

cartography bulletin board

POSTSCRIPT MICRO-COMPUTER CARTOGRAPHY: Trends and Possibilities

by Brad Javenkoski
Cartographer/GIS Specialist
employed at Southeastern Wisconsin
Regional Planning Commission

Postscript microcomputer cartography is a topic which has been presented on numerous occasions in this journal. The following provides the results of a survey of cartographic laboratories regarding their knowledge, use and perceptions of Postscript microcomputer (hereafter referred to as "desktop") cartographic tools. The survey was initiated in September of 1991 as an integral part of a Master's thesis dealing with large format desktop cartography. Although the survey was designed to ascertain as much information as possible about the use of large format desktop techniques, it provided some engaging detail regarding generalized desktop knowledge and use. The survey provided overwhelming evidence that desktop tools are ubiquitously desired and accepted by cartographers as an alternative to conventional cartographic tools.

Survey Structure: The survey was sent to 30 cartographic laboratories associated with universities in North America. Seventy-three percent (73%) of the solicited labs returned the survey. The questions were designed to determine who was producing large format desktop projects and to measure cartographers' familiarity with, perception of, and willingness to work with new tools and to determine why or why not they favored exclusive use of desktop tools.

Survey Results and Analysis: The survey results have been

divided into a number of topic-oriented Tables and Figures. Discussion and analysis comments are presented in conjunction with the Tables. It is important to remember that these results were recorded in September of 1991.

All 21 university cartographers (100%) responding to the survey employed desktop techniques in their respective labs. This figure is significant in that it emphasizes the widespread acceptance of a relatively new cartographic tool and suggests that the new tool provides comparable, if not greater, quality, project control and ease of use (i.e. factors which would influence use).

Eighty one percent (81%) of the cartographic labs are aware of the

large format possibilities with the desktop technology. Although only 14% of the cartographic labs had experimented with large format desktop techniques, 66% of them produce conventional large format maps. This suggests that a need certainly exists for the further definition and development of large format desktop cartographic technique.

Table I provides a survey-wide breakdown of cartographic production. Standard deviation was included in this table to provide the reader with a description of data value distribution. The majority work load of each lab involved the production of publication-size maps (in addition to the table, it is helpful to review

Cartographic Production Methods	Minimum Production	Maximum Production	Mean	Standard Deviation
Total Publication-size Projects	60%	100%	91.8%	10.8%
Desktop Publication-size Projects	2%	100%	51.7%	36.3%
Total Large Format Projects	0%	40%	8.2%	10.8%
Desktop Large Format Projects	0%	100%	10%	26.1%

Table I: Aggregate Workload Percentages

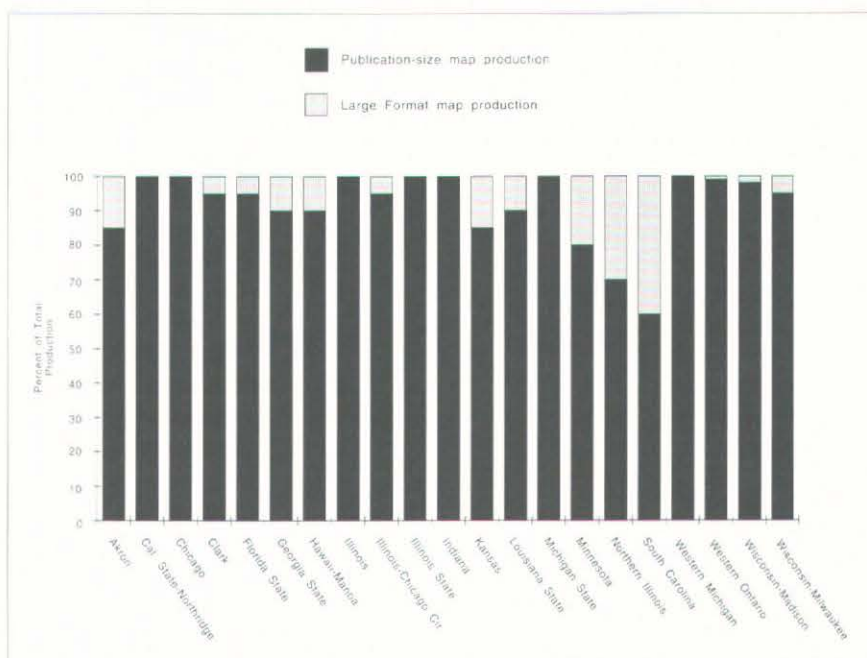


Figure 1: Total map production per lab

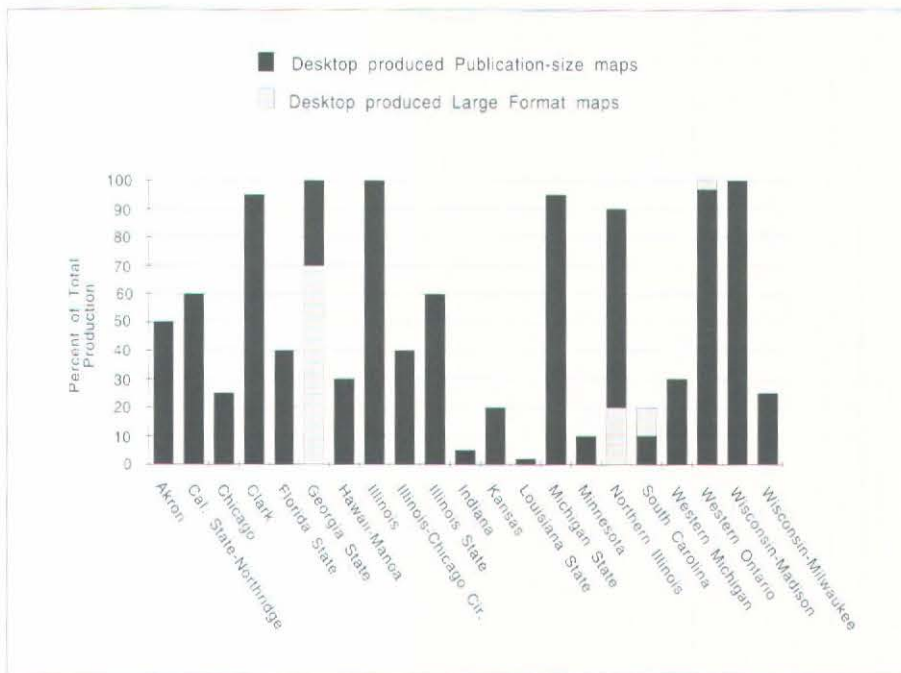


Figure 2: Desktop production per lab

Figures 1 and 2 for specific survey-wide information). The table also defines the publication-size work load further by determining the percentage of the total publication-size work load which is produced using desktop techniques. The minimum/maximum range is much wider (i.e. 2% to 100%) and the mean is quite low with a high standard deviation. It is interesting to note, however, that 29% of the responding labs make exclusive use of the desktop to produce publication-size maps (see Figure 2 for specific percentages by laboratory).

The survey-wide range of total large format project percentages is correspondingly low compared to the total publication-size work load (i.e. 0% to 40%). This mean of 8.24% demonstrates the low survey-wide large format output. Only 10% (survey-wide mean value) of the total large format output is produced using desktop techniques, compared to 51.7% for publication-size maps. This emphasizes the present increased difficulty in processing large format versus publication-size projects with the desktop and substantiates the rationale for solving large

format production problems so that cartographers can more easily apply desktop techniques to any project.

The "mean" and "standard deviation" data values for desktop large format projects are somewhat exaggerated due to the 100% value listed as the "maximum." One cartographic lab from the survey produced their sole large format map with the desktop thereby skewing the "maximum" value.

Table II provides an index of user preferences regarding both the microcomputer platform and the associated Postscript illustra-

tion software. The Macintosh platform is preferred for both publication-size and large format desktop production. Three of the four laboratories experimenting with large format desktop techniques use the Macintosh. This preference may be partially explained by the illustration software of choice: Aldus Freehand (i.e. 38% of users). At the time of this survey, Freehand was unique to the Macintosh platform in offering integrated layering and also offered a large practical work or drawing area and an abundance of tools (Freehand became available on the DOS platform shortly after this survey was conducted). Additionally, the Macintosh platform offered many sophisticated graphics software packages before to the DOS platform, resulting in the Macintosh becoming the early "default" standard for graphics.

The final table of survey data contains perhaps the most important information regarding cartographers' perceptions of desktop and particularly, large format desktop cartographic technique. Table III shows that 67% of those surveyed use an imagesetter to output their cartographic products. This statistic implies that the clear majority of desktop users surveyed are already experienced with the complexities and issues associated with laser imagesetter output. It is also very noteworthy

Categories	Percentages
Microcomputer Platform Used for Desktop Cartography	PC = 24.0% Macintosh = 52.0% Both = 24.0%
Most Used Illustration Software for Desktop Cartography	Corel Draw = 10.0% Micrographics = 19.0% Aldus Freehand = 38.0% Adobe Illustrator = 24.0% Other = 9.0%

Table II: User Preferences

that 10% of the laboratories surveyed have invested in imagesetters. The purchase price and upkeep cost of this equipment is significant; however, ownership shows that labs realize the control this equipment affords them in both quality and production efficiency. Sixty-seven percent (67%) of the labs indicated that they would be purchasing new hardware or software specifically for desktop cartography within the following fiscal year.

Cartographic Laboratories Which:	Percent
Use Laser Imagesetters	67.0%
Own Laser Imagesetter	10.0%
Plan Desktop hardware or software purchases in the next fiscal year	67.0%
Based upon availability, would be willing to produce all cartographic products using the Desktop	48.0%

Table III: User Sophistication

Forty eight percent of those surveyed stated that they would phase-out conventional cartographic production as the development of large format desktop techniques continued. Considering that at the time of this survey only 14% of the labs were experimenting with desktop large format techniques, the figure of 48% is significant. Apparently, many of the cartographic labs are very satisfied with the methods and output of publication-size desktop and want to expand their desktop productivity. Since 66% of the of the labs are presently producing some form of large format cartographic products, the 48% rate may be conservative.

Conclusion: By generalizing the survey results to the entire cartographic community, it is apparent that desktop cartographic technique has gained great accep-

tance and is perceived as a viable, desirable method for producing maps and graphics. Additionally, the cartographic community seems poised for the continued development of large format desktop techniques and continued expansion of the desktop for both large format and publication-size production (i.e. 67% were planning purchases).

Although the results of this survey may not be particularly surprising, they do provide an empirical framework from which to gauge the importance of the desktop in today's cartographic workplace. The desktop provides a cost-effective, quality-oriented cartographic alternative to proprietary systems.

map library bulletin board

ESRI AND ARL LAUNCH GIS LITERACY PROJECT

by James Minton
University of Tennessee

The Environmental Systems Research Institute (ESRI) of Redlands, California and the Association of Research Libraries (ARL) of Washington, DC have joined forces to introduce Geographic Information Systems technology to staff and faculty at major research university libraries across the United States and Canada. After several months of negotiation, ARL and ESRI staff agreed to mutually support a *GIS Literacy Project*. ESRI agreed in January (1992) to provide software, training, and technical support as well as access to the ESRI annual User Conference. ARL agreed to coordinate a multi-phased project to introduce, educate, and equip librarians with skills to provide access to spatially referenced data

and provide effective access to selected federal electronic information resources in depository collections.

In March 1992, ARL mailed a "Request for Participation" to all ARL member libraries. The announcement identified the objectives, resources, equipment requirements, and project schedule. Each of the ARL libraries interested in participating were asked to respond by 1 April 1992. Prue Adler (ARL), Joe Boisse (UC-Santa Barbara), and Paula Kaufman (University of Tennessee) served as the ARL subcommittee overseeing the project. In April 1992, thirty libraries were selected as Phase I participants from approximately fifty six proposals. Each of these libraries were to identify staff who would serve as the local ARL-GIS Project coordinators, support their travel to California for training, and select and acquire the necessary hardware to support the project. The following goals of the project were identified by ARL:

- Introduce GIS to a variety of libraries to address diverse user information needs with an initial focus on access to Census information.
- Develop a team of GIS professionals in the research library community to lend time and expertise to applications, user training, and education programs related to GIS.
- Stimulate and encourage the connections between federal, state, and local GIS users and information.
- Promote research, education, and the public right to know through improved access to government information.
- Initiate library projects to explore new applications of spatially referenced data and evaluate the introduction of these services in research libraries.