



GIS and the Web: Where We Were, Where We Are, and Where We are Going with Web Mapping Applications

A Perspective by Ben Britton

Imagine sitting at a keyboard, pressing keys, producing a rhythmic, staccato clatter. You are writing instructions on punch cards destined for a computer a couple of blocks away. No dimpled chads allowed. Don't forget to get the magnetic tape reel off of the rack on your way out the door; it contains a quarter scene of satellite data. Wait a day or two and walk back to the data processing center to get the pages of line-printer hieroglyphics representing the categorized image. Now draw polygons around each group of similar characters on the printed pages, count each type of character, and record the results on a yellow pad. Analysis done!

That was the way geographic information was handled in the early days. From early aerial photography to remotely sensed data to modern geographic information systems, the capability to visualize and query datasets has grown at a pace rivaled only by the computing systems on which they run. Who would have imagined that the same information depicted through punch cards would eventually be available for everyone to see via the World Wide Web.

Spatial data have been portrayed on internet maps since the mid 1990's using "client-side image maps." A user requested tabular data related to an area or point of interest by clicking on a "hot spot" on a GIF image map. By 1996 MapQuest was providing an address geo-coding service. Maps from MapQuest, Yahoo and Google showed us our intended destination and its surrounding neighborhood. Later, satellite imagery provided new and excited backgrounds for driving instructions. Truly interactive internet mapping, backed by a geographic information system, was here to stay.

The Idaho Dept. of Water Resources (IDWR) recognized early the advantages of web mapping and used several packages that required special programming skills and were difficult to configure. IDWR migrated to ArcIMS in 2001 and I found internet mapping Nirvana! ArcIMS applications were accessed thru a web browser, which was just what we needed. With very little coding, it provided access to more than 80 geographic data layers to people who did not normally use GIS – water users, scientists, engineers, lawyers and real estate agents as well as many IDWR employees. Hallelujah!

For nearly a decade, the machinery generating maps on the internet was available only to GIS professionals, but that is changing. In the last few years, the Open GIS Consortium's (OGC) Web Mapping/Feature Services and other standardized interfaces have brought about an unprecedented sharing of geographic information. Internet mapping giants such as Google and Yahoo have provided interfaces that allow people to integrate their data with familiar street maps or satellite images.

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UPCOMING EVENTS:

<p>Southwest Idaho GIS Users Group Meeting June 17, 2010 Boise, Idaho</p>	<p>2010 International Users Conference July 08 – 11th, 2010 San Diego, California</p>	<p>2011 Intermountain GIS Conference March 21 – 25, 2011 Pocatello, Idaho</p>
<p>NSGIC Annual Conference Sept. 12 – 16, 2010 Minneapolis, MN</p>	<p>2010 NW GIS User Conference Sept. 13 – 17th, 2010 Spokane, Washington</p>	<p>GIS-Pro 2010 (URISA) Sept. 28 – Oct. 01, 2010 Orlando, FL</p>

GEM NEWS

TECHNICAL WORKING GROUP UPDATE

Public Safety Technical Working Group

Bill Reynolds (billr@co.nezperce.id.us)

The Idaho Public Safety TWG has had a very busy year. Public Safety encompasses aspects beyond just 911 and dispatch for the GIS professional. While much of the focus has been on emergency service zones (ESZ), structures, and critical infrastructure, we also recognized that many other framework layers have a 'public safety' component to them and coordination with other TWG's is going to be critical to having relevant data available to emergency responders.

This year the Public Safety TWG proposed the first Framework standards for Idaho, on not one, but two datasets - the ESZ standard led and developed by Jimae Haynes and her committee, and the recently submitted Structures standard led and developed by Eric Smith and the Structures committee. This has been a great breakthrough for Idaho's spatial data infrastructure, leading the way for the development of other framework data standards. Also, stepping up to the plate is the Bureau of Homeland Security, where Julie Sendra and BHS leadership are working with us to become the statewide steward for these data sets.

Over the next year there are several opportunities for you to be involved with the Public Safety TWG. We will be working with Pete Crosswell to develop stewardship implementation plan. A committee will need to be formed to help Julie and BHS with the creation of a critical infrastructure data model. Of course we will also be looking for outreach opportunities to introduce, implement and explain the data models.

We recognize the role of the local GIS data steward as a critical component in putting together statewide data layers. The committees have worked hard to put together standards that have the flexibility to meet the needs of users, agencies, and business partners. If you are interested in becoming a part of the Public Safety TWG please contact: Bill Reynolds billr@co.nezperce.id.us for more information. Also, look for more information at www.gis.idaho.gov and <http://gis.idaho.gov/framework/structures/structures.pdf>

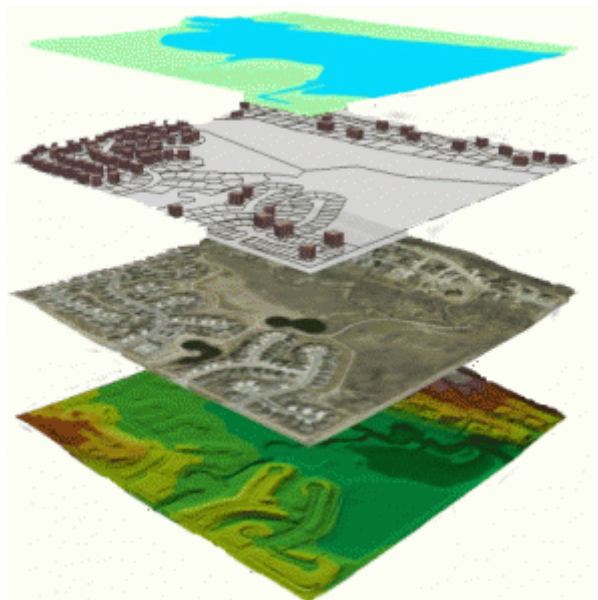
Idaho Framework Coordinator

Wilma Robertson (Wilma.Robertson@gio.idaho.gov)

Wilma Robertson will be the first Framework Coordinator for the State of Idaho. As such, she will be working for our Geographic Information Officer (GIO), Gail Ewart, and be located at the Idaho Geospatial Office at the Department of Administration in Boise.

In her new position Wilma will assist the GIO with the coordination of plans, projects and activities related primarily to Framework, which is essential to the Spatial Data Infrastructure (SDI) initiative. You may see her at one of the many Framework Technical Workgroup meetings held around the state. In fact, you'll see her at the upcoming ISDI Forum in Pocatello on June 24.

You can reach Wilma at Wilma.Robertson@cio.idaho.gov or (208) 332-1850. For more information visit www.gis.idaho.gov.



GEM NEWS

Two Idaho Groups Receive ESRI & Trimble Mobile Grant

Ada County

Allen Smith, Ada Co. Assessor's Office

The Ada County Assessor's Office is incorporating the grant resources from ESRI to develop and implement a mobile data collection system for our appraisal division. Over the past year we have developed databases to compile and store building permit data from the various municipal sources that we obtain permit data from. Additionally, we have developed and adopted a standardized form driven process for which we collect new construction and remodel data on properties, which we believe will make the transition into a full mobile data collection system much easier. With those processes behind us, our current focus is to integrate our GIS systems with our Computer Aided Mass Appraisal system on a mobile basis for data collection on properties that have building permits for newly constructed residential improvements on them.

With our mobile system, appraisers will use the GIS interface to access and update property characteristic data via the electronic data collection form template loaded onto the mobile device. Appraisers will also be able to view building permit information and other pertinent property information, as well as utilize the mobile device to measure, photo, and if needed locate the parcel with the active building permit. Mobile integration of CAD software such as Apex Medina Mobile will provide building footprint and area calculations, which will populate the electronic data collection form on the mobile device. Upon completion of data collection, the system will then be returned to the office to enable synchronization with CAMA system and will update characteristic values of inspected properties as well as update the building permit database. This synchronization will update the county GIS system to show work completed and provide a map of workflow for future data collection.

Overall, we believe that adoption of this technology will allow us to more efficiently schedule workflow, as well as provide our appraisers with more tools out in the field to better perform their jobs. While our focus currently is confined to residential new construction, we believe that future implementation of this process will encompass all types of data collection performed by our office for every property type.

City of Hayden

Donna Phillips, City of Hayden Engineering Dept.

The City of Hayden will be incorporating the grant resources for the AMME project. AMME (Asset Management Made Easy) is proposed to advance our asset management system by providing more accurate information and allowing for better management decisions. The focus will be to make the datasets pertaining to pavement management and sign management available to all City Departments and to lay the foundation for our other datasets to be available both internally and publically. As of today, our Public Works department has limited access to City information through monthly updates via Arc Reader. ArcReader's data retrieval time out limit is challenging to overcome especially when using ortho-imagery. Additionally, the Public Works staff's only means of entering new data into the system is through the Trimble TSC1 equipment. Our objective is to enable the Public Works department to have almost full ownership of their own data, by giving them the tools necessary to collect and update the asset information they need to make their decisions in a timely manner. Once completed, we can use similar methodologies on other dataset in other departments.

When the City of Hayden was first offered the grant, it was for the Mobile Advanced award of Trimble Juno SC Handheld, Mobile GIS, a Virtual Campus Course, and 10 incidents of Tech. Support, and the ESRI Developer Network (EDN) subscription which did not include the Arc Server that the City required to fulfill the grant requirements. Unfortunately, the City was unable to accept that offer due to time restraints on personnel and budgetary reasons. After more discussions, including City legal council to resolve an issue with language, the City accepted the Mobile Standard grant which included a Trimble Juno SC Handheld, Arc Pad 8.0 license, Virtual Campus Course, 10 incidents of Tech Support and a donation of ArcGIS Server Standard Workgroup and ArcEditor.

We are looking forward to getting our project under way, and our Public Works department can't wait to see the many changes that are coming forward!

GEM NEWS

Opinion: GOOGLE EARTH IS THE BEST THING TO HAPPEN TO ME AS A GIS PROFESSIONAL

Danielle Favreau

The biggest impact that Google Earth has had on me as a GIS Professional is that I can now sum up what I do for a living in a way that my mother can understand. When asked what I am paid to do, I say "See all the imagery, roads, and other things you can make push-pins of in Google Earth? I do that." Now, it is an overly simplistic explanation, especially since I do not work with web applications much, but it sure beats "I work with spatially enabled databases". Google Earth has made spatially related data accessible to everyone, including my mother. Instead of looking at me with a very confused look, my mother now has some understanding of what I do and can see the value of it.

And why would I consider my mother's ability to see the value of GIS data and my being a GIS Professional as a great contribution by Google Earth? Because if my mother can see value, then so can my department manager, the help desk guy, the department director, city council members, and the legislature. When people see value in what I do, I keep my job. I'm no longer that gal who someone asks to make a map now and again but also does some kind of computer work that some IT guy maybe able to do instead. And for that, I thank Google Earth.

Opinion: GOOGLE EARTH IS THE WORST THING TO HAPPEN TO ME AS A GIS PROFESSIONAL

Danielle Favreau

If I hear "well I can do it in Google Earth, why can't you do it" one more time, I will scream! There seems to be absolutely no understanding of all of the time and money that goes into adjusting the address database so that it will match the reference dataset during geocoding, making the tiled and cached background maps for the web application, or just to collect the information that someone wants displayed on their map. Google Earth has seemed to have left some of my boss's bosses with the impression that I can do the same thing with our proprietary data that they can do with a staff of hundreds and a hardware budget a hundred times bigger than mine.

Google Earth has introduced spatial data and technology to the masses but those masses are uneducated about the intricacies, unique qualities, and challenges when working with spatial data. Most GIS professionals know the old adage "garbage in, garbage out". Now there is more garbage than ever with everyone, and in some cases anyone, submitting their kml data. To top it off, then the boss demands to know why the map is wrong when the data isn't where it should be when displayed on the 6 inch imagery. Some days I would love to go back to being the map gal in the back cubicle and the "hippest" search engine was tied to AOL.

New Wyoming GeoLibrary Released

The Wyoming Geographic Information Science Center (WyGISC) has released the new Wyoming GeoLibrary, at <http://wygl.wygisc.org/>. We encourage you all to visit the site, and familiarize yourselves with the new layout and data access options. If any of you are interested in publishing your metadata in the Wyoming GeoLibrary, please review the Publisher Guide (http://wygl.wygisc.org/wygeolib/wygischelp/Wyoming_GeoLibrary_Publishers_Guide.pdf) for details. We encourage your participation to provide the geospatial community with access to your data. The Wyoming GeoLibrary provides the geospatial community with access to a variety of metadata records with listings from downloadable data, to services, to geographic activities in the state.

Updated Protected Areas Database for the United States (PAD-US) Now Available

The U.S. Geological Survey, National Biological Information Infrastructure, Gap Analysis Program (GAP) recently released an updated version of the Protected Areas Database of the United States (PAD-USv1.1) and a redesigned mapping application for viewing or downloading the data.

PAD-US v1.1 is a national geodatabase that represents public land ownership and conservation lands, including voluntarily-provided privately protected areas. The lands in PAD-US are assigned conservation status codes that both denote the level of biodiversity preservation for each protected area, and indicate other natural, recreational and cultural uses. PAD-US v1.1 contains updates to the Northeast, Northwest and California. Thanks to The Nature Conservancy, voluntarily-provided privately protected areas across the U.S. are also included. The U.S. Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service and GreenInfo Network also contributed large datasets for this effort. We greatly appreciate all the state agencies and non-governmental organizations that contributed data or review. The database and online map viewer can be accessed from: <http://gapanalysis.nbii.gov/>.

Volunteer for the 2011 Intermountain GIS Conference

Planning for the 2011 Intermountain GIS Conference is under way! Save the dates March 21-25, 2011 and plan to be in Pocatello, Idaho for a **Geospatial Rendezvous!** Conference planning committees are formed but there is much to be done. Many hands make light work so contact Kindra Serr (serrkind@isu.edu, 208-282-6078) and help make the 2011 conference the best yet! (And don't forget, being a conference committee member is worth 6 points toward GISP Renewal Contribution to the Profession Points!)

GIS & the Web *(Continued From Page 1)*

This kind of map integration, be it a "mash-up" of cartographic elements or the databases which lie beneath, makes it much easier to share data, display it, and tie it to the earth. From maps covering the best pizza restaurants in town to crime statistics to virtual tourism – supported by photo-sharing sites such as Flickr and Panoramio – almost all internet users are GIS users, and many will contribute to what amounts to a global geographic information system. ArcIMS with a bit of Adobe Flash for interactive editing and dynamic display of attributes has allowed the IDWR to progress from offering static maps to interactive database access to user-created geo-located data. As we migrate to ArcGIS Server we can bring the analytical power of our GIS – tasks previously accomplished only by GIS wizards using desktop software – to internet users. The GIS gold-rush is on!

As the sharing of geographic location information becomes easier, we can leverage this assemblage of software and collaborators to exchange, visualize, and disseminate data as never before. The fact that GIS has gone from simple polygon overlays to sophisticated analysis on the web in less than 40 years is amazing. What comes next? I hope it means fully integrated three-dimensional analysis. Using GIS applications to share data on the internet makes you realize that the more you investigate your world, the more there is to discover.

Ben Britton has been writing interactive, web-based mapping applications for the Department of Water Resources for more than a decade.

Summary of the 2010 Intermountain GIS Conference

Kindra Serr

The 2010 Intermountain GIS Conference in Bozeman, Montana was a great professional growth opportunity. Over 250 people attended the two day conference and three days of workshops. The wide variety of sessions offered learning opportunities for those in many fields. "Mini-conferences" for specific topics such as snow sciences and AmericaView encouraged groups to attend that may not have come for the entire conference. One great presentation that I attended was by some local high school students that had been monitoring caves in the area for the past four years. They presented on their findings and how GIS helped them record the location and related information for each cave. It was an impressive presentation given by confident students who were very excited about GIS.

Overall, the 2010 conference was a great success. It is wonderful to be able to interact and share ideas with our Montana neighbors. They are facing many of the same challenges we face here in Idaho and, like us, are pressing forward to face those challenges, one step at a time. I would also like to congratulate Pam Bond, an Idaho State University student out of Boise, taking first place in the student research poster competition.



WAAS Satellite Out of Control

In April of this year, the FAA reported that it has lost contact with the Galaxy 15 satellite (PRN 135). PRN 135 or G-15 is one of two satellites that broadcasts GPS correction signals over North America as part of the WAAS program. Areas of Northwest Alaska are expected to experience temporary outages. For more information on the WAAS outage impacts, please visit http://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/waas/news/index.cfm?print=go For a general summary of the WAAS system and the issues with G-15, please visit <http://www.gpsworld.com/gis/survey-scene/sbas-crashing-9865>.

PRESIDENT’S CORNER

Transparent Infrastructure – What does that term mean to you?

The etymology of *Transparent* is from Medieval Latin meaning “to show through”, and more commonly today its definition is “so fine in texture that it can be seen through; sheer”.

Infrastructure is a relatively new term (1927) to refer collectively to the roads, bridges, rail lines, and similar public works that are required for an industrial economy to function. The term has been broadened to include a definition of “an underlying base or foundation especially for an organization or system”.

For the GIS community, a transparent infrastructure is our “sheer underlying foundation” that makes our electronic maps and systems function. We reach this goal when non-GIS staff and the public are using the information and tools which we have created, and these tools have become integral and seamless to their work environment. The issue now is how do we fund their maintenance, up keep, updates, and standardization? How do we establish and minimize the costs associated with this transparent infrastructure? With public works related infrastructure, the need becomes relatively evident when the road is full of pot holes, the bridge loses cement hunks, or rail lines become so ill repaired that the freight isn’t being moved; but with technology advancements and the internet, many of our users simply do not understand where or how the integrated datasets we have created work. If you want to be part of the solution in the state of Idaho, get involved with the Idaho Geospatial Council. We are establishing the “foundation” of many statewide datasets through our framework data standards. Check out <http://gis.idaho.gov> for more information.

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NORTHERN ROCKIES URISA: www.intermountaingis.org	Wyoming Geolibrary http://wygl.wygisc.org/	ESRI: www.esri.com
Northwest GIS Users Group: http://nwgis.org	Southeast Idaho RRC: http://giscenter.isu.edu/research/Techpg/caprrc/index.htm	National URISA: www.urisa.org
GPS World: www.gpsworld.com	GAP Homepage: http://gapanalysis.nbii.gov/	NSGIC: www.nsgic.org



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