UAS and SmallSat Weekly News

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Northrop Grumman Dedicates New North Dakota UAV Facility.

Aviation International News (4/21) reported that RQ-4 Global Hawk maker Northrop Grumman officially opened its new UAV research, development, and training facility Saturday at the Grand Sky UAV business park in North Dakota. Northrop Grumman Aerospace Systems President Janis Pamiljans said that the 36,000-square-foot facility cements the “leadership” of the company – the first to sign a lease at Grand Sky in 2015 – in developing technology in partnership with North Dakota’s UAV community. General Atomics, which signed a 10-year lease at the business park, plans to open a flight-training academy there this spring.

El Paso County Planning To Choose UAV Services Contractor Soon.

The Colorado Springs (CO) Gazette (4/21) reported that El Paso County Commissioner Stan VanderWerf said that the county plans to choose a contractor that will provide “unmanned aircraft services” later this month or early May. The Gazette reported that, according to the county’s request for proposals, officials have considered using UAVs for various purposes including photographing construction sites, inspecting various infrastructure, and assisting law enforcement agencies and emergency responders. The amount the county is planning to spend or save from hiring a contractor is unknown.

25Apr17

Navmar to Test Micro-Turboprop Engine on TigerShark UAV

Published: 20 Apr 2017

Navmar Applied Sciences Corporation (NASC) and UAV Turbines Inc. (UAVT) have announced plans for a joint flight demonstration of NASC's TigerShark aircraft with a UAVT micro-turboprop propulsion system. First flights are scheduled prior to year-end 2017. This demonstration will mark the first time that a Group 3 UAV has been powered by a micro-turboprop engine with a new recuperator design that significantly increases engine efficiency.

UAVT President Kirk Warshaw commented: "We are delighted to partner with one of the leading UAV aircraft system developers and be able to access their expertise on these first flights of our proprietary micro-turboprop propulsion technology. The opportunity to work with NASC's TigerShark speeds development significantly, and we look forward to the time when the technology itself, becomes the standard propulsion system for Group 3 and 4 UAVs."

http://www.unmannedsystemstechnology.com/2017/04/navmar-test-micro-turboprop-engine-tigershark-uav/

XDynamics Unveils New Modular Customizable Industrial Drone

Published: 22 Apr 2017

XDynamics has announced the introduction of the D-02, its next-generation aerial platform for professional drone cinematography and industrial applications. The D-02 is an industrial grade unmanned aerial vehicle (UAV) optimized for customization, compatible with a wide range of accessories, sensors and cameras. The D-02 will be showcased at the NAB Show 2017 in Las Vegas.

XDynamics D-02 is a customizable aerial platform designed with modularity in mind. Manufacturers and enterprise users can build upon the smart X8 octocopter to develop drones that fulfill specific needs, with the ability to customize propulsion systems, sensors, gimbals and cameras.

During the D-02's initial launch, XDynamics will make available sets of propellers suitable for different atmospheric conditions and desired performance. The first gimbal will be made for DSLR cameras and will be easily adjustable to support different models of professional cameras and lens. The 3-axis motorized gimbal will eliminate vibrations, provide precise motor rotation, and allow stable and smooth footage to be captured, making it an ideal choice for professional

filmmakers and cinematographers. All gimbals will be interchangeable with the ability to be attached and released quickly.
http://www.unmannedsystemstechnology.com/2017/04/xdynamics-unveils-new-modular-customizable-industrial-drone/

DRONE DOGFIGHT SHOWS WHAT HAPPENS WHEN UNMANNED SWARMS COLLIDE *By **Dyllan Furness** — April 25, 2017 7:55 AM*



In the future, dogfights will be fought between autonomous drones. These tests lay the foundation for their aerial tactics.

Two drone swarms took to the skies above a National Guard facility in California earlier this year to study the future of aerial warfare. No shots were fired, but the friendly dogfight gave researchers the first data on live engagement combat between groups of autonomous unmanned aerial vehicles (UAVs).

“The ability to engage a swarm of threat UAVs with another autonomous swarm is an area of critical research for defense applications,” Don Davis, division chief of the robotics and autonomous systems branch of the Georgia Tech Research Institute, said in a press release. “This experiment demonstrated the advances made in collaborative autonomy and the ability of a team of unmanned vehicles to execute complex missions. This encounter will serve to advance and inform future efforts in developing autonomous vehicle capabilities.”

The teams each attempted to launch 10 drones, but two drones failed to take off, so the dogfight was uneven. Though the drones were identical in form, the algorithms that controlled the aircraft differed, allowing them to fly in varying formations and test a number of tactics.
http://www.digitaltrends.com/cool-tech/drone-swarm-dogfight/

26Apr17

DJI's new FPV goggles let you control your drone with head movements *Fitz Tepper (@fitztepper)*

Today DJI is officially launching its FPV headset, aptly named Goggles. They will retail for $449 and start shipping after May 20th.

The goggles are pretty bulky, and look more like a VR headset than FPV goggles. But the quality is also much better than most goggles: there are two screens inside, each with 1280 x 1440 resolution — which is even better than the Oculus Rift's two 1080 x 1200 panels. And they are compatible with DJI's new OcuSync wireless technology, meaning they can stream 720p over long distances and 1080p when the drone is flying closer to the pilot.

The goggles also have other features besides video receiving. This is in contrast to other FPV racing goggles from manufacturers like FatShark, which typically just broadcast video and don't offer many additional features. For example, pilots using the goggles with a Mavic Pro or Phantom 4 can initiate the drone's intelligent flight features, like ActiveTrack and Tripod Mode, from a touchpad on the side of the goggles and a menu that shows up on screen.

But probably the coolest feature is something called Head Tracking. This lets pilots control the drone while it flies forward by moving their head — you turn left or right to yaw left or right, just like you'd do with the joystick. There's also a mode which lets you use your head to control the gimbal in 360-degrees of movement and continue only using the controller for flight control. https://techcrunch.com/2017/04/24/djis-new-fpv-goggles-let-you-control-your-drone-with-head-movements/

See the video at: https://youtu.be/L0oQnKKt6Po

DARPA Live-Fly Contest Challenges US Cadets To Demonstrate Swarming UAV Strategies.

ExecutiveGov (4/25) reports that DARPA began its three-day, live-fly Service Academies Swarm Challenge Sunday, inviting military students to create and demonstrate operational strategies for swarming UAVs. At least 40 cadets and midshipmen from the US Air Force Academy, US Military Academy and the US Naval Academy participated in the contest at Camp Roberts in California. DARPA Program Manager Timothy Chung, who headed the challenge, said, "It's not just about the platforms or the links or the communications – it's about behaviors." For the challenge, each team deployed as many as 25 quad-rotor and fixed-wing UAVs to protect a base flag and attempt to capture a rival's flag.

Researchers Simulate Swarming UAV Dogfight. On its website, Fox News (4/25) reports that Georgia Tech researchers successfully conducted "a first-of-its-kind aerial dogfight test" using autonomous swarming UAVs. The university announced Friday that the Georgia Tech Research Institute and the US Naval Postgraduate School completed the tests February 9 using 18 foam-winged Zephyr aircraft operated by swarming algorithms, with a ground computer indicating when the UAVs were within firing range of each other. Don Davis, division chief of the Robotics and Autonomous Systems Branch of Georgia Tech, said that the experiment "demonstrated the advances made in collaborative autonomy and the ability of a team of unmanned vehicles to execute complex missions." Video: https://youtu.be/ufidH_M0RqQ

Massachusetts City Granted FAA Approval For UAV Program.

Government Technology (4/25) reports that the FAA has approved a request from Hanover, Massachusetts, to create a UAV program comprising certified pilots to help town officials conduct daily operations. Town Manager Troy Clarkson said in a statement that the "approval of our [UAV] program is just another way we're bringing efficiency, technology, and collaboration to our citizens."

27Apr17

At a meeting with technology executives in Arlington, Va., Governor Terry McAuliffe pledged to spend his remaining months in office trying to make Virginia "the capital of automated vehicles." The Governor, along with several others in his administration, touted Virginia's business-friendly regulatory environment as a key reason why unmanned technology is welcome in Virginia. This is according to a recently-published *Washington Post* article focusing on Virginia's advances in bringing driverless cars and other unmanned systems to the Commonwealth.

Several members of the Unmanned Systems Association of Virginia (USAV) participated in the meeting with the Governor and shared insights on how industry is supporting his vision for the Commonwealth. USAV, which was formed to help foster the growth of **the unmanned systems industry in Virginia, applauds Governor McAuliffe's strong** support and enthusiasm for making Virginia the leading state for unmanned systems. Read the *Washington Post* article here. Learn more about USAV at www.unmatchedva.org.

Lockheed Ramps Up Flight Demos Of Fury Expeditionary UAS.

American Security Today (4/26) reports that Lockheed Martin has ramped up flight demos of its Fury Expeditionary UAS. Lockheed Director of Unmanned Systems Kevin Westfall touted how the "Fury can support multiple payload integration, making it possible to efficiently execute various missions with a single aircraft." The article also provides a video of a demonstration of the UAS.

See Fury Expeditionary UAS Flight Demos by LM (See in Action, Video)
By Tammy Waitt April 26, 2017

Lockheed Martin's Fury, an advanced tactical Group 3 unmanned aerial system, is regularly flying long-range endurance test missions as the company prepares it for low-rate production. Since May 2016, Fury has flown 200 hours in flight tests and demonstrated 12-hour endurance with 100 pounds of payloads including electro-optical/infrared surveillance systems, voice communications relays, SATCOM links, and

signals intelligence payloads. https://americansecuritytoday.com/see-fury-expeditionary-uas-flight-demos-lm-see-action-video/

FAA Issues Airspace Restrictions That Apply Only To UAVs.

Aviation Week (4/27) reports that the FAA issued airspace restrictions that ban UAV flights "under 400 ft. AGL within the boundaries of 133 military facilities." Aviation Week adds that the restrictions took effect April 14. The agency warns that violations could result in criminal charges, civil penalties and the revocation of certificates and authorizations to operate UAVs. More restrictions may be coming.

Virginia Tech and Industry Partners Complete BVLOS Drone Flights Along Power Lines BY INSIDE UNMANNED SYSTEMS

AeroVironment's Puma AE unmanned aircraft system (UAS) recently flew along a power line, going beyond visual line of sight (BVLOS) of the pilot. The test flights, conducted by the Virginia Tech Mid-Atlantic Aviation Partnership, Ligado Networks, AeroVironment and Dominion Virginia Power, evaluated communications strategies and other parameters in an effort to build a case for drone flights BVLOS, according to a news release.

“Unmanned aircraft flying beyond the visual line of sight can give us the ability to inspect our infrastructure without actually having to access each structure,” said Steve Eisenrauch, Dominion Virginia Power’s manager of electric transmission forestry and line services, according to the release. “Today we do it with helicopters; using unmanned aircraft would be much more cost-effective, and going beyond line of sight allows us to inspect big sections of line at a time.”

During the operation, the long-endurance aircraft flew more than 14 miles along the power line, beyond the visual line of sight of the pilot. The PUMA remained in sight of a helicopter-borne observer at all times.

HAZON Solutions, a Virginia Beach-based UAS services provider, provided chase aircraft services for down-range operations and safety management support on the ground. The UAS was controlled using a satellite communications package from Ligado Networks.

http://insideunmannedsystems.com/virginia-tech-maap-ligado-networks-aerovironment-complete-bvlos-drone-flights-along-power-lines/

28Apr17

Hanover Officials Discuss Plans For Newly-Approved UAV Program.

The Boston Globe (4/27) reports that officials in Hanover, Massachusetts, plan to meet in the coming days to discuss the town’s newly-approved municipal UAV program, which they claim is the first in the state to gain FAA clearance. Town Manager Troy Clarkson said that the program’s primary purpose will be broadcasting public information, such as repair work, for posting on social media. So far, six Hanover employees – including two members of the fire department, a police officer, a parks and recreation employee, and municipal television station workers – have been trained to use the DJI Inspire, with two achieving pilot certification. Privacy rights activists are pressing the state legislature to enact privacy protections for municipal UAV programs.

Drones are coming to Hanover town hall

By Adam Vaccaro GLOBE STAFF APRIL 27, 2017

When you think of the typical drone user, you might picture a techie with some time to spare or a photographer trying to get an overhead shot. You probably don’t think of town government, a body better known for fixing potholes and processing marriage licenses than deploying robots to the skies.

The town of Hanover plans to change that. The South Shore community last week gained clearance from the Federal Aviation Administration to operate a drone that it will use for government purposes like surveying fires, inspecting buildings, and even searching for missing persons — something organizations like the National Park Service have begun doing in places

like the Grand Canyon. But Town Manager Troy Clarkson said the primary use of the drone will be to broadcast public information. Repair work at Town Hall, for example, could be filmed and published on social media. Hanover said it's the first town in the state to gain FAA approval to operate a municipal drone program, though the FAA could not confirm that claim. http://www.bostonglobe.com/business/2017/04/27/drones-are-coming-hanover-town-hall/fkdvPyY9mHVtFjB79bVNDJ/story.html

US Army Plans To Develop Next-Gen UAV In Process Mirroring FVL.

Defense News (4/27) reports that the US Army plans to develop a next-generation tactical UAV to replace its Shadow and Gray Eagle fleets using lessons learned from the Future Vertical Lift (FVL) program. Aviation Development Directorate Chief Engineer Layne Merritt said that the Army plans to hold a science and technology-level demonstration for the Future Tactical UAS (FTUAS) mirroring the approach taken for the Joint Multi-Role Technology Demonstrator (JMR TD) program being used to test demonstrator helicopters and set requirements for FVL, which is scheduled to begin in 2019. The Army has budgeted $2 million to begin studies for the FTUAS effort this year, and the Vertical Lift Consortium will play a significant role in the process.