2006 CIVIL COMMERCIAL IMAGERY EVALUATION WORKSHOP

U.S. Fish and Wildlife Service *National Wildlife Visitors Center*, **Laurel, Maryland**
Sponsored by the NASA/NGA/USGS JACIE Team   March 14–16, 2006

users interested in collaborating on this project, either to participate in beta testing or provide test imagery.

Project Objectives:

- Co-registration of input images to subpixel accuracy – input data is presumed to be orthorectified

- Co-registration tools will be tested with NASA satellite data, as well as data from commercial high-resolution satellites, digital camera systems, and scanned aerial photography.

- Software will be delivered to NASA in the format of a software development kit (SDK), to enable integration of these tools into other software.

Cropland Classifications of Coincident TM and AWiFS Imagery
David M. Johnson, USDA/National Agricultural Statistics Service

Reflectance-based, Vicarious Calibration Results for High-resolution Commercial Sensors
Nathan Leisso, University of Arizona

Poly-Pattern Compressive Segmentation of ASTER Data for GIS
Wayne Myers, Eric Warner, and Richard Tutwiler, Penn State Institutes of the Environment

Pattern-based segmentation of multi-band image data, such as ASTER, produces one-byte and two-byte approximate compressions. This is a dual segmentation consisting of nested coarser and finer level pattern mappings called poly-patterns. The coarser A-level version is structured for direct incorporation into geographic information systems in the manner of a raster map. GIS renderings of this A-level approximation are called pattern pictures which have the appearance of color enhanced images. The two-byte version consisting of thousands of B-level segments provides a capability for approximate restoration of the multi-band data in selected areas or entire scenes. Poly-patterns are especially useful for purposes of change detection and landscape analysis at multiple scales. The primary author has implemented the segmentation methodology in a public domain software suite.

Poly-Pattern Compressive Segmentation of ASTER Data for GIS

Wayne Myers[1], Eric Warner[1] & Richard Tutwiler[2]

Pattern-based segmentation of multi-band image data, such as ASTER, produces one-byte and two-byte approximate compressions. This is a dual segmentation consisting of nested coarser and finer level pattern mappings called poly-patterns. The coarser A-level version is structured for direct incorporation into geographic information systems in the manner of a raster map. GIS renderings of this A-level approximation are called pattern pictures which have the appearance of color enhanced images. The two-byte version consisting of thousands of B-level segments provides a capability for approximate restoration of the multi-band data in selected areas or entire scenes. Poly-patterns are especially useful for purposes of change detection and landscape analysis at multiple scales. MOSAIC (Mapping Ordered Segments As Image Compression) serves as a mnemonic for this strategy. The primary author has implemented the segmentation methodology in a public domain software suite.

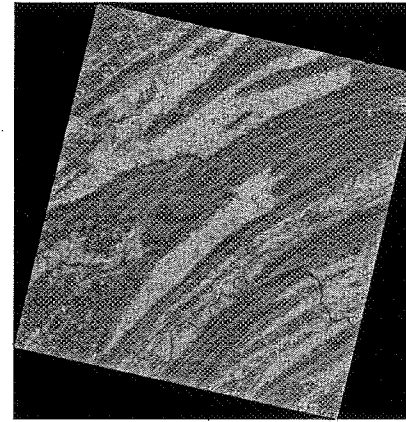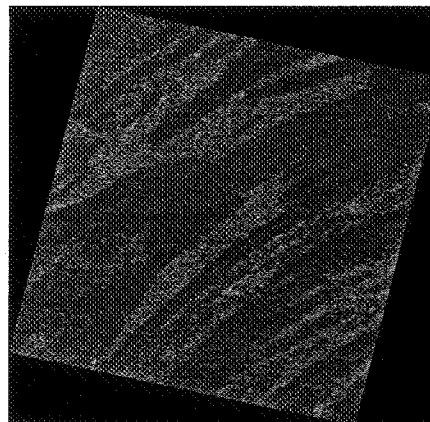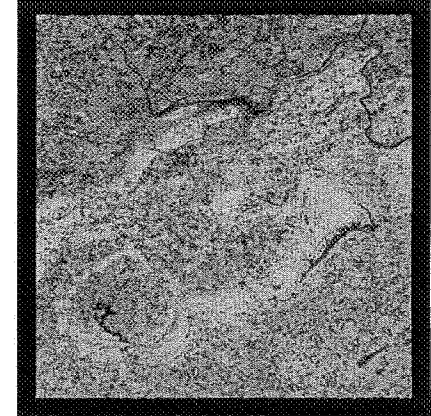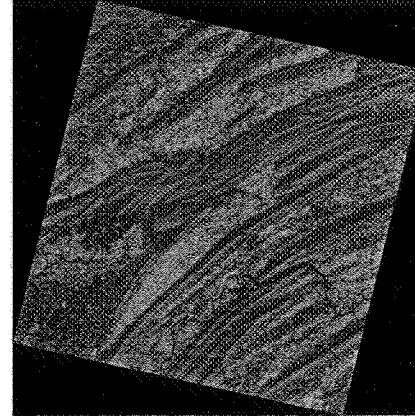**Multi-band image in binary, band-interleaved-by-pixel** ➡ **A-Level (single byte) Poly-pattern image made by stacked segment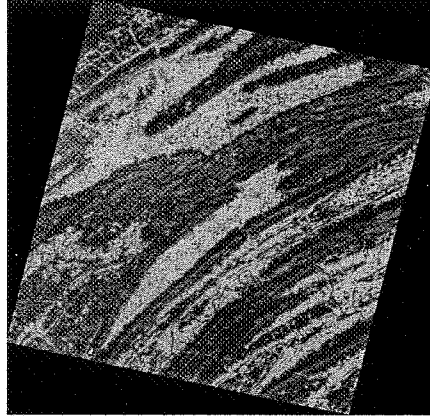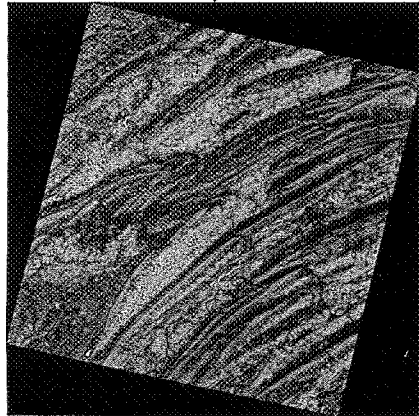ation** ➡ **Intensity and Index Tables** ➡ **Color Transfer Tables** ➡ **Color Composite Pattern Pictures** ➡ **Mapping Methods (Change Detection)**

B-Level (two byte) Poly-pattern image made by stacked segmentation

[1]Office for Remote Sensing and Spatial Information Resources
1 Land and Water Bldg.
Penn State University
University Park, PA 16802
(814) 863-0291
wlm@psu.edu
www.orser.psu.edu

psie penn state
institutes of the environment

PENNSTATE
1855

[2]Applied Research Laboratory
The Pennsylvania State University
P.O. Box 30
State College, PA 16804-0030
(814) 863-2188
rlt1@psu.edu
PENNSTATE
ARL