East & Northern Conference
Surveying in a modern world
Entrenchment of emerging surveying technologies in Uganda; prospects and constraints

Presented by Mulindwa David(RSU)
Managing Director Eagle Surveys Solutions Limited
Founding Partner Southern Hemisphere Surveyors
Drone technology & CORS(NRTK) technology
Drone technology
Multi-rotor and Fixed Wing
Bird’s eye view
Bird’s eye view
Flight Planning
Flight Planning
Adv

- Safety of employees
- Survey Speed
- Project budget
- Improved data resolution
- Access to unreachable places
- Single tool
Bottlenecks

- Legislation
- Cost
- Professional drone pilots
- Weight
- Fewer sensors
- Training centers
Continuously Operating Reference Stations

• Courtesy of EagleCORS Uganda
Conventional RTK: Base - Rover

- A Reference Station (RS) receiver makes observations
- RS sends differential corrections (or raw data) to a rover receiver that could be either stationary or moving via a data link (UHF, now GPRS also available on ComNav T300)
- Rover receiver performs DGPS/RTK positioning using the corrections (or raw data)
Network RTK (CORS)
Continues Operation Reference Station (CORS)
Why Network RTK (CORS)

- Network of Single Reference Stations & Their Coverage
Why Network RTK (CORS)

- Improve accuracy, reliability and availability (precisely model distance dependent errors in a region)
- Reduce the number of RSs needed (inter-station distances > 80 km) & huge saving in infrastructure construction (~80% less RSs)
- Expand rover-to-nearest-RS baseline > 40 km
- GSM/GPRS/3G link (better signal penetration)
Why Network RTK (CORS)

- Network RTK (CORS)
Network RTK (CORS)  
Advantages over Conventional RTK

- Modelling GPS errors over the entire network area
- Increased positioning robustness against RSs failures
- Increased mobility and efficiency—no need for temporary RSs & one person surveys!
- Quicker initialization times for rovers
- Extended surveying range
- No restriction on the network size (regional, national, global)
- Capable of supporting multiple users and applications
- Continuous operation 365/24/7
- Provide data & corrections in a consistent datum
- Apart from RTK GPS corrections, other services provided include:
  - RINEX datasets for post-processing
  - GPS corrections for DGPS (one stone two heads)
  - Wide exploitation for geospatial, meteorological, transport, environmental and engineering applications
- Allow central control and monitoring of all stations/high integrity monitoring scheme
Main Applications

- Land Survey
- Machine Control
- Agriculture
- Precise Timing
- Drive Test
- Aerospace
- Deformation monitoring
- Unmanned system
More Applications
Land surveying and GIS

• BeiDou is the big motivation
Deformation Monitoring (Kuwait)

National Bank
CORS in Uganda

- ComNav Technology Ltd. is the major provider and partner
China National CORS

- ComNav Technology Ltd. is the major provider and partner
EagleCORS

- ComNav Technology Ltd. is the major provider and partner
EagleCORS

• How to connect?

CONNECT TO EAGLE CORS UGANDA

IP: 216.104.207.102 PORT: 7906
EagleCORS

- How to connect?

Request for login credentials on www.eaglecorsuganda.com or WhatsApp EagleCORS on +256782817486

Connection credentials will include;
IP: 216.104.207.102
Port: 7906
User: 
Password: 
Sourcelist: SRTK, RTCM32-MSM4
EagleCORS

• Benefits?

• No need to site calibrate. We are your active stations.
• Assured CM accuracy 24/7 with precision and reliability.
• Seamless transmission on all GNSS brands including ComNav T300, Trimble R10, Hi-target series, Topcon etc
• Get to enjoy VRS technology or Single base technology.
• No need to spend on extra base unit in areas of coverage.
• Increased robustness and greater gps error modelling power.
• Free Static data download 365/24/7
• Absolutely free connection.
EagleCORS

- Constraints

- High cost of installations
- Unreliable internet connection.
- Limited viable and sound infrastructures
- Limited users and experts.
- Fewer numbers of maintenance experts or repair engineers.
- No research and development centers.
- etc
LET'S BUILD UGANDA TOGETHER
THANKS FOR LISTENING