

Investigation of the Use of GPS in Georeferencing Satellite Images of Awka and Environs

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SUMMARY

GNSS comprises of GPS, GLONASS, GALILEO, COMPASS, QZSS etc used in many applications such as Sea navigation, Air navigation, Positioning, GIS/ Surveying, Precision Agriculture, Recreation and Vehicle tracking all these were explained in their principle and comparism. Georeferencing can be seen as assigning geographic information to an image; it will allow the usage of the image and its location in the geographic space. Satellite imagery has been widely used in different applications which depend on different professional approaches. There has been much advancement in satellite imagery. This seminar paper presents a detailed analysis on the investigation of the use of GPS in Georeferencing of Satellite Imageries using Awka and its environs as the study area. Gaps in the reviewed literatures has been identified and analysed and also used to define the approach that will be employed in these study. The adopted approach has been detailed in the methodology. Data requirement for the study and techniques for data acquisition, processing and presentation also have been highlighted. The image acquired was processed before delivery. Very high resolution (VHR) i.e. Quickbird was used, high resolution (HR) i.e. SPOT_5 and medium resolution (MR) i.e. NigeriaSat_x, using eight selected GPS coordinates of different parts of Awka and environs to perform georeferencing of each image with four coordinate points first, second six coordinate points, and finally 8 coordinate points and got the following results. Four coordinates gave Standard Deviation = 0.0022978 Variance = 0.0000052799, six coordinates gave Standard Deviation = 0.0012 Variance = 0.00000144 and eight coordinates gave Standard Deviation = 0.0052933 Variance = 0.000028019. Furthermore, the coefficient of variation was also calculated for in percentage four coordinates gave 37.344 %,six coordinates gave 1.981% and eight coordinates gave 6.958%. It is therefore recommended that six coordinates be used when georeferencing.