

ALASKA

NORTH TO OPPORTUNITY

UNMANNED AIRCRAFT SYSTEMS IN ALASKA





HIGHLIGHTS

2013	September: Conoco Phillips Alaska made aviation history with the first approved commercial UAS flight in the U.S. The ScanEagle flight took place in remote airspace over the Chukchi Sea, about 120 miles offshore from the village of Wainwright.
2014	May: PPUTRC and Peak 3 conducted the first test flight in Alaska using the Aeryon Scout for a proof of concept flight to collect data from caribou without disturbing the animals.
2014	May - June: ACUASI used a ScanEagle to provide support for the Funny River Wildfire in Kenai, Alaska, allowing firefighters to target specific areas and contain the fire in half the normal time.
2014	June, 2014 and April 2015: ACUASI and the Coastal Marine Institute performed surveys of intertidal sea grass species near Homer, Alaska.
2014	July: The City of Fairbanks, Alaska State Troopers, ACUASI, and Peak 3 conducted first responder demonstrations with the Aeryon Scout to monitor a burning building, police stand-off, and vehicle accident. The City and ACUASI also used UAS to collect forensic evidence from an actual fuel truck accident.
2014	September: Tulugaq, ACUASI, and Shell Oil partnered for a proof of concept mission to monitor bowhead whales near Wainwright, Alaska, and to determine the potential of UAS in missions off Alaska's coastlines.
2014	October: ACUASI entered into an agreement with a European company for its first international test site mission in Iceland, in collaboration with UAS Iceland. The SA-03 UAS is a water bomber used for fire suppression in support of wildfire operations.
2014	November: In an ongoing project, UAF, the Department of Transportation, and Alyeska Pipeline Service Company are investigating UAS operations for pipeline surveillance and security while also developing communications for beyond line-of-sight missions.
2014	December: NOAA, with support from ACUASI, incorporated UAS into its Marine Debris Program to help search and map the location, type, distribution, and movement of debris caused by the 2011 Japanese tsunami.
2014	December: UAF, along with Oregon State University and the University of Washington, are using UAS to collect remote sensing data for a landslide safety assessment of the roads at Glitter Gulch, near Denali National Park.
2015	February: The Cold Regions Research and Engineering Laboratory and ACUASI participated in an EPA mission in which UAS are flown through plumes of exploded ordnates to test for particulate matter.
2015	March - May: NOAA has partnered with ACUASI to conduct pre-break up monitoring to provide baseline data and to assess flood threats and navigational hazards in the Yukon.
2015	April: UAF and ACUASI used UAS to conduct a sea ice survey in Barrow, Alaska and to develop a survey map for the whaling community.
2015	June: UAF and George Mason University will use UAS for an ongoing bridge inspection project, funded by the U.S. Forest Service.
2015	September: UAF will use a Ptarmigan to monitor polar bears on the North Slope of Alaska.

WHY ALASKA?

UAS in Alaska

With more than 663,300 square miles of airspace, varied terrain, established aerospace infrastructure, a thriving support-services industry, and the newly designated Pan-Pacific UAS Test Range Complex (PPUTRC), Alaska provides an optimal environment for unmanned aircraft system (UAS) testing and development. Alaska strongly supports the UAS industry, with state government actively investing in industry expansion by funding the Alaska Center for UAS Integration and establishing the Alaska UAS Legislative Task Force to guide policy decisions. In addition, Alaska's robust aviation and military sectors provide a highly skilled workforce to support the businesses that will advance the industry.

Alaska recognizes the UAS industry's robust needs for privacy safeguards as a foundation for rapid, responsible growth. Recent legislation leads the way for UAS industry development while underlining the state's commitment to public safety.

Whether for military, commercial-civilian, or scientific applications, Alaska is poised to lead the way in developing new technology and providing extensive testing opportunities.

Room to Grow

Alaska offers:

- 663,300 square miles of highly varied terrain ranging from tundra to mountains
- Diverse climate zones and temperature regions
- More coastline than all other U.S. states combined
- Over 500 airports, ranging from dirt strips to Class C international airports for manned and unmanned integration

Arctic Airspace

The use of small unmanned aircraft systems in the Arctic Implementation Plan (FAA Modernization and Reform Act of 2012) required the FAA to designate specific areas in the Arctic for small UAS to operate without regard to status as public, civil or model, 24-hours a day.

Additional elements of this operational capability include:

- Beyond line of sight
- Overwater flights from the surface to 2,000 ft above ground level
- Ingress/egress routes from selected coastal launch sites
- Permanent, cooperative operating areas and corridor routes

University of Alaska Geophysical Institute: Alaska Center for UAS Integration

The Alaska Center for Unmanned Aircraft Systems Integration is a research center at University of Alaska Fairbanks providing integration of unique payloads and support for pathfinder missions within government and science communities, with a special emphasis on the Arctic region. Integrated focus areas include engineering, application development, training, and education. The center has flown a variety of in-situ and remote-sensing instruments on several types and sizes of UAS at multiple locations in Alaska (and around the globe) for applications, including resource mapping, marine mammal monitoring, fighting forest fires, mapping glaciers and sea ice, and many more.

The University of Alaska's Poker Flat Research Range is the largest land-based rocket research range in the world and the only high-latitude rocket range in the United States. Supporting unmanned rocket launches studying upper atmospheric phenomena like the aurora, it was the original host to the UAS program and remains an important flight testing and training location.

Alaska Region Capstone Program

The Alaska Region Capstone Program is focused on increasing safety in aviation through technology and integration. This includes ADS-B technology capable of sending real-time information to air traffic controllers and pilots through the use of satellites and ground stations. It allows for critical flight information to be transmitted every second and to address UAS "sense and avoid" challenges.

ALASKA'S ADVANTAGES

State Support

- Alaska offers a municipal tax exemption authorizing municipalities to exempt or partially exempt (for up to 10 years) property located in a military-facility zone that creates or supports industrial development, educational, or training opportunities for the UAS sector
- The Fairbanks North Star Borough is developing a tech-park plan to accommodate UAS manufacturers and service providers
- The University of Alaska is developing a UAS training program
- The Alaska Industrial Development and Export Authority (AIDEA) is the State of Alaska's finance authority for development projects and can provide financing in military-facility zones. AIDEA works in partnership with the private sector, allowing Alaska to be a competitive financing partner and retain Alaska investment. AIDEA has \$1.3 billion in assets under management with a Standard and Poor's credit rating of AA+
- The Alaska UAS Legislative Task Force fields public/industry concerns, recommends policies addressing privacy and public safety, and encourages public education and outreach
- The Alaska Division of Economic Development provides loan programs to promote economic development in Alaska by helping small businesses access capital
- The state was ranked fourth-best in the U.S. by the Tax Foundation in the annual "2014 State Business Tax Climate Index." Alaska offers low corporate taxes¹ and no individual state income or sales tax

Culture of Aviation

Lacking road access to much of the state, aviation is a key feature of Alaska culture. It is estimated that one out of every 58 people in the state is a pilot and there are six airplanes for every 10 pilots. Unsurprisingly, Alaska maintains critical aviation infrastructure and support services across the state. Further, programs and certificates from the University of Alaska help the state maintain a strong, skilled workforce of aviation professionals that complements the UAS industry.

¹Alaska levies a corporate income tax on Alaska taxable income, which is based on federal taxable income with certain Alaska adjustments. Alaska tax rates are graduated from 1 percent to 9.4 percent in increments of \$10,000 of taxable income. The 9.4 percent max rate applies to taxable income of \$90,000 and over.

University Aviation Programs

Programs offered include:

- Professional Pilot Program
- Airframe and Power Plant (A&P) Certificate
- Engineering and Sciences
- Air Traffic Control
- Aviation Administration
- UAF Geophysical Institute UAS Program

Alaska's Military

Home to approximately 22,000 active-duty members, Alaska's military supports more than 7,000 defense-related civilian jobs. Alaska's military installations support UAS operations, testing, training and maintenance, and are currently utilizing the RQ7 Shadow at Bryant Army Heliport, Ladd Army Airfield and Allen Army Airfield. Alaska offers 67,000 square miles of military airspace, which is larger than the entire state of Florida.

Each year, thousands from the U.S. military services, federal, state, and local agencies, allied nations and nongovernmental organizations receive training in the Joint Pacific Alaska Range Complex (JPARC). JPARC encompasses all domains – land, air, sea, space, and cyberspace – to provide service, joint, interagency and multinational training. JPARC offers unmatched opportunities for UAS integration.



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