An Author's Retrospective on ALACARTE

2011

ALACARTE is a menu-driven front end for the commercial Geographic Information System ArcInfo* that was conceived and written in 1988-1991, near the beginning of the computer-based GIS revolution, to permit convenient entry and use of geologic maps in a powerful GIS. ALACARTE provides user control of the command-line program ArcInfo through a large suite of graphical menus that are framed with the geologist in mind. It defines a simple and effective data model in which to store geologic map information as vector data: contacts and faults are stored in one map layer as lines attributed by type of line, with dangling faults permitted, and the resulting closed polygons are identified by geologic unit. Structural data are stored in a separate map layer containing both attitudes at points (using rotatable symbols) and fold axes as lines, and other topical layers are possible as well. The program has been in use for the past two decades supporting the compilation, display, and publication of georeferenced digital geologic maps. Graphical desktop GIS programs have now largely supplanted ArcInfo for general use, but ALACARTE still works quite well with the current version 9 of ArcInfo, despite the many changes that have taken place both in computers and in ArcInfo itself.

At the time ALACARTE was written (in Arc Macro Language – aml), ArcInfo was in version 3-4, users sat before graphics terminals that communicated over phone lines to central servers running the GIS code, and on-screen graphic response was, in today's terms, glacially slow. Remnants of those days remain in the code as, for example, a check to be sure the user really wants to draw the whole map on screen. ALACARTE consists of many hundreds of aml and menu text files, symbol sets and demonstration maps, and an installation and user manual (parts A, B, and C, respectively). Since its initial publication in 1991, ALACARTE has been enlarged to encompass the subsequently added raster part of ArcInfo, and has been supplemented in various other ways, including a suite of plotting functions, opportunity for user-written code to be run within ALACARTE, and many other elements that add to its functionality or fix problems created by changes in ArcInfo.

The original ALACARTE data model and functionality were conceived by Carl Wentworth and Todd Fitzgibbon (now deceased). The code was written by Fitzgibbon, with testing and documentation by Wentworth. Subsequent changes and additions to the code and functionality were made through the years by many people, particularly Wentworth, Bob Mark, Fitzgibbon, Geoff Phelps, and Scott Graham.

The basic data model used in ALACARTE was both simple and robust, but it began to be challenged in the context of assembling large databases from multiple geologic maps using different stratigraphies and data dictionaries. We continued to view simplicity in this context as an important virtue, and in 1999 Todd Fitzgibbon and I ghost wrote a paper for Don Gautier (Gautier, 1999) describing a data model for single geologic maps based on the ALACARTE model that was consistent with the more complex general model.

Looking back over the past 50 years, I began working with geologic maps in the era of the quill tip pen and the introduction of scribing, and am ending when geologic maps are stored as digits in computers and can be manipulated and analyzed in ways then only barely imagined. And now geologic maps are being extended to continuous three-dimensional representation (see, for example, Phelps and others, 2008). It has been quite an adventure, and a most rewarding one.

Carl Wentworth
Geologist Emeritus
U.S. Geological Survey
Menlo Park, California

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* ArcInfo (workstation ArcInfo, in today's parlance) is a product of the commercial company ESRI of Redlands, California.

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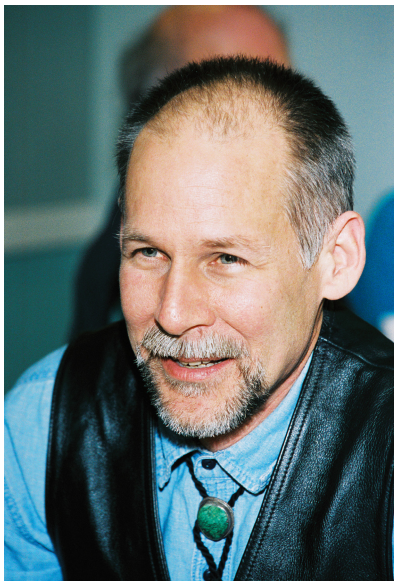
Phelps, G.A., Graymer, R.W., Jachens, R.C., Ponce, D.A., Simpson, R.W., and Wentworth, C.M., 2008, Three-dimensional geologic map of the Hayward Fault Zone, San Francisco Bay region, California: U.S. Geological Survey Scientific Investigations Map 3045, available at *http://pubs.usgs.gov/sim/3045/*.



Todd Fitzgibbon (photograph by Mike Diggles, 2004)