UAS and SmallSat Weekly News

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27Nov21

Public Perception of Drones in the UK: 68% See Positive Impact Miriam McNabb November 25, 2021 by DRONELIFE Staff Writer Ian M. Crosby

New research has been released from the "Project XCelerate" Consortium, led by BT and Altitude Angel, finding that more than two thirds of the British public believe drones will have a positive impact on their life in the future, with nearly half (49%) saying they are optimistic or excited about the potential drone technology holds.

Research found that 49% hope to see drones used in place of people for risky jobs like firefighting (76%) and inspecting infrastructure (70%). Meanwhile, two in five wish to see drones employed to reach otherwise inaccessible areas (42%) such as tracking criminals (65%) or investigating crime scenes (73%).

The over 65 range prioritized human safety, agreeing it was the biggest benefit of drone use. The under 30 group (36%) found the environmental benefits to be equally important to human safety, with a focus on utilizing drones to support reduction in air pollution.

Despite the positive attitude towards the potential for drone applications, 38% were found to have concerns about drone use, with nearly half of all adults saying drone misuse (46%) and public safety, alongside privacy (48%) around personal data and private property, were their primary concerns. Some concerns may be the result of public misconceptions, as 47% were found to believe drone usage remains unregulated, when in reality, strict regulations are in place and continue to be developed and implemented by the Civil Aviation Authority as usage expands. https://dronelife.com/2021/11/25/public-perception-of-drones-in-the-uk-68-see-positive-impact/

28Nov21

Russian Navy Vessels to Be Armed with Drones KARIM TOLBA NOVEMBER 3, 2021

Russia's navy ships will be armed with kamikaze drones to strike enemy vessels and ground targets, the Russian daily newspaper, Izvestia reported.

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The new weaponry does not require special hangars, or catapults to launch. UAVs can take off directly from the deck with minimal alterations," the newspaper explained.

The Russian marines tested Kamikaze drones during the Kamchatka exercise last month to provide fire support while landing on the coast. Military expert, Demitry Boltenkov said that "landing on the shore is the most critical phase, providing accurate fire in this phase of the battle will save the lives of many soldiers."

"When a worthy target is identified, the drones immediately start to attack. This tactic ensures the instant elimination of firing points," Military Expert, Viktor Murakhovsky told Izvestia. "Additionally, the drones have video capabilities, allowing them to gather intelligence," The Russian forces in Syria reportedly used drones to target vehicles and firing posts.

Rostec's Director, Bekkhan Ozdoev said that UAVs have been proven 'effective' on the battlefield, as they are undetectable by enemy radars.

Russia's ministry of defence announced its plan to equip the Mi-28NM Night Super Hunter helicopter with drones to enhance its battle capabilities. Russian Navy Vessels To Be Armed With Drones (commercialdroneprofessional.com)

Croatia's seed-scattering drones replant forests hurt by fire November 17, 20217 Reuters

OKLAJ, Croatia, Nov 17 (Reuters) - Seed-scattering drones are crisscrossing Croatia's skies in an airborne attempt to replant remote forests damaged by fire, an initiative its backers aim to promote internationally.

The tactic is not new, but the venture in Croatia disperses seeds in larger containers than those seen elsewhere -- the size of a golf ball -- releasing ingredients to form a favourable micro-environment for a seed to take root, its creators say.

"Besides an acorn we also put sand, grass, clay and chili inside", said Goran Ladisic, one of the leaders of the Magic Forest company running the project.

"Importantly, we put chili because, in this way, the wild animals -- in

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case of an oak it refers to wild boars -- will not eat the seeds."

Croatia's summer forest fires often happen in areas hard to reach on foot, so the airborne method makes sense, project leaders say. This week Magic Forest dispersed the seed balls in the Promina municipality in the south of the country. https://www.reuters.com/business/environment/croatias-seed-scattering-drones-replant-forests-hurt-by-fire-2021-11-17/

OSU Researchers Launch Autonomous Drones to Study Wildfires Jason Reagan November 26, 2021

As witnessed by the ongoing blazes across the U.S., wildfires are difficult to predict and fight. Flames can travel up to 14 mph in dry grass and spread in unexpected directions.

An OSU team led by mechanical and aerospace engineering professor Mrinal Kumar received National Science Foundation funding to develop the aerial robotic system.

Eastern predictions

"While the bulk of research in technology use during wildfires has focused on fires in the west, we are focused on the eastern U.S. to hopefully get ahead of the increasing intensity that is predicted over the next several years," Kumar said.

Kumar's team will shadow the Ohio Department of Natural Resources' prescribed burn team into the southern state forests led by Greg Guess at the Division of Forestry. Prescribed burns are typically conducted late in the fall or early spring when the fuel and weather conditions are conducive to a controlled burn. The drones will undergo rigorous testing and validation, leading up to fully autonomous mission design and deployment in these prescribed burns and eventually wildfires. https://dronelife.com/2021/11/26/osu-resaearchers-launch-autonomous-drones-to-study-wildfires/

Seeing Through the Hull: Drones are Turbocharging Search and Rescue NOV 17, 2021 2:03 PM BY U.S. COAST GUARD NEWS *Kathy Murray*

Shortly after Hurricane Ida tore through Louisiana at the end of August, the Coast Guard's Gulf Strike Team in Mobile, Ala., got a call. Trouble spots had been identified, including sunken

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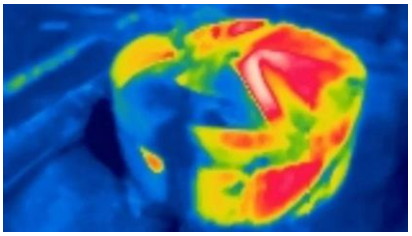
vessels, potential pollution, and other waterway hazards. Could the team deploy a pilot to assess the damage?

Petty Officer 2nd Class Dylan Zechman responded, bringing along one of the Coast Guard's short-range unmanned aircraft systems – essentially a handheld drone. Using satellite imagery gathered by the National Oceanic and Atmospheric Administration, he launched the small portable aircraft over target areas deemed potentially hazardous, capturing photos and data that would be sent back to incident command to help prioritize recovery efforts.



An infrared image of a fire-damaged oil storage tank at a refinery in Pasadena, 2018.

"It's a great tool," said Zechman, who estimates that he and a pilot from the Atlantic Strike Team each averaged three or four flights a day during the three-week mission.

While airplane surveillance and helicopter rescues may be more visible, a growing fleet of unmanned aircraft is frequently taking the lead in post-storm damage assessment and cleanup. And they're not only doing it more safely, but usually at a fraction of the cost.
https://www.maritime-executive.com/editorials/seeing-through-the-hull-drones-are-turbocharging-search-and-rescue

Drone startup wants to compete with satellites; aims for 48-hour delivery

Ishveena Singh - Nov. 24th 2021

Germany-based drone startup Beagle Systems wants to offer geospatial data users on-demand aerial imagery at resolutions up to 50 times higher than currently available from commercial satellites. And it wants to do that remotely, much more quickly.

The company says its Beagle M drone can deliver image data at a resolution of 1cm per pixel at revisit times many times faster than satellites are capable of, regardless of cloud coverage.

Satellites have long been the preferred choice for gathering geospatial data for agriculture, forestry, infrastructure, and construction projects. But despite the many benefits that satellites provide, optical imagery is still dependent on weather. If an area under observation is obscured by clouds when the satellite visits the location, you may not get the desired data. Also, in the

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case of a satellite with a long revisit time, subsequent attempts to capture the imagery may lead to weeks-long lead times.

"All this can be done much faster with a network of drones," says Oliver Lichtenstein, one of the three cofounders of Beagle Systems, adding: Our goal is to provide our customers with the desired image data with a lead time of only 48 hours.

Built for long-range missions, the Beagle M drone can scan and record 200 hectares per flight on a single 90-minute charge from its charger hangar network. This network is needed to maintain the responsiveness and endurance for on-demand drone imagery services over large areas. https://dronedj.com/2021/11/24/drone-imagery-data-satellites/

Elroy Air, Ayr Logistics ink drone humanitarian aid delivery deal Bruce Crumley - Nov. 24th 2021

San Francisco-based cargo drone manufacturer Elroy Air has inked a deal with humanitarian logistics and transportation company Ayr Logistics to develop an autonomous aerial freight system tailored for aid deliveries.

The pairing will combine the humanitarian-focused activities of both companies, involving – among other things – Ayr agreeing to purchase up to 100 Elroy Air Chaparral cargo drones. Their mutual objective is to operate end-to-end, autonomous UAV logistics and delivery networks of humanitarian aid, with Ayr filling the role of vehicle owner and operator.

Central to their cooperation is the vertical takeoff and landing Chaparral, a hybrid drone capable of carrying 300 lbs. to 500 lbs. of freight for up to 300 miles. The craft is part of Elroy Air's integrated, high-throughput autonomous aerial logistics system and can takeoff, land, off-load, and take on payloads quickly with no operator interaction.

The UAV is designed to transport its cargo in lightweight, aerodynamic modular cargo pods that are prepared by ground personnel and picked up by the aircraft before takeoff. Delivery is also autonomous, with the pods being lowered to the ground after the drone's landing.

The drone will be operated by Ayr as part of its continuing 20 years of work providing logistics support to actors in the humanitarian community, including the United Nations, World Food Program, government agencies, and nonprofit organizations. Assisting the company in that

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marks a major accomplishment for Elroy in its own efforts to keep aid moving quickly and efficiently to people needing it. https://dronedj.com/2021/11/24/elroy-air-ayr-logistics-ink-drone-humanitarian-aid-delivery-deal/#more-72227

RocketFarm flies first concentrated solar power survey Bruce Crumley - Nov. 24th 2021

Delta Drone International agricultural affiliate RocketFarm has successfully completed a drone-driven survey and repair mission of a concentrated solar power plant (CSP) – a feat it says is the first in Africa, and perhaps the entire world.

RocketFarm, which calls itself the leading agricultural drone data service provider in Africa, recently carried out the survey for a client operating the CSP facility. Those plants use vast rows of reflecting surfaces to transform captured sun rays into high-temperature heat. That is then used to power a motor on a generator that creates electricity.

Panels on the CSP move to follow the sun, making accurate tracking complicated as mission time extends and components shift. Meantime, mirrors used to intensify the sun's heat often give off false readings if the drone's thermal and RGB sensor sees the ground or blue sky reflecting from them rather than glinting rays.

The first step was a major session of coding to re-write their artificial intelligence detection capabilities. The team then figured out the precise altitudes and approaches the drone needed to fly to correctly and consistently identify broken mirrors and defective heat elements.

With that information in hand, says project leader Zander Van Pletzen, data collected by the drone allowed surveyors to provide the CSP client with required maintenance steps, and insights into future performance and optimization methods. In contrast to more traditional photovoltaic approaches, CSPs can both store energy and dispatch it to users on demand. https://dronedj.com/2021/11/24/rocketfarm-flies-first-concentrated-solar-power-survey/

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29Nov21

Drones Combat Coastline Pollution: DJI Teams Up with Boat Owners Miriam McNabb November 28, 2021 DRONELIFE Staff Writer Ian M. Crosby

DJI has partnered with AnimaMundi Ocean Data Solutions and Lagoon to build the world's first comprehensive database of plastic waste on coastlines using drones. The project starts with drones piloted by sailors taking place in the Atlantic Rally for Cruisers which begins on Las Palmas in the Canary Islands on November 21st.

Boats gathering in Las Palmas for ARC 2021, Matt Cooper

DJI is providing Lagoon with drones to measure plastic waste on beaches around the Caribbean. The drones will collect images for AnimaMundi's automated processing to measure the scope of plastic waste pollution more efficiently. This data will offer evidence as to whether efforts to disrupt the flow of plastic into our oceans are resulting in a decrease in pollution on our coastlines.

With over 300 million tons of plastic produced each year, at least 8 million tons end up in our oceans, making up 80% of all marine debris, from surface waters to deep-sea sediment. However, there is currently no global data documenting the size, location, and evolution of the problem. https://dronelife.com/2021/11/28/drones-combat-coastline-pollution-dji-teams-up-with-boat-owners/

North Dakota Vantis network seeks UAS operators to participate in BVLOS trials

November 29, 2021 Jenny Beechener UAS traffic management news

The VantisUAS team is seeking partners to leverage the beyond visual line of sight low level airspace network in North Dakota. VantisUAS has released a request for proposal for obtaining multiple vendors of Unmanned Aerial Systems to support testing of BVLOS on the Vantis network. The test site is seeking creative use case ideas and partners to come to North Dakota to work on advancing UAS operations for commercial purposes.

Vantis is a statewide network enabling BVLOS UAS flights in public and private use. In the past decade, the state's UAS industry has grown from several dozen workers to more than 1,000. UAS act as the connectors of the sky and serve to diversify North Dakota's economy. To participate, visit: https://apps.nd.gov/csd/spo/services/bidder/main.htm For more information

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visit: www.vantisuas.com https://www.unmannedairspace.info/latest-news-and-information/north-dakota-vantis-network-seeks-uas-operators-to-participate-in-bvlos-trials/

China's drone ships home in on targets at sea Didi Tang, Beijing November 29 2021 The Times

Swarming technology is being developed by the Chinese company Yunzhou to allow its fleet of drone ships to intercept target vessels

China has developed a high-speed drone ship with "swarm" capability that can "intercept, besiege and expel invasive targets" without a human at the controls, according to state media.

Yunzhou Tech, based in the southern city of Zhuhai, has released a video in which six drones are shown working together to track, surround and expel a "target" at sea. *Global Times*, a state-run newspaper, said that the drones work autonomously, and "make decisions completely on their own". https://www.thetimes.co.uk/article/chinas-drone-ships-home-in-on-targets-at-sea-jsw00swb5

Chinese aircraft carrier "designed to train military personnel against drone swarms" November 26, 2021 Jenny Beechener Counter-UAS systems and policies

A report by *UAS Vision* describes a mini-aircraft carrier intended to launch and recover small aerial drones. The catamaran vessel was exhibited at the Zhuhai Airshow attributed to *The Drive*.

The ship is designed to simulate hostile drone swarms, along with other kinds of threats, such as high-volume anti-ship missile strikes and distributed electronic warfare attacks. It also reflects the Chinese military's interest in operational swarming capabilities, and especially in the maritime domain.

The model of the vessel at Zhuhai depicted it carrying five relatively small tandem-rotor drone helicopters on a large open foredeck in front of the main superstructure. In addition, it showed multiple large antenna domes, which might be associated with high-bandwidth communications systems that would be useful for controlling large groups of unmanned

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helicopters. The domes were mounting on a large tower on top of the superstructure that would offer a very good location just for positioning line-of-sight control links.

The CASIC booth also had a separate model of one of them showing a bar underneath the fuselage with what appears to be some kind of radiofrequency signal emitter installed on either end. What could be other antennas are seen jutting out from the sides of the fuselage and the portly design points to some degree of internal payload capacity.
https://www.unmannedairspace.info/counter-uas-systems-and-policies/chinese-aircraft-carrier-designed-to-train-military-against-drone-swarms/

Renault revamps its classic 1960s 4L car as an eVTOL craft Bruce Crumley - Nov. 29th 2021

In wrapping up the 60th anniversary celebration of its iconic old-school 4L car, French automaker Renault has unveiled a redesign of the model as the AIR4 electric takeoff and landing vehicle.

In recent years, Renault has revved up its shift from traditional internal combustion engines toward emissions-free, battery-powered versions of its most popular models. That included work on producing an electrified version of its 4L – the boxy, no-frills auto that sold more than 8 million units in over 100 countries between 1961 and 1991.

Renault turned to motion design firm TheArsenale that retained the original forms of the car while rebuilding it entirely from carbon fiber and factoring in new aerodynamic criteria like thrust and lift. It is driven by four dual-blade propellers beneath the body.

It is powered by 22,000 mAh lithium polymer batteries packing a total capacity of 90,000 mAh. It can reach a top flight speed of 26m/s, which works out to 58 mph. Its maximum altitude is 700 meters.

There's no indication yet of when the AIR4 might go into production. Despite that, TheArsenale has been pointed in insisting that the transformation of the 4L from a car into an eVTOL isn't a one-off stunt, but rather Renault's newest innovation in how it plans to transport people around France and the world in the future. https://dronedj.com/2021/11/29/renault-revamps-its-classic-1960s-4l-car-as-an-evtol-craft/#more-72487

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30Nov21

AeroVironment Demonstrates 'Mini Predator' UAV Carrying Loitering Munition

News Ahmirsayafi Nov 29, 2021

AeroVironment is touting a "mini-Predator" configuration of its Jump 20 tactical unmanned air vehicle, allowing the small drone to launch multiple Switchblade 300 loitering munitions. The company aims for the system to be available to Jump 20 customers within 12-18 months.

Both Jump 20s and Switchblade 300 are drones, though the Switchblade is much smaller and carries a grenade-sized munition in its nose. The combination would give small tactical ground units ability to conduct air strikes taking out non-armored targets like troops and light vehicles.

Armed aerial reconnaissance missions are typically conducted by larger UAVs, such as US Army General Atomics Aeronautical Systems MQ-1C Gray Eagles or US Air Force's MQ-9 Reapers. That is why AeroVironment calls its Jump 20-based retrofit a "mini Predator".

Jump 20s are small, vertical-take-off-landing UAVs used for tactical intelligence, surveillance, and reconnaissance missions. They usually carry payloads up to 30lb – typically electro-optical cameras and communications equipment.

Developed by Arcturus – which AeroVironment acquired in February – Jump 20s are operated by US Special Operations Command. AeroVironment is also pitching the drone as a contestant for the US Army's Future Tactical Unmanned Aircraft System acquisition competition. AeroVironment says Jump 20s can be retrofitted to launch two to four Switchblade 300s. https://www.intecaerospace.com/?p=6915

Kazakhstan Purchases Three ANKA-S UAVs from Turkey YUSUF

ÇETINER *in* AVIATION *November 29, 2021*

Kazakhstan has ordered three Anka UAVs from the Turkish Aerospace Industries Company according to a report published in the Turkish newspaper HaberTürk on November 24.

The purchase of the Anka UAVs took place as part of an agreement signed in October as a result of negotiations between Turkish Aerospace Industries (TAI) and Kazakh authorities,

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according to the news report based on an interview with TAI Corporate Marketing and Communications President Serdar Demir. Kazakhstan will receive three ANKA UAVs and two ground control systems by 2023.

The agreement appears to have been realized following the signing of a military cooperation agreement between Turkey and Kazakhstan in May, which included 17 initiatives including the exchange of tactics and experience in reconnaissance and offensive UAVs.

Tunisia became the first country to purchase Anka UAVs in December when it signed an $80 million contract with TAI for the delivery of three ANKA-S UAVs and three ground control stations, as well as training 52 Tunisian army personnel.
https://www.overtdefense.com/2021/11/29/kazakhstan-purchases-three-anka-s-uavs-from-turkey/

France to test flying taxi routes ahead of 2024 Summer Olympics November 29, 2021

The flying taxis will be tested at a hub outside Paris at Pontoise. The city hopes to create two dedicated flight paths to ferry passengers for the 2024 Olympics and Paralympics. One route will carry passengers via Paris-Charles de Gaulle and Le Bourget airports, while the second will travel between two suburbs southwest of the French capital.

The project is a joint venture between aircraft developers Volocopter GmbH, Airbus SE, Vertical Aerospace Group Ltd, Lilium NV and Joby Aviation and France's civil aviation authority.

"The French State is fully committed to the financing, with nearly 25 million euros already provided by the Council for Civil Aeronautics Research for the development of flying taxis, but also for the support of projects with the DGAC and the Agency for Innovation in Transport.
https://news.yahoo.com/france-test-flying-taxi-routes-001651847.html?fr=sycsrp_catchall

MONSOON SEASON IS SET TO GET WORSE — BUT DRONES COULD LESSEN ITS IMPACT November 30, 2021 Sally French News

Between severe drought in California and unprecedented flash flooding in New York, 2021 has been a year for alarming weather patterns. And in Arizona, monsoon season was especially wet — and it's set to only get worse in terms of impact to the environment and people in the coming years.

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Scientists at Embry-Riddle Aeronautical University are leveraging drone technology used in tandem with sonic anemometers to improve predictions of the North American monsoons. Despite how we know now versus even a few short decades ago, scientists still don't know what triggers that very localized precipitation of what's ultimately considered a monsoon. Research involving drones could change that.

Figure 2: TriSonica Sphere Integrated with Bluefalcs's Atmospheric Characterization Payload (left) attached to a DJI Matrice 600 (right)

As part of the research, drones are outfitted with meteorological instruments called anemometers that can detect and measure humidity, temperature, pressure, and wind speed as thunderstorms form. That helps research more effectively monitor the timing and location of convective cells.

"This was a very complex operation involving four multi-rotor unmanned aircraft systems, a fixed-wing UAS, manned aircraft, along with multiple weather balloon launches and a distributed ground sensor network," said Dr. Kevin Adkins, Associate Professor in the College of Aviation,at Embry-Riddle Aeronautical University, who is one of the lead investigators conducting field campaigns in Arizona and New Mexico this year. "The unmanned aircraft allowed us to investigate the unique weather phenomenon present during the monsoon season at a finer spatial and temporal scale than had ever been done before."

The project used all types of drones — and weather balloons to deliver vertical wind and weather profiles. The drones were made with a VLOS airframe which held a TriSonica Mini Wind and Weather Sensor from Anemoment. The TriSonica Mini is an ultrasonic anemometer that captures the three-dimensions of the wind, along with temperature, pressure, humidity, and time.

Meanwhile, a fixed-wing unmanned aircraft, a Sentaero VLOS by Censys Technologies, was used to sample the lower portion of the boundary layer, a task that cannot be done safely with manned aircraft. https://www.thedronegirl.com/2021/11/30/monsoon-season-drones/

Spain's Valencia to build 'drone highway' for UAM services Bruce Crumley - Nov. 30th 2021

The city of Valencia is preparing to create a "drone highway" for initial services like the delivery of medicines, and eventually open those up to human transport like air taxis.

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Officials in the city of Valencia are working to create the drone highway with the Universitat Politècnica de Valencia, which is particularly strong on tech. The project got the all-clear after the company that manages Spanish airspace, Enaire, signed a protocol with organizers outlining the corridor's integration into the national grid. That operational framework covers traditional aircraft, drones, and other urban air mobility vehicles. Planned operations like medical and goods deliveries will also be extended to those transporting human passengers when those come into service without a complete regulatory airspace review.

The new drone highway will serve the city of Valencia itself and operate in tandem with three existing corridors in the surrounding area. Those link test facilities at the small Siete Aguas aerodrome to the west of Valencia; another in the larger Castello airport to the north of the city; and the third in Mutxamel to the south, close to Alicante. Secondary corridors branching from those are currently under examination. They are expected to be finished and ready for use some time between 2023 and 2025.

As part of that, all drones operating in Spain will be required to transmit their flight positions and paths to the systems eventually selected to manage airspace by January, 2023. Building the digital infrastructure to coordinate those data flows – and the drone traffic they represent – will be one of the biggest tasks in creating the new highway.

Nevertheless, officials predict that once those navigational coordinating systems are in place, and services up and running, the growth in drone traffic for deliveries and other transportation will rival those of cars in earlier decades. https://dronedj.com/2021/11/30/spains-valencia-to-build-drone-highway-for-uam-services/#more-72507

U.S. Air Force Orders 15 Silent Arrow® Precision Guided Cargo Delivery Drones

November 29, 2021 Military | News

Silent Arrow today announced the United States Air Force, through the Air Force Research Laboratory (AFRL), has awarded the company a contract entitled "Guided Bundle Derivative of Silent Arrow® for Side Door and Palletized Swarm Deployment at High Speeds and Altitudes" effective November 12, 2021.

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Under this Small Business Innovation Research Phase II contract, the commercially successful Silent Arrow® GD-2000 (Glider, Disposable, 2000 pounds) platform will be scaled down and redesigned as a new product line called the Silent Arrow® Precision Guided Bundle (SA-PGB), which will initially be developed as an autonomous cargo delivery glider. It is designed for side door and multi-unit (swarm) ramp deployment, compatible with delivery aircraft ranging from the civilian Cessna Caravan to the military C-17.

The SA-PGB will be designed and built at Silent Arrow's headquarters in Irvine, California and 15 aircraft will be shipped to the company's flight test center in Pendleton, Oregon for operational evaluations at the UAS Test Range. Initial specifications include 500-pound max weight, 350-pound cargo capacity, 39 inches long and deployable from high altitudes and airspeeds. https://uasweekly.com/2021/11/29/u-s-air-force-orders-15-silent-arrow-precision-guided-cargo-delivery-drones/?utm_source=rss&utm_medium=rss&utm_campaign=u-s-air-force-orders-15-silent-arrow-precision-guided-cargo-delivery-drones&utm_term=2021-11-30

1Dec21

GA-ASI completes key system-level tests for new Protector RG Mk1 RPA 01 Dec 2021 (Last Updated December 1st, 2021 09:03)

General Atomics Aeronautical Systems (GA-ASI) has completed a series of system-level tests for the new Protector RG Mk1 remotely piloted aircraft. It is the British Royal Air Force's new version of the MQ-9B SkyGuardian.

The aircraft was put through full-scale static strength, high intensity radiated field and environmental testing. Assessing the strength of all the major structures in the aircraft, the complete fuselage, wings, tails and landing gear.

Protector RPA's environmental testing was conducted at the McKinley Climatic Laboratory at Eglin Air Force Base while the HIRF testing occurred at the Electromagnetic Environmental Effects Test Facility at the Naval Air Station Patuxent River.

GA-ASI noted that the test program also included the Hazards of Electromagnetic Radiation on Ordnance testing for the load-out of Protector weapons. https://www.airforce-technology.com/news/ga-asi-completes-protector-rpa-key-system-tests/

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Japan-based Drone Fund invests in Wingcopter Ishveena Singh - Dec. 1st 2021

In a run-up to its upcoming Series B round, German drone delivery startup Wingcopter has received funding from Drone Fund, a Japan-based venture capital firm dedicated exclusively to investments within the drone technology ecosystem.

Though Wingcopter hasn't revealed the exact amount it has received, we know the investment comes from Drone Fund's $90 million Drone Fund III. Drone Fund's current portfolio includes a range of organizations working across the drone space – from hardware and software to core technology and integration. However, this is the first time the VC firm is investing in eVTOL drone technology or in a German company.

It, of course, helps that Wingcopter already has deep ties with Japan. Last year, the company signed a partnership agreement with Japan's biggest airline, ANA, to build a drone delivery network focusing on rural areas. In addition, the drone company is working on a strategic partnership with one of the largest Japanese *sogo shosha* (general trading companies) through Wingcopter's Authorized Partnership Program. The WAPP network will also allow the company to operate, promote, and distribute the world's first triple-drop delivery drone, the Wingcopter 198, in Japan. https://dronedj.com/2021/12/01/wingcopter-drone-fund/#more-72585

Avy launches new Aera aircraft, announces Drone Response Network Ishveena Singh - Dec. 1st 2021

Avy, a Dutch aviation company, has unveiled a new drone solution through which autonomous drones can be deployed instantly for urgent and lifesaving missions.

The Avy Drone Response Network combines docking stations with the new Avy Aera autonomous drones to support medical deliveries or emergency services during critical incidents. The new-generation drone has improved payload capacity and range, capable of carrying up to 6.6 pounds of medical goods over a distance of 62 miles. Moreover, the VTOL aircraft can operate around the year in rain and winds up to 28 mph.

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The new Avy Aera drone is designed to meet EU drone regulations and UN standards for aerial transport of medical goods. The craft is outfitted with a Medkit which boasts a 4-liter capacity and is fitted with sensors for immediate assessment. Avy has also equipped the drone with a suite of redundant sensors and communication links on board for increasingly complex operations.

In addition, the Avy Aera can be integrated with a high zoom RGB and thermal camera system to detect wildfires, spot people in distress at sea, monitor oil spills, and assess on-ground emergency situations. https://dronedj.com/2021/12/01/avy-aera-drone-response-network/#more-72581

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A 2 Hour Trip Now Takes 13 Minutes: UAVAid's Medical Drone Delivery in Sierra Leone

Miriam McNabb December 01, 2021 by DRONELIFE Staff Writer Ian M. Crosby

On November 19th, the very first medical delivery by drone in Sierra Leone was completed as part of a collaboration between the Sierra Leone Directorate of Science Technology & Innovation (DSTI) and UK based drone specialist UAVaid, with support from their VTOL technical partner SWOOP.

Carried out as part of the Medical Drone Delivery Project to improve access to medicines in remote parts of Sierra Leone, one of the most impoverished countries in the world, the delivery was conducted to test and demonstrate the use-case of the MDDP at the Mabang Community Health Post in Sierra Leone's Moyamba District. The project received funding from the Bill & Melinda Gates Foundation, in partnership with The Ministry of Health and Sanitation, and Crown Agents.

The inaugural flight from Rotifunk village to Mabang was completed in a mere 13 minutes, a significant improvement over what typically takes 2 hours via vehicle. The event was witnessed by dignitaries and ministers, including Sierra Leone CIO Dr.Sengeh who explained the role of innovation and technology in improving access to medicines. The flight also assembled officials from The Ministry of Health and agencies such as the National Medical Supplies Agency, Ministry of Basic and Senior Education, Ministry of Environment, Ministry of Fisheries, UNICEF

and other development partners and community stakeholders.
https://dronelife.com/2021/12/01/a-2-hour-trip-now-takes-13-minutes-uavaids-medical-drone-delivery-in-sierra-leone/

Expansion, Integration, and Acceptance of Urban Air Mobility Vehicles in the EU

Jessica Reed December 1, 2021

At the virtual relaunch of the European Network of U-Space Stakeholders this week, Jacek Woznikowski, Director of the Department of Socio-Economic Development and Cooperation in Metropolis GZM, Poland, spoke on the topics of Urban Air Mobility and Sustainable Urban Mobility Planning. He asked attendees to consider: What kind of city would we like to live in? What can urban mobility add to the ecosystem?

In 2017, the European Commission established UIC2, a community of 46 cities/regions in Europe, as part of the EU's Smart Cities Marketplace. Woznikowski represents Metropolis GZM, one of the member regions of UIC2, to explain their approach to introducing drones in an urban area. To drive a sustainable and responsible transition, UIC2 focuses on task forces in three key areas: first, establishment of public and private support; second, collaboration with citizens; and third, pursuit of synergy between ground and air transportation.

Urban air mobility is defined as "very low altitude airborne traffic, above populated areas, at scale, that is sustainably integrated with surface mobility systems." Woznikowski emphasizes the importance of this sustainable integration, saying that the focus should be city-centric and driven by citizens' needs. The ideal approach, he explains, is one that utilizes multiple stakeholders and multi-level governance. Additionally, aviation experts should work together with mobility/planning experts towards a common goal rather than working separately towards unrelated goals. According to Woznikowski, partners of UIC2 believe that "technology needs to serve cities, not the other way around." https://www.aviationtoday.com/2021/12/01/expansion-integration-acceptance-urban-air-mobility-vehicles-eu/

Airbus-Led Eurodrone Project Moves Ahead *04/16/2021 Pierre Tran*

Paris – The German parliament approved on April 14 a proposed contract for work on a European medium-altitude, long-endurance drone, clearing the way for a contract to be signed in the coming weeks, Dirk Hoke, chief executive of Airbus Defence and Space,

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said. “This is an important milestone towards a contract in the next weeks, and it is even more important for the German and European defense industry.”

The German parliamentary budget committee had approved a €3 billion ($3.6 billion) budget for the proposed unmanned aerial vehicle, Reuters reported. That would cover 21 drones, 12 ground stations and four simulators, with delivery in 2030.

The Bundestag held a decisive position in the authorization process, and that approval clears the way for the partner nations to sign the contract for developing and building the UAV, intended to allow Europe to break the US and Israeli hold on that vital aeronautics sector. https://defense.info/re-shaping-defense-security/2021/04/airbus-led-eurodrone-project-moves-ahead/

EHang Demonstrates Drone Aerial Sightseeing Flights in Bali [VIDEO] Miriam McNabb December 01, 2021 by DRONELIFE Staff Writer Ian M. Crosby

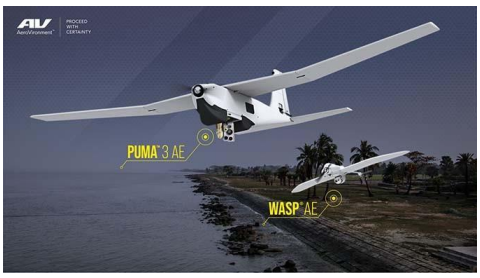
EHang 216, the world’s leading autonomous aerial vehicle has completed its debut flight demonstration for aerial sightseeing in Bali, Indonesia. The demonstration flight was carried out by EHang in cooperation with Prestige Aviation, an Indonesian local partner, and Prestige Corp subsidiary.

The EHang 216 completed a five-minute autonomous flight at Villa Blackstone Beach in Bali. VIP guests who were in attendance for the flight demo included Bambang Soesatyo, Chairman of the Indonesian People’s Consultative Assembly, Putu Astawa, Head of the Bali Tourism Office and Rudy Salim, CEO and Founder of Prestige Corp.

The Directorate General of Civil Aviation of the Republic of Indonesia awarded the EHang 216 AAV with the Special Certificate of Airworthiness prior to the flight demonstration, marking it as Indonesia’s first passenger-grade AAV approved for a public unmanned flight demo.

“We are entering a new chapter of transportation,” said Bambang Soesatyo, Chairman of the Indonesian People’s Consultative Assembly. “As a modern transportation solution, EHang 216 will change our lifestyle in the future.” https://dronelife.com/2021/12/01/ehang-demonstrates-drone-aerial-sightseeing-flights-in-bali-video/

AeroVironment Awarded $4 Million Small Unmanned Aircraft Systems Foreign Military Sales December 2, 2021 Military | News



AeroVironment, Inc. today announced it received a $4,151,320 U.S. Department of Defense Foreign Military Sales contract Sept. 27, 2021 to provide Puma™ 3 AE and Wasp® AE small unmanned aircraft systems, initial spares packages, training and support to an allied nation. Delivery is anticipated by September 2022.

AeroVironment's Puma 3 AE is designed for land and maritime operations. The hand-launched aircraft has a wingspan of 9.2 feet, weighs 15 pounds and can operate for up to 2.5 hours with a range of up to 37.2 miles (60 kilometers). Capable of landing in water or on land, the Puma 3 AE and Mantis i45 EO/IR sensor suite empower operators with extended flight time and a level of imaging capability never before available in the small UAS class.

Wasp AE is a lightweight, man packable UAS that weighs just over a kilogram and delivers stealthy maneuverability, superior imagery, encrypted video and ease of use. Wasp's gimbaled payload is mechanically stabilized, enabling it to transmit advanced imagery in high-wind conditions, while its avionics allow operators the option of manual or autonomous navigation.

AeroVironment's small UAS comprises the majority of all unmanned aircraft in the U.S. Department of Defense inventory, and its rapidly growing international customer base numbers more than 50 allied governments. To learn more, visit www.avinc.com.
https://uasweekly.com/2021/12/02/aerovironment-awarded-4-million-small-unmanned-aircraft-systems-foreign-military-sales-contract-for-u-s-ally/?utm_source=rss&utm_medium=rss&utm_campaign=aerovironment-awarded-4-million-small-unmanned-aircraft-systems-foreign-military-sales-contract-for-u-s-ally&utm_term=2021-12-02

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New Joint Venture Company to Create World's First Public Vertical Mobility System Jessica Reed December 2, 2021

Volocopter is teaming up with NEOM to provide air taxi services for a zero-emissions customized public vertical mobility system in a "smart city" in Saudi Arabia.

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Volocopter announced a new joint venture company this week with NEOM, an enterprise that is developing a "smart city" on the coast of Saudi Arabia's Red Sea. The joint venture company was formed to design and operate what could be the world's first customized public vertical mobility system. NEOM's public transit system will incorporate air taxi services and may commence zero-emission operations in 2025. Use of electric vertical takeoff and landing aircraft will also minimize disruption to the area's natural environment during development.

One advantage is that this joint venture is starting with a blank canvas and will be able to integrate an eVTOL network starting with the initial city planning phase. Additionally, Volocopter and NEOM will be involved in designing and creating infrastructure and flight regulations from the ground up. NEOM's Head of Technology and Digital, Joseph Bradley, says that the organization "is not about building a smart city, it is about building the first cognitive city, where world-class technology is fueled with data and intelligence to interact seamlessly with its population."

Vertical mobility services will connect NEOM's core urban development THE LINE reimagined industrial city OXAGON and other regional destinations, avoiding intrusive road construction and thus protecting its unique natural environment.

NEOM has confirmed an order of 15 VTOL aircraft from Volocopter, including 10 of the VoloCity model (for passengers) and 5 VoloDrones (for cargo). Technical and operational planning will start up in 2022 when the joint venture will be scaled up.
https://www.aviationtoday.com/2021/12/02/new-joint-venture-company-to-create-worlds-first-custom-public-vertical-mobility-system/

SpaceX launches 48 more Starlinks and two Earth-imaging satellites WILLIAM HARWOOD DECEMBER 2, 2021 CBS NEWS

A SpaceX Falcon 9 rocket boosted 48 more Starlink internet relay satellites into orbit Thursday, along with two BlackSky commercial Earth-imaging satellites. The flight marked the 27th Falcon 9 launch so far this year, a new record for the California-based rocket builder.

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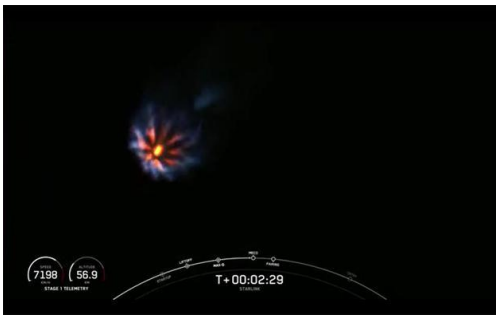
The Falcon 9's first stage booster, making its ninth flight, thundered to life at 6:12 p.m. EST, smoothly pushing the 229-foot-tall rocket away from pad 40 at the Cape Canaveral Space Force Station atop 1.7 million pounds of thrust.

Eight minutes and 45 second later, the second stage and its 50-satellite cargo were safely in orbit. Just under an hour later, the two BlackSky satellites were released, followed by the 48 Starlinks about 25 minutes after that.

Meanwhile, the Falcon 9's well-traveled booster successfully landed on an offshore droneship to chalk up SpaceX's 96th successful recovery, and its 73rd at sea.



The nine first stage engines in the Falcon 9 booster put on a colorful show as the rocket climbed out of the lower atmosphere and the exhaust plume expanded in the lower pressure environment.

SpaceX has now launched 1,892 Starlinks as it populates a globe-spanning commercial constellation of internet relay satellites designed to provide broadband service to users anywhere in the world. Going into Thursday's launch, 1,684 Starlinks were believed to be operational. https://www.cbsnews.com/news/spacex-launches-48-more-starlinks-and-two-earth-imaging-satellites/

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