NORTH CAROLINA
Department of Transportation

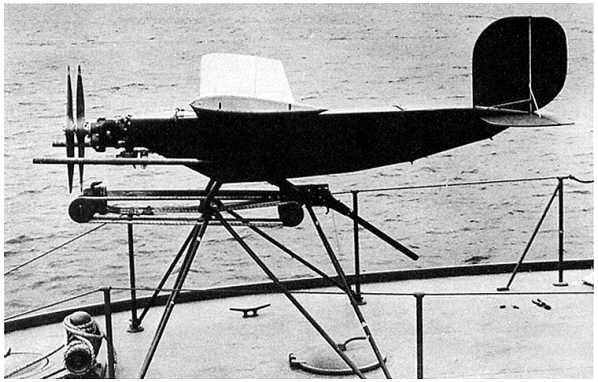
UAS Regulatory Landscape

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



Division of Aviation Mission

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***

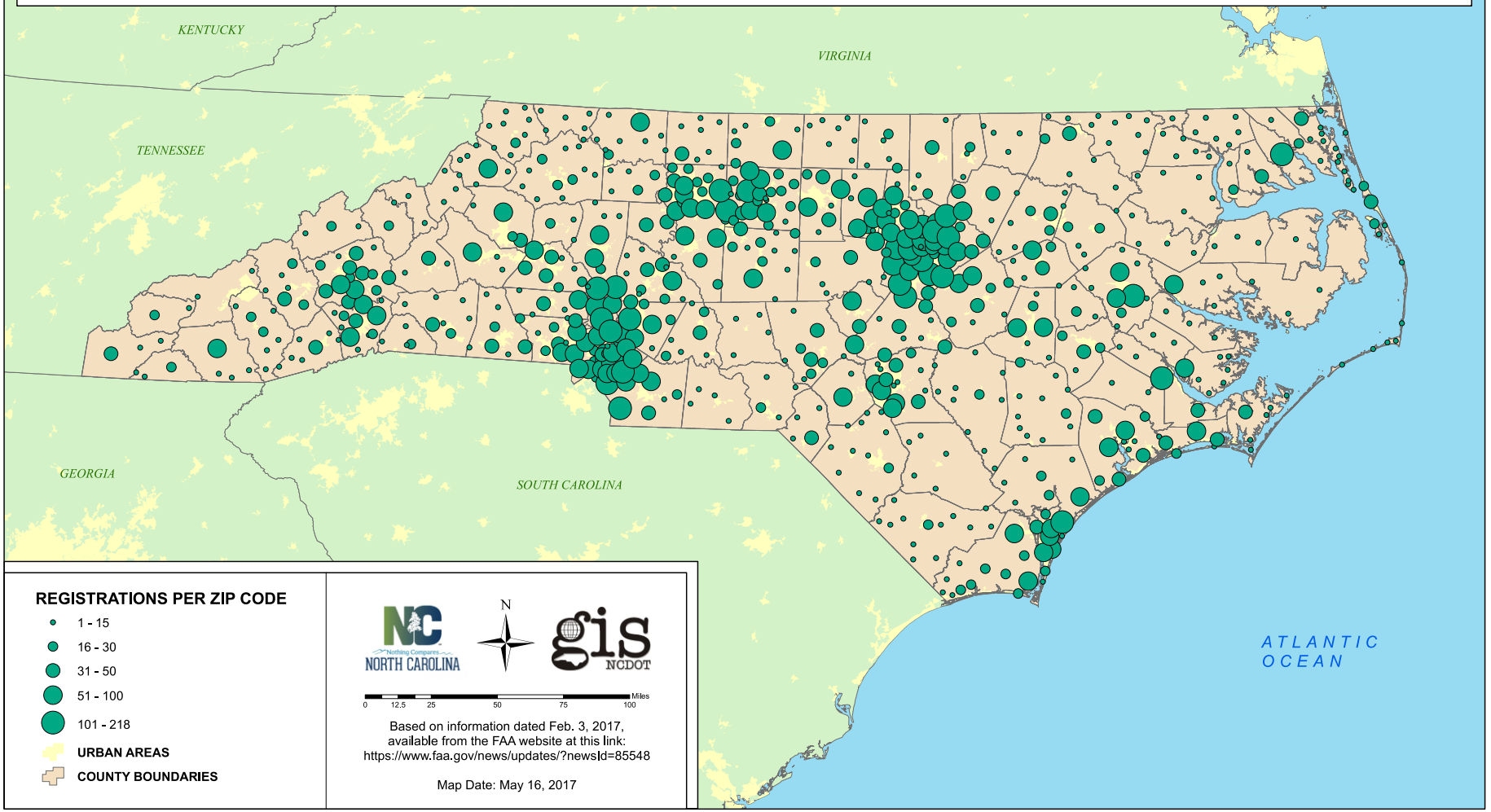
*as of Feb. 2, 2017 per FAA FOIA Library

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

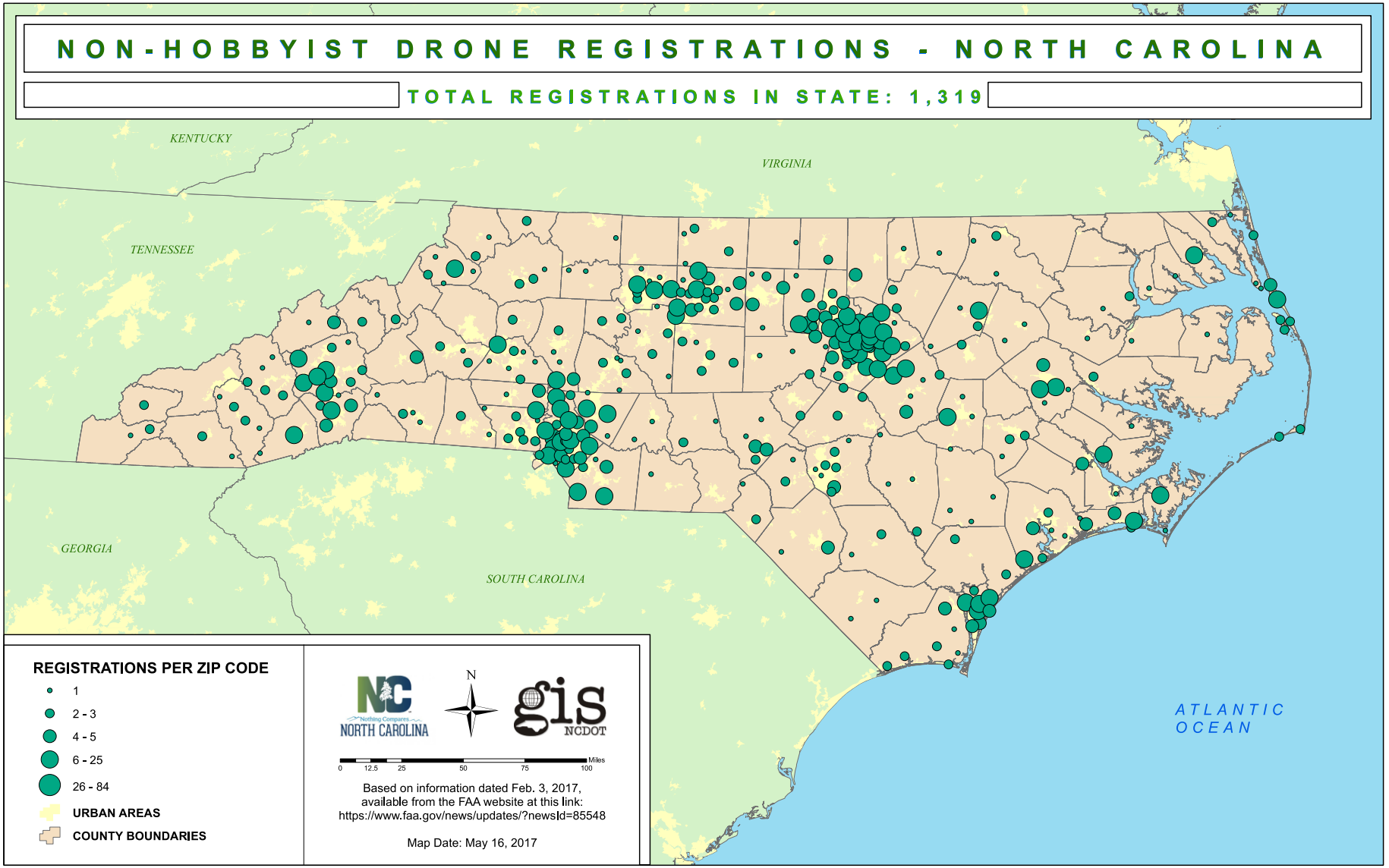
HOBBYIST DRONE REGISTRATIONS - NORTH CAROLINA

TOTAL REGISTRATIONS IN STATE: 18,934



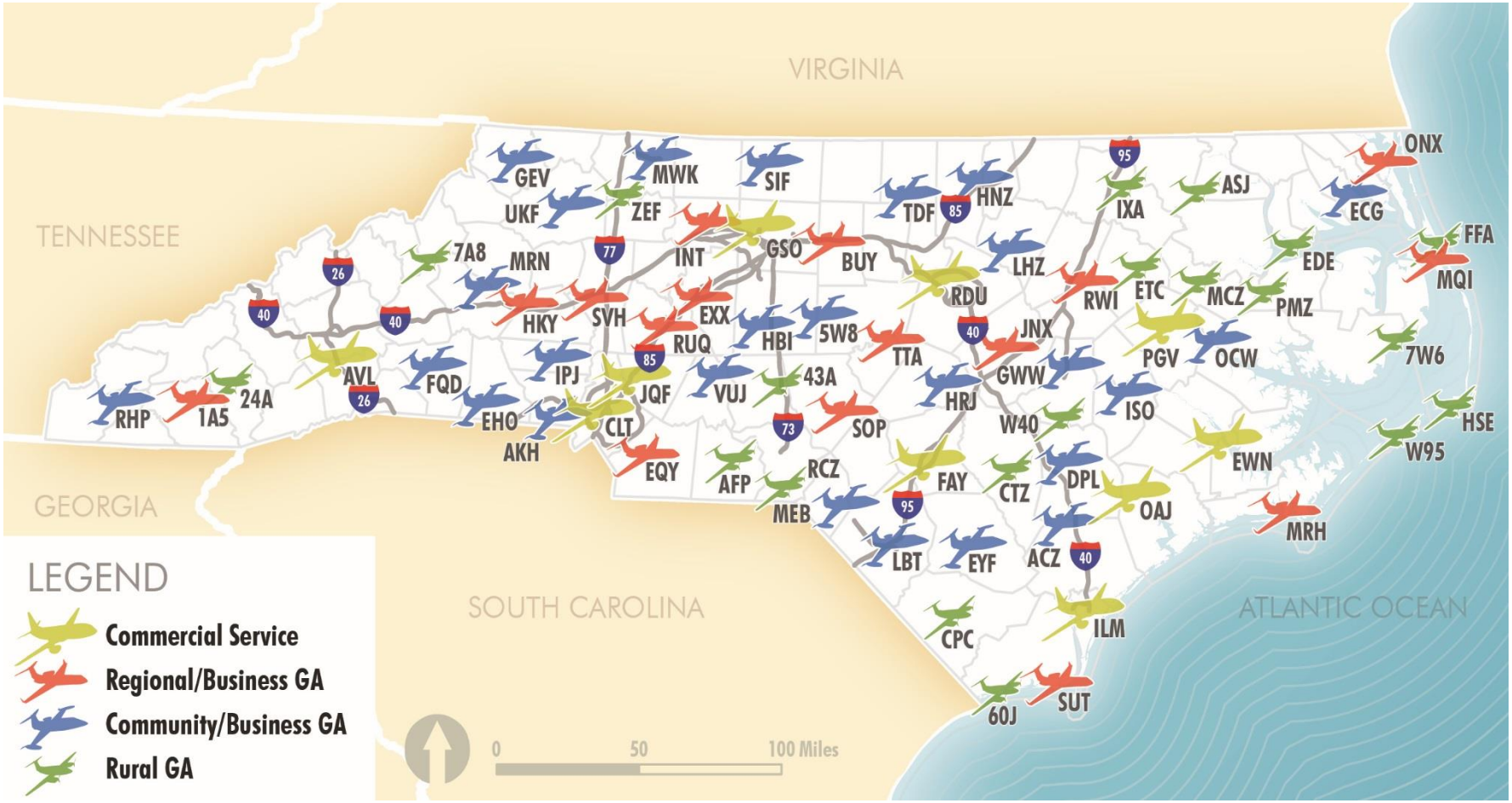
NON-HOBBYIST DRONE REGISTRATIONS - NORTH CAROLINA

TOTAL REGISTRATIONS IN STATE: 1,319



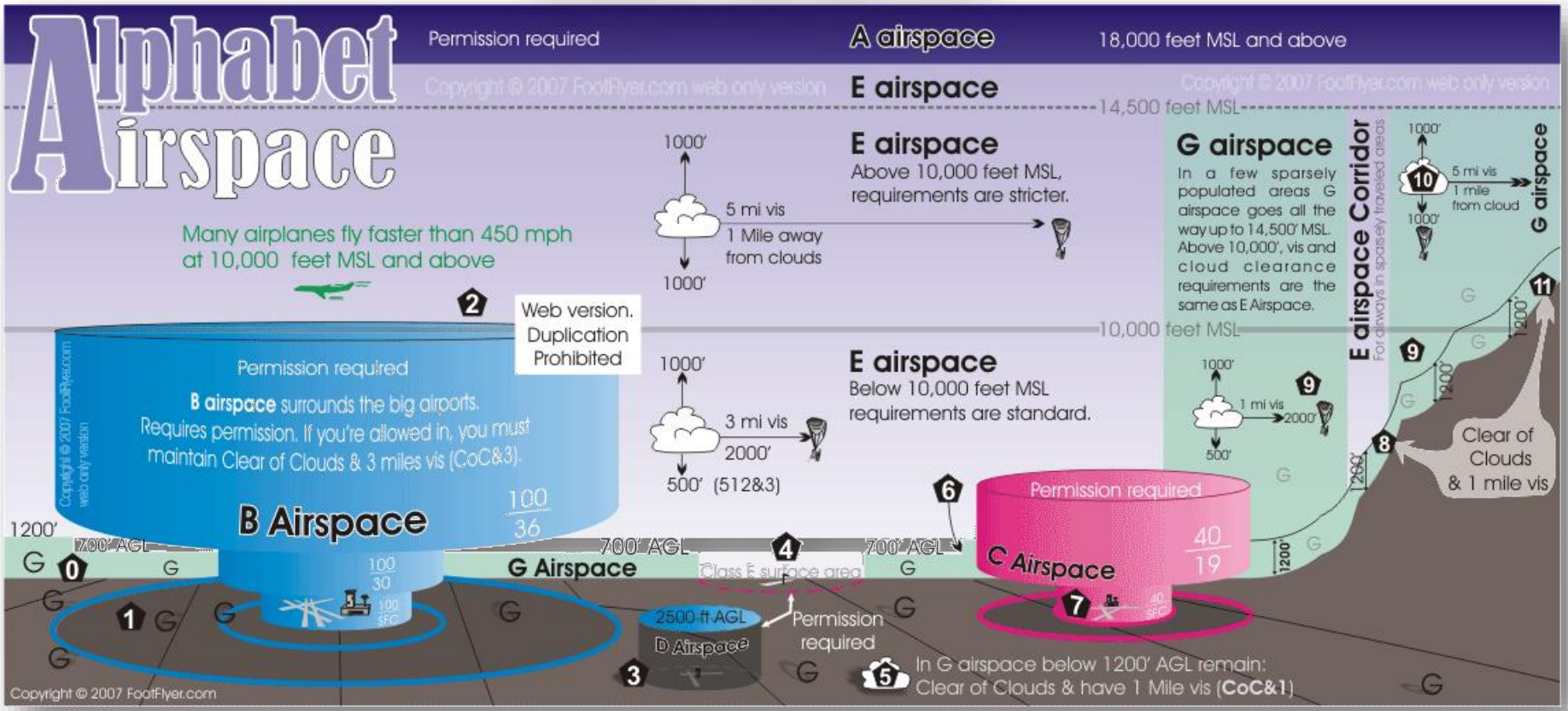
North Carolina's Airport System

72 Publicly Owned Airports in North Carolina



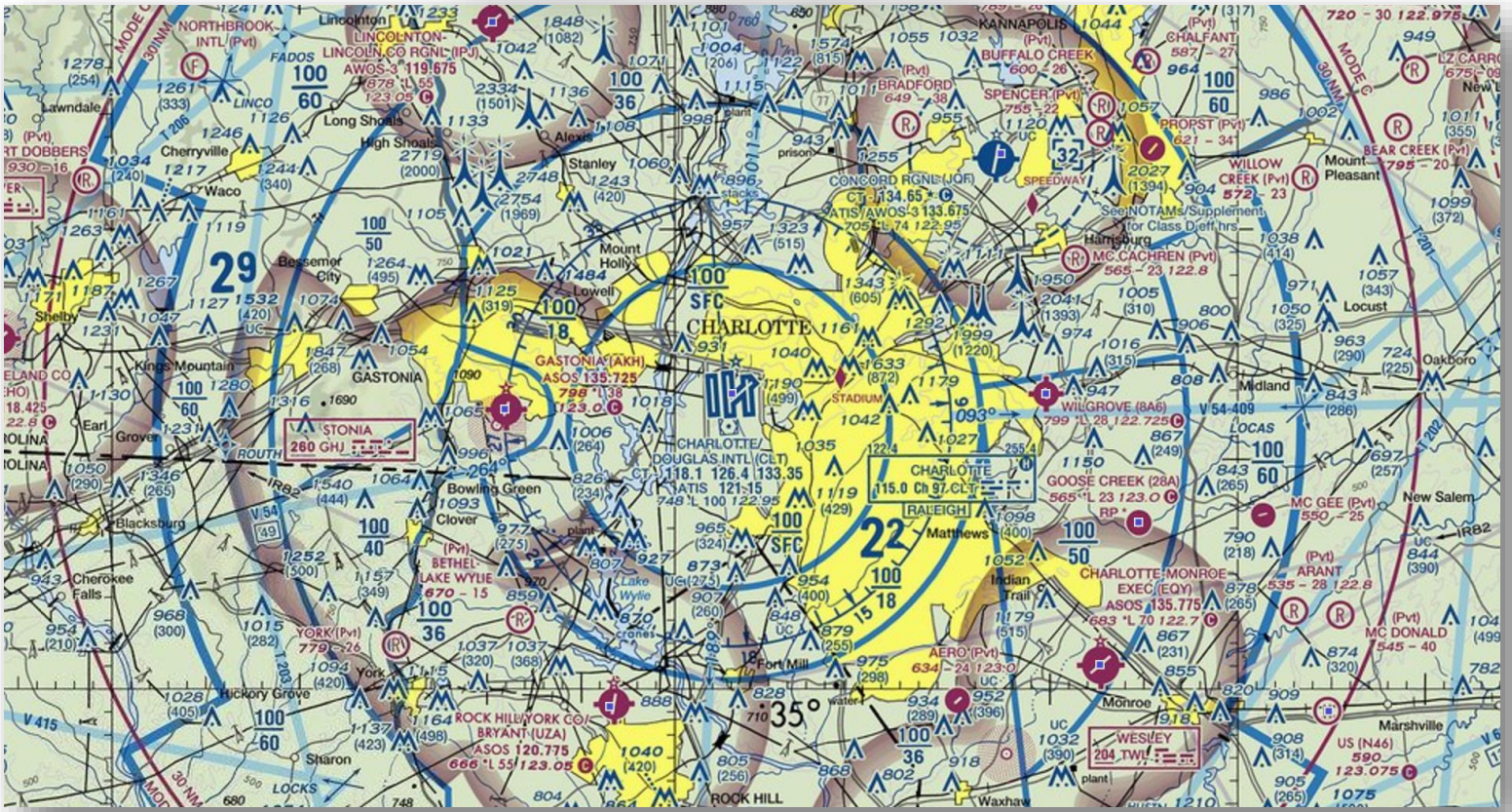
Federal UAS Regulations

Airspace Management



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

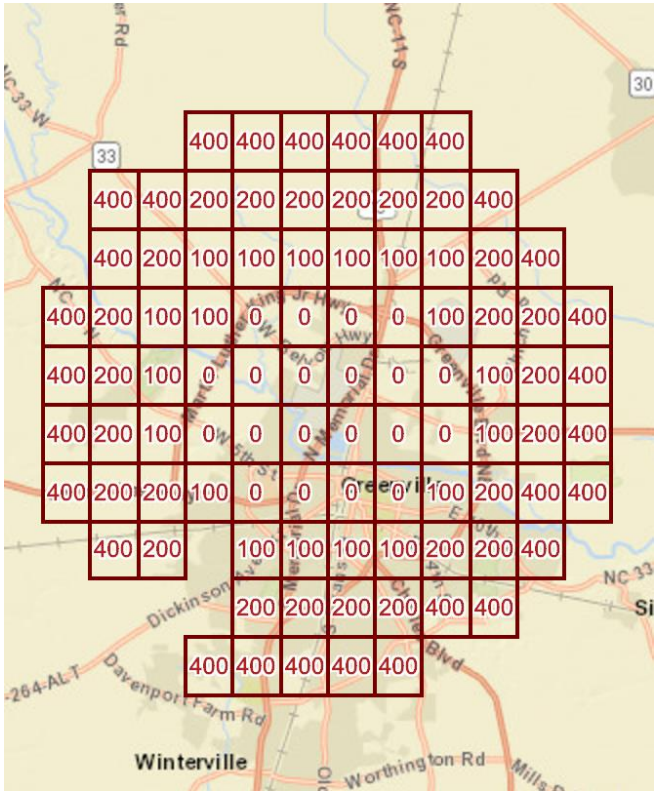
Waiver/Airspace

Currently

- Online Portal
- 90 days or less

Future

- LAANC should help with Airspace Authorizations
- 200 Class E Airport Published April 27, 2017



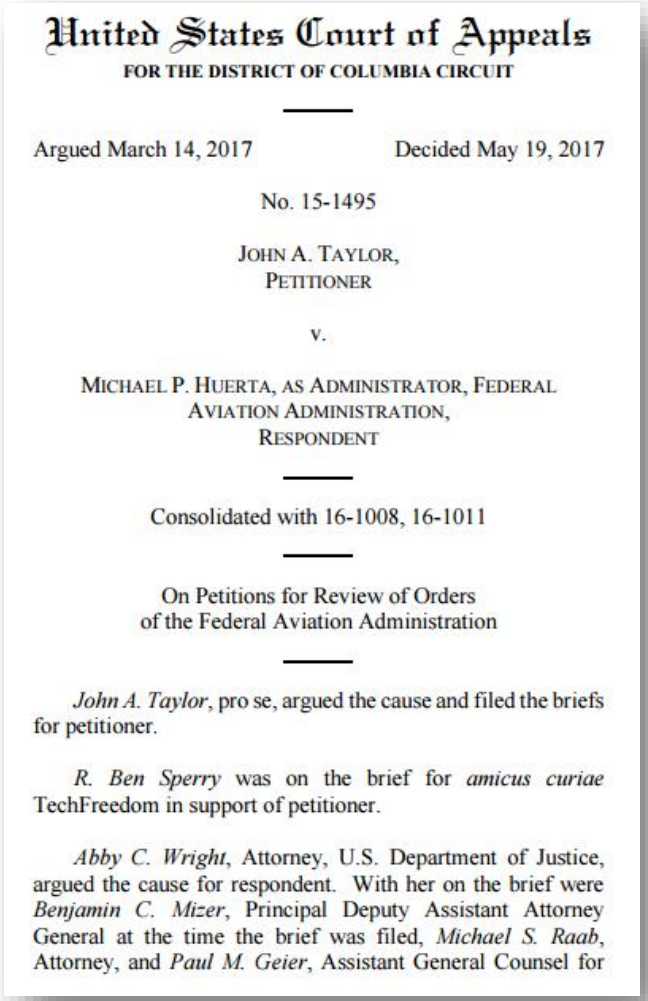
Federal UAS Regulations

- UAS over .55 lbs. must be registered with the FAA*
- https://registermyuas.faa.gov
- $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. “



United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued March 14, 2017 Decided May 19, 2017

No. 15-1495

JOHN A. TAYLOR,
PETITIONER

v.

MICHAEL P. HUERTA, AS ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION,
RESPONDENT

Consolidated with 16-1008, 16-1011

On Petitions for Review of Orders
of the Federal Aviation Administration

John A. Taylor, pro se, argued the cause and filed the briefs for petitioner.

R. Ben Sperry was on the brief for *amicus curiae* TechFreedom in support of petitioner.

Abby C. Wright, Attorney, U.S. Department of Justice, argued the cause for respondent. With her on the brief were *Benjamin C. Mizer*, Principal Deputy Assistant Attorney General at the time the brief was filed, *Michael S. Raab*, Attorney, and *Paul M. Geier*, Assistant General Counsel for

Military Airspace

- National Security UAS Flight Restrictions
- FAA and DoD have restricted UAS operations over 132 military facilities.
- The restrictions are up too 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

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

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

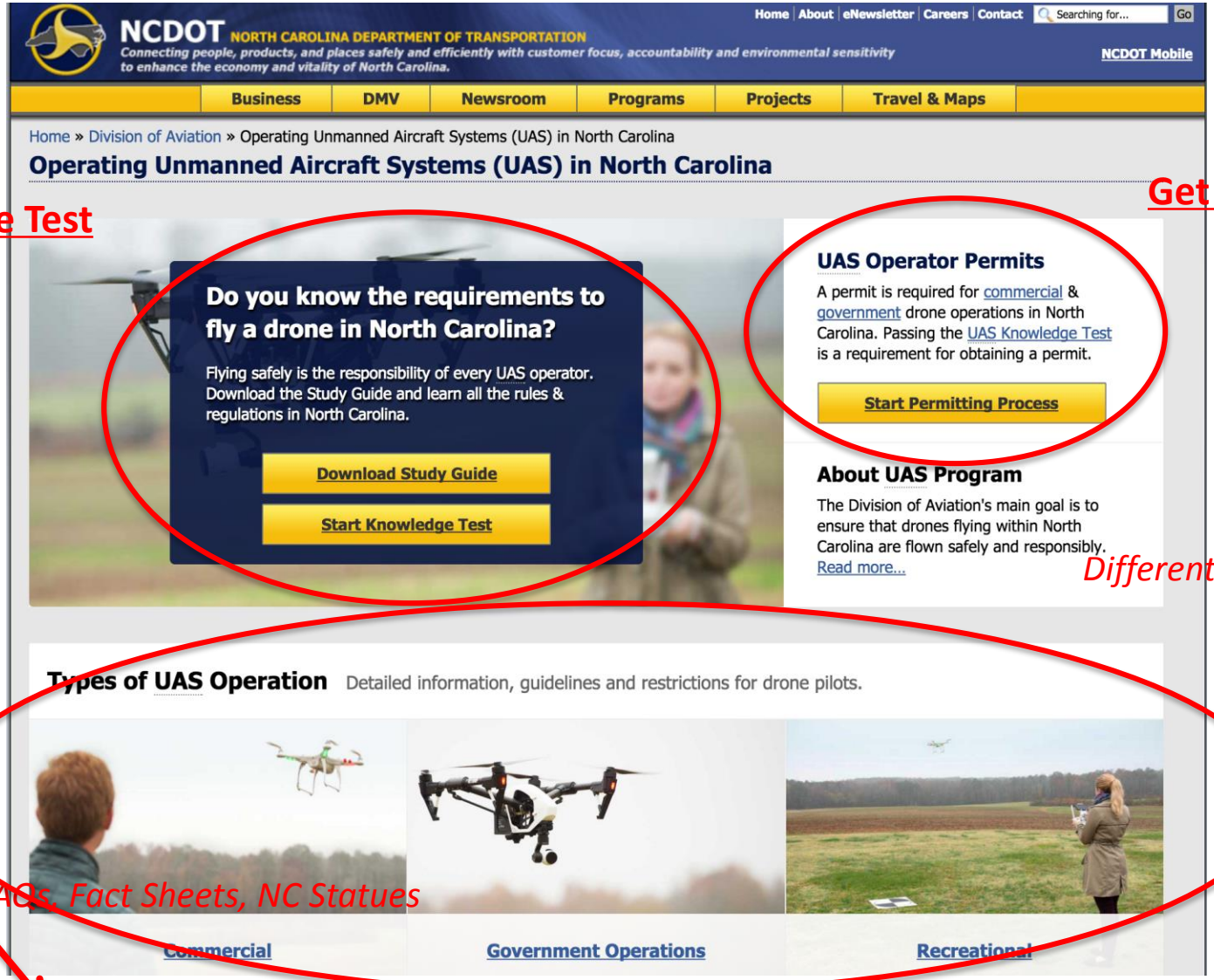
State UAS Regulations

- 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



Take the Test

Get Permit

Learn

Different types of UAS operations

Help

Access FAQs, Fact Sheets, NC Statues

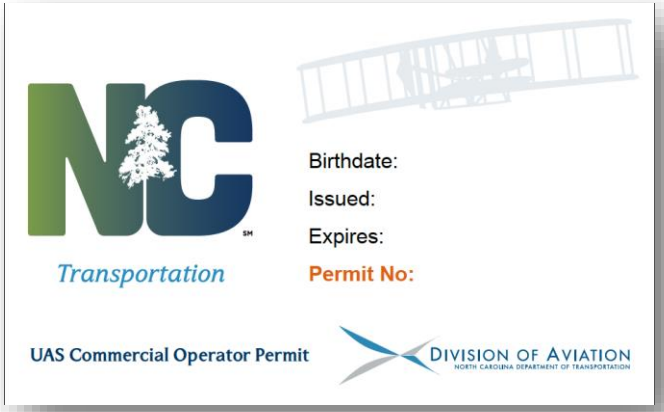
UAS Operator Permits

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

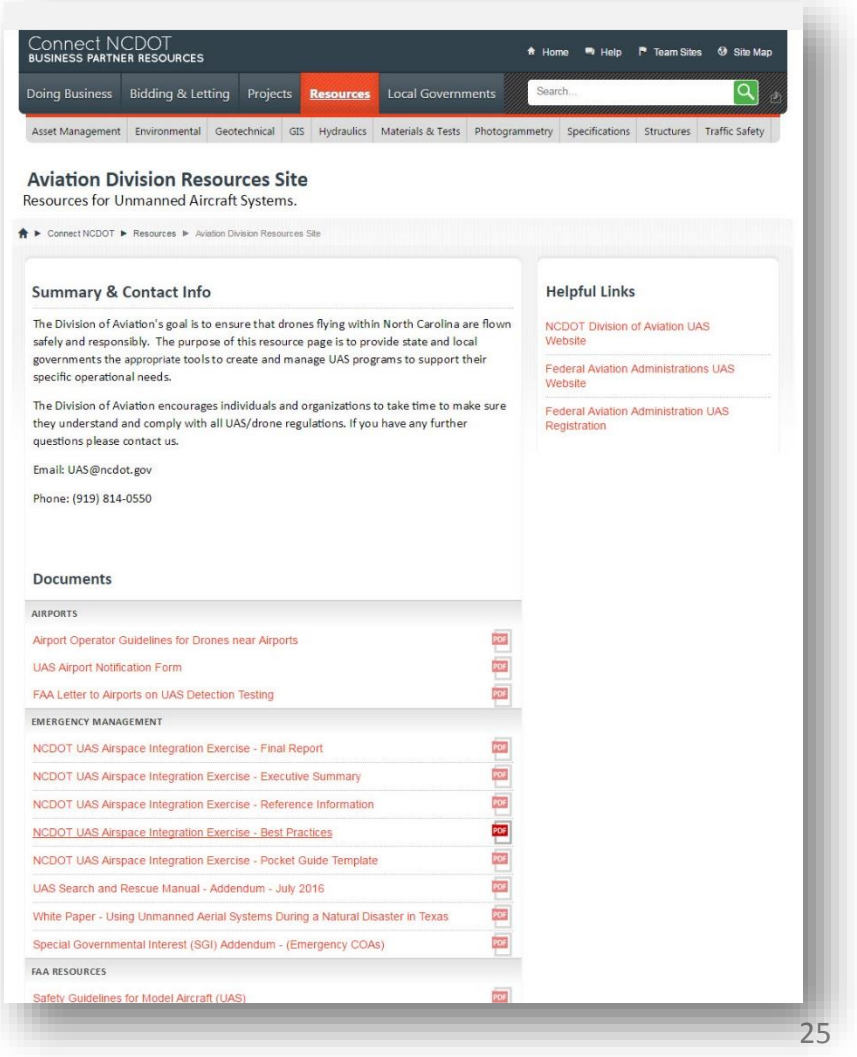
NC UAS Operator Checklist

- ✓ 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

DIVISION OF AVIATION
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PRECISIONHAWK

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.

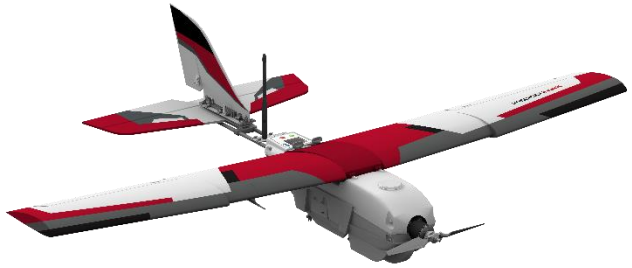
New Regulations Allow Companies to Utilize Drones

- 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.

White House Emerging Tech Series

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

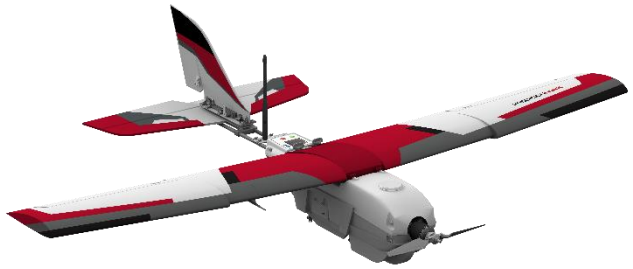
PrecisionHawk's Sr. VP of Policy, Diana Cooper, sit on the board of the Energy Drone Coalition. The coalition is a forum dedicated to launching and growing drone operations in energy companies worldwide by bringing together the major emerging segments within the drone ecosystem, with the energy industrial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

PRECISIONHAWK

The enterprise platform for commercial drones

I. SELECT DRONE

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

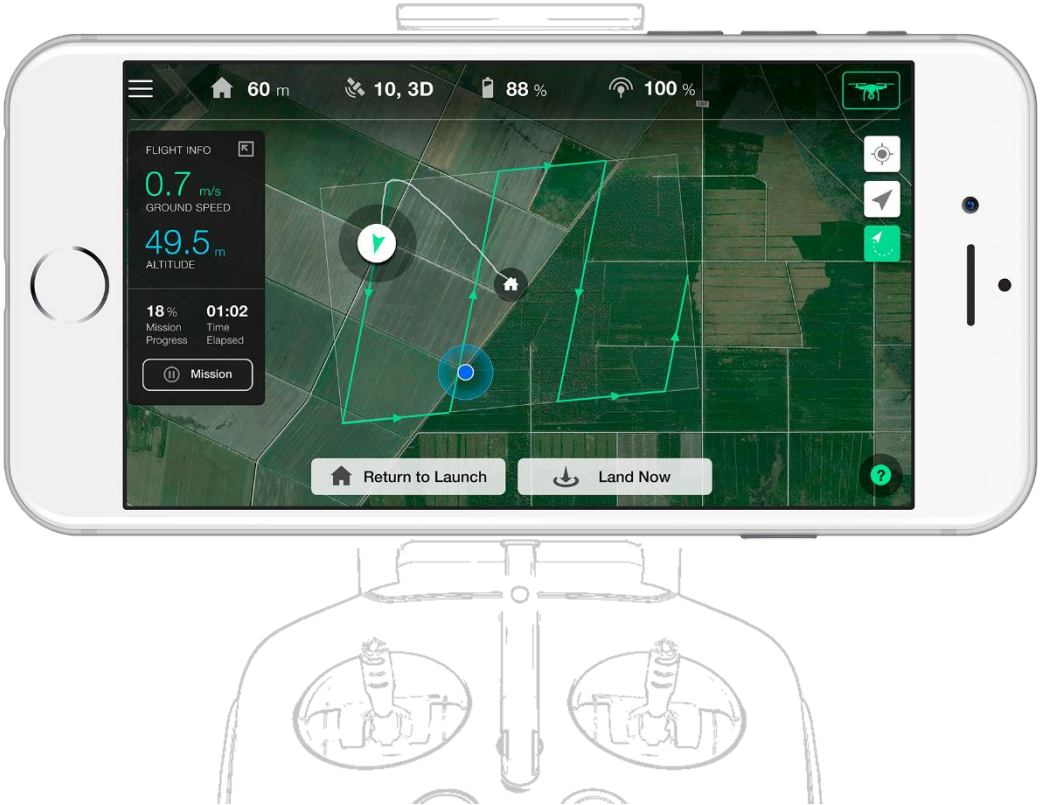


II. CHOOSE SENSORS

Select the right sensors to achieve your goals.

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

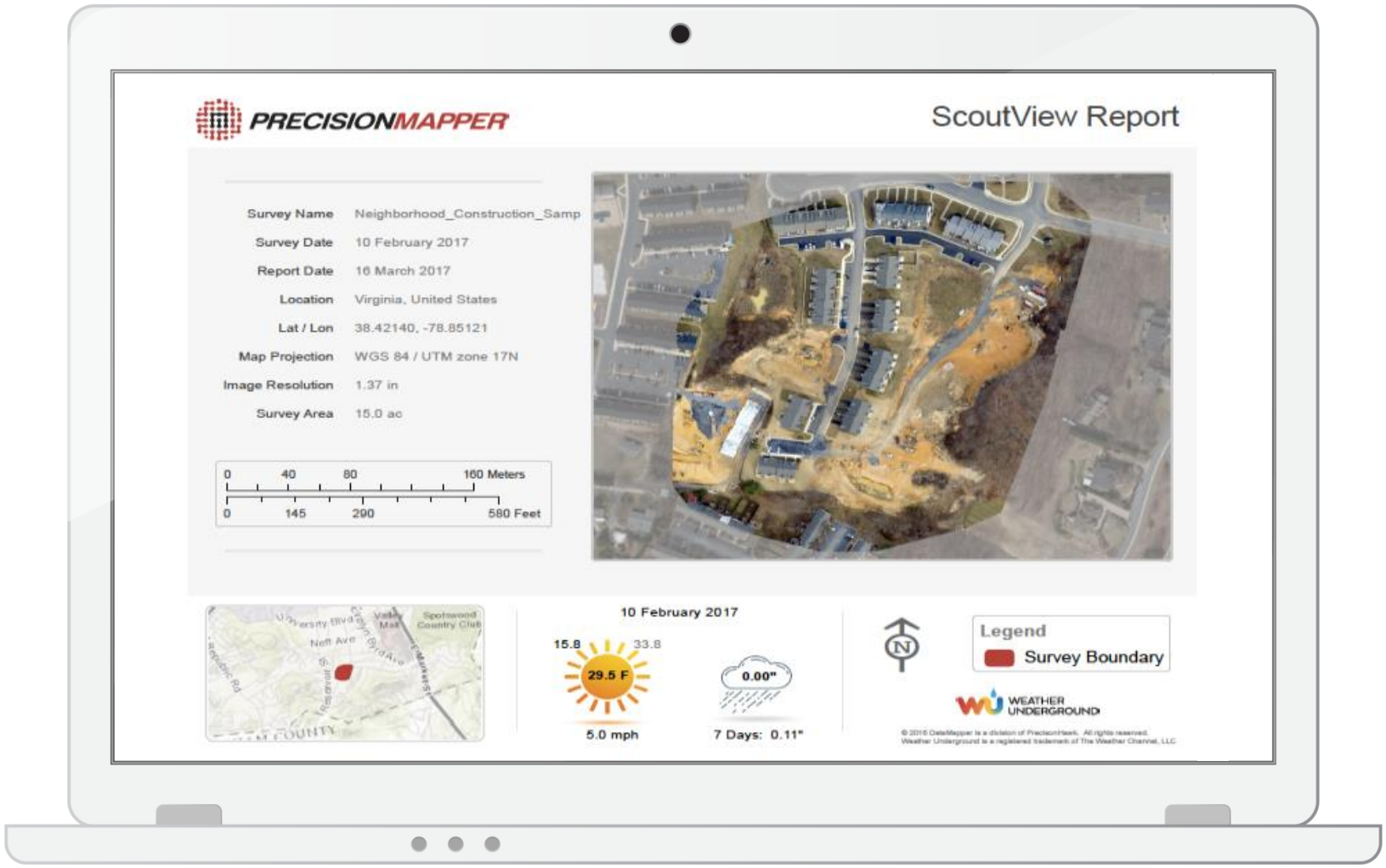
Desktop software allows a user to easily view flight path coverage, add ground control points, and attach flight logs and flight bounds to surveys while in the field with or without internet access.

V. ANALYZE DATA

Our software platform performs rapid processing, modeling, detailed analysis and reporting on your aerial data.

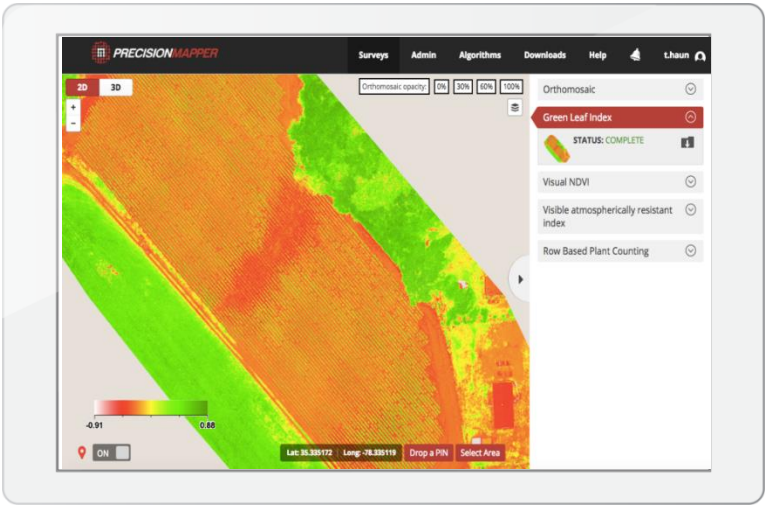
Construction, Energy, Agriculture

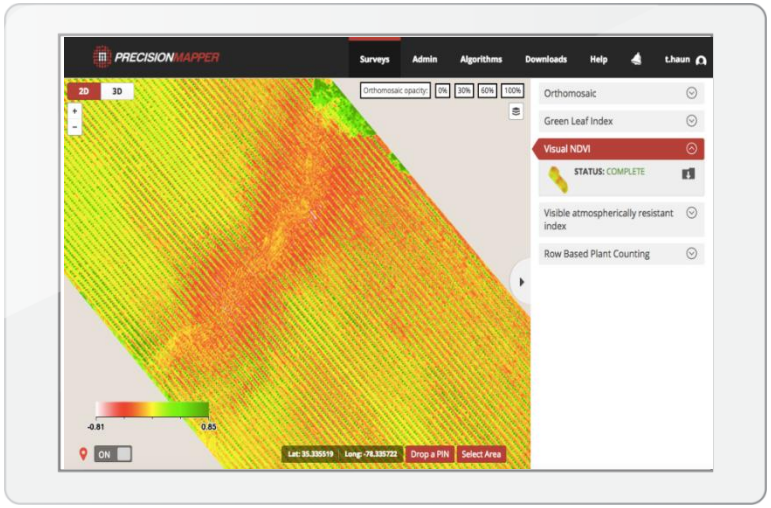
Applications

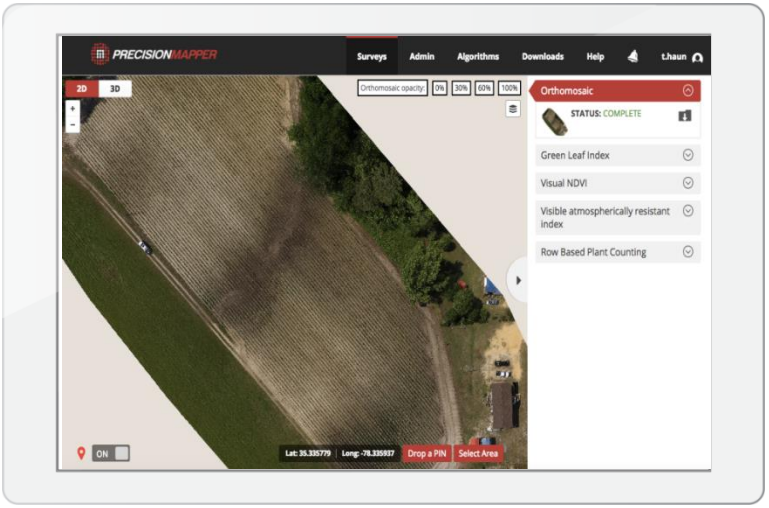


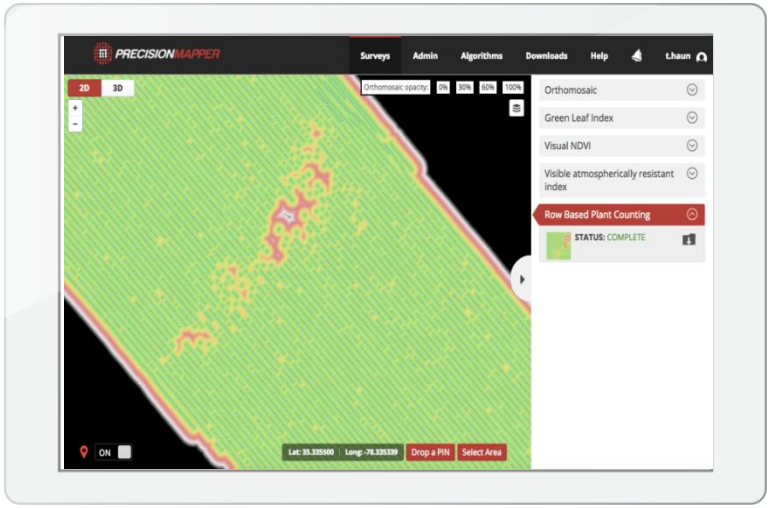
Aerial imagery, like what was collected over this neighborhood, can be used to audit site conditions to identify any potential hazards, improve traceability, reduce project delays, minimize rental losses due to misplaced parts and equipment, improve logistic planning and helps to locate assets on a site 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.





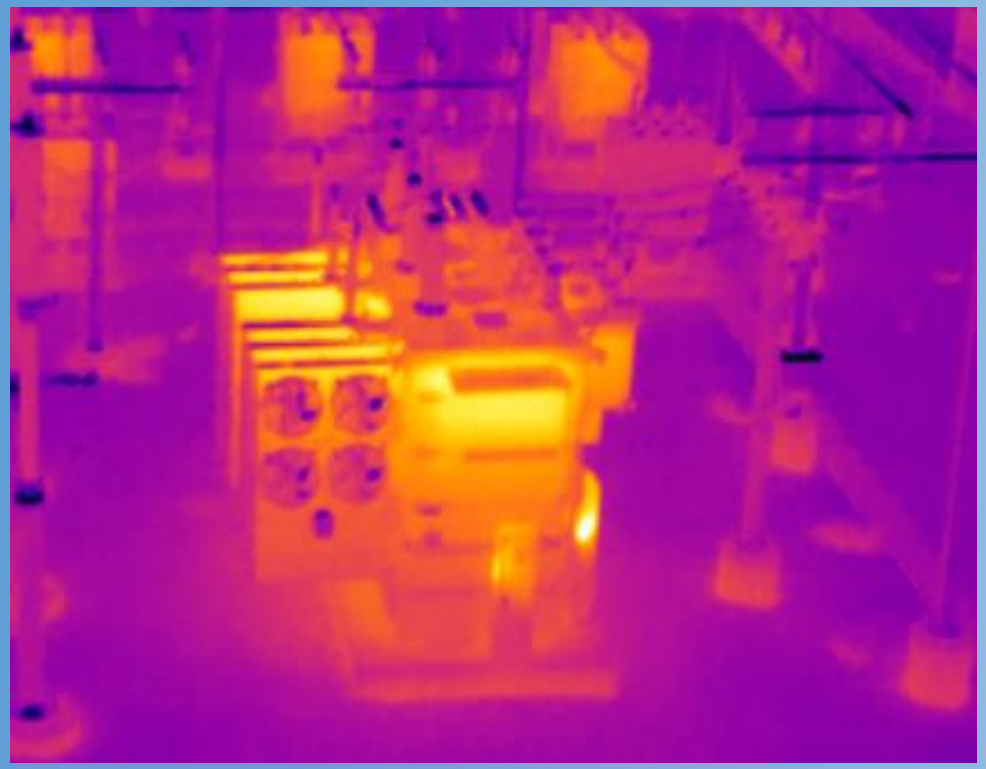




Flying and scouting a tobacco field that had endured more than 12 inches of rain fall in three weeks time. The fields were so wet the farmer couldn't even walk into the fields much less assess the amount of damaged of drowned tobacco. The Smarter Ag Package coupled with our analysis tools (two vegetative 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.

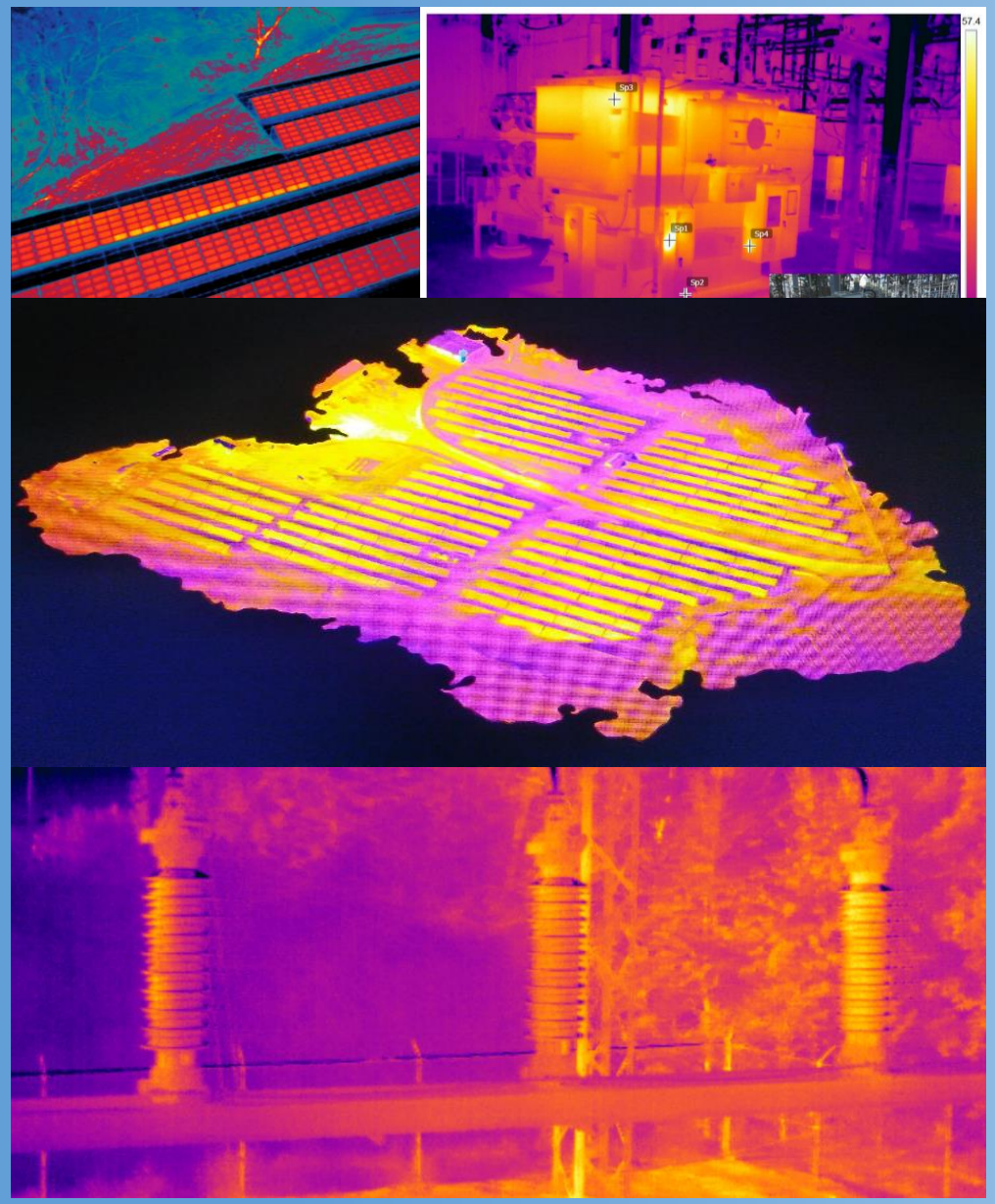
CAS™

CHARLOTTE AERIAL SOLUTIONS



Thermal Imaging

CAS
CHARLOTTE AERIAL SOLUTIONS™



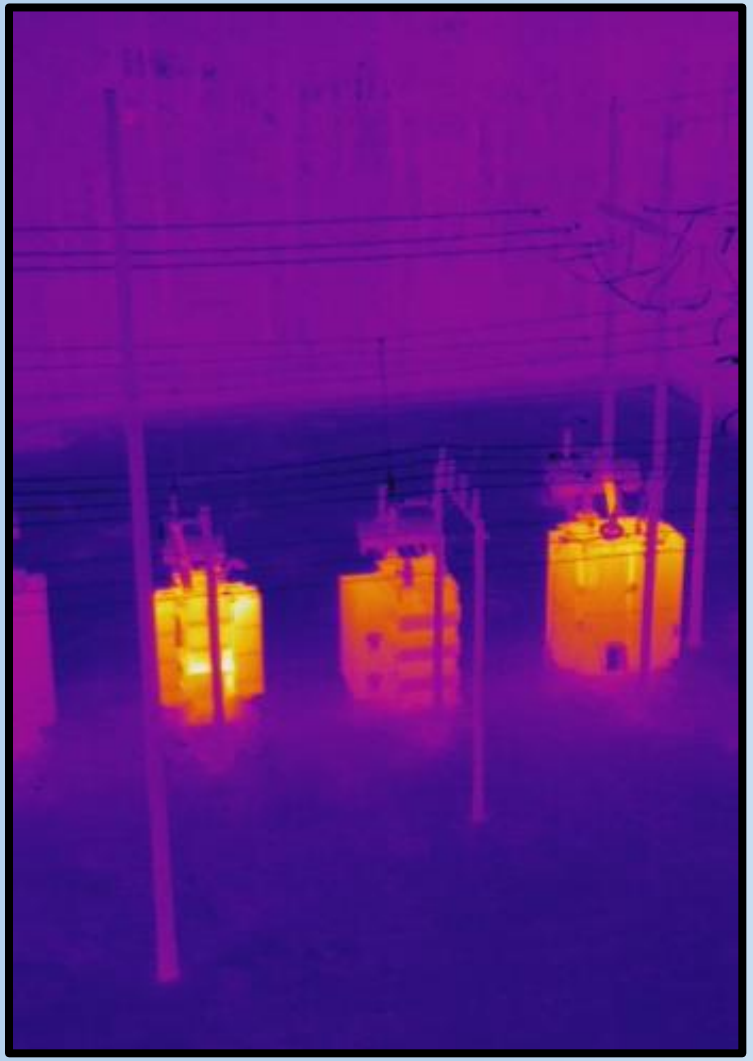
Overview

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

Intro

Douglas Moulton

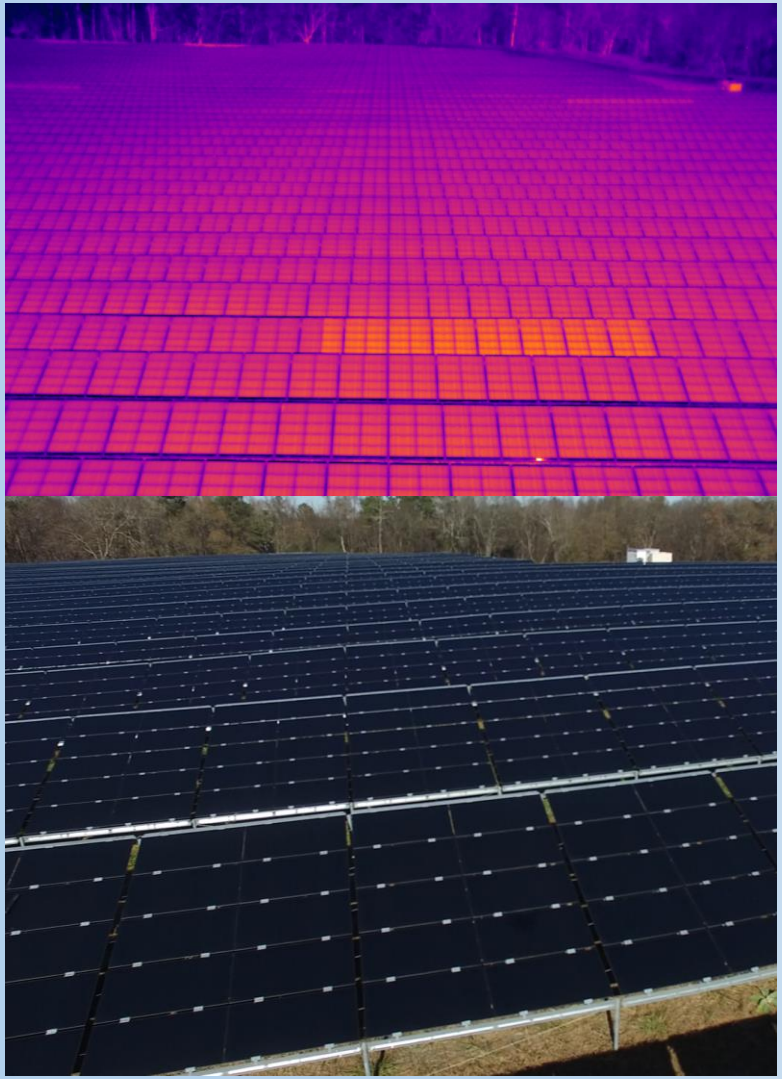
- Owner Operator
- FAA Commercial sUAV Licensed
- Certified Thermographer
- Flew UAV's on active duty as a Navy SEAL
- 9+ Years of Flying and Building Multirotor (sUAS/Drones) and Fixed Wing Unmanned Systems
- Volunteer Fire Fighter



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

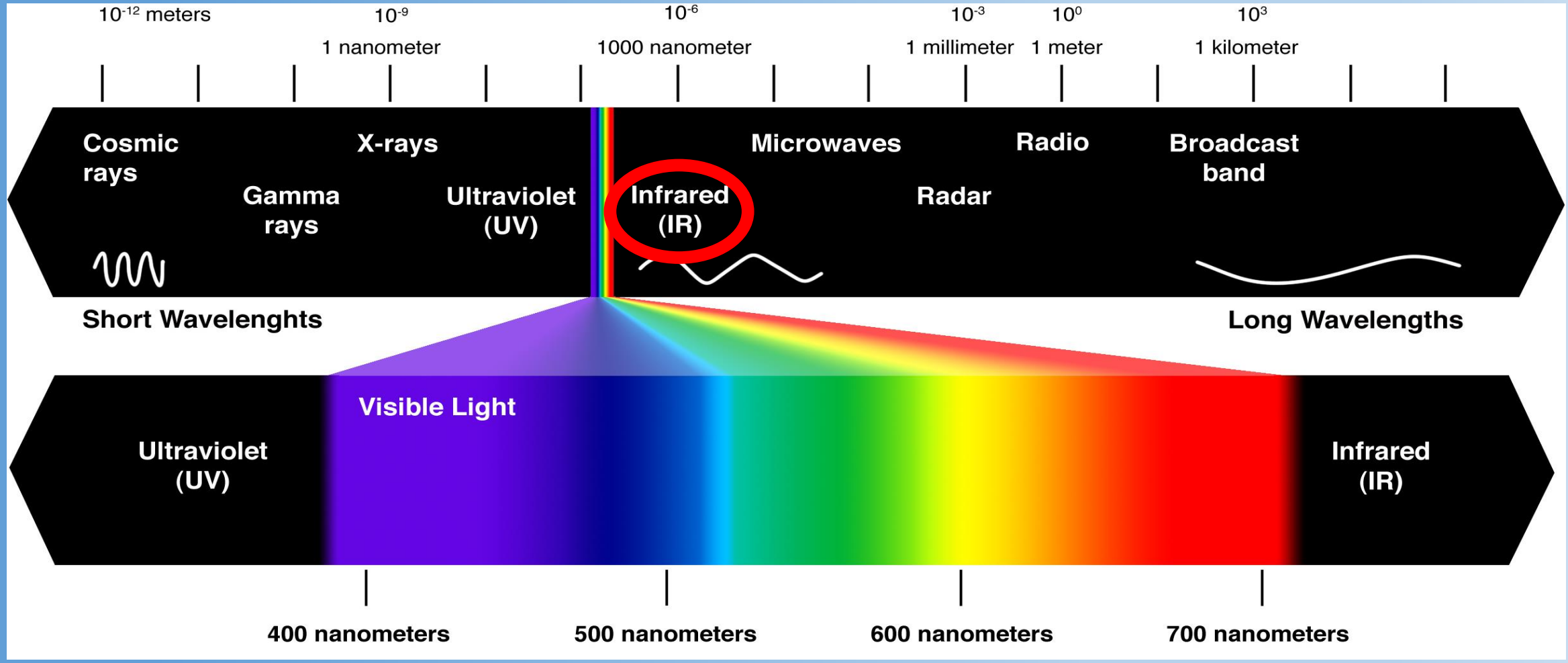


Image Analysis

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.)

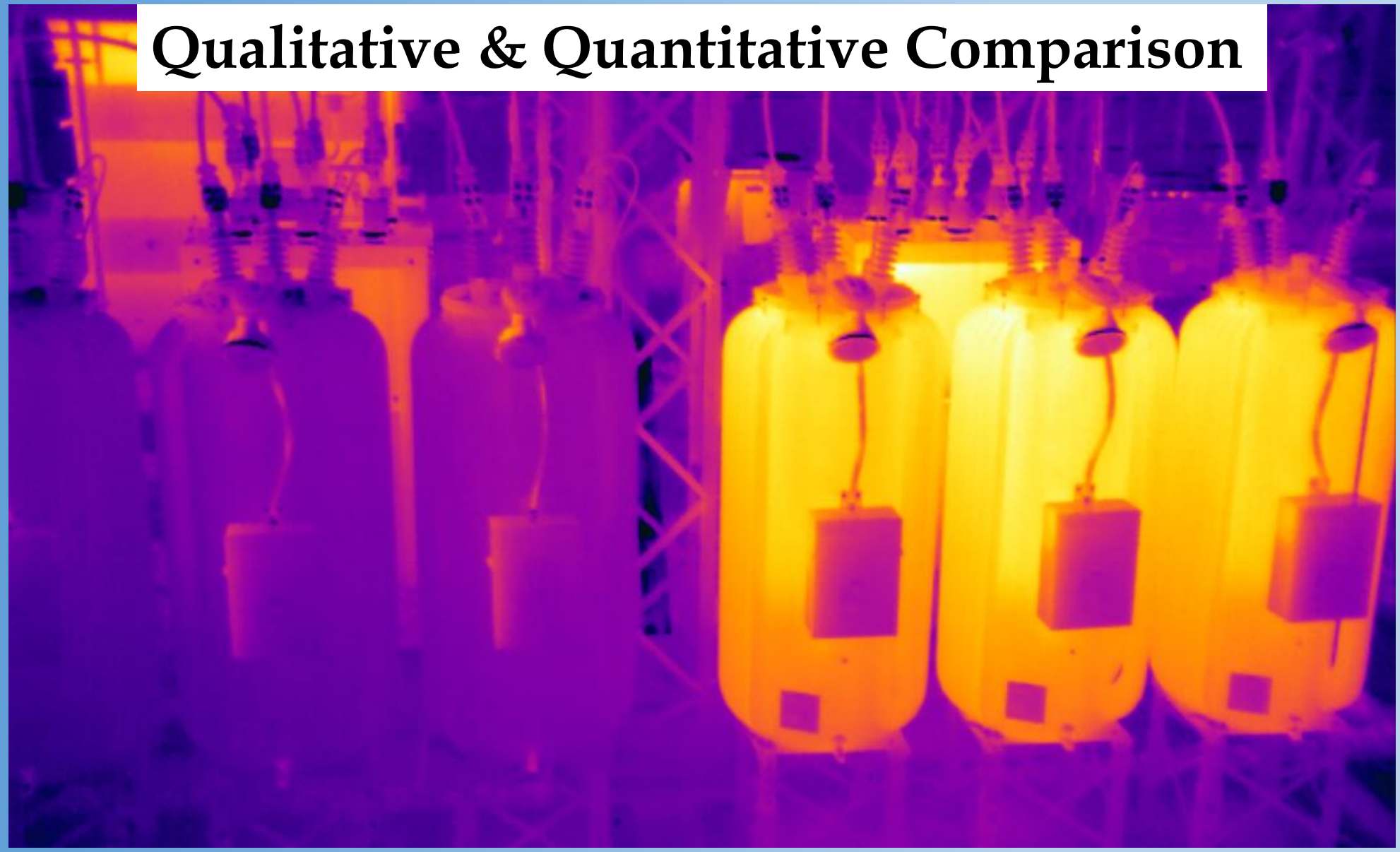


Image Analysis (Cont.)

Accurate Thermal Images and Radiometric's (Temp.)

- Atmospherics; every inspection requires different weather conditions
- Emissivity, Transmissivity, Reflectivity
- Composition of material must me accounted for accurate readings

Image Analysis (Cont.)

Pallets

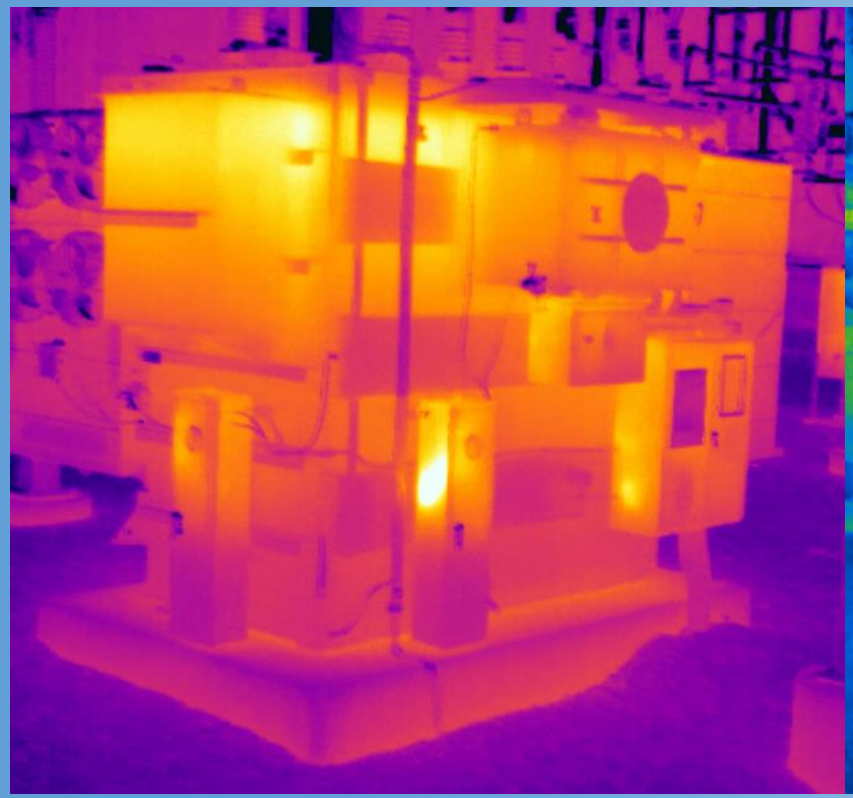
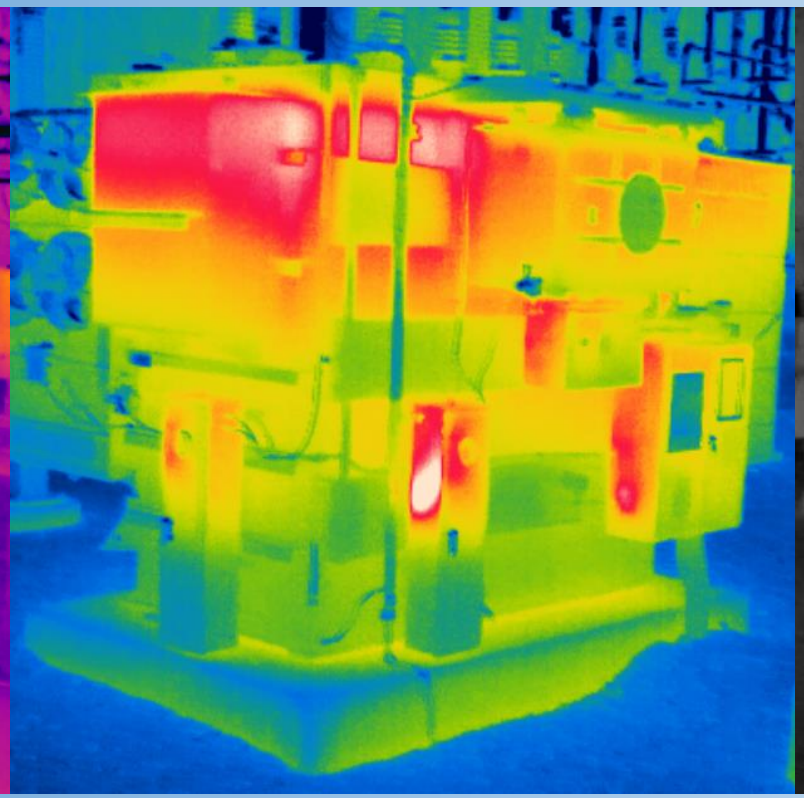
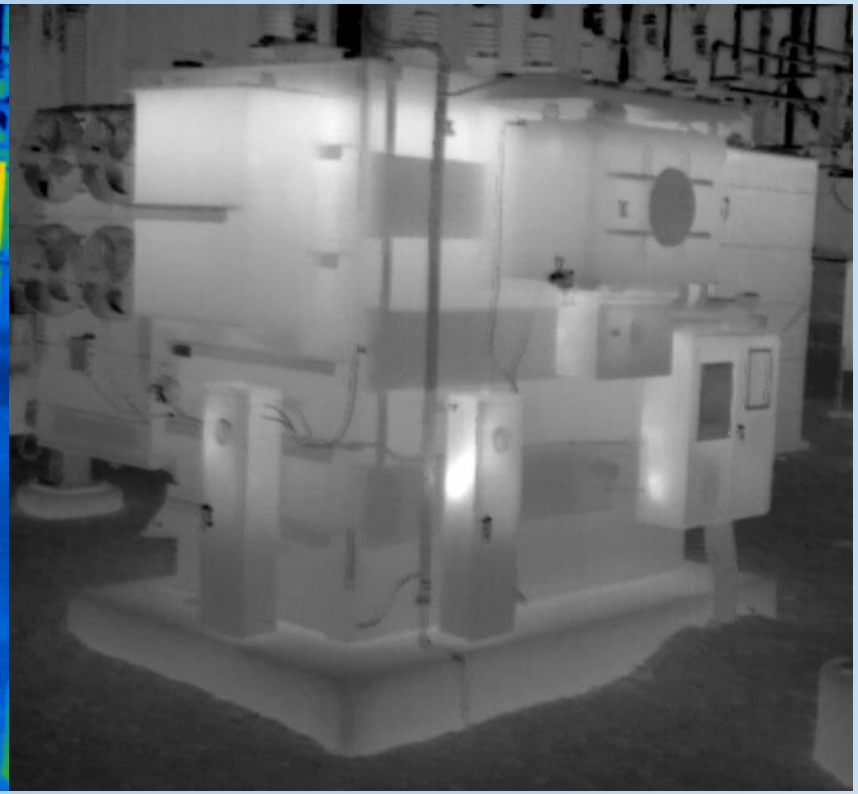
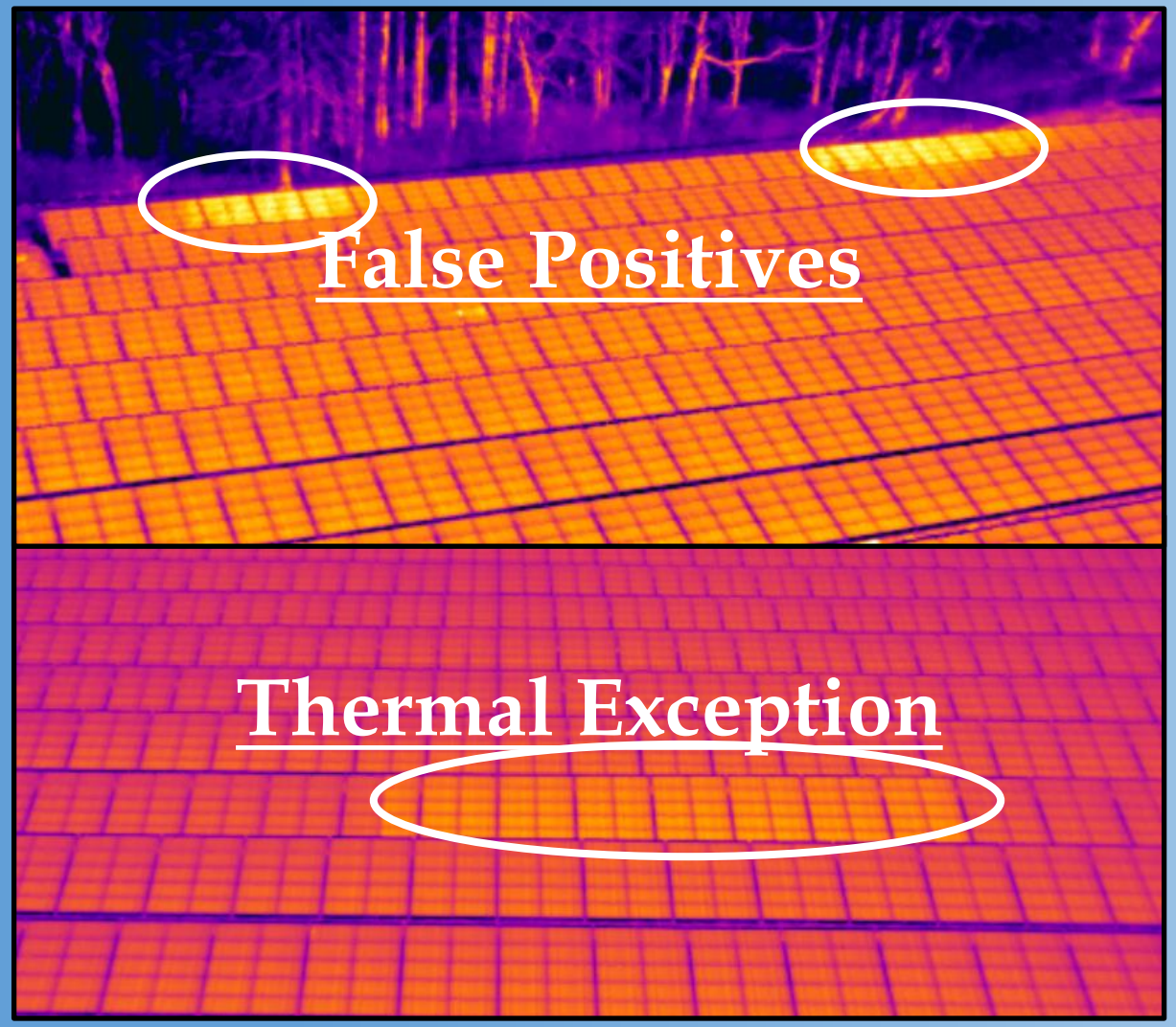




Image Analysis (Cont.)

False Positives



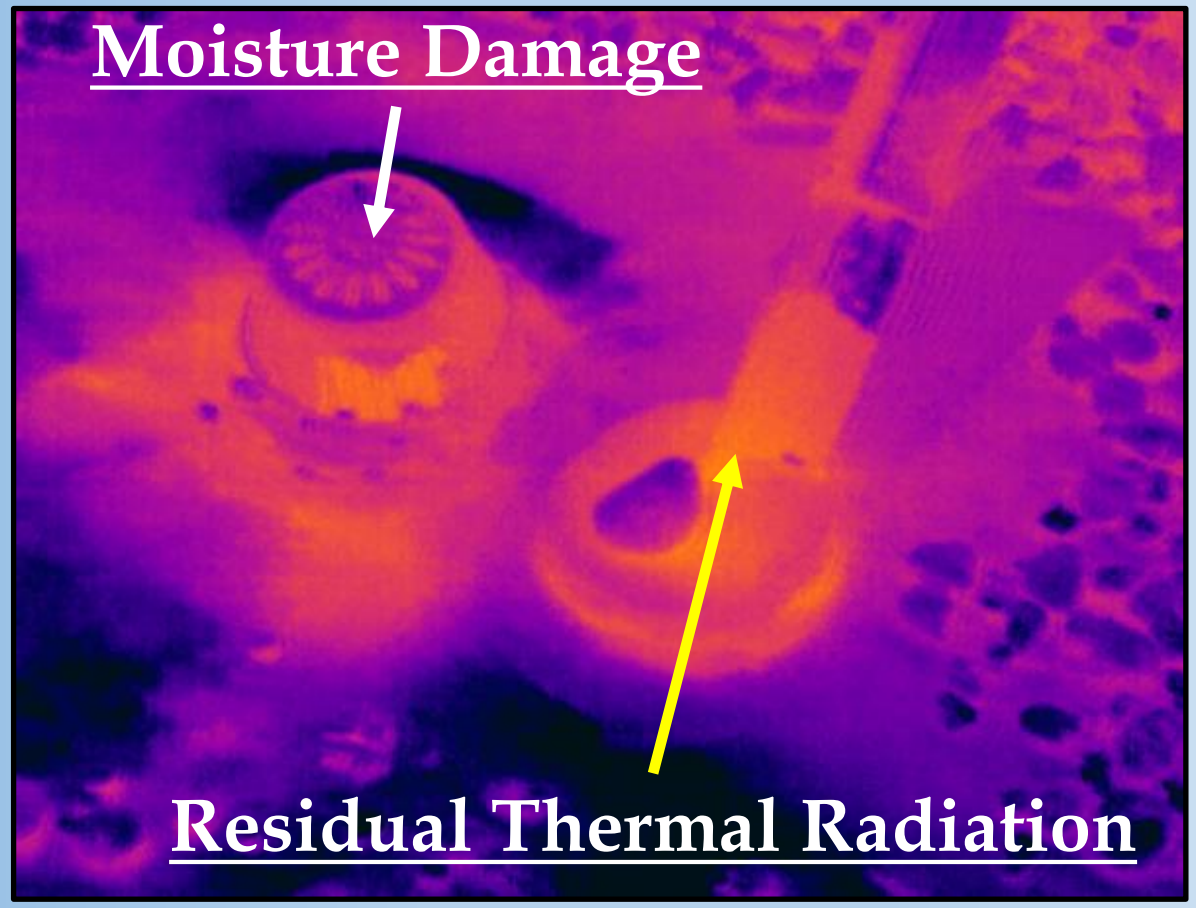


Image Analysis (Cont.)

False Positives

Thermal Exception

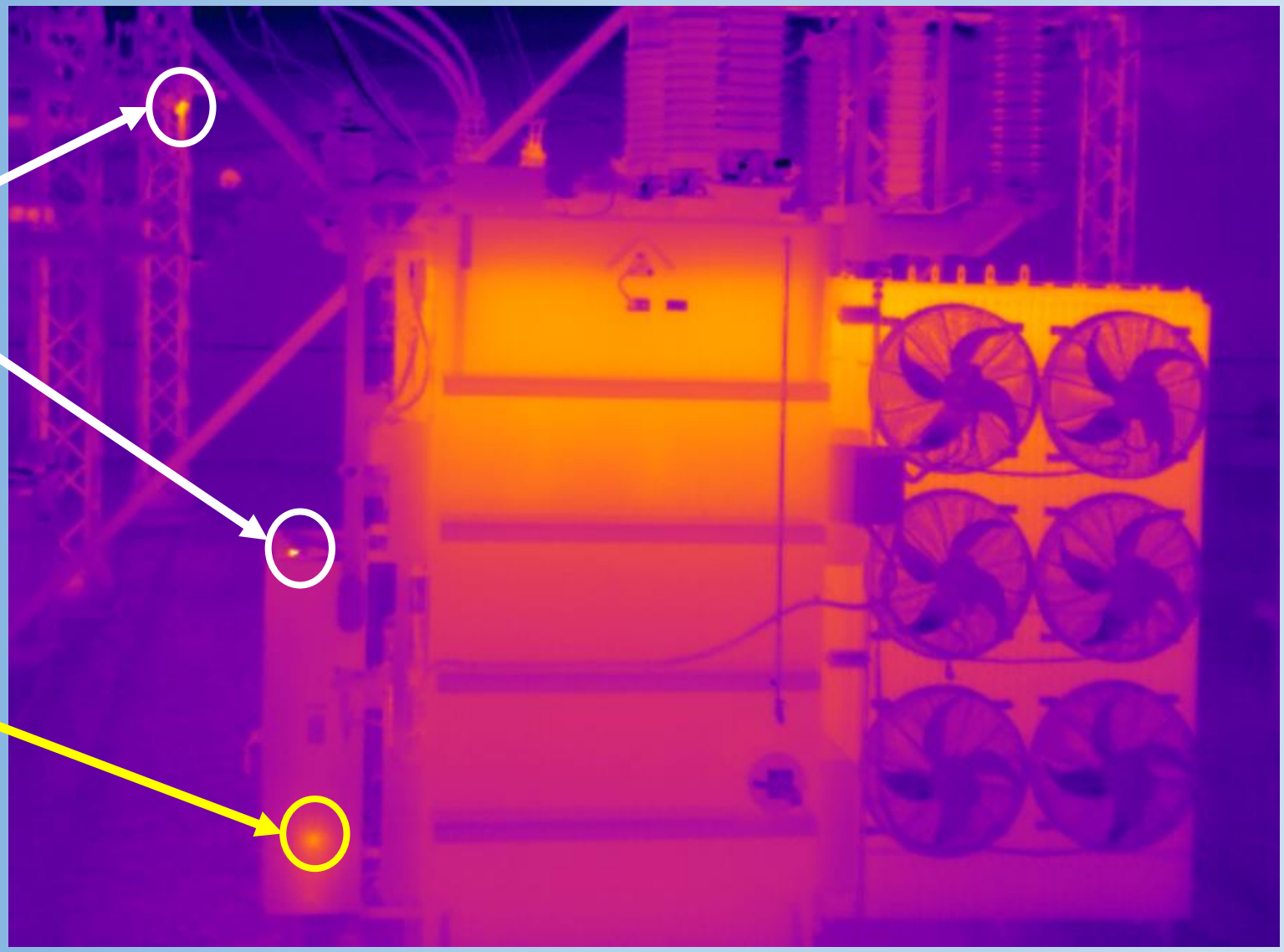
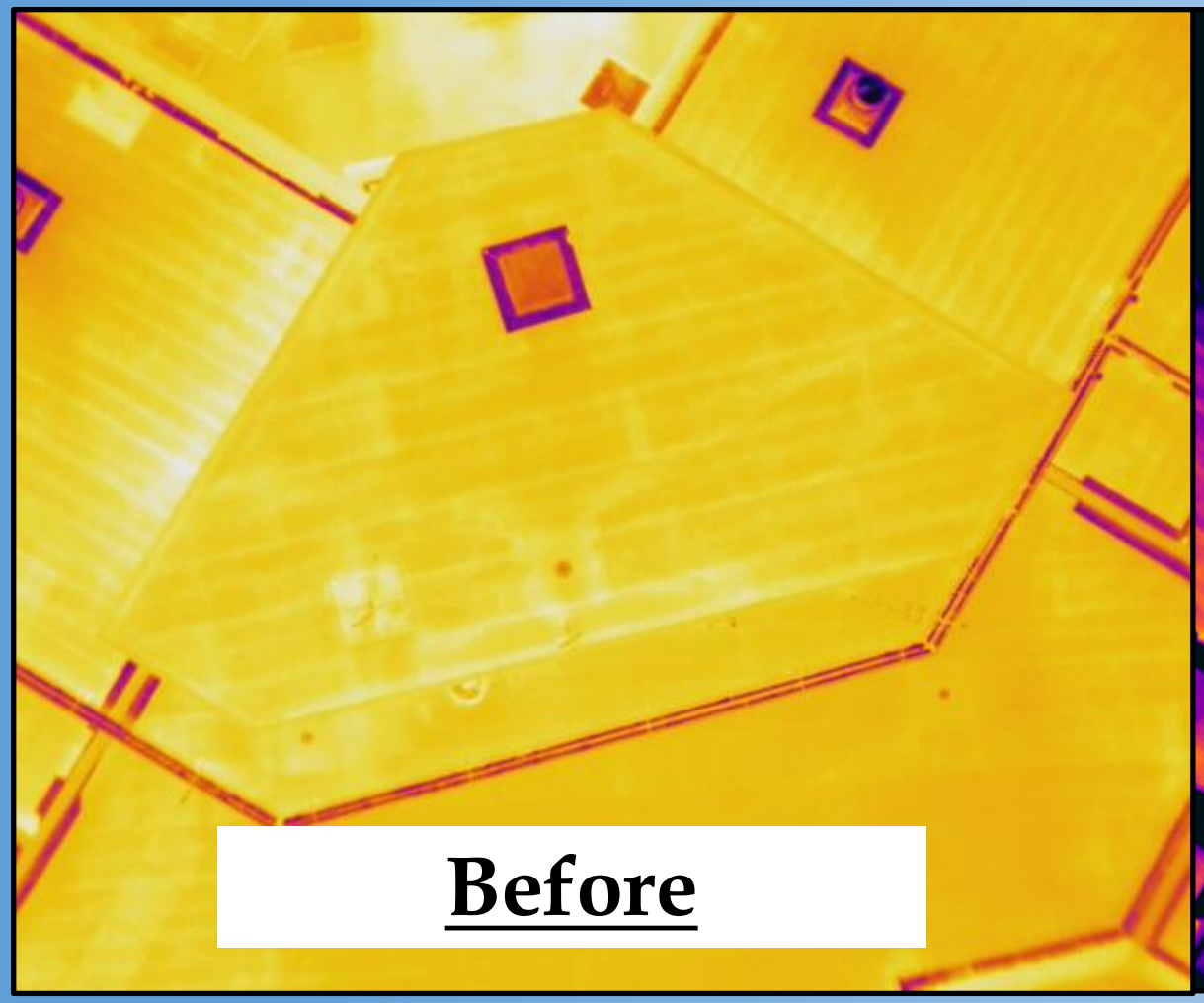


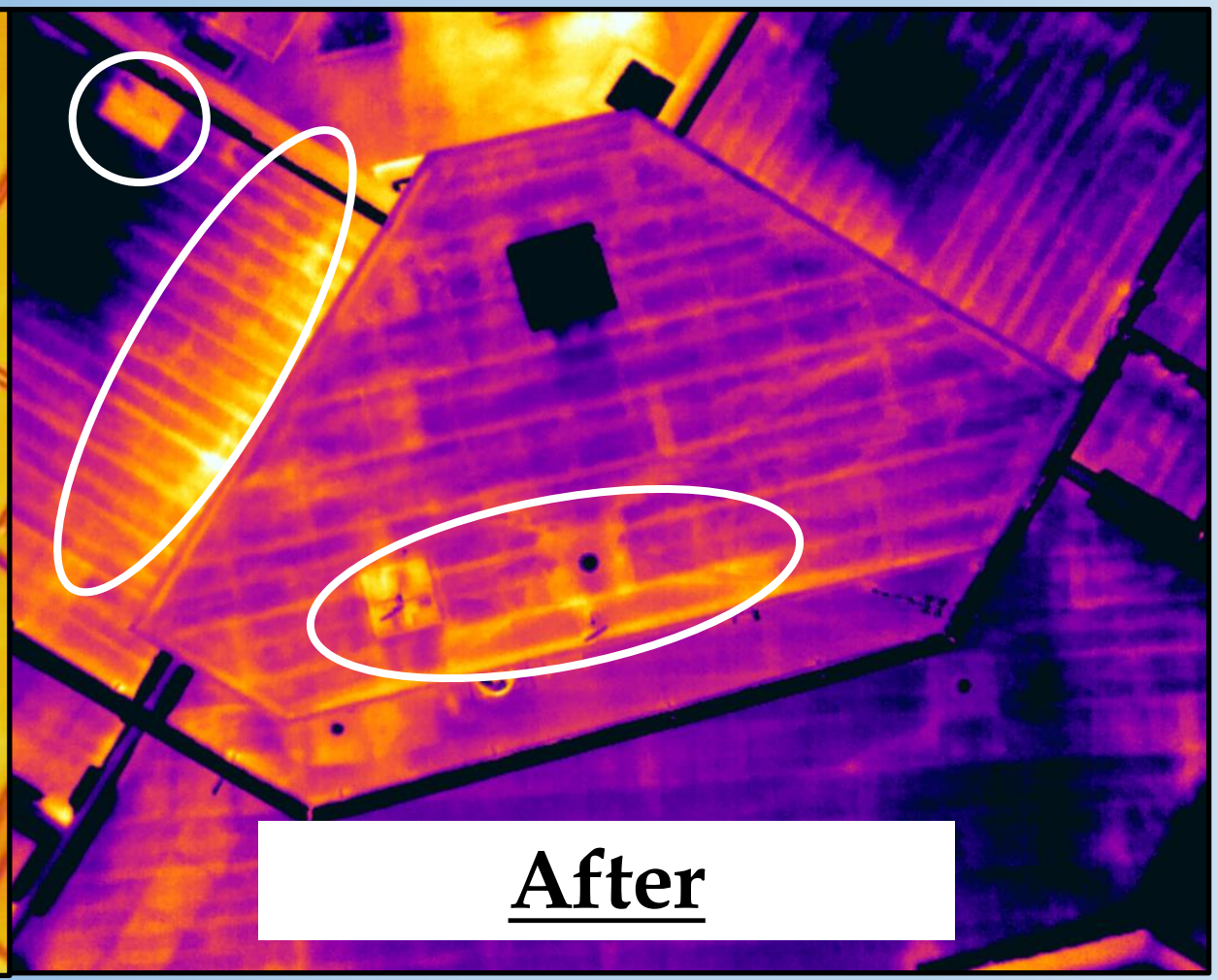
Image Analysis (Cont.)

Image Analysis (Cont.)

Image Processing



Before



After

Thermal Imaging Drones

Camera

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

---

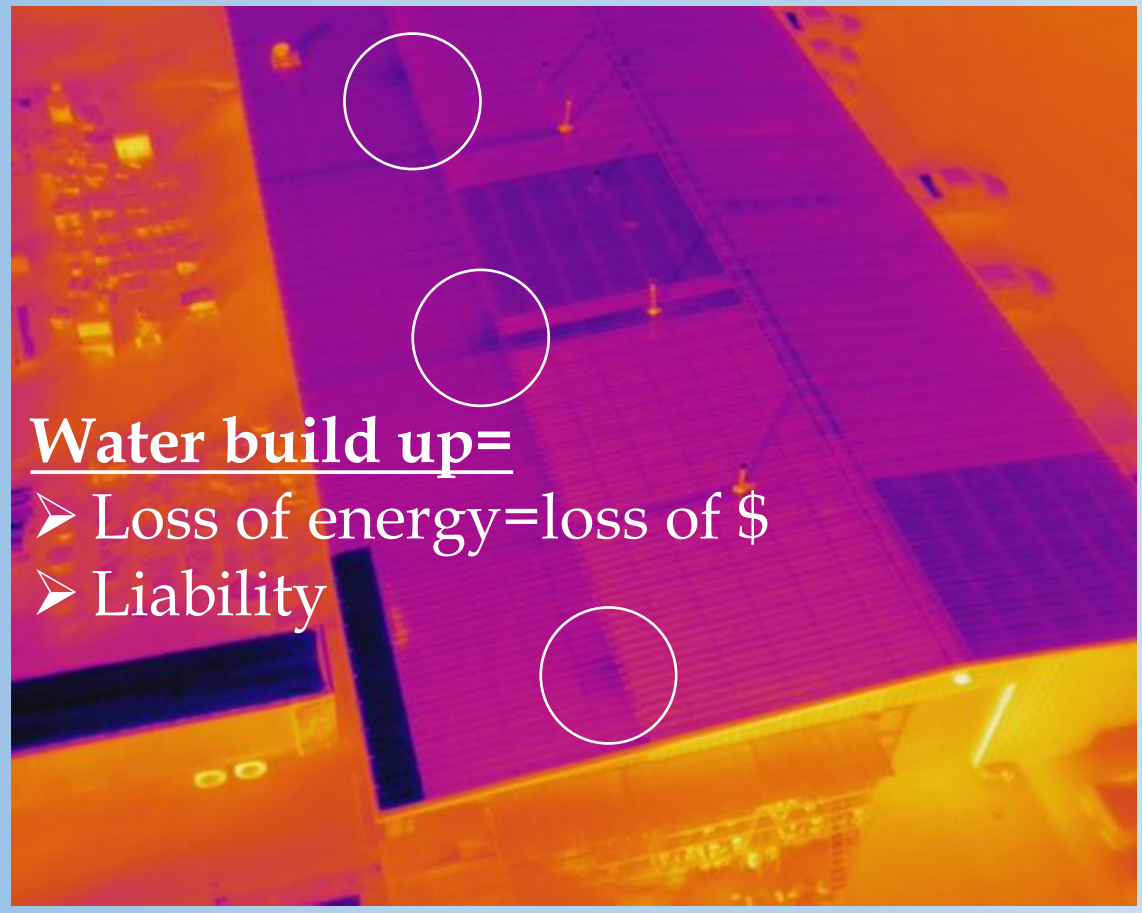
sUAS

- 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

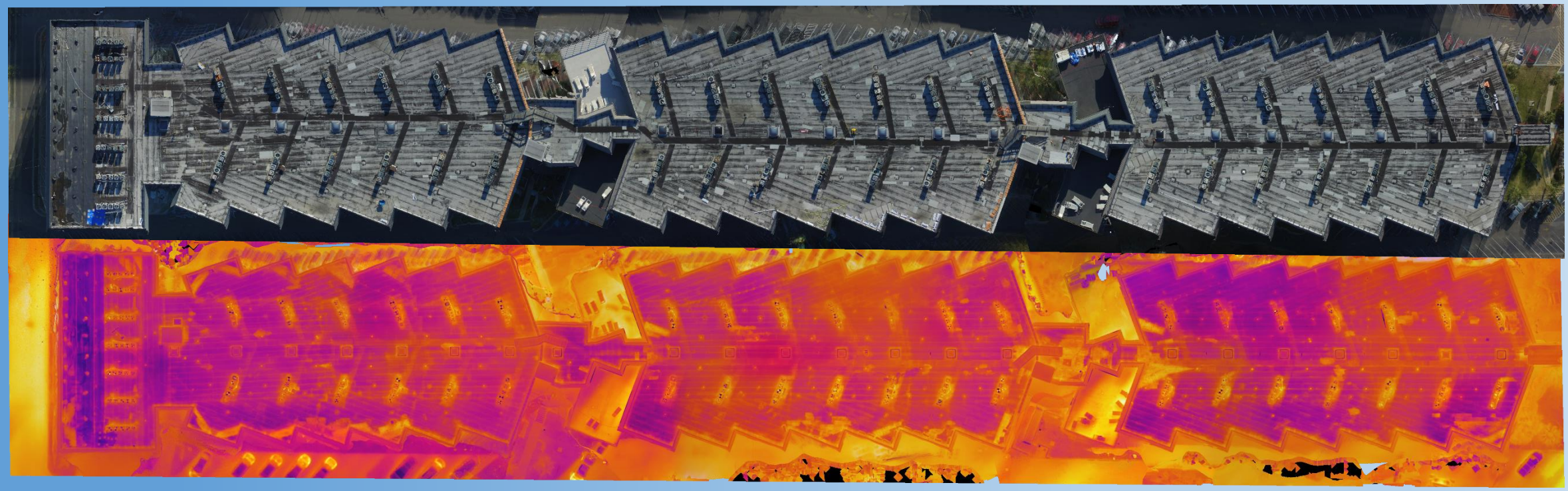


Uses and Benefits of Thermal Imaging

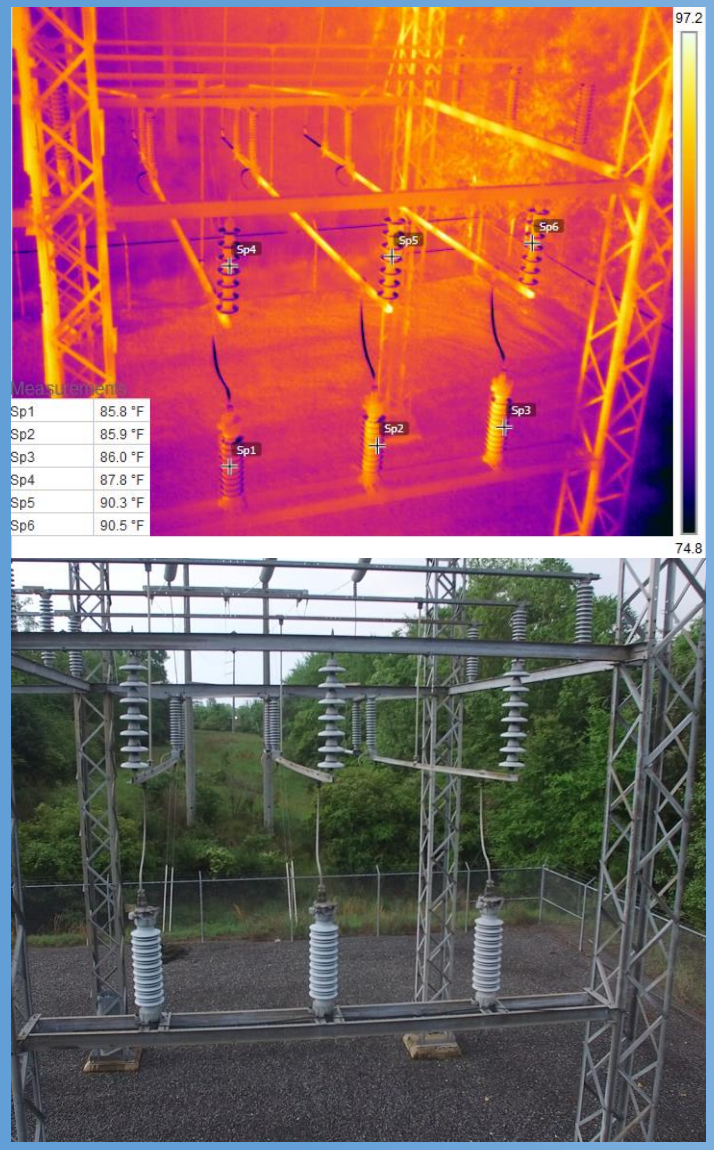
2D Orthomosaic: Daytime & Thermal

- 55,000 square foot roof, 7-story
- Identification of moisture damage

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



Uses and Benefits of Thermal Imaging



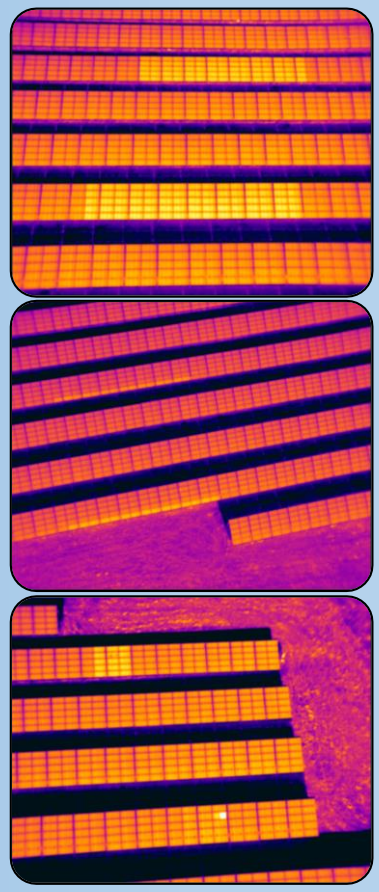
Thermal Inspection of Electrical Substation

- 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

Uses and Benefits of Thermal Imaging

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!



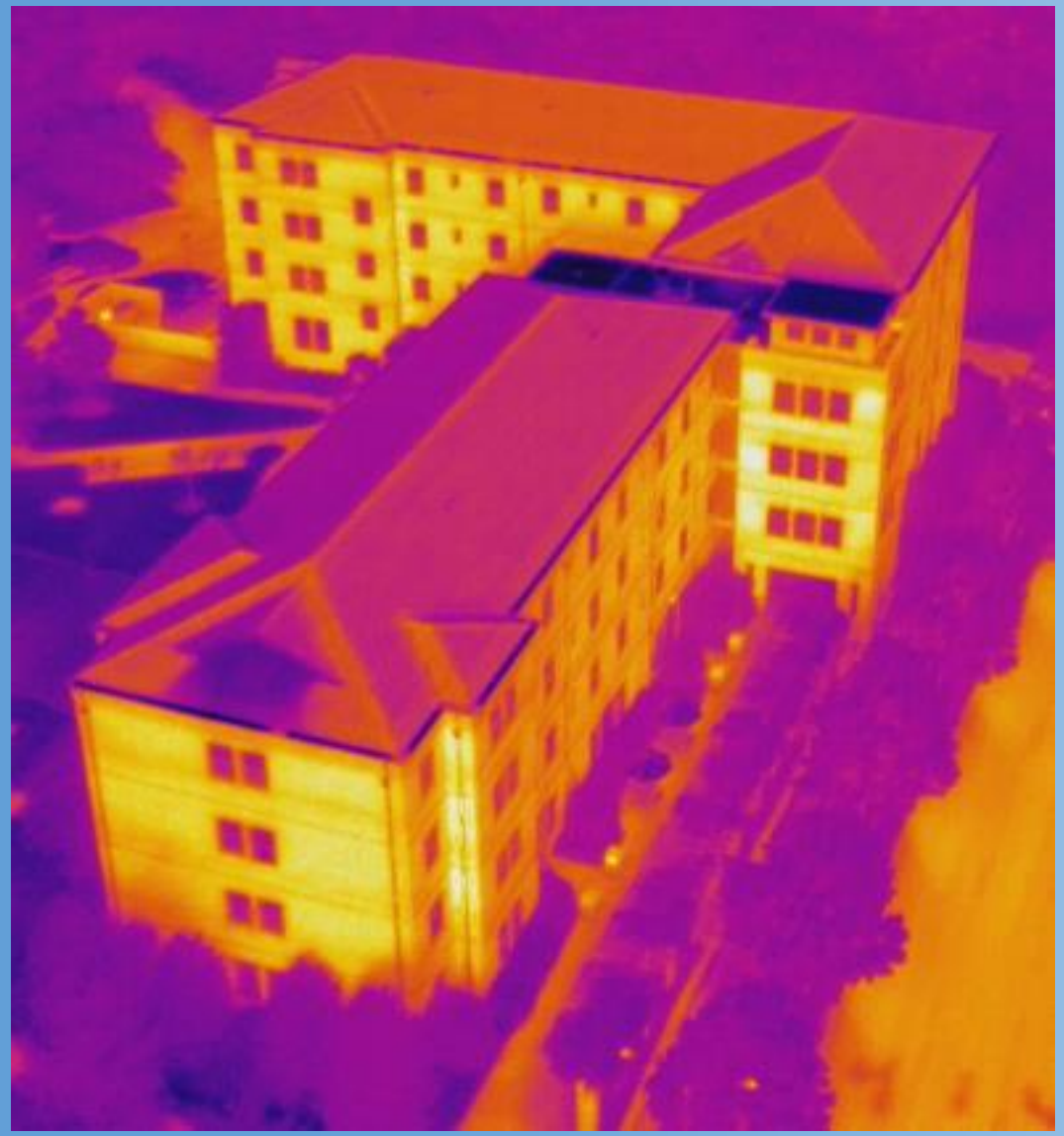
- 810 panels producing no power (wiring faults)
- 20 faulty panels
- 5 missing panels

$15,000 lost revenue per year

>$225,000 lost revenue lifetime

(= only 3.0% of field not functioning properly)

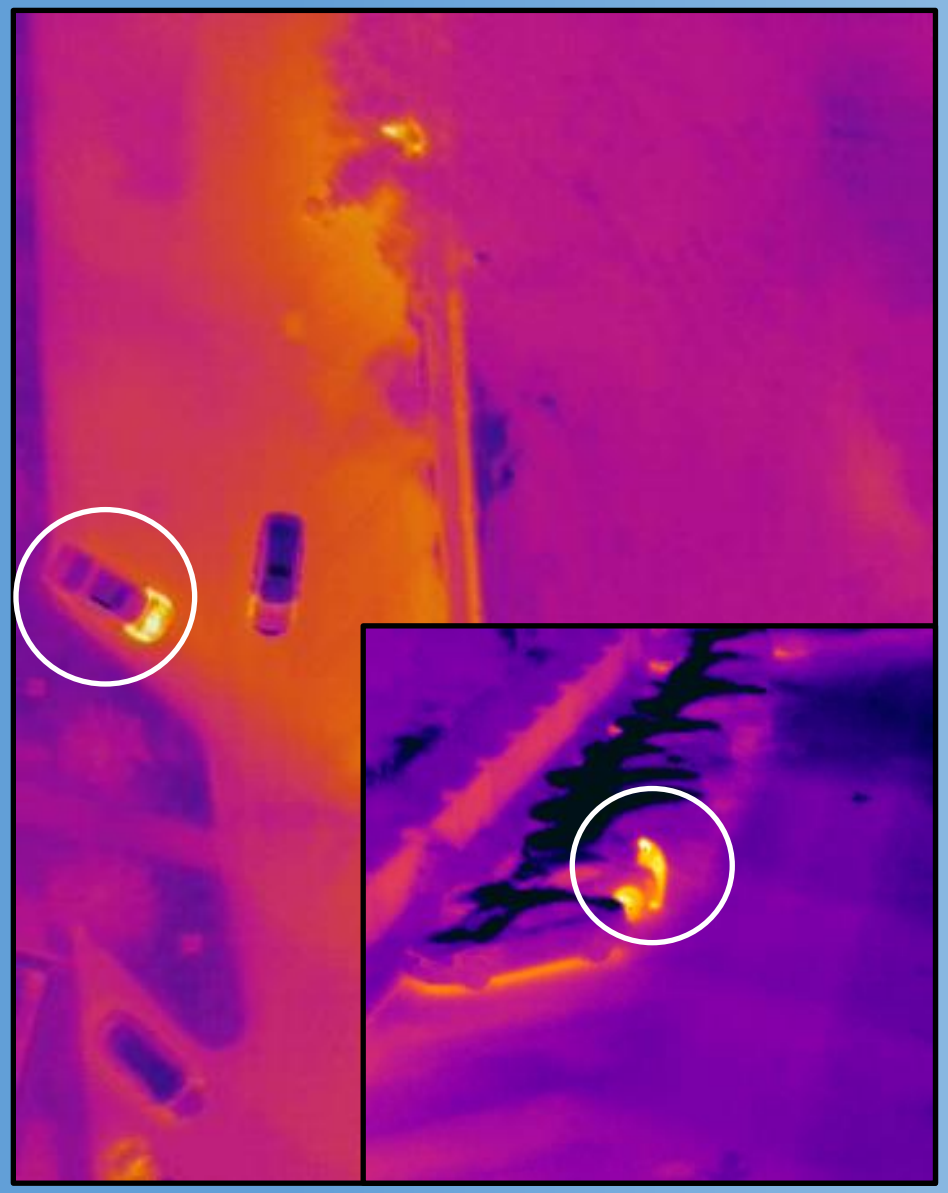
Uses and Benefits of Thermal Imaging



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

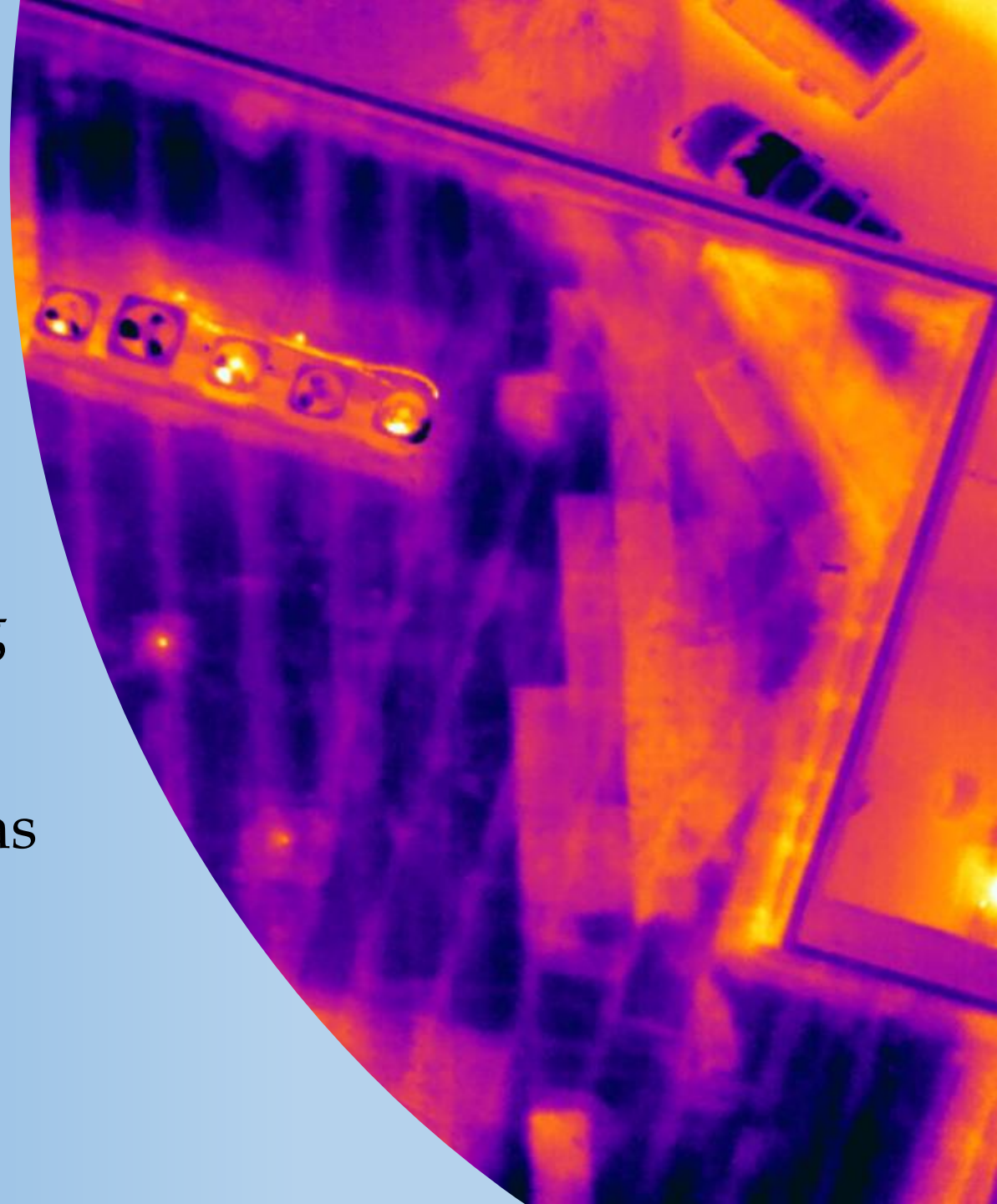
Subcontract

- 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**

CAS
CHARLOTTE AERIAL SOLUTIONS™

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

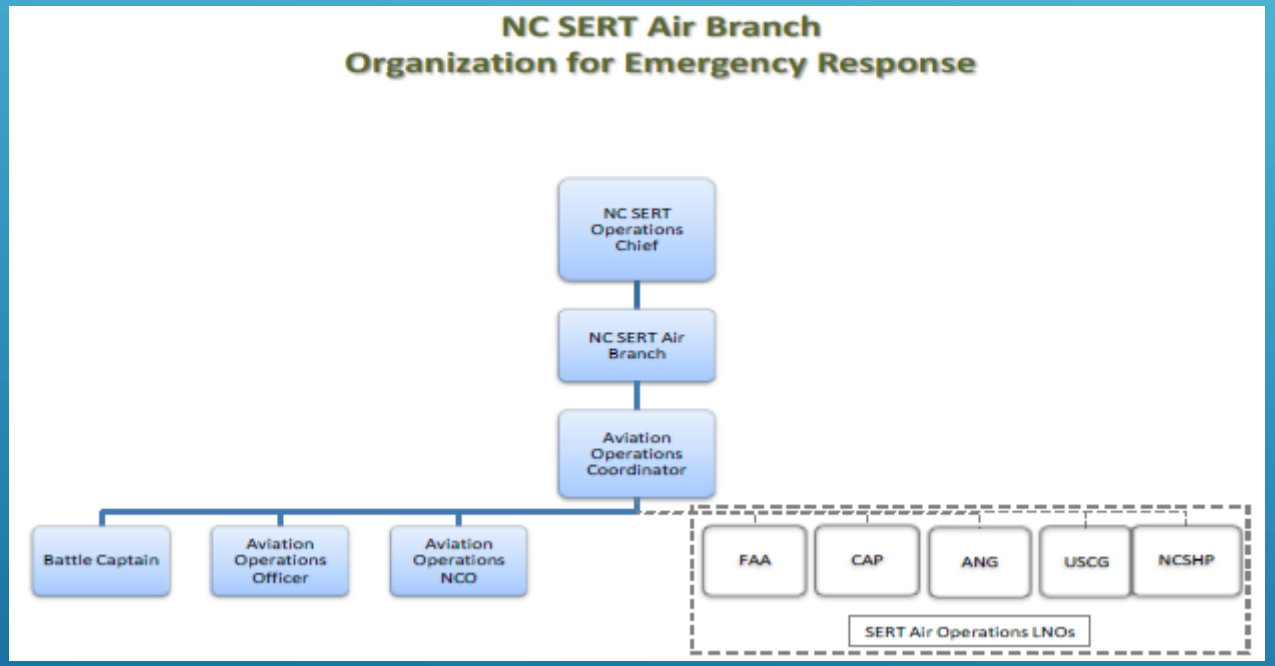
SERT Air Operations Coordinator – NCEM
Director of Army Aviation and Safety - NCARNG
LTC Brent A. Orr

SUAS Brigade Master Trainer – 30 ABCT
SGT Brennar Goree

WHAT?

AIR SERT - Only when activated by DPS / EM

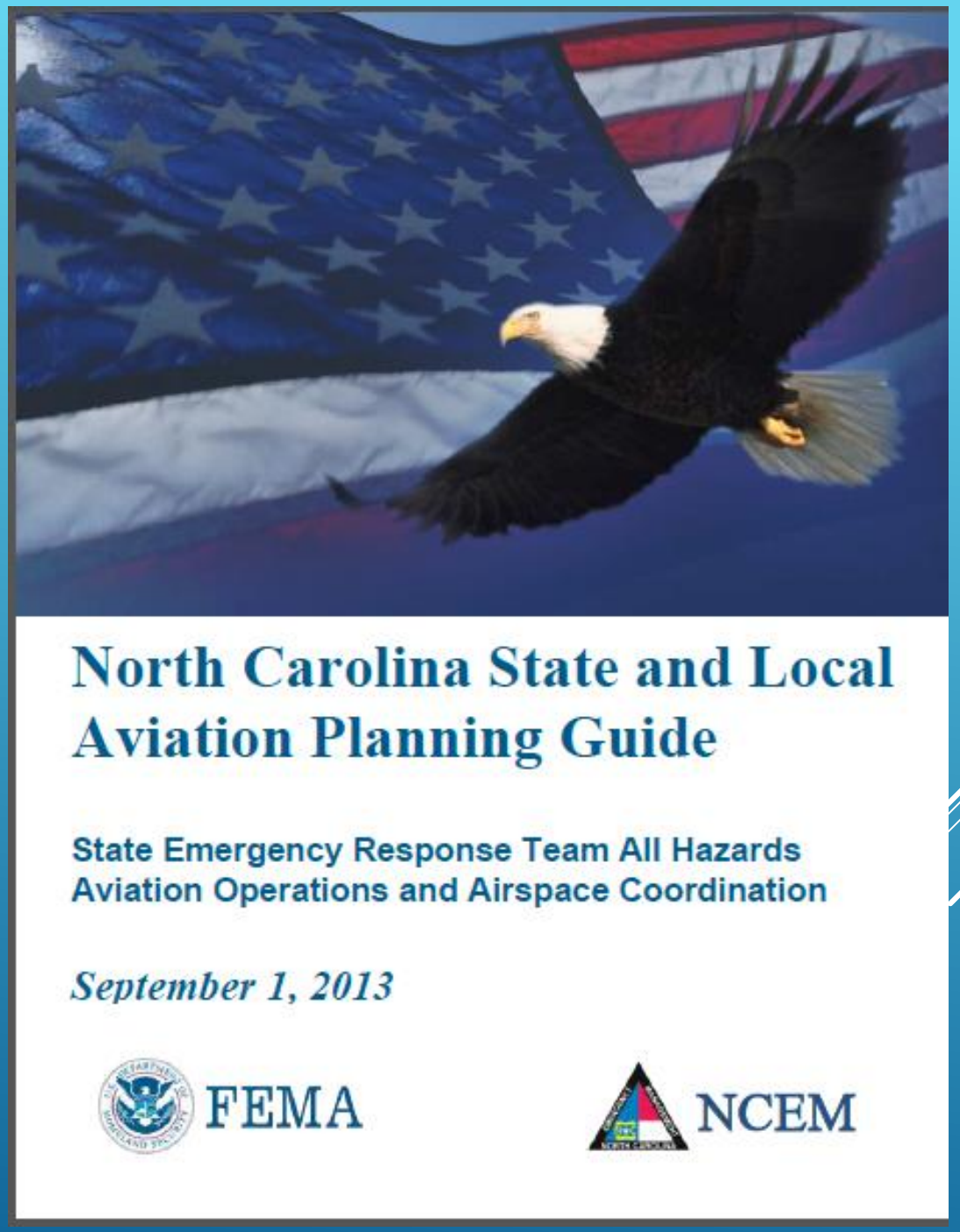
The NC SERT Air Branch is a State-level management asset that coordinates the use of fixed- and rotary-wing, manned and un-manned aircraft during response efforts supporting Federal, State, local, and tribal governmental entities and non-governmental organizations (NGOs) requiring or providing aviation assistance during a disaster, emergency, or other designated event.



- North Carolina General Statute 166A, which was amended by S.L. 2012-12 (HB843) and S.L. 2012-90 (SB798), establishes the authority and responsibilities of the Governor, state agencies, and local government for emergency management in North Carolina. The Secretary of Public Safety is responsible to the Governor for all State emergency management activities. The Division of Emergency Management (NCEM) fulfills this role for the Secretary.

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

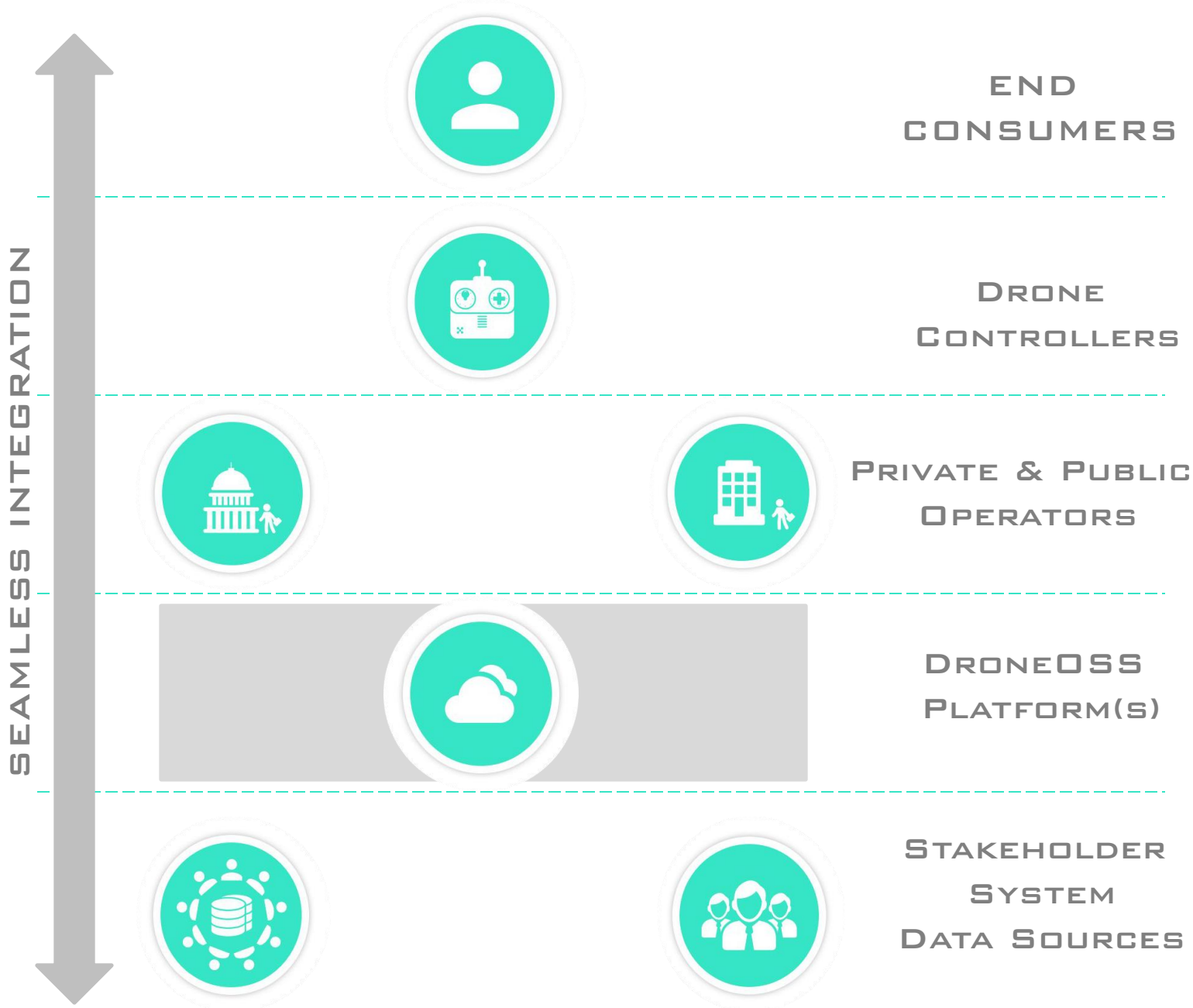

ANRA
TECHNOLOGIES
DroneOSS™ Operational Platform
Capability Briefing
Amit Ganjoo
Founder and CEO

Company History

- Founded in 2015
- Award Winning Technology
- Official NASA Collaborator
- 50+ years of aviation, Communications and Robotics Experience
- Featured in

ANRA TECHNOLOGIES

Solution



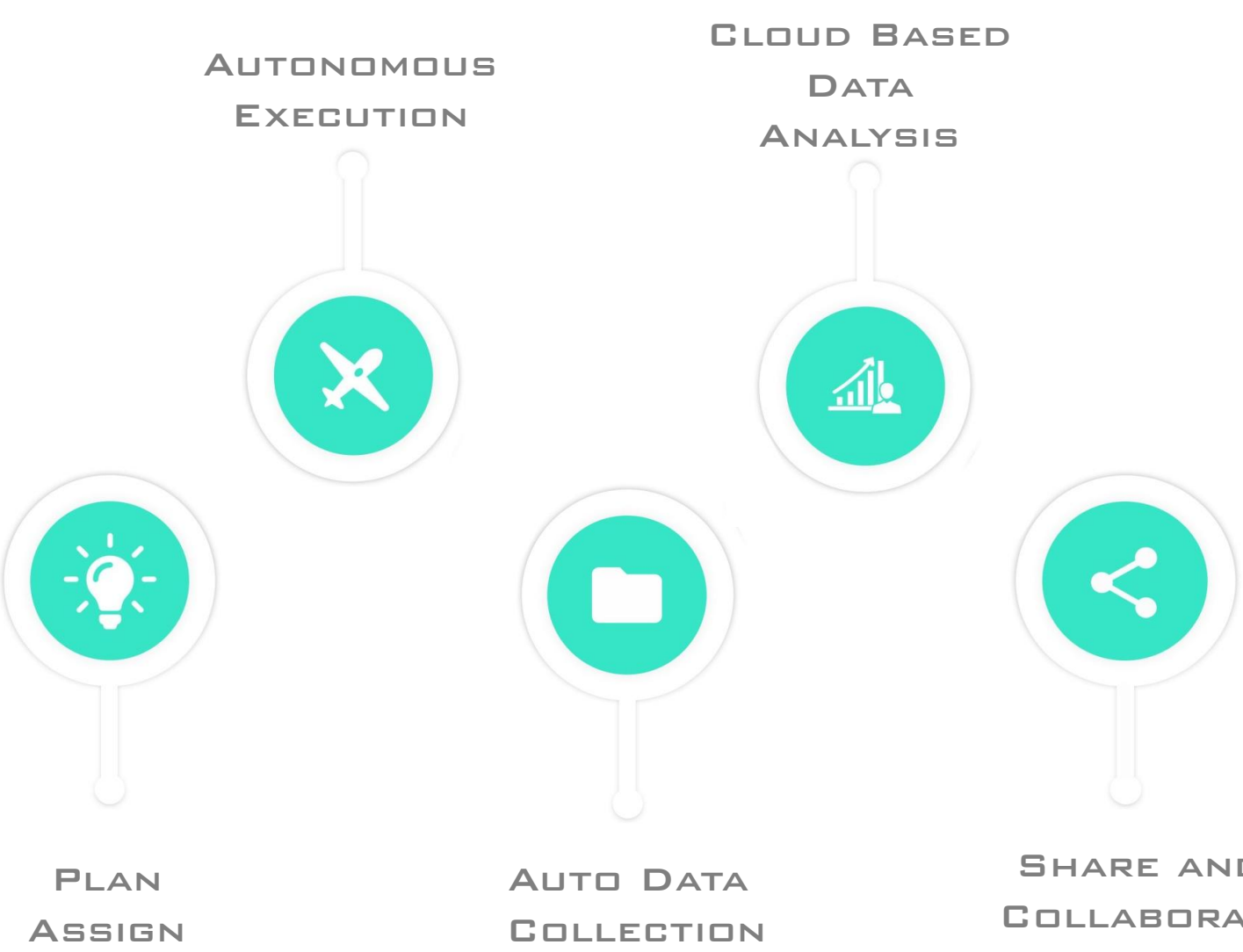
ANRA TECHNOLOGIES

The Three Pillars

Our Platform takes care of it all for you or just the pieces you need help with

ANRA TECHNOLOGIES

Work Flow



An off the shelf, real-time, field proven, cloud based Regulation Compliant end to end drone operations platform

ANRA TECHNOLOGIES

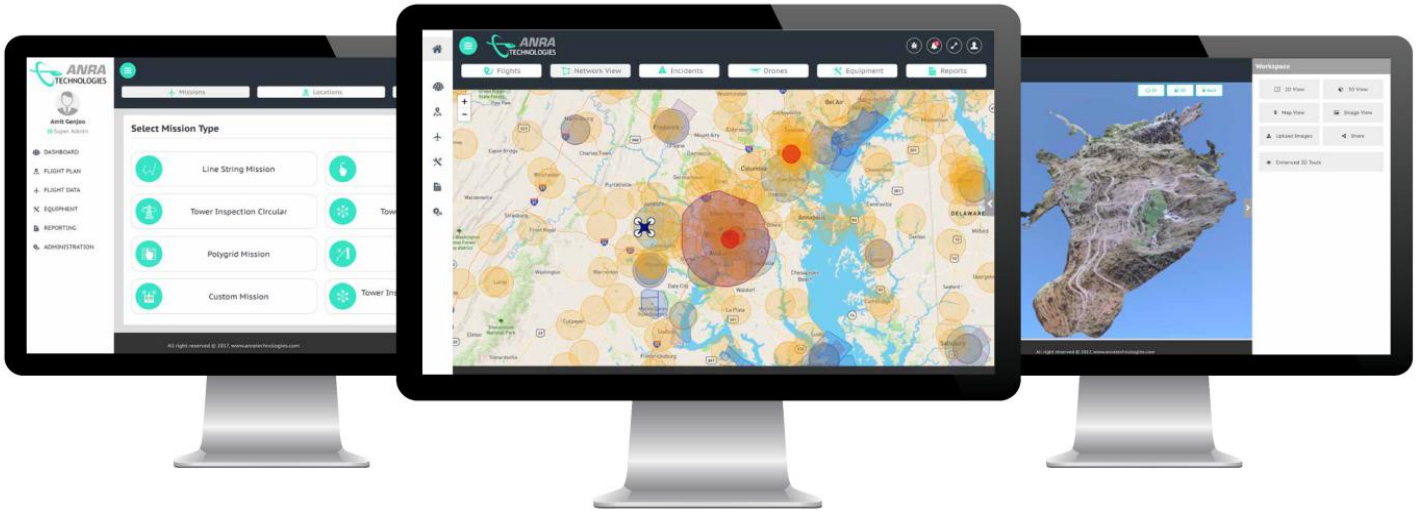
Role Based Access

One system – One Mission - Multiple users

ANRA TECHNOLOGIES

DroneOS(tm)

Cloud Portal



Multiple Drone Control, Real Time Media and Data

Airspace and Traffic Management

Separation Assurance, Flight Data Management

Incident Management, Fleet Management

Compliance And Reporting

ANRA TECHNOLOGIES

Automated Missions

- Automated Mission Planning & Data Management

Freehand Polygrid Linestring Columnar Spiral Guyed Tower Manual

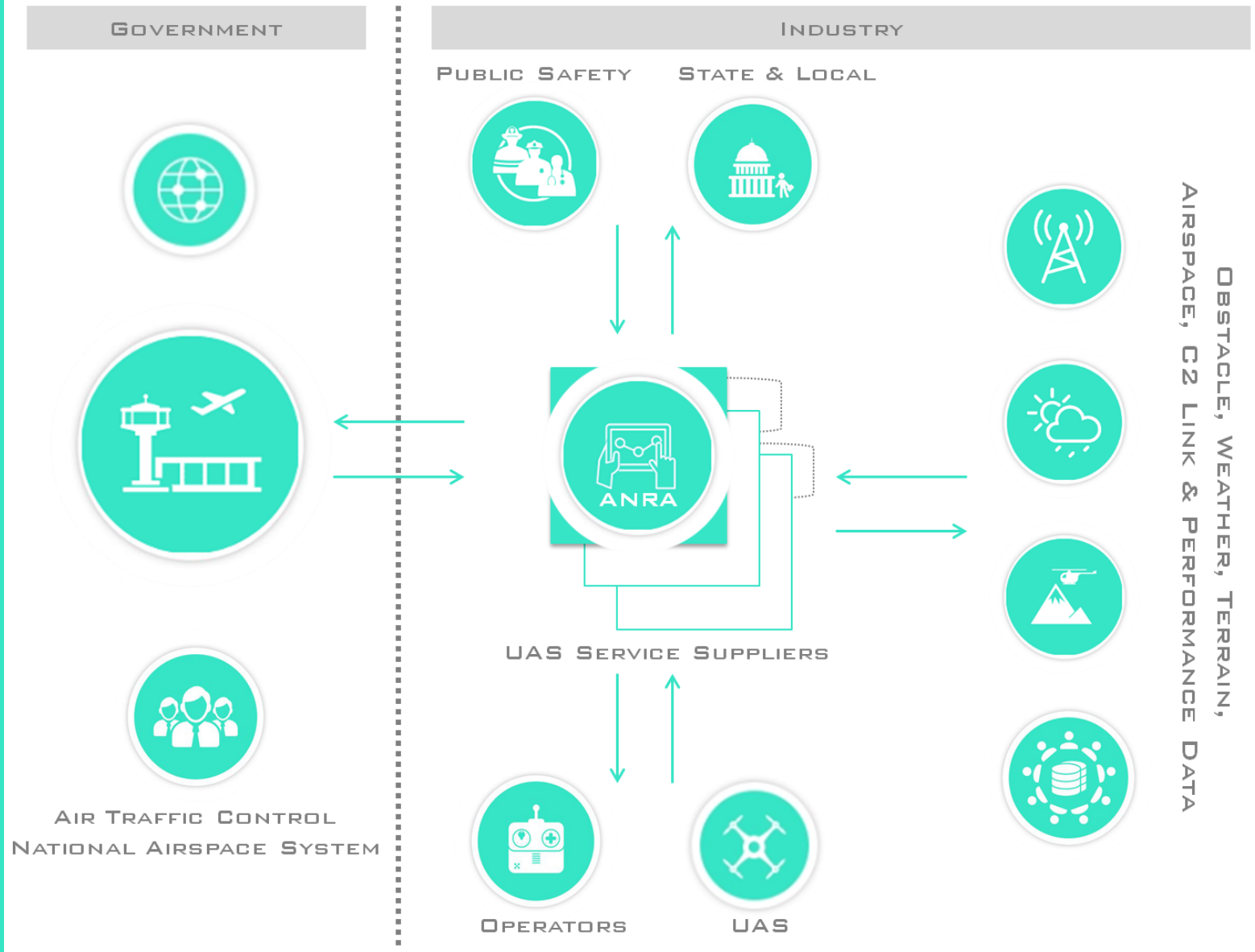
Multiple Simple and Complex Mission Types Supported

Data Collection And Data Synchronization

ANRA TECHNOLOGIES

DroneOSS(TM)

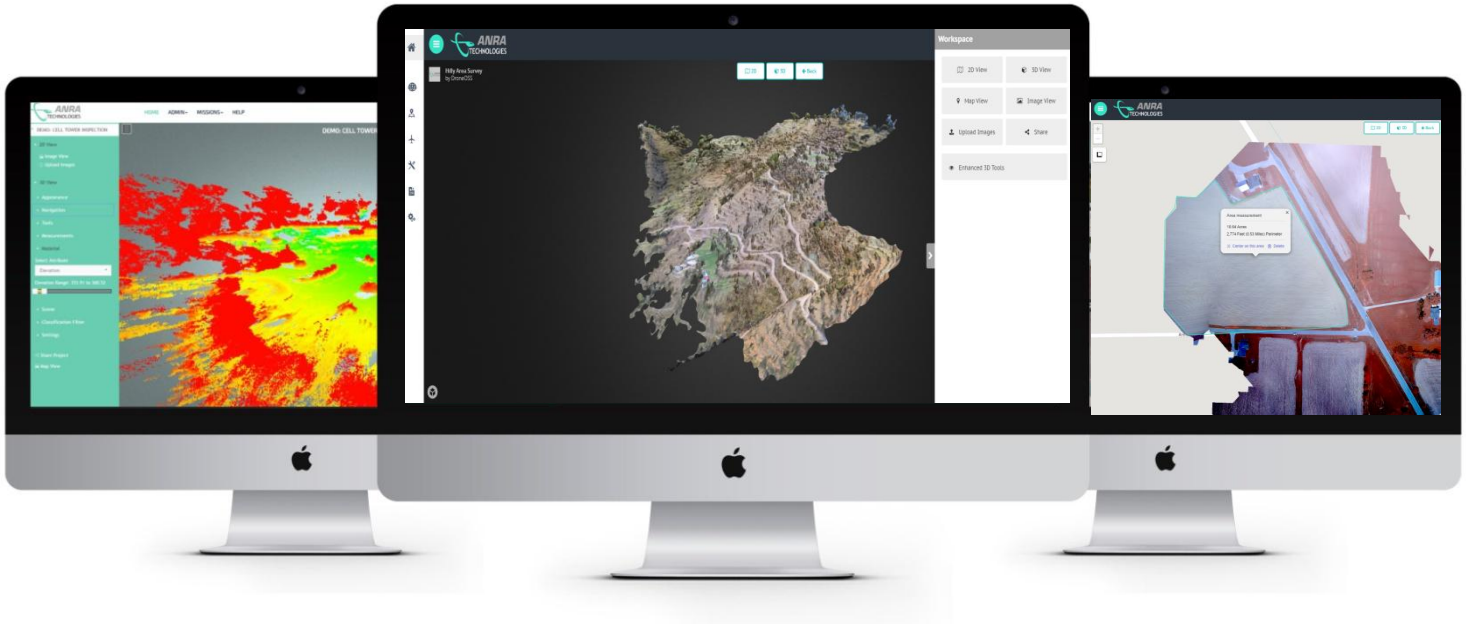
Traffic Management



ANRA TECHNOLOGIES

DroneOSS(TM)

Cloud Portal



Online Real Time Data Analytics

Seamless Sharing And Collaboration

Integration into existing enterprise systems

ANRA TECHNOLOGIES

UAV MODULE

SWARMING | SERIAL to IP | ETHERNET | ENCRYPTION | MULTICAST

5 oz version for integration into UAVs

and rugged version available

MIMO, ISM /NATO/Military Frequency Bands Supported

Proprietary And Confidential

ANRA TECHNOLOGIES

Multiple Verticals

Energy And Infrastructure

SAR

Surveying

Law Enforcement

Precision Agriculture

Disaster Response

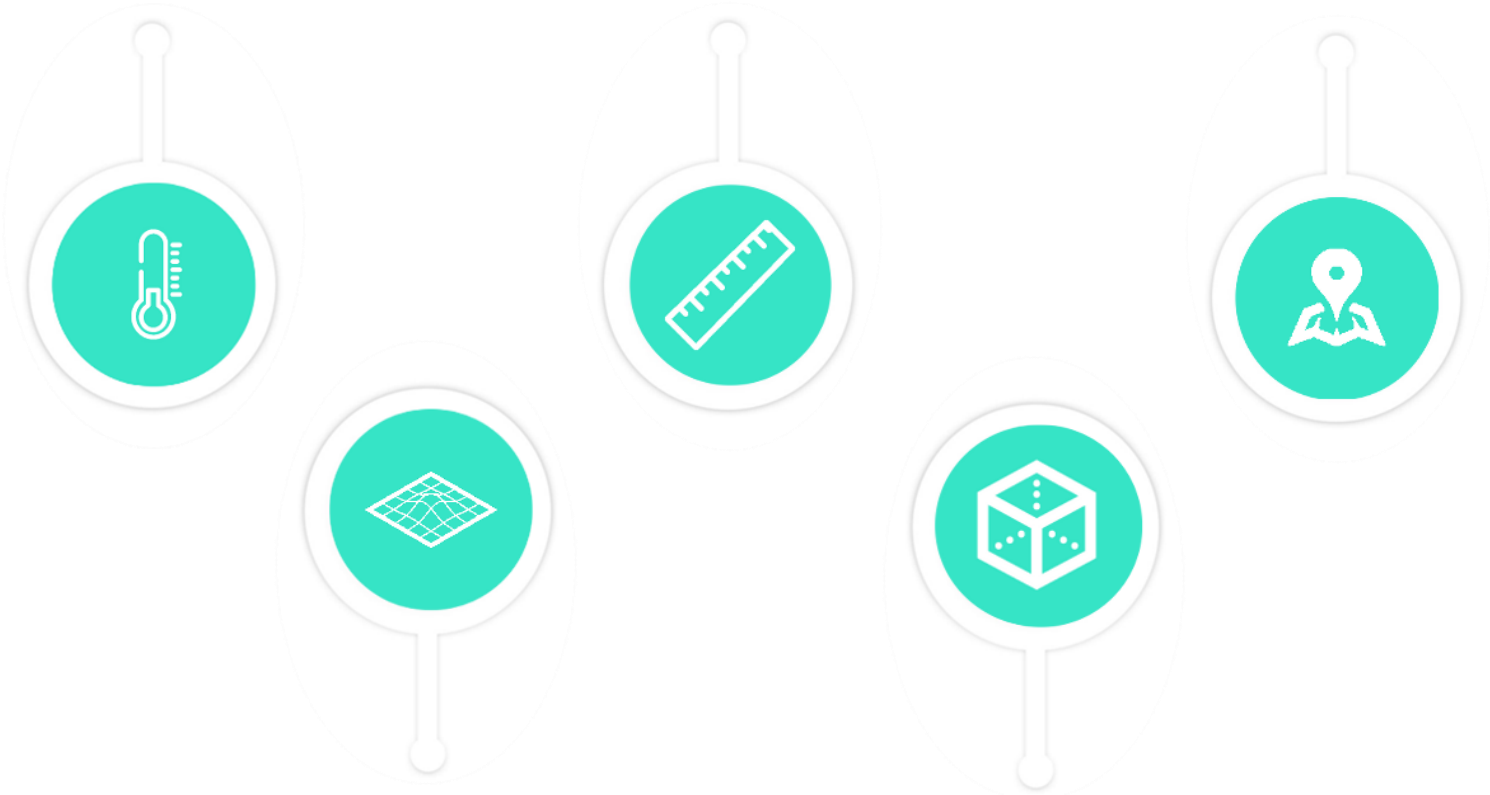
ANRA TECHNOLOGIES

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

ANRA TECHNOLOGIES

Management Team

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

ANRA TECHNOLOGIES

Contact Us

Amit Ganjoo

Founder and CEO
ANRA Technologies

aganjoo@anratechnologies.com
+1.703.239.3206

ANRA TECHNOLOGIES

GOVERNMENT OPERATIONS

NORTH CAROLINA PUBLIC SAFETY DRONE ACADEMY

&

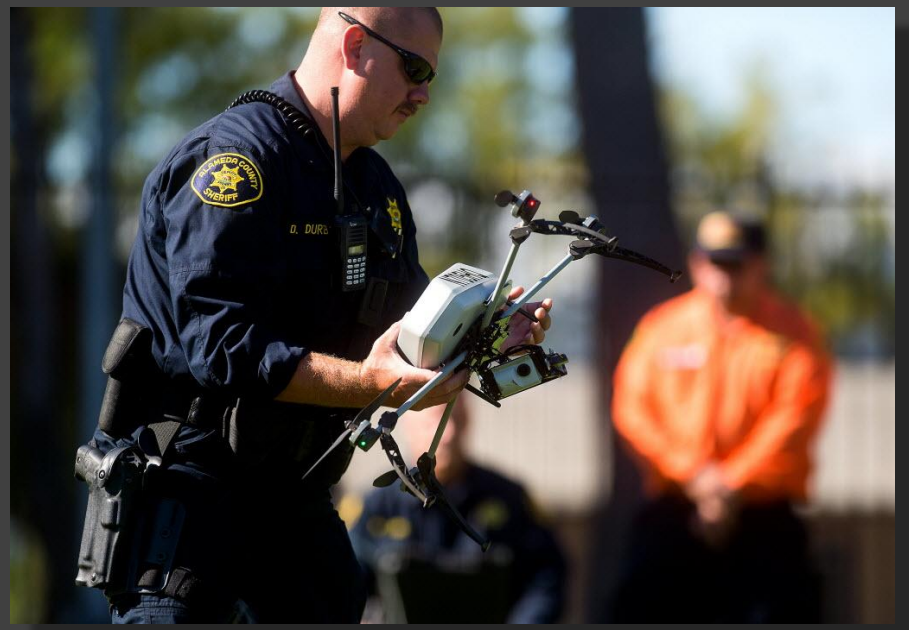
MONTGOMERY COMMUNITY COLLEGE

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 Assesment

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!)