UAS and SmallSat Weekly News

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FAA certification puts drone firm Zipline in league of its own Jack Daleo June 22, 2022

Zipline will begin flights up to 26 miles round trip out of a hub in North Carolina later this month.

Drone delivery may have a new ringleader, and it isn't Amazon Prime Air, despite nearly a decade of promises. Neither is it Google's drone delivery arm Wing nor UPS' drone unit Flight Forward.

Bay Area-based Zipline may have leapt past them all. The drone delivery firm on Tuesday received a Part 135 air carrier certification from the FAA that will allow it to fly the longest-range commercial drone deliveries in the U.S. It will begin deliveries spanning up to 26 miles round trip out of its hub in Kannapolis, North Carolina.

Zipline's certification is the first issued through the FAA's Beyond initiative, a program that aims to accelerate the integration of beyond visual line of sight drone operations into U.S. airspace. The certification is more expansive than any granted by the FAA to a drone delivery firm so far.

"Zipline makes a delivery every four minutes — ensuring people get access to the products they need, the moment they need them," said Zipline CEO and co-founder Keller Rinaudo. "With our Part 135 certification, and in close collaboration with our partners and the FAA, we are one step closer to making safe, clean and quiet instant delivery a reality for communities across the U.S."
https://www.freightwaves.com/news/faa-certification-puts-drone-firm-zipline-in-league-of-its-own

UScellular, Ericsson test 5G connectivity with drones in Wisconsin Ishveena Singh - Jun. 23rd 2022

Initial trials have been conducted in Beloit, Wisconsin, using a drone that was flown between two UScellular commercial 5G towers.

UScellular explains that the drone was outfitted with a 5G smartphone and RF measurement equipment capable of capturing performance metrics such as signal strength and quality, upload and download speeds, and latency throughout the flight at various altitudes.

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Now, a comparison between the network connectivity and data speed in the air and on the ground will help the wireless carrier to understand what is required for 5G drones to succeed in a variety of industries.

Among the use cases being probed is the ability to inspect infrastructure towers. Many enterprises and governments use drones to conduct inspections, but having 5G connectivity means that the aircraft will be able to reach areas beyond visual line of sight, making inspections all the more efficient and cost-effective. https://dronedj.com/2022/06/23/5g-drone-uscellular/

Volocopter inks deal to develop fly-by-light eVTOL air taxi control tech Bruce Crumley - Jun. 23rd 2022

German electric vertical takeoff and landing aircraft (eVTOL) developer Volocopter has signed a deal with avionics specialist Diehl Aerospace to create an optical fly-by-light flight control system for its VoloCity air taxis.

The Volocopter-Diehl partnership aims to update the most recent technologies in airplane flight control systems and create a new version for the eVTOL VoloCity air taxi. Volocopter said the optical splitter will provide control information and define the operation of the air taxi's 18 rotors and other critical components. Unlike currently used conventional airplane fly-by-wire systems – which send manually generated commands through copper wires – the new navigational solution will translate electronic signals from the flight controller into optical instructions dispatched as light through optic fibers.

Volocopter says the fly-by-light system is considered to be immune to electromagnetic interference – from cellphones or transmission towers, for example. That impermeability to outside signals is a main security consideration given the low altitudes at which air taxis are expected to operate. https://dronedj.com/2022/06/23/volocopter-inks-deal-to-develop-fly-by-light-evtol-air-taxi-control-tech/

Tando indoor drone gets $15M capital boost to go global Ishveena Singh - Jun. 24th 2022

Indoor Robotics, an Israeli drone technology startup, has raised $15 million in Series A funding to boost the production of its automated security robot, Tando. The indoor drone, which is

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already in use at several warehouses, data centers, malls, and retail establishments, can be used for other functions also, such as monitoring temperature and air quality.

Tando uses multiple sensors and proprietary algorithms to map and navigate in any indoor space. The drone can autonomously navigate above or around any items in its path, which allows it to secure and monitor large areas. When it's not in flight, the drone docks on a charging and monitoring station mounted on the ceiling and functions as a security camera.

"Tando has already been deployed by the world's leading enterprises and security monitoring companies and is making a tangible impact on safety and security," Doron Ben David, cofounder and CEO, says. Now, the Series A funding by Pitango, Target Global, European Innovation Council Fund, and Spider Capital will help Tando capture the indoor drone security market worldwide.

In addition to security functions, Tando can prove useful for operational improvements. The indoor drone can collect thermal imaging and environmental data as well as record temperatures of rooms and identify leaks. It can also enable preventive maintenance, identifying areas in buildings that require care. https://dronedj.com/2022/06/24/tando-indoor-drone/#more-82835

26June22

USACE Drones provide an eye in the sky for engineers Louisville, KY

Charles Delano
U.S. Army Corps of Engineers, Louisville District 06.22.2022

In March of 2020, Geographic Information System Specialist Rachel Byrd and Project Engineer Ryan Fagan with the U.S. Army Corps of Engineers Louisville District's Engineering Division piloted the inaugural Small Unmanned Aircraft System flight for the district in an open field at the Parklands of Floyds Fork in Louisville, Ky.

Although the district's quad-bladed sUAS was used to capture photographic and video imagery during the maiden flight, that is not the only data that can be collected with the remotely piloted aircraft. Other data, which is used for

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visual inspections, mapping, terrain modeling, high-resolution aerial images, energy transfer or thermal imaging and volumetric estimations are captured through the use of the camera and GPS sensors. Engineers use data to safely complete bridge structural inspections, perform thermal inspections of roofs, calculate debris during emergency operations and assess land erosion at stream banks.

"It is important to stay current with technology and having the capability to put a drone into the air allows us to collect, view and use imagery in ways we've never been able to before," said Paul Deatrick, Supervisory Geographer and Aircrew Training Program Manager. Our program gives new options to traditional recon, survey and inspection phttps://www.dvidshub.net/news/423583/usace-drones-provide-eye-sky-engineers

27June22

Event 38 Fuel Cell Powered Fixed Wing Drone: Extended Flight Time, Reduced Noise

Miriam McNabb June 24, 2022 by DRONELIFE Staff Writer Ian M. Crosby

On Monday, June 13th, mapping drone manufacturer Event 38 Unmanned Systems completed a successful demo flight of the E450, a drone powered by a hydrogen fuel cell, at the Kent State University airport.

The flight was the culmination of a multi-year project, initiated in 2020 with sponsorship by the Ohio Federal Research Network, a program managed by Parallax Advanced Research. Event 38 partnered with experts at Kent State University, Case Western Reserve University, the University of Dayton, and Wright State University to investigate the potential of fuel cells as a power source for drones.

Fuel cells have the capacity to greatly extend a drone's flight time, as well as require far less maintenance due to fewer components. Additionally, fuel cell-powered drones are much quieter than gas-powered variants, enabling more stealthy aerial surveillance.

The E450, a larger E400 built to accommodate the size of the fuel cell, features a customized carbon fiber structure to house the cell and tank, as well as a custom thermal management setup to keep the fuel cell cool during flight. https://dronelife.com/2022/06/24/event-38-fuel-cell-powered-fixed-wing-drone-extended-flight-time-reduced-noise/

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UScellular, Ericsson Use Drone Connectivity to Test the Strength of 5G Networks Miriam McNabb June 24, 2022 by DRONELIFE Staff Writer Ian M Crosby

The first of their kind with UScellular's 5G network, these tests will establish a foundation for other use cases of cellular-connected drones in the future.

The companies' first visual line of sight trials were held in Beloit, Wis., with a drone flown between two of UScellular's commercial 5G towers. The drone was equipped with a 5G smartphone and RF measurement equipment designed to capture performance metrics like signal strength and quality, upload and download speeds, and latency throughout the flights at various altitudes. Using both low and high band spectrum, data was captured with the goal of gathering and analyzing network connectivity and speed data in the air to compare it to the speeds experienced on the ground.

One drone use case for UScellular and other wireless providers is the ability to inspect towers without climbing them. Though currently possible with non-connected drones, 5G connectivity will enable drones to reach areas beyond visual line of sight, with footage live streamed over UScellular's network. https://dronelife.com/2022/06/24/uscellular-ericsson-use-drone-connectivity-to-test-the-strength-of-5g-networks/

US Air Force retires first RQ-4 Block 30 Global Hawks Defense Brief Editorial June 23, 2022

The 319th RW will divest a total of 20 Global Hawk remotely piloted aircraft, and they should be transferred to Northrop Grumman at Grand Sky by the end of July.

They will be outfitted with different sensor technology before beginning their new careers as part of the Test Resource Management Center's High Speed System Test department.

This will be quite a pivot for the Global Hawk, which traditionally 'looked down' from nearly 60,000 feet while loitering more than 12 hours on station at locations across the globe.

The Block 30 divestment is part of the Air Force's plan to restructure intelligence, surveillance, and reconnaissance to meet national defense priorities and support joint all-domain command

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and control capabilities. The divestment also assists in funding modernization and increases capability to counter threats posed by peer competitors like China and Russia.
https://defbrief.com/2022/06/23/us-air-force-retires-first-rq-4-block-30-global-hawks/

Advanced Nano-UAVs for Norwegian Defence Materiel Agency Phoebe Grinter / 27 Jun 2022

Teledyne FLIR Defense has signed a framework agreement with the Norwegian Defence Materiel Agency to provide its advanced Black Hornet nano Unmanned Aerial Vehicles (UAVs). Worth up to $48 million, the framework agreement is valid for four years and can be extended a year at a time for up to three additional years.

Suited for operations in highly contested and GPS-denied environments, nearly silent, and with a flight time up to 25 minutes, the UAV weighs 33 grams (less than 0.1 pounds) and measures 168 millimeters (less than seven inches). Designed for covert situational awareness missions, the Black Hornet transmits live visible and thermal video to the operator.

"Our Black Hornet nano UAV operates day or night and even in the most challenging GPS-denied environments, including indoors," said Edwin Roks, Executive Vice President and Segment President Teledyne Digital Imaging. "With a range of two kilometers, the Black Hornet can fly at speeds exceeding six meters per second and communicates with an encrypted digital datalink for secure and reliable communications from tight spaces to beyond-line-of-sight applications."

Teledyne FLIR Defense has delivered more than 12,000 Black Hornets to defense and security forces worldwide. https://www.unmannedsystemstechnology.com/2022/06/advanced-nano-uavs-for-norwegian-defence-materiel-agency/

28June22

NASA's tiny CAPSTONE cubesat launches on pioneering moon mission Mike Wall published about 2 hours ago

NASA's tiny CAPSTONE spacecraft has begun its long, history-making journey to the moon.

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The 55-pound cubesat launched today (June 28) atop a Rocket Lab Electron booster lifted off from the company's Launch Complex 1 on the Māhia Peninsula of New Zealand at 5:55 a.m. EDT (9:55 p.m. local time in New Zealand).

CAPSTONE is headed for the moon, where it will test the stability of the orbit that NASA plans to use for its Gateway space outpost. But it'll be a while before CAPSTONE reaches its destination.

The microwave-oven-sized CAPSTONE (short for "Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment") left our planet aboard the 59-foot-tall Electron, which is designed to send small satellites to Earth orbit.

Over the next five days, Photon will gradually boost its orbit via a series of engine burns. Six days after launch, Photon will perform one final burn, which will increase its velocity to 24,500 mph— fast enough to escape Earth orbit and head for the moon

CAPSTONE will fire its own thrusters occasionally over the next few months, keeping it on an efficient, low-energy trajectory toward the moon. The cubesat's path will take it as much as 810,000 miles from Earth — more than three times the Earth-moon distance — before gravity pulls it back.

Finally, on Nov. 13, CAPSTONE will insert itself into a near rectilinear halo orbit around the moon, an intriguing but untested spot in space. The $30 million mission is led for NASA by the Colorado-based Advanced Space. https://www.space.com/nasa-capstone-cubesat-moon-launch-success-rocket-lab

DRONE LIGHT SHOW FILLS SKIES ABOVE OPEN SOURCE SUMMIT June 24, 2022 Sally French

DroneCode was busy putting on its PX4 Developer Summit 2022 last week. And — while it turned Austin, Texas into a haven for open source enthusiasts — all residents of Austin were treated to some spectacular entertainment by way of the DroneCode drone light show.

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The 300-drone light show flew not far from the city's Congress Avenue Bridge. The show took place last Thursday, which was the end of Day 1 of the PX4 Developer Summit 2022.

The annual PX4 Developer Summit conference hosted by the Dronecode Foundation centers around the PX4 Ecosystem. PX4 is an open source flight control software primarily for drones but appropriate for other unmanned vehicles as well. That summit was held concurrently with Open Source Summit North America, hosted by the Linux Foundation.

The show was pretty neat. Drones spelled words like PX$ Autopilot and Open Source and also made shapes including the Linux penguin and a drone. And it seemed like the robotics industry as a whole was pretty into it. https://www.thedronegirl.com/2022/06/28/dronecode-drone-light-show/

Turkey's Baykar to donate three UAVs to Ukraine after crowdfunding campaign

Reuters June 27, 20223

Lithuanian Deputy Defence Minister Vilius Semeska?poses with Selcuk Bayraktar, Chief Technology Officer of Turkish technology company Baykar, and Haluk Bayraktar, Chief Executive Officer of Baykar, next a Bayraktar TB2 advanced combat drone in Istanbul, Turkey June 2, 2022. Baykar/Handout via REUTERS

ISTANBUL, June 27 - Turkish defence firm Baykar said on Monday it would donate three unmanned aerial vehicles (UAVs) to Ukraine, after a crowdfunding campaign there raised enough funds to buy "several" of the Bayraktar TB2 model.

The TB2 has been hugely popular in Ukraine, where it helped destroy Russian artillery systems and armored vehicles. It even became the subject of a patriotic expletive-strewn hit song in Ukraine that mocked Russian troops, with the chorus "Bayraktar, Bayraktar". read more

Baykar said the crowdfunding campaign in Ukraine had reached the milestone in a few days and that business leaders as well ordinary people contributed to the fund.

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"Baykar will not accept payment for the TB2s and will send three UAVs free of charge to the Ukrainian war front," the company said in a statement. "We ask that raised funds be remitted instead to the struggling people of Ukraine," it said. https://www.reuters.com/world/turkeys-baykar-donate-three-uavs-ukraine-after-crowdfunding-campaign-2022-06-27/

Kenya turns to drones to enforce construction regulations to battle building collapses Bruce Crumley - Jun. 27th 2022

Authorities in Kenya are taking action to halt a series of structural failures around the country that have been blamed on sub-standard building methods or cheap and shoddy materials. The country's Kiambu county has suffered five major building collapses in the last three months alone, though the safety problem is considered widespread. As a result, Kenya's National Construction Authority (NCA) has said it will begin flying drones above construction sites around the nation to monitor respect of codes and identify rogue contractors at work without permits.

In discussions with local journalists this month, NCA officials explained the drones would be deployed above construction sites where onboard video, surveying, and mapping sensors would be used to check that required building methods and materials were being employed. In some cases, data collected from those flights can be used for verification as structures progress and as references in the event of collapse later. https://dronedj.com/2022/06/27/kenya-turns-to-drones-to-enforce-construction-regulations-to-battle-building-collapses/

Now is the Right Time for BVLOS Operations – Elsight on Enabling Power of Mobile Networks Miriam McNabb June 27, 2022

BVLOS flight is of critical importance to the drone industry. In the US, as advocates petition the FAA for quick action on Aviation Rulemaking Committee (ARC) recommendations, providers offering supply chain and delivery services, security operations, long-range survey and mapping are ready to take flight as regulations allow.

Elsight makes the Halo, a small form-factor, AI-powered drone connectivity platform. Halo is designed to solve a critical requirement of BVLOS drone operations: reliable, predictable connectivity between the aircraft and command and control. In a new paper, Elsight presents a

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new concept for BVLOS flight – and explains how drones and mobile networks are the way to make it happen: without years of development or major expense.

BVLOS flight is commonly understood as simply flying a drone out of sight of the operator. That can mean delivering products 3 or 4 miles away, or it can mean operating a drone on the other side of a tall building or fence, out of sight of the pilot.

Elsight's global clients understand BVLOS flight in the context of truly remote operations: of one pilot managing multiple drones launching, flying and landing miles away, from a centralized Drone Network Operations Center (DNOC). With one operator and multiple aircraft, the value proposition of drone technology is amplified.

For safe remote operations, aircraft must remain reliably connected to the DNOC. That's a challenge, but Elsight argues that the solution is at hand now: and there is no need to spend years on new development. Mobile networks are cheap, readily available, and effective – especially as the 5G rollout continues. https://dronelife.com/2022/06/27/now-is-the-right-time-for-bvlos-operations-elsight-drones-mobile-networks/

Airbus Develops CityAirbus Next Gen, eVTOL with Munich Airport International Partnership Miriam McNabb June 27, 2022 by DRONELIFE Staff Writer Ian M Crosby

During the ILA Berlin Air Show, Airbus signed a Memorandum of Understanding with Munich Airport International to begin marketing turnkey solutions to cities and regions interested in establishing advanced air mobility (AAM) ecosystems worldwide.

Airbus is currently underway with the development of its CityAirbus NextGen, an electric vertical take-off and landing (eVTOL) aircraft. Meanwhile, Munich Airport is providing ground infrastructure services and solutions.

"Munich Airport International is already collaborating with Airbus on the Air Mobility Initiative recently launched in Munich – now we are expanding that partnership globally to support select cities and regions around the world," said Ivonne Kuger, Munich Airport International's Executive VP of Corporate Development.

The goal of the two companies is to establish entirely new ecosystems that will guarantee the effective integration of eVTOL solutions with other forms of mobility. A partnership between global and local stakeholders is essential to the successful integration of the disparate AAM

components. https://dronelife.com/2022/06/27/airbus-develops-cityairbus-next-gen-evtol-with-munich-airport-international-partnership/

North Carolina sees its first on-demand health care deliveries by drone RACHEL SCULLY - 06/28/22

North Carolina is getting its first long-range health care drone deliveries on Tuesday, with a new effort to further on-demand health care and transform the patient experience.

Three U.S. health care organizations — Novant Health, Magellan Rx Management and Cardinal Health — will work independently with drone delivery company Zipline to deliver products from a distribution center in Kannapolis, N.C.

"We imagine a future in which goods are transported nearly instantly," said Zipline founder and CEO Keller Rinaudo. "Together with Novant Health, Magellan Rx Management, and Cardinal Health, we are making it a reality.

The automated delivery service allows organizations and patients to receive their deliveries in as little as 15 minutes and can serve customers within a 7,800-square-mile area.

Cardinal Health, a distributor of pharmaceuticals, medical and laboratory products, is delivering certain pharmaceutical products and medical supplies to mitigate the risk of inventory stock-outs, as well as reduce barriers for patients accessing medical necessities.

Magellan Rx Management says it is the first and only national pharmacy benefits manager utilizing drones to deliver prescription medications which include specialty medications that treat chronic, complex conditions, directly to patients' homes.
https://thehill.com/homenews/state-watch/3538272-north-carolina-sees-its-first-on-demand-health-care-deliveries-by-drone/#:~:text=North%20Carolina%20sees%20its%20first%20on%2Ddemand%20health%20care%20deliveries%20by%20drone,-by%20TheHill.com&text=North%20Carolina%20is%20getting%20its,and%20transform%20the%20patient%20experience

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MissionGO Provides Michigan's First Real-World Cargo Delivery Operations via UAS June 27, 2022 News

MissionGO Unmanned Systems, a global leader in uncrewed aircraft systems (UAS) production and operations, and Airspace Link, a leading UAS technology and infrastructure company, teamed up for Michigan's first real-world cargo delivery operations via UAS. Working in collaboration with Beaumont Health Spectrum Health, Michigan Economic Development Corporation, NextEnergy, and metropolitan Detroit community leaders, MissionGO and Airspace Link announced today the completion of a successful 10-day flight operation showcasing a real-world UAS transportation program in Southeast Michigan.

Flight operations occurred in two separate locations. The first was at Taylor Medical Center, simulating UAS synergies at a hospital center. The second across a one mile stretch of railroad tracks between Beaumont Wellness Center and the Big Rock Parking Deck. The second location showcased real-world viable UAS transport through multiple deliveries each day of operations and was used to compare several agents against ground transport such as time, carbon emissions, and damage to contents.

Scott Plank, Co-Founder and Executive Chairman of MissionGO said, "The opportunity to directly compare the effects of ground transport to an all-electric UAS transport will certainly open up the conversation on how UAS can be used to improve the environment, as well as the local economy." https://uasweekly.com/2022/06/27/missiongo-provides-michigans-first-real-world-cargo-delivery-operations-via-uas/?utm_source=rss&utm_medium=rss&utm_campaign=missiongo-provides-michigans-first-real-world-cargo-delivery-operations-via-uas&utm_term=2022-06-28

Drone piloted from Florida inspects industrial plant in Italy [Video] Ishveena Singh - Jun. 28th 2022

Red Cat Holdings subsidiary Skypersonic says it has successfully completed the world's first transcontinental drone inspection relying only on an internet connection from a normal mobile phone. A fully operational utility plant in Turin was inspected using an indoor drone controlled from Orlando, some 4,800 miles away.

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Skypersonic says drone pilot Drew Camden had no idea what the Italian plant looked like. He had never visited the unit, nor seen any drawings or photos of the floor plan or the layout of the many staircases, stacks, ducts, conduit, joists, and other obstacles he was expected to tackle. All Camden knew was that he would be flying Skycopter, an indoor drone that can be piloted without the aid of GPS.

Another thing working in Camden's favor was Skypersonic's technology which minimizes signal lag across oceanic distances. While he only had access to the video feed from the drone, the pilot was able to see and react to the building's interior in near-real time, with a reception lag, or "latency," of only 68 milliseconds, i.e., less than a tenth of a second. Take a look: https://dronedj.com/2022/06/28/remote-drone-inspection-skypersonic/

29June22

Moves afoot to create Russia's first 'mass produced' commercial drone Bruce Crumley - Jun. 28th 2022

Moves are under way to create the first mass-scale UAV manufacturing operation in Russia, though details of that effort make it unlikely it will compensate for the worsening shortage of commercial drones in the country, as store-bought craft continue being snapped up and sent off to the war effort in Ukraine.

Economic and business daily *Kommersant* reported the development this month in the wake of an earlier article explaining why supplies of commercial drones in Russia had fallen low – driving prices up considerably – with retail UAVs being sent to troops and allied separatists in eastern Ukraine. It described the initiative to kick-start the nation's first successful mass-production operation of smaller aerial craft as seeking to generate homegrown gear to partially make up for vanishing imports from abroad.

Without getting too deep into the weeds, the move involves Russian drone docking company Hive buying the Pelican enterprise quadcopter production activities of Copter Express. As part of the acquisition, Hive has pledged to invest $1.8 million in the unit by the end of 2022. That, CEO Nikolai Ryashin told *Kommersant*, will finance the effort to "transform production from small-scale to mass production." https://dronedj.com/2022/06/28/moves-afoot-to-create-russias-first-mass-produced-commercial-drone/#more-82914

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AT&T Transmits 5G Network Via Drone Jessica Reed | June 28, 2022

Earlier this month, AT&T announced that their drone operations team has achieved an industry first in transmitting its 5G network via a drone. The test was performed in April in rural Missouri with AT&T's so-called "Flying COW," or Cell on Wings. These Flying COWs have been operating since 2017 to provide LTE connectivity over a region, explained Art Pregler, Unmanned Aircraft Systems Program Director at AT&T.

"We can put them in the air and provide connectivity for 24 hours a day, for several days without landing, providing connectivity for people over wide areas," he told *Avionics*.

5G is 100 times faster than 4G, Pregler said, which offers a better experience with upload and download speeds. Latency is also lower—10 milliseconds with 5G, compared to the 20–30 milliseconds that you get with LTE. Pregler also noted that there is a 20% overall increase in performance with 5G versus LTE. "We're pretty excited about what this opens up for us and what we can provide our customers now with these drones," he remarked.

Following the successful test flight in April, AT&T's UAS program is upgrading their fleet to essentially provide this 5G network via drone to customers everywhere. The 5G Flying COW is a tethered solution, Pregler stated. "We have untethered solutions, so we are planning to upgrade that as well so we can provide connectivity from orbiting drones rather than tethered drones, so these can fly long distances and stay up for long periods of time." https://www.aviationtoday.com/2022/06/28/att-transmits-5g-network-via-drone/

SkyDrop, Domino's gear up to launch commercial drone delivery trial in New Zealand June 29, 2022 News

SkyDrop (formerly known as Flirtey) and Domino's Pizza Enterprises Limited signed an agreement earlier this year to launch the second phase of commercial drone deliveries in New Zealand. This commercial trial with Domino's is scheduled to launch in New Zealand in the coming months.

SkyDrop's operational system consists of two aircraft, one ground infrastructure platform, and one autonomous control station that enables a seamless

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and frictionless workflow at the store location and scalable store-to-door drone delivery operations.

SkyDrop's drone delivery system enables delivery of Hot & Fresh pizza from the local Domino's store to the customer's home. In preparation for the commercial trial, SkyDrop is currently conducting test deliveries at its facilities in Reno, NV.

SkyDrop has raised approximately $40 million total investment to date, including a recent $2 million new investment from existing investors Sierra Angels, McFlirtey, Melbourne Angels, and Icehouse Ventures that is focused on advancing the commercial trial launch with Domino's in New Zealand. https://uasweekly.com/2022/06/29/skydrop-dominos-gear-up-to-launch-commercial-drone-delivery-trial-in-new-zealand/?utm_source=rss&utm_medium=rss&utm_campaign=skydrop-dominos-gear-up-to-launch-commercial-drone-delivery-trial-in-new-zealand&utm_term=2022-06-29

Schiebel's Camcopter S-100 and Nordic Unmanned complete tests for Equinor in Norway June 29, 2022 News

Schiebel, together with its partner Nordic Unmanned, successfully demonstrated to Norwegian energy company Equinor the onshore capabilities of the S-100 proving the utility for UAS offshore logistics.

The three-week onshore test phase was part of the Offshore Drone Service contract between Equinor and Nordic Unmanned. The scope involves cargo deliveries between the installations at the Gullfaks field and multiple daily flights between offshore installations and vessels in the Tampen area.

The test flights were conducted at a facility close to the city of Stavanger and at a commercial airport. The aim was to verify the maturity of the S-100 for the offshore environment and included extending the operational range of the CAMCOPTER® S-100 beyond the initial radio line of sight, allowing the system to reach all target installations. In addition, the UAV completed the drop of a subsea unmanned intervention device, which is used for underwater inspection of installations. It was delivered from the helideck to a specific point in the water using the S-100's underslung load solution. https://uasweekly.com/2022/06/29/schiebels-camcopter-s-100-and-nordic-unmanned-successfully-complete-onshore-tests-for-equinor-in-

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norway/?utm_source=rss&utm_medium=rss&utm_campaign=schiebels-camcopter-s-100-and-nordic-unmanned-successfully-complete-onshore-tests-for-equinor-in-norway&utm_term=2022-06-29

Zipline drones begin on-demand healthcare deliveries in NC Bruce Crumley - Jun. 29th 2022

Less than a week after it received Federal Aviation Administration Part 135 certification allowing it to operate in the US as a commercial airline, instant logistics specialist Zipline launched regular drone delivery service of medical supplies and prescriptions in North Carolina, in support of its three major healthcare partners.

San Francisco-based Zipline is operating that new US healthcare drone delivery activity out of its hub in Kannapolis, located about 25 miles northeast of Charlotte. From that center, the company will transport supplies and prescriptions to customers spread over a 7,800-square mile area. In some cases, Zipline says, those will get to clients in hospitals, clinics, pharmacies, or private businesses and homes within 15 minutes of ordering.

Zipline is operating that additional US drone delivery network with North Carolina-based Novant Health, Florida's Magellan Rx Management, and Cardinal Health of Ohio. All three companies were previous Zipline business partners, and each will operate independently within the newly launched aerial transport network.

Kickoff of the North Carolina hub marks another milestone for Zipline's swiftly maturing on-demand instant logistics activity. Though it has gained most attention for its drone deliveries of medical supplies in a variety of African nations, Zipline has more recently been rolling out operations in its US homebase. https://dronedj.com/2022/06/29/zipline-drones-begin-on-demand-healthcare-deliveries-in-nc/

30June22

ALEs: Multiplatform Force Multipliers ABE PECK JUNE 29, 2022

With their long fixed wings suggesting small-scale U-2 spy planes, a group of ALTIUS 700s took to the skies over Utah's Dugway Proving Grounds. Participating as part of EDGE22—the Experimental Demonstration Gateway Exercise that's sponsored

by Army Futures Command's Future Vertical Lift Cross-Functional Team—four of these mini-Blue Angels flew in formation during the April-May exercise, demonstrating the viability of swarms.

EDGE22 featured solutions from a raft of electronic warfare demonstrators. It also featured multiple ALEs, or Air-Launched Effects, flights that included a "Wolfpack" of four multi-drone sorties designed to sequentially surveil, overwhelm threat systems, take out targets and perform battle damage assessment. https://insideunmannedsystems.com/ales-multiplatform-force-multipliers/

CAPSTONE Launches to Test New Orbit for NASA's Artemis Moon Missions Jun 28, 2022

NASA's CubeSat designed to test a unique lunar orbit is safely in space and on the first leg of its journey to the Moon. The spacecraft is heading toward an orbit intended in the future for Gateway, a lunar space station built by the agency and its commercial and international partners that will support NASA's Artemis program, including astronaut missions.

The Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment, or CAPSTONE, mission launched at 5:55 a.m. EDT on Rocket Lab's Electron rocket from the Rocket Lab Launch Complex 1 on the Mahia Peninsula of New Zealand Tuesday.

CAPSTONE is currently in low-Earth orbit, and it will take the spacecraft about four months to reach its targeted lunar orbit. NASA invites the public to follow the spacecraft's journey live using NASA's Eyes on the Solar System interactive real-time 3D data visualization. Starting about one week after launch, virtually ride along with the CubeSat with a simulated view of our solar system. NASA will post updates about when to see CAPSTONE in the visualization on NASA's Ames Research Center's home page as well as Twitter and Facebook.

Over the next six days, Photon's engine will periodically ignite to accelerate it beyond low-Earth orbit, where Photon will release the CubeSat on a ballistic lunar transfer trajectory to the Moon. CAPSTONE will then use its own propulsion and the Sun's gravity to navigate the rest of the way to the Moon. The gravity-driven track will dramatically reduce the amount of fuel the CubeSat needs to get to the Moon. https://www.nasa.gov/press-release/capstone-launches-to-test-new-orbit-for-nasa-s-artemis-moon-missions

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SUMMER 2022 DRONE EVENTS IN THE U.S. YOU SHOULD KNOW June 28, 2022 Sally French

I've separately outlined the biggest drone events for the second half of 2022, but biggest doesn't necessarily mean the best. So with that, here are the U.S.-based drone events I'm most looking forward to seeing (or at least reading about) this summer:

BVLOS Demo Day: July 1 *Reno, Nevada*

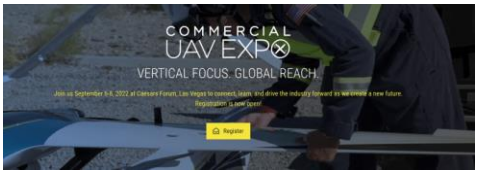
The drone teams over at University of Reno Nevada, Censys Technologies and Iris Automation, are coming together on Friday, July 1 to put on an epic BVLOS drone demonstration.

The demo, which is open to anyone in the public interested in drones, is set to highlight technologies including Censys Technologies' Sentaero BVLOS, Sentourion Mobile Command Center, CensWise Vegetation Management Software, and Iris Automation Casia I (Onboard Detect and Avoid) and Casia G (Ground-based) Aircraft Detection Technology.

Alameda County Fair: Now through July 8 *Pleasanton, California (San Francisco Bay Area)*

For those of you living in or near Silicon Valley, don't miss this year's Alameda County Fair. That's because the fair will host a new light show every evening, viewable via the skies over the grandstands.

The drone show is free to view with your fair ticket, which is $18 for general admission.



Commercial UAV Expo: September 6-8 Las *Vegas, Nevada*

The Commercial UAV Expo claims to be the world's leading commercial drone trade show and conference. It will run immediately after Labor Day, set for September 6 – 8, 2022 at Caesars Forum. Its organizers say you can expect to see more than 200 companies exhibiting on its show floor, including Amazon Prime Air, Skydio and DJI. The conference will also host a Startup Pavilion, University Pavilion, flight demos, workshops, happy hours, networking receptions, and educational programming.

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Interdrone: September 29-October 1 *Brooklyn, New York*

Interdrone, the former massive drone conference usually held in Vegas, has undergone a major overhaul and rebrand. These days, InterDrone lives under Create NYC, which bills itself as a "3-day immersive experience for visual storytellers." It's geared toward photographers and looks set to be a great fit for drone creatives interested in photography, cinematography, videography, and content creation. https://www.thedronegirl.com/2022/06/30/summer-2022-drone-events-in-the-u-s-you-should-know/

1July22

Overair receives $145 million investment from Hanwha Group to develop eVTOL aircraft 6/23/2022 EDITED BY GRACE NEHLS Managing Editor, *CompositesWorld*

On June 14, electric vertical takeoff and landing vehicle (eVTOL) company, Overair (Santa Ana, Calif., U.S.) announced its most recent $145 million funding from Hanwha Systems (Changwon, South Korea) and Hanwha Aerospace, known for communications and aircraft technologies. With this new investment, Overair says it remains on track to fly its all-electric experimental prototype, *Butterfly,* which is to make use of composites, in the second half of 2023. In addition to fueling Overair's ongoing development of *Butterfly*, the investment will enable the company to lay the groundwork for commercialization.

Butterfly is an all-electric aircraft with six seats designed to take off and land vertically. The aircraft's propulsion system is said to be derived from military VTOL programs. Overair contends that *Butterfly*'s propulsion is highly efficient and will give the eVTOL the broadest flight envelope and smallest sound footprint of any aircraft. *Butterfly*'s optimum speed propulsion (OSP) uses four large propellers which spin slowly when hovering and even slower when cruising and reportedly draw only a fraction of the available motor power, giving *Butterfly* extra payload capacity and power margins to operate safely in challenging conditions. Additionally, the slow-turning props produce little sound, which will enable *Butterfly* to operate in high-density areas with noise-sensitive communities. https://www.compositesworld.com/news/overair-receives-145-million-investment-from-hanwha-group-to-develop-evtol-aircraft

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