

Abstract

Humanitarian Assistance and Disaster Response (HA/DR) Operations executed by the military forces of developed nations have proved to be powerful instruments of foreign policy. Militaries bring a significant vertical-lift logistical capability to HA/DR, in the form of traditional helicopters and modern tiltrotor aircraft. Military planners of HA/DR employ advanced geographic information systems (GIS) when planning Helicopter Landing Zones (HLZs). GIS continue to improve; however real-time ground-truth HLZ surveys would add a level of detail that may prove crucial to helicopter crews. Crowdsourcing efforts such as the Humanitarian OpenStreetMap (OSM) Team (HOT) have emerged as a highly effective means of gathering geospatial information about impacted regions in the immediate aftermath of a disaster.

This research endeavors to develop, test, and validate a series of straightforward, easily understood procedures for conducting a HLZ survey, which then can be made available to HOT volunteers. Military planners employ GIS and remote-sensing imagery to select potential HLZ sites. These sites are imported to OSM, where volunteers can obtain data as to their location. Volunteers can utilize the techniques developed in this research to conduct a ground-truth survey of the HLZ and provide the results back to the HOT. The HOT can verify these inputs and link them to the HLZ in OSM. This thesis describes the creation and validation of these processes in a study area focused on Hawaii County, Hawaii.