said. He goes on to say that the United States and Israel have long been in contact with an alien race called "galactic federation".

He claims that former US President Donald Trump knew about that and was deeply concerned about the fact. Eshed insists that Trump was going to reveal this information but was kindly asked not to do so by the aliens, because that could lead to "mass hysteria".

A "galactic federation" has been waiting for humans to "reach a stage where we will understand... what space and spaceships are," Haim Eshed said.



## International UAP Cases

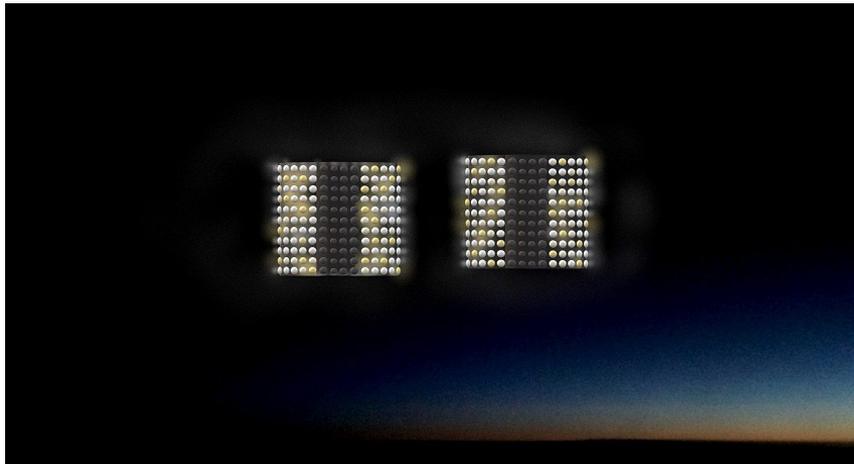
**Type:** Sighting

**Authority:** Crew members of the Boeing 747-200F (Japan)

Japan Airlines Flight 1628 was a UFO incident that occurred on November 17, 1986 involving a Japanese Boeing 747-200F cargo aircraft. The aircraft was en route from Paris to Narita International Airport, near Tokyo, with a cargo of Beaujolais wine. On the Reykjavík to Anchorage section of the flight, at 17:11 over eastern Alaska, the crew first witnessed two unidentified objects to their left. These abruptly rose from below and closed in to escort their aircraft. Each had two rectangular arrays of what appeared to be glowing nozzles or thrusters, though their bodies remained obscured by darkness. When closest, the aircraft's cabin was lit up and the captain could feel their heat on his face.



**Illustration of the first two objects, based on Captain Terauchi's drawings and descriptions. They were "shooting off lights", were square in shape and some 500 to 1,000 feet in front of the cockpit, but somewhat higher in altitude.**



These two craft departed before a third, much larger disk-shaped object started trailing them. Anchorage Air Traffic Control requested an oncoming United Airlines flight to confirm the unidentified traffic, but when it and a military craft sighted JAL 1628 at about 17:51, no other craft could be distinguished. The sighting lasted 50 minutes and ended in the vicinity of Denali.

## International UAP Cases

**Type:** Sighting

**Authority:** Russian astronaut

On August 20, 2020, Russian astronaut Ivan Vagner posted a timelapse video of five unidentified objects in his Twitter account. The video features five spherical objects that appear and disappear in rapid succession. According to the astronaut, the objects travelled at the same speed and were equidistant from one another.



*"The information was brought to the attention of Roscosmos management. The video footage was sent to TsNIIMash and the Space Research Institute of the Russian Academy of Sciences for further analysis," the astronaut was reported as saying.*

# International UAP Cases

**Type:** Signal

**Authority:** Parkes Observatory

In April, 2019 the Parkes radio telescope caught a strange narrowband radio signal from the closest star system Proxima Centauri. It was later called **BLC-1**. Scientists believe it could be a technosignature of a civilization that lives on one of the two planets orbiting Proxima, but there are also theories that are more likely.

Experts say, this may be a radio interference, since we use the same radio band for satellites, or a natural process that is not well-known to the scientists.



**Type:** Signal

**Authority:** Ohio State University

**WOW! Signal** was also a strong narrowband signal back in the 1977, that lasted for only 72 seconds. The signal was not modulated, which means, that there are no known ways to convey any information with such transmission. There were suggestions, that it had been an Earth-sourced signal that simply got reflected off a piece of space debris, but those were rejected in some time. Scientific community sticks to the theory, that the signal was an artifact, because it never repeated.

Wow!

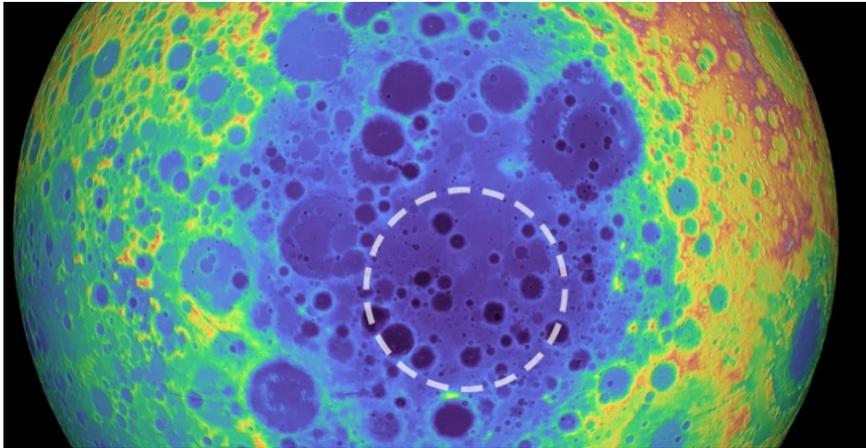
1	10	1	1	1	1	1
1	11	1	1	1	11	1
1	1	1	1	1	1	1
1	2	1	1	1	3	1
1	24	3	12	1	21	1
1	Q	1	1	1	1	1
1	U	1	1	1	1	1
2	J	1	3	111	11	1
5	1	1	1	1	1	1
1	14	1	113	1	2	11
1	3	1	1	1	1	1
1	4	1	1	1	1	11
1	4	1	1	1	11	111
1	1	1	1	1	2	1
1	1	1	1	11	1	1
1	1	1	1	1	14	1

## International UAP Cases

**Type:** Data

**Authority:** Astronomers from Baylor University

A team of researchers from Baylor University in Texas have found a large cluster of mass under the Moon's largest crater. Perhaps, it is a core of a metal asteroid that struck the Moon a millenia ago or a magma solidification. Some scientists even go so far as to assume that there can be a metal structure under the Moon's mantle. There are different hypotheses; however, none of them can be confirmed yet.



**Type:** Data

**Authority:** International team of astrobiologists

Data sent to Earth by NASA's Curiosity rover indicates that Mars could have has the environment factors to support life. Thiophene, a chemical substance found in coal and crude oil, could be a sign of life on the Red Planet. "There are several biological pathways for thiophenes that are more likely than chemical ones," says Dirk Schulze-Makuch, Washington State University astrobiologist.



# International UAP Cases

## The Belgium Wave, 1989-90.

At the end of November 1989, citizens of Belgium reported seeing a large, triangular UFO hovering in the sky. But beyond the visual sightings, no evidence was found of any UFO's existence. A few months later, **in March 1990**, new sightings of multiple objects were reported, confirmed by two military ground radar stations. Two F-16 fighter jets were sent out to investigate the anomalies, and though the pilots could not see anything visually, they were able to lock onto their targets with radar. But the UFOs moved so fast that the pilots ended up losing them.

Some 13,500 people are estimated to have witnessed the incident, making it one of the most widely experienced UFO sightings of the modern era. The Belgian Air Force **had no logical explanation** for the activity, but it acknowledged that an unknown activity had taken place in the air. The Belgians reached out to the UK's Ministry of Defence to investigate further, but once they determined that the incident was not a hostile or aggressive one, they stopped the investigation.



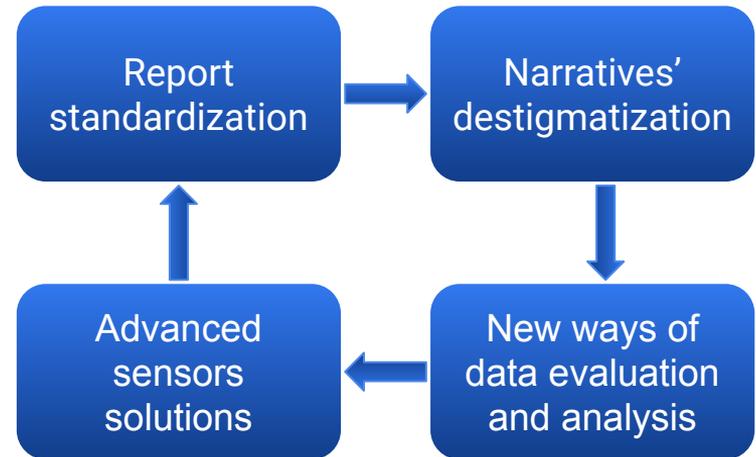
## Future of R&D

The policies and processes mentioned in the report will require a sufficient amount of data. In addition, it is important to have multi-sourced data, since even a correctly operating sensor. Besides, it is important to have multi-sourced data, since even the correct operating sensor, as stated in the report, might encounter some sort of unpredictable interference.

As previously mentioned, the data for the report has been gathered since November 2004 and is still being collected. During this period 144 USG reports were gathered concerning Undefined Aerial Phenomena. Among these reports, **55.5%** (80 samples) was collected via multiple sensors or detectors simultaneously.

The report states that **sensors limitation** and **inconsistency of the data** are the main obstacles to the analysis. This is because there is no standardized report structure for UAP, **making it hard to define** and evaluate main parameters and criteria for any sort of analysis. As for sensors, most of the technologies used for detection are designed specifically for purposes of the given missions and, therefore, cannot gather and represent complete data as effectively as purpose-built sensors would. Thus, there is a need for both advanced sensor solutions and data analysis for such solutions.

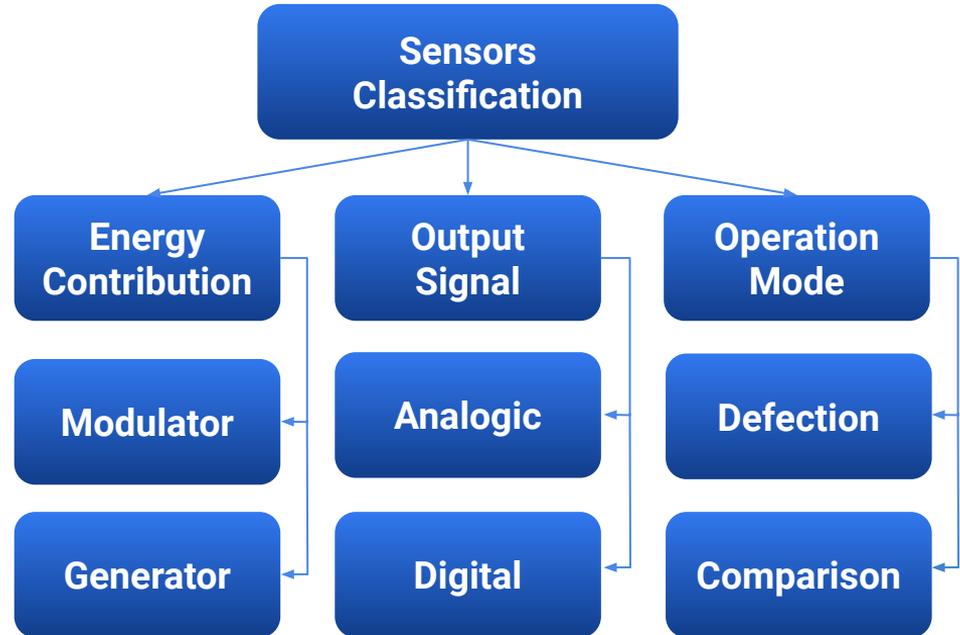
### UAP-related information gathering and evaluation optimization cycle



## Future of R&D

The aforementioned advancements in sensor technologies should be analyzed according to two main parameters: information gathering and implementation easy. In other words, the future R&D will be focused on the two main topics: how to create more profound sensors, scanners and detectors in order to gather more UAP-related information and how to make the existing ones cheap, since the UAP observational bias might be primarily gained due to the absence of means of detection.

In order to achieve these goals, we forecast more active implementation of the **AR technologies, AI-based algorithms in data analysis, as well as the implementation of the Functional Materials**. On the other hand, not every sensor might be able to depict the observable phenomena correctly, therefore we prospect the additional focus on Direct neural interface technologies and other solutions that may provide means for “direct” data extraction from humans.



## Future of R&D

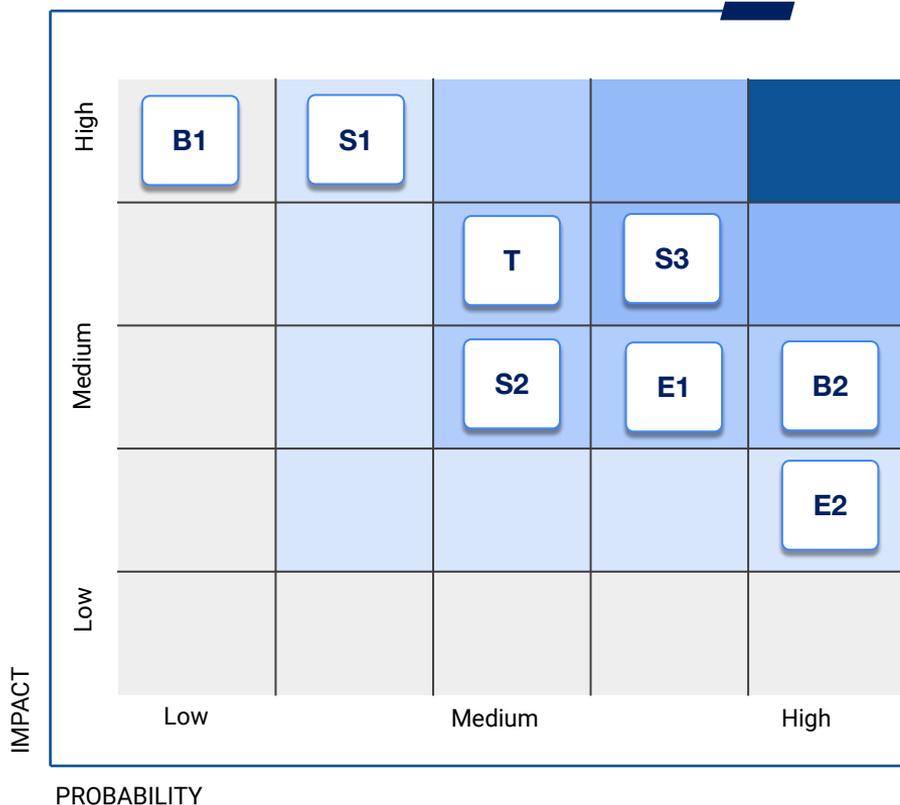
As it was mentioned before, satellites, including small and nanosatellites could play a **key role in the process of UAP-related data gathering and evaluation**. Based on that, we prospect additional financial support for the satellites-related scientific programs and R&D centers working on the technological solutions for the satellites systems. One of the most important trends are said to be special satellites sensors and telecommunication solutions allowing to transfer data rapidly and in high resolution.

Such advances might, in turn, boost existing satellite-related technologies, including observational systems, telecommunication, and even energy producing, for example, via the Satellite Solar Power. The additional attention to this sector will allow governmental centers to boost their scientific processes, as well as **create additional competition among governmental and private SpaceTech companies**.



**At the same time it is important to allocate this financial support equally but this will require additional safety and non disclosure policies. Another important thing is how to create new international collaboration policies and formats for these R&D projects.**

# Risk Framework



## Security-driven threats

Actuation of national nuclear defense systems (**S1**)

Cyberattacks (**S2**)

Satellite telecommunication disruption due to objects collisions (**S3**)

## Economic-driven threats

Stock market panic (**E1**)

Shortage of vital goods (**E2**)

## Biologically-driven threats

Bacteriological pandemic (**B1**)

Social panic and mass psychosis (**B2**)

## Technologically-driven threats

Slowdown in financing for the development of the 5th industrial revolution (**T**)

## Risk Framework: Explanation

**Actuation of national nuclear defense systems (S1).** Possible risks are associated with false warnings of military systems due to reactions on UAP. Most of the close calls of accidental nuclear war were triggered by errors in early warning systems.

The actions of other countries disguised as UAP can significantly reduce the efficiency of strategic sectors of the economy through **cyberattacks (S2)**.

**Satellite telecommunication disruption due to objects collisions (S3).** Telecommunications infrastructure in Earth orbit is endangered due to the risk of collision with space debris / unidentified object.

**Stock market panic (E1).** False or unverified information about UAPs can cause panic in financial markets, which significantly increases asset volatility and cause significant losses to the economy.

**Shortage of vital goods (E2).** Unverified information can cause public panic, which will significantly increase demand for essential goods, cause shortages and increase prices.

**Bacteriological pandemic (B1).** The main biologically-driven threats of the near future include the risk of pandemics or the use of biological weapons.

**Social panic and mass psychosis (B2)** may be caused by unverified research information on unidentified aerial phenomena.

**Slowdown in financing for the development of the 5th industrial revolution (T).** If UAPs do not exist in reality, the diversion of resources to this problem and the fears associated with it may divert attention from main technological problems such as the development of artificial intelligence, nanotechnology breakthrough, irreversible global warming and the risks of hadron colliders.

## Summary

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The “Preliminary Assessment: Unidentified Aerial Phenomena” report published by the Office of the Director of National Intelligence (ODNI) is the first report of its kind. Its emergence should be treated as a part of a future international trend concerning the UAP.

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It is hard to underestimate the international influence of the aforementioned report. As a SpaceTech leader, the United States have created new info trend that can't be ignored by other countries and international Space Agencies, therefore we forecast the emergence of the akin reports among other international SpaceTech players.

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The influence of the report is not informational solely, it was clearly stated in the report that additional financial support is needed, therefore we prospect the reshaping of the scientific attitude to the UAP scene, as well as additional attention to the R&D processes concerning the UAP programs and technical solutions.

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As it was shown in our case study, UAP is not a unique phenomenon to the United States. On the other hand, the acknowledgment and official reaction to the report by other countries are of great importance for the future development of the UAP scene.

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At the same time, the future participation of other countries in the UAP-related collaborations is clear, therefore the importance of the SpaceTech ecosystem possessed by countries will gain additional importance in the foreseeable future.

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In this situation, the importance of the DeepTech analysis is growing rapidly. It is clear that data gathering and analysis, creation of the relevant policies, optimization of the existing technologies and future role of the UAP at the economical level require adequate means, which could be only provided by the DeepTech industry.

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# SpaceTech Analytics

## New Era in Big Data Analytics for SpaceTech Industry

SpaceTech Analytics is a strategic analytics agency focused on markets in the Space Exploration, Spaceflight, Space Medicine, and Satellite Tech industries. The range of activities includes research and analysis on major areas of high potential in the SpaceTech industry, maintaining profiling of companies and governmental agencies based on their innovation potential and business activity, and providing consulting and analytical services to advance the SpaceTech sector.

**SpaceTech Industry 2021 Report**



**SpaceTech Industry 2021 / Q2  
Landscape Overview**

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**1000+ SpaceTech Leaders**



**1000+ SpaceTech Leaders  
Full Database**



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**SpaceTech Industry in Figures**



5% +32.88% +41.87%

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Funding Rounds

Leading Companies & Investors

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COMPANIES	INVESTORS	HUBS AND R&D
10000+	5000	280
INDUSTRY SECTORS	PARAMETERS	DATA POINTS
20+	100+	1499966

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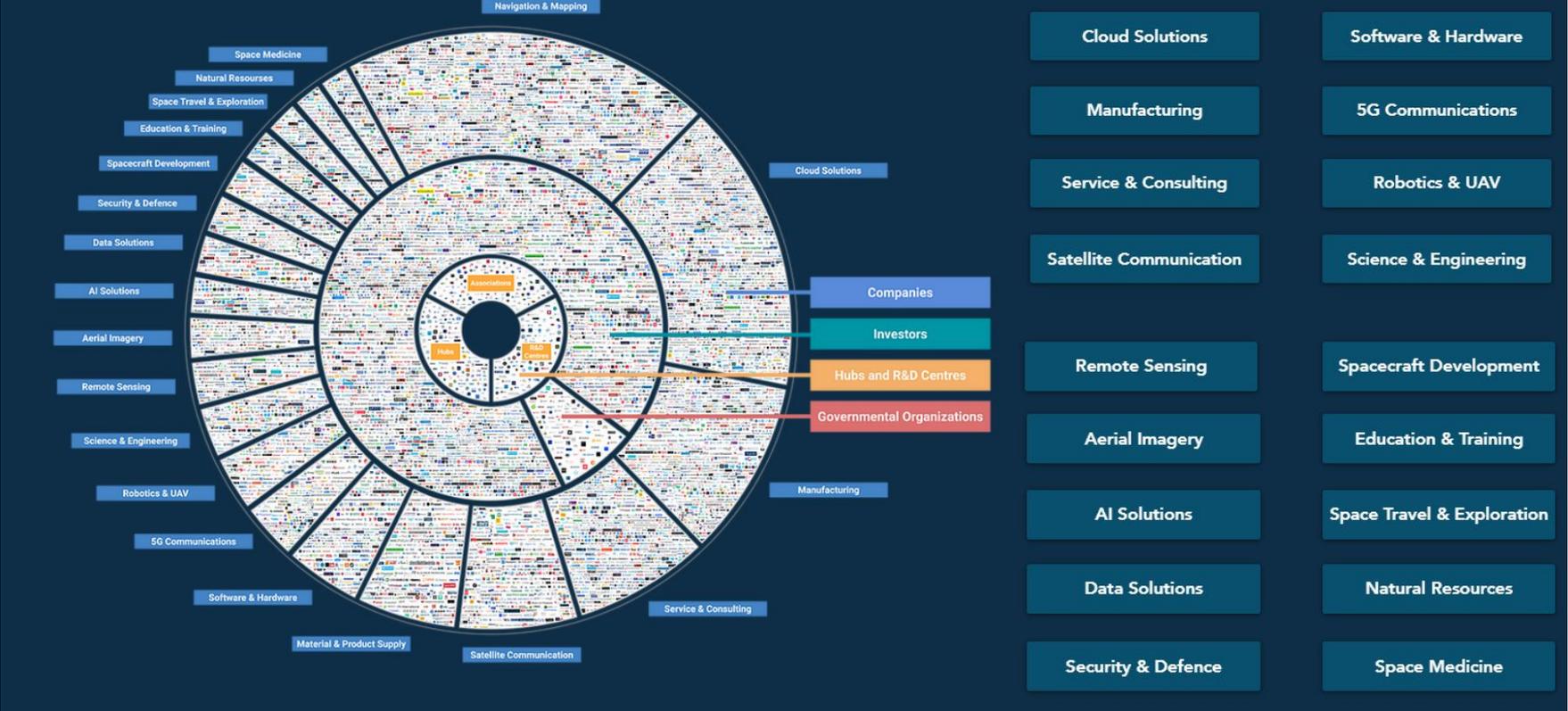
Teaser

One Pager

Press Realese

Landscape Overview Documents

SpaceTech Industry Landscape (by Categories)



## 1000+ SpaceTech Leaders Classification by Sector

Investors

Speakers

Executives

Research and Academia

Agencies and Governance

Scientists and Engineers

## 1000+ SpaceTech Leaders Classification by Region

United States

United Kingdom

Canada

Australia

Germany

India

Singapore

The Netherlands

Other Regions



1000 SpaceTech Leaders



### SpaceTech Leader Full Database

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1000+ SpaceTech Leaders  
Top 100



### Top 100 SpaceTech Leaders

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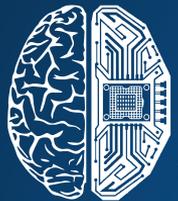


1000+ SpaceTech Leaders  
Investors



### 474 SpaceTech Investors

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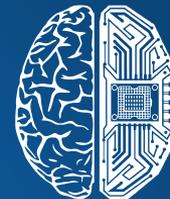
Deep  
Knowledge  
Analytics

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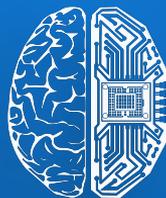
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## Deep Knowledge Group

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