GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)

CONTINUOUS OPERATING REFERENCE STATION (CORS)

SURVNET UGANDA NETWORK
## CORS STATIONS

<table>
<thead>
<tr>
<th>STATION LOCATION</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. KAMPALA</td>
<td>ACTIVE/RUNNING</td>
</tr>
<tr>
<td>2. JINJA</td>
<td>ACTIVE/RUNNING</td>
</tr>
<tr>
<td>3. LUWERO</td>
<td>ACTIVE/RUNNING</td>
</tr>
<tr>
<td>4. MUBENDE</td>
<td>ACTIVE/RUNNING</td>
</tr>
<tr>
<td>5. MASAKA</td>
<td>UNDER CONSTRUCTION</td>
</tr>
</tbody>
</table>
GPS Working Principle

Distance = $186,000$ miles/second $\times$ time

**How GPS Works**

1) Position is calculated by knowing satellite position and distance from receiver (triangulation)

2) Satellite position is determined by orbital mathematics

3) Distance is measured by how long the signal takes to reach the receiver's position
Differential GPS

Measured: x y z
Delta: x y z

True: x y z

Corrections applied after survey

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
National Ocean Service
National Geodetic Survey

Positioning America for the Future
Real Time Kinematic (RTK) GPS

Real-Time-Kinematic
Positional Accuracy +/-2 cm or so

- Same Satellite Constellation
  (Base station – Rover/or Rovers)
- Carrier Phase
  (Track 5 satellites Minimum)
- Radio Link
  A) More information
  B) Fast information
  C) Real-Time results

Transmission Antenna

10 to 20 km

Base Station
(Known position)

Rover
(Project Point)
CORS Data Flow
Reference Station Data streams back to the Control Center
Rover receiver sends its position (NMEA) back to the Control Center
Control Center generates individual Reference Station Position for each rover
BENEFITS OF CORS NETWORK

- Elimination of base station issues (Reduced cost for hardware, security, set up time)
- Highly reliable RTK and DGNSS corrections
- The accuracy of the rover position is consistent and homogeneous across the area covered by the Network
- No need searching for survey monuments in control extension
- Increased working range (mobile coverage becomes the biggest limitation)
Applications of CORS Network

- Land Surveying
GIS Applications
Utilities Mapping
Roads/Bridges Design and Construction
Tracking / Navigation / Transportation
SURVNET (U) LTD SERVICES

- **Real-time Network Services**
  - Username and Password

- **Rinex Data Download**
  - Used for post processing static data
  - Visit our REFERENCE DATA SHOP on www.survnetug.com

- **Static Data Processing**
  - Email us your Rinex data and observation details for computation
Welcome to Survnet
Your GeoData Partner

Survnet owns and operates a network of Continuous Operating Reference Stations in Uganda. We employ the latest GNSS receivers capable of Multiple Constellation tracking delivering Real Time network corrections via the International Standard correction format (RTCM) and RINEX data.

Contact us Now

Register with the Reference datashop to Access static data

Infrastructure
Survnet own and operate a network of continuously operating reference stations (CORS)...Read more

Our Services
A range of service options are available that address the positioning accuracy ...Read more

Survnet Technology Explained
Survnet own and operate a network of Continuously Operating Reference Stations

Benefits
Survnet offers highly accurate real-time positioning services through a network of RTK base...Read more

Services and Pricing
A range of precise mobile satellite positioning solutions are available to match the exact...
SURVNET (U) LTD LOGIN

Enter your username and password

Username
Password

Remember me
Login

Forgot Password	Signup

Back to the www.survnetug.com

Please Fill Details To Register

Title
select title

First Name *

First Name

Lastname *

Last Name

Username *

Username

Password *

password

Confirm password *

Re type password

Email Address *

Your Email

Telephone *

Telephone

Company

Signup	Login if already registered
SURVNET (U) LTD STATIC DOWNLOAD

User Panel

Select Reference Station, Observation Date, Observation period and then Go ahead and Click search button.

Reference station *
MSKA

Observation Date *
2016/07/20

Observation Period (EAT) *
09:00:00-14:59:59

Search >>

User Panel

Reference Data Search Results

09:00:00-14:59:59

<table>
<thead>
<tr>
<th>File</th>
<th>Created On</th>
</tr>
</thead>
<tbody>
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<td>July 2016/07/20 14:30:14.</td>
</tr>
<tr>
<td>MSKA202g, 16n</td>
<td>July 2016/07/20 14:33:02.</td>
</tr>
<tr>
<td>MSKA202g, 16o</td>
<td>July 2016/07/20 14:59:46.</td>
</tr>
</tbody>
</table>

Download all in zip

<< Back  cancel
This service allows you to access GNSS data for reference stations in the network or virtual reference station. You can download the requested data in the RINEX (Receiver Independent Exchange) format.

NB: The Time is Standard East African Time

### Previous Downloads

<table>
<thead>
<tr>
<th>File</th>
<th>Download token</th>
<th>Download date</th>
<th>Station</th>
<th>Observation date</th>
<th>Start time</th>
<th>End time</th>
<th>No. Downloads</th>
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<tbody>
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<td>2016/07/03</td>
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<td>08:59:59</td>
<td>1</td>
</tr>
</tbody>
</table>
GNSS EQUIPMENT RENTALS AND SALES
THANK YOU