



## UAS and SmallSat Weekly News

### Contents

- 2 AI-Piloted Concepts Emerge as U.S. Air Force Ponders Options
- 2 Nasa spacecraft set to smash into asteroid in planetary protection test mission
- 3 Lawmakers push Pentagon to send advanced drones to Ukraine
- 4 Beijing police ban drones, expel petitioners, migrant workers ahead of CCP congress
- 5 Teams of drones can print in 3D
- 5 Hurricane Fiona drone video: What a Category 4 storm looks like from the inside
- 6 Ukraine's Odessa again attacked by Iranian drones
- 7 From the BRINC Factory in Las Vegas: What US Drone Manufacturing Looks Like
- 7 Skydio Data Security Earns SOC 2 Type II Compliance
- 8 SpaceX launched another Starlink mission Saturday from Cape Canaveral Space Force Station
- 9 Turkey ready to sell drones to Japan: foreign minister
- 9 Volocopter, Pipistrel and M3 Systems complete initial U-space deconfliction trials
- 10 Lincoln Labs' airborne collision avoidance system wins research award
- 11 Pyrotecnico Partners with Nova Sky Stories to Offer Drone Light Shows across America
- 12 Robotican's Goshawk drone interceptor system completed a "Safe Guard" mission
- 12 XAG makes its P100 agricultural drone available globally
- 13 Verizon drone program gets IS-BAO nod for impeccable safety standards
- 14 Bam! NASA spacecraft crashes into asteroid in defense test
- 15 FAA Releases Vertiport Design Standards for Integration of Advanced Air Mobility Aircraft
- 15 FAA Releases Vertiport Design Standards for Integration of Advanced Air Mobility Aircraft
- 16 ASX Flies Tiltwing eVTOL Air Taxi Demo with Plug-And-Play Payloads
- 17 CHEESESTEAKS ARE FLYING ON DRONES — JUST NOT IN PHILADELPHIA
- 17 A flying taxi just completed its first flight test as major airlines bet big on the new technology
- 18 Eve signs eVTOL deal with UAM company BLADE India
- 18 Agility Prime Funds Mayman's Speeder
- 19 NASA Plans \$476M Contract Vehicle for Commercial Smallsat Data Products
- 20 Thailand seals order for Hermes 900
- 20 Lilium's annual 400 eVTOL air taxi production goal seeks new funding



## UAS and SmallSat Weekly News

24Sep22

### AI-Piloted Concepts Emerge as U.S. Air Force Ponders Options Steve

Trimble September 23, 2022



Three distinct classes of aircraft piloted by artificial intelligence have emerged as options to fly alongside current and future U.S. Air Force fighters. The candidates range from expendable to exquisite systems, with a potential middle tier of attritable aircraft that leverage modular design features inspired by the

automotive industry.

On the high end, Northrop Grumman's booth featured a concept model of the SG-101, the latest example of the company's long line of advanced flying-wing aircraft.

Lockheed Martin, meanwhile, showed off the Skunk Works' concept for the Speed Racer, an expendably cheap uncrewed aircraft system (UAS) that will soon be teamed with F-35s for a demonstration called Project Carrera.

For the first time, General Atomics Aeronautical Systems Inc. and Kratos executives talked about their competing and similar proposals for a middle layer of Collaborative Combat Aircraft.

Boeing showed off images of the Australian-built MQ-28 Ghost Bat UAS. Instead of swapping airframes and engines for different missions, the MQ-28 would be fitted with different nose-mounted radomes to accommodate different payloads.

Blue Force Technologies, a small, North Carolina-based company, displayed a model for the first time of the Fury UAS, which the Air Force is building to demonstrate as an artificial-intelligence (AI)--piloted adversary air platform. <https://aviationweek.com/shows-events/afa-air-space-cyber-conference/ai-piloted-concepts-emerge-us-air-force-ponders-options>

### Nasa spacecraft set to smash into asteroid in planetary protection test

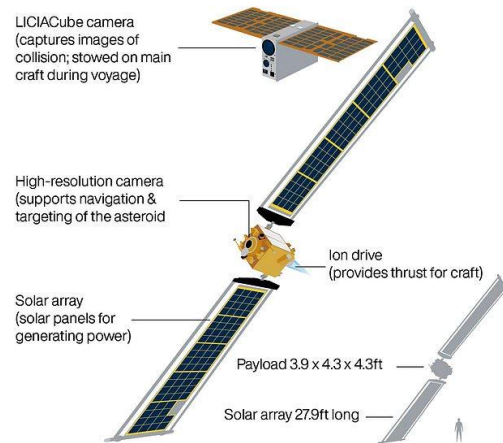
**mission** PA MEDIA 22 September 2022

While this asteroid – named Dimorphos – poses no threat to Earth, the aim of the mission is to demonstrate that dangerous incoming rocks can be deflected by deliberately smashing into them.

## UAS and SmallSat Weekly News

The spacecraft, known as Double Asteroid Redirection Test (Dart), is expected to collide with the 560ft asteroid at 00:14 UK time on September 27.

### DART spacecraft

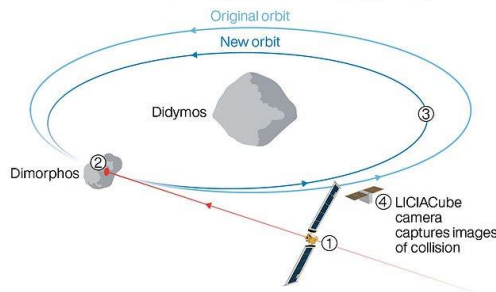


PA graphic. Source: Johns Hopkins University Applied Physics Laboratory

Nasa said: "Dart's target asteroid is not a threat to Earth but is the perfect testing ground to see if this method of asteroid deflection – known as the kinetic impactor technique – would be a viable way to protect our planet if an asteroid on a collision course with Earth were discovered in the future." There currently somewhere around 27,000 asteroids in near-Earth orbit.

### How DART will collide with Dimorphos

- ① DART craft heads towards Dimorphos
- ② DART collides almost head-on, altering orbit of Dimorphos
- ③ Dimorphos' orbit around Didymos shortened by several minutes



PA graphic. Source: Johns Hopkins University Applied Physics Laboratory

The Dart mission will be the first ever full-scale demonstration of asteroid deflection technology.

It has taken 10 months for Dart to come close to Dimorphous after launching last November on SpaceX's Falcon 9 rocket.

The asteroids will be around 6.8 million miles from Earth when the collision happens. Dart will accelerate at about 15,000 miles per hour before colliding with Dimorphos.

This collision will be recorded by a **briefcase-sized satellite** known as the Light Italian CubeSat for Imaging of Asteroids (LICIACube), which was provided by the Italian Space Agency.

<https://www.dailymail.co.uk/wires/pa/article-11237509/Nasa-spacecraft-set-smash-asteroid-planetary-protection-test-mission.html>

**Lawmakers push Pentagon to send advanced drones to Ukraine** ELLEN MITCHELL - 09/22/22

A bipartisan group of 17 House lawmakers want the Pentagon to send advanced drones to Ukraine to help in its fight with Russia, arguing the technology could help Kyiv keep the territory it has recently gained.



## UAS and SmallSat Weekly News



The lawmakers argued that Ukraine “could better confront Russian threats” with drones such as the MQ-1C Gray Eagle or MQ-9A Reaper, which could also help them “better hold the territory they fought so hard to reclaim.”

The administration this past spring initially planned to sell Gray Eagles to Ukraine, but the sale was delayed because U.S. officials were afraid that closely guarded technology within the drones could be exploited by Russia if the aircraft was shot down in the wrong place, [according to Reuters](#).

The lawmakers, however, argue that “thorough **risk assessments mitigation should not come at the expense of Ukrainian lives.**” <https://thehill.com/policy/defense/3657061-lawmakers-push-pentagon-to-send-advanced-drones-to-ukraine/>

## Beijing police ban drones, expel petitioners, migrant workers ahead of CCP congress

Gu Ting for RFA Mandarin 2022.09.21



*People walk by decorations welcoming the 20th Chinese Communist Party congress in Beijing*

Authorities in the Chinese capital have issued a ban on low-altitude flights and drones over the city ahead of a five-yearly congress of the ruling Chinese Communist Party (CCP) next month.

The CCP will hold its 20th National Congress from Oct. 16, amid a mounting wave of censorship and curbs on the freedom of dissidents, petitioners, and rights activists around the country.

Light and ultra-light aircraft, gliders, delta wings, hot air balloons, airships, para-gliders, **drones**, model aircraft and free and tethered balloons **are banned** from Beijing's skies through Oct. 31, the municipal police department said in a notice dated Sept. 15.

"Violations will be ... punished by police according to [current laws]," it said, reminding the city's residents that flying lanterns are already banned.

<https://www.rfa.org/english/news/china/ccp-congress-security-09212022121654.html>



## UAS and SmallSat Weekly News

### Teams of drones can print in 3D Sep 21st 2022

They could build and repair where humans cannot reach



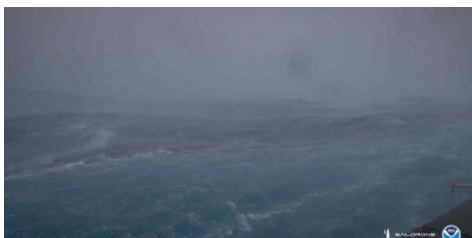
Writing in the latest edition of *Nature*, Dr Kovac describes a system of flying robots that is composed of two types of multi-rotor drones: builders and scanners. The builders carry the 3d-printing nozzle. The scanners are robots equipped with cameras that are responsible for monitoring the progress of the builders.

The building process alternates between builders and scanners, layer by layer, printing and adjusting, until a structure is complete. First, a builder hovers over its area of operation and begins to release a jet of the building material as it maneuvers along its flight path. The choice of material is important—it must be lightweight enough for the drones to carry but sturdy enough to hold the subsequent layers that will be built on top. Dr Kovac's team experimented with two materials. One was a low-density polyurethane foam, which can expand up to 25 times as it dries and can be used as insulation in buildings. The other material they tested, which was sturdier and more precise, was a mixture made from cement.

Once the builder robot has sprayed a layer of material, the scanner robot flies over and inspects the progress. The system then computes the next layer that the builder should make, while also correcting for any errors that might have been discovered in what has already been built. These could be errors made by the builder-drones or imperfections in the expansion of the building material. At this point, people can also intervene in the process, supervising and correcting course where necessary. [https://www.economist.com/science-and-technology/2022/09/21/teams-of-drones-can-print-in-3d?utm\\_content=article-image-10&etear=nl\\_today\\_10&utm\\_campaign=r.the-economist-today&utm\\_medium=email.internal-newsletter.np&utm\\_source=salesforce-marketing-cloud&utm\\_term=9/23/2022&utm\\_id=1329652](https://www.economist.com/science-and-technology/2022/09/21/teams-of-drones-can-print-in-3d?utm_content=article-image-10&etear=nl_today_10&utm_campaign=r.the-economist-today&utm_medium=email.internal-newsletter.np&utm_source=salesforce-marketing-cloud&utm_term=9/23/2022&utm_id=1329652)

### Hurricane Fiona drone video: What a Category 4 storm looks like from the inside

Ishveena Singh - Sep. 23rd 2022



Saildrone, whose ocean drones are helping the National Oceanic and Atmospheric Administration understand what drives the rapid intensification of storms, has captured the Category 4 Hurricane Fiona from the inside.



## UAS and SmallSat Weekly News

On Thursday, Saildrone Explorer SD 1078 was directed into the midst of Hurricane Fiona, which is now impacting Bermuda before crashing into Canada this weekend. The ocean drone battled 50-foot waves and winds measuring over 100 mph to collect critical scientific data and the video that you can watch below.

SD 1078 is one of seven “hurricane” saildrones that are currently stationed in the [Atlantic Ocean and the Gulf of Mexico](#) to gather real-time data and help understand the physical processes of hurricanes. This knowledge is critical to improving storm forecasting and is expected to reduce the loss of human life by enabling better preparedness in coastal communities.

Richard Jenkins, Saildrone founder and CEO, says: Hurricane Fiona intensified from a tropical storm to a Category 1 hurricane just before hitting Puerto Rico, causing significant damage and loss of life. The data Saildrone vehicles are gathering will help the science community better understand rapid intensification, giving people living in our coastal communities more time to prepare. Watch Hurricane Fiona drone video: <https://dronedj.com/2022/09/23/hurricane-fiona-drone-video/>

25Sep22

### Ukraine’s Odessa again attacked by Iranian drones September 25, 2022



*A part of an unmanned aerial vehicle, what Ukrainian authorities consider to be an Iranian made suicide drone Shahed-136, amid Russia's attack on Ukraine.*

The strikes come two days after two civilians were killed in Odessa in a Russian attack with an Iranian-made drone

KYIV: Ukraine said Sunday that the southern port city of Odessa was attacked by Iranian-made drones overnight, two days after a Russian attack with such a weapon killed two civilians.

“Odessa was attacked again by enemy kamikaze drones,” said the Ukrainian army’s Operational Command South. “One drone was shot down by (Ukrainian) air defense forces. Gumenyuk, later told AFP.

The strikes come two days after two civilians were killed in Odessa Friday in a Russian attack with an Iranian-made drone. Four Iranian-made drones were shot down in the south of the country Friday, according to Ukraine’s armed forces.





## UAS and SmallSat Weekly News

Kyiv said later it decided to reduce Iran's diplomatic presence in Ukraine over its supply of drones to Russia. <https://www.arabnews.com/node/2169116/world>

26Sep22

### From the BRINC Factory in Las Vegas: What US Drone Manufacturing Looks

**Like** Miriam McNabb September 25, 2022



During [Commercial UAV Expo in Las Vegas](#) earlier this month, [BRINC Drones](#) – the makers of the LEMUR aircraft for SWAT missions – hosted a small gathering at their offices and manufacturing center in Las Vegas. The tour of the manufacturing floor provided an inside look at what drone manufacturing in the US can look like.

Manufacturing equipment is fascinating to watch. At BRINC, rows of 3D printers are constantly working to manufacture parts (it's called the "3D Print fam."). Optics assembly is performed in a glass clean room designed to eliminate dust. Boards are assembled at individual workbenches.

A laser cutter, a computer numerical control (CNC) machine, a battery welding station: all of these are reminders that drone manufacturing requires precision engineering and a perfectly coordinated alignment of hardware and software. At BRINC, much of the building, testing, training, and customer interaction happen in the same building, with a tight team of engineers and manufacturing staff working together to ensure that each aircraft meets the highest standards – and talking with customers to discuss new features or requirements they've requested. <https://dronelife.com/2022/09/25/from-the-brinc-factory-in-las-vegas-what-us-drone-manufacturing-looks-like/>

**Skydio Data Security Earns SOC 2 Type II Compliance** Miriam McNabb September 23, 2022 by DRONELIFE Staff Writer Ian M. Crosby



Earlier this week, [Skydio](#) announced a major inclusion to its data security compliance in the form of a SOC 2 (System and Organization Controls) Type II report, an internal audit that provides insight into the way a company stores and handles customer data based upon a set of standards and restrictions put in place by the American Institute of



## UAS and SmallSat Weekly News

Certified Public Accountants.

Skydio's audit was carried out by [Geels Norton LLC](#), who conducted a thorough examination into Skydio's security processes, covering areas such as access controls & reviews, software development, network and platform monitoring, vendor risk management, and security & compliance monitoring.

"Issuance of Skydio's SOC 2 Type II report further demonstrates their commitment to implementing and operating an internal control environment focused on protecting the security and privacy of customer information within the Skydio Cloud platform", said Geels Norton Co-founder Nick Norton.

Organizations across the globe are more frequently employing drones for the collection and storage of sensitive data, resulting in an increase of concerns surrounding that data's privacy and security. Skydio's incorporation of SOC 2 compliance demonstrates further commitment by the company that its infrastructure, tools, and processes will be used to protect customer data, as well as the interests of the organizations who employ its services.

<https://dronelife.com/2022/09/23/skydio-data-security-earns-soc-2-type-ii-compliance/>

## SpaceX launched another Starlink mission Saturday from Cape Canaveral Space Force Station

Jamie Groh 24 September 2022 Florida Today



SpaceX lofted another batch of its Starlink internet-beaming satellites to orbit Saturday evening after an on-time liftoff from Florida.

The Space Coast's 42nd launch of the year saw the 230-foot Falcon 9 rocket vault from Cape Canaveral Space Force Station's Launch Complex 40 at 7:32 p.m. EDT. It marked the 62nd dedicated Starlink mission and the 181st overall flight for the company, 177 of which have been hosted by Falcon 9. The batch of **52 satellites** deployed about 15 minutes after liftoff and joined the more than **3,300** that now make up the constellation in low-Earth orbit.

About nine minutes after liftoff, the Falcon 9 first stage somersaulted and landed on the "A Shortfall of Gravitas" drone ship stationed in the Atlantic Ocean. Once returned to Port Canaveral in a few days, SpaceX will collect the booster for refurbishment and reuse on a future flight. <https://www.floridatoday.com/story/tech/science/space/2022/09/24/saturdays-spacex-launch-sent-more-starlink-satellites-orbit/8081917001/>





## UAS and SmallSat Weekly News

**Turkey ready to sell drones to Japan: foreign minister** KEN MORIYASU and SINAN TAVSAN, Nikkei staff writers September 26, 2022



TOKYO/ISTANBUL -- Turkey sees big potential in deepening defense ties with Japan and hopes its companies will be able to sell armed drones to the country, Foreign Minister Mevlut Cavusoglu told reporters in Tokyo on Monday.

In a news conference at the Japan National Press Club, Cavusoglu said that Turkish-made armed and unarmed drones are among the best in the world.

When asked if he would propose to his counterpart Yoshimasa Hayashi that Japan's Self-Defense Forces consider acquiring Turkish drones, Cavusoglu replied: "Of course we want to enhance defense industry cooperation with Japan."

Noting that other Asian countries, such as Malaysia and Indonesia, have shown strong interest in Turkey's weapons and have signed bilateral contracts, the minister said: "If Japan wants to buy any defense industry products from Turkey, including armed drones, it will be our pleasure to meet the demand."

He said that in the coming days, delegations from both sides will meet to discuss potential cooperation in defense and security. <https://asia.nikkei.com/Politics/International-relations/Turkey-ready-to-sell-drones-to-Japan-foreign-minister>

## **Volocopter, Pipistrel and M3 Systems complete initial U-space deconfliction**

**trials** September 23, 2022 Philip Butterworth-Hayes UAS traffic management news, Urban air mobility



M3 Systems, air traffic management (ATM) and unmanned aerial system operator, light and electric aircraft manufacturer Pipistrel and eVTOL company Volocopter report they have completed their first joint flight test campaign in France at Pontoise airfield at part of a CORUS-XUAM Single European Sky ATM Research (SESAR) program.

According to a Volocopter press release: "The week-long flight tests simulated three different avoidance maneuvers in real-world situations where unforeseen circumstances occur. This joint campaign between the three companies and the French partners, Groupe ADP and its wholly



## UAS and SmallSat Weekly News

owned subsidiary Hologarde, aimed to achieve smooth interaction within and between the new lower airspace's unmanned traffic management (UTM) and standard civil aviation ATM systems.

The CORUS-XUAM flight test conducted at Pontoise airfield near Paris is the third of several flight tests to simulate a variety of real-world scenarios that **demonstrate how UTM and ATM intersect with multiple aircraft types.**

"The successful flight tests at Pontoise airfield were conducted with M3 System's BOREAL remotely piloted aircraft system, Pipistrel's crewed Velis Electro, the only type-certified electric aircraft in commercial service in the world, and Volocopter's full-scale, remotely piloted 2X prototype. Pipistrel uses the conventional ATM tower and system while Volocopter and M3 Systems use the UTM system. The following three flight scenarios were tested:

- \* The unexpected occupancy of a FATO and aircraft diversion due to priority landing of another aircraft – Pipistrel and Volocopter aircraft.
- \* The diversion of a flight path due to the closure of an airport or vertiport – M3 Systems.
- \* The diversion of a flight path with two aircraft flying the same path – M3 Systems and Volocopter aircraft.

This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation program.

<https://www.unmannedairspace.info/news-first/volocopter-pipistrel-and-m3-systems-complete-initial-u-space-deconfliction-trials-at-pontoise/>

**Lincoln Labs' airborne collision avoidance system wins research award** September 20, 2022 Jenny Beechener UAS traffic management news, Urban air mobility



An airborne collision avoidance system developed at Lincoln Laboratory is among this year's award winners announced by *R&D World* magazine. The awards recognize the 100 most significant innovations that have transitioned to use or been made available for sale or license in the past year.

Lincoln Laboratory developed the Airborne Collision Avoidance System sXu (ACAS sXu) to enable unrestricted sUAS operation in the national airspace. The system allows sUAS to detect and track other nearby aircraft and then automatically manoeuvre the sUAS away from those aircraft to avoid a potential mid-air collision (or alerts



## UAS and SmallSat Weekly News

its ground operator to make such a maneuver). ACAS sXu can be installed on the sUAS or employed as a remote service and is adaptable across the wide range of sUAS vehicle types. The ACAS sXu design standard was finalized in 2022, and the Federal Aviation Administration is developing policy and procedures to approve use of this system.

Lincoln Laboratory shares this award with its collaborators on the technology: the FAA, MITRE, and Johns Hopkins University Applied Physics Laboratory.

<https://www.unmannedairspace.info/latest-news-and-information/lincoln-labs-airborne-collision-avoidance-system-wins-research-award/>

## Pyrotecnico Partners with Nova Sky Stories to Offer Drone Light Shows across America September 25, 2022 News



“Sky art is our business so it’s a natural, strategic fit to partner with an innovative, technology company like Nova Sky Stories,” says Stephen Vitale, CEO of Live Events and namesake of the 5th generation fireworks shows business.

Nova Sky Stories was co-founded by Kimbal Musk in June 2022. As a long-time Burning Man enthusiast, Musk shared commentary in his announcement for Nova Sky Stories after attending Burning Man 2021:

“This was not a light show. This was the ritual we all had traveled thousands of miles to experience. His art took form in the sky. The Man appeared; 800 feet high. He burnt the Man. We all cried tears of joy, sadness, and everything in between.” – Kimbal Musk, Founder of Nova Sky Stories

It’s the vision of Nova Sky Stories to bring art to the skies of every city and town in the world. “Nova Sky Stories drones were developed by pioneers in this industry,” says Lucas Van Oostrum, Co-Founder of Nova Sky Stories. “A team of engineers invested 10-15 years into the development and technology to ensure safety, energy efficiency, and environmentally friendly shows,” adds Van Oostrum. For more information about booking a drone light show, please visit TheDroneShow.com. [https://uasweekly.com/2022/09/25/pyrotecnico-partners-with-nova-sky-stories-to-now-offer-drone-light-shows-at-live-events-across-america/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=pyrotecnico-partners-with-nova-sky-stories-to-now-offer-drone-light-shows-at-live-events-across-america&utm\\_term=2022-09-26](https://uasweekly.com/2022/09/25/pyrotecnico-partners-with-nova-sky-stories-to-now-offer-drone-light-shows-at-live-events-across-america/?utm_source=rss&utm_medium=rss&utm_campaign=pyrotecnico-partners-with-nova-sky-stories-to-now-offer-drone-light-shows-at-live-events-across-america&utm_term=2022-09-26)

## Robotican's Goshawk drone interceptor system completed a "Safe Guard" mission September 25, 2022 Counter UAS



A [Robotican](#) Goshawk drone supervises a UAV test range near Yeruham, Israel, to prevent drone "leakage" into populated areas.

On June 21, 2022, an interception scenario was executed together with Matrix Ltd., the Yeruham municipality ( <https://tinyurl.com/y6mz3k4d> ) and

Ayalon Highways Ltd. on behalf of the Israel Ministry of Transportation ( <https://tinyurl.com/2p8sx4x5> ). The test was based on a scenario in which a drone deviates from its approved flight path from the Snir national UAV & drone test range while threatening to penetrate Yeruham's airspace and endanger innocent bystanders. Robotican's Goshawk intercepted a simulated "out-of-control" drone that flew towards the city. The Goshawk drone was launched and **autonomously** intercepted the drone before it reached the city's limits.

The Goshawk system prevents drones displaying irregular flight behavior from reaching a predefined safe zone and creates a "safety shield" between the test grounds and Yeruham – or any other location the test drone was not intended to reach.

ROBOTICAN's Goshawk system is an autonomous system developed to intercept and capture hostile or unrecognized drones. The Omer-based company's system reduces collateral and peripheral damage by capturing and diverting the aircraft to a predefined location. The computer-operated system launches from its **mobile launch pad**, which enables 24/7 operational capabilities and enforcement of drone traffic laws in future air spaces.

[https://uasweekly.com/2022/09/25/roboticans-goshawk-drone-interceptor-system-successfully-completed-a-safe-guard-mission-at-snir-national-uav-drone-test-range/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=roboticans-goshawk-drone-interceptor-system-successfully-completed-a-safe-guard-mission-at-snir-national-uav-drone-test-range&utm\\_term=2022-09-26](https://uasweekly.com/2022/09/25/roboticans-goshawk-drone-interceptor-system-successfully-completed-a-safe-guard-mission-at-snir-national-uav-drone-test-range/?utm_source=rss&utm_medium=rss&utm_campaign=roboticans-goshawk-drone-interceptor-system-successfully-completed-a-safe-guard-mission-at-snir-national-uav-drone-test-range&utm_term=2022-09-26)

## XAG makes its P100 agricultural drone available globally Ishveena Singh - Sep. 26th 2022

XAG's latest-generation agricultural drone, P100, is now available for sales globally. The versatile drone for precision farming can autonomously undertake spraying, fertilizing, and sowing functions for multiple crops.



## UAS and SmallSat Weekly News



would spray pesticides manually.

The XAG P100 agricultural drone is already assisting farmers across China, [Vietnam](#), and Australia to reduce seeds, pesticides, and fertilizers without affecting crop yields. Two [XAG P100](#) agricultural drones can finish the fieldwork faster and with **more precision than 20 to 25 laborers** who

The payload has been increased to 40 kg to enable higher efficiency while serving larger fields. Next, the structure has been kept detachable so it can fully separate from the flying platform to switch between spraying and spreading modules. In addition, the handling weight of the drone has been reduced to make transportation and maintenance much easier for operators.

To plan the flight route and self-navigate at high accuracy, the drone has been equipped with an RTK centimeter-level positioning module. Its maximum flight speed is 13.8 m/s, which means one battery pack is enough to spread up to 280 kg of fertilizers.

<https://dronedj.com/2022/09/26/buy-xag-p100-agricultural-drone/#more-87015>

**Verizon drone program gets IS-BAO nod for impeccable safety standards** Ishveena Singh - Sep. 26th 2022



Verizon has become the first corporate drone program in the US to receive the International Standards for Business Aircraft Operations ([IS-BAO](#)) registration. The registration certificate comes after a six-month-long voluntary and detailed audit of Verizon's drone operations, governance, and safety standards.

Administered by the International Business Aviation Council (IBAC), the fundamental purpose of IS-BAO is to foster standardized, safe, and highly professional aircraft operations. The independent audit not only validates that Verizon is following exemplary levels of safety and governance in its drone operations but also eases the pathway to expand future missions into more complex areas, such as flights beyond visual line of sight.

The communication technology company started leveraging drones in 2017 to support its network. Verizon says it has conducted more than **17,000 drone flights** to date, totaling over 4,000 flight hours. The company's aircraft fly in every season to perform network testing and performance monitoring. They collect imaging in conjunction with software that creates 3D





## UAS and SmallSat Weekly News

models of the infrastructure, enabling more efficient network deployment upgrades and asset inspection. Additionally, Verizon also uses its drones to help with network restoration when natural disasters strike. <https://dronedj.com/2022/09/26/verizon-drone-is-bao-safety/#more-87011>

**Bam! NASA spacecraft crashes into asteroid in defense test** Marcia Dunn Associated Press Sep 26, 2022



CAPE CANAVERAL, Fla. — A NASA spacecraft rammed an asteroid at blistering speed Monday in an unprecedented dress rehearsal for the day a killer rock menaces Earth.

The galactic slam occurred at a harmless asteroid 7 million miles away, with the spacecraft named Dart plowing into the space rock at 14,000 mph. Scientists expected the impact to carve out a crater, hurl streams of rocks and dirt into space and, most importantly, alter the asteroid's orbit. It will be days or even weeks to determine how much the asteroid's path was changed.

[The \\$325 million mission](#) was the first attempt to shift the position of an asteroid or any other natural object in space. Monday's target: a 525-foot asteroid named Dimorphos.

[Launched last November](#), the vending machine-size Dart — short for Double Asteroid Redirection Test — navigated to its target using new technology developed by Johns Hopkins University's Applied Physics Laboratory, the spacecraft builder and mission manager.

With an image beaming back to Earth every second, ground controllers in Laurel, Maryland, watched with growing excitement as Dimorphos loomed larger and larger in the field of view alongside its bigger companion. Within minutes, Dimorphos was alone in the pictures; it looked like a giant gray lemon, but with boulders and rubble on the surface. The last image froze on the screen as the radio transmission ended.

A mini satellite followed a few minutes behind to take photos of the impact. **The Italian Cubesat** was released from Dart two weeks ago. [https://www.pilotonline.com/nation-world/vp-nw-nasa-asteroid-strike-20220926-7n5xzhdukzd3xdmtdes5wakvom-story.html?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=Breaking%20News&utm\\_content=6251664235102](https://www.pilotonline.com/nation-world/vp-nw-nasa-asteroid-strike-20220926-7n5xzhdukzd3xdmtdes5wakvom-story.html?utm_source=newsletter&utm_medium=email&utm_campaign=Breaking%20News&utm_content=6251664235102)





## UAS and SmallSat Weekly News

### FAA Releases Vertiport Design Standards for Integration of Advanced Air Mobility Aircraft September 26, 2022



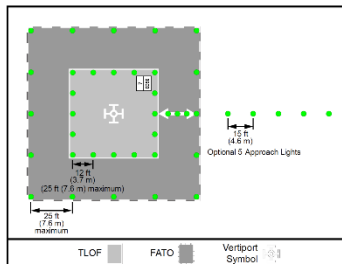
#### Federal Aviation Administration

**WASHINGTON** – The Federal Aviation Administration today released [new design guidelines for vertiports](#), infrastructure that will support Advanced Air Mobility (AAM) aircraft. The design standards will serve as the initial step to provide key information for airport owners, operators, and infrastructure developers to begin development of facilities that will support operations of AAM aircraft that are electrically powered and take-off and land vertically.

The design standards include critical information that designers and builders will need to follow to allow for safe takeoffs and landings. Some of those include:

**Safety-critical geometry and design elements:** Dimensions for vertiport touchdown and liftoff areas, additional airspace needed for approach and departure paths and load-bearing capacity.

**Lighting, markings and visual aids:** Guidelines that identify the facility as a vertiport. The FAA recommends the Vertiport Identification Symbol, as shown in the middle of the graphic below.



**Charging and electric infrastructure:** Initial safety standards and guidelines for batteries and charging equipment that will be central to vertiports.

**On-airport vertiports:** Requirements for airports looking to add vertiports to an existing commercial airport, including the distance a vertiport would have to be from a current runway.

**Elevated vertiports:** Requirements and guidelines for vertiports that may be on top of existing structures. <https://www.faa.gov/newsroom/faa-releases-vertiport-design-standards-support-safe-integration-advanced-air-mobility>

### DRONEII Drone Market Report: Where the Drone Industry Will Grow the Fastest by 2030 Miriam McNabb September 26, 2022

Drone Industry Insights ([DRONEII](#)) has published their annual flagship product, the [Drone Market Report](#). This year, the forecast goes out 8 years to 2030 – and gives new insight about where drone industry growth will be fastest, by region and by application



## UAS and SmallSat Weekly News



According to DRONEII's Drone Market Report, the global drone market is worth an estimated **\$30.6 billion** in 2022. It's a stunning number – but one poised for steady growth. DRONEII forecasts that the commercial drone market will experience a CAGR (Compound Annual Growth Rate) of 8.3% until 2030. "Overall, our drone market analysis shows that the market as a whole (commercial + recreational) will be worth **\$55.8 billion by the year 2030,**" writes Alvarado.

Where will drone industry growth be strongest? According to DRONEII's research, **Asia** is the fastest growing market, with Europe and North America close behind. DRONEII points out that the expanded time frame – until 2030 – allows for new regulations like flight beyond visual line of sight and remote ID to be enacted, and drone industry applications to scale accordingly. <https://dronelife.com/2022/09/26/droneii-drone-market-report-where-the-drone-industry-will-grow-the-fastest-by-2030/>

28Sep22

**ASX Flies Tiltwing eVTOL Air Taxi Demo with Plug-And-Play Payloads** Graham  
Warwick September 15, 2022



*ASX's Sigma Six has six rotors on a tilting wing, interchangeable payload modules and an automated ground vehicle to handle them.*

Detroit startup Airspace Experience Technologies (ASX) has completed the first hover flight of its proof-of-concept Sigma Six, a tiltwing electric vertical takeoff and landing (eVTOL) vehicle with interchangeable plug-and-play payloads for defense, emergency response, cargo and passenger transport missions.

The full-scale demonstrator was unveiled at the North American International Auto Show in Detroit Sept. 14 as part of a new Air Mobility Experience showcase. ASX completed the first tethered flight of the Sigma Six earlier this month and plans to expand the flight envelope through the rest of 2022 and into 2023 as it secures additional batteries.

[https://aviationweek.com/aerospace/advanced-air-mobility/asx-flies-tiltwing-evtol-air-taxi-demo-plugin-play-payloads?utm\\_rid=CPEN1000003332045&utm\\_campaign=34766&utm\\_medium=email&elq2=582ba2b9](https://aviationweek.com/aerospace/advanced-air-mobility/asx-flies-tiltwing-evtol-air-taxi-demo-plugin-play-payloads?utm_rid=CPEN1000003332045&utm_campaign=34766&utm_medium=email&elq2=582ba2b9)



## UAS and SmallSat Weekly News

[6d284b04b918e224292a9047&utm\\_emailname=AW\\_News\\_Aerospace\\_20220928&sp\\_eh=536b822f340988ca12deeaf6a0907ccae63850ee4cf07728d68baa3b8017155d](https://axcelinnovation.com/news/6d284b04b918e224292a9047&utm_emailname=AW_News_Aerospace_20220928&sp_eh=536b822f340988ca12deeaf6a0907ccae63850ee4cf07728d68baa3b8017155d)

### **CHEESESTEAKS ARE FLYING ON DRONES — JUST NOT IN PHILADELPHIA** September 26, 2022 Sally French



Charleys Philly Steaks, the world's largest cheesesteak franchise, today announced a partnership with [drone delivery company Flytrex](#) to have its cheesy, meaty, greasy sandwiches delivered via drone. The deliveries for now are

contained to Durham, North Carolina, which has become a hub of drone delivery tests for several other restaurants and other businesses conducting drone delivery operations. In fact, Flytrex has been conducting drone delivery flights in North Carolina since 2020, and it claims it has conducted **more deliveries via drone than any other company in the U.S.** (though Zipline likely holds the title of [most drone deliveries conducted worldwide](#)).

Flytrex partners with a number of other companies — primarily fast-food restaurant chains — to conduct drone deliveries. Other foods that Flytrex is willing to fly around Durham via drone include menu items from Burger King, McDonald's, Taco Bell and Starbucks. Recently, [Flytrex ran a partnership with ice cream giant Unilever](#) (the company behind brands like Ben & Jerry's, Breyers, Klondike, Magnum ice cream, and Popsicle) to run deliveries in honor of National Ice Cream Day. <https://www.thedronegirl.com/2022/09/28/charleys-cheesesteaks-flytrex-drone-delivery/>

### **A flying taxi just completed its first flight test as major airlines bet big on the new technology** PRARTHANA PRAKASH September 27, 2022

It's a bird...it's a plane...it's a flying taxi!



An aircraft created by British startup Vertical Aerospace successfully completed its first test flight, the company announced [Monday](#), marking a breakthrough of sorts for the aviation industry that seems increasingly interested in a new kind of passenger air travel.

Flying taxis like the VX4 aircraft produce zero operating emissions and are able to cruise at a speed of over 200 miles per hour and a distance of over 100 miles, according to a statement by



## UAS and SmallSat Weekly News

the company. The VX4 uses electric vertical take-off and landing (eVTOL) technology powered by a battery rather than jet fuel.

"This is a major milestone for the company. As you can imagine, whilst this is just the start, it is also the culmination of years of work; Vertical have been preparing for this day since inception in 2016," a spokesperson from Vertical Aerospace told *Fortune*.

<https://fortune.com/2022/09/27/flying-taxi-vx4-aircraft-test-flight-vertical-aerospace/>

### Eve signs eVTOL deal with UAM company BLADE India Bruce Crumley - Sep. 28th 2022



Embraer's [urban air mobility unit](#) (UAM) [Eve](#) has struck a multi-faceted deal with aerial service provider BLADE India that includes **an order of 200** of the Brazilian company's future [electric takeoff and landing](#) (eVTOL) aircraft.

The [partnership is designed](#) to assist BLADE India's preparation for [planned UAM services](#) like air taxi flights in the country, with Eve providing [eVTOL craft](#), operating systems, and navigation and air traffic management platforms.

As part of their linkup, Eve and Blade India intend on operating a three-month simulated [UAM transport](#) project using helicopters to simultaneously test routes and potential vertiport locations, while providing clients and the public an idea of what air taxi services will be like once [eVTOL craft](#) come on line.

That preview-offering pilot program plays into the strengths of BLADE India's parent company, Blade Air Mobility, which is expanding its short-hop helicopter and amphibious plane transportation [services into UAM](#), using Eve [eVTOLs](#) and ground tech to do so. As their partnership progresses, BLADE India plans to work toward what it initially foresees will be **50,000 hours of annual flight time** using Eve assets. <https://dronedj.com/2022/09/28/eve-uam-evtol/>

29Sep22

### Agility Prime Funds Mayman's Speeder Carole Rickard Hedden September 22, 2022

The scalable Mayman Aerospace Speeder offers autonomous, remote and piloted operations for up to 600 lb. of cargo.



## UAS and SmallSat Weekly News



The U.S. Air Force AFWerX Agility Prime initiative has added Mayman Aerospace to the list of companies receiving support to develop new-generation vertical takeoff and landing aircraft.

The \$1.25 million award will be used to continue development of Mayman's Speeder Air Utility Vehicle. Founder and CEO David Mayman and his

team worked closely with Matter Labs to win the direct to Phase II Small Business Innovation Research grant.

Based in Southern California, Mayman is developing a high-speed utility vehicle with a **payload of 600 lb. that can fly at speeds up to 500 mph and with a range of 500 mi.** The company is currently flight testing its third full-scale Speeder prototype, which can be operated in **autonomous**, remote, or piloted modes. [https://aviationweek.com/aerospace/advanced-air-mobility/agility-prime-funds-maymans-speeder?utm\\_rid=CPEN1000003332045&utm\\_campaign=34767&utm\\_medium=email&elq2=48cfe1be94444b899185039c04e29b5b&utm\\_emailname=AW\\_News\\_Aerospace\\_20220929&sp\\_eh=536b822f340988ca12deeaf6a0907ccae63850ee4cf07728d68baa3b8017155d](https://aviationweek.com/aerospace/advanced-air-mobility/agility-prime-funds-maymans-speeder?utm_rid=CPEN1000003332045&utm_campaign=34767&utm_medium=email&elq2=48cfe1be94444b899185039c04e29b5b&utm_emailname=AW_News_Aerospace_20220929&sp_eh=536b822f340988ca12deeaf6a0907ccae63850ee4cf07728d68baa3b8017155d)

## NASA Plans \$476M Contract Vehicle for Commercial Smallsat Data Products

MARY-LOUISE HOFFMAN SEPTEMBER 29, 2022



NASA is inviting potential offerors to review and give feedback on a planned acquisition program for [Earth observation data from commercial small satellites](#).

The space agency wants to procure smallsat data products and services through a multiple-award, indefinite-delivery/indefinite-quantity contract worth

potentially **\$476 million over five years**.

A presolicitation notice posted Tuesday on SAM.gov indicates that NASA will require vendors to comply with non-negotiable end-user license agreements that will include government provisions on data dissemination and shareability.

The procurement effort will involve a set of government-defined license tiers related to the overall contract and individual task orders covering scientific non-commercial applications,



## UAS and SmallSat Weekly News

NASA noted. <https://www.govconwire.com/2022/09/nasa-plans-476m-contract-vehicle-for-commercial-smallsat-data-products/>

### Thailand seals order for Hermes 900 28th September 2022 Shephard News Team



The Royal Thai Navy (RTN) has officially ordered the Hermes 900 Maritime UAS from Elbit Systems to meet its [MALE UAV requirements](#) for blue water and littoral missions.

In confirming the THB4 billion (\$120 million), three-year deal on 28 September, Elbit did not indicate the quantity of Hermes aircraft to be supplied, but Shephard previously reported that the RTN was looking for seven UAS plus two mobile ground control stations and a one indoor control station. Elbit will also provide 'training capabilities' for the RTN.

Thailand will be the third country in ASEAN to operate the Hermes 900 after Singapore and the Philippines. The UAVs will be operated from RTN coastal aviation bases.

The Hermes 900 Maritime UAS for Thailand will feature a maritime radar, an EO payload, SATCOM equipment and droppable inflatable life rafts for maritime SAR missions.

[https://www.shephardmedia.com/news/air-warfare/thailand-seals-order-for-hermes-900/?vgo\\_ee=tqmiRmjgFqa0tbrE6hm2%2BxhF%2B0Ss7x5Pkn%2BPTGhayD8%3D](https://www.shephardmedia.com/news/air-warfare/thailand-seals-order-for-hermes-900/?vgo_ee=tqmiRmjgFqa0tbrE6hm2%2BxhF%2B0Ss7x5Pkn%2BPTGhayD8%3D)

30Sep22

### Lilium's annual 400 eVTOL air taxi production goal seeks new funding Bruce

Crumley - Sep. 29th 2022



This is shaping up to be a busy and auspicious week for [electric takeoff and landing](#) (eVTOL) air taxi developer [Lilium](#). Just days after the German company hailed the success of its Phoenix 2 prototype's first full transition flight, its boss announced a search for new funding to enable what he said would be initial production targets of 400

craft each year.

The two events mark a maturing of [Lilium](#) as it advances eVTOL development toward certification, production, and launch of its [future air taxis](#). On Wednesday the company





## UAS and SmallSat Weekly News

posted [a video on social media](#) celebrating the first successful full-speed transition of its Phoenix 2 from vertical to horizontal flight. In a letter to shareholders the same day, Lilium's recently arrived CEO Klaus Roewe described why the sortie was so significant in the craft's evolution toward operation.

"Transition represents the technically challenging phase between powered vertical lift and the highly efficient wing-borne lift. The fact that the canard and the wing transitioned smoothly is an historic technical achievement in itself, but perhaps more important is that the transition happened precisely where the flight physics computer models predicted it would."

On Thursday, Reuters [published](#) comments Roewe made after a quarterly briefing of shareholders, in which he revealed the company's objectives to initially produce 400 [eVTOL air taxis](#) per year. <https://dronedj.com/2022/09/29/lilium-evtol-air-taxi/#more-87149>