Rapid Flood Inundated Mapping for Community Planning (Case Study: Mandalay City)

Kyaw Zaya Htun[(1)], Myo Myint Aung[(2)], Franck Zangelmi[(3)], Kyi Pyar Shwe[(4)]
[(1)] Andaman Capital Partners, Myanmar
[(2)] Institute of Tibetan Plateau Research (ITP-CAS)
[(3)] Mandalay Building Urban Resilience (project), ADB

Email: (1)kyawzaya.htun@gmail.com, (2)myomyintucas.geol@itpcas.ac.cn,(3)f.zangelmi@sigeoz.com
(4) kyipyars@gmail.com

ABSTRACT

This paper highlights the way of rapid mapping of the flood-inundated area from water level and digital elevation model without the need for technical expertise or sophisticated data. An observed flood map produced by interpolation of water level of satellite stations and stations from the Department of Metrology and Hydrology (DMH) along the river by smoothing the observed depth value by a regressive method with flood-survey marks. A simulated flood map was also developed from unsteady flow analysis using daily discharge data from DMH. The accuracy assessments of flood extension were done for both observed and simulated maps with remote sensing flood extension. When these two flood extension areas are compared with remote sensing flood extension, it can be seen that the accuracy of the observed flood extension area is better than the simulated one. It was found that the correlation between the observed depth and the simulated data was satisfactory. The observed flood map can generate rapidly from water level data and assume the maximum flood extend area and depth for the disaster response plan.

Keywords: flood mark, flood depth, cross-section, interpolation, DEM