



## UAS and SmallSat Weekly News

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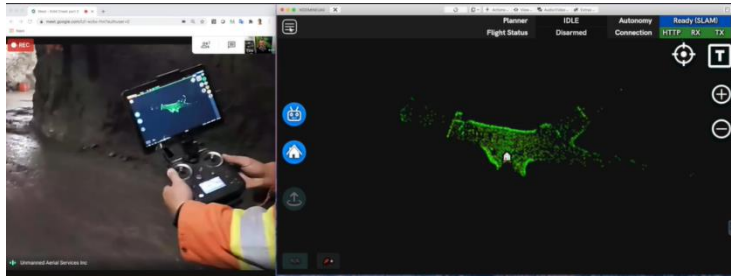
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### Emesent pioneers remote underground autonomous drone flight



Australian data analytics and drone autonomy start-up Emesent is writing its way into the record books with a series of remotely operated autonomous drone flights.

The most recent mission took place on August 28 at a **Canadian** Hard-Rock Mine. Emesent’s Hovermap LiDAR payload enabled an autonomous drone flight underground, **operated from Brisbane, Australia**. Local support was provided by Unmanned Aerial Services Inc, Emesent’s partner in the region. This collaboration resulted in the **world’s first** remotely operated autonomous drone flight in an underground mine.

The Canadian mission was the second for Emesent. In early August, the company conducted a remote demonstration for a South African company flying a Hovermap-enabled drone down a tunnel in Queensland, some 11,000 kilometers away. Hovermap uses LiDAR data and algorithms to provide autonomous navigation where GPS is not available.

[https://www.emesent.io/2020/10/14/how-emesent-is-pioneering-autonomous-drone-flight-operated-from-half-a-world-away/?utm\\_campaign=Website&utm\\_medium=email&\\_hsmt=102470530&\\_hsenc=p2ANqtz-9Vkszq6qezw7vOaWziRVHO-v-CeKstW4O9s8Vx11eo0abnv1af7-s2gtffvA4O71u\\_5fh29dofxOeuUjZa1yUXMha\\_g&utm\\_content=102470651&utm\\_source=hs\\_email](https://www.emesent.io/2020/10/14/how-emesent-is-pioneering-autonomous-drone-flight-operated-from-half-a-world-away/?utm_campaign=Website&utm_medium=email&_hsmt=102470530&_hsenc=p2ANqtz-9Vkszq6qezw7vOaWziRVHO-v-CeKstW4O9s8Vx11eo0abnv1af7-s2gtffvA4O71u_5fh29dofxOeuUjZa1yUXMha_g&utm_content=102470651&utm_source=hs_email)

### This drone can hang onto objects with a mechanical gripper Josh Spires Dec. 10th 2020



[Engineers](#) at Colorado State University have equipped a tiny drone with a mechanical gripper that allows it to hold onto objects using less power and producing much less noise.

The engineers have used a third-party micro drone to base new research. It uses a mechanical plunger that pulls a string, which closes the gripper arms together. The arms have rubber tips to allow a stronger grip.



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Due to the arms' construction, they can latch onto objects of various sizes and stay connected until told to let go. To make the system autonomous, a large pad has been added in between the arms so that when it flies into an object, the arms pull closed automatically. When it's time for the arms to come apart, a small amount of electricity is sent to the plunger to release the arms. Other than that, the system doesn't require any power to work. Video:

<https://dronedj.com/2020/12/10/this-drone-can-hang-onto-objects-with-a-mechanical-gripper/>

### **Drones drop Mexican city's crime rate by 42%** Josh Spires - Dec. 10th 2020



Around two years ago, the city of López Mateos, Mexico, headed up by Ruth Olvera Nieto, launched a drone surveillance program to ensure citizens' safety and well-being. They have been used to check on people and catch crimes as they are happening.

When the pandemic arrived in Mexico, the drones were given the task of giving out messages using a megaphone and ensuring people in high-risk areas were following COVID orders.

The drones used have a **flight time of two hours** and can fly up to 500 meters (1640 feet) high. They are equipped with a zoom and thermal camera to find people during the day and night. The city has also worked with the national guard to ensure people are following orders.

The municipality of Metepéc in Mexico has also been using drones for the last two years, with many people loving the high-tech addition. This month, Gabriela Gamboa Sánchez, Constitutional President of Metepéc City Council, announced a new drone program focusing on crime prevention, the recovery of stolen vehicles, surveillance in busy areas, event coverage, and rescue efforts. They have also been broadcasting messages into public areas, reminding people to follow COVID rules. <https://dronedj.com/2020/12/10/drones-managed-to-drop-a-mexican-citys-crime-rate-by-42/#more-43384>

### **Drones and AI used to measure soybean maturity** Josh Spires Dec. 10th 2020



Current methods require people to spend hours in the sun every day to check the soybeans. The drones have cut the time down to just two days without the need for anyone on the ground.

Researchers at the University of Illinois have turned to drones to improve the efficiency and accuracy of



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measuring the maturity of soybeans. To detect most of the soybeans, a drone passes over them a few times taking photos each pass. The images are then compared to one another to see the difference in each one. This was done **five times across three seasons in two countries** to ensure the drones can produce accurate data.

The test images were fed into a deep convolutional neural network, that allows it to think similarly to a human brain. The color, shape, and texture of each soybean were pulled from the images and then compared to previously taken images to give a result.

<https://dronedj.com/2020/12/10/drones-and-ai-used-to-measure-soybean-maturity/#more-43180>

### 2021 DRONE INDUSTRY IS “A LESS OPTIMISTIC PICTURE,” RESEARCH

**SUGGESTS** December 11, 2020 Sally French The Drone Girl News



The impact of coronavirus was a mixed bag for drone companies in 2020. Some companies actually grew, as people’s new, socially-distanced lifestyles prompted [landmark opportunities for drone delivery](#) and got people picking up largely [solo hobbies](#) that mesh well with nature (aka drone flying). Still, the 2021 drone industry is a less optimistic picture than what people had expected prior to coronavirus becoming a word in our vocabularies.

The drone industry is expected to be worth \$42.8 billion by 2025, according to a new report from German-based drone research firm [Drone Industry Insights](#), almost **double its current size**.

“The commercial drone has also already made gains during the pandemic. Thanks to medical applications of commercial drones among many other automated solutions provided (mapping, surveying, broadcasting etc.), [drone companies](#) like Zipline and Wing have been able to deliver and scale their solutions quicker than previously expected,” according to the report. Other related industries that have seen explosive growth like [real estate](#) (largely due to flexible work-from-home situations and low interest rates) have also led to an increased demand for drones to do work like creating aerial home tours.

Much of the growth in the coming years is expected to be in energy, transportation and warehousing. With all that growth, it also means drone sales will increase. By 2021, DII predicts that the commercial drone industry will be selling **1,000,000 drone units per year** — about double what it’s doing now. <http://www.thedronegirl.com/2020/12/11/2021-drone-industry/>



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### Easy Aerial's New Drone Offers Unlimited Endurance and a Triple Payload Capacity

Miriam McNabb December 10, 2020



The Albatross tethered hexacopter offers an 8.5 lb payload capacity, a rugged design, and flight endurance – making it an ideal solution for extremely long overwatch or surveillance flights regardless of weather conditions.



“It is designed with three hardpoints that support a wide range of payloads such as floodlights, communications relays, loudspeakers and a range of cyber-related and other commercial and military electronic systems,” says an Easy Aerial press release. “The bottom hardpoint is designed for gimballed cameras or large ISR payloads such as radars and communication jammers. It offers 20 EO/IR cameras.”

The system can take off and land from a portable, rechargeable enclosure without the need for an on-site operator and can be **remotely deployed and operated from anywhere in the world**, including GPS-denied environments.”



The Albatross's data over power tether system enables unlimited flight time while also transmitting HD video and telemetry through the connected power line. “This avoids the need for radio transmission and allows cyber-secure data transmissions,” says the press release. <https://dronelife.com/2020/12/10/easy-aerials-new-drone-offers-unlimited-endurance-and-a-triple-payload-capacity/>

### AFLCMC awards contract for Skyborg prototypes *Daryl Mayer, Air Force Life Cycle*

*Management Center Public Affairs December 10, 2020*



**WRIGHT-PATTERSON AFB, Ohio (AFNS)** -- The [Air Force Life Cycle Management Center](#) has awarded contracts to three companies to produce missionized unmanned aerial vehicle prototypes with the ability to fly in experimentation events while **teaming with manned aircraft**.

The contracts were awarded with a 24-month period of performance to:

- The Boeing Co., for \$25,748,180
- General Atomics Aeronautical Systems Inc., for \$14,317,933
- Kratos Unmanned Aerial Systems Inc., for \$37,771,577



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The aim of the Skyborg Vanguard program is to integrate autonomous attritable UAV technology with open missions systems to enable **manned-unmanned teaming**. Skyborg will provide the foundation on which the Air Force can build an airborne autonomous ‘best of breed’ system that adapts, orients and decides **at machine speed** for a wide variety of increasingly **complex mission sets**.

These high priority development programs are meant to rapidly field systems, by **pairing** technology development under AFRL with the acquisitions capabilities found in AFLCMC. <https://www.af.mil/News/Article-Display/Article/2440755/aflcmc-awards-contract-for-skyborg-prototypes/>

**PABLO AIR completes simultaneous drone delivery over 50 miles** Josh Spires Dec. 11th 2020



[The two drones](#) delivered medical supplies from the base at Incheon New Port to two separate islands. The drones took off simultaneously and took one hour and 20 minutes to complete the trip.

The drones were monitored during the flight via an LTE connection. The trial flight was a part of the robot delivery project funded by the Incheon Metropolitan City and Incheon Technopark.

Attending the flight was representatives from the Ministry of Land, Infrastructure, Transport; Incheon Metropolitan City; Incheon Technopark; Incheon Port Authority; Korea Institute of Aviation Safety Technology; Incheon Industry Academy Collaboration Institute; and Jeyang Logistics.

Earlier in the year, PABLO AIR announced that it would begin drone deliveries to a group of remote islands off Korea’s coast. The drones are expected to **begin regular flights in the new year** and be a much more efficient way of transporting goods from the mainland. Goods are currently sent over on the same ships used to transport passengers. The company has demonstrated its delivery drones by doing a test flight of its long-range drone covering 57.5 km in 1 hour and 56 minutes. <https://dronedj.com/2020/12/11/pablo-air-completes-simultaneous-drone-delivery-over-50-miles/>



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### VIDEO: MQ-25A Stingray Prototype Makes First Flight with Aerial Refueling Stores

Sam LaGrone December 10, 2020



Taking off from the company's test site at the MidAmerica Airport in Illinois near St. Louis, Mo., the Stingray prototype flew for two and a half hours with an aerial refueling store (ARS) slung under its wing.

The prototype was built by Boeing in 2014 when the company was competing for the [Unmanned Carrier Launched Airborne Surveillance and Strike \(UCLASS\)](#) and has been used by the Navy and the company for testing ahead of the first engineering models. [In April](#), the Navy committed \$84.7 million to buy three more MQ-25As. The redesignated tanker had its first flight last year and has spent its time working through a Navy testing regime.

The plan is for the service to buy 72 of the aircraft for about **\$1.3 billion** to relieve the stress on the Navy's fleet of F/A-18F Super Hornets – the current refueler for the carrier air wing. <https://news.usni.org/2020/12/10/video-mq-25a-stingray-prototype-makes-first-flight-with-aerial-refueling-stores>

### Intel Agencies Seek to Perfect Biometric Recognition from Drones

Aaron Boyd, Senior Editor, Nextgov DECEMBER 11, 2020



The intelligence community wants to put biometric identification technology on drones but has hit a wall when it comes to the most widely used biometric: facial recognition.

Federal programs experimenting with facial recognition technology have found the reliability depends greatly on lighting, camera position and other environmental factors—elements that are almost impossible to control at long range. But improvements in computer vision and techniques that **take a subject's entire body into account** are increasing the possibilities.

The Intelligence Advanced Research Projects Activity issued a solicitation for its latest attempt to improve biometrics at range, the Biometric Recognition and Identification at Altitude and Range, or BRIAR, program.



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“The BRIAR program aims to develop software algorithm-based systems capable of performing whole-body biometric identification at long-range and from elevated platforms,” the call states, outlining a three-phase process to prototype and test novel ways to incorporate multiple biometric signatures—such as face, gait and body type—to improve identification and verification at long ranges and steep angles. <https://www.nextgov.com/emerging-tech/2020/12/intel-agencies-seek-perfect-biometric-recognition-drones/170712/>

### **Flame-throwing drones incinerate hornets’ nests amid infestation in China** Isabel Vincent December 12, 2020



A group of volunteers has converted drones into deadly flamethrowers to fight against an infestation of hornets’ nests in central China.

Blue Sky Rescue, the volunteer search-and-rescue group near the city of Chongqing in central China raised more than \$12,000 to convert drones to flying flame-throwers using a gasoline tank and nozzle, [according to the AP](#).

Videos released by the company show a recent mission to bring down 11 hornets’ nests in the city. The drone hovers above a hive before swooping down. The drone operator presses an ignition switch and the drone hurls out a tongues of fire into the hive.

“The burning ashes of the wasp’s nest gradually peeled off and fell, and the surrounding residents applauded and praised the rescue team.” <https://nypost.com/2020/12/12/flame-throwing-drones-incinerate-hornets-nests-in-china/>

### **What you can see with a drone: Amazing photographs 118 PHOTOS** Dec. 10, 2020 Impressive photography. Here’s the first one...



Vehicles line up to enter a COVID-19 testing site at Dodger Stadium on the first day of new stay-at-home orders on Dec. 7, 2020 in Los Angeles, Calif. Under state order, 33 million residents of California have entered into regional shutdowns in an attempt to contain the spread of the coronavirus as ICU capacity has dipped below 15 percent in most regions of the state. Barbershops, hair and nail salons, museums, zoos, movies theaters are closed while restaurants are open for takeout or





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delivery only. MARIO TAMA, GETTY IMAGES <https://www.usatoday.com/picture-gallery/tech/news/2018/07/03/what-you-can-see-with-a-drone-amazing-photographs/36581467/>

14Dec20

### Three companies win NASA small launch contracts Jeff Foust December 12, 2020



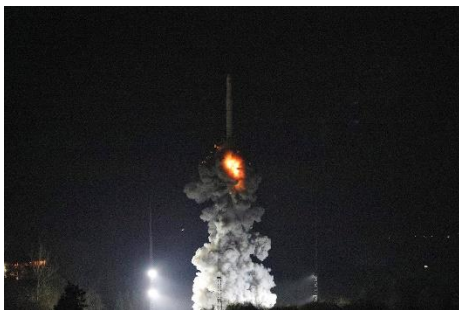
WASHINGTON — Three small launch vehicle developers won a combined \$16.7 million in NASA contracts as part of an effort to support the development of new launch vehicles.

Astra Space, Firefly Aerospace and Relativity Space won the contracts through NASA's Venture Class Launch Services (VCLS) 2 program, the agency announced Dec. 11. The companies will **launch cubesats provided by NASA** on those missions, with launches required by the end of June 2022.

In [a request for proposals issued in July](#), the agency sought proposals for two specific types of missions. One, called Mission One, would be a dedicated launch of 30 kilograms of cubesats into a 500-kilometer mid-inclination orbit. The other, Mission Two, would launch 75 kilograms of cubesats into one 550-kilometer sun-synchronous orbit and 20 kilograms into a similar orbit, but in a plane separate from the first by at least 10 degrees.

Astra received a \$3.9 million contract that the company confirmed was for Mission One. Firefly, through its government services subsidiary Firefly Black, received a \$9.8 million contract for Mission Two. Relativity received a \$3.0 million contract, but did not disclose what class of mission its contract is for. <https://spacenews.com/three-companies-win-nasa-small-launch-contracts/>

### China launches two small satellites for gravitational wave research December 10, 2020 Stephen Clark



Two small Chinese satellites designed to **detect gamma-ray bursts associated with gravitational waves** launched Wednesday on a Long March 11 rocket, beginning an astrophysics research mission to study black holes and neutron stars.

The Gravitational Wave High-energy Electromagnetic Counterpart All-sky Monitor, or GECAM, mission was



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developed by the Chinese Academy of Sciences on a rapid timeline of a little more than two years.

The two GECAM satellites, each about 330 pounds, lifted off on top of a Long March 11 rocket from the Xichang launch base, a site surrounded by mountains in Sichuan province in southwestern China.

The 68-foot-tall solid-fueled launcher fired out of a **launch tube on a mobile transporter** at 3:14 p.m. EST Wednesday. After heading east from the Xichang launch facility, the four-stage Long March 11 rocket delivered the two GECAM satellites to an orbit about 372 miles with an inclination of 29 degrees to the equator, according to U.S. military tracking data.

The Chinese Academy of Sciences said the GECAM satellites will operate together as an all-sky monitor to detect gamma-ray bursts associated gravitational waves, **ripples in the fabric of spacetime caused by cataclysmic events in the distant universe like collisions between black holes and neutron stars.** <https://spaceflightnow.com/2020/12/10/china-launches-two-small-satellites-for-gravitational-wave-research/>

**General Atomics Books \$305M Air Force Reaper UAV Support Contract** Matthew Nelson December 14, 2020 Contract Awards, News



The sole-source, cost-plus-fixed-fee [contractor logistics contract](#) includes depot repair and maintenance of the multi-mission remotely piloted aircraft, sustaining engineering, program and configuration management and warehouse support services, the Department of Defense said Friday.

DoD added the company will maintain technical data and software.

The service branch will obligate \$65.4M at the time of award from its fiscal 2021 operation and maintenance funds.

According to the Air Force, the [MQ-9 RPA](#) is designed primarily to disable or destroy time-sensitive targets and has a secondary function as an intelligence-gathering platform. <https://www.govconwire.com/2020/12/general-atomics-books-305m-air-force-reaper-uav-support-contract/>



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### Marine-i supports development of offshore windfarm inspection drone HEADLINE

NEWS JOE PESKETT DECEMBER 14, 2020



Support from Marine-i is enabling Falco Drone Technologies to develop a new drone which could play a vital role in the inspection and maintenance of floating offshore wind installations. A prototype of the design will commence trials in summer 2021.

Part funded by the European Regional Development Fund, Marine-i is designed to help the marine tech sector in Cornwall and the Isles of Scilly in the UK grow through harnessing the full potential of research and innovation.

Existing drone technology is limited by two crucial factors: flight times and the ability to fly in adverse weather and high winds, reducing flight times and grounding most drones in wind speeds over 25 mph – a particularly bad problem for exposed offshore installations.

Falco Drone Technologies' director, Patrick Maletz, said: "Our technology allows for drastically improved flight performance of multirotor drones by **mimicking bird flight**.

"The technology allows drones to efficiently harness local wind energy to supplement lift while being able to fly long distances with the efficiencies of a plane, perfectly blending the benefits of fixed wing and multirotor aircraft. The typical flight time for a conventional battery powered drone is at most one hour and often much less. We believe that we can increase this **up to six hours**." <https://www.commercialdroneprofessional.com/marine-i-supports-development-of-offshore-windfarm-inspection-drone/>

15Dec20

### Travis Air Force Base Deploys Autonomous Drone Monitoring and Perimeter Security Miriam McNabb December 14, 2020



"The 60th Air Mobility Wing, 60th Security Forces Squadron, in conjunction with Easy Aerial, has developed and deployed the **first** automated drone-based monitoring and perimeter security system for a United States Air Force installation," says an Easy Aerial press release.



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Easy Aerial and the USAF collaborated on the development of the Smart Air Force Monitoring System free-flight drone-in-a-box solution, along with a tethered version. The two-year project was part of a Small Business Innovation Research Phase II program. The solution was developed to conform to the Air Force Base Perimeter Security and Situational Awareness operational requirements.

It will be deployed at Travis Air Force Base. "The systems provide autonomous scheduled and on-demand flights that transmit real-time HD and thermal data needed to protect both airmen and assets against airborne, ground and water-based threats in all environments. "

<https://dronelife.com/2020/12/14/travis-air-force-base-deploys-autonomous-drone-based-monitoring-and-perimeter-security/>

### **Aevum's Ravn X Drone to Offer Rapid Launches to Low-Earth Orbit** Frank Wolfe

December 14, 2020



Alabama-based Aevum Inc.'s Ravn X drone plans to offer the U.S. Space Force and other customers launches to Low-Earth Orbit **within three hours** of tasking. The 80-foot, 55,000-pound drone with a wingspan of 60 feet is to have second and third stages that will carry payloads up to 500 kg. to LEO.

The Ravn X debut launch for national security payloads is scheduled to occur in the second half of next year for the Agile Small Launch Operational Normalizer mission from the Cecil Spaceport in Jacksonville, Fla.

"Aevum's autonomous launch capabilities are operational on any runway of a mile in length," Skylus wrote. Responsiveness matters most when the airspace is contested.

Commercial pricing for a dedicated Ravn X launch is between \$4 million and \$8 million, as the U.S. Air Force and Space Force examine proliferated LEO constellations of small satellites to meet national security needs at a fraction of the cost of traditional heavier, national security satellites. <https://www.aviationtoday.com/2020/12/14/aevums-ravn-x-drone-offer-rapid-launches-low-earth-orbit/>



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### UAS Completes Navy's 1st Aerial Refueling Test Flight 14 Dec 2020 Sarah Simpson

Boeing's MQ-25 T1 test asset for The U.S. Navy has flown **for the first time** with an aerial refueling store (ARS).



Ongoing flights of the autonomous UAS will allow for further development of software components and informs testing of the aerial refueling hardware that the MQ-25 will use operationally. The flight was conducted by [Boeing](#) test pilots operating from a ground control station at MidAmerica St. Louis Airport in Mascoutah, Ill.



The aerial refueling store used in the 2.5-hour flight is the same one currently in use by F/A-18s for air-to-air refueling. This initial test flight was designed to test the fixed wing UAVs aerodynamics with the ARS mounted under the wing.

Future flights will continue to test the aerodynamics of the aircraft and the ARS at various points of the flight envelope, eventually progressing to extension and retraction of the hose and drogue used for refueling.

[https://www.unmannedsystemstechnology.com/2020/12/fixed-wing-uas-completes-navys-1st-test-flight-with-aerial-refueling-store/?utm\\_source=UST+eBrief&utm\\_campaign=d44cbffca6-eBrief\\_2020\\_15Dec&utm\\_medium=email&utm\\_term=0\\_6fc3c01e8d-d44cbffca6-119747501](https://www.unmannedsystemstechnology.com/2020/12/fixed-wing-uas-completes-navys-1st-test-flight-with-aerial-refueling-store/?utm_source=UST+eBrief&utm_campaign=d44cbffca6-eBrief_2020_15Dec&utm_medium=email&utm_term=0_6fc3c01e8d-d44cbffca6-119747501)

### Iris Automation raises \$13 million for visual drone object avoidance tech Darrell

Etherington@etherington December 15, 2020



[Iris Automation](#) is developing computer vision products that can help simplify the regulatory challenges involved in setting standards for pilotless flight, thanks to its detect-and-avoid technology that can run using a wide range of camera hardware. The company has raised a \$13 million Series B funding round to improve and extend its tech, and to help provide demonstrations of its efficacy in partnership with regulators.

Iris comes in with an optical camera-based obstacle avoidance system that uses computer vision to effectively replace this last line of defense when there isn't a pilot to do so. And what this unlocks is a key limiting factor in today's commercial drone regulatory environment: The ability to fly aircraft beyond visual line of sight.



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Iris has made progress toward making this a reality, working with the FAA this year as part of its integrated pilot program to demonstrate the system in two different cases. It also released the second version of its Casia system, which can handle significantly longer-range object detection.

This Series B round includes investment from [Bee Partners](#), OCA Ventures and new strategic investors Sony Innovation Fund and Verizon Ventures. Sony provides great potential strategic value because it develops so much of the imaging sensor stack used in the drone industry, and Sony also develops drones itself. For its part, Verizon offers key partner potential on the connectivity front which is invaluable for managing large-scale drone operations.

[https://techcrunch.com/2020/12/15/iris-automation-raises-13-million-for-visual-drone-object-avoidance-tech/?utm\\_campaign=Series%20B&utm\\_medium=email&\\_hsmi=103109530&\\_hsenc=p2ANqtz-9NDLdTgzndNBZkTvJ6KRvRbtW2vldM3Vt8gnOIKhjWF\\_Q2Kn8wl97bzkl38\\_forzre4cFySApfdTbKIKMy9o6pHfLMw&utm\\_content=103109530&utm\\_source=hs\\_email](https://techcrunch.com/2020/12/15/iris-automation-raises-13-million-for-visual-drone-object-avoidance-tech/?utm_campaign=Series%20B&utm_medium=email&_hsmi=103109530&_hsenc=p2ANqtz-9NDLdTgzndNBZkTvJ6KRvRbtW2vldM3Vt8gnOIKhjWF_Q2Kn8wl97bzkl38_forzre4cFySApfdTbKIKMy9o6pHfLMw&utm_content=103109530&utm_source=hs_email)

## ZM INTERACTIVE INTRODUCES DRONE CAPABLE OF LIFTING UP TO 1,000 POUNDS

AUVSI NEWS DEC 15, 2020



On Monday, Dec. 14, ZM Interactive announced the newest additions to its line of xFold drones. The xFold Dragon is capable of lifting up to 1,000 pounds, while the Dragon Hybrid boasts a flight time of 1.5 hours on battery and more than eight hours with a hybrid system.

The drones are also the **only industrial UAS that can switch between configurations in minutes**. This includes adding robotic arms for delivery, extinguisher ball droppers for firefighting, sprayers for agriculture, or sensors for 3D mapping. Designed, manufactured, built and assembled by ZMI in the U.S. using proprietary components, the military grade commercial drones are made to fly in inclement conditions.

The xFold line of Dragon super carrier drones includes five different sizes and capacities with Payloads ranging from 100-1,000 pounds.

The xFold is suitable for a variety of applications and are being used by customer, including Bell Helicopter, Dynatics, NASA JPL, Livermore Labs, Israel Defence Force, U.S. Military, USDA, police and fire departments. They are being used in the U.S., Canada, Mexico, Europe, Asia, Africa and Israel. <https://www.auvsi.org/industry-news/zm-interactive-introduces-drone-capable-lifting-1000-pounds>



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### Northrop to Support NASA UAS Data Collection Test Under \$70M Contract

Matthew Nelson December 16, 2020 Contract Awards, News



[Northrop Grumman](#) (NYSE: NOC) has landed a five-year, \$70M contract to help NASA's Armstrong Flight Research Center integrate sensor technology onto **unmanned aircraft**. The company will perform engineering, production and technical services under the [Global Hawk Skyrange](#) program aimed at demonstrating an alternative approach to collect data with the high-altitude, long-endurance aircraft.

Northrop's systems business serves as the air vehicle original equipment manufacturer and brings ground systems integration experience, drawings and tooling required by the program. Contract work began Tuesday and will continue through Dec. 14, 2025. Locations include the Armstrong facility, Edwards Air Force Base in California and company sites.

The agency seeks to increase data-gathering efforts with Global Hawk UAS to manage the transmission of telemetry data from hypersonic platforms.

[https://www.govconwire.com/2020/12/northrop-to-support-nasa-uas-data-collection-test-under-70m-contract/?utm\\_campaign=Posts%20from%20GovconWire%2012.16.2020%20%28TDqeEu%29&utm\\_medium=email&utm\\_source=Executive%20Mosaic%20Publications&\\_ke=eyJrbF9jb21wYW55X2lkljogIlRCS0t4UClsICJrbF9lbWFpbCI6ICJyb2JlcnRocmVhQGdtYWlsLmNvbSJ9](https://www.govconwire.com/2020/12/northrop-to-support-nasa-uas-data-collection-test-under-70m-contract/?utm_campaign=Posts%20from%20GovconWire%2012.16.2020%20%28TDqeEu%29&utm_medium=email&utm_source=Executive%20Mosaic%20Publications&_ke=eyJrbF9jb21wYW55X2lkljogIlRCS0t4UClsICJrbF9lbWFpbCI6ICJyb2JlcnRocmVhQGdtYWlsLmNvbSJ9)

### Unmanned Systems Highlights Of 2020 Graham Warwick



Leonardo flew its Falco Xplorer medium-altitude, long-endurance unmanned aircraft at Trapani Air Base in Italy on Jan. 15. The aircraft is designed to have an endurance of more than **24 hr. at 24,000 ft.** with a maximum payload of 770 lb.



BAE Systems flew the first full-scale prototype PHASA-35 solar-powered high-altitude pseudo-satellite for the first time on Feb. 10 at Woomera in Australia. The 115-ft. span unmanned aircraft system is designed to **stay aloft in the stratosphere for up to a year.**



## UAS and SmallSat Weekly News



Boeing Australia rolled out the first prototype Airpower Teaming System “loyal wingman” unmanned aircraft on May 5 with the goal of flying the jet-powered UAV by year-end. Taxi tests began in October at an undisclosed location.



Leidos was selected in May to design and demonstrate the autonomy platform to be integrated with the U.S. Air Force’s future family of Skyborg unmanned aircraft systems. **Fourteen companies are competing** to design the air vehicles.



The NATO Alliance Ground Surveillance Force conducted the first flight of the Northrop Grumman RQ-4D Phoenix unmanned aircraft system on June 4 from Sigonella Air Base, Sicily. The **fifth** and final aircraft in the fleet arrived in November.



In July, under DARPA’s Gremlins program, Dynetics tested the complete system for the airborne launch and recovery of multiple unmanned aircraft. Dynetics flew the second Gremlins air vehicle in close formation with the recovery Lockheed Martin C-130 while captive-carry tests demonstrated the **towed docking system**.



The UK Defense Ministry signed a \$88 million launch contract with General Atomics Aeronautical Systems for the first three of 16 Protector RG.1 versions of the MQ-9B Sky Guardian unmanned aircraft. The first Protector for the UK Royal Air Force made its maiden flight in September.



Israel Aerospace Industries claimed **the world’s first landing of an unmanned aircraft at a major airport** on Sept. 16. Its Heron flew into Tel Aviv’s Ben Gurion International alongside commercial aircraft.



HAPSMobile operated the first stratospheric flight of its AeroVironment-developed SunGlider high-altitude pseudo-satellite on Sept. 21 from Spaceport America in New Mexico. The 256-ft. flying wing reached an altitude of **62,500 ft.** [https://aviationweek.com/aerospace-defense-](https://aviationweek.com/aerospace-defense-2021/unmanned-systems-highlights-2020?utm_rid=CPEN1000003332045&utm_campaign=26587&utm_medium=email&elq2=118288460125470c8534a6f9c17f6574)

[2021/unmanned-systems-highlights-](https://aviationweek.com/aerospace-defense-2021/unmanned-systems-highlights-2020?utm_rid=CPEN1000003332045&utm_campaign=26587&utm_medium=email&elq2=118288460125470c8534a6f9c17f6574)

[2020?utm\\_rid=CPEN1000003332045&utm\\_campaign=26587&utm\\_medium=email&elq2=118288460125470c8534a6f9c17f6574](https://aviationweek.com/aerospace-defense-2021/unmanned-systems-highlights-2020?utm_rid=CPEN1000003332045&utm_campaign=26587&utm_medium=email&elq2=118288460125470c8534a6f9c17f6574)





## UAS and SmallSat Weekly News

### XAG Unveiled New-gen Agricultural Drone PRESS 2020-12-16



[XAG](#) has launched a new series of smart agri-tech at its annual conference hosted on 15 December, introducing more in-depth digital unmanned solutions to make farming easier and more sustainable. The new releases include three models of XAG Agricultural Drone and two editions of R150 Unmanned Ground Vehicle for broadcast and mower, which will soon be commercially available in the Chinese market. XAG also announced a scale-up of AI subscription map service for crop spraying in China, fighting against pesticide overuse and misuse.

According to Justin Gong, Co-founder of XAG, as urbanization in China continues to accelerate and reach over 65% by 2050, rural aging and loss of agricultural workforce might be eating into a food-secure future. “In face of these challenges, we need to leverage the power of agri-tech to reshape the agriculture and food system, **bridging the rural digital divide** and helping farmers yield a higher profit margin of producing crops,” he said.

[https://www.uavexpertnews.com/2020/12/xag-unveiled-new-gen-agricultural-drone/?utm\\_source=Master&utm\\_campaign=2c90ea79f5-EMAIL\\_CAMPAIGN\\_2017\\_12\\_20\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_35ad7bc94d-2c90ea79f5-89168288](https://www.uavexpertnews.com/2020/12/xag-unveiled-new-gen-agricultural-drone/?utm_source=Master&utm_campaign=2c90ea79f5-EMAIL_CAMPAIGN_2017_12_20_COPY_01&utm_medium=email&utm_term=0_35ad7bc94d-2c90ea79f5-89168288)

### Nordic Unmanned has Developed and Demonstrated a Hydrogen Fuel Cell Powered Drone December 15, 2020 News



Sandnes, Norway – Nordic Unmanned AS has carried out a successful test flight with a hydrogen fuel cell powered Staaker BG-200. It is equipped with a 2kW customized fuel cell system from HES and a 7.2 L pressure vessel with hydrogen at 300 bar. With a 9 L pressure vessel, an endurance of **120 minutes** can be achieved. The standard Staaker BG-200 has a typical endurance of **60 minutes**. The goal is to have the fuel cell system as a “high endurance module” that can be installed on any “fuel cell ready” Staaker BG-200.

Fuel cells are an environmentally friendly technology that also can provide superior performance for certain applications. The research project was initiated in 2018 and has been carried out in the framework of an industrial Ph.D. program funded by the Research Council of Norway. R&D Engineer and Ph.D. candidate, Jørgen Apeland states:



## UAS and SmallSat Weekly News

“This is a significant milestone for the project. Hydrogen-powered aviation is a part of the future, and with the successful test flight today, we made an important step towards making it happen.” [https://uasweekly.com/2020/12/15/nordic-unmanned-has-developed-and-demonstrated-a-hydrogen-fuel-cell-powered-drone/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=nordic-unmanned-has-developed-and-demonstrated-a-hydrogen-fuel-cell-powered-drone&utm\\_term=2020-12-16](https://uasweekly.com/2020/12/15/nordic-unmanned-has-developed-and-demonstrated-a-hydrogen-fuel-cell-powered-drone/?utm_source=rss&utm_medium=rss&utm_campaign=nordic-unmanned-has-developed-and-demonstrated-a-hydrogen-fuel-cell-powered-drone&utm_term=2020-12-16)

17Dec20

### Avison Is Working with NASA to Provide Drone Fleet Operations Management

Danielle Gagne Public Safety & Emergency Services DECEMBER 15, 2020



As drone use in emergency services and public safety continues to grow, the need for traffic management has only increased. For example, during a natural disaster or other complex mission, there is usually more than one type of aircraft in the airspace.



Scenarios like these sparked NASA to spearhead research into public safety traffic management for manned and unmanned flight. The project is called [Scalable Traffic Management for Emergency Operations](#), or **STEReO**, and is led by the Ames Research Center in California’s Silicon Valley in collaboration with

the Langley Research Center, the Glenn Research Center, FAA, U.S. Forest Service, Avison Inc., and others.

This kind of research is helping key stakeholders from industry, end-users and federal agencies collaborate and understand the complexity of the issue, especially in large scale efforts like fighting wildfires, assessing hurricane damage, and search and rescue.

[Avison](#) specializes in fleet operations management for industries like public safety. They provide tactical BVLOS support, LAANC authorization, live video streaming for situational awareness, network remote ID and UAS Volume Reservation, which enables operators to set up temporary flight restrictions for drone operations. [https://www.commercialuavnews.com/public-safety/avison-is-working-with-nasa-s-scalable-traffic-management-for-emergency-operations-stereo-project-to-provide-drone-fleet-operations-management?utm\\_source=marketo&utm\\_medium=email&utm\\_campaign=newsletter&utm\\_content=newsletter&mkt\\_tok=eyJpIjoiTURWak1XTmtPREpoTldJNCIsInQiOiJONmwyU0xTamNLaW0wQjFTXC9KUXYrdk1WN0VreTAzZEp2MVorNWI3XC9TS01FNGLHaXJTcEJCdG1XZDJHM1Bmamo5aVp1bDc0bkJTVmZZbjFZSlwvbDlkQWF0bzllOVpvTEJXNGZuQ1p2Z3BSeG9nWkxVSjVrTE5VWUhyYmlwN2pVUCJ9](https://www.commercialuavnews.com/public-safety/avison-is-working-with-nasa-s-scalable-traffic-management-for-emergency-operations-stereo-project-to-provide-drone-fleet-operations-management?utm_source=marketo&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter&mkt_tok=eyJpIjoiTURWak1XTmtPREpoTldJNCIsInQiOiJONmwyU0xTamNLaW0wQjFTXC9KUXYrdk1WN0VreTAzZEp2MVorNWI3XC9TS01FNGLHaXJTcEJCdG1XZDJHM1Bmamo5aVp1bDc0bkJTVmZZbjFZSlwvbDlkQWF0bzllOVpvTEJXNGZuQ1p2Z3BSeG9nWkxVSjVrTE5VWUhyYmlwN2pVUCJ9)

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## UAS and SmallSat Weekly News

### Global success fuels growth for Cyberhawk December 16, 2020 News



Cyberhawk, a global leader in drone-based inspection and creator of iHawk, a cloud-based asset visualization software, **increased** its yearly **revenue by 51 percent** in 2020 after the company expanded its headcount and footprint in key international regions.

In response to global demand for its drone-based inspection, surveying and data visualization services, Cyberhawk has doubled its headcount, with over **100 staff members based in the UK, India, Qatar, and three offices in the USA.**

Cyberhawk's growth has been driven by a surge in demand for drone-based inspections and asset visualization software. Significant contract wins included a new five-year agreement with one of the world's biggest state-owned oil and gas producers in the Middle East. The contract allows any local energy operator to procure Cyberhawk's services, making it the only approved drone inspection and visualization partner in the country for the energy sector. The firm also supported a major US utility with **inspections of over 50,000 transmission structures** in California as part of its wildfire prevention and reliability campaign.

iHawk has been endorsed by multiple construction projects including a Shell multimillion-dollar contract in June 2020 to deliver visual asset management across its onshore, offshore and subsea assets, as well as all global construction projects.

[https://uasweekly.com/2020/12/16/global-success-fuels-growth-for-cyberhawk/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=global-success-fuels-growth-for-cyberhawk&utm\\_term=2020-12-17](https://uasweekly.com/2020/12/16/global-success-fuels-growth-for-cyberhawk/?utm_source=rss&utm_medium=rss&utm_campaign=global-success-fuels-growth-for-cyberhawk&utm_term=2020-12-17)

### Bell's Autonomous Pod Transport Carries 110 lbs. of Payload December 16, 2020 News



On Dec. 9, the [Autonomous Pod Transport](#) flew with **110 lbs.** of payload over an 8-mile route at Bell's testing site near Fort Worth, Texas. To date, the APT flight test program has completed over **300 flights**. In 2021, APT will demonstrate several military and commercial operations while simplifying user interfaces and enhancing the aircraft's autonomous

features.



## UAS and SmallSat Weekly News

Bell's [APT 70](#) can transport military goods from base to base or integrate seamlessly into business operations. Customers can carry up to 36 MREs, 72 water bottles, 64 magazines of 5.56 ammunition and a gallon of fuel using this flying vehicle.

[https://uasweekly.com/2020/12/16/bells-autonomous-pod-transport-carries-110-lbs-of-payload/?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=bells-autonomous-pod-transport-carries-110-lbs-of-payload&utm\\_term=2020-12-17](https://uasweekly.com/2020/12/16/bells-autonomous-pod-transport-carries-110-lbs-of-payload/?utm_source=rss&utm_medium=rss&utm_campaign=bells-autonomous-pod-transport-carries-110-lbs-of-payload&utm_term=2020-12-17)

**18Dec20**

**Russia is developing a helicopter drone to destroy other drones** Alexander Bratersky  
18 hours ago



MOSCOW — Russia is developing a helicopter drone to assist anti-aircraft weapon systems in their [counter-UAV mission](#). The project, accelerated shortly after the recent [conflict between Armenia and Azerbaijan](#) began in mid-2020, will fill a gap in Russia's military capabilities.

The new drone will “track down small and low-speed enemy drones at low and extremely low altitudes,” a source in the military-defense complex told the Russian government news agency RIA Novosti this month. The helicopter drone has been under development since November. Research and development efforts were accelerated in response to the “increasing role of attack drones during the last local conflicts.”

This is not Russia's only helicopter drone currently under development. Rossiyskaya Gazeta, a government publication, reported the country is also developing a new attack helicopter drone. The publication, citing a report by the Russian Air Force's Central Scientific Institute research center, said the drone weighs **2.5 to 3 tons** and has a range of **20-30 kilometers**.

<https://www.airforcetimes.com/unmanned/2020/12/17/russia-is-developing-a-helicopter-drone-to-destroy-other-drones/>

**Arianespace launches 36 OneWeb satellites from Russia for the U.K.** Philip Whitehouse December 17, 2020



Arianespace, contracted through OneWeb, used a Russian Soyuz 2.1b rocket with a Fregat upper stage to place 36 new OneWeb satellites into orbit for the British government. The move resumed OneWeb launch operations after the company itself went bankrupt earlier this year.



## UAS and SmallSat Weekly News

Liftoff occurred at 07:26:26 EST on Friday, 18 December from Site 1S at the Vostochny Cosmodrome in eastern Russia. The mission will take nearly 4 hours to complete deployment of the all the satellites. OneWeb's custom dispenser system will deploy the satellites after the Fregat brings them to a 450 km orbit inclined 87.4 degrees to the equator. After activation and checkout, the satellites will raise their orbits to their operational altitude of 1,200 km.

<https://www.nasaspacesflight.com/2020/12/arianespace-launch-oneweb-for-uk/>