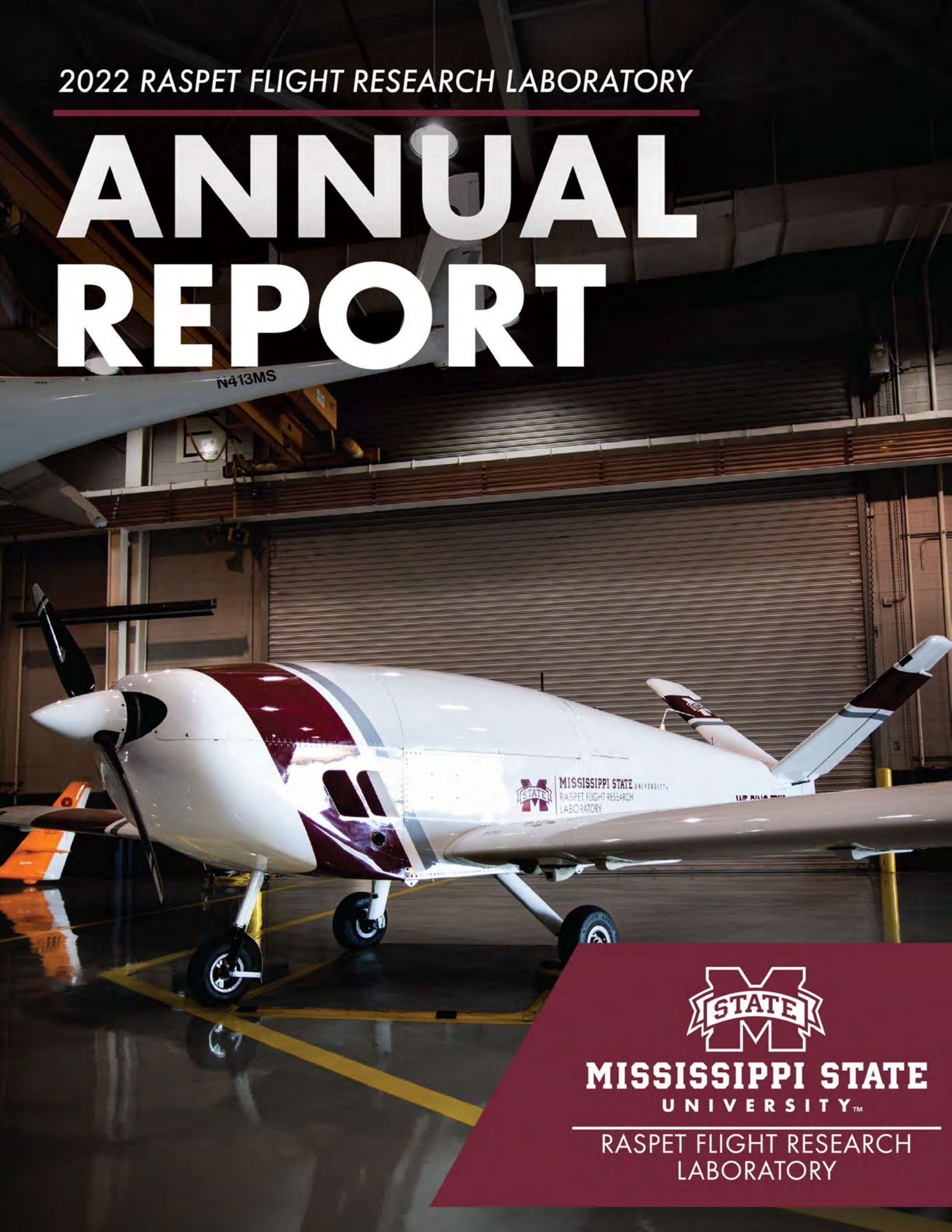
2022 RASPET FLIGHT RESEARCH LABORATORY

ANNUAL REPORT



MISSISSIPPI STATE UNIVERSITY™

RASPET FLIGHT RESEARCH LABORATORY

TABLE OF CONTENTS

OUR VISION

TO BECOME THE FINEST ACADEMIC AVIATION/AEROSPACE RESEARCH DEVELOPMENT TEST AND EVALUATION FACILITY OF ITS KIND IN THE WORLD.

OUR MISSION

THE RASPET FLIGHT RESEARCH LABORATORY ACCELERATES MISSISSIPPI STATE UNIVERSITY'S SUCCESS THROUGH THE EXECUTION OF APPLIED AERONAUTICAL RESEARCH THAT SAFELY INTEGRATES TECHNOLOGIES AND ADVANCES THE AEROSPACE BODY OF KNOWLEDGE AND INDUSTRY STATE-OF-THE-ART.


MISSISSIPPI
STATE

A MESSAGE FROM DIRECTOR **TOM BROOKS**

2022 marked a historic year for us at Raspet Flight Research Laboratory. With $20.1 million in new research funding, we collaborated with our numerous partners to further develop modern concepts in the most challenging frontier of experimental aviation – UAS. In this annual report, it is my pleasure to share with you our most significant initiatives that further Raspet's position as a national leader in UAS research.

Future-focused and mission ready, Raspet is the only institute in the world designated both as the Federal Aviation Administration's UAS Safety Research Facility and as an official UAS Test Site for the FAA and the Department of Homeland Security. Our vision to be the finest academic aviation-aerospace research development test and evaluation facility of its kind fuels our purpose and defines our work every day, and it is strengthened through our collaboration with university faculty, graduate and undergraduate research assistants.

Raspet committed $379,000 in 2022 to support university faculty while increasing our growing research and flight teams with 14 new employees, including seven full-time positions, two graduate research assistants, and five student research assistants for a total of 56 employees. This record growth reflects Raspet's commitment to provide MSU engineering students an excellent, hands-on learning environment beyond the classroom to further develop their skills and talents. It also accelerates our mission to execute and deliver leading edge, applied aeronautical research to our government and industry partners that will propel aviation forward.

Together, we celebrated a milestone in Raspet's proud history with the unveiling of Teros in December 2022. The largest, most sophisticated uncrewed aircraft at any U.S. academic research institution, Teros demonstrates the inherent power of UAS technology to make aviation safer and more efficient. We are excited to offer expanded mission capabilities with this aircraft for years to come.

In 2023, Raspet will begin a more than $600,000 renovation to our facility as we plan for our 75th year of continuous operation. The project, funded with generous support from the Appalachian Regional Commission, prepares us for future growth in a newly renovated, redesigned space dedicated exclusively to UAS research and discovery.

As we share our highlights from the past year, we celebrate our advances in uncrewed aviation research, and we imagine the potential for future development and exploration. Thank you for collaborating with us to redefine what is possible.

Hail State!

NEXT GENERATION UNCREWED AIRCRAFT SYSTEM **LANDS AT MSU**

Raspet Flight Research Laboratory at Mississippi State is announcing the acquisition of the largest, most sophisticated uncrewed aircraft system in its fleet, further cementing the lab as a national leader in UAS exploration.

The newly designed, remotely piloted Teros—with a nearly 40-foot wingspan and 600-pound payload—positions Raspet as only the second entity in the world to secure this autonomous aircraft, according to the manufacturer. Raspet officials also are expected to add another one this fall.

"This innovative aircraft typifies the extraordinary aviation research led by MSU as we work to implement uncrewed aircraft systems into the national airspace," said MSU President Mark E. Keenum. "Most importantly, this aircraft will enhance our researchers' ability to make new discoveries that benefit our state and our nation, enhancing our capabilities as we continue to grow our UAS partnerships."

This latest addition to Raspet's fleet of uncrewed aircraft systems is manufactured by Navmar Applied Sciences Corp. and is derived from the Sonex Aerospace Xenos-B Motorglider, a kit aircraft operated with an on-board pilot.

It is expected to be the first UAS of its kind to become type certified by the FAA, meaning it is designed for complete future integration into the national airspace system. Receiving type certification would enable it to immediately begin operating alongside manned aircraft when regulations permit. "This strong, versatile, high-tech aircraft can fly up to 24 hours without refueling," said Tom Brooks, director of MSU's Raspet Flight Research Laboratory.

"With a 24,000-foot service ceiling and the capability of carrying research equipment weighing six times what we could previously fly in our largest UAS, the research opportunities we'll be able to explore are almost endless."

Having an 1,800-pound maximum gross take-off weight, the Teros can be equipped with a 4G LTE cellular system for use when cell service is unavailable, an invaluable resource, Brooks said, during disaster responses or other emergency scenarios. With a maximum speed of 120 knots (about 138 miles per hour), it is surprisingly agile with short takeoff and landing capabilities.

Depending upon the equipment carried, the Teros also can be used in everything from agriculture to utility monitoring, meteorological research and search-and-rescue missions.

"Anything that's dull, dirty or dangerous for on-board pilots to perform, the Teros could be a viable alternative," Brooks said. "It never gets tired, sleepy nor hungry, nor does it lose focus."

The Teros can be flown by either remote pilots positioned on the ground within mobile flight decks, known as ground control stations, or it can be operated autonomously by flight control computers within those stations.

Multiple camera systems mounted on the UAS relay images and other data to researchers on the ground.

The investment in the aircraft and its associated equipment was covered by a federal grant for research, led by Raspet, designed to make UAS fly cooler, quieter and with more efficiency. Raspet's flight crew has spent several weeks training to operate the aircraft.

This innovative aircraft typifies the extraordinary aviation research led by MSU as we work to implement uncrewed aircraft systems into the national airspace.

- MSU President Mark E. Keenum

MSU, MISSISSIPPI HIGHWAY PATROL AND DELTA STATE PARTNER ON RESEARCH FLIGHTS

Collaboration is key on many Raspet, MSU-led projects. MSU's Raspet Flight Research Laboratory partnered with the Mississippi Highway Patrol and Delta State University for a series of research flights to validate uncrewed aircraft system detect-and-avoid standards.

This partnership is part of a research project being carried out at MSU's Raspet Flight Research Lab through ASSURE, the MSU-led Federal Aviation Administration Center of Excellence for UAS Research. The study is part of ongoing efforts to validate detect-and-avoid standards as uncrewed aircraft systems are integrated into the national airspace with traditional crewed aircraft.

"This research will provide new insights and important data for the FAA to incorporate into future regulatory updates," said MSU Raspet Flight Research Lab Director Tom Brooks. "As this effort highlights, we have great partnerships throughout the state of Mississippi. I greatly appreciate the talented pilots from the Mississippi Highway Patrol and Delta State supporting this project

as we analyze data from pilots in DSU's conventional aircraft and MHP's helicopters."

Crews spent Monday and Tuesday [Oct. 17-18] conducting multiple research flights per day out of Bryan Field in Starkville. The flights are part of an FAA-funded $1.5 million project that builds on prior research to help the agency develop safety performance standards for uncrewed aircraft systems operating at low altitudes.

In addition to the flights, representatives from Raspet, MHP and DSU spoke with students from the Partnership Middle School at MSU. Every student from the local sixth and seventh grade public school is touring the flight lab this week.

MSU was selected to lead the FAA's UAS Center of Excellence in 2015 to provide the agency with the academic research, data and support needed to safely integrate UAS, commonly referred to as drones, in the national airspace system. Since then, ASSURE has supported more than 60 projects related to advanced air mobility, cybersecurity, integrating UAS in disaster response and more.
In 2020, the FAA named Raspet as the agency's UAS Safety Research Facility.

> "THIS RESEARCH WILL PROVIDE NEW INSIGHTS AND IMPORTANT DATA FOR THE FAA TO INCORPORATE INTO FUTURE REGULATORY UPDATES."
>
> **- MSU RASPET FLIGHT RESEARCH LAB DIRECTOR** *TOM BROOKS*

MSU HOSTS COMPETITION AWARDING $720,000 TO DRONE ENTHUSIASTS FOR THEIR INNOVATIVE IDEAS

Mississippi State University's Raspet Flight Research Laboratory recently played an integral role in an unmanned aircraft systems flight competition in Starkville, Mississippi, where $720,000 in prize money was awarded through federal innovation funding to drone enthusiasts.

The National Institute of Standards and Technology's Public Safety Communications Research Division, along with Mississippi State and Kansas State University Aerospace and Technology Campus, hosted the First Responder UAS Triple Challenge; a prize competition for drone enthusiasts to build and operate unmanned aircraft that can better help first responders in emergency situations.

After a week's worth of competitions, the First Responder UAS Triple Challenge awarded $150,000 in the final stage, part of a total available prize purse of $520,000 for two challenges, to teams of drone enthusiasts for building solutions to help emergency first responders locate multiple missing persons more efficiently.

"We were impressed with the competitors' innovative ideas and diligent preparation," said Tom Brooks, director of the Raspet Flight Lab. "Efforts like this accelerate technology availability to first responders, and we were thrilled to be a part of it."

Challenge 3.1 winners were selected for improving image detection and enhanced navigation techniques to "close the distance" more quickly. Winners include:

• First place, Team AMAV from the University of Maryland, $40,000;
• Second place, Team ARCC from Pennsylvania State University, $20,000;
• Third place, Team Aggie from North Carolina A&T State University/Purdue University, $10,000; and
•First Responder's Choice Award, Team AMAV from University of Maryland, $5,000.

In Challenge 3.2, teams were awarded prize money for innovating a cost-effective, robust and easily deployable drone solution which delivers data files in a cellular denied area. Winners of 3.2 include:

• First place, Team ARCC from Pennsylvania State University, $40,000;
• Second place, Team Mantech/FLYT Aerospace, $20,000;
• Third place, Team EpiSci, $10,000; and
• First Responder's Choice Award, Team ARCC from Pennsylvania State University, $5,000.

Finally, the competition awarded prize money to teams for developing an attack and countermeasure on open-source navigation or control software that may disrupt a drone's navigation for Challenge 3.3. The following winners were awarded $30,000 each:

• Team Mantech/FLYT Aerospace;
• Team ARCC from Pennsylvania State University; and
• Team CNA Corporation/RIIS LLC.

Raspet's portion of the effort was coordinated by Shawn McNutt, aviation program manager in the MSU flight lab.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SYSTEMS

MSU'S RASPET FLIGHT LAB WORKING WITH 911 SECURITY TO ENSURE SAFE DRONE USE ON CAMPUS

In another proactive approach to campus safety, Mississippi State University's Raspet Flight Research Laboratory is partnering with Dallas-based 911 Security to assist in monitoring drone activity on campus.

The MSU flight lab, which specializes in research and testing of unmanned aircraft systems, known as UAS or drones, signed a cooperative research agreement with 911 Security to implement the company's AirGuard drone detection system on the Starkville campus.

"There are countless drone uses and operations with great benefits to society," said Madison Dixon, research director of the Raspet Lab. "The vast majority of these operations are performed safely and responsibly. Still, proactive measures must be taken to prevent reckless, dangerous, or otherwise irresponsible drone operations and to mitigate any safety risks they pose."

Dixon said no incident prompted the recent agreement.

"MSU is the FAA's Center of Excellence for UAS and a nationally recognized leader in UAS research," Dixon said. "Our partnership with 911 Security will optimize UAS operations on MSU's campus by allowing us to further enable beneficial UAS operations while protecting against unnecessary or invasive UAS operations. We hope this will set a positive example for other organizations and universities to consider."

911 Security's AirGuard drone detection system can provide real-time detection and tracking of drone operations within a defined area like MSU's campus. The system will be used in combination with existing measures, such as the metal detectors at Davis Wade Stadium, to promote campus security during times of peak activity.

The Raspet Lab is currently leading implementation of the AirGuard system and will make recommendations to the MSU UAS Steering Committee, chaired by Raspet Director Tom Brooks, regarding all aspects of UAS operations on campus.

"911 Security is beyond excited to partner with MSU's Raspet Flight Research Laboratory," said Jason Reed, with 911 Security. "Drones have become a growing security concern around the world. Our system's capability of providing real-time location data for drones flying in surrounding airspace can assist law enforcement and security professionals with monitoring these operations. Our goal is ensuring the airspace above our system is safe and secure."

The university's unmanned aircraft policy is posted online, and anyone with interest in operating a drone on, above or near campus is encouraged to review it.


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MULTIPLE MSU AIRCRAFT HIGHLIGHTED AT AIR SHOWS IN 2022

Home to the largest and most capable fleet of unmanned aircraft systems in academic use, Mississippi State University's Raspet Flight Research Laboratory was featured at multiple air shows during 2022.

The Raspet Flight Team participated in Wings Over Columbus at Columbus Air Force Base (CAFB) and Aviation Day at Greenville Mid-Delta Airport.

"Air shows allow us the unique opportunity to share a close-up view of Raspet's manned airplanes and our state-of-the-art unmanned aircraft systems with aviation fans," said Tom Brooks, director of the Raspet flight lab. "While many know us for our unmanned aviation research, we have a long history in experimental aviation, and our manned airplanes play key roles today in our unmanned research."

The following Raspet aircraft were displayed:

•A Boeing Stearman PT-17, the centerpiece of Raspet's manned aircraft fleet, which was used by the Army Air Corps from 1941-1943 as a trainer for World War II pilots.

•A Cessna L319, a one-of-a-kind experimental aircraft originally built for the U.S. Marine Corps as a forward observer aircraft, which is used by Raspet as a chase airplane during its unmanned aircraft research.

•A Grumman AA5B Tiger, the first prototype built of the Grumman American Tigers, which is used by Raspet as a training aircraft for its flight crew.

•A Mobile UAS Ground Control Station, which serves as a cockpit during unmanned flights, evaluations, and research efforts.

•A TigerShark, a medium-altitude, long-endurance UAS in the Group 3 category designed and built by the Navmar Applied Sciences Corp., which greatly expands Raspet's research by accommodating various types of payloads while staying aloft up to eight-plus hours.

Raspet's ground control station and TigerShark were also displayed at the CAFB STEM Expo. The expo featured 30 science, technology, engineering and math exhibits and attracted more than 900 students from 27 area schools for a student-only day.

These events strengthen Raspet's commitment to recruit the next generation of aerospace talent. In addition to the air shows and STEM expo, Raspet welcomed more than 1,700 students and visitors to our flight lab and hangar for tours and other events, including an engineering meets fashion design show, during 2022. The tours allow students to explore aviation and engineering related careers, observe drone flight, experience acoustic testing, and learn about Raspet's history and mission.

The Raspet Flight Team is already preparing to participate in multiple air shows in 2023 including Thunder Over the Sound at Keesler Air Force Base in Biloxi.

UNIVERSITY, INDUSTRY COLLABORATION ALLOWS LIQUID HYDROGEN-POWERED UAS TO TAKE FLIGHT

An uncrewed aircraft system powered by liquid hydrogen fuel made its maiden flight in Eastern Oregon recently, an important step toward a future of using the clean energy source in aviation and other industries and potentially reducing carbon dioxide emissions.

The uncrewed aircraft system, developed by Insitu and powered by Washington State University's patented 3D-printed liquid hydrogen tank technology and deployable hydrogen liquefier, supports a Mississippi State University-led research effort. The successful flight demonstrates the efficacy of this type of lightweight tank and a portable hydrogen refueling station. These technologies could allow for quiet, all-electric flights of medium-sized uncrewed aircraft systems, known as UAS or drones.

MSU's Raspet Flight Research Laboratory, designated both as the Federal Aviation Administration's UAS Safety Research Facility and as official UAS Test Sites for both the FAA and the Department of Homeland Security, is leading a multi-pronged Department of Defense-funded effort to make UAS cooler, quieter and more efficient.

"The fueling station technology can be used anywhere that there is available electricity and water, which is used to make the hydrogen," said Jake Leachman, associate professor in WSU's School of Mechanical and Materials Engineering. "That basically makes this the most convenient fuel anywhere in the world."

"Every aspect of this overall initiative, from this hydrogen work to our acoustic and thermal research, is about creating the capability to fly undetected at lower levels," said Caden Teer, chief research engineer at MSU's Raspet Flight Research Lab. "In each case, we're ensuring the UAS retain sufficient capabilities to meet mission requirements."

The aviation industry currently produces about 3% of global carbon dioxide emissions but does not have a ready solution to reduce its emissions. Technologies that are viable on the ground, such as batteries or solar panels, are not yet practical for flying, and researchers are increasingly looking to hydrogen as a possible low-carbon solution.

"The use of hydrogen fuel in Group 2 UAS has the potential to be a big deal for military applications," said Don Harring, Insitu product manager for advance development. "Liquid hydrogen fuel, with electric propulsion, will allow these size UAS to fly with almost no noise. This allows operators to fly more covert missions and get better intelligence, surveillance and reconnaissance data than with typical heavy fuel propulsion."
Group 2 UAS weigh between 21 and 55 pounds and normally operate at altitudes lower than 3,500 feet.

"Hydrogen is a fuel that is gaining a lot of momentum," said Ian Richardson, a former postdoctoral researcher in WSU's School of Mechanical and Materials Engineering who led the hydrogen project. "Working on hydrogen technologies for the past 10 years and now having the resources and everything coming together, it is a great time to be an engineer. It's on us to deliver to get these technologies into the market and start really having an impact."

For the UAS flight, conducted at the Pendleton Unmanned Aerial Systems Testing Range in Oregon earlier this summer, the researchers used a liquid hydrogen fueling station to fill the tank, which powered a fuel cell to produce electricity for the flight.

"This is the first known 3D-printed liquid hydrogen fuel tank that's ever flown, and it's a new type of liquid hydrogen storage technology," said Richardson. "This was an initial proof-of-concept that we are looking to scale up to larger platforms, including unmanned and manned applications."

The flight brought together several technologies that researchers have been working on for about a decade. The researchers developed the unique 3D-printed liquid hydrogen storage tank that was used in conjunction with a fuel cell to power the flight. The tank is made of a lightweight polymer instead of metal. It also saves weight and fill time by having a patent-pending heat exchange system within its tank wall to cool the insulation during fills and warm the hydrogen vapor for use.

The project also made use of a WSU-developed portable hydrogen fueling station. The liquefier and refueling station are contained entirely within an 8-cubic foot shipping container. While researchers have known how to liquify hydrogen for some time, the challenge was to create a safe and portable system that could dispense small amounts of it. The researchers had to miniaturize all the nozzles and connections from much larger scale technologies for a lightweight flight-rated tank. The fueling station can be easily purged and transported from one location to the next.

Lessons learned from the overall project could also have non-military applications, such as allowing UAS, for example, to survey crops more quietly, resulting in fewer disturbances for those on the ground.

MSU CONTINUES UAS RESEARCH, TESTING AND EVALUATION FOR U.S. HOMELAND SECURITY WITH $18.7 MILLION CONTRACT

Mississippi State University (MSU) has once again been tapped to lead a major uncrewed aircraft systems (UAS) research, testing and evaluation project on behalf of the U.S. Department of Homeland Security (DHS).

Homeland Security's Office of Procurement Operations, on behalf of the DHS Science and Technology Directorate (S&T), has awarded MSU a five-year contract with a funding ceiling of $18.7 million, including approximately $4 million in funding awarded in Fiscal Year 2022. MSU's Raspet Flight Research Laboratory, a national leader in UAS research, will spearhead the effort. Under the new contract with DHS, MSU will continue to scout, evaluate and test emerging UAS technologies. MSU has also been tasked with developing a cost-effective prototype UAS that is customized specifically for DHS needs and incorporates capabilities beyond what is currently available. Another early initiative in the partnership is to conduct cybersecurity vulnerability assessments for UAS aircraft.

MSU resources in high-performance computing, cybersecurity, advanced materials and remote sensing, among other areas, will complement the project to enhance outcomes for DHS.

"This project is a great of example of how MSU can leverage internal strengths and external relationships to deliver full solutions in support of national security," said MSU Vice President for Research and Economic Development Julie Jordan. "It is also a testament to the excellent work being done every day at Raspet Flight Research Laboratory and the value the center has provided in MSU's previous work with the Department of Homeland Security. This award is a major win for MSU and the state as we continue to see the benefits of Mississippi being a hub for UAS research and development."

MSU was selected in 2017 to lead Homeland Security's Common UAS Test Site in conjunction with multiple Magnolia State partners. As part of that partnership, MSU provides UAS testing, evaluation and full-scale exercise capabilities for more than two dozen simulated security threat scenarios such as disaster relief, highway and rail accidents, border protection and hazardous material spills.

Tom Brooks, director of the Raspet Flight Research Lab, said he is excited to see the lab's capabilities and partnerships continue to grow, which enhances opportunities for students and researchers on campus.

"We have one of the largest and most sophisticated UAS fleets of any university in the country to go along with a great team and the ability to fly UAS over thousands of square miles of unique terrain," Brooks said. "This project will help our government partners evaluate and ultimately implement the next generation of UAS technologies, something that I am proud for MSU and Raspet to be a part of."

MSU has a distinguished history of UAS research and development initiatives. The university was selected to lead the Federal Aviation Administration's (FAA's) UAS Center of Excellence for UAS Research, or ASSURE, in 2015 to provide the agency with the academic research, data and support needed to safely integrate UAS into the national airspace system. In 2020, Raspet was designated as the FAA's UAS Safety Research Facility, placing the research center at the helm of studying and developing UAS safety and certification standards. In addition to federal agencies, Raspet conducts research on behalf of industry partners, helping grow Mississippi's aerospace sector.


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Unfold the front arms of the aircraft.
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QUIETSHARK TAKES FLIGHT

Researchers at Mississippi State University's Raspet Flight Research Laboratory quiet the deafening roar of TigerShark with a modified version of the Group 3 uncrewed aircraft system (UAS) known as QuietShark.

Tasked by the U.S. Department of Defense to design a cooler, quieter and more efficient UAS to support military operations, Raspet's research engineers developed QuietShark to accomplish the mission.

"As originally constructed, the acoustic properties of Group 3 UAS are not well-suited for covert or near-stealth operations limiting use for military maneuvers," Raspet's Associate Director of Research Engineering Caden Teer said.

Raspet and Navmar Applied Sciences Corporation (NASC), the TigerShark original equipment manufacturer (OEM), collaborated to evaluate various methods to reduce the aerodynamic and mechanical noise of the TigerShark. Engineers ultimately decided to target improvement of engine exhaust, engine intake, and propeller blades to develop QuietShark.

To get started, Raspet engineers designed and built an acoustic anechoic chamber inside the flight lab to accurately measure precise sounds, including propeller noise.

"With an electric motor mounted to a test stand at one end of the chamber, we attached various propellers to the motor and turned them at different revolutions per minute (RPMs), which allowed engineers to evaluate the noise associated with the propeller while independent of the mechanical noise source that would be attributed to a reciprocating engine," said Raspet Flight Lab Director Tom Brooks.

Unlike the noisy TigerShark with a two-blade propeller, QuietShark is equipped with a four-blade propeller that turns at a lower RPM. During ground and flight testing, the QuietShark maintained the same level of flight performance as the standard TigerShark while reducing overall noise and perceived loudness.

"The purpose of this work is to create the ability to fly undetected at lower altitudes," said Brooks. "If you can fly undetected at lower altitudes, your sensor resolution is higher, and you can pick out better details. We, along with our research partners, are ensuring the reconfigured airplanes remain mission-capable."

The aircraft exhibited an overall noise signature reduction of more than 75 percent compared to a standard TigerShark. Researchers also recorded an almost 20 percent reduction in perceived loudness above ground level (AGL) altitudes below 1000 feet, a metric that increases the aircraft's ability to operate quietly at low altitudes.

The QuietShark system, which can be retrofitted to other TigerShark aircraft, also includes modifications to the exhaust and drive systems and measures to dampen heat. During testing, the QuietShark measured to have a temperature signature nearly half that of the standard TigerShark configuration.

Lessons learned from the research could also have non-military applications, such as allowing UAS to survey crops or deliver packages more quietly, resulting in fewer disturbances for those on the ground.


STATE

2022 RESEARCH PROJECTS

$20.1 MIL
AWARDS

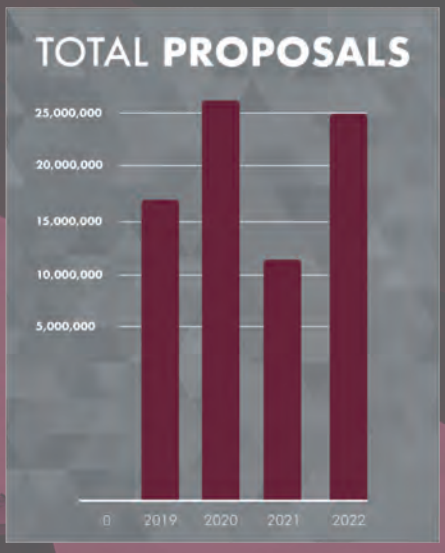
$25.6 MIL
PROPOSALS

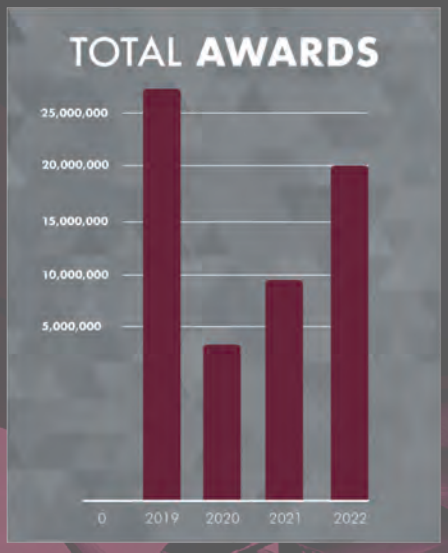
$10.5 MIL
EXPENDITURES

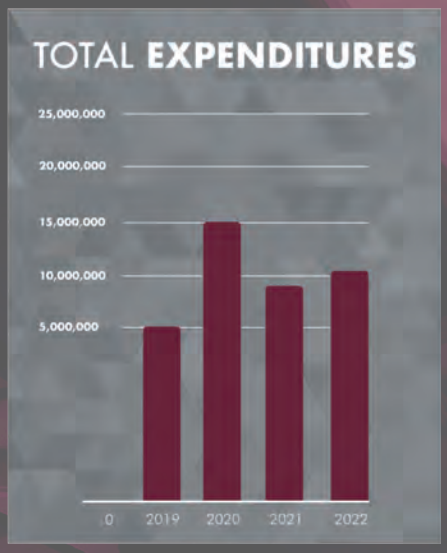
2019	$17,800,000
2020	$26,600,000
2021	$12,000,000
2022	$25,600,000

2019	$28,500,000
2020	$3,200,000
2021	$9,700,000
2022	$20,100,000

2019	$5,300,000
2020	$15,100,000
2021	$8,200,000
2022	$10,500,000



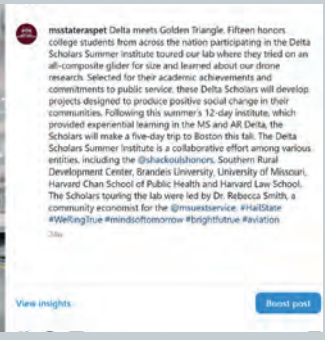




NEWS ON SOCIAL

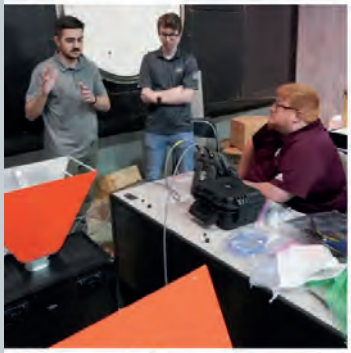
Raspet Flight Research Lab
Jun 9, 2022 ·

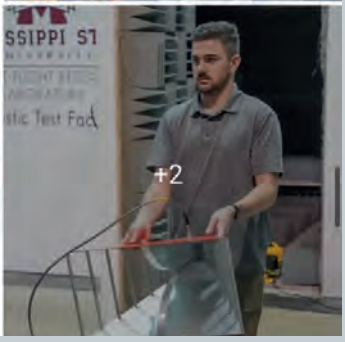
About 25 high school students flew small unmanned aircraft systems within our Autonomous System Research Laboratory this week while on a tour of our facilities. The students are attending an Introduction to Engineering camp hosted by Assistant Professor of Aerospace Engineering Chuangchuang Sun. Participants learn about robotics and aerospace engineering through a variety of presentations and hands-on activities. #WeRingTrue #HailState #uas



Raspet Flight Research Lab
Jun 1, 2022 ·

Let's interfere with interference. **Bagley College of Engineering**'s Dr. Ryan Green discusses horn antennas' role in flight safety with Raspet grad students Jake Sims and Chris White. These antennas and an analyzer will aid our lab in reducing radio frequency interference emitting from equipment later installed aboard an unmanned aircraft system. This ensures the payload does not interfere with the UAS's functionality. **Electrical and Computer Engineering, Mississippi State University** #HailState #WeRingTrue #Teamwork

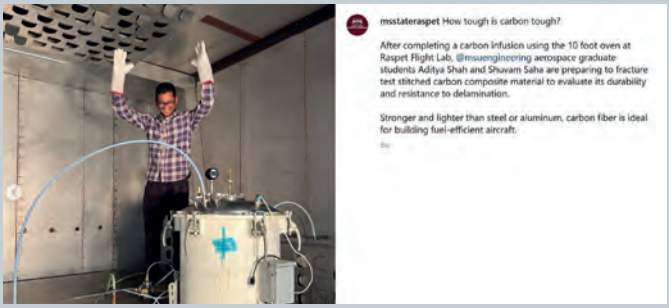




TWITTER: @MSStateRaspet
FACEBOOK: @MSURaspet
INSTAGRAM: @MSStateRaspet
LINKEDIN: MSU's Raspet Flight Research Laboratory

Raspet Flight Research Lab
Apr 8, 2022 ·

We recently hosted UAS visual observer training. Congrats to ARM Aerial Facility personnel on their completion. Trained VO's working with pilots enable safe operation beyond pilots' line of sight. **ARM Climate Research Facility U.S. Department of Energy Pacific Northwest National Laboratory** #WeRingTrue #HailState #UAS



RASPET FLIGHT RESEARCH LABORATORY
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