

## cartographic techniques

### THE DESKTOP MAPPING MARKET (continued)

The April 17, 1989 issue of *PC Week* features a pair of articles by Jon Pepper entitled "Desktop Mapping Gains Corporate Recognition" and "Users Praise Mapping Software's Potential." Also featured is a "vendor profile" of 16 purveyors of mapping software for IBM-PC and compatible microcomputers, as well as a chart that outlines hardware requirements, capabilities, color and text features, output options, and prices of the profiled vendor's products. According to *PC Week*, "The products listed serve a wide range of purposes, including general map making, driving directions and calculations, and weather tracking and forecasting. All information was supplied by the vendors."

Pepper points out that "A number of factors are converging to produce demand for PC mapping software. First, the hardware platforms have advanced so that '286 and '386 computers are fairly commonplace in corporate settings . . . Second, the corporate market is only now beginning to appreciate what mapping software can do, which is attracting more vendors to the marketplace." According to Ken Shain of Geovision Software Corporation, the appeal of mapping systems to the corporate market lies in their use as "a management-information tool," rather than as tools to produce finished goods for sale. Therefore, the market was "stifled until the cost dropped down dramatically to the PC level."

Four principal concerns emerge from Pepper's discussions with desktop mapping system users: ease of use, price, flexibility, and compatibility.

"We wanted the average user to be able to produce something immediately," said George

Zalaquett of NSI Technology Services Corp., Research Triangle Park, NC. NSI uses the Geovision system to map the locations of environmental monitoring sites.

Doug Taylor of Yellow Freight System Inc. of Overland Park, KN uses Atlas\*Graphics to locate service terminals. Taylor explained to *PC Week* that "We wanted to be able to draw maps as well as generate overlays that could be zoomed to fit an existing map . . . Price was important, but we wanted the flexibility even more than the price . . ." Pepper reports that "Yellow Freight spent about \$20,000 for its hardware/software setup, plus about \$3000 for additional data files."

Concern for PC-to-mainframe file compatibility is voiced by Tom Link, an environmental protection specialist with the EPA. Link downloads EPA air pollution data in ASCII form, edits it with a word processor, and maps spatial variations in air quality on a PC (his choice of mapping software is not mentioned in the *PC Week* article—perhaps EPA is reluctant to make endorsements).

### SOFTWARE REVIEW

Software reviews will normally be solicited by the editors, but unsolicited reviews are invited for consideration. If you are using a piece of software useful in working with map information, and are interested in contributing a review, please communicate this interest to the editors.

**PC-Globe+ and Electromap**  
*reviewed by Sona Karentz Andrews and Chris Baruth, University of Wisconsin—Milwaukee*

**PC-GLOBE+**  
 Comwell Systems, Inc., 2100 S. Rural Road, Suite 2, Tempe, Arizona 85282. PC-GLOBE+ is an electronic software package containing maps and information on 177 countries. The list price is \$69.95. Registered owners are

qualified to purchase annual upgrades at minimal cost. The program supports EGA, CGA, Hercules Monochrome, or VGA displays for the IBM PC/XT/AT, PS/2 or compatible with a memory of 384Kb RAM, MS.DOS 2.0 or later (MacIntosh and Apple II versions will be available later this year). The output support is through an IBM Proprinter, the HP Laserjet Series II, the IBM Color Printer and compatibles. PC-GLOBE+ has four 5.25" disks (it is also available in 3.5" format) and a 28 page user manual. The software is operated with pull-down menus controlled by a mouse or arrow keys. There are seven main menu options: Help, World, Region, Country, Database, Utilities, and Quit. World, regional, and country boundary maps can be accessed through all menus, whereas country elevation and physical features maps are only accessible through the country sub-menus.

The sub-menus for the Database option include statistics on Population; Age; Language, Ethnic Groups, and Religion; Health Statistics; City Information (populations, phone codes, time zones, latitude and longitude coordinates, and country's Western Union telex access codes and ham radio prefixes); GNP for 1987, 1988 and 1989; Resources, Agriculture and Industry; Imports and Exports; Government; and Culture and Tourism. This information can be displayed in bar charts and tables for an individual country or up to ten countries of the user's choosing to compare statistics. Since all the data in the data base files is aggregated by country, it is not possible to map the information at the country scale. Regional and global scale maps of the data are, however; easily displayed.

The utilities options include changing map parameters (shifting world center, change color, delete country boundaries), calculation of

distances and bearings between two cities in the program or two latitude and longitude points of the user's choosing, currency conversions, time zone information, print screen and view text files, and a save map display.

PC-GLOBE+ is easy to install onto a hard disk and uses 1.5 Mb of disk space. The menus are self-explanatory and there is little need to follow the directions in the user manual in order to understand how to operate the program. Virtually all the map displays use Miller's Cylindrical projection. This does not present a major problem at the global scale, but at the higher latitudes distortions of scale and shape are significant.

The maps in PC-GLOBE+ look very simple and are highly generalized. This is especially the case with the country maps, since they show a limited number of features using iconic symbols to represent the general locations of mountains, rivers, deserts, and forests; or the country maps of cities which always include eight cities—regardless of the size of the country or city populations.

One of the nicest features of the program is the large database. You can choose to map the information for select countries or for all countries. The data base format is flexible and allows the user to add data. The graphics and text from the program can be exported to other programs such as WordPerfect, PageMaker, PC-Paintbrush, Lotus 123, Ventura, and others (we did not try any of these options and are unable comment on how well the program performs in this regard). The shift world center option and calculation of distances and bearings utilities options add some flexibility to the program.

#### ELECTROMAP

ELECTROMAP, Inc., P.O. Box 1153, Fayetteville, Arkansas 72702-1153. ELECTROMAP is another

electronic atlas software package containing 238 country, regional, topographic, and statistical maps. The list price is \$129 (\$159 after September 1). The program supports EGA or VGA displays for the IBM PC or PS/2 or compatibles with a memory of 640Kb RAM, MS.DOS 3.1 or later. The output can be printed with screen dump or screen capture software. ELECTROMAP uses five 5.25" disks (it is also available in CD-ROM version) and a 20 page user manual. The software is operated with a top menu bar and clicking areas on index maps with a mouse or arrow keys. The World index map is used to access one of fourteen regional index maps, which in turn allow you to access country maps. Map access is also possible using an alphabetical drop-down index of all countries, cities, and physical features listed in the program.

Fourteen maps are available on a pseudo-cylindrical equal-area projection at the World scale. These include; Topography, January Temperature, July Temperature, Precipitation, Agricultural Labor, Electricity, Income Per Capita, Income Growth, Infant Mortality, Inflation Rate, Life Expectancy, Literacy Rate, Population Density, and Population Growth. A text option allows you to display lists of statistics alphabetically by country or by numerical rank in page format.

The regional maps are limited to displaying country boundaries with topographic information. The country maps display either cities and rivers or topography. A text option allows you to display a drop-down menu for text information on the Geography, People, Government, Economy, and Communications of the selected country. The information is overlaid in page form. A flip option allows you to change from the printed text back to the map.

The program is easy to install

but takes considerable time to do so and requires 6Mb of space on the hard disk. The menus are self-explanatory and the user manual only needs to be consulted to determine the limitations of the software. The maps displayed in ELECTROMAP are lovely. They contain substantial detail (therefore the large amount of disk space) and use subtle colors and hypsometric shading for elevation. One cannot help but to be very impressed when the first map appears on the screen. The program is, however, very limited in the number of maps it contains and the data base it supports. The user will surely be disappointed by these limits.

There are a number of differences between PC-GLOBE+ and ELECTROMAP. PC-GLOBE+ contains many more statistical data that can be graphed and/or mapped. PC-GLOBE+ allows you to generate a large number of world maps whereas ELECTROMAP has only fourteen world map options. The maps of less than the entire world as displayed on PC-GLOBE+ are mostly enlarged portions of the world map on the Miller's Cylindrical projection, whereas regional and country displays on ELECTROMAP consist of a series of independently projected maps, providing for a more satisfactory effect. One should keep in mind that although PC-GLOBE+ offers the user more flexibility, both programs are electronic atlases and neither one is intended to be mapping software.

The ELECTROMAP maps are by far more detailed and more attractive than those of PC-GLOBE+, however, at this scale the map displays can, in no way, be compared favorably to even a mediocre printed atlas—the resolution of the medium will not supply nor permit it. Both programs contain, at best, a level and

amount of information comparable to the most elementary type of school atlases, leading us to the assessment that their best use is probably at the secondary school level.

How different are these electronic atlases than their printed counterparts? Given their current costs and limited number of maps and specific hardware requirements, they are not competitive with printed atlases. And turning pages is not much different than clicking through menus. Electronic atlas creators have not yet taken full advantage of the medium they are working in, but rather have attempted to make the electronic atlas a software clone of the printed atlas. In this respect, PC-GLOBE+, with its broad data base and choices of what to display where has the potential to move in that direction, however, both programs have a long way to go.

#### A CALL FOR MAPPING SOFTWARE REVIEW EDITORS

CP is planning an annual compilation of mapping software review references for publication in the Winter issue. We are seeking individuals willing to compile references from a wide range of sources and to submit a list in digital form by December 1, 1989.

Several individuals might share the responsibility. One could concentrate on software reviews for IBM-PCs and compatibles, another on software for the Apple Macintosh, another on software for workstations, minicomputers, or mainframes. For more information please contact David DiBiase at (814) 863-4562; Bitnet: DWD1 at PSUVM.

#### PROTOTYPE TIGER FILES AVAILABLE

U.S. CENSUS BUREAU  
The TIGER/LINE file for Boone County, Missouri is available from

the U.S. Census Bureau on a single reel of tape (at either low or high density) for \$175. The prototype product offers more than 4.6 Mb of information on roads, railroads, rivers, and other features, along with names and classification codes; State, county, census tract, block, and other area codes; feature shapes; address ranges and ZIP codes. Contact: Customer Services, Bureau of the Census, Washington, DC 20233; (301) 763-4100.

#### AAG MICROCOMPUTER SPECIALTY GROUP

The AAG/MSG is offering a demonstration program by James Taylor that displays the Boone County prototype TIGER file. The program is distributed on two high density diskettes at a cost of \$5, including "the Boone County data which the Census sells for \$60." Requires EGA graphics. Request diskette G16 from Robert Sechrist, Department of Geography, Indiana University of Pennsylvania, Indiana, PA 15705. Make checks payable to the AAG Microcomputer Specialty Group.

### cart lab bulletin board

This forum is offered to encourage communication among practitioners at a time of rapid technological transition. Questions, comments, and announcements are invited.

#### THE BEST OF BOTH WORLDS: Linking the WORLD projections package with Macintosh drawing programs

*Iden Rosenthal  
Maximum Use Software*

Desktop publishing (DTP) technologies have profoundly altered the balance of power between the technical pen and the microcomputer in the graphic arts, as well as

in thematic mapmaking. The DTP market appeared in response to the introduction—in 1985—of Apple Computer's Laserwriter, Adobe System's PostScript page description language, and Aldus Corporation's PageMaker, the first personal page layout program. The second generation of PostScript output devices (such as the Linotronic Imagesetter) coupled with advanced drawing programs like Adobe's Illustrator and Aldus' FreeHand make it possible to generate real typography, fine dot screens, and color separations direct to film. The prospect of creating high-quality thematic maps without sticking-up lettering, etching and peeling, and compositing negatives is enticing to many thematic map producers.

PostScript's unprecedented power to describe pages that has made it a *de facto* industry standard. PostScript became accessible to a large, previously untapped market through the intuitive graphic interface of Apple's Macintosh microcomputer. Market forces have led IBM and the clone-makers to find a way for their machines to work more like the Mac, at least for graphics purposes. Although the Mac was designed with graphics central to its method of user interaction, and thus has an inherent advantage, there are twice as many MS-DOS systems being used for DTP. For what it's worth, my opinion on the issue of Macintosh vs. MS-DOS is this: if you've got them, it's best to mix both machines in the same workplace, passing files back and forth via cable or networking. With the Macintosh you run into fewer frustrating configuration and compatibility hang-ups and (at least to date) the drawing programs are faster, easier to learn and use, more powerful, and better tailored to production concerns. On the other hand, many people are already set up to table digitize base maps on a PC running