

# Portable WLAN Programme

Networking for  
off-the-grid locations



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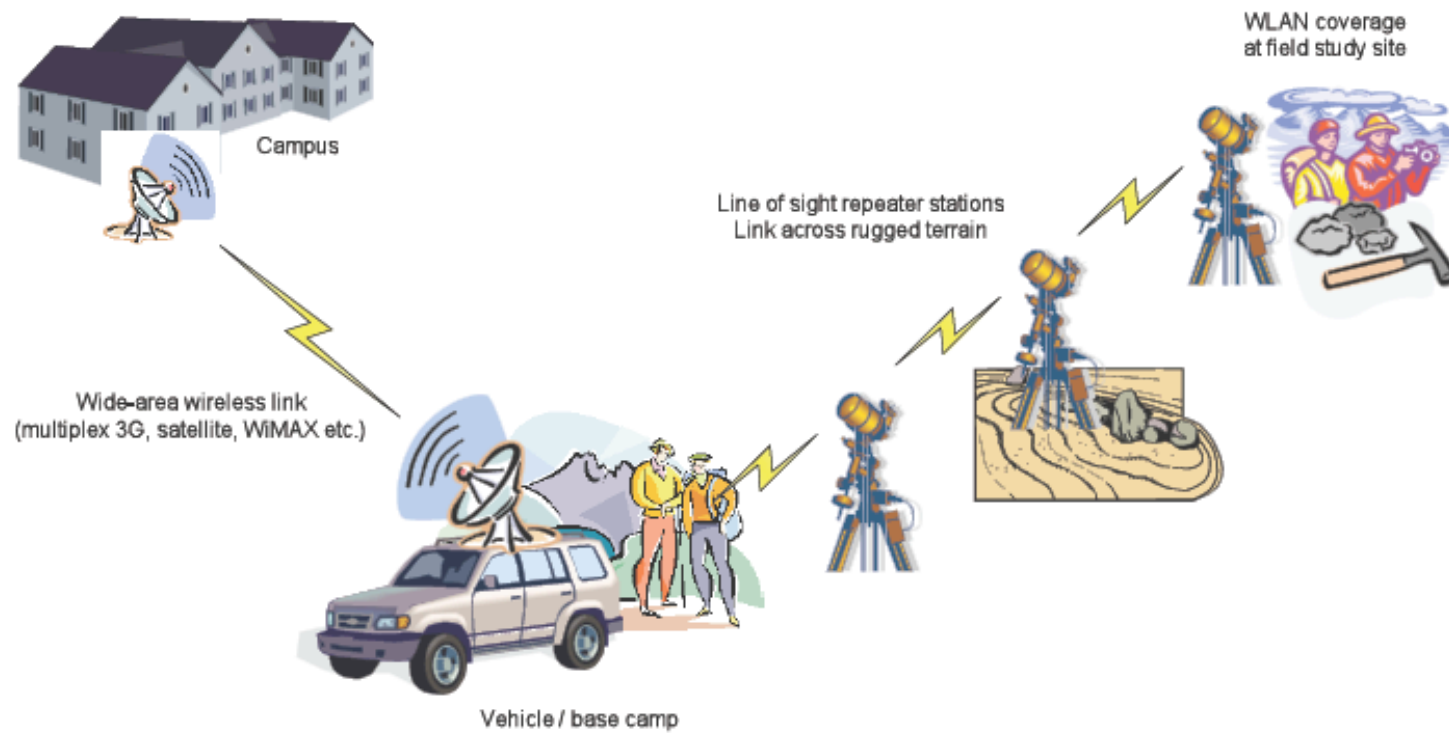
# Portable WLAN Programme

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- Aim to develop:
  - A portable, rugged WLAN infrastructure for temporary deployment in remote and difficult terrain by non-specialist staff to support field study in various disciplines
  - Developing a wireless wide area backhaul solution to connect the 'base camp' to the campus or JANET network

# Portable WLAN Programme

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# Programme participants

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- Lancaster University
  - Mountain rescue support: custom-built network points with WiFi, 3G and Satellite connectivity; 802.15.4 backhaul protocol; Mesh local routing
- Leeds Metropolitan University
  - Investigating mobile classroom in the field: Asus Eee PC netbooks with local WiFi; trials in the Lake District and Bradford

# Programme participants

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- Orkney College
  - Supporting archaeology and geophysics fieldwork on the Orkney Islands: internet access; one location for a few weeks; satellite Internet connection with a local WiFi network
- Uni of Strathclyde & Northumberland College
  - Mobile learning centres for vocational training: computers, course resources, and Internet connectivity in remote areas of Northumberland

# Programme participants

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- The Open University
  - Remote access to fieldwork courses: multiple locations per day; WiFi local network; photos, live video streams and VoIP; ADSL, 3G and satellite backhaul

# The Open University

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- Enabling Remote Activity (ERA) Project
  - Use a portable WLAN to provide the temporary network infrastructure to share photos, video and voice data
  - Remote access: to give geology fieldwork students access to difficult to reach locations
  - Remote collaboration: to enable lab and field based students to undertake collaborative fieldwork

# ERA Project

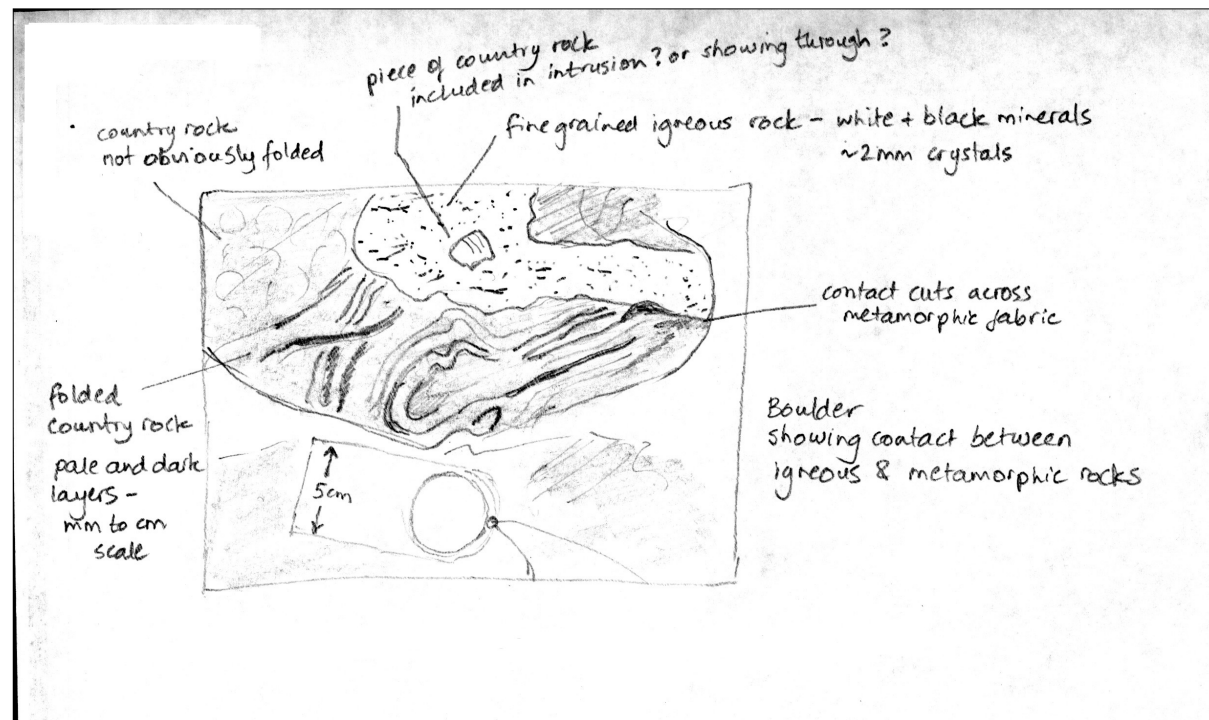
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- What geologists need to see



# Photographs

- Locality 2: Flat exposure near tree line



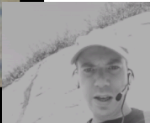
# Voice

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# Video

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# Example fieldwork activity

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- Howick Haven (August 2009)



# Example fieldwork activity

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- Devon Great Consols mine (March 2010)



# Portable WLAN toolkit

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- Battery powered
- 802.11b/g network (wired WiFi bridges)
- Netbooks (Asus Eee PC 701s and 901s)
- WiFi camera with Bluetooth associated GPS module
- Webcams, IP video cameras and video encoders
- VoIP (Asterisk server with Twinkle or Ekiga softphone clients)

# Backhaul trials

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- ADSL broadband
- 3G mobile broadband
  - 3G dongle in a WiFi router
  - APN: Public IP (e.g. 3internet vs three.co.uk)
- Satellite link
  - Thrane & Thrane Explorer 500
  - Inmarsat (pre pay SIM card)
  - Transparent IP (+\$20 per month)

DynDNS  
service

# Backhaul trials

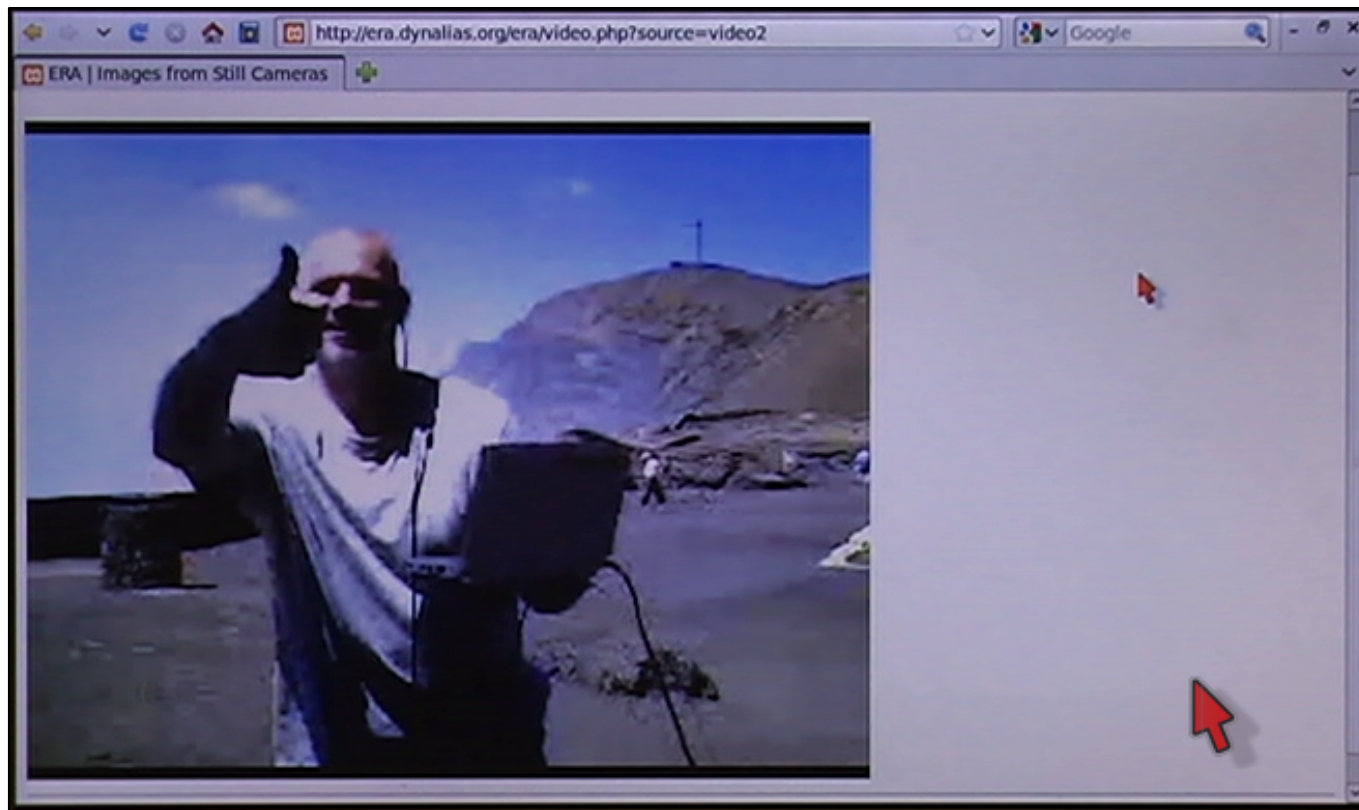
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- Masaya Volcano, Nicaragua (Feb 2010)
  - ADSL broadband
    - Comparable to UK (double NAT'd)
  - 3G mobile broadband
    - Dongles and SIM unavailable (but coming soon)
  - Satellite link
    - Photos, video and VoIP over a standard data link

# Backhaul trials

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- Masaya Volcano, Nicaragua (Feb 2010)



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  - The Open University
- Trevor Collins <t.d.collins@open.ac.uk>
- Website: <http://projects.kmi.open.ac.uk/era>