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First Ever Cargo Drone Deliveries in Amazon Rainforest

The Amazon is home to thousands of local indigenous communities spread across very remote areas. As a result, these sparsely populated communities rarely have reliable access to essential medicines and public health services. For example, local doctors in the region report an average of 45 snakebites per month and no rapid access to antivenom. We recently traveled to the rain-forest to learn more about these challenges, and to explore whether cargo drones (UAVs) could realistically be used to overcome some of them in a sustainable manner. We're excited to share that our cargo drone flights in the Amazon were a big success!

This unique and successful pilot project was a big team effort including our Peru Flying Labs Coordinator Juan Bergelund, UAV del Peru, and the Peruvian Ministry of Health, along with some of Peru's leading public health experts. We carried out both day and night autonomous flights between local health hub Contamana and the remote village of Pampa Hermosa around 40 kilometers away. The drones delivered life-saving antivenom as well as blood samples. The flights took around 35 minutes compared to traditional riverboat transportation, which can take up to 6 hours.

We have already been asked by multiple local authorities in the region to carry out additional flights in coming months. These flights will test the aerial delivery of medical supplies across 100+ kilometers. A detailed review of our recent flight tests will be released in early January along with high definition pictures and videos. Our Peru Flying Labs will also be working on this Zika reduction project in Peru using cargo drones. For media inquiries, please contact Dr. Patrick Meier (patrick@werobotics) and Juan Bergelund (juan@werobotics). Ministry of Health officials and other partners are also available for interviews.

<http://werobotics.org/blog/2016/12/21/first-ever-cargo-drone-deliveries-in-amazon-rainforest/>

Ten new drone inventions you must see

<https://www.youtube.com/watch?v=f1E9jtE1aAk> Impressive variety! Also stay for the following episode on people-carrying drones.

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GRIFF Aviation Announces New GRIFF 300 Heavy Lifting Drone

Published: 21 Dec 2016

GRIFF Aviation has launched its new GRIFF 300 drone. The GRIFF 300 is an unmanned aircraft with fully customisable payload options that make it suitable for a variety of professional applications, from Law Enforcement to Search And Rescue operations. GRIFF Aviation claims that the GRIFF 300 is the first drone on sale to the civilian professional market that has been certified by both the EASA (European Aviation Safety Agency) and the FAA (Federal Aviation Administration).

The official launch of the GRIFF 300 saw Norwegian state television, customers, partners and the public watch the culmination of more than two years' work. Mr Holand explained before the event: "We have worked around the clock for two years on this project, and now we are finally ready to launch and demonstrate the GRIFF 300. But this is just the first in a series. The next model that will be produced will be able to lift 800kg (1,764lbs). Then we will continue to increase lifting capacity even further."

GRIFF Aviation has its roots in film company Magic Air, the only full-time aerial film crew in Norway. They wanted to build a drone that would set the company truly apart from the competition internationally. However, during development, it soon became clear that the potential uses of such a drone would have a host of uses outside of the film industry. <http://www.unmannedsystemstechnology.com/2016/12/griff-aviation-announces-new-griff-300-heavy-lifting-drone/>

Leonardo-Finmeccanica Begins SW-4 Solo Remotely Piloted Helicopter Testing

Published: 19 Dec 2016

Leonardo-Finmeccanica has announced that it has begun flight testing of its remotely piloted helicopter SW-4 Solo at Taranto-Grottaglie Airport. The test campaign aims to verify the aircraft's operational characteristics and validate flight procedures, in both normal and emergency conditions.

The tests form part of a collaboration started in 2015 between Leonardo, Aeroporti di Puglia (AdP) and the Distretto Tecnologico Aerospaziale Pugliese (DTA) known as the "Grottaglie Test Bed," which is a candidate to become the Italian solution to the national and European industry demand for the testing of unmanned aircraft. The flight campaign, carried out in collaboration with the DTA and Ente Nazionale Aviazione Civile (ENAC, the Italian Civil Aviation Authority), will continue during the first few months of 2017. The validation of procedures and regulations for the use of unmanned aircraft are among its key objectives.

The Solo, derived from the SW-4 helicopter produced by Leonardo in Poland and equipped with advanced systems and sensors also made by the company in Italy and the UK, is designed to operate with or without a pilot on board. The Solo recently returned from a successful demonstration campaign in the UK. The aircraft is designed for activities such as hydrological and critical infrastructure monitoring, firefighting, search and rescue, patrol, and disaster relief. The GRIFF 300 series of aircraft can lift 225kg (496lbs) in addition to its own 75kg (165lbs) weight. It features a flight time of 30-45mins, depending on payload.

<http://www.unmannedsystemstechnology.com/2016/12/leonardo-finmeccanica-begins-sw-4-solo-remotely-piloted-helicopter-testing/>

PrecisionHawk Releases Pathfinder UAS Research Phase 2 Results

Published: 16 Dec 2016

PrecisionHawk has released its Phase 2 Pathfinder results as part of UAS TAAC (Unmanned Aircraft Systems Technical Analysis and Applications Center) in Santa Fe, New Mexico. The Pathfinder program is an FAA-led initiative to facilitate the early introduction of low-altitude operations for small unmanned aircraft systems (UAS) into the National Airspace System. The Phase 2 report identifies the operational risk associated with visual detection of an incoming aircraft and the ability to make a safety decision while operating a drone beyond visual line of sight (BVLOS). The report concludes that due to human variation, **technology assist is critical to make the safety case for BVLOS flight.**

"While we believed that technology would be useful for flying BVLOS, we needed a quantitative answer as to whether it would simply make the user's life easier or it actually impacted the safety of the operation," said Dr. Allison Ferguson, Director of Airspace Research at PrecisionHawk. "The FAA needs a clear understanding of the risks associated with advanced drone operations, and this testing sets a visual baseline to measure the level of safety as we add enabling technologies."

Phase 2 testing took place in North Carolina and Kansas with a large group of both FAA-certified pilots and non-pilots who were asked to make decisions while flying a drone beyond line of sight. When a manned aircraft was introduced into the airspace, participants were asked to both detect the intruder and choose from a series of actions to avoid a potential collision. The research measured a wide variety of environmental and human factors that could impact both the detection and decision-making process including light, weather, visual obstructions, participant hearing and visual acuity. Participants were also asked a series of questions before, during and after the field operation to evaluate qualitative factors such as stress, boredom and fatigue.

Analysis of the collected data shows that pilots were generally able to detect an intruding aircraft from further away than a non-pilot. In contrast, the decision making process of both groups, as measured by their reaction times and collision avoidance choices, was nearly the same. In the majority of cases, the participants made a choice to lower the aircraft to loiter at its existing location as opposed to returning the drone home to either land or loiter.

"A key takeaway of Phase 2 is that there is always going to be variation when we rely exclusively on unassisted human ability to mitigate risk," said Dr. Ferguson. "Situational awareness technology can help make that operation more consistent over more of the population, which in turn makes any risk prediction easier and more realistic."

"It's not about taking humans out of the loop. It's about letting technology do what it is designed to do, freeing up humans to do what humans are good at, like flexible decision-making." PrecisionHawk's Pathfinder Phase 1 report outlined the boundaries and conditions of Extended Visual Line of Sight (EVLLOS) operations for a solo pilot in

command. Phase 3 testing, which will evaluate technologies that can be used to enhance safety, including the LATAS drone safety platform, is set to begin in January 2017.
<http://www.unmannedsystemstechnology.com/2016/12/precisionhawk-releases-pathfinder-uas-research-phase-2-results/>

Student research takes flight with Virginia Drones Project

Posted: Tuesday, December 27, 2016 10:30 pm. KARIN KAPSIDELIS Richmond Times-Dispatch

James Madison University senior Dustin Hux will head to Colombia in January to fly a drone — not for fun but for research. Hux and his JMU teammates have equipped the drone to photograph a portion of the historic walls of Cartagena to create a 3-D model that will aid in a preservation study.

Stephanie Lugbill's team spent the fall semester working on a drone with a different mission — to determine if bees create microclimates that might contribute to the spread of diseases that threaten them. "I thought it was a cool idea using drones to help the environment," said Lugbill, a senior from Henrico County.

The students' work is part of the **Virginia Drones Project**, which has brought together **eight cross-disciplinary teams from three universities to outfit drones to study a variety of global problems**. A team from George Mason University also is working on the plight of honeybees by tracking movement and temperature for data to predict colony collapse disorder. The third team, also from JMU, is working on how drones can be used to detect and detonate land mines.

Four Old Dominion University teams are studying tidal flooding near their Norfolk campus; ways to improve response times for fire and sea rescue teams; and how to restore telecommunications for first responders in post-hurricane areas.

The drones project is sponsored by 4-VA, a statewide initiative that promotes collaboration among Virginia universities. http://www.richmond.com/news/article_bb41a97e-eb2e-54d9-8454-8566083f0131.html

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Somebody Flew a Drone Into a Fireworks Display and This Is What Happened

Justin Worland @justinworland July 4, 2014

Have you ever wondered what it would be like to fly through a fireworks display?

This video, shot from a drone with an on-board camera, shows exactly what that looks like. It's footage nothing short of incredible. <http://time.com/2957348/fireworks-drone/>

Alaska, Reliant on Air Transit, Faces Pilot Shortage. Are Drones an Answer?

By KIRK JOHNSONDEC. 29, 2016

Those hazards, on top of a worsening pilot shortage, are making some researchers and entrepreneurs see opportunity for pilotless drone aircraft to fill the gap, especially for work that pilots refer to as "the three d's": flying jobs that are dirty, dull or dangerous.

The University of Alaska's Center for Unmanned Aircraft Systems Integration, one of six federal drone research centers, is testing aircraft in arctic conditions, and flying unmanned craft hundreds of miles out over Arctic waters. Oil companies are starting to deploy drones to patrol pipelines for leaks or other damage.

Mr. Gallagher, center, with colleagues at Warbelow's Air. He plans to leave for a job in Colorado. "There are great opportunities for guys like me," he said. Researchers and pilots say they see a time — sooner or later, depending on when federal safety regulation might allow it — when mail, medicine or groceries might be delivered to remote villages by drone.

"Is it technologically feasible to do it right now? The answer is yes," said Nickolas D. Macchiarella, a professor of aeronautical science at Embry-Riddle Aeronautical University in Daytona Beach, Fla. "And one of the first places it could occur is Alaska." Ben Kellie, 30, founded a drone company in Anchorage last year, K2 Dronotics with Nick, 27, his brother. Their father, Mike Kellie, was a swashbuckling bush pilot of the old school, they said, who arrived in

Alaska with a duffel bag and \$500 to his name, wanting only to fly. Drones, said Ben Kellie, the company's chief executive and chief engineer, are the future, and are less likely to produce injuries or harm if they crash. <http://www.nytimes.com/2016/12/29/us/alaska-pilot-shortage.html?smprod=nytcore-ipad&smid=nytcore-ipad-share&r=0>

Drone Christmas Trees Are the Future

Why would you not want a tree you can fly around?

By Avery Thompson Dec 22, 2016

Christmas is here, but so is the future. We've got both Christmas trees and drones, so why not combine them both into an awesome and terrifying display of festive aeronautics? Youtubers FliteTest thought so, and attached four propellers to their tree and launched it into the sky. While their drone may not be the fastest or most acrobatic, it certainly tops the list in Christmas cheer.

Santa had better watch out on Christmas Eve, because now he's competing for airspace:

<http://www.popularmechanics.com/flight/drones/a24481/drone-christmas-tree/>

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2016 Trends: An Amazing Year for Commercial Drones

Industry Insights from Hendrik Boedecker and Colin Snow

By Darr Gerscovich, former SVP Marketing, DroneDeploy

2016 was a huge year in the evolution of the commercial drone industry. Significant advances in drone hardware, software and regulation opened the door to increased adoption. We saw businesses, particularly within agriculture and construction, begin moving from early experimentation to formal programs integrating drone data into their workflows. And even people outside of the commercial drone industry began to take notice when industry analysts, such as PwC, projected a drone economy in 2020 of \$127B. To better understand the major commercial drone market trends that emerged in 2016, I asked industry watchers Hendrik Boedecker, founder and CFO of Drone Industry Insights, and Colin Snow, founder and CEO of Skylogic Research to share their top insights.

What was the biggest change you observed in the industry in 2016?

Hendrik: The increased importance of data within drone operations stands out for me in 2016. The full data value-chain (acquisition, processing, analysis and action) came to the forefront. As end-to-end commercial drone solutions became more prevalent in the marketplace, they enabled data to take a central role within commercial drone operations.

Colin: The biggest news of the year is that the FAA Part 107 regulations are now in place, and they're not as onerous as they could have been. In the U.S., there is now a strong base for an industry and regulatory framework upon which to grow. The uncertainty is over, and businesses can begin offering drone services. I think that's exciting and it has also opened the door to competition. Many think it's a race to the bottom on prices for drone-based business services—and that's true in part—but the other side of the coin is there is now more healthy competition, which will deliver increased customer benefits.

Did anything else catch your attention?

Hendrik: After the regulatory environment stabilized there was a big uptick in mergers and acquisitions, and a change in investment strategies. More acquisition activities focused on consolidation and integration, and we anticipate that this trend will soon outpace venture capital investments in the space. It is also notable that the US investment activities moved from primarily in China to Europe.

Colin: I agree, there were a lot of investments, mergers and partnerships. The major movers in this space were DJI, Intel, Parrot and Airware. Throughout 2016, DJI announced partnerships with at least 14 companies including Epson, Ford, Leica, Lufthansa and Measure. Intel got in the drone space this past year in a big way by acquiring drone manufacturer Ascending Technologies, as well as visual sensing company Movidius and drone software startup Mavinci. Parrot continued with their past strategy of making minority investments, including BioCarbon Engineering Ltd., a UK a drone-based reforestation company, Planck Aerosystems Inc., a US drone-based surveillance solutions for the Navy, and Nano Racing S.A.S., a French company developing small-scale racing drones. Lastly, in September Airware acquired Redbird with the intent of building a full-stack drone services company.\

Was there anything that didn't live up to the hype?

Colin: I think virtual reality (VR) and augmented reality (AR) for drones was all hype this year. The manufactures of VR and AR glasses made a lot of noise, so I expected to see a case study showing how someone was using VR/AR with data from commercial drones, but it just didn't happen.

https://blog.dronedeploy.com/2016-trends-an-amazing-year-for-commercial-drones-f4cf400237fa?_hsenc=p2ANqtz-9VvdbsihP-igPD3iPSYLCANAQMG5Z4ZxZG-lx5yzq8--MTPucnSi3m4F10GAuOUyzMp-dVMwysm_7TufK58hOWoxbzpgintYpFLSgzwpL-Jsxp4&_hsmi=39821174#.vg7r2c9qn