



UAS and SmallSat Weekly News

Contents

- 2 China's UAVs Proliferate in Middle East
- 2 Dubai Airshow Just Gets Bigger
- 3 Dubai Pushes for Unmanned Aviation Leadership
- 4 Orbital ATK Rocket Launches NASA Cargo to Space Station in Spectacular Morning Liftoff
- 5 Drones In The Wild
- 6 Glacier-mapping drone soars to nearly 5000 meters, **setting a record**
- 6 NASA Is Working On Making Drones A Part Of Every City
- 7 Drone Parachute Recovery System to Enable Safe Flights Over People
- 7 How to recharge an electric car in the middle of nowhere: Amazon drone?
- 8 Antares rocket boosts cargo ship to orbit
- 9 Transport Canada OKs Drone Operator to Fly Commercially Without Prior Notification
- 9 Myanmar sentences reporters to jail for flying drone
- 10 The company photographing every spot of land on earth, every single day
- 11 Airbus will test its Vahana electric 'flying car' by the end of 2017
- 11 Delivering medical supplies into the remote Amazon is a big challenge, but drones could help
- 12 New Electric Delivery Van Solution Features Integrated Drone
- 13 First operational MQ-4C Triton drone delivered to U.S. Navy
- 13 TEAMS OF "SWARM SYSTEMS INTEGRATORS" TO DEVELOP UAS SWARM INFRASTRUCTURE FOR US MILITARY
- 14 NO MORE WESTCLOX FIRES FOR US
- 14 Can these drones save elephants from extinction?
- 15 Drone Ranger: Southern Farmer Ditches Dog, Utilises Drone To Herd His Sheep
- 16 NASA Heads to the Arctic To Design Drones That Can Fly on Mars
- 17 Anti-Drone Ray Guns Supported by Australian Politician
- 17 Meet the Traffic Cops of the Future: The Sky Guys Win Grant to Develop AI Drones for Traffic Enforcement
- 18 CTIA Seeks to Have Wireless Networks Be Standard Communications Platform for Drones
- 19 FAA chief urges collaboration to weigh risks and keep pace with technological innovation



UAS and SmallSat Weekly News

11Nov17

China's UAVs Proliferate in Middle East *Nov 11, 2017 ShowNews*



CASC's CH-4, pictured in development, has been noted in the colors of Iraq and Saudi Arabia.

Chinese gains could make it difficult for the U.S. to break back into Middle East UAV market.

It is hard to determine the actual number of Chinese-made armed UAVs now in service with countries in the Middle East, but the platforms are operational with the air forces of Iraq, Kazakhstan, Saudi Arabia and the United Arab Emirates (UAE), and reports suggest they have found their way into Egypt and Jordan as well.

Some of these countries have also used them in combat. Saudi Arabia has employed the systems during the air campaign over Yemen, while Iraq has flown them in its ongoing campaign against the Islamic State group. The UAE has gone further and deployed several to Libya's Marj District to support the Libyan National Army against Islamic fighters there.

All these nations had requested to purchase armed versions of the [General Atomics MQ-1 Predator](#) and MQ-9 Reaper, but were denied by the Obama administration due to concerns that **selling into the region would break the international Missile Technology Control Regime (MTCR) rules**, which attempt to prevent proliferation of technologies that enable the creation of delivery systems for nuclear, biological and chemical weapons.

http://aviationweek.com/dubai-air-show-2017/china-s-uavs-proliferate-middle-east?Issue=AW-021_20171111_AW-021_21&sfvc4enews=42&cl=article_2&utm_rid=CPEN1000003332045&utm_campaign=12541&utm_medium=email&elq2=8923f236610c4c5eaff095659fa024cb

Dubai Pushes for Unmanned Aviation Leadership *Nov 11, 2017 Angus Batey | ShowNews*

Drones for Good was designed to highlight positive uses of UAS by inviting entrants to showcase socially progressive applications for UAS, with large cash prizes on offer. Competitors have showcased systems that clear fog from airport runways and plant tree seedlings, as well as an aircraft optimized for construction inspection roles which can **stabilize itself during high winds** by attaching cords to nearby surfaces.



UAS and SmallSat Weekly News

The ultimate in unmanned aircraft operations may well be the use of autonomously piloted systems to **carry people**. It is perhaps little surprise that this application is on Dubai's wish-list. Towards the end of September, the Dubai Road and Transport Authority (RTA) announced that a maiden concept flight had taken place near Jumeriah Beach Park by an 18-rotor, nine-battery aircraft developed by the German company Volocopter.



Volocopter flew in Dubai in sight of the Burj Khalifa.

The Volocopter 2X was selected for the flight trial, though the RTA is also in discussions with a Chinese firm, Ehang, whose Ehang 184 has been flown in test conditions in the region for several months. The apparent decision to favor the German aircraft is likely because it conforms to more stringent German safety standards. The other key difference between the two platforms is payload capacity: the eight-rotor Ehang 184 can carry only one person, while the Volocopter 2X is designed to carry two.

The aspiration for the program as a whole is that the air taxis would be hailed using a smartphone app, and availability of the system will be integrated into the rest of the emirate's public transport infrastructure. Work to integrate the flights will involve the Dubai CAA and the UAE's General Civil Aviation Authority, and is being overseen by the U.S. consultancy JDA Aviation Company. http://aviationweek.com/dubai-air-show-2017/dubai-pushes-unmanned-aviation-leadership?Issue=AW-021_20171111_AW-021_21&sfvc4enews=42&cl=article_1&utm_rid=CPEN1000003332045&utm_campaign=12541&utm_medium=email&elq2=8923f236610c4c5eaff095659fa024cb

Dubai Airshow Just Gets Bigger Nov 11, 2017 Paul Jackson | *ShowNews*



China's PLAAF August 1st aerobatic team is making its first appearance in the West.

"We are looking forward to an exciting and successful Dubai Airshow 2017," said Michele van Akelijen, Managing Director of show organisers Tarsus F&E LLC Middle East. "The Dubai Airshow truly represents the centre of the aerospace industry and we are pleased to welcome the industry's key players from around the globe."

If the dollars don't stack up, **the exhibitors certainly do**. **There are 1,200 here** from all corners of the Globe and all sectors of the aerospace industry, while some **72,500 trade visitors** are expected during five business days. Nearly a third of exhibitors are from Europe and 40% from



UAS and SmallSat Weekly News

the Middle East, plus many from further afield. In addition, around 10% of exhibitors hail from the Americas.

New attraction this year are the feature pavilions and conferences: the Space Conference and Pavilion with speakers including Apollo 15 Command Module Pilot Col. Al Worden, [USAF-Ret](#); Cargo Zone, [the UAS Summit](#) and Airport Solutions which has been re-launched as part of the Airport Solutions Global Series. http://aviationweek.com/dubai-air-show-2017/dubai-airshow-just-gets-bigger?Issue=AW-021_20171111_AW-021_21&sfvc4enews=42&cl=article_4&utm_rid=CPEN1000003332045&utm_campaign=12541&utm_medium=email&elq2=8923f236610c4c5eaff095659fa024cb

12Nov17

Orbital ATK Rocket Launches NASA Cargo to Space Station in Spectacular Morning Liftoff Hanneke Weitering, Space.com Staff Writer | November 12, 2017

The commercial spaceflight company [Orbital ATK](#) successfully launched an Antares rocket today (Nov. 12), providing a Sunday morning spectacle for early birds along the U.S. east coast.

Topped with the International Space Station-bound [Cygnus cargo spacecraft](#), the 139-foot (42.5-meter) Antares rocket lifted off from NASA's Wallops Flight Facility in Wallops Island, Virginia at 7:19 a.m. EST (1219 GMT). About 9 minutes later, Cygnus was deployed in low-Earth orbit, where it will spend the next two days chasing after the International Space Station (ISS).



An Orbital ATK Antares rocket launches a Cygnus cargo ship carrying NASA cargo toward the International Space Station from NASA's Wallops Flight Facility on Wallops Island, Virginia on Nov. 12, 2017.

Packed with supplies and science experiments for the Expedition 53 astronauts, Cygnus is expected to arrive at the ISS Tuesday morning (Nov. 14) at 5:40 a.m. EST (1040 GMT). This 46-hour trip will be the shortest of any Cygnus cargo mission so far, Frank DeMauro, Frank DeMauro, Vice President and General Manager of Orbital ATK's Advanced Programs Division, said during the post-launch briefing. You can [watch the rendezvous and docking live here](#), courtesy of NASA TV.

European Space Agency astronaut Paolo Nespoli will use the Canadarm2 robotic arm to grapple the incoming cargo craft, which is about as big as a cargo van.



UAS and SmallSat Weekly News



Cygnus will deliver about 7,400 lbs. (3,500 kilograms) of food, water, clothing and science equipment to the six crewmembers currently aboard the ISS. About 1,900 lbs. (862 kg), or one-quarter of that cargo will be used for scientific research and technology

demonstrations, [including a cubesat filled with E. coli](#) that will study antibiotic resistance, a new laser-based communication system, and experiments that will investigate how plants and insects grow in microgravity.

Also aboard the Cygnus cargo ship are some care packages from the astronauts' family members, Orbital ATK officials said. The crew will also receive a special "cool box" filled with fresh fruits and vegetables — a rare treat for the crew, considering they mostly eat prepackaged and freeze-dried packets of special [space food](#) and occasional batches of [lettuce grown in space](#). <https://www.space.com/38751-orbital-atk-cygnus-space-station-cargo-launch-crs8.html>

Drones In The Wild 10/11/2017 [Frontier](#) International Non-Profit Volunteering NGO By Fran Collis



The popularity of these devices has nature lovers and outdoor purists worried, as visitor safety is as much of a concern as habitat conservation. It goes without saying that drones will cause noise pollution in quiet, secluded places, such as national parks. In addition, it is fairly easy for almost anyone to buy, and use a drone, meaning it is hard to monitor and regulate how drones are used and where.

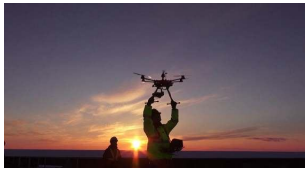


The potential of unmanned vehicles is not going unnoticed: these machines are being used to monitor migrating birds, spawning salmon and orangutans, map breeding habitats of endangered species, to deter poachers in Africa and much more. In Malaysia and Indonesia, the Orangutan Conservancy uses drones to count and map local primate populations, as the tropical jungles are so thick that it would take weeks (or even months) complete the research on foot. In addition, The World Wildlife Fund has plans to deploy remote controlled aircraft in Africa to find poachers before they strike.

So now, for the important part - **is all of this fair on the wild animals?**



UAS and SmallSat Weekly News



Most animal studies already require research permits, so there is no doubt that researches will need to abide by high standards for drones to have impact that improves. It should also be important that researchers have proper permits, and proper training, when using drones! In the hands of scientists, they could become powerful tools for understanding animal populations in crisis, but it is important that we are very careful about how we use them, as to not cause harm to wild animals and their habitats. It is a very thin line between right and wrong, but there is no doubt that this could be enormously beneficial to the conservation world. http://www.huffingtonpost.co.uk/-frontier/drones-in-the-wild_b_18511522.html

Glacier-mapping drone soars to nearly 5000 meters, **setting a record** David Malakoff Nov. 10, 2017

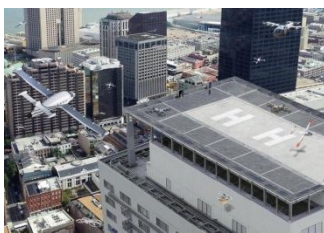
High in the Peruvian Andes, Oliver Wigmore has helped open a new scientific frontier: The earth scientist has flown a data-collecting drone to nearly 5000 meters, [the highest such flight ever reported in the scientific literature](#), he and colleague Bryan Mark report this week in *The Cyrosphere*. To understand how tropical glaciers are responding to climate change, Wigmore, now at the University of Colorado in Boulder, custom-built an ultralight six-rotor hexacopter designed to reach 6000 meters. Equipped with large propellers and high-speed motors, it can cope with the thin air, strong winds, and harsh conditions found at high altitudes—something that your typical out-of-the-box kit simply can't do. In the summers of 2014 and 2015, when Wigmore was at the Ohio State University in Columbus, he sent the drone soaring to 4900 meters above the steep valleys of the snowy Cordillera Blanca in Peru, where some 700 glaciers are a key source of water for the valleys below. The drones are also cheaper to use than traditional aircraft, and can reach areas that are inaccessible by foot. Wigmore, who is now using his drones to study snow, water and vegetation in the Rocky Mountains of North America, believes the craft will help scientists better understand how global warming is playing out in hard-to-reach regions. And he predicts his altitude record won't last long.

<http://www.sciencemag.org/news/2017/11/glacier-mapping-drone-soars-nearly-5000-meters-setting-record>

NASA Is Working On Making Drones A Part Of Every City NINA

GODLEWSKI @NINAGODLEWSKI ON 11/09/17

The agency's Aeronautics Research Mission Directorate is working on research and implementation of **Urban Air Mobility** for the coming years.



ea | Axcel Innovation | Charlottesville and Portsmouth, VA
ea@axcel.us | 757-309-5869 | www.axcelinnovation.com



UAS and SmallSat Weekly News

Not only is NASA working on developing these technologies as it has for the past six or so years, but it's also working to create more successful management of those technologies. Part of this was done through the UAS Traffic Management project that was started in 2015. The hope is that this research will allow smaller drones to fly low but also safely in an area of the sky that isn't typically regulated.

NASA's role in the research will be to provide technical expertise in certain areas of the somewhat uncharted field. These include community noise impacts, cyber security protections, autonomous vehicle certification and others. Amazon introduced drones to its delivery fleet with [Amazon Prime Air](#) and [Dominos made its first pizza delivery by drone](#) last year.

"We plan to conduct the research and development, and test the concepts and technologies that establish feasibility and help set the requirements. Those requirements then serve to make using autonomous vehicles, electric propulsion, and high density airspace operations in the urban environment safe, efficient and **economically viable**," [Jaiwon Shin, associate administrator for aeronautics at NASA said](#). <http://www.ibtimes.com/nasa-working-making-drones-part-every-city-2612830>

Drone Parachute Recovery System to Enable Safe Flights Over People Frank

Schrothorn: November 10, 2017



Today, Indemnis Inc., the Alaskan based company that is developing a parachute drone recovery system that is intended to enable safe, regulated commercial flight over people possible, **demonstrated 3 out of 3 successful drone recoveries**.

[ASTM International has created the F38 Committee](#) to facilitate discussion among manufacturers, industry leaders, consumers, and the FAA to ultimately create a standard for Operations Over People. The committee met at Virginia Tech November 7-9, 2017. Indemnis Inc. demonstrated the functionality of their system during the meetings.

The Nexus is a ballistic parachute launcher, deploying the parachute in under 30 milliseconds and inflating into a rigid state, moving the attachment point of the parachute away from the control surfaces of the drone and preventing entanglement during a failure. The system is designed to protect equipment and payload, as well as provide piece of mind to customers . The system is designed to meet and exceed the upcoming FAA regulations and work 100

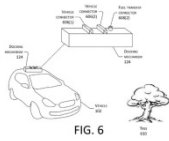


UAS and SmallSat Weekly News

percent of the time. <https://dronelife.com/2017/11/10/drone-parachute-recovery-system-to-enable-safe-flights-over-people/>

13Nov17

How to recharge an electric car in the middle of nowhere: Amazon drone? Sean Szymkowski Nov 10, 2017



Amazon patent for mobile drone electric car charging

The online retailer and technology company filed an application to patent a drone specifically built for electric-car charging when a charging station isn't nearby. In the event of low range, the car would request an Amazon drone for recharging via a server.



From there, the drone would identify a roof-mounted target and dock with the car to charge the battery pack while the car moves.

Following the charge, the drone would then lift off and return to a base to charge itself before another electric car requests its charging services.

Companies regularly move to patent processes and products with no intention to bring whatever the product or service is to market, so we may never see such a system come to life at all.



Most recently, Workhorse debuted its N-Gen plug-in hybrid delivery van for last-mile services. The electrified van comes equipped with its own FAA-approved drone to deliver parcels weighing up to 10 pounds within the driver's line of sight.

Today, package deliveries, but many tomorrows from now, maybe it will be electric-car charging. https://www.greencarreports.com/news/1113724_how-to-recharge-an-electric-car-in-the-middle-of-nowhere-amazon-drone

Antares rocket boosts cargo ship to orbit WILLIAM HARWOOD CBS NEWS November 12, 2017



An Orbital ATK Antares rocket climbs away from the Mid-Atlantic Regional Spaceport -- MARS -- at NASA's Wallops Island, Va., flight

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



UAS and SmallSat Weekly News

facility carrying 3.7 tons of supplies and equipment bound for the International Space Station.

A launch attempt on Saturday was aborted at the last minute when a small airplane strayed into the no-fly zone below the rocket's planned trajectory. Another short delay was ordered Sunday to make sure two boats approaching the restricted area stayed well clear at launch.

After that, it was clear sailing, and the 139-foot-tall booster -- trailing a brilliant jet of fiery exhaust -- quickly arced away to the southeast, knifing through low clouds as it climbed directly into the plane of the space station's orbit.

Loaded with nearly 7,400 pounds of equipment and supplies, the spacecraft is expected to reach the station early Tuesday, pulling up to within about 30 feet of the lab complex and then standing by while Italian astronaut Paolo Nespoli, operating the station's robot arm, locks on to a grapple fixture.

From there, flight controllers at the Johnson Space Center in Houston will take over arm operations, pulling the Cygnus in for berthing at the Earth-facing port of the station's central Unity module. The astronauts will begin unloading the spacecraft the next day.

<https://www.cbsnews.com/news/antares-rocket-boosts-cargo-ship-to-orbit/>

Transport Canada OKs Drone Operator to Fly Commercially Without Prior Notification

S.L. Fuller | November 10, 2017



Quebec-based land survey firm Arpentage Parleciel has become the **first recipient** of a compliant operator special flight operations certificate (SFOC) for its unmanned aircraft system (UAS) operations. This means that the company no longer has to notify Transport Canada before flying in most parts of the Canadian province.

To receive the certification, Arpentage Parleciel had to prove its compliance on three major criteria: the vehicle, pilot qualifications, and manuals and procedures. The company chose to certify is the Infinitejib Surveyor 630 — a drone designed for technical data acquisition.

“Unlike recent incidents involving [UAS] being flown dangerously close to manned aircraft,” Spectral Aviation said, “it is encouraging to see companies increasingly concerned about their safe integration to the Canadian airspace and, while aiming for compliancy, being granted more operational freedom by Transport Canada.” <http://www.aviationtoday.com/2017/11/10/transport-canada-ok-drone-operator-fly-commercially-without-prior-notification/>



UAS and SmallSat Weekly News

Myanmar sentences reporters to jail for flying drone Associated Press November 10



Malaysian journalist Mok Choy Lin is held behind bars during her first court appearance for allegedly flying drones illegally over parliament buildings Friday, Nov. 10, 2017, in Naypyitaw, Myanmar.

YANGON, Myanmar — A court in Myanmar sentenced two foreign journalists to two months in prison on Friday for **illegally flying a drone over parliament**.

Lau Hon Meng, a Singaporean, and Mok Choy Lin, a Malaysian, were on assignment for Turkish Radio and Television when they were detained on Oct. 27 in the capital, Naypyitaw. Their local interpreter, Aung Naing Soe, and their driver, Hla Tin, were also sentenced to two months in jail for the incident. A lawyer for the interpreter and the driver said they should have been freed because they did not own or operate the drone.

A state-run newspaper had previously reported the journalists intended to take photos of parliament buildings and pagodas in Naypyitaw when security guards spotted them.

https://www.washingtonpost.com/world/asia_pacific/myanmar-hearing-held-for-reporters-charged-with-flying-drone/2017/11/10/1ca744dc-c5e4-11e7-9922-4151f5ca6168_story.html?utm_term=.008c6c891c54

The company photographing every spot of land on earth, every single day Tim

Fernholz, Space Business November 11, 2017



Tesla investors could track daily activity at Elon Musk's Nevada Gigafactory—from space! (Planet)

Planet, the American satellite company, is [now snapping a picture](#) of every part of earth's landmass every single day.

Analyzing the imagery over time promises to unlock critical information about the economy and the environment for Planet's customers, which range from investors to activists. It's also a milestone in humanity's ongoing efforts to understand the planet it calls home.

Last year, Planet said it was photographing [a third of the world's land](#) each day. In February of this year it launched [88 satellites on an Indian rocket](#), and last week it launched 10 more satellites on an Orbital ATK rocket from California. Most of the images they take are at a resolution of three meters (10 feet) per pixel. By taking images daily, the company can track



UAS and SmallSat Weekly News

changes in the physical world, like how quickly the temporary city of [Burning Man rises out of the desert](#).

Planet's imagery can track the [effects of sudden events like Hurricane Harvey](#) or long-term problems [like California's drought](#), among many other applications.

Planet is seven years old and launched its first satellites only in 2013, but it now has more commercial satellites in orbit than any other: **182 of its Dove satellites**, each of which weighs 5 kg (11 lb), **plus 18 larger satellites** that it acquired by buying two other earth-imaging companies. Space market observers like Hoyt Davidson, who runs Near Earth LLC, a boutique, space-focused investment bank, tend to see Planet as the likeliest of a new generation of space companies to **list on stock exchanges**. <https://qz.com/1126301/the-company-photographing-every-spot-of-land-on-earth-every-single-day/>

14Nov17

Airbus will test its Vahana electric 'flying car' by the end of 2017 Andrew J. Hawkins
The Verge

The European aerospace giant has said it wants to build a fleet of electric, autonomous, multirotor VTOL aircraft that can be used to fly from rooftop to rooftop in dense cities where traffic is often at a standstill.



[Airbus](#) is making progress on its new electric-powered vertical take-off and landing aircraft — colloquially ([and incorrectly](#)) known as a "flying car."

Airbus has said it wants to build a fleet of electric, autonomous, multirotor VTOL aircraft that can be used to fly from rooftop to rooftop in dense cities where traffic is often at a standstill. [The project launched in early 2016](#) as one of the first pursuits of [A³](#) its Silicon Valley subsidiary. Since then, the company has reported regular updates, including [a concept video](#) of the user experience.

In its post, the company says that a full-scale demonstrator is currently under production, with the goal of taking flight by the end of the year. The prototype was recently moved from California to a new flight test center in Pendleton, Oregon, where it will conduct its first demonstration. [A³](#) has said it plans to have a production-ready version by 2020.



UAS and SmallSat Weekly News

<https://www.cnbc.com/2017/11/13/airbus-will-test-its-vahana-electric-flying-car-by-the-end-of-2017.html>

Delivering medical supplies into the remote Amazon is a big challenge, but drones could help Christina Farr | @chrissyfarr



Delivering medical supplies into the heart of the Amazonian rainforest is no easy feat. So a group within [BD](#), a medical technology manufacturer, is testing whether drones will do the trick.

The company worked with [WeRobotics](#), an international NGO that promotes the use of drones for social good around the world, and UAV del Peru, a local affiliate. for its first set of field tests. At the [Exponential Medicine](#) conference in San Diego, California, last week, the groups showed off their solution, which includes a special pouch for diagnostic tests, blood collection kits and other supplies, that fits neatly into the drone.

Juan Bergelund, a manager of UAV del Peru, said the drones are designed to land in soccer fields. And that the company is training locals on the ground about the technology, so they understand how to work and use it. It's still early days for the technology, which isn't as accurate and precise as it needs to be. But both BD and UAV del Peru see major potential to use drones to **deliver potentially life-saving supplies in the most remote parts of the world.**

<https://www.cnbc.com/2017/11/13/werobotics-testing-drone-medical-supply-delivery-in-amazon-rain-forest.html>

New Electric Delivery Van Solution Features Integrated Drone 08 Nov 2017 | Caroline Rees



[Workhorse Group](#), a provider of electric mobility solutions to the commercial transportation sector, has announced that it has commenced implementation of agreements to test and operate its new N-Gen electric van, which features an optional integrated HorseFly Unmanned Aerial Vehicle (UAV) Package Delivery System

The carbon-fiber, high-efficiency octocopter Horsefly drone launches from the roof of the delivery van and delivers a package to its destination within the driver's line of sight. The patent-pending truck and drone HorseFly system is compliant with all current FAA regulations, and can carry a package weighing up to 10 pounds with a cost of approximately \$.03 per mile.



UAS and SmallSat Weekly News

"The new N-Gen platform represents a new day for last-mile delivery," said Stephen Burns, CEO of Workhorse. "With agreements now in place to test and operate N-Gen vehicles in several cities across the United States, Workhorse continues to be on the front edge of transformative innovation in the commercial transportation sector."

http://www.unmannedsystemstechnology.com/2017/11/new-electric-delivery-van-solution-features-integrated-drone/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=b0c0c08cb8-eBrief_2017_7_Nov_11_3_2017&utm_medium=email&utm_term=0_6fc3c01e8d-b0c0c08cb8-119747501

15Nov17

First operational MQ-4C Triton drone delivered to U.S. Navy James LaPorta | Nov. 13, 2017



Nov. 13 (UPI) -- Northrop Grumman delivered the first operational MQ-4C Triton aircraft to the U.S. Navy facility at Point Mugu, the company said in a press statement on Friday.

"This aircraft represents the beginning of a new era for Naval aviation," said Doug Shaffer, vice president, Triton programs, Northrop Grumman. "Triton is a high-altitude, long-endurance unmanned system that delivers a critical autonomous capability to the Navy, expanding the service's maritime patrol mission. We are proud to be a part of this historic program."

It has a range of over 9,000 miles and can stay aloft for over 24 hours before refueling. The Triton mounts maritime radar, electro-optical and infrared cameras, communications relays and electronic support measures systems. <https://www.upi.com/Defense-News/2017/11/13/First-operational-MQ-4C-Triton-drone-delivered-to-US-Navy/1691510588117/>

TEAMS OF "SWARM SYSTEMS INTEGRATORS" TO DEVELOP UAS SWARM INFRASTRUCTURE FOR US MILITARY AUVSI NEWS NOV 9, 2017



UAS and SmallSat Weekly News

In an effort to help the U.S. military in urban combat, two teams of “swarm systems integrators” will look to develop a UAS swarm infrastructure, using funding from a multi-million-dollar contract that is part of the Defense Advanced Research Project Agency’s (DARPA) **Offensive Swarm-Enabled Tactics** (OFFSET) program.

The two teams will be responsible for developing the system infrastructure and integrating the work of the “sprint” teams, which will focus on swarm tactics, swarm autonomy, human-swarm teaming, physical experimentation and virtual environments.

Julie A. Adams of OSU’s College of Engineering is a member of the team led by Raytheon BBN, and she is the only university-based principal investigator on either team.

“I specifically will work on **swarm interaction grammar** – how we take things like flanking or establishing a perimeter and create a system of translations that will allow someone to use those tactics,” **Adams explains**. “We want to be able to identify algorithms to go with the tactics and tie those things together, and also identify how operators interact with the use of a particular tactic. We want to make the interaction immersive and more understandable for humans and enable them to interact with the swarm.”

Researchers envision swarms of **more than 250 autonomous vehicles that can work together** to gather information and help troops in “concrete canyon” surroundings, where buildings impair line-of-sight, satellite-based communication. Those vehicles would include multi-rotor UAS and ground rovers. <http://www.auvsi.org/industry-news/teams-swarm-systems-integrators-develop-uas-swarm-infrastructure-us-military>

NO MORE WESTCLOX FIRES FOR US Tom Collins, Nov 13, 2017

Fire chiefs use drones to pre-plan for the next big fire



Did you see a drone passing overhead? Don’t worry: The drone isn’t spying on you — it’s collecting information to prevent the next Westclox fire.

Jason Marvel, owner of a Streator company that uses drones to collect fire data from buildings, points to an aerial photo taken on First Street in La Salle. The aerial images captured by drones can help firefighters determine air flow, hydrant locations, elevations and pitch in case a structure fire were to occur.



UAS and SmallSat Weekly News

This project is to scout out workshops filled with heavy machinery and warehouses with stored petrochemicals. The chiefs call these "targeted structures" and the plan is to map them out from the air. Drones will survey rooftops and show where the ceiling is about to cave in. Drones will peep into windows and zoom in to serial numbers etched onto HVAC systems. Drones will scan a room and automatically calculate the volume of air inside and the gallons of water needed to douse a fire inside. http://www.newstrib.com/free/fire-chiefs-use-drones-to-pre-plan-for-the-next/article_ef3ad352-c880-11e7-abf1-07f81b2c1f1a.html

Can these drones save elephants from extinction? Tom Metcalfe / Nov.14.2017

Poachers kill tens of thousands of elephants a year, but now drones are helping to stop the carnage.



African elephants are in trouble. Each year, [tens of thousands of the enormous beasts are killed](#) for their tusks, and conservationists fear they are on the road to extinction. But now, aerial drones, which first proved their value decades ago on military battlefields, are proving to be a key player in the ongoing battle against poachers.

For the past four years, anti-poaching "Bathawk" drones have been flying over national parks and game reserves in South Africa, Malawi, and Zimbabwe. Next month, they'll begin flying in Botswana as part of an [anti-poaching campaign](#) there. The drones, made by the South African company UAV Drone Solutions, **can stay aloft for two-and-a-half hours** while relaying live video from their onboard cameras to ground-based **crews up to 15 miles away**.



According to Air Shepherd, an elephant is killed by poachers in Africa every 14 minutes.

In the parks and reserves where the drones operate, elephant and rhino poaching has fallen significantly or stopped altogether, according to UDS co-founder Otto Werdmuller Von Elgg. He says drones are particularly effective at spotting poachers at night, when anti-poaching teams in helicopters are grounded.

Serge Wich, a UK-based ecologist, uses drones to survey orangutan populations on the Indonesian island of Sumatra. Drones have also been used to spot river dolphins in the Amazon and whales in the Southeast Asian nation of Timor-Leste; to take a census of chimpanzees in Tanzania; and to map illegal logging in Indonesian rainforests.



UAS and SmallSat Weekly News

Ecologist Lian Pin Koh, the other co-founder of Conservation Drones, uses drones in Australia to survey koalas at night, when their warm bodies show up vividly against the cooler tree



foliage. Drones are also being used to monitor the health of whales. In 2015, the Woods Hole Oceanographic Institution and the National Oceanic and Atmospheric Administration flew drones over humpback whales in Patagonia and Cape Cod to take samples of the moist breath that whales exhale when

they surface.

Using drones for surveillance applications like anti-poaching remains “difficult and challenging,” Koh says. In part, that’s because of the high cost of drones that are capable of staying in the air long enough to cover the vast areas of national parks and game reserves. It costs about \$20,000 to keep an anti-poaching drone crew in the field for one month, which includes accommodation and salaries as well as the cost of the drones and the support vehicle.

<https://www.nbcnews.com/mach/science/can-these-drones-save-elephants-extinction-ncna820441>

Drone Ranger: Southern Farmer Ditches Dog, Utilises Drone To Herd His Sheep

Charley Ward @charl3yward November 15, 2017



Forget about recording scenic footage of the country’s beautiful, rugged terrain: when it comes to utilising the power of drones, Icelanders are all about work rather than play. Perhaps inspired by the drones working tirelessly to [bring the nation fresh, hot pizzas](#), a farmer from the Bárðardalur valley in South Píngeyjarsýsla has invested in his own little robot friend to help round up his sheep in the evening, [Visir reports](#).

Ólafur Ólafsson, who works on the Bjarnastaðir farm, says the bold new technological venture **has saved him a lot of money in labour costs**. With its 30-minute battery life and seven kilometre range, encouraging the sheep along the path with the drone means Ólafur can chill out and relax back at the farm while watching the sheep make their way home via the video screen. It’s not all fun and games though, and Ólafur admits there is one slight problem: unlike your average [Icelandic sheepdog](#), the drone does not bark.

Despite its lack of woofs, the drone shepherd still appears to be doing a good job. Ólafur says he only bought the drone this Autumn, but it’s already proven itself as a faithful and effective friend in rounding up the sheep across wide ranging areas of farmland. If any especially fearless animal tries to make a break for the rolling hills, there’s now no need for some poor labourer to leg it after it, the drone can simply buzz backwards and bring it back in line, effortlessly.



UAS and SmallSat Weekly News

<https://grapevine.is/news/2017/11/15/drone-ranger-southern-farmer-ditches-dog-utilises-drone-to-herd-his-sheep/>

16Nov17

NASA Heads to the Arctic To Design Drones That Can Fly on Mars David Grossman

November 15

The Red Planet's thin atmosphere will make drone flight a unique challenge.



Several private organizations and non-profits have announced a partnership with NASA towards the research and development of drones on Mars. Now, their headed to the Arctic to explore the unique engineering challenge of designing a copter for a planet

such a **thin atmosphere**.

The Mars Institute, the SETI Institute, and FYBR Solutions Inc. will be working with NASA at one of the most Mars-like places on Earth, Devon Island in Canadian Arctic. The Haughton impact crater, formed on Devon Island around 39 million years ago, is widely seen as the best Mars analog on the planet, and the NASA Haughton Mars Project (HMP) will take advantage of the new partnerships to maximize their workloads.

One difference between Devon Island and Mars: atmosphere. Devon Island is still on Earth, which has an atmosphere positively luxurious compared to the Red Planet's. But still, Mars does have enough of an atmosphere to allow for flight at altitudes of approximately 100,000 feet (30 km). The upcoming Mars 2020 mission, for example, [might feature](#) a robotic helicopter scout system with gigantic propellers to help counteract the thinness of the atmosphere.

<http://www.popularmechanics.com/space/moon-mars/a13627476/nasa-heads-to-the-arctic-to-design-drones-that-can-fly-on-mars/>

Anti-Drone Ray Guns Supported by Australian Politician Marco Margaritoff, November

16, 207 *One politician sees anti-drone guns as a way to fight terrorism and crime, and address national security concerns.*



Queensland, Australia's Liberal National Party leader Tim Nicholls said on television that he's eager to **implement anti-drone guns into the police force** to combat crime and terrorism. [According to DroneLife](#), Nicholls' statements were aired by three major Australian TV networks on Tuesday, including his calling the anti-UAV



UAS and SmallSat Weekly News

technology a “raygun.”

[DroneLife](#) reports that this political coverage is the result of Queensland’s upcoming State General Election on Nov. 25. As in the United States, terrorism, security, and crime are major campaign issues, and Nicholls presumably thinks an anti-drone gun policy could win him favor and distinction vs. the other candidates.

[According to DroneLife](#), a Grandview Research report from 2016 predicts the anti-drone market to reach \$1.85 billion by 2024. We may start seeing a lot more politicians clamor for anti-drone gun funding in their districts, as the market expands and the aforementioned national concerns prevail. <http://www.thedrive.com/aerial/16138/anti-drone-ray-guns-supported-by-australian-politician>

Meet the Traffic Cops of the Future: The Sky Guys Win Grant to Develop AI Drones for Traffic Enforcement

Miriam McNabbon: November 10, 2017



The Sky Guys DX-3 Drone

You may not be able to talk yourself out of a traffic ticket when the enforcement officer is a drone.

Canadian drone technology leaders [The Sky Guys](#) are part of a team **that has been awarded \$750,000** to develop an AI drone to monitor highways in Ontario. The award was granted by the Ontario Centres of Excellence (OCE), as part of the Small Business Innovation Challenge (SBIC).

The “Long-Range AI-Enabled Unmanned Aerial System for Highway Traffic Enforcement with Future Road Applications,” project will develop over the next two years. The team will develop an AI-equipped drone solution for traffic enforcement beginning with **monitoring** high occupancy vehicle (**HOV lanes**) and high occupancy toll (**HOT lanes**). It’s an application that makes sense, fitting in with many of the current applications for law enforcement drones – and one that we can see spreading well beyond the Canadian use case.

<https://dronelife.com/2017/11/10/meet-traffic-cops-future-sky-guys-win-grant-develop-ai-drones-traffic-enforcement/>

CTIA Seeks to Have Wireless Networks Be Standard Communications Platform for Drones

Frank Schroth: November 13, 2017



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



UAS and SmallSat Weekly News

CTIA, the wireless association, today called on the Federal Aviation Administration (FAA) to recognize that commercial wireless networks offer the best communications platform to support America's fast-growing drone market. CTIA and the wireless industry are working with policymakers to boost investment, innovation and jobs by creating a national framework for FAA management of U.S. drone airspace.

[CTIA's call comes](#) as the FAA looks to establish the first federal rules governing how drones should communicate with each other and the surrounding environment. The FAA is expected to open a formal rule-making process in early 2018 to address which spectrum platform would best serve unmanned aviation services (UAS) communications. Unlike other approaches, commercial wireless networks offer the best availability, reliability, and security for the drone industry to thrive.

"Commercial drones will help industries from energy to agriculture and logistics while enhancing public safety, but they will need the wireless industry's networks to reach their full potential," said Meredith Attwell Baker, CTIA President and CEO.

<https://dronelife.com/2017/11/13/ctia-seeks-wireless-networks-standard-communications-platform-drones/>

17Nov17

FAA chief urges collaboration to weigh risks and keep pace with technological innovation Bart Jansen, USA TODAY Nov. 14, 2017



The head of the Federal Aviation Administration said Tuesday that **government must move faster** while regulating safety risks in order to keep pace with technological innovations.

FAA Administrator Michael Huerta, whose term is ending, said the skies are about to become home to a multitude of new users including remote-controlled aircraft and the prospect of commercial rockets carrying people from the U.S. to Asia in minutes. Uber announced last week its partnership with NASA to develop traffic systems for flying cars.

"The industry has a new need for speed," Huerta told about 400 people at the Aero Club of Washington, where he received a standing ovation. "And as a regulator, the FAA can't afford to



UAS and SmallSat Weekly News

move at the traditional pace of government. We'll get left behind at the launch pad, wondering what just happened."

Before that, Huerta stressed the importance of airlines, airports, pilots including those in general aviation and manufacturers to collaborate with government officials. He cited the importance of advisory committees to develop a consensus for how the government should regulate such contentious issues such as **drones** and air-traffic control technology.

Huerta's advice to whoever succeeds him at FAA is to listen to competing views on contentious issues such as the **expansion of commercial drones** or the proposed move of air-traffic control from the FAA to a private corporation. The Transportation Department recently invited local governments to work with industry partners to develop at least five experimental programs to explore flying more over people, farther than the pilot can see and at night.

Huerta noted the various interests. While a small-business owner could view a drone as an opportunity, an airport manager might want to keep the aircraft out of its space. Airline executives want to avoid flight disruptions and general-aviation pilots just want to fly with minimal hassle.

"Our aviation family is only going to keep expanding. Our table has to grow with it," Huerta said. "We need to hear from a broad range of voices if we're going to get things right."
<https://www.usatoday.com/story/news/2017/11/14/faa-chief-urges-collaboration-weigh-risks-and-keep-pace-technological-innovation/863504001/>