Unmanned aircraft being used to fight wildfires

By Kimberlie Nitti, Emergency Management

A wildfire's thick black smoke blots out the sun, cloaking the area in a premature dusk. Glowing embers spiral up through the haze. A small camera-equipped aircraft skirts a wall of flames on a dangerous mission to record hot spots and track the fire's progression.

That is, it would be dangerous if an actual pilot was on board. But this is an unmanned aircraft, capable of venturing into areas too remote or deadly to risk human life. The pilotless plane, also known as an unmanned aircraft system (UAS) or unmanned aerial vehicle, transmits collected sensor data to emergency response teams on the ground that use the information to strategically allocate fire fighting resources.

Unmanned aircraft are revolutionizing the aerospace industry. No longer solely for military use, UASs have increasing potential for civilian and commercial applications, particularly with regard to emergency response and relief efforts. They can be used for environmental research, law enforcement, border surveillance, search and rescue operations, damage assessment, and recovery efforts following natural disasters. Ideal for situations where it's too dangerous or difficult to use manned aircraft, unmanned aircraft often cost less and can stay in the air longer – as long as four days without refueling.

"Resources are always at a premium in an emergency situation," said retired Los Angeles firefighter David Badgett. "Sometimes it's best to drop water with a manned helicopter. Other times it's better to send in a UAS for observation. Unmanned aircraft give incident commanders more options, so they can

select the most appropriate tool for any given mission.”

Already in use in some states, UASs successfully performed search and rescue missions in Louisiana and Texas during the 2008 hurricanes. The National Oceanic and Atmospheric Administration uses them to hunt down hurricanes and communicate data to the National Hurricane Center in Florida. Police departments in Houston and Miami have tested law enforcement programs using the systems. In California, NASA scientists developed an unmanned aircraft, called the Ikhana, which has proven useful in battling wildfires. Special heat sensors installed in the Ikhana map fire locations by temperature and transmit hot spot information to multiagency coordination centers and firefighters on the ground.

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