Analyzing and Simulation of Underwater Digital Terrain Model (UDTM) Using Airborne LiDAR Hydrography (ALH) Technique for Hydrological and Floods Risks Assessment

A. ABEDINI¹ and N. NAJIBI²

 ¹Assistant Professor in Geomatics Eng., Dept. of Surveying and Geomatics Eng., Faculty of Eng., University of Tehran, E-mail: <u>aabedeni@ut.ac.ir</u>
² Bachelor of Engineering Student in Geomatics Eng., Dept. of Surveying and Geomatics Eng., Faculty of Eng., University of Tehran, E-mail: <u>najibi@ut.ac.ir</u> Centre of Excellence in Geomatics Eng. and Disaster Management

Simulations of the hydrological risks and the decisions of afterward strategy assessments are crucial in the context of extreme meteorological events due to the consequences of the fast changes in the climate. The Airborne LiDAR Hydrography (ALH) backscatter techniques are allowing the elaboration of a high precision from Underwater Digital Terrain Model (UDTM) as basis of the hydrological modeling. UDTM is initially applied to analyze of the topology of the under-water's terrain but also for mathematical simulation and spatial data. This is a method for Geospatial Information System (GIS) needing for simulations of the hydrological hazards. So with raw data from ALH, we could extract very important information such as slope, aspect, contour, profiles, etc. Here, we focus on the commonly slope map, hill shade map profile and in the end on hydrological risk modeling. Using an ALH technique correlated with a high GIS platform we can easily predict, model and even emit hydrological forecasts. The useful of the UDTM outputs are for hydrologic applications and the potential application for many organizations against sea and ocean floods and making plain assessment strategies.

Keywords: Hydrological Risk Modeling; UDTM; LiDAR; ALH; Climate Change.



Figure 1. UDTM simulations of ALH outputs

References

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