

NEW HORIZONS

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UK PART OF SUMMIT ON DRONE TECHNOLOGY

Event to bring together innovators, researchers, entrepreneurs, government officials

LEXINGTON, Ky. (Dec. 5, 2013) — Innovative use of drone technology is nothing new for University of Kentucky researchers, who have – for over 10 years – developed airplanes to fly on Mars and to measure atmospheric conditions affecting crop pollination and severe weather.

Drones, more formally referred to as Unmanned Aerial Systems, or UAS, will be the subject of a conference next Wednesday, Dec. 11 from 2 to 4 p.m., focusing on UAS for commercial applications in Kentucky. The conference will be held at the Commerce Lexington building located at 330 E. Main Street in downtown Lexington. Aimed at bringing together innovators, researchers, entrepreneurs, industry, and government officials, the conference will serve to connect those who may be interested in UAS.

The Kentucky Summit on UAS is jointly being sponsored by the UK College of Engineering, the Kentucky Commission on Military Affairs and the Von Allmen Center for Entrepreneurship and the Lexington ICC, which are a part of UK's Gatton College of Business and Economics. The Lexington ICC is also a part of the statewide Kentucky Innovation Network partially funded by the Kentucky Cabinet for Economic Development.

Featured speakers include John Walz, dean of the UK College of Engineering; Suzanne Weaver Smith, the Donald and Gertrude Lester Professor of Mechanical Engineering in the College of Engineering, and director of the NASA Kentucky Space Grant and EPSCoR programs; Colonel (RET) David E. Thompson, executive director of the Kentucky Commission on Military Affairs; and, Warren Nash, director of the Lexington ICC.

Next Wednesday's program lists three major objectives:

1. To raise awareness of UAS developments nationwide and UAS opportunities in Kentucky.
2. To build a UAS community of business, academic and government leaders in Kentucky.
3. To gauge interest in formation of a Kentucky chapter of the Association for Unmanned Vehicle Systems International (AUVSI).



Presentations and displays will feature UAS commercial applications from precision agriculture to safety to infrastructure, the national plan and timeline for allowing commercial UAS flight testing and operation in the National Air Space (NAS), Kentucky's available aerospace workforce, including military veterans, and education pipeline, and static displays of research and commercial systems, among others.

For additional information or to register a static display, email: suzanne.smith@uky.edu.

LEXINGTON, Ky. (Dec. 18, 2013) — The University of Kentucky has announced the formation of an Unmanned Systems Research Consortium (USRC) to advance unmanned aerial, ground and underwater systems, and to explore commercial applications for the technology in Kentucky.

Unmanned aerial systems (UAS) technology has increasingly captured private-sector interest — as well as the public's imagination and news headlines — over the past year, with prospective applications being developed in agriculture, remote sensing, materials transport, forest fire detection, weather surveillance, mine exploration and minerals production, search and rescue, and even point-to-point delivery of small consumer items.

John Walz, dean of the UK College of Engineering, announced the USRC's launch at a Kentucky summit on unmanned aerial systems, held Dec. 11 in Lexington. The USRC will partner faculty, students and businesses to focus on development and performance evaluation of systems, platforms, components, sensors, and software, in addition to sharing resources for increasing state-wide industry awareness and understanding national directions and policies.

"This is exactly the kind of scenario where everybody wins," Walz said. "Our researchers are able to make significant strides and then pass on the fruit of their labor to businesses, who give feedback and introduce new problems to solve — it's a loop that enhances research and has real-world implications."

The consortium includes affiliated faculty from the College of Engineering as well as a diversity of academic disciplines across campus, and it boasts a 1,200-square-foot laboratory with in-house manufacturing and access to high precision machining.

Capabilities include custom platform design for payload requirements including remote piloted and fully autonomous control, electric, nitro-methane and gas propulsion systems, a unique mobile LiDAR 3-D scanning truck that can rapidly capture high-quality, geo-registered 3-D point cloud data at a large scale, multiple in-house options for 3-D printing, PCB fabrication and rapid prototyping, complete composite fabrication from mold-making to custom carbon-fiber lay-ups, low-turbulence and custom wind tunnel test facilities, and commercial autopilots.

Walz said consortium partners will benefit from being able to work directly with faculty experts, as well as meeting hopeful future employees from among the student body. And to ensure that consortium partners have a deep talent pool to choose from, he said, the College of Engineering is working diligently to increase its number of graduates.

"It's a need that has been recognized by Lexington mayor Jim Gray, Louisville mayor Greg Fischer, myself and many others," Walz said. "As we graduate more well-trained engineers and put them to work, businesses will benefit, the commonwealth will benefit and Kentucky will become a leader in the field of unmanned aerial systems and much more."

The next consortium event will be a booth at the National Farm Machinery Show in Louisville in mid-February highlighting agricultural uses of unmanned aerial systems for increased productivity and efficiency.

More than 80 individuals from across Kentucky and out of state attended the Dec. 11 summit, held at the Commerce Lexington building in downtown Lexington, including entrepreneurs, business leaders, government leaders, university researchers and leaders, students and hobbyists. The summit was jointly sponsored by UK College of Engineering, the Kentucky Commission on Military Affairs and the Von Allmen Center for Entrepreneurship and the Lexington ICC.

Those who would like to find out more about the USRC may contact Professor Suzanne Weaver Smith at suzanne.smith@uky.edu or 859-323-4545. Requests for information may also be sent by mail to Prof. Smith at University of Kentucky, College of Engineering, 151 RG Anderson Bldg., Lexington, KY 40506-0503.

The FAA Stakes Out Its Turf in the Drone Wars

Well before Amazon.com (AMZN) introduced the idea of commercial drone deliveries to the public imagination, U.S. regulators were telling people flying these unmanned devices to ground their gadgets and to file for a permit.

The U.S. Federal Aviation Administration has issued a dozen orders to halt the operation of what are technically called unmanned aircraft systems (or UAS) for commercial pursuits, including those performed by aerial photographers, videographers, and journalism schools. And while no one disputes the FAA's role in regulating the U.S. national airspace, some legal experts question whether the agency has authority over the use of private commercial drones that operate below 400 feet and away from airports.

Brendan Schulman, an attorney at Kramer Levin Naftalis & Frankel in New York, says no U.S. regulation specifically addresses commercial drone use and that the agency has merely stated the commercial drone ban as federal "policy"—one not subject to a prior rule-making process. "I think it's doubtful, legally speaking, that the FAA was ever given jurisdiction over that airspace" under 500 feet, says Schulman, himself a private drone enthusiast. "That's not where you would find people flying in airplanes."

Nonetheless, the agency has rules about drones, issues permits for their use, and levies fines on people it deems bad actors. In July, the FAA heralded its approval of user certificates for two commercial drones weighing less than 55 pounds. Both were planned for energy exploration in the Arctic, and the agency was quick to note that it viewed the approval as an initial step to integrating commercial drones into the U.S. airspace.

Many drone enthusiasts are hoping the agency will follow through with rules in 2014 for broader use of these smaller drones—the kind that journalism professors, farmers and, eventually, Amazon, all want to exploit for different tasks. The real estate industry, in particular, has taken a special shine to drones for their ability to shoot alluring video of tony properties and entice potential buyers.

As of now, the FAA is also playing the role of enforcer. "I don't know if you've ever gotten a certified letter from the federal government, but it's an exhilarating experience," says Matt Waite, a journalism professor at the University of Nebraska, Lincoln's Drone Journalism Lab, which received a cease notice in July. The professors there have been training future journalists to report stories, using drones fitted with cameras. (One example, covering a 2012 drought, can be seen [here](#).) Waite says the drone lab "wrongly believed that we could fly under hobbyist rules because we weren't doing any research and development into drones, and there was no commercial interest in what we were doing."

Schulman's law firm launched an unmanned aircraft systems practice on Dec. 18. One of that group's first cases is the \$10,000 penalty assessed by the FAA (PDF) on Raphael Pirker, a video-drone photographer, for an October 2011 drone flight at the University of Virginia. The school's public relations firm had hired Pirker to shoot the footage, which the FAA contends shows Pirker operating a drone "in a careless or reckless manner so as to endanger the life or property of another." Schulman has filed a motion to dismiss the penalty, which is pending before an administrative law judge at the National Transportation Safety Board.

"I think the FAA is viewing this technology as the same thing as an airplane, except without the pilot, and their view is we have to replace the pilot with something else," says Schulman. He contrasts the FAA's slow, cautious approach to commercial drones with the Internet, another government-funded entity that burst into worldwide popularity long before any rules or regulations governed its commercial use. "The answer wasn't to ban the Internet until the commercial rules were implemented," he says.



Six Things You May Not Know About Unmanned Aircraft

1

The UAS industry is poised to help create more than 70,000 U.S. jobs in the first three years following integration into the national airspace.

2

80 percent of the projected market for UAS is in agriculture.

3

The U.S. Geological Survey recycles UAS formerly used by the military to study everything from wildlife to natural hazards to climate change.

4

UAS were used to survey the damaged nuclear facility in Fukushima, Japan – a job too dangerous for manned aircraft.

5

Unmanned aircraft can cost as little as \$25 per hour to operate, while a helicopter can cost between \$400 and \$600.

6

UAS have been used to study natural disasters such as hurricanes, volcanoes and supercell thunderstorms – all of which are too dangerous for manned aircraft to approach.



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Ohio Study to Guide Air Force UAS Flights over U.S.

By Matthew Cox Monday, December 9th, 2013 11:33 am
Posted in Air, Policy, The Defense Business

Next year, the state of Ohio will complete a study designed to help the Air Force figure out its plan for flying unmanned aerial systems inside U.S. airspace.

This has become a controversial subject lately. Critics worry that the U.S. Military and other federal agencies will use battlefield-tested UAS to spy on American citizens. On the practical side, the idea of thousands of flying machines of all sizes entering the country's crowded airways is likely to create a lot of headaches for air traffic controllers.

The Federal Aviation Administration recently projected that as many as 7,500 drones will be flying over the country within five years. Companies like Amazon and Dominos Pizza are already dreaming of door-to-door, aerial-delivery service.

The Ohio Airspace Strategic Integration Study, known as OASIS, will help figure some of this out. The state-funded study kicked off in February 2012 and is intended to serve as a national model for the Air Force as well as federal, state, and local governments, aviation groups, academic institutions and private industry, according to Maurice McDonald, Executive Vice President for Aerospace and Defense of the Dayton Development Coalition, which is administering the study.

"The idea behind the study is to solve military airspace requirements in a way that meets the needs of other airspace users — that includes the Federal Aviation Administration and NASA, which are working with the Air Force in developing ways to integrate unmanned aircraft systems in the national airspace system," McDonald said in a recent press release.

Last year, Ohio partnered with its neighboring state to create the Ohio/Indiana UAS Center and Test Complex to fly unmanned systems. The OASIS study will help determine the ultimate capabilities of the Center, including support of Air Force research and development flight test requirements. The Center has applied to the FAA to become one of the six national sites to test the integration of unmanned systems in the national airspace system.

"Ohio has complex airspace needs because of Wright-Patterson Air Force Base, headquarters of the Air Force Research Laboratory, which is involved in research and development of unmanned aircraft systems," McDonald said.

The study will leverage and expand the state's capabilities, particularly in improving the ability of unmanned systems to sense and avoid other aircraft in the same airspace. The process has involved a review of the test plans of the Air Force Research Laboratory, interviews with laboratory program leaders on upcoming unmanned systems development, and examination of the Defense Department Science and Technology Strategic Plans.

The resulting recommendations are intended to guide the Air Force and the FAA in structuring new rules that will govern flying unmanned systems in the vicinity of Wright-Patterson, which is located outside Dayton, Ohio.

ABS Member Spotlight

Name: Henry G. Lackey

ABS Member Since: November 1992

Occupation: Deputy commissioner, Kentucky Department of Aviation, since 2010. He was a nine-year member of the Kentucky State Senate and a former mayor/city commissioner in Henderson, Kentucky.

Hometown: Frankfort, Kentucky

Owns: 1958 J35 N995FM, owned for 34 years. He keeps his Bonanza hangared at the Capital City Airport in Frankfort, KY.



Henry Lackey (left) and his mechanic/IA, Jeff Anderson.

ABS: *What sparked your passion to become a pilot?*

Henry: When I was 12 years old I became a political supporter of Kentucky State Senator William L. (Sully) Sullivan, who just died this October. In the latter days of WWII, Sully flew P-51 Mustangs and afterward owned several Bonanzas in succession over 30 years. I had the opportunity to fly with him on several occasions. In the 1950s Sully was elected to the Kentucky State Senate. For decades I had the desire to be just like him. I accomplished both goals (I own a 1958 J-model) and succeeded him in the state senate in 1982, using my Bonanza to travel from Henderson to the state capitol at Frankfort, Kentucky. Another person who kept my interest alive was Dr. Wallas Bell in Henderson, Kentucky, and previous owner of a 1984 V35B. Dr. Bell and I flew to Salt Lake City for the ABS Convention five years ago. Since joining ABS, Perry McCollum from Louisville and the late Dave Barton from Georgia have been very helpful to me as a member.

ABS: *How long have you been flying and what are your awards/accomplishments?*

Henry: I obtained my Private Pilot's license in 1976 and earned an instrument rating in 1977. I purchased N995FM in 1979 and have logged over 7000 hours in this aircraft. I was in the radio broadcasting business for nearly 50 years and my tail number is an FM radio station (995FM), which I purchased in the 1970s. The only aviation award I have earned has been 37 years of terrific flying experiences.

ABS: *Best piece of advice for new pilots?*

Henry: Over the years from my private to the instrument rating, I probably had five different instructors. Some say you should have one or two all the way through your training. I disagree. It's my belief that each instructor can offer something a little different from what other instructors stress. The best VFR instructor I had was Josephine Davis (widow of Don Davis) at Don Davis Aviation in Henderson, Kentucky.

ABS: *What is the best safety tip someone has give you?*

Henry: The more weather and safety seminars you can attend, the better. Always get a thorough weather briefing and if you'll use it, an instrument rating. I also encourage a new owner to find a professional maintenance person like the one I use: Jeff Anderson at Flite Fixins here at Capital City Airport in Frankfort, Kentucky.

ABS: *What does the Beechcraft brand mean to you?*

Henry: Beechcraft is the Mercedes-Benz of general aviation. I've had the opportunity to tour Beech's factory in Wichita, and Cessna's as well. I have no training in building or maintaining airplanes, but my novice eye clearly understands that much more workmanship goes into a Beech product.

ABS: *What do you value most as a member of ABS?*

Henry: *ABS Magazine* is extremely helpful to me. Unlike AOPA, of which I am a member also, ABS focuses on issues that all affect us nearly the same. I love the pages devoted to technical and flying questions and answers about Bonanzas and other Beechcraft. Likewise, ABS gives me the opportunity to converse with ABS Technical Advisors to answer questions from me, a maintenance novice. ABS events offer seminars on issues that are germane to Beech Bonanzas and Barons only. For the price of membership, I can't imagine any Beechcraft owner *not* being a member of the American Bonanza Society.

ABS: *What is your favorite memory from an ABS event or training?*

Henry: Attending the ABS Convention in the mid-1980s. ABS experts gave us the latest update on strengthening the V-tail.

ABS: *Where are some of the best places your Bonanza has taken you?*

Henry: Cedar Key, Florida; the Bahamas; and three of Kentucky's state parks: Lake Barkley, Kentucky Dam, and Rough River. Mackinac Island, Michigan. With no motorized vehicles, it's like a paradise island. It's a great place for a honeymoon or anniversary.



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