

Emergency mapping using satellite imagery for the Nepal earthquake

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This topic shows examples of an activity report on emergency mapping using satellite image that was provided by Sentinel Asia and International Disaster Charter for the Nepal earthquake, April 25, 2015.

A disaster management organization is difficult to analysis with a satellite image at an occurrence time of disaster due to other emergency responses. With major disaster, huge amount of satellite images is provided, then satellite image analysis takes a long time for all. There were more than 5,000 satellite images provided in 30 days for this earthquake. Many resources to analysis image on emergent were necessary.

Remote sensing and disaster management experts of AIT (Asian Institute of Technology) and the University of Tokyo analyzed the images for emergency disaster mapping. In addition, Nepal community, and AIT worked together and corrected locations of the affected area quickly. It enabled us to decide a priority area for analyzing image and detecting the affected areas.

Each affected building was interpreted from high resolution satellite imagery, WorldView and GeoEye. It was also anticipated to set off landslides because of mountainous topography. We detected some landslides on LANDSAT image. A pair of images on pre- and post-observed satellite images was very useful to find out the landslide easily. For wide area assessment for suspected damaged to building, SAR (Synthetic-aperture radar) image (TerraSAR-X) was applied that the suspected spots were indicated from a difference in pre- and post images.

The analysis results were provided to the relative organizations in Nepal, ICIMOD (International Centre for Integrated Mountain Development), disaster prevention agency, and survey department.

Keywords: Nepal, Earthquake, Emergency disaster mapping, Satellite imagery

Landslide in Langtang Village, Rasuwa, Nepal in April 2015 by Landsat-8

