

# MAGIP

## 2009 Fall Technical Session Abstracts

October 21-22, 2009

Kalispell, Montana

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### **Creating and Editing GeoPDF Maps With ArcGIS, TerraGO, & Adobe Acrobat**

GeoPDFs have the potential to extend the benefits of geographic information systems to a larger audience. GeoPDFs are still a relatively new format, but due to general familiarity with PDF readers, users could easily learn the additional capabilities a GeoPDF has to offer over a traditional PDF. This presentation will provide an overview on how to create and utilize GeoPDFs, the software requirements, and the producer and consumer perspective. By enabling more users to have access to geospatial data and to intuitively utilize, add to, comment on, and share information, we effectively increase the knowledge base used for decision making and promote the benefits of geographic information systems.

### **Demystifying the ArcGIS Server Image Extension - Mike Sweet, Univ. of MT**

The ESRI ArcGIS Image Server extension broadens the capabilities of ArcGIS Server by enabling dynamic processing of imagery while improving access speed and reducing disk storage requirements. Imagery in the context of the Image Server extension is not limited to RGB or panchromatic imagery, but can extend to serving other raster formats including floating-point values, for example, digital elevation models. The presenter will discuss experiences to date implementing the Image Server extension to ArcGIS Server, and provide an “under-the-hood” look at how image services are structured.

### **Creating Effective Web Maps - TJ Abbenhaus ESRI**

#### **Design Strategies for Authoring and Publishing**

by sharing your authoritative data with others via fast, effective Web maps, you give them the spatial intelligence they need to make better decisions.

- Find out what you need to consider when designing Web applications.
- Learn how to organize your data into services and how to choose the right publishing options for you.

#### **Building Web Applications**

to ease the pressure you're under to quickly create modern Web applications, you'll learn about tools and resources that accelerate your solution building.

- See how you can use [sample viewers](http://www.esri.com/events/seminars/webmaps/knowledgebase/sampleviewers.html) (<http://www.esri.com/events/seminars/webmaps/knowledgebase/sampleviewers.html>) with your own data and receive tips for improving your online map performance.
- Discover how to use rich Internet applications (RIAs), which give your maps an up-to-date look

### **Imagery Framework Technical Meeting - MSL & BMSC**

### **Working with (FME) Feature Manipulation Engine Software - Michael Fashoway & Josh Dorris BMSC**

Safe Software's FME (Feature Manipulation Engine) is the foundation for the ArcGIS Data Interoperability Extension. Learn how FME is used to translate, transform, integrate and distribute spatial data. Common tasks

FME is used to include: spatial data conversion including CAD to GIS data exchange, spatial database loading, data model restructuring and spatial and non-spatial data integration. Staff from the Base Map Service Center will demonstrate how they use FME Desktop to populate the statewide transportation, structures and address databases.

## **ESRI Web Mapping Resources (ArcGIS Online Resource Centers) - Bryant Ralston & TJ Abbenhaus ESRI**

**ESRI Resources, including templates, ArcGIS Online, getting started with web applications using sample viewers and sample code**

This presentation will focus on the two significant types of ArcGIS template resources available from the new ArcGIS Resource Center website; Map Templates, and User Community Templates. The presentation will include demonstrations of how to implement your own data into the template systems and also a sampling of applications using both kinds of template maps. This presentation will then implement some best practices of web mapping strategies and provides a walk through configuration scenario that users can apply directly in their work centers. Discuss internet cartographic considerations for creating effective web maps, using FLEX as the RIA development environment.

## **Using ArcGIS Modelbuilder - TJ Abbenhaus, ESRI ArcGIS 9.3.1 Modelbuilder and Improved Geoprocessing**

Provides organizations a powerful set of tools to rapidly perform advanced analysis, documentation and reporting using intuitive drag and drop techniques. Come learn how to build models and see various tips and tricks for effectively using the Modelbuilder in ArcGIS 9.3.1. We will discuss preparing geoprocessing services for the server and improvements to the geoprocessing services.

## **Cadastral Framework Technical Meeting: Formal Standards for geocoding parcels - Stu Kirkpatrick BMSC**

The primary goals of this session are:

1. To review the existing business plan and revise accordingly
2. Examine the interest in forming a working group to develop geocoding best practices
3. Discuss other best practices that should be addressed

10:15 – 10:45 – Review the 2009 Cadastral Business Plan and suggest revisions for 2010. The 2009 plan is available at [http://giscoordination.mt.gov/cadastral/work\\_group.asp](http://giscoordination.mt.gov/cadastral/work_group.asp)

10:45 – 11:30 – Geocoding Best Practices

- Why they may be helpful
- Why partnership between DOR, Local Government and BMSC is critical for success
- Volunteers

11:30 – 12:00 - Other Issues

## **NHD Concepts and Applications- Keven Roth & Duane Lund**

The National Hydrography Dataset (NHD) is a vector geospatial theme for surface water hydrography obtained from topographic maps and additional sources. It is available Nationwide as high resolution at 1:24,000-scale or better. In this session we will take a quick look at the background and purpose of the NHD, examine options for accessing and viewing the NHD, discuss tips and strategies for using the NHD in everyday work, and examine two tools built to work with the NHD.

## **Adjusting GIS Data to GCDB - RJ Zimmer DJ&A**

## **Field GIS - Alison Walker Electronic Data Solutions**

A half-day ArcPad 8 for Mobile GIS workshop, which will include a 1-hour field session. This workshop will cover an overview of Mobile GIS, an overview of ArcPad 8.0, an overview of the latest Trimble products, and a review of some of the latest technologies. The hands on exercise will include creating geodatabase domains and linking those to attributes of GIS features, checking out data from ArcMap, collecting data in ArcPad in the field and then checking that data back into our geodatabase. There will be a limited supply of handheld GPS units, so bring one if you have one.

## **Find Data You Need: The New Montana GIS Portal - Diane Papineau MSL**

Montanans need one place where they can search for GIS data about the state. The Montana GIS Portal is that place. In this session, we will explore the new, simpler Montana GIS Portal website and learn about searching techniques for finding the data you need. We will also briefly discuss publishing data you have to the Montana GIS Portal.

## **Python Basics, Bob Holliday BMSC**

The Python programming language has the ease of use of a scripting language and the programming capability of a complete developer language. Python is a good choice for those new to object oriented programming as Python supports object oriented programming in an easily understandable fashion.

The *Python Basics* Workshop will focus on the basics of Python syntax and how Python can be used to access geoprocessing functionality in ArcGIS. This half day course will focus on three main topics:

1. Basic Python syntax
2. Accessing ArcGIS tools in scripts
3. The geoprocessor programming model and geoprocessor object.

## **Governmental Unit Framework Technical Meeting: Using Governmental Unit Data - Erin Geraghty BMSC**

Agenda for the Technical Meeting

- Status of the Governmental Units Framework
- Governmental Units Web Services: To download or not to download
- Senate Bill 57: now that it passed what does this mean?
- Using Governmental Units data responsibly
- 2010 Census

## **Writing & Publishing Metadata - Evan Hammer, Jennie Stapp, Diane Papineau MSL**

This session will explore what geospatial metadata is, the value of creating it, and some of the reasons that it is so frequently neglected. Publishing data to the new Montana GIS Portal and the recently adopted GIS Portal Metadata Standard will be subtopics in this discussion.

## **Involving the public in EIS reviews through web mapping applications - Tom Ring, Craig Jones, & Nat Carter DEQ**

The Major Facility Siting Act (MFSA) regulates electric transmission lines of more than 69 kilovolts, pipelines greater than 25 inches in diameter, and certain types of electrical generation. One of the purposes of the MFSA is to provide citizens with the opportunity to participate in the facility siting decision. For someone to participate they must know the locations under consideration. On long linear projects such as transmission lines and pipelines project location could impact several hundred to several thousand property owners.

In the past, applicants submitted maps and Mylar overlays of resource information (land use, cultural, biological, visual, land jurisdictions, etc.) and the GIS layers that made up all of the resource information. During public meetings staff and the public found that using the GIS layers was more effective than shuffling base maps and Mylar overlays.

Once the initial agency sponsored public meetings are concluded, the public's avenue of viewing the maps of the proposed project and alternatives would either be to travel to DEQ's office to look at the hard copy maps and Mylar overlays of the resource information or request that DEQ create personalized hard copy maps for each requestor. During a moderately sized transmission line project, staff had to produce close to 200 hard copy maps and had to spend extra time in the field with the public to answer questions that could have been addressed with a map with resource information on it.

DEQ's solution is an interactive web mapper displaying the proposed and alternative locations for a project with resource information. The interactive web mapper has provided the public a way to see where these linear projects are being proposed and an opportunity to carefully study the distribution of affected natural and human resource information without having to travel to DEQ's office or having staff create personalized maps for every request. The other benefits of the interactive web mapper are a reduction in staff time in responding to map requests, more and better quality public involvement, and cost savings to the public and better fulfillment of the MFSA Legislative purpose.

## **Spatial Analysis Workflow and Automation - Nat Carter & Chris Stump, Montana Dept. of Environmental Quality**

MT DEQ is developing an Energy Atlas to provide an assessment of not just renewable resources, but rather show the current understanding of all potential energy producing resources throughout Montana while noting some environmental, legal, and land use constraints. A first-cut suitability analysis will also be developed for each resource to help jump start and significantly narrow down the areas for further investigation. This presentation will focus on the analysis performed to determine potential locations for large wind turbines at an altitude of 50 meters. We will overview the entire process from defining the analysis criteria, selecting the data and relevant sources to support it, developing the analysis model, and validating the results based on existing sites.

## **Land Cover/Land Use Framework Technical Meeting - Claudine Tobalske, Linda Vance, Melissa Hart, Montana Natural Heritage Program**

### **ROLLOUT OF THE MSDI LANDCOVER/LANDUSE THEME**

As part of Gap Analysis, a statewide grid of landcover/landuse was originally released in 1998. Gap Analysis aims at "keeping common species common" by identifying "gaps" in the network of conservation lands. Using GIS and deductive models that link species presence to landcover classes, the predicted distribution of all vertebrate species is generated and compared with that of protected areas. The original Montana Gap landcover grid was the result of an unsupervised classification of Landsat TM scenes (to define patch boundaries) followed by a supervised classification to assign cover type labels.

Letting each state develop its own classification, however, resulted in edgematching problems, leading to a second, regional mapping effort. Montana is one of five states that make up NorthWest ReGap (along with Oregon, Washington, Idaho, and Wyoming). Like its predecessor, the new landuse/landcover map was generated from Landsat TM data, but a single classification scheme using Ecological Systems was devised and applied nationwide. As the steward for this framework layer, the Montana Natural Heritage Program contributed actively to the mapping effort by ground-truthing earlier drafts, providing ecological expertise, and correcting misclassifications in the final product.

In this session, we will present the new Montana landcover/landuse grid, describing the steps involved in its

creation, explaining the new ecological systems classification, and identifying potential uses for the layer. We will briefly compare it with the original GAP layer and with two other, recently released landcover layers, the Landfire grid (USFS/USDI) and the Forest Service Region 1 Existing Vegetation Map Products (VMap 9.1.1). We will be soliciting participant feedback on protocols for receiving and incorporating comments about this new theme.

## **Wetlands Framework Technical Meeting - Linda Vance & Meghan Burns MT Natural Heritage Program**

Topics to be discussed:

Now that we will be distributing the new wetland data new there are new questions to ask:

1. How can we make the data more accessible and useful?
2. What information do we need to provide for better understanding?
3. How should the data be packaged?

## **National Hydrography Dataset Workgroup Meeting, Evan Hammer, MSL**

***Thank you for attending the Montana Association of Geographic Information Professionals 2009 Fall Technical Session!!!***