



U.S. ARMY  
**RDECOM**

Radio Frequency Communication  
Survivability Development



**S&T Campaign: Assessment & Analysis**  
*Assessing Mission Capability of Systems*

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**Research Objective**

- Improve radio communication performance using:
  - Electronic warfare (EW) mitigation
  - Modeling and simulation
  - Digital signal processing
  - Radio frequency (RF) Laboratory investigations



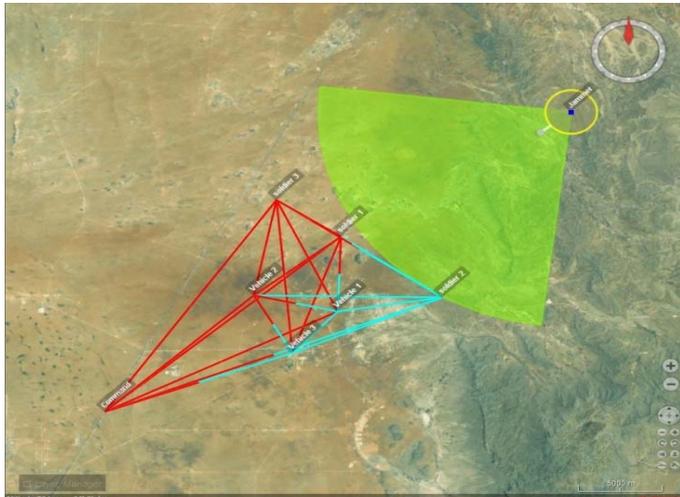
RF Battlefield Environment

**ARL Facilities and Capabilities Available to Support Collaborative Research**

- Extensive RF laboratory equipment/facilities
- Sage – RF communication propagation analysis tool
- Subject Matter Expertise:
  - RF communication
  - Modulation techniques
  - Networking
  - RF propagation
  - Antenna
  - RF modeling

**Challenges**

- New radio communication techniques allowing unencumbered communication in the congested and contested electromagnetic spectrum
- Conduct EW and RF analysis earlier in the development cycle



SAGE – RF Communication Propagation Model



Communications Electronic Warfare Instrumentation System (CEWIS)

**Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration**

- Knowledge of potential new/novel RF communication techniques
- Expansion of current EW laboratory investigation methods
- Knowledge of new/novel modeling techniques for open – air RF propagation