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CORS USAGE FOR GPS SURVEYS IN GREATER ACCRA REGION.

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Why the need for CORs?

- **Controls established with separate surveys and adjustments**
- **Different methods of establishing controls**
- **Destruction of some controls**
- **High dependency on ground controls**

Why the need for CORs?



Background

- **The Ghana Survey and Mapping Division (SMD) have established a tier-3 type CORS in Accra (Photogrammetric Section, 37), Kumasi, Tamale and Takoradi purposely as reference station for post-processing of GPS surveys conducted within 100km from the COR.**
- **Apart from providing reference coordinates in accordance with ITRF, one major reason for the establishment of the CORS is to provide new homogeneous geodetic framework infrastructure that could replace the old reference framework for which homogeneity or lack of it could not be guaranteed.**

AIM & OBJECTIVES

AIM

- The main aim of the project is to explore the use of CORS for GPS survey in Greater Accra Region of Ghana.

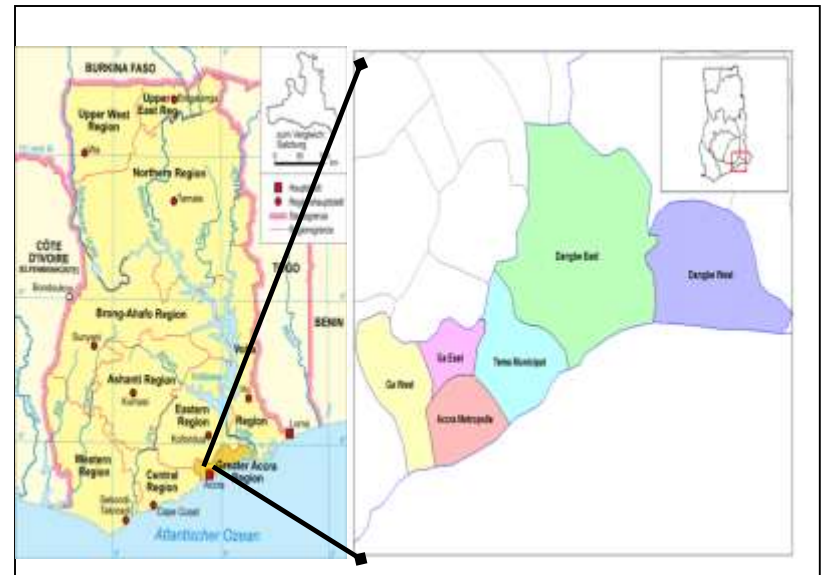
Specific objectives include:

- To identify the advantages of CORS for GPS survey.
- To investigate the limitations of CORS usage for GPS survey in Ghana
- To suggest solutions/remedies of problems in CORS usage for GPS survey in Ghana.

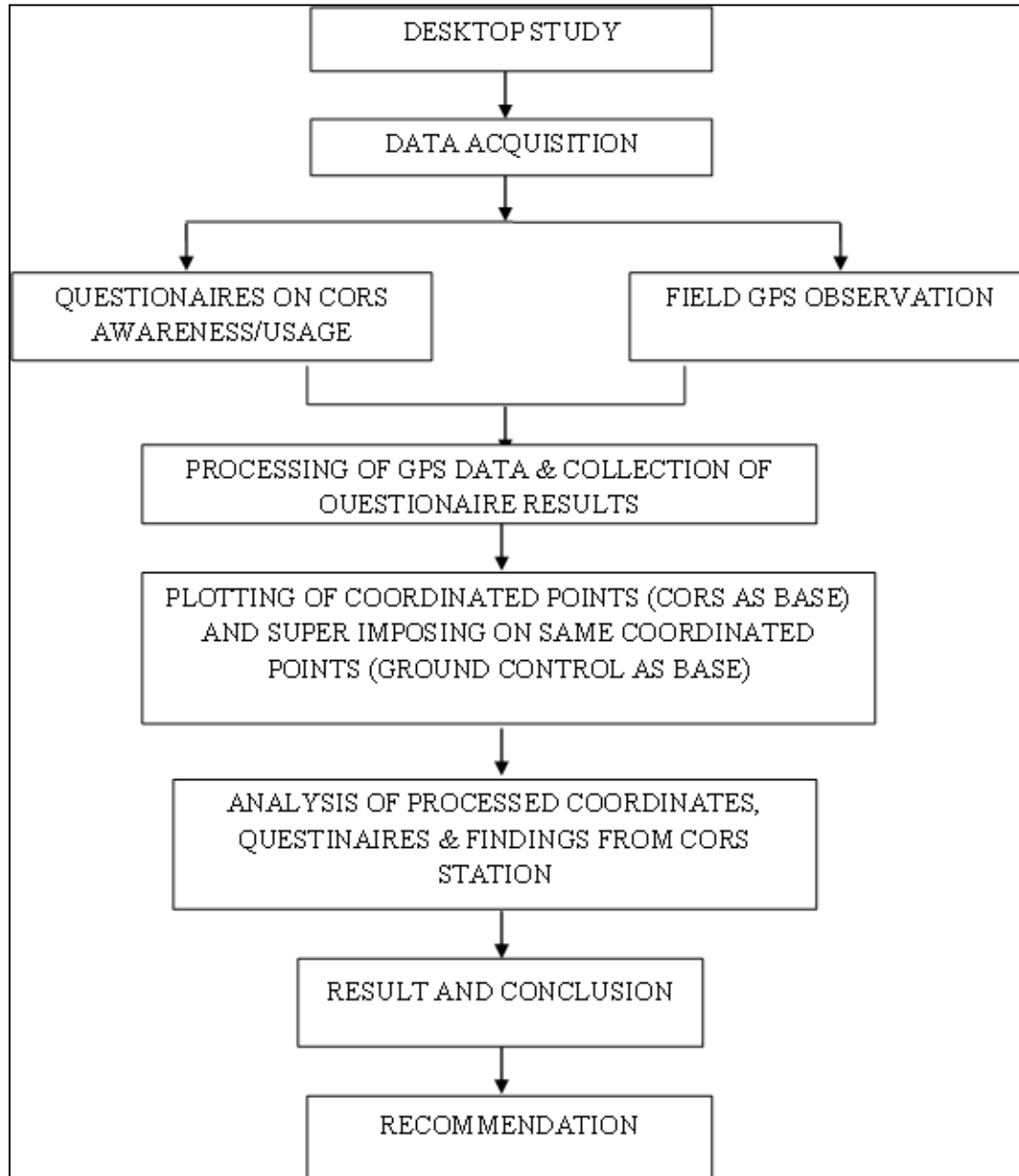
MATERIALS AND METHODS

- **Materials used include:**
 - The Accra CORS used as reference for field GPS survey.
 - Geodetic GPS receivers and processing software.
 - Structures Questionnaires and Interviews.
 - AutoCAD and ArcGIS for drawing and analyzing results.

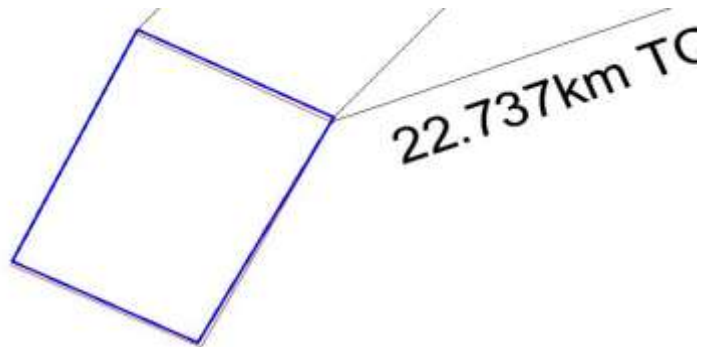
- Project area is parts of Greater Accra between latitudes $5^{\circ} 30'$ North and $6^{\circ} 03'$ North and longitudes $0^{\circ} 30'$ West and $0^{\circ} 35'$ East.



Methodology flowchart

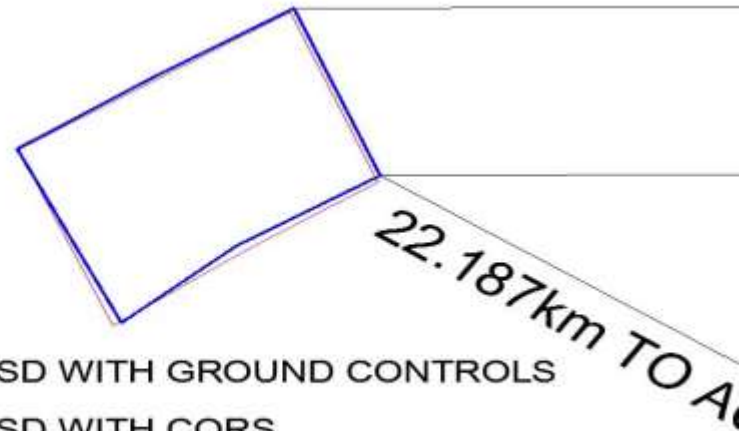


PLOTTED RESULTS (Approximately 23km from CORS)



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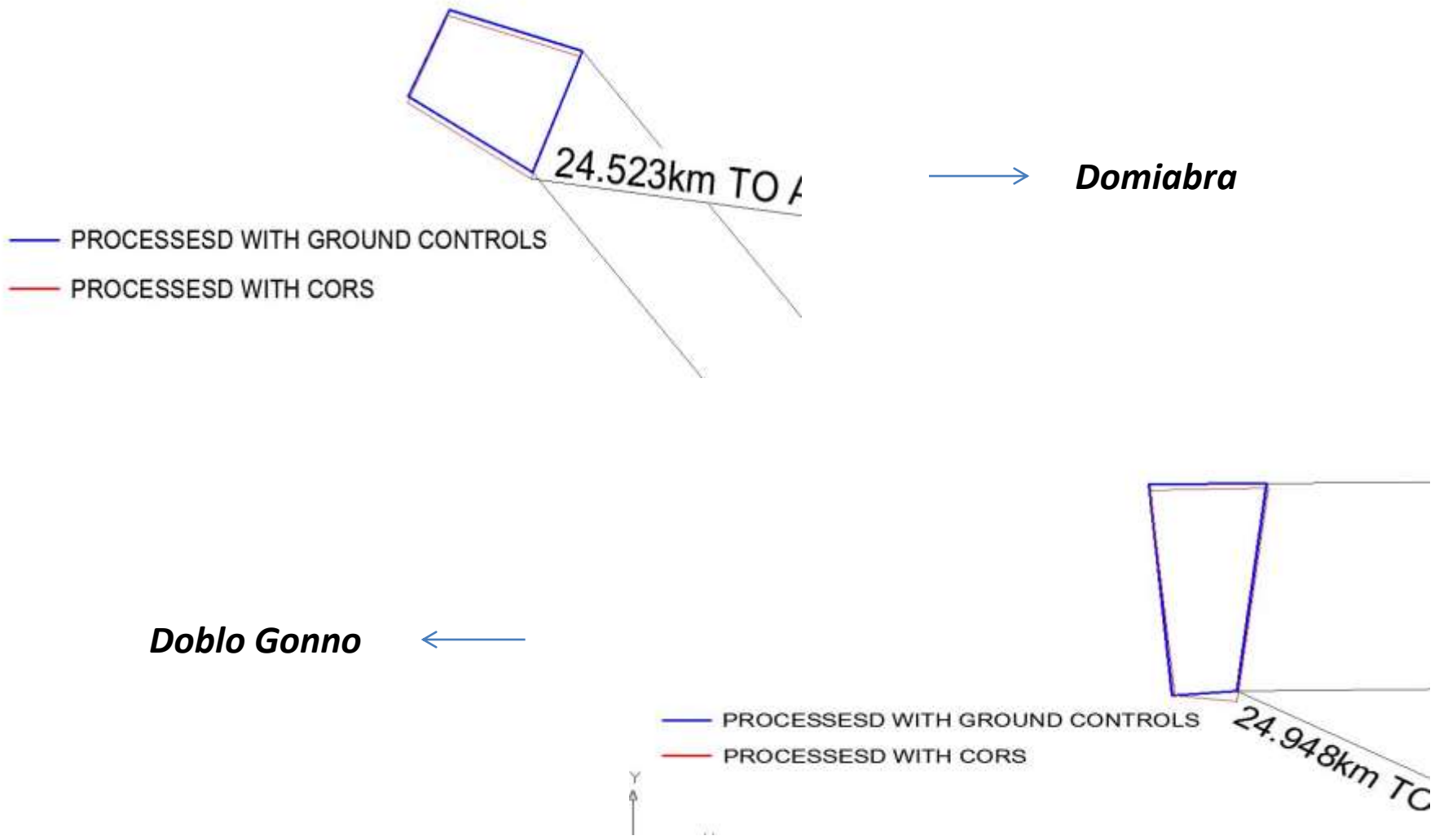
- PROCESSED WITH GROUND CONTROLS
- PROCESSED WITH CORS



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- PROCESSED WITH GROUND CONTROLS
- PROCESSED WITH CORS

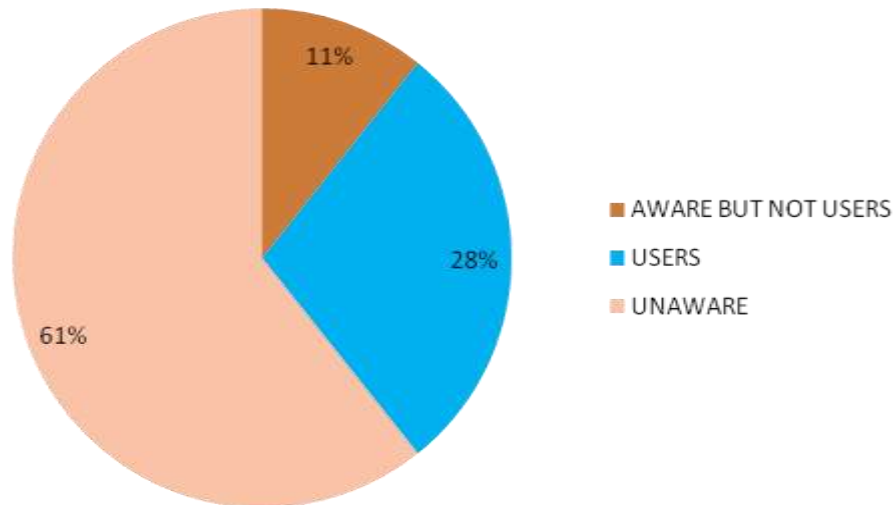
PLOTTED RESULTS (Approximately 25km from CORS)



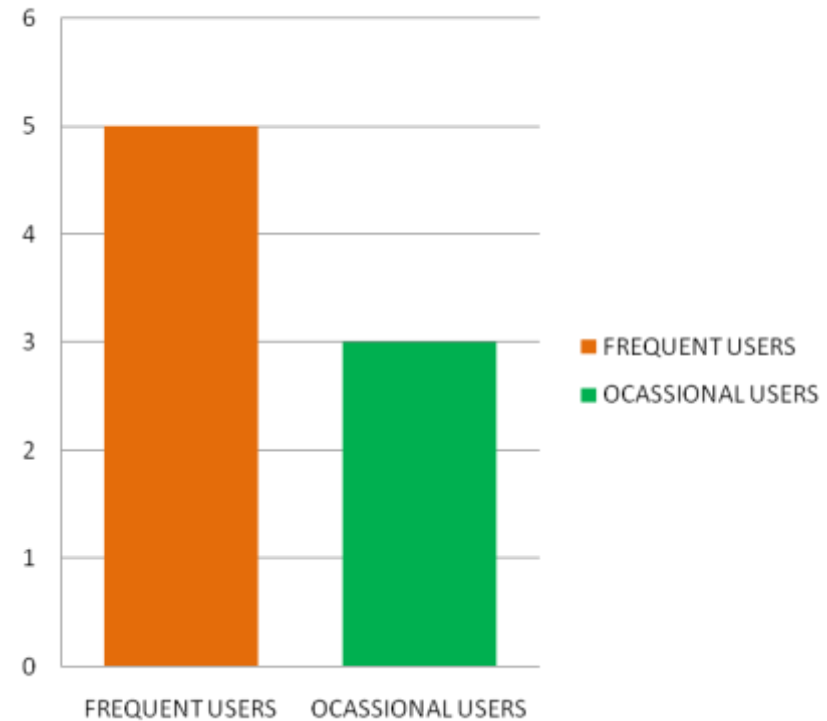
- **39% aware of COR stations availability in the Greater Accra**
- **28% professionals out of those aware of CORS have used some of the COR stations for their GPS surveys**
- **11% of those aware of CORS have not used it for any of their GPS survey works**
- **63% of all users are regular users and 37% are only occasional users.**
- **Some other reasons given for non use include inability to have reference data when there is no power for backing it up.**
- **Bureaucratic processes required before obtaining reference data.**

INTERVIEW RESULTS

CORS USERS & NON-USERS



USERS



CONCLUSIONS

How can we remedy problems posed by using CORS for GPS survey?

- **Adequate Publicity**
- **Provision of a reliable energy generation back up system such as solar**
- **Technological necessities for real time processing such radio etc.**
- **Remove bureaucratic bottlenecks by providing a dedicated efficient team unit.**
- **Explore means of data transmission through bulleting boards on internet.**
- **Provide automatic on-line processing services for clients.**
- **Legislate compulsory usage to comply homogeneity.**

THANK YOU!