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USMC Considers Manned-Unmanned Teaming For Expeditionary Missions.

[FlightGlobal](#) (12/9) reported that the US Marine Corps Air Ground Task Force – Unmanned Expeditionary Capabilities (MUX) is considering manned-unmanned teaming with the FVL-medium lift aircraft, in order to end reliance “on the US Air Force’s fleet of MQ-9 Reapers and MQ-1 Predators for expeditionary missions.” USMC Aviation Weapons Systems aviation requirements branch head Col. John Barranco “[said] the Marines are behind in manned and unmanned teaming, which the US Army has pursued with the AH-64E Apache and RQ-7 Shadow.” Barranco said, “The Marine Corps is developing group 5 shipboard VTOL UAS that we envision being partnered with FVL [capability] set 3, so we look at them working very closely in tandem in parallel.”

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New 24-Hour Endurance Hybrid Drone Developed for Monitoring & Inspection 12 Dec 2016

Defiant Labs, the new technology division of Canadian drone company The Sky Guys Ltd., has announced its new drone, the DX-3, which features vertical take-off and landing and fixed wing flight capabilities.

“The DX-3 will fundamentally change the drone industry,” said Adam Sax, CEO and Founder of The Sky Guys, and owner of Defiant Labs. “Until now, drones had limited endurance, range, required runways, line of sight operation, data processing lagged and most drones needed ideal climate conditions to perform or be deployed.”

“In addition to the hardware technology innovations, the DX-3 is leading in data analytics, capable of live data processing,” noted Sax. “Not only do we have advanced imaging processing for industrial inspections and security applications, the data processing features predictive analytics forecasting. We are excited to have partnered with NVIDIA to build proprietary solutions based on their learning algorithms. Because the basic platform is AI-enabled, the patterns and possibilities are endless.”

The DX-3 drone is specially designed to monitor and inspect remote long range infrastructure, be it for oil and gas pipelines, power transmission lines or disaster relief and security. The DX-3 features the following:

- Over 24 hours of endurance with satellite link
- 1500 kilometer range of use
- Ability to carry up to 3 kilograms of payload
- Integrated sensors such as a high resolution optical zoom camera
- Optional LIDAR for 3D mapping
- Vertical takeoff and landing, with fixed wing flight capability, enabling the drone to take off and land without a runway while maintaining the efficacy of long range flight
- Rugged construction built to operate in all environmental conditions, from rain to desert to arctic.

<http://www.unmannedsystemstechnology.com/2016/12/defiant-labs-announces-new-dx-3-drone-for-monitoring-inspection/>

Telemedical Drones Deliver Supplies During Demonstration 12 Dec 2016

HiRO (Health Integrated Rescue Operations), a telemedical drone project, has announced that it has tested two new disaster drones, delivering telemedical packages to victims and rescue personnel in a simulated mass casualty event at John Bell Airport in Bolton, Mississippi. The technology debuted before an audience including Mississippi Governor Phil Bryant and representatives from Homeland Security, Federal Law Enforcement Agencies, and the United Nations.

HiRO (Health Integrated Rescue Operations) was developed by Italo Subbarao, DO, senior associate dean at William Carey University College of Osteopathic Medicine (WCUCOM), and Guy Paul Cooper Jr., a fourth year medical student at WCUCOM. The concept arose when the two studied the medical response to the EF-4 tornado that struck Hattiesburg, Mississippi in February 2013. In the past two years, they have developed multiple prototypes to support rural and wilderness medical emergencies, including the two newest iterations: ambulance drones designed to support victims and rescue personnel during mass shootings, bombings, or other terrorist attacks.

Two new telemedical packages were deployed during the demonstration, one for a severely injured victim and the other for a mass casualty setup capable of treating up to 100 people with significant to minor injuries. Both kits incorporate Homeland Security recommendations provided through the “Stop the Bleed” initiative.

When the critical care kit opens, the physician appears on video and can direct treatment. The kit includes Google Glass, which allow the wearer to be hands free and to move away from the drone while maintaining audio and visual contact with the physician. “These drones have impressive lift and distance capability, and can be outfitted with a variety of sensors, such as infrared, to help locate victims,” said Dennis Lott, director of the unmanned aerial vehicle program at Hinds Community College. “Working together, we’re able to develop, test, and bring this technology to the field. It is just a matter of time before the drones are universally adopted for emergency and disaster response toolkits.” <http://www.unmannedsystemstechnology.com/2016/12/health-integrated-rescue-operations-tests-new-disaster-drones/>

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DARPA Program Looking To Control “Swarms” of 100-UAVs.

[SlashGear](#) (12/13) reports that DARPA’s newest program, OFFensive Swarm-Enabled Tactics (OFFSET), seeks to discover a way of “easily controlling large swarms of drones from the ground, with these ‘swarms’ being composed of at least 100 units.” The agency imagines using these swarms, “which could also feature ground robots when necessary,” for a variety of activities, including: “gathering intelligence, surveillance, offering protection, wielding firepower, and more.” DARPA Program Manager Timothy Chung said, “If we’re successful, this work could also bring entirely new scalable, dynamic capabilities to the battlefield, such as distributed perception, robust and resilient communications, dispersed computing and analytics, and adaptive collective behaviors.”

Medical, Aviation Experts Develop Medical UAV That Could Be Deployed In Emergency Situations.

[Fox News](#) (12/13) reports that medical “experts from William Carey University College of Osteopathic Medicine and an aviation expert at Hinds Community College, also in Mississippi, teamed up to develop a medical drone that could be deployed before first responders arrive.” According to Fox News, the UAV delivers “a medical kit containing emergency supplies and Google Glass for video conference capability,” which “allows first responders to instruct bystanders on how to assist those in need.”

Illinois DOT Considers Using UAVs To Improve Mapping And Document Work Zone Progress.

The [AP](#) (12/13) reports that the “Illinois Department of Transportation said in a news release Tuesday it has purchased two drones” and “is exploring how drones might improve mapping or document progress in work zones.” The AP adds that the use of the UAVs will follow FAA “guidelines and be overseen and deployed by the department’s Division of Aeronautics.”

Can drones help almond growers save water? We are about to find out.

By KEVIN SMITH, SOUTHERN CALIFORNIA NEWS GROUP, December 13, 2016 at 8:00 am
AeroVironment Inc. has partnered with Cal State Fresno in a year-long study to determine how imagery and analytics from drones could be used to help almond growers better manage their water use.

ALMOND GROWING REQUIRES A LOT OF WATER

As California nears its sixth year of serious drought the state’s thirstiest crops are under increased scrutiny, and almonds have been criticized for their intensive water footprint. Improved crop management is a major goal for all growers, including almond producers. That’s where AV figures it can help, according to Jon Self, vice president of the company’s commercial information solutions division.

“We look forward to developing a reliable and effective means of correlating multispectral data with almond tree hydration data to provide growers with better insight so they can proceed with certainty,” Self said in a statement.

The Monrovia-based maker of unmanned aircraft systems will work closely on the project with the school’s Jordan College of Agricultural Sciences and Technology. AV will deploy its Puma UAV drone outfitted with a 24 megapixels

photogrammetric camera and a 6-channel multispectral sensor to capture data and aerial imagery of Fresno State's orchards. Its cloud-based analytics platform will then process and analyze the data for correlation with ground measurements.

The team will test the data the drone gathers and correlate it with ground-level hydration information to better predict how the crops should be watered. Fresno State researchers and campus farm staff will closely monitor the hydration levels of almond trees as well as environmental and crop conditions using a variety of soil and plant sensors.

<http://www.mercurynews.com/2016/12/13/can-drones-help-almond-growers-save-water-we-are-about-to-find-out/>

Ohio Set to Begin Beyond Visual Line of Sight Testing of UAS

By AUVSI News posted 6 days ago

Beyond visual line of sight testing of UAS is headed to the state of Ohio, with the Ohio Controlling Board approving the final \$1.5 million of funding needed to build a ground-based sense and avoid radar system at the Springfield-Beckley Municipal Airport. According to David Gallagher, a spokesperson for the Ohio/Indiana UAS Center, the sense and avoid radar system is "one-of-a-kind in general aviation airspace." "It gives the folks on the ground flying these vehicles an extra sense of safety, so we know who's flying at all levels," Gallagher told the Columbus Business First.

Initial tests of the \$5 million project will be conducted by the Air Force Research Laboratory, which picked the airport as the home of the system a few months ago. Eventually, universities and private companies will have the opportunity to work at the site as well.

"This can be a game changer for our region," said Maurice "Mo" McDonald, the executive vice president of aerospace and defense for the Dayton Development Coalition.

McDonald continued, "we will be unique in the country to have that capability to fly. The future of that space is beyond the Air Force. The goal is to have industry and academic community do research and development." The hope is that tests of the system can begin next year. <http://www.auvsi.org/blogs/auvsi-news/2016/12/07/ohio-set-to-begin-beyond-visual-line-of-sight-testing-of-uas>

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Amazon Conducts First Commercial Drone Delivery

Online retailer launches private customer trials around Cambridge, U.K.

On Dec. 7, Amazon Prime delivered an Amazon Fire TV and a bag of popcorn by drone to a man in the English countryside. By GEORGIA WELLS and LAURA STEVENS Updated Dec. 14, 2016 4:57 p.m. ET
Amazon.com Inc.'s drone delivery program has liftoff—from a rural corner of England.

Amazon last week made its first customer delivery by drone, carrying a package containing popcorn and a Fire TV video-streaming device several miles to a two-story farmhouse near Cambridge, U.K., in 13 minutes. A video the company released Wednesday shows a track the drone used to launch, a platform from which employees monitored takeoff, and a landing pad on the customer's lawn.

The Wall Street Journal (12/14, Subscription Publication) reports that the delivery of the 4.7-pound package appears in an Amazon video, which shows the UAV launch, employees monitoring the UAV, and the UAV landing pad at the customer's residence.

The delivery marks the start of operations for Amazon's drone program after three years of skepticism and regulatory hurdles. Prime Air, as the initiative is known, aims to get packages to customers within 30 minutes. "First-ever #AmazonPrimeAir customer delivery is in the books," Amazon CEO Jeff Bezos said in a tweet Wednesday morning.

Amazon said it will expand its test in the coming months from two customers in a roughly 5-square-mile area of largely farmland and fields to dozens more.

<http://www.wsj.com/articles/amazon-conducts-first-commercial-drone-delivery-1481725956>

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Opinion: Commercial UAVs Will Land In 2017. Sharper Shape CEO Tero Heinen wrote for [The Hill's](#) (12/12) "Congress Blog" that "there is a strong case to be made that commercial drones will land next year." In addition to highlighting support from the FAA and changes in public perception, he said that "the technology and business models have already been well-established." Amazon and Google have been urging regulators to issue rules in line with "their own progress," and Amazon has begun testing UAVs in partnership with UK regulators. Amazon CEO Jeff Bezos told the Telegraph in an interview that regulation, not technology, is the biggest hurdle to drone delivery, saying, "The technical problems are very straight ahead." Bezos envisions that "One day Prime Air deliveries will be as common as seeing a mail truck."

NGA Deal Said To Highlight Growing Importance Of Small Satellites.

[C4ISR & Networks](#) (12/14) reports that the National Geospatial-Intelligence Agency (NGA) "recently inked a deal to acquire a new crop of commercial satellite imagery from San Francisco-based provider Planet." C4ISR & Networks calls the contract "interesting in part because of what it offers in terms of imagery: A view that covers 85 percent of the Earth's landmass, refreshed every 15 days," and "equally significant" is the "nod" the deal "gives to the rising significance of small satellites."

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APG Unveils Renegade, Rhino UAV Designs For Short Take-Off.

[FlightGlobal](#) (12/15) reports that Advanced Programs Group (APG) "has unveiled two new designs" for short take-off and landing UAVs. The Renegade "has a wingspan of 4.4m (14.4ft), and can take off from a 3.5m surface and land within 7m," and the Rhino "has a maximum take-off weight of 700kg, a wingspan of 10m and a maximum ceiling of 15,000ft."

South Korea, Israel Unveil Hybrid VTOL UAV.

[Business Korea](#) (12/15) reports that the South Korean government and the Israeli Ministry of Economy have unveiled a hybrid vertical takeoff and landing UAV that combines an electric battery system, an internal combustion engine, and an electric power generator in a system that "has doubled" the aircraft's flight time and "can charge a battery while operating." South Korea's Ministry of Trade, Industry and Energy (MOTIE) demonstrated the UAV at the Gyeryongdae Emergency Landing Strip in South Chungcheong Province on Wednesday. The UAV was developed by Hankuk Carbon and Israel Aerospace Industries (IAI) "through an international joint research project."

Liberty University, Textron Partner On UAV Training.

The [Liberty University \(VA\) News](#) (12/15) reports that Virginia's Liberty University has partnered with Textron Systems to train students on piloting fixed wing and multi-rotor small UAVs, providing an opportunity to "earn the same operator certification that Textron Systems requires of its employees." Students also have the opportunity to fly Textron's Aerosonde UAV at the company's facilities in Blackstone, Virginia. Liberty University's Jonathan Washburn said, "Our students are getting hands-on training with these vehicles. They are getting the skills required to be competitive in the job market."

DOT's Office Of Inspector General Criticizes FAA's UAS Oversight.

[Flying Magazine](#) (12/15) reports that the DOT's Office of Inspector General released an audit earlier this month criticizing the FAA for not having a "fully developed risk-based process to oversee UAS operations, a key tool for focusing resources on a range of emerging risks, such as increased reports of UAS operating near airports." Flying Magazine reports that the "FAA responded to the OIG's audit in less than a month and asked that a number of recommendations...be considered closed since the agency has developed resources to answer those concerns." However, according to Flying Magazine, the "OIG does not seem willing to take the agency at its word" and told the FAA that until they "receive this additional information," they will "consider these recommendations open and unresolved."