UNIDENTIFIED AERIAL PHENOMENA

A Strategy for Research

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UNIDENTIFIED AERIAL PHENOMENA: A STRATEGY FOR RESEARCH (*)

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Abstract

After years of ideological arguments based on anecdotal data the field of UAP research appears ready to emerge into a more mature phase of reliable study. Renewed scientific interest now exists in many countries, based on credible official or semi-official documents. Without pre-judging the origin and nature of the phenomena, a range of opportunities arise for investigation, hard data analysis and new theoretical exploration. In order to avoid repeating past errors, however, such projects need to generate new hypotheses and test them in a rigorous way against the accumulated reports of thousands of observers.

Unfortunately such a repository of reliable global data does not yet exist. Furthermore, the level of difficulty in assembling it has either been ignored or underestimated. The purpose of this paper is to briefly review previous work in the compilation of UAP databases and outline some new directions for research. We also raise the question of identifying researchable issues and consistent ontologies in the UAP domain.

With respect to the last point, the challenges of data collection and analysis over a limited territory are illustrated by a longitudinal study of 167 screened UAP observations performed by researcher Jean-François Boëdec in the département of Finistère between 1950 and 1981. His study shows how such focused investigations could be extended to perform a regional or even national assessment of the patterns behind the phenomenon.

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Historical Background

Many groups around the world have tackled the problem of compiling UAP observations. Their experience can teach us important lessons. Over the last half century many researchers, both professional and amateurs, have undertaken to build catalogues (either on paper or in computer readable form) and online data bases centered on the range of phenomena that interest us.

- As early as 1953, the U. S. Air Force entrusted the Battelle Memorial Institute with the task of analyzing the reports that Project "Blue Book" and previous efforts had accumulated. Battelle used punched cards for this work, developed a coding system, and produced extensive statistics presented in Blue Book's "Special Report 14." Unfortunately this work was not pursued and the cards were not kept. (**1**)

- Several private efforts originated in the 1950s and 1960s to compile lists of observations. These lists circulated in manuscript or typed form among a few early researchers such as Aimé Michel in France or the NICAP ("National Investigations Committee on Aerial Phenomena") in the United States. One of the most useful catalogues was compiled by Mr. Guy Quincy.

- Following the Battelle study the Air Force never built another computer catalogue of Project Blue Book files, but the author and his wife Janine compiled their own version of it using punched cards following a data scheme that we had first used in France in 1962 and expanded at the University of Texas and at Northwestern University in the period 1963-1967 in collaboration with Dr. J.Allen Hynek, the Air Force's scientific advisor to Project Blue Book. This catalogue served as the source of a series of statistical studies that we published in several works. (**2, 3**)

- This early computer database, compiled at Northwestern University, which included all unidentified cases from Project Blue Book, was turned over to the Condon study at the University of Colorado in 1968 and eventually formed the basis for a catalogue (now known as UFOCAT) directed by Dr. David Saunders. This catalogue has been greatly expanded and is now maintained by the CUFOS ("Center for UFO Studies") organization. Dr. Mark Rodeghier separately developed a catalogue of vehicle interference cases (**4**) and Mr. Ted Phillips compiled known cases of physical traces (**5**).

- In 1968 the author compiled and published the Magonia catalogue, a list of over 700 close encounter cases reported between 1868 and 1968.

- Other groups, such as MUFON, continue to compile their own computer files, and Mr. John Schuessler has assembled an excellent catalogue of physiological effects. (**6**)

- In the early 1970s Dr. Claude Poher compiled and analyzed a catalogue of selected French cases, in cooperation with a group of French volunteer researchers called "GEPA" (*Groupe d'Etude des Phénomènes Aériens*).

- In the 1980s an independent researcher, Dr. Willy Smith, developed a private catalogue called UNICAT in collaboration with Dr. J. Allen Hynek.

Several independent projects have been implemented around the world since that time.

- In the United States Mr. Larry Hatch, a private researcher working alone developed an elegant program to be run on PC platforms under DOS. His catalogue eventually reached almost 20,000 entries.

- In France the GEPAN (now GEiPAN) group within CNES has implemented an ACCESS database available to a "College of Experts" under password access control on the Internet. The system maintains the full text of over 3,000 official reports to the French Gendarmerie, in the form of scanned images. It is embedded in an online collaboration system that gives experts access to maps, Google Earth views, photographs and videos, as discussed at the present Workshop by Mr. Michaël Vaillant.

  Note that both the GEiPAN database and UFOCAT treat every report of a given case as a separate entry (if five witnesses in separate locations report the same object, there are five entries in the file), while other catalogues, like the Hatch catalogue, give a single entry per sighting.

- Also in France a database of pilot sightings has been built by Mr. Dominique Weinstein. The file uses EXCEL and a set of special codes to facilitate retrieval. Every case has been scrupulously re-analyzed and transcribed. A larger set of pilot data, as well as specific investigation files, are maintained by the NARCAP group under Dr. Richard Haines. (**7**)

- In the United States the National Institute for Discovery Science ("NIDS") and the Bigelow Aerospace Corporation have initiated a series of special catalogues to safeguard their own reports from public sources and from their staff. The author was tasked with the development of a data warehouse consisting of 11 separate data bases to support this research. The project is known as "Capella".

- A notable effort exists in Spain, where Mr. Vicente-Juan Ballester-Olmos maintains a catalogue of some 10,000 alleged UAP photographs (**8**).

In recent years, easy access to personal computers and the Internet has made it easier for interested groups to start their own files. There are at least 30 active catalogues at various points of development, with understandable overlap and widely-varying standards. Special catalogues exist for material trace analysis, abduction claims, ancient sightings (**9**), and also for particular

countries or regions. Several groups are active through closed Internet conferences and have begun to develop and exchange information through "wikis" in various languages. It is encouraging to see that the range of available government sources has been expanded as countries like the U.K. and Spain followed the example of the U.S. Project Blue Book in releasing their declassified files, although not in an organized, computer-readable format.

Obstacles to Analysis

Compilation and screening of observations is an important first step in any new scientific endeavor, such as the study of the UAP phenomenon. The current proliferation of data lists is not directly helpful to the analyst, however. Lack of data validation and missing standards impede progress among the researchers responsible for these databases.

It is natural for people who have newly become aware of the field to rush into their own implementation of a file of selected cases in the hope of rapidly "solving" some of the problems raised by these puzzling phenomena. Unfortunately, they rarely have the financial wherewithal, professional staff or software knowhow necessary to conduct long-term field investigations or even elementary checks on the validity of the information they collect. And the phenomenon has demonstrated a level of complexity that challenges analysis and even rational description.

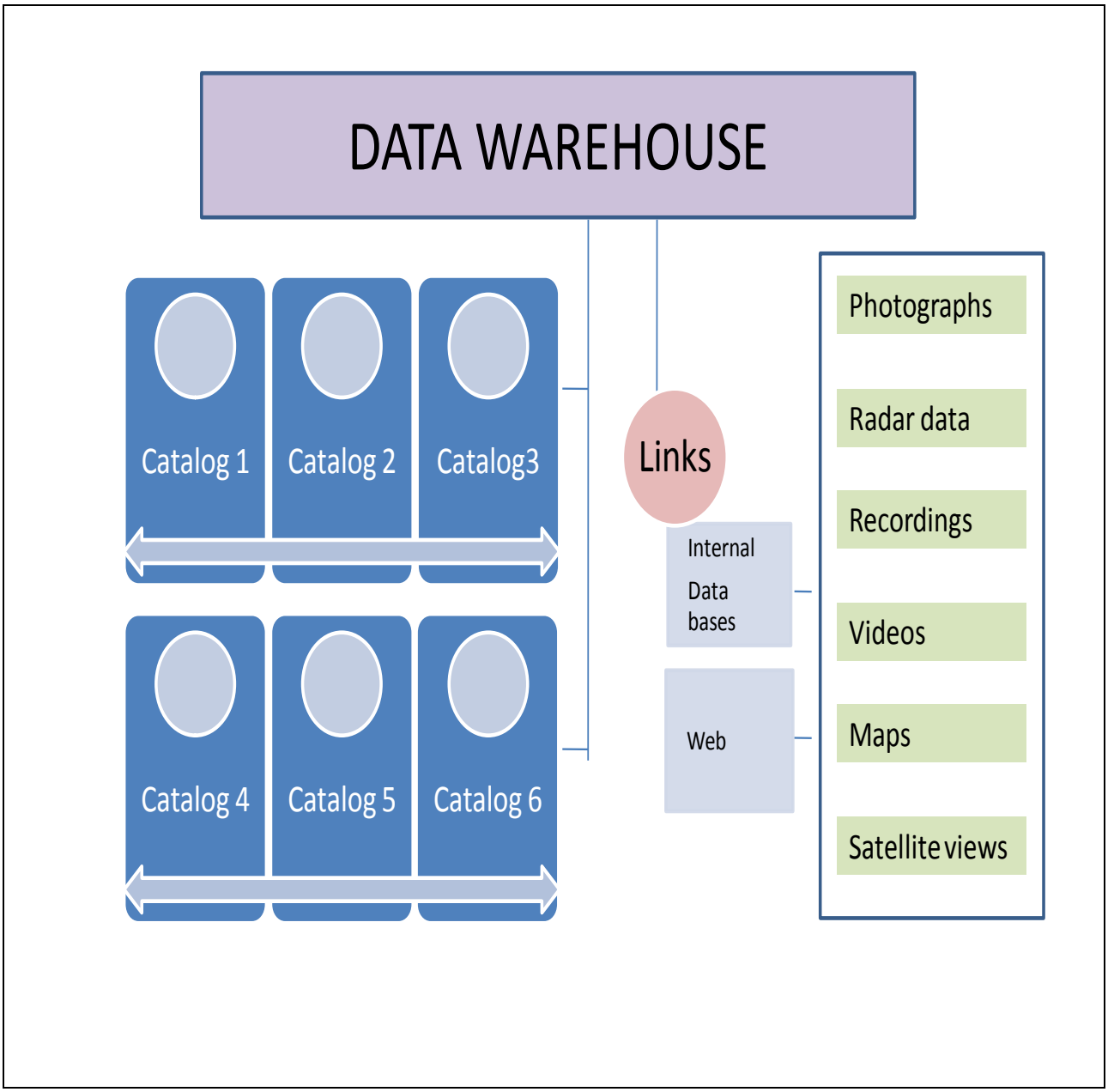
As time goes on, this reinventing of the wheel fails to generate valuable results. Every group tends to use its own way of indexing, which makes it impractical, if not impossible, to implement data fusion or simply to exchange information.

Furthermore, specialized groups tend to use software techniques that are overly complex and hinder research and ease of access instead of promoting it: Such catalogues rely on ambitious coding systems that demand large editing and updating efforts. As individual implementers get older and become constrained by family or professional obligations they tend to move on and lose interest, and the files get abandoned for lack of trained staff to maintain the overall structure, or even obsolescence of the medium (punched card, diskettes, CD-ROMs etc) on which the data has been written.

Many valuable archives have been lost and continue to vanish because of this process.

Special challenges of UAP information

This writer believes that in order to avoid ideological biases the clear scientific approach is to build a platform of screened, calibrated data. This is not a new problem: many disciplines from medical research to astronomy have built such databases for decades or even centuries. Without them we would not understand epidemics, the structure of the universe, the preservation of biodiversity, the likelihood of asteroid strikes or even tomorrow's weather. We would not know enough to launch a satellite or vaccinate our kids.



The "Capella" Data Warehouse concept

The overall data structure for Capella has been published in both French and English on the author's website (www.jacquesvallee.com) under the title: "A System of Classification and Reliability Indicators for the Analysis of the Behavior of Unidentified Aerial Phenomena."

The data warehouse uses a 6-layer system to describe the behavior of the phenomenon. It is detailed in reference **10** below, which is also available on the website.

The low signal-to-noise ratio in ufology presents a special challenge, however, and it demands special technical responses by competent information scientists using the latest software tools.

Unanswered questions

With all its ambitious theories and claims of interplanetary contact, the specialized research community of UFO researchers would find itself in an embarrassing position if "confirmation" or "disclosure" were to take place, because it would be unable to give the most elementary answers to inquiries by scientific colleagues, the public or responsible government agencies.

In particular, UAP research today cannot reliably answer such questions as:

A) Regarding overall patterns:

- What can be said about how long the phenomenon has manifested? When did it start?
- What overall patterns, if any, emerge in global data? Is there a pseudo-random model behind the observations, suggestive of interaction with humanity?
- Is there a cyclical pattern of "waves" of sightings and can it be used to forecast the timing and localization of future clusters of observations?
- Is it correlated over long periods with already-understood physical, astronomical or biological parameters?
- What undiscovered correlations emerge among large samples of data when biological, physical and witness-related characteristics are taken into account?

B) Regarding the physics of the phenomenon:

- What are the various types of physical manifestations (orbs, lights, sounds, structured objects) and how do they present in combination?
- What measurable effects have been detected: light energy output, material composition, compass readings, magnetic remanence, radioactivity?
- Given these observed physical characteristics (traces, sensor response, recordings) that accompany the sightings, what new equipment can be designed in order to improve collection, preservation and analysis?
- How many cases involve specific effects on plant life? Insect life? How can plants, insects and micro-organisms be used as enhanced detectors or measuring instruments?

- Why is there no reliable photograph of a UFO with appreciable detail? Is the problem with the data, with our equipment or with the phenomenon itself?

C) Regarding specific locations:

- What are the characteristics of information-rich areas where the phenomenon manifests (Utah ranch, Col de Vence, Yakima Valley, the Urals cluster etc.)?

- How does its behavior change when confronted with special environmental, social or military circumstances?

D) Regarding social and cultural impact:

- Did the phenomenon actually change its behavior in 1947, or is that simply an effect of the American media and post-war social changes in the US?

- How does the phenomenon evolve as a function of geography, culture and physical parameters?

- How does the phenomenon alter its behavior when confronted with human technology: aircraft, cameras, sensors, rockets, satellites, light signals, radars, nuclear plants?

- Are there global cycles in the relationship of the phenomenon to humanity? Does it mimic or even anticipate our inventions? Does it show an interest in social upheavals or wars?

E) Regarding impact on human witnesses:

- What is the range of (1) physiological and (2) pathological effects on humans and animals, and how do those vary with distance, altitude, type of object, time of day, observed apparent "maneuvers" etc?

- Under what circumstances does the interaction with the phenomenon result in benefits for humans: healing, uplifting, enhanced consciousness?

- What are the characteristics of the situations when it behaves as a threat to humans, as opposed to other observed behaviors? (friendly, indifferent)?

- Under what circumstances is "communication" reported?

F) Regarding methodology and epistemology:

- For every hypothesis presented about the nature and physical reality of UFOs, can a skeptical analyst find an equivalent body of data invalidating the hypothesis? If so, what does that say about the insufficient level of attention devoted to data collection and

quality control? Can our current hypotheses be falsified because they have been built on small, non-representative samples ignoring data that should have been taken into account?

- What are the patterns of mimicry displayed by the phenomenon? Can we separate the actual technology from the simulacra it creates?

- Does the phenomenon obey hidden patterns suggestive of a control system? If so, what are the "reference signals" for such control?

If a new research project was funded tomorrow, even at a high budgetary level, it may not have the tools to answer ANY of the above questions, yet it would be under immediate pressure from its sponsors to produce rapid answers. This is a dangerous position where ideologically-inspired guesses might rush in to take the place of serious, documented scientific answers.

This has been the situation in the past, of course, hence the continued skepticism of the academic community towards this field of research. Speculation about social and political reaction to contact with the phenomenon (simplistically identified with space aliens or "EBE") has preceded careful, critical study of the available facts rather than following it.

It is striking to observe that ALL the above issues could be addressed with the current tools of the Sciences, WITHOUT pre-conceived ideology, and without using the ETH as the primary hypothesis to be tested.

In this respect, recently-published local analyses based on highly-focused local or regional studies are extremely valuable. Mr. Boëdec has performed such a study (**12**) in a specific "département" in Brittany, screening unexplained observations for the period 1950-1981. He found 81 unexplained sightings of PAN, selected out of a total of 167 observations. Two of them have remained classified by the French Ministry of Defense. In six of the cases the witnesses were Gendarmes or military personnel, and one case represented a potential hazard for civil aviation. He concludes that the record points to "a novel phenomenon with stable patterns, independent of group delusion" and that "the best observations were made by witnesses in close encounter situations in their normal activity, rather than persons engaged in special sky observation."

Thus, highly focused, localized studies over selected areas of known geography, weather, culture and demography can provide an important tool for the analyst, in connection with broader national or international efforts.

An information science challenge: *Ufology has no ontology!*

The above list of "researcheable issues" is only a preliminary sample of questions we would expect a scientific team to demand from a comprehensive database. While there is no guarantee

that a sufficiently-complete pool of screened observations can be built to definitely answer these questions, the interaction could be enriched by feedback from the researchers themselves as they refine their queries against the available information while the data structures continuously adapt to their needs.

From a computer science point of view, however, this situation is not amenable to simple, packaged answers. In particular, hierarchical, non-procedural or table-driven (relational) data bases that work well in corporate settings cannot be used effectively. Even the use of newer approaches like natural-language processing of large amounts of text with Google engines and the like may only result in greater confusion and misleading answers.

Rushing into sophisticated statistical analysis without deep understanding of the underlying data, the biases attending data selection, and the inconsistencies among various sources can result in egregious errors, as we have shown in one particular study claiming a correlation between frequency of UAP sightings and local sidereal time (**13**).

Since there is no ontology of the phenomenon we believe new structures must be built in careful layers using a No-SQL data structure. In a preliminary phase data must be screened, scrubbed and reviewed by the small cadre of people who have had extensive experience gathering data in the field – a multi-cultural group that has typically stayed away from amateur groups and media, is rapidly reaching retirement age and will soon be unavailable for such a study. It must be international, since American techno-culture (which has generated much of the UAP literature) imposes strong selection biases and reporting filters on sighting information that may not represent (and indeed may have obscured) overall patterns of the phenomenon.

In previous publications we have erected methodological scaffolding for the definition of the necessary layers (Davis-Vallee model (**10**), classification scheme for anomalies (**11**), validity and reliability indexes, etc.) Several organizations around the world have adopted and improved all or part of our methodology for their own catalogues. It is possible to build upon this accumulated experience, but only if the user community demonstrates a genuine interest in actively utilizing and enriching such tools. Timing and standardization are essential, as well as practical considerations of witness privacy and data security, access to previous data repositories and external resources. It is also critical to implement better coordination among various centers.

REFERENCES

1. Blue Book Special Report 14: Compiled by the Battelle Memorial Institute under contract with the U.S. Air Force, it analyzed some 3,200 sightings. Titled *Analysis of Reports of Unidentified Aerial Objects*, it was issued on 5 May 1955.

2. Vallée, Jacques F. and Vallée, Janine: *Les Phénomènes Insolites de l'Espace*. Paris : La Table Ronde, 1966. (American translation *: Challenge to Science, the UFO Enigma* (Chicago : Regnery 1966).

3. Poher, Claude, and Vallée, Jacques F.: "Basic Patterns in UFO Observations." AIAA Paper 75-42. *Proceedings* of the 13th Aerospace Sciences Meeting of the American Association for Aeronautics and Astronautics. Pasadena, Calif. January 1975.

See also Poher, Claude : *Etude statistique des rapports d'observation du phénomène OVNI*, Paris, CNES-GEIPAN 1976.
http://www.cnesgeipan.fr/typo3conf/ext/dam_frontend/pushfile.php?docID=1627

4. Rodeghier, Mark: *UFO Reports Involving Vehicle Interference: a Catalog and Data Analysis* (Evanston, IL: Center for UFO Studies, 1981).

5. Phillips, Ted: *Physical Traces Associated with UFO Sightings, A Preliminary Catalogue.* (Evanston, IL: Center for UFO Studies, 1975).

6. Schuessler, John F. *A Catalog of UFO-related Human Physiological Effects*. Geo Graphics, 1996.

7. Weinstein, Dominique F.: *Unidentified Aerial Phenomena: Eighty years of pilot sightings from 1916 to 2000.* February 2001 (6 th edition). Published by the National Aviation Reporting Center on Aerial Phenomena ("NARCAP").
See also: *Sécurité Aérienne et Phénomènes Aériens Non identifiés - Etude préliminaire de 600 cas de Phénomènes Aériens Non identifiés (PAN) observés par des pilotes militaires et civils.* GEIPAN/CNES College of experts - France ~ March 2012 (NARCAP International Air Safety Report IR-4, 2012).

8. Ballester-Olmos, Vicente-Juan: *FOTOCAT*, "an Excel spreadsheet of UFO and IFO cases in which an image has been obtained on photograph, film, video or digital media. It contains 27 data columns to register the date, time, location, province and country, explanation (if one exists), duration, photographer's name, special photographic features, references, etc. When completed, the full catalogue will be posted on the internet."

9. Vallee, Jacques F. and Aubeck, Chris: *Wonders in the Sky*: Unexplained Aerial Objects from Antiquity to Modern Times and their impact on human culture, history and beliefs. New York: Tarcher/Penguin 2010. Chris Aubeck's "Magoniax" group on the web continues to accumulate, screen and analyze pre-1947 data on a global basis.

10. Vallée, Jacques F. and Davis, Eric W.: "Incommensurability, Orthodoxy and the Physics of High Strangeness: a 6-layer model for anomalous phenomena." In *Proceedings* of the International Forum "Ciëncia, Religiao e Consciência, Fernando Pessao University, Porto (Portugal) 23-25 October 2003, pp.223-239.

11. Vallée, Jacques F. *Confrontations: A Scientist's search for Alien Contact*. New York: Ballantine/Random House, 1990, p.239.

12. Boëdec, Jean-François: Les Etudes Localisées de PAN. CAIPAN Workshop, Poster no.28. CNES, Paris July 2014.

13. Vallée, Jacques F. "Are UFOs related to Sidereal Time?" Private study, 2007. Available on the author's website (www.jacquesvallee.com) under "Personal Research."