UAS and SmallSat Weekly News

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French Defense Agency Invests in Elistair Tethered Drones Miriam

McNabbon: December 14, 2017

French drone company Elistairhas signed an agreement with the DGA – French Defense procurement Agency – to finance its AIRWATCH project, a tethered drone for surveillance and telecommunications.

DGA's main objectives are to equip French military forces and to support the armament export industry: but eligible projects must be developed by independent companies and offer "dual applications for military and civilian markets," says Elistair.

The AIRWATCH project will develop a smart "dronebox": tethered drone for surveillance and telecommunications providing unlimited flight time thanks to its micro-tether providing continuous power from a ground station.

"[The] AIRWATCH system provides a full day and night coverage of wide areas for hours. Comparable to a one hundred meters high "virtual mast", the system offers a persistent aerial surveillance support for crisis management, firefighting, major events, video protection, law enforcement, or perimeters security," says Elistair.

Elistair's tethered solution already boasts over 10,000 flight hours, with customers ranging from the U.S. Army to Paris Airports and France's primary gas and electricity provider, Engie. The DGA's investment in the AIRWATCH system should provide the funding and exposure that the company needs to make tethered drones a familiar site on industrial worksites.
https://dronelife.com/2017/12/14/french-defense-agency-invests-elistair-tethered-drones/

NVIDIA Brings Drones and AI to Construction Industry through Partnership with

Komatsu Miriam McNabbon: December 13, 2017

Computing giant NVIDIA has announced a partnership with Japanese company Komatsu, one of the world's largest manufacturers of construction and mining equipment, to bring AI to construction worksites.

Komatsu will focus on improving worksite safety and efficiency. They'll use NVIDIA GPUs to "visualize and analyze entire construction sites," says the NVIDIA press release. Drones will provide aerial views of the site and will be able to provide data that improves efficiency.

"Drones can go places that people and other types of machines can't go – particularly they can be overhead," says Clayton. "You get scans of the site (3D) – and use AI to remove equipment and other miscellaneous data from the scan. You can also monitor utilization of the equipment: using UAVs to fly above the site, combined with AI."   Clayton says that the technology can provide worksite managers with insights like how often expensive equipment is in motion vs. stationary, and how many human resources are deployed around the equipment.

 "Artificial intelligence is sweeping across industries, and its next frontier is autonomous intelligent machines," NVIDIA's founder and CEO Jensen Huang said. "Future machines will perceive their surroundings and be continuously alert, helping operators work more efficiently and safely. The construction and mining industries will benefit greatly from these advances."
https://dronelife.com/2017/12/13/nvidia-brings-drones-ai-construction-industry-partnership-komatsu/

A Drone That Went Undetected In New York 'No-Fly' Zone Highlights Risks Alan Levin December 14, 2017

A recreational drone operator whose device smashed into a U.S. Army helicopter in September flew undetected into a no-fly zone over New York set up to protect President Donald Trump and the United Nations.

The National Transportation Safety Board on Thursday said the drone flew in air space closed because of the visit by Trump, highlighting gaps in safety and security protections involving the devices that are the size of a medium pizza box. Moreover, the pilot was in Brooklyn but the drone was 2.5 miles away, offshore of Staten Island, violating a rule that operators must keep drones in their sight.

 The recreational operator told investigators he didn't know that federal authorities had temporarily banned all drone flights in New York.

A notification system included with the device, made by SZ DJI Technology Co., didn't advise him of those flight restrictions, the NTSB said.

 "We will take appropriate action upon the completion of our investigation," the FAA said in a statement. "The FAA provides education and resources for operators to safely and responsibly operate their drones."

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The drone was a [DJI Phantom 4](#), a small device made by the world's largest civilian unmanned aircraft manufacturer. The company recently began an educational initiative that requires new drone pilots to pass a safety quiz before taking initial flights. The quiz was developed in collaboration with FAA, the company said. https://www.bloomberg.com/news/articles/2017-12-14/drone-s-ease-piercing-new-york-no-fly-zone-underscores-risks

AAC HAMR Flight Demo aboard US Navy M80 Stiletto

Beautiful day on the Chesapeake Bay aboard the US Navy's M80 STILETTO, working with Bill Fredericks, founder of Advanced Aircraft Company, and the company's new **Hybrid Advanced Multi-Rotor (HAMR) VTOL UAS**.

Several US Navy organizations observed as we conducted maritime operations and demonstration flights with this new UAS with impressive range and payload capabilities. HAMR has multiple government and commercial applications – based on three-hour maximum endurance, seven-pound maximum payload, or combinations in between. http://oncourse-llc.com/aac-hamr-flight-demo-aboard-us-navy-m80-stiletto/

China's first medical drone delivers essential supplies to cliff-top village Friday, 15 December, 2017, Charmmy Zhang

The otherwise arduous journey – via ladders attached to the cliff face – now takes just 10 minutes

The drone was photographed hovering over the village of Atule'er in Liangshan Yi autonomous prefecture, Sichuan province, about 1,400 metres above sea level, China News Service reported.

The village in southwestern China made headlines in 2016 when it was revealed that children had to climb 17 vine ladders attached to the cliff face to get to school and back. The government later [replaced the ladders with steel ones](#).

The drone, deployed in partnership between the local government and e-commerce firm JD.com, brought villagers anti-inflammatory and cold medicines on its first run.

Before, the journey to deliver supplies would take between six and nine hours, but thanks to the drone, it's been shortened to a speedy 10 minutes.

"Villagers had to climb down the ladders to buy medicines and essentials. It was really inconvenient, because it takes several hours to complete a round trip," villager Muse Wuha was quoted as saying. "But the drone flies down in minutes. I feel we are embracing a new kind of life." http://www.scmp.com/news/china/society/article/2124466/chinas-first-medical-drone-delivers-life-saving-supplies-cliff

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America Is No Match for China's New Space Drones Eugene K. Chow

In a major breakthrough, China has unveiled a formidable new high-altitude drone that could give its military a significant advantage.

Designed to operate in "near space," 12.5 miles above sea level or higher, China's new drones can break through air defenses, avoid radar detection, and collect valuable intelligence while staying well beyond the range of anti-aircraft fire.

Until now, the U.S. military's RQ-4 Global Hawk has been the highest-flying drone, operating at altitudes of 60,000 feet. But in a recent test, Chinese engineers surpassed that, flying an experimental drone at 82,000 feet.

At a research facility in Inner Mongolia, two drones were attached to a weather balloon and deployed at 30,000 feet and 82,000 feet. Roughly the size of a bat and weighing about as much as a soccer ball, the drones were launched by an electromagnetic pulse sling shot that catapulted them out at 60 mph.

The drones coasted to targets over sixty miles away, automatically adjusting their flight path and sending data back to a ground station. Most notably, due to their small size, they were barely detectable on radar during their test flight.

The drones were equipped with several sensors, including a terrain mapping device and an electromagnetic signal detector that would allow it to pinpoint military troops. However, the drones could not carry cameras, as that would require a bulky antenna to transmit photo or video data, which would throw off its delicate aerodynamics.

Its wings and body are seamlessly blended into a flat, tailless design that generates lift in the thin atmosphere of near space. Some models, like the two recently tested, do not have engines, instead drifting to their targets like a glider.

"The goal of our research is to launch hundreds of these drones in one shot, like letting loose a bee or ant colony," Professor Yang Yanchu, the head of the project from the Chinese Academy of Sciences, told [4] the *South China Morning Post.*

But so far no country has been able to operate in near space, as most aircraft cannot fly at such high altitudes and it is too low for satellites. Unlike current high-altitude drones which cost millions of dollars, China's newest high-flying drone would only cost [8] a few hundred yuan.

With these cheap, stealthy high-altitude drones, China has leapt ahead in the near space race. https://scout.com/military/warrior/Article/America-Is-No-Match-for-Chinas-New-Space-Drones-112319137

NASA planning to purchase Earth science data from commercial smallsat systems Jeff Foust — December 15, 2017

A portion of Venetian Lagoon's Lido Inlet as seen by one of the RapidEye satellites operated by Planet.

NEW ORLEANS — NASA expects to purchase Earth science data from constellations of commercial satellites early next year to see how useful they are in meeting the agency's research needs.

NASA issued a request for information (RFI) Dec. 5 seeking details from companies that have such constellations and are interested in selling data to the agency. "What we are recognizing is that many of you in the private sector have fielded constellations of small satellites for your own business reasons," said Michael Freilich, director of NASA's Earth science division.

Those systems, he said, may also be collecting data of interest to NASA. "The question that we're asking in NASA is what value does the data products that come from your small satellite constellations have to the government to advance our research, science and applications interests."

In the RFI, NASA asks companies to submit information on their current satellite constellations and the data that is available from them. It defines constellations as systems of at least three

satellites in non-geostationary orbits that provide large-scale coverage of the Earth. http://spacenews.com/nasa-planning-to-purchase-earth-science-data-from-commercial-smallsat-systems/

2,500 applicants sign up to get in on drone experiments, but Amazon's not on the list ALAN BOYLE on December 15, 2017

The city of Seattle, King County, Boeing, KING 5 and Tukwila's police department are among more than 2,500 organizations and individuals who have registered their interest in experiments that could lead to routine drone deliveries, aerial night patrols and other advanced operations involving unmanned aerial systems.

One big name is missing from the Federal Aviation Administration's list, which was published this week. It's Amazon, the Seattle-based online retailer that's been working on its own drone delivery system for years.

Amazon could well be making plans in the background to join up with a lead applicant, in Seattle or elsewhere. For now, Amazon isn't sharing any plans. But when the FAA's initiative came to light in October, Amazon issued a statement supporting the pilot program.

Lead applicants will be forming up their teams in the weeks ahead, and will have to submit their rosters by Jan. 4. Then the FAA will select at least five communities to participate in the first round of the drone experimental program. Those communities will be given the go-ahead to try out operating modes that are typically off-limits for drones, such as letting them fly beyond an operator's line of sight, fly at night or fly over uninvolved people.

The lead applicants — which can be state, local or tribal governments — will be in charge of monitoring their operations. https://www.geekwire.com/2017/2500-applicants-sign-get-drone-experiments-amazons-not-list/

Leti develops crash-avoidance for drones David Manners 15th December 2017

Leti's 360Fusion software, in combination with miniaturized sensors, collects, analyzes and transforms millions of incoming 3D distance data items into relevant, actionable information.

This technology provides consumers and innovative companies with a reliable and affordable integrated anti-crash system. It

also ensures safe navigation and enables prompt action in civil-security applications and ensures both fast response and maximum performance for drones in defense uses.

It is claimed to be the first obstacle-avoidance algorithm in a dynamic environment based on laser sensor technology, it fits into a mass-market microcontroller, the perception system weighs less than 40 grams and it integrates into existing drone technologies

Leti will equip a fleet of drones with this technology to show they detect and avoid nearby drones, fit miniaturized radar sensors on the fleet, enable detours to safe routs when obstacles are detected and enable autonomous flight.
https://www.electronicsweekly.com/news/business/leti-develops-crash-avoidance-drones-2017-12/

Behind the ambitious plan to build and race flying cars JOHNNY LIEU

 Since *Back to the Future*, you're far from alone if you've wondered where the heck your flying car is already. An Australian startup called Alauda has an ambition to fast-track that reality with its electric, low-altitude aircraft, the Airspeeder Mark I.

Alauda is founded by Matt Pearson. Unlike the DeLorean, Pearson's Airspeeder Mark I is a quadcopter — essentially a bigger version of a drone, with a single seat for the pilot.

 Much of the Airspeeder is custom made: The wooden propellers, the 50-megawatt electric motors, and the aluminum frame. It'll be powered by lithium ion batteries and will have a top speed of more than 200 km/h. The Airspeeder will have sensors to prevent collisions, but they're also looking into a Mars Lander-type safety system, which uses airbags to protect the vehicle on impact.

Why just fly a car when you can race it? Pearson hopes to have two Airspeeders test-racing through a desert in the later half of 2018, with an aim to launch a Grand Prix in 2020. "We want to create a sport, not just a flying car.

"We want to create race regulations that say you can't go higher than this, you can't go lower than this, and we'll build that into the software as well so it limits what drivers can do. That will be related to safety, but also crowd safety too." http://mashable.com/2017/12/14/alauda-racing-flying-cars/#wjG0IPqRosqB

Should There Be a Leave No Trace Rule for Drones? NICK MCEACHERN *DECEMBER 15, 2017 The copters can go beyond annoying to become a danger. What's the solution?*

Drones go against the very concept of Leave No Trace. Agree with these principles or not, they have been adopted by nearly every federal and state agency in the country. The Leave No Trace ethic asks us to respect all other visitors in the outdoors. But I doubt that skiers feel respected when a drone flies right above their powder run, disrupting their concentration. The same goes for paddlers on a river, firefighters confronting an out-of-control wildfire, runners on a trail and climbers on a mountain.

Another principle of Leave No Trace involves respect for wildlife, and it can be assumed that wild animals would much prefer to live in peace and quiet, without noisy, frightening machines buzzing in the air around them. If drone pilots wish to abide by Leave No Trace guidelines, they need to reconsider when and where they go for a flight.

This isn't to say that all drones should be banned. They certainly have their uses — helping with search-and-rescue missions, for example. However, with the FAA predicting that drones will continue to increase in popularity, we need to advocate for responsible and careful drone piloting on public lands. A good place to start might be requiring registration, licenses, or education courses. Meanwhile, the next time I see a drone in the outback, I'll be tempted to throw a rock at it. https://www.adventure-journal.com/2017/12/leave-no-trace-rule-drones/

Washington wildlife biologists consider using drones after Spokane-area moose test Dec. 18, 2017 Eli Francovich elif@spokesman.com (509) 459-5508

Wildlife biologist Jared Oyster and technician Seth Boogaard trudge through snow near Winchester Peak while searching for a collared moose.

This week, for the first time, the Washington Department of Fish and Wildlife used a drone to survey moose populations in northeast Washington. The weeklong test will help determine how and if the agency uses drones in the future, a question wildlife biologist across the world are considering.

The whole Thursday-morning operation took roughly 30 minutes. Much faster than a normal moose approach. As part of the study, researchers track the 35 radio-collared moose year-

round. They look to see if the cows have calves and how long the animals survive. Per research protocol, the biologists have to lay eyes on the animals three times per year.

Since the start of the project, Goerz said he and his staff have done more than 1,200 moose approaches, requiring hours of diligent, discrete trekking. Approaches that 60 percent of the time don't end with a moose sighting.

Worldwide wildlife biologists are beginning to explore how drones can assists their research and conservation efforts. According to a 2017 article in Popular Science, the leading cause of job-related death for wildlife biologists is in small plane or helicopter crashes, making drones a cheaper and safer alternative.

Drones are generally less stressful to animals than a foot approach or a helicopter fly-by. Moose only appear to notice the machine's presence once it's close to the ground. "It's not accurate to say there is no disturbance at all," Harris said. "But, again, compared to the alternative, it's clearly less disturbance." http://www.spokesman.com/stories/2017/dec/17/washington-wildlife-biologists-consider-using-dron/#/0

Drones can transform the insurance sector Tim Sandle Dec 16, 2017 in Business

Reported in the Wall Street Journal, adjusters are deploying drones to undertake inspections of outer structural damage to business premises and homes. This relates to claims relating to storm damage, fires, and lightning strikes.

One such company deploying drones is Liberty Mutual. The vice president of claims innovation, Lily Wray, told the Wall Street Journal that something that would take many hours is now reduced to a matter of minutes. Not only are drones faster, they can also be more accurate than a human inspector through the use of advanced imaging. The company also highlights health and safety as a reason for drone use because they're safer than using a ladder and sending someone up on the roof."

The application of drones is another sign of 'insurtech' disrupting the insurance sector. Other technological applications include the application of artificial intelligence image recognition software to assess damage in vehicle damage claims; and chatbots to automate the claims procedure. These types of technologies are presented in the Digital Journal article "Rapid growth forecast for insurtech in 2018." http://www.digitaljournal.com/business/drones-can-transform-the-insurance-sector/article/510154#ixzz51fWWR900

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Army, Marines Collaborate to Develop 3D-Printed Drone Tech Nichols

Martin December 18, 2017 Latest News, Tech & Cyber

The U.S. Army and the U.S. Marine Corps have partnered to develop unmanned aircraft systems with the use of three-dimensional printing technology.

Eric Spero of the Army Research Laboratory's vehicle technology directorate leads a team pursuing the UAS development project at Fort Benning in Georgia, the service branch said Friday.

ARL researchers and Marines work to create an application suite designed to help military personnel to 3D-print UAS technology within 24 hours as needed.

The project is based on an idea that Spero and his team had several years ago during a collaboration project with Georgia Tech. The Army then approached USMC to collaborate on the production of a software catalog meant to help Marines select and print the type of UAS needed for a specific mission. http://www.executivegov.com/2017/12/army-marines-collaborate-to-develop-3d-printed-drone-tech/

Airbus seeks help from Formula One team to develop high altitude drone David

Reid | @cnbcdavy *Drone will be solar-powered and fly at 65,000 feet*

The European aerospace giant Airbus has announced it is to work with the Williams motorsport team on a solar-powered and high-altitude drone.

Zephyr is an unmanned aerial system (UAS) designed to fly at 65,000 feet. The first production examples are being manufactured in England for the U.K.'s Ministry of Defence.

The drone is being designed to fly unmanned and unfueled for months on end, acting in a communications and surveillance role.

Airbus said it was looking to tap Williams' knowledge of both battery technology and lightweight materials. The Zephyr program began in 2003, with the first one built by the British company, QinetiQ.

The Zephyr 7 holds the official endurance record for an unrefueled, unmanned aerial vehicle with its flight from July 9 to July 23, 2010, lasting 336 hours, 22 minutes and 8 seconds.

After being bought by Airbus in 2013, Zephyr has now become part of the firm's High Altitude Pseudo-Satellite (HAPS) program. https://www.cnbc.com/2017/12/18/airbus-and-willaims-formula-one-team-to-develop-high-altitude-drone.html

U.S. bars drones over nuclear sites for security reasons David Shepardson

WASHINGTON (Reuters) - The Federal Aviation Administration said Monday it will bar drone flights over seven major U.S. nuclear sites, including Los Alamos National Laboratory in New Mexico. The new restrictions begin Dec. 29 and include the Hanford Site in Washington State, Idaho National Laboratory, Savannah River National Laboratory in South Carolina, Pantex Site in Texas and the Y-12 National Security Site and Oak Ridge National Laboratory in Tennessee.

Earlier this year, the FAA banned drone flights over 133 U.S. military facilities. The Pentagon said in August that U.S. military bases could shoot down drones that endanger aviation safety or pose other threats.

The FAA also banned drone flights over 10 U.S. landmarks in September, including the Statue of Liberty in New York and Mount Rushmore National Memorial in South Dakota, at the request of national security and law enforcement agencies. It separately barred drone flights over the USS Constitution in Boston, the Gateway Arch in St. Louis and Independence National Historical Park in Philadelphia. The list also includes Glen Canyon Dam in Arizona, Hoover Dam in Nevada and Grand Coulee Dam in Washington state. https://www.reuters.com/article/us-usa-drones/u-s-bars-drones-over-nuclear-sites-for-security-reasons-idUSKBN1EC2MQ

Orbital ATK-Built Cygnus Spacecraft Completes 8th ISS Cargo Resupply Mission

Ramona Adamson: December 19, 2017 In: Industry News, News

An **Orbital ATK**-built *Cygnus* spacecraft re-entered Earth's atmosphere Monday at 7:54 a.m. Eastern time after it delivered approximately 7,400 pounds of cargo to the International Space Station and completed secondary space missions.

The re-entry of the spacecraft, also known as *S. S. Gene Cernan*, marked the conclusion of Orbital ATK's eighth ISS cargo supply mission under its *Commercial Resupply Services* contract with NASA, the company said Monday.

Orbital ATK launched Cygnus Nov. 12 at NASA's Wallops Flight Facility in Virginia aboard the company's *Antares* rocket. Cygnus reached the space station Dec. 6 and remained attached to the station for 22 days to support science experiments inside the cargo module.

The space vehicle carried 6,400 pounds of trash and launched 14 cubesats into orbit using a *NanoRacks* deployer after leaving ISS. http://blog.executivebiz.com/2017/12/orbital-atk-built-cygnus-spacecraft-completes-8th-iss-cargo-resupply-mission/

DARPA is working on a project that would drop a swarm of drones from an airplane — and fly back into it after their mission is complete

Artist's concept of what a swarm of Gremlins would look like

The Defense Advanced Research Project Agency plans to demonstrate an ability to launch and **recover** small drones from an Air Force C-130 aircraft as part of its continued development of the Gremlins program - a technical effort designed to deploy groups of small drones carrying 60-pound sensor payloads up to ranges of 300 nautical miles.

Gremlins moves beyond existing state-of-the-art programs which are able to launch, but not recover, swarms of mini-drones. The Pentagon's Strategic Capabilities Office, an initiative aimed at harnessing near-term emerging technologies for operational use, demonstrated an ability to launch small drones from the flare dispenser of an F-16.

While able to blanket areas with ISR and perform significant mission-enhancing functions, they are expendable and not available for re-use.

Gremlins could well be described as a technological leap in manned-unmanned teaming beyond state of the art technology, as it enables drones to launch, perform missions and then return to a host aircraft. As algorithms for increased levels of autonomy advance, aircraft will be able to control drones from the cockpit with a pilot in a command and control role, service experts have explained. http://www.businessinsider.com/darpa-drone-swarm-project-2017-12

Unmanned aircraft will bring aviation opportunities – experts Dec 18 2017 Carin Smith

 Cape Town - It is foreseeable that unmanned aircraft will be used to transport passengers as well over the long-term, according to Rob Eagles, director of air traffic management infrastructure at the International Air Transport Association (Iata).

"Our goal is to facilitate, this new branch of aviation by developing standards to support safe, efficient, orderly, reliable and sustainable high-frequency drone operations into the airspace system," said Eagles.

In his view, the growth and scope of so-called unmanned aircraft systems (UAS) - in other words drones - operations are exceptional. It can involve from small to large aircraft and from low to high altitudes. The use of new and advanced technology can be implemented for basic as well as complex operations.

According to Céline Hourcade, head of cargo transformation at Iata, drones can certainly be used by the airline industry. She pointed out that many trials are already being conducted regarding airport operations, surveillance, automated inventory, parcel deliveries and humanitarian support. "Existing and new aircraft manufacturers are all working on unmanned aircraft projects."

"Iata, the International Civil Aviation Organisation (Icao) and regulators are looking at ways to integrate this new branch of aviation safely and efficiently."
https://www.fin24.com/Companies/Industrial/unmanned-aircraft-will-bring-aviation-opportunities-experts-20171218

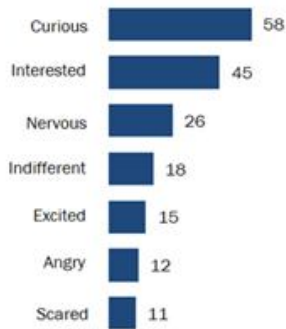## 8% of Americans say they own a drone, while more than half have seen one in operation PAUL HITLIN

Drones are catching on as consumer goods. As of mid-2017, 8% of Americans say they own a drone and 59% say they have seen one in action, according to a Pew Research Center survey. But while drones – that is, aircraft without on-board human pilots – are more prevalent than they were a few years ago, many have reservations about where and under what circumstances their use should be allowed.

About one-in-ten Americans would be angry or scared if they saw a drone near home

% of U.S. adults who say they would feel ___ if they saw a drone flying close to where they live

Curious	58
Interested	45
Nervous	26
Indifferent	18
Excited	15
Angry	12
Scared	11

Note: Respondents could choose more than one of the above options.
Source: Survey conducted May 1-15, 2017.

PEW RESEARCH CENTER

The survey shows modest differences in rates of ownership by gender and age. Slightly more men (11%) than women (6%) say they own a drone, as do more people ages 18 to 49 (12%) compared with those 50 and older (4%).

Asked how they would feel if they saw a drone flying close to where they live, relatively large shares of Americans say they would be curious (58%) or interested (45%). At the same time, around one-in-four (26%) say they would be nervous, and around one-in-ten say this would make them feel angry (12%) or scared (11%).

When it comes to what rules should apply to drone use, roughly half the public (54%) thinks drones should not be allowed to fly near people's homes. Just 11% think this should be allowed, while 34% think it is OK in certain circumstances but not others. Around half of the public (53%) says private citizens should not be allowed to pilot drones near accidents or crime scenes, while a plurality (45%) says this practice should not be allowed at public events like concerts or rallies. By comparison, Americans are more broadly accepting of drone use by private citizens in locations such as beaches or public parks. http://www.pewresearch.org/fact-tank/2017/12/19/8-of-americans-say-they-own-a-drone-while-more-than-half-have-seen-one-in-operation/

A 92-year-old man was lost overnight in a heavily wooded area. A drone found him. Ellie Silverman December 18

A 92-year-old hunter was stranded overnight in a heavily wooded area of Virginia before a drone swooped over the scene and found him, authorities said. The Shenandoah County Sheriff's Office tried to locate William Luther McDonnell of Winchester, Va., Saturday night, but could not find him in the darkness.

By Sunday morning, the Loudoun County Sheriff's Office search-and-rescue team arrived. About 20 minutes after it deployed the drone, the man was found — marking the first successful use of the technology since the sheriff's office started using it in September.

The drone that ultimately located McDonnell is the first in Virginia, and the sixth in the nation, to be equipped with a special antenna for participants in the Project Lifesaver program, designed to find people with medical conditions, such as Alzheimer's disease, that may cause them to wander from home, a news release said. Program participants wear a wristband that emits a locating signal that the drone's antenna can pick up.

Though McDonnell was not in the program, the drone located him, said Alex Kowalski, a spokesman for the Loudoun County Sheriff's Office. The technology, officially called a Small Unmanned Aircraft System and operated by licensed pilots, can carry infrared and high-resolution cameras, the news release said.

"This new technology allows our deputies to more efficiently search for missing people, especially those in the Project Lifesaver program, and bring them home safe. We are pleased we were able to assist Shenandoah County and safely return this man to his family," Loudoun County Sheriff Mike Chapman said in the release. https://www.washingtonpost.com/local/public-safety/a-92-year-old-man-was-lost-overnight-in-a-heavily-wooded-area-a-drone-found-him/2017/12/18/5f5ada08-e427-11e7-ab50-621fe0588340_story.html?utm_term=.b7b29c383b67

Mesa Fire leads way in use of drones Wayne Schutsky, Tribune Staff Writer

Mesa Fire and Medical Department is a pioneer in the use of drones to respond to emergency situations, and its pilots have evolved into a valuable resource for first responders and municipalities across Arizona.

While many of the department's pilots had little to no experience with drones – also called unmanned aerial vehicles, or UAVs – prior to the program's inception, they have developed into experts and now use the technology to respond to structural fires, large commercial fires, search and rescue operations, and other emergencies in Mesa and surrounding areas.

The program did not develop overnight. The department's pilots needed rigorous training in order to master both the skills needed to fly drones and understand the complicated set of rules and regulations that govern the technology. http://www.eastvalleytribune.com/news/mesa-fire-leads-way-in-use-of-drones/article_6834a5e4-e438-11e7-a2f7-e38ddd0864f7.html

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Boeing offers sneak peek of MQ-25 tanker drone Valerie Insinna

Boeing revealed its first prototype for the U.S. Navy's MQ-25 unmanned tanker competition on Dec. 19, 2017. (Boeing)

WASHINGTON — Boeing on Tuesday unveiled its entrant into the U.S. Navy's MQ-25 tanker drone competition, a prototype wing-body-tail aircraft ready to begin tests this month.

"It's an aircraft with the mission in mind, and we felt confident that the wing-body-tail design was the best for the refueling mission," said Boeing spokeswoman Didi VanNierop, who added that the company incorporated lessons from its Phantom Ray unmanned demonstrator and other Boeing unmanned aerial systems.

Boeing's MQ-25 is slated to conduct engine runs by the end of the year at its St. Louis, Missouri, facility before moving on to deck handling demos early next year, the company said in a news release. However, the aircraft will not fly during those demonstrations, and Boeing has not set a date for first flight, she noted.

"Boeing has been delivering carrier aircraft to the Navy for almost 90 years," Don Gaddis, who leads the refueling system program for Boeing's Phantom Works, said in a statement. "Our expertise gives us confidence in our approach. We will be ready for flight testing when the engineering and manufacturing development contract is awarded."
https://www.defensenews.com/air/2017/12/19/boeing-offers-sneak-peek-of-mq-25-tanker-drone/

Drone Tracking Plan Moves U.S. Delivery by Air Closer to Reality Alan Levin
December 19, 2017

Deliveries by drones took a step closer to being allowed in the U.S. after a federal advisory panel agreed on a framework for allowing law enforcement to routinely track the small devices.

The committee's report to the Federal Aviation Administration, released Tuesday, is a significant step toward widening drone flights to allow them over people, urban areas and over long distances. A system to track and identify drones is necessary before companies such as as Alphabet Inc.'s X and Amazon.com Inc. can deliver packages via unmanned drones, or for utilities and railroads can broaden their use for inspections.

While the report laid out the rough specifications necessary for such tracking, various interest groups dissented over whether certain small drones would get waivers to fly without being identified.

Allowing any drones to fly unidentified creates a "potentially dangerous loophole," a representative for the Air Line Pilots Association said in his comments. ALPA is the largest union representing pilots in North America.

The FAA, which is working with federal and local law enforcement agencies concerned about drone safety and security, will now take the industry and hobbyists comments under advisement and begin drafting a proposed set of regulations requiring tracking. https://www.bloomberg.com/news/articles/2017-12-19/drone-tracking-plan-moves-u-s-delivery-by-air-closer-to-reality

NV Energy Tests Drones For Power Line Inspections *Dec 19, 2017 9:03 PM EST* By Paul Nelson

NV Energy is working with the Nevada Institute of Autonomous System and AviSight to use Unmanned Aircraft Systems for utility infrastructure inspections. Drones fly above power lines and inspect them for any kind of problems like clearance, terrain and vegetation under the lines, nearby structures, and the shape of the poles.

"With weather, the poles get wet and they start to semi-lean and that changes the line sag," Chris Hofmann, Director of Electric Delivery in Rural Districts for NV Energy said. The drone uses LiDAR, a surveying technology that uses lasers to measure distances. The data is collected in near real-time, and creates a 3-dimensional computer model.

The drones can also detect equipment issues that create heat. "When the insulating factors of the insulators themselves start to break down, they create a corona signature around it that we can see, and we know there is an issue out there, so we get out there and fix it," Hofmann said.

Hofmann says crews currently do manual inspections of power lines, visually, and with measuring equipment. While the drone can cover two to four miles of power lines in a matter of minutes, he says it would take about a week to do it manually. http://www.ktvn.com/story/37104662/nv-energy-tests-drones-for-power-line-inspections

Drone images give researchers in-depth knowledge of wildfire devastation, forest regeneration Courtney Dickson, CBC News Posted: Dec 19, 2017

'This data is like nothing we've ever seen before'

Researchers are sending drones into the Alex Fraser Research Forest near Williams Lake, B.C., to learn more about wildfire behaviours and assess the damage done by 2017's fires.

"This data is like nothing we've ever seen before," Coops said. The images gathered are helping to create three-dimensional models of the Alex Fraser Research Forest near Williams Lake and the Malcolm Knapp Research Forest near Maple Ridge in the Fraser Valley — both hit by wildfires last summer.
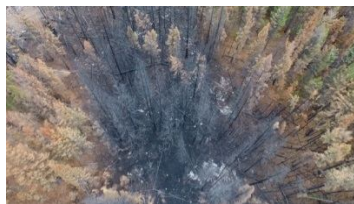
Coops and his fellow researchers want to chart the progression of the fire, find out whether certain areas burned at a higher temperature than others and determine if any timber is salvageable — all in an effort to better understand wildfire behaviour. http://www.cbc.ca/news/canada/british-columbia/drone-bc-wildfire-research-1.4456460

Military, security applications to dominate UAV markets Patrick C. Miller | December 20, 2017

Military and security applications for unmanned aerial vehicles will represent about 85 percent of the market through 2022, according to the Markets and Markets global research firm.

Global research and consulting firm Markets and Markets says relaxed regulations for commercial drones in U.S. airspace will result in an annual market growth rate of 13.2 percent for unmanned aerial vehicles through 2022.

Amit Gulhane, the MnM team lead in India for aviation and defense electronics, told *UAS Magazine* that the projection is based on the 500 exemptions the Federal Aviation Administration has recently granted to more than 20 industries.

"We expect various other major exemptions related to weight and endurance for several industries, including agriculture, real estate, construction and oil and gas, among others," he explained.

Gulhane noted that the unit shipment of UAVs for military or security applications is much higher when compared to other commercial markets, such as agriculture or infrastructure inspection. He said commercial applications capture just 15 percent of the UAV market. MnM's research doesn't include the hobbyist and recreational drone market.

"We estimate that the market for military application will grow at a CAGR (compound annual growth rate) of approximately 13 percent while the commercial market will grow at a CAGR of 18 percent through 2022," he said. "This way, although the commercial market will have smaller share, it is expected to grow at the fastest rate."
http://uasmagazine.com/articles/1793/military-security-applications-to-dominate-uav-markets

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Finalists in NASA's Spacecraft Sweepstakes: A Drone on Titan, and a Comet-Chaser KENNETH CHANG DEC. 19, 2017
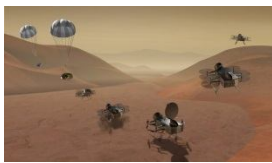
 Dragonfly, a proposed dual-quadcopter lander that would explore Saturn's moon, Titan, was one of two finalists in NASA's New Frontiers competition.

From a dozen proposals to the agency's New Frontiers competition — not unlike an interplanetary "Shark Tank" for a forthcoming robotic mission — NASA announced these two finalists on Wednesday.

In the first proposed mission, Comet Astrobiology Exploration Sample Return, or Caesar, a spacecraft would go to Comet 67P/Churyumov-Gerasimenko, previously explored by the European Space Agency's Rosetta mission, and bring back a small chunk to Earth for closer study.

In the second mission, named Dragonfly, a robotic drone would be sent to Titan, Saturn's largest moon, which has seas of hydrocarbons. The drone would be able to fly from one location to another and to perform detailed explorations of various terrains.

Each team now will get $4 million and about one year to flesh out its idea. NASA will decide in mid-2019 which one of the two to build. The selected mission is to launch by the end of 2025. https://www.nytimes.com/2017/12/19/science/nasa-new-frontiers-finalists.html

FAA Committee Calls for Mandatory Drone ID and Tracking Mark Huber - December 20, 2017

The FAA's UAS aviation rulemaking committee (ARC) has released its final recommendations, which call for remote ID and tracking of drones with data sent to an Internet database via both direct broadcast and network publishing. Data would include drone owner and pilot identification, a unique identifier for each drone and tracking information. The ARC also asked the FAA to coordinate this information into the national air traffic control system, but safeguard the information and disclose it only to authorized parties.

The ARC report drew significant praise from the UAS community and other stakeholders, who saw it as a way to safely expand UAS operations. Drone manufacturer DJI said its recently launched AeroScope system would already fulfill any potential mandate for identification via direct broadcast.

The Drone Manufacturers Alliance, alluding to Aeroscope and similar systems, urged the FAA not to mandate additional equipment for drone ID and tracking, but said that imposing the requirements would clear the way for more widespread drone applications, including flight beyond line of sight, over people and at night. Notably, the Air Line Pilots Association (ALPA) also supported the recommendations, encouraging the FAA to implement them without delay. "Identification and tracking technologies are needed urgently," ALPA said. https://www.ainonline.com/aviation-news/business-aviation/2017-12-20/faa-committee-calls-mandatory-drone-id-and-tracking