UAS and SmallSat Weekly News

Contents

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

31Aug19

Australian Hobbyists Take a Drone Fishing Trip Malek Murison August 30, 2019

We've seen drone-aided surfing, skydiving, skiing and hammock-sitting. This week, footage has emerged from Australia that shows how a group of friends have adapted the tranquil sport of fishing with a human-carrying drone.

"Nobody sells a human-lifting drone, so we thought we'd build our own…" https://www.facebook.com/watch/?ref=external&v=2157974847663933

In the video above, the friends document their attempts to build a big (and stable enough) drone to carry a person. In true Aussie style, the friends decided to use their drone for a fishing expedition instead. Later in the video we see one of the crew sitting in a deck-chair while hanging from a rope attached to the drone. The drone flies out over a lake in the state of Victoria, and the wait begins.

Sure enough, the flying fisherman gets a bite and reels in a fish while sipping on a beer – the chair has a beer holder attached, of course. Once the fish is caught, man, beer and flying armchair are all flown back onto dry land where the celebrations begin.
https://dronelife.com/2019/08/30/australian-authorities-drone-fishing/

Planck Aerosystems Awarded DOD Contract for Unmanned Aircraft Systems

August 28, 2019 Military News

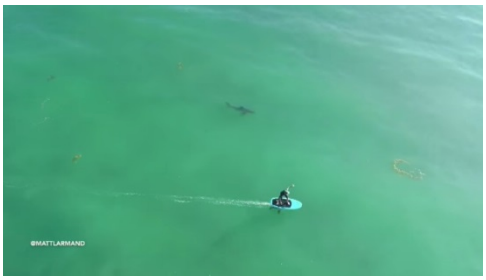
Planck Aerosystems was awarded a contract valued over $2M by the United States Department of Defense's Combating Terrorism Technical Support Office to produce mobile tethered unmanned aircraft systems for integration onto tactical ground vehicles.

The UAS leverages Planck Aero's autonomous and vision-guided navigation technology for flying from moving platforms, GPS-denied operation and target detection & tracking. Planck's Autonomous Control Engine technology unlocks the capability for rapid launch and recovery of UAS while on the move. Existing unmanned aircraft systems use global positioning and are not capable of autonomous operation from moving vehicles.

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Planck Aero's autonomy solutions have been integrated into several different unmanned aircraft platforms, providing push-button takeoff and precision landing from confined spaces as well as from moving vehicles and vessels on land or at sea. https://uasweekly.com/2019/08/28/planck-aerosystems-awarded-dod-contract-for-unmanned-aircraft-systems/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_08_29_2019&utm_term=2019-08-29

Drone captures great white sharks circling oblivious surfers Haye Kesteloo Aug. 28 2019



A photographer with a drone captured great white sharks circling oblivious surfers in Orange County, California.

On Wednesday, Matt Larmand used his drone to film a group of hydrofoil surfers zipping through the water when he spotted the great white sharks. Hé said that he hoped to capture footage of great white sharks but didn't expect to find them threatening a group of surfers.

At some point in the video, you can see the surfer passing right over the shark. And elsewhere in the clip, you see a surfer falling into the water not far away from one of the sharks. Luckily the surfer was able to get back on his board, oblivious to the danger nearby, and the shark decided to swim away.

Surfers are typically not part of the menu for great white sharks. They prefer seals, sea lions, dolphins, and fish. However, a surfer in a wetsuit paddling on a board might easily be mistaken. Fortunately, the sharks left the surfers alone and nobody got hurt.
https://dronedj.com/2019/08/28/drone-captures-great-white-sharks-surfers/#more-18651

Elroy Air Successfully Completes First Test Flight of Large Unmanned VTOL Cargo Aircraft August 29, 2019 News

Elroy Air, an autonomy and logistics company developing vertical take-off and landing aerial cargo systems, announced the successful completion of its first full-scale system flight test, the 1,215 lb prototype reaching a height of 10 feet and hovering for 64 seconds before descending and landing safely. The test was completed on August 14th,

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

2019 at McMillan Airfield at Camp Roberts CA in partnership with the Naval Postgraduate School. The aircraft was remotely piloted by the company's lead test pilot.

"Today is an important step toward the future of logistics," said David Merrill, CEO of Elroy Air. "The airport-dependence of traditional manned air cargo options shows that we still have a long way to go! Autonomous VTOL cargo systems will make the dream of ultra-responsive logistics possible, because they decouple air cargo from airports. These large cargo systems are about to become mainstream, and the Elroy Air team is leading the industry with our development of the Chaparral aerial cargo system." https://uasweekly.com/2019/08/29/elroy-air-successfully-completes-first-test-flight-of-large-unmanned-vtol-cargo-aircraft/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_08_30_2019&utm_term=2019-08-30

UAVOS 's Hidron Stratospheric Glider Successfully Reaches Altitude Of 30 Kilometers August 29, 2019 News

During the flight, a new mini-EUSO (Extreme Universe Science Observation) AMON Airglow detector from the Slovak Academy of Sciences Institute of Experimental Physics was tested. UAVOS and Stratodynamics also used this flight as an opportunity to test and advance several aspects of the HiDRON design including stratospheric flight dynamics, data links, and UAVOS' Autopilot.

This flight was a result of seven months of planning . According to UAVOS, the Slovakian team was looking for a cost effective method that would allow the AMON Airglow detector to have a clear view of the zenith and the nadir while unencumbered by a weather balloon.

Everything went as planned for this flight, as the UAVOS ground crew used a balloon to lift the HiDron to the 30-kilometer target altitude and release it in -76 degrees Fahrenheit stratospheric winds. The UAS performed well in the harsh environment, as real time data was transmitted to the ground station during a four-hour controlled descent.
https://uasweekly.com/2019/08/29/uavos-s-hidron-stratospheric-glider-successfully-reaches-altitude-of-30-kilometers/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_08_30_2019&utm_term=2019-08-30

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

2Sep19

XAG combats pests with fully autonomous crop spraying drones AGRICULTURE

APPLICATION BUSINESS HEADLINE NEWS INTERNATIONAL NEWS ALEX DOUGLAS SEPTEMBER 2, 2019

Fall armyworms are a highly destructive pest species native to tropics and sub-tropics of the Americas, and have aggressively invaded more than 100 countries and devastated millions of hectares of crops since 2016.

At the end of its lifespan, as a moth, it can fly up to 100km in one night and lay as many as 1,000 eggs during its lifetime.

With strong migration and reproductive abilities, fall armyworms crossed the Atlantic for the first time and landed in Africa in early 2016, then quickly spread to most Asian countries in July 2018. As for Africa alone, the annual yield loss of the 12 maize-producing countries is estimated at $4.6bn in 2018.

Given the situation, drone technology has given XAG the ability to suppress the encroachment of fall armyworm in time, through effective large-scale emergency action involving minimal physical labor. https://www.commercialdroneprofessional.com/xag-combats-pests-with-fully-autonomous-crop-spraying-drones/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-311074-Commercial+Drone+Professional+DNA+-+2019-09-02

Helsinki airport Volocopter demonstrator flight shows viability of UTM technology August 30, 2019 Philip Butterworth-Hayes UAS traffic management newsli

The world's first electric air taxi flight managed by a UTM system integrated with the country's air traffic management system, with multiple UTM service providers sharing flight tracking and communications data through a single flight information management system took place on August 29, 2019 at Helsinki Airport in Finland.

"UTM service providers discuss and share information through the Flight Information Management System using existing components but combining them, not just traditional UTM

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

services but also services such as precision weather, supported by the Finnish Meteorological Institute, with mobile coverage supported by Telia and Elisa. So we get the real-time situational awareness to all airspace users, manned and unmanned.

Flight planning in a UAM context in these regions has to be performed a few seconds before the flight, ensuring the door-to-door routing is accessible. It involves dynamic flight planning, adapting the flight to changing environmental and traffic conditions which have to be monitored alongside the procedural interface with ATC, interacting with existing controlled airspace. The demonstration used Frequentis integrated flight plans for the Volocopter flight, the same system used by many air navigation service providers for managing ATM services. The demonstration looked at strategic flight plan de-confliction – at the flight plan stage – and tactical de-confliction – once the drone or air taxi is in flight.

"We are happy to say that all providers we tested were compatible with the Volocopter systems," said Jan-Hendrik Boelens, CTO of Volocopter.
https://www.unmannedairspace.info/uncategorized/helsinki-airport-volocopter-demonstrator-flight-shows-viability-of-utm-technology-for-complex-congested-airspace/

Researchers apply big data to managing drone swarms August 28, 2019 Jenny Beechener UAS traffic management news

An academic study examines two big data applications to manage multiple drones in swarms. The *Drone Chasing Drones: Reinforcement learning and deep search area proposal* published in July 2019 looks at two approaches which support cooperation and pursuit-evasion for Unmanned Aerial Vehicles.

The first uses vision-based deep learning object detection and reinforcement learning to detect and track a drone by another drone. It relies on a deep convolutional neural network to extract the target pose based on the previous pose and the current frame. The second approach uses a deep object detector and a search area proposal to predict the position of the target UAV in the next frame for tracking purposes. This relies on historical detection data from a set of image sequences inputs this data to a SAP algorithm in order to locate the area with a high probability UAV presence. The aim is to develop architecture capable of tracking moving targets using predictions over time from a sequence of previously captured frames.

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

The study finds both approaches are promising and lead to a higher tracking accuracy overall. The study also finds that the deep SAP-based approach improves the detection of distant objects that cover small areas in the image. The researchers demonstrated their findings in outdoor tracking scenarios using real UAVs to test the proposed algorithms. https://www.unmannedairspace.info/uncategorized/researchers-apply-big-data-to-managing-drone-swarms/

For more information visit: www.dronebelow.com/2019/08/06/drones-chasing-drones-using-deep-learning-and-ai/

Nevada test site evaluates drone detection technology August 30, 2019 Jenny Beechener Counter-UAS systems and policies, UAS traffic management news

A drone detection demonstration carried out at Nevada UAS Test Site brought together US and international technology companies to evaluate drone detection technology under the Federal Aviation Administration Pathfinder Program.

The Nevada Institute for Autonomous Systems and the State of Nevada conducted its first international Desert Drone Detection demonstration to advance airspace safety and surveillance and detection technology in early August. Participants hope to advance legislation that would make it easier to fully test the potential of drone detection, surveillance, and airspace protective technologies and protect the National Airspace System from rogue drone operators with unintentional or malicious intent to violate FAA regulations.

In November 2016, the FAA and the Department of Homeland Security conducted drone-detection research at the Denver International Airport for the FAA's Pathfinder Program on UAS Detection at Airports and Critical Infrastructure. The ID3 continues the evolution of drone-detection research. https://www.unmannedairspace.info/counter-uas-systems-and-policies/nevada-test-site-evaluates-drone-detection-technology/ For more information visit: https://nias-uas.com/nevada-uas-test-site-conducts-first-international-desert-drone-detection-challenge-for-the-uas-industry/

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Vehicle-Mounted Drone Capture System Announced 28 Aug 2019

OpenWorks Engineering, a developer of security and counter-terrorism technologies, has announced the release of a new vehicle-mounted unmanned aerial vehicle capture system, which the company claims is the world's first such product. SkyWall Auto Response enables security forces to provide counter-drone protection to large areas, and uses OpenWorks Engineering's proven SkyWall net capture technology. The system is mounted on a vehicle that is intended to look like an average commercial vehicle. It is discreetly hidden under quickly and easily deployed covers. Upon detection of a rogue UAS, the system can be deployed automatically while the vehicle operator maneuvers rapidly.

The system has been proven at fixed sites under military testing conditions and has demonstrated the ability to stop fast-moving multirotor drones as well as fixed-wing UAVs. https://www.unmannedsystemstechnology.com/2019/08/vehicle-mounted-drone-capture-system-announced/.

Chinese Exhibitors Display Loyal Wingman Model *Aug 27, 2019*Steve Trimble *Aerospace Daily & Defense Report*

ZHUKOVSKY AIR BASE, Russia—Chinese exhibitors at the MAKS Air Show here unveiled a stealthy-appearing, high-speed drone on Aug. 27 that in the future may function as a fifth-generation target and fill many of the roles of a "loyal wingman."

A scaled model of the jet-powered LJ-1 drone appeared at the booth of China's National Polytechnic University. It is primarily designed to function as a target drone but is capable of performing several tactical missions. By changing the payload, it would be capable of functioning as a radar jammer or a standoff land attack missile, the Chinese developers say.

If anything, the model reflects China's growing interest in advanced aerial targets to test a series of air-to-air missiles in development, as well as growing interest globally in unmanned aircraft that can be used to augment manned fighters as Loyal Wingman. https://aviationweek.com/defense/chinese-exhibitors-display-loyal-wingman-model

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Unmanned Cargo Aircraft Take a Step Closer With Elroy Air Flight *Aug 29, 2019*

Graham Warwick *Aviation Week & Space Technology*

Describing it as a "flying Ford F150 truck," U.S. startup Elroy Air has begun flight-testing its Chaparral large unmanned cargo aircraft. The 1,215-lb. vertical-takeoff-and-landing aircraft made a 64-sec. first hover flight on Aug. 14 at the Camp Roberts California National Guard Base.

The l prototype is being flight-tested under a cooperative research and development agreement with the Naval Postgraduate School in Monterey, California. This provides Elroy Air with access to restricted military airspace for flight testing in return for working with the U.S. Marine Corps on concepts of operations for unmanned logistics aircraft.

The Chaparral is a hybrid-electric VTOL aircraft designed to carry 200-250 lb. of cargo up to 300 mi. in its initial version. The aircraft has six electric-powered rotors on two outrigger booms for vertical flight and a wing and pusher propeller for efficient forward flight.

The Chaparral uses an under-fuselage cargo pod that is loaded and unloaded independently of the aircraft and then positioned on the airport ramp. The aircraft then taxis in autonomously, drops off its pod and picks up another one.

On the ground, the Chaparral will use GPS, lidar and a camera to taxi autonomously. In the air, Elroy plans to use traffic information and an onboard radar for detect-and-avoid capability.

The vehicle has attracted interest from established air cargo operators that would buy or lease aircraft and fly them as well as logistics companies looking for a service.
https://aviationweek.com/future-aerospace/unmanned-cargo-aircraft-take-step-closer-elroy-air-flight

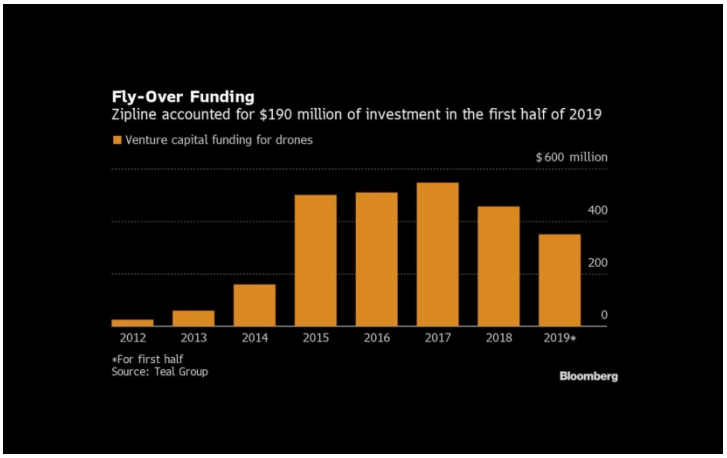
Drone bubble bursts and wipes out startups, according to Bloomberg Haye Kesteloo

Sep. 2nd 2019

Over the Labor Day Weekend, Bloomberg posted an article that talks about how the drone bubble has burst, wiped out startups, and hammered venture capital firms. Since the start of the decade, many millions of dollars have been generously poured into the unmanned aircraft

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

industry and even though drone applications are still expected to impact a wide variety of businesses, 'for now, all that over-heated enthusiasm is getting a cold blast of reality.'



Jack Pitcher writes for Bloomberg that: *New commercial drone businesses flooded into the market at the start of the decade, flush with venture capital and giddy with visions of unmanned aircraft being used for everything from delivering packages to fertilizing farmland.*

Some of the biggest startups began closing their doors last year after burning through hundreds of millions in venture capital poured into a fledgling industry that, despite forecasts for explosive growth, is taking longer to mature than expected. At least 67 drone startups have been sold since their inception, according to Crunchbase.

Venture capitalists poured $2.6 billion into drones from the beginning of 2012 to June 2019, according to Teal Group, an industry researcher. Startups founded during 'peak hype' in the commercial drone industry ran out of money before they could generate profit and couldn't secure additional funding, said Wackwitz.

DroneDJ's take: While we agree that the drone industry has gone through a turbulent decade, and the consumer drone market definitely seems to have cooled off, we think that the commercial or enterprise market for unmanned aircraft is still about to take off. Many businesses in the insurance, telecommunications, construction, mining, and agriculture sectors are still discovering the value that drones. When you look at the first responders' sector that includes police forces, fire departments, and rescue workers you see a similar trend with many getting started with drones or expanding their fleet and use of the unmanned aircraft.
https://dronedj.com/2019/09/02/drone-bubble-bursts-bloomberg/#more-18884

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Majestic FPV drone footage by Shaggy FPV in Viking Valley Josh Spires Sep. 2nd 2019 @drone_nr

DRL racing pilot Ralph Hogenbirk aka Shaggy FPV took to the skies in Viking Valley Fall in Norway earlier this month with his fpv drone and a GoPro to create amazing drone footage. The flight resulted in a breathtaking video flying low in the valley and around a waterfall.

He took to the skies earlier this month at Viking Valley in Norway exploring the valley and the waterfalls.

Shaggy FPV came onto the DRL scene in 2018, being the first pilot to originate from Eindhoven in the Netherlands.

We asked Shaggy why he loves flying in Norway. He shared that he can go for a hike or mountain bike ride take the drone out and get some great footage of the amazing landscape Norway has to offer. See the video at https://dronedj.com/2019/09/02/fpv-drone-footage-viking-valley-fall/#more-18689

3Sep19

Drones enter mainstream use in the oil and gas industry 30 AUGUST 2019

GlobalData's latest thematic report, 'Drones in Oil & Gas' discusses the increasing deployment of drones to drive operational efficiency in the oil and gas industry.

Unmanned aerial vehicles have become integral to the oil and gas industry over the last few years. This is owing to their increasing usability, falling hardware costs and easing government regulations.

Drone adoption in the oil and gas industry initially revolved around strategic deployments for remote monitoring and surveillance of assets, during both regular operations and emergency situations. Recent advancements in sensing and imaging technologies enable drone deployment in a wide range of settings. One example is its use in inspection and predictive maintenance of critical infrastructure.

Are there any drawbacks? As drone usage is increasing in the oil and gas industry, it heightens the possibility of drone-related accidents due either to a technical malfunction or bad

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

judgement from the drone operator. To avoid such incidents, a new set of expertise is emerging within the oilfield services space dedicated specifically to piloting drones.

GlobalData's thematic research identifies oil and gas companies, such as BP, Chevron, ConocoPhillips, Equinor, ExxonMobil, Gazprom, and Shell as the leading players in the adoption of drones in their oil and gas operations. The report also highlights the contribution of drone technology and service providers for the oil and gas industry, such as DJI, PrecisionHawk, and AeroVironment. https://www.offshore-technology.com/comment/drones-enter-mainstream-use-in-the-oil-and-gas-industry/

Tehran says unmanned craft can mount attacks 'much farther' from nation's borders Ben Wolfgang - *The Washington Times - Sunday, September 1, 2019*

The drone, dubbed "Kian," is specifically designed to reach distant targets, Iran's military leaders boasted.

"The combat and defensive Kian drone has been designed in two types and with the capability of flying at high speed for missions which need tracing, reconnaissance, high flight durability and pin-pointing power," said Gen. Alireza Sabahi Fard, commander of the Iranian army's Khatam ol-Anbiya Air Defense Base.

"The unmanned flying object, with high flight durability, can attack targets much farther from Iran's borders and defend the country in enemy's soil," he said.

The craft, Fars reported, has "considerable flight durability up to 24 hours and capability to carry rockets with high-precision power for day and night missions are among other features of the drone." https://www.washingtontimes.com/news/2019/sep/1/tehran-says-unmanned-craft-can-mount-attacks-much-/

Lucid's drone is built to clean the outside of your house or office Greg Kumparak@grg August 27, 2019

Rather than pressure washing, their drone "soft washes" the building — be it a house, an office or the campus library — by spraying a cleaning solution that the company says is biodegradable and works on surfaces like brick and limestone. The operator rolls up to a site, unfolds the drone, powers it

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

up, then plugs it into a tank sitting in the back of their work truck. A hose tether runs from the tank to the drone at all times, feeding the low-pressure sprayer while keeping the bulk of the weight down on the ground. The operator handles the drone via remote control. The drone is currently designed/tested to clean buildings up to 120 feet tall. That's around 10-12 stories tall, depending on the building's design.

Lucid co-founder Andrew Ashur says they originally set out to be the service provider, hiring operators and cleaning the buildings themselves. When they began testing the concept and other companies started reaching out, the team realized they might be better off selling the drone itself. They're now starting to rent the drones to companies for $3,000 per month, which includes support, training and maintenance.

Lucid is part of Y Combinator's Summer 2019 batch. As of YC Demo Day last week, the company noted that it had signed contracts worth around $33,000 per month in recurring revenue. https://techcrunch.com/2019/08/27/lucids-drone-is-built-to-clean-the-outside-of-your-house-or-office/

GOING BIG IN GREENLAND August 29, 2019 Zach Ryall

The AeroVironment Vapor 55 UAS helicopter with the high-frequency radar prototype. The radar will be used to measure surface features, particularly crevasse size and shape. The silver box is the radar, and the tan box below is the antenna.

Emily Arnold, Assistant Professor of Aerospace Engineering at the University of Kansas, has landed a five-year, $609,000 **National Science Foundation grant** to customize an **unmanned helicopter** with two radar arrays designed to explore Greenland's Helheim Glacier in 2021.

Carrying two custom-built radars powered by the aircraft's electrical system, Arnold and her fellow researchers plan to not only map the glacial surfaces, but also probe hundreds of meters into the ice. This kind of detailed data collection is not possible with satellite imagery. "We want to know what [glaciers'] contribution is to global sea level rise."

An environment of brutally cold temperatures, winds that can reach 55 knots, a 10-pound payload and required mission endurance longer than 25 minutes call for something more capable than the typical off-the-shelf quadcopter, or even hexacopter.

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Emily J. Arnold, Assistant Professor of Aerospace Engineering School of Engineering, University of Kansas

Enter the **AeroVironment Vapor 55**. Built for industrial, commercial, and military applications, it is over six feet long. It weighs in at the 55-pound limit for Part 107 operations, can carry an 11-pound payload and can fly for nearly an hour in gusty winds that would push many quadcopters backward.

The low-frequency antenna on the Vapor, which will peer deep into the ice, will likely need to serve double duty as the landing gear. The helicopter will fly largely by autopilot and map a grid much as conventional drones fly programmed routes. https://www.aopa.org/news-and-media/all-news/2019/august/29/going-big-in-greenland?utm_source=dronepilot&utm_medium=email

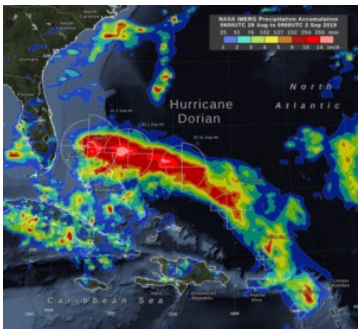
Creating the Future JOHN LANGFOR SEPTEMBER 2019

Imagine this: You've had a busier than expected day at the office, and before you know it, you're running late to catch a long flight. To make matters worse, it's rush hour and there's just not enough time to drive to the airport or take the subway. But not to worry: PAV (Passenger Air Vehicle) Service just came online in your city. You order your ride, walk a block to the nearest staging area, and within minutes, you're on your way.

The PAV gently and quietly cruises toward the airport as you take in a panoramic view of the city skyline, taking note of the standstill traffic below. Before you realize it, you've arrived—and to your delight, there's still plenty of time to make your flight.

THE FUTURE IS NOW This sounds impossibly futuristic, but work is in progress now to make this a reality within the next decade. The benefits go far beyond getting to the airport in record time. In the same way that commercial air travel has connected continents and made the world smaller, PAVs and other intelligent systems will shrink the distance between cities and regions—completely redefining how and where people live, work, and play. Imagine the freedom of living in the mountains and working in the city. Imagine the economic benefits for small towns with a lot to offer visitors but no connectivity to mass transit infrastructure. Imagine a world where rush-hour traffic is no more, and online orders arrive at your doorstep, directly from the factory, within minutes. This will change everything.
https://aerospaceamerica.aiaa.org/departments/creating-the-future/

A Look Back: Drones Offer Innovative Solutions in the Wake of Hurricanes Jason Reagan September 02, 2019



As Hurricane Dorian careens toward the Southeastern Seaboard, emergency officials are ramping up safety measures and prepping for the aftermath of the now-Category 5 storm.

UAS companies such as DJI, as well as non-profit groups like the Airborne International Response Team, are already preparing to tackle the job. For the past few years, drones have enhanced both pre-and-post hurricane response efforts.

- Before the 2019 hurricane season got underway, Homestead (Fla.) officials collaborated with disaster-response firm Disaster Program & Operations as well as drone services provider Airborne Response to provide critical infrastructure inspection and disaster-response services.
- In 2018, Airborne Response flew drone missions to gather inspection data, assessing damage to infrastructure — key buildings, highways, bridges, communications towers and power lines in the wake of Hurricane Michael. The photos also helped insurance companies process claims. SimActive, a developer of photogrammetry software, partnered with drone service provider Midwest Aerial to assess damage to homes and infrastructure after the hurricane struck the Gulf Coast.
- Following Hurricane Florence in 2018 , the FAA granted State Farm permission to fly drones Beyond Visual Line of Sight in four states, allowing the company to assess damage and provide faster claims processing.
- After Hurricane Matthew in 2016, Verizon completed a successful inspection deployment of UAVs in areas of the Carolinas beleaguered by heavy flooding. Launching a quadcopter operated by Measure UAS, Verizon inspected several wireless equipment nodes to determine repair needs across its regional network. The company's drone recorded and transmitted live video feeds to Verizon engineers as it flew over cell equipment in hard-hit areas. https://dronelife.com/2019/09/02/drone-continue-to-offer-innovative-solutions-in-the-wake-of-hurricanes/

5Sep19

FAA Partners Complete UAS Traffic Management Demos Across the Country

Betsy Lillian September 4, 2019

The Federal Aviation Administration is highlighting progress it has made in partnership with NASA to lay the groundwork for an unmanned aircraft systems traffic management system.

Recent demonstrations, conducted at three separate test sites showed that multiple drone flights taking place beyond the visual line of sight can be safely conducted at altitudes below 400 feet in airspace where FAA air traffic services are not provided. As demand for low-altitude drone use increases, the FAA, NASA and the UPP partners are working together to accommodate these operations safely and efficiently. The first demonstration took place at Virginia Tech on June 13.

During the demo, separate drone flights delivered packages, studied wildlife, surveyed a corn field and covered a court case for TV. Because the flights were near an airport, all four flight plans were submitted through a service supplier and received approval to launch as planned.

While these flights were being conducted, an emergency helicopter needed to quickly transport a car crash victim to a hospital. The helicopter pilot submitted a request for a UAS Volume Reservation, an alert used to notify nearby drone operators of the emergency. The deliveries were re-routed until the UVR was completed. The wildlife study, field survey and court coverage continued safely away from the helicopter's path. Each operation was conducted without conflict. The second demonstration took place in Grand Forks on July 10.
https://unmanned-aerial.com/faa-partners-complete-uas-traffic-management-demos-across-the-country?utm_medium=email&utm_source=LNH+09-05-2019&utm_campaign=UAO+Latest+News+Headlines

CATUAV Is Manufacturing and Testing A New Concept: Banner Towing Drones

September 3, 2019 Drones At Work

Traditional sky ads pulled with light manned aircraft have the high operating costs associated with any certified manned airplane. Using drones enables the possibility of flying under 150m ASL, easier to be observed. This way the size of the banner can be reduced and the operating cost remarkably drops. These drones produce zero emissions and almost no noise.

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

BCN Drone Center has been training pilots from our customer, Annunzia, for such special drone application. This summer, the firm has been conducting flight campaigns along the Catalan coast and the Balearic islands. Every day, companies like LIDL, Decathlon, Carrefour or Burger King decide to switch from manned sky ads, to unmanned ones.
https://uasweekly.com/2019/09/03/catuav-is-manufacturing-and-testing-a-new-concept-banner-towing-drones/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_09_04_2019&utm_term=2019-09-04

DSEI 2019: Steadicopter Will Present Next-generation Black Eagle 50 September 4, 2019 News

New capabilities include an inertial navigation system with no dependence on GPS. The company also signed a cooperative agreement with Israel Shipyards for marketing the BLACK EAGLE as part of the defense, intelligence and surveillance systems installed on its family of offshore patrol vessels.

The rotorcraft features a special INS capability, based on input from the system's inertial sensors. A smart navigation algorithm enables management of the mission without relying on GPS – providing the BLACK EAGLE 50 with a significant advantage in GPS-denied situations.
https://uasweekly.com/2019/09/04/dsei-2019-steadicopter-will-present-next-generation-black-eagle-50/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_09_04_2019&utm_term=2019-09-04

Self-igniting eggs dropped by 'dragon' drones can help save lives Haye Kesteloo Sep. 4th 2019

Even though the FAA recently put out a warning to not weaponize your drones, there are situations when a drone with self-igniting eggs can help save lives. Susie Cagle writes for The Guardian:

Self-igniting eggs dropped by 'dragon' drones: it sounds scary, but the resulting blazes can limit destruction.

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

The drone drops self-igniting "dragon eggs" that spark a cluster of flames. Managed properly, it will chew away at overgrown forests and help prevent deadly and destructive megafires.

…a growing number of US government agencies, including the Department of the Interior and the forest service, are turning to unmanned aircraft to battle fires by setting them first.

The "dragon egg" system consists of self-igniting plastic spheres filled with potassium permanganate. The ping-pong-like balls are injected with glycol right before the drop, which reacts and sets them ablaze in less than 30 seconds.

"They're out working in Arizona and California – they do a lot of burning now," said Brad Koeckeritz, unmanned aircraft system division chief for the interior department's office of aviation services. Drones have also been deployed on fires in Nebraska and Oregon, setting backburns to limit the spread of wildfire. https://dronedj.com/2019/09/04/self-igniting-eggs-dropped-dragon-drones/#more-19002

Drones from Atlas Dynamics Enable Safety and Security at Large Events João Antunes Emergency Response & Search and Rescue September 3, 2019

Recently, Atlas Dynamics used the AtlasPRO UAS to help the Military Police of Rio de Janeiro State secure the Copa America soccer tournament. This marked the first instance in which multi-drone UAS technology has been approved to secure a major sporting event.

The AtlasPRO enables fully and semi-autonomous missions of 50 minutes and a range of 10 km. The drone features multi drone hot-swap, which allows users to define a point of interest on the AtlasOS, and send the first drone to fly above it. When the first drone reaches 25% battery, it sends a signal to the second to take off and replace it above the target.

"MESH multi drone operating is the next big thing, " Ivan Tolchinsky, CEO and Founder of Atlas told Commercial UAV News. "There is just so much one can do to optimize current batteries. One of AtlasPRO advantages is optimizing energy consumption, which allows us to reach 50 minutes of flight time. But MESH allows us to get much more out of the system by enabling continuous eyes-in-the-sky and hours in the air, be it for one mission or several. This feature changes the paradigm of endurance — it doesn't matter if we fly 45, 50, or 60 minutes anymore, as MESH enables us to have a constant eye on the target for hours from the same operator." The EU based company is expanding to the U.S. market, bringing its MESH

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

technology to the American professional user. https://www.expouav.com/news/latest/drones-from-atlas-dynamics-enable-safety-and-security-at-large-events/?mkt_tok=eyJpIjoiWm1FNE9XRTFaR1k1T0RFeSIsInQiOiIrN0ZHcmgyaFVkRU94UTZ0RjdwQitzUExwYVRzZVY1RFl6c1pROGhXakxBOUdvRCt0Zkxuc1JZNTAycmt5eEUxUUpQUHlSNXBIVVN5dzJOVjFmMG1jS1wvcXhzNUlDYlpYZXRlQUJVcWR5Qk0xcFRXa2dmNURCdTVlR3RwZW5VWTcifQ%3D%3D

Terra Drone executes Australian expansion plan with local UAV service provider investment BUSINESS INTERNATIONAL NEWS ALEX DOUGLAS SEPTEMBER 5, 2019

Tokyo-headquartered Terra Drone Corporation has finalized its expansion into the Australian market after completing an equity investment in Australian firm, C4D Intel that will immediately rebrand to Terra Drone Australia.

The company will expand its service offering to include unmanned airborne LiDAR, bring innovative Terra Group technologies to Australia, and expand its operations to the East coast of the country.

The Australian provider's clients include mining heavy-weights such as Rio Tinto and Fortescue Metals Group and large utilities such as ATCO Gas Australia and Synergy.

The company specializes in large-scale unmanned aerial surveys, confined space infrastructure inspections, high-altitude inspections, bridge and pipeline inspections, and asset 3D modeling. https://www.commercialdroneprofessional.com/terra-drone-executes-australian-expansion-plan-with-local-uav-service-provider-investment/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-311405-Commercial+Drone+Professional+DNA+-+2019-09-05

Bees360 launches AI-embedded drone app for property inspections APPLICATION BUSINESS INTERNATIONAL NEWS ALEX DOUGLAS SEPTEMBER 5, 2019

The app, described by the company as an industry-first, has been designed to meet criteria to help insurance providers when it comes to how to utilize AI for underwriting and claims inspections.

Autonomous drone flights will allow fast inspection time and increase the quality of the data being collected to let both claims and underwriting staff make better formed decisions.

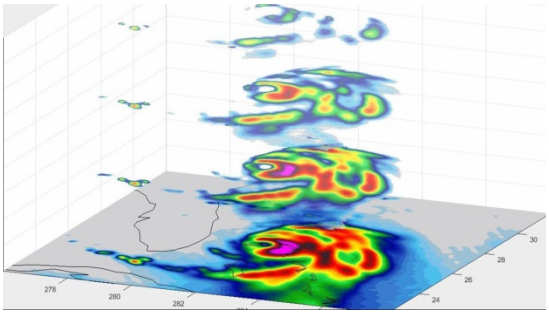
Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Real-time damage assessment reports mean a detailed roof report returned through an AI-embedded application will be provided to identify hail, wind and non-storm related damages while the inspector or adjuster is still on-site.

Intelligent drone flight ensures the angle of the camera is perpendicular to the roof slope for optimal capture of imagery on any pitched roof. The drone flies within the property boundary of the building being inspected providing peace of mind for privacy concerns. Watch the launch video here: https://www.commercialdroneprofessional.com/bees360-launches-ai-embedded-drone-app-for-property-inspections/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-311405-Commercial+Drone+Professional+DNA+-+2019-09-05

6Sep19

Tiny NASA satellite gets fascinating 3D peek inside Hurricane Dorian AMANDA KOOSER SEPTEMBER 5, 2019



The Tempest-D satellite captured this look at Dorian's layers on Sept. 3.

We've seen Hurricane Dorian from inside the eye, from satellites and looking down from the International Space Station. A tiny experimental NASA weather satellite has now given us a fascinating view from under the hurricane's hood.

Tempest-D is a CubeSat roughly the size of a box of cereal. This inexpensive satellite is on a demonstration mission to show if it can track storms. If successful, it could set the stage for launching a series of low-cost CubeSats that can follow storms across the globe.

The satellite shows us the layers inside Dorian in 3D. "The CubeSat used its miniaturized radio-wave-based instrument to see through the clouds, revealing different depths of the hurricane with areas with heavy rainfall and moisture being pulled into the storm."

NASA shared an animated version of Tempest-D's data, giving an unusual perspective on the hurricane. https://www.cnet.com/news/tiny-nasa-satellite-gets-fascinating-3d-peek-inside-hurricane-dorian/#ftag=CAD590a51e

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com

Prairie Village, Kansas, passes drone ordinance — $500 or jail time for violators

Haye Kesteloo Sep. 5th 2019

The new ordinance makes it illegal to fly a drone near people without their consent, or over large events without permission, or over private property without authorization. Furthermore, it is illegal to fly your drone while intoxicated, in a reckless manner, to use it for surveillance, or to weaponize it.

Pilots who violate the ordinance could be charged with a class "C" misdemeanor which carries up to a $500 fine or one month in jail.

Many lobbying groups and drone users have opposed the ordinance, arguing the city does not have the authority to regulate drone flights in the airspace over the city.

"The Federal Aviation Administration regulates commercial drone flight, so the ordinance would apply only to people using drones for recreational use." Contrary to what this text may indicate, the FAA does not only regulate commercial drone flights but also sets rules and guidelines for recreational drone flights. Furthermore, the agency recently stated that they are the only official body in the US with authority over airspace, saying:

State and local governments are not permitted to regulate any type of aircraft operations, such as flight paths or altitudes, or the navigable airspace.

Prairie Village officials claim that they know the federal regulations are changing and that they carefully crafted their new ordinance. https://dronedj.com/2019/09/05/prairie-villages-passes-drone-ordinance/

Robert Rea | Axcel Innovation | Charlottesville and Portsmouth, VA
robert.rea@axcel.us | 757-309-5869 | www.axcelinnovation.com