3D URBAN MODEL OF HANOI, VIETNAM

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ABSTRACT

Analyzing the relief of terrain and the micro-topography of Hanoi can play an important role in explaining its urban transformation. To analyze topographical changes, it is necessary to use elevation data to generate a digital elevation model (DEM), a digital representation of ground surface and the most important element of topographical analysis for urban transformation, providing evidence for the existence of features such as old rivers, lakes, fills and land subsidence. Consequently, the DEM of Hanoi in 2005 was generated with data collected for 8,015 points. Based on the surface estimation method using Cubic B-Spline Function, the DEM is generated at 2-meter resolution. The contour interval is 0.5 meter. The very subtle elevation gaps which cannot be distinguished on the satellite image are significantly recognizable on this DEM. A second DEM was generated from the topographical map prepared by the French government in 1950, now held in the French library. This DEM at 2-meter resolution is also based on DEM generation using the method of STRIPE. By comparing the two patterns of DEM for 1950 and 2005, the areas of fills and land subsidence can be clarified.