



UTILIZATION OF SMALL UNMANNED AERIAL SYSTEMS IN RURAL AND DEVELOPING AREA DISASTER MANAGEMENT

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ABSTRACT :

Accurate and timely information is crucial to disaster managers before, during and after an incident. In developing countries and areas this information can be sparse, forcing policy makers, community leaders, and disaster managers to make decisions based on assumptions and guesswork. Small unmanned aerial systems (sUAS) can provide cost-effective information for decision makers that is useful in each phase of disaster management. These systems can carry a variety of sensors, allowing for versatile data collection depending on the situation. However, to be utilized by disaster managers, the data collected by the sUAS must be processed and integrated into the overall disaster management information set, frequently referred to as the common operating picture. This research compares several unmanned aerial vehicles (UAVs) and sensor packages, as well as the software, training and workflow necessary to create a small unmanned aerial system (sUAS) for disaster management. Data for this project was gathered during field research in rural Haiti as well as testing programs in the United States. Throughout the research project, the cost to end-users was a focus. While many commercial UAVs are available for purchase, many have a total cost of ownership that is above the budgets of small jurisdictions, developing areas, or rural disaster managers. This research will illustrate the systems and software that can produce information from sUAS that is both useful and cost effective as well as provide a road map for practitioners to employ these systems.

KEYWORDS:

Small unmanned aerial vehicles, UAV, drone, sUAS, unmanned vehicle, data collection, disaster data, aerial, emergency management