UAS and SmallSat Weekly News

Contents

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20Apr19

Railroads continue to tap drone technology to inspect track, bridges Rail News

Home MOW April 2019 Vesna Brajkovic, Associate Editor

BNSF Railway Co.'s autonomous drones are programmed with a flight plan.

Nearly 140,000 miles of rail network and over 61,000 Class I bridges are manually inspected for defects and structural integrity in the United States, according to the Association of American Railroads. With an extensive network of main tracks and sidings inspected weekly and bridges inspected yearly — or more often as determined by the Federal Railroad Administration— railroads have been adopting and testing drone technology to supplement their inspection efforts since 2015.

"The fidelity of data we're getting off the drones is unbelievable," says Ed Hine, vice president of operations at PrecisionHawk, a drone-based solution provider. "We have the ability to take in a massive amount of information and analyze imagery."

Drones can help railroads obtain data that can be dangerous, expensive or inefficient to obtain frequently with traditional inspection methods. By using drones, the amount of time workers need to be on the track decreases, boosting safety, Hine says.

Drone technology also can increase efficiency because flying over and around a bridge or track doesn't require operational interruptions. It can enable maintenance-of-way departments to conduct more frequent inspections and point to potential track issues faster, VisioStack's Data Scientist Joshua Doran says.

There's also value inspecting a bridge while it's under load, a rare point of reference for inspectors, says Steven Youschak, executive VP of American Rail Engineers Corp. "We'll position [a drone with video capabilities] when we know a train is coming, and there's certain elements of the bridge, like pins or bearings, that we want to see under load."

BNSF Railway Co. has been testing fully autonomous drones to collect data from its extensive track network since 2015, says Boe Svatek, Unmanned Aerial Systems strategic program principal manager for Collins Aerospace, which provides the radio network for BNSF's autonomous flights.

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It operates drones in long-range flights called beyond-visual-line-of-sight where the aircraft is programmed with flight plans that it follows autonomously and out of view of an operator who remotely monitors its status. The drone is collected at the end of its flight when data is extracted. https://www.progressiverailroading.com/mow/article/Railroads-continue-to-tap-drone-technology-to-inspect-track-bridges--57270?mkt_tok=eyJpIjoiWW1FME5EWTRObVpsWlRBNSIsInQiOiJYZXlTbW5BZ3VQQUJuVEFWeXRFUDNGbzh5T2tiUnU4RzRuaFwvcVJzUWkrdU10eWdBV2JyekU0ZCtvdGxKdVpjWXVxRmNUNm5sVSs2b1B2SVwvS2VFbm1NK3VnaGN5UERadDJkak5menJRM1pKZzhJTTdDN3JTYVV1cFFBZWFmVUxlIn0%3D

Witnessing the Growth of the Commercial Drone Market in Europe April 17, 2019 Will Tompkinson UAS: European Markets

This year's Commercial UAV Expo Europe has yet again demonstrated numerous pragmatic approaches to the technology which are being positively impacted and enabled by current and future drone regulation.

Michal Mazur of PwC opened the conference outlining 7 trends for the coming year. These were:

1. Generation of UAV related revenues by telcom operators
2. Energy grid operators scaling up autonomous detection of failure modes
3. UAV photogrammetric/lidar capture becoming standard insight tools for mining
4. UAV urban mobility pilots spreading across Europe
5. UTM model(s) to be confirmed and rolled out
6. Rapid growth of counter-drone solutions market
7. BLVOS waivers and regulation becoming standard in Europe

Trends 1-3 indicate that the technology has become a mature application and can be relied on to deliver results in a meaningful way. Regulation will of course impact further maturation, which is why the update on the European regulatory state-of-play in subsequent presentations by Koen De Vos on U-Space (automated UAS Transportation Management protocols) and Lorenzo Murzilla on the JARUS SORA framework were so essential. They provided both optimism and validation of trends 4-7. https://www.expouav.com/news/latest/commercial-drone-market-growth-europe/?mkt_tok=eyJpIjoiWW1FME5EWTRObVpsWlRBNSIsInQiOiJYZXlTbW5BZ3VQQUJuVEFWeXRFUDNGbzh5T2tiUnU4RzRuaFwvcVJzUWkrdU10eWdBV2JyekU0ZCtvdGxKdVpjWXVxRmNUNm5sVSs2b1B2SVwvS2VFbm1NK3VnaGN5UERadDJkak5menJRM1pKZzhJTTdDN3JTYVV1cFFBZWFmVUxlIn0%3D

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CubeSat Constellation of Three Virginia University Satellites Launched from Wallops Island April 18, 2019 Mary Sandy, Director

VIRGINIA SPACE GRANT CONSORTIUM

Eighty jubilant Virginia CubeSat Constellation team members and guests were there to cheer at the Constellation's three satellites headed to space onboard Wednesday's Antares launch from the Mid-Atlantic Regional Spaceport at Wallops Island, Va. The Cygnus Module onboard the rocket contains three student-designed and developed small satellites making up the Virginia CubeSat Constellation mission, a collaborative project of the Virginia Space Grant Consortium and four of its member universities: Old Dominion University, Virginia Tech, University of Virginia, and Hampton University. The Cygnus, which is Northrop Grumman's resupply vehicle for the International Space Station, will deliver the satellites to the ISS for nearly simultaneous deployment by onboard astronauts so they can orbit together and function as a constellation.

The three nano-satellites, each about 4 inches cubed and weighing approximately 3 pounds, have been developed and instrumented to obtain measurements of atmospheric properties and quantify atmospheric density with respect to orbital decay.

The ODU satellite, which has a drag brake to intentionally cause orbital decay, is expected to remain in orbit for up to four months. The other two satellites should orbit for up to two years at an altitude of 250 miles before burning up when they re-enter Earth's atmosphere. The satellites will communicate data to ground stations at Virginia Tech, University of Virginia and Old Dominion University for subsequent analysis using an analytical tool being developed by students from Hampton University's Atmospheric and Planetary Sciences Department.

Six drones deployed to find missing 77-year-old man in Florida Haye Kesteloo Apr. 18th 2019

We have reported on many stories in which drones were used to find missing people, however, this one is a first. In Florida, the Collier County Sheriff's Office deployed Six (!) drones to help find a missing 77-year-old man. The man, who reportedly suffers from health and mental challenges, was lost for two hours when the Sheriff's Office

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was contacted. **The CCSO deployed their Drone Operations Unit, who divided the search area in a grid and deployed six drones in search of the missing man.** The CCSO obviously knew what they were doing and the man was found and brought back to safety.

What stands out in this story is not just the fact that drones were used on the search, but that the CCSO has a dedicated Drone Operations Unit that methodically executed the search and use multiple drones to find the missing person faster. I hope this story gets picked up by many police and fire departments around the country (world) as it is a great example of how drones can be successfully used. You can read the report from the CCSO below.

According to DJI, this is (at least) the 228th person around the world who has been rescued with the help of a drone. Drones for good. https://dronedj.com/2019/04/18/six-drones-find-missing-77-year-old-man-florida/

Fotokite Launches Tethered Drone System for Firefighters Jason Reagan April 17, 2019

The Zurich-based company is partnering with firefighting-apparel firm Pierce Manufacturing to launch a UAV system that can be integrated with public-safety vehicles as well as other firefighting equipment.

Aptly named the Pierce Situational Awareness Systems by Fotokite, the system can deploy "persistent aerial situational awareness with the single push of a button, no piloting necessary," according to a Fotokite statement.

The company also states the system is "the only UAS authorized by the FAA to be used by all public safety teams without requiring pilot licenses or individual authorizations to fly."

Several firefighting agencies have already used the system in operations such as live-fire response, search-and-rescue missions and structure collapse inspection.
https://dronelife.com/2019/04/17/fotokite-launches-tethered-drone-system-for-firefighters/

Chinese police stop smuggling operation that used drone Haye Kesteloo Apr. 19th 2019

Chinese police stopped a smuggling operation that used a zip line and drone to send electronic gadgets, high-end cosmetics and nutricial supplements totaling more than $70,000 from Hong Kong to mainland China. Chinese police said that the zip line and drone made smuggling the items easy.

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At the Liantang-Heung Yuen Wai Border Control Point between the northeastern New Territories and Shenzhen, the People's Armed Police saw a drone flying on the Hong Kong side of the border early Tuesday morning. Around 2 a.m. on Wednesday, members of the paramilitary police witnessed a drone landing on the top of a residential building in Shenzhen's Luoyang village. They stormed the building and detained three people.

Nine bags with products were found in a car. A tenth bag was discovered on the roof. The bags contained electronic gadgets, high-end cosmetics, and nutritional supplements worth more than $70,000. The building in China is less than a mile from Hong Kong. It takes the drone less than a minute to cover the distance and a total of five minutes to smuggle the items from Hong Kong to China.

In March of last year, a similar smuggling operation was halted by authorities. That cross-border gang had used a drone and zip line to smuggle $79 million worth of mobile phones from Hong Kong to China. https://dronedj.com/2019/04/19/chinese-police-stop-smuggling-operation-drone/#more-16134

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https://dronelife.com/2019/04/17/fotokite-launches-tethered-drone-system-for-firefighters/

On track with Network Rail's drone division APPLICATION BUSINESS EXCLUSIVE HEADLINE NEWS MAGAZINEUK ALEX DOUGLAS APRIL 18, 2019

Looking at how they can reduce risk to humans, while ensuring those jobs are not sacrificed for what technology can do, Network Rail has put drone technology to use into its work for a variety of uses, primarily for

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track inspection. Drones were first implemented five years ago as a means of exploring what other options aviation could offer from the traditional helicopter.

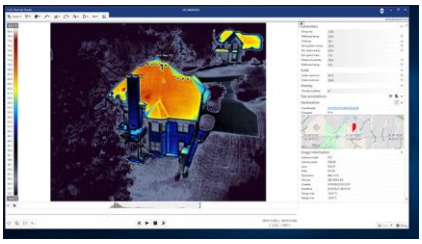
The firm is now looking at a new framework which will be going live in the near future to increase its coverage.

Network Rail also runs an in-house drone operation which has been trial for the last two years. The in-house operation commenced in December 2017 and has only just come to the end of the trial period.

The program was set up to train and equip Network Rail employees with the expertise and the ability to use and apply drone technology in their everyday work.

The in-house team allows Network Rail to quickly and efficiently deploy drones if and when they are needed, while the framework means the company has the capability to call upon specialist drone service providers around the country to complete what work is needed to the highest level. https://www.commercialdroneprofessional.com/on-track-with-network-rails-drone-division/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-299174-Commercial+Drone+Professional+DNA+-+2019-04-20

FLIR Announces Thermal Studio Software to Automate Thermal Image Processing April 17, 2019 Mapping and Surveying



FLIR Thermal Studio's software is engineered for thermographers who use FLIR thermal handheld cameras, optical gas imaging cameras, and unmanned aircraft systems with thermal cameras. It offers new measurement functions, advanced formula capability, and custom analysis templates. It allows tuning of batches of thermal photos or videos with a few clicks to edit or extract hot spot data quickly and then export it for further analysis.

The software can be downloaded as a free trial or with an upgrade to full functionality for $899. Additionally, FLIR is offering a $300 rebate for holders of valid FLIR Tools+ and Reporter licenses. https://uasweekly.com/2019/04/17/flir-announces-thermal-studio-software-for-thermographers-to-automate-thermal-image-processing/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_04_18_2019&utm_term=2019-04-18.

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23Apr19

Army Cancels Next Phase of UAS Tech Demonstrator Program Brenda Marie Rivers April 22, 2019 News

The U.S. Army canceled its plans to further a technology demonstrator program focusing on designing, building and flying next-generation unmanned aerial system capabilities, Defense News reported Friday.

The service branch is set to conclude the program's first phase, revolving around producing UAS technology concepts, and shift the focus on future vertical lift operations to support the procurement of advanced manned helicopters.

Layne Merritt, director of the Aviation Development Directorate under the Army Combat Capabilities Development Command's Aviation and Missile Center, said the military branch will concentrate on wargaming activities to develop collaborative operations between manned and unmanned aircraft. According to Merritt, another major acquisition under the demonstrator program is "probably too much for the Army at one time."
https://www.executivegov.com/2019/04/army-cancels-next-phase-of-uas-tech-demonstrator-program/

New aircraft rises 'like a balloon' Kenneth Macdonald BBC Scotland 23 April 2019

Phoenix is an unmanned aerial vehicle designed to stay in the air indefinitely using a new type of propulsion.

Despite being 50ft long with a mass of 120kg, she rises gracefully into the air. The central fuselage is filled with helium, which makes it buoyant so it can ascend like a balloon. And inside, there's another bag with compressors on it that brings air from outside and compresses it which makes the aeroplane heavier, and it descends like a glider.

Phoenix is the first large-scale aircraft to be powered by variable-buoyancy propulsion. It moves through the air like a porpoise through water. This technique is already used underwater.
https://www.bbc.com/news/uk-scotland-48013519

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Researchers equipped with drone tech rediscover extinct flower Haye Kesteloo Apr. 22, 2019

Researchers equipped with drone tech rediscover a flower thought to be extinct in a remote part of Kauai's Kalalau Valley in Hawaii. The flower, a Hibiscadelphus Woodii, grows high on the face of a mountain ridge in an extremely biodiverse area.

According to a statement from the National Tropical Botanical Garden, researchers had been using a drone for the last two and a half years to take a closer look at the very diverse and unique flora on the steep cliff faces in the Kalalau Valley in Hawaii. The area is inaccessible for humans but with the use of drone technology, the researchers were able to get a close up look at the various plants that grow on the steep terrain.

The Hibiscadelphus Woodii grows in a shrub and produces bright yellow flowers. These turn purple as it ages. The plant faces threats from other invasive plants, animals and rock slides. A previous colony of plants fell victim to a large rock slide in the late 1990s. It was first discovered in 1991 by botanists in the Kalalau Valley. The plant was last seen alive in 2009.
https://dronedj.com/2019/04/22/researchers-equipped-with-drone-tech-extinct-flower/#more-16168

Drone Scan on Aisle 3: Pensa Pilots Grocery Store Inventory Solution Jason Reagan April 22, 2019

The next time you stop at your local grocery store for eggs and bread, don't be surprised to see small drones scanning shelves.

Austin-based retail-tech firm Pensa is testing a new system in select retailers to capture in-store, real-time data by launching drones to fly around store shelves. The data can be processed seamlessly by Pensa's backend intelligent cloud.

"We've conducted thousands of drone flights around real-world retail environments, and people in the stores are pretty ho-hum. The drones barely garner a glance from most shoppers, most of the time," Pensa CEO Richard Schwartz writes in a recent blog post.

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"The Pensa drone doesn't look like 'a drone' in the conventional sense most people expect. Several recent press articles described the Pensa drone as looking more like flying whiffle balls – a reference to the distinctive protective encasings around the drone's four propellers."

The unassuming look of the drone and its quiet flight profile rarely surprises shoppers, and nearly half of the shoppers didn't notice the drones. "People who noticed the drone treated it much as they would treat a store worker or a new machine."
https://dronelife.com/2019/04/22/drone-scan-on-aisle-3-pensa-pilots-grocery-store-inventory-solution/

British Army Acquires Black Hornet 3 Reconnaissance UAS 22 Apr 2019 Mike Rees

FLIR Systems has announced that it has been awarded a $1.8 million contract by the British Army to deliver the FLIR Black Hornet 3 Personal Reconnaissance System. The order is for the combat-proven Black Hornet PRS and part of the UK Ministry of Defense's Transformation Fund Rapid Procurement Initiative.

Units delivered under the contract will support platoon- and troop-level surveillance and reconnaissance capabilities. They also will be used in part for a test and evaluation of nano Unmanned Aircraft System capabilities to enhance warfighters' situational awareness on the frontlines.

At 32 grams with a flight time up to 25 minutes, the nearly silent, pocket-sized drone transmits live video and still images back to the operator. Its information feed provides soldiers with immediate covert situational awareness. FLIR has delivered more than 7,000 Black Hornets to military customers worldwide, and this new contract expands use of the aircraft for military surveillance and reconnaissance programs.
https://www.unmannedsystemstechnology.com/2019/04/british-army-acquires-black-hornet-3-reconnaissance-uas/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=42242c451e-eBrief_2019_Apr_23&utm_medium=email&utm_term=0_6fc3c01e8d-42242c451e-119747501

Indra links with Norwegian academic partners to develop new UTM technologies April 22, 2019 Philip Butterworth-Hayes UAS traffic management news

A Norwegian industry/academic cluster consisting of Indra, the University of South-Eastern Norway, and Andøya Space Center has embarked upon a project to accelerate deployment of an effective

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Unmanned Traffic Management system to enable the shift from land-based fossil-fuel transport to an aerial unmanned infrastructure.

The project has been named Pilot-T and will investigate the definition of traffic corridors for unmanned flight, the integration of various electronic and optical sensors into the system, communication requirements, integrity and safety, as well as effective HMI models. It will be concluded in 2021.

Indra, through its Norwegian subsidary Navia, will deploy a framework UTM system at Andøya Space Center in Northern Norway, where the testing, qualification and certification of the system will take place. The University of South-Eastern Norway will contribute with quantitative and qualitative analyses of the human factors involved in establishing and maintaining routine unmanned air traffic. The Norwegian Civil Aviation Authority will be involved in the project to ensure that the regulatory aspects of unmanned flight are incorporated, and will be a dialog partner for qualification and certification of the solution. The project partners intend to include air navigation service providers in the project to ensure effective integration with manned air traffic management.

According to Ingolv Bru, Manager Business Development in Indra, "An efficient transport system based on drones, and particularly autonomous drones, could reduce CO2 emissions by as much as 25%. https://www.unmannedairspace.info/latest-news-and-information/indra-links-with-norwegian-academic-partners-to-develop-new-utm-technologies/

Wing Becomes First Certified Air Carrier for Drones in The US April 23, 2019 News

Wing achieved a significant milestone today, becoming the first drone delivery company to receive Air Carrier Certification from the United States Federal Aviation Administration. This is an important step for the FAA and the drone industry in the United States; the result of years of work to safely integrate drones into the national airspace. Air Carrier Certification means that we can begin a commercial service delivering goods from local businesses to homes in the United States.

For communities across the country, this presents new opportunities. Goods like medicine or food can now be delivered faster by drone, giving families, shift workers, and other busy consumers more time to do the things that matter. Air delivery also provides greater autonomy

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to those who need assistance with mobility. Also, our all-electric drones will reduce traffic on our roads and pollution and carbon emissions in our skies.

Most importantly, FAA certification required us to submit evidence that our operations are safe. These submissions included data showing that a delivery by Wing carries a lower risk to pedestrians than the same trip made by car. Our drones have flown over 70,000 test flights, and more than 3,000 deliveries to doorsteps, driveways and backyards of our customers in Australia. Within the next few months, Wing Aviation LLC plans to start routine deliveries by drone of small products to actual customers in two rural communities in Virginia.
https://uasweekly.com/2019/04/23/wing-becomes-first-certified-air-carrier-for-drones-in-the-us/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_04_23_2019&utm_term=2019-04-23

Black Swift Technology S2 UAS Chosen to Support the East Greenland Ice-Core Project April 22, 2019 News

Black Swift Technologies a specialized engineering firm based in Boulder, CO, announced today its aerial research platform, the Black Swift S2™ UAS, will be deployed in the coming months by the Institute of Arctic and Alpine Research, part of the University of Colorado Boulder, to conduct high-altitude, high-latitude atmospheric research studies in Greenland. This work is supported by the National Science Foundation and is part of the larger international East Greenland Ice-Core Project.

The Black Swift S2 will operate at temperatures down to -20 °C or colder, and will be flying at altitudes up to 14,000 feet, which is right on the edge of commercial airspace, to make routine atmospheric measurements, something that few other platforms are capable of achieving. The S2 will perform transects or vertical profiles of the arctic atmosphere to analyze the water vapor above the ice sheet to better understand how climate conditions are impacting Greenland's mass as a result of sublimation, or evaporation, directly into the atmosphere.
https://uasweekly.com/2019/04/22/black-swift-technology-s2-uas-chosen-by-the-institute-of-arctic-and-alpine-research-to-support-the-east-greenland-ice-core-project/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_04_23_2019&utm_term=2019-04-23

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Flying Cell Phone Towers with Solar Drones? Yes, Really. Miriam McNabb April 23, 2019

High Altitude, Long Endurance (HALE) drones have commercial applications which differ significantly from those performed by standard quadcopters. Often looking like something out of a science fiction movie, they have grand ambitions – like providing internet coverage to the entire globe, or cell phone coverage in places where it is now unavailable. The impact that this type of aircraft could have on communities is incredible – imagine the lives that could be saved with a communication network that might not fail during a land-based natural disaster like an earthquake or hurricane, or the potential economic benefit to remote areas of the world currently without reliable internet access.

HALE aircraft are designed to stay in flight perhaps for years without requiring fuel. That means that solar power is a critical component of the design. While both Facebook and Google have tried to develop solar-powered HALE devices, energy company Alta Devices may actually have succeeded. https://dronelife.com/2019/04/23/flying-cell-phone-towers-with-solar-drones-yes-really/

Council to consider limits for drone use Dave Gong yesterday

A new ordinance being introduced today to the Fort Wayne City Council would place limits on where and when drone operators can fly their aircraft.

“The regulations set forth in this ordinance seek to promote the ability of hobbyists and commercial users to operate Unmanned Aircraft Systems safely within the city of Fort Wayne while recognizing the need to protect citizens and public safety personnel in designated areas and circumstances where heightened safety concerns are present,” the ordinance states.

The ordinance prohibits flying a drone within a 5,500-foot radius of the Superior Lofts building, without first notifying the city. It would also be illegal to fly a drone, without notifying the city, within a 500-yard horizontal radius of, or anywhere above, a public event like the Three Rivers Festival or the Johnny Appleseed Festival. Anyone who wants to operate a drone during public events or above the Downtown Aerial District would have to submit their name, address and telephone number to the city and explain the purpose of the drone flight as either recreational or commercial. Operators would also need to submit registration certificate numbers provided by the Federal Aviation Administration and the operator’s remote pilot certificate number to the city for documentation.

The idea behind the ordinance is to encourage safety and provide law enforcement a record of who might be flying a drone near downtown or at public events, said Lt. Jonathan Bowers, head of the Fort Wayne Police Department's Air Support Team.
https://apnews.com/7f2c4d66c042483492cd99620c618e1a

Grand Sky and Harris Partner to Create UAS BVLOS Super Corridor April 23, 2019 News

Grand Sky Business and Aviation Park and Harris Corp. have joined forces to enable the country's first and largest unmanned aerial system airspace to support beyond visual line of sight flight operations and UAS Traffic Management research.

Stretching up to 100 miles, this BVLOS "super corridor" is the most technologically sophisticated UAS airspace supported by multiple and redundant systems for cooperative and non-cooperative surveillance. These surveillance capabilities make possible a wide range of UAS BVLOS applications in precision farming, oil and gas, infrastructure inspection, public safety, package deliveries, and others.

The surveillance system combines data feeds from a network of advanced sensors and towers. Two long-range primary radars located at Grand Forks Air Force Base and at Hillsboro, N.D. provide detection of non-cooperative aircraft. The Federal Aviation Administration secondary radars and ADS-B network in the region, as well as local Harris sensors, add additional layers of visibility for cooperative aircrafts in the airspace.

UAS operators can work with Grand Sky and Harris to develop, test, and refine a variety of BVLOS concepts of operations and secure waivers from the FAA for large-scale use. A full range of UAS operations can be supported for all types and sizes of unmanned aerial vehicles along the BVLOS corridor including a variety of airspace classes and execution of diverse defense, civil and commercial applications. https://uasweekly.com/2019/04/23/grand-sky-and-harris-partner-to-create-uas-bvlos-super-corridor/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_04_24_2019&utm_term=2019-04-24

UC Santa Cruz Researchers Want to Use Drone Imagery to Weigh Elephant Seals

Malek Murison April 23, 2019

Researchers at UC Santa Cruz have been using drones to estimate the weight of elephant seals. It is a key metric to determine population health and the health of the ocean ecosystem more

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broadly. It shows how successful they have been during their seasonal hunting expeditions and gives researchers the ability to show trends and devise plans to protect the species in the long term.

The enormous creatures, which can grow to beyond 10 feet in length, have to be sedated and maneuvered onto a giant portable scale by a team of five or six people. A seal that's not as sedated as researchers expect can be dangerous, while the risks of over-sedation are equally obvious.

Instead of putting people and seals at risk by manually weighing them, a drone can fly overhead and its images can be analyzed to generate accurate weight estimates. Image analysis software can be used to find patterns between the drone shots and weight observations previously gathered by field researchers. Soon, the program will provide reliable estimates from little more than an aerial snap.
https://dronelife.com/2019/04/23/uc-santa-cruz-researchers-drone-imagery-weigh-elephant-seals/

Drone Delivery Heroes Zipline Launch World's Largest Vaccine Delivery Network in Ghana Miriam McNabb April 24, 2019

It's been quite a week for drone delivery. The FAA announced that Wing had received the first ever airline carrier for drones authorization, which would open the doors to commercial package delivery in the United States.

Now, global drone delivery heroes Zipline, who established a ground-breaking medical delivery network in Rwanda and have set the standard for developing drone delivery programs in developing countries, announce the largest vaccine drone delivery network in the world. Having developed their systems in Rwanda and Tanzania, Zipline has now increased the volume of deliveries by 100x.

Not only is the application fascinating, but the scale and scope of the delivery program provide a proof of concept for drone delivery programs – and healthcare programs – around the world. The new service will make on-demand, emergency deliveries of 148 different vaccines, blood products, and life-saving medications. It will operate 24 hours a day, seven days a week, from 4 distribution centers—each equipped with 30 drones—and deliver to 2,000 health facilities serving 12 million people across the country. Together, all four distribution centers will make up to 600 on-demand delivery flights a day. Each distribution center has the capacity to

make up to 500 flights per day. https://dronelife.com/2019/04/24/drone-delivery-heroes-zipline-launch-worlds-largest-vaccine-delivery-network-in-ghana/

Drone delivery set to land in Blacksburg and Christiansburg this year in a U.S. first By Jacob Demmitt Apr 23, 2019

James Burgess, CEO of Wing, holds one of the company's drones

Blacksburg and Christiansburg residents will soon be the first in the U.S. to order drone deliveries to their homes, courtesy of Google sister company Wing.

Wing CEO James Burgess said his team is looking now at potential staging sites for the drones and local businesses that may want to sell products through the service. The drones have a six-mile range, so the staging area — known as the nest — will determine who is able to sign-up for deliveries.

The company plans to talk with locals over the next couple of months to hear what they want – and what they don't want. "There's going to be a lot of learning for us as well, since this is a first of its kind, and nobody really knows specifically the best applications," Burgess said. "We think it's actually in partnership with the community that we'll find those answers together." https://www.roanoke.com/business/drone-delivery-set-to-land-in-blacksburg-and-christiansburg-this/article_13af81c2-490e-5340-85b3-2279da2e85eb.html

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Army to Demo Air-Launched Drones for Manned-Unmanned Aircraft Teaming

Darwin McDaniel April 24, 2019 News, Technology

Layne Merritt, head of U.S. Army's Aviation Development Directorate, said the service plans to conduct a series of demonstrations for a new fleet of air-launched unmanned aircraft in the coming years. The service looks to develop a capability to deploy drones from a larger aircraft and perform advanced manned-unmanned teaming for reconnaissance, surveillance, long-range targeting, attack, decoy, re-supply and casualty evacuation missions.

"This is a new class of weapon system. The cool thing about the air-launched effects is that now, instead of standoff jamming or standoff effects, we can have stand-in effects. Instead of

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being 100 kilometers away… we may be 100 meters away, and that's going to change the type of payloads, but also may be more effective."

The Army will work with industry to develop the air-launched drones. The service plans to begin testing the unmanned aircraft this fall aboard a Black Hawk helicopter flying at a lower altitude, about 100 feet or less.

The next demonstration is expected at the end of fiscal year 2020, when the Army will deploy an unmanned "mothership" with multiple air-launched drones for reconnaissance, surveillance and target acquisition. An autonomous attack demonstration, testing of decoys and electronic warfare capabilities and integrated air defense system interference will follow by FY21. https://www.executivegov.com/2019/04/army-to-demo-air-launched-drones-for-manned-unmanned-aircraft-teaming/

Professional Viewpoint: How Drones Overcome Major Obstacles in Pipeline Surveys Miriam McNabb April 25, 2019

The following is a guest post by Dustin Price, a licensed land surveyor and the Operations Manager at Landpoint.

For pipeline surveys, there's a lot that needs to be considered: speed, accuracy, budget, and safety. Pipeline surveys occur at critical junctures of oil field and pipeline projects. A delay or inaccuracy during an initial survey could cost a company *millions* of dollars, both in wasted time and resources.

Before drones, pipeline surveys had to be done using one of two methods: ground surveys or manned aerial surveys. Ground surveys are time-consuming, while manned aerial surveys are expensive, and both are potentially dangerous. UAVs make it possible to complete an entire pipeline survey quickly and without any danger to a manned aerial crew or ground crew.

Improvin safety of any construction project is desirable, in terms of both morale and liability. There is always a risk, however small, that both aerial and ground crews can potentially become injured when completing surveys, an issue that UAVs are able to mitigate. Further, safety issues with a project site will often lead directly to delays, another way in which UAVs are able to save a pipeline survey team time – and money. https://dronelife.com/2019/04/25/how-drones-overcome-major-obstacles-in-pipeline-surveys/

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Drones on Patrol: FLIR Soars with $48-million Defense Contract Jason Reagan April 24, 2019

FLIR systems recently announced winning a $48.1 million contract from the U.S. Department of Defense's Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense in support of the Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade program for the U.S. Army. A FLIR statement explains:

"Under the agreement, FLIR will develop a platform agnostic modular mission payload, which integrates multiple chemical, biological and radiological sensors into a flexible command and control system. This system will allow for data integration from the various sensors that will enable automation of certain tasks, reducing warfighter burden. The system and the automation will allow for collaboration between manned Stryker vehicles, unmanned ground vehicles, and sensor integrated drone platforms."

"We are proud to be chosen by the U.S. Army as the lead developer and integrator for this key ground combat capability," said Jim Cannon, President and CEO of FLIR. "This contract represents a significant example of our evolution from sensors to intelligent sensing to solutions that save lives and livelihoods." The program will operate out of FLIR facilities in Stillwater, Okla. and Elkridge, Md. https://dronelife.com/2019/04/24/drones-on-patrol-flir-soars-with-48-million-defense-contract/

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AUVSI's XPONENTIAL 2019 takes place next week in Chicago, IL Haye Kesteloo Apr. 25th 2019

One of the largest events of the year is AUVSI's XPONENTIAL 2019. 8,500 drone professionals, technologists, regulators from various industry sectors will be present, and you will be able to join a range of keynotes, presentations, workshops and walk the XPO floor where DJI, PrecisionHawk and a range of other drone companies will be present. The new Parrot Thermal drone will be at the show as well as.

XPONENTIAL 2019 runs from April 29th – May 2nd at the McCormick Place in Chicago, IL. "Join 8,500 technologists, regulators and users across commercial and defense sectors for AUVSI XPONENTIAL 2019, the largest, most comprehensive trade show for unmanned and

autonomous systems. As adoption spreads and applications expand, XPONENTIAL is the one event that brings together the entire unmanned systems community to share ideas, collaborate across markets, capitalize on best practices and emerging trends and harness the power of unmanned technology for your business." You can check the list of exhibitors here and see the XPO floorplan here. https://dronedj.com/2019/04/25/auvsis-xponential-2019/#more-16215

Kongsberg Geospatial Announces General Release of IRIS 2.0 Fleet Control Station and AMS April 24, 2019 News

Kongsberg Geospatial, an Ottawa-based geospatial technology company announced the release of an updated and enhanced version of their Fleet Control Station and Airspace Management System. It provides drone operators with enhanced airspace awareness, navigational tools, and de-confliction and air safety features for BVLOS operators, while providing airspace managers with an integrated airspace picture that consolidates data from a wide range of real-time data feeds and sensors. The first commercial version of the product appeared in 2017, with new features and capabilities being added over time.

The technology enables multiple drones to be monitored and controlled simultaneously by a single operator and provides real-time calculation of aircraft separation, airspace monitoring alerts and communications line-of-sight prediction to enable detect and avoid for safe BVLOS operations. It integrates a variety of real-time data feeds including ADS-B, local radar and National Airspace Feeds to calculate "detect and avoid" warnings. It provides real-time 2D and 3D visualization of airborne track and weather data, as well as geo-fencing capabilities.

It has been adopted for fleet operations by drone delivery start-ups in the United States and Canada, and for BVLOS inspections of electrical transmission systems and oil and gas pipeline infrastructure. It is also used for monitoring airspace security and for emergency operations that integrate drones with other air traffic by a variety of police and security organizations. https://uasweekly.com/2019/04/24/kongsberg-geospatial-announces-general-release-of-iris-2-0-fleet-control-station-and-ams/?utm_source=newsletter&utm_medium=email&utm_campaign=uasweekly_daily_newsletter_04_25_2019&utm_term=2019-04-25

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KDDI and Terra Drone launch infrastructure inspection services APPLICATION

BUSINESS INTERNATIONAL NEWS ALEX DOUGLAS APRIL 26, 2019

Describing it as a breakthrough in asset management, Terra Drone detailed how the solution uses drones with high-resolution cameras to monitor the structural health of industrial systems. Data management and report generation are further automated via software.

Under the new solution, a drone will generate a 3D model of the heavy industrial asset by flying around the structure, while simultaneously determining which components should be inspected. This will allow the drone to shoot the inspection points from optimal angles and range designated by the software. https://www.commercialdroneprofessional.com/kddi-and-terra-drone-launch-infrastructure-inspection-services%EF%BB%BF/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-299827-Commercial+Drone+Professional+DNA+-+2019-04-26

Taking Down Drones Is Turning Into a Big Business Mike Juang April 25, 2019

A SkyWall 100 Drone Defence System, developed by OpenWorks

Shooting them down is a dangerous and unfeasible answer. They're starting to tout better ideas: firing a net, jamming the drone, using a bigger drone to scoop it up.

These companies are part of an emerging industry offering myriad solutions, all hoping to solve the problems caused when drones fly where they're not supposed to fly. The U.S. Federal Aviation Administration announced in early 2018 it had logged more than one million registered drones, and Goldman Sachs Group Inc. predicts that by 2020, there will be 7.8 million shipments of consumer drones--an industry worth $3.3 billion in revenue. But as drones proliferate, major incidents will likely increase, raising questions about how to keep wayward devices in check.

Devices that aim to jam drones similarly cannot be used outside of strict parameters: They are restricted devices that law permits only federal agencies to use. And with the new technology comes other limitations: Jamming devices don't discriminate between targets and can disrupt everything from Wi-Fi internet to other planes. Pursuit drones need to be faster and more agile than their targets requiring significant technological innovation.

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For the former National Transportation Safety Board Chairman Hall, the answer is better legislation, military-grade technology, and closer cooperation on the issue between authorities and operators. https://www.bloomberg.com/news/articles/2019-04-25/catch-them-if-you-can-the-soaring-business-of-downing-drones

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