

FY 2012 Request for Proposals Supporting NOAA's Mission Goals using Unmanned Aircraft Systems (UAS) Technology

- 13 Dec 2011 – Request for FY 2012 pre-proposal letters
- 11 Jan 2012 – Deadline for pre-proposal letters
- 13 Feb 2012 – Request for full proposals
- 26 Mar 2012 – Deadline for full proposals
- 24 Apr 2012 – Proposal selection

NOAA UAS POC

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1.0 Introduction

Unmanned Aircraft Systems (UAS) have the potential to efficiently, economically and safely bridge critical information gaps in data sparse and remote locations of the global environment and advance the understanding of key processes in Earth systems. Optimizing the capabilities that UAS offer will advance NOAA's mission goals through improved understanding of oceanic and atmospheric exchanges, hurricanes, wildfires, marine ecosystems, polar regions, hazards, and other environmental and ecological processes, ultimately leading to improved climate and weather predictions and management of marine resources. NOAA is partnering with other civilian agencies, industry and the academic community to develop UAS operations, systems and platforms that can be safely deployed both nationally and globally, to fill observational data gaps with increased efficiency and decreased risk to personnel.

2.0 Scope of the Solicitation

The NOAA Unmanned Aircraft Systems Program has identified and demonstrated promising unmanned observing technologies which have the potential to bring measurable benefit to the NOAA mission critical observing strategies through improved observing capabilities, decreased cost, enhanced operational efficiencies, or reduced risk to personnel. The advantages of UAS technologies are especially promising in the mission areas of high impact weather, polar, and marine monitoring which:

- Require observation data over distant regions or at temporal frequencies that are not available from manned aircraft observations and satellites, and
- Pose safety risks to manned aircraft crews due to the dangerous environments

The NOAA UAS Program now solicits proposals from NOAA Federal and Cooperative Institute personnel for competitively selected field projects demonstrating viable concept of operations for unmanned systems. The aim of each proposed effort should be to advance the technology readiness of unmanned systems even further toward feasible routine research or operational applications which directly address the NOAA mission goals of the NOAA Next Generation Strategic Plan. For this initial UAS solicitation, the focus will be on proposals that emphasize low altitude or short endurance marine and wildlife assessments with platforms currently or soon to be in the NOAA fleet. The platforms include the md4-1000 quadcopter, Manta UAS, and SkyWisp balloon launched glider as well as the Puma UAS, which is expected to be procured in the winter 2012. This list does not preclude consideration of other air vehicles or other science topics as long as the proposed field project directly addresses the NOAA observing needs of the NOAA mission goals outlined in the NOAA Next Generation Strategic Plan.

Proposal submission for this solicitation will be conducted as a two phase process as outlined in the **NOAA UAS Competitive Award Process – A Manual of Procedures**. All proposal teams should submit pre-proposal letters with a maximum 3-page synopsis of the proposed project by 11 January 2012. After review and evaluation of the pre-proposal letters, the proposal teams will be notified by 13 February 2012 regarding action for next the phase. A select number of candidates will be asked to submit full proposals with more detailed descriptions of the proposed projects by 26 March 2012. The other candidates will be given written feedback of their proposal concepts so the proposal teams may improve their ideas for future solicitations. Formats for the pre-proposal letters and full proposals are described in the *Manual of Procedures*.

3.0 Science Objectives and Goals

The overall objective of this solicitation is to make advances in Earth system science through innovative UAS-enabled science investigations that focus on the NOAA mission areas. Investigations must be relevant to the science priorities, goals, and objectives of NOAA's Next Generation Strategic Plan. Investigation goals could include but are not limited to:

- Providing real-time information to improve situational awareness or input for operational models
- Making measurements that address weaknesses in current Earth system models leading to improvement in modeling capabilities;
- Producing data sets that identify, characterize, and assess important phenomena
- Detecting and characterizing changes in the Earth system
- Monitoring and managing living marine resources and habitat.

4.0 Description of Solicited Research

The science objectives of the field project will be determined by the proposers, consistent with the goals and objectives identified in NOAA's Next Generation Strategic Plan.

Proposals are expected to:

1. Meet science objectives through measurements sufficient and necessary to prove/disprove a scientific hypothesis or address scientific questions.
2. Plan and conduct scientific measurements utilizing currently available sensors and instrumentation to meet science objectives. It is not appropriate to propose for significant new instrument development under this call. However, consideration will be given for modifications and improvements to existing instruments as may be required to address science goals.
3. Deliver the following:
 - a. Science Report with analysis of data, report on science objectives, and at a minimum a draft of publication results
 - b. Technology Assessment Report with analysis of UAS performance and report on vehicle/system considerations or modifications that would be required to accommodate science objectives.

The complete investigations requested by this solicitation shall include provision for:

- access to required UAS platforms,
- any required upgrades to platforms to enable the science mission
- all phases of any required instrument adaption and integration of instrument(s) onto the UAS platforms,
- investigation operations,
- data analysis,
- data distribution and data archival in a NOAA-assigned data center within 6 months from the end of the science mission,
- publication of science results,
- project management and key decision point reviews,
- logistics,
- travel,
- shipping,
- any proposed partnering arrangements, either domestic or international, and science team participants.

Successful responses to this solicitation must specify and justify the scientific scope and objectives of the proposed investigation, the full instrument suite to be assembled, the investigation platform and any upgrades, and the experimental approach to be pursued for data acquisition as well as for scientific analysis.

5.0 Programmatic Requirements

4.1 Funding

The proposal will be funded by FY 2012 funding and all funding must be fully obligated by September 30, 2012, with performance complete by September 30, 2013

4.2 Awards

A total of \$600K is being allocated for proposals under this solicitation. Three to five investigations may be selected depending on the availability of proposals of appropriate merit, provided they can be accommodated within the total budget profile allocated for this solicitation. NOAA reserves the right to make no selection if no proposals of appropriate merit are submitted or if FY12 funding is not dispersed as expected.

Proposal candidates for one to two micro-awards of less than \$50K are encouraged. Cost-sharing partnerships and in-kind contributions are also encouraged. Proposals with international deployments or budgets exceeding \$300K are discouraged for this solicitation. These types of proposals may be more appropriate for a second UAS solicitation with a broader science focus expected to be released in the spring of 2012.

4.3 UAS Platforms

UAS platform selection will be at the discretion of the Principal Investigator but consideration will be given to platforms now owned and operated by NOAA or planned to be acquired in FY 2012.

4.3 Excess Capacity in Selected Investigations

The NOAA UAS Program reserves the right to utilize excess capacity in selected projects. NOAA might add measurements, flight hours, sampling locations and/or times, etc. to any selected and funded project. Any additions will be coordinated with the Principal Investigator, and negative impacts will be minimized. Any costs associated with these additions will be covered by NOAA outside of the funding of any project selected as part of this solicitation.