Introduction

By David R. Soller

U.S. Geological Survey
926-A National Center
Reston, VA 20192
Telephone: (703) 648-6907
Fax: (703) 648-6977
e-mail: drsoller@usgs.gov

The Digital Mapping Techniques '05 (DMT'05) workshop was attended by more than 100 technical experts from 47 agencies, universities, and private companies, including representatives from 25 state geological surveys (see Appendix A). This workshop was similar in nature to the previous eight meetings, held in Lawrence, Kansas (Soller, 1997), in Champaign, Illinois (Soller, 1998), in Madison, Wisconsin (Soller, 1999), in Lexington, Kentucky (Soller, 2000), in Tuscaloosa, Alabama (Soller, 2001), in Salt Lake City, Utah (Soller, 2002), in Millersville, Pennsylvania (Soller, 2003), and in Portland, Oregon (Soller, 2004). This year's meeting was hosted by the Louisiana Geological Survey, from April 24-27, 2005, on the Louisiana State University campus in Baton Rouge, Louisiana. As in the previous meetings, the objective was to foster informal discussion and exchange of technical information. It is with great pleasure I note that the objective was successfully met, as attendees continued to share and exchange knowledge and information, and to renew friendships and collegial work begun at past DMT workshops.

Each DMT workshop has been coordinated by the Association of American State Geologists (AASG) and U.S. Geological Survey (USGS) Data Capture Working Group, which was formed in August 1996, to support the AASG and the USGS in their effort to build a National Geologic Map Database (see Soller and Berg, this volume, and http://ngmdb.usgs.gov/info/standards/datacapt/). The Working Group was formed because increased production efficiencies, standardization, and quality of digital map products were needed for the database—and for the State and Federal geological surveys—to provide more high-quality digital maps to the public.

At the 2005 meeting, oral and poster presentations and special discussion sessions emphasized: 1) methods for creating and publishing map products (here, "publishing" includes Web-based release); 2) field data capture software and techniques, including the use of LIDAR; 3) digital cartographic techniques; 4) migration of digital maps into ArcGIS Geodatabase format; 5) analytical GIS techniques; 6) continued development of the National Geologic Map Database; and 7) progress toward building and implementing a standard geologic map data model and standard science language for the U.S. and for North America.

ACKNOWLEDGMENTS

I thank the Louisiana Geological Survey (LAGS) and their Director and State Geologist, Chacko John, for hosting this meeting and for arranging for corporate sponsorship. In the tradition of past DMT meetings, the attendees were given a very informative, productive, and enjoyable experience. I especially thank Robert Paulsell (LAGS), who coordinated the events; Robert provided excellent support for the attendees, designing the website, arranged for corporate sponsorship, and, in the Louisiana tradition, organized the social activities (for example, a crawfish boil). Thanks also to Jeanne Johnson for managing the registration; Reed Bourgeois, John Johnston III, Rick McCulloh, Riley Milner, and Lisa Pond for all their help with the meeting's logistics; and a special thanks to John Snead, Cherri Cowen, and Ethan Killet for designing and providing to each attendee a bottle of DMT'05 Digital Ya-Ya hot sauce. I also thank Louisiana State University for providing an excellent venue and support for our meeting. Regarding the effects of Hurricane Katrina upon this fine State, later that year, I extend my deepest sympathies and hopes for a full recovery.

The meeting was greatly improved through the generous donations of the Baton Rouge Geological Society, the Louisiana chapter of the American Association of Petroleum Geologists, the Louisiana Oil Spill Coordinators Office (LOSCO), and Navigation Electronics Inc., of Lafayette, Louisiana.

I also, with gratitude, acknowledge Tom Berg (Chair, AASG Digital Geologic Mapping Committee) for his friendship and his help in conducting the meeting, and for his continued support of AASG/USGS efforts to collaborate on the National Geologic Map Database. Thanks of course also are extended to the members of the Data Capture Working Group (Warren Anderson, Ken-

tucky Geological Survey; Rick Berquist and Elizabeth Campbell, Virginia Division of Mines and Geology; Rob Krumm and Barb Stiff, Illinois State Geological Survey; Scott McColloch, West Virginia Geological and Economic Survey; Gina Ross, Kansas Geological Survey; George Saucedo, California Geological Survey; and Tom Whitfield, Pennsylvania Geological Survey) for advice in planning the workshop's content.

I warmly thank Lisa Van Doren (Ohio Geological Survey) for typesetting the Proceedings. Numerous software and hardware vendors attended the meeting and made significant contributions, and they are acknowledged below. I also thank Sheena Beaverson (Illinois State Geological Survey) for moderating the discussion session on large-format plotters. Finally, I thank all attendees for their participation; their enthusiasm and expertise were the primary reasons for the meeting's success.

PRESENTATIONS

The workshop included 29 oral presentations. Most are supported by a short paper contained in these Proceedings. The papers describe technical and procedural approaches that currently meet some or all needs for digital mapping at the respective agency. There is not, of course, a single "solution" or approach to digital mapping that will work for each agency or for each program or group within an agency; personnel and funding levels, and the schedule, data format, and manner in which we must deliver our information to the public require that each agency design their own approach. However, the value of this workshop and other forums like it is through their roles in helping to design or refine these agency-specific approaches to digital mapping, and to find applicable approaches used by other agencies. In other words, communication helps us to avoid "reinventing the wheel."

Several vendors participated in the workshop, by giving presentations and answering many questions from attendees. Their presence was greatly appreciated by all. Presentations included:

1. Technical discussion of ESRI products for creating, managing, and serving geoscience map information, by Brig Bowles and Veronica Schindler, ESRI,;
2. Technical discussion of Adobe products for creating geoscience map information, by Mike Bennett and Lynn Grillo, Adobe Systems, Inc.;
3. Technical discussion of Avenza products for creating geoscience map information, by David Andrec and Doug Smith, Avenza Systems, Inc.;
4. Discussion of LIDAR technology, by Kevin Lim, Optimal Geomatics, Inc. (formerly Atlantic Tech.);
5. "Building 3D geological models directly from the data? A new approach applied to Broken Hill, Australia" by Philip McInerney, Intrepid Geophysics, Australia (see paper in these Proceedings);
6. "Digital Mapping at Noranda-Falconbridge Exploration" by Pierre St-Antoine, Noranda-Falconbridge Exploration.

POSTERS AND COMPUTER DEMOS

More than 20 posters were exhibited and several computer demonstrations were provided throughout the workshop. These provided an excellent focus for technical discussions and support for oral presentations. Many are documented with a paper in these Proceedings, following those for the oral presentations; the other posters generally provided material in support of oral presentations, and so are not documented here.

DISCUSSION SESSIONS

ESRI Geodatabase

Most geological surveys use ESRI GIS products, and are in the process of migrating files and techniques from the ArcInfo Coverage and/or the ArcView Shapefile format to the ArcGIS Geodatabase format. For the past two years, we have held a discussion session with ESRI personnel in order to obtain technical information and tips, and to convey our needs to them. To prepare for the session, DMT attendees submitted questions, which I compiled and forwarded to ESRI prior to the meeting. These questions were addressed during the discussion session, and served as the basis for additional discussion; this format seemed to work well, and will be used in future discussion sessions with ESRI.

Adobe / Avenza

Adobe Illustrator, Photoshop, InDesign, and other software are used by most geological surveys, to prepare maps for publication. The Avenza MaPublisher plug-in to Illustrator provides a useful means of managing and exporting georeferenced maps, which can then be converted to GIS format. Technical and sales representatives from Adobe and Avenza participated in a joint discussion session, which proved to be very informative. To prepare for the session, DMT attendees submitted questions, which I compiled and forwarded to Adobe and Avenza prior to the meeting. These questions were addressed during the discussion session, and served as the basis for additional discussion; this format seemed to work well, and will be used in future discussion sessions with Adobe and Avenza.

Lidar

To provide the opportunity to consider a topic in some detail, informal discussion sessions are held at the DMT workshops. This year there were two: 1) large-format plotters, and 2) digital cartographic techniques and how we can share information on this subject. Session 1 began with a presentation by Randy Heilbrunn (Hewlett-Packard) followed by extensive discussion that was moderated by Sheena Beaverson (Illinois State Geological Survey). The discussion session's outline is available at http://ngmdb.usgs.gov/Info/dmt/docs.html.

Large-format Printing at Geological Agencies

This session focused on issues related to the use of large-format plotters for publication of geoscience maps. Before the meeting, Sheena Beaverson (Illinois State Geological Survey) asked for attendee's input on the following topics, which were discussed in the session: What technical hurdles have you overcome in the past year? What large-format plotter brands and models do you use? Are you planning a major hardware purchase in the near future? Do you use onboard an RIP, or a separate software RIP? If separate, what is the software and do you like it? Are you having problems choosing the appropriate media for different purposes? Do you prefer standard or UV inks? What other issues will your agency be facing, with respect to large format plotting? A summary of the session, including responses to the questions, is available at http://ngmdb.usgs.gov/Info/dmt/docs/beaverson05.ppt.

THE NEXT DMT WORKSHOP

The tenth annual DMT meeting will be held June 11-14, 2006, on the campus of The Ohio State University, in Columbus, Ohio. Please consult the Web site (http://ngmdb.usgs.gov/Info/dmt/) for updated information. While planning for that event, the Data Capture Working Group will carefully consider recommendations for meeting content and format offered by DMT'05 attendees.

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