# Thermal IR Multispectral/Hyperspectral Imaging Sensor Simulation

Technology Service Corporation (TSC) has developed a physics-based high-fidelity thermal IR multispectral/hyperspectral sensor simulation (IRHSS) that combines accurate modeling of targets and terrain features with the capability for handling large scene areas. IRHSS will generate accurate hyperspectral/multispectral imagery for a wide range of user-selected targets, terrain backgrounds, atmospheric conditions, and sensor models. The simulation incorporates a thermal/radiance model based on DoD's MuSES, which is a standard for high-fidelity thermal modeling in both the defense and commercial sectors. The simulation also includes DoD's MODTRAN atmosphere model, and a sensor model that can be configured for either multispectral or hyperspectral sensors. IRHSS is being used at the Air Force Research Laboratory (AFRL) and the US Army Armament Research, Development and Engineering Center (ARDEC).

WHY HYPERSPECTRAL IMAGING SENSOR SIMULATION?

Hyperspectral imagers simultaneously capture both spatial and spectral information; they are used in many areas, including target and feature detection, terrain classification, agricultural monitoring, and food processing. Hyperspectral imaging sensor simulation is essential to sensor developers because it reduces the need for expensive and time-consuming field tests. One important defense application is automatic target recognition (ATR), where IRHSS can provide accurate simulated inputs for ATR algorithm development and evaluation.
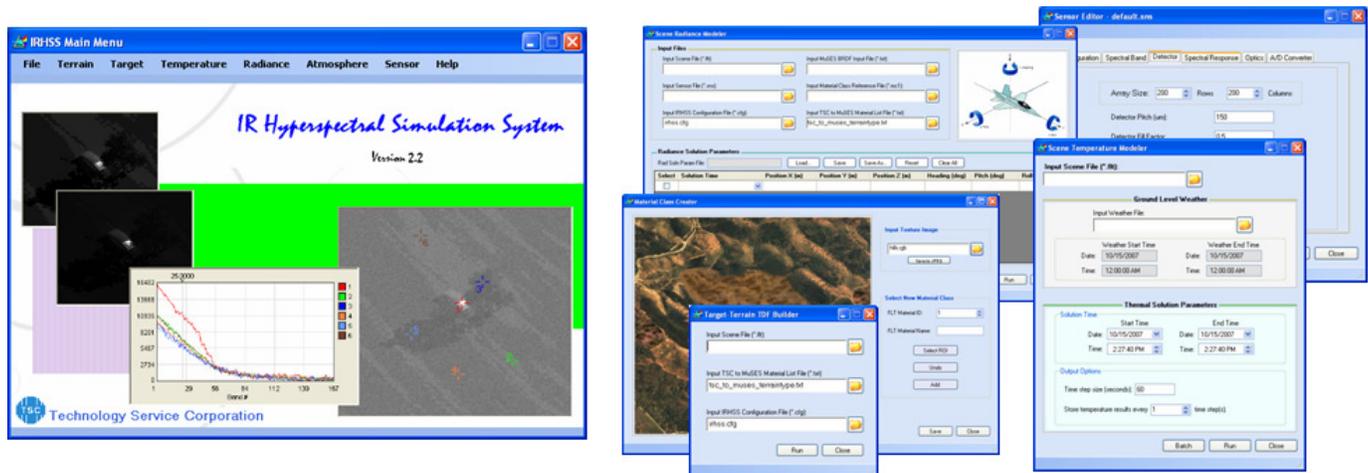
ABOUT TSC

TSC is a leader in remote sensing technologies and has extensive experience in sensor simulation. Our featured software, IRHSS, can be run as a standalone application or as a plug-in to existing software. We can customize IRHSS to fit your specific needs or applications. In addition, TSC also provides RealIR™ (an application program interface for real-time IR sensor simulation) and MSP (a real-time scene generator for IR, Visual, and Synthetic Aperture Radar sensors with common databases for scene, targets, and environment).

CONTACT INFORMATION

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