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MISL Says "Aloha!" from Hawaii during Island Marauder Exercise

This past Fall, team members from TATRC's Medical Intelligent Systems Lab (MISL) traveled to Oahu, Hawaii, where they performed training, network integration, and testing of telemedicine systems in support of the *Island Marauder* exercise. This exercise was a continuation of initial testing that was done at the *Bold Quest* Exercise at Fort Stewart, GA in October of 2017, where the lessons learned proved to be invaluable for the success of the Island Marauder Exercise. At both of these events, TATRC personnel participated in transport telemedicine final integration, flight electromagnetic interference (EMI) validation, and flight testing through sponsorship of the Program Manager, Aviation Systems (PM AS). The research objective was to characterize and evaluate the telemedicine capabilities supported by the Iridium Satellite Radio system and Cellular Radio Systems. During the evaluation periods, TATRC staff assisted with conducting teleconsultations and tele-mentoring sessions using these systems to connect flight medics in a UH-60 helicopter with telemedicine evaluation personnel on the ground at Wheeler Army Airfield and Emergency Room personnel at Tripler Army Medical Center (TAMC). Evaluation of PM AS's AeroMednet network, which supports medical communications and off-boarding of patient medical information from the MEDEVAC aircraft, was also conducted.

An exercise during the Island Marauder testing where personnel on the ground tested telemedicine capabilities between their teams and the flight medics aboard UH-60 helicopters to support medical communications and off-boarding of patient medical data.

Mr. Larry Markins, Field Support Engineer, Ms. Tee Dockery, Software Engineer, and Ms. Teresa Guthrie, Project Officer represented TATRC's MISL at the exercise. While there, each had a unique and specific role which was to assist with training and integration, and support flight operations for the TEMPUS-Pro patient monitor and tele-mentoring telemedicine system and the AeroMednet Ground-to-Air-to-Ground tactical network. They also provided training to the flight medics for filling out the electronic Tactical Combat Casualty Care (TC3) card on the Army NETT Warrior End User Device (EUD), using the BATDOK application developed by the U.S. Air Force Research Lab (AFRL) and the SensoTOUCH platform from VitalTech Affiliates LLC, with whom TATRC has a Cooperative Research and Development Agreement. This EUD was not evaluated in flight because it does not currently support real-time transmissions of patient data, but feedback was collected to aid future design and programming decisions for both technologies.

During the exercise, the AeroMednet and inflight communications systems performed very well with the TEMPUS-Pro system and had no loss of communications during flights that covered the entire island of Oahu. Breathtaking aerial photographs of the north shore of the island were able to be transmitted with no problems to the MISL personnel sitting indoors in the hangar. Using the 3G cellular network, transmission of vital signs and estimated time of arrival from the MEDEVAC aircraft and telemedicine consultations from Wheeler and TAMC were achieved successfully.

Ms. Tee Dockery, MISL Software Engineer stated, "It was very helpful to get direct feedback from the flight medics. Their specific and invaluable insights will assist us greatly in the future developments for this technology."