



RESEARCH
NAVAL POSTGRADUATE SCHOOL

Problem:

The United States Department of Defense communication architectures are presently designed to support large scale fixed organizations but inadequate in tactical level environments. These enterprise communication systems rely primarily on satellite mediums. They are not readily available or affordable to support multiple operators in various tactical locations.

Approach:

Our goal is to address these tactical communications inadequacies by leveraging commercial-of-the-shelf (COTS) technology and introduce them to existing systems. While addressing these deficiencies, we also want to minimize the need to develop new hardware and avoid cumbersome acquisition programs.

Progress:

Proof of concept was tested with the use of Raven 11B, Wave Relay Quad Radio, and Wave Relay Single Board Module. The test performed used three nodes. Two of the three nodes were in static positions and the third node was the Small-UAS. The test results proved that the airborne relay enables beyond line of sight transmissions of both voice and data. The test parameters were 2 kilometer radius, small-UAS at 400 AGL, radios transmitting at 2.3 GHz.

Future:

Over the next six months we will continue to acquire COTS payloads with a smaller footprint to increase small-UAS endurance time. The tests will be more dynamic in nature to prove the concept enables persistent communications on the move. We are planning to introduce a second small-UAS to extend communication time.

Benefits:

- Beyond Line of Sight
- Persistent Communications on the Move
- Extended Range
- Data and Voice Links
- Leverage Existing Systems

