

## Tactical Satellite-3

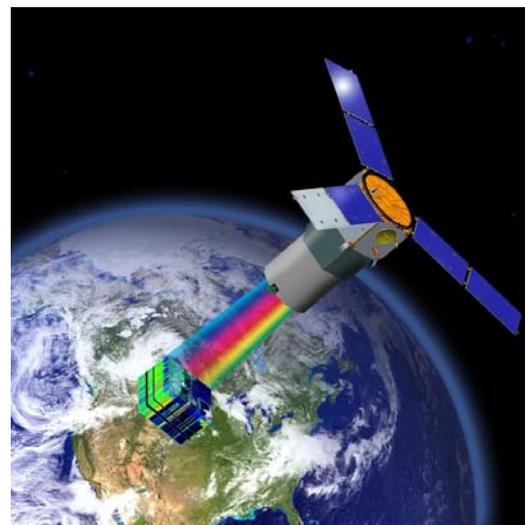


Scheduled to launch on May 5, 2009, the Tactical Satellite-3 spacecraft features an onboard processor, which will provide real-time data (within 10 minutes of its collection) to the combatant commander in the theater of interest. TacSat-3 project partners include the Army Space and Missile Defense Command, the Dept. of Defense's Operationally Responsive Space office, the Office of Naval Research, the National Geospatial-Intelligence Agency, and the Air Force Research Laboratory's Sensors Directorate.

Originated in 2004 as part of the Responsive Space Initiative addressing the military's need for responsive, flexible, and affordable systems operating in the cosmos, TacSat-3 serves as the inaugural small satellite program to participate in a formal payload selection process based on the recommendations by the combatant commands and a review by a flag officer panel. The spacecraft consists of three distinct payloads: the Advanced Responsive Tactically Effective Military Imaging Spectrometer hyperspectral imager, the Office of Naval Research's Satellite Communications Package, and the Space Avionics Experiment.

First, as the mission's primary experiment, the ARTEMIS HSI, developed by Raytheon Co., will rapidly supply target detection and identification data, as well as information related to battlefield preparation and combat damage assessment. Second, the SCP trial will collect data from sea-based buoys and transmit information back to a ground station for expeditious communication to the warfighter. Third, the AFRL-

designed SAE payload will validate plug-and-play avionics capability, which involves the use of reprogrammable components to integrate the experiment and the spacecraft structure. Weighing less than 400 kilograms (880 pounds), the small satellite will also demonstrate a first generation modular bus providing the adaptability for future small satellite missions.



The \$60M spacecraft, consisting of the ATK Space Systems' satellite bus and the trio of experiments, has met all key milestones for launch. In addition, the three payloads have been integrated and tested at the Air Force Research Laboratory's Space Vehicles Directorate, Kirtland AFB, N.M. All systems level performance tests have also been completed and space qualification evaluations, including random vibration and thermal vacuum testing, have been successfully accomplished. Final checkout of flight software has been completed, and the spacecraft is at the Wallops Island, Va., lift off site where it will be mated with the launch vehicle.

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As a key team member in the TacSat-3 program, the Space and Missile Systems Center's Space Development and Test Wing, also located at Kirtland AFB, N.M., is providing the Orbital Sciences Corp.'s Minotaur I launch vehicle. The four-stage rocket consists of two structures taken from retired Minuteman intercontinental ballistic missiles, and another two stages from Orbital's Pegasus booster.

Launch will occur from the Mid-Atlantic Regional Spaceport located at the NASA Wallops Flight Facility, Wallops Island, Va. In addition to fulfilling this significant role, SMC's Space Development and Test Wing will assist with mission operations during TacSat-3's planned, one-year flight in Low Earth Orbit at approximately 425 kilometers (264 miles) altitude.

