Hyperspectral + LIDAR or IFSAR
Fusing Spectral Profiling & Terrain Modelling Capabilities

Compatible with all ITRES Sensor Systems

LIDAR/IFSAR Fusion for:
• Image Orthocorrection
• Data Visualization
• Image Analysis

Data courtesy JALBTCX

Fused SHOALS-300T LIDAR & CASI-1500 Imagery
New Orleans, Louisiana
Post Hurricane Katrina, October 2005
ITRES Applications
Airborne Hyperspectral Mapping

**Hyperspectral + LIDAR Data Fusion for Orthocorrection**

Digital Terrain Models (DTMs) from LIDAR (Light Detection and Ranging) or IFSAR (Interferometric Synthetic Aperture Radar) sources are used to orthocorrect hyperspectral imagery from ITRES sensors. Doing so removes terrain-related distortions, improving positional accuracy in the output imagery. DTM integration is accomplished using proprietary standard processing software. LIDAR and IFSAR systems can be co-mounted with ITRES sensors for coincident data collection or data can be collected separately and fused in post-processing.

Fusion of hyperspectral and DTMs also allows for mapping drainage networks, potential transportation corridors, urban development, and line-of-sight analysis. When airborne imagery is draped over co-registered elevation models, a three-dimensional perspective of an area can be represented at small mapping scales.

**Hyperspectral/LIDAR Fusion Assists in Change Detection**

Draping hyperspectral imagery over LIDAR DTMs serves as an easy way to improve data visualization and interpretation. The images at left show VNIR CASI imagery draped over a LIDAR DTM, before and after highway construction in Eddyville, Iowa.

**Strengthening Spectral Identification with Terrain Modelling**

LIDAR and IFSAR DTMs are also used to augment the spectral discrimination power of hyperspectral imagery during analysis and product generation.

Interested in a similar project? Contact ITRES for further information by telephone, e-mail at info@itres.com, or visit us on the web at [www.itres.com](http://www.itres.com).