

Comparative Analysis of Google Earth Derived Elevation with in-situ Total Station Method for Engineering Constructions

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SUMMARY

An effective and efficient economy of a particular clime depends on efficient design, nature and accessibility of the road networks. In the recent past, designing and setting out of good networks of roads especially in developing economies like Sub-Saharan Africa like in Nigeria. With the recent advancement in technology and sciences, data acquisition, processing, management of geo-information have changed tremendously. Acquisition of satellite information, generation of digital elevation data and modeling and even other land use and land cover derived information are done seamlessly. Recently, the use of satellite derived data generated by sensors has become very popular to describe the nature of the earth surface and its topography. This paper is an attempt at investigating the accuracy achievable from satellite derived data (heights) and the ones obtained from onsite or in-situ (Total Station) method for engineering construction. A comparison is made using the Google Earth derived elevations and the field data from in-situ survey. The field generated data was imported into Arc GIS 10.5 and the XYZ data converted to KML in order to extract its satellite equivalent from Google Earth. Analysis of the data was done using correlation statistical model and the results indicate that the Google earth DEM are not very good for practical exercises rather good for academic exercises. The onsite or in-situ derived heights are more reliable for engineering designs and constructions.

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