



CRITICAL NEED FOR INVESTMENT IN UNMANNED AIRCRAFT SYSTEMS (UAS) WITHIN THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

ABSTRACT

The American Institute of Aeronautics and Astronautics (AIAA) – the world’s largest forum for aerospace leadership – sees an opportunity within NOAA to use unmanned aircraft systems (UAS) as a means to better understand our fragile environment as well as to potentially reduce societal anxiety, property damage and loss of life from natural disasters. In almost all cases, UAS offer a complementary, valued-added means to improve our environmental and economic security at a time when the U.S. is most vulnerable. As a matter of national urgency, AIAA provides this Whitepaper to the Senate Subcommittee for Commerce, Science and Transportation for the upcoming hearing entitled “Unmanned Aerial Systems in Alaska: A Framework for the Nation.” This Whitepaper is intended to serve as a stimulant for Congress to fully fund and support a UAS operational base in Alaska starting in FY 2007.

ISSUE

Because of its geographic remoteness, robust infrastructure (e.g., military bases/airfields, FAA resources) and proximity to application-specific operating areas, Alaska is an ideal location to conduct NOAA UAS operations for five very important reasons:

1. **Global Climate Change.** Closest access point to the Arctic ice cap to nearly-continuously (every 72 hrs) measure ice melt phenomena from high to low altitudes as part of the global climate change monitoring program. Sensor data collected from UAS will improve widely differing global climate change prediction models, which are now showing significant increases in polar ice melt, the result of which could be devastating climatically, societally, agriculturally and economically to the world. This is a global leadership issue that only the U.S. has the capability to employ now. Alaska would become, de facto, the world leader of an Arctic country coalition to accomplish the mission successfully.
2. **Natural Disasters (including hurricanes).** Should the need arise, Alaskan UAS could be deployed rapidly to any hurricane spawning area or State during the hurricane season or other natural disaster (e.g., fires, earthquakes, floods, famine) areas. Hawaii also has suitable UAS basing capability at the Pacific Missile Range Facility on Kauai that could be the staging center for Pacific Rim missions. Studies have confirmed that UAS observations are essential to improve hurricane intensity, track and landfall predictions. UAS would complement existing space, airborne and terrestrial sensors by providing atmospheric observations needed to improve predictions in excess of three days, which is currently limited by the range of manned aircraft. Predator Bs and Global Hawks could provide longer range observations, thereby markedly improving track predictions in the period 4 to 5 days before landfall. Longer range UAS are in development that could provide even greater surveillance capability (~7 days) less expensively. Improved predictions translate into better disaster planning and evacuation timing/routing, while giving disaster managers more time to make better decisions. UAS could reduce unnecessary evacuations, save lives and property, while making operations more efficient and cost effective.
3. **Marine Fisheries.** UAS could also be deployed to monitor vital fish stocks (e.g., Alaska Region and the Pacific Coast Region National Marine Fisheries) to improve fisheries management and reduce poaching. Protection of our Exclusive Economic Zones is a national imperative that requires a huge investment in surveillance systems largely only capable of “spot checks.” UAS offer to expand the monitoring footprint to better protect our resources.
4. **State Homeland Security.** These UAS could also do double duty monitoring Alaskan (and when in Hawaii) coastlines, critical infrastructure (e.g., pipelines, water reservoirs, oil/gas refineries and storage facilities, harbors, transportation arteries) and as well as other areas vulnerable to terrorism.
5. **FAA UAS Evaluation.** An Alaskan UAS operations center (e.g., Eielson AFB, Fairbanks) could also support a broad range of UAS testing and evaluation much needed by the FAA to assist in resolving challenges associated with UAS system certification, airworthiness and air traffic management. In particular, Alaska is ideally suited to help with collision avoidance experimentation and demonstrations, especially with its operational ADS-B network and extensive radar controlled environment above 18,000 ft. altitude (FL180). This remote environment provides ideal conditions that reduce the likelihood of collision with manned aircraft, while offering many diverse resources to facilitate the tests.

RECOMMENDATIONS

- As a matter of urgency, Congress must make funds available through a top-level increase to the NOAA budget to procure UAS services for vital national and regional missions. AIAA recommends Congress appropriate \$90M to NOAA per year over the FYDP starting in FY2007. This funding would allow NOAA to make significant progress in developing UAS operational capability in Alaska.
- Congress should also work very closely with the FAA to ensure that the opportunity to mature UAS operations in the National Airspace System (NAS) is fully exploited, while simultaneously enabling NOAA to conduct its important UAS missions.