Ghana's First Amateur Ground Station

Presented by: Aaron Yankey-Antwi (9G1-IC)
OVERVIEW

- Perspective
- Steps
- Amateur Ground Station (G.S.)
- Hardware
- Software
- Platform
- Results
- Conclusion
Ghana

No Amateur Ground-Stations

1 Amateur operators (Manfred Quarshie)

en.wikipedia.org/wiki/Amateur_radio_operator#Demographics
STEPS

- First Step
- Second Step
AMATEUR G.S.

• Location
  - 6.1094 N 0.3020 W

• Developer
  - All Nations University College
HARDWARE

• TS2000
  - Restricted frequency spectrum (Bad for testing)
  - More hardware requirements (Spectrum Analyzers)

• Universal Software Radio Peripheral (USRP)
  - Unrestricted frequency spectrum (Good for testing)
  - Less hardware requirements
SOFTWARE

• Windows
  - Features
    - Closed source
    - More of support for USRP

• Linux
  - Features
    - Open source
    - Less support for USRP
  - Options
    - Gnuradio (No DSP, No Time)
    - gqrx (No TX)
    - Sodaradio (No Doppler tuning, No FM uplink)
PLATFORM

• Distribution
  • Ubuntu 14.04
• Radio interface (SoDaRadio)
  • SOCAT, Hamlib
• Routing (Audio)
  • Server (Jack Audio, Pulse Audio)
  • Client
    • Audacity - recording
    • Fldigi - decoding beacons
    • Pulse audio
    • QSSTV
    • VLC
    • SoDaRadio
    • Soundmodem (AX.25)
• Prediction and Rotor Interface
  • Gpredict
RESULTS

• Videos (SSTV)
  - ISS

• Beacons
  - KKS, Jugnu, SRM, etc

• Packets

• Voice
NEXT STEP

- CubeSat
CONCLUSIONS

• Our second step to space is the first in Sub-Saharan Africa.

• More Amateur operators.

• Strategic location of CubeSats (Relay of Data)
THANK YOU

ありがとうございます

- https://github.com/angelnoraa/noraa-issl-comms
- http://sourceforge.net/projects/sodaradio/
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University of Illinois CubeSat
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