



MONTANA GIS NEWS

Montana GIS Users Group

Conference Edition

Spring 1995

Montana GIS Users Going Online

Like others around the world, Montanans are finding a wealth of valuable services, data, programs, and information on the Internet. Rapidly expanding technology is allowing us to use the Internet to dramatically change the way we share and disseminate information. However, the Internet is not just about technology and receiving information from others. The Internet is also a worldwide community, using certain standards to communicate and is composed of individuals and organizations willing to share information. Montanans are participating in this endeavor and are taking advantage of, and benefiting from, the rapidly expanding arena of the Internet.

World Wide Web

One of the most popular ways to use the Internet is through the World Wide Web, also referred to as WWW, the Web, or W3. The Web uses HyperText Transfer Protocol (HTTP) servers and their associated browsers such as Mosaic and Netscape to access Internet resources. What makes the Web so popular is its ease-of-use. The Web incorporates both hypertext and multimedia capabilities with point and click user interfaces for browsing the Internet. These features allow users to click on text or pictures in a document to retrieve information related to the subject matter of the object that was clicked on. This additional information may come from the current document or from a computer running a HTTP server on the other side of the world. The multimedia aspects include the ability to access images, movies, and audio, as well as text. Web browsers and servers also allow the use of various Internet protocols such as the File Transfer Protocol (FTP), Gopher, Telnet, and others. This capability is transparent to the user which greatly reduces the level of expertise required to access Internet resources.

To provide information on the Web you must have a
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Common Ground in a Complex World: 1995 GIS Conference

The seventh annual GIS conference sponsored by the Montana GIS Users' Group will be held at the Colonial Inn in Helena, May 8th and 11th. There are eight pre-conference workshops on May 8th, offered by a wide variety of GIS Professionals with years of experience. Concurrent sessions, panel discussions and social events will be on the 9th and 10th. Post-conference tours are scheduled for the 11th. The cost of the conference is \$75 for registrations received before April 10th.

The conference theme is "Common Ground in a Complex World." Sessions have been structured around the theme to show how GIS has been used in innovative ways, whether the work is with natural resource issues, demographics, or in other areas.

This year's keynote will be presented by Richard Varn. Mr. Varn is responsible for the coordination of telecommunications programs and policy at the University of Northern Iowa, and has served twelve years in the Iowa Legislature where he chaired the Communication and Information Policy Committee. Mr. Varn was instrumental in the passage of such cutting-edge programs as the Iowa Communications Network, Iowa's single smart card for easy access to all government services and statewide open access to libraries. He has held numerous positions of state and national leadership in the information policy area including three years as Chair of the National
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Montana GIS Users' Group to Host Public Night

The Montana GIS Users' Group will host its fourth annual Public Night at the Montana GIS Conference in Helena this year. Public Night is scheduled for Monday, May 8th, from 6:30 pm until 9:00 pm, at the Colonial Inn in Helena. The event is free and open to anyone who would like to attend.

As always, poster presenters and vendors will be available to show their work, share ideas, and answer questions. Allan Cox will give a presentation which explains GIS in lay terms, and will describe some of the GIS projects affecting the state. Computers will be available for the public to see and use.

For a new twist this year, we are encouraging local schools to participate. There will be special demonstrations, computers, and a mini-workshop set up for the K-12 crowd. The following are some ideas that presenters are working on for this workshop:

*Map scale, sketch mapping, and directions. This would be a Model mock up (we have houses, cabins, etc) - laid out on butcher paper with simple street network and uniform grid for visual measurements. Measured to scale (maybe 5x5 ft.) on a table or floor. Kids would draw sketch map using scales and directions.

*Projections - worksheets- Cut out a conic, and cylindrical projection of the world and tape it together. Blow up globe which you let the air out of to demonstrate sphere to 2d space.

*Killer whales Seaworld exercise (from Internet WWW site) Kids draw major oceans on melon and talk about how whales would get from one ocean to the next. This may be adapted with clay on a board or grid - Depict Missions and Swan range and use moving circle analysis for grizzly bear corridors, or 8x11 xerox of Montana topo hillshade and draw likely wolf recovery in from Glacier or Yellowstone.

*Group maps (birth place on US map and favorite place in Helena) A couple of Arcview maps like this projected with LCD panel on the wall. Like a push pin map, but digital. Kids would put a symbol on each map. Maybe we could do a plot of results to send to each school in Helena afterward.

*Match continents to world map. Word matching worksheet (animals with continents) or cutouts of continents placed on blank world map.

*Simple cardboard or foam core board map of Contour intervals, mixed up at first, put together in proper order. Could be combined with PC showing oblique perspective view with contour drape. I have used this effectively with kids in the past to demonstrate how to interpret contour lines on a topo map.

*If we had the space, lay out a simple orienteering course where they follow a worksheet directions with pacing to negotiate a course.

*Word find worksheet - geography terms - maybe treasure hunt as they go around with raffle or for rest of conference

*Individual PC stations (if available): ArcUSA, etc. and/or Uncle Bob's Kids page (cool WWW homepage for kids)

Invitations will be sent to city/county government officials, teachers, and librarians in the Helena area. If you know of a particular individual who may be interested in attending, or if you'd like more information on Public Night, contact the Montana State Library in Helena, at 444-5691. We'll look forward to seeing you there!

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Conference of State Legislatures Task Force on Information Policy, Chair of the State Information Policy Consortium, and member of the National Academy of Public Administration's Panel on Information Management. Mr. Varn is currently writing a book on electronic democracy.

Lieutenant Governor Rehberg will provide an opening address. Mr. Rehberg is a fifth generation Montana rancher, who has been involved in public service the majority of his adult life. As Lieutenant Governor, he chaired the Governor's Workers Compensation Task Force which helped in many of the changes undertaken by the state's system. He chairs the Montana Drought Advisory Council which focuses on drought preparedness. He has worked hard in the area of economic development and helped organize the Montana Rural Development Council, a federal-state-local-private economic development partnership. Mr. Rehberg has a degree in public administration/political science.

This year's conference promises a very full agenda, with many exciting extracurricular activities as well. There will be three concurrent tracks and commercial exhibits throughout the conference. Public Night is scheduled for Monday, May 8th, from 6:30 - 9:00 pm (see related article). Tuesday night, there will be a poster session with prizes for the winning posters, and a no host social. Wednesday night (see above article), there will be a full-course dinner and dance with live music from the popular rhythm & blues band "Diamond City." Conference activities will wind down Thursday morning, with tours of the Natural Resource Information System, the Department of Natural Resources and Conservation, and Desktop Assistance.

For more information about the program content, contact Kris Larson at (406)444-5691, or email klarson@nr.is.msl.mt.gov. For general conference information, contact Tom Ring at (406)444-6785, or email tring@sparc.dnrc.mt.gov.

(GIS Users Online, continued from Page 1)

dedicated Internet connection and be running an HTTP server. To obtain information from the Web you must have a direct connection to the Internet and a Web browser. Both of these types of software are available for free on the Internet.

There are many groups in Montana providing information using Web servers. Following is a list of some of them and their Web addresses or URL's (Universal Resource Locators):

Natural Resource Information System:
<http://nris.msl.mt.gov/>

Montana Department of Administration:
<http://www.mt.gov/mont01.html>

University of Montana:
<http://www.umt.edu/>

Montana State University:
<http://www.montana.edu/>

USGS Water Resources (Helena Office):
<http://wwwdmthln.cr.usgs.gov/>

GIS Data

Since many GIS users are dependent on data developed by others for at least some of their applications, they tend to embrace technology that facilitates locating and acquiring GIS data. Furthermore, GIS is a rapidly expanding field where the exchange of information about technology and techniques is frequent. A wide variety of ways exist to help GIS users meet these information needs by using Internet resources.

For example, the United States Geological Survey (USGS) is providing online access to many of its small-scale GIS databases such as: 1:250,000 Digital Elevation Models (DEMs), 1:2,000,000 Digital Line Graphs (DLGs) of administrative boundaries, hypsography, and hydrography; 1:100,000 hydrography and transportation DLGs; 1:250,000 and 1:100,000 Land Use and Land Cover data; and many others. The URL for this site is
<http://www.usgs.gov/data/cartographic/index.html>.

The National Biological Survey (NBS) has published an interactive metadata browser for the Federal Geographic Data Committee (FGDC) Metadata Standards. This browser allows users to view the Metadata Standards in a more intuitive way and provides ready access to all components of how to document data to the Standard. The URL for this site is
<http://www.its.nbs.gov/nbs/meta/meta.htm>.

The Natural Resource Information System (NRIS)

provides databases, metadata, and GIF files of Montana data on its Web server. NRIS also provides links to the above mentioned sources for GIS data and information as well as many others. The URL for the NRIS Web server is <http://nris.msl.mt.gov/>.

One of the newest and most interesting Montana Web sites is the USGS Montana District's. The site features streamflow data updated by satellite every fifteen minutes, historical streamflow data, and the ability to build on-the-fly hydrographs for a specific monitoring station for a given period of interest. The URL for this site is <http://wwwdmthln.cr.usgs.gov/>.

Montana GIS Listserver

List servers allow an Internet user to send an email message to one address and have it broadcast to many different addresses of those who might be interested in the subject matter. List servers are created to facilitate communication about a given topic. In Montana, we have a list server for GIS users. If you subscribe to the list any message that is sent to the list server will be delivered to your email address. If you post a message to the list it will be sent to all the other subscribers. Typical uses of a list servers are to ask a specific technical question or to announce something of general interest to the entire group.

The Listserv software looks for commands in only one place, the first line of any message it receives. It does not look beyond the first line.

Here is an example of how to subscribe:

TO: listproc@listserv.umt.edu
FROM: kwall@selway.umt.edu
SUBJECT: subscribe mtgis "your name" (don't use quotes)

After you have subscribed, send all mail messages that you want posted to the subscribers to the listserv to receive to: mtgis@listserv.umt.edu.

Conclusion

The Internet is changing the way in which we communicate and share information by lowering barriers. By taking advantage of the new freedom and opportunities afforded us by these lowered barriers we can do our jobs and serve our clients in new and better ways. However, we must remember that the continued success of the Internet requires that we are willing to give back to the online community in those areas where we have expertise, or where we have resources that others can use.

Developing Montana's GIS Data Clearing House

Under a \$25,000 grant from the Federal Geographic Data Committee (FGDC) the Montana GIS Interagency Technical Working Group (ITWG) and the Montana Natural Resource Information System (NRIS) have taken the first steps in providing easy access to geographic information in Montana. The grant requires the completion of seven tasks. The tasks, and our progress on them, follows.

Develop Implementation Plan - The implementation plan is the guiding document to direct efforts to achieve the grant goals. The implementation plan is complete for all tasks outlined in the grant and is currently being expanded to encompass future tasks.

Update and Enhance the *Montana GIS Data Directory* - The *Montana Data Directory* was a stand-alone PC-based system that allowed users to enter and query information about GIS data and projects in Montana. Under the grant, we are converting the existing database to adhere to the FGDC Metadata Standards. To complete this task we have hired two temporary employees from the University of Montana. They have designed survey forms to be sent to GIS users in Montana. Once the organizations have reviewed the forms, we will follow-up with interviews to insure the documentation is completed.

The updated *Directory* information will be loaded on a Wide Area Information Server (WAIS) at NRIS and be made accessible via a World Wide Web (WWW) server.

Implement One Node on the FGDC Clearinghouse - We have installed a WWW server at NRIS. Currently the server has example GIS products; a list of information residing at NRIS; access guidelines for acquiring data; back issues of the *Montana GIS Newsletter*; an announcement for the 1995 Montana GIS Users Conference; and a "Montana Maps" section. The Montana Maps section includes GIF bitmap images, metadata, and ARC/INFO export files for fourteen databases. The WWW server has proven to be very popular. We have had over 4,500 different remote users access the server since September, 1994. The Montana Maps area is the most popular with over 25,000 copies of databases, documentation, and GIS images downloaded so far. Plans call for designing a form entry page to allow documentation of databases from WWW browsers and designing forms that allow users to request non-published data online.

Acquire Tools for Documenting Data to the FGDC Metadata Standard - If organizations are going to document their data to the FGDC Metadata Standard, the procedure must be easy and the tools accessible. Since organizations in Montana use many different systems and are at many different levels of technical expertise, we believe the best hope to ensure documentation is completed to the FGDC Metadata Standard is to provide a variety of tools to facilitate the process.

Research and Identify Tools for Searching for Spatial Databases on the Internet - There are many tools for searching the Internet and new tools are continually developed. We will identify as many of these tools as possible for GIS users in Montana. This inventory will be accomplished by contacting known sites and organizations that are already using the tools, by searching the Internet, and by making inquiries on the Internet.

Update the *Montana GIS Standards Plan* to Comply with FGDC Metadata Standard and the Spatial Data Transfer Standard - The *Montana GIS Standards Plan* was developed by the TWG, in part to facilitate data exchange among agencies by ensuring consistency in the development and documentation of spatial data. Topics covered in the *Plan* include: source materials, data automation, accuracy, documentation, and data transfer methods. The *Standards Plan* has been revised and now recommends compliance with the FGDC Metadata Standard and the Spatial Data Transfer Standard. NRIS will publish the plan on its WWW server.

Implement a Montana GIS Users List Server on the Internet - Communicating with other GIS users is a major component in achieving the FGDC goals of coordination and adherence to standards. Making communication among GIS users easy, efficient, and effective is the way to meet this goal. The Montana GIS list server is up and running at the University of Montana. Currently there are only 25 subscribers to the list. So far the listserver has received very little traffic but we hope this situation will gradually change as more Montana GIS users gain access to the Internet.

Montana Statewide Basemap Layer Status

| LAYER | RESPONSIBLE AGENCY | STATUS |
|-------------------------|--|---|
| TRANSPORTATION | USGS | 1:100,000 DLG files for entire state complete. Available from NRIS |
| UTILITIES | | |
| TOPOGRAPHY* | USGS | 72% of state complete for 7.5 and 15 meter DEM's, proposal made to USGS by TWG to complete remaining areas. UM GAP project merging 7.5' files into 1:100,000 quad tiles for western half of Montana. |
| HYDROGRAPHY* | USGS/NRIS/FWP/UM-GAP | DLG files for entire state complete. Available from NRIS. Montana River Reach database currently in progress under joint project with NRIS and FWP. UM GAP project is making extensive edits to DLGs to correct errors for western half of Montana. |
| U.S PUBLIC LAND SURVEY* | USGS/BLM | 1:100,000 scale database currently in progress by BLM. Aproxiamatley 20% complete. 1:24,000 scale data available for some areas. |
| GEOGRAPHIC NAMES | USGS | DLG files for entire state complete. Available from NRIS. |
| BOUNDARIES | USGS | Available for some features, varing scales. Check with NRIS |
| ADMINISTRATIVE | USGS | Available for some features, varing scales. Check with NRIS |
| GENERALIZED OWNERSHIP* | BLM | Cooperative project currently under way with BLM acting as lead project manager. 10% complete, remainder scheduled for completion October 1995. |
| CENSUS GEOGRAPHY | Census Bureau | Entire state complete. Available from NRIS. |
| SOILS* | Natural Resource Conservation Service (NRCS) | 1:250,000 STATSGO complete for entire state, not certified by SCS yet. Available from NRIS. NRCS is also working on 1:24,000; 12% of state complete. |
| LAND USE | | 1:250,000 available from USGS via the Internet. |
| VEGETATION* | GAP Project/UM | Classification of Landsat Thematic Mapper images currently in progress for western half of state. Scheduled completion date December 1995. |
| GEOLOGY* | Montana Bureau of Mines and Geology | 1:250,000 manual mapping exists for part of state, lack funding for completion of manual mapping and digital conversion. |

The Montana GIS Interagency Technical Working Group (TWG) has identified the the 14 layers listed above as the most important for GIS users in Montana. Layers identified with and asteric (*) are currently in progress.

If you are interested in more detail about one or more of the layers listed above call Pam Smith @ 406-444-5354 and she can put you in contact with the TWG representative responsible for the layer.

If you would like to participate in the planning or development of statewide basemap layers or other colaborative GIS projects you may do so by participating in the TWG. Contact Pam Smith at the number above for meeting dates and more information.

GIS CONFERENCES

May 1-3, **Bouyoucos Conference Application of GIS to the Modeling of Nonpoint Source Pollutants in the Vadose Zone** , Riverside, CA, Contact: 909-369-4819.
May 7-10, **1995 National GeoData Forum** , Crystal City, VA, Contact: FGDC, 703-648-5514.
May 8-10, **Advanced Traffic Management Systems (ATMS) Conference** , Seattle, WA, Contact: Gordon Fink, 202-484-4132.
May 8-10, **1995 Montana GIS Conference** , Helena, MT, Contact: Pam Smith, 406-444-5354.
May 22-26, **ESRI 15th Annual User Conference** , Palm Springs, CA, Contact: 909-793-2853, ext 2160.
June 1, **Global Land One-Kilometer Base Elevation Data Set (GLOBE) meeting** . Boulder, CO, Contact: David Hastings, 303-497-6729.
June 4-8, **36th Annual ADDA Technical Conference** , Atlanta, GA, Contact: Rachel Howard, 301-460-6875.
June 5-7, **Fourth Annual Natural Resource GIS/Global Positioning System Training, Conference and Exhibition** , Columbia CA, Contact 209-532-0361.
June 6, **Water Resources Planning and Management: Integration and Partnership** , St. Cloud, MN, Contact: 612-654-5270.
June 7-8, **Eighth Annual GIS Conference** , Towson, MD, Contact: John M. Morgann III, 410-830-2964.
June 7-9, **Use of GIS, Remote Sensing and Simulation Models in Watershed Planning** , St. Cloud, MN, Contact: 612-654-5270.
June 10-15, **Seventh Canadian Conference on GIS** , Ottawa, Ontario, Canada, Contact: David Caplin, 301-469-3355.
June 13-15, **Integrating Remote Sensing and GIS for Natural Resource Management** , Lafayette, LA, Contact: Pat O'Neil, 318-266-8500.
July 16-20, **URISA '95 Annual Conference** ., San Antonio, TX Contact:URISA, 202-289-1685.
September 5-8, **Geographic Technology in Government** , Reston, VA, Contact: 303-223-4848.

GIS TRAINING

May 4-5, **Introducing Arcview 2** , MSU, Bozeman, MT, Contact: 406-994-2374
May 8-12, **Introduction to GIS with ARC/INFO** , Burlington, VT, Contact: Jean Kennedy, 800-639-3188.
May 11-13, **Customizing Arcview with Avenue** , MSU, Bozeman, MT, Contact: 406-994-2374.
May 11-18, **Introduction to ArcCAD** , MSU, Bozeman, MT, Contact: 406-994-2374.
May 15-17, **Introduction to National Wetland Inventory Classification System** , Lafayette, LA, Contact: Pat O'Neill, 318-266-8500.
May 16-17, **Introducing Arcview 2** , MSU, Bozeman, Contact: 406-994-2374.
May 29 - June 2, **Introduction to Workstation ARC/INFO and ArcEdit** . St. Cloud, MN, Contact: GIS Center, 612-654-5270.
May 30-June 2, **Introduction to PC ARC/INFO** , Fort Collins, CO, Contact: 303-491-0710.
June 6-9, **Introduction to PC ARC/INFO** , Fort Collins, CO, Contact: Robert Coleman, 303-491-0710.
June 12-16, **Introduction to PC ARC/INFO** , MSU, Bozeman, MT, Contact: 406-994-2374.
July 18-20, **Introduction to GPS for Natural Resource Assessment and Survey** , Lafayette, LA, Contact: Pat O'Neil, 318-266-8500.
August 14-18, **Introduction to PC ARC/INFO** , MSU, Bozeman, MT, Contact: 406-994-2374.
August 14-15, **Introducing Arcview 2** , MSU, Bozeman, MT, Contact: 406-994-2374.
August 15-18, **Integration of Statistics (S-Plus) with ARC/INFO** , St. Cloud, MN, Contact 612-654-5270.
August 16-18, **Introduction to PC ARC/INFO** , MSU, Bozeman, MT, Contact: 406-994-2374
August 22-24, **Introduction to Wetland Image Processing and Classification** , Lafayette, La, Contact: 318-266-8500.
October 24-26, **Introduction to ArcCAD** , MSU, Bozeman, MT, Contact: 406-994-2374.

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