Tornado Conference 2017
Overview of Unmanned Airborne Systems in Commercial and Government Catastrophic Event Response
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The PDC is a not for profit collaboration among insurance carriers, roofing industry leaders and research organizations who have agreed to work to utilize UAS to support client response

Marion County EM supports constituents daily through all phases of emergency response

There is clearly a cross over

Do we know how commercial and government can play in the Sandbox?

Drone Uses
1. Reconnaissance and mapping
2. Structural integrity assessment
3. Detecting and extinguishing wildfires
4. High-rise building fire response
5. Dealing with chemical, biological, radiological, nuclear or explosive (CBRNE) events
6. Insurance claims response and risk assessment
7. Logistics support
More examples?

Sample Industry Use Cases

- Claims per hail storm cause millions in roof damage. EVT provides roof reports for adjuster. Prior to onsite inspections a drone may be deployed to assess point targets. 2009 - 2013 – 2,944 million claims for hail and wind damage (source: 2016 Insurance Information Fact Book)
- Underwriting receives a new or renewal policy as a report, or physical inspection to accept, reject, or endorse - this will now be complemented with UAS data
- Assessors are required to determine property values. EVT provides broad area coverage on a fixed cycle. UAS may be used to review high value point targets for change
- Emergency management - federal through local use EVT manned data sets for response. Manned broad area data can be complemented with a live view from UAS
- Infrastructure may fall into corridor or distribution. Manned historically provides both. UAS is very suitable to replace or augment corridor work
Safe UAS Operations

- Inspectors in insurance claims, construction, infrastructure, etc. risk serious injury or fatality when called upon to visit roofs, structures in hostile environments, hard to reach places, etc.
  * In post-catastrophe situations these issues are magnified

- UAS operations are not risk free, but the ability to use UAS to cover more areas and structures quickly, without placing a human in a hazardous location, will lead to safer conditions

- Safe UAS close-up property inspection.
  * Risks can be mitigated by geofencing, use of small drones, controlled access environments, and flying at low altitude

Operating Restrictions and Requirements (TFR)

No pilots may operate an aircraft in the areas covered by this NOTAM (except as described).

ONLY RELIEF AIRCRAFT OPERATIONS UNDER DIRECTION OF NATIONAL PARK SERVICE ARE AUTHORIZED IN THE AIRSPACE
UAS is a new tool in data capture

Data Capture Methods

Data Capture Methods
Define the deliverable is the first step
Defining what is to be captured?
How and who will fly?
Does the end product require sensor fusion?
Is it a simple image or an extended data set?
Is it visualization or authoritative?
A common understanding of drone operations is required across all users and segments public and private.

Simple image vs. Intelligent Images
Meta data based on Interior and Exterior orientation is a key.

Sensors can see details when specified accurately. Focal length, field of view all work in conjunction with the operations envelope.
Sensors can see more than the eye and classify different materials in an automated fashion.

Mission Planned for 3D Spatial Analysis

Rapidly Assess Commercial Wall & Roof Condition

Interaction Overview

Interaction between commercial and government UAS Operation
Government lead
Commercial to Commercial to Government communication
Multiple concurrent mission types
Coordination across all parties
Common communication
Common best practices

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