



Citizens Property Insurance Corporation Leverages Technology to Improve Service

ABOUT

The National Insurance Crime Bureau (NICB) is a key player in the insurance industry, acting as an intermediary between law enforcement/first responders and insurance companies. The NICB Geospatial Intelligence Center (GIC) was formed to develop an extended partner network throughout the geospatial industry to provide insurance companies additional resources to meet a variety of needs.

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GEOSPATIAL
— INTELLIGENCE CENTER —

Geospatial technology, such as GIS, aerial and satellite imagery, and analytical decision support systems, increasingly being recognized by the insurance industry as a valuable tool in the aftermath of numerous natural disasters over the past few years.

The ability to analyze archived and current information using automated change detection saves claims adjusters' time, improves the accuracy of claims assessments, and results in payments getting to policyholders more quickly. By working together, insurance companies and geospatial professionals are improving processes to better serve communities impacted by major disasters.

On September 10, 2017, Hurricane Irma struck the Florida Keys, delivering sustained 130 mph winds and causing life-threatening storm surge. As the destructive gale worked its way north, massive power outages and flooding forced millions of people to evacuate to emergency shelters or leave the state altogether. At Citizens Property Insurance Corporation, an insurer of last resort in Florida with a majority of its business located in South Florida, the staff quickly realized that the widespread devastation of Hurricane Irma had touched nearly every one of their 450,000 policy holders. Immediately the work of assessing the damage, reaching out to customers, and settling claims began.



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Assessing the Devastation of Hurricane Irma

NICB GEOSPATIAL INTELLIGENCE CENTER SUPPORTS INSURERS

The National Insurance Crime Bureau (NICB) is a key player in the insurance industry, acting as an intermediary between law enforcement/first responders and insurance companies. To aid with post-disaster recovery efforts, NICB formed the Geospatial Intelligence Center (GIC) in partnership with Vexcel Imaging, manufacturer of the UltraCam branded aerial and terrestrial sensor systems. Together they lead a coalition of geospatial companies, including Esri and the extensive UltraCam customer network, to acquire and provide convenient access to current high-resolution aerial imagery through a web-based viewer. By leveraging the UltraCam network dispersed across the country, the GIC strives to mobilize "blue sky" and rapid response aerial acquisition resources within two hours of any request.

"When applied to around 2,500 property/casualty insurance companies in the US, there are numerous time and cost benefits to acquiring 45-degree oblique and vertical aerial imagery and using automated feature and change detection to assess claims," said Ryan Bank, Digital Operations at NICB GIC. "In addition, we support the work of first responders and law enforcement officers by providing access to all available imagery after a disaster."

IMPROVING TECHNOLOGY IN THE INSURANCE INDUSTRY

Keith Sandell, Geospatial Data Science Manager at Citizens Property Insurance Corporation (Citizens), is an early proponent of using GIS and imagery to improve the claims process. In 2011, Sandell wrote a GIS mapping application that pulls in current claim information and data from the National Hurricane Center and overlays forecast information across Citizens' book of business. This tool allows the claims department to calculate how many policies fall in the path of an impending weather event, which in turn determines the number of resources needed prior to a storm. Advance knowledge allows better allocation and more efficient use of staff and equipment.

More recently, after Hurricane Matthew hit Florida in 2016, Citizens started working toward the issuance of an invitation to aerial imaging vendors to collect annual archival, post-catastrophe, and on-demand drone imagery services.

"Our response to Matthew gave us a good idea of the type of resources we needed and confirmed our assumptions about how aerial photos would be useful," Sandell stated. "To prepare for the next hurricane, we identified areas of interest to be flown and developed flight plans for the most vulnerable regions. These plans came in very handy in our subsequent work with NICB."

AREAS WITH LARGE POPULATIONS HIGHLY IMPACTED

Within days of Hurricane Irma inundating Florida, the NICB GIC coordinated with the Florida Division of Emergency Management and Citizens to collect imagery of the highest priority areas. Initially, the coalition targeted 506 square miles in the hurricane's path using the UltraCam Osprey, a Vexcel Imaging oblique camera that provides a 45-degree view of building facades. This area included Greater Miami and the coast from Ft. Lauderdale to the Florida Keys.

Additionally, 13,787 square miles of vertical rooftop views were collected using the UltraCam Eagle aerial camera, which is capable of quickly capturing large areas in great detail. The high-resolution color data was acquired by GPI Geospatial, Keystone Aerial Surveys, Sanborn Map Company, and Quantum Spatial. Rapid processing of the large volumes of collected data allowed geo-referenced imagery to be uploaded and made available within 24 hours of collection.

"The partnership with NICB resulted in unprecedented access to post-disaster aeriels in a shorter period of time with higher resolution and over larger areas of Florida than any other response I've ever worked in the State of Florida Emergency Operations Center," said Richard Butgereit, CIO, Florida Division of Emergency Management. "We were able to use the imagery to explore siting of disaster recovery centers in the Florida Keys and estimate extent and depth of flooding in residential areas. This dataset is also valuable for Hurricane Irma's long-term recovery efforts, including monitoring for environmental impacts."

Citizens' staff found the oblique imagery collected after the storm to be the most useful for easily identifying damage, particularly in areas with no ground access such as Monroe County. "Our improved situational awareness sped up the process by several weeks," said Sandell. "Using the Esri web-based viewer, we identified high-damage areas, which helped with placement of RVs and tents at Catastrophe Response Centers (CRC). Policyholders came to a CRC and received a check on the spot to cover temporary living expenses. The post-storm aerial photography could also be used to corroborate reports of damage."

LESSONS LEARNED FROM HURRICANE IRMA

By collaborating with NICB GIC to integrate innovative geospatial technology into the disaster recovery process, emergency responders and Citizens were able to respond more quickly after Hurricane Irma.

"A centralized archive of up-to-date high-resolution aerial imagery, including post-disaster aeriels, available as cached web mapping services and available for download would be highly beneficial to future emergency response activities," said Butgereit. "By partnering with existing technology parties, as NICB GIC is doing, it is advancing the vision of bringing Imagery for the Nation to fruition."

The post-Irma imagery accessible via Esri's web-based viewer gave visibility into areas not accessible on the ground, and helped Citizens allocate its resources as effectively and efficiently as possible. The change detection algorithms allowed for more accurate damage assessment, so claims could be paid in a timely manner. Citizens plans to continue to investigate how best to apply geospatial technology to improve service to its customers.

"During Hurricane Irma, our entire coverage area experienced damaging winds, severe rain and/or flooding," said Sandell. "We relied on the aerial imagery to identify the hardest hit areas, including over 200 mobile home parks, and we were able to disseminate information about how to file claims more quickly, which made our customers happy. To date, we've paid out more than \$500 million in claims. NICB did a fabulous job."