

Reconnaissance Survey of Tsunami Damage in Thailand Using Satellite Images and GPS

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Abstract:

This paper summarizes the results of tsunami reconnaissance survey in south Thailand conducted by a team consisting of researchers from Thailand, Japan, and USA. The area was hit by a series of tsunamis caused by the 26 December, 2004 North Sumatra Island earthquake with magnitude 9.0. The primary objective of the survey is to gather geo-referenced tsunami inundation and damage information with enhanced use of satellite images and GPS. Digital still photos and videos were taken in the hard-hit areas, e.g. Khao Lak, Phuket Island, Phi Phi Island, and they were linked to the satellite images. A new data collection approach was adopted by deploying three video cameras that simultaneously captured footage for three directions (front, left, and right) in some heavily affected areas. This method provides a wider view of the survey area and this new system was named as “Panoramic-VIEWS”. Using a hand-held spectrometer, measurement of spectral reflectance for surface materials in tsunami effected areas was also conducted to gather ground truth data of satellite images. Using all the data gathered in the survey and satellite imagery, the present authors is currently developing tsunami hazard/inundation maps in Thailand.