2nd Annual New York State

Remote Sensing Symposium

Developing Partnerships in Remote Sensing and GIS

A Joint GIS/SIG and CNYASPRS Conference

Sponsored by

Central New York Region of the American Society for Photogrammetry & Remote Sensing

GIS/SIG

Cosponsored by

State University of New York College of Environmental Science and Forestry

The Institute for the Application of Geospatial Technology at Cayuga Community College

Links: General / Registration / Lodging Information
Exhibitors
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Presentation Abstracts

Preliminary Program and Registration flyer (Adobe Acrobat .pdf file)

This year's NYS Remote Sensing Symposium will be part of a joint conference with the Rochester area GIS/SIG. The annual GIS/SIG Conference will take place on April 16, and will include such topics as emergency preparedness and response; web-based mapping; local and regional government; public works; and special applications.

The theme for the 2nd Annual New York State Remote Sensing Symposium is "Developing Partnerships in GIS and Remote Sensing." Morning contributed presentations will take place concurrently with remote sensing workshops sponsored by The Institute for the Application of Geospatial Technology at Cayuga Community College (IAGT). Afternoon presentations will be in one general session.

Preliminary Program Information

April 16, 2003

8 am - 5 pm GIS/SIG Conference
(for info: *www.gissig.org*)

Evening: CNY ASPRS Dinner and Annual Meeting

5 pm Reception with cash bar

6 pm CNY ASPRS Annual Dinner (additional fee)

8 pm CNY ASPRS Annual Meeting &
Student of the Year Award Presentation

Speaker: *ASPRS Vice President Russell Congalton*

April 17, 2003

Remote Sensing Symposium Workshops

These workshops require advance registration. Space is limited.

8:30-10 am **Workshop 1: Introduction to Remote Sensing**

This workshop will be an introduction to current satellite remote sensing systems and activities. Topics include an overview of remote sensing concepts, examples of current generation sensors (including both government and commercial satellites), data types, imagery examples, software and use of imagery in various applications. Demonstrations will include obtaining data from current sensors, processing data in ArcView 3.2 Image Analyst, and using data in conjunction with other GIS data for various applications. Presenter: Karen Kwasnowski, IAGT.

10:30-Noon **Workshop 2: Advanced Remote Sensing**

This workshop will be devoted to the use of NASA remote sensing data. The workshop is designed for those who have some experience using satellite image data and are seeking to better understand how NASA imagery can be incorporated into workflows and practices. (New users of remote sensing are also welcome to this workshop, but it is suggested you first attend Workshop 1.) Topics include an overview of advanced remote sensing concepts, methods for acquiring data, NASA data formats, image processing software, and potential data applications. Demonstrations will focus on Landsat data as a basis for working with other NASA data types such as ASTER and MODIS, including data acquisition, georectification techniques, and feature extraction. Demonstrations will use software such as ArcGIS, ENVI and ERDAS for image processing purposes. Presenter: *Emily Constantine*, IAGT.

Morning Presentations

8:30 am **Remote Sensing Process** (Steve DeGloria, Moderator)

Using a Geospatial Library to Organize Your Imagery and GIS Data,
Joan Zelinski, PAR Government Systems Corporation

Land Cover Classification Using Support Vector Machines: Effect of Kernel Functions,
Pakorn Watanachaturaporn, *Manoj K. Arora*, and *Pramod K. Varshney*, Syracuse University.

Differences in Accuracy Assessments Resulting from Variability in Ground Reference Protocols,
Jason Cole, *William Stiteler*, *Russel Aicher*, and *Paul Hopkins*, SUNY College of Environmental Science and Forestry, (SUNY-ESF)

10:30 am **Data Integration and Visualization** (Paul Hopkins, Moderator)

Implementing Data Sharing between Utilities and Municipalities: The NSTAR Cape Cod , Massachusetts Model,
Ralf Platte, James W. Sewall Co.

Overlay of Imagery with Ground-water Model Visualization Using USGS-modelviewer and VRML,
Paul Misut, US Geological Survey.

Creation and Demonstration of an Aerial Flight Visualization Over the Torne Valley in the Town of Ramapo,

Wayne Richter, NYS Department of Environmental Conservation (NYS DEC)

Noon **Lunch with speaker**

Land Use and Land Cover Summary Report and Recommendations, *Ed Freeborn, Visual Geographics*

1:15 pm **Keynote Speaker:**

Dr. Russell Congalton "Students, Teachers, and Scientists_Partnerships in Remote Sensing and GIS," paying special attention to the GLOBE program partnership in Dutchess County.

Dr. Congalton is Professor of Remote Sensing and Geographic Information Systems, University of New Hampshire, and Vice-President of the American Society for Photogrammetry and Remote Sensing (ASPRS). He specializes in the mapping and validation of terrestrial land cover types using various sources of remotely sensed data and image processing techniques; development of spatial databases in support of cultural feature inventories; and environmental science and education projects as part of the GLOBE Program.

2:00 pm **Community Partnerships** (Kerry VanSiclen, Moderator)

Mapping Macrophyte Vegetation in Onondaga Lake Using Remotely Sensed Imagery of Differing Spatial and Spectral Resolutions, *Trevis Gigliotti*, *Paul Hopkins*, *Joseph Mastriano*, *Elizabeth Moran*, and *Lindi Quackenbush*, SUNY-ESF, Onondaga County Dept. Water Env. Prot., and EcoLogic, LLC.

Mapping and Monitoring of Submerged Aquatic Vegetation in the Hudson River, New York, *Eugenia Barnaba*, *S. Findlay*, *S. Hoskins*, and *C. Nieder*, Cornell Univ., Institute of Ecosystem Studies, and NYSDEC/National Estuarine Research Reserve Program

Effective Partnerships in Land Cover: The Lake George Watershed Land Cover Map, *Emily Constantine*, IAGT

3:30 pm **State and Local Partnerships** (Tom Henderson, Moderator)

Origin and Status of the NY Statewide Digital Orthoimagery Program, *Tim Ruhren*, NYS Office of Cyber Security & Critical Infrastructure Coordination (NYS CSCIC)

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A Customer-Oriented View of the NYSDOP, *Tim Ruhren*, NYS CSCIC

2nd Annual CNY-ASPRS Remote Sensing Symposium

"Developing Partnerships in Remote Sensing and GIS"
A Joint GIS/SIG and CNY-ASPRS Symposium

Abstracts Using a Geospatial Library to Organize Your Imagery and GIS Data
Joan Zelinski, PAR Government Systems Corporation, Rome, NY, 315-268-1608, joan_zelinski@partech.com
An open architectural concept is presented, based on the FGDC metadata standard and the Geographic Information Access Specification (GIAS), which allows users and external organizations easy access to the digital geospatial data they need. The distributed geospatial library provides for storage, retrieval, and display of remotely sensed data, GIS data, and other data.

Land Cover Classification using Support Vector Machines: Effect of Kernel Functions
Pakorn Watanachaturaporn, Manoj K. Arora, and Pramod K. Varshney, Department of Electrical Engineering and Computer Science, Syracuse University, Syracuse, NY 13244
Land cover is an important variable for a number diverse applications such as forestry, hydrology, agriculture, environment, geology and ecology. Many natural resource management, planning and monitoring programs depend on accurate land cover information. Classification is the fundamental operation to retrieve land cover information from remote sensing data. The limitations of conventional statistical classifiers such as the most widely used maximum likelihood classifier are well known. A range of potentially new classifiers such as neural networks, rule based decision tree and fuzzy c-means, have been developed. However, these classifiers along with the statistical classifiers have marked limitations in extracting land cover information from hyperspectral remote sensing data. Recently, Support Vector Machines (SVM), having its roots in machine learning theory, has been proposed as an alternative to produce land cover classification. Originally applied in optical character and handwritten digit recognition, and face identification problems, SVM utilizes optimization tools that seek to identify a linear optimal separating hyperplane to discriminate any two classes of interest. When the classes are linearly separable, the linear SVM performs adequately. Often, the classes are not separable linearly. In such cases, the SVM maps the dataset to a higher dimensional feature space and creates a linear optimal hyperplane using a kernel function. A number of kernel functions such as polynomial, sigmoid and radial basis functions can be used. The selection of appropriate kernel function and its parameters, and the optimization technique may be critical to the implementation of SVM. In this paper, we introduce SVM classifier for land cover classification from both multi and hyperspectral remote sensing datasets. We also investigate the effect of different kernel functions and their parameters on the accuracy of classifications from Landsat TM and AVIRIS datasets. The experimental results from both the datasets show a significant variation in classification accuracy of the order of 25 to 35% with the use of different kernel functions and their parameters. The results clearly demonstrate that the accuracy of SVM classifier is highly sensitive to a particular type of kernel function and its parameters.

Differences in Accuracy Assessments Resulting from Variability in Ground Reference Protocols
Jason Cole, William Stiteler, Russel Aicher, and Paul Hopkins, SUNY ESF
Ground reference is an important aspect of remotely-sensed land cover classification, but is often located based on practical constraints, rather than through a theoretically superior and rigorous procedure. An appropriate sampling protocol is expensive to implement, but ensures lack of bias and increases the confidence users can place in results or accuracy assessment. Using conveniently-located reference (whether it is located with ground visits or using photo-interpretation) tends to skew ground reference towards homogeneous, easily identified areas of land cover. Homogeneous reference used for training data will tend to produce more homogeneous classifications. Homogeneous reference used for accuracy assessment will tend to produce statistics that are based on areas that are easiest to classify. This poster will present results of land cover classifications that show that two seemingly valid sets of ground reference, one derived from aerial photos in easy-to-distinguish areas, the other from highly detailed ground reference plots, can return significantly different classification results.

Implementing Data sharing between Utilities and Municipalities The NSTAR Cape Cod, Massachusetts Model
Ralf Platte, Business Development, James W. Sewall Company, 154 Mountain Rd., Salisbury NH 03268, Telephone: 603-648-2737, Fax: 603-648-6524, rplatte@jws.com
Presentation will focus on: Understanding the needs of both parties regarding GIS data, looking at obstacle and how

they were overcome, and developing standards for future data sharing opportunities. NSTAR Gas and Electric has contracted with the James W. Sewall Co. in Old Town , Maine to fly , provide planimetric mapping, and address data for 39 town on Cape Cod in Massachusetts. 1,100 square miles of data will be collected at a resolution and accuracy (1" = 100' map accuracy w/ 4" pixel resolution) suitable for most municipal GIS applications. We will discuss the logistics of the project and the process used by NSTAR / Sewall to make this data available to the local communities. Also covered will be the many obstacles a project like this presents and our approach at overcoming them. From the beginning data sharing was one of the main components of this project , details of which will provide a model for future efforts similar in nature.

Overlay of imagery with ground-water model visualization using USGS-modelviewer and VRML

Paul Misut,USGS,2045 Rt.112Coram, NY 11727, pemisut@usgs.gov

USGS-modelviewer is a computer program that displays the results of transient-state three-dimensional ground-water models in local-model coordinates. (http://water.usgs.gov/nrp/ gwsoftware/modelviewer/ModelViewer.html) To enhance the evaluation of remotely-sensed data, it would be useful to integrate remote-sensing-imagery visualization with the capabilities of USGS-modelviewer. The following techniques are demonstrated: export of a modelviewer object to a VRML file, and text-editing of the VRML file to include a satellite image overlay . A hypothetical example on Long Island, New York is shown (LANDSAT path 013, row 032 of April 14, 2001) and the result is discussed in the context of public-water-supply management.

Creation and Demonstration of an Aerial Flight Visualization Over the Torne Valley in the Town of Ramapo

Wayne Richter, Division of Fish, Wildlife and Marine Resources, New York State Department of Environmental Conservation, 625 Broadway, Albany, New York 12233-4754, wrichter@dec.state.ny.us, 518-402-8958

I demonstrate a one minute simulated flight over a three dimensional perspective rthorectified photographic mosaic draped on a digital elevation model. In addition to the photographic image, the flight shows vector information relevant to the Department of Environmental Conservation's evaluation of the impacts of a proposed project on the state endangered timber rattlesnake. Vector information includes snake telemetry tracks, snake basking areas and the project outline depicted in their landscape position. Use of three dimensional perspective draping greatly facilitates understanding the landscape and potential impacts in the high relief project area. I describe production, using moderately priced, commercially available software and hardware, of a site visualization movie that can be displayed at public meetings without specialized equipment. This movie derives from aerial photographs taken with New York State's photogrammetric mapping camera, scanned in house, and orthorectified with ERDAS Imagine OrthoBASE software. ERDAS Imagine was used to create a composite from the rectified photographs. ERDAS VirtualGIS was used to drape the mosaic over a 10 meter digital elevation model, add ESRI format vector data, and record a fly-through movie.

Land Use and Land Cover Summary Report And Recommendations

Land Use and Land Cover (LULC) Work Group, NYS GIS Standards and Data Coordination Work Group, Ed Freeborn, Visual Geographics

A Land Use/Land Cover (LULC) Study Group was convened in the summer of 2002, as a subgroup of the NYS GIS Standards and Data Coordination (S/DC) Work Group. The purpose of this subgroup was to explore potential for coordination of Land Use and Land Cover (LULC) activities within New York State. This report represents a summary of the findings of that group; the primary recommendation is that a Land Use and Land Cover Work Group be established under the auspices of the NYS GIS Coordinating Body to receive direction from and advise the Coordinating Body on matters concerning LULC in NYS and the region. Establishing a LULC Work Group can assist in promoting and coordinating LULC mapping, management and modeling efforts within the state. This can result in better LULC information for national, state, private and research agencies across New York State at greatly reduced costs in efforts, data and program resources. Through surveys and phone outreach activities the LULC Study Group identified nearly 60 projects that generate, utilize or will soon require LULC information for the NY state region. Additional projects are being added to the list weekly. Information content of these varying projects is broad, and spans many topics such as: · Homeland security and emergency management · Public health studies · Natural resource management · Urban planning · Water quality protection Accurate, current, high resolution LULC was identified as a priority by this Study Group. Detailed needs of NY's LULC community, however, are not fully understood. Defining, coordinating and helping to integrate these needs are valuable services that a LULC Work Group could provide. The LULC Study Group recommends establishment of a LULC Work Group, potentially modeled after the Digital

Orthoimagery Work Group, with the following goals and tasks: · Coordinate data development with national programs and other states · Foster partnerships among LULC developers and users · Ensure that data are made available in readily usable forms · Facilitate collection and exchange of information regarding LULC-related projects, methodologies, data sources and events · Promote technical interchange and development · Identify and synthesize LULC-related needs and requirements

Mapping Macrophyte Vegetation in Onondaga Lake Using Remotely Sensed Imagery of Differing Spatial and Spectral Resolutions

Trevis Gigliotti1, Dr. Paul Hopkins1, Joseph Mastriano2, Dr. Elizabeth Moran3, and Lindi Quackenbush1 1. State University of New York College of Environmental Science and Forestry 2. Onondaga County Department of Water Environment Protection 3. EcoLogic, LLC

The pollution level of Onondaga Lake is the subject of management efforts and media attention at the local, state and national levels. On August 1, 1998, the Onondaga County Department of Water Environment Protection (OCDWEP) began a 15-year Ambient Monitoring Program (AMP) involving Onondaga Lake. The AMP is intended to evaluate the effectiveness of improvements to the metropolitan sewage treatment plant and includes a requirement to monitor the characteristics of macrophyte vegetation in the Lake. Assessing macrophyte vegetation indicates reactions to nutrient loading. The macrophyte assessment in June 2000 interpreted digitized aerial photography and proved to be expensive and time consuming. The goal of this project was to develop cost-effective, semi-automated strategies to map the abundance of macrophyte vegetation in an urban lake environment. The study evaluated the effectiveness of IKONOS and ASTER satellite imagery as an alternative to aerial photography for mapping macrophyte vegetation. Initial image processing focused on isolating and extracting the lake's littoral zone using band ratios and digital bathymetry data. The second phase of processing applied an ISODATA clustering algorithm to a variety of image and derived image layers including Normalized Difference Vegetation Index, chromaticity and texture. The derived image data was incorporated to enhance subtle differences in water clarity, color and surface continuity created by the presence of macrophytes. Finally, the macrophyte vegetation maps were analyzed and standard error matrices and percent cover calculated. Macrophyte maps produced by "heads-up" digitizing scanned aerial photographs provided the baseline for evaluation. Initial accuracy measures show potential for the use of satellite imaging in the OCDWEP's macrophyte community assessment. Future work will evaluate the utility of differing classification techniques and the need for normalizing the image data for lake bottom reflectance.

Mapping and Monitoring of Submerged Aquatic Vegetation in the Hudson river, New York

Eugenia Barnaba, Cornell Institute for Resource Information Systems, S. Findlay, Institute of Ecosystems Studies, S. Hoskins, Cornell Institute for Resource Information Systems, and C. Nieder, NYSDEC/National Estuarine Research Reserve

Resource managers, non-governmental organizations, educators and the general public are being introduced to the value and use of remote sensing and geographic information systems in the Hudson River, New York by way of a long term project to map and monitor submerged aquatic vegetation (SAV) in the river. Long recognized as an important component of a wide variety of aquatic ecosystems, SAV contributes to primary productivity and as habitat for fish. Reliable information on the abundance, distribution and ecological functions of SAV is essential for understanding and managing what is considered to be an important resource. The first of its kind in the Hudson, this project brings together a group of collaborators with expertise from Cornell University, the Hudson River National Estuarine Research Reserve/NYS Department of Environmental Conservation, and the Institute of Ecosystem Studies. In a 120-mile stretch of the river, true color aerial photographs were acquired at the 1:14,400 scale and at low tide. Focusing primarily on Vallisneria (water celery) and Trapa natans (water chestnut), plant beds were mapped to a base map overlay. Ground-truth was accomplished with actual sampling of SAV beds for quality assurance and to describe abundance, biomass, and species composition. The Hudson River shoreline was mapped as a separate overlay. A geographic information system (GIS) has been created that now includes polygon and shoreline data. The project team has conducted workshops for resource managers, educators and river users on the value, location and size of beds, hands-on instruction in remote sensing and GIS for potential application in their respective areas of responsibility. The team is presently engaged in a multi-year assessment of ecological function of SAV beds, findings of which will be incorporated into the database and distributed via CDROM and/or website.

Effective Partnerships in Land Cover: The Lake George Watershed Land Cover Map

Emily Constantine, IAGT

As part of a joint effort, a 13-class land cover map of the Lake George Watershed was developed by the Institute for the Application of Geospatial Technology (IAGT), the Lake George Association (LGA), and the Town of Bolton, New York. The land cover map was required as input data for a non-point source watershed pollution model by the NY Department of State Division of Coastal Resources, who also took part in portions of the land cover map development process. The 13 unique land cover classes were defined by the LGA, and the map was derived by the IAGT from Landsat 7 satellite imagery. Supervised classification techniques were used to create 12 of the 13 classes. Existing GIS wetland data sets were used to create the 13th class. The IAGT developed an accuracy assessment plan, which was carried out by the LGA. The IAGT then analyzed the accuracy data collected by the LGA team. The data used to assemble the error metrics were created using both on-screen and field-based accuracy assessment methods. While accuracies within the individual classes were lower than NLCD averages, the error metrics were consistent with the uncertainty found in the map source and reference data sets, and overall error percentages were significantly improved when similar classes were combined. The map was successful in identifying impervious surfaces, which was a high-priority class with respect to the non-point source watershed pollution model. The land cover map and accuracy assessment were successfully completed on a limited budget, demonstrating how effective partnerships can overcome resource limitations and can promote the use of remote sensing at the state and local government level.

Origin and Status of the NY Statewide Digital Orthoimagery Program
Tim Ruhren, NYS OCSCIC
NYSDOP imagery collection started in April of 2000 and the first statewide cycle is scheduled to be completed with image capture in April 2003. This presentation will briefly cover the origins of the NYSDOP before discussing the status of the program. The imagery collected in each annual lot will be described as well as the availability of the imagery.

Quality Assurance for the Statewide Digital Orthoimagery Program
Ron Frederiks, NYS DOT
The specifications for the Statewide Digital Orthoimagery Program (DOP) are the most stringent of any such program in the country. Quality assurance to enforce these specifications requires a very rigorous, standards-based approach that considers not only inspection of the visual quality of the submitted orthoimagery, but also testing of the horizontal and vertical accuracy of the orthoimagery. The process will be explained and illustrated with actual examples of QA results and findings. This presentation will be of interest to any user of the DOP data.

A Customer-Oriented View of the NYSDOP
Tim Ruhren, NYS OCSCIC
As more of the NYSDOP imagery becomes available, more issues arise that lead to changes in how the data is presented. Security concerns are given more weight than in the beginning of the program. Increased use of new software has led to the production of new files. End-users have found new ways to use the orthoimagery. This presentation will focus on how the imagery is made available and how this has evolved to increase the usefulness of the imagery. A sample of uses will be briefly described

Exhibits

Exhibit space is available for commercial or nonprofit organizations wishing to exhibit their remote sensing, spatial mapping, and geographic information systems equipment, software, and services.

Booth space is available on either day or both days of the joint conference.

This exhibit is very informal. All exhibit spaces are table-top, providing an eight foot table and two chairs. Space will be made available for free standing backdrops/displays behind your table if you require. Each space has power and Internet connection available. Internet access requires an additional fee; please call to inquire.

Breaks and the Wednesday evening reception will be held in the exhibit area.

Exhibit fees are: $500 before April 9 or $525 after April 9 to exhibit both days, or $300/$325 for one day only.

Exhibit fees cover registration for two staff members, including lunch. Dinner on Wednesday evening requires an additional fee. ($25 per person)

For information, contact Horace Shaw at 315-470-6577, or ESF Continuing Education at 315-470-6891.

General Information

Location: **RIT Inn and Conference Center, 5257 West Henrietta Road**
Henrietta, New York 14467

The RIT Inn & Conference Center is directly off Thruway exit 46. Take 390 North to 253 West to 15 South. The Inn is about fifteen minutes from downtown Rochester and the Greater Rochester International Airport.

Lodging: Call the Inn at 585-359-1800 for room reservations, and mention the NYS Remote Sensing Symposium to qualify for the conference rate($83 per room).

To Register: Please register early! Simply fill out and mail the attached registration form with your registration fee. You may register by phone by calling ESF Continuing Education at (315) 470-6891; or fax to (315) 470-6890.

Symposium Fee: Early registrations, received by April 9 are eligible for the discount fee of $75. If received after April 9, the full fee is $85. The student fee is $35. The registration fee includes lunch, refreshments, and materials. There will be an additional fee for the ASPRS dinner and annual meeting on the evening of April 16.

Joint GIS/SIG Conference/NYS Remote Sensing Conference Fees:

If you register for both days of the event, you are eligible for a package rate of $130 early registration_by April 9, or standard rate of $145 after April 9.

Fees are payable to CNY ASPRS, by cash, check, or purchase order.

Refunds: ASPRS reserves the right to cancel any program in the event of insufficient registrations. A full refund will be given if a program is canceled. Participants who wish to withdraw must give written notice by April 9 to receive a full refund. A $30 cancellation fee will be retained after that date, however, no refunds will be granted if notice is received the day of the conference or after. Substitutions are permissible at any time.

Questions? Regarding registration, call ESF Continuing Education at (315) 4706891.

http://www.esf.edu/ce/conferences/cnyasprs.htm

Registration Form

2nd Annual New York State Remote Sensing Symposium

Name_____

Organization _____

Address _____

City _____ State _____ Zip _____

Phone (_____) _____ Fax (_____) _____

email _____

Dietary or special needs:_____

Register me for the NYS Remote Sensing Symposium on April 17, 2003. Enclosed is my registration fee, *payable to CNY ASPRS*.

Fees: **Registration: April 17 only:**

o **If received** by April 9: $75

o After April 9: $85

o Student fees: $35

Joint Registration GIS/SIG Conference and Remote Sensing Conference, both April 16 and 17:

o **If received** by April 9: $130

o After April 9: $145

o Student fees: $ 70

__ **April 16 Annual Dinner tickets @** $25/$15 for students.

Exhibitor Registration:
o April 16 and 17: $500, $525 after April 9
o One-day only: $300, $325 after April 9 o April 16 only o April 17 only

All Fees are Payable to: CNY ASPRS

IAGT Remote Sensing Workshops.
Please register me for the following IAGT Workshop(s). (There is no additional fee for these workshops.)

o **Introduction to Remote Sensing**
o **Advanced Remote Sensing**

Mail form to:

ESF Continuing Education, SUNY College of Environmental Science & Forestry

1 Forestry Drive, Syracuse, NY 13210-2784

FAX: 315-470-6890

ESF Continuing Education
SUNY College of Environmental Science & Forestry
Syracuse, New York 13210-2784

2nd Annual New York State *Remote Sensing Symposium*

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A Joint GIS/SIG and CNYASPRS Conference

Landsat 7 ETM over Rochester/Finger Lakes, NY

April 16 and 17, 2003

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  Speaker: *ASPRS Vice President Russell Congalton*

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Differences in Accuracy Assessments Resulting from Variability in Ground Reference Protocols, *Jason Cole*, *William Stiteler*, *Russel Aicher*, and *Paul Hopkins*, SUNY College of Environmental Science and Forestry, (SUNY-ESF)

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Land Use and Land Cover Summary Report and Recommendations, *Jeff Herter*, NYS Department of State

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The RIT Inn & Conference Center is directly off Thruway exit 46. Take 390 North to 253 West to 15 South. The Inn is about fifteen minutes from downtown Rochester and the Greater Rochester International Airport.

Lodging: Call the Inn at 585-359-1800 for room reservations, and mention the NYS Remote Sensing Symposium to qualify for the conference rate($83 per room).

To Register: Please register early! Simply fill out and mail the attached registration form with your registration fee. You may register by phone by calling ESF Continuing Education at (315) 470-6891; or fax to (315) 470-6890.

Symposium Fee: Early registrations, received by April 9 are eligible for the discount fee of $75. If received after April 9, the full fee is $85. The student fee is $35. The registration fee includes lunch, refreshments, and materials. There will be an additional fee for the ASPRS dinner and annual meeting on the evening of April 16.

Joint GIS/SIG Conference/NYS Remote Sensing Conference Fees:
If you register for both days of the event, you are eligible for a package rate of $130 early registration–by April 9, or standard rate of $145 after April 9.

Fees are payable to CNY ASPRS, by cash, check, or purchase order.

Refunds: ASPRS reserves the right to cancel any program in the event of insufficient registrations. A full refund will be given if a program is canceled. Participants who wish to withdraw must give written notice by April 9 to receive a full refund. A $30 cancellation fee will be retained after that date, however, no refunds will be granted if notice is received the day of the conference or after. Substitutions are permissible at any time.

Questions? Regarding registration, call ESF Continuing Education at (315) 470-6891.

http://www.esf.edu/ce/conferences/cnyasprs.htm

Early Registration Deadline: April 9, 2003

Exhibits

Exhibit space is available for commercial or nonprofit organizations wishing to exhibit their remote sensing, spatial mapping, and geographic information systems equipment, software, and services.

Booth space is available on either day or both days of the joint conference.

Exhibit fees are: $500 before April 9 or $525 after April 9 to exhibit both days, or $300/$325 for one day only.

For information, contact Horace Shaw at 315-470-6577, or ESF Continuing Education at 315-470-6891.

Registration Form

2nd Annual New York State Remote Sensing Symposium

Name _____

Organization _____

Address _____

City _____ State _____ Zip _____

Phone (_____) _____ Fax (_____) _____

email _____

Dietary or special needs:_____

Register me for the NYS Remote Sensing Symposium on April 17, 2003. Enclosed is my registration fee, *payable to CNY ASPRS*.

Fees: **Registration: April 17 only:**

- ❑ **If received** by April 9: $75
- ❑ After April 9: $85
- ❑ Student fees: $35

Joint Registration GIS/SIG Conference and Remote Sensing Conference, both April 16 and 17:

- ❑ **If received** by April 9: $130
- ❑ After April 9: $145
- ❑ Student fees: $ 70

__ **April 16 Annual Dinner tickets** @ $25/$15 for students.

Exhibitor Registration: ❑ April 16 and 17: $500, $525 after April 9
❑ One-day only: $300, $325 after April 9 ❍ April 16 only ❍ April 17 only

➢All Fees are Payable to: CNY ASPRS➢

IAGT Remote Sensing Workshops. Please register me for the following IAGT Workshop(s). (There is no additional fee for these workshops.)

❑ **Introduction to Remote Sensing** ❑ **Advanced Remote Sensing**

Mail form to:

ESF Continuing Education, SUNY College of Environmental Science & Forestry
1 Forestry Drive, Syracuse, NY 13210-2784

FAX: 315-470-6890