

## reviews

### SOFTWARE REVIEW

#### *Geocart*

version tested 1.3.1. \$499, academic pricing \$449. From Terra Data, Inc., Bramblebush Croton-on-Hudson NY 10520. Phone (212) 675-2971.

System requirements: A Macintosh computer with a floating point unit, System 6.0 or greater, and 1 MB of memory. Supports 1-bit (monochrome), 8-bit (256 colors) or 32-bit (millions of colors) monitors.

#### *Reviewed by*

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Geocart is often referred to as a map drawing program, but to do so is a bit misleading as it lacks several critical features that would be expected in a stand-alone full-featured map drawing program. For example, it does not contain any drawing or text tools, nor does it have the ability to generate fills for polygons. However, Geocart's primary purpose is to generate base maps for importing into draw programs such as Aldus FreeHand and Adobe Illustrator, or into paint programs such as Adobe Photoshop, and in this role it performs admirably. It also serves as an excellent resource for both teaching and learning about map projections. Included with the program are two excellent books on map projections: *Introduction to Map Projections* by Porter W. McDonnell, and *An Album of Map Projections* by John P. Snyder and Philip M. Voxland. In addition, the Geocart manual devotes two chapters to explaining the basics of

map projections within the context of using the program.

Without question Geocart's primary strength is its ability to generate map projections, and in fact one could argue that this is Geocart's real calling. In all there are over 100 map projections accessible from the main menu: 10 cylindrical, 31 pseudocylindrical, 13 conic, 20 azimuthal, 14 lenticular, and 21 miscellaneous. Eight of the projections were developed especially for Geocart by Daniel Strebe, its author. New with version 1.3.1 is the ability to create "tilted perspective" projections which create "space photo" type maps. This projection was used for the cover of this issue of *Cartographic Perspectives*. In addition to generating the projections, Geocart allows you to interrupt certain projections, and to perform longitudinal, latitudinal and transversal rotations. One interruption option allows you to generate globe gores with 24 segments. Geocart also provides the ability for users to enter coordinates for drawing great circles, great circle routes between two points, small circles, point locations and rhumb lines. The depth of Geocart's projection generating capabilities is demonstrated by the provision of ten standard ellipsoids to choose from, and by its ability to generate a Tissot indicatrix for a projection.

Two features make Geocart especially useful for generating base maps: its database capabilities, and its export capabilities. Geocart provides databases for US cities, world capitals, two levels of detail for world cities, hydrography, international boundaries (updated to show the new borders for Czechoslovakia, Yugoslavia, and others), and a US boundaries database that includes both state and county boundaries. In addition to the databases provided, you can import your own custom text databases, Microcam data-

bases, or MapMaker lat/long native and text formats. Once you have created the base map, Geocart provides the option of exporting in PICT (Macintosh Picture format), Adobe Illustrator 1.1, or EPSF (Encapsulated Postscript Format). Further options allow PICT files to be saved as either bit maps or as objects, and lines can be converted to bezier curves before exporting to EPSF and Adobe Illustrator 1.1 formats. All export formats allow you to set the output resolution so that the complexity of the file can be controlled. One additional feature, especially helpful for exporting files to draw programs, is that related lines (e.g. the graticule, coastlines etc.) are grouped prior to export. When the file is opened in the draw program, characteristics such as line weight and color for the grouped lines can be easily changed.

With the exception of a few minor glitches in the tutorial, I found the manual well thought out and written. Geocart is relatively easy to learn and use, and I was able to take advantage of most of the programs features after doing the tutorial, followed by an hour or so of exploring the In-Depth chapter while using the program. Users not familiar with map projections will probably need to allow more time to learn Geocart. I strongly recommend reading chapters 3 (Essentials) and 6 (Which Map Projection is Best). Both chapters are well written and do a good job of providing novices with a basic introduction to map projections within the context of using the program. The example maps provided in chapter 7 are helpful and well worth taking a look at.

I used Geocart to create figures 1-13, 25, and 26 for John Snyder's article in this issue of *Cartographic Perspectives*, and it worked quite well for the task. The projection gazetteer (chapter 5 in the manual)

provided a quick reference for locating the projection I needed, and the Center command from the Projection menu presents an intelligently designed dialogue that made centering the projection extremely easy. Setting the resolution of the graticule was straight forward, however one seemingly minor, but very nice feature deserves mention; the ability to trim the meridians at the poles. Because of the large number of illustrations in the article, each projection had to be reduced to fit in one column. By trimming the meridians, I could significantly reduce the convergence blobs at the poles which can hide detail and be visually distracting. Exporting the files to FreeHand was painless, and having the graticule

and coastlines grouped separately made it very easy to assign them separate layers, and to change line weights and color. My only criticism is that I had to complete and/or close many of the polygons in order to fill them. This is a time consuming, tedious task in FreeHand, worse in Illustrator. Even though these were for the most part simple illustrations, closing polygons accounted for a major amount of the time spent in preparing the figures. For more complex jobs, such as a choropleth map, it might be easier to retrace the base map than to complete and close polygons. According to Paul Pugliese, President of Terra Data Inc., steps are being taken to correct this problem in the more detailed databases included with

Geocart. This will be a welcome improvement that should greatly increase the value of Geocart to cartographers.

In general, I found Geocart to be intelligently designed, well documented and easy to use. I tested it on a 50 Mhz accelerated Mac Ilci, a Quadra 950, and a Centris 650, and it performed well on all three machines. With the exception of its inability to create base maps with closed polygons, it fulfills its mission as a map projection/base map generator and addresses many of the needs of professional cartographers and designers. It also is an excellent resource for teaching and learning about map projections. □

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