



AIRBORNE SYSTEMS TESTING AND ENVIRONMENTAL RESEARCH

DRI.EDU/ASTER

THE AIRBORNE SYSTEMS TESTING AND ENVIRONMENTAL RESEARCH (ASTER) LAB at the Desert Research Institute conducts and facilitates the development and use of unmanned aircraft, payloads, and data analysis for a broad range of the environmental sciences.

The ASTER Lab has a fleet of fixed-wing and rotary-wing unmanned aircraft systems (UAS) that provide in-house capabilities to carry sensor payloads exceeding 6kg on an as-requested basis. ASTER's payload inventory includes videography, radiometric long-wave (thermal) infrared, meteorology, airborne aerosol and gas measurement, and atmospheric sampling systems. Payload design and development occurs in-house, and the ASTER Center also collaborates with other institutions to provide flight planning and airborne payload testing in specialized environments.

PAYLOADS

- Videography
- Radiometric long-wave (thermal) infrared
- Meteorology
- Airborne aerosol and gas measurement
- Atmospheric sampling systems

PHOTO CAPTIONS Top: Adam Watts works with an unmanned aircraft in the ASTER lab at the Desert Research Institute, in Reno, Nev.; Lower right: Researchers study a prescribed burn using unmanned aircraft during 2019.



NEVADA SCIENCE, GLOBAL SOLUTIONS

The Desert Research Institute (DRI) is a recognized world leader in basic and applied interdisciplinary research. Committed to scientific excellence and integrity, DRI faculty, students, and staff have developed scientific knowledge and innovative technologies in research projects around the globe. Since 1959, DRI's research has advanced scientific knowledge, supported Nevada's diversifying economy, provided science-based educational opportunities, and informed policy makers, business leaders, and community members. With campuses in Reno and Las Vegas, DRI serves as the non-profit research arm of the Nevada System of Higher Education.

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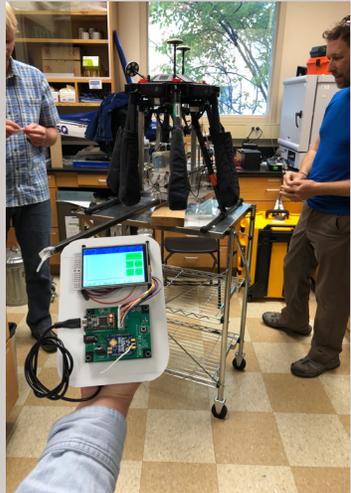


PHOTO CAPTIONS Clockwise from top right: The DRI-led UAS flight over Walker Lake, NV, at 1500 feet AGL during the 28-nautical-mile (32 statute miles) BVLOS flight. Bottom right: ASTER aircraft tests meteorology payloads at the Center's Sagebrush Ecosystem testing location. Bottom left: ASTER personell work with a UAS at a prescribed fire. Sidebar: Researchers work with UAS and sensors in the ASTER lab at DRI.



CAPABILITIES

As a part of the FAA's UAS Test Site Network, the Center is able to conduct and oversee flight operations at and above 365m (1200 feet) altitude, at night, and beyond the visual line of sight of the pilot with appropriate arrangements. The magazine Popular Science recently profiled one signature project, a 32-mile flight at 1,500 feet altitude above ground (AGL)—the longest commercial UAS flight in American aviation history (<http://www.popsci.com/cloud-seeding-drones>). For operations without complex flight profiles, the Center also conducts flights under authorization of FAA's Part 107 rules with FAA-certified and insured UAS pilots. ASTER conducts flights under rigorous safety protocols established in collaboration with FAA to represent the highest standard in unmanned aviation safety.

The ASTER Center also has training capabilities that draw on 15 years of UAS experience, including the development of UAS platforms and training protocols for the US Army Corps of Engineers, Jacksonville District. That program led to the training of USACE operators and a long-running (nearly 10 years) UAS program (<http://www.saj.usace.army.mil/Missions/Unmanned-Aerial-Vehicle/>).



CONTACT US

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