USF Deploys Mini Unmanned Search Aircraft After Katrina

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Using two types of small unmanned aerial vehicles (UAVs) – one fixed wing and one helicopter - scientists from the Center for Robot-Assisted Search and Rescue (CRASAR) at the University of South Florida worked with other Florida rescuers in hard-hit Mississippi immediately in the aftermath of Hurricane Katrina.

The first known use of small UAVs for an actual disaster, the UAVs demonstrated their usefulness as well as providing a wealth of scientific and engineering data.

The small fixed wing vehicle, looking much like a four-foot-long model airplane, provided video and thermal imagery from 100 to 1,000 feet, giving rescuers an overview of the disaster area. The vehicle is launched by manually throwing it into the air. It requires only a small clearing, about the length of five cars, to take off or land.

Carrying a camera, the miniature, electric powered T-Rex helicopter from Like90 gave a hummingbird's eye view while hovering up to 250 feet high. It was also able to zoom it's camera in to explore roof tops and look in windows.

"The platforms, which require less than 10 minutes to set up and fly, were designed to be easily carried by responders as they hike into the debris," said Robin Murphy, CRASAR director. "The UAVs were provided in partnership with a National Science Foundation industry/university consortium that focuses on new safety, security and

rescue technology."

CRASAR has been focusing on developing and testing small UAVs since being called up by Florida Task Force 3 during Hurricane Charley in 2004.

"We learned that seeing whether people were trapped on their roofs just beyond sight along a flooded road was critical," said Murphy. "It takes too long for manned helicopters to get there - if the radios are working."

At the request of the Louisiana State University Fire Emergency Training Institute (FETI), CRASAR was deployed Aug. 30 from Tampa to assist with rescue efforts just east of the French Quarter in New Orleans. However, because of destroyed or flooded freeways, and lack of secure surface roads, the team had to turn around just short of the city limits, said Murphy.

The team was then deployed by Florida responders working out of Stennis Space Center to survey nearby Pearlington, Miss. in response to reports of survivors stranded by flood waters.

With progress into Pearlington blocked by complete houses that had been pushed by the storm surge into the middle of the main street, the team launched from an open patch of road surrounded by downed trees and power lines.

Within 2 hours, the responders had the data form the UAVs showing that no survivors were trapped and that the flood waters from the cresting Pearl River were not posing an additional threat.

"Katrina was so much worse than Charley," added Murphy. "Even though Charley cut a wide swath through Florida, only a few houses in a neighborhood were totally destroyed and a few lucky ones looked largely

untouched. In contrast, with Katrina most of the houses were completely gone and only a very few remaining even looked like houses."

Murphy and Chandler Griffin of Like90, and other team members, flew over Bay St. Louis collecting data near the destroyed US 90 bridge, while returning to Tampa Sept. 6.

CRASAR was responsible for the introduction of small ground mobile robots into emergency response at the World Trade Center in 2001. USF has pioneered sensor, robot, public health and information technology development and insertion for emergency response and preparedness.

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