ISC | Unmanned Aerial Systems Data Gathering & Analysis

Application of Drones in Emergency Management

Unmanned Aerial Systems (UAS), or drones, help improve preparedness as well as the five mission areas defined by the Department of Homeland Security: prevention, protection, mitigation, response, and recovery. Beyond offering a new perspective, UAS have spawned the creation of new innovative technologies, systems, and techniques to obtain and analyze the data. New software technologies offer the emergency management and public safety community new insights to improve current operational strategies.

FAA Part 107 Compliance

The Federal Aviation Administration (FAA) has defined all of the regulations and limitations under which UAS pilots can operate under 14 CFR Part 107. Police and fire departments and emergency management agencies must have authorization to fly either under an FAA Certificate of Authorization or FAA Part 107. Commercially-flown UASs must be flown by a licensed UAS pilot and have an established program that complies with the requirements defined by FAA Part 107. ISC is proud to be one of the nation's first companies to obtain FAA Part 107 approval to fly UASs commercially as well as to assist emergency relief efforts.

ABOUT US

Integrated Solutions Consulting is a professional services firm focused on developing and implementing comprehensive crisis and consequence management solutions. We are a team of innovative problem solvers that combine experience and evidence-based knowledge to deliver practical, best practice results across multiple industries to make communities safer and more resilient.

Industry Best UAS Technology & Software Solutions

The true power of the UAS is the hardware and software that support it to obtain and analyze data. UAS technology is evolving rapidly, making drones more versatile and better equipped to meet a diversity of needs. The advancement of software applications has allowed for innovative techniques to process and present the data. The marriage of UAS hardware and software allows ISC to provide our clients with powerful information and analytics to present the evidence and help officials make critical decisions.

Contact **ISC** today to learn more.

Inquiry@i-s-consulting.com
847.737.5395

INTEGRATED **SOLUTIONS**
CONSULTING

ISC DELIVERS UNPARALLELED UAS EXPERTISE

As an industry leading innovator, ISC recognizes the benefits that drones offer our clients. Our FAA-certified UAS pilots are experienced operators and public safety professionals, providing our clients with a unique perspective on current and future challenges. ISC has invested in cutting-edge UAS technology and software to provide our clients with enhanced analysis and mapping. Our investments let us go far beyond simply taking aerial photos and video.

General ISC Services

- UAV Program Design & Implementation
- Critical Infrastructure Assessments
- Key Resources Security Assessments
- Hazard Risk Assessments
- HSEEP Exercise & Training
- Aerial Photography & Cinematography

Disaster Recovery UAS Services

- Aerial Preliminary Damage Assessments
- 3D Aerial Damage Analysis
- Flood Depth Inundation Mapping
- Debris Volumetric Analysis & Monitoring
- Volumetric Damage Analysis & Forensics
- Structural Damage Assessment

Hazard Mitigation UAS Services

- Hazard Mitigation Alternatives Assessment
- Digital Mapping & Analysis
- Precision Surveying & Inspections

Response UAS Services

- Search & Rescue
- HazMat Response
- Special Event Monitoring

OTHER ISC INNOVATIONS

- COMPUTER-BASED TRAINING
- COMPUTER GRAPHIC ANNIMATION
- PROFESSIONAL FILM CREW & EQUIPMENT
- FIRST-PERSON INTERACTIVE GAMING TECHNOLOGY
- INTERACTIVE SCENARIO MAPPING
- CONSEQUENCE-BASED SCENARIO DEVELOPMENT (CHOOSE YOUR OWN ENDING)
- 360˚ PANORAMIC IMAGES, VIDEO SCENES, & PANORAMIC AERIAL SCANNING
- GIS MAP INTERFACE
- Evacuation Simulation & Modeling

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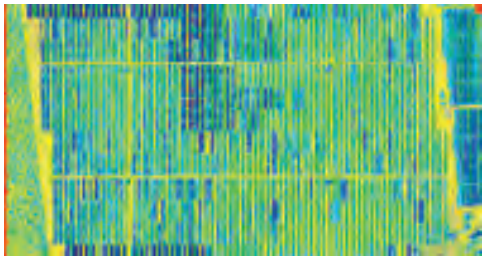
Aerial Reconnaissance of Solar Panel Field



Thermal Aerial Damage Analysis of Solar Panel Field

UTILITY VULNERABILITY

ISC was contracted to update and revise the Navajo Tribal Utility Authority Emergency Response process and procedures for electric, water, wastewater, natural gas, photovoltaic, and telecommunication which will link NTUA to federal, state, and community resources that support response activities and continuity of operations. ISC conducted field assessments on over 100 sites and incorporated industry-leading drone and GIS software technology to produce a quantitative asset vulnerability assessment. Advanced UAS technology was utilized for the project and included FLIR thermal imaging to identify electrical arcs and solar panel disruption, high-resolution security inspection imaging, as well as overhead orthomosaic mapping for GIS integration. The aerial vulnerability assessment measured the utility's susceptibility to natural and man-made hazards.

MISSISSIPPI RIVER FLOOD UAV AERIAL DAMAGE ASSESSMENT

ISC conducted drone damage assessments of selected areas that were impacted by the flooding of the Mississippi River and its tributaries. We gathered hundreds of detailed aerial images of the flood damage in Alton, Illinois, using sophisticated software programs and developing 2-dimensional and 3-dimensional visuals. In a matter of minutes, these models, coupled with the data collected by our UAS, allowed us to:

- Conduct polygon, grid, or circular aerial flights of damaged areas
- Digitally record and access the full scene in detail.
- Create visual records of the damages of areas that are difficult to access
- Analyze flood inundation, water depth, and impact to buildings and infrastructure
- Use built-in measuring tools to analyze the impacted area
- Prepare volumetric calculations
- Conduct visual inspections of damage areas
- Create topographic survey of surrounding areas
- Monitor receding waters and update damages
- Create 3-dimensional renderings of high-profile damaged assets

MIAMI-DADE COUNTY UAS FUNCTIONAL EXERCISE

ISC was selected to conduct a Hazard Damage-Impact Assessment Functional Exercise for the County Office of Emergency Management to test, validate, and define areas of improvement within its Hazard Impact Assessment Plan. This exercise measured the ability of EOC staff to input and synthesize damage data using drones to conduct wide-area impact surveys. This functional exercise involved over 100 participants representing several local and regional stakeholders.