

Thesis title:

The effect of topographic data resolution on modelling flood events: a study in downstream of Kelani Basin, Sri Lanka

Abstract:

Frequent flooding in Sri Lanka underscores the necessity of flood modelling as inundation extent and flood depth can easily be identified for implementing flood control measures. Accuracy of flood modelling is primarily influenced by topographic data sources and their resolution. Due to the lack of Light Detection and Ranging (LiDAR) data source in most regions of Sri Lanka owing to the cost of data acquisition and time constraints, alternative topographic data sources need to be assessed. This study investigates the accuracy of 2D flood model results in terms of flood depth and inundation extent developed based on open source topographic data sources, namely Shuttle Radar Topography Mission (SRTM) and Advanced Spaceborne Thermal Emission (ASTER) with 30 and 90 m resolutions. Moreover, a method was developed to correct the SRTM DEM (30 m resolution) using high resolution LiDAR elevation points to improve the accuracy for use in 2-D flood modelling.