

ALASKA^

NORTH TO OPPORTUNITY

UNMANNED AIRCRAFT SYSTEMS IN 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.

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



WHY ALASKA?

Room to Grow

Alaska is truly the Last Frontier, offering vast amounts of varied terrain, airspace, weather systems and low-population-density areas ideal for testing cutting-edge technologies.

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 supporting 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, monitoring marine mammals, 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.

1999	October 1999: UAS Global Hawk flies first mission over water, first flight in Alaska, and first extended-range sorties, all commissioned by U.S. Joint Forces Command.
2001	2001: The University of Alaska Fairbanks (UAF) establishes a partnership with New Mexico State University to develop new applications.
2003	2003/2004: UAF partners with United States Air Force and the United States Coast Guard to use UAS for maritime domain awareness and Alaska wildfire work.
2006	2006: UAF acquires first ScanEagle.
2008	August - September 2008: The first shipboard Arctic ScanEagle mission serves as a precursor for future commercial UAS operations.
2009	June 2009: UAF flies ScanEagle off the National Oceanic and Atmospheric Administration's research vessel MacArthur II; the flight is the first FAA-approved beyond-line-of-sight mission.
	August 2009: UAF flies ScanEagle to support the Crazy Mountain Complex wildfire fight; UAF is the first entity other than NASA or DoD to receive an emergency certificate of authority to fly in civil airspace with a UAS beyond line of sight.
2010	2010: Arctic Global Hawk UAS completes its first mission beyond 70 degrees north latitude.
	October 2010: BP Alaska conducts pilot testing of the Aeryon Scout to enhance pipeline inspection and safety operations.
2012	January 2012: Congress passes FAA Modernization and Reform Act of 2012 which directs FAA to establish Arctic airspace, six FAA test sites, and issue rules for commercial use of UAS by 2015.
	February 2012: UAF supports winter fuel delivery to Nome using UAS; it is the first operation below minus 35 degrees Fahrenheit.
2013	February 2013: UAF assists the 212th Pararescue Jumpers, Army Rangers, and the Alaska National Guard search and rescue and mapping exercise with UAS imagery in Bethel.
	September 2013: First FAA-approved commercial ScanEagle flight in NAS under military exception.
	December 2013: University of Alaska Fairbanks's Pan-Pacific UAS Test Range Complex announced as one of six FAA test sites.

Arctic Areas

Southern Arctic Area: The portion of the Anchorage Continental Control Area (CTA)/Flight Information Region (FIR) overlying the Bering Sea north of the Aleutian Islands and south of the Bering Strait beyond domestic U.S. airspace.

Bering Strait Area: An area connecting the Southern and Northern area through the Bering Strait, which will allow UAS to assist with SAR operations and shipping-lane ice surveys.

Northern Arctic Area: The Anchorage Arctic CTA/FIR areas of the Chukchi Sea and the Beaufort Sea beyond domestic U.S. airspace. The Anchorage Arctic CTA/FIR has a floor of FL230; the airspace below is Class G, or uncontrolled airspace.

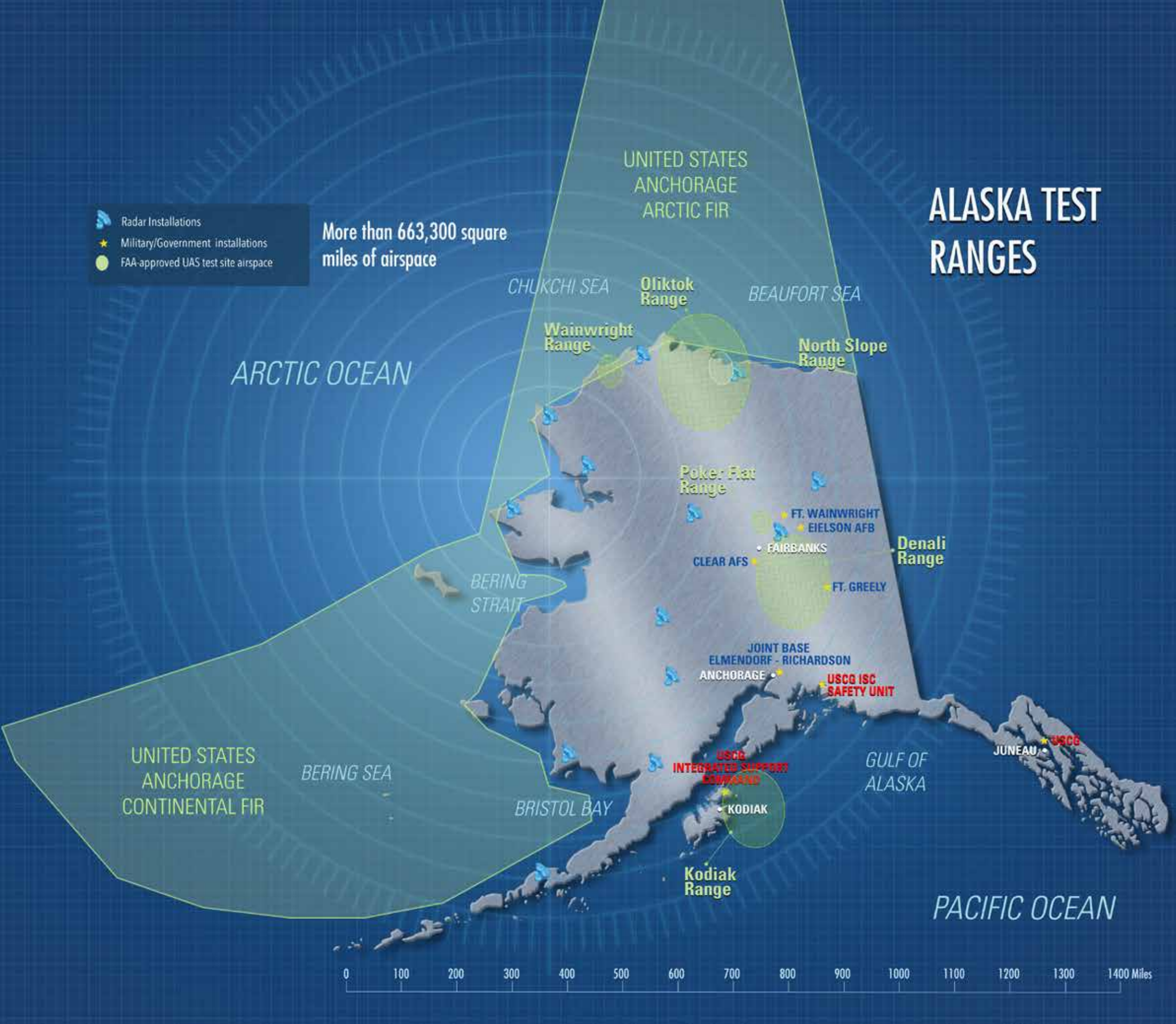
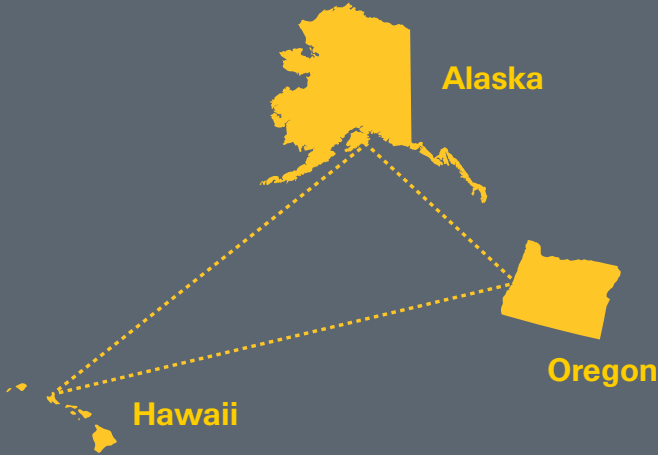
Alaska Aerospace Corporation

The Alaska Aerospace Corporation (AAC) was established by the State of Alaska to help develop a high-technology aerospace industry in the state. Although the corporation’s core business is space launch, AAC also develops UAS and provides range- safety and telemetry-system services.

Access to wide-open airspace for research, scientific testing and commercial operations makes Alaska one of the best places in the country to determine how to integrate emerging UAS technology into the existing National Airspace System (NAS).

Pan-Pacific Test-Range Complex

The FAA designated UAF as the lead public operator for the Alaska, Oregon and Hawaii Pan-Pacific Team. The test sites allow the FAA to develop research findings and operational data to help ensure the safe integration of UAS into the NAS as the aviation community transitions to a system featuring NextGen technologies and procedures.



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
- 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, which is recovered through modest rate of return and negotiated user fees. 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.

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

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.

Alaska's Military

Home to more than 22,000 active-duty military members, the industry is the third-fastest growing in the state and supports more than 7,000 defense-related civilian jobs. The extensive military presence in Alaska provides ample opportunity for public-private partnerships and access to highly trained UAS-industry experts. 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.

Each year, thousands from the U.S. Armed 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 present and future service, joint, interagency and multinational training, offering unmatched opportunities for UAS integration.



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