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16th Annual New York State Geographic Information Systems Conference

September 20-21, 2000

Holiday Inn- Liverpool, New York

New Conference Developments and Changes!

Sponsors

*Central NY Region of the American Society for Photogrammetry and Remote Sensing
State University of New York College of Environmental Science and Forestry
New York Statewide GIS Coordination Program*

Cosponsor

Niagara Mohawk Economic and Community Development

Underwriter

The Chazen Companies

GIS tools help solve real world problems in all kinds of areas today, including facilities management, transportation, utilities, environmental protection, health care and epidemiology, land use planning, marketing, conservation, business strategic planning, engineering, education, social services, economic development, and more. Starting sixteen years ago with a small gathering of early GIS users, the New York State GIS Conference has become a major GIS professional development opportunity for hundreds of GIS users in the state. The conference is a great place to discover how New Yorkers are using GIS to accomplish important objectives in the public and private sectors. Technical presentations feature working professionals who share their GIS experiences and solutions in dealing with real world problems like yours.

Meet fellow New Yorkers active in the GIS field, exchange information and experiences, and seek solutions to your geographic data management needs. Professional networking opportunities help you develop a network of fellow GIS users which can continue through the years. In the exhibit area, GIS vendors and consultants display the latest in GIS hardware, software, analytical techniques, and services.

Keynote Speaker: [Nancy Tosta](#), Vice-President, Ross & Associates Environmental Consulting, Ltd.

We are very pleased to announce that Nancy Tosta will deliver the opening keynote presentation at this year's conference.

Banquet Speaker: [Stewart McKenzie](#)

General Information

Exhibits: Exhibit booths are available to GIS software and hardware vendors, consulting firms, agencies, and nonprofit organizations. Please indicate your interest in exhibiting on the response form to receive full information. Or, for more information, contact Horace Shaw at (315) 470-6891 or hbshaw@esf.edu.

Job Exchange: Bring resumes and position descriptions to the conference to be posted.

Map Contest: Map contest categories are: Best Cartographic Product and Best Analytical Product. Maps must be received at ESF Continuing Education by Monday, September 11, 2000. Entries must consist of a single unmounted map sheet. The map must have been produced between September 20, 1999 and September 8, 2000. Judges' decisions are final. Awards, including free registration for the 2001 NYS GIS Conference, will be presented at the conference banquet. Each entry should be accompanied by a \$15 check per entry, (\$10 for full-time students.) Entries will be displayed at the poster session.

Logo Contest: This year we are sponsoring a contest to create a new logo for the NYS GIS Conference. Entries should be submitted in electronic format together with a hard copy printed version to the conference office at SUNY-ESF by September 8, 2000. The winning logo will be selected by popular vote at the conference on September 20-21. The creator of the selected logo will receive a cash prize of \$250.

GIS Partnerships Award: The New York State Coordination Program is happy to announce the First Annual GIS Partnerships Award.

Conference Location: All sessions will be held at the Holiday Inn, 441 Electronics Parkway W, Liverpool, New York, (315) 457-1122.

Lodging: We have reserved a block of rooms at the Holiday Inn for conference participants, at a special conference/ government rate for NYS GIS participants. You must specify that you will be attending the NYS Geographic Information Systems Conference when you register, and request the appropriate rate. Reservations may be made by calling (315)457-1122. The deadline for assured room reservations is TBA. Rooms are also available on the night of September 19.



Search [Mapquest](http://www.mapquest.com) for interactive directions.



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16th New York State Geographic Information Systems Conference

Preliminary Program

Tuesday, September 19, 2000

1:00 pm **Pre-conference Workshop**
Building GIS from Imagery, *Kurt Schwoppe*, ERDAS Northern Region, Alexandria, VA

Wednesday, September 20, 2000

9:00 am **Vendor Seminar: Earth Resource Mapping**
9:00 **Pre-conference Workshops**

Deploying GIS on the Internet/Intranet, *Larry Spraker*, Applied GIS

Introduction to GIS, *Steve Smith*, Cornell University Extension

Strategic Metadata Management, *Bruce Wescott*, RTSe, USA, Inc.

GPS Roundtable, *Sam Wear*, Westchester County GIS

Desktop Photogrammetry for the GIS User, *Kurt Schwoppe*, ERDAS Northern Region, Alexandria, VA

9:30 **NYS GIS Coordination Program: Local Government Advisory Committee**

10:00 **NYS GIS Coordination Program: Standards and Data Coordination Workgroup**

11:00 **Exhibits Open**

1:00 pm **Conference Opening & Welcome**

1:15 **Keynote: GIS--Making a Difference**, *Nancy Tosta*

2:15 **GIS-NY: State Geographic Information Center**, *Bruce Oswald*, NYS Office for Technology

3:00 **Break**

3:30 **Concurrent Sessions**

Session 1A: Remote Sensing and Data Acquisition

A Non-Technical Overview of Satellite Imagery and Remote Sensing Data for GIS, *Robert J. Farrell*, Erdman Anthony and *Michael R. Courneen*, Erdman Anthony/TrueNorth Company/ Erie Community College GIS Certificate Program

High Resolution Satellite Imagery - Demystifying the Technology —Are You Ready?, *Sheldon K. Piepenburg*, PlanGraphics Inc., Silver Spring, MD

Mapping Hawaii by Airborne Direct Digital Imaging, *Don Light* and *Joan Zelinski*, PAR Government Systems

The Removal of Selective Availability: New Opportunities for Field Data Collection, *Arthur J. Lembo, Jr.*, Bowne Management Systems, Inc. and *Steven DeGloria*- Department of Crop and Soil Science, Cornell University, Ithaca, NY

Session 1B: Web-based and Enterprise Systems

GIS Cost/Benefit, *Steve Gillespie*, USGS

The Long Island Rail Road: Expanding GIS Tools to User Departments Phase II, *Arthur J. Lembo, Jr.*, Bowne Management Systems, Inc., *Christopher Powers* and *Brian George*, The Long Island Rail Road

How the Web Has Revolutionized GIS Data Deployment, *Bob McIntyre*, Intergraph Corporation, Houston, TX

The NYS DPS Electric Outage Reporting System, *Richard P. Slutzah*, P.E., Bowne Management Systems, Inc. Mineola NY

Using Intranet/ Internet Technology to Replace Sneaker Net in Regional/ Enterprise GIS, *Joseph T. Jones*, CDP, Nassau County Geographic Information System, Mineola, NY

Session 1C: GIS in Education and Libraries 1

Communities as Classrooms, *Rick Fritsler*, Ulster County

GIS and the GLOBE Project, *Patsy Cicala*, Poughkeepsie High School

An ArcView Interface for Small Libraries, *Lee Herrington*, SUNY ESF

NASA Commercial Remote Sensing Program's Workforce Development National Implementation Plan, *Margaret Leonard*, NASA Education and University Affairs, John C. Stennis Space Center, MS

Session 1D: Implementing GIS in Your Organization, Part 1

Sam Wear, Westchester County GIS (one-hour session)

5:30 **CNY ASPRS Business Meeting**

5:30

Reception, Exhibits and Poster Session

Croton Watershed Land Use Classification System, *Josephine Amato*, Westchester County GIS, Department of Information Technology

Internet Tax Parcel Mapping in Westchester County, New York, *Xiaobo Cui*, Westchester County GIS, Department of Information Technology

Non-Point Source Water Pollution, *Thomas Hart, Jr.*, New York State Department of Health; *Floyd Henderson* and *James Portolese*, GIS Remote Sensing Laboratory, Department of Geography and Planning, University at Albany; *Julie Coman*, Coastal Resources, New York State Department of State

Using GIS for Crime Analysis in North Castle, New York, *Ana Hiraldo*, Westchester County GIS, Department of Information Technology

Utilization of GPS in Westchester County, *Laura McGinty*, Westchester County GIS, Department of Information Technology

3-D Visualization of Groundwater Plume: GIS used to Enhance Public Understanding, *Peter Nimmer, P.G.*, *Bai Tian, P.G.*, and *Bruce Muchmore*, EA Engineering, Science, and Technology, Newburgh, New York

NASA Affiliated Research Center (ARC) Program, *Lindi Quackenbush*, *Kevin Riordan* and *Paul Hopkins*, Department of Environmental Resources and Forest Engineering, SUNY ESF

Developing Fire District Boundaries on a New Westchester County Road Base, *Greg Sullivan* and *Carrie Keneally*, Westchester County GIS, Department of Information Technology

Investigating the West Nile Virus with GIS (tentative), *Tong Zhou* and *Xiaobo Cui*, Westchester County GIS, Department of Information Technology

6:30

Banquet

Thursday, September 21, 2000

7:30 am **Continental Breakfast**

8:00 **Concurrent Sessions**

Session 2A: Census Geography Changes

NYS Demography, *Bob Scardamalia*, Empire State Development

Developing a Census-Based Growth Allocation Model, *Steve Smith*, Cornell University, Ithaca, NY

Session 2B: GIS Data Conversion and Integration

Combining and Intersecting Linear Data, *Frank Winters*, NYSDOT

Fine-Tuning Alignment of Reprojected Coverages on USGS Digital Ortho Quarter Quads and Draping on 3D Digital Elevation Models with ArcView GIS: What You Need to Know, *David Miller*, Department of Geography, SUNY College at Cortland, Cortland, NY

A Conversion Experience with Agricultural District Maps, *Susan B. Hoskins*, *Diane A. Ayers* and *Eugenia M. Barnaba*, Cornell Institute for Resource Information Systems, Cornell University

Session 2C: Vendor Session

ArcGIS 8.1: The Future ESRI Technology Direction, *Chris Attridge*, ESRI

AutoCAD Map 2000i and Autodesk MapGuide 5, *Chuck Pietra*, Avatech

Serving the Citizens of States and Localities, *Paul Culligan*, MapInfo

9:20

Concurrent Sessions

Session 3A: GIS in Education and Libraries 2

Teaching Creative Thinking Using GIS, *Eric Greenfield* and *Lee Herrington*, SUNY ESF

Data through the Library: What can I get for FREE?, *John A. Olson*, Syracuse University

GIS in the Community College: Finding a Balance Between Academic Understanding and Hands-On Learning, *Michael R Courneen*, GIS Certificate Program, Erie Community College

Session 3B: NASA Remote Sensing

The Special Emphasis of NASA's Office of Earth Science on State and Local Government Needs, *Mike Thomas*, Applications, Commercial and Education Division, NASA

NASA's Space-based Synthetic Aperture Radar (SAR) Program, *Richard Monson*, NASA, *Steven Bard* and *Richard Key*, Jet Propulsion Laboratory, California Institute of Technology

EOS/Terra- Status, New Science Results, and Potential Applications, *Timothy L. Gubbels*, Pacific Disaster Center Program (OASD(C3I)), Applications and Outreach Division, Office of Earth Science, NASA

Session 3C: Environmental Applications

Tidal Wetland Restoration, South Shore Estuary Reserve, Long Island, New York, *Tom Hart*, NYS Department of Health and *Jeffrey L. Herter*, Coastal Resources, NYS Department of State

The Angles on Slope: Evaluating Application Accuracy, *Amy Becker*, SUNY ESF

LIDAR in South Shore, Long Island GIS, *Tom Hart*, NYS Department of Health

Session 3D: Implementing GIS Part 2

Sam Wear, Westchester County GIS (one hour session)

10:35

Break

11:00 Concurrent Sessions

Session 4A: GIS Applications 1

Using GIS to Identify Potential Open Space Parcels for Acquisition within the South Shore Estuary Reserve, *Peter E. Lauridsen, Jeffrey L. Herter* GIS Unit, Division of Coastal Resources, New York State Department of State and *Thomas Hart Jr.*, New York State Department of Health

Use of GIS in the Creation of an Agricultural District in Westchester County, *George Hilton*- Westchester County Planning Department

School Navigator- A GIS-based System for Computer-Aided Facilities Management, *Michael Stoogenke*, Sear Brown

Session 4B: FOIL, Copyright and Legislation Update

Bob Freeman, Director, NYS Freedom of Information Office

Session 4C: Managing Geospatial Resources

Digital Earth: A Pennsylvania/Regional Demonstration Project, *Todd Bacastow*, EMS Environment Institute

Digital Preservation and GIS Data: What Have We Got to Lose?, *Nan Hyland*, Cornell University

12:15pm Lunch, Awards and Door Prizes

1:30 Concurrent Sessions

Session 5A: GIS Applications 2

Combining GIS and Remote Sensing for Forestry Applications, *Lindi J. Quackenbush, Trevis J. Gigliotti and Lee P. Herrington*, Department of Environmental Resources and Forest Engineering, SUNY ESF

Using GIS to Assess Community-level Risk for Youth Alcohol and Substance Abuse, *Kathy Dixon*, New York State OASAS, Albany, NY

Use of LIDAR Technology to Support Base Mapping in Westchester County, NY, *Jim Cannistra*, Analytical Surveys, Inc., Sterling, VA

Session 5B: The Geodata Alliance: What's in It for New York?

Kathy Covert, Federal Geographic Data Cooperative (one hour session)

Session 5C: Digital Orthophotography: What Is It and What Can We Do with It?

Tom Hart, NYS Department of Health

Bill Johnson, NYS Office of Technology

Session 5D: Implementing GIS Part 3

Sam Wear, Westchester County GIS (one hour session)

2:45 Conference Concludes



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Slide Show Presentations

- [Presentation Archive](#) (PDFs)

Digital Earth: A Pennsylvania/Regional Demonstration Project, *Todd Bacastow*, EMS Environment Institute, University Park, PA

GIS in the Community College: Finding a Balance Between Academic Understanding and Hands-On Learning, *Michael R Courneen*, TrueNorth Company and Erdman Anthony/ Erie Community College GIS Certificate Program, Buffalo, NY

A Non-Technical Overview of Satellite Imagery and Remote Sensing Data for GIS, *Robert J. Farrell*, Erdman Anthony and *Michael R. Courneen*, Erdman Anthony and TrueNorth Company

GIS Cost/Benefit, *Stephen R. Gillespie*, Economist, United States Geological Survey, Office of Strategic Planning and Analysis, Reston, VA.

Use of GIS in the Creation of an Agricultural District in Westchester County

George Hilton, GIS Planner, Westchester County Planning Department

LIDAR in South Shore, Long Island GIS, *Thomas Hart, Jr.* NYS Department of Health

Tidal Wetland Restoration, South Shore Estuary Reserve, Long Island, New York, *Thomas Hart, Jr. and Jeffrey L. Herter*, Coastal Resources, New York State Department of State

A Conversion Experience with Agricultural District Maps, *Susan B. Hoskins, Diane A. Ayers and Eugenia M. Barnaba*, Cornell Institute for Resource Information Systems, Cornell University, Ithaca, NY

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Mapping Hawaii by Airborne Direct Digital Imaging, *Don Light*, PAR Government Systems, Rochester, New York and *Joan Zelinski*, PAR Government Systems, Potsdam, New York

Combining GIS and Remote Sensing for Forestry Applications

Lindi J. Quackenbush, Trevis J. Gigliotti and Lee P. Herrington, Department of Environmental Resources and Forest Engineering, SUNY College of Environmental Science and Forestry, Syracuse NY

NYS Demography, *Bob Scardamalia*, Empire State Development

Use of Socioeconomic Variables in Habitat Vulnerability Assessment, *Stephen D. Smith, Yizhao Yang, Warren A. Brown, and Milo E. Richmond*, Cornell University, Ithaca, NY



16th New York State Geographic Information Systems Conference

Currently Registered Exhibitors

Applied Geographics, Inc., Boston, MA

AGI was incorporated in 1991 as a Woman-owned Business Enterprise (WBE), and since that time has grown steadily to a current size of more than 25 GIS professionals. AGI uses and is familiar with the leading GIS packages, and has a depth of experience in ESRI, Intergraph, and Autodesk software, as well as relational databases and various Internet mapping environments. AGI has an established portfolio of completed GIS projects, and takes particular pride in its success in helping its clients proceed from comprehensive needs assessment to full GIS implementation, application development and system customization. While AGI is a certified "developer" and business partner with several leading GIS firms AGI does not market or re-sell hardware or software products. It is our corporate policy to work objectively with our clients when developing recommendations for system design and system components. AGI has completed over 50 GIS projects for state and local government clients in the Northeast, including Oswego and Clinton Counties of New York.

Applied GIS, Inc., Schenectady, NY

Applied GIS is one of the Northeast's leading GIS consulting companies, providing our clients with a full range of services including: application development; data conversion; database design and development; digitizing; geocoding; custom mapping; needs assessment; system design; technical support; training, and software sales. A particular focus of the company is internet and intranet deployment of GIS technology including, GIS enabled web site development, site hosting, training, and software sales.

In addition to these services, Applied GIS is an ESRI Business Partner and has been recognized as ESRI's Northeast 1999 "Foundation Partner of the Year."

Avatech Solutions, Liverpool, NY

BAE Systems ADR, Pennsauken, NJ

As an ISO 9002 certified company, ADR Inc. provides:

- Photogrammetric data collection services in support of GIS and photogrammetric mapping products.
- State-of-the-art hardware and software in the production of digital orthophotography.
- G.P.S. photo control data in support of all ADR projects.
- Historic photo interpretation.
- Space data technology and all phases of GIS services from design through implementation.

Bergmann Associates, Rochester, NY

Bergmann Associates is a multi-disciplinary engineering, surveying, planning and design firm that provides comprehensive Geographic Information Systems services. Our Geographic Information Systems/Visualization Group specializes in the design,

development and maintenance of geographic databases, mapping and applications for a variety of clients and disciplines. We are involved in the development of a GIS database from initial project objectives (needs assessment) through automation of the geographic data (digitizing and conversion) and development of the mapping database to the operational use of the GIS.

Bergmann Associates can assist you on any GIS project you may have. We are comfortable at all levels from project planning, needs assessment, application development and quality control down to database and feature creation and editing. Our staff are experienced with many GIS software packages, including ArcInfo, ArcView, MapInfo, Atlas GIS, and ERDAS. Our programmers are experienced in several programming languages including, AML, Avenue, Visual Basic and HTML.

Bergmann Associates can bring the resources of the entire firm to your assistance on any project. Bergmann staff includes experienced engineers (civil, traffic, industrial), planners (transportation, environmental, land use, site development), landscape architects, water resource specialists, environmental specialists (health & safety, permitting, environmental impacts), CAD specialists (designers, technicians), surveyors, information technologists (networks systems experts, PC technicians), computer graphics specialists (simulation and visualization developers, graphic artists), and experienced project managers who can bring together all of these resources.

From our offices in Rochester, Pittsburgh, Philadelphia, Hoboken, Buffalo, Ft. Lauderdale, Lansing and Toledo, we provide comprehensive multi-disciplinary and GIS services to numerous clients throughout the eastern United States and in Canada. These clients include agencies at all levels of government, educational, commercial, retail, institutional and industrial leaders.

Blasland, Bouck & Lee, Syracuse, NY

BBL was incorporated in 1984 by 12 professionals in Syracuse, New York, whose goal was to establish a nationally recognized source of creative solutions to a broad range of environmental engineering and scientific problems. Since that time, our firm has grown to include affiliated groups and companies, including BBLES (remedial construction management), Jacobs Environmental, Inc. (specialized water/wastewater engineering), and BBL Sciences (natural resource and life sciences). Together, we employ more than 550 engineers, scientists, and technical support personnel in offices throughout the United States.

An industry leader, BBL, is ranked 19th on *Engineering News Record's* (ENR's) list of Top Hazardous Waste Firms, 89th on ENR's list of Top 500 Engineering Design Firms, and 43rd on ENR's list of Top 200 Environmental Firms.

Headquartered in Syracuse, New York, BBL has offices across the country to assist clients with regional and national environmental programs. These offices include full-service locations, as well as project offices to provide efficient response to our clients' needs.

- Our firm's engineering staff includes civil/environmental, sanitary, chemical, electrical, mechanical, structural and geotechnical engineers.
- Our scientific staff includes hydrogeologists, geochemists, soil scientists, biologists, environmental toxicologists, atmospheric scientists, industrial hygienists, chemists, and statisticians.
- Other staff members include architects, surveyors, field technicians, drafters, and construction managers. State-of-the-art technical field and office equipment, computer modeling capabilities, and access to on-line databases enable our staff to serve our clients coast-to-coast both cost-effectively and efficiently.

BBL provides strategic consulting services for diverse environmental needs at sites across the country. We have an in-depth understanding of relevant issues, and the technical expertise to recommend practical, technically feasible solutions.

Bowne Management Systems, Inc., Mineola, NY

Bowne Management Systems Inc. (BMS) is a leading integrator of Information Technology (IT) and Geographic Information Systems (GIS). Since 1982, the firm has been assisting public and private sector clients implement a broad range of information system solutions varying from enterprise-wide spatial data warehouses utilizing Internet and Intranet technology to solution-specific custom applications.

With a staff consisting of GIS specialists, system analysts, programmers, licensed professional engineers and surveyors, cartographers, certified trainers, computer hardware experts, and operations technicians; the firm possesses the expertise and experience to provide comprehensive GIS services. This strong background and experience in GIS, combined with specialized information management expertise, provides customers with the comprehensive skills required for a successful project.

Services range from needs assessment, requirements definition and system design on through acquisition assistance, implementation and on-going support. This includes full lifecycle consulting and management for GIS implementation, workflow management, application development, legacy integration, data conversion and integration, quality control, and systems integration.

BMS can address all aspects of the integration of GIS into existing and new information systems including local and wide area networks, contemporary operating systems, commercial database management systems, and application software utilizing the full range of multi-vendor computer hardware found at most customer locations.

Applications developed by BMS include spatial data warehousing, land records management, infrastructure management, business geographies, transportation, global positioning (GPS), cartographic transformations, field data collection, and data conversion quality control. BMS also provides planning, integration, design and development services for computerized modeling, facilities and asset management, imaging and document management.

Caliper Corporation, Newton, MA

Caliper® Corporation is a technology leader in the development of Geographic Information Systems (GIS) and transportation software. Caliper is dedicated to improving business operations and decision making through the application of state-of-the-art measuring techniques, quantitative analysis, and computer software.

Caliper is known worldwide as a technology leader in the development of geographic information systems (GIS). Caliper is the developer of the Maptitude and TransCAD commercial geographic information and analysis software packages. Caliper software is used by organizations around the world including national governments, government agencies of all types, major corporations, and numerous institutions of higher learning.

Maptitude® GIS for Windows is the most capable and least expensive, full-featured mapping package for Windows. Designed for data visualization and geographic analysis, Maptitude comes with a comprehensive library of nationwide and worldwide maps on CD, including complete US street maps, and Census tract and ZIP Code boundaries and demographics. There are two special editions of Maptitude:

- Maptitude for the Web makes it easy to design, test, and publish interactive map applications on your web site.
- Maptitude for Redistricting includes everything you need to build and analyze redistricting plans. As you assign area features to a district, the district boundaries are redrawn and selected attributes are automatically summarized to reflect the district's characteristics.

TransCAD® Transportation GIS Software provides an integrated set of state-of-the-art methods for solving key analytical problems in transportation planning, management, and operations. TransCAD is used extensively for transportation database development and maintenance, demand forecasting, operations management, and vehicle routing and scheduling.

Chas H. Sells, Inc., Briarcliff Manor, NY

The Chazen Companies, Poughkeepsie, NY

The Chazen Companies offer a complete spectrum of GIS services. Our GIS division provides comprehensive GIS solutions to municipal and private sector clients. Our GIS team specializes in planning and implementation of GIS technology using the ERSI tool suite. Chazen offers the following services:

- GIS needs assessment and implementation planning
- Implementation of enterprise-wide GIS solutions
- Map creation (digitization, attribute entry and production)
- GIS database QA/QC procedures
- GPS data acquisition and formatting
- Base mapping (parcel, planimetric and facility) and aerial photo mapping
- Application development

- Training, including standard ESRI courses and custom classes

Earth Resource Mapping, San Diego, CA

Earth Resource Mapping develops desktop image processing software developer. Our products include:

- ER Mapper, an intuitive solution for creating orthophotos, mosaicing and colorbalancing images among many other powerful applications.
- ECW Compression, an advanced free image compression format.
- Image Web Server, this product allows distribution of unlimited imagery size over the internet or intranet.

Take a coffee break with Earth Resource Mapping and attend our free presentation on September 20th 9am-11:30 am at the Holiday Inn- Grand Ballroom. Free continental breakfast. We will be demonstrating all our desktop imaging products. To register contact Suzette Castro, 4370 La Jolla Village Drive, San Diego, CA 92122; Phone: (858) 558-4709; Fax: (858) 558-2657; Email: suzette@ermapper.com.

EarthData International, Gaithersburg, MD

ERDAS, Alexandria, VA

ERDAS® is the mapping software company specializing in Geographic Imaging solutions since 1978. The company is the world leader in highly customizable, easy-to-learn-and-use Geographic Imaging software, and has sold over 25,000 licenses of its products to professionals in over 105 countries. ERDAS products are commonly used for oil/gas/mineral exploration, natural resources management, urban and regional planning, environmental monitoring, forestry, academia, engineering, telecommunications, utilities, cartography, oceanography, meteorology, hydrology and military applications.

Corporate and International headquarters are located in Atlanta, Georgia, USA, and the company has six U.S. Sales offices, a subsidiary office in Cambridge, U.K., four training centers, and a network of over 60 international distributors.

ESRI, Redlands, CA

ESRI is a closely held private corporation that provides a wide range of geographic information system (GIS) software and related services to clients worldwide. Headquartered in Redlands, California, ESRI has regional offices throughout the United States, several subsidiary companies overseas, and distributors in more than 120 countries.

ESRI's comprehensive product line ranges from desktop GIS to GIS for the enterprise. ESRI's flagship product, ARC/INFO, is a high-end GIS with capabilities for automation, modification, management, analysis, and display of geographic information.

In addition to ARC/INFO, ESRI develops and markets related software products, including: ArcView GIS, and affordable geographic data query, display, and output tool for the desktop: SDE (Spatial Database Engine), a significant advance in spatial data management; MapObjects and MapObjects LT, embeddable GIS and mapping components for applications developers; Arc Facilities Manager (ArcFM), a powerful ARC/INFO-based application designed specifically for utilities; Maplex, automatic cartographic design software; NetEngine, developer tools for network analysis; PC ARC/INFO, full-featured GIS for Windows and DOS users; Data Automation Kit, a geodata creation tool kit for Windows; ArcCAD, which incorporates ARC/INFO capabilities within AutoCAD; Atlas GIS, desktop GIS and mapping for business; BusinessMAP and BusinessMAP PRO, introductory consumer mapping and spreadsheet integration products; and, ArcExplorer, a lightweight DIS data explorer.

ESRI offers a variety of GIS consulting services, including user needs assessments, system design, database design, data automation and conversion, training, and application design and development.

Intergraph Corporation, Houston, TX

Intergraph Mapping/Geographic Information Systems (GIS)- the leader in GIS worldwide with 38% market revenue share in 1999 - develops, markets, and supports core geospatial products that address a wide range of market segments, including land management, road and rail transportation, water and wastewater infrastructure management, real estate, retailing, and agriculture, to name a few. Intergraph's GeoMedia products are designed to integrate geographic data from multiple vendors, thus making GIS data available to a growing number of users. This ability to share data from multiple sources is particularly important to cities, states, provinces, and countries where data comes from many sources and in many formats.

GeoMedia technology is the catalyst to bring the data together, in real-time, without having to change it. GeoMedia Web Map then makes it easy to share this GIS data across borders, industries, and disciplines via the Internet, thus increasing community involvement and helping citizens and governments make better-informed decisions.

Come by Intergraph's booth to see GeoMedia - the only Mapping/GIS product that combines so many powerful tools.

- *Seamless data integration with all major GIS vendor formats
- *A complete set of spatial analysis tools
- *May layout with award-winning technology
- *An open development platform for creating custom applications

LaFave, White & McGivern, L.S., D.C., Theresa, NY

LaFave, White & McGivern has provided since 1946 a full range of professional surveying and photogrammetry services including:

- Aerial Photography
- Airborne GPS Photo Control
- Digital Mapping
- Digital Elevation Models
- GPS Control Surveys
- Fully Analytical Aerial Triangulation
- GIS Base Mapping
- Digital Orthophotos

Typical activities have served the following applications:

- Geographic Information System Land Bases
- Coastal Erosion Management
- Environmental/ Wetland Management
- Hazardous/ Solid Waste Management
- Watershed Management
- Forest Management
- Mine Management
- Facilities Management
- Airport Planning & Management
- Transportation
- Site Development
- Utility Infrastructure
- Storage Pile Volumes
- Recreation/Parks
- Geological Investigation
- Historic Preservation
- Facilities Design
- Water & Sewer Design

LaFave, White & McGivern has completed surveying, and digital mapping projects for a myriad of individuals, surveyors, engineers, villages, towns, cities, counties, state and federal government agencies.

Land & Mapping Services, Clearfield, PA

Land & Mapping Services is a mapping firm with offices in Clearfield, Ebensburg, Emporium, Titusville, Kersey and Erie, PA. Land & Mapping Services is involved in digital photogrammetric mapping, softcopy and digital orthophoto production, CAD edit, GPS control, location and mapping, LASER scanning and modeling, land surveying, and forest management. Five Registered Professional Land Surveyors have registrations covering eleven states. Also on staff are a Certified Photogrammetrist and seven Certified GPS Technicians.

LizardTech, Seattle, WA

Mapco, West Milford, NJ

[Mapco](#) specializes in providing our clients with a professional field data collection, land surveying, and mapping solution. Products and services include:

- Trimble Navigation Ltd. GPS Surveying and Mapping Products
- **Certified** GPS Survey and Mapping Training
- Laser Technology Inc. Mapping Systems
- Surveying and Mapping Services
- GIS Data Collection Services
- GIS Base Map Creation
- Equipment Rentals

Mapco offers a full range of GIS data collection services. Using GPS, portable computers, traditional surveying, and Laser mapping systems Mapco can build a new GIS layer or add to an existing one. Not only will we collect coordinates on your features of interest, to your specified accuracy, but we will design and utilize databases in the field to collect the attributes you want. GIS information can be collected and delivered as quickly or slowly as you and your budget allow.

Applications include:

- Road centerline inventory, including attributes such as speed limit delineation, centerline striping changes, surface material, street name, jurisdiction, direction, number of lanes, etc.
- E-911 address range mapping and driveway location with building images.
- Geodetic control point surveys.
- Sign inventory using GPS and Laser Mapping systems with still images.
- Valve, hydrant, and manhole inventory using GPS and Laser Mapping systems.
- Building foot-print surveys with centroids.
- Environmental layer mapping such as wetlands, point sources of pollution, well-head inventories, forest inventories, etc.
- Stock-pile and topographic mapping.
- Utility pole and meter inventory with strand mapping and drop locations.
- Etc. etc

If you are interested in gathering this information yourself, Mapco can assist you in buying the equipment you need to do the job. We can provide the instruments and training that will make your acquisition of these new technologies a success. Because we use these instruments ourselves, our training programs are practical and certified by Trimble Navigation Ltd.

NYS Office for Technology, Albany, NY

Niagara Mohawk Economic & Community Development, Syracuse, NY

With a reliability rating that is among the highest in the country, Niagara Mohawk proudly serves the electric energy needs of 1.5 million customers in a 24,000-square-mile area of upstate New York. Our 7,700-mile natural gas system serves 525,000 customers. With a service territory that includes 37 counties and 669 cities towns and villages in New York State, Niagara Mohawk is vitally interested in the well-being and prosperity of the communities it serves. The company's Economic and Community Development Department plays an important role in promoting Upstate NY to the rest of the world, as well as helping its client communities meet the challenges of a changing economic base. The company has been very successful in adding jobs to the region and in improving the physical infrastructure necessary to meet future energy needs and new business models. GIS is among the tools used by Niagara Mohawk to guide these economic development activities.

Numerous efforts are underway to improve the economic strength of upstate NY. Revitalization of communities along the Erie Canal Corridor with an emphasis on high-tech business and electronic commerce is one major initiative. Other projects include; 'UpStart/Shovel Ready' a site selection service and software package that assists in the selection of industrial sites for development and expansion, 'Export NY' which aims to establish international markets for the products of the businesses that Niagara Mohawk serves and '10,000 Trees' an urban reforestation program to replace trees lost during the 1998 Labor Day Storm.

Stop by to visit the Niagara Mohawk booth and learn more about the ways that Niagara Mohawk can serve your community or business, and to tell us of your economic development needs and ideas.

ORBIMAGE, Dulles, VA

PAR Government Systems Corp., Rome, NY

PGSC provides expert services in environmental data management, water resources modeling and assessment, Geographic Information Systems (GIS), and remote sensing applications. Diverse application domains include:

- GIS-based flood modeling and mapping
- Water resources, including water quality modeling and assessment
- Aerial surveys and digital terrain model development
- Environmental site characterization and data management
- Aerial traffic monitoring and modeling
- Utility database development, integration, and mapping

PGSC is a certified ESRI Business Partner under the ESRI Developer and Consultant Program. PGSC's Flood*Ware™ product, an advanced flood plain modeling and mapping methodology and software suite, supports the New York State re-mapping initiative and the FEMA Map Modernization Program.

PGSC acquires aerial color and color IR digital imagery, LiDAR, and multispectral data to incorporate into our geospatial analysis and resulting products. PGSC supports the acquisition and processing of color and color IR digital imagery for Digital Orthophoto Quarter Quadrangle (DOQQ) production with its business partners eConAgra.com and Landcare Aviation.

Plant Equipment, Inc., Temecula, CA

Plant Equipment, Inc., (PEI) is a technologically-driven company dedicated to improving telecommunications functionality for mission-critical applications. During the past three decades, PEI has developed a "family" of 9-1-1 telecommunications technologies that have consistently set industry standards. PEI product offerings range from key telephone systems and Modular ANI/ALI Retrieval Systems (MAARS), to computer telephony suites, mapping applications, digital logging recording, integrated radio systems and advanced remote monitoring and maintenance applications. PEI products are designed to provide superior performance for the all-important end-user.

- **ORION** is PEI's family of mapping products designed to reside on-board with VESTA or MAARS-View intelligent workstations, as well as with third party applications such as CAD.
- **VESTA** is a first-tier intelligent workstation designed for the most demanding call-taking environments. Its versatile network software can be configured to utilize PEI's MAARS 9-1-1 controller with ComCentrex, or the Meridian-1 PBX with ACD.
- **MAARS-View** is a new-generation "intelligent ALI" display system that provides mission-critical call-takers with faster and

easier access to critical telephony functions and information sources. Designed to bring sophisticated computer functionality to the smaller call center, MAARS-View displays the phone number and location in parsed format along with a call-history and supplemental information associated with that data.

- **MagIC** is PEI's on-board management information system (MIS) package. Designed specifically for Public Safety applications, MagIC allows 9-1-1 call-center managers to gather and analyze a variety of information from the key data points of the 9-1-1 system.

From planning and installation to training and support, PEI provides maximum product enhancements and added value for customers. This commitment begins with intensive pre-installation planning and continues through system configuration, installation, cutover, maintenance and beyond.

The Sanborn Map Company, Inc., Pelham, NY

Sear- Brown, Dewitt, NY

Sear-Brown is a planning, architecture, engineering and construction firm offering services in Geographic Information Systems (GIS), Computer-Aided Facilities Management (CAFM) and data management services; architecture; mechanical, electrical, structural, civil/site, traffic and transportation engineering; landscape architecture; environmental services; land surveying; and construction services. With 15 offices, the company's practice is diversified and serves a broad spectrum of public and government agencies, institutions, industry, private developers and corporations. Our full-time staff of approximately 800 has been involved in projects of all sizes across the country and abroad.

Surdex Corporation, Chesterfield, MO

Surdex has served Federal, State, County, Municipal and Private Agencies for over 45 years. During that period, Suredex has been recognized as a premier geo-spatial data provider; supplying accurate and precise information - on time and within budget. We attribute our success to an unwavering commitment to the quality of our products, our exceptional staff and equipment resources, and to the satisfaction of our customers.

One key factor distinguishing Suredex from other photogrammetric firms is our commitment to helping you realize and achieve your GIS goals and objectives. With a highly trained and experienced staff, Suredex can provide a complete geographic solution customized to your needs. Suredex will discuss your short-term and long-term needs, offer you options, and make specific recommendations to meet your project needs. Suredex will work with you to develop a database design, customize GIS applications, and provide you with an implementation plan for achieving your goals in a timely and cost-effective manner.

In addition to our comprehensive GIS services, Suredex provides the following to our clients: Aerial Photography Acquisition, Ground and Airborne GPS Control Surveys, Fully Analytical Aerial Triangulation, Photogrammetric Data Compilation, Digital Orthophotography Generation, and a full range of applications development and programming services.

Systems Development Group, Utica, NY

Systems Development Group (SDG), provides products and technical services primarily focused on "GIS and Document Imaging" for Municipalities/Agencies. Emphasis is directed toward providing a "quick learn" interface for the casual user. SDG develops applications with optimized cost performance based on in-depth requirement analysis and "up front" planning for migration of information.

Products & Services:

- Document imaging & management is a powerful complement to geographic information (GIS) and desktop mapping systems. GeoImager AVX is an ArcView extension that image enables ArvView projects utilizing a simple point and click interface. GeoImager was primarily developed for Arcview users who require imaging acquisition capabilities, and/or users

- who want to integrate imaging beyond the limitations of hot-linking.
- Rapid application development, system design, integration, and installation.
- GIS data acquisition, organization, conversion, and formatting.
- Professional scanning services including raster to vector conversion.
- Authorized ESRI Business Partner, Developer, & Reseller.

Discipline(s): AM/FM (Utilities), Real Estate/Cadastral/Assessors, Community Development, A/E/C, Federal/State/Local Governments, Planning, Water/Wastewater

U.S. Geological Survey, Troy, NY

The U.S. Geological Survey (USGS) is the Nation's largest water, earth and biological science, and civilian mapping agency.

The material presented at this conference demonstrates the use of LIDAR imagery, GIS coverages, and geologic information that the USGS can provide to Federal, State and local environmental agencies to address geologic hazards.

On April 27, 1993 a large landslide occurred along the foot of Bare Mountain in the Town of LaFayette, about 12 miles south of Syracuse. This was the largest landslide to occur in the State since the early 1900's, according to the New York State Geological Survey. Debris from the landslide covered 1,500 feet of Tully Farms Road with more than 15 feet of mud and three homes were destroyed. Most residents were away from their homes at the time, and no fatalities or serious injuries were reported.

Federal and State environmental agencies and several universities have conducted studies in the area to identify the cause of this landslide and assess the potential for future landslides. These studies indicate that several landslides have occurred at the base of Bare Mountain. Radiocarbon dates of woody material beneath these older landslides indicate they occurred about 6,100 and 9,870 years ago. Knowledge of how and when older landslides occurred could provide an indication of the potential for future landslides along the foot of Bare Mountain.

Waypoint Technology Group, Albany, NY

Founded in Albany, New York in 1997, Waypoint Technology Group provides a wide range of Global Positioning System ("GPS") mapping and surveying solutions for businesses, government, and educational institutions in New York State. In addition to GPS equipment rental, system integration, and training, Waypoint offers customized field mapping and data collection services for clients who require an efficient means for mapping and managing field assets resources and other physical features or conditions.

At Waypoint Technology Group, our principal focus is in providing a full range of GPS services designed to help our clients acquire georeferenced data, and, in turn, translate that data into information that can be used in making sound business decisions. Waypoint's clients include ecological consultants, municipal planners, land surveyors, engineers, golf course developers, and mining and telecommunications companies.

Waypoint is an authorized dealer of survey and mapping-grade GPS systems for Trimble Navigation, Ltd., the worldwide leader in GPS. As a Trimble dealer, Waypoint provides product distribution and technical support for the full line of Trimble GPS survey and mapping products. In addition, Waypoint is an authorized reseller of distance measuring equipment made by Laser Technology, Inc.

Waypoint Technology Group is on the Worldwide Web at www.waypointtech.com.

Weiler Mapping, Inc., Horseheads, NY

The Weiler organization has been providing specialized geographic data since 1954. Our services now include:

Tax Map Creation and Conversion- Weiler has specialized in the production of Assessment mapping throughout the northeast since 1972. Our projects include new mapping compiled from deeds on photogrammetry and the conversion of existing mapping to digital format. Weiler guarantees that all projects will receive NYS ORPS approval.

Utility Conversion- Weiler provides the conversion of paper maps and tabular records for sewer and other utilities, structured for

turnkey use with ESRI ArcView software.

Field Data Collection- Weiler has three fully equipped field survey crews, Leica GPS receivers, and three licensed surveyors on staff to provide a full range of survey control and field data capture services.

Data Maintenance- Weiler provides contracted maintenance for assessment mapping, utility mapping and a variety of other GIS data layers.

ESRI Desktop Software Products- Weiler is an ESRI Business partner, providing software and training as part of a complete GIS solution for our clients.



16th New York State Geographic Information Systems Conference

Presentation Abstracts

ArcGIS 8.1: The Future ESRI Technology Direction

Chris Attridge, Account Manager, ESRI-Boston, 100 Conifer Hill Drive, Suite 305, Danvers, MA 01923 [Phone: (978) 777-4543 x8420 Fax: (978) 777-8476]

ArcView and ArcInfo were conceived a number of years ago as merging into a single, integrated platform. With the release next release of ArcInfo 8.1, we will simultaneously release the next version of ArcView. At this release, users will see a common architecture, common code base, and single, open development environment, and share a single data model (GeoDatabase). This has been something that ESRI and its users have wanted for many years and will result in, we believe, a dramatic increase in both use and interoperability between the two different environments.

Digital Earth: A Pennsylvania/Regional Demonstration Project

Todd Bacastow, EMS Environment Institute, 2217 Earth-Engineering Science Building, University Park, PA 16802 [Phone (814) 863-0049 E-mail: bacastow@psu.edu]

This demonstration project supports the *Digital Earth* initiative and is intended to be a regional contribution to this new and evolving worldwide framework for integrating a wide variety of geo-referenced data, processes, and place-based knowledge. Over the last few decades, government, commercial, and universities within the region have amassed an enormous amount of digital information. However, these archives are insignificant in comparison to the vast quantity of future spatial data spurred by developments by business activities, local government, and new commercial remote sensing systems. This massive amount of data will likely overwhelm current management approaches and, moreover, can be only effectively used with the application of locally valid geoprocessing techniques and a suitable contextual knowledge of place. This project demonstrates a solution to these problems and extends *Digital Earth's* vision of an integrated, highly distributed, easily accessed resource of georeferenced data, locally valid processes, and knowledge.

Use of LIDAR Technology to Support Base Mapping in Westchester County, NY

James Cannistra, Sr. Vice President Strategic Accounts, Analytical Surveys, Inc., Suite 306, 2 Pidgeon Hill Drive, Sterling, VA 20165 [Email: Jcannistra@anlt.com]

Westchester County, NY is in the process of developing a large scale, high accuracy photogrammetric base map. This base map will consist of digital orthophotography, planimetric, and topographic data. This presentation will provide an overview of the County's overall project. It will specifically address how LIDAR (Light Detection and Ranging) technology is being used to support orthorectification and contour generation. The presentation will provide an overview of LIDAR technology, focusing on uses and applications for County government, with Westchester County used as an initial case study.

GIS and the GLOBE Project

Patsy Cicala, GLOBE Trainer/Teacher of Environmental Studies, Poughkeepsie High School [Phone: (914) 451-4850 Email: pcicala@pcsd.k12.ny.us]

Global Learning and Observations to Benefit the Environment (GLOBE) is a hands-on-international environmental science and education program. GLOBE links students, teachers, and the scientific research community in an effort to learn more about our environment through student data collection and observation.

In schools throughout the world, students from the ages of approximately five through eighteen years conduct a continuing program of scientifically meaningful environmental measurements. GLOBE students transmit their data to a central data processing facility via the Internet, and receive vivid images composed of their data and data from other GLOBE schools around the world in return. Through the program, students acquire information from a variety of sources, and collaborate with scientists and other GLOBE students and communities worldwide. After such a data collection, these scientists use this data for educational and research purposes.

Near and around their schools and homes, students are asked to gather land cover / usage information. This data is used by scientists to verify and therefore ground truth Satellite images collected by the National Mapping Division of EROS and other governmental agencies. The students learn about remote sensing and are shown the importance of scientific data verification through this project.

The first part of the project involves the learning and manipulation of a GIS Mapping programs. Students are then able to get coordinates and locate landmarks that will be used to verify specific areas of land usage. The second phase of the project tests the ability of the students to analyze and cluster areas of interest from a 15Km X 15Km Satellite Image provided by the GLOBE Program. To do this, they use Multispec, an Imaging analysis program. Different bands of light are reflected off of surfaces of the earth, resulting in images captured by the different satellites that revolve around the earth. Students cluster these multi spectral reflections, and try to locate specific areas using the computer.

For the next phase of the project, students compare data collected in the first two stages. This results in the choice of a field site for classification. Students then visit the site, using the computer and G.P.S.unit to verify the location, take pictures in the four cardinal directions from the middle of their site, and assign a 4 level identification code (defined by GLOBE) to the site by identifying usage and biological land cover (species ID). Registry of the satellite images is an integral part of the project.

The final stage utilizes the GLOBE REPORT DATA ENTRY SCREENS via the Internet in order to report ground-truthing data. Analysis and presentation to the class is the final phase. This includes demonstration and analysis of maps, pictures, and findings for their site.

GIS in the Community College: Finding a Balance Between Academic Understanding and Hands-On Learning

Michael R Courneen, TrueNorth Company and Erdman Anthony/ Erie Community College GIS Certificate Program, 169 Century Road, Buffalo, NY 14215-1309 [Phone: (716) 838-5146 Fax: (716) 838-5205 Email: courneen@pcom.net]

With the renewed awareness of the value of geography and, specifically, geographic information systems (GIS), there is also growing interest regarding the appropriate level and type of education that an individual must obtain in order to understand GIS and how it can be applied in business, government and education. This concern is also very relevant to the K-16 curriculum. The community college environment provides a unique opportunity to expose a diverse student body to the exciting field of GIS. Many students find GIS fascinating, but they have not had previous course work in the spatial sciences. Teaching GIS in this setting requires a balance of GIS concepts coupled with extensive hands-on experience. This session will examine issues that deal with balancing the acquisition of core GIS knowledge in a K-16 setting. Information from ECC's National Science Foundation GIS curriculum grant and the July 2000 ESRI K-12 teacher training session will be provided. M. Courneen is an ESRI Authorized Instructor for ArcView and K-12 GIS. Keywords: GIS Education, Community College GIS, K-16 GIS Education.

The GeoData Alliance: What's in it for New York?

Kathy Covert, Federal Geographic Data Cooperative [Email: klcovert@USGS.GOV]

Do you want access to geospatial data that are easy to use and easy to share? Would you benefit from being part of a nationwide network of people who care about geographic data? Would you like to influence local, regional and national standards, policies and practices? Yes? In this interactive session you will learn more about how you can participate in the GeoData Alliance Organizational Initiative.

Serving the Citizens of States and Localities

Paul Culligan, Public Sector Account Manager for NYS, MapInfo

Using GIS to Assess Community-level Risk for Youth Alcohol and Substance Abuse

Kathy Dixon, Research Scientist, New York State OASAS, 1450 Western Avenue, Albany, NY 12203 [Phone: (518) 485-0262 Fax: (518) 457-1790]

The NYS Office of Alcoholism and Substance Abuse Services (OASAS) has developed a social indicator methodology to assess the need for youth alcohol and substance abuse prevention services by linking community indicator data with GIS technology. The PRISMS (Prevention Risk Indicators Services Monitoring System) Profiles geographically display relative risk for youth alcohol and substance abuse, as well as direct consequences of abuse for 161 zip code communities in New York City.

Methodology: The PRISMS Profiles combine forty-three community indicators representing known correlates of alcohol and substance abuse into eight risk constructs through factor analysis. These risk constructs are then included in one of two risk indices based on the theoretical framework: the Community Risk Index or the Youth Risk Index. Three indicators measuring direct consequences of youth alcohol and substance abuse are factor analyzed, resulting in the Youth Alcohol and Drug Consequences Index. The standardized construct and index scores for each zip code area

are divided into five risk categories (lowest risk, below average risk, average risk, above average risk, and highest risk) based on standard deviation cut points.

Application: Data maps that visually depict risk for youth alcohol and substance abuse by each zip code are created for each of the eight risk constructs and the three indices. These data maps allow policy makers and prevention program planners to easily identify areas of greatest risk for youth alcohol and substance abuse by risk construct and index, allowing for the targeting of specific prevention strategies. The PRISMS NYC Profiles also provide overlay maps of school district, police precinct and community district boundaries, locations of high schools, and OASAS funded treatment and prevention providers, as well as maps displaying major roadways and landmarks. These overlay maps allow for comparison of high-risk areas to existing ASA services, enabling policy makers and program planners to identify areas in need of expanded youth alcohol and substance abuse prevention services.

A Non-Technical Overview of Satellite Imagery and Remote Sensing Data for GIS

Robert J. Farrell, Erdman Anthony and
Michael R. Courneen, Erdman Anthony and TrueNorth Company

The availability of geospatial imagery captured from space is growing rapidly. This non-technical presentation is intended for GIS/mapping professionals who are largely unfamiliar with satellite imagery and remote sensing. The presentation will briefly cover the electromagnetic spectrum and introduce its most common features. Characteristic reflectance of common materials (pavement, roof tops, soil, forest cover, etc.) will be illustrated. Traditional photographic processes versus digital sensor technology will be compared. Tradeoffs between image resolution and electromagnetic bands captured will also be discussed. The major imagery providers such as Landsat, Spot, and Orbimage will be covered. Availability and *ballpark* pricing for imagery will be addressed. The kinds of processing tasks required of end users in business and government include cropping, reformatting, resampling, mosaicing, georeferencing, orthorectification, and radiometric correcting. These tasks will be introduced. Examples of image classification will be provided with ARC/INFO and ArcView Image Analysis.

Communities as Classrooms

Rick Fritsler, Ulster County [Email: RFRITS@aol.com]

We will present the Communities as Classrooms program as an effective framework to link schools, local government, colleges and non-profit organizations in a collaborative approach to GIS development and education. Our focus will be on how CAC 2 provides education and training which prepares citizens for the practical application of GIS to resolve local issues. We'll demonstrate the effectiveness of the approach by presenting the resources and products the collaboration has developed.

GIS Cost/Benefit

Stephen R. Gillespie, Economist, United States Geological Survey, Office of Strategic Planning and Analysis, Reston, VA.

The U.S. Geological Survey (USGS) has developed a model to predict the benefits of using GIS technology. Benefits can be expressed as reduced costs or as improved quality of applications. The key to measuring benefits is to identify what has changed because of the GIS. The USGS model focuses on the complexity of a GIS application as the key factor influencing the level of benefits.

Teaching Creative Thinking Using GIS

Eric Greenfield and *Lee Herrington*, SUNY ESF, 320 Bray Hall, 1 Forestry Drive, Syracuse, NY 13210 [Phone: 470-6674 Email: lpherrin@syr.edu]

A series of examples of how creative thinking can be taught or reinforced using geographic problems. Examples are described for both raster and vector GIS. An example of using nominal group techniques to get students involved in problem solution definition is also described.

EOS/Terra- Status, New Science Results, and Potential Applications

Timothy L. Gubbels, Applications Program Scientist, Solid Earth and Natural Hazards Programs Senior Scientist, Pacific Disaster Center Program (OASD(C3I)), Applications and Outreach Division, Office of Earth Science, NASA Headquarters, 300 E. St. SW, Washington, DC 20546

LIDAR in South Shore, Long Island GIS

Thomas Hart, Jr. NYS Department of Health

Tidal Wetland Restoration, South Shore Estuary Reserve, Long Island, New York

Thomas Hart, Jr. and Jeffrey L. Herter, Coastal Resources, New York State Department of State

On behalf of the South Shore Estuary Reserve Council, New York's Department of State (DOS), Division of Coastal Resources, is working in partnership with the U.S. Fish and Wildlife Service (F&WS), Coastal Ecosystems Program, and the U.S. Army Corps of Engineers (ACE) to develop a comprehensive wetland restoration plan for Long Island's south shore estuary. The estuary is a large coastal embayment complex encompassing over 25,000 acres of estuarine and pallustrine wetlands. Historical impacts to the estuary's tidal wetlands have been substantial, with most surviving wetlands having been ditched under mosquito control programs, with a tremendous loss in living resource values. The objective of conducting the comprehensive restoration plan is twofold: 1) identify a long term restoration goal for tidal wetlands and wetland-dependent fish and wildlife resources, by quantifying the total amount of potential wetland restoration acreage; and 2) identify and characterize specific site restoration requirements. Both objectives are being achieved using GIS spatial analysis, based on newly developed digital data sets. Analysis has provided a qualitative and quantitative assessment of wetland restoration needs over large areas, helping to identify prior conditions and establish more meaningful priorities.

To identify wetlands appropriate for restoration/enhancement it was necessary to locate historic and current wetland occurrence and extent, as well as current ownership. In order to determine where wetlands were historically, a number of geographic data sources were used. DOS digitized National Oceanographic Survey maps from the 1880's - 1920's. These "vintage" coverages used in conjunction with raster 1930's topographic maps (T - sheets); and 1940's aerial photography, yielded an accurate picture of prior wetland conditions and dynamics in the Estuary. State tidal wetland regulatory maps from 1974 digitized by DOS identified dredged spoil areas and wetlands formerly connected to tidal influence. National Wetland Inventory (NWI) maps from 1978 & 1995 were obtained from F&WS in digital format. These sources, when compared with current conditions, represented by recent (1994) orthophoto series, facilitate assessment of wetland loss, degradation and even gains. Suffolk County digital parcel maps and town tax assessor's data were used by DOS to determine publicly owned lands and lands owned by private conservation organizations (i.e. The Nature Conservancy, etc.) corresponding to the identified areas of loss and/or degradation. In concert with DOS mapping efforts, USFWS created GIS coverages and an Access database of species and habitat use information and compiled an inventory of current restoration efforts in the south shore region for incorporation into a wetland restoration decision-making tool.

The current phase of the partnership consists of a systematic effort to search out candidate areas for wetland restoration or enhancement and is being undertaken in a series of meetings with F&WS and ACE. The resulting analysis will produce a total estimate of appropriate wetland restoration acreage in the South Shore Estuary.

An ArcView Interface for Small Libraries

Lee Herrington, SUNY ESF, 320 Bray Hall, 1 Forestry Drive, Syracuse, NY 13210 [Phone: 470-6674 Email: lpherrin@syr.edu]

Small libraries do not have the expertise necessary to support the viewing of geographic data efficiently. This paper describes the development of a simple interface for these libraries and its installation and testing in the Indian Lake, NY town library. The interface allows the user to go through a simplified selection process to display the desired map information. The system always uses the same symbolization for each type of data. That is, roads, hydrology, etc. always have the same appearance regardless of which counties are selected. The interface also sorts the layers so that point and line data is on top of polygon data.

Use of GIS in the Creation of an Agricultural District in Westchester County

George Hilton, GIS Planner, Westchester County Planning Department [Email: ggh2@westchestergov.com]

Project Goals and Objectives: To identify, map and develop attribute data for agricultural properties in Westchester County to be included in a countywide Agricultural District. Mapping agricultural properties is an important step in preserving agricultural lands in areas such as Westchester County where increased development pressures threaten the existence of such operations and the role they play in providing valuable open space in a county with a population of nearly 1 million.

Methodology: Development began by using a database (developed by the Westchester County Agriculture & Farmland Protection Board) containing ownership, address and parcel identification numbers for all properties to be included in the Agricultural land coverage. The database was joined to parcel data for municipalities having digital tax maps. Agricultural properties were selected and merged into a single Agricultural land coverage.

For areas where parcels were unavailable, we were able to locate parcels on hard copy maps. Scanned images of each map were then georeferenced to the county's coordinate system. The images were used as a backdrop for digitizing parcel boundaries. Using images to digitize from allowed for accurate parcel creation, an important feature of an agricultural district. Once the parcel boundaries were created, attribute data was entered for each parcel.

Finally, a complete Agricultural land GIS coverage was available and submitted to the County Board of Legislators for adoption. A complete desktop application has been created allowing for extensive query and analysis of agricultural properties by size, ownership, municipal location, land area, land use and zoning, and type of agricultural use.

Benefits:

- Instead of a paper map with generalized boundaries, the agricultural district contains accurate parcel based boundaries with data unique to each site.
- Data can be used to assist in local government planning and zoning decisions.
- Identifying Agricultural lands assists in Open Space preservation and Natural Resource protection in a densely populated area.
- Allow the public to locate Agricultural lands and areas of rural character. Assist in County Agrotourism opportunities

A Conversion Experience with Agricultural District Maps

Susan B. Hoskins, Diane A. Ayers and Eugenia M. Barnaba, Cornell Institute for Resource Information Systems, 302 Rice Hall, Cornell University, Ithaca, NY 14853 [Phone: (607) 255-6529 Fax: (607) 255-4662 Email: sbhl@cornell.edu]

Conversion of large analog data sets to digital format using scanning methods is a complex process and requires careful consideration of many issues. The Cornell Institute for Resource Information Systems and N.Y.S. Department of Environmental Conservation, collaborated on a project to scan Agricultural District Maps for the N.Y.S. Department of Agriculture and Markets. The data set, 500 sheets representing 400 districts, ranges in map size from 2 square feet to 16 square feet (8 million acres of land in 52 counties) While maps meet a minimum cartographic standard, they vary greatly in sheet size, quality of original print, line weights and map projections. In addition, time and funding constraints precluded the proper development of protocols. As a result of these multiple issues, a major post-scanning editing effort was required.

Digital Preservation and GIS Data: What Have We Got to Lose?

Nan Hyland, Cornell University, Ithaca, NY

In 1998, Cornell University's Mann Library created CUGIR (Cornell University Geospatial Information Repository), a Web-based repository providing searching, browsing and download access to geospatial data and metadata for New York State. As more data are collected and updated, we are faced with the challenge of storing and archiving these data. Media degradation, hardware obsolescence, software dependence, and data migration have resulted in the loss of other large and important digital data sets. Careful planning is needed in order to ensure that GIS data sets are accessible and usable for as long as they are needed. This session will focus on the organizational and technical issues that need to be addressed within the GIS community to preserve important data.

Using Intranet/ Internet Technology to Replace Sneaker Net in Regional/ Enterprise GIS

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The Nassau County GIS has recently completed the implementation of regional data sharing using an intranet connecting three towns, two cities, and three villages to the County's network. These governments encompass a 300 square mile area, with a population of 1.3 million. The system was facilitated by a Technology grant from the New York State Archives and Records Administration (SARA). The Pilot Electronic Government Initiative (PEGI) grants are designed to develop model approaches for counties or other regional governments to provide their constituent towns and villages with the capability to engage in electronic commerce with citizens and other government agencies over the Internet and NYT, a state-operated telecommunications network for government use. The PEGI grant is providing Nassau County with a secure FTP site for electronic distribution of data. The implementation will include appropriate firewalls and additional security features. Training will be provided to educate all participants in the use of the system. The system also makes it possible for the participants to access the County's GIS Help Desk and its services which include: a Calendar of Upcoming Events, Documentation (User Guide, Data Dictionary, and Metadata); Directory (key contact individuals); and Support (problem reporting for hardware, software, and data including the ability to attach images of problem areas). The Support Section also includes a Query Log enabling users to review previously logged problems, System News, Frequently Asked Questions (FAQ's), a script library, and a comments area. Later phases of the project will allow multi-participant partners to maintain data that is their area of responsibility, through the intranet. This will be implemented in phases as data maintenance standards are implemented, training is accomplished, and the ability of the multi-participant to maintain the data has been demonstrated. The e-commerce phase will also provide access to Civil Service Forms and allow their submission via the internet.

Using GIS to Identify Potential Open Space Parcels for Acquisition within the South Shore Estuary Reserve

Peter E. Lauridsen, Jeffrey L. Herter GIS Unit, Division of Coastal Resources, New York State Department of State and *Thomas Hart Jr.*, New York State Department of Health [Email: tfh01@health.stat.ny.us]

The Long Island South Shore Estuary Reserve (SSER) was designated by an act of the State legislature in 1993. The SSER encompasses the estuary waters and the landward watershed that drains into the estuary bays and tributaries, extending for 80 miles from Rockaway Inlet and the western boundary of the Town of Hempstead in Nassau County, to Shinnecock Bay and the village of Southampton in Suffolk County. The South Shore Estuary Reserve Council is directing the completion of a *Comprehensive Management Plan* (CMP) for the SSER. The CMP is a major effort to protect and preserve the natural, economic and social features of the SSER.

The GIS unit within New York State Department of State's Division of Coastal Resources is assisting the CMP analysis by identifying open space parcels within the six towns of the SSER. Open space is defined as areas that do not exhibit man-made structures or "improvements". The analysis performed is a "Gap" analysis, that is, it identifies those open space areas not already protected. Protected areas include parks, schools, cemeteries, landfills, public and not-for-profit lands and Wild, forested, conservation land and parks. The South Shore Estuary Reserve study area has a mix of land cover types, from forests to highly developed. A 16 class Land cover vectorized polygon table (coverage), derived from satellite imagery captured in 1994, was used to produce an open space coverage based on land cover classification. Twelve of the 16 land cover classes were used in the analysis. Developed areas, impervious surfaces and water classes were dropped, leaving forests, bare ground, cultivated and various palustrine and estuarine vegetative classes as the basis for an open space land cover type. The resultant coverage was further narrowed by land use/ownership type, that is, areas already protected were classified (schools, parks, etc.). This coverage in conjunction with town parcel data, was used to identify parcels, greater than five acres that exhibit open space character. Open space parcels were verified using color infra-red orthoimagery, Office of Real Property Services parcel data and Department of Transportation's planimetric quadrangles.

The resultant maps of open space parcels are being used in the CMP for various planning initiatives, such as identifying gaps in non-point source pollution controls, linking open space and centers of recreation and identifying important waterfront properties for protection.

The Long Island Rail Road: Expanding GIS Tools to User Departments Phase II

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Brian George, Staff Manager, The Long Island Rail Road, Strategic Investments Department, 90-27 Sutphin Blvd, Jamaica, NY 11435 [Phone: (718) 558 3804]

This presentation builds upon last year's presentation, as the Long Island Rail Road has added a number of enterprise-wide tools to their GIS. Some of the tools to be demonstrated include the use of the Intranet for GIS, in-house field measurement, the integration of safety records with FileNet and GIS, field data collection, Marketing's use of GIS to improve the customer experience, and the integration of GIS with rail measurement devices to detect rail flaws.

The presentation will be a combination of discussion of the technologies used, as well as a demonstration of a number of applications.

The Removal of Selective Availability: New Opportunities for Field Data Collection

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Steven DeGloria, Chair, Department of Crop and Soil Science, Cornell University, 315 Rice Hall, Ithaca, New York [Email: sdd4@cornell.edu]

Until recently, the limited accuracy of low cost code based receivers for field data collection prevented many users from adopting the technology. Typically, users were required to perform post processing of the data, or utilize more expensive GPS units to achieve the necessary accuracies. The United States government's removal of selective availability presents many new opportunities for performing real-time field data collection, with better accuracy, using lower priced code based receivers.

This presentation will illustrate the accuracy results of using code based receivers both with and without selective availability, and demonstrate the some of the recent uses of field data collection using GPS and PalmPilot technology. The discussion will also include an outline of the appropriate uses for this technology, given the accuracy limitations.

NASA Commercial Remote Sensing Program's Workforce Development National Implementation Plan

Margaret Leonard, NASA Education and University Affairs, John C. Stennis Space Center, MS

Since the end of the cold war, the National Aeronautics and Space Administration (NASA) has initiated a geospatial information revolution. NASA's Commercial Remote Sensing Program (CRSP) at Stennis Space Center, managed by David Brannon, is taking the lead in the commercialization of remote sensing. The mandate for this effort is for the United States to become the recognized world leader in the geospatial technology industry. As growth and development occurs, a qualified workforce is required.

NASA's Dr. David Powe, Chief, Education and University Affairs at Stennis saw the need to put in place a comprehensive program to produce a trained workforce to populate the developing remote sensing industry. To satisfy this need, the National Workforce Development Education and Training program was born.

Based on the successful *Mississippi Model*, NASA's efforts to support the growth and development of the geospatial technology industry builds on a three-part strategy. The Plan is customer driven, utilizes existing infrastructures and is designed to create systemic change.

The strategy is simple, but at the same time crucial to the success of the workforce development concept. The Plan must be customer driven because the primary purpose is to provide trained workers the geospatial industry customer requires and will hire. Rapid economic change, increasing technology and calls for greater efficiency are the benchmarks for the utilization of existing resources within infrastructures. Being customer driven and utilizing existing infrastructures promises to produce long term systemic change.

The NASA partnerships in the National Workforce Development Education and Training program are critical to its success. Federal agency partners include the U.S. Departments of Education, Labor, Agriculture, Interior, Transportation and Defense. Industry partners involve market leaders and key decision-makers in remote sensing, GIS and GPS. The growing public education and outreach partners include the Smithsonian Institution and its Natural Partners Program, National Geographic Society, Public Broadcasting, the Global Learning to Benefit the Environment Program, and CRSP Affiliated Research Centers.

Mississippi's statewide Workforce Development Education and Training (WDET) initiative (*The Mississippi Model*) was launched in 1997 by CRSP and the Stennis Education and University Affairs Office. The objective of WDET is to establish world-class spatial information education in Mississippi that will address the critical shortage of trained personnel.

The success of the Mississippi Model capitalizes on the following partnerships.

K-12 Programs The Mississippi Department of Education and WDET initiated a pilot program to introduce spatial information science in Mississippi schools. When fully implemented in 2002, spatial information training will reach all Mississippi students.

Community Colleges The State Board of Community and Junior Colleges is providing degree and certificate programs. Application Centers through the Skill Tech Program will provide citizens, industry and government agencies access to spatial information.

Centers of Excellence Stennis Space Center, Jackson State University, Mississippi State University, the University of Mississippi, the University of Mississippi Medical Center, and the University of Southern Mississippi will serve as Centers of Excellence for Geospatial Studies.

The Mississippi Authority for Educational Television provides WDET with informational and promotional programs to increase public awareness. The ETV Interactive Video Network, a 150-site video teleconferencing system, is being used to disseminate information and training modules statewide.

Engaging the successful strategies developed and tested in the *Mississippi Model* provides a secure foundation for the launch of the National Implementation Plan to establish the U.S. as the world leader in the geospatial technology industry.

Mapping Hawaii by Airborne Direct Digital Imaging

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The US Department of Agriculture's Natural Resources Conservation Service and the Farm Service Agency have contracted the team of Emerge, Landcare Aviation, and PAR Government Systems to produce color infrared digital orthorectified quadrangles for the eight major Islands of Hawaii. Data Acquisition is being accomplished via Airborne Direct Digital Imaging – an all-digital technology now finding its place in the remote sensing market. The twin engine Piper Aztec now flying in Hawaii is equipped with a state-of-the-art digital camera, dual channel Global Positioning System (GPS), and an Inertial Measurement Unit (IMU). This integrated trio of sensors collects imagery with position and attitude data that permits geopositioning of each frame without the use of aerotriangulation and ground surveyed control. Landcare Aviation flies the missions using Emerge's sensor package to collect the data. Emerge performs orthorectification, mosaicing and geo-positioning of the data to meet National Map Accuracy Standards. PAR adds Datum ticks and formats the image data on to a CD-ROM according to the standards set by the government's National Digital Ortho Photo (NDOP) Committee. Applications for the 496 DOQs (6,447 sq miles) that cover the State are in agriculture, forestry, geology, water resources, disaster assessment, and pollution detection as well as orthorectified image maps for a variety of land use planning activities. The collection system and its technology are highlighted and several CIR images taken during the Hawaiian Mapping Project are shown.

How the Web Has Revolutionized GIS Data Deployment

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The lack of access to maps within the GIS has inhibited the use of these maps by people outside the GIS department. This wall has been completely broken through with the use of the web as a window or portal into the GIS database. This portal now offers all State, County and Municipal departments direct access to the precious GIS maps, no matter the format, exploding the benefits of GIS to the enterprise. Learn how an Enterprise Spatial Information Portal (eSIP) can offer all internet users a data clearinghouse full of maps and engineering drawings through a standard internet browser (Internet Explorer or Netscape).

Fine-Tuning Alignment of Reprojected Coverages on USGS Digital Ortho Quarter Quads and Draping on 3D Digital Elevation Models with ArcView GIS: What You Need to Know

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Attempting to align scanned or digitized images from different sources, and of different projection datum is a problem that has bedeviled many GIS users. Although ArcView's new projection utility has somewhat simplified the process, the reprojected coverages will typically line up only reasonably well with features on the digital orthophotos. In order to achieve a more precise alignment it is frequently necessary to "tweak" coverages. This presentation will illustrate how to reproject NAD27-based tax parcel and soil coverages onto NAD83-based Digital Ortho Quarter Quad images and how to fine-tune feature theme alignment upon the image base. Also illustrated will be the steps necessary to successfully drape the "fine tuned" coverages and the DOQQ upon a DEM (3D) model. Accuracy issues related to datum will be discussed.

NASA's Space-based Synthetic Aperture Radar (SAR) Program

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NASA has been at the forefront of space-based Synthetic Aperture Radar (SAR) science, technology, and practical applications, as demonstrated by Seasat in 1978, the Shuttle Imaging Radar missions (SIR-A, -B, and -C) in the 1980's and 1990's, and the recent Shuttle Radar Topography Mission (SRTM) in February 2000. These and various international SAR missions in the 1990's have firmly established the vast potential of SAR to provide unique information about our planet's surface characteristics, biodiversity, natural hazards, and resources. Using SAR interferometric techniques, these missions have provided unique measurements of surface deformation, glacier flows, and ice sheet velocities, and with SRTM data will provide the best near-global, high-resolution, topographic data set of the Earth.

This presentation focuses on future SAR mission concepts that build on NASA's past technology developments and achievements, and on lessons-learned from the recent LightSAR studies, to help fulfill NASA's Earth Science Enterprise strategic goals. The emphasis is on a globally preeminent SAR mission concept based on a dual frequency, polarimetric, interferometric SAR that has broad scientific, environmental preservation, operational, and commercial utility. This long-duration (> 5 year) mission will routinely provide valuable information about the dynamic processes that are changing the global Earth system. Alternate mission concepts, and the need to provide long-term continuity of SAR data for the diverse user community are also discussed.

The research described was performed at the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Data through the Library: What can I get for FREE?

John A. Olson, Maps/GIS Librarian, Syracuse University, 333B Bird Library, Syracuse, NY 13210 [Phone: (315) 443-4671 Email: jaolson@library.syr.edu]

Topics to be covered will include data choices available to patrons through the library. The "How and where" of locating data and what to watch out for. CD-ROM and Web data sources and interactive mapping Websites will also be discussed.

High Resolution Satellite Imagery - Demystifying the Technology --Are you Ready?

Sheldon K. Piepenburg, Executive Consultant, PlanGraphics Inc., 1300 Spring Street Suite 306, Silver Spring, MD 20910-3616 [Phone: (301) 588-8535 Fax : (301) 588-5979 Email: spiepenburg@plangraphics.com]

Satellite imagery, especially high-resolution satellite imagery is a topic of great interest. It has been cloaked in intelligence disguise, written about in numerous spy articles, and it has been mystifying to the general public. The first successful launch of a HI Resolution commercial satellite occurred late last summer, end speculation. Commercially available satellite imagery is here, presenting us with new opportunities and challenges. This presentation explores the impact of using satellite imagery, providing the definitive answers in non-technical terms by independent consultants.

The satellite imagery has sparked much debate, is the imagery appropriate as a data layer in Geographic Information Systems (GIS), Land Information Systems (LIS) or for Automated Mapping and Facilities Management (AM/FM) projects? This presentation will explain, in layman's terms, the technical aspects of satellite imagery, and the new products it delivers, the advantages and disadvantages of it's use including an elusive topic, it's cost. Presentation topics will include

- Satellite Imagery, its here, what is it?
- The Products, definitive answers to satellite imagery questions:
 - Resolution
 - Accuracy
 - DTM
 - Orthophotographs
 - Planimetric and Topographic Mapping
- Applications and new opportunities
- Advantages and Disadvantages
- Availability and Cost
- Open Discussions

This presentation will cover important considerations when planning and implementing satellite applications by exploring new opportunities for satellite imagery in several conventional settings. The attendees will receive valuable insight to reasons for satellite imagery, how to get started, and how to avoid problems. Finally definitive answers, presented in a non-biased and non-marketing atmosphere.

Combining GIS and Remote Sensing for Forestry Applications

Lindi J. Quackenbush, Trevis J. Gigliotti and Lee P. Herrington, Department of Environmental Resources and Forest Engineering, SUNY College of Environmental Science and Forestry, 312 Bray Hall, 1 Forestry Dr, Syracuse NY 13210 [Phone: (315) 470-4727 Fax: (315) 470-6958 Email: lquack@esf.edu]

The Affiliated Research Center at the SUNY College of Environmental Science and Forestry (ESF) recently completed a project with International Hardwood Consulting, a small consulting firm from Doylestown, PA. The project explored the possibility of integrating remote sensing and geographic information system (GIS) techniques to identify regions in the Allegheny National Forest that had high potential for containing valuable timber. The project was divided into several phases. The first phase used image processing techniques to identify desirable forest types. The second phase involved defining the factors that would contribute to limited logging access in a location and then using GIS techniques to delineate regions that satisfied these limiting factors. The final phase of the project involved combining the results of the GIS analysis and remote sensing processing to identify areas that were more likely to contain valuable lumber. While the spatial processing will not remove the need for fieldwork, the project showed a method to highlight candidate areas for further consideration. Thus reducing the time and cost involved in the highly field-intensive traditional method of searching for valuable timber.

The Affiliated Research Center at the State University of New York College of Environmental Science and Forestry was established in 1998. The ARC program is sponsored by NASA's Commercial Remote Sensing Program (CRSP). The mission of CRSP is to enhance and improve the commercial use of remote sensing and spatial information. The ARC at ESF provides companies with a unique opportunity to participate in research projects that explore commercially viable uses of geo-spatial data.

The NYS DPS Electric Outage Reporting System

Richard P. Slutzah, P.E., Senior Vice President, Bowne Management Systems, Inc., 235 East Jericho Turnpike Mineola NY 11501 [Phone: (516) 746-2350 Fax: (516) 747-1396 Email: rslutzah@bownemgmt.com]

When the northern portion of New York State was devastated by a major ice storm in the winter of 1998 thousands of citizens were left without power for weeks. The State's Department of Public Service (DPS) and the State Emergency Management Office (SEMO) encountered many problems tracking the outages, allocating personnel and resources, and coordinating the restoration effort. Attempts to gather data from the various utility companies and map outage information was a painstaking task that consumed hours each time an updated map had to be produced. The goal of this project was to develop an integrated tool to allow DPS to receive, process, analyze, and report outage data quickly and in a uniform format. As the project began in July 1999, the requirements were modified to require a fully functional system in time to monitor any electric power outages resulting from Y2K computer problems. The presentation will describe the six month effort to create a standard digital basemap of the

entire state and its electric distribution information, and a series of custom applications for transferring data from each of the utilities to DPS and SEMO FTP sites where the information was validated, normalized and loaded into an Oracle database. Once the data was properly indexed and stored in the database, custom applications were used to prepare maps, reports, and graphs for DPS use and for dissemination to other State agencies.

School Navigator- A GIS-based System for Computer-Aided Facilities Management

Michael Stoogenke, Sear Brown [Email: Mstoo@searbrown.com]

The New York State Education Department (SED) is requiring all school districts to prepare two documents. One is a buildings conditions report; the other is a five year facilities plan for capital projects.

The School Navigator system was developed to help school districts comply with these SED requirements. School Navigator is an ArcView-based application for computer-aided facilities management (CAFM). It provides school districts with easy retrieval, query and reporting or facilities-related data. School Navigator links building plans with photographs, scanned documents, and data tables for the 43 different site/building systems required by SED. School Navigator generates building condition reports through live DDE links to Microsoft Word. These capabilities significantly reduce the time needed to produce a submittal package for SED.

The Special Emphasis of NASA's Office of Earth Science on State and Local Government Needs

Mike Thomas, Director of NASA's Applications, Commercialization and Education Division

Earth Science Applications: NASA's Office of Earth Science places special emphasis on the needs of state and local governments.

Implementing GIS in Your Organization

Sam Wear, GIS Manager, Westchester County GIS [Phone: (914) 285-3047 Email: stw1@westchestergov.com]

This 3-session track is designed for individuals with little or no GIS experience, as well as those individuals responsible for starting up GIS programs. The course will be segmented to provide a basic overview of important GIS program components including, but not limited to, hardware and software, applications, data, organizational structure, and general GIS technology trends.

Using case examples, discussion will focus on building GIS programs & projects incrementally which are consistent with the fiscal and technical resources available to the organization. Items such as funding, when and how to use consultants, building administrative support, state and federal GIS resources/programs, and the very important element of *organizational change*, will be reviewed. The expanding use of the internet for GIS development and how to avoid common GIS pitfalls will also be highlighted.

Individuals attending all three sessions will receive a "*Certificate of Completion*" which will be sent out after the conference. Hardcopy lecture notes will be provided upon request; however, because the entire course will be presented as a PowerPoint presentation, individuals will be able to download the course from the Westchester County GIS web site.

Combing and Intersecting Linear Data

Frank Winters, NYSDOT [Phone: (518).485-7487]

This presentation will take you through New York State DOT's past, present and future techniques of intersecting and combining linear highway data. NYSDOT uses two principle linear referencing methods. The first is a field-posted reference marker system used for any department activities requiring a field reference. This included most highway maintenance activities and traffic accident analysis. The second linear measurement system is called milepoint. Milepoint measures are based on a precision odometer reading from a county or city line. The Milepoint system forms the foundation of the pavement inventory systems, and consequently, NYSDOT's highway improvement plans. No tabular relationship, or lookup table, exists to equate reference marker measures with milepoint values. GIS has provided the most efficient way to combine data keyed to these discrete measuring systems. While both measuring systems are maintained independently in a GIS highway network, both are built on the same set of line work. This presentation will provide a brief description of the methods used for combining and intersecting reference marker and milepoint data that were in-place at the start of our department-wide GIS roll-out in 1995. Next, a demonstration of a new ArcView extension developed to allow users to more easily perform line-on-line intersections will follow. This new method does not process measure values to perform the intersection, but rather, produces a direct spatial overlay. Finally, some future direction for this functionality including a few minor enhancements to underlying GIS software, and the resulting end-user benefits will be proposed.



16th New York State Geographic Information Systems Conference

Poster Abstracts

Croton Watershed Land Use Classification System

Josephine Amato, Westchester County Geographic Information Systems (GIS), Department of Information Technology, 148 Martine Avenue, Room 318, White Plains, NY 10601

A watershed is defined as the land around a body of water where all rain, snowmelt and other water eventually flows into a lake, pond, wetland, river or stream. Watershed areas are extremely sensitive to human influence. The Croton Watershed is made up of approximately 12 reservoirs and provides drinking water to New York City, Putnam County, NY and Westchester County, NY.

The Croton Watershed Land Use classification System has been developed with the intent to utilize parcel-based information and reclassify lands within each watershed community to properly associate the use of land with environmental sensitivity. There are ten Westchester County towns within the Croton Watershed area; Bedford, Cortlandt, Mount Kisco, Lewisboro, North Salem, New Castle, Yorktown, North Castle, Pound Ridge, and Somers.

Internet Tax Parcel Mapping in Westchester County, New York

Xiaobo Cui, Geographic Information System, Department of Information Technology, Westchester County, 148 Martine Ave, Room 318, White Plains, NY 10601 [Phone: (914) 285-3781 Fax: (914) 285-5135 Email: xxc1@westchestergov.com]

Westchester County GIS has recently developed an Internet tax parcel map for Town of New Castle. The Internet tax parcel map allows users to view the tax parcel map and query tax parcel information interactively using Internet browser. The users can search for a property or adjacent parcels by parcel section block lot number, parcel address, or owner name. The users can also enter a complex query based on their own criteria to search the properties.

The poster will illustrate the user graphical interface of the Internet tax parcel mapping application, the results of search functions, including the selected tax parcel map and its related real property information.

Non-Point Source Water Pollution

Thomas Hart, Jr., Coastal Resources, New York State Department of State; *Floyd Henderson* and *James Portolese*, GIS Remote Sensing Laboratory, Department of Geography and Planning, University at Albany; *Julie Coman*, Coastal Resources, New York State Department of State

Remote sensing and GIS are being used to address many environmental management and monitoring needs. One of these application areas is the determination of present and future non-point source water pollution potential in coastal regions. This poster displays a spatial model designed to assist in such efforts. A nine class land cover map of a Long Island, New York watershed produced from Thematic Mapper imagery according to NOAA's Coastal Change Analysis Program protocol served as a base. This classification was enhanced to produce an expanded sixteen category map of a watershed's upland and wetland land cover from the Thematic Mapper imagery. These data were merged with digitized hydrologic soil group type and permeability data in two steps through a spatial model. The model was then enhanced and expanded by incorporating a distance factor to produce a map displaying current non-point source water pollution potential in the watershed by 25 meter square units.

Using GIS for Crime Analysis in North Castle, New York

Ana Hiraldo, Westchester County Geographic Information Systems (GIS), Department of Information Technology, 148 Martine Avenue, Room 318, White Plains, NY 10601 [Phone: (914) 285-4416 Fax: (914) 285-3269]

Westchester County GIS compiled a Crime Analysis Map for the Town of North Castle as part of the town's GIS User Needs Assessment and Implementation Strategy study conducted in March 2000. The map served as a "proof of concept" for the integration of the town's police database

and ArcView. The map shows spatial relationship of a wide range of incident data, including criminal mischief, menacing, assault, harassment and larceny covering a three-month period from January 1999 to March 1999. The poster illustrates various views of the incident data overlaid with land use, and census data.

Utilization of GPS in Westchester County

Laura McGinty, Geographic Information System, Department Of Information Technology, Westchester County, 148 Martine Ave, Room 318, White Plains, NY 10601 [Phone: (914) 285-3888 Fax: (914) 285-3269 E-Mail: lam7@westchestergov.com]

This poster will be presented to describe how Westchester County GIS is using GPS technology for data collection. The county is currently utilizing GPS in capturing the locations as well as attribute data in areas such as bus shelters, manholes, and park trail mapping. GIS staff anticipate using GPS for several other applications including environmental and public health data collection, boundary surveys, and signage inventories. Examples of several county GPS initiatives will be illustrated in map form.

3-D Visualization of Groundwater Plume: GIS used to Enhance Public Understanding

Peter Nimmer, P.G., Bai Tian, P.G., and Bruce Muchmore, EA Engineering, Science, and Technology, 3 Washington Center, Newburgh, New York [Phone: (914) 565-8100 Fax: (914) 565-8203]

The interpretation of ground-water data requires an understanding of the three-dimensional distribution of contaminants and the affect of temporal changes of ground-water flow and contaminant distribution. This is especially true for non-technical member of the public, who may have questions regarding contaminant distribution and other issues.

At Naval Air Station, Brunswick, Maine, a long-term monitoring program has been conducted since 1995 by the U.S. Navy to monitor changing conditions within a ground-water system impacted by dissolved-phase volatile organic compounds (VOC). Ground-water sampling has been conducted at 40 monitoring wells during 16 sampling events, resulting in the generation of more than 150,000 data records that contain location-specific chemical concentrations.

A geographic information system (GIS) project was completed to display spatial and temporal changes in VOC concentrations in ground water as compared allowable drinking water standards. This data has been made available to the public, and is used during public meetings to visualize sample results. Data was stored in a Microsoft Access database, and graphical presentations were completed by linking the data to ArcView GIS. The output of the GIS project included the generation of summary maps that improve the ability of data users to understand complex data sets "at-a-glance", and rapidly assess the changing distribution of dissolved-phase VOC concentrations. The summary maps are used to interpret the effectiveness of the monitoring well network and ground-water sampling program.

This poster presentation will demonstrate how GIS and database management tools were customized to generate 3-dimensional visualizations of analytical data that assist stakeholders and the public to understand the results of a complex sampling program.

NASA Affiliated Research Center (ARC) Program

Lindi Quackenbush, Kevin Riordan and Paul Hopkins, Department of Environmental Resources and Forest Engineering, SUNY ESF, 312 Bray Hall, 1 Forestry Dr, Syracuse NY 13210 [Phone: (315) 470-4727 Fax: (315) 470-6958 Email: lquack@esf.edu]

In 1998, the State University of New York College of Environmental Science and Forestry (ESF) joined the NASA Affiliated Research Center (ARC) Program. The mission of the ARC program is to increase the competitiveness of American companies and organizations by integrating remote sensing and spatial information in business practices. The program provides any company or organization with an opportunity to investigate commercially viable ideas in remote sensing. This opportunity involves low financial risk on the part of the company. ESF can support a full range of applications in mapping, engineering, environmental science, resource management, transportation, real estate, and a variety of other fields.

Developing Fire District Boundaries on a New Westchester County Road Base

Greg Sullivan and Carrie Keneally, Geographic Information Systems, Department Of Information Technology, Westchester County, 148 Martine Ave, Room 318, White Plains, NY 10601 [Phone: (914) 285-3371 Fax: (914) 285-3269 E-Mail: ggs5@westchestergov.com]

Westchester County GIS, working with Emergency Services, has undertaken re-compilation of County Fire District boundaries to conform to a new, more accurate roads file. The new roads and district boundaries will be used in a recently implemented fire dispatching application. Originally compiled in 1993 for the Indian Point Emergency Preparedness Plan, the Fire District coverage was based on Census TIGER geography. This was adequate for a regional disaster plan, but insufficient for accurate fire dispatching. The old Fire District coverage did not include Sector boundaries, further limiting it's utility for fire dispatching. The updated boundaries were derived using the County's recently acquired NavTech roads file, and

other County GIS data layers, where the boundaries followed these features. Individual district coordinators provided sector boundaries. The updated districts were then converted from Arc/Info to Intergraph format, for use in the I/CAD application.

Investigating the West Nile Virus with GIS (*tentative*)

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Westchester County GIS has been assisting health professionals in tracking the *potential presence* of the West Nile virus. One such indicator may be the presence of dead birds which *may be* carriers of the virus. The locations of reported dead birds are being mapped in GIS with density maps being generated to identify potential areas of concern. The GIS maps are being used by both researchers and study team members.

The production of this map was done using ESRI Spatial Analyst because of its spatial nature and the characteristics of the data. Utilizing the Density Function, the software distributes the measured quantity of the input Dead Bird point theme throughout a landscape to produce a continuous surface. The color differences of the surface indicate the various dead bird densities. Other geographic features were added to the map to provide reference and context.