

Keynotes



Dynamic Modeling with ArcGIS
Dr. David Maguire, ESRI
Wednesday, September 12 9:00-10:00 AM

Dr. Maguire is the director of Products and International and member of the senior management team for Environmental Systems Research Institute, Inc. (ESRI). He joined the ESRI family in 1990 as the technical director, later becoming the managing director for ESRI's international office in the United Kingdom. Dr. Maguire has authored or co-authored over 90 books and publications on GIS, including the industry recognized *Geographical Information Systems* and *Geographic Information Systems and Science*. He received his doctorate degree in Geography from the University of Bristol in 1983.

Presentation Summary:

GIS has historically been widely used for inventory and cartographic applications such as land / property management, natural resources assessment, and utility asset registration. These applications are useful for record keeping and describing the form or appearance of the world. ArcGIS now provides us with the opportunity to investigate the processes that govern how the world works by building and executing analytical process models. ArcGIS has a geoprocessing framework and an extensive range of interesting tools for spatial analysis and modeling. Not only can we create static models, but we have also started to build dynamic models that incorporate change over both space and time. Such dynamic models can be used to develop past, present, and future geographic scenarios that can encompass sensitive and error analysis as well as dynamic simulations. This presentation will provide a grounding in modern spatial analysis and modeling techniques. It will explain the differences between cartographic, cellular automata, and agent-based models.



GIS—21st Century Steps in the Protection of America's Treasures
William M. "Bill" Overby
Wednesday, September 12 1:30-2:30 PM

Bill is the Department Chair and lead Instructor for the Administration of Justice Program at Skagit Valley College in Mount Vernon, WA. He is the Commander of the Parks Law Enforcement Academy and the Police Reserve Academies sponsored by the college. In addition to classroom instruction, Bill provides customized in-service training and consultation to several regional agencies, and has presented seminars in subject matter areas relating to parks protection strategies across the United States. An eastern Washington native, Bill retired from the Washington State Parks and Recreation Commission in 2003 after a 32-year career with that agency. His duties included a variety of park protection and management assignments in parks throughout the state, culminating in his management of the Deception Pass area complex for twenty years.

Presentation Summary:

This program will discuss general and specific applications for GIS and mapping practices as it relates to the use and protection of parks, rural landscapes and wilderness areas, as well as crime-mapping considerations and potential areas for resource management consideration within those areas. Bill will also speak to limitations, lessons learned, and various approaches/methodology for GIS professionals to consider when dealing with potential obstacles they may face when dealing with the special places that are considered to be America's treasures-its parks and recreation areas.

Keynotes



Integrating the Built and Natural Environments in the Portland-Vancouver Metropolitan Region

Mike Houck, Director, Urban Greenspaces Institute, Portland
Friday, September 14 8:30-10:00 AM

Mr. Houck has been a leader at the local, regional, national and international level in urban park and greenspace issues since 1980 when he founded the Urban Naturalist Program at the Audubon Society of Portland (www.audubonportland.org). Since that time he has worked on urban parks, trails, greenspaces and natural resources in the Portland-Vancouver metropolitan region. He speaks nationally and internationally on issues

related to urban natural resources and sustainable development. He helped found the Coalition For A Livable Future (CLF) in 1994 to better integrate social and environmental issues into the region's growth management planning process. The CLF (www.clfuture.org) consists of over 80 nonprofit organizations from the Portland-Vancouver metropolitan region working to build and equitable and sustainable metropolitan region.

Presentation Summary

Connecting Green, the Portland-Vancouver metropolitan region's newest greenspaces initiative, envisions an exceptional, multi-jurisdictional, interconnected system of neighborhood, community, and regional parks, natural areas, trails, open spaces, and recreation opportunities throughout the Portland-Vancouver metropolitan region. This region-wide system would drive the region's economy and tourist trade; preserve significant natural areas; enhance air and water quality; promote health and fitness; connect the region's communities with trails and greenways; provide a sense of place; and support an ecologically sustainable metropolitan area. Key to defining and visualizing the regional system of parks and natural areas is the role GIS has played since the metropolitan Greenspaces initiative was conceived in 1989. Mike Houck will trace the history of regional growth management and parks and greenspaces planning in the Portland-Vancouver region, how GIS tools have helped shape and assist in that planning effort, and how GIS tools are helping shape today's efforts to create an equitable and sustainable metropolitan region.

Conference Schedule

WEDNESDAY	
7:30-8:30 AM	Continental Breakfast Main Ballroom
7:30- 5:00 PM	Conference Registration Registration Booth
8:30- 9:00 AM	Opening Plenary Session Welcome by Joanne Markert and Rob Smith, Conference Chairs and Mayor Bill Baarsma, City of Tacoma Main Ballroom
9:00-10:00 AM	Keynote Address Dynamic Modeling with ArcGIS by Dr. David Maguire Main Ballroom
BREAK	
10:30 – Noon	ESRI Main Stage: ESRI Northwest and UC 2007 Highlights by Marty Balikov Main Ballroom Marty Balikov, ESRI Northwest regional manager, and some of his staff will present the highlights of the 2007 User Conference which took place in San Diego earlier this summer. We will also cover the status of the ESRI regional office, upcoming regional events, and training offerings.
LUNCH	
1:30 – 2:30 PM	GIS – 21 st Century Steps in the Protection of America's Treasures by Bill Overby
BREAK	
3:00-4:30	ESRI Breakout Sessions <u>Session 1</u> – ArcGIS Desktop: Tips and Tricks for Productivity Gains - Room 315 ArcGIS 9.2 has added numerous enhancements to the Desktop applications which will make users more efficient with their time. Focused topics will include: Desktop productivity, geoprocessing tips and tricks, cartographic enhancements, new graphing engine. <u>Session 2</u> – ArcGIS Server: Getting Started with Developing ArcGIS Server Applications Main Ballroom ArcGIS Server is a comprehensive web-based GIS that offers a framework for the development of mobile application and web editing based applications. The presentation will demonstrate how to create basic mobile and web editing applications and will cover application tuning and performance considerations. <u>Session 3</u> – Implementing Enterprise GIS: Challenges and Implementation Considerations - Room 316 Organizations are developing business-driven applications using GIS technology, and as a result, the need for enterprise-level strategic planning to incorporate GIS is becoming increasingly important. Enterprise systems present important challenges and implementation considerations. The goal of the session is to outline the key fundamentals and considerations in developing a technology strategy as a foundation for building business solutions using ArcGIS Server technology
4:45 PM	Vendor Social and Poster/Web Presentation Gallery Outside main ballroom
7:00 PM	Pub Crawl and Historic Building Tour Meet near registration desk immediately following vendor social

Conference Schedule

THURSDAY	
TRACK 1	URBAN CONNECTIONS ROOM 316
8:30-10:30 Allyson Jason, USGS Scott Van Hoff, USGS Joy Paulus, Washington Outdoor Recreation Co	Data Sharing The National Spatial Data Infrastructure in the Pacific Northwest - Future Directions for The National Map, FGDC & Geospatial One Stop Data Sharing and Regional Partnerships in the Pacific Northwest Washington's Grant Tracking System GIS Enhancement Project
BREAK	
10:30-12:00 Thomas Hayden, Immersive Media Ron Hall, EWU Thomas Hayden, Immersive Media	Visualization Transforming Pipeline Project Management with a Complete Perspective: Design Visualization - 3D Models for Communication and Planning in an Urban Setting Enhancing Environmental Documentation with Geolmmersive™ Video The Value of Geolmmersive Video
LUNCH	
1:30-3:00 Steve Fang, City of Seattle Dana Trethewey, Marshall GIS Rafael Guterrez, Presented by Chris Moller, SWCA	Mobile Solutions Using a Mobile Field Data Collection Approach for West Nile Virus Treatment Data Collection Using Real-Time Differential Correction - Field Study Results and Recommendations ArcPad Applications for Cultural Resource Investigations
BREAK	
3:30-5:00 Tonya Kauhi, GeoEngineers Toby Semroc, City of Seattle Jared Erickson, Pierce County	Enterprise GIS I An Enterprise Data Solution for Wind Energy Projects Using IT Enterprise Infrastructure to Integrate a Permitting System with GIS CountyView Web: Enterprise GIS on the Web
TRACK 2	NATURAL ENVIRONMENT ROOM 315
8:30-10:00 Linda Gerull, Pierce County Darrell Sofield, GeoEngineers Chris Hansen, TetraTech	Local Government Simplicity is the Key to Public Access to Critical Areas Information Show Me Your Floodplain, Tell Me About Your River: Relative Surface Models help scientists and planners get the most out of LiDar GIS Needs Assessment
BREAK	
10:30-12:00 Elizabeth L Lanzer, WADOT Chris Wayne, Nat Park Svc Chad Lynch, Canyon County	Behind the Scenes Building and Running a Small GIS Service Group Re-Connecting the Seasonal City: GIS Returns to Crater Lake National Park The Rubber and the Road: The Migration to a Cadastral Geodatabase in Canyon County, Idaho
LUNCH	
1:30-3:00 David Howes, Compliance Services	GIS Analysis An ArcObjects-Based Approach for Assessing Potential Risk to Species Due to Pesticide Use

Conference Schedule

THURSDAY	
Christina Kellum, WA DNR Ivor Melmore, WA ECY	Identifying Northern Spotted Owl Habitat on Washington State Lands Using ArcGIS Business Analyst Extension in State Government
BREAK	
3:30-5:00 David Nagel, USDA Forest Service Michael Blongewicz, DHI Arnold Engelmann, DHI	Water Resources Toward Stream Temperature Prediction at the Drainage Basin Scale: A GIS and Remote Sensing Approach Using ArcGIS to Spatially Distribute Precipitation Data for Rainfall-runoff Models Urban Catchment Delineation
Track 3	GIS Connections Room 317
8:30-10:00 John Schaeffer, Juniper GIS	ArcGIS Extras I Working with Model Builder
BREAK	
10:30-12:00 John Schaeffer, Juniper GIS	ArcGIS Extras II Understanding Projections for ArcGIS
LUNCH	
1:30-3:00 Jie Chen and Greg Lang Richard Lycan Kristina Evanoff, Sound Transit	GIS Analysis & Modeling Innovations, Benefits and Directions - GIS in Transportation Moving to the American Community Survey Sound Transit GIS
BREAK	
3:30-5:00 Marshall Payne, GeoNorth Greg Tudor, WA DNR Richard Daniels, WSDOT	Enterprise GIS II Implementing an Enterprise GIS - a Reality Checkpoint ArcSDE Database Administration: Configuration, Storage, Tuning, Monitoring, Management, and Maintenance GIS Worbench 9.2: Making GIS Data and Tools Available to All

Conference Schedule

FRIDAY	
7:30-8:30	Continental Breakfast - Main Ballroom
8:30 10:30 Mike Houck, Urban Green-Spaces Institute	Closing Plenary Session - Main Ballroom Integrating the Build and Natural Environments in the Portland-Vancouver Metropolitan Region
BREAK	
10:30-12:00	User Group Business Meeting and Prize Raffle
NOON	Conference Ends

Those going on the bike ride and kayak tour, please meet near the registration desk following the business meeting.

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Michael Blongewicz

Using ArcGIS to Spatially Distribute Precipitation Data for Rainfall-runoff Models

Conceptual and physically-based rainfall-runoff models have been widely applied to estimate water budgets and determine catchment inflows in support of hydraulic and water quality modeling efforts and other applications. Precipitation data is the primary input to these models, and as such the ability to accurately distribute precipitation across a basin is arguably the most significant factor affecting the ability of these models to predict catchment processes.

Precipitation data is most commonly available at discrete measurement points within a basin. Spatially distributed isohyetal data, including the national PRISM dataset, is also commonly available, however the temporal resolution of these distributed data sets is typically not detailed enough to use directly as model input. In areas of low topographic gradients, a simple Thiessen Polygon distribution is often a sufficient means of distributing precipitation. In mountainous regions, however, factors such as elevation and aspect play a key role in dictating precipitation patterns, and thus an appropriate method for distributing precipitation must account for the influence of these other factors.

Here we present a means of using ArcGIS for utilizing monthly PRISM data or other isohyetal data in conjunction with Thiessen Polygons to develop daily precipitation distributions for use in rainfall-runoff modeling. This methodology has been applied successfully in three western basins with different topographic and hydrologic characteristics: the Lemhi River Basin in Idaho, the McKenzie River Basin in western Oregon, and the Napa Valley River Basin in northern California.

Jie Chen & Greg Lang

Innovations, Benefits and Directions - GIS in Transportation

This presentation illustrates unique approach by combining GIS with Pierce County travel demand modeling. It uses many real examples and products to demonstrate how GIS-T was developed and implemented to address planning and demand modeling issues. In addition, it also shows the benefits of using GIS and the increase of work productivity for transportation modeling.

Richard C. Daniels, Jeff A. Jacobson

GIS Workbench 9.2: Making GIS Data and Tools Available to All

In 1998 the Washington State Department of Transportation (WSDOT) Environmental Affairs Office developed the concept of a GIS application that would provide a single point of access to GIS data and tools needed to complete the Environmental Review Summary –a document required by each WSDOT construction project to determine what environmental permits were needed prior to construction. The initial Workbench was developed in ArcView 3.x and fielded in 1999. The Environmental GIS Workbench simplified access to the agency's enterprise GIS database and became the de facto application for all GIS users in the agency. With the transition to ArcGIS™ in 2003 the WSDOT GIS Support Team decided to concentrate the agencies limited development resources on the creation of a single extensible multi-business area application in ArcObjects™. Since that time the GIS Workbench has continued to evolve in concert with each ArcGIS Desktop™ upgrade and now supports five unique business areas.

The next version of the GIS Workbench v 9.2 will be deployed agency wide beginning in October 2007. This version includes several major new tools and usability enhancements. Most of these new tools facilitate one stop data access by connecting to models and non-GIS data repositories, databases, or applications. For example, the new As-Built tool allows a user to select a construction or maintenance project in ArcMap™ and pull up the scanned as-built documents for the project from Accorde™, our enterprise document management system. On the usability side, we have added the capability to search our data trees for keywords (i.e., to quickly find a single data set within our 10,000 data layers) and have added spell checking capabilities to allow a user to spell check all text elements on the Data View or Map Layout.

Arnold Engelmann

Urban Catchment Delineation

Delineating catchment areas in an urban environment can be a challenge. Standard tools in GIS use a DEM to trace flow and delineate catchments based on slope. However, these tools generally assume a natural landscape and only take into account surface flow. Underground flows in storm sewers and other conduits are not accounted for. In addition, flat areas, which are common in urban environments, are more difficult to delineate and require a high degree of accuracy in the elevation data to delineate correctly. On the other hand, sewer networks can be represented in ArcGIS as geometric networks, which, due to their inherent topology, can be easily used to trace flow through the system. By linking these two data models and techniques it is possible to more accurately delineate contributing areas and model water flows in a sewer network.

The City of Tampa needed to determine contributing surface area for flows in their sewer network, so DHI Water and Environment developed a tool as an extension to ArcGIS that would determine all areas contributing flow to that location, in the form of

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polygons. The tool traces up the pipe network to inlets at which the contributing surface area could be delineated. Combining the contributing area with other data, such as land use, imperviousness, and weather data allows for estimation of the flows that can be expected at any point in the sewer network. Combined with a GIS-based hydraulic model, specific flows over time can also be calculated.

Jared Erickson

CountyView Web: Enterprise GIS on the Web

Pierce County, WA GIS has implemented an enterprise web based GIS application called CountyView Web on top of Latitude Geographic's Internet Mapping Framework IMF). This talk will discuss how you design systems architecture, program custom tools, and support and train for an enterprise GIS application with over 400 users and 800 datasets.

Linda Gerull

Simplicity is the key to Public Access to Critical Areas Information

A large portion of the land development process requires analysis of how the potential development will impact critical areas (flood, wetlands, wildlife, salmon habitat). Here the "chicken and the egg" metaphor applies as the developer wants to know what can be built on a parcel but county permit staff cannot tell him the impact of critical areas until he/she decides what to build. Add to this discussion the data complexities, accuracy and usability of critical areas GIS data and there appears to be no easy answer. In an effort to reduce the "can I build it?" questions at the Development Center and increase customer service, Pierce County's Critical Areas Checklist web site was developed.

The simple to use web site hides the technical difficulties and is an example of how to address the question of sharing this valuable information in a practical and realistic manner with the community.

Rafael Guterrez (Presented by Chris Moller)

ArcPad Applications for Cultural Resource Investigations

Cultural resource investigations regularly employ GPS technology to record locations of sites, isolates, and other point, line, and polygon features. The objective of this effort is to design a geodatabase for the deployment of data, forms, and protocols for use with Trimble GeoXT and ESRI ArcPad software. This presentation demonstrates the development of a geodatabase used to mobilize cultural resource investigators for recording location and attributes of historic (and prehistoric) artifacts and features. The management, protocols, design, data transfer, and final symbolization are discussed.

Ron Hall

Design Visualization - 3D Models for Communication and Planning in an Urban Setting

ArcScene - 3D Model of Eastern Washington University, with GIS Data

SketchUp|Google Earth Pro -

3D Model of Eastern Washington University

3D Model of Downtown Cheney, Wa - before and after proposals for design visualization of restoring historic storefronts

Thomas Hayden

Transforming Pipeline Project Management with a Complete Perspective: The Value of Geolmmersive Video

U.S.I. Project Services, Inc. (USI), a survey company responsible for pipeline selection for leaders in energy infrastructure and pipeline transport, films pipeline routes at low altitude from a helicopter, and the resulting footage is tied to GPS coordinates so that each frame of video knows exactly where it is.

By incorporating Geolmmersive video into GIS applications, USI has georeferenced visual imagery to support them throughout the various stages of their projects including planning, public consultation, environmental assessments, groundtruthing, post-construction and archiving.

Cost and time savings have been realized as engineers, environmental consultants, and other stakeholders can visit remote locations simultaneously from their desktop. Informational accuracy and communication has also increased as all parties are basing business decisions on the same data-rich visual perspective.

The ability to transport oneself to any point on the site, at any time, is a first that can change the way that we work.

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Thomas Hayden

Enhancing Environmental Documentation with Geolmmersive™ Video

The Planetary Coral Reef Foundation (PCRF) was founded in 1991 to address the coral reef crisis. Since its inception, PCRF has pursued an unprecedented global mission to preserve coral reefs through innovative programs in science, education and technology. To date, PCRF's research vessel, S/V Infinity, is the only ship continually at sea and studying coral reefs on a planetary basis.

Early in 2007, PCRF petitioned Immersive Media Corp. (IMC) to deploy one of its Dodeca 2360 immersive video systems to the S/V Infinity in the South Pacific, off the coast of the island of Fiji. Over the last several months, the crew of the Infinity has been collecting georeferenced imagery from beneath the waves of the fragile coral reefs of the region.

The Dodeca 2360 captures high resolution video in every direction by means of its geometrical, 11-lense array. By a patented stitching technique, IMC's proprietary software can then blend the 11 fields of view into one immersive image. Each frame of immersive video is implanted with the GPS coordinates of the camera's position at the moment of image capture and the file becomes Geolmmersive™ Video.

By incorporating Geolmmersive™ Video into GIS applications, PCRF has georeferenced visual imagery to support them in their mission establish a comprehensive baseline map of living coral reefs in and around the island of Fiji, while also providing unequivocal evidence of reef damage, biodiversity sampling, and behavioral studies.

David Howes

An ArcObjects-Based Approach for Assessing Potential Risk to Species Due to Pesticide Use

Assessing the potential risk to species due to the use of a pesticide product includes determination of the spatial extent of possible exposure, taking into account aerial drift and runoff. Detailed description of this spatial extent using existing ArcGIS tools presents special challenges when dealing with large numbers of species locations, prompting the development of new methods. ArcObjects-based procedures are therefore described for analyzing raster data from the U.S. Geological Survey 2001 National Landcover Dataset and the U.S. EPA National Hydrography Dataset Plus dataset to determine drift and runoff patterns. A simple exposure factor (EF) value is computed for locations of interest according to the proportion of the area draining to the locations that lies within the area in which the product may be used. Innovative approaches for managing computational processes and output data are also discussed and have potential value for other types of environmental assessment work.

Allyson Jason

The National Spatial Data Infrastructure in the Pacific Northwest - Future Directions for The National Map, FGDC & Geospatial One Stop

The U.S. Geological Survey's, National Geospatial Programs Office supports the National Spatial Data Infrastructure through several national geospatial programs including - The National Map, Geospatial One-Stop, and the Federal Geographic Data Committee (FGDC). Working with local, State, tribal and federal partners, the USGS is implementing The National Map as a seamless, integrated online mapping service. The next generation of the Geospatial One-Stop Portal will allow improved access to geospatial information with improved metadata tools to support discovery and access to data and web services related to the NSDI. The FGDC promotes standards to unite geographic information as well as funding opportunities. This presentation is a companion to Data Sharing and Regional Partnerships in the Pacific Northwest.

Tonya Kauhi, GeoEngineers, Inc.

Abstract: An Enterprise Data Solution for Wind Energy Projects

Ridgeline Energy, LLC (RLE) focuses on developing utility-scale wind energy projects in the 11 western states region (Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington and Wyoming). In order to accommodate individual property needs and ensure appropriate stewardship of the land, RLE relies heavily on GIS mapping and analysis for site selection, land acquisition strategy, environmental analysis, and site development.

GeoEngineers, Inc. provides data management services and on-site GIS services to create and implement an enterprise GIS solution. We discuss the evolution and migration of a GIS database from a file based system on a single computer to server-based file geodatabases, and an SDE server, and how this has improved Ridgeline Energy's work flow efficiency, data quality and internal communication. We also will discuss challenges encountered and the next steps for full enterprise implementation.

Christina Kellum

Identifying Northern Spotted Owl Habitat on Washington State Lands

The Washington State Department of Natural Resources (DNR) manages for northern spotted owl habitat on approximately 660,800 acres west of the Cascade crest. A corporate northern spotted owl habitat layer was created in 2006 to support

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planning, management, and monitoring in accordance with DNR's Habitat Conservation Plan. The process for identifying northern spotted owl habitat was twofold: first, a baseline habitat data layer was created through various analyses; and second, a process was developed to update habitat classifications as a result of management activities, new inventory data, and field verification.

Several applications were used to develop the baseline data layer including Model Builder, MS Access, and Python. Model Builder was also used to visually conceptualize and refine the update process before translating it to Python. This habitat layer lends itself to discuss ways to approach some of the obstacles encountered when trying to develop a corporate data layer robust enough to withstand the scrutiny of scientific peers and simple enough to be utilized in an ArcIMS site by a less technical audience.

Elizabeth L Lanzer

Building and running a small GIS service group

In today's tight financial environment, GIS professionals can add value to the use of GIS technology in non-information technology business groups. Building the case for, and developing a GIS service group within a functional business area (rather than as a service from central IT) can be beneficial. Developing GIS products, embedding GIS products into business activities, building tools and data that directly support key business activities are key functions that a group of GIS professionals can effectively provide. Both the business (services) and management (staffing, outreach) aspects of working up a small GIS service group will be discussed.

Richard Lycan and George Hough

Moving to the American Community Survey

Geographers, planners, and GIS professionals are accustomed to working with small area data, such as census tracts, from the Decennial Census. The 2000 Census will only provide these data from the "short form questionnaire", with information about age, race, and sex of persons, household type, and occupancy and tenure status of housing. The information about such characteristics as income, education, journey to work, or vehicle ownership that were on the "long form" questionnaire and answered by a sample of households now will be provided by the American Community Survey (ACS). The ACS is conducted annually but with a lower sampling density than that in prior decennial censuses. ACS Data will be published for small areas, such as census tracts and block groups, but multiple years of data will be required to achieve a sufficient sample size. Data from the ACS now are becoming available. They provide more recent information than that from the 2000 Census but require data from multiple years to provide statistical reliability.

Demographers and others have begun to examine the utility and reliability of the ACS data for small areas. They have contrasted them with data from the 2000 census and with data from administrative records. This paper will review this body of research, especially as it pertains to small geographies such as census tracts and block groups. In addition it will illustrate the use of the ACS data by the Portland State University Population Research Center (PRC) in school demographic research.

Chad Lynch

The Rubber and the Road: The Migration to a Cadastral Geodatabase in Canyon County, Idaho

Canyon County is the second largest county in the state of Idaho with a population of over 160,000 and one of the fastest growing in the country (the U.S. Census Bureau listed the county as the 46th fastest growing county between the years 2000-2005). This growth has placed a significant strain on the county assessor's staff because Idaho Code compels the county assessor to maintain "a full, accurate and complete plat record of all parcels...within his county" (IDC 63-209). For several years this task was accomplished through a process of drafting parcels using AutoCAD and maintaining a current tax roll using a legacy AS400 database, but as growth continued, the need for a new, faster means of mapping and serving up data became apparent.

In 2006, Canyon County became the first county in the state of Idaho to exclusively edit its parcels in an Enterprise Geodatabase. Smart Data Strategies (SDS), a leading provider of parcel mapping software and professional GIS services, was employed to assist in the conversion of the 640+ AutoCAD map files to SDE feature classes. Around the same time the assessor's office implemented a new land records software system using a Microsoft SQL relational database.

The cliché "where the rubber meets the road" is used to describe the moment of truth, the meeting of two or more irresistible forces. The goal of this presentation is to describe how Canyon County and Smart Data Strategies worked together to build the first functional cadastral geodatabase in the state.

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Melmore, Ivor

Using Arc GIS Business Analyst Extension in State Government

The State of Washington's Department of Ecology regulates hazardous waste generators, and has generally done a good job at limiting the risks and problems found over the last 17 years. But why then does Washington and the Puget Sound especially seem to be getting more polluted? We now believe the cumulative effect of all the small businesses and public behaviors possibly exceeds the sum of the large regulated businesses emissions. This is major shift in current policy that needs documenting and we are proposing using Business Analyst extension to help. We are in the early stages of using the Business Analyst Tool, which may help shape policy and projects for a cleaner environment. Some of the following areas are under investigation:

- ❖ Support for the small business incentive program by identifying businesses by sectors (e.g. finding all Auto body shops)
- ❖ Analysis of hazardous waste and emissions by standard production unit like gross sales or employees (possible pollution quantity benchmarking by industry type)
- ❖ Detailed pollution source control investigations by study areas
- ❖ Solid waste studies such as accessibility and distance to moderate risk waste collection sites
- ❖ Support for environmental justice demographics surveys
- ❖ Support for the hazardous waste information office to better target public outreach activities
- ❖ Improved mailing list functionality
- ❖ Improved knowledge of who may have to pay the States Hazardous Waste Education Fee
- ❖ Reduced burden on businesses through self compliance systems
- ❖ Improved management of staff and resources by defining areas of operations (trade areas)
- ❖ Linking the new pilot Consumer Environmental Index (CEI) of toxicity and waste, which is based on Bureau of Labor and Statistics consumer spending surveys to the same data, which is geographically imbedded within Business Analyst?

David Nagel

Toward Stream Temperature Prediction at the Drainage Basin Scale:

A GIS and Remote Sensing Approach

Water temperature is a fundamental determinant of aquatic species distributions and abundance within stream ecosystems. With the onset of climate warming, rising temperatures may profoundly affect the distribution of cold water habitat for thermally sensitive fish, such as trout and salmon. Although inexpensive thermographs are now routinely used to collect data at point locations, basin-wide, spatially continuous temperature data are currently unavailable. We collected data of summer stream temperatures within a mountainous watershed in southern Idaho, at 518 unique point locations over a 14 year period. We used Thematic Mapper satellite imagery to map riparian vegetation and hence modeled solar radiation at the stream surface for the entire basin. Various other spatial variables such as elevation, valley confinement, and glaciated morphology were also generated for the study area. Preliminary correlative analyses between the temperature observations and GIS data suggest that elevation and radiation have large effects on water temperature. More detailed analyses are underway to build models that will be used to predict temperature for all stream reaches within the network, under a range of climate scenarios. This presentation will summarize our methods for estimating solar radiation and other predictive GIS variables, and will provide a synopsis of our preliminary results.

Joy Paulus

Washington's Grant Tracking System GIS Enhancement Project

PRISM is the Recreation and Conservations Office's mission critical database used by staff as well as constituents statewide to manage grant applications and funded projects. All phases of the grant process have been automated in PRISM beginning with applicants submitting their applications on-line, the grant evaluation process, and producing contracts for successful applicants. Agency staff uses PRISM to manage projects, track milestones, produce reports, letters and billings, document site inspections, and track compliance.

Using ArcGIS Server 9.2, the following GIS enhancements have been incorporated into the new PRISM .Net application: a custom-built mapping tool accessed from within PRISM for mapping of project boundaries and for maps and report generation; and a user-friendly interface where users don't have to be GIS experts to do a fairly accurate mapping and feature editing via the internet.

Marshall Payne

Implementing an Enterprise GIS – a Reality Checkpoint

The concept of Enterprise GIS is often over used and misunderstood. This presentation provides insight into better defining Enterprise GIS and the reality checks that are often overlooked when attempting to implement an Enterprise GIS program. Different organizations and their approaches to developing GIS programs will be discussed to answer the question; is there a perfect or preferred solution for establishing Enterprise GIS?

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John Schaeffer

Working with ModelBuilder

ModelBuilder in ArcGIS allows the user to graphically create simple and complex geoprocessing operations to improve productivity, model processes, and test analysis. This presentation will demonstrate how to build and use models, including how to use scripts and branching, how to avoid some common problems, and how to convert models to tools and scripts.

John Schaeffer

Understanding Projections for ArcGIS

This presentation will help the user understand projections, coordinate systems, and datums as they apply to GIS and also how to apply this knowledge correctly working with ArcGIS.

Toby Semroc

Using IT Enterprise Infrastructure to Integrate a Permitting System with GIS

Street Use Right-of-Way permits are required in the City of Seattle for use, occupation and/or construction that takes place within the City's rights-of-way. The Seattle Department of Transportation (SDOT) has implemented a Hansen permitting system to issue and track these permits, but the system had no mapping component for displaying the permits. By building a GIS interface that enables people to see the permits on an interactive map, City staff can now see permitted work in the right-of-way and other layers of GIS data that support conditioning the use based on the presence of, environmentally critical areas, underground utilities street trees, and easements. The City's investment in enterprise-wide IT systems was leveraged to implement this system with relative ease. Both the permit and GIS data are stored in Oracle databases, and the GIS map is delivered to the user's desktop in a web browser using ArcIMS. The ability to spatially enable data provides benefits like reducing customer queries about permit status, reducing non-city utility agency queries about permit status, increasing inspector productivity and allowing City departments to coordinate their own work as well as work with other departments in the right-of-way.

Darrell Sofield

Show Me Your Floodplain, Tell Me About Your River: Relative Surface Models help scientists and planners get the most out of LIDAR.

Floodplain features provide record of historic and current river's character and can help to explain where the river will flood and change. Subtle changes in floodplain topography and varying vegetative groundcover have limited and/or obscured detailed floodplain topography data collection. Without detailed studies our understanding of the interaction between the river and its floodplain is often incomplete. With the advent and recent affordability of LiDAR, that is beginning to change.

Standard LiDAR processing can model a 'bald earth surface' of the landscape, allowing visualization of riparian and floodplain topography 'through the trees'. However, hillshade and bald earth DEM models alone still cannot display important details such as the relative elevations between the river (current water surface) and the adjoining topography (bars, channels, terraces, road fill, etc), or small scale changes in floodplain topography that help to describe the river during a flooding event.

We developed a LiDAR processing technique designed to illuminate the difference between the water surface and the topography perpendicular to a river. The result is a type of continual channel cross-section that we refer to as a *relative elevation model*. The output of the *relative elevation model* uses a color thematic that allows a practitioner to visualize and measure the relative height of physical features such as high flow channels in the floodplain to the current water surface or potential channel avulsion routes.

Relative elevation models can be applied to many fluvial geomorphic environments as an analytic tool. The method can be adapted for other topographic analyses that require the practitioner to understand what the relative elevation is of one uneven surface to another.

Dana Trethewy

Data Collection Using Real-Time Differential Correction – Field Study Results and Recommendations

Professional land surveyors have relied on survey grade GPS receivers and differential correction in producing highly accurate geodetic and boundary surveys. Using real-time correction service from Continuously Operating Reference Stations (CORS) can provide less than 2 cm horizontal and vertical accuracy, additional post-processing can further improve the accuracy to less than 1 cm.

Asset collection by public entities has traditionally been accomplished using hardcopy maps and other manual techniques. As GPS has become more readily available and cost effective, public entities are adopting mapping grade level technology

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for asset inventory. However, adoption of real-time differential correction has yet to gain widespread use by mapping grade GPS consumers.

A small study was conducted to compare survey and mapping grade GPS receivers with and without differential correction (real-time and post-processed). Asset locations were collected using survey and mapping grade GPS units with and without real-time differential correction. Both real-time corrected and uncorrected location data were post-processed back in the office. Recommendations and best practices for using real-time differential correction with mapping grade GPS receivers were produced from study results.

The study was conducted by Marshall and Associates, Inc., Roed, & Hitchings, Inc., and the Seattle Department of Transportation.

Greg Tudor

ArcSDE Database Administration: Configuration, Storage, Tuning, Monitoring, Management, and Maintenance

The Washington Department of Natural Resources (DNR) implemented SDE 3 (Spatial Database Engine) in 1997. Since that time, many changes and improvements have been made to the ArcSDE enterprise database and the Geodatabase (GDB) extensions. When did we last review our SDE configuration? As part of the DNR's GIS migration project, Database Administrators (DBAs) re-evaluated the ArcSDE/GDB environment focusing on configuration, storage, tuning, monitoring, management, and maintenance. DBAs evaluated and modified the operating system, Oracle database, and SDE configuration parameters. DBAs improved storage portability and revised the sdedbtune keyword definitions. Spatial reference definitions, spatial indexes, and spatial view were tuned. SQL views of common orphan SDE/GDB objects and monitoring scripts were developed to assist with identifying problems and tracking usage trends. Several developing ArcSDE management and productivity tools were reviewed. The ArcSDE evaluation findings, recommendations, and results of implementation revisions are presented.

Scott Van Hoff

Data Sharing and Regional Partnerships in the Pacific Northwest

In the Pacific Northwest, the USGS supports regional activities and partnerships designed to help improve communication and geospatial information quality and availability. Come hear about USGS Partnership activities in the Pacific Northwest; meet the new USGS Liaisons for Idaho, Oregon, and Washington; learn about current and future opportunities for partnerships in your state; and discover the latest on the PNW Regional Geographic Information Council's efforts to share information about framework base data. This presentation is a companion to The National Spatial Data Infrastructure in the Pacific Northwest - Future Directions for The National Map, FGDC & Geospatial One Stop.

Chris Wayne

Re-Connecting the Seasonal City: GIS Returns to Crater Lake National Park

For most of the year, Oregon's Crater Lake National Park (CLNP) is a snowy wilderness, with few visitors and even fewer (human) residents. During the summer, though, the park explodes into a small city full of seasonal employees, tourists and visiting scientists. From June through October, hikers, hydrologists and handymen fan out over the park's 183,000 acres to traverse the Pacific Crest Trail, map the bottom of the deepest lake in America, and open roads to far-flung campgrounds.

All of these operations are supported by the GIS program. This is especially remarkable considering that for over 30 months, Crater Lake had no GIS at all. In May 2006 the program was revived and re-staffed. By June of that year it was supporting all park divisions, including natural resources, facilities maintenance, fire management and others. During this first season, two critical incidents were also supported: the 2000-acre Bybee fire and a massive search for a missing child in the park's backcountry.

This presentation will discuss the opportunities and challenges of updating an outdated program in the face of a fast-approaching surge in demand for services. This revival required aggressive marketing, prioritized migration and fast mapping in order to be effective in time for the summer "explosion."

Opportunities included lots of existing data, a generous budget, and enthusiastic support from division chiefs. Challenges involved outdated hardware and software, minimal metadata and a park staff who had learned to do without GIS for over two years.