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Contact: Jim Donovan/Sharon Sebaly
Publications and Information Office
(404) 894-3405

RADAR PROJECT AT TECH TO SAVE MONEY FOR MILITARY

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ATLANTA, GA.....One of the many projects in radar research and development underway at Georgia Tech's Engineering Experiment Station is known as EROS (Environment and Radar Operation Simulator) and is significant in that it is a hardware simulator, not a computer simulator, and the EROS can save the military money in testing radars and radar systems.

The hardware facility is electrically connected to a radar and simulates the radar's external world in producing synthetic backscatter. The EROS concept, its requirements and its potential capabilities were identified by the Combat Surveillance and Target Acquisition Laboratory of the U.S. Army Electronics Command (ECOM).

The function of EROS, according to Tech's Eric S. Sjoberg, project director in the Radar Instrumentation Laboratory, is to produce a synthetic controllable radar signal consisting of simulated returns from a variety of targets and clutter in battlefield environments.

EROS has many possible uses. It can serve as a cost-effective replacement for radar field tests by providing realistic, repeatable and controllable laboratory experiments; it can assist radar maintenance in identifying faulty radars and in check-out after repair; and it is an aid in radar operator education.

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A related program being proposed and developed for the application of the EROS is called LARIAT and is being formulated by ECOM for application of the EROS capabilities. This proposed program will automate the detection of unauthorized human intruders at military bases.

According to Sjoberg, the EROS system translates scenario information into signal data in a form appropriate for real-time simulation. During the real-time simulation, the EROS system combines scenario data, signals from the subject radar, and operator commands into realistic radar backscatter, which is applied to the radar receiver. This form of simulation permits laboratory testing as an alternative to field testing and has a number of potential advantages: EROS testing promises to be less expensive than field testing; the results are controllable to a high degree of scenario detail; and the tests are repeatable. Signal insertion at frequencies other than radio frequencies permits simulated field testing of specific receiver componenets without having to incorporate this component in a complete radar.

In principle, Georgia Tech researchers find that it is also highly desirable for EROS to be applicable to all existing troop surveillance radars and to embody sufficient flexibility to accommodate as yet unspecified radar designs.