PCI Geomatics and CAST:

A Strategic Partnership for Remote Sensing/ Image Processing Education and Research

www.pcigeomatics.com
www.cast.uark.edu

Center for Advanced Spatial Technologies (CAST)

CAST and PCI Geomatics Center for Excellence in Remote Sensing and Geomatics

Satellite images, aerial photographs, and other remotely sensed data sources offer a wealth of information about our planet. Every day thousands of images of the Earth's surface are produced. Every year new Earth remote sensing platforms are deployed. The quantity of available data continues to increase around the world. Scientists from diverse fields are seeking new and innovative ways to use remote sensing data, image processing techniques, and geospatial technologies to study the Earth, its resources, its people, its past, and its future. At the University of Arkansas' Center for Advanced Spatial Technologies, educators and researchers are using PCI Geomatica software products to unleash the vast potential of remote sensing data (www.pcigeomatics.com).

The new Arkansas Remote Sensing Training Lab located at the University of Arkansas Cooperative Extension Service in Little Rock.

Education

CAST learning laboratories, equipped with the latest versions of PCI software, directly benefit students at the University of Arkansas in a number of ways. Hands-on classes, such as *Digital Remote Sensing*, provide students with real-world experiences in the classroom. Additionally, with access to the full suite of PCI software, faculty and graduate students are able to conduct advanced and innovative research in a variety of fields ranging from archeology to zoology. The Center has more than 100 workstations that are available to the campus faculty and staff for research, and there are more than 150 accounts in use.

Education and AmericaView

CAST is working with PCI Geomatics to offer 50 copies of the PCI Geomatica *education bundle* to institutions of higher education around the State of Arkansas. This effort is funded by, and is a part of the national AmericaView Project (www.americaview.org). AmericaView is a USGS sponsored program, through which state consortia collaborate with USGS to enhance the use of remotely sensed data. Each participating state creates a state consortia, and the ArkansasView consortium has benefited greatly from this special relationship with PCI (www.cast.uark.edu/cast/arkansas_view). As part of ArkansasView, a remote sensing training lab was established at the University of Arkansas Cooperative Extension Service in Little Rock and was equipped with Geomatica. Several colleges and universities throughout Arkansas are also integrating PCI into their remote sensing curriculum through the ArkansasView Higher Education Software Assistance Program.

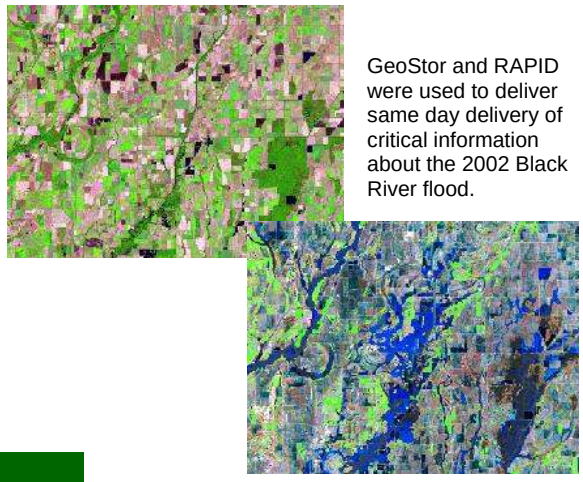
Technology/Data Distribution Research

GeoStor: PCI software plays a critical role in current CAST research on the distribution of raster spatial data on the Internet. GeoStor is Arkansas' national award-winning spatial data warehouse and distribution center (www.cast.uark.edu/cast/geostor). GeoStor uses PCI's robust *File Utility* tools and GeoGateway technology enable GeoStor to subset, mosaic, and reproject raster data to many software formats.

RAPID: Specialized applications have been built around GeoStor. The Real-time Acquisition and Processing of Image Data (RAPID) (www.cast.uark. edu/local/rapid) project utilizes PCI Geomatica modules and locally developed Java servelets, enabling near real-time access (within six hours) to a variety of satellite data and data products. RAPID features automatic loading of GIS ready-data, derived from Earth observing satellite sensors such as Landsat 7 ETM+, into GeoStor.

Landsat 7 ETM+ L0 Processor: In cooperation with researchers from PCI Geomatics, remote sensing specialists from the University of Arkansas assisted in the development and testing of PCI's Landsat ETM+ L0 Processor module. The L0 processor, successfully tested in October 2002, will enable remote sensing scientists to access data directly, and to preprocess and utilize ETM+ data more quickly than ever before.

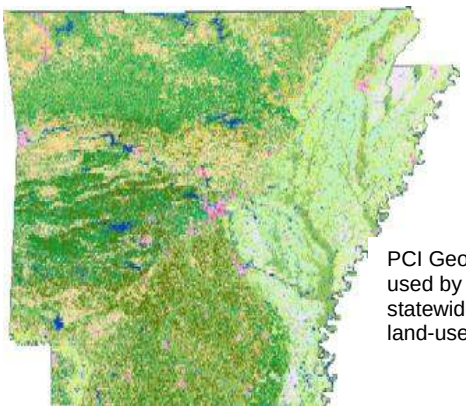
These EAST students were among the first to use satellite data from the RAPID project.



GeoStor and RAPID were used to deliver same day delivery of critical information about the 2002 Black River flood.

Remote Sensing/Image Processing Research

The Arkansas 2000 Land-use/Land-cover (LULC) Project: In the past most land-use maps portrayed a somewhat static, year-to-year, picture of the landscape. The maps generated for the 2000 LULC project depict season-to-season land-use/land-cover patterns. Extensive ground-truth data and a total of 40 Landsat TM scenes were needed to complete the project. PCI provided the muscle, as well as the finesse, that was needed to handle a large-scale mapping project. Combined with other natural resource and socio-economic data, the information delivered by the LULC project is proving to be a valuable information base for natural resource planners.



PCI Geomatica tools were used by the Arkansas 2000 statewide, multi-season land-use mapping project.

About CAST: The Center for Advanced Spatial Technologies (CAST) focuses on education, research, and service to the public, which forms the backbone of the CAST purpose and mission. CAST specializes in serving the academic community through its emphasis on university courses in Geographic Information Systems (GIS), Global Positioning Systems (GPS), and related technologies. CAST's research efforts, through multiple grants awarded each year, compliment and greatly benefit its educational and public service focus by allowing staff and students to stay on the leading edge of emerging technologies. CAST is also active in a wide range of services to the university, community, state, nation, and internationally. By building upon the expertise of the staff; the cooperation of the university community and state, regional, and local governments; the support of corporate sponsors; the assistance of federal agencies; and many others, CAST can blend its focus on education, research, and public service to multiply the benefits of all these cooperative effort.

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