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GIS Software, Applications & Management

Donna Koepp, University of Kansas
Lawrence, KS

Good morning. Welcome to the session on Geographic Information Systems (GIS) Software, Applications, and Management.

This session is sort of a takeoff on a session that was done last August at the Regional meeting in Minneapolis.

As you may have noticed, everyone on our panel this morning is from a regional library. The reason for that is that we were all a part of the meeting last August and not necessarily because we are the best depository librarians to address the issues of GIS.

Let me first introduce our panel.

- Ridley Kessler, Government Documents Librarian, University of North Carolina, Chapel Hill.
- Barbara Levergood, Electronic Documents Librarian, University of North Carolina, Chapel Hill.
- Julia Wallace, Head, Government Publications, University of Minnesota.
- Brent Allison, Head, John Borchert Map Library and GIS Lab, University of Minnesota.
- John S. Walters, Head, Government Documents, Utah State University.

I am Donna Koepp, Head of the Government Documents and Map Library, University of Kansas (KU).

In Minneapolis our session was two hours. Our panel members each spoke for just a few minutes and then we opened it up to a discussion by the whole group, a much smaller group of between 50-60 people. Our goal was to reach some consensus on what regional libraries should be doing, or what regionals could realistically expect to do with the electronic spatial data that we are receiving in the depository program. Just so we all have

the same understanding of what we mean by spatial data, for this program we are talking about the TIGER/Line files, the Digital Line Graphs, Digital Raster Graphics, Digital Data Series, and NASA's Magellan Full-Resolution Radar Mosaics.

We started with one premise. That is, we recognized the fact that it is not necessarily the regional library in each instance that is the most logical, or the best equipped depository in each state to provide GIS service or otherwise deal with electronic spatial data. And we would like to reiterate that fact here. There are a number of depository libraries now that are providing assistance with automated mapping and GIS. Some are regional, and some are not. It is more dependent upon whether or not there is adequate staff, adequate electronic resources, and frequently whether there is a separate map library, with adequate staff and cartographic expertise to develop this kind of service.

Our presentation today is 90 minutes. All six of us would like to share with you information on how GIS service is provided in our libraries and what our rationale is for our approach to that service. Four of us have some actual examples of maps that we have produced in response to specific requests from our users. We will show you these maps and explain briefly what software and data were used in their production. We ask that you save your questions until the end.

I would like to begin the map examples with some from the University of Kansas Government Documents and Map Library. My automation specialist is Kendall Simmons, whose job it is to examine, install if necessary, and provide documentation and staff guides for all of the CD-ROMs we receive in the depository program. In addition, she is our GIS person for the Map Library. Many of the GIS inquiries actually are received and responded to from the Government Documents side of the library, which at the moment is in a separate physical location, although we are one unit.

Kendall is just now learning GIS, but is doing quite well. We are able to respond successfully to most of the questions we get. We have an automated mapping request form on our home pages for Documents and Maps, and we also receive inquiries in Maps and in Documents by phone and in person. We are using ArcView 3.0a. The examples I have to show you are all the results of actual questions.

[slide 1]

Graduate degrees, not normalized, by block group, Riley County, Kansas.

A Washburn University student was doing a project with a professor regarding the proper location for an arts center. They specifically wanted a map that showed the number of people with graduate and professional degrees by block group. This map was made in response to what they had asked for. ArcView 3.0 and the Wessex TIGER files were used for this map and the data was provided by the student from STF 3A.

[slide 2]

Graduate degrees, normalized by total population, by block group, Riley County, Kansas.

Later, after taking a free ArcView workshop, Kendall learned about normalizing. Out of curiosity, she ran the previous map again, but normalized the data by the total population per block group. This gives the percent of population with graduate and professional degrees instead of the total number. The difference wasn't dramatic, but it was interesting.

[slide 3]

Total in poverty, not normalized, by block group, Lawrence, Kansas.

The knowledge of normalization paid off immediately, and provided Kendall with options she had not known about before. One of the next projects was a KU student doing a project based on his hypothesis that poverty in Kansas towns progresses from east to west. ArcView 3.0 with Wessex files were used for this map with STF3A data.

[slide 4]

Total in poverty, normalized by total population, by block group, Lawrence, Kansas.

As you can see, there is an enormous shift in placement of "poverty pockets" when viewed in the perspective of percentage of population per block group. This is a continuing project. Kendall is doing about 35 maps for this student. He is getting the data from earlier censuses, back to 1940, and will try to apply the data to current maps, to support his hypotheses.

[slides 5, 6, 7]

Pharmaceutical Manufacturers, California.

These maps were created using ArcView 3.0, the Wessex TIGER files, and data from the County Business Patterns for California, CD-ROM. You will notice that there is no line between Los Angeles County and Orange County. That is because that county boundary is missing from the Wessex files. Kendall was not certain how to add the line in ArcView. She could have done it in Paint Shop Pro, but decided to just combine the data for those two counties instead. Each map seems to be a learning experience, and for this particular set of maps, the big discovery was that every time the map is redrawn, or every time the "apply" button is clicked, the dots showing the location of the manufacturers move. Kendall had not realized that the dots appeared randomly within the counties, so it was quite unexpected and amazing to see the dots move with every update of the map.

[slide 8]

Detail of Clinton Lake DRG, Lawrence, Kansas.

This map was produced for two architecture students who wanted a topo map of an area around Clinton Lake that they could use to create a 3D image. The detail they wanted needed to be at the scale illustrated by this slide. ArcView 3.0, the DRG CD-ROM, and Paint Shop Pro were used to create this map.

[slide 9]

Image of desired coverage, Clinton Lake, Lawrence, Kansas.

This slide shows the extent of the area the architecture students needed, but at the scale shown in the previous slide. Currently we do not have a large format plotter, so we could not print the entire map for them at that scale. It was learned through more careful interviewing of the students that they wanted to digitize the map for import into a 3D modeling program. Kendall resolved the problem by FTP-ing the appropriate TIFF files to them. In this instance, one might also have used the paper topo quad to scan or digitize from.

> One problem encountered in FTPing, of which you should be aware, is that it frequently takes so long that the online program may time you out. If one is downloading from America Online, the downloading is not considered *activity* by AOL or most ISPs, causing the connection to be timed out. There is a shareware program called Stay Connected! that will solve this problem.