

The Role of Geospatial Technologies in Disaster Emergency Responses

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Geospatial technologies play a significant role in disaster management cycle. The recent large-scale earthquake and tsunami events have demonstrated their uses in post-disaster emergency responses. Remote sensing provides synoptic and detailed data required for emergency and post-disaster responses. It is the unique source of timely data captured in hard-hit and inaccessible areas after a disaster. To respond to a large-scale disaster, the International Charter on Space and Major Disasters shall be activated whereby more space sensors were rescheduled to capture the disaster area, and hence, data availability is not a critical question these days.

Data interpretation for mapping damage areas was a slow process when relying on visual interpretation. Numerous research and development on automated interpretation has not yet produced a reliable solution, visual interpretation is still needed for damage assessment. It has much been improved with the developed web-based geospatial collaborative platform which allows numerous interpreters around the world acquiring the data and submitting their allocated works. The process is speeded up drastically and introduced a new term/approach, crowd-sourcing damage assessment. The critical issue

of crowd-sourcing data analysis is data quality control and it remains an issue needs to be solved.

Geospatial tools and services, including mobile and web-based solutions, have extensively deployed in emergency responses and relief efforts. For instance, mobile mapping solutions ease the work of inspectors and rescuers on the ground. The geospatial web-based platforms have been used for dispatched management and planning, community participatory mapping and reporting. The crowd-sourcing damage assessment platform as mentioned above could take granted of those timely information contributed by the communities on the ground providing a verification mechanism exists to maintain the quality.

Experiences from latest large-scale disasters infer that there exists the gap between the demands from disaster management practitioners and what geospatial analysts produce. Therefore, it is vital to provide training on spatial thinking skills to the disaster management practitioners and set up a communication channel to geospatial researchers and analysts.

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