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INTEGRATION OF CONTINUOUSLY OPERATING REFERENCE STATIONS AND DIFFERENTIAL GLOBAL POSITIONING SYSTEM IN SECOND ORDER CONTROL ESTABLISHMENT

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Abstract:
This study demonstrates the applicability and utilisation of the integration of Nigerian global navigation satellite systems (GNSS) reference network (NigNet) continuously operating reference station (CORS) and differential global positioning system (DGPS) in second order control establishment. It entails monumentation of the control points on ground (in line with relevant specifications) and DGPS static observations on the points to produce the most probable values as coordinates of the control points without the need of un-modelled systematic biases such as atmospheric refraction, satellite orbit and fixed station errors. The standardised residuals were compared against the Chi-square test and Tau criterion. The results indicated that the employed method does not affect the network at ninety-five percent confidence interval. The standardised residuals were also statistically tested to further examine the presence of outlier data points and adjustments were made.

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