3D CITY MODEL FROM GEOEYE-1 STEREO IMAGES FOR ENVIRONMENTAL MONITORING IN PHUKET CITY

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Abstract: A rapid growth of city in many countries requires a quality of planning. Geoinformatics technology has capability to apply in decision support system, city planning, environment monitoring and disaster management. It can make spatial data modeling through Geographic Information System (GIS), Remote sensing (RS) and Global Positioning System (GPS). To study real world phenomena, it requires 3D spatial data modeling which is precise and accurate. Objective of this study is to create 3D City Model from GeoEye-1 stereo pairs imagery using photogrammetric techniques and collecting data in City Geography Markup Language (CityGML) format which is a standard data model for collecting 3D object in city area at Level of Detail 1 (LoD1). This study used an automatic image matching technique and Rational Polynomial Coefficients (RPCs) data to extract Digital Surface Models (DSMs), Digital Terrain Models (DTMs) and existing building data in vector format. Finally, 3D data were stored in CityGML standard data format. Result from this study can be used for environmental management monitoring and planning in Phuket city further.

Keyword: 3D City Model, DSMs, DTMs, GeoEye-1, Phuket