



## *The Vector*

Newsletter of the Montana Association of Geographic Information Professionals

October 2008

### The Corner

Kris Larson, MAGIP President

Robin Trenbeath, State Geographic Information Officer

When MAGIP first discussed resurrecting our quarterly newsletter, we discussed many options for the State GIO/President's corner. "He said/She said," was a personal favorite. But no matter what the title is, a lot of exciting things are happening in the Montana GIS community!

Earlier this year, the State GIO and MAGIP co-hosted a GIS Funding Sources Workshop. The objectives were to brainstorm funding ideas and then complete an action plan for developing broad-based sustainable GIS funding. We identified more than 60 potential funding sources as a result of the workshop and have begun moving forward with some of those funding ideas.

Months of behind-the-scenes work have resulted in the State of Montana now having an Enterprise License Agreement with ESRI, the primary GIS software vendor in the state. What does this mean to you? State agencies that hadn't before had the ability to create, receive and/or distribute GIS data now have the capability; there will be more in-state GIS training opportunities; and more facilities that are capable of hosting formal or informal GIS workshops.

The Intermountain GIS Conference saw the public introduction of the GIO's vision for the State of Montana GIS Federation - the concept of a collection of independent entities forming a cohesive data sharing system where connectivity to each other enables all participants to create and use information. The power of the federation rests with you, the MAGIP membership. It is in the equilibrium you strike between your ability to collect quality data, retrieve information from the most appropriate source and distribute records in the most efficient way possible, and each organization's self-determination of whether and under what conditions it wishes to publish its data. However, the underlining goal of the Federation remains its ability for any member to register available datasets, locate (discover) information anywhere within the network and provide (deliver) those records to the consumer when, where and how they need it. More information on the Federation can be found at: [http://itsd.mt.gov/policy/councils/mliac/march%202008/Concept\\_Paper\\_Federation\\_Technology\\_Environment\\_2-29-08.doc](http://itsd.mt.gov/policy/councils/mliac/march%202008/Concept_Paper_Federation_Technology_Environment_2-29-08.doc)

Our request for "some young people" to step up to the plate resulted in five great new MAGIP Board Members. It is a pleasure to welcome Erin Geraghty, Patricia Williams, Nat Carter, Tony Thatcher, and Lee Macholz. See <http://www.magip.org/who/default.asp?ID=286> for photos and contact info. We would like to thank Ken Wall, Gerry Daumiller, Stuart Challendar and Mike Sweet for their years of service on the MAGIP board and their continued good work on behalf of the GIS community.

Almost 100 people showed up for the GIS Summit in April, and many of them stepped forward to foster communication around the state and further our collective GIS efforts. MAGIP and the GIO will work together to promote understanding, development and use of GIS within the state. We will be doing more outreach. We've resurrected the Vector! The GIO and/or his staff have road trip plans to visit as many counties as possible to discuss GIS needs, wants and solutions. We'll offer more workshops, training and networking opportunities, such as a fall Technical Session in Great Falls & a mini conference in Eastern Montana in Spring 2009. We'll intensify our web efforts to communicate with as many of you as possible. There are training sessions planned to help towns, counties and rural areas apply for MLIA grants. MAGIP will implement a mentoring program which will include a small travel/training budget for experienced professionals to provide support to our new GIS friends. Get involved --- if you have ideas, contact Robin or any MAGIP board member to get those ideas rolling forward!

Finally, we're working on the creation of a State of Montana Base Map Service Center (BMSC) to provide geospatial coordination, standards, products and services to the GIS federated enterprise. More on BMSC and other developments in the next issue of Vector. If you can't wait, check out our revamped websites at <http://www.magip.org/> or <http://giscoordination.mt.gov/GIOCorner.asp>.

# Let's Hear from the Board of Directors

1. How long have you been working in GIS? 2. What's your favorite part of GIS?



## Kris Larson, President

1. Since 1989 --- wow --- 19 years & I'm still happy that I'm in this field!!!
2. I love watching people SEE their data. Trends and outliers become immediately apparent and it's such a powerful thing to see decision-makers actually making decisions based on good sound information.



## Erin Geraghty, Vice President

1. I've been working in the GIS field for a over 7 years.
2. My favorite part of GIS is the analysis side...solving or discovering problems with GIS. And I also like to use Model Builder; it really makes my life easier when doing repetitive tasks.

## Doug Bureson, Past President

I started out working in the land survey field. In the early 80's I started working in electronic mapping. This is when Missoula County started mapping by computer. We used CAD at that time. In the middle 90's the county started using GIS software and I got exposed to that.

I suppose the favorite part for me is experiencing when a user of County data is aided by the GIS system we have built. To see them answer a question or solve a problem or accomplish a milestone is really gratifying.



## Lee Macholz, Secretary

1. I have been working in GIS for 7 years.
2. Problem solving. I love being faced with a good problem to solve and the ability to frame a question spatially and figuring out a way to answer that question visually as well as quantitatively is fun. I also really enjoy the challenge of adding the spatial element to traditional database design and developing geodatabases that function well for applications, analysis, and cartography.



## Tony Thatcher, Treasurer

1. While I started with GPS mapping and precision survey technologies in 1990, I did not start using GIS until 1993 while in graduate school.
2. Pure cartography is still my favorite, but unfortunately it does not pay the bills. I do take great pride in finding an elegant solution to a seemingly complex problem. This is especially true when the solution integrates a variety of tools and techniques.



## Bryant Ralston

1. I've been working in GIS since 1991.
2. My favorite part of GIS is the diversity and challenge of empowering professionals from practically every discipline to help contextualize, make, evaluate, and justify decisions across both public and private sectors.

## Van Shelhamer, Education Committee

1. I began teaching GPS and GIS concepts in 1997 at Montana State University as a part of the Upper Midwest Aerospace Consortium, Ed PARC (Public Access Resource Center) at the University of North Dakota. Ed PARC's focus was and continues to be teaching K-12 teachers to use geospatial technologies.

2. I enjoy seeing the smile on peoples faces as they use geospatial technologies to discover answers to complex problems. I am very interested in the brain processes of learning spatially while using GIS/GPS.



## Michael Fashoway, Technical Committee

1. Professionally for 8 years.
2. Although I don't consider myself a cartographer by any stretch of the imagination, the maps that can be produced are my favorite thing about GIS. A well constructed map can convey a lot of information to a map reader. I have enjoyed looking at maps since I was young and the ability create a map which may teach others, or even myself, something about our world is what first attracted me to GIS.



## Nat Carter

1. I have been working with GIS since 2001 when my first GIS job was with the South Dakota Geological Survey making geologic quad and county aquifer maps.
2. My favorite part of GIS in today's world is the availability of so much information and turning all that data into knowledge for the end user.



## Evan Hammer

1. First GIS classes in 1995, first GIS job in 1996.
2. I have been fortunate to have worked on GIS projects in a broad range of disciplines. Working with people with such different backgrounds and seeing the unique and creative ways that they apply GIS to such widely varying needs has been very rewarding.

## Janet A. Cornish, MAGIP Administrator

1. While I'm not a "GIS Professional", I have been relying on GIS technology as a community development practitioner since 1991 -- nearly 18 years!
2. GIS helps formulate public policy because it enables members of the public and their elected representatives to visualize issues and the appropriate responses to the challenges that face us.

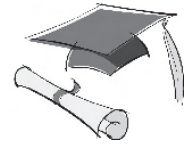


## Patricia Williams, Professional Development Committee, Vector editor

1. Wow - 7 years, now. I started part-time as a CartoTech during school & am now a GIS Specialist/Analyst.
2. Making maps - pulling information from the myriad of resources & producing something that makes sense to everyone.



# ***MAGIP Awards Higher Education Scholarships***



In May of this year the MAGIP Board of Directors approved the recommendation of the Education Committee to award two \$1000 scholarships to two graduate students enrolled at Montana State University. To be eligible, the recipient may be from any discipline but must be working on projects that use GIS as part of their research or thesis. Students are awarded a one time \$1000.00 scholarship and are encouraged to present their work at the annual Intermountain GIS conference. A brief description of their research and efforts to date are described below.

## **Steven, Jay, Department of Land Resources and Environmental Sciences. Detection of Leafy Spurge Using a Remote Controlled Aircraft Fitted with a Hyperspectral Sensor.**

### *Background for the Study*

Leafy spurge is an ecological and economic pest that is difficult to monitor and control. Leafy spurge alone has been estimated to cost Montana, Wyoming, North Dakota and South Dakota \$74.2 million annually on grazing land and \$6.8 million annually in wild land setting (Leistritz et al, 2004.) The estimated cost from the impact of all invasive plant species is estimated to be around \$100 million a year (Sheley, et al, 2005).

Land managers need a cost effective and practical way to monitor leafy spurge patches from year to year to measure if management strategies are effective. The combined use of remote sensing, GIS, and GPS to map leafy spurge may be the best monitoring system, once cheap and easy methods are developed. This project aims to develop a methodology to map leafy spurge using remote controlled (RC) airplanes with a hyperspectral device.

GIS will be used to manage both vector and raster data in the development of a monitoring methodology. Images collected from the various RC flights will have to be georeferenced. GIS will allow images to be compared by land managers as they track leafy spurge distribution annually and create management schemes.

### *Accomplishments to date:*

Classification results show that the best time to map leafy spurge is middle to late summer, either when leafy spurge has yellow green bracts or when surrounding vegetation has senesced for the summer while leafy spurge remains green. The July 3rd image has the highest classification accuracy which is when leafy spurge was distinctly yellow-green. The early classifications have low accuracies because most vegetation was young and still green. Classifications were done by using the random forest algorithm for single date images. Currently, work to incorporate temporal variation into the classification model is being attempted.

Misclassification was predominant between leafy

spurge patches and the juniper. This is more of a result of the angle at which the image was taken where a dark shadow was in the juniper tree. This shadow resulted in most shadows and dark regions being classified as juniper. Other confusion in the classification arose with bright green vegetation being misclassified as spurge. This is a result of a limited training set.

One RC flight to collect aerial imagery has been achieved. This data is being processed now, but initial analysis shows that the aerial imagery will potentially provide good enough data to be able to detect leafy spurge.

## **Christina Carr. Department of Earth Sciences. The Fault Segmentation Control on Alluvial Fan Development along the Lemhi Fault, East Central Idaho.**

### *Background for the Study:*

The proposed research will describe the expected spatial facies, and fan type distributions of alluvial fans in extensional basins as a result of normal fault segmentation and will be applicable to the prediction, study, and interpretation of the distributions of these attributes of alluvial fan deposits in ancient extensional basins. Active and ancient extensional basins are important because the sediments and fossils they contain provide information about the climate, tectonics, lake/sea level, and ecologic changes that took place during the period of sediment deposition. The basin-fills can also contain hydrocarbon reservoirs and mineral deposits.

The hypothesis for this study is: Variations in alluvial fan attributes and their spatial and temporal relations along extensional range fronts are controlled by normal fault segmentation.

Fan size and fan drainage basin size and relief will be determined using a combination of GPS mapping in the field and extracting data from 30 m US Geological Survey Digital Elevation into a GIS database, along with bedrock geology and fault segmentation spatial data. Field data collected with a GPS will also be entered into the database. GIS will be used to interpret the spatial distribution of alluvial fan types and fan drainage basin attributes in the context of the normal fault segments. Spatial overlay and quantification of landscape attributes and fault segments will lead to interpretation



of casual relations between datasets.

*Accomplishments to date:*

Summer fieldwork included mapping locations of fault scarps and alluvial fan packages. So far, I have identified two distinct geometries of alluvial fan packages, with a preliminary hypothesis that spatial relationships

between the developing range-front normal fault and the fans control which fan geometry develops. During the fall semester, I will continue by: 1. mapping orthophoto quad interpretation, 2. perform spatial analyses in ArcGIS and, 3. return to the field to ground truth and obtain GPS coordinates of key locations.



*Opportunity Knocks: The Governor's "GIS Challenge"*

By Alex Philp and Bryant Ralston

As GIS professionals we know the significance of executive level awareness and support and why GIS matters in mission critical applications important to senior level policy makers. These decision-makers need to recognize and appreciate the power, potential, and promise of the technology to positively impact our organizations. Their organizational influence needs to be leveraged in the process of sustainably aligning GIS technology with organizational missions. In many cases their leadership and direct involvement can be key. It is an increasing part of our responsibility as professionals to enlighten them to how and why we need their involvement.

A unique opportunity has recently presented itself to the Montana GIS community. Montana Governor Brian Schweitzer fundamentally understands GIS technology and has his own ideas on how it can be applied to better serve the citizens of Montana through various public agencies who utilize GIS technologies to tackle some of the most pressing challenges facing Montana's future. For this we should feel lucky to be members of Montana's GIS community as this level of awareness is not often the case with his gubernatorial peers.

This is the *first* and currently *only* Governor's GIS challenge in the nation. On Thursday, September 4th the Governor himself actually attended the meeting of the Montana Land Information Council (MLIAC). We believe this is the first time in the history of the Montana GIS community that the current Governor has ever personally attended their GIS advisory council meeting. This fact alone could be considered quite a success in the midst of the relentless, "flash in the pan", "here today – gone tomorrow" pace of technology not to mention the myriad of events the Governor is asked to attend (especially during an election year). But we think the Governor's recent presence at MLIAC also means something more: it signals the relevance and success of our GIS efforts to date. We should all take heart in these past successes and they have brought us collectively to where we have been wanting to go for years. Opportunity knocks!

At the MLIAC meeting the Governor laid out what he referred to as "ideas" for the Montana GIS community. For the clarity of this initial communication we have grouped these ideas together but all of them are clearly interrelated. They are:

- A Comprehensive "Energy Map" for Montana. Specifically cited was to organize mineral rights at the individual parcel level. The Governor mentioned the oil and gas business employing geologists who refer potentially productive areas to "land men" who are presently required to visit county court houses individually to determine mineral records manually. This process is time consuming, difficult, non standardized, and expensive. The Governor specifically mentioned that by making these mineral rights as easy to discover as the Montana Cadastral Database and by organizing these two datasets more seamlessly together (cadastral and comprehensive mineral rights) Montana could be a highly competitive, progressive, nationwide leader in emerging energy development. In addition, the Governor noted that GIS could be additionally leveraged in the world of wind energy. GIS has already been utilized to successfully recruit a large wind farm to Cascade County by overlaying available land ownership for leasing, available transmission line capacity, and wind speed potential. This was accomplished by Tom Mital (and his predecessor Eric Spangenberg) working closely with County Commissioner Peggy Beltrone. However Governor Schweitzer had a different bent on wind energy: apparently some of the same geologic formations that can support sequestering carbon dioxide can also be utilized for storing compressed air. This compressed air would be potentially available as "firm energy" (with a higher

## Opportunity Knocks: The Governor's "GIS Challenge" (continued)

market value than non-firm) to run stable energy producing turbines. With the right GIS information on these geologic formations it could be estimated how much future energy could be produced at a particular place in terms of wind energy potential per site. This kind of information would be extremely valuable to Montana's position in the national energy picture. In addition GIS databases of other potential sources of energy such as coal deposits, hydroelectric potential, geothermal assets, possible ethanol inputs, and biomass capacity (like timber) would be crucial. Multiple GIS "information products" could be created by this effort.

- **A Carbon Capped Future.** Identify and classify geologic areas suitable for carbon sequestration and their proximity to enhanced oil recovery (EOR) locations. This valuable information could be provided to companies interested in investing in coal gasification in Montana. the Governor mentioned the Big Sky Carbon project at Montana State University ([www.bigskyco2.org](http://www.bigskyco2.org)) and this project is already utilizing GIS (donated by Jack Dangermond of ESRI) in several ways including the creation of a Carbon Atlas. Again with the right information GIS technology could be used to estimate the potential number of tons of sequestering capability per site.

- **Natural Resources and Hazards.** The Governor brought up mapping Montana's "red and dead" areas of our forests that have that been attacked by the Mountain Pine beetle and are particularly susceptible to catastrophic wildfire. Another suggestion was to use the soils GIS database for determining organic matter percentage of "broke out" farmland versus native range as a potential large carbon "sink" to possibly be traded (and noted by the Governor to be worth "a lot of money") through the Chicago Climate Exchange. Additionally, as soil stores a significant amount of moisture, this type of information is crucial during Montana's most frequently occurring natural disaster: drought.

- **Economic development.** The rise of the "restoration economy" as an important component of Montana's economic future. Over the years, it is become very clear that "green jobs" will be an important job growth sector in the coming decades. Moving beyond the false dichotomy between jobs and the environment, a restoration economy is based upon forward looking restoration ecology. The roots of both words, oikos, means home, and a restoration economy is dedicated to restoring our home through active problems to restore our forest health, reclaim degraded lands, stabilize our riparian corridors and watershed function, continued efforts to clean our shared legacy of mining waste, revive productive range lands, and turn Montana's brownfields into areas safe for urban growth and economic

development. GIS solutions can identify areas that require restoration efforts, help communicate the green job opportunities, and help monitor the success of the restoration economy through employment activity. GIS solutions can also quantify and display the economic and ecological structural, functional, and compositional metrics of a restoration project. Montana can continue to lead the nation in restoration technologies, skill-sets, and utilization of GIS as an integration tool.

We consider these ideas combined together to be a "challenge" to the Montana GIS community because they are not already occurring and force us to think about how we might design our GIS systems differently in the future based upon this level of public policy executive involvement.

We realize that to implement the Governor's ideas may take additional directives, resources, authority, executive order or possibly even legislation. That is expected as if these ideas were easy we wouldn't we already be doing them? We also believe that accomplishing this challenge is not primarily a technological problem but rather a result of own institutional, organizational, and political hurdles. Keep in mind that we have the Governor's complete support in pursuing endeavors related to accomplishing these and should feel comfortable taking back "options for implementation" to him once these are determined.

If you are reading this you are part of the Montana GIS community and being part of a community sometimes means doing things beyond the bounds and interests of our own day-to-day organizations and stepping out of our own comfort zones. However that is how we grow professionally and stay relevant in an ever changing world. Please get involved and contribute your ideas, energy, time, skills, or expertise to this challenge. As our Geographic Information Officer, Robin Trenbeath is our point person on this endeavor and it is time to rally around him as this opportunity matures. We believe the Governor's GIS challenge represents an opportunity that all of us (as well as the GIS community at large) cannot afford to miss. Please get involved.

**Alex Philp** is the President and CEO of GCS Research based in Missoula and a private sector representative on the Governor appointed Montana Land Information Council (MLIAC).

**Bryant Ralston** is the ESRI Strategic Account Executive for Idaho and Montana based in Clinton and a member of the Montana Association of Geographic Information Professionals (MAGIP) Board of Directors.

# Montana GIS Portal Makes Its Debut

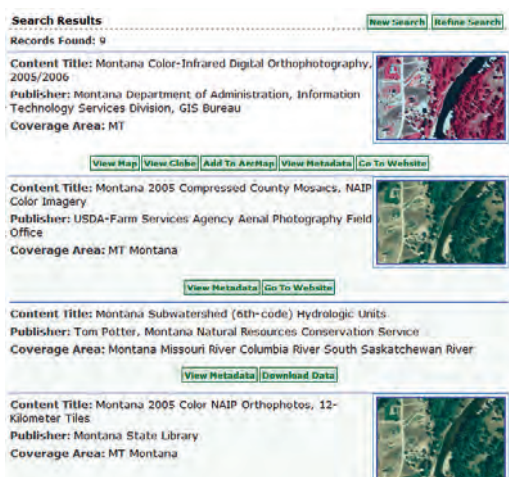
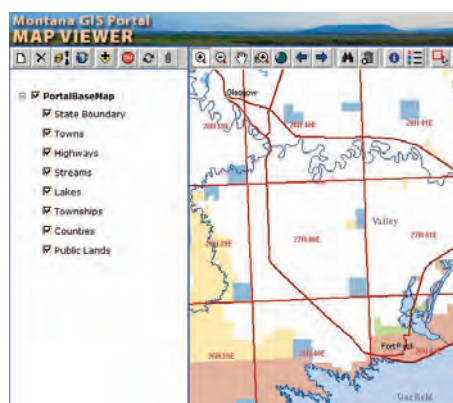
Gerry Daumiller



The State Library and the Base Map Service Center recently announced the public debut of the Montana GIS Portal at <http://gisportal.mt.gov>. The Portal is a searchable repository of metadata records about GIS data sets, designed to be Montana's primary site for users to find GIS data and for data providers to publicize the existence of their data.

The initial release of the Portal contains a collection of about 400 layers (with 200 sample maps) provided by Montana Fish, Wildlife and Parks, the State Library, the Base Map Service Center, and the Flathead County GIS Department. The State Library will conduct extensive outreach to obtain records from other agencies and conduct training for publishers to complete their metadata and make it work with the Portal.

The Portal has a section where the GIS community may put links to data and information they believe are important for people to be able to find quickly. This isn't Web 2.0-enabled yet, so you need to contact us if you want to add a section to this area of the Portal or contribute content to one of the existing sections. Each link in the community section leads to a page that has a brief summary of its topic, a link to the main agency or GIS coordination web site concerned with the topic, and a list of links to metadata records in the Portal for obtaining data pertinent to the topic.



Framework Layers
Cadastral
Critical Infrastructure
Elevation
Geodetic Control
Geology
Government Units
Hydrography
Hydrologic Units
Land Use/Land Cover
Orthoimagery
Soils
Transportation
Wetlands
Data Categories
Wildlife
Applications Areas
Local Government
Other GIS Portals
Current Events
MAGIP Fall Technical Session

The GIS Portal has an on-line Map Viewer that provides a basic map of Montana. You may load any web map service and use the viewer as a "poor person's GIS" to visually overlay data from different sources. If you find data with the GIS Portal that is part of a web service, the Portal will provide a button that automatically adds the service to the Map Viewer.

When you find data with the Portal, it provides a very brief description of each record, a link to the full metadata for each record, and a link for downloading the data, if the publisher provided an on-line linkage to the data.

We strongly encourage all GIS data producers to contact us if you want your data to appear on the Portal. We will eventually contact you to talk about doing this, but more data will get on the Portal faster if we start with the people who are most interested. You can start learning about publishing to the Portal by looking at the instruction documents under "Publishing Help" on the Portal home page.



## Montana GIS Portal Makes Its Debut (continued)

The Portal is still in its infancy, and we need your feedback on how to make it better. Please try it out and let us know what you think. Our immediate plans are to add more content to the Data Categories section, add aerial photos to the Map Viewer's base map, and make a better list of services to choose from in the Map Viewer's "Add Services" tool. The Portal is based on ESRI's GIS Portal Toolkit software, and they recently released a major upgrade for this. The upgrade includes a robust content management system that will make it easy for anyone to contribute to the community area.

Our longer-term plans for the next couple of years will be to use the Portal and its Map Viewer as a vehicle to replace the State Library's Topofinder, Digital Atlas, Data Bundler, and GIS Data List applications. The Map Viewer will have a look and feel similar to the Montana Natural Heritage Program's Tracker application (<http://nris.mt.gov/tracker>), but it will have the Topofinder's data table with copy-and-pasteable location data for the map center cross-hair.

The Map Viewer will have functionality to search or browse for all map service layers known to the Portal and add them to the map, and to add other map services that you know about. We will make a big effort to make a lot more of the Portal's data layers available as map services. Eventually you will be able to select features from the map, select or clip other layers using those features, and view reports or download GIS data based on the results. These functions will probably also still be available through the old Digital Atlas and Data Bundler front-ends, but there will be an entirely new server engine behind them.

The current appearance and functionality of the Portal are the result of work by the GIS Portal Team. This includes State Library staff Jeff Dobb, Tom Marino, Gerry Daumiller, Duane Lund, Diane Papineau, and Steve Jeffery, and Base Map Service Center staff Erin Geraghty and Michael Fashoway. The Portal is governed by a Steering Committee, that includes Jennie Stapp (State Library), Stu Kirkpatrick (Base Map Service Center), Art Pembroke (Lewis and Clark County), Lance Clampitt (U.S. Geological Survey), and Ken Wall (GeoData Services). Please contact any of these individuals if you have questions or comments about the Portal.

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## MLIAC Report

The last meeting of the Montana Land Information Advisory Council (MLIAC) was held in the Capitol on September 4, 2008. Attendees were treated to a visit by Governor Brian Schweitzer who took time out of his schedule to come to the meeting and announce the Governor's Challenge in person. More information about the Governor's Challenge can be found in the accompanying article in this version of the Vector.

The council is pushing forward with efforts to review Stewardship of MSDI Framework Layers. Imagery, Soils, and Geodetic Control layers are the first slated for stewardship review. Volunteers from across the GIS community with an interest in the development of any of these Framework Layers are encouraged to contact Robin Trenbeath ([rtrenbeath@mt.gov](mailto:rtrenbeath@mt.gov)) to express interest in participating in this review process.

The FY08 MLIAC Grant process is winding down and it is anticipated that all but one of the awarded grants will be completed in the coming months. All of the Statements of Work (SOW) for FY09 grants have been sent out. The FY10 grant process has just begun with early drafts of the FY10 Land Information Plan being disseminated among the members of the Land Plan Subcommittee. There was some discussion in the Council meeting as to whether or not the grant process should be extended to a two year granting cycle to allow for more time and effort to be put in throughout the process. No decision was made but some members of the Council (Art Pembroke, Darlene Staffeldt, Stu Kirkpatrick) offered to explore the feasibility of extending the process.

Please visit the MLIAC website for more detailed information including the agenda and minutes from past MLIAC meetings. An agenda is posted for the September 4 meeting, and the minutes will be posted in the near future. The next MLIAC meeting is slated to occur on December 9, 2008 in conjunction with the 2008 Government IT Conference to be held December 10-12 at the Colonial Red Lion Inn in Helena.

MLIAC Website:

<http://itsd.mt.gov/policy/councils/mliac/default.mcpx>



MAGIP is again sponsoring a Technical Session October 28th and 29th at the Townhouse Inn, Great Falls. The agenda, largely based on feedback from the 2008 Intermountain GIS Conference and your votes on SurveyMonkey, is an exciting one.

The Session starts Tuesday morning with a Roundtable and General Session. During the Roundtable, attendees will have the opportunity to hear what their colleagues from around the state are working on. The General Session will include updates from the Montana Land Information Advisory Council and a discussion on the recent “Governor’s Challenge” to the Montana GIS community. (See related article) Come find out what is happening around the state with GIS and how you can participate.

Workshops being offered this year include ArcGIS Desktop Editing Tips & Tricks; Geodatabase Project Examples; ArcPad 7 for Mobile GIS; Creating Mashups with ArcGIS Server, Google Maps and Microsoft Virtual Earth; GISP Certification along with meetings of the MAGIP Education and Technical Committees and a Local Government Special Interest Group meeting.

Being held in conjunction with the Technical Session is a MLIA Grant Workshop. This workshop will help local and tribal governments, or anyone applying for MLIA grants, to prepare competitive grant proposals. This is free workshop for those who will attend this workshop only. If you plan to attend this as well as other workshops at the Technical Session, you need to register and pay for the other workshops.

The cost for the entire Technical Session is \$40 per person. Meals are not provided but the cost of registration allows one to attend any session or workshop. For more information or to register see the MAGIP website: <http://www.magip.org/events/detail.asp?eventID=39>



### **Grant Info:**

1. The National Spatial Data Infrastructure (NSDI) Cooperative Agreements Program (CAP):  
<http://www.fgdc.gov/grants/2009NSDICAP/2009CAPschedule>



# MAGIP

# October 2008

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20 ESRI Conference	21 ESRI Conference	22 ESRI Conference	23 ESRI Conference	24 ESRI Conference	25
26	27	28 MAGIP Session	29 MAGIP Session GeoEssentials Training	30 GeoEssentials Training	31 GeoEssentials Training	

## Montana Association of Geographic Information Professionals

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For questions or  
submissions to the MAGIP  
calendar, please email  
Janet Cornish.

Phone: 406.723.7993  
E-mail: JanAllyce@aol.com

Please also see our Calendar of Events  
page at: [http://www.magip.org/  
events/default.asp?ID=212](http://www.magip.org/events/default.asp?ID=212)

## SCHEDULE OF EVENTS

- October 20-24: Northwest ESRI Users' Conference ,Sun Valley, ID  
<http://www.nwesriusers.org/>
- October 28-29: Montana Association of Geographic Information Professionals (MAGIP) Fall Technical Session, Great Falls, MT  
[http://www.magip.org/events/  
default.asp?ID=212](http://www.magip.org/events/default.asp?ID=212)
- October 29-31: GeoEssentials ArcGIS II Tools and Functionality, Belgrade, MT  
<http://www.geoessentials.com/>

# MAGIP

# November 2008

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GeoEssentials  
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MLIA grant workshops  
AAG Abstracts Due

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Kessler Training  
MLIA grant workshops

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Kessler Training

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Kessler Training

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MAGIP Meeting  
Kessler Training

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Kessler Training

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Montana Association of Geographic  
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Please also see our Calendar of Events  
page at: [http://www.magip.org/  
events/default.asp?ID=212](http://www.magip.org/events/default.asp?ID=212)

## SCHEDULE OF EVENTS

- November 3-4: GeoEssentials GPS 101 Fundamentals of GPS, Miles Community College, Miles City, MT  
<http://www.geoessentials.com/>
- November 5-7: GeoEssentials ArcGIS II Tools and Functionality, Miles City, MT  
<http://www.geoessentials.com/>
- November 13, 17: MLIA Grant Proposal Writing Workshops, various locations  
[http://giscoordination.mt.gov/  
grant.asp](http://giscoordination.mt.gov/grant.asp)
- November 13: Extended deadline for the Association of American Geographers  
[http://www.aag.org/  
annualmeetings/2009/index.htm](http://www.aag.org/annualmeetings/2009/index.htm)
- November 17-19: Kessler GIS ArcGIS Desktop II: Tools & Functionality, University of Idaho Center, Boise, ID  
[http://www.kesslergis.com/  
schedule\\_Boise.htm](http://www.kesslergis.com/schedule_Boise.htm)
- November 20: Montana Association of Geographic Information Professionals (MAGIP) Quarterly Meeting  
<http://www.magip.org/>
- November 20-21: Kessler GIS ArcGIS Desktop III: GIS Workflows & Analysis, University of Idaho Center, Boise, ID  
[http://www.kesslergis.com/  
schedule\\_Boise.htm](http://www.kesslergis.com/schedule_Boise.htm)

# MAGIP

# December 2008

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9 MLIAC Meeting	10 Montana IT Conf.	11 Montana IT Conf.	12 Montana IT Conf.	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Montana Association of Geographic  
Information Professionals

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For questions or  
submissions to the MAGIP  
calendar, please email

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E-mail: JanAllyce@aol.com

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## SCHEDULE OF EVENTS

- December 4: Montana Land Information Advisory Council (MLIAC) Quarterly Meeting  
<http://itsd.mt.gov/policy/councils/mliac/default.mcp>
- December 10-12: Montana Information Technology Conference, Helena, MT  
<http://itconference.mt.gov/default.mcp>