



POTENTIALS OF DIFFERENTIAL GLOBAL POSITIONING SYSTEM WITH SAMPLES OF VALUES FOR ONITSHA EAST NIGERIA

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ABSTRACT

Differential Global Positioning system database is used to acquire data that is advantageous in creating a database which can be used in terrain processing, environmental management and planning. The instrument was stationed at a point which is called the base and the rover was moved around to pick data around with the Differential Global Positioning (Magellan Professional) Field work was conducted after reconnaissance to be able to obtain various types of data. The use of the DGPS is faster and a more accurate method of collecting data for developmental purposes and other needs for Onitsha East Nigeria

KEYWORDS: *Differential Global Positioning System, Base, Rover, Reconnaissance*

INTRODUCTION

Differential Global Positioning system (dgps) navigation service concept of operations purpose is to distribute the dgps navigation service concept of operations. Schlechte et al 1995.

Differential GPS navigation has already been investigated by other people. Ruedger [1981] studied the properties of the upper layer of the ionosphere using differential techniques; Howel et al. [1980] examined the update rate of the differential corrections; Cardal and Cnossen [1980], Teasley et al. [1980], and Cnossen et al. [1981] described the various types of differential techniques and their implementation. All the above studies refer to a close-

range (10 km approximately). High precision GPS techniques can be Relative, differential, wide area differential, Kinematic, surveying, attitude determination Van GRASS 2013.

MATERIALS AND METHODS

The Differential Global Positioning (Magellan Professional) of 1st and 2nd order was stationed at the head bridge beside the police station at Onitsha East close to the famous Onitsha main market which stands as the base and then the rover was used to pick available data such as coordinates heights e.t.c around the region. Below in fig 1.1 is the bases where the instrument was stationed.



Fig 1.1

RESULTS AND DISCUSSIONS

The following in Table 1.1 were are sample of the data collected from the Differential Global

Positioning system which can be used extensively by the ministry of works

S/N	STATION	MINNA	DATUM	WGS	84	HGps (m)	HTopo (m)	HSrtm(M)
1	HEBR	6.76821871	6.13047919	6.76748230	6.13100590	18.814	30	50
2	HEBS	6.76820758	6.13043737	6.76747120	6.13096420	17.937	30	50
3	HEBT	6.13043061	6.13043061	6.7676186	6.13095744	17.262	30	50
4	HEBU	6.76845398	6.13062080	6.76771760	6.13114761	21.869	30	50
5	HEBV	6.76836395	6.13067984	6.76762754	6.13120653	22.02	30	50
6	HEBW	6.76859308	6.13046126	6.76785668	6.13098798	13.927	30	50
7	HEBX	6.76845031	6.13041036	6.76771393	6.13093719	14.067	30	50
8	HEBY	6.76884339	6.13041036	6.766810699	6.13073761	6.097	30	50
9	HEBZ	6.76956247	6.13021087	6.76882611	6.13084101	0.488	30	50
10	HECO	6.76975729	6.13031417	6.76902091	6.13123350	9.365	30	50
11	HEC1	6.76988009	6.13070681	6.76914373	6.13169969	22.728	30	50
12	HEC2	6.76996238	6.13117293	6.76692260	6.13202741	32.846	30	50
13	HEC3	6.77000470	6.13150079	6.76926835	6.13238635	43.333	30	50
14	HEC4	6.77009952	6.13194755	6.76936314	6.13247413	44.534	30	50
15	HEC5	6.77010994	6.13185954	6.76937359	6.13238624	41.609	30	50
16	HEC6	6.13172758	6.13185954	6.76939470	6.13225429	37.357	30	50

SOME APPLICATIONS OF THE DATA COLLECTED FROM DIFFERENTIAL GLOBAL POSITIONING SYSTEM

- Very important in terrain processing e.g. Digital elevation modeling.
- Used in urban development and proper planning

- Beneficial in Environmental Impact assessment
- Very influential in agriculture to provide records on locations as well as per hectares

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