Title
SEI2: Wide Area Wireless Networks for Geophysics

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Authors
Paul Davis
Allen Husker
Igor Stubailo
et al.

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Wide Area Wireless Networks for Geophysics

Mexico Experiment: Deployment (May 2005)

- Most earthquakes in Mexico occur at the coast.
- 1985 Mexico Earthquake destroyed some buildings and left others standing.
- Analysis of seismic wave propagation from coastal earthquakes will aid in understanding this phenomenon.

- Volcano-creating magma should occur when slab is at ~70 km depth, but volcanoes seen when slab is at ~100 km.
- Array will allow us to map magma path by providing the upper plate and subducted slab geometry, and also an estimate of the viscosity in the mantle wedge.

Mexico Experiment: Testing and System Integration (January, 2005)

17 hop wireless test
- Successfully tested link quality and throughput with simple file mover generating 1 min files on each node
- 1 Mbps through last 2 mile long hop at 100x Mexico rate
- Increased file rate to 120 MB/h to find the throughput limit.
- Queue was stable with 1-2 entries
- With Roofnet routing and possible interference from other nodes, every node could see each other

Scouting trips
- Designed waterproof rugged iPAQ enclosures to use with external antennas.
- Proved very convenient and useful in the field environment.
- Better than laptops, no booting required.

CENS testbed
- Field tests of acquisition software and Roofnet routing are providing data for further development
- Testing of distributed network timing
- Ongoing software and hardware integration.
- Testing of CDCCs and Q330s in an extreme hot environment, preparing for Mexico deployment.

Garner Valley Experiment: Data Acquisition and Dynamic Routing (August 2004)

- Collaborative study conducted by USGS, UCSD, UCSC, UTSA, and UCLA
- CENS to deploy 9 sets of broadband sensor pairs (Guralp 3T) and provide 6 sets of weak motion sensors (Mark Products L4)
- T-Rex Seismic Shaker Truck to generate ground waves