

HUMBOLDT STATE UNIVERSITY
POLICY ON THE USE OF
UNMANNED AIRCRAFT SYSTEMS (UAS)
MAY 1, 2015

PURPOSE

To provide guidance concerning the appropriate use of Unmanned Aircraft Systems (UASs; <http://www.faa.gov/uas/>) related to research endeavors at Humboldt State University (HSU).

BACKGROUND

Unmanned Aircraft Systems offer great potential as tools for research. The use of UASs offer faculty, staff, and students at HSU valuable opportunities to acquire data inexpensively in a wide range of disciplines including, but not limited to, Applied Physics, Computer Science, Forestry and Wildland Resources, Wildlife, Global Spatial Analysis, Geology, Geography, Environmental Science, and Mathematics. In addition to experience associated with programming/flying UASs, student researchers benefit from the design, selection, and operation of data sensors and from the post-processing and analyses of sensor data. The use of UASs provides student researchers and faculty access to data that may enhance research projects within existing courses (e.g. environmental monitoring, image processing, pattern recognition, electronic instrumentation), enable undergraduate capstone and Master's thesis projects, and permit research that answers significant questions.

While the use of UASs has enormous research potential, their use requires approval of the Federal Aviation Administration (FAA) as this agency controls all navigable airspace within the United States. All aircraft, under the FAA, are classified as either public aircraft or civil aircraft. A public aircraft is one that is owned and operated by the United States government or the government of a state, the District of Columbia, or a territory or possession of the U. S. or a political subdivision. The FAA can allow public universities to operate UASs for governmental research functions. In order to gain FAA approval to conduct research using UASs, the University must apply for and be granted a Certificate of Authorization (COA) from the FAA. Note that COAs are granted to the University, not to individuals.

POLICY

Accountability

The Provost / Vice President for Academic Affairs is responsible for the implementation and enforcement of this policy.

Applicability

This policy applies to powered aircraft operated without a human pilot onboard, by HSU faculty, staff, university volunteers, or students, in the course of scholarly endeavors. Commercial use of these aircraft on and off campus by those who represent HSU during the use of the aircraft is expressly prohibited.

Unmanned Aircraft Systems

Unmanned Aircraft Systems used under the provisions of this policy must be public aircraft as defined by the Title 14 Code of Federal Regulations Subchapter 1.1

UAS Review Committee

The UAS Review Committee is a presidentially-appointed committee composed of the Director of Risk Management (or designee), the Director of Environmental Health & Occupational Safety (or designee), the Dean of Research (chair, *ex officio*), the University Chief of Police (or designee), one Academic Dean, one faculty member from each of the academic colleges, and one member from the campus community who holds a pilot's license.

The UAS Review Committee is responsible for the review, approval and oversight of UAS operations at HSU. An approval from the UAS Review Committee provides a minimum level of assurance that the operators are aware of the additional permitting requirements (i.e., FAA), and are prepared and capable of operating the UAS safely and responsibly. Only approved UAS Review Committee operations are covered in this policy.

Protocol

Prior to deployment of any UAS by HSU faculty, staff, students, or volunteers, operators must have an HSU approved Flight Operations Plan and a Certificate of Authorization from the FAA. To obtain the Flight Operations Plan, operators submit a Flight Operations Proposal to the UAS Review Committee. The approved Flight Operations Proposal serves as the Flight Operations Plan.

The Flight Operations Plan serves as the basis for a Certificate of Authorization application to the FAA to allow the use of UASs in research. In order to apply for a COA a public declaration letter must be submitted to the FAA. The Chair of the UAS Review Committee (i.e., the Dean of Research) serves as the President's designee to request a public declaration letter from the CSU Office of General Counsel. This request is addressed to the campus counsel and provides assurances that the applicant is a part of the state government, and that the UAS will be used as a public aircraft for a governmental function and will not be used for commercial purposes. The letter request includes a detailed description of the type of UAS to be used, the specific purpose(s), and the geographic location(s) of use.

Operating a UASs without a Flight Operations Plan or a Certificate of Authorization violates this policy and may result in administrative action, including in accordance with the HSU Policy on Research Misconduct.

Application Procedure.—The following steps outline the process to gain approval to use UASs for research:

1. The Principal Investigator (PI) develops the Flight Operations Proposal (see below) and submits it to the UAS Review Committee for campus approval;
2. Upon approval of the Flight Operations Proposal, by the UAS Review Committee, the Chair of the Committee requests a public declaration letter from the CSU Office of General Counsel;

3. Upon FAA approval of the letter of declaration, the PI applies for the COA
4. Upon receipt of the COA from the FAA, the PI may use the UAS according to the approved provisions in the COA.

Flight Operations Proposals.— Submission of a Flight Operations Proposal should be the first step in any instructional, research endeavor or other project using UAS (e.g. before submission to Research and Sponsored Programs, Curriculum Committee, IRB, etc.). Similarly, a Flight Operations Proposal must be submitted by the Principal Investigator (PI) to the UAS Review Committee prior to any acceptance of materials or funding for any operations of UASs. The Flight Operations Proposal must be approved by the UAS Review Committee as a Flight Operations Plan before the aircraft can be deployed.

Flight Operations Proposals should minimally address the following elements:

- (a) Purpose, nature (research, instruction, other) and goals of the work to be undertaken,
- (b) Need for a UAS
- (c) Type of vehicle(s)/equipment to be utilized and the manner in which it/they will be operated,
- (d) The identity of pilot(s) or other remote operator(s),
- (e) Dates/Schedule of activities to be undertaken,
- (f) Locale(s) and flight plan for operations,
- (g) All forms of data (including imagery) to be collected,
- (h) Provisions for security of the equipment, both during and outside of operation, and of any sensitive data collected,
- (i) Sources and nature of financial support, if appropriate,
- (j) communications plan for notifying campus police, and local landowners police agencies, as appropriate, in the overflight radius of planned operations each time a UAS is flown, and
- (k) Written affirmation that the COA will be used only for noncommercial, research purposes.

Careful consideration should also be given to other issues such as airworthiness, training, and access to requisite personnel, such as qualified visual observers and pilot/operators.

Certificate of Authorization.—Application for the Certificate of Authorization is an online process that requires an FAA approved public letter of declaration before gaining access to the site.

Flight Operations Logs.—All PIs must maintain an up-to-date flight operations log while using UASs. Operations logs must include launch and landing dates, flight times, locations, approximate flight paths, altitudes, a brief qualitative description of the data collected, and the names of HSU staff, faculty, student researchers, volunteers, and administrators involved. Pilots must possess the Flight Operation Plan, operation logs, and any documentation which the law may require during the deployment of the UAS. The UAS Review Committee may review this material at any time.

All accidents that result in vehicle repair, property damage or injury must be documented in operations logs for each UAS. Accidents involving injury and/or property damage (excluding the UAS) *must* be reported to the UAS Review Committee within 24 hours of the incident.

Summary Report.-- A summary report at the conclusion of an approved UAS Flight Operations Plan must be filed with the UAS Review Committee within 30 days of the expiration date. UAS operators who fail to file a summary report will not be approved for new Flight Operations Proposals until their summary reports are current.

Data Storage and Use

The use of UASs will be largely related to research activities such as, but not limited to, flora and fauna inventories and identification; hyperspectral vegetation mapping; tracking mobile telemetry affixed to animals; tracking of anonymous vehicle counts/activity on public lands/waters; geological and geophysical mapping. Only approved research projects may collect data under the auspices of HSU. Furthermore, the UAS, and all data collection instruments installed on each must have university property tags for tracking purposes, and designated campus storage locations identified in the Flight Operations Plan. Data collected using UASs that don't adhere to these guidelines, are in violation of any federal, state, or local law, or that are not approved by the UAS Review Committee cannot be published with an HSU affiliation. Collection of such data without prior approval may be construed as research misconduct. Any data sharing or distribution is the responsibility of the PI or faculty member and should generally be publically available within one year of the data collection flight or termination of the data collection project.

This policy prohibits the unlawful photography and surveillance on public or private property. As such, the PI or faculty member for a project will perform due diligence to ensure proper use of the data as specified by this policy and local, state, and federal regulations. This includes data review by an individual designated by the PI or faculty member to eliminate sensitive, compromising, or otherwise inappropriate material (e.g. attributes that identify individuals such as, but not limited to, recognizable faces, license plate numbers on vehicles, etc.) before data are distributed for analysis, stored on a server with broader access, or made public in any way. When a UAS is operated in conjunction with a partner agency (e.g., County, State, Federal or NGO), and the agency has first access to the data, the agency will perform the prescribed due diligence.

Maintenance and Storage of Equipment and Instrumentation

All UASs must be registered with the Office of Research, Economic, and Community and Development.

The physical maintenance, storage and preparation of UASs operated and owned by HSU or the Sponsored Programs Foundation will be conducted by an academic program area. This responsibility rests with the faculty, staff, student researchers, or volunteers, named in the Flight Operations Plan.

Aside from any fixed, onboard systems (i.e., temperature loggers, GPS, barometers, navigation cameras), the maintenance (including calibration) of any sensor instrumentation is the responsibility of the PIs or faculty who filed the Flight Operations Plan.

The Provost or designee may review and modify assignment of responsibilities for the maintenance and storage of UASs and UAS equipment as needed. Any university-owned UAS and related support equipment will be stored in appropriate facilities designated in the approved Flight Operations Plan.

Document Retention

Copies of the COA will be maintained in the Office Research, Economic, and Community Development. Following COA approval and prior to beginning operations, appropriate insurance coverage should be obtained for registered UASs. Information on obtaining insurance can be obtained from the Office of Research, Economic, and Community Development

Compliance with Applicable Regulations and Law

The UAS Review Committee and UAS operator are responsible for compliance with all relevant FAA regulations. Both the applicant and the campus should ensure that the proposed UAS operations

- Comply with applicable laws, government regulations, and University policies,
- Do not pose a threat to health, safety, privacy, or the environment,
- Include appropriate steps to manage and mitigate associated risks, and
- Serve the mission of the University and interests of the public at large

A Certification of Authorization from the FAA for operation of UAS must be obtained prior to flight operations.

Flight Operation Procedures

Prior to commencing flight operations, the UAS operator must have in possession the appropriate procedures and any documentation to ensure safe, legal and appropriate operation. During flight operations of the aircraft, pilots must have in their position documentation that includes but may not be limited to the following:

- a. Certificate of Authorization from the FAA
- b. Current operations logs of all flights and all data files collected
- c. Proof of access to public or private property associated with flight operations

References

Federal Aviation Administration Unmanned Aircraft Systems FAQ page -

http://www.faa.gov/about/initiatives/uas/uas_faq/

Federal Aviation Administration Unmanned Aircraft Systems fact page -

http://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=14153

State Unmanned Aircraft Systems (UAS) Legislation

<http://www.ncsl.org/research/civil-and-criminal-justice/2014-state-unmanned-aircraft-systems-uas-legislation.aspx>

COA Application Guidelines. Office of the Chancellor, CSU See Appendix

APPENDIX



CAMPUS GUIDELINES FOR APPLYING FOR A CERTIFICATE OF AUTHORIZATION (COA) FROM THE FAA

1. BACKGROUND

The Federal Aviation Administration (FAA) has jurisdiction over all navigable airspace in the United States. The FAA's primary mission is to ensure the safe and efficient oversight and management of the national airspace system (NAS). All aircraft, whether manned or unmanned, are subject to FAA rules and regulations and violations carry severe federal penalties. Additionally, both the Department of State (under International Traffic in Arms Regulations or ITAR) and the Department of Commerce (under Export Administration Regulations or EAR) regulate export control over various forms of unmanned aircraft system (UAS)/ unmanned aerial vehicle (UAV) technology.

Any UAS use requires FAA approval. The one exception involves the use of an UAS solely for hobby and recreational purposes. The FAA allows small (under 55 pounds) unmanned aircraft **operated solely for hobby and recreational purposes** to be flown under the rules and restrictions outlined in Section 336 of the FAA Modernization and Reform act of 2012 (Public Law 11295). The hobby or recreational use exception does **not** apply to the use of a UAS for university related activities. Any faculty, staff, or students operating a UAS for hobby or recreational purposes for purely personal use are advised to consult the local chapter of the Academy of Model Aeronautics (AMA) to locate an AMA sanctioned location where such UAS use is approved. CSUs are not sanctioned by the AMA and any use of a UAS on a CSU campus will require prior approval by the campus's COA Evaluation Board. In addition, it is the responsibility of anyone operating a UAS for purely personal use to comply with all legal requirements.

The FAA classifies all aircraft as belonging to one of two categories: public or civil. A public aircraft is one owned and operated by the United States government or the government of a state, the District of Columbia, or a territory or possession of the U. S. or a political subdivision. Any aircraft that does not meet the definition of a public aircraft is considered a "civil aircraft".

Authorized UAS activities by a California State University campus (but not an auxiliary organization) fall in the public use category. Auxiliaries are not considered part of the State government and, therefore, any UAS activity by an auxiliary organization would be categorized as a civil use.

The FAA allows public universities, such as the CSU, to operate UASs for governmental

research functions. In order for a University to operate a UAS for governmental research purposes, they must apply for and be granted a Certificate of Authorization (or COA) from the FAA. COAs are granted to the University, not to individuals. Furthermore, in order to be eligible for a COA, the unmanned aircraft must be used for a non-commercial purpose. Currently, the FAA considers the use of an unmanned aircraft for educational or training purposes to be commercial in nature. Consequently, **the FAA has indicated it will not grant public use COAs for educational or training uses.**

To conduct a UAS activity that does not qualify for a public use COA, the CSU would first have to obtain a civil use COA. To obtain a civil use COA, the CSU would have to apply for and receive what is commonly referred to as a Section 333 exemption. As of April 2015, the FAA had approved one Section 333 exemption request from a university or college.

Any University faculty, staff or students interested in using a UAS for any educational purposes should contact the Office of Research and Sponsored Programs (or equivalent) on their campus.

On February 15, 2015, the FAA announced proposed new regulations regarding the use of "small" Unmanned Aircraft Systems (sUAS). To qualify, a UAS must weigh no more than 55 pounds, fly no higher than 500 feet above ground, be flown in line of sight and meet other requirements. The proposed regulations would allow for the use of small UASs under certain specified conditions without the need to obtain formal FAA approval. The FAA is soliciting comments from the public, as required by law, and it is unknown when the regulations will be final or whether they will be rewritten. If adopted as currently proposed, the regulations would permit campuses to more easily engage in projects and operations involving sUAS. However, until these proposed regulations are enacted, the current FAA regulations are in force.

2. PUBLIC DECLARATION LETTER

One of the FAA's requirements is that public entities, such as the CSU, that wish to submit a public use COA application must provide a public declaration letter certifying that the entity and its proposed UAS operation are eligible to apply for a COA. The FAA has required that public entities may not "self-certify" which, in the case of a public institution in California, would normally require that the public declaration letter be issued by the Office of the California State Attorney General. However, the CSU Office of General Counsel (OGC) has recently received notification from the FAA that it will now accept a public declaration letter issued by CSU OGC in lieu of one issued by the State Attorney General.

The public declaration letter requires that OGC certify that: **(1)** the applicant is a part of the State government; **(2)** the UAS is a "public aircraft"; **(3)** the UAS will be used for a "governmental function"; and, **(4)** the UAS will not be used for "commercial purposes."

The terms "public aircraft," "governmental function" and "commercial purposes" are each defined by statute and governed by FAA interpretation. The fact that CSU is a non-profit, educational entity does **not**, by itself, qualify a UAS operated by the CSU as a public aircraft or render its use as a governmental function or non-commercial in nature. In particular, the term "commercial purposes" has been interpreted very broadly by the FAA to include

operations which, directly or indirectly, involves any form of compensation, reimbursement, remuneration or monetization.

3. OVERVIEW OF COA APPLICATION PROCESS

Because of the potential legal and risk management issues involved in applying for and managing a COA, it is strongly recommended that each CSU campus develop an internal process that includes an evaluation board to review and approve requests for COA applications to ensure full compliance with all state and federal laws and regulations prior to requesting a public declaration letter from OGC. The process should develop well-defined procedures to identify, manage, and mitigate risk to ensure safe and legal operation of a UAS, and include an administrative approval process that authorizes a request for certification. The process would apply to all University faculty, staff, and students who propose to use a UAS, either within or outside the U.S., as a part of their official University research activities. This process must take place before the campus requests a public declaration letter from OGC, which the FAA requires as a prerequisite before it will entertain any application for a COA. OGC is involved only in providing the public declaration letter, not the subsequent application to the FAA.

4. COA EVALUATION BOARD

Each campus should develop appropriate procedures for the review of COA requests to the FAA. It is recommended that a presidentially-appointed campus COA Evaluation Board be constituted to review and approve campus requests for COA applications. Membership on the Board should ensure that the interests of the various stakeholders are represented. Although each campus determines the composition of the Board, consideration should be given to having representation from the following units (or their equivalents):

- RESEARCH ADMINISTRATION: the Associate Vice President for Research & Sponsored Programs (Chief Research officer or designee (*chair, ex officio*),
- SECURITY: the campus Police Chief or designee,
- SAFETY: the Director of Environmental Health & Safety, or designee,
- RISK MANAGEMENT: the Director of Risk Management or designee,
- ACADEMIC AFFAIRS: a College Dean,
- UAS RESEARCH EXPERTISE: two faculty members (and an alternate if the faculty representative has to recuse themselves) who are familiar with the use of UAS's for research purposes.

Since "public" UAS operations are typically restricted to research activities, the Associate Vice President for Research and Sponsored Programs (or equivalent) would be appropriate to chair the COA Evaluation Board and should assist in the development of University policies and procedures regarding COAs.

Deliberations and recommendations by the Evaluation Board should consider and conform with all other applicable University policies and review procedures including, but not necessarily limited to, the Institutional Review Board (*e.g.*, for human subjects protection), the Office of Research and Sponsored Programs (for export controls and trade sanctions),

and the International Studies Program (*i.e.*, for overseeing activity abroad).

5. RECOMMENDED INTERNAL PROCEDURE TO REQUEST A COA APPLICATION

Prior to submitting a request for a COA application, it is strongly recommended that the applicant review the FAA's most recent UAS FAQ and information online at: <http://www.faa.gov/about/initiatives/uas/>.

Because the use of a UAS is predicated upon internal approval of a COA request, it is strongly recommended that approval be sought prior to the submission of any proposal or the acceptance of any award for projects that necessitate the use of a UAS.

It is the responsibility of the individual faculty, staff or student seeking a COA to provide all the pertinent information required by their campus to complete an internal request for a COA application. The Office of the Associate Vice President for Research (or equivalent) should be the point of contact regarding technical guidance on questions related to the COA process.

Both the applicant and the campus should ensure that proposed UAS operations:

- comply with applicable laws, government regulations, and University policies,
- do not pose a threat to health, safety, privacy, or the environment,
- include appropriate steps to manage and mitigate associated risks, and
- serve the mission of the University and interests of the public at large.

In situations where a COA application is being sought for airspace over land not owned by the University, the applicant and the campus should ensure there is an appropriate MOU or other agreement that spells out with specificity the legal responsibilities and obligations of all of the involved parties. The MOU or agreement should be attached to the request for the public declaration letter.

While it is not the intent of these guidelines to dictate process or procedures, it is recommended that the narrative submitted to the FAA for a COA application request include the following operations information, much of which is required for the COA on-line application:

- (a) Purpose, nature (research, instruction, other) and goals of the work to be undertaken,
- (b) Need for UAS and or UAV,
- (c) Type of vehicle(s)/equipment to be utilized and the manner in which it/they will be operated,
- (d) The identity of pilot(s) or other remote operator(s),
- (e) Dates/Schedule of activities to be undertaken,
- (f) Locale(s) and flight plan for operations,
- (g) All forms of data (including imagery) to be collected,
- (h) Provisions for security of the equipment, both during and outside of operation, and of any sensitive data collected,
- (i) Sources and nature of financial support, if appropriate,

- (j) communications plan for notifying campus police, and local landowners police agencies, as appropriate, in the overflight radius of planned operations each time a UAS is flown, and
- (k) Written affirmation that the COA will be used only for noncommercial, research purposes.

Careful consideration should also be given to other issues such as airworthiness, training, and access to requisite personnel, such as qualified visual observers and pilot/operators.

6. REQUEST FOR A PUBLIC DECLARATION LETTER FROM OGC

Each campus president should designate which specific administrator positions have authority to request a public declaration letter from OGC. Requests for a public declaration letter to accompany a COA application to the FAA will only be considered once a COA application request has been reviewed and approved by the appropriate campus authority. The request should be addressed to the campus counsel and should provide assurances that the applicant is a part of the state government, and that the UAS will be used as a "public aircraft" for a "governmental function" and will not be used for "commercial purposes." The request should include a detailed description of the type of UAS to be used, the specific purpose(s), and the geographic location(s) of use.

7. REQUESTING A COA FROM FAA

The FAA has indicated that it will not consider an application for a COA until it has received a public declaration letter which, in the case of the CSU, is provided by OGC. Because the COA is held by the University, not by individuals, the Office of the Assistant Vice President for Research and Sponsored programs (or equivalent) should be the University office responsible for coordinating the submission of and serving as the formal custodian for all COAs, regardless of their application area (research, education, outreach). A new COA application must be submitted for each aircraft to be operated in a specific air space.

8. UAS REGISTRATION, ACQUISITION AND INSURANCE

The Office of the Associate Vice President for Research & Sponsored Programs should retain copies of each COA permit.

Following COA approval and prior to beginning operations, appropriate insurance coverage should be obtained for registered UASs. Information on obtaining insurance can be obtained from the Office of the Associate Vice President for Research & Sponsored Programs (or equivalent).

All UASs on campus should be registered with the Office of the Associate Vice President for Research & Sponsored Programs (or equivalent). This applies to both existing UASs and any new UAS purchases being contemplated. All new UAS systems and system component

acquisitions should be processed via requisitions (P-card purchases are not appropriate) and registered with the Office of the Associate Vice President for Research & Sponsored Programs (or equivalent) upon receipt.

9. PROOF OF COA PERMIT AND COMPLAINTS AND ACCIDENTS DURING OPERATIONS

Whenever a COA application is approved by the FAA, the pilot or remote operator should be in physical possession of a copy of the valid authorization permit for such operation and should be prepared to display the permit upon request from law enforcement or other appropriate authorities.

Any complaint against authorized COA activity or any accidents or damage related to COA activity must immediately be reported to the Associate Vice President for Research (or equivalent) and any other relevant parties in accordance with campus policies and procedures, such as the Office of Risk Management.

DEFINITIONS:

AMA: Academy of Model Aeronautics

COA: Certificate of Authorization

EAR: Export Administration Regulations

FAA: Federal Aviation Administration

ITAR: International Traffic in Arms Regulations

OGC: Office of General Counsel

UAS: Unmanned Aircraft System

sUAS: small Unmanned Aerial System

UAV: Unmanned Aerial Vehicle

REFERENCES:

- [FAA Unmanned Aircraft Systems Home Page](#), May 6, 2015
- [Advisory Circular 00-1.1A, Public Aircraft Operations](#), February 12, 2014
- [Clarification of June 13, 2014 Interpretation on Research Using UAS](#) (PDF), July 3, 2014
- [UAS Operations by Public Universities for Aeronautical Research](#) (PDF), June 13, 2014
- [Letter to COA Holders – Statutory Requirement to Register UAS](#) (PDF), November 5, 2014
- [Certificate of Authorization or Waiver \(COA\)](#), ATO UAS description of the COA process, November 14, 2014
- [Publicly Released COAs](#), February 25, 2015
- [Federal Aviation Administration Unmanned Aircraft Systems fact page](#), January 6, 2014
- [National Oceanic and Atmospheric Administration, Unmanned Aircraft Program](#)