Aviation Safety in America:
Under-Reporting Bias of Unidentified Aerial Phenomena and Recommended Solutions

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Introduction:

Science has validated the existence of phenomena that are characterized by unusual airborne lighting displays, some are related to tectonic or geo-magnetic activity, others are a result of weather induced electrical activity, solar and meteor activity, etc. Tentatively identified examples include:blue jets, sprites, various lightning phenomena, and so-called "earthlights" and "earthquake lights".

Those aerial phenomena regularly documented by research scientists over the Hessdalen Valley, Norway and over other locations including several in North America are even less understood.

Additionally, reliable observations from U.S. government and official international sources include visual observations and radar contacts with unusual airborne objects.

The physical properties and behaviors of some of these lights and objects are not clearly understood and in some cases their existence has been only recently documented. These unusual lights and objects may have electrical properties that may affect avionics and electrical systems. They can appear to be very unusual to observers. Some of these phenomena are quite dynamic. US aviators have described some encounters with these phenomena as near mid-air collisions. Though these observations and incidents do occur they are under-reported. The US aviation system is not investigating these reports to mitigate these potential hazards.

The issue of valid U.S. pilot reports of Unidentified Aerial Phenomena (UAP) and the seeming lack of attention given to these reports by the aviation system is a complicated one. There is a longstanding bias in place that severely inhibits the reporting and investigation of UAP incidents. This bias stifles open discussion of UAP amongst aircrews,

management, safety administrators, and the researchers who try to acquire information on this important topic.

These incidents can affect aviation safety. Some UAP incidents include very close pacing, and passes that have been described by aircrews as near mid-air collisions. Some UAP incidents also include transient and/or permanent electro-magnetic effects on avionics systems. The distraction to aircrews caused by some phenomena can have a direct effect on cockpit resource management (CRM). In some cases the intensity of light emanated by UAP during a close pass can disrupt night vision. In some cases, passengers and crew have been injured by emergency control inputs implemented by aircrews to avoid what is perceived as a potential collision with UAP.

Some UAP encounters involve ground-based radars that provide verification of the presence of uncorrelated targets near aircraft that are reporting visual observations of UAP. Often these observations and incidents go unreported even though these "radar/visual" events involve significant numbers of witnesses including aircrews and passengers, radar operators, air traffic controllers and supervisors. The confusion surrounding these incidents and observations is evident in the air traffic control tapes that regularly record all transmissions and communication between the control tower, aircraft, and peripheral facilities.

Military pilots are supported by post-mission debriefings as well as specific radars that continually examine their activities and occasionally capture the presence of UAP. In turn, these observations are protected from public scrutiny by secrecy oaths taken by military officers and enlisted men. Even so, through the Freedom of Information Act some of these incidents and observations have become public record. This information seldom travels directly back to the aviation safety planning community.

Based upon this large and constantly growing body of data it is unreasonable to conclude that conservative, responsible individuals don"t see UAP. The image of conservative responsibility offered by the airlines may contribute to an environment that is not conducive to reporting unusual observations or incidents.

Some commercial and private pilots report incidents and observations to the various government run incident databases, but those incidents and observations tend not to be actively examined for their effects upon aviation safety by the various government and civil organizations charged with aviation safety. In fact, when one reviews the various incident databases it becomes apparent that there is no way to report these types of incidents on the reporting forms or in the process. Reporters are left to their own devices to explain their experience and so pilots and air controllers may simply choose not to do so.

This reluctance to report and investigate safety-related UAP incidents has its roots in several significant historical events. These events have served to create, or have significantly contributed to, an atmosphere of fear. Fear of ridicule, fear of having one's competence questioned, fear of losing one's career, fear of government reprisal, even fear of the phenomena itself are all cited as reasons why pilots are not officially reporting many observations, close pacing and near mid-air collisions with UAP. These fears are unknowingly amplified by the lack of attention given to these incidents and observations by the US aviation system.

These incidents are being reported globally. Private research into these phenomena is ongoing. Official public efforts to investigate them are being conducted by several nations.

Case files have been acquired by the National Aviation Reporting Center on Anomalous Phenomena, NARCAP, from several official sources including; the Center for the Study of Anomalous Aerial Phenomena or CEFAA of Chile and Service Expertise for Rare Atmospheric Phenomena or SEPRA of France support the contention that from a global perspective these incidents occur frequently, ***though frequency of occurrence should not be a primary factor in determining safety concerns***.

Pilot Commentary Reflecting an Under-Reporting Bias

Though many of the incidents listed in the ASRS database are consistent with those referred to as UFO, aviation professionals are unlikely to choose the phrase UFO to describe their observation. This is possibly a result of the objective phrase "unidentified flying object" being commonly associated with extraterrestrial spacecraft.

After many interviews with pilots and other aviation professionals one has the definite impression that they prefer to use apparently less stigma-inducing words like "unknown traffic, traffic, balloon, unidentified object, or unknown aircraft" even though the description of the incident itself is consistent with those commonly described as "UFO". Given that the "object" in question was airborne one might argue that Unidentified Object and Unidentified Flying Object are the same thing. Whether one calls them UAP, UFO, Anomalous Aerial Phenomena, Rare Atmospheric Phenomena, Unidentified Object, Unknown Aircraft, etc. one is speaking of the same thing. Whatever it is, it is outside of the pilot's experience.

Pilots choose their words carefully to avoid being associated with a UFO sighting even though that is exactly what they may have experienced. It is appropriate to ask "Why?"

NARCAP receives reports from pilots and aviation professionals via email and other sources. During one week in the summer of 2001 NARCAP received reports from a number of current and former pilots, the majority of whom were commercial airmen. A review of some of the commentary from these pilots who have seen UAP includes the following:

Pilot Commentary:

"We didn't say anything. We figured nobody would believe us."
Charter Pilot

"Upon return to my domicile, JFK, I reported our sighting to the proper authorities. I was shortly visited by two federal investigators who evidently thought I was hallucinating for one of them stated he had seen spaceships while fishing in Great South Bay and was quite obviously trying to prove that I was a loony."
Captain, Pan Am (ret.)

"It must have been Huge! We were all due back at JFK about the same time two days later so I waited in the crew ready room to talk to them. None of them wanted to talk! They were afraid management would take them off of flying status and have them tested for booze and drugs. The story never came out!"
Flight Engineer, TWA (ret.)

"a group of lights in the air appeared at our 12o'clock position. I called departure control and asked them if they had any traffic in that area. When they came back and said NO, what do you see, I said no, just checking. For at that time when a pilot reported seeing a UFO he was in a lot of trouble."

Captain, Ozark Airlines (ret.)

"I, and Flight crew saw something (in broad daylight) that did things that no known aircraft could do without killing any living thing inside. I will only give sketchy details to protect the privacy of the rest of the crew. If you are interested, and all information (is) kept anonymous, contact me. I will not present myself for public ridicule."

Captain, NW (ret.)

Reports to NARCAP of UAP observations and incidents are riddled with this type of commentary. Over and over again conservative, responsible airmen are heard to say that they fear that their competency will be questioned, that their careers will suffer, that they will be humiliated for reporting their observations. A serious result of these fears is inaccurate or incomplete data regarding potential hazards.

Commercial Aircrew Survey Results Indicate Under-Reporting Bias

Late in 2001 NARCAP conducted a survey of a US commercial air carrier. The results were published as NARCAP Technical Report 5, Haines and Roe, 2001. This paper presents the results of a confidential aircrew survey presented to 298 currently rated and flying commercial pilots employed by a U. S. airline.

Remarkably, a total of 70 completed surveys (23.5%) were returned to NARCAP within a 35 day period suggesting a high degree of general interest in this subject. Twelve questions were asked, most of which dealt with the possibility of past sightings of unidentified aerial phenomena (UAP) and how these pilots dealt with the experience afterward. Forty respondents were Captains (mean = 9,130 flight hrs.) and thirty were First Officers (mean = 4,799 flight hrs.).

A number of interesting things were learned from this survey. It was found that of the sixteen pilots (23% of total) who said they had seen something they could not identify in flight only four (25% of the sixteen) reported it to their company or to a government authority and one of these pilots (a First Officer) who saw a UAP felt that it was a threat to aviation safety and he did not report it.

A variety of reasons were given for not reporting their UAP sightings. They included: not knowing whom to report it to or how to do so, judging the event to be unimportant, judging the phenomenon to be a military test, and (being) just too strange to report.

Review of Aviation Incident Databases for UAP data

The FAA, the NTSB and NASA maintain aviation safety related incident databases. A keyword search of the FAA Incident/Accident Database and the NTSB Near Mid-Air Collision database revealed many incidents using keywords words like "unidentified aircraft" or "unidentified object".

Even more incidents are evident when one searches the NASA administrated Aviation Safety Reporting System Database, a voluntary, confidential database. It employs a rigorous identification system to validate the credentials of the reporter while protecting his/her identity from employers and the FAA. This database contains over 332 thousand incident reports. Below are the results of a keyword search conducted by Dr. Richard F. Haines in 2000 using phrases that may mask a UAP encounter and the number of cases that carry those descriptions:

"Near miss, unknown aircraft, unidentified object"	5,053 cases
"Near miss, unknown aircraft, unknown object & Primary problem area = flight crea humar factors" (This category can refer to difficulties caused by control inputs made by the Crew to avoid collision.)	973
"In-flight encounter/other & primary problem area+ aircraft and their subsystems" (This can refer to transient or permanent component or system failures that are common effects of close encounters with UAP)	125
"Unidentified object"	9
"Unidentified traffic"	3
"UFO"	1
"Flying Saucer, flying disk"	0
"Unidentified Aerial Phenomena"	0

Again, it is important to emphasize the 973 cases where problems arose in the "flight crew human factors" category under the keyword search "Near miss, unknown aircraft, unknown object" as well as the 125 cases involving aircraft subsystems also described as a "near miss". It is also important to acknowledge that over five thousand potential UAP cases were described as a "near miss". **Have there been any cases involving these factors that the crews were not able to resolve and that resulted in catastrophe?**

Given that many encounters involve unidentified lights rather than unidentified objects and that the reporting forms used by the ASRS, the FAA and the NTSB do not have categories for unidentified light(s) or objects, it is entirely possible that some of these data are inaccurate and that the cause of the incident is not being accurately reported. It is suggested that these reporting forms should be modified to accommodate a wider variety of observations.

In the NASA ASRS data, potential UAP cases represent less than 1% of all cases reported. It is important to remember that the ASRS database is one of three Federal aviation incident databases. The incidents listed in the ASRS system should be considered as the *minimum* number of incidents because not all incidents are reported, and some are reported to other databases. When one considers the results of the NARCAP Aircrew Survey it is reasonable to expect the numbers to increase if pilots are encouraged to report these incidents.

The Term "UFO" Contributes to Under-Reporting Bias

The term "UFO" is has changed in meaning over the last 50 years. Originally it was a term coined by the USAF that was intended to bring objectivity to the discussion of unidentified aerial phenomena.. Now it is synonomous with more subjective words like "flying saucer", "alien spacecraft", and "extraterrestrial intelligence".

It is clear that these terms carry a stigma that inhibits aviation professionals from discussing observations of unusual phenomena. Even when reports do not involve an alleged UFO the stigma is strong enough to curtail discussions of observations or incidents involving unusual lights.

There have been various attempts to address this matter of nomenclature. The official research group of Chile has chosen the more correct term of "Anomalous Aerial Phenomena", as have other official research groups. The French research effort at CNES refers to these phenomena as "Rare Atmospheric Phenomena".

NARCAP has chosen the term "Unidentified Aerial Phenomena" or UAP to more correctly address the scope of descriptions and to more accurately describe the group of observations collectively considered to be anomalous.

The term UAP is defined as follows:

An unidentified aerial phenomenon (UAP) is the visual stimulus that provokes a sighting report of an object or light seen in the sky, the appearance and/or flight dynamics of which do not suggest a logical, conventional flying object and which remains unidentified after close scrutiny of all available evidence by persons who are technically capable of making both a full technical identification as well as a common-sense identification, if one is possible. (Haines, Pp. 13-22, 1980)

This definition clearly excludes most of the prosaic explanations one hears about to explain UAP including rare atmospheric phenomena (e.g., sprites; sheet and ball lightning; mirages, sub-suns, etc.). The residual of cases that remain after all known physical phenomena are considered and rejected truly confront the scientific mind with mysteries and challenges in spite of the fact that up to now science has shown no genuine or lasting interest in them. (McDonald, 1968).

Aviation Management Contributes to Under-Reporting Bias

When investigative journalist Leslie Kean aproached an influential elected member of a prominent U.S. Aviation union with questions about UAP and pilots, his reply was "If these things were happening don't you think I would know about it?" After only a cursory review of Dr. Haines paper, Aviation Safety in America- A Previously Neglected Factor, he dismissed the matter outright. In fact, it was the question "Why didn't he know about it?" that motivated the author to write this paper.

A prominent aviation safety organization also dismissed the information outright while offering no reason other than simply asserting that incidents involving UAP and aviation safety do not occur. It was clear that they didn't even read the report.

It is reasonable to suspect that a bias against even reading the material exists and represents a collective irrationality that serves to stifle reporting and investigations.

There are voices of reason in this endeavor. For example, both Brian E. Smith - Chief of the Aviation Safety Program Office at NASA Ames Research Center and Linda Connell - Director of the FAA-NASA Aviation Safety Reporting System have publicly acknowledged that reports of UAP encounters which effect aviation safety deserve a thorough examination. Clearly, mitigation of all potential sources of near-miss incidents and accidents should be the driving force in resolving these cases.

Historical Events Have Contributed to Under-Reporting Bias

A major contributing factor to bias against reporting UAP incidents and observations is apparent in the history of attempts to address the UAP problem. UAP are considered a matter of security by the US military and intelligence community and no data regarding UAP incidents have been made available to aviation professionals in the commercial aviation industry for nearly 50 years. Though detailed case files have been recently released by the US government, none of these cases have been reviewed within the context of aviation safety.

When the US Air Force was founded in September of 1947 it immediately undertook an intelligence-gathering program to determine the nature of UFOs. To this end it established specific units within Air Technical Intelligence Command to acquire data and evidence regarding UFOs.

In July of 1952 there was a series of UFO manifestations over Washington D.C. and in the restricted airspace over the White House and Capitol buildings. Thousands including military and commercial pilots and radar operators witnessed these incidents. The incidents were quite dramatic and persisted for several weeks. The Air Force attempted to explain these observations as "spurious radar targets" caused by a temperature inversion. However, the photographs of the "spurious radar targets" over the Nation's capitol building that were published that week in the Washington Post do not support that explanation. It has been since determined that the weather conditions at the time of the observations did not support the conclusions of the US Air Force.

Less than a year later, in 1953, the CIA convened the Robertson Panel to review UFO reports. A panel of scientists and military experts reviewed several case files and films of UFOs. While they came to no definitive conclusions about the nature and source of UFOs, they did decide that the subject needed to be "stripped of its special status" to protect the public from "hysteria".

> From Air Force Regulation 200-2, dated August 12, 1954 signed by General Nathan Twining
>
> "Headquarters USAF will release summaries of evaluated data (***of UFO***), which will inform the public on this subject. In response to local inquiries, it is permissible to inform news media representatives on UFOB's when the object is positively identified as a familiar object. ***For those objects which are not***

explainable, only the fact that ATIC will analyze the data is worthy of release, due to the many unknowns involved."(italics mine)

All UFO information was forwarded to the Commander, Air Defense Command; the nearest Air Defense Division; the Commander, Air Technical Intelligence Center; and the Director of Intelligence at Air Force Headquarters, and some cases were forwarded on to the CIA, the NSA, and the Joint Chiefs of Staff.

In 1954 officials from the US military and from the Airline industry held a press conference announcing a Joint Army, Navy Air force publication (JANAP 146) outlining Communications Instructions for Reporting Visual Intelligence Sightings (CIRVIS). The US did not have the satellite capability to fly over the Soviet Union and provide advance warning of an impending attack. Commercial airline pilots were considered an integral part of a forward observation corps.

JANAP 146 and CIRVIS were instituted as a mandatory reporting system that eventually included both American and Canadian commercial and general aviation. All unusual observations were to be forwarded through the CIRVIS system to the US Air Force. Once an observation had been reported, the reporting aviator was obligated not to disclose the report to the press or public ***under threat of fine and imprisonment***. JANAP 146/CIRVIS was initiated to acquire intelligence related reports regarding unfamiliar aircraft, formations of unfamiliar aircraft, missiles, and UFOBs.

In 1958, 450 airline pilots signed a petition to publicly protest the JANAP 146 order. Many of these pilots claimed that the Air Force investigators had an agenda to debunk their reports and that they had been warned not to disclose their observations to the public under penalty of a prison term and a fine.

Concurrently, from 1947 to 1969 the Air Force conducted an investigation into UFOs under several code names including Projects Sign, Grudge and Bluebook. Reports of unusual observations, including military and civil aviation reports, were forwarded to Air Technical Intelligence Command for review by air force investigators and civilian contractors. Project Bluebook closed in 1969 with assurances that UFOs were not a threat to national security, that there was no evidence that they were extraterrestrial vehicles and that further research was unnecessary.

The Condon Report, commissioned by the US Air Force and undertaken by the University of Colorado concurred. Since that time the science community and the US Air Force has acknowledged the existence of unusual atmospheric phenomena like sprites, blue sprites, ball lightning, blue jets, etc., many of which were not known at the time of Project Blue Book and the Condon report though some of these phenomena were certainly reported as UFOs. That acknowledgement seems to be contradictory to the conclusions of Blue Book and the Condon Report. In the face of well-documented incidents and observations of UAP that continue to this date, neither of these reports can be considered definitive.

In 1977, after satellite monitoring of the Soviet Union was implemented, JANAP 146E was released. This version relaxed the mandatory reporting requirement and suggested instructions to report if the reporter felt that the observation represented a matter of national security.

***The fact is that from 1947 to 1977 and even to the present, the data has flowed directly away from civil aviation and into the restricted arena of the military/intelligence domain via JANAP 146, the CIRVIS reporting system, Projects Sign, Grudge and Blue Book and through other data collection programs and systems*.** When the JANAP 146 order was relaxed, commercial and private pilots found themselves with no specific instructions regarding these unusual incidents and observations. When the various databases of the FAA, NTSB and NASA were established, the categories of observation for UFO/UAP events were not included.

Reasons for this exclusion may have included personal opinions and beliefs, a general lack of experience with the phenomena or even the lack of knowledge regarding the existence of unidentified aerial phenomena, or perhaps it was the understandable conclusion that the matter was being handled elsewhere (i.e. the military/intelligence community). Popular culture and conspiracy theorists have muddied the waters by supporting an environment of fear. All of these factors have contributed to a bias against reporting honest, legitimate incidents involving UAP.

Since the close of Project Blue Book in 1969 there have been thousands of UAP/UFO reports made by military and civil aviators, air traffic controllers and citizens representing all walks of life. These reports have come from almost every nation on Earth. Examples of UAP incidents occuring after the close of Project Blue Book can be found on the websites of both the National Security Agency and the Central Intelligence Agency.

Currently the US Air Force does not investigate UFOs. The USAF does receive UFO reports through CIRVIS, and through the Air Route Traffic Control Centers (ARTCC) system and NORAD as well as from its own pilots and air controllers. The question regarding whether or not other government agencies study UAP/UFO reports remains unresolved though there are no known public agencies involved in UFO investigation.

Most importantly, ***there has never been a formal inquiry into these observations and incidents by the US aviation system***. The majority of the cases that have been declassified have been made available in the last decade and the information has simply not been compiled in a fashion that can be examined by the aviation community.

There are probably very good reasons for the military and intelligence community to acquire and develop UAP data. However, the aviation community is directly affected by these phenomena. Those aviation professionals who witness UAP or experience safety related UAP encounters deserve respect and support from all levels of the US aviation system and the scientific community.

Lack of Knowledge About UAP Characteristics Has Contributed to Under-Reporting of UAP Incidents.

The strangeness of UAP observations and incidents is perhaps the single factor most affecting UAP reporting. Aviation professionals do not understand the profile of UAP observations and incidents. This lack of understanding combined with the strangeness of the experience itself and the current skeptical environment within the aviation community negatively effect reporting.

UAP Characteristics

Types of obsevations include:

- Visual observations of lights or objects *that are visible* to ground and/or air based radars as targets that do not display transponder codes.
- Visual observations of lights or objects *that may not be not visible* on ground or air based radars.
- Radar observations of objects *that may not be visible* to the unaided viewer and that do not display transponder codes.

Types of incidents include:

- Close pacing, sometimes very close. Occasionally erratic movements are reported.
- Distuption of on-board avionics systems.
- High-speed passes at sometimes very close range.
- Near mid-air collisions.
- Problems (including injuries) resulting from control inputs to avoid near mid-air collisions.
- Mid-air collisions.
- Disruption of, electrical systems, lighting, and air traffic near aviation facilities.
- Downed or Missing aircraft.

Additional Characteristics:

- UAP are described as single or multiple lights or objects with unusual qualities.

- UAP often appear as solid balls of white, blue, green, red, amber or orange light. Some will occasionally seem to display multicolored flashing lights, spotlights, colored beams, sparks, etc…. They can be very bright.

- UAP can appear as simple geometric forms; cones, triangles, cylinders, rectangles, oblate spheroids (discs) and tauroids (donuts). Some UAP are reported to have a bright metallic-like surface.

- UAP can range in size from 6" to several hundred feet. Reliable radar/visual observations of very large lights and objects have been reported.

- UAP are reported to hover and to move erratically and at great speed.

- UAP observations can be accompanied by transient or permanent electrical/avionic system failures.

- UAP can manifest directly over airport facilities creating a physical threat to aircraft, and can disrupt communications, lighting and other electrical systems.

- UAP have been reported to divide into two or more lights or objects, release smaller lights and/or objects and recover lights and/or objects.

A lack of knowledge about UAP combined with the truly unusual qualities of these lights and objects can contribute to confusion and cause a situation to escalate, particularly if the incident occurs in close proximity to airports or other areas with dense aviation traffic.

While these observations can seem quite mysterious, it is appropriate to note that there are several kinds of rare and poorly understood natural phenomena that may be responsible for some of these observations and incidents.

Given these characteristics it is easy to understand the stress these unusual observations can cause to those who witness them. Though these events are not understood, they have occurred over nearly every nation and region on Earth. Regardless of whether or not we understand what is happening, it is appropriate to seek steps to mitigate safety related incidents and to gather more data.

Insensitivity to UAP Witnesses Within the Aviation System Has Contributed to Under-Reporting of UAP Incidents.

Aircrews, Safety managers, ARTCC personnel, commercial airlines, unions and now, Aviation Security personnel are caught in a paradoxical situation. The image of conservative and responsible aviation professionals conducting serious work to save lives and improve aviation safety is threatened by reporting observations of, or expressing simple curiosity about UAP. There is no momentum within the aviation system to investigate these incidents and make appropriate recommendations.

It is unreasonable to conclude that conservative, responsible individuals do not see UAP. The image of conservative responsibility offered by the airlines may contribute to an environment that is not conducive to reporting unusual observations or incidents.

These unusual observations are rare. Current estimates support the contention that these incidents occur once in every 5-7 *careers*. Comparable aviation issues might include wind shear, which occurs once every 5 million take offs and landings or about once every 5 careers. It is entirely possible that a controller or aircrew may observe UAP and be faced with reporting it to a very experienced manager that has never seen anything unusual throughout his career and is skeptical of anyone else who may have. This can be an effective barrier against any further discussion or reporting of safety related UAP incidents.

NARCAP is aware of one airman who recently underwent two separate psychological evaluations within three months because he apparently expressed his interest in UAP to the "wrong" co-worker(s). The case was made by his airline management that perhaps the pilot represented a threat to safety because he was too willing to share his opinion on this controversial topic. This pilot *had not* even claimed that he has seen UAP

With respect to culpability, one can hardly consider the giving of attention to a conservative and responsible image to be negligent behavior. Questioning the mental health of personnel who claim to have seen a UAP or are "overly" interested in the topic is consistent with what the US aviation system knows about UAP at this point in time.

However, aviation professionals who are confronted with these incidents and observations are facing enough difficulty as they try to cope with what they may have seen. ***Without a supportive and respectful structure in place to receive these reports with the seriousness they deserve, aviation professionals are underserved and even***

betrayed by their own profession. This situation is detrimental to morale and contributes directly to a bias against reporting any observation or incident involving UAP.

To be fair, NARCAP conducted an aircrew survey of an entire commercial airline in September 2001 (NARCAP Technical Report 5, Haines and Roe, 2001). There were no difficulties promoting our survey, gaining permission to conduct our study, or pursuing the actual study. The pilot who submitted our request for permission to conduct this study was not adversely affected. Clearly some U.S airlines are more sensitive about the issue than others.

Recommendations

The idea that UAP not only exist but are also a credible threat to flight safety may make aviation executives and their insurers uncomfortable. While UAP related incidents may be rare, morally and ethically there is no better way to manage the issue than in the most honest and forthright manner possible. The current situation is stifling reporting, and research and is compromising safe aviation. The following suggestions for resolving this situation should be considered:

1. Modify current incident reporting forms in all of the incident databases of the FAA and the NTSB to include questions addressing UAP incident profiles.
2. Implement a program to capture data across all aviation systems and bureaucracies. A straightforward reporting policy, contained within the day-to-day standards and practices manuals of those organizations and businesses directly affected by the phenomena is critical to minimizing stress within the aviation culture and developing base metrics.
3. Develop base metrics including Frequency of Occurrence to be used to develop incident profiles and identify research paths leading to procedural or technical solutions.
4. Implement a basic education program on the topic of UAP for managers and airmen across all aviation systems. This program should include, but not be limited to educating aircrew, ATC and managers of UAP characteristics, reporting procedures and under reporting bias.
5. Train psychological specialists who are participate in commercial aviation corporate Employee Assistance Programs and other mental health programs to support the aviation community. This is an essential step for total management of the issue.
6. Change the taxonomy of the phenomena from Unidentified Flying Object or UFO to Unidentified Aerial Phenomena or UAP.

There are several specific issues that will determine the ultimate success of such a program. These issues are a direct result of the lack of attention given to these incidents to date and could be considered a reason for the lack of accurate data regarding these phenomena.

Successfully managing this matter requires an organizational model that is transparent and open to both public sector scrutiny and scientific debate and focused on acquiring accurate data from un-intimidated observers and reliable aviation sources and which is capable of presenting that data credibly to the aviation community and the general public. This organization should remain focused on examining the relationship between these observations and aviation safety.

It is common knowledge that there is a debate in science and in the public regarding the potential that some of these phenomena may represent incursions by extraterrestrial intelligences. The relationship between an organization studying these unusual lights and objects and this debate should be managed responsibly and conservatively. From the standpoint of the research conducted by NARCAP, the debate exists and still remains unresolved, however the primary focus of the research is to mitigate unsafe flying conditions caused by unidentified aerial phenomena.

1. Credibility

The FAA, the USAF, NASA and a great portion of the rest of the aviation/aeronautics community have taken great pains to avoid discussions regarding UFO/UAP. In some cases these responses to inquiries have been mild, in other examples the response from official sources regarding inquiries into UFO/UAP have been dismissive, demeaning and derogatory.

It is appropriate to note that popular culture is rife with claims of government-based obfuscation of the "truth". So-called"conspiracy" theories regarding these phenomena reflect this lack of belief in government information on UAP. In the public eye these concerns are very real and contribute to a further erosion of trust and respect for government officials.

An appropriate approach is to officially recognize an independent, public, transparent organization whose sole mission is to address aviation safety related issues with respect to UAP. This organization should be considered the central data point for all UAP reporting, investigations, and research across all US aviation administrations, bureaucracies, and businesses within the US aviation system. Further, this organization should handle all media issues, public inquiries, etc., in a respectful and conservative manner.

2. Risks

A failure to address these issues on the part of the aviation community may result in the following consequences:

- There will be continued under-reporting bias and the resulting inaccurate and un-reviewed data will contribute to a failure to mitigate a known hazard.
- Confusion, fear and lack of initiative when aviation professionals are confronted with the presence of UAP will contribute to unsafe flying conditions.
- There will be continued and increased reports of transient and permanent avionics and electrical systems failures when UAP incidents are reported. As aircraft become ever more dependent on microprocessors they become more vulnerable to electromagnetic interference.

There will be continued reports of "near mid-air collisions" with unknown and objects and incidents including injuries, catastrophic failures and even casualties.

3. Data Collection

With respect to procedural or technical solutions, a specialized central collection center is critical to data collection and analysis. This center should be funded in a manner so as to

allow it to conduct unhindered investigations and research, participate in international research efforts, present its findings and conduct education and outreach within the aviation community. The existence of this research organization should be widely promoted, and all witnesses of current or historical observations of UAP should be encouraged to report their information.

All relevant data sources should be made available to specialized investigators with allowances made for appropriate military and civilian security requirements. As security issues continue to evolve within the aviation system it is reasonable to expect that there will be overlapping concerns. All efforts should be made to promote access to UAP data by appropriate investigators.

Additionally, access and support should be provided with respect to radar data and analysis. Currently, radar data acquired through the Freedom of Information Act (F.O.I.A.) usually is provided as encrypted code printed on hardcopy, making radar data reconstructions difficult at best.

Efforts to analyze U.S. UAP data should be designed to dovetail with international efforts in this field. This research organization should participate in all appropriate aviation safety forums, and present its data at all appropriate conferences.

All completed research should be immediately published and released through traditional media outlets.

4. Education

A rigorous effort should be undertaken to educate all US aviation professionals about the basic issue of UAP and aviation safety and the existence of an organization charged with the analysis of observations and incidents. Managers should encourage reporters to contact NARCAP.

Within the US aviation system the matter of UAP and aviation safety should be expressed in terms reflecting that concern. Speculation regarding the nature and source of these lights and objects should be avoided. Emphasis should be placed on the analysis and resolution of the safety related conditions surrounding these events rather than on attempts to determine the exact nature and source of UAP.

In the fall of 2001, NARCAP conducted a survey of aircrew flying for a commercial airline with respect to UAP observations and related questions (NARCAP TR-5). Included in the questionnaire was the question:

On a scale of 1 to 10 (10 is max.) about how interested are you in these phenomena? ___

The majority of respondents scored their interest between 5 and 10. This seems to suggest that there is a large contingent of pilots who are receptive to information regarding UAP and would probably respond well to a basic educational program, perhaps implemented during their re-currency training programs.

The possible "shock" effect of the acknowledgement of these incidents should not be underestimated, yet as we will see in the French example, this "shock" can be minimized.

"In house" psychologists should be educated to support personnel who are uncomfortable with the situation, or who witness UAP firsthand.

5. The French Approach

Internationally, there are examples of aviation systems that accommodate reporting and investigation of UAP incidents, however the US aviation system is the largest and most complex and will require special considerations with respect to the above recommendations. Perhaps the best active model is the French organization, SEPRA.

SEPRA is part of the official French space agency, CNES. SEPRA receives UAP reports from ARTCCs, French commercial airlines, the Gendarmerie, the National Police as well as the French Air Force. Reporting instructions and forms are found in all ARTCCs and aircrews and managers are familiar with the reporting procedures. Air controllers receive course instruction from SEPRA as part of their general training

Direct and forthright discussions regarding these incidents at all levels of the aviation system will lay the groundwork for improving aviation safety and enhancing scientific knowledge.

National Aviation Reporting Center on Anomalous Phenomena

Although there are no official UAP research organizations in the United States, these issues are being championed by the National Aviation Reporting Center on Anomalous Phenomena, NARCAP. This organization is a national, nonprofit, scientific organization working for the public benefit and focused on US aviation. NARCAP is staffed by competent aviation and aeronautics experts. NARCAP advisors are familiar with the issues and are experienced and respected members of the aviation community.

NARCAP operates a confidential reporting center and conducts investigations and performs outreach and education in the aviation community.

Internationally, NARCAP is officially recognized by the official Chilean research group CEFAA and has a good relationship with the official French group, CNES-SEPRA. Additionally, NARCAP has affiliates in 14 nations and is participating in the collection and analysis of reliable data at the international level.

NARCAP is conducting research to develop base metrics regarding these incidents and continues to publish technical reports on this research. The Air Crew Survey Project is an ongoing survey of commercial pilots and serves the dual purpose of gathering data and educating pilots.

Clearly the correct approach to the UAP problem is to educate both potential reporters and those who may potentially receive reports, to implement a safety related incident reporting and investigation program, and to develop a data collection and analysis project that dovetails with international efforts and normalizes data across borders with the goal of developing technical and/or procedural solutions as its goal.

NARCAP has undertaken this process directly through its Air Crew Survey Project, the International Civil Aviation Organization (ICAO) project and its development of and

participation in a global coalition of UAP/aviation safety research groups, both unofficial and official.

For more information contact: www.narcap.org

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