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UAS and SmallSat Weekly News
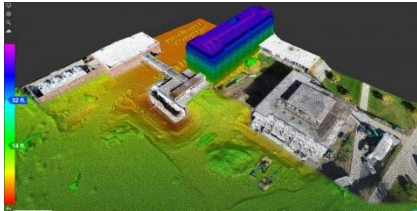
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UAS and SmallSat Weekly News

26Jan19

At Windover Construction, Drones Go Beyond 'Eye in the Sky' JANUARY 24, 2019   EUGENE DEMAITRE

A 3D model provided by a drone offers elevation topography at a construction site

In recent years, aerial drones have evolved past military and hobbyist use to numerous commercial applications. One of them is providing newer and more affordable views of critical infrastructure and construction sites. Beverly, Mass.-based Windover Construction is one of only three general contractors in New England using drones in construction.

Unmanned aerial vehicle usage on job sites has increased by 239% in the past year, according to DroneDeploy. By 2020, spending on drones in construction will increase to $11.2 billion, part of a global commercial drone market of $100 billion, predicts Goldman Sachs.

"At the beginning, some people weren't sure why we were doing this, but it didn't take long," said Amr Raafat, director of virtual design and construction at Windover Construction. "The FAA has been helping us learn about the weather, frequencies, and BVLOS [beyond visual line-of-sight flights]."

"Instead of asking a worker to climb up to inspect a roof or compare a topographical survey against a plan, we can capture maps in 2D and 3D," he said. "This can help with assessing stock piles and certain phases of laying a foundation. From ground survey points, we can get centimeter or quarter or eighth of an inch accuracy. For every seven meters, we're only two or three millimeters off."

"You can also use drones for facility management," Raafat noted. "We have before and after images to capture what we've built, and we can input measurement data into systems where it can be used for years in facility management." https://www.roboticsbusinessreview.com/unmanned/at-windover-construction-drones-go-beyond-eye-in-the-sky/

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How Africa Is Leading the Drone Industry January 24, 2019

African countries are embracing drone technology, and in doing so are helping to boost the industry by stimulating innovation for a wide range of uses, from journalism through agriculture to humanitarian aid work.

From monitoring the movement of displaced and vulnerable populations or carrying out search-and-rescue missions in disaster zones; to delivering medical supplies to remote communities, drones now help to improve the lives of millions of people.

Drones for precision agriculture is a farming management concept based on measuring and responding to inter- and intra-field variability in crop and animal production. It is an information revolution that can result in a more precise land mapping and surveying, land tenure and land use planning, inspection monitoring and surveillance, cargo delivery, scientific research, management of agricultural assets and insurance and crop/infrastructure damage assessment.
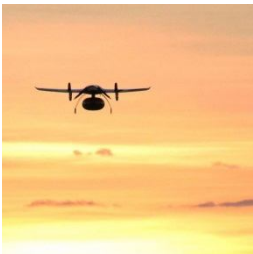
One novel hybrid solution being tested by Tanzania's government Medical Stores Department is the Wingcopter. Capable of taking off and landing like a rotor-based aircraft, these have both a fixed-wing and rotors that can pivot forward like propellers when cruising. This is being tested to deliver medical supplies to and from Ukerewe Island, where deliveries are normally at the mercy of infrequent ferries.

In Nigeria's capital, Lagos, the traffic is so notoriously bad the government is now looking at using drones as a delivery solution. In Rwanda, drones make it possible to cut delivery times from four hours to just 20 minutes. A lot of countries are considering performance-based regulation, but Rwanda is the first country in the world to implement it for all drones. Tanzania, after seeing the dramatic benefits that drones present, recently turned to Rwanda's regulatory framework for guidance. "We want to have a flexible, scalable regulatory framework".
https://www.iafrica.com/how-africa-is-leading-the-drone-industry/

3 Ways Drones Can Be Kept Out of Airports – With or Without a Lot of Drama   Miriam McNabbon: January 25, 2019

There are many "anti-drone" or "counter drone" technologies – or rather, just drone control technologies – that can prevent drone incursions. Some look like something out of Mad Max – like the Drone Gun from DroneShield. The Drone Gun doesn't require a bullet to put down a drone, it just cuts the signal.

"Bringing a drone down" – whether with a ray gun or a shot gun – has some disadvantages. It's expensive. Nonetheless, it is thorough: and allows authorities the potential to trace the operator through the aircraft.

Dedrone is another well-known technology, the one chosen to protect the World Economic Forum in Davos last year.   They also offer detection and identification software – but Dedrone proposes that facilities choose reasonably between a "passive" approach and an "active" approach to drone mitigation.   A third type of technology takes a different approach. The system from Airspace uses another drone – equipped with a net – to take down the intruder. There are many more. Eagles trained to take drones down. The British AUDS system.

If the average implementation time for a system runs from 6 months to 2 years, it doesn't seem unreasonable to expect that large organizations like airports may be running a bit behind the technology in their drone security implementation cycles.

I'd be willing to bet that they've sped up in the last month or so. The sooner the anti-drone technologies are in place, the sooner the commercial drones can get to work in those spaces without worries. https://dronelife.com/2019/01/25/3-ways-drones-can-be-kept-out-of-airports-with-or-without-a-lot-of-drama/

FLIR Receives Army Nano UAV Order Matthew Nelsonon: January 25, 2019In: Contract Awards, News

FLIR Systems has received a $39.6M order to provide nano-unmanned aerial vehicle systems for the U.S. Army's surveillance and reconnaissance missions.

The company said Thursday it aims to begin deliveries of the *Black Hornet Personal Reconnaissance System*s this year in support of the *Soldier Borne Sensor* program.

The service initially awarded the company a contract in June 2018 to produce the first batch of nano UAVs, which are slated for integration into the Army force soon.

FLIR added it will expand its repair and service facility in Somerset, Ky., in an effort to address a demand for unmanned aircraft support in the country. The company has supplied more than 8K PRS units to customers worldwide. https://blog.executivebiz.com/2019/01/flir-receives-army-nano-uav-order/?utm_source=ExecutiveBiz+Daily+RSS+Feed&utm_campaign=14a3fa2188-GovConDaily&utm_medium=email&utm_term=0_378117c9e8-14a3fa2188-82177013

27Jan19

New images surface of Russian autonomous "heavy strike" drone January 27, 2019
Feilidh Dwyer

The Sukhoi "Okhotnik" or "Hunter" is an autonomous heavy drone. The official name translates to Strike-Reconnaissance Unmanned Complex. Photos of the craft were snapped from an unknown location. Although the image has not yet been verified by the Russian government, The Drive reports the photos is suspected to have been leaked by Russia's Defence Ministry.

The Hunter drone has been in development since 2011. In July 2017, initial ground runs and acceleration tests took place.

The photo of the prototype shows that it is not yet in its finished form. Popular Mechanics write that the engine nozzle is exposed and it does not yet have its anti-radar coating. Despite not being finished, Okhotnik is an impressive craft. It's designed to weigh 20 tonnes which is greater than the F18 Super Hornet. https://www.wetalkuav.com/new-images-surface-of-russian-autonomous-heavy-strike-drone/

Thankfully, the technology to combat rogue drones is getting better Print edition | Science and technology Jan 24th 2019

Anti-drone technology is improving. This week Indra, a big Spanish technology company, said it had completed extensive testing of an anti-drone system called *arms*. Once the system's sensitive radar has picked up a drone, *arms* uses infrared cameras to confirm and identify the type of drone.

Electronic-warfare sensors then sweep the radio spectrum to determine what signals the drone is using. This permits *arms* to attempt a "soft kill"—a carefully targeted form of jamming. The system is precise enough to disable either a single drone or a swarm by modulating the level of response, without affecting other electronic equipment on an airfield.

QinetiQ, a British defense firm that makes a counter-drone system called Obsidian, has found ways to use signals to disrupt the electronic circuits within a drone, allowing it to disable a drone's camera or turn off its electric motors.

Both Indra and QinetiQ use an advanced form of radar that operates in three dimensions. Existing airport radars are bad at picking up small things like drones.

Another firm making an anti-drone system that uses 3d radar is Aveillant, based in Cambridge, Britain. "Gamekeeper" can detect and classify a small drone up to 5km away. Drones can be difficult to spot by eye, even when they are only a few hundred meters away.

Other ideas include launching defense drones to capture villainous craft by entrapping them in a net; hand-held bazooka-like guns that fire nets propelled by a blast of compressed air; and portable radio-jamming equipment shoulder-mounted and hand-aimed. In the Netherlands, the police have even tried using trained eagles to attack and bring down small drones, although the idea was eventually dropped. All these methods, though, share a flaw. They usually require operators to be at hand and fairly close to an intruding drone. https://www.economist.com/science-and-technology/2019/01/24/thankfully-the-technology-to-combat-rogue-drones-is-getting-better

28Jan19

The Pentagon flew as many domestic drone missions in 2018 as it did in the last 7 years combined Kelsey D. Atherton 25 January 2019

Over the years, the Department of Defense has flown drones a handful of times over the United States in support of civil authorities. From 2011 to 2017, the Pentagon reports just 11 total domestic drone missions. But in 2018, that total doubled, with 11 domestic missions flown by military drones.

In 2018, military MQ-9 Reapers flew five missions, four of which were in support of forest firefighting in California and Oregon. One Reaper mission, flown from May 7 to May 10, was described as incident and awareness exercise in the state of New York. RQ-11B Ravens flew two missions, one a base installation in Bangor, Kitsap, Washington, and the other was a Defense

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Support of Civil Authorities mission in response to Hurricane Florence and requested by the South Carolina National Guard.

In addition, DJI Phantoms flew two missions stateside for the military in 2018: installation support at Camp Pendelton and air show support on behalf of DoD public affairs at Cherry Point in North Carolina. An MQ-1C Gray Eagle was on call throughout 2018 in support of southern border security missions, and an RQ-21 Blackjack was requested by Customs and Border Patrol for counterdrug operations from November 2017 through to March 2018.

Those use cases roughly match up to how the Pentagon used drones at home between 2011-2017, with the exception that 2018 saw far more border monitoring.
https://www.airforcetimes.com/unmanned/2019/01/25/pentagon-drones-flew-11-domestic-missions-in-2018/

Nearly 40 percent of British public want drones banned January 26, 2019 Feilidh Dwyer

The think tank, Parliament Street, commissioned polling company Censuswide to survey 2000 British adults aged 18 and over, asking them questions regarding their attitudes to drones and their use.

The report found that 75 percent of those surveyed believed that drones pose a risk to national security and 83 percent supported a move to implement mandatory licensing of drones.

The high level of opposition to drones is likely part of the fallout resulting from December's Gatwick Airport drone incident. Although more than 100 witnesses in and around the airport claim to have seen the drone, no suspects are currently in custody. The report (which is poorly written and riddled with grammatical errors), recommended the UK government implement mandatory licensing and employ more technical experts equipped to handle drone crises. https://www.wetalkuav.com/nearly-40-percent-of-british-public-want-drones-banned/

Defense Startup in New Mexico Focuses on Counter-Drone, Satcom Tech Jane Edwards January 28, 2019 News, Technology

A new Albuquerque, N.M.-based defense company founded by former Raytheon employees has begun to design and produce technology platforms for counter-drone operations and satellite communications, Albuquerque Business First reported Friday.

Established in June 2018, Raven Defense occupies a 5K-square-foot office and plans to lease more space as the company works on radio frequency-based platforms and

builds up its hiring pipeline through the University of New Mexico's workforce training program and COSMIAC research center. Chris Patscheck, CEO of Raven Defense, said the New Mexico-based startup has begun to work with Boeing, Lockheed Martin, Northrop Grumman and other contractors.

Michael Robson, chief technology officer and co-director at Raven Defense, said the company is largely backed by DoD, which requested $9.39B in fiscal 2019 budget for aerial drones and related technologies. https://blog.executivebiz.com/2019/01/defense-startup-in-new-mexico-focuses-on-counter-drone-satcom-tech/

USAF looks at autonomous drone swarms for search and rescue 24 JANUARY, 2019
FLIGHTGLOBAL.COM GARRETT REIM

The US Air Force Research Laboratory and the UK's Defence Science and Technology Laboratory, in collaboration with the Wright Brothers Institute and University of Dayton Research Institute, said on 22 January that they plan to run a competition to explore using swarms of autonomous unmanned air vehicles for search and rescue missions. The competition, named Swarm and Search AI Challenge: 2019 Fire Hack, will revolve around mapping wildfires and is designed to prompt teams to explore new, efficient and resilient ways to plan search and rescue missions.

Teams will work remotely, via a closed, online collaboration platform, to explore different fire map scenarios using USAF-licensed software. The lab plans to run simultaneous competitions in the US and the UK and will conclude with a final round 29-31 March. The top three teams from both countries will be awarded cash prizes and will "learn about upcoming funding opportunities", says the AFRL. https://www.flightglobal.com/news/articles/usaf-looks-at-autonomous-drone-swarms-for-search-and-455235/

Here's how drone delivery will change the face of global logistics 25 Jan 2019 Jon LiaoChief Strategy Officer, JD.com

The power of technology to bring positive change is well documented and well understood across the planet. However, when its benefits are distributed unequally across different strata of society, technology creates barriers, dividing peoples and inhibiting social development and economic growth. This so-called "digital divide" is something we at JD.com, a Chinese e-commerce company, and the World Economic Forum are striving to narrow.

JD.com in collaboration with the World Economic Forum's Centre for the Fourth Industrial Revolution completed the first ever government-approved drone delivery flight in Indonesian history. As the drone brought backpacks to an elementary school in Jagabita Village, Parung Panjang, Indonesia, students excitedly asked when they could start getting packages delivered to their homes this way.

The Industries Where Drones Could Really Take Off
Value of drone powered solutions to industries in 2015 (billion U.S. dollars)

Industry	Value
Infrastructure	45.2
Agriculture	32.4
Transport	13.0
Security	10.5
Media & entertainment	8.8
Insurance	6.8
Telecommunication	6.3
Mining	4.3

Total $127.3b

@StatistaCharts   Source: PwC

statista
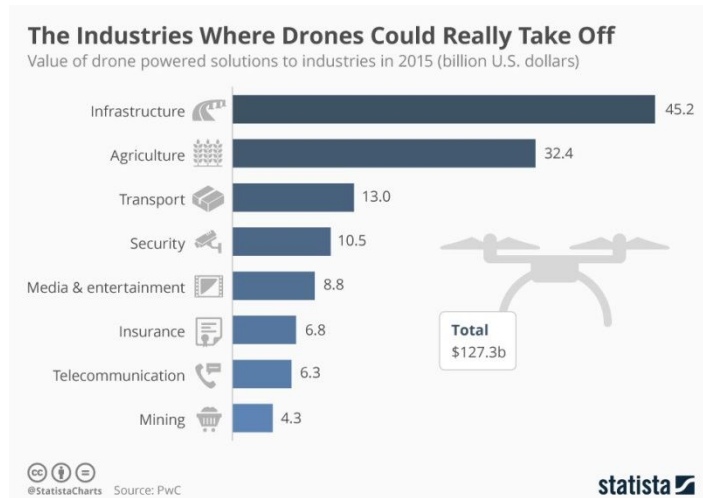
JD.com formed a joint venture with a local partner to launch an e-commerce business in Indonesia in 2016. Since then, that business has grown to become a formidable player in the market, selling more than one million units of stock (SKUs) and serving more than 20 million consumers across the republic.

Of course, one enormous challenge unique to Indonesia is its topography. Being spread out across more than 17,000 islands, the country poses significant challenges for efficient last-mile logistics. Putting drones into operation for e-commerce deliveries and other logistics services will play a role in making same-day and next-day delivery a reality across the country.

As this pilot drone flight in Indonesia shows, when the private sector, local governments, and groups collaborate effectively, barriers fall and bridges are created.
https://www.weforum.org/agenda/2019/01/here-s-how-drone-delivery-will-change-the-face-of-global-logistics/

Denmark to trial inter-hospital drone deliveries January 24, 2019 Philip Butterworth-Hayes UAS traffic management news

Blood samples and medical equipment will soon be flown by drones between Odense, Svendborg and Ærø in Denmark as part of the DKK30 million HealthDrone programme which seeks to integrate drones in the Danish health care system.

In later parts of the programme, drones will also transport highly specialized healthcare professionals who need to arrive quickly, say the project managers. ensuring better treatment and saving the Danish health care system for almost DKK 200 million a year.

During the three-year project, researchers, together with the companies Falck and Autonomous Mobility, will be testing flights with blood samples and equipment. At the end of the project, they will also test drone flights with highly specialized doctors, who may be acutely lacking in an operating room. The initial tests of the health drones will be carried out in the airspace above Denmark's national drone test center at HCA Airport near Odense. The drones will then be tested in flights with blood samples from Svendborg and Ærø to the laboratory at Odense University Hospital. Today, the transport time is an average of 12 hours, but the researchers expect that the trip will take three quarters of an hour by drone.
https://www.unmannedairspace.info/uncategorized/denmark-trial-inter-hospital-drone-deliveries/

29Ja19

Hybrid Quadrotor VTOL UAS Technology Developed 26 Jan 2019 Mike Rees

L3 Technologies has announced that it has been issued a patent that covers key functionality of the company's Hybrid Quadrotor (HQ) vertical take-off and landing unmanned aircraft vehicle concept. The patent includes a combined pitch and forward thrust control for unmanned aircraft systems, which allows for vertical take-off and landing with traditional fixed-wing platforms. The technology was developed by L3 Latitude.

"L3 Latitude was the first to bring the HQ concept to market by flying an unmanned aircraft that can lift vertically in confined areas using multirotor propulsion," said Dave Duggan, President, Precision Engagement Systems sector at L3. "While our prior patent protected the basic electromechanical design of HQ technology, this most recent patent extends to the software. This protects the critical control algorithms required to safely transition from vertical to forward flight and back again. It also allows for easy flight transition when winds are high."
https://www.unmannedsystemstechnology.com/2019/01/hybrid-quadrotor-vtol-uas-technology-developed/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=cf6f445b44-eBrief_2019_Jan_29&utm_medium=email&utm_term=0_6fc3c01e8d-cf6f445b44-119747501

FLIR Systems Buys UAS Maker Aeryon Labs for $200M Darwin McDaniel January 29, 2019 M&A Activity, News

James Cannon

FLIR Systems (Nasdaq: FLIR) has acquired Waterloo, Canada-based unmanned aerial

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systems developer Aeryon Labs for approximately $200M in a move to expand UAS offerings for military customers. James Cannon, president and CEO of FLIR Systems, said the transaction reinforces the company's strategy to move beyond offering sensor technology to the development of integrated products designed to save lives and livelihoods.

Aeryon builds less than 20 pound-drones for military, public safety and critical infrastructure applications. The vertical takeoff-and-landing quadcopters are equipped with multiple sensors such as FLIR-made thermal technology. https://www.govconwire.com/2019/01/flir-systems-buys-uas-maker-aeryon-labs-for-200m-james-cannon-quoted/

Super Bowl: experimental radar aims to stop drone drama at game

After rogue drone sightings halt flights, startup seeks permission to test tracking system at Sunday's game Mark Harris *in Seattle* @meharris Mon 28 Jan 2019

A Bill Gates-funded startup is seeking permission to test a new kind of drone detector at Sunday's Super Bowl game between the Los Angeles Rams and the New England Patriots in Atlanta.

Echodyne, a Seattle-based company, filed an application with the Federal Communications Commission (FCC) on Sunday to operate two experimental radars "in the immediate vicinity" of Mercedes-Benz Stadium to "alert security personnel, including federal officers, of any unidentified drone activity during Super Bowl LIII".

Echodyne says its radars can detect, track and identify flying objects, discriminating between possibly dangerous drones and harmless birds or balloons. That information is fed to devices that attempt to jam the drone's control or navigation signals, or to attack drones using nets.

At Sunday's game, Echodyne wants to deploy two radars the size of paperback books that it says can accurately detect and follow drones in three dimensions, up to a kilometer (0.6 miles) away. A short promotional video shows its radar tracking a small consumer drone with pinpoint accuracy.

"This operation is intended to evaluate the performance of the radar alongside other sensors in a real-world environment," according to the filing.
https://www.theguardian.com/technology/2019/jan/28/super-bowl-drones-radar-start-up-experiment?CMP=Share_iOSApp_Other

Evaluating the Economics of BVLOS Drone Operations staff January 29, 2019

Skylogic Research, a commercial drone industry research and advisory services firm, just announced the release of their latest research on commercial drone operations.

The paper answers questions like:

- What's the best way to enable an effective drone strategy?
- What are the economic benefits of operating drones?
- What are the costs, benefits, and risks of using drones for BVLOS operations?
- How does that compare with traditional inspection methods?

Here is an excerpt: As the commercial drone industry continues to evolve, widespread BVLOS drone inspection has the potential to significantly change business models for oil and gas, utilities, insurance, and other industries. Four main drivers motivating BVLOS operations:

- **Safety**, preventing fatal helicopter crashes or accidents from climbing towers
- **Costs**, reducing dependence on a $1,500-per-rotor-hour helicopter and personnel and even cutting the time and expense of the multiple flights needed in flying drones within visual line of sight
- **Data inconsistency and lack of quality**, since manual data collection sometimes involves photos taken from a helicopter traveling at speed and at different heights for each flight and hand-written notes taken while visually inspecting with binoculars—leads to poor quality data
- **Time to value**, BVLOS flight can cover a wide area and collect high-quality data much more quickly than traditional means

The 21-page report also provides a guide for when—and how—to deploy drones to inspect assets, use cases for how drone missions compare with traditional methods, and insight from PrecisionHawk's customers about how they're refining their inspection strategy—and their results.

You can register to get the free report here: http://bit.ly/2Rn8z6y
https://dronelife.com/2019/01/29/evaluating-the-economics-of-bvlos-drone-operations/

Airborne Response Supports U.S. Army National Guard, Miami-Dade Fire Rescue with Drones and Aerostats January 29, 2019 News

Airborne Response completed Exercise Lightning Shield – a full-scale training exercise held on Thursday, January 24 at the Homestead-Miami Speedway. Airborne Response provided aerial support for the Army National Guard and specialized elements of the Miami-Dade Fire Rescue Department.

Deploying a force of Unmanned Aircraft Systems and Tethered Aerostat Systems, Airborne Response was able to provide a low-altitude umbrella delivering aerial intelligence throughout the simulated disaster response exercise.

Airborne Response deployed their Tethered Aerostat System to provide uninterrupted aerial over-watch for the duration of the exercise, while UAS were launched with assorted payload sensors to capture various focal length views and perspectives of each training evolution. https://uasweekly.com/2019/01/29/airborne-response-supports-u-s-army-national-guard-miami-dade-fire-rescue-with-drones-and-aerostats/

30Jan19

Avianca Moves Toward Drone Inspections Henry Canaday | Jan 29, 2019

Drones for aircraft inspections are spreading well beyond global MROs and the world's largest airlines. For example, Colombia's Avianca is planning to use drones and cameras to do some aircraft maintenance inspections. At present, the drone approach has not been approved for by any airframe OEM or regulatory authority for inspections. Miguel Angel Montoya Estrada, Avianca's VP of engineering and maintenance, says his airline chose the drone approach to save time in inspections and improve inspection quality by being more precise about the location and evaluation of damages.

The Avianca MRO manager says his department is evaluating all the drone and camera equipment available on the market. At this moment, he is working with Airbus and Donecle and testing their equipment. Donecle drones are 100% autonomous and require only a single operator, with no pilot. The company estimates that Donecle drones can reduce inspection time from eight hours to 30 minutes and says these are the safest drones on the market with strong protections to prevent damage to aircraft. https://www.mro-network.com/technology/avianca-moves-toward-drone-inspections

Airobotics Automated Drones Add LiDAR for Expanded Commercial Applications

Miriam McNabb January 30, 2019

It's been a big year for Airobotics. The Israeli company which is the best known fully automated drone solution in the world has received a major funding boost; opened a U.S. facility in Scottsdale, Arizona; and added major new functionality to their solution – a drone solutions that does not require a human operator for flight.

The solution already has major customers in security, infrastructure and mining. The new LiDAR capabilities will expand their scope even further. LiDAR – Light Detection and Ranging – is a remote sensing method for measurement that allows for the creation of extremely detailed 3D modeling and surveying.

Applications range across the value chain for industries such as mining and construction and involve tailing dams monitoring, infrastructure inspections, haul road safety compliance, stockpile volume analytics and tracking rehabilitation progress.
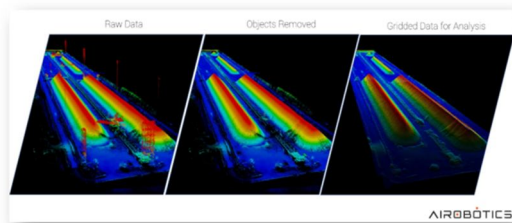
This LiDAR elevation model of a stockpile at a mining site was generated using an Optimus drone flight. After collecting raw data using LiDAR, professionals are able to remove above-the-ground information, such as heavy machinery, vegetation and people without having to physically remove them. https://dronelife.com/2019/01/30/airobotics-automated-drones-add-lidar-for-expanded-commercial-applications/

31Jan19

Davos develops drone regulation how-to for governments (and the FAA should pay attention) Greg Nichols for Robotics January 28, 2019

At its annual meeting in Davos, Switzerland, the World Economic Forum launched what it's calling the Advanced Drone Operator's Toolkit, a set of guidelines, recommendations, and lessons-learned for governments looking to roll out commercial drone operations.

The Toolkit is a response to the hodgepodge of drone regulations worldwide, which has some countries (like Belgium and other European nations) adopting drone delivery and drafting legislation that reflects the evolution of autonomous technology and others (notably, the U.S.) pumping the brakes on commercial drones in populated areas.

In the U.S., drone services companies have been frustrated by a stringent regulatory environment that restricts many kinds of non-recreational drone use. The FAA has made overtures toward drone delivery with its Unmanned Aircraft System Integration Pilot Program, but it could be years before there's a practical framework for commercial drone activity over populated areas. Currently, small drones must stay within line-of-site of an operator, can't be autonomous and can only fly over people with their consent, factors that make it all but impossible to scale delivery anywhere other than niche environments like golf courses.

The World Economic Forum is hoping other governments don't fall into the same trap. "Safe, clean, inclusive and scaled drone use has become the goal of many nations," said Harrison Wolf, report author and project lead at the Forum's Centre for the Fourth Industrial Revolution. "Now, governments can learn from the real-world success of world-leading drone delivery projects in Africa and Europe to develop their own national oversight.
https://www.zdnet.com/article/davos-develops-drone-how-to-for-governments-and-the-faa-should-pay-attention/

Drones Fly Over 13 Million Solar Modules to Discover What Affects Production

Betsy Lillian January 25, 2019
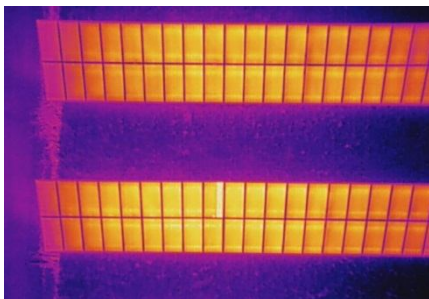
Raptor Maps, a Boston-based provider of aerial thermography software, has released a report outlining factors affecting solar production. The company leveraged its data repository of digital photovoltaic systems to query nearly 2,900 MW across 18 countries to help system owners and operators benchmark and improve their portfolios.

The drone study encompassed 13 million modules across

300 PV systems and showed that, on average, 1.7% of production is affected in some way.

Raptor Maps – which was founded by MIT engineers and is backed by Y Combinator – explains that aerial thermography is the practice of assessing and monitoring PV system conditions using data captured via an aircraft equipped with a thermal camera. The company used small unmanned aircraft systems, operated by parties including asset owners, asset managers, operations and maintenance providers, independent engineers, and drone service providers. The drone flights occurred from January through December 2018.

The study encompassed a total of 12,945,747 modules across 292 PV systems with a total nominal capacity of 2,882 MW. Sites ranged from 10 kW to 300 MW across 18 countries and six continents. https://unmanned-aerial.com/drones-fly-over-13-million-solar-modules-to-discover-what-affects-production?utm_medium=email&utm_source=LNH+01-31-2019&utm_campaign=UAO+Latest+News+Headlines

Spanish drug smuggling gang used drones to monitor police January 30, 2019 Feilidh Dwyer

A criminal gang in southern Spain used drones to monitor for police as shipments of hashish arrived.

12 suspects from the gang were recently arrested in the town of La Linea de la Concepcion, which lies next to Gibraltar. That gang is suspected of using UAVs to watch out for police as shipments of hashish were unloaded onto the port.

As a tactic to avoid detection, eyes high in the sky in the form of drones is an excellent method for gaining a heads-up when police are on their way to bust you. They obviously have their limits, however, in this case, UAVs were unable to prevent authorities from eventually catching and busting the gang (curse that limited battery life, eh?).

The gang is believed to have brought in at least 12 tonnes of hash from Morocco to Spain which has a street value of $5.7 million. https://www.wetalkuav.com/spanish-drug-smuggling-gang-used-drones-to-monitor-police/

N.Y. Test Site Assesses Weather Effects on UAS Betsy Lillian January 30, 2019

The Northeast UAS Airspace Integration Research (NUAIR) Alliance recently partnered with WindShape and TruWeather Solutions to test the impact of wind on the airworthiness and performance of different types of unmanned aircraft systems. NUAIR manages the federal UAS test site at Griffiss International Airport in Rome, N.Y., where the testing took place.

Windshape's technology uses an array with numerous small fans that generate variable wind profiles. This modular wind generation system enabled the partners to evaluate drones within a controlled, safe and repeatable environment for airworthiness and improved platform engineering.

For its part, TruWeather has developed technology to better predict micro-weather so that UAS pilots can make more informed decisions. The more it understands how winds affect different UAS platforms, the better the company can tailor its micro-weather prediction to specific platforms.

WindShape, based in Switzerland, will return to New York for additional wind and weather impact tests, including a long-endurance flight. https://unmanned-aerial.com/n-y-test-site-assesses-weather-effects-on-uas?utm_medium=email&utm_source=LNH+01-31-2019&utm_campaign=UAO+Latest+News+Headlines

Drone Locates Lost Horseback Riders for Florida Sheriff's Office Betsy Lillian January 30, 2019

The Manatee County Sheriff's Office in Florida is crediting its drone with locating two lost horseback riders. According to an MCSO press release, at around 3:30 pm on Jan. 19, deputies responded to a coordinate location in the Edward W. Chance Reserve in response to two equestrians who had been lost for over four hours. MCSO's unmanned aircraft systems (UAS) team responded to the scene, and time was of the essence due to the quickly approaching sunset, the agency says.

After the drone searched the area, the two riders were located. Once their position was established, the UAS led deputies in a 4WD Mule to the location, and the deputies then led the stranded equestrians to safety. In total, the aerial mission lasted approximately 52 minutes.

The MCSO has provided footage of the rescue: https://unmanned-aerial.com/drone-locates-lost-horseback-riders-for-florida-sheriffs-office?utm_medium=email&utm_source=LNH+01-31-2019&utm_campaign=UAO+Latest+News+Headlines

Drones Help Mitigate Rats in the Galapagos Islands Harry McNabb January 31, 2019

Invasive species – in this case rats – have been a problem for the eco-system of parts of the Galapagos islands for many years. Drones have proven to be an invaluable tool that allows scientists to mitigate, or in some cases to remove entirely, the pesky rodents.

According to [Galapagos Conservancy](#) the problems were caused by the accidental introduction of black rats to many of the Galapagos islands by whalers and pirates in the 17th or 16th century. The brown rat (Rattus norvegicus) was introduced to Santa Cruz and San Crisobal in the 1980s.

The rats eat the eggs of indigenous birds and tortoises that are typically laid on the ground. Having no natural predators in large enough numbers to control the population causes a problem, as it has reduced the numbers of the giant tortoises that were made famous in the work of Charles Darwin. The drones deliver bait produced by Bell Laboratories. The bait's formula was designed especially for projects within the Galápagos Archipelago due to their unique weather conditions.

With the support of Island Conservation and New Zealand's Environment and Conservation Technologies LTD., a pilot project was implemented using drones and hoppers with applicators designed in 3D printers. 52% coverage of North Seymour Island was possible using this equipment, making it the world's first use of drones to remove invasive vertebrates. https://dronelife.com/2019/01/31/dr-henry-jones-sr-is-not-the-only-one-who-hates-rats-drones-help-mitigate-the-pesky-beasts-in-the-galapagos-islands/

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10 hour+ multirotor UAV flight using Intelligent Energy Fuel Cell Power Module
January 31, 2019 News

South Korean liquid hydrogen specialist MetaVista has demonstrated a record breaking 10 hour and 50 minute multi-copter test flight using an Intelligent Energy Fuel Cell Power Module.

The flight was conducted using the Loughborough-based fuel cell engineering Company's lightweight 650W Fuel Cell Power Module and is believed to be the longest flight time of its kind. MetaVista used 390g of liquid hydrogen in a specially designed 6L cylinder.

UAS and SmallSat Weekly News

David Woolhouse, CEO at Intelligent Energy, said: "We have been focused on developing lightweight, robust fuel cell power modules for UAVs that can offer commercial users something that batteries simply cannot – significantly longer flight time. We are pleased to have worked with MetaVista on this test flight which has demonstrated that liquid hydrogen can increase that flight time further still when compared to compressed hydrogen – three times longer!" https://uasweekly.com/2019/01/31/10-hour-multirotor-uav-flight-using-intelligent-energy-fuel-cell-power-module/

Skynetwest takes drone tech into utility industry APPLICATION BUSINESS DRONES AT WORK FINANCIAL NEWS ALEX DOUGLAS FEBRUARY 1, 2019

The US-based utility firm's identity was not disclosed, but the move could produce more than $100,000 in annual revenues.

According to Skynetwest's director of strategy Sean Goetz, inspections done manually would likely cost more, be less comprehensive and more dangerous given they are done by individuals. He said: "We can maneuver into difficult spaces. We enable our clients to review data and perform inspections from the comfort and safety of their desktops in a way that's faster and more detailed than visual inspections."

Skynetwest says its data specialists are looking forward to ongoing developments in UAS technology that will allow the company to offer more comprehensive views to its clients, including multispectral systems with sensors that will enable drone systems to see behind the object being inspected. https://www.commercialdroneprofessional.com/skynetwest-takes-drone-tech-into-utility-industry/?utm_source=Email+Campaign&utm_medium=email&utm_campaign=45819-290527-Commercial+Drone+Professional+DNA+-+2019-02-01

As drones proliferate, U.S. aviation in holding pattern Robert Silk Jan 31, 2019

On the evening of Jan. 22, reports by airline pilots of a drone in their approach path led the FAA to briefly stop arrivals into Newark Liberty Airport. The halt was the first such action due to drone operations at a major U.S. airport.

The FAA reauthorization act, signed into law by President Trump last fall, gave the Department of Homeland Security and FBI the joint authority to monitor and track drones without getting consent from the drone operator. The DHS and the bureau were also granted the authority to

disable, take control of or disrupt a drone's operations without prior consent. Still, airports are mostly in a holding pattern when it comes to managing drone intrusions.

Last July, the FAA sent a letter to airports suggesting that it could withhold grant funding if they move forward independently with efforts to implement drone detection and countermeasure systems. In the letter, FAA director of airport safety and standards John Dermody asserted that the deployment by airports of drone detection and countermeasure systems could interfere with the performance-based navigation equipment used by pilots and air traffic controllers.

Chris Oswald, the senior vice president of safety and regulatory affairs for the trade group Airports Council International-North America, said, "Taking away from the Gatwick story, the big thing in my mind is the level of economic disruption that can be caused by what seems to be a combination of actual hazard and uncertainty of the nature of the threat." https://www.travelweekly.com/Travel-News/Airline-News/As-drones-proliferate-aviation-in-holding-pattern