NOAA Office of Oceanic and Atmospheric Research
Unmanned Aircraft Systems (UAS) Program

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Mission Statement and Vision:

The UAS Program's vision is to fully exploit UAS capabilities to meet NOAA's mission requirements. The mission of the UAS Program is to facilitate UAS applications and utilization in NOAA and accelerate the transition of UAS capabilities from research to operations by providing expertise and resources for UAS research and development.

Core Competencies:

The UAS Program possesses core competencies in the understanding of UAS technologies and capabilities, potential scientific applications, concepts of operations (CONOPS), and transitioning research into operations. The UAS program's goal is to serve as the trusted source of expertise across NOAA. To accomplish its goals the UAS Program will:

- Provide science, engineering, and technical advice to stakeholders to address technical challenges.
- Provide support to enhance utilization and maximize transition of UAS research to operations and applications.
- Provide a structured, engineering-centric project management approach to funded UAS projects to facilitate their advancement.
- Provide stakeholders support with meeting NOAA and federal policies for UAS such as cyber security, privacy, and environmental compliance.

Statutory Authority and Charge Under NOAA Strategic Plan:

- The NOAA Five Year (2013-2018) Research and Development Plan which outlines what NOAA will strive to do in order to provide "environmental understanding to ensure America's vital and sustainable future," including the use of unmanned vehicles and remote sensing platforms.
- Weather Research and Forecasting Innovation Act of 2017 to reduce loss of life, property, and disruption from high-impact events and improve transportation efficiency and safety.
- The Department of Commerce 2018-2022 Strategic Plan, which calls for NOAA to "Develop and deploy next-generation environmental observation and modeling systems…" and to "Deploy the next generation of satellites, aircraft, ocean-going ships, and observation and data gathering systems" (Strategic Objective 3.3).

Science Themes and Research Areas:

The UAS Program coordinates with NOAA Line Offices and the NOAA Unmanned Systems Executive Oversight Committee to develop goals which maximize UAS capabilities based on evolving regulatory issues and rapidly developing technology. The current high priority themes and research areas are to:

- Evaluate observing strategies using medium endurance rotary wing, hybrid, and long endurance fixed wing UAS.
- Address critical data gaps in tropical cyclones through accelerated development of UAS and sensor capability.
- Facilitate UAS application through sensor development, calibration, intercomparison and evaluation.
- Evaluate ship-launched UAS technology and infrastructure to enable routine beyond visual line of sight ship-based UAS operations.

- Develop extended visual line of sight vertical meteorological profiling operations to enable operation of an atmospheric measurement UAS beyond visual range.
- Analyze the value of high-altitude observations and sampling strategies for tropical cyclone research and forecasting.
- Develop UAS CONOPS for conducting pinniped surveys in Alaska to determine how UAS can reduce the number of manned aircraft surveys in this hazardous environment.

Products and Results:

Further the development of NOAA's UAS enterprise by meeting NOAA stakeholder research needs and providing technological solutions to enable UAS research to transition to operations/applications through:

- Coordination of science requirements with stakeholders to determine NOAA mission requirements that will benefit from UAS technology.
- Focusing research resources on proposed UAS activities that have high potential to impact NOAA's mission and transition from research to operation/application.
- Conducting a regular UAS proposal process to provide research grants addressing research priorities and focus areas determined in coordination with Stakeholders.
- Development and evaluation of new capabilities in coordination with stakeholders, partners, and industry.

Customers:

All of NOAA's Line Offices using UAS

Future Expectations:

Strengthen the coordination and collaboration between NOAA stakeholders on UAS utilization. Maintain the UAS competency and expertise required to remain relevant in emerging technology and be prepared to meet NOAA's future needs. Develop an evolving vision of UAS utilization for NOAA's mission requirements and support efforts to achieve this goal.