



UAS and SmallSat Weekly News

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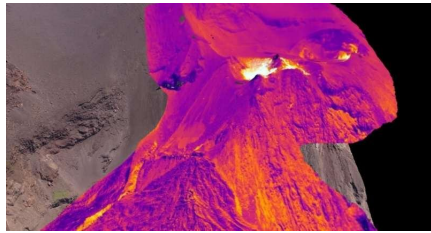
31Mar18

Scientists Use Drones to Create World First 3D Map of Volcano



Sarah Whittaker March 30, 2018

Drones have been instrumental in the creation of the world's first 3-D thermal image of an active volcano.



According to geoscientists from the University of Aberdeen, the striking image of the Stromboli volcano in Italy is part of a project to develop methods of detecting subtle changes in volcanic behaviour to predict the likelihood of an eruption. Using high-precision cameras mounted to an aerial drone, Professor John Howell, from the University of Aberdeen said they captured the volcano in hundreds of aerial photographs. They then used software to stitch them all together to create a 3D map of the volcano's surface. "From there we can overlay the model with images from a thermal camera, allowing us to see the thermal structure of the volcano in 3-D," he said.



"This thermal structure gives us significant insight into changes in the volcano. If we see certain areas are unexpectedly hot then it might be an early warning sign, especially if the ground has swelled.

"The ability to deploy a drone really close to a volcano means that as well as getting high precision thermal mapping and imagery, we can also deploy portable seismometers and gas sensors in areas that are too dangerous for people to go." <https://dronebelow.com/2018/03/30/scientists-drones-world-first-3d-volcano-map/>

35 STATE DOTS, INCLUDING NC, DEPLOYING DRONES TO SAVE LIVES, TIME, MONEY

Bill Fisher Published: 29 March 2018



A survey by the American Association of State Highway and Transportation Officials finds that 35 of 44 responding state departments of transportation (80 percent) are using unmanned aircraft systems for a wide range of purposes.

The March 2018 survey finds that 20 state DOTs have incorporated



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drones into their daily operations. Another 15 state DOTs are in the research phase - testing drones to determine how they can be utilized.

All 20 of the state DOTs operating drones on a daily basis are deploying them to gather photos and videos of highway construction projects. In addition to photography, 14 states also reported using them for surveying, 12 for public education and outreach, 10 for bridge inspections, eight for emergency response, six for pavement inspections, five for scientific research, two for daily traffic control and monitoring and one state DOT was using drones to conduct high-mast light pole inspections. <https://www.goblueridge.net/news/38242-35-state-dots-including-nc-deploying-drones-to-save-lives-time-money>

What Drone Operators Need to Know About the Expansion of LAANC Jeremiah

Karpowicz March 27, 2018



We've explored what LAANC (Low Altitude Authorization and Notification Capability System) [opening up the sky](#) means for commercial drone operators. The ability to receive **automatic approvals to operate in controlled airspace** is something professionals have been asking the FAA to enable for a long time now.

That potential development is especially exciting to consider in light of the recently [announced expansion of LAANC](#) itself, as the FAA is set to conduct a nationwide beta test that will deploy LAANC incrementally at nearly 300 air traffic facilities covering approximately 500 airports.

We wanted to get a better sense of what this announcement would mean for commercial drone operators that are working today, and how it might impact future capabilities related to managing drone traffic and improving aviation safety. To do so, we connected with Matt Fanelli, Director of Strategy at Skyward, who has extensively [written about](#) and [presented on](#) topics related to the present and future of LAANC. See the interview at https://www.expouav.com/news/latest/drone-operators-need-know-expansion-laanc/?utm_source=informz&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter

Analysis of the 2018-2038 FAA Aviation Forecast March 25, 2018

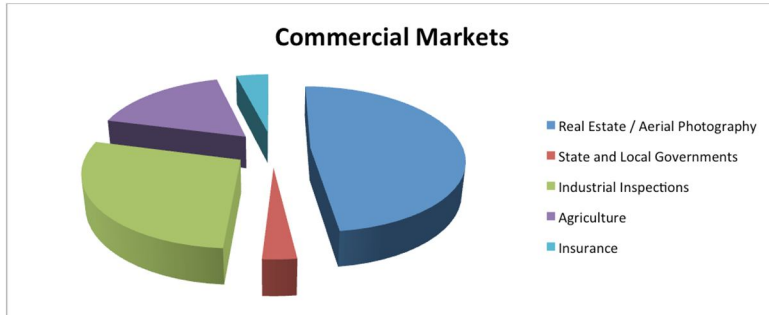


On March 15th the Federal Aviation Administration (FAA) [released its aerospace forecast for the fiscal years 2018 to 2038](#). The forecast highlights the phenomenal growth in the use of UAVs and provides a window into the actual number of registered drones, pilot licenses issued to date and the expected growth in each category.



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By the end of May 2017, more than 772,000 owners had registered their vehicles with the agency (hobby and commercial combined). The FAA expects commercial, small, non-model UAVs to grow from 110,604 in 2017 to 451,800 in 2022, an average **annual growth rate of 32.5 percent**. By the end of 2017 more than 110,000 operators registered their equipment.



Almost half of operations are for real estate & aerial photography (48%) followed by industrial inspections (28%), agriculture (17%), insurance (4%) and state and local governments (3%).

By December 31st 2017, more than 73,000 Part 107 remote pilot licenses (RPCs) had been issued. Over 90% of individuals who took the required aeronautical knowledge exam passed and obtained an RPC. The forecast for the next five years shows an increase from 73,673 in 2017 to 301,000 in 2022. The average **annual growth rate over the 5-year forecast period is 32.4 percent**, right in line with the number of expected sales and registrations of new commercial UAVs.

This represents a **significant sign of maturity for the industry** and opens up the door to new regulations allowing, amongst other things, BVLOS operations and an even more efficient sharing of the airspace for manned and unmanned aircraft to ensure everyone in the sky and on the ground remains safe. https://www.expouav.com/news/latest/analysis-2018-2038-faa-aviation-forecast/?utm_source=informz&utm_medium=email&utm_campaign=newsletter&utm_content=newsletter

SF Express Receives China’s Permission to Deliver Packages Via Drone March 31, 2018 [Audrey Zhang](#)

The largest logistics company in the People’s Republic of China, SF Express, has announced that its subsidiary Fengyu Shuntu Technology is the first company in the country to receive a permit to deliver packages via drone.



Where Fengyu Shuntu Technology’s drone courier services will really come in handy are the more rural and inaccessible parts of China. It is



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not difficult to see how this application could be expanded to other countries around the world. But, as Drone DJ points out, the most immediate use of the flying couriers will be for package delivery. According to Bloomberg, over 40 billion packages were shipped throughout China in 2017 alone and that number is expected to rise to 49 billion this year. A recent study of drone-based UAV deliveries found that delivery drones with a 2.5 mile radius **used less energy per package per mile** than traditional delivery methods – a potential **boon for China's goal of combating pollution**. <https://www.wetalkuav.com/sf-express-receives-chinas-permission-deliver-packages-via-drone/>

1Apr18

Raytheon's laser system can shoot down 3 drones at a time! April 1, 2018 Thomas Luna



[Gunning down drones](#) can be inconsistent, so Raytheon, a U.S. defense contractor company, developed a military-grade laser dune buggy capable of taking down up to three drones at a time. To demonstrate just how effective the new laser weapon system is, Raytheon **downed 45 UAVs** in a U.S. Army exercise known as Maneuver Fires Integrated Experiment

(MFI) in Fort Sill, Oklahoma.

Raytheon's laser system is designed with 360-degree coverage for sea, land and air



applications. Their custom dune buggy is built to identify and track enemy missiles, mortars and UAVs. When military and industry leaders gathered at MFI, 33 drones, 12 Class I and II UAVs and six stationary mortar projectiles were destroyed, proving how capable Raytheon's laser system is.

The laser system used on the [dune buggy](#) was created by Raytheon and the U.S. Air Force Research Laboratory under a \$2 million contract.

Even though the laser system was developed primarily to protect U.S. troops against UAVs, this technology can be used in areas other than the battlefield. **Sport stadiums or public events** with large crowds can benefit with Raytheon's proven technology.

<https://www.wetalkuav.com/raytheons-laser-system-can-shoot-down-3-drones-at-a-time/2/>



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2Apr18

Japan to End Beyond Visual Line-of-Sight Regulations by End of 2018 MARCO

MARGARITOFF MARCH 30, 2018

*BVLOS regulations have hampered commercial drone companies for years, preventing automated drone deliveries from taking off. **Japan is scrapping them.***



According to [The Japan Times](#), Japan's transport and industry ministries announced new rules on Thursday, with plans of implementation [scheduled for the end of 2018](#). BVLOS drone missions will be permitted, without the need of an operator maintaining visual line of sight, as long as the flight's safety can be guaranteed remotely via cameras and sensors.

The motivation here is clear. It simply makes too much business sense for the government to alleviate restrictions like these for commercial clients in the country. In addition, this would allow for far easier transportation of goods and materials to remote, rural, and mountainous areas. [The one reported caveat](#), as of now, is that any drone traveling beyond the visual line of sight must have a history of safe flight missions, and fly below 492 feet (150 meters).

All in all, this is a **huge victory** for those eager to finally move forward with package deliveries, and something [the U.K. recently considered doing](#), as well. <http://www.thedrive.com/tech/19797/japan-to-end-beyond-visual-line-of-sight-regulations-by-end-of-2018>

Army to Expedite Drone-Mounted Jammer Procurement Jane Edwardson: April 02, 2018 C4ISR, News



The [U.S. Army](#) will use the [Defense Department's](#) "other transaction authority" to accelerate the acquisition of a drone-mounted platform that works to jam enemy communications, Nextgov [reported Friday](#).

A FedBizOpps notice [posted Thursday](#) says the Army's electronic warfare and cyber division plans to award the *Multi-Function EW Air Large* contract to a member of the Consortium for Command, Control and Communications in Cyberspace.

[C5](#) is a division of Consortium Management Group consists of companies in cyber technology and command, control, communications, computers, intelligence, surveillance and reconnaissance markets and works to accelerate the delivery of new capabilities to service personnel through the use of OTA.



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The service initially [released in February 2017](#) a request for information for the MFEW-AL program that seeks to field a jamming device **mounted on a *Gray Eagle* drone**.

The Army intends to award a multi-year, single-award contract that would cover engineering and manufacturing development and low-rate initial production phases.

<http://blog.executivebiz.com/2018/04/report-army-eyes-other-transaction-authority-to-expedite-drone-mounted-jammer-procurement/>

Italy plans to spend \$951M on 20 surveillance drones [Tom Kington](#)

ROME — Italy is edging [closer to acquiring](#) a new surveillance drone based on a business aircraft design. The UAV will offer **24-hour endurance** and have a top speed of 330 knots. Italy's Ministry of Defence last month sent an acquisition request to Parliament's defense commission for 20 Piaggio Aerospace P.2HH drones, [costing a total](#) of €766 million (U.S. \$951 million).



The platform, dubbed the HammerHead, is an unmanned variant of the Piaggio Aerospace P180 business aircraft, which flies with two pusher propellers. Piaggio Aerospace says it will start deliveries to the UAE in 2018.

The request to Parliament describes the purchase of 10 piloting stations and 20 aircraft, which will be able to fly at **45,000 feet**, carrying out intelligence, surveillance, target acquisition and reconnaissance missions. The aircraft would be able to land at regular airports, fly in all weather conditions, and operate day and night in segregated and non-segregated airspace. <https://www.defensenews.com/unmanned/2018/03/27/italy-plans-to-spend-951m-on-20-surveillance-drones/>

Drones Spy Caribou on a Treacherous, Icy Crossing [JoAnna Klein](#) March 28, 2018

Every autumn, caribou gather along the shores of Victoria Island in the Canadian Arctic and wait. Once the temperature drops and the ice gets thick enough, dozens of them cross together to mainland Canada. There, if they make it, they will spend the winter breeding before heading back to birth and raise their young on the island.



In November 2015, scientists led by [Andrew Berdahl](#) at the Santa Fe Institute in New Mexico and [Colin Torney](#) at the University of Glasgow in Scotland **deployed drones to film this migration**. Despite earlier research models suggesting



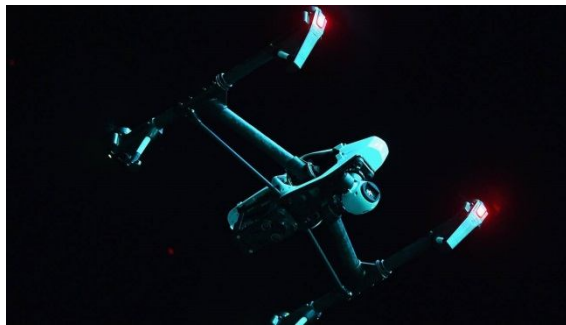
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individuals in migrating groups all act the same, the researchers confirmed that some caribou lead, while others follow along. The results were [published Monday in Philosophical Transactions of the Royal Society B](#).

“If you want to understand the full picture, you have to consider the social context, because in this group of moving species, the interactions between individuals can be just as important as the traits of individuals themselves,” said Dr. Berdahl. He thinks that when these caribou come together, they can better sense and respond to the perilous ice they cross. It’s called **collective sensing**. <https://www.nytimes.com/2018/03/28/science/caribou-migration-drones.html>

Surveillance Drones to Be Part of Coachella 2018 Security System MARCO

MARGARITOFF MARCH 29, 2018



Authorities intend to add drones as part of the increased surveillance system for this year’s Coachella festival in Indio, CA.

The idea to deploy one or multiple drones above a massive music festival, in order to more accurately surveil the audience for potential threats, just makes logical, affordable, and practical sense these days. Soon after the Las Vegas

incident, [terrorism experts and authorities vocalized their professional opinions on drone-use post-emergency events](#), and how beneficial it would be to apprehend suspects more rapidly, and in a safer manner. We’ve seen [law enforcement across the country clamor for UAV equipment](#) over the past few months, as the tool can keep officers from harm’s way while providing invaluable data to those on the ground. <http://www.thedrive.com/tech/19725/coachella-2018-will-implement-surveillance-drones-as-safety-precaution>

€6.3m Irish drone research project aims to make flying couriers a reality [by Colm Gorey](#) 26 MAR 2018



For autonomous delivery drones to become a reality, we will need the technology to make sure they don’t collide and the humans down below are kept safe.

It should come as welcome news that a team based at Maynooth University has been given €6.3m to develop such a technology with a platform called U-Flyte. The funding comes from a partnership between Science Foundation



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Ireland (€1.8m) and industry (€4.5m), with partners including Airbus, Irelandia Aviation, Intel and 15 other relevant companies and agencies with an active interest in the development and deployment of drone technology.



The programme will see researchers recreate flying environments for drones as digital models, taking into account a wide range of factors such as air traffic, buildings and electricity lines, and then testing them in the real world at Waterford Airport and other selected locations around Ireland.

Meanwhile, Ralph James, director of safety regulation at the Irish Aviation Authority (IAA), said: "The IAA is keen to support development of drone technology for the greater public good.

"There are already over 8,500 drones on the IAA Irish drone register and, as we prepare ourselves for the future of aviation – which will see drones become a part of everyday life – initiatives like U-Flyte will be invaluable in helping us manage an evolving Irish airspace."

<https://www.siliconrepublic.com/machines/drones-research-maynooth-university-u-flyte>

And from last week's edition...

NASA partners with Thales in push for drone airspace management 27 MARCH, 2018 SOURCE: FLIGHTGLOBAL.COM DAN THISDELL LONDON

NASA has formally brought Thales on board in its effort to develop an unmanned air vehicle traffic management system that can be handed over to the US Federal Aviation Administration in 2019. Under this Space Act Agreement, Thales will collaborate with NASA to research, develop, test and evaluate low-altitude UAV airspace control for flights below 400ft.

Thales is already working with other NASA partners at the FAA's test site, at Griffiss International airport in Rome, New York. It is supporting the FAA's System Wide Information Management and Low Altitude Authorization and Notification Capability programmes.

Olivier Rea, head of UTM solutions at Thales, says the agreement gives the company access to the US market as a "full provider". Since such deals are typically signed with US companies, he adds: "It's a big step for us." <https://www.flightglobal.com/news/articles/nasa-partners-with-thales-in-push-for-drone-airspace-447125/>

Looks like a US-Ireland race...

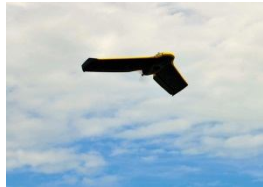
But Canada is also joining in:



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UAV regs changing – for the better – *in Canada*

Transport Canada looks to streamline and standardize the rules for drone use [Ralph Pearce](#) CG Production Editor March 26, 2018



Last November at the Unmanned Systems Canada Conference in Toronto, Transport Canada presented draft changes to regulations governing UAVs. Much of the discussion centres on growth in the recreational and commercial operator sector, which has challenged Transport Canada's capabilities. In 2018, for example, it's estimated that SFOC applications will exceed 6,000.

Canada has been a world leader in regulatory initiatives to support the UAV sector, but **risks falling behind other nations** unless it modernizes its regulations.

Based on a statement from Transport Canada, draft changes are expected by the summer of 2018. Implementation will take "some time," as there will be a transition period for Transport Canada to put new processes into place and time for industry to adapt.

In the short term, Transport Canada has created a national standard, negating the patchwork quilt of varied applications of the regulations from province to province. The federal department is also streamlining the SFOC application process for potential owners, a move that will hopefully standardize reviews and **speed approvals**. <https://www.country-guide.ca/2018/03/26/transport-canada-looks-to-streamline-standardize-rules-for-uav-use/52930/>

After Dominating the Consumer Drone Market, DJI Sets Its Sights On The

Business World *The Chinese drone giant's new Payload Software Development Kit opens up a wide range of new applications for businesses.* BY DANIEL TERDIMAN 03.28.18



DJI PDSK Skyport

Today, DJI unveiled what it calls Payload SDK, a tool that, in conjunction with DJI's new Skyport gimbal adapter, allows third party sensors, cameras, and things like air-to-ground communication tools and devices to integrate directly with its M200 series drones. Now, it can all be integrated, streamlining the process and giving these users easy access to real-time data from a wide range of external cameras and sensors.



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Drone industry analyst Colin Snow says that the ability for users to automatically integrate third-party sensors is a big deal, especially because it means their applications can take advantage of the drone's onboard GPS. "It should improve sensor and image geotagging needed for post-processed kinematic (PPK) surveys," Snow says.

<https://www.fastcompany.com/40550558/after-dominating-consumer-drone-market-dji-sets-its-sights-on-the-business-world>

China's SF Express "given licence to start drone-based transport network" March 28, 2018 Philip Butterworth-Hayes UAS traffic management news



China Money

Network (<https://www.chinamoneynetwork.com/2018/03/28/sf-express-use-drones-delivery-chinas-remote-regions>) reports that **SF Express**, one of China's biggest express delivery companies, has announced its subsidiary Jiangxi Fengyu Shuntu Technology Co. Ltd.

has secured China's **first provisional drone operating licence** from the East China Regional Administration of the Civil Aviation Administration of China (CAAC) to begin deliveries within the country's pilot zones approved by the CAAC.

Large, crewed cargo airliners will transport major shipments of goods to regional warehouses; large drones will distribute the goods locally, and then small-scale UAVs will make deliveries to customers.

According to *China Money Network* "In February, Chinese e-commerce giant **JD.com Inc** was also granted **the first national drone operating license with provincial limits** by China's Northwest Civil Aviation Authority and Civil Aviation Administration of China. With the licence, JD.com can perform commercial operations of logistics delivery within Shaanxi province. JD.com's current logistics system already covers most of China's urban centres, but the company is hoping to expand its coverage to China's rural areas. The company has developed **drones that can take heavier loads** and plan to build fully automated warehouses as well." <http://www.unmannedairspace.info/uncategorized/chinas-sf-express-given-licence-start-drone-based-transport-network/>

Unlicensed swarms in space *Ian Christensen Monday, April 2, 2018*

An Indian PSLV launch in January carried a number of smallsat secondary payloads, including four SpaceBee satellites from Swarm that lacked authorization from the FCC.



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The news that emerged near the end of the US workday on Friday, March 9th, 2018 that an American startup company had launched four satellites **despite being denied the required** Federal Communications Commission (FCC) experimental **license** certainly was not a positive development.



Writing in *IEEE Spectrum*, Mark Harris reported the Swarm Technologies, a space startup based in California, had launched the four satellites **(each approximately one-quarter the width of a 1U cubesat in size)** on an Indian PSLV launch vehicle on January 12, 2018. The four SpaceBee satellites were technology demonstration platforms for Swarm's planned space-based Internet-of-Things (IOT) service. The denial of the experimental license was based on concerns the satellites were **too small to be effectively tracked** by the US military's Space Surveillance Network (SSN), which provides safety of flight information to other operators. <http://www.thespacereview.com/article/3465/1>

The potential impact on Swarm's business viability is a microcosm of the reputational risk that irresponsible actions such as this pose to the entire entrepreneurial space ecosystem.

Drone technology soars over farm, fields TONIA MOXLEY Mar 30, 2018



U.S. Sen. Mark Warner, D-Virginia, (second from left) watches as Samantha Smith-Herndon (far right with controller) demonstrates the first generation AgBot drone used for **precision agriculture research** at Ferrum College's Titmus Agricultural Center on Wednesday. Smith-Herndon is a researcher with The Institute for Advanced Learning and Research in Danville, which Warner, as Virginia governor, helped establish.

AgBot is equipped with sensors that can photograph and "read" the light emitted by plants and determine their health. Red means a plant is stressed, and blue means it is healthy.

John Ayers, a Patrick County grape farmer, has allowed Smith-Herndon to map and monitor poorly-growing grape vines in a five-acre field. They were eventually determined to be suffering from a virus. But so sophisticated is the drone sensor, that **it could inspect each vine from the air.**



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Without the drone, it would take a farm worker about **five hours just to walk the field** and inspect the plants, Ayers said. The drones "can just cover so much more territory."

It took AgBot 17 minutes to inspect that field, Smith-Herndon said. And it took four hours to analyze the data.

Warner told the assembly that he's already a believer. **"If I was starting all over," Warner said, "I would go into unmanned systems."**

Not only does Warner want to see Virginia Tech and other technology centers develop applications for drones, but he said he wants to see the unmanned vehicles designed and manufactured in the commonwealth, too. Today, about 95 percent of drones are made in China, Warner said. http://www.thefranklinnews.com/news/drone-technology-soars-over-farm-fields/article_45cb2570-3454-11e8-9644-efec955fab60.html

3Apr18

Hawaii airline pilots report pair of mid-air near misses with drones Monday, April

2nd 2018 Mileka Lincoln, Reporter



(Photos: Mokulele Airlines)

HONOLULU (HawaiiNewsNow) - Two near misses with drones have rattled Hawaii airline pilots in recent weeks, and the Federal Aviation Administration confirms they're concerned with the increased number of reported drone sightings nationwide. In 2015, the number of reported sightings was about 1,200. That number grew to about 1,800 in 2016, then increased again to about 2,200 in 2017.

Just last week in Hawaii, there were two close encounters on the same day: Mokulele Airlines pilots filed reports with the FAA after two near misses with a drone during their approach into the Daniel K. Inouye International Airport. The pilots say they were flying at around 2,000 feet when a drone passed over their aircraft, within 200 to 400 feet.

"The bottom line is that whether you are a model aircraft pilot or a Part 107 drone pilot, you have to operate safely and not fly in a way that poses a danger to manned aircraft," said Ian Gregor, an FAA spokesperson. "It's imperative **that all drone operators must get authorization**



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to fly in controlled airspace." <http://www.hawaiinewsnow.com/story/37861846/local-airline-pilots-report-pair-of-mid-air-near-misses-with-drones>

UAVOS Unveils New Fixed-Wing UAV with 4-Hour Flight Time 02 Apr 2018 Caroline Rees



[UAVOS](#) has announced the launch of its new Borey-10 unmanned aerial vehicle, a fixed-wing aircraft that can be assembled and prepared for flight in ten minutes. The aircraft design incorporates a number of features focused on extending the operational life of the aircraft, including rechargeable Li-ion cell-based batteries assembled in-house, an autopilot with hermetically sealed casing, and a minimal number of units and

components.

The Borey-10 is capable of transferring real-time video in difficult meteorological conditions during operation over a range of at least 18 miles, and can be controlled at ranges of over 43 miles. The aircraft features a non-stop flight duration of 4 hours with a payload of 2lb. A heated battery compartment allows the drone to fly in temperatures as low as -22F (-30C).

Borey-10 is equipped with an emergency landing system. The console, upon touching the surface of the earth, is unfastened from the center wing and absorbs impact energy, allowing the aircraft to remain unharmed.

The UAV is equipped with an EW countermeasure system, which makes it possible to carry out research operations in the absence of GNSS signals.

It has a wingspan of 140 inches and a weight of 20lb. Take-off is carried out with the help of a rubber rope or a catapult, and landing is done by parachute. The aircraft lands on its back, which reduces the likelihood of damaging the payload.

http://www.unmannedsystemstechnology.com/2018/04/uavos-unveils-new-fixed-wing-uav-4-hour-flight-time/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=59784ed9a3-eBrief_2018_Apr_2&utm_medium=email&utm_term=0_6fc3c01e8d-59784ed9a3-119747501



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DARPA Seeks Participants for Autonomy Tech Development 'Sprint' [Ramona Adams](#) April 03, 2018 [Industry News](#), [News](#)



The [Defense Advanced Research Projects Agency](#) has begun to solicit proposals for the second set of technology development activities, called "swarm sprints," as part of an effort to build platforms for drone swarm operations.

DARPA [said Friday](#) the second sprint of the *OFFensive Swarm-Enabled Tactics* program will focus on the development of autonomy systems.

OFFSET seeks to combine autonomy and human-swarm teaming technologies to support the operations of groups of **250** or more unmanned aerial and ground vehicles by small infantry forces.

In October 2017, DARPA [awarded contracts](#) to separate teams led by [Northrop Grumman](#) and [Raytheon's BBN Technologies](#) subsidiary to serve as systems integrators under OFFSET. Sprinters will use existing tools or create new hardware components and algorithms to demonstrate the use of drone swarms in complex **urban** environments.

Participants will work to run a swarm of 50 air and ground vehicles to carry out a mission within 15 to 30 minutes.

DARPA announced the **second sprint** after it awarded contracts to the first group of sprinters who will focus on creating **novel swarm tactics**.

The initial awardees are [Charles River Analytics](#), [Lockheed Martin](#), [SoarTech](#), the University of Maryland and Carnegie Mellon University. DARPA will accept proposals for the second swarm sprint until April 30. <http://blog.executivebiz.com/2018/04/darpa-seeks-proposals-for-autonomy-tech-development-sprint/>

Fukushima: Autonomous Drones Inspect Radioactive Hot Spots Jason Reagan April 03, 2018



The [Southwest Research Institute](#) (SwRI) is teaming up with Tokyo Electric Power to deploy autonomous drones that can assess conditions and damage to the Fukushima Daiichi nuclear power following a 9.0 magnitude earthquake in 2011.

Working with the General Robotics, Automation, Sensing and Perception Lab at the University of Pennsylvania School of Engineering and Applied Science, SwRI engineers will deploy smaller UAVs to explore the containment unit.



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"This is a formidable challenge," said Project Manager Dr. Monica Garcia, a research engineer in SwRI's Intelligent Systems Division. "The conditions inside the containment at Fukushima Daiichi are quite possibly the most challenging environment that the SwRI-Penn team has had to address."

"As robots get smaller, faster, and smarter, this is exactly the kind of problem we want them to address," said Dr. Vijay Kumar, Dean of Penn's School of Engineering and Applied Science.

"Challenges like this are what push research in our field forward."

<https://dronelife.com/2018/04/03/fukushima-autonomous-drones-inspect-radioactive-hot-spots/>

Workhorse Group Receives Patent for HorseFly Truck-Launched Drone Package Delivery System

April 3, 2018 News



Workhorse Group Inc. today announced that the United States Patent and Trademark Office has issued a patent, number 9,915,956, for the HorseFly Truck Launched Drone Package Delivery System. It is integrated with Workhorse delivery trucks and designed to maintain line-of-sight operation of the UAV delivery process.

"We feel that the patented HorseFly truck launched drone package delivery system is the first major change to the last mile delivery process since the invention of the package delivery truck. Drivers appreciate the fact that the HorseFly system is fast, reliable, and efficient," said Steve Burns, Workhorse CEO. "Last mile package delivery is changing, and the HorseFly delivery system is leading the way." http://uasweekly.com/2018/04/03/workhorse-group-receives-patent-for-horsefly-truck-launched-drone-package-delivery-system/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_newsletter_2018_04_03&utm_term=2018-04-03

4Apr18

FAA Needs More UAS Service Suppliers for Automated Drone Authorization System

Joanna Crews April 4, 2018 Civilian Agencies, Latest News



The Federal Aviation Administration looks to partner with additional service providers that can support the agency's *Low Altitude Authorization and Notification Capability*.

LAANC is designed to automate the process for managing applications of unmanned aircraft system operators who aim to **fly their drones within**

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controlled airspace, FAA [said Tuesday](#).

The application period for potential LAANC service providers and suppliers will run from April 16 through May 16. FAA noted the non-standard government acquisition will not include a screening information request and a request for proposal.

The agency fielded a LAANC prototype in October last year for evaluation and [announced](#) plans to conduct a nationwide beta test that will involve 300 air traffic facilities and up to 500 airports through September. <http://www.executivegov.com/2018/04/faa-needs-more-uas-service-suppliers-for-automated-drone-authorization-system/>

Army Plans 'Dronebot' Combat Tests April 04, 2018

The Army will try out a formation flight of drones to infiltrate enemy territory and drop small bombs.

The Army will develop both small cluster drones that will actually strike enemy facilities, and mother drones that will carry them to the areas of operation.

The little drones will swarm out of their mother ship to strike enemy command posts, logistics bases and air defense systems, and return to it before coming back to their home base. They could be used to destroy North Korea's mobile missile launchers.



Cluster drones have little destructive power but can cause fear among enemy lines with surprise attacks because **they can silently avoid radar detection**.

The Army also plans to develop a mini reconnaissance drone, a combat drone that can drop grenades and liquid bombs, a suicide drone, a surveillance drone, and a fire guidance drone.

Army Chief of Staff Gen. Kim Yong-woo said, "Once the drone combat team is launched, we'll be able to boost our operational capability significantly by enhancing combat efficiency and minimizing casualties in an era of military downsizing."

http://english.chosun.com/site/data/html_dir/2018/04/04/2018040401276.html

NASA Wants to Send Swarms of Robot Bees to Mars. For Exploration, of Course

They're calling them "Marsbees". DAVID NIELD 4 APR 2018

NASA has a new idea for sending more mechanical explorers - and it's weird, slightly terrifying, and amazing all at once.

We're talking swarms of robot bees. On Mars.



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These so-called Marsbees – or "flapping wing aerospace architectures" to call them by their technical name – could operate in groups to measure atmospheric conditions or take samples before returning to home base (probably a mobile rover).

Now an international team of researchers is investigating the feasibility of the concept.

"Our preliminary numerical results suggest that a bumblebee with a cicada wing can generate sufficient lift to hover in the Martian atmosphere," [says one of the team](#), aerospace engineer Chang-kwon Kang from the University of Alabama. "Moreover, the power required by the Marsbee will be substantially reduced by utilising compliant wing structures and an innovative energy harvesting mechanism."

The researchers, including a group from Japan and a group from the US, have just been awarded **US\$125,000** as part of the NASA Innovative Advanced Concepts initiative (NIAC) to develop their ideas further. <https://www.sciencealert.com/nasa-wants-swarms-buzzing-robot-bees-marsbees-to-explore-mars>

5Apr18

World's fastest ever delivery drone could deliver medical supplies in U.S.

Luke Dormehl — Posted on April 4, 2018 Zipline



[Zipline](#) is best known for its commercial drone delivery service [delivering blood supplies in Rwanda](#). It's unveiled what it claims to be the fastest commercial delivery drone on the planet. The redesigned drone will allow the company to make up to **500 deliveries every single day**.

The new winged drone aircraft weighs in at 44 pounds and is capable of carrying cargo weighing up to about four pounds. It boasts a top speed of 128 kilometers per hour, an impressive cruising speed of 101 kilometers per hour, and a maximum round-trip range of 160 kilometers. To put those figures in perspective, it means **flying up to four times faster** than the average quadcopter drone, while **servicing an area 200 times as large**.

"Our first-generation aircraft and logistics system allowed us to create the first and only drone delivery service in the world, which is helping to save lives in Rwanda every day," Zipline CEO Keller Rinaudo said in a statement. "We've taken everything Zipline has learned making



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thousands of life-critical deliveries and flying hundreds of thousands of kilometers and redesigned our entire system and operation from top to bottom. The new aircraft and distribution center system we're unveiling today will help Zipline scale to meet the needs of countries around the world — including the United States."

That's right: Zipline is planning to expand to the U.S. It has applied to participate in a trial organized by the U.S. Federal Aviation Authority. The trial is the FAA's new Unmanned Aircraft System Integration Pilot Program, designed to allow state and local governments, alongside private companies, to experiment with deploying drones. **Zipline's U.S. operations are expected to commence by the end of 2018.** <https://www.digitaltrends.com/cool-tech/zipline-fastest-drone-in-us/>

Pentagon Eyes 'Tiny' Rockets for Small Reconnaissance Satellites April 4, 2018

Robert Levinson



The National Reconnaissance Office (NRO) released a draft request for proposal for the Rapid Acquisition of a Small Rocket, or RASR, program to boost "tiny" spy satellites into orbit.

The NRO, which oversees designing, building, launching, and maintaining America's intelligence satellites, is seeking vendors that can supply rockets with the ability to **launch multiple "SmallSats"** using commercial dispensers with a mass not to exceed 150 kilograms (331 pounds) to an altitude of 500 kilometers (311 miles).

The so-called "Tiny" launch industry is comprised of companies such as Rocket Lab Ltd., which launched a 17-meter tall Electron rocket from a private facility in New Zealand on Jan 21. Vector Space Systems, launched its P-20 sub-orbital test rocket in June 2016 and plans to boost satellites into orbit from Alaska this year. RASR will provide NRO with a way to get its NROL-151 satellites into space, according to documents posted on the intelligence community's (IC) Acquisition Research Center website.

NRO "is very interested in **utilizing the emerging commercial Tiny launch services** to meet the increasing launch demands of NRO and IC satellite customers," it said in a statement.

A final request for proposal will be released on April 23 with responses due May 23. <https://about.bgov.com/blog/pentagon-eyes-tiny-rockets-small-reconnaissance-satellites/>



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China boosts military drone production – aims to beat the US April 5, 2018 Feilidh Dwyer



[Newsweek](#) reports that top Chinese drone engineers say China's military drone programme is ramping up and moving to the next level.

New developments include **fleets of UAVs** that can be launched from aircraft carriers, bolstering the Chinese naval capabilities and **swarm-intelligence systems** that

synchronize operations between drones and other military aircraft.

The most advanced drone specimen emerging from an increasingly confident Chinese regime is the [CH-5](#) (also known as the Rainbow-5). First tested in 2015, the craft has a 69-foot wingspan, is able to carry as many as 24 missiles at a time, can fly for up to **60 hours** and has a 4,000-mile range. Future upgrades to this UAV are expected to extend the range to **6,000 miles**.

The CH-5 costs **less than half the price** meaning it delivers a far bigger bang for those military bucks. China has sold previous iterations of the CH drones to [Egypt, Saudi Arabia and the United Arab Emirates](#). <https://www.wetalkuav.com/china-boosts-military-drone-production/>

6Apr18

Aerones' firefighter drone can revolutionize firefighting! April 6, 2018 Thomas Luna



A Latvian-based drone company called Aerones created a firefighter drone that can fly up 984 feet within six minutes, making it ideal for combating burning buildings. The greatest advantage of this one-man operable drone is that it was designed to precisely guide a fire hose to heights that surpass 100-foot ladder trucks by nearly 10 times! It is also

made to fight fire in areas that are inaccessible to firetrucks, which makes it effective in densely populated areas.

Aerones' firefighter drone is still being developed, but the company is looking to make it fly for hours using a tethered power supply. Currently, the square-shaped multirotor can only fly up to 20 minutes on battery. Aerones also created two versions: the Superfast drone and the Fast drone. The Superfast drone will be equipped with 28 propellers, and it can carry nearly 441 pounds to a height of about 984 feet. The Fast drone will be equipped with 36 propellers, and it



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can carry nearly 661 pounds to a height of about 1,640 feet. <https://www.wetalkuav.com/aerones-firefighter-drone-can-revolutionize-firefighting/>

Verizon Testing Drones For Cell Service PAUL BERTORELLI



As airborne drones find ever more applications, Verizon is testing unmanned aircraft to provide cellphone service after a natural disaster. The 200-pound drones are being used in the latest in a series of tests Verizon has been conducting since 2016, according to USA Today.

The aircraft, which carry equipment called a femtocell, can be deployed quickly to provide focused cell coverage to an area that has lost terrestrial coverage because of storms, fires or other damage. The drones are capable of flight times between 12 and 16 hours and are powered by a 3 -HP gasoline engine driving a tractor prop. They're designed to fly at 3000 feet and below.

Verizon has been testing the latest version of this technology at Cape May, New Jersey. The drone was escorted by a manned aircraft to assure separation from other aircraft. <https://www.avweb.com/eletter/archives/101/3993-full.html?ET=avweb:e3993:2565185a:&st=email#230562>