UAS Regulatory Landscape

Basil Yap, UAS Program Manager

July 26, 2017
Quick Drone History Fact

- Radioplane OQ-2 was the first mass-produced drone in the US
- Used to train Army and Navy anti-aircraft gunners during WW2
- The first instance of “Drone” being associated with remotely piloted vehicle
Promote the economic well being of North Carolina through air transportation system development and improved aviation safety and education.
Division of Aviation Core Functions

Provide:

- Aviation Safety and Education Programs
- State and Federal Airport Grant Programs
- Air transportation, operations, and support for state agencies
- Management of the state’s Unmanned Aircraft System Program
Aviation in North Carolina

Annually:

- 29.1 million total passenger enplanements
- 3.2 million total aircraft operations
- Over 1.4 billion pounds of air cargo

Pilots and Aircraft:

- 17,760 Pilots
- 7,139 Manned Aircraft
- > 20,253 UAVs*

*as of Feb. 2, 2017 per FAA FOIA Library
Drone Regulations

• Critical to UAS Program Development
• Federal Regulations
  – Airspace Safety for Manned and Unmanned Aircraft
• State Regulations
  – Privacy, Safety, Launch and Recovery
• Local Government Regulations
  – Privacy, Safety, Launch and Recovery
Hobbyist Drone Registrations - North Carolina

Total Registrations in State: 18,934

Registrations per Zip Code

- 1 - 15
- 16 - 30
- 31 - 50
- 51 - 100
- 101 - 218

Urban Areas
County Boundaries


Map Date: May 16, 2017
North Carolina’s Airport System

72 Publicly Owned Airports in North Carolina
Federal UAS Regulations

Airspace Management

Alphabet Airspace

<table>
<thead>
<tr>
<th>Airspace</th>
<th>Permissions</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>B Airspace</td>
<td>Permission required</td>
<td>2000'</td>
</tr>
<tr>
<td>C Airspace</td>
<td>Permission required</td>
<td>500' (512&amp;3)</td>
</tr>
<tr>
<td>D Airspace</td>
<td>Permission required</td>
<td>2000'</td>
</tr>
<tr>
<td>E Airspace</td>
<td>Above 10,000 feet MSL, requirements are stricter.</td>
<td>14,500 feet MSL and above</td>
</tr>
<tr>
<td>G Airspace</td>
<td>In a few sparsely populated areas G airspace goes at the way up to 14,500 MSL. Above 10,000', vis and cloud clearance requirements are the same as E airspace.</td>
<td>10,000 feet MSL</td>
</tr>
</tbody>
</table>

Many airplanes fly faster than 450 mph at 10,000 feet MSL and above.
Federal UAS Regulations

Airspace Management
Federal UAS Regulations

Hobbyist or Recreational

• 14 CFR Part 101 (E) – Special Rule for Model Aircraft
  • Must fly within line of sight
  • Must notify an airport of operations within 5 statute miles
  • Must not interfere with manned aircraft
  • Must follow community based standards
  • Must fly solely for hobby or recreation

14 CFR Part 107 – Small Unmanned Aircraft Systems

• Obtain Remote Pilot Certificate from FAA (2 years)
• 16 years or older
• Fly during day and civil twilight
• Max altitude of 400 ft. AGL
• Max speed of 100 mph
• Must fly within line of sight
• Cannot fly over people not involved with the operation
• Class G airspace
Federal UAS Regulations

Commercial and Government

• 14 CFR Part 107 – Small Unmanned Aircraft Systems
• Obtain Remote Pilot Certificate from FAA (2 years)
• 16 years or older
• Aircraft weighs less than 55 lbs.
• Fly during day and civil twilight*
• Max altitude of 400 ft. AGL*
• Max speed of 100 mph
• Must fly within line of sight*
• Cannot fly over people not involved with the operation*
• Class G airspace*

Other options
• 333 Exemptions
• Certificate of Authorization (COA)

*Waivers for certain small UAS operating rules
Future of Airspace Authorizations

Waiver/Airspace

Currently

• Online Portal
• 90 days or less

Future

• LAANC should help with Airspace Authorizations
• 200 Class E Airport Published April 27, 2017
Federal UAS Regulations

- UAS over .55 lbs. must be registered with the FAA*
- [https://registermyuas.faa.gov](https://registermyuas.faa.gov)
- $5 registration fee
- UAS must be labeled
- Hobbyist – One number for all aircraft
- Non-Hobbyist – Each aircraft has unique number

*As of May 19, 2017, hobbyist operating under the Special Rule for Model Aircraft no longer are required to register their drone.
Model Aircraft Ruling

- John A. Taylor vs. FAA
- Ruling May 19, 2017
- Requiring operators under the Special Rule for Model Aircraft to register drones is unlawful
- “In short, Section 336 of the FAA Modernization and Reform Act prohibits the FAA from promulgating “any rule or regulation regarding a model aircraft.” The Registration Rule is a rule regarding model aircraft. Therefore, the Registration Rule is unlawful to the extent that it applies to model aircraft.”
Military Airspace

- National Security UAS Flight Restrictions
- FAA and DoD have restricted UAS operations over 132 military facilities.
- The restrictions are up to 400’ AGL, 24 hours a day, 7 days a week.
- Facilities can be found here: http://uas-faa.opendata.arcgis.com/
- Other FAA restricted areas for civil operations apply to UAS operators

<table>
<thead>
<tr>
<th>County</th>
<th>Base</th>
<th>FAA ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onslow</td>
<td>Marine Corps Air Station New River</td>
<td>20170410-DOD-New River-MCAS New River 2</td>
</tr>
<tr>
<td>Carteret</td>
<td>MCALF Bogue, Marine Corps Air Station Cherry Point</td>
<td>20161222-DOD-MCALF Bogue-Auxiliary Landing Field (ALF) Bogue CDSA by NOTAM during scheduled operations only.</td>
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<tr>
<td>Jones</td>
<td>MCOLF Oak Grove, Marine Corps Air Station Cherry Point</td>
<td>20161222-DOD-Oak Grove-Outlying Landing Field (OLF) Oak Grove CDSA by NOTAM. Heavy use as an uncontrolled airport.</td>
</tr>
<tr>
<td>Richmond</td>
<td>Fort Bragg, NC</td>
<td>20161222-DOD-Fort Bragg-Mackall AAF</td>
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<tr>
<td>Cumberland</td>
<td>Fort Bragg, NC</td>
<td>20161222-DOD-Fort Bragg-Simmons AAF</td>
</tr>
<tr>
<td>Stanly</td>
<td>Stanly County, NC</td>
<td>20161222-DOD-Stanly County-Stanly County</td>
</tr>
<tr>
<td>Onslow</td>
<td>MCB Camp Lejeune</td>
<td>20170508-DOD-MCB Camp Lejeune</td>
</tr>
</tbody>
</table>
Congressional Action

- Drone Federalism Act
  - S.1272
- Drone Innovation Act
  - H.R. 2930
- Both bills shift the regulatory authority to local and state governments while preserving defined parts of federal preemption
- Bard College released a study stating 135 local governments in 31 states enacted drone legislation
State UAS Regulations

• North Carolina General Assembly passed UAS bills into law in 2013, 2014, 2015, 2016, 2017

• Chapter 14 – Criminal Law
  – § 14-7.45 Crimes committed by use of UAS
  – § 14.280.3 Interference with manned aircraft by UAS
  – § 14.401.24 Unlawful possession and use of UAS (Weapon attached)
  – § 14.401.25 Unlawful distribution of images

• Chapter 15A – Criminal Procedure
  – § 15A-300.1 Restrictions on use of UAS
  – § 15A-300.2 Regulation of launch and recovery sites
  – § 15A-300.3. Use of an unmanned aircraft system near a confinement or correctional facility prohibited.

• Chapter 63 – Aeronautics
  – § 63-95 Training required for operations of UAS (Knowledge Testing)
  – § 63-96 Permit required for commercial operation of UAS

• Chapter 113 – Conservation and Development
  – § 113-295 Unlawful harassment of persons taking wildlife resources
State UAS Regulations

• § 63-95 Training required for operations of UAS (Knowledge Testing)
  – The Division of Aviation will develop and administer a UAS Knowledge Test
  – Applicable to both government and commercial operators who operate in North Carolina
  – The test can be completed online and is the first part of the permitting process

• § 63-96 Permit required for commercial operation of UAS
  – Must be 16 years of age
  – Must provide a drivers license number
  – Must meet the federal requirements for access to the airspace (Remote pilot certificate)
  – Applies to commercial operators only
  – Application for permit is completed online
NCDOT Aviation UAS Website – One Stop

- Get Permit
  - UAS Operator Permits
    - A permit is required for commercial & government drone operations in North Carolina. Passing the UAS Knowledge Test is a requirement for obtaining a permit.
    - Start Permitting Process

- Learn
  - Different types of UAS operations
  - Types of UAS Operation
    - Detailed information, guidelines and restrictions for drone pilots.

- Help
  - Access FAQs, Fact Sheets, NC Statues
  - Take the Test
    - Do you know the requirements to fly a drone in North Carolina?
      - Flying safely is the responsibility of every UAS operator. Download the Study Guide and learn all the rules & regulations in North Carolina.
      - Download Study Guide
      - Start Knowledge Test
UAS Operator Permits

Federal
- Pass a UAS knowledge test at FAA testing center and TSA background check
- Apply for Remote Pilot Certificate

North Carolina
- Pass NC UAS Knowledge test online
- Apply for commercial or government NC Operator Permit online
- www.ncdot.gov/aviation/uas
State UAS Regulations

HB337
• Clarifies model aircraft applicability
• Remove restrictions around special imaging
• Adds emergency management exception
• Brings the NC UAS Permit in line with Federal requirements (age and Identification)
• Signed into law July 21, 2017
• Effective December 1, 2017

HB128
• Establishes § 15A-300.3. Use of an unmanned aircraft system near a confinement or correctional facility prohibited.
• Exceptions for commercial operators
• Signed into law July 25, 2017
• Effective December 1, 2017
NC UAS Operator Checklist

- FAA Authorization – Must obtain:
  - Remote Pilot Certificate (under Part 107)
  - Or hold a 333 exemption
- FAA UAS Registration
  - All UAS/Drones above .55lbs
- NC Knowledge Test
  - Take and pass the test on the NCDOT Division of Aviation website
- NC Government Operator Permit or NC Commercial Operators Permit
  - Once you have passed your NC UAS Knowledge Test, you may obtain a permit
  - Need to have an airman certificate to complete the process
  - No fee charged at this time
- Insurance (best practice)
NCDOT UAS Resource Page

Publicly available online:

- List of NC General Statutes
- Best Practices
- UAS Research Reports
- UAS Related Links
- FAA Resources
- Law Enforcement Resources
- Emergency Management Resources
- Airport Operator Resources
- https://connect.ncdot.gov/resources/Pages/Aviation-Division-Resources.aspx
Questions

www.ncdot.gov/aviation/uas

Basil Yap
UAS Program Manager
(919) 814-0572
bkyap@ncdot.gov
THE ENTERPRISE PLATFORM FOR COMMERCIAL DRONES
**PRECISIONHAWK** provides an enterprise platform that uses advanced drone technology to collect and analyze data to improve business intelligence.
Prior to August 2016 it was against FAA regulation for a business in the U.S. to utilize drone technology*

In August 2016 the FAA came out with Part 107, stating that businesses can use drones as long as they follow a set of easy to comply with rules.

This has opened up the entire commercial drone industry as for the first time companies can start to benefit from utilizing drone technology.

*without receiving a complicated exemption for operation.
PrecisionHawk has immersed itself at the forefront of policy and technology development efforts to help shape favorable drone regulations in America that both protect users of the National Airspace and the stakeholders beneath it, while promoting innovation and the economic interests of our country.
Industry & Policy Leadership

**FAA Pathfinder Program**

PrecisionHawk is one of three industry partners who are exploring incremental expansion of UAS operations in the national airspace under the FAA’s Focus Area Pathfinder initiative. PrecisionHawk’s focus area is extended visual line-of-sight operations in rural areas. PrecisionHawk will explore how UAS flights outside the pilot’s direct vision might allow greater drone use for precision agriculture operations.

**FAA Aviation Rulemaking Committee**

PrecisionHawk’s Sr. VP of Policy, Diana Cooper, sits on the FAA Aviation Rulemaking Committee that was created to help the agency create standards for remotely identifying and tracking unmanned aircraft during operations. The rulemaking committee will have several major tasks to: Identify, categorize and recommend available and emerging technologies for the remote identification and tracking of UAS, identify requirements for meeting the security and public safety needs of law enforcement, homeland defense, and national security communities for remote identification and tracking, evaluate the feasibility and affordability of the available technical solutions, and determine how well they address the needs of law enforcement and air traffic control communities. Eventually the recommendations it produces could help pave the way for drone flights over people and beyond visual line of sight.

**FAA Drone Advisory Committee**

PrecisionHawk’s CEO, Michael Chasen, sits on the board of the FAA’s Drone Advisory Committee (DAC). The DAC is a broad-based, long-term advisory committee that provides the FAA with advice on key UAS integration issues by helping to identify challenges and prioritize improvements. The Committee helps to create broad support for an overall integration strategy and vision. Membership is comprised of CEO/COO-level executives from a cross-section of stakeholders representing the wide variety of UAS interests.

**FAA Center of Excellence for UAS Research**

PrecisionHawk’s Director of Airspace Research, Dr. Allison Ferguson, leads research efforts under the Alliance for System Safety of UAS through Research Excellence (ASSURE), which was created to provide the Federal Aviation Administration the research they need to quickly, safely and efficiently integrate unmanned aerial systems into our National Airspace System with minimal changes to our current system.

**FAA Unmanned Aircraft Safety Team**

PrecisionHawk’s CTO, Ernest Earon, leads a technical subcommittee within the UAST group, which will gather and analyze data to enhance safety and operations of drones in the nation’s airspace. The UAST will use a data-driven, consensus-based approach to analyze safety data and develop specific interventions that will mitigate the root causes of accidents.
Industry & Policy Leadership

**Small UAV Coalition**
PrecisionHawk’s Sr. VP of Policy, Diana Cooper, is President of the small UAV coalition, which brings together leading technology companies working together to pave the way for commercial, philanthropic, and civil use of small UAVs.

**The America Society for Testing and Materials**
PrecisionHawk’s CTO, Ernest Earon, works with the ASTM Committee to address issues related to design, performance, quality acceptance tests, and safety monitoring for unmanned air vehicle systems.

**NASA UTM Program**
PrecisionHawk’s Director of Airspace Research, Dr. Allison Ferguson, supports NASA research efforts to prototype technologies for a UAS Traffic Management (UTM) system that could develop airspace integration requirements for enabling safe, efficient low-altitude operations.

**Global UTM**
PrecisionHawk’s Sr. VP of Policy, Diana Cooper, is a part of the Global UTM Association. The goal is to identify actions to be taken to safely, securely and efficiently integrate Unmanned Aircraft Systems (UAS) into national airspace systems, draft and distribute an interoperability blueprint for traffic management of UAS, collaborate with regulators and other stakeholders worldwide to identify standards, as well as scalable and compliant technical solutions, to the development of UAS Traffic Management (UTM) systems, instigate and facilitate partnerships between manned and unmanned users of the airspace, and engage with other associations and groups facing similar challenges.

**Unmanned Systems Canada**
PrecisionHawk’s Sr. VP of Policy, Diana Cooper, sits on the board of Unmanned Systems Canada, a not-for-profit association, as they represent the interests of the unmanned vehicle systems community.

**Energy Drone Coalition**
PrecisionHawk’s Sr. VP of Policy, Diana Cooper, sit on the board of the Energy Drone Coalition. The coalition is a forum dedicated to launching and growing drone operations in energy companies worldwide by bringing together the major emerging segments within the drone ecosystem, with the energy industrial complex asset owners and end users.
I. SELECT DRONE

II. CHOOSE SENSORS

III. PLAN FLIGHT

IV. COLLECT DATA

V. ANALYZE DATA

VI. TRACKING & SAFETY

PRECISIONHAWK

The enterprise platform for commercial drones
I. SELECT DRONE

The PRECISION HAWK platform supports both multi-rotor and fixed-wing drones from top vendors, allowing you to select the technology that best meets your specific needs.
II. CHOOSE SENSORS

Select the right sensors to achieve your goals.

- VISUAL CAMERA
- 3-CHANNEL MULTI-SPECTRAL
- 5-CHANNEL ADVANCED MULTI-SPECTRAL
- LIDAR
- THERMAL IR
- HYPER-SPECTRAL
- VIDEO
III. PLAN FLIGHT

Our autopilot application for multi-rotor and fixed-wing drones that delivers intelligent and safe flight, ensuring you get the data you need.
IV. COLLECT DATA

Desktop software allows a user to easily view flight path coverage, add ground control points, and attach flight logs and flight bounds to surveys while in the field with or without internet access.
V. ANALYZE DATA

Our software platform performs rapid processing, modeling, detailed analysis and reporting on your aerial data.
Construction, Energy, Agriculture Applications
Aerial imagery, like what was collected over this neighborhood, can be used to audit site conditions to identify any potential hazards, improve traceability, reduce project delays, minimize rental losses due to misplaced parts and equipment, improve logistic planning and helps to locate assets on a site map using real-time data.
An aerial thermal imaging is registered together to create a high definition orthomosaic image for inspection of photovoltaic modules. Solar panel inspections is an essential part of the quality control process and maintenance of solar farms. By utilizing drones defective panel cells can quickly and safely be identified for repair teams.
Flying and scouting a tobacco field that had endured more than 12 inches of rain fall in three weeks time. The fields were so wet the farmer couldn't even walk into the fields much less assess the amount of damaged of drowned tobacco. The Smarter Ag Package coupled with our analysis tools (two vegetative indices and row based plant counting) quickly identified the damage. This documentation aided the grower in reporting his crops as well as reporting the amount that was damaged, reducing future fertilizer applications on damaged areas and identifying where problem areas were for following crops.
Overview

➢ Intro
➢ What is Thermal Imaging?
➢ Image Analysis
➢ Thermal Imaging Drones
➢ Uses and Benefits of Thermal Imaging
➢ Technology Wave
➢ Summary
Intro

Douglas Moulton

- Owner Operator
- FAA Commercial sUAV Licensed
- Certified Thermographer
- Flew UAV’s on active duty as a Navy SEAL
- 9+ Years of Flying and Building Multirotor (sUAS/Drones) and Fixed Wing Unmanned Systems
- Volunteer Fire Fighter
What is Thermal Imaging?

Thermal Imaging/ Infrared (IR)

➢ Infrared Imaging Science (Thermography)

➢ Thermal radiation in the electromagnetic spectrum (Long Wave)

➢ Night vision IR: near infrared, just beyond visible light

➢ Thermal imagers interpret what we sense as heat

➢ Non-destructive inspection method
What is Thermal Imaging? (Cont.)

Electromagnetic Spectrum

- Cosmic rays
- X-rays
- Ultraviolet (UV)
- Infrared (IR)
- Microwaves
- Radio
- Broadcast band
- Short Wavelengths
- Visible Light
- Infrared (IR)
- Long Wavelengths
Image Analysis

Thermal imaging inspection qualitatively and quantitatively compares similar components, with similar loads/conditions that should have similar thermal characteristics.

“Mitigate human risk while increasing efficiency and productivity.”
Image Analysis (Cont.)

Qualitative & Quantitative Comparison
Accurate Thermal Images and Radiometric’s (Temp.)

- Atmospherics; every inspection requires different weather conditions
- Emissivity, Transmissivity, Reflectivity
- Composition of material must be accounted for accurate readings
Image Analysis (Cont.)

Pallets
Image Analysis (Cont.)

False Positives

- False Positives
- Thermal Exception

Moisture Damage

Residual Thermal Radiation
Image Analysis (Cont.)

False Positives

Thermal Exception
Image Analysis (Cont.)
Image Analysis (Cont.)

Image Processing

Before

After
Thermal Imaging Drones

**Camera**
- Temp. measurements required? (Radiometric)
- Imagery Analysis/Software*
- Resolution/Field of View(FOV)

**sUAS**
- Flight Envelop, Gimbal Mount(s)
- Interchangeability with Cameras
- Thermal Camera Control
Uses and Benefits of Thermal Imaging

Why utilize an Aerial Thermal Imaging Inspection by a Certified Thermographer?

- Quality assurance of insulated roofs and walls
- 3rd party assessment of roofing quality, damage, and as reassurance to clients
- Assure subcontracting work is done to contracted standards
- Insurance claims to roof damage
- Pest Detection

Water build up=
- Loss of energy=loss of $
- Liability
Uses and Benefits of Thermal Imaging

2D Orthomosaic: Daytime & Thermal

- No personnel on roof
- Completed in 1 day
- Inspection would normally take a 5-7 person team 2-3 weeks
- 3rd party assessment

- 55,000 square foot roof, 7-story
- Identification of moisture damage
Thermal Inspection of Electrical Substation

- Baseline inspection of a new substation, quality assurance
- Subsequent inspections can be added in layers for long term analysis
- Annual or bi-annual preventative inspections
- Proactive repairs can prevent total system failures
- This keeps personnel safe and mitigates expensive corrective maintenance
Thermal Image Inspection of Solar Fields

➢ Quality assurance of newly constructed photovoltaics
➢ Identify malfunctions or ineffective panels
➢ String level monitoring can not identify every issue!

5 MW Solar Farm in NC inspected by CAS in Dec. 2016

- 810 panels producing no power (wiring faults)
- 20 faulty panels
- 5 missing panels

$15,000 lost revenue per year
>$225,000 lost revenue lifetime
(= only 3.0% of field not functioning properly)
Uses and Benefits of Thermal Imaging

Fire Fighting

- Assess structural integrity and locate hot spots
- Command & Control on scene and live stream remotely
- “See” through smoke
- Observe fire developing in adjacent compartments
- Monitor personnel
- INCREASE SAFETY
Uses and Benefits of Thermal Imaging

**Police**

- Locate & track in the dark
- Force protection
- Identify vehicles that have been running
- Command & Control on scene and live stream remotely (including computer systems in vehicles)
- Locate and ID “grow rooms” (Warrent)
- Monitor personnel
- **INCREASE SAFETY**
Uses and Benefits of Thermal Imaging

Other Uses

- Search & Rescue
  - Virtually unlimited flight time with battery swaps
- Pollution of Rivers & Streams
Technology Wave

sUAS/Drones

In House

➢ Receive Flight Training
➢ Receive FAA sUAS Material Training
➢ Get License; State and Federal
➢ Flight Request to local control towers
➢ Insurance Liability Cost
➢ Keep up with the rapid growth in technology and UAV’s
➢ Personnel dedicated to this work

Subcontract

➢ COI
➢ Proven Capabilities
➢ Liability remains on them
➢ Consistent quality of work
➢ Contractor is forced to keep up with technology and regulations
➢ Its their profession
➢ Can create a standard checklist for ALL UAV related sub contracting
Summary

• Proactive, not reactive.

• Mitigate human risk while increasing efficiency and productivity.

• Equipment & tools are only as good as the person who is using them.
AIRSPACE COORDINATION
DURING STATE EMERGENCY OPERATIONS

SERT Air Operations Coordinator – NCEM
Director of Army Aviation and Safety - NCARNG
LTC Brent A. Orr

SUAS Brigade Master Trainer – 30 ABCT
SGT Brennar Goree
The NC SERT Air Branch is a State-level management asset that coordinates the use of fixed- and rotary-wing, manned and un-manned aircraft during response efforts supporting Federal, State, local, and tribal governmental entities and non-governmental organizations (NGOs) requiring or providing aviation assistance during a disaster, emergency, or other designated event.
SO WHAT?

• High OPTEMPO, +
• Assets readily available +
• Institutional diligence =
• Unmitigated risk
WHICH MEANS - Risk Mitigation / or false sense of security
THEREFORE?

• Air SERT DOES NOT control assets or airspace
• Works closely with FAA to request control measures
• Control measures (TFRs) can change quickly
• Know how to reach the Air SERT to discuss a flight during a state emergency (declared or otherwise)
• Planning assumptions are catastrophic
Capability Briefing

Amit Ganjoo
Founder and CEO

ANRA TECHNOLOGIES
DroneOSS™ Operational Platform
• Founded in 2015
• Award Winning Technology
• Official NASA Collaborator
• 50+ years of aviation, communications and robotics experience
• Featured in

[Logos of FORTUNE, AVIATION WEEK, BISNOW, Tandem, NSI, DEFENSE SYSTEMS, DCInno]
SOLUTION

SEAMLESS INTEGRATION

END CONSUMERS

Drone Controllers

Private & Public Operators

DroneOSS Platform(s)

Stakeholder System Data Sources

ANRA TECHNOLOGIES
Our Platform takes care of it all for you or just the pieces you need help with.
An off the shelf, real-time, field proven, cloud based Regulation Compliant end to end drone operations platform
Role Based Access

Manager

Analyst

Dispatcher

Remote Pilot

Payload Operator

One system – One Mission – Multiple users
Multiple Drone Control, Real Time Media and Data

Airspace and Traffic Management

Separation Assurance, Flight Data Management

Incident Management, Fleet Management

Compliance And Reporting
• Automated Mission Planning & Data Management

Multiple Simple and Complex Mission Types Supported
Data Collection And Data Synchronization
DroneOSS (TM)

Cloud Portal

Online Real Time Data Analytics

Seamless Sharing And Collaboration

Integration into existing enterprise systems
5 oz version for integration into UAVs and rugged version available
MIMO, ISM /NATO/Military Frequency Bands Supported
Multiple Verticals

- Energy And Infrastructure
- SAR
- Surveying
- Law Enforcement
- Precision Agriculture
- Disaster Response
Analyze And Export Data

Thermal Analysis

Measurements

NDVI Analysis

Elevation Mesh

3D Models

Accurate current topography maps with NDVI thermal data, and detailed 2D and 3D models. Calculate the area as well as distances.
Amit Ganjoo, Founder and CEO
Successful Exit Ericsson FCC TAC
DoD Pilot Aircraft Builder

William L. Schrader, Advisor
Serial Entrepreneur Chairman CEO
Global Experience

William Suffa, Advisor
CEO Investment Expansion M&A
Corporate Development

Greg Miller, Advisor
Marriott Information Technology
Financial Management
Contact Us

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GOVERNMENT OPERATIONS

NORTH CAROLINA PUBLIC SAFETY DRONE ACADEMY

&

MONTGOMERY COMMUNITY COLLEGE
NEW UAV APPLICATIONS DISCOVERED DAILY

- Photography
- Agriculture
- Utilities
- Recreation Q
- News & Media
- Public Safety
**Law Enforcement Applications**

- Officer Safety
- Arrest Warrants
- Processing & Documenting Crime Scenes
- Searches
- Bomb Detection/Location
- Special Operations
- Natural Disasters
SEARCH AND RESCUE APPLICATIONS

- Advanced Camera Systems
- UAV vs. Manned Aircraft
- All Terrain
- Multi Platform Options
Firefighting Applications

- Fire Ground Operations
- HAZMAT
- Structural/Wildland Fires
- Multi-Agency Operations
- Training
- Safety & Accountability
- Fire Investigations/Damage Assessment
PRISON SYSTEM APPLICATIONS

- Facility Monitoring
- Escapes
- Security Details
HOW YOU CAN BE INVOLVED

Contact Your Local Fire Department, Police Station, or Rescue Squad to offer your assistance in UAV Operations.

Contact the NC Public Safety Drone Academy and register today – (It’s FREE to all qualified emergency service members & first responders!)