



RESEARCH
ARTICLE

Best Evidence that UAP Source and Utilize High-Voltage Electric Energy for Hovering, Hyper- Fast Acceleration and Motion

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HIGHLIGHTS

Researchers argue that many fast-moving UFOs/UAPs use self-generated, high-voltage electric fields and plasma-like processes to hover and accelerate, and that these systems may be modeled on natural atmospheric electrical vortices such as tornadic plasmas.

ABSTRACT

We investigate the best evidence of high-voltage UFO/Unidentified Aerial Phenomena (UAP) electrical properties to progress our understanding of the hyper-fast acceleration and travel of UAP in Earth's atmosphere and in near-space. Based on that evidence, our findings show that UAP source and utilize high-voltage electric energy for hovering, and hyper-fast acceleration and motion. Furthermore, the design of these advanced technological systems may be based on natural, atmospheric electrical vortices and related electric discharge phenomena. We propose that some UAP powerplants are designed similar to natural tornadic-vortices.

We establish the relevance of the following topics to the scientific study of specific classes of high-voltage electric UAP: the electro-coalescence of atmospheric water vapor; UAPs self-generated, high-voltage electromagnetic and electrostatic fields; rotating electric fields and super-high-voltage, electrostatic propulsion; and Unidentified Submersible Objects (USOs).

The appearance of advanced technologies having to do with UAP may be relatively simple but overlooked plasma-based, electromagnetic and electrostatic technologies. UAP likely maneuver in Earth's atmosphere by utilizing a simple form of high-voltage, electrostatic, propellant-less propulsion—allowing these craft to push off the locally ionized atmosphere. Evidence supports our hypothesis that UAP source and initiate the streaming of uninterrupted, carbon-free, Earth-ionosphere, solar plasma direct electric energy. Finally, we summarize advanced, super-high-voltage, electrostatic propulsion of UAP.

The US Navy's authentication (December, 2017) of leaked UAP videos validated hard evidence of UAP presence in global air spaces. Highly reliable witnesses have observed UAP exhibiting hyper-fast accelerations and motion within Earth's atmosphere, as well as in low Earth orbit. Multi-witness visual and sensate observations combined with hard data from these cases provide insights into the development of hyper-fast travel dynamics and their solar plasma, electric energy source. We also report on new scientific standards of observation and recording in UAP research, including recommended detection equipment.

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KEYWORDS

Unidentified Aerial Phenomena (UAP), atmospheric science, atmospheric electrostatics, rotating electric fields, high-voltage electrostatic propulsion, vapor phase electro-coalescence, tornadic vortices, hydroxyl (OH), Unidentified Submersible Object (USO), living plasmas, thermosphere plasmas, UAP detection equipment.

SECTION I: UAP ELECTRICAL PROPERTIES

INTRODUCTION

Travel to distant outlying solar planets and especially to other nearby star systems will necessitate revolutionary forms of propulsion beyond chemical and plasma ejection, or nuclear-fission/fusion powered rockets. Designing the first automobile required technical understanding and infrastructure development for the engine mechanisms and body construction, as well as its electrochemical, energy supply: batteries, gasoline, oxygen and plasma-generating spark plugs. Understanding hyper-fast (hyper-sonic) UAP transport systems will similarly require simultaneous development of the “engine” mechanisms as well as their energy source.

UAP appear to use no combustible fuel and require no sharp-edged or pointed airfoils to maintain aerodynamic “flight” altitude and extreme maneuverability—thus implying their use of some form of propellant-less and inertia-free propulsion. UAP do not “fly” aerodynamically nor exhibit ballistic motion, but rather they hover silently, remaining nearly motionless except for their characteristic “silver dollar wobble.” Certain large triangular craft appear to defy gravity as they slowly “float” in the air, at times visible for hours. But such craft are not buoyant like a lighter-than-air dirigible craft—as the triangular craft can hyper-accelerate. UAP hyper-accelerate, along a trajectory, more like a high-speed missile than an aerodynamic aircraft. For example, the 27-foot, 7,500 pound (3,409 kg) Sprint, a conical-shaped, anti-ballistic missile, accelerated at 100-G to Mach10 (7,600 mph) in 15 seconds, glowing white hot, enshrouded in its own, self-generated dense white plasma. By contrast, a sustained 6-G force can be fatal to humans. Furthermore, an F-18 aircraft can only withstand 9–12 G forces before structural damage ensues; its design limitations are 7.5–9.0 Gs of rotational or turning acceleration.

UAP often traverse a non-ballistic trajectory. Instead of traditional fuselage-and-wing airfoil surfaces, commonly

observed UAP configurations include wingless, elongated cigar-shapes, spheroidal, plasma orbs, “large propane tank” shapes, round-edged triangular, massive “V” (chevron) shapes, and especially lenticular or oblate spheroids. For example, the fleet of UAP reported by Navy commander David Fravor (Romo & Chappell, 2023), resembled Tic Tac candy (a cylindrical shape with hemispherical ends or like a large propane tank), and were devoid of any obvious airfoil surfaces, propulsion mechanism or exhaust heat signature. This Navy encounter was leaked to the press in December, 2017; its later confirmation by the U.S. Pentagon was an historical first (Cooper et al., 2017a, 2017b, 2017c, 2019).

In the following we provide in-depth scientific, theoretical research about the role of high-voltage electricity and plasmas in the functioning of UAP. Based on the best evidence case studies that follow that include numerous eye-witness reports and hard data, we will demonstrate that scientific observations of UAP require the investigation of UAP electrical and electromagnetic properties.

Electro-Coalescence of Atmospheric Water Vapor

Evidence of UAP electric fields exists in numerous eye-witness reports of lenticular-shaped, and certain other UAP—appearing as a dark metallic color, often describing a “fuzzy” outline (Haines, 2000). Such frequently reported haziness would arise from the UAP’s high-voltage electric field ionizing the surrounding air and creating a plasma that induces the condensation of water vapor, just as in supercell storms. Sprint missile’s brilliant white plasma was friction-induced between the missile’s heat shield and the atmosphere; whereas UAP multicolor plasmas are high-voltage, electromagnetically-induced (Hill, 1995). The high-voltage electric field generates a plasma that condenses in-situ water vapor into clouds or fog surrounding the UAP, obscuring its solid physical structure. This could at times cause either a metallic or dielectric surface to appear as a dark color metal.

Visual observational evidence indicates that lenticular UAP exhibit their “silver dollar wobble” while hovering in place, upon arrival or prior to powering-up for departure. During the UAP silver dollar wobble, the engines operating at low power are evidently rotating slowly. This slow-oscillation wobble makes the entire system *appear* unstable. When UAP power up prior to departure, the power system rotates increasingly faster as the wobble ceases prior to such objects hyper-accelerating on an upward trajectory.

Their self-generated, high-voltage electrostatic fields can result in optically visible, condensation of atmospheric H₂O droplets (~20 micron diameter: 20 millionths of a meter; each droplet holds 1.06×10^9 H₂O molecules), depending on local dew point. This is known as *electro-coalescence* (Wang et al., 2020). These electrically charged droplets would circulate around the exterior perimeter of the craft during its low-to-moderate energy output, effectively creating the UAP's own self-generated, artificial cloud or fog (Hill, 1995; Mintel & Birnes, 2019; Penniston & Osborne, 2019). Electro-coalescence occurs naturally throughout Earth's atmosphere (Gabyshev et al., 2020; Shavlov et al., 2023). "The model shows that the electric field enhances condensational growth. The most significant driver of the temperature dependence is the humidity" (Gabyshev et al., 2020, p. 1563).

Water droplets in atmospheric clouds and fog tend to be electrically charged.... In many cases, clouds and fog can be considered as drop-ion plasmas.... Therefore, the processes occurring in clouds and fog are of particular interest from the point of view of plasma physics.... Indeed, in an external electric field, water droplets are polarized and can acquire a large surface electric charge (Shavlov et al., 2023, p. 16).

The electrically induced condensation significance is expected to further increase with decreasing temperatures below 50°C. We expect that electro-condensation will be the dominating process at room temperatures and even more at temperatures 0°C [32°F] at electric field strengths typical for clouds. Field strengths of about 10^5 V/m⁻¹ occur which accelerate the condensational growth of droplets specifically in the lower zone of clouds, leading to a more rapid formation of precipitation (Gabyshev et al., 2020, p. 1556).

The above quotations clarify that high-voltage electric fields electro-coalesce submicron, dipolar H₂O droplets through the imposed electric charge. Conversely, six distinct methodologies have recently been developed by independent research groups for extracting minute amounts of electric energy out of atmospheric H₂O droplets (humidity) sufficient to illuminate one cell-phone pixel (Lax et al., 2020; Liu et al., 2020).

This research confirms that external electromagnetic-fields condense atmospheric water vapor, especially at

lower temperatures, higher in the atmosphere, and at higher humidity. This is consistent with aircraft lightning studies demonstrating that the majority of electric discharges (cloud-to-aircraft lightning) occur when the aircraft is either within, or in the near vicinity, of clouds. UAP electro-coalesce atmospheric water vapor at altitude as artificially generated clouds, as well as at ground level as fog (Hill, 1995; Mintel & Birnes, 2019; Penniston & Osborne, 2019). Scientific data thus support the direct observational evidence that UAP generate strong enough electric fields to electro-coalesce atmospheric water vapor—within an estimated 50-yard radius (Hill, 1995; Penniston & Osborne, 2019).

The air contains an enormous amount of electricity. Think of a cloud, which is nothing more than a mass of water droplets. Each of those droplets contains a charge, and when conditions are right, the cloud can produce a lightning bolt—but we don't know how to reliably capture electricity from lightning. What we've done is to create a human-built, small-scale cloud that produces electricity for us predictably and continuously so that we can harvest it. Imagine a future world in which clean electricity is available anywhere you go. The idea is simple, *but it's never been discovered before*, and it opens all kinds of possibilities (Jun Yao, in Liu et al., 2020, italics added).

Jun Yao has the right idea. However, it is essential to think on a larger scale and use a more efficient methodology. We advocate that it is, indeed, possible to "capture electricity from lightning." Our article provides insights into the process of directly accessing the existing flow of electricity present in the atmosphere *before it generates a Gamma Ray Flash (GRF)* and discharges as lightning.

UAPs Self-Generated, High-Voltage Electromagnetic and Electrostatic Fields

Upon the initiation of "power up," immediately prior to extreme-high-G departure accelerations, UAP frequently display increasingly brilliant illumination, in particular around the lenticular-shaped, rounded perimeter. This is consistent with a pulsed MHz rotating, high-voltage electromagnetic field that ionizes the surrounding atmosphere. The ionizing radiation emitted creates colors on a continuum between low-energy dull red and high-energy brilliant blue/white "like an arc welder" (Hill, 1995). Atmospheric oxygen and nitrogen fluoresce through a range of colors as they are ionized to the plasma state by super-high-voltage

electric fields generated by UAP powerplants (Hill, 1995). Their color and luminosity depend upon the frequency of the ionizing radiation and its intensity—as the UAP powerplant apparently builds-up energy prior to nearly instantaneous, extreme accelerative departure.

UAP have frequently been observed to tilt into their intended direction of motion, and then suddenly “bullet-off” with hyper-acceleration (Hill, 1995) which is technically well beyond the current capabilities of any conventional aerospace vehicles. We assume the craft and any possible crew are somehow protected from the observed extreme accelerative G-forces. We postulate that UAP are buffered by their self-generated, high-voltage induced plasma field to greatly reduce or eliminate friction within Earth’s atmosphere. UAP self-generated, high-voltage solitons likely possess *plasma double-layers* (see Feindt, Cases 2, 4, 5 & 11). The plasma forms its own double-layer that would *shield* the electric field within the double-layer, and thus within the craft, as described in several theoretical warp drive metrics (Alcubierre, 1994; Beck & Colli, 2025a; Bobrick & Martire, 2021; Lentz, 2021), as well as by Feindt (Section II). Such a plasma double-layer may allow the UAP to travel effectively “friction-free” at hypersonic-velocity through Earth’s atmosphere without generating a sonic pressure wave. Advanced warp-drive theory proposes that a plasma soliton bubble encapsulates space-time that transports a craft within the soliton with no limit to its velocity. This concept is described in-depth in a separate manuscript (Beck & Colli, 2025a).

Witnesses located beneath certain UAP report feeling a warm wind blow down silently on them as the UAP departs overhead. Consider the downward rush of warm air as an electrostatic downwash, somewhat similar to a helicopter downwash with anemometer readings of approximately 24 and 66 ft/s, depending on the aircraft. However, helicopters force a downwash of mostly electrically neutral atoms; whereas UAP appear to be forcing multiple rotating downwash columns of highly electrically charged, ionized atoms. We propose that some UAP push against their own self-generated, ionized atmosphere and the Earth, to both attain and maintain altitude (hover) as well as to hyper-accelerate laterally, or into Earth’s upper atmosphere, and presumably into nearby space. UAP are evidently not designed to be aerodynamic aircraft—therefore they do not *fly* in the normal sense of the word. Rather, they propel themselves, often at hypersonic velocities, along trajectories. This implies that a highly energetic, electrostatic motive force pushes off the atmosphere and the ground in the direction opposite their trajectory (Hill, 1995). This may be a simple action-reaction

force, not unlike an “electrostatic helicopter.”

According to bioengineer Gerald Pollock, theoretically removing 1% of the electrons from two people’s bodies—thereby creating an extreme positive charge in both bodies by ionizing those atoms—would require a mass the weight of Earth to push them together from a few feet apart. The amount of pressure required to push these two people together would thus be about equal to 5.9722×10^{24} kilograms (5.9722 billion, trillion metric tons). It should therefore be feasible for a relatively miniscule, 30-ton electric-powered aircraft to remain airborne by pushing *electrostatically* off its surrounding ionized atmosphere and the Earth, using its onboard, super-high-voltage (500,000,000V), pulsed, electrostatic field generator—a device designed specifically not to spontaneously discharge *large* lightning bolts (Case 4).

Electrostatic propulsion has been demonstrated on a very small scale in 2022 by Undefined Technologies with their Silent Ventus, ElectroDynamic Thrust eVTOL Ionic Propulsion, using batteries to generate 40,000 volts. Their drone, however, also creates a 55 decibel “high pitch whistle,” whereas the overwhelming majority of UAP witnesses report them to be completely silent, *regardless of size, luminosity or velocity*.

As described (Section II), the “power-up” of many UAP results in the generation of highly charged, electrostatic fields—experienced by many reliable witnesses—at times encompassing an estimated spherical-kilometer or more in volume. The human body is finely attuned to sense direct current electric fields (DC EF) and alternating current electric fields (AC EF). For example, “the mammalian hippocampus has several unique features that render it particularly sensitive to electric fields” (Francis et al., 2003).

The average [human skin] detection thresholds were 23.4 kV/m for DC EF, 16.9 kV/m for AC EF, and 11.4 kV/m DC EF in a hybrid condition. Moreover, both research groups stated that body hair is the most essential factor facilitating EF perception. When asked, the participants described their sensation mainly related to hair movements at the scalp, face, or arms. This was supported by the finding that relative humidity of scalp hair influenced EF perception. High relative humidity (70%) facilitates DC EF perception, whereas low relative humidity (30%) supports the perception of AC EF (Kursawe et al., 2021; see also, Chapman et al., 2005; Odagiri-Shimizu & Shimizu, 1999).

During “power-up” sequences described by witnesses, the exterior perimeter surfaces of some UAP (primarily lenticular-shaped) exhibit a multitude of minute, brilliant, white electrical discharges. They appear similar to electrical discharges witnessed along the *interior sheath wall* of tornadic vortices by a small number of individuals. Internal vortex discharges have been described by a handful of individuals who serendipitously witnessed the interior of an overhead tornadic vortex. One witness observed thousands of tiny lightning discharges along the entire length of the interior wall—of the rapidly rotating, 1,000-foot-tall vortex.

January 21, 1992, Near Cripple Creek, Colorado

He threw himself to the ground but got a good look up into the interior of the funnel.... The outside of the tornado was spinning so fast my eye couldn't follow it, but the inside was rotating almost lazily. I could see a thousand feet up inside it. Tiny fingers of lightning lined the hollow tube (McGown, 1996).

At the moment of touchdown, the sferics (electromagnetic noise) emitted by a supercell abruptly drops nearly to zero as the vortex (tornado) itself temporarily becomes a conduit between ground and upper atmosphere electric current (Vonnegut et al., 1960). Recent research demonstrates that the sferics rate effectively becomes continuous due to the vast array of small static discharges lining the interior of the vortex. In fact, the internal sferics ranges across a continuum and can cease almost entirely as countless minute discharges inside the vortex transition to a steady glow, becoming effectively a huge, rotating, atmospheric fluorescent lamp. Certain photos illustrate lightning discharges in close proximity to a tornado. This rare occurrence results from the extreme electric charge in the parent clouds. Emerging from a supercell, tornadic vortices, like lightning discharges, remain uncontrolled natural processes. However, the vortex can continually discharge or even *stream electric current*, as opposed to lightning which remains an explosive, hazardous and unpredictable electrical discharge. As soon as the vortex dissipates, the storm's sferics (largely RF noise) return to pre-tornadic levels (Greneker et al., 1976).

Several classes of UAP appear to energetically mimic natural atmospheric electrical phenomena (lightning stepped-leaders, tornadic vortices, land spouts and hurricanes), as they move seemingly effortlessly through

Earth's atmosphere. Tornadoes and hurricanes, by contrast, do not move *through or against* the atmosphere—they are embedded within, and can only move along *with* the local atmosphere. The visual, electrostatic and electromagnetic similarities between tornadoes and UAP are often so striking that we must consider the possibility that the design of these advanced technological systems may be based, in part, on natural, atmospheric electrical vortices and related electric discharge phenomena.

The evidence supports the authors' proposal that at least some atmospheric UAP may be capturing high-voltage, hyper-fast lightning streamers—before the streamers electrically transition into stepped-leaders (Saba, Figure 1a and 1b). This would allow UAP access to the solar plasma energy that streams to Earth continuously from our Sun as electric current (Alfvén, 1981; Scott, 2021). Certain UAP may thus be replicating, on a smaller scale, the electrical dynamics of a supercell storm through which they access the continual flow of electric energy between the Earth's surface and the upper atmosphere. From a functional standpoint it would be like connecting to a 12,000-mile-long “virtual, electric extension cord” that *supplies UAP with continuous energy*. Such craft may possess advanced flight and energy systems based on the electrical dynamics of a tornadic vortex, spawned from a supercell thunderstorm (Beck & Colli, 2025a).

As far as an alternative way for producing this energy, one suggested method, NASA's TSS-1 tethered satellite (STS-75, 1994), is not a viable energy generating option for UAP. The differential between the space shuttle and the tether—a conductor which interacted with Earth's electrically charged ionosphere—of approximately -3,500 VDC, is too small to be of any practical use for primary propulsion. Based on plasma cosmology theory, we propose a potentially more viable method for tapping into the Earth-ionosphere electric circuit.

Rotating Electric Fields and Super-High-Voltage, Electrostatic Propulsion

We propose that some UAP powerplants are designed similar to natural tornadic-vortices, composed of several smaller vortices rotating in unison around a virtual axis of rotation of the larger vortex in an inverse energy cascade (Chen et al., 2006; Wurman, 2002; See Figure 2). UAP generate high-voltage electric fields that stimulate multicolored oxygen and nitrogen plasmas that are far more electrically conductive than metal or carbon-fiber aircraft.

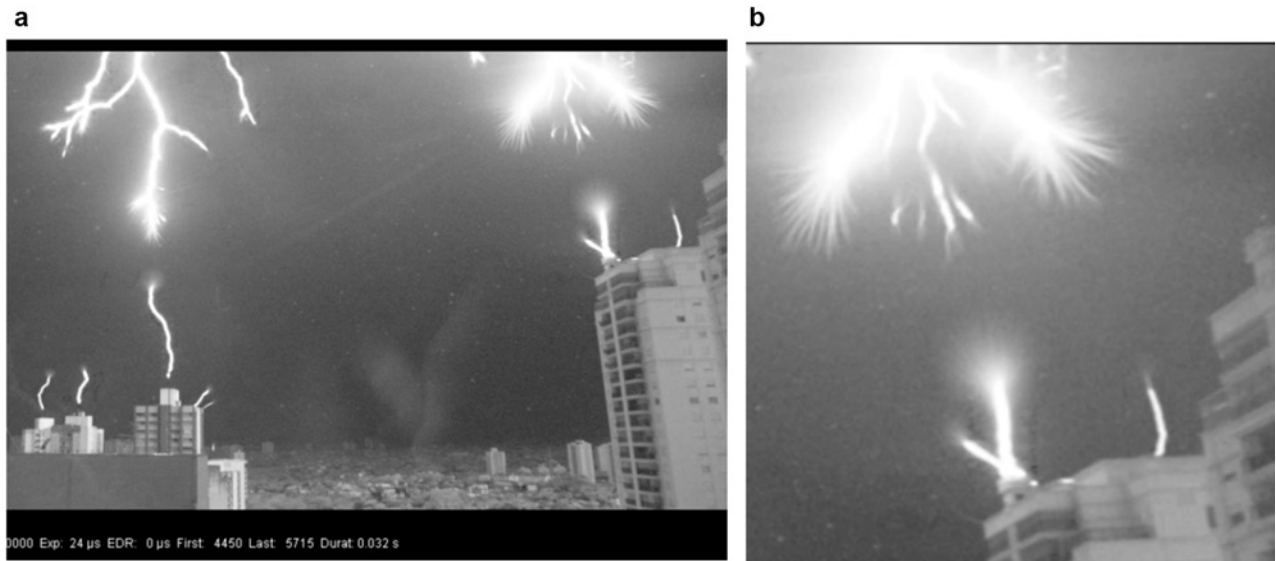


Figure 1. (a) High-definition, high-speed photo of lightning stepped-leaders and return strokes. Image credit: Marcelo Saba: Permission granted October 27, 2024. (b) Detail of downward streamers and coronal brushes. Image credit: Marcelo Saba: Permission granted October 27, 2024.



Figure 2. Grand Isle waterspout (June 20, 2013). Note the filamentations similar to large tornados and consistent with plasma streamers. Image credit: June Gilmore.

An induced MHz *rotating* electric field may be designed to allow for the uninterrupted streaming of Earth-ionosphere, direct electric current (DC). Ultra-fast (MHz) rotation of an artificially generated gamma ray glow (GRG) could stabilize the craft electromagnetically as electrons would be sustained at relativistic velocities in a toroidal electron cloud.

Supercells and other storms generate a number of internal, highly charged, cubic-kilometer-scale, GRG *plasma cells* that can maintain their extreme charge (500,000,000

v) for 10–60 minutes before discharging as lightning (Chilingarian et al., 2017, 2019; Wada et al., 2019, 2021). GRGs discharge and recharge cyclically throughout the active duration of the storm. There is usually a suppression of cloud-to-ground discharges. A GRG or lightning inception field, with a volume of several-to-thousands of cubic kilometers, sustains a 1/2 billion-volt+ charge for tens-of-minutes, to an hour, without discharging into the atmosphere as lightning.

Additionally, the much slower secondary rotation of the full system would stabilize the continuous ground—to craft—to ionosphere energy conduit. Such slow system rotation is consistent with numerous observations of lenticular UAP demonstrating their slow “silver dollar wobble” during low energy hover mode. Slow system rotation is also consistent with aircraft compasses that slowly rotate in proximity to airborne UAP (Meessen, 1994).

This streaming electric current would power such a craft in addition to allowing it to electrostatically suspend itself in the atmosphere (like a miniature supercell thunderstorm) by pushing off of the surrounding ionized air and the ground. A UAP drive-mechanism would generate at least three, rotating vorticular columns beneath the craft, spaced at 120° intervals, that revolve around a central virtual axis. While in horizontal attitude, the vorticular columns extend toward the ground. These rotating, sub-visible, vorticular columns would serve two functions: aerial hover and propulsive support for the craft; plus, electric energy supply (Hall, 2017).

At energy levels below critical thresholds we would expect to see high-voltage-induced, water-vapor *condensation*. A UAP cloud, witnessed as *fog* at ground level (Hill, 1995; Mintel & Birnes, 2019; Penniston & Osborne, 2019), can obscure the well-defined edges of the UAP’s physical structure. Above that same energy threshold, we would expect to see water-vapor *evaporation*.

In an established air plasma, any liquid water reasonably close to a hot plasma will tend to evaporate, whereas, further away from it, it will have a tendency to condense - as long as the local temperature is sufficiently low.... If the relevant physical and chemical conditions are maintained within correct limits, which means optimal for plasma stability, these steady-state conditions *could* last indefinitely once they have been established (Turner, 2024, p. 411).

Evaporating a column of cloud 300 meters long and 6.8 meters in diameter in one second requires an average power of approximately 100 megawatts (MW). By comparison, the steady state power consumption of a Boeing 747 cruising at about 0.9 Mach is about 60 MW (Haines et al., 2006, p. 52).

Haines, et al. describe in detail how they mathematically estimated the amount of energy required to evaporate

the clouds that the observed craft “bolted” through at hyper-velocity. Interestingly, they take atmospheric drag force into account (p. 51) in their equations despite the apparent total lack of drag coefficient involved in UAP “flight” in either air or water. This is evident from UAP silent atmospheric operation and their well-documented, high-speed, splash-less entry into bodies of water (see Feindt).

This Haines/NARCAP estimate (Case 4) addresses the evaporation of a cylindrical column of water vapor in the clouds. It does not, however, address the energy requirements for propelling a physical craft, weighing potentially 30 tons, to hyper-accelerate and vertically depart the area nearly instantaneously. (See Knuth below for an example of the phenomenon of hyper-accelerations.)

During low-power output (landed or hover mode), the UAP would form its own high-voltage-induced, visually obscuring, water-vapor fog or cloud, such as those regularly described by UAP eyewitnesses (Case 5). Self-generated, H₂O-condensate clouds would then result in ongoing, macro-scale bursts of atmospheric OH radicals (Paulson et al., 2019), followed by a continuous profusion of OH—as has been detected adjacent to storm plasma cells (Brune et al., 2021; Jenkins et al., 2021). This critical formative stage would increase the energy throughput of the supporting multi-axes vortices beneath the UAP.

Armstrong and Glenn (2005a, 2005b, 2006) propose that OH is the crucial generative *vapor phase electro-chemical process* necessary for both the initial formation, as well as the continual sustaining of atmospheric tornadic-vortices. Certain UAP might function similarly to these natural, atmospheric electrostatic processes by also capturing the Earth-ionosphere electric current and utilizing ubiquitous OH to generate, as well as maintaining, its own tornadic-soliton-like vortices. Just as supercell tornadic vortices become conduits for atmospheric electric current, so too, would multiple UAP vortices. Vortices would physically support such a craft by pushing against the air and ground—as well as providing sufficient DC electric energy for both internal operations, and for sustaining lift via its self-generated vortices.

To summarize advanced, UAP super-high-voltage, electrostatic propulsion: Using startup batteries only (or grid electricity for a stationary ground system), the powerplant would generate its own localized external, rotating, GRG-like plasma field, or “air plasma” (Turner, 2024, p. 399).

The high-voltage, ionizing electric field, in turn, condenses atmospheric water-vapor locally, surrounding the

craft in an artificial cloud or fog. Such atmospheric plasmas generate extreme amounts of OH and HO₂ (Jenkins et al., 2021) that would be drawn into the rotating plasma. A continuous stream of OH radicals would follow a path similar to that in a natural supercell vortex: down toward ground, as described by Armstrong and Glenn:

Discussion: If a sudden increase in intracloud lightning flash rate occurs, and it is of sufficiently high level, then, a very significant generation of hydroxyl and hydrogen ions are produced.

Summary and Conclusions: Evaluation of the electrical force on these primary particles shows it to be greater by orders of magnitude than those associated with relatively small-sized water droplets.

....repeated lightning strikes are required within an individual vortex “core”; and, this restriction relates to the relatively rare occurrence of tornadoes as generally minor dissipative sources of supercell energies (Armstrong & Glenn, 2005b).

One possible embodiment of a UAP drive mechanism would generate a minimum of three electric vortices (Cases 7 & 8). The multiple vortices beneath the UAP would preclude any large, atmospheric, electrical lightning discharges from occurring. Being similar to natural multiple tornadic vortices, these UAP vortices would prevent massive electric discharges by preventing them from breaching atmospheric electric breakdown thresholds.

NASA’s Paul Hill

Paul Hill became one of the most knowledgeable UAP researchers of the modern era and has provided us with numerous observational insights into the functioning of UAP. Hill was a NASA scientist when he personally experienced a UAP sighting in the early 1950s. During his twenty-five-year tenure, he served as an un-official UAP clearinghouse at NASA; like Haines, he collected and analyzed sightings’ reports of physical properties—from pilots and others who had experienced UAP encounters. Official policy prevented him from publishing his findings. “I was destined,” said Hill, “to remain as unidentified as the flying objects.” His spouse, Julia M. Hill, published his findings posthumously. Hill concluded that UAPs “obey, not defy,

the laws of physics.” He found that UAP technology and propulsion possibilities are not only explainable, but they are attainable. “A multi-disciplinary approach is a minimum requirement” (Hill, 1995, p. 25). We similarly contend that expertise in electrical engineering, plasma physics and aerospace are essential to the study of UAP electrical energy and maneuvering functions.

Hill, in Appendices 1–7 (1995, pp. 339–412), provides the equations for the analysis of UFO force fields (Appx. 1, pp. 339–349); UFO aerodynamics, airflow and force field specifications for spherical UFOs (Appx. 3, pp. 357–369); interstellar acceleration and travel (Appx. 5, pp. 383–398); as well as propulsion (Appx. 6, pp. 399–405). Hill specifically arrived at the formula for the “on-board coasting time” to a distant stellar planet (p. 386). Hill completed his mathematical formalisms well before Bobrick and Martire or Lentz demonstrated mathematically how such a journey might be completed based on currently understood laws of physics. That being said, Hill provided significant insights into the operation of lenticular or disk-shaped UAP.

UAP modes of guidance, hyper-fast acceleration/deceleration and energy sources have heretofore remained elusive. These unknowns have made re-engineering their metrics untenable. However, if we refer to Hill’s investigations of UAP motion, we can gain insights for a potential solution to how lenticular UAP may be electrically propelled and navigated through Earth’s atmosphere and in space. Hill describes numerous sightings by highly qualified observers of lenticular craft that have consistently been observed *tilting into their direction of motion*. This implies that UAP are propelled by a previously unacknowledged motive force that is emitted directly from the undersides of such rotating craft—in the direction opposite to the intended trajectory. *Tilt left, go left. Stop going left, tilt right for brakes*. “The UFO must be able to focus its field to achieve thrust vector control” (Hill, 1995, p. 286, see also, pp. 144–146). In this regard, these sophisticated electromagnetic spacecraft may function fundamentally like an electrostatic “action-reaction” rocket. This represents an advanced method of propelling an aircraft or spacecraft beyond chemically powered propeller, jet or rocket propulsion engines.

Saucers are characteristically surrounded by an ionized atmosphere, or plasma, that gives them nighttime illumination in red, orange, yellow, green, blue, or white, and often gives them a mist-shrouded appearance. They are

silent except for hum or buzz noticeable to near observers (Hill, 1995, p. 27).

Hill further describes the well-defined “plasma cone” witnessed below many disc-shaped UAP (See also, Cases 2, 7, 8 & 11). This plasma cone or sheath presents clear evidence of a rotating, vorticular energy field beneath UAP (Hill, 1995, p. 146). Such a water-vapor plasma cone is evident beneath the “gimbal UAP” (Figure 3a, Case 2). The UAP “hum or buzz” is most likely generated by electrical oscillations from the UAP powerplant. Similarly, standing beneath a conventional electric grid transformer, the 60 Hz hum can be clearly audible. Many eyewitnesses report hearing an electronic-like hum or buzz, but typically only while standing directly beneath such craft (Marler, 2013).

Ionized and excited atmospheric molecules [luminous plasma] ... account for the general nighttime appearance of the object: the many observed colors, the fiery, neon-like look, the self-illuminating character, the fuzzy, indefinite or even indiscernible outline, yet an appearance of solidity behind the light (p. 54)... This [plasma] energy corresponds to a frequency of about 1.2×10^{17} cycles per second for nitrogen and more like 1.6×10^{17} cycles per second for oxygen (Hill, 1995, p. 79).

“[The saucer] was an oblate, or flattened spheroid about 15 feet in diameter and was surrounded by a flat ring at the

equator which seemed to rotate” (Hill, 1995, p. 55). The flat ring at the equator appears to be a critical design element of certain lenticular and triangular UAP configurations.

There is really no secret as to what this illuminating sheath of atmosphere around the UFO is. It is a sheath of ionized and excited air molecules often called a plasma (p. 53)... Of course, the [light] source was the atmosphere and the light was reflected by the shiny [UFO] surface (p. 56)... The observed atmospheric colors are a by-product of the power plant radiation quite dependent on the properties of the atmosphere (p. 65)... It is perfectly clear that air can radiate in any or all colors at night, if the plasma is fully developed (saturated with ions) the plasma can completely obscure the UFO (p. 66)... While the plasma sheath is at a maximum, there is a complete radio communications blackout [see Case 5], for even the radio frequencies can't pass through the critical plasma thickness (p. 67)... I conclude that UFOs radiate between 25 electron volts, which is the bottom of the x-ray band, and 3 million electron volts, which is into the lower end of the gamma ray spectrum (p. 81) (Hill, 1995).

Hill's description of the UAP gamma ray spectrum dovetails with the authors' investigation into gamma ray glow

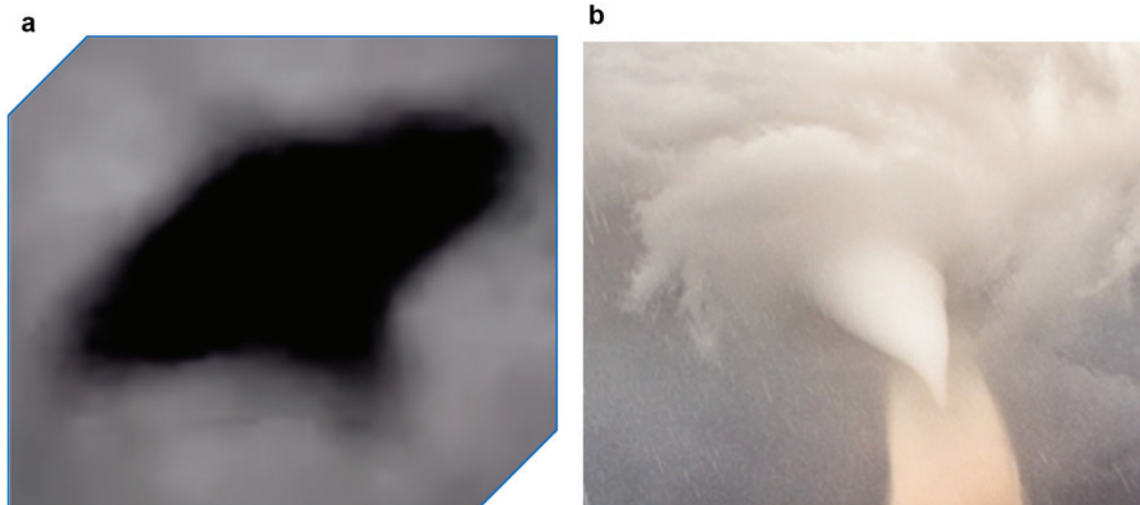


Figure 3. (a) (Left) Selected infrared video image of plasma field surrounding the “gimbal” UAP (2004 Navy F-18 pilot). Image credit: U.S. Dept. of Defense. (b) (Right) Tornado corona exhibiting conical-vorticular form and lower vortex similar to the “gimbal” UAP. Image credit: Chris Sheen.

cells in supercell thunderstorms—in order to understand how a high-voltage, electric plasma engine could power disc-shaped or lenticular UAP (Beck & Colli, 2025a). “Force-field equipment could be located within the shell of the UFO, which the field would penetrate nondestructively while the field generators remain hidden within” (Hill, 1995, p. 96).

Hill’s diligence over decades has contributed invaluable understanding to the science and technical aspects, including the form and function of UAP. “Unconventional craft don’t fly; they are vectored along trajectories.” Theoretical physicist Harold Puthoff comments on Hill’s work:

In the final analysis, one must conclude that Hill has assembled as good a case as can be made on the basis of presently available data that the observation of some “unconventional flying objects” is compatible with the presence of engineered platforms weighing in at something around 30 tons, which are capable of 100-g accelerations and 9000-mph [hypersonic] speeds in the atmosphere. Perhaps more important for the technical reader, however, is Hill’s supporting argumentation, based on solid analysis, that these platforms, although exhibiting the application of physics and engineering principles clearly beyond our present-day capabilities, do not appear to defy these principles in any fundamental way (Puthoff, 1997).

Fundamental questions remain, however, about UAP functioning, especially silent hypersonic ‘flight,’ and 30-ton craft that apparently plunge into the ocean with virtually no evidence of water displacement (Feindt, 2010). Hill offers additional insights into advanced UAP energy and flight technologies.

If the UFO controls the air by a field whose velocity is the speed of light, the signal-speed difficulty is overcome. The control field replaces the incremental pressures and absorbs all the surplus kinetic energy of the air, bringing the air smoothly to a stop at the point of the nose with no rise in pressure, no compressive heating, and no shockwave (p. 323).

The passengers, instruments, stowables, and the vehicle itself would feel no g stresses. All would be in freefall the moment of lift off, the

accelerometers reading zero (p. 294)... After a UFO breaks ground contact with a planet it is in *free fall* (Hill, 1995, p. 321, italics added).

Hill’s comments are precisely in line with warp drive theorists whose terminology of being in “free fall” refers to being inside a UAP warp drive soliton bubble during hyper-fast travel on Earth or in space (Alcubierre, 1994; Beck & Colli, 2025a; Bobrick & Martire, 2021; Lentz, 2021). Unlike conventional orbiting craft (e.g., NASA’s Space Shuttle), UAP do not require chemically fueled acceleration to 17,500 mph in order to be in free fall orbiting around Earth.

Next we consider Feindt’s studies of UAP and water. We begin with recent U.S. Navy encounters of UAP interacting directly above and below the ocean’s surface. Sea-level ocean water is 840 times denser than the air directly above it. Much can be learned about the electromagnetic operation of airborne UAP by their observed effects on the atmosphere, such as plasma illumination, fog, mist and haze generation, as well as the effects of swirling and evaporated clouds around them. As demonstrated through Feindt’s work, the physical effects UAP have on bodies of liquid water contribute significantly to our understanding of their electrostatic and electromagnetic functioning. Feindt’s extensive body of 1,700 UAP events provides data that cannot be gained solely from observations of aerial UAP.

Carl Feindt: Water and UAP: Plasma Vortexes and Toroidal Fields

A series of major UAP encounters occurred in 2004 near the aircraft carrier USS Nimitz, which included the detection of a fleet of so-called Tic Tac-shaped UAP (Case 2). The following narrative from Retired U.S. Navy Commander David Fravor relates his experience flying a Navy F-18—with objects of unknown technology and origin *both above and beneath the ocean’s surface*.

It was calm that day but the waves were breaking over something that was just below the surface. Whatever it was, it was big enough to cause the sea to churn. Hovering 50 feet above the churn was an aircraft of some kind—whitish—that was around 40 feet long and oval-shaped. The craft was jumping around erratically, staying over the wave disturbance.... The disturbance looked like frothy waves and foam, as if the water were boiling.... It accelerated like nothing I’ve ever seen.... It had no plumes, wings or rotors and outran our F-18s (Cooper et al., 2017b).

The Nimitz case is but one of a large number of well-documented UAPs interacting with water at the ocean's surface. Two years after the 2004 USS Nimitz event was made public (2017), another remarkable Navy encounter occurred. On July 15, 2019, infrared cameras recorded a "swarm" of up to 14 spherical objects maneuvering just above the ocean's surface near the USS Omaha, an Independence-class littoral (near the coast) combat ship. This event lasted for approximately 2 hours. Within the time-frame of a few moments, the now public infrared video shows one object submerging beneath the ocean's surface, leaving no trace of its presence nor any displacement of water. On May 17, 2021, NBC news reported the release of the leaked videos of this case, along with the U.S. Navy crew audio track of the UAP—hovering just above the water off the U.S. Pacific coast near San Diego. Referred to as an Unidentified Submersible Object (USO) or trans-medium UAP, it eventually "splashed" beneath the ocean's surface (Eberhart, 2024; Gallaudet, 2024). In actuality, this UAP did not create a splash at all. It simply submerged itself.

Filmmaker Jeremy Corbell released the Navy video while stating that similar events with USOs were reported by eight other Navy ships in the same area over three days. High-definition video of real-time radar monitors displayed multiple targets being tracked. "The scientific ramifications are nothing less than world changing," states Dr. Tim Gallaudet, Retired U.S. Navy Rear Admiral, in his 29-page report (March, 2024) defining the dangers and scientific opportunities of underwater UAPs. "How might this knowledge transform such fields as air and maritime transportation, energy generation, agriculture, communications, computing, manufacturing and space travel ... not to mention defense?" (Gallaudet, 2024, p. 5; see also Eberhart, 2024). Gallaudet's unprecedented USO revelations validate the phenomenon and open the door for more serious scientific investigations.

First, these underwater anomalies jeopardize US maritime security.... Second, their presence in the oceans at the same time presents an unprecedented opportunity for maritime science. Third, to meet the security and scientific challenges, trans-medium UAP and USOs should be elevated to national ocean research priorities.... The stunning implication is that engineering, materials science, and the physics beyond the state of the art are needed to produce and operate these objects (Gallaudet, 2024, pp. 1–2).

Moreover, Gallaudet cites Feindt's research. Carl W. Feindt catalogued 1,700 sightings of UAP hovering over, entering into, or exiting from bodies of water. Reliable witnesses have observed UAP entering into and leaving bodies of water, sometimes at high speed—with little to *no visible splash* or other disturbance of the water's surface. Feindt's compendium is significant for its scientifically-oriented, meticulous analyses of a large number of UAP water reports. Feindt's extensive investigations gain additional credence in light of these recent, hard-data, Navy video releases of USOs. He confirms that many USOs display nearly spheroidal bubbles around them, generated by a *toroidal- or "apple-shaped" energy field or "shell" that greatly diminishes or eliminates the USOs' direct interaction with water*. The energy shell appears to be the active agent allowing USOs to enter the water with no discernible disturbances. In Olympic diving, the human body enters the water at 30 mph, creating an initial radial water jet with a velocity up to 30 times faster than entry speed, followed by a larger Worthington Jet: the splash created when a body hits a pool of liquid. Typically, no such water jet reaction occurs when USOs enter water.

A USO high-voltage, toroidal, plasma-generating energy system can be viewed as a miniaturization of the corona at the top of atmospheric electric tornadic or waterspout vortices. As these craft arise out of lakes or the ocean, they exhibit a visible *vortex* of water below as they gain altitude (Figure 4). These vortices take on the form of an upward spiraling, UFO-generated water spout. This indicates that the drive mechanism in the craft generates a *rotating electromagnetic field*.

All naturally occurring, terrestrial atmospheric vortices exhibit upward spiraling flow patterns. These include tornados, hurricanes, waterspouts, land spouts, dust devils and recently discovered plasma tubes called Strong Thermal Emission Velocity Enhancement (STEVEs) (Nishimura et al., 2019). Observation of plasma-driven craft in daylight reveals their solidity, physical characteristics, and at times their self-generated, plasma-induced, water vapor clouds. Water vapor clouds have been witnessed by numerous observers (see Cases 4 & 5). Night observations reveal the crafts' luminosity—providing important information about their energetic flight systems, including a wide range of colors due to the excitation of atmospheric oxygen and nitrogen that indicate specific electromagnetic energies (frequencies) generated by the surrounding plasma. Feindt's statements regarding plasmas are in alignment with those of both Hill and Meessen. Reports of UAP interacting with bodies of water provide invaluable information regarding the shape, vorticity

and extent of intense toroidal, electromagnetic energy fields that surround and apparently protect these craft. This information is not obvious and cannot be ascertained solely from visual observation of aeronautic UAP craft.

Such “repelling” high-voltage electric fields may also allow UAP to propel themselves at hypersonic velocity within Earth’s atmosphere without generating a compression wave (sonic boom). The boundary of the toroid/sphere is a *plasma double-layer*. “In the majority of cases it is the function of the field to protect the UFO” (Feindt, 2010, p. 35). “The field as represented here is *not* circular in a vertical direction [cross-section], but donut- or apple-shaped [toroidal] (flat top and bottom in a side view)” (Feindt, 2010, p. 51).

“The objects had a greenish-blue field around them [ionized nitrogen/argon], and they entered the water at considerable speed without any splash” (Feindt, 2010, p. 54). It can be reasoned that any such physically material craft/object capable of entering a body of water at high speed, with no disturbance of the water’s surface, could easily move through Earth’s atmosphere, which is a minimum of 840 times less dense, with no disturbance (compression wave) at hypersonic velocities. The novel technologies involved in such maneuvers are most likely associated with the extremely high-voltage plasma fields generated by the UAP/USO. A case can be made that the same toroidal energy field shielding effect within Earth’s atmosphere, and under water, would

also protect the surface of a UAP from ablation/erosion by interplanetary and interstellar dust, and small meteoroids during hyper-fast (sub-, or superluminal) travel in space.

The witness describes a column of fog, mist, haze or water ascending from the surface of the water to the craft. This column [upward spiraling vortex beneath the UAP], I believe, is caused by the high-speed vertical rotation of the field, which creates a vacuum below the craft (Feindt, 2010, p. 59, Figure 4)

This is in line with the authors’ concept that the electrostatic field surrounding a UAP is rotated at MHz frequencies, while the entire physical drive mechanism is slowly rotated at a controlled rate consistent with the rotational periodicity of an F5 tornado—that is itself composed of several smaller vortices collectively circling a common *virtual axis of rotation*, a common center of mass.

Suddenly a ripple in the shape of an equilateral triangle formed. In place of the three vertices there were three marine vortices.... Only when the three columns of water disappeared was it possible to see the three lights in the clouds (Feindt, 2010, p. 63)....

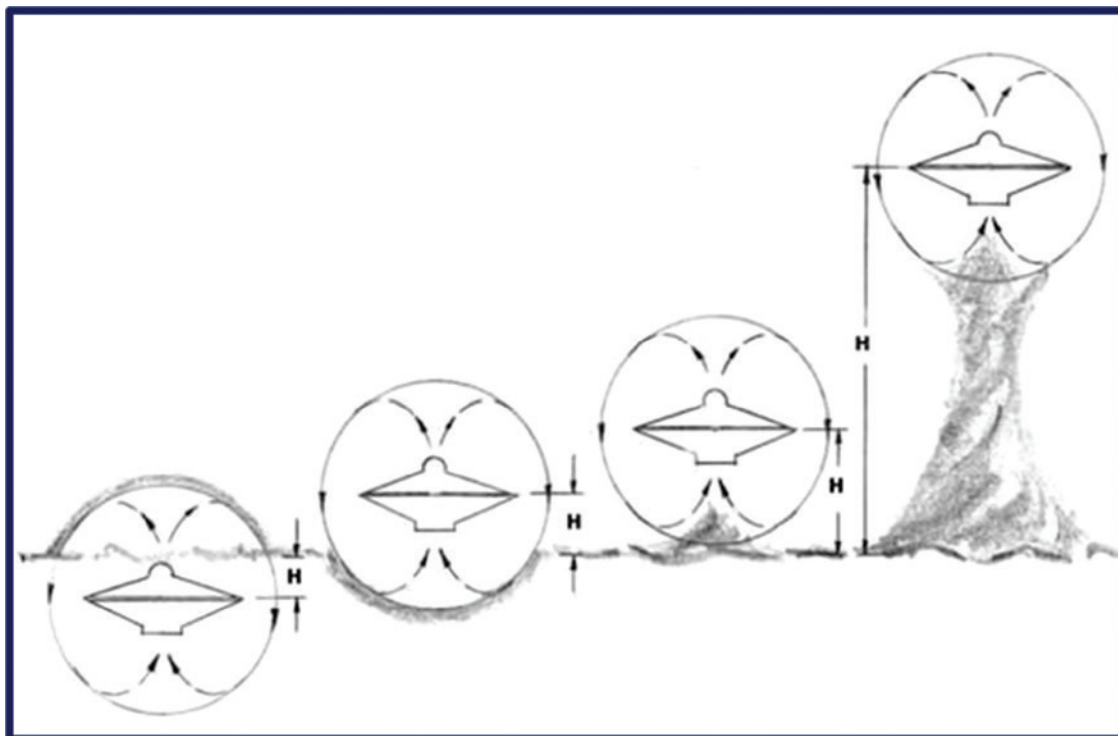


Figure 4. Drawing of UAP/USO exiting water, exhibiting protective toroidal “bubble” and upward spiraling vortex. Image credit: Carl Feindt.

This suction on the surface of the water is *exactly the same as if a tornado was to pass from land over a body of water* (Feindt, 2010, p. 65, italics added)... The vortex or suction below the craft ... that lifts water, dirt, people, and cars is a byproduct of the field, just as the turbulently flowing air behind an aircraft propeller, known as a prop-wash, is a byproduct of the propeller's rotation (Feindt, 2010, p. 80).

Toroidal electric energy fields are both ubiquitous and *fractal* throughout nature at all scales, including galaxies and stars, as well as the Earth.

The body of the sun is an enormous [plasma] torus. There are filaments originating from the sun that connect matter, energy and information out and back to every planet in the solar system. These coronal filaments [Birkeland currents that form enormous tubes in space] have been known for decades, but only recently it was discovered that they encompass our entire solar system. This [solar] flux tube structure was verified ... by the MMS [NASA Magnetospheric MultiScale] satellites that passed through such tubes (Clarage, 2024, see also Scott, 2015).

We next consider numerous observations of the “flight” and energy characteristics of UAP from the best available evidence, including visual/auditory sightings, human electrostatic perception, Navy Advanced Targeting Forward-Looking Infrared (ATFLIR) as well as private and commercial aircraft videos, ground radar, photographic records and aircraft equipment malfunctions. We include analyses of these thoroughly documented UAP cases, providing new insights into their probable energy requirements and flight characteristics.

SECTION II: BEST EVIDENCE THAT UAP SOURCE AND UTILIZE HIGH-VOLTAGE, ELECTRIC ENERGY

INTRODUCTION

Traditional academia has mostly avoided [UAP] research because of the stigma of flying saucers and space invaders. Yet people around the world continue to spot unexplainable objects in the sky. What little research exists tends to rely on firsthand accounts or look for cultural

and psychological explanations, which limits the ability to analyze patterns over a large area (ScienceDaily, 2024).

The following contradictory British report serves much the same purpose as its earlier American counterpart, the Condon UFO report of 1968, that is, it intentionally diminishes the significance of arguably the most important phenomena in human history.

That UAP exist is indisputable. Credited with the ability to hover, land, take-off, accelerate to exceptional velocities and vanish, they can reportedly alter their direction of flight suddenly and clearly can exhibit aerodynamic characteristics well beyond those of any known aircraft or missile—either manned or unmanned (Defence Intelligence Analysis Staff, 2000).

As a virtually inertia-less charged gaseous mass, the UAP will always be able to maneuver (much more rapidly than any aircraft) into a position demanded by the influence of the balance of electrical charges pertaining at the time (Defence Intelligence Analysis Staff, 2000).

Yet this 2000 British report goes out of its way to ultimately dismiss UAP sightings as conventional and prosaic. It concludes “There is no evidence that ‘solid’ objects exist which could cause a collision hazard” (Defence Intelligence Analysis Staff, 2000). Their report amounts to a false narrative—as the body of evidence detailed below (Cases 1–2 & 4–10) identifies physical, structured UAP surrounded by intense electric fields and plasmas.

The phenomenon known today as Unidentified Aerial (or Anomalous) Phenomena (UAP) began in the modern era during WWII as strange, seemingly autonomous lights mirrored the flight patterns of Allied and Axis bombers and fighter aircraft. In common parlance, they came to be known as Foo Fighters. In the ensuing decades, UAP sightings have been witnessed by numerous credible civilians as well as by highly trained observers, including military pilots and other personnel, commercial pilots, astronauts and scientists around the world. UAP present themselves in several classifications of different forms, such as lenticular, triangular and enormous “V” (chevron) shapes, often displaying their own internal or plasma-induced external luminosity. They display other measurable physical effects captured as radar tracks, analog/digital photos and

electronic equipment malfunctions (Cooper et al., 2017b, 2017c, 2019; Meessen, 2000). UAP include physical objects that demonstrate flight capabilities well beyond any current human aerospace technologies.

Our inquiries into solar plasma energy technologies compel us to combine this research with *sound observational* and *evidence-based studies* of UAP. Meticulous analyses of observational *and* data-driven cases have been one of the most practical ways to study the physical aspects of UAP. The most reliable sightings of UAP *and* natural atmospheric electrical vortices include radar and doppler tracking, photographs, video recordings, electrical equipment malfunctions, alterations in human perception and physical sensations, especially extremely high-voltage electrostatic charges in the surrounding atmosphere (Haines et al., 2006). Case studies of such observations play an important role in understanding both UAPs and *their relationship to natural atmospheric electrical processes*, especially supercell vortices. Highly reliable observational and technical recorded evidence support the authors' position that what appear to be advanced technologies having to do with UAP may well be relatively simple but overlooked plasma-based, electromagnetic and electrostatic technologies.

UAP in many instances are described as various types of technologically advanced structured aerospace craft. Such craft *appear to defy* our known laws of physics and propulsion, seeming to utilize some form of anti-gravity. But this may prove not to be the case (Hill, 1995). Closer examination of lenticular, triangular and chevron-shaped classes of UAP reveals *advanced propulsion technologies involving high-voltage, plasma-generating drive mechanisms*. A large body of reliable observational and technical evidence gained by trained observers indicates they more likely *maneuver in Earth's atmosphere by utilizing a simple form of high-voltage, electrostatic, propellant-less propulsion*—allowing these craft to push off the locally ionized atmosphere. Our analyses of the following well-documented UAP cases provide insights into their *energy requirements and flight characteristics*. These cases are the among the most reliably documented evidence established between 1980 and 2024 that support our position.

Case 1: New Zealand Navy Frigate USO Encounter

In February 1987 HMNZS Southland (Royal New Zealand Navy, non-nuclear, Leander class Frigate, anti-submarine cruiser) was involved in daily exercises *designed specifically to draw USOs in from the Pacific Ocean*. As it turns out,

they were successful in their ambitions. On this occasion Southland was followed underwater by a very large USO, approximately 150 feet wide and 800 feet long, at about 20 kilometers distance (nearly as large as three American football fields). This massive USO closed the 20 km distance to the Southland in 25 to 30 seconds, which gives a minimum speed of 1,492 mph and a top speed of 2,980 mph [under water]. (The top speed of the US spy plane, the Blackbird SR71, is Mach 3.3 at 2,193 mph, requiring 17 minutes to reach 80,000 ft. altitude.) The USO acted as if it did not interact with the water. The USO went *under* the Southland ship and simultaneously *disabled all onboard power*. The batteries were completely drained. Southland remained adrift and out of communications with no power available for radios; they were unable to call for help for four hours (Knuth et al., 2023). While the Southland was drifting out of power, the sonar still functioned, allowing the crew to ascertain the size of the USO. This case was presented by Knuth during his 2023 lecture on the physics of UAP.

We conclude this case with the following summary statement by Feindt who advocates for an electric energy source for USOs.

In several of these cases though, electrical energy is mentioned, and in numerous other reports electromagnetic effects are seen or felt by witnesses.... If as observed, UFOs have no propellers, no jets or rockets or other propulsive-force engines, the only other source left for us to consider is electricity (Feindt, 2010, p. 109).

Case 2: Department of Defense Release of 2004 Navy UAP Encounters

On December 16, 2017, in an unprecedented disclosure, the U.S. Department of Defense confirmed a leaked video showing an F-18 fighter jet video of a UAP. The object was originally sighted and tracked 13 years earlier (2004), following a week of radar tracks on-board the aircraft carrier USS Nimitz (Cooper et al., 2017a, 2017b, 2017c). We now have publicly accessible, direct recorded *military* images and real-time, voice-recording narratives during the presence of UAP incursions.

Visual examination of the UAP video image captured by an F-18 fighter jet allows us to gain useful information about the physics involved. The individual video frame (Figure 3a) reveals the following evidence that the UAP

may have been powered by a high-voltage, propellant-less propulsion system that generates oxygen/nitrogen plasmas—the two most abundant gases in Earth’s atmosphere:

- The edges of the craft are fuzzy and indistinct, characteristic of a high-voltage electric field generating a plasma that creates a water vapor and hydroxyl (OH)/hydroperoxyl (HO₂) cloud surrounding the object. Such plasmas are frequently witnessed creating clouds of condensed water vapor in close proximity to UAP “disks” (Hill, 1995). Water vapor clouds obscure detailed outlines and surface structures of such craft—as they maneuver within their own *self-generated clouds, mist or fog*. This is consistent with NASA lightning aircraft research where the majority of observed lightning strikes occur while the research aircraft is inside a cloud, but not necessarily near any thunderstorms (Rakov & Uman, 2003).
- Bipolar jets appear to be present at both the top and bottom of this UAP. As observed in the study of plasma cosmology (Alfvén, 1981; Scott, 2021; see also Peratt, 1992), we may be witness to a plasma energy field that resembles—in form and function—immense bipolar jets emanating from many galaxies as well as from individual stars. Plasma processes are fractal, that is, similar in form, ranging from the microscopic to the cosmic scale.
- The lower jet emanates from an apparent vortex at the bottom of the craft. This vortex is visually similar to vortices that emerge Earthward from the top (corona) of tornados (Figure 3b), land spouts and waterspouts, as the Navy image graphically illustrates. In this infrared image the cloud of plasma/water vapor extends down into the vortex. Armstrong and Glenn (2005a, 2005b, 2006) discuss a similar process related to tornado genesis.
- Extremely high-G accelerations were witnessed, which are not technologically possible for any conventional aerospace craft. Furthermore, 100-g accelerations would crush a jet aircraft as well as any living organisms inside the craft. We must therefore consider the possibility that extremely high-voltage UAP energy and motion “flight” technologies may include the ability to dampen or eliminate the effects of inertia on any physical matter encapsulated within the high-voltage electric fields (solitons) of their powerplants.

Disc-shaped UAP’s often possess three hemispherical-shaped pods protruding from their undersides (Fowler, 1979). These are not landing pads, but instead appear to be connected to the power supply (Smith, 1961). They are hypothesized to be designed for maneuvering the craft along all three x-y-z axes—in our atmosphere for pitch, roll and yaw control (Smith, 1961). But these UAP *do not maneuver via aerodynamic flight* (Hill, 1995). A 747-size, triangular-shaped craft (Belgium, 1989–1990) also displayed three, large hemispherical domes on its underside, near each of its 3 corners. It is the authors’ belief as well as Meessen’s that the domes serve as high-voltage, electric force-field generators that allow these craft to remain aloft and to maneuver indefinitely *electrostatically*, as well as to undergo extraordinarily high-speed maneuvers with little, obvious energy output (Meessen, 1973).

Case 3: Multiple Aircrew UAP Sightings over the Oregon Coast

On Saturday, December 7, 2024, Seattle Air Route Traffic Control Center (Seatac Airport) received a query from United Airlines flight 1596 about strange lights in the sky over the Oregon coast. This is the first major case of multiple *commercial* airline crews and a regional air traffic control tower countenancing the presence of UAP.

The real-time radio exchanges by these *commercial* airline pilots may be as significant as the audio recordings of the 2004 UAP interchanges released and confirmed by the U.S. Navy in 2017—the USS Nimitz case, the first major *military* public disclosure. The still photos and videos from the Oregon aircrews are, however, unremarkable as they most likely used cell phone cameras to record the UAP from a distance of 20 miles. (See Watters below for a complete list of desirable UAP observational instrumentation to detect types of emissions data.) The following excerpts originate from the original audio recording on LiveATC.net, a website that publicly broadcasts air traffic control transmissions.

Horizon Air flight 2207 (Seattle, WA to Bozeman, MT): Kinda some interesting looking lights out there. Not satellites but maybe aircraft?... it looks like at least 4 though. Something flying. It’s not satellites because they’re changing direction. It’s strange looking.... I’ve seen this a few times over the last month in the same area.

United Airlines flight 1596 (Denver, CO to Eugene, OR): There's *lots* of movement out there.... We're seeing 3 or 4 targets. They're all altitudes up and down, it's pretty crazy.... They're shooting way up. We think maybe up in the 50's [50,000 ft. altitude].

Medevac Pilatus PC-12 NC Air Ambulance Life Flight, pilot Joe Buley: It's 2 to 3 o'clock ... from our position. Looks about 20 miles going in circles.... Moving in like ... a circle like a corkscrew pattern.... I'm actually showing them on TCAS [Traffic Alert and Collision Avoidance System: top and bottom antennas scan the protected airspace around aircraft].

Seattle Center to Medevac: Descend at pilot's discretion, maintain 14,000.

Medevac: Just had another one show up about my 1 o'clock, about 1,000 feet high, zipping towards us, and then back out towards the ocean. It's red in color, *moving at extreme speeds*.... I don't even know how to describe how it's moving.

Seattle Center to Medevac: You are cleared to maneuver as necessary left and right to avoid the UFO out there, and all the reports you've given us are good information, appreciate it.... Any chance you are able to film any of that?

Medevac: We're trying right now, it's weird....

Seattle Center to Medevac: Any chance I could throw you my number and if you get a video of it or a picture you can send it this way(?)

Medevac: I have my med crew in back trying to film it too. They're watching the same thing I'm watching up here.... I'll pass along what's going on off to the right of my aircraft. It's still continuing, it's a red—we're only seeing one—it's a red, circle-shaped object that's zipping out over towards the ocean.... at a rapid rate of speed *faster than anything I've ever seen move*. I'm trying to get a video of it.

Seattle Center to Coast Guard 6063 Helicopter: I know you guys are probably on search and rescue out there, just wanted to give you a report up ahead about 20 miles there's been several reports now of UFO activity moving what appears to be supersonic speeds.

Seattle Air Route Traffic Control Center to Alaska 1100 (Santa Anna, CA to Portland, OR): We've had reports of it at 14,000 and then it'll shoot up as high as flight level [55,000 ft.] as the highest report in kind of a corkscrew pattern moving at what appears to be supersonic or even *hypersonic speed*.... It shot back out over the water at very, very, very fast speed, and then we also had an aircraft at high altitude that was actually about 39,000, and *it just shot up, past them* and in front of them, and went way up, then kind of corkscrewed back down.... *We don't have anything on our radar*.

Horizon Air flight 2065 (Los Angeles to Redmond, OR): Just wanted to verify, is there ... UFO's out there tonight? [In questioning voice]

Seattle Center to Horizon 2065: Yep, had quite a few of them now out over the coast, trying to figure it out.... But yeah, little unidentified flying objects, appearing to move at hypersonic speeds, and just with precision and turning, and we're all a little perplexed (LiveATC, 2024, italics added).

This very recent cluster of sightings by multiple professional pilots and crews, provides a significant non-instrumented record of hyper-fast UAP in commercial airspace. These events are likely the first multi-aircrew sightings to describe similar lights and their anomalous motions through the atmosphere; and to have the situation openly discussed publicly, in real time, with air traffic controllers. We are confronted with objects displaying "flight" or motion characteristics far beyond the flight capabilities of any known type of existing aircraft. The FAA confirmed that a pilot did report seeing unidentified lights on December 7, 2024.

Commercial airliners and air-ambulances clearly are not equipped with specialized tracking and recording equipment such as visible light and infrared cameras, as are military aircraft. Detection in this remarkable new UAP

case consisted of visual observations, in ambient night-time lighting conditions, with still-frame, video cameras and TCAS recordings. TCAS data is typically recorded by flight-recorders (black boxes) allowing for later analysis of TCAS flight path incursions. These UAP did not show up however on Seattle radar. One explanation could be that if these UAP are plasmas, or are airborne craft surrounded by plasma fields, they would likely absorb rather than reflect the radar transmissions, and hence would not be detected (Hill, 1995, p. 67). This audio file represents a long overdue increased level of openness by pilots and air traffic controllers as they discuss taking specific evasive measures to avoid collisions with UAPs (or “UFOs”) on an open public access website.

Case 4: Chicago O’Hare Airport UAP

After retiring from 43 years as a research scientist for NASA and related companies, during which time he interviewed numerous astronauts and pilots about their UAP encounters, Richard Haines, Ph.D. founded the National Aviation Reporting Center for Anomalous Phenomena (NARCAP)—to investigate sightings of UAP and their potential impact on air traffic safety. On November 7, 2006, one of most significant sightings in the modern history of UAP occurred directly above Gate C-17 at Chicago’s O’Hare International Airport, at the time the busiest airport in the Western hemisphere. Dr. Haines’ NARCAP team of scientists, engineers and consultants generated a 154-page scientific report on the sighting. Some of the most salient facts concerning the O’Hare case and their relevance to electric-powered UAP are described here.

A metallic-appearing lenticular (oblate spheroid) UAP hovered stationary at approximately 1,800 ft. altitude and 100 ft. below a dense cloud deck. Upon its departure the UAP powered-up its “engines,” as would any conventional jet aircraft increase its power to gain altitude. This action resulted in an increased intensity of the rotating, physiologically discernable, electrostatic field emanating from the craft.

[One witness] was sure that the UAP was round and rotating ‘pretty fast’.... The object ‘shot off into the clouds’ about two minutes after *his* initial sighting.... We estimate the minimum volumetric energy density required to cause such in situ evaporation [of water-vapor clouds] as approximately 9.4 kJ/m³, in the form of heat (Haines et al., 2006, p. 7; see also, p. 47).

One of the most significant facts related to this event had to do with the observation of the craft by witnesses in a parking lot located approximately 1,100 ft. from a position directly beneath the craft (approx. 2,100 ft., line-of-sight from the UAP). After viewing the object for approximately 6 minutes, it abruptly powered up and hyper-accelerated vertically, instantaneously achieving an extraordinary velocity and leaving a cylindrical hole in the cloud deck above its previous position, that remained for 6–8 minutes. *This is striking confirmation of a solid material object that generated an intense and extended electrostatic field around it.*

Just prior to the UAP’s departure, numerous witnesses in the parking lot reported feeling intense static electricity in the air. This is precisely what people feel beneath highly electrified storms, including supercell thunderstorms (Whitney Zone, 2005). If appropriate precautions are not taken, these individuals can be struck by lightning from the storm as they effectively become human lightning rods (Case 6). “The [O’Hare airport] employee stated the object was 500–1000 feet above the ground, rotating, and metallic in nature with no lights.... the next aircraft into that gate was experiencing electrical problems” (Haines et al., 2006, p. 151). “It hung there moving really slightly from side to side for about another minute when we all felt our hair stand on end, and it just shot straight up into the clouds faster than anything we ever seen (sic)” (Haines et al., 2006, p. 139).

It is noteworthy that this lenticular-shaped, apparently metallic hovering craft was witnessed just below the cloud deck and *not* under clear-sky conditions. Additionally, witnesses in the car park felt the powerful electrostatic charge immediately before it departed vertically with extreme acceleration. Compare their experience to the following electrified storm experience.

A Mt. Whitney hiking website related the dangers and physical sensations felt by hikers who were at grave risk of being struck by lightning. Their descriptions bear a striking resemblance to reports by eyewitnesses of the Chicago O’Hare UAP. However, the O’Hare UAP and other similar craft would presumably be designed specifically *not* to initiate electric (lightning) discharges. *They would require a smooth continuous flow of DC electrical current from the atmosphere, as occurs inside a tornado vortex plasma sheath.* Consider the following mountain hiker testimonials.

The conditions 1/4 mile from the summit that day were dangerous. Lightning strikes every 20–30 seconds. Wind gusts so strong it was nearly impossible to stand upright. The hair

stood up on the arms of the man hiking directly in front of me.... When the hair stands up on your arms or neck, you are in trouble (Whitney Zone, 2005).

About 90 minutes later, the second group met up with us and recounted the static electricity was so great that all the hair stood out like halos on all parties (quite dramatic on the women hikers) and tingling electrical sensations could be felt between the bottom of their foot and their hiking boots! Now just envision these hikers holding on to the cables if lightning struck. Apparently, this happens quite often on Half Dome (Whitney Zone, 2005).

When the O'Hare UAP powered up just prior to its departure, the static electric field extended out at least 2,100 ft. to the car park and was strongly felt by the group of astonished witnesses. A simple calculation provides evidence that the UAP generated an extensive high-voltage electric field around it. The volume of a sphere is defined as $\frac{4}{3} \pi r^3$, where "r" is the radius of the sphere and r^3 is the radius cubed. $\frac{4}{3} \times \pi = 4.188$ and in this UAP case $r^2,100$ ft. $r^3 = 2,100^3 = 9,261,000,000$ ft³ (cubic feet). The total volume of a sphere encompassing the UAP-generated static electric field therefore was on the order of 38,785,068,000 cubic feet. There are 3,280.84 feet in one kilometer and 1,640.42 ft in one-half kilometer. Applying the same formula for the volume of a sphere we obtain 18,490,761,270 cubic feet. We see then that the UAP generated a presumably spherical (or toridal) static electric field, felt by numerous people, equal to at least 2 cubic kilometers in volume. The static field may have extended well beyond the position of the onlookers in the car park. Apparently, none of these witnesses was harmed by the static electric UAP field. When the craft departed, it did so with extreme acceleration. Within the context of known physics, any biological entity inside such a craft would have been killed instantly from the extreme imposed g-forces.

As the UAP departed, it created a vertical, hole in the cloud cover that remained 6–8 minutes. "This is suggestive of a super-heated object or otherwise radiated heat energy on the order of 9.4 kJ/m³" (Haines et al., 2006). This indicates that the UAP's powerplant must have generated an intense ionizing field around the UAP that "burned off" the water vapor in a cylindrical hole through the cloud cover. Several eyewitnesses reported seeing a fog (a cloud comprised of water vapor) at times around the craft hovering

below the cloud deck, making it difficult to discern the craft's edges. The UAP thus generated its own H₂O/OH cloud from *intense, possibly pulsed, electromagnetic fields*. This class of UAP appears to interact strongly with the surrounding atmosphere, potentially to gain physical support to remain aloft.

One eyewitness stated, "There must have been hundreds of witnesses. I got some positive responses from about three other guys I work with." He also offered that the actions of the UAP seemed "very deliberate given the weather conditions and the airport operations at the time." He wrote, "I am still in absolute wonder and amazement at what I saw that afternoon" (Haines et al., 2006, p. 10).

Both of these flight crewmen saw the object for about five minutes. Both opened their cockpit side windows and looked up at the object. The First Officer, age 39 with over 13,000 flight hours, said the UAP was a dirty aluminum color, very stable and without any optical distortions near it. It was perfectly round and silent (Haines et al., 2006, p. 16).

When our hair stood on end I'm certain it was just a couple seconds before it took off into the clouds like there was some build-up of something. It felt like the static electricity of pulling off a sweater (Haines et al., 2006, p. 140).

A high-voltage electric field was apparently generated by the object just prior to its departure (and to a lesser extent during its 8-minute sustained horizontal hover). The O'Hare event is one of the best documented in the modern history of such sightings. One principle takeaway is the remarkable consistency this case shares with the other well-documented cases described below concerning high-voltage electrostatic fields.

Case 5: Bentwaters Air Force Base, Rendlesham Forest UAP Landing

Another of the best-documented cases in the modern era occurred at Rendlesham Forest, Bentwaters AFB Suffolk, England (December 26–28, 1980). As many as several hundred Air Force personnel and civilians witnessed a number of distinctive types of UAP over a three-day period. Retired U.S. Air Force Sergeant Jim Penniston describes physically touching and photographing a solid triangular craft (9 ft. wide × 6 ft. high).

A review of this case reveals consistency with naturally occurring electric atmospheric phenomena. Note below that Sgt. Penniston describes sensing an electrostatic field emanating from the pyramidal-shaped object, although it remained stationary on the ground. We can thus conclude that its power system remained operational in power-down mode. We continue with further first-hand descriptions of high-voltage electric fields, flaming plasmas, equipment malfunctions and silent, hyper-fast UAP departures with no apparent air displacement.

“All four men’s radios began to malfunction ... something began to interfere with communications, which seemed to be working over a short distance” (Pope et al., 2015, p. 5). Military radios with numerous backup systems failed due to the atmospheric plasmas generated by these ultra-high voltage UAP. The Rendlesham witnesses lost radio contact with their base commanders, possibly indicating that the strong electrical field surrounding the craft created a plasma that blocked radio transmissions. The Light-All emergency lamps had also failed to work all night, only lighting up when anomalous blue lights “flew” by them. This indicates that the Light-Alls had mercury or other vapor inside that fluoresced from the high-voltage electric fields generated by the blue lights.

On November 12, 2007, Larry King of CNN held interviews prior to a major Bentwaters/Rendlesham press conference in Washington DC.

Lt. Colonel Halt: I saw some lights I couldn’t explain—very unusual lights. I don’t mean just a light like a bulb. I saw something that was oval-shaped—maybe 10, 12, 14, 16 inches across. It had a black center. It sort of winked and it appeared to be dripping something like molten metal off it.

Larry King: And then it took off, right?

Sgt. Jim Penniston: After 45 minutes, then *it powered up with lightning* and went to tree level and, took off....

Larry King: Did it make a sound like an engine?

Sgt. Jim Penniston: Absolutely no sound and no air displacement.

Larry King: Just up?

Sgt. Jim Penniston: Up and gone (King, 2008, italics added).

Cool plasma blowing off of an electrostatically-powered aerospace vehicle could appear virtually identical to flames, or some “dripping molten metal,” depending on the electromagnetic frequencies emitted by the UAP. Penniston describes physically feeling a similar intense electrostatic energy that the car-park witnesses of the 2006 O’Hare incident described, just prior to that UAP’s hyper-accelerated departure. Many other airmen reported intense static electricity in the air around these UAP. Intense static electricity is also precisely what is described by people beneath thunderstorms who are in imminent danger of being struck by the electrical discharge of lightning. Eyewitnesses have strongly sensed electrostatic fields generated by UAP high-voltage fields that abruptly dissipate as the UAP departs (Haines et al., 2006; James, 2018; Walton, 1996). This is useful information.

The air was filled with static electricity and the hairs on their arms and on the backs of their necks were standing on end. It was difficult to walk properly and they described the experience as being akin to wading through deep water (Pope et al., 2015, p. 6).

They also describe mists and fog around the observed UAP. “There was an illuminated patch of mist or fog that seemed to pulsate, as if there was an indistinct object of some sort present” (Pope et al., 2015, p. 127). The ground fog witnessed by many airmen indicates the presence of high-voltage electric fields. Penniston additionally experienced a period of missing time including a sense of “time slowing down.” These electric fields appear to slow down the physical body as well as provide a *felt sense that time itself somehow slows down*. Within the electric field, Penniston and others also describe an absolute silence as auditory sounds around them and inside the bubble were completely dampened. Absolute silence is frequently described by eyewitnesses of powerful electric storms just prior to the onset of a tornado.

Burroughs, Penniston and Halt further describe witnessing striking red and orange phenomena around the craft that can be caused by high-voltage electric, field-induced atmospheric plasmas, both on the surface of craft and in the surrounding air. “After a few minutes this object began dripping something that looked like molten metal” (Pope et al., 2015, p. 41). “[She] had seen a fiery red/orange object descend slowly into the forest. She reported that it had

been surrounded by an eerie blue/white corona" (Pope et al., 2015, p. 29). "The object was between us and the farmers house. The reflection from the object was like a burning blazing fire on the farmers house" (16:00) (Coulthart, 2024).

The object was likely shedding a cool, red-orange plasma that can appear very much like blowing fire flames, or like dripping molten metal from a distance (Feindt, 2010, p. 397). Ionized oxygen emits light in the red and orange bands of the visible spectrum (~400–510 THz) when subjected to high-voltage electric or magnetic fields. In his book and interviews, Penniston describes the presence of an electrified "bubble" with discernible boundaries—surrounding the craft that he touched and photographed. Penniston further describes his experience in a video interview.

Over the canopy of the forest was a white, bluish gray bubble (12:20). I could feel like static electricity on my face, skin and hair (14:00). My movements became labored ... like walking through a pool of water waist deep. The "sphere of influence," the immediate area around the craft measured maybe fifteen feet like a bubble.... weird things happened inside there (16:52). There was no sound. I could not hear the click of my radio when I did it (25:34). When [the UAP] rose up there was no air displacement at all (Mintel & Birnes, 2019).

The light had dimmed somewhat and formed a kind of grey/white/yellowish "bubble" around the outline of what appeared to me to be a dark mechanical object (p. 56). I also noticed a blue halo of light surrounding the white light being projected from the object (p. 60). I could see that the dome-like, light or 'energy field,' which seemed to be generated from the craft somehow, enveloped the area possibly ten to fifteen feet out around it [earlier it had been 100 ft. in diameter].... It seemed this colored light activity within the surface of the craft, and which seemed to be generating the larger white dome, or 'bubble' of light around it was slowing down (Penniston & Osborne, 2019, p. 65).

There was an area of about fifteen ft. which surrounded the outside of the craft.

This area I will call the *bubble*. For within the bubble, static electricity pulsed upon my clothes, skin and hair. Also, an appearance of slowing

time. *The air seemed dead, not transmitting any sound* (Pope et al., 2015, p. 232 italics added).

The bubble described by the airmen had an electrical, electromagnetic, acoustic and possibly a biological dampening effect. Hundreds of airmen observed these UAP/craft depart instantaneously. "It was gone in the blink of an eye. In my logbook ... I wrote 'speed impossible.' Over eighty Air Force personnel, all trained observers ... witnessed the takeoff" (Pope et al., 2015, p. 67). This case provides further evidence that our scientific understanding of *natural, atmospheric electric phenomena, including GRGs and lightning discharges, may be applied to UAP power sources and their hyper-fast propulsion systems*. During another interview Burroughs further commented on his Rendlesham experience. According to Retired USAF Airman First Class John Burroughs, "There was static electricity in the air."

U.S. Congressional Representative Merrill

Cook: "You were there when the craft took off? There was no sound?"

Jim Penniston: "*The craft generated more lightning, and that concerned me. It rose off the ground. It hovered and then took off in the blink of an eye. One of the things that stopped was the static on the clothes. That did stop. It did it with silence*" (National Press Club, 2013, italics added).

As observed by Penniston, a UAP that "powered up with lightning," confirmed, as in the O'Hare case, that electrical discharges and electromagnetic effects were witnessed as both craft hovered, as well as when they departed with apparently instantaneous and extreme velocity. Furthermore, Penniston observed the following energy dynamics of the UAP that are consistent with utilization of the Earth-ionosphere electric circuit (Scott, 2021).

Penniston: I entered the *bubble field* [the area immediately around the craft] first... the area or field seemed dead ... a dead silence (p. 8)... When we came up on the triangular craft there were blue and yellow lights *swirling around* the exterior as though part of the [UAP's] surface and *the air around us was electrically charged* (p. 66)... It was gone in the blink of an eye.... Over eighty Air Force personnel, all trained observers

assigned to the Eighty-First Security Police Squadron, witnessed the [UAP] take off (Pope et al., 2015, pp. 66–67, italics added).

Significantly, Penniston and others describe a “bubble field” surrounding the triangle-shaped craft, as this is precisely the descriptor used by theoretical physicists to describe the warp drive energy field that would encapsulate a warp-drive-equipped craft (Alcubierre, 1994; Beck & Colli, 2025a; Bobrick & Martire, 2021; Lentz, 2021).

Note that on the night of August 13–14, 1956, 24 years earlier, a separate UAP-event, known as the Lakenheath-Bentwaters Incident also occurred at Bentwaters AFB, described in the 1968 Condon UFO report (Condon, 1968). A third Bentwaters UAP case occurred several years following the 1980 events. The next case of Travis Walton also highlights a low-hovering UAP that generated a high-voltage electric field and yellow atmospheric plasmas and “haze.”

Case 6: Travis Walton’s High-voltage UAP Encounter

On November 5, 1975 in the Apache-Sitgreaves National Forest near Turkey Springs, Arizona, Travis Walton appears to have been accidentally electrocuted when he approached too close to a low-hovering UAP, later described as a large, lenticular-shaped craft or “saucer.” Several co-workers described the incident as a loud electrical “snap” that sent Travis Walton flying backwards through the air. “The soft yellow haze from the craft dimly illuminated the immediate area [beneath the craft] with an eerie glow. Under the weird light, the encircling forest took on bizarre hues that were very different from its natural colors” (Walton, 2024, p. 1).

As observed by witnesses in the preceding Rendlesham case, ionized atmospheric oxygen emits red or green light, but under certain conditions it can emit pale yellow light ($\sim 5.1\text{--}5.5 \times 10^{14}$ Hz; wavelengths 454–585 nm). The “soft yellow haze” indicates the presence of a high-voltage electric field generating the oxygen plasma at two frequencies.

Suddenly I was startled by a powerful, thunderous swell in the volume of the vibrations from the craft. I jumped at the sound, like that of a multitude of turbine generators starting up. I saw the saucer start wobbling on its axis with a quickening motion, in a pattern like the erratic spin of an unstabilized top [“silver dollar

wobble”]. The same side continued to face me as the craft remained hovering at approximately the same height while it wobbled (Walton, 2024, p. 2).

I ducked into a crouch when a tremendously bright, blue-green ray shot from the bottom of the craft. I saw and heard nothing. All I felt was the numbing force of a blow that felt like a high voltage electrocution. The intense bolt made a sharp cracking, or popping sound. The stunning concussion of the foot-wide beam struck me full in the head and chest (Walton, 2024, p. 2).

“I do know one thing. It sure looked like he got hit by lightning or something!” [co-worker and eyewitness] Dwayne returned. “I heard a zap—like as if he touched a live wire!” (James, 2018). The “tremendously bright blue-green ray” corresponds to ionized atmospheric nitrogen and possibly argon—further evidence of a brilliant, atmospheric electric discharge reminiscent of the Rendlesham Forest blinding flash that immediately preceded a UAP materializing seemingly out of thin air.

I really think it was an accident. I don’t think they were firing at me. I think it was an effect of the propulsion. They were powering up to leave and just get away from us. And I raised up and got too close. I think some kind of energy just found its way to ground.... it was sort of an accident of circumstance (James, 2018).

Walton’s “some kind of energy [that] just found its way to ground” was apparently a powerful electric discharge, effectively a controlled albeit accidental lightning discharge. High-powered multiple pulsed lasers firing synchronously have been tested successfully to guide lightning discharges from storm clouds to the ground for research (Jhaji et al., 2014). Such an electric discharge, confined to the laser-generated plasma channel, would visually appear as a beam.

There was some kind of electrical charge building up.... [the craft’s surface] looked like metal coming out of a blast furnace. A blast of energy came out of the craft. When I stood up I closed the distance [to the craft]. There was a charge buildup in this thing that jumped to ground through my body (James, 2018).

Mike told them he thought he had briefly seen the outline of the golden disc through the trees to the south. It had raised itself vertically to treetop level and streaked away toward the northeast at incredible speed (Walton, 2024, p. 4).

The high-voltage field surrounding the UAP would have been most intense at its outer surface. Ionized oxygen emits red and orange light depending on the frequency of the high-voltage radiation. This cool plasma can create the appearance of flames blowing or molten metal dripping. In fact, during a UAP incident on July 25, 2007, in Warwickshire, England, five silent “flaming” objects in formation were witnessed by 100 people in the night sky for about a half-hour:

Chef Kern Griffiths said: “I saw five lights, we all thought they were hot air balloons at first because the glowing spheres looked like a burst of flames. But I couldn’t see any outline of the balloon itself and they were travelling far too fast ... and there were these bright dots fizzing across the sky” (Daily Mail, 2007).

The fiery glow is well-known in ufology as an evening event because the rotating field of the UFO is ionizing the air in contact with it, unintentionally producing the image of a flaming body as a byproduct of its operation (Feindt, 2010, p. 397).

What Griffiths and others witnessed from the several UAP was an “air ionization flare up” (Hill, 1995, p. 283), otherwise known as a deceleration inertial reaction force. Highly charged electric thunderstorms cause blue “flames” (streaming electrons) to be emitted by sharply pointed evergreen needles from trees beneath the storm (Jenkins et al., 2022). This phenomenon is an electric corona known for centuries as St. Elmo’s Fire, going back to sailing ships’ masts emitting the “fire” during electric storms. The electrically charged UAP, hovering overhead, is electro-dynamically similar to a *supercell electric storm*. It generates millions of blue evergreen needle coronas that *stream electric current up to the UAP*. When Walton walked into the UAP’s extended high-voltage electric field, he became a conductive element in the electric circuit and inadvertently triggered an electric discharge between ground and UAP. This “lightning” discharge struck Walton as his body became more conductive than the surrounding trees.

Streaming evergreen coronas would normally prevent such a sudden electric discharge (Jenkins et al., 2022).

Continuously pulsing, storm-top blue jets and evergreen needle St. Elmo’s Fire are both *ionized plasma*—(blue coronal discharges) streaming between Earth and ionosphere. Figures 5a and 5b are graphic images of newly recognized elements of the terrestrial electric circuit we propose as a new electric energy supply for “warp drive-equipped” UAP, as well as other more conventional aerospace craft. Electrically charged, atmospheric nitrogen glows blue, giving blue jets their signature blue color. In 2015, European Space Agency astronaut Andreas Mogensen, onboard the International Space Station (ISS), video-recorded a 160-second blue jet (blue starter) plasma fountain emanating from the top of a storm located above the Bay of Bengal— that pulsed 245 times (Neubert, et al., 2021) (Figure 5a).

The observations show a multitude of blue, kilometer-scale, discharges at the cloud top layer at ~18 km altitude and a pulsating blue discharge propagating into the stratosphere reaching ~40 km altitude.... Its propagation is not well understood but is thought to be mediated by a *multitude of streamers* emitted from the leader tip. A strong negative cloud-to-ground lightning at 167.5 kA occurred 1.16 s prior to the pulsating blue jet and may be related to it ... but no clear correlation is observed.... A weak screening layer may favor corona-type discharges, observed as the multitude of kilometer-scale blue discharges (Chanrion et al., 2017, italics added).

During 160 seconds of video observation this storm served as a conduit for continuous, pulsed streaming of electric plasma energy between ground and stratosphere. After 160 seconds, the ISS’s orbit carried it out of visual range of the blue jet fountain which may have continued for some minutes.

Travis Walton was impacted by an accidental electrical (lightning) discharge from a UAP’s high-voltage electric field. Notably, unbeknownst to Walton, the craft likely generated extreme amounts of OH and HO₂ radicals that are important to a discussion of Sun-Earth electric energy and tornado genesis. This UAP plausibly was encapsulated within an extremely high-voltage, self-dampening, electric field that extended outwards for hundreds of yards—and to the ground. The air boundaries of such an electric field would be a *plasma double-layer* (see Feindt). As in the Chicago O’Hare case, the high-voltage electric fields that generate plasmas around such UAP can encompass an

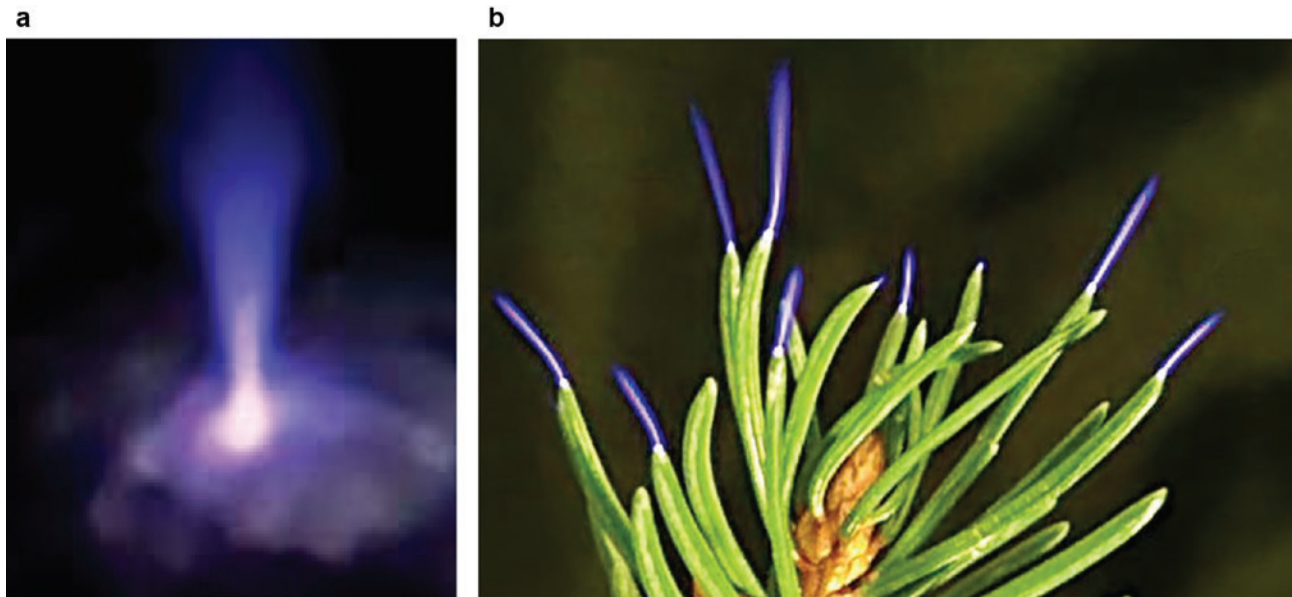


Figure 5. (a) A continuously pulsing blue-starter fountain from the International Space Station video. Image credit: NASA, ESA; Photo: Andreas Mogensen. (b) Streaming coronal discharges from evergreen tree needles (St. Elmo's Fire) when an electrified thunderstorm—or UAP—is positioned overhead. Image credit: J. M. Jenkins.

atmospheric volume of several cubic kilometers. By comparison, “These streamers (blue starters, blue jets, gigantic jets and red sprites, Figure 6) preserve their ability to produce highly active chemical species and can [impact] thousands of cubic kilometer volumes of atmosphere in a single event” (Pasko, 2008; see also Gordillo-Vazquez & Perez-Invernón, 2021).

In close proximity, especially being located directly beneath such a craft, the human body can inadvertently trigger a discharge of the electrical circuit between the high-voltage electric field generated by a UAP and the ground—like a human lightning rod. Similarly, people are struck by discharging storm lightning originating in the storm's GRGs. Lightning kills about 20 people each year in the United States, and hundreds more are injured beneath electric thunderstorms as they trigger lightning discharges (National Weather Service, 2024).

Five days later Walton described his final sight of the large lenticular craft hovering silently nearby—ten feet above the highway. “It shot vertically into the sky creating a strong breeze ... it was almost instantly lost from sight.... The most striking thing about its departure was its quietness” (Walton, 2024).

Case 7: Betty Andreasson's Detailed Drawings of High-voltage UAP Powerplant

Beginning in 1952, Raymond E. Fowler (ret.) served in the U.S. Air Force's Security Service under the auspices of the National Security Agency. He later joined the National

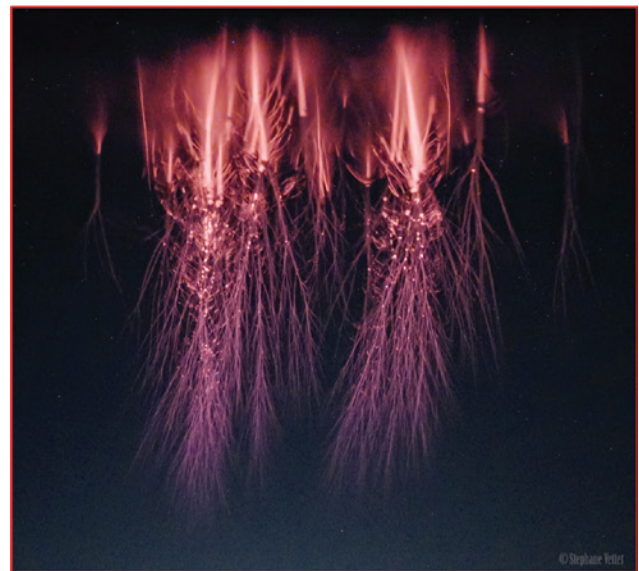


Figure 6. High-definition, high-speed photo of upper atmospheric sprites. Image credit: Stephane Vetter: Permission granted.

Investigations Committee on Aerial Phenomena (NICAP) and conducted on-site investigations of UFO sightings, becoming National Investigations Director for the Mutual UFO Network (MUFON) in 1975. In 1979, Fowler published the first of five books chronicling Betty Andreasson's interactions over decades with UAP-related phenomena. Betty has received no scientific or technical training; however, her exceptional artistic abilities have served as a valuable resource for illustrating the advanced UAP-related technologies that she reportedly witnessed.

Fowler (1990) includes a highly detailed drawing by Betty Andreasson of a large lenticular craft hovering directly above, while transferring energy into a similarly shaped but smaller craft. Her image portrays a total of three such lenticular craft, two of which are stationed on the ground. The larger craft and one small craft are shown exchanging energy as both are engulfed in “steam” or dense water vapor clouds that partially obscure both. In addition, both craft are portrayed displaying numerous large electrical discharges (craft-to-air lightning) into the surrounding atmosphere, extending beyond the dense water vapor clouds. These two related energetic phenomena—water vapor condensation and electrical discharges—indicate that extremely high-voltage, rotating electric fields were involved in both the power supplies and the operation of these craft.

You can hardly see any more though because of the, [pause] the fog [that has been created].... There’s lightning! There’s lightning coming out of that whirling thing.... And it’s coming out of the clouds [surrounding the ship]. You can see streaks of lightning all over the place (Fowler, 1990, p. 78).

But, the thing in the middle is moving *counterclockwise*. And it’s starting to, it’s starting to spin and spin and spin.... It looks like *water* spinning around it.... But, it looks like that spinning is causing *steam* or *mist* all over.... It’s so warm it’s almost smothering.... I feel prickly. All over my body feels prickly [static electricity] (Fowler, 1990, pp. 76–79).

Dr. Beck communicated with Betty Andreasson (personal communication, 2001), as well as with author Raymond Fowler. Andreasson’s revelations about her detailed component and systems drawings of advanced propulsion technologies have influenced the authors’ conclusions about UAP drive mechanisms. For example, Andreasson stated that when she observed the craft’s drive mechanism (powerplant) starting up, rotating slightly, the three large spheres protruding from the underside of the craft began to glow or fluoresce internally “like the sheen of oil on water.” This would indicate that a high-voltage electric field was ionizing gas or gases contained within the spheres, similar to mercury vapor UV glow in fluorescent tubes located within high-voltage electric fields. Andreasson’s

descriptions of fog, lightning, prickly feelings and magnetic rings are consistent with extremely high-voltage energy fields.

Andreasson and others have described in detail the hemispheric protrusions on the undersides of certain lenticular and triangular-shaped craft (Fowler, 1979; Meessen, 2000; Smith, 1961).

Underneath the [UAP] there are three things that people have referred to as landing gear. They’re not landing gear at all, they’re spheres within which a [electrically] charged sphere is rotating, it is spinning on magnetic bearings.... It’s a very simple design in [cross-] section.... And the spheres carry a [electric] charge and they spin on this type of bearing down inside the [sphere]. And the tilt is just simply produced by rotating the sphere a little bit which bends the field (Smith, 1961).

Wilbert Smith was the Senior Radio Engineer at the Canadian Department of Transport in 1950. Holding a master’s degree in electrical engineering, Smith was responsible for the engineering aspects of all matters concerning the use of radio in Canada. In 1957 Smith sat on the coordinating committee of the International Geophysical Year. Project Magnet, the official “flying saucer” investigation by the Canadian government, was headed up for its four years by Smith, ending in 1954 (but was informally active until 1962). Its once *Top Secret memo described a possible new propulsion system powered by the earth’s magnetic field*. Smith felt that this was the principle demonstrated by the UAP.

In his 1961 lecture Smith alluded to an advanced propulsion system “powered by earth’s magnetic field.” Smith’s comments are in line with the authors’ view that *UAP utilize Earth’s natural electric fields as a source of abundant electric energy*. Alfvén’s plasma cosmology details a plasma-dominated universe where magnetic fields arise only from the presence of electric fields (Alfvén, 1981; Scott, 2021). We acknowledge plasma cosmology theory is controversial as it may lack the comprehensive explanatory power and predictive accuracy demonstrated by the standard cosmological framework. However, we contend that a wholesale rejection of plasma cosmology theory is unwarranted; one major recent discovery illustrates that data can be interpreted in different ways.

With respect to these two competing models of the large-scale structure of the universe, the cosmic web, Tornotti et al. (2025) have obtained the first direct high-definition

images of a vast filamentary structure (bridge) connecting two distant quasar-host galaxies. Located in the MUSE Ultra Deep Field (MUDF), and observed with the Multi Unit Spectroscopic Explorer (MUSE) instrument, this new detector is an order of magnitude more sensitive than prior existing equipment, allowing for unprecedented imaging capabilities. “Through systematic comparisons with simulations, we validate the filaments’ typical density predicted in the current cold dark-matter model.” Tornotti (2025) therefore relies on the *dark-matter-dominated universe* model—though dark matter has yet to be directly detected (Gupta, 2024).

The plasma cosmology model does not rely on a dark matter scaffolding, instead inferring an *electric plasma-dominated universe*, consisting of intergalactic-scale, self-organizing, filaments of electrified plasma (Birkeland currents, Scott, 2015) that link together the entire universe of individual stars, galaxies and galactic clusters. Tornotti’s findings, revealed through their spectroscopic equipment, are thus consistent with plasma cosmology’s vast plasma filaments, spanning millions of light years.

Finally, Raymond Fowler’s and Betty Andreasson’s descriptions and detailed drawings dovetail remarkably with the following UAP case of Enrique Castillo Rincon.

Case 8: Enrique Castillo Rincon’s Detailed Drawings of High-voltage UAP Powerplant

In 1995, Dr. Richard Haines interviewed Enrique Castillo Rincon, an electrical and communications engineer from Caracas, Venezuela, about his UAP experiences between 1973 and 1975 (Haines, personal communication, June 1, 2016). When Haines and Beck compared cases, they became aware of striking similarities between Andreasson’s and Rincon’s experiences—despite having occurred 20 years apart, in different parts of the world, and with no prior knowledge of each other. Rincon’s drawings and descriptions (1997) are remarkably similar to Andreasson’s. Rincon’s crystal-based powerplant and Andreasson’s coil-based powerplant apparently utilize similar power supplies and provide similar output. Both of their drive systems consist of double-rotating devices (“wheels within wheels”) that connect to an external energy source to provide abundant electrical energy for the UAP. It became increasingly evident that the basis for both of their witnessed technologies is conventional electrical engineering and plasma physics. The following case of large triangular-shaped UAP also includes descriptions of three hemispheric protrusions on the underside.

Case 9: Auguste Meessen: Belgian Triangular Craft

These well-documented cases of mass sightings of triangular craft occurred from November, 1989 to April, 1990. General De Brower comments on the source of data for this case.

I am relying and basing myself mainly on the credibility of several witnesses.... I contacted them myself. We have hundreds of people, of credible witnesses and they stand by their observations (10:30). That’s the most convincing for me, talking to people and ... they saw objects very clearly that did not fit any technology that was available then and what is available now (Huneus, 2020).

Auguste Meessen, professor of theoretical physics at Catholic University of Louvain, Belgium, has investigated the 1989–1991 wave of thousands of individual sightings of large triangular UAP.

One can say that it is a type of MHD or MPD (magneto-plasma-dynamique) propulsion. I prefer to speak of an *electromagnetic propulsion*, since most of the problem to be resolved is the production of EM fields. These *oscillating fields* are very intense in the immediate vicinity of the surface of UFOs. It should also be noted that this object produces a pulsed ionization of air, whose frequency and phase are suited to the fields (Meessen, 2000, italics added).

Meessen further asserts that some atmospheric UAP must have light-speed capabilities (warp drive technology) given their estimated 5,000 g accelerations. To clarify how electromagnetic propulsion is related to warp drive: The MPD process described by Meessen can be considered *synonymous with a warp drive* as the plasma bubble (soliton solution) described by Lentz is a highly electrically-charged cell or field—with double-layer boundaries. The high-voltage rotating field generates the warp drive toroidal, vortex “bubble,” described by Meessen and Hill. The warp drive bubble is an encapsulated region of super-high voltage fields similar to a lightning stepped-leader, plasma soliton bubble. Hill refers to it as “force field” drive technology.

The working principle of magneto-hydro-dynamic (MHD) propulsion (a form of electromagnetic propulsion) involves the acceleration of an electrically conductive fluid (in our case, a plasma) by the Lorenz force. Meessen theorizes that

the “fluid” surrounding and propelling UAPs is self-generated, atmospheric, electrically charged plasma. Hence, his use of the term *magneto-plasma-dynamics*: the force on a charged particle due to electric and magnetic fields. The Lorentz force law describes the force experienced by a charged particle (q) moving with velocity (v) through an electric field (E) and a magnetic field (B), given by $F = q(E + v \times B)$. In order for the Lorentz force to act on a fluid, *the fluid must be conductive or made conductive by ionization*. High-frequency, extremely intense, pulsed discharges can easily ionize the air. An alternating current at microwave frequency or higher ionizes air very efficiently. This forms a conductive sheath just off the surface of the UAP which absorbs most or all of the radiation. Once the air is ionized, the UAP can be propelled by the Lorentz force.

Three milky, yellowish-white lights were at the corners of the triangle. They were bright but not blinding. In the center of the triangle was a much larger light. Its color was changing but the prevailing hue was grey-blue. These changes seemed to imply something revolving, reminding the witnesses of the mirror-globes in discos (Meessen, 2000).

Once again, we identify plasmas and electromagnetic forces via high-voltage oscillating electric fields, resulting in the pulsed ionization of the surrounding air. High repetition rate, very short-duration EM pulses can spike to extremely high voltages. The “milky, yellowish-white lights” also match the description of “pale yellow light” emitted by a large lenticular UAP at tree-top altitude in the Walton Case 6. As noted earlier, such a yellow plasma light can result from ionized atmospheric oxygen ($\sim 5.1\text{--}5.5 \times 10^{14}$ Hz; wavelengths 454–585 nm).

Meessen has contributed significantly to the understanding of the technologies associated with UAP. Meessen has scientifically studied UAP for decades and published extensively on the subject. The following excerpts from Meessen’s 1973 paper *Reflections on propulsion of UFOs* are in line with the engineering of a terrestrial hyper-fast drive using existing knowledge of physics.

We wonder whether is it possible to design a mechanism of propulsion of [UAP] which is compatible with known physical principles.... A magneto-hydro-dynamic propulsion? This initially relates to the mechanism of the propulsion of these machines.... They can even have energy sources which are unknown to us (Meessen, 1973).

Our evidence indicates that the unknown energy source utilized by this “magneto-hydro-dynamic” propulsion system may be *streaming solar plasma*—the potential source of a continuous supply of untapped, clean solar energy (Clarage, 2024; Ying-Dong et al., 2024; Russel & Qi, 2020; Scott; 2015).

Having reviewed a great number of observational and instrumented reports, Meessen concluded that there are two types of UAP, one type “seem(s) to be adapted to voyages through the ‘vacuum’ of interplanetary and interstellar space,” while the other type “would be adapted to the fluids than constitute our terrestrial atmosphere and the water of the oceans” (Meessen, 1973). However, regardless of their type, Meessen has identified a central process of high-voltage ionization of the surrounding air—a key mechanism for UAP propulsion.

Electromagnetic action on the ionized air is the key of the mystery [that] seems to be contained in the reports of observation, since one often describes the existence of a very strong luminosity in the immediate vicinity of these “objects.” This luminosity is variable, both in color and intensity and sometimes it is blinding ‘like that of an electric arc.’ The most direct and simplest explanation of this phenomenon involves *very intense ionization of the air around these devices....* An electric field alone could not produce this effect.... There exists a magnetic field, produced by a current, circulating in a ring (possibly superconductive), located in the enclosure of the machine (Meessen, 1973, italics added).

The takeoff of these [UAP] can be done in two stages: Initially the object becomes very bright often having risen a few tens of meters. Then it suddenly leaves at fantastic speed. All this occurs as if the object needed *ionization of the ambient air* to start moving and as if it could suddenly trigger a “force field” powerful enough to create large action forces and reaction (Meessen, 1973, italics added).

Plasmas that result from pulsed high-voltage fields repeatedly come up in technical discussions of disc-shaped UAP. Meessen noted that American physicist Stanton Friedman also stated that plasma physics could be instrumental in understanding the propulsion mechanisms of UAP. The following anomalies described by

Meessen can be initiated by high-voltage, plasma-producing UAP, thus leading to the conclusion that magnetic and electric fields oscillate and vary spatially in the vicinity of UAP.

The engine and the headlights of her car were not affected, but the radio was jammed with static, and most importantly, she felt “electric shocks each time she touched the gear shift lever during the observation.” (Meessen, 1973).

A white beam swept the ground and when the witness was caught in this beam, he felt paralyzed. Yet there was no problem to move his eyes, but his hair was suddenly spiked.... Then, it was “as if the air were full with static electricity and I felt my hair being drawn up on my head” (Meessen, 1973).

When a fluorescent light tube is placed in proximity to a high-voltage Tesla coil—as apparently occurred with the glowing spheres in the Rendlesham case—the light glows bright white with no physical electrical contacts. Simply being located within a high-voltage field of sufficient strength causes the gas in the sealed tube to ionize and fluoresce. There are many such electrical anomalies associated with near-encounters with UAP. “At one moment when the UFO’s emissions stopped and where the light flickered, he observed that some [fluorescent lamps] with sodium vapor emitted light, although they were isolated from any electrical contact” (Meessen, 1973).

UFO’s ionize the air and they exert forces on charged particles that result from using *electric and magnetic fields.... It provides lift and propulsion of the flying object....* Electrons move in a collective manner.... They will therefore oscillate like a pendulum, with a definite frequency. It lies in the gigahertz [microwave = 300 MHz–300 GHz] range. The result is an oscillating electric *field* (Meessen, 2000, italics added).

“The object stayed overhead for two or three minutes then departed suddenly in the direction of the houses. The driver of the car felt a breeze through her rolled-down window” (Meessen, 2000). This example indicates that the UAP was electrostatically “pushing off” of the ionized atmosphere, as it possessed no propellers, jets or other known forms of propulsion. From a 1958 case: “When it

was close to us, we now felt very powerful heat from the [UAP] and a strong blast of air” (Feindt, 2010, p. 128).

Meessen further investigated in-depth the electromagnetic effects UAP had on in-flight aircraft compasses.

Two of these cases greatly surprised me because pilots claimed that the needle of a magnetic compass had been put in rotation as long as a UAP was near the aircraft. I was very happy to hear this because it proves that those UAP were surrounded by an *oscillating magnetic field, whose frequency was relatively low* (Meessen, 1994, italics added).

Meanwhile, the automatic direction finder (ADF) and the gyroscope and the magnetic compass seemed crazed and running at a speed of about 12 revolutions per minute (Meessen, 1994).

[This implies] really fantastic values for the intensity of the magnetic field in the vicinity of the UAPs. Our current technologies do not make it possible to produce them (Meessen, 1973). The magnetic compass needles were suddenly and simultaneously deflected to point to the UAP. The power of this electromagnetic interference is indicated by the distance involved: the UAP was 2,000 meters [1.243 miles] from the vessel (Meessen, 1994).

Meessen describes a well-documented Army helicopter-UAP case that was also witnessed by a family on the ground.

Startled, Captain Coyne called the Control Center in Mansfield, but communication stopped. Coyne found the magnetic compass needle spinning slowly but continuously. The UAP was still in front of him.... The magnetic compass was rotating slowly, perhaps 4 or 5 revolutions per minute, while the radio compass remained stationary (Meessen, 1994).

One additional effect of UAP included in Meessen’s analyses deserves consideration. Witnesses in close proximity to UAPs frequently describe partial or full paralysis resulting in electric shocks, loss of mobility or even temporary loss of consciousness. The origins of the paralysis may be the intense, pulsed electric fields generated by the UAP. This implies that the cerebellum— that controls balance,

movement and coordination, or the reticular activating system—a network of neurons in the brainstem that controls sleep and wake states—may somehow be affected by UAP energy fields.

Two other witnesses felt an electric shock inside their car, whose headlights died out at 50 m [~150 ft] from a UAP and they remained paralyzed.... One of these men approached to within 20 m [60 feet] of the machine, where he was paralyzed, while the [UAP] took off at high speed (1954, France) (Meessen, 1973).

The typical battery of physical effects investigated by Meessen includes momentary engine stoppages, electric lights dimming or shutting off, radios or television disturbances, magnetic effects, inexplicable truncated light beams, electric shocks, and various physiological effects.

Case 10: The Phoenix Lights: Mass Sightings of Triangular and Chevron UAP

One of the most thoroughly documented mass sightings of UAP flyovers occurred in March, 1997, above Phoenix, Arizona and nearby environs. This series of events was televised around the world and included extensive photo and video documentation (prior to the proliferation of smart phones with hi-definition, megapixel cameras). An indeterminant number of massive structured craft “glided” at about 30 mph near the interstate corridor of Phoenix and were witnessed and photographed by an estimated 10,000 people. The significant factors associated with this case are the following:

- The sizes of UAP were estimated to be between 700 feet to 2 miles across;
- Despite their massive size they were completely silent;
- These UAP slowly “floated” in the air and some departed with extreme acceleration;
- Between 3 and 9 massive lights on the bottoms of the UAP were described as swirling amber lights, possible evidence of an air plasma;
- Their physiological impact, such as physical paralysis or direct heat, appeared to be negligible;
- Witnesses felt a discernible sense of peace when the UAP “floated” directly overhead;
- Official government and military agencies ridiculed the sightings, referring to them as flares, which they obviously were not; Dr. Beck has witnessed

the nighttime deployment of flairs by military aircraft while in England.

- The UAP were not of known human origin but were seemingly guided by an obvious intelligence.

Eyewitness Tim Ley spoke for his family:

We witnessed seeing a craft fly directly over our house. The time it took from when we first spotted them until this thing actually went over our house was about ten or twelve minutes.... it looked like a “V” formation flying towards us.... I could see its outline. It was passing over stars that were being blocked out. The lights were perfectly round and perfectly white light. It seemed to have dropped down in altitude.... Inside the two arms the stars looked like some kind of distortion. Not a heat distortion just not as clear as the stars on the outside.... This big light was right over us.... There was no light I noticed around us on the ground.... I know there’s nothing on this planet like that.... It didn’t make a sound. That’s the point. It was there. We saw it! There is no doubt in our minds whatsoever what we saw (Warwick, 2022).

During their interview, none of Tim Ley’s family noted feeling any static electricity charge such as many witnesses describe being emitted from rotating lenticular and certain other craft (see Cases 4–7). Neither did they describe feeling any loss of time, nor physical paralysis, direct heat or warm downdrafts being emitted from the craft. However, they uniformly experienced altered states of awareness as a sense of total calm or feelings of wonderment at what they were observing at close range. Tim Ley described one ~700-foot, chevron-shaped craft as completely silent and moving about 10–15 miles per hour directly over their family house. The lights were described as ~15 feet wide, extremely white, “light wells.”

In 2007, former Arizona governor and Air Force pilot, Fife Symington, who had publicly ridiculed these events during a televised press conference while in office, later revealed that he himself had been an eyewitness to a Phoenix lights aircraft.

I saw a huge craft come right over Squaw Peak. It was breathtaking.... Bigger than anything I have seen in the sky. It was absolutely silent. It had embedded lights.... I think this was

technologically far advanced. I believe this was something from another world.... The technology to get [to Earth] would be beyond anything we could imagine (FOX 10 Phoenix, 2014).

Symington's 5-minute local news interview was striking in its similarity to the Ley family interview and their description of an immense "aircraft carrier" size, slowly moving craft. Neither did Symington describe any sound emissions, electric charges or physical paralysis. This suggests that the powerplants in these immense chevron-shaped craft may utilize different "flight" and propulsion technologies than much smaller, rotating lenticular craft. Their electromagnetic signatures could be quite different from one another. It is possible that these large craft may possess interstellar transport capabilities (so-called "mother ships") whereas that may not be true for the smaller lenticular "scout" craft, possibly designed specifically for planetary, atmospheric transportation.

Following these events, Phoenix physician Dr. Lynn Kitei spent seven years thoroughly researching and documenting Phoenix Lights craft, having witnessed them personally on numerous occasions that also involved very close proximity to several triads of orange glowing spheres. Her data base includes numerous civilian reports as well as air traffic controllers reports based on persistent radar data of numerous large craft of this chevron design. Dr. Kitei confirmed that the UAP were extremely large, highly advanced aerospace craft possessing technologies seemingly under intelligent control (Kitei, 2020). This Phoenix Lights case may demonstrate a different type of drive mechanism from lenticular craft.

Case 11: Space Shuttles' Orbital Plasmas

The case of Earth-orbiting plasmas detailed by Joseph et al. (2024a, 2024b, 2024c) is well-documented with NASA still photographs, videos and voice recordings of astronauts describing, in real-time, swarms of up to 1,000s of seemingly autonomous, Thermosphere plasma cells, displaying "organic" behavior. The Thermosphere is Earth's atmosphere between approximately 100 km (~62 mi.) and 1,000 km. (~621 mi.); the larger part of Earth's electrified Ionospheric atmosphere, approximately 50 miles above sea level, where temperatures can rise above 3,630° F.

"Plasmas" up to a kilometer in size and behaving similarly to multicellular organisms

have been filmed on 10 separate NASA Space Shuttle missions, over 200 miles above Earth within the thermosphere.... and have been filmed flying towards and *descending from the thermosphere into thunderstorms*; congregating by the hundreds and interacting with satellites generating electromagnetic activity; approaching the Space Shuttles (Joseph et al., 2024a, p. 322, italics added; see also, Joseph et al., 2024b; Schild et al., 2024).

Hundreds of these specimens were filmed in the camera's field of view—and not just one structure but hundreds of specimens were viewed with the naked eye including flying alongside and appearing directly outside the windows of several Space Shuttles. Like plasmas generated in a laboratory, the plasmas of the thermosphere engage in life-like behavior (p. 334).... Further, those dusty plasmas with at least two voids (bright and dim) likely exhibit maximal self-excited oscillation which in turn may result *in propulsion* (Joseph et al., 2024a, p. 357, italics added; see also Joseph et al., 2024b; Schild et al., 2024) (Figures 7a and 7b).

Joseph et al. (2024b) claim that some of these glowing, pulsating plasmas may be mistaken by eyewitnesses on the ground for unidentified aerial *craft*. The smaller plasmas, observed immediately outside of Space Shuttle windows, made abrupt 45-, 90- and 180-degree turns while exhibiting life-like qualities. They were not however considered to be biological entities by NASA officials.

Shuttle mission STS-75 (February, 1996) experienced extensive, close-proximity, plasma anomalies. More distant plasmas (at 75–100 mi.) moved at an estimated velocity of a "few" kilometers per second (~4,470 mph), to "several tens" (35.6) of kilometers per second (79,600 mph, 4.6 times orbital velocity) (Joseph et al., 2024b). This latter figure far exceeds orbital velocity. Any such plasma approaching Earth-orbiting NASA spacecraft must itself be travelling at 17,150 mph. This raises the perplexing issue of how these plasmas could possibly *descend* from orbital velocities—to the tops of nearly stationary thunderstorms; or conversely, *ascend* from storm tops (30,000–50,000 feet)—to orbital, or far greater velocity. What energy source could propel a kilometer diameter plasma to 80,000 mph? This matter is not addressed by Joseph et al.

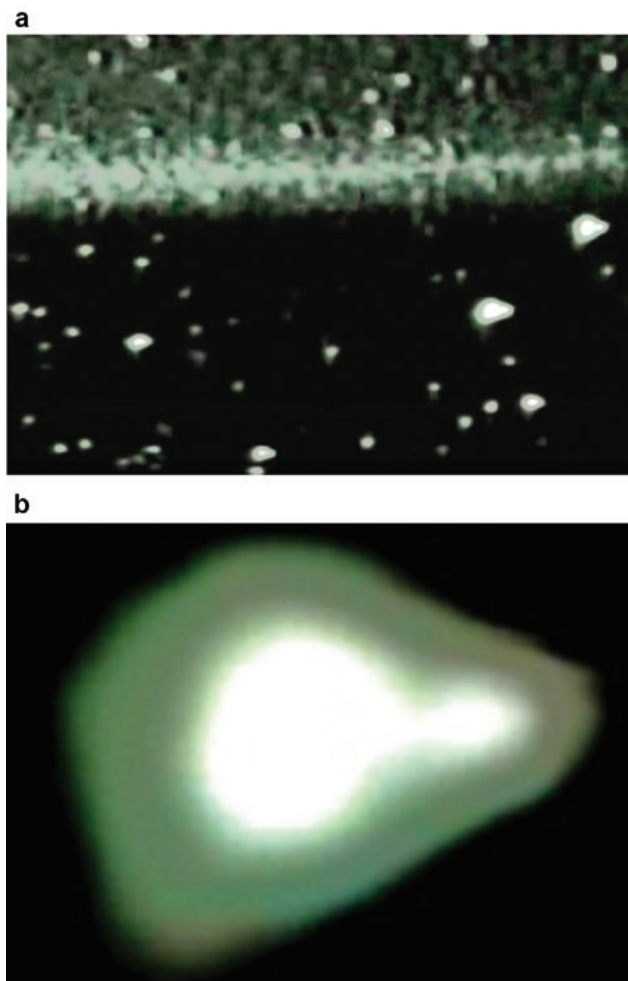


Figure 7. (a) Hundreds of cone- and cloud-shaped glowing plasmas with an internal nucleus, photographed by astronauts on Space Shuttle Columbia, STS-80, launched Nov. 19, 1996. Image credit: NASA. (b) Thousands of Earth-orbiting, glowing plasmas, some exhibiting pulsating cone-shaped extensions and internal nuclei, up to 1 km in size, photographed by STS-80. Image credit NASA.

These plasmas have the maneuvering and accelerating capabilities of an *inertia-less vehicle*; so Joseph et al. (2024b) conclude *they must be electromagnetic plasmas, not spacecraft*. They do not, however, rule out the possibility that some UAP are indeed spacecraft. Scientists can currently only speculate about the origins and true nature of these plasmas. We cannot rule out the possibility of previously unrecognized phenomena, for example, inertia dampening, within an ultra-high voltage plasma soliton. Visual and telescopic-analogue video observations (100-mile range) constitute the primary source of raw data about these objects.

The glowing plasmas reported here and photographed in space also have a variety of

shapes; and some specimens pulsate (perhaps as a means of propulsion) (Joseph et al., 2024b, p. 327).

Some of these plasma specimens are up to several kilometers in diameter—the estimated spatial diameter of the pulsed electrostatic field surrounding the O’Hare disk-shaped UAP (Case 4) at the moment of instantaneous, hypersonic, vertical departure. These plasma specimens are described as possessing metallic coloration while also being transparent. At approximately 100 miles distance NASA videos of these plasmas are unprecedented as swarms of thousands surround the tethered, Shuttle-deployed satellite. Even after 30 years, their true nature remains unclear.

The NASA Shuttle video images of plasma cells from orbit are compelling, especially given the observation that these plasma cells appear to de-orbit from 17,500 mph and descend into electrified storm cells, which raises questions about their propulsion. However, Joseph’s article, while remarkable for its well-documented content, is primarily descriptive and informative; it is not technical. As an observational study not unlike observatory-based astronomical studies of celestial objects, future research might include mathematical modelling of how these objects propel themselves through Earth’s atmosphere as well as low Earth orbit. Beyond simple electrical attraction and repulsion, without additional data, their origin, energy supply and motive source cannot be determined.

A number of the plasma UAPs in the NASA Space Shuttle telescope videos are cone-shaped and visually pulse off-and-on with regularity like beacons during the entire video. Paul Hill (Section I) describes numerous eyewitness reports of rotating *lenticular* craft that also display cone-shaped vortices beneath the UAP. Additionally, the well-documented “Gimble” UAP (Case 2) filmed by Navy pilots possesses a clearly discernible cone-shaped plasma vortex beneath it and possibly on top. Finally, cone-shaped vortices form at the tops or coronas of atmospheric water spouts and tornados—displaying evidence for a relationship between these various phenomena.

SECTION III: NEW SCIENTIFIC STANDARDS OF OBSERVATION AND RECORDING IN UAP RESEARCH

Several established UAP research organizations have recently initiated hard-data research programs, including the Galileo Project and the Scientific Coalition for UAP Studies. In addition, the physics department of the

esteemed German University of Wurzburg (founded in 1402) now offers coursework in UAP studies. These publicly emerging, UAP research organizations are utilizing a wide range of observational and recording equipment for the first time in the modern history of UAP awareness. They serve to legitimize what is arguably the most significant multidisciplinary research field in the history of science, potentially ushering in a new appreciation for the positive global impact on transportation and limitless clean energy UAP studies offer.

Watters et al. (2023) recommend utilizing a broad assemblage of observational and recording equipment for capturing data from anomalous phenomena. The primary emphasis of certain of our cases focuses on eyewitness visual and sensory testimonies describing electromagnetic and electrostatic fields. Their testimonies have been combined with radar, infrared and electro-optical, weapon detection, system reports. Watters et al. acknowledge this large body of reliable eyewitness testimonies and then go further by addressing the most effective approach for scientifically capturing hard data during UAP encounters—to greatly expand and further legitimize the already substantial eyewitness and instrumented, evidentiary database. The objective with a broad optimized suite of instrumentation is to obtain reliable, reproduceable, verifiable techniques and data on UAP parameters that lends itself to ongoing in-depth analyses that cannot be precisely acquired solely by unaided human visual and sensory observations.

The challenge is to obtain hard data on energy sources and utilization, propulsion systems, inertia damping and other “flight” characteristics, such as extreme maneuverability and hyper-acceleration, and their apparent ability to phase into, and out of, visual perception. These anomalous “flight” and “energy” characteristics, while apparently involving classical physics and electrical engineering, fall outside the scope of most physicists’ purview.

Our wider goal of the Galileo Project is to determine whether there are, in or near Earth’s atmosphere, measurable phenomena which can be confidently classified as scientific anomalies.... As of this writing, none of these ongoing [instrumented] efforts have reported UAP detections in peer-reviewed scientific literature.... Interest has strengthened in recent years following discoveries by the Kepler spacecraft that potentially habitable planets are superabundant in our galaxy (Watters et al., 2023).

In order to scientifically monitor and record UAP phenomena it is necessary to clearly define what you intend to record; and the equipment needed to accomplish the task. Watters et al. have outlined this process as they recommend a general classification of a broad range of surveillance instruments including:

- Wide field-of-view cameras in multiple light bands;
- Narrow field-of-view instruments including cameras;
- Passive multi-static arrays of antennas and receivers;
- Radio spectrum analyzers for measuring radio and microwave emissions;
- Microphones for sampling acoustic sounds;
- Environmental sensors for characterizing local temperature, pressure, humidity, wind velocity.

The instruments recommended by Watters et al. best capture anomalous UAP data for analysis including:

- Wide spectrum electromagnetic data for visible, infrared and UV light;
- Sub-atomic particle emissions;
- Radio frequency emissions;
- Magnetic field anomalies.

Additional observatory (stationary) and deployable remote instrument packages should include:

- Binoculars, wide-field of view and zoom;
- Digital optical and infrared, still, and video camera-equipped astronomical telescopes;
- Radar transceivers (used by air traffic control and missile defense for tracking multiple targets);
- Spectrum analyzers (to determine the power of electromagnetic signals);
- Spectroscopic cameras (typically used to observe astronomical objects, stars & galaxies):

Teodorani advocates using both spectroscopic and high-speed, pan/zoom/tilt (PZT) cameras with a diffraction grating (for example, 50 mm or 270 mm lens) in an effort to measure the magnetic fields of UAP (Teodorani, 2024a). Spectroscopic cameras would provide vital new information on the amount of energy utilized and emitted by UAP, thus far largely unavailable to researchers. Acquiring this new data would increase the potential for understanding the source of UAP in-flight energy; for constructing similar pollution-free, electric powerplants; and for developing aircraft with similar “flight” characteristics.

Teodorani uses the Stefan-Boltzman law equation to determine the observed luminosity of individual Hessdalen lights (Teodorani, 2024a, pp. 48, 51).

When a magnetic field is present inside the hot plasma surrounding (or constituting) a UFO, emission lines are split in two or more components, which are differently polarized depending on the orientation of the magnetic field [with] respect to the direction of the observer and whose separation depends on the strength of the magnetic field (Teodorani, 2024b, p. 22).

This is known as the Zeeman effect. The related process of *spectropolarimetry* can further provide information on the orientation of the magnetic field. Measuring UAP magnetic fields is crucial to assessing their energy utilization and output. See also, Tornotti et al., 2025 who used the Multi Unit Spectroscopic Explorer (MUSE) instrument to directly image massive plasma filaments between two distant galaxies for the first time, thereby providing evidence supporting the plasma cosmology model of the large-scale structure of the universe.

- Additionally, active and passive bistatic radars (for weather radar, detecting missiles and UAP in space);
- Seismograph (for detecting and recording ground motion);
- High-energy sub-atomic particle detectors;
- Optical and radio meteoroid networks (surveillance of meteoroids, similar to hyper-fast UAP);
- Infrared and optical imaging satellites (to capture and download images of UAP from space);
- Gravimeters (for local gravitational field of Earth);
- Magnetometer networks (strength and direction of magnetic fields, to locate objects).

Raw data captured on analogue recordings (non-digital) is desirable as it cannot easily be digitally manipulated without the authors' knowledge. The use of analogue recording devices ensures the original data remains unaltered. Common examples of analog recordings are video cassettes introduced in the mid-1970s, prior to DVD disks and cameras that use Kodak photographic film. We continue with the research of Knuth et al. (2019) into estimated UAP propulsion energy usage and emissions.

Knuth et al. (2019) review several previously well-documented UAP cases, mathematically estimating their flight

characteristics, especially their hyper-accelerations and decelerations, and other non-ballistic motion, such as ultra-high-speed 90 degree turns. They assess that at least some UAP "are indeed technologically advanced craft." Remarkably, they calculate the following: "This figure (Figure 7a) shows the time required to reach relativistic speeds for a craft undergoing constant acceleration at 1000 g. In less than 24 hrs., such a craft would exceed 90% of the speed of light" (Knuth et al., 2019, p. 17). From analyses based on observations, Knuth et al. estimate that some UAP exhibit on the order of 5,000 g accelerations. Calculations using such accelerations would allow travel to star systems 50 light years distant, in a matter of a few days.

Assuming that any one of the cases we examine is based on accurate reports, we show that the UAVs [unmanned aerial vehicle] exhibit unreasonably high accelerations ranging from 100 g to well over 5,000 g... [One] UAV was observed to be a metallic disk-shaped object that was about 200 to 300 feet in diameter (p. 2)... The UAP would have then reached a maximum speed of about 46,000 mph during the descent, or 60 times the speed of sound... The required power peaks at a shocking 1,100 GW [Gigawatts or 1.1 Terawatts], which exceeds the total nuclear power production of the United States by more than a factor of ten (p. 9)... For example, the Tic-Tac UAV [Case 2] dropping from 28,000 ft to sea level in 0.78 s involved at least 4.3×10^{11} J of energy (assuming a mass of 1,000 kg), which is equivalent to about 100 tons of TNT, or the yield of 200 Tomahawk cruise missiles, released in 3/4 of a second (p. 16) (Knuth et al., 2019).

Knuth's mathematical formula (Knuth et al., 2019, p. 17, #26) describes relativistic (hyper-fast) velocity to arrive at a designated target, for example, Alpha Centauri, some 4.3 light years from Earth.

...the accelerations we are considering, very rapidly approaches the speed of light to within a small fraction of a percent. The main point is that not only are the observed accelerations of these UAVs [unmanned aerial vehicles] consistent with those required for interstellar travel, but that some of these UAVs exhibit capabilities suggesting that they could be *spacecraft with impressive interstellar capabilities* (Knuth et al., 2019, p. 17, italics added).

Meessen provides comprehensive foundational mathematical formalisms for UAP propulsion—essential for hovering, translational motion and hyper-fast acceleration.

We can deduce from observed facts and known physical laws that [UAP] ionize the surrounding air and exert forces on the resulting charged particles by means of adequate EM fields. *Lift and propulsion result then from the reaction force, but this requires very intense magnetic fields, oscillating at low frequencies* (Meessen, 2012, p. 508, italics added).

He further provides the calculations behind most UAP's observed total lack of sound as well as the absence of "sonic booms" during supersonic/hypersonic motion through Earth's atmosphere (2012, pp. 510–511). Meessen (2012) also provides mathematics describing UAP functioning in Earth's atmosphere, in space, and underwater.

Lateral motions of the object can be obtained by attracting charged particles in front of the object and repelling them behind it. This requires only a modification of the distribution of the ionization density. The resulting propulsion system is *extremely flexible*. It allows not only for sudden changes of the direction of motion, but can even account for actually observed propulsion inside [under] water (Meessen, 2012, p. 510).

A number of other physicists theorize that hyper-fast motion of craft (hypersonic/subluminal/superluminal) may be controlled by manipulation of *space-time itself*, both in front of and behind the craft (Alcubierre, 1994; Bobrick & Martire, 2021; Lentz, 2021). We also consider the relationship between warp drives and atmospheric charge manipulation (Beck & Colli, 2025a).

Knuth was principle speaker at the 2022 "UAPx" event during which he presented detailed results of their team's first attempt to record UAP atmospheric intrusions into the near environs of Santa Catalina Island, a 76 square mile habitat, 22 miles off the coast of southern California (Knuth, et al., 2022). This represents one of the first scientific efforts to directly collect data on the presence of UAP in Earth's atmosphere. That the Tic-Tac UAV (Case 2) they reference has been authenticated by the Navy (Cooper et al., 2017a, 2017b, 2017c) stands in stark contrast to decades of denial by the U.S. and Britain's militaries (Condon et al., 1968; Defence Intelligence Analysis Staff, 2000). From the endeavors of Knuth, Watters, Meessen, and the Research

Centre for Extraterrestrial Studies at the University of Wurzburg, we anticipate that UAP research is entering a more transparent phase that can lead to the understanding and creation of novel hyper-fast transport, potentially powered by continuous, solar plasma energy.

SUMMARY

We investigate the best evidence of high-voltage UFO/UAP (Unidentified Aerial Phenomena) electrical properties to progress our understanding of the hyper-fast acceleration and travel of UAP in Earth's atmosphere and in near-space. Based on that evidence, our findings show that UAP source and utilize high-voltage electric energy for hovering, hyper-fast acceleration and motion. Highly reliable, multi-witness visual observations of UAP combined with hard data from these cases provide insights into the development of hyper-fast travel dynamics, UAP powerplants, and their possible solar plasma electric energy source. Furthermore, the design of these advanced technological systems may be based on natural, atmospheric electrical vortices and related electric discharge phenomena. We propose that some UAP powerplants are designed similar to natural tornadic vortices.

We examine how lenticular UAP may be powered, propelled and navigated through Earth's atmosphere and in space. UAP are propelled by a previously unrecognized motive force that is emitted directly from beneath such rotating craft—in the direction opposite to the intended trajectory. The well-defined "plasma cone" or sheath witnessed below many disc-shaped UAP presents clear evidence of a rotating, vorticular energy field beneath UAP. What appear to be advanced UAP technologies may well be relatively simple but overlooked plasma-based, electromagnetic and electrostatic technologies.

The frequently observed UAP-induced clouds and fog, with sub-visible hydroxyl radicals (OH, HO₂, H₂O₂), is significant evidence of their high-voltage propulsion systems. Lenticular UAP may establish a MHz rotating, high-voltage, toroidal cloud of electrons (soliton) around a virtual axis of rotation at relativistic velocities. Hence UAP can hyper-accelerate and travel at hypersonic velocities within Earth's atmosphere without producing a compression wave (sonic boom). The relativistic, plasma double-layer shield would also protect the soliton-encapsulated craft from interacting violently with water during the high-speed entry of Unidentified Submersible Objects (USOs). Such physically material objects—capable of entering a body of water at high speed, with no disturbance of the water's

surface—could easily move through Earth’s atmosphere without generating a compression wave.

The energy dynamics of the UAP are consistent with utilization of the Earth-ionosphere electric circuit. UAP may utilize solar-terrestrial electric energy for propulsion both within and outside Earth’s atmosphere. Understanding the electrical, and electromagnetic processes provide essential knowledge to access solar-plasma electric energy, which we propose energizes UAP powerplants. UAP energy supplies and UAP power plants cannot be meaningfully engineered without consideration of both. We posit that it is possible to “plug into” this natural electric circuit just as one plugs home appliances into a wall socket, simply utilizing electric current that continually streams to Earth: Carbon-free, inexhaustible, direct, high-density, electric plasma energy. We thereby contribute a theory that promotes hyper-fast travel: in-situ access to solar plasma, atmospheric electric energy—engineered to initiate a novel electric energy source to power hyper-fast craft. In conclusion, we summarize advanced, super-high-voltage, electrostatic propulsion of UAP. Lastly, new scientific standards of observation and recording in UAP research are discussed, including recommended detection equipment.

IMPLICATIONS AND APPLICATIONS

Scientific implications: The interdisciplinary study of UAPs’ self-generated, high-voltage electromagnetic fields and propulsion will advance hyper-fast travel. Understanding UAP energy dynamics will propel science into a new era of transport, energy, and propulsion breakthroughs.

Technological applications: Inertially modified, hyper-fast, aerospace craft will revolutionize air/space travel, initiating real-time interplanetary and interstellar travel, communications and data acquisition. Solar plasma, direct electric energy will have numerous conventional applications while expediting the elimination of fossil fuel environmental damage. Plasma-based, propellantless propulsion will radically advance aeronautics and astronautics.

Lastly, observation of UAP energy utilization may provide the basis for novel technologies designed for the large-scale remediation of rapidly emerging atmospheric Methane, a potent greenhouse gas (Beck & Colli, 2025b).

Sociological implications: Acknowledging that some UAP are not of human origin is a major step towards accepting evidence of non-terrestrial intelligent species. Such advanced civilizations demonstrate that humanity can overcome current technological and sociological threats to our survival.

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