

deal of effort by a collection of talented and dedicated people to produce an on-line literary map it is well worth the effort.

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reviews

Connecting Our World: GIS Web Services

By Winnie Tang and Jan Selwood. Redlands: ESRI Press, 2003. 164 pages, numerous color illustrations. Soft cover, 7.5 by 9 inch format. ISBN 1-58948-075-9

Reviewed by David Broscoe, GIS Technology Programs, Algonquin College Ottawa

This volume continues ESRI Press tradition of publishing well-produced, relatively inexpensive books on various facets of GIS. Most of the press's other books have focused on a given application area (GIS and Business, GIS and Emergency Services, GIS and ...). *Connecting Our World*, narrowly targeted at managers, describes how web technology can be used in a number of different application areas by a range of organizations to serve GIS data to the web. The narrow target audience limits its appeal to others in the field, and narrowly determines the range of material covered in the book. I will first summarize the book content and then undertake an overall critique.

The introductory chapter discusses the concept of WebGIS, outlines some of the potential advantages to an organization in using a WebGIS approach, and very generally discusses the required technology and the de facto standards that have been developed.

Each one of the next twelve chapters outlines one particular application of WebGIS. The first chapter discusses the Geography Network, a 'metadata search-and-discovery framework that

permits exploration of distributed spatial data sets and services' (p 11), launched by ESRI in 2000. The chapter describes the use of Geography Network architecture to implement specific gateways (Kentucky's Geography Network, Delaware's Data Mapping and Integration Laboratory and the United Nations Environment Network). In each case the software (inevitably including at least one ESRI product) and hardware implementation is described. The (mostly) implicit tie between the book and ESRI products and services will be discussed later.

Chapter two examines a national implementation, New Zealand's TopoOnline, which provides users with web access to a full range of online topo map series. One generic technical issue explained in some detail is the conversion from a local geodetic datum to a geocentric geodetic datum compatible with WGS84 and therefore with GPS.

While many large organizations choose to implement and maintain their own web servers, many smaller organizations elect to contract out these services. Chapter three describes three such implementations, one involving the Crown Estate, the agency responsible for managing the estates of the British Crown, and two involving local government applications.

While the geographic data in the implementations discussed in previous chapters may be browsed by anyone with a web connection and a browser, many enterprise-wide WebGIS implementations are designed to limit access to those who work within an organization. The 'Native Title View' of the LandLinks service of the Department of Land Administration, Western Australia, is one such application described in chapter four.

Three approaches to property management are described in

chapters five, six and twelve. Chapter five describes the National Land Information Service (NLIS), a joint initiative of UK national and local governments. The NLIS is a subscription-based service whose aim is to "speed up delivery of publicly held land and property information used in land searches" (p 74). The service is designed to facilitate information transfer between lawyers and information services such as water authorities, cable companies and local authorities. This e-commerce application incorporates a means of distributing fees for services to appropriate organizations depending on the information provided.

Chapter six describes a commercial real estate application in the Southeast Asian market. The application allows a private organization to manage and serve current real estate information about a volatile property market over a wide geographic area. Chapter twelve discusses an American service providing real estate information to potential homebuyers.

Chapters seven and eight describe real-time tracking applications, with or without the use of GPS, as 'even without GPS, the location of a mobile phone user can be pinpointed to within fifty meters' (p 97). Chapter seven outlines the Icelandic company Trackwell's initial application to monitor the location of seagoing vessels in conjunction with the Icelandic Life Saving Association. The author only hints at the ramifications of this surveillance technology:

...it quickly became clear that this technology could be expanded to help monitor and manage all fishing activity around Iceland. ... For [fisheries] organizations, monitoring the location and status of fishing vessels would help surveillance and enforcement of agreements (p 99)

Chapter eight investigates the intersection of Location Based Services (LBS) and Web GIS. 'A user with no more than a mobile phone or a PDA could receive information of help that was specifically targeted based on their current location' (p 113). In order for this technology to work

the location fix calculated by the mobile operator [has] to be passed to some form of GIS ... that [can] compare the fix against spatial data sets, such as address, point-of-interest, or route networks, and then implement spatial operations such as geocoding, proximity searches, and shortest path routing (p 113)

The author discusses in some detail various approaches to and standards for mobile positioning, along with the implications of decoupling the locational technology and the technology involved in implementing other aspects of mobile phone service.

MapShop, a subscription-based mapping web service provided by the Associated Press, is described in chapter nine. This is one of the few chapters with explicit discussion of cartography, with an example of a shaded relief map as served by the Internet, intended for use in daily newspapers

Chapter ten highlights how WebGIS has been used in education to teach water management and conservancy along with GIS concepts in the North China Institute of Water Conservation and Hydroelectric Power. The chapter focuses on the ability of WebGIS to emulate standalone GIS functionality with respect to building and editing spatial data sets.

Chapter eleven discusses the use of WebGIS in the Oil and Gas industry. Up to date information about all major oil producing areas is provided to subscribers using browser technology. This is a more timely approach than the previous approach of distributed CDs and standalone GIS or other

data browsers.

My major issue with this book is its narrow focus. According to the back-jacket description, the book is 'an essential guide for forward-thinking managers who are interested in leveraging the power of spatial data and information'. One would imagine that savvy managers might already be aware of the technology, and would continue to learn about the web primarily from the web. Where the book has real value is in the specific technical information about the implementation of the applications not directly available from the sites.

The book is unlikely to appeal to academics for several reasons. First, it adopts an uncritical, unproblematic approach to technological innovation viewed as implicitly 'beneficial' or at worst neutral. Several chapters in particular could have benefited from a more critical viewpoint. The debate about privacy versus convenience with Location-Based Services technology is now mainstream enough to be reported regularly in the newspapers. Who has the right to know the exact whereabouts of an individual at any point in time? At what point does efficiency and convenience become an invasion of privacy? This issue is contentious and deserves acknowledgement.

The Australian 'Land Title View' application described in chapter three is accessible only to a select group of people, who have the ability to view an integrated set of data layers. One could question what decisions are made based in that information and whether Aboriginal Australians have equal access to that information. *Ground Truth* by Pickles, *Digital Places* by Curry and the research stemming from the NCGIA Initiative 19 are suggested as alternate visions, although they may not deal with WebGIS specifically.

Second, visualization and representation issues are barely addressed. To give a simple example, the Web poses a number of specific hurdles to 'optimal' representation, not the least being the heterogeneity of browsers and platforms that map viewers may be using. In that situation, how do you insure that what a given user sees optimally represents the data? No doubt the authors could argue that these issues were not within the mandate of the book, but Peterson's *Maps and the Internet* strikes me as a model for a more interesting approach to the subject.

If the book does not offer a critical approach, neither does it function as a technical manual. There is just enough information for someone not familiar with the technology to know that there is a lot to know. One could decide to do research on any number of acronyms that may be encountered in the text, but there is not nearly enough information to attempt an actual implementation. The book does give a sense of the hardware and software configurations for most of the implementations, but not of the amount of time and energy involved in creating the applications. In addition, WebGIS is a volatile technology. Very likely the descriptions of some of the technical specs were out of date at the publication date and are more outdated now. Of course, this is a common issue for all books that discuss the technical implementation of a rapidly developing technology.

A last observation, an issue that is common to most ESRI Press books is the fact that all the described applications involve ESRI software in one way or another. Neither the approaches of other commercial vendors nor the battle between Open Source and proprietary software are mentioned.

Overall the book is well produced and reasonably well written, but targeted to a very narrow

audience, the manager. It introduces a sufficient range of WebGIS applications to give the reader a sense of the field. It gives a technical overview of each application, so that a manager could make a rough estimate of implementation costs. Concise explanations of relevant geographic concepts are interspersed throughout. The book could conceivably convince a manager that their organization could benefit from WebGIS. For academics, however, there is insufficient critical analysis or discussion of visualization. For technical people, there is only sketchy technical information. There is little in *Connecting Our World* to appeal to the NACIS audience.

A Railroad Atlas of the United States in 1946: Volume 1: The Mid-Atlantic States.

Richard C. Carpenter. The John Hopkins University Press, Baltimore, MD. 2003. 297 pages, numerous maps, hardcover (ISBN 0-8018-7331-2).

Reviewed by Fritz C. Kessler, Frostburg State University.

This atlas presents a unique perspective on the state of railroading in the United States during 1946, when railroads were the dominant form of travel and commercial transportation. In a dense hardbound volume, 177 color maps covering the Mid-Atlantic States illustrate, among other items, the location of each railroad's line, the towns through which the line passed, mile posts, signal towers, coaling stations, and passenger stations during 1946. The considerable amount of information presented throughout this atlas makes it possible for anyone with an interest in railroad history to gain an appreciation for the enormous

and complex network of rail lines that at one time wove their way across the Mid-Atlantic States.

The atlas is divided into five sections. The first presents a brief history of railroading in the United States, the author's justification and enthusiasm for undertaking such a work, as well as a synopsis of each Mid-Atlantic State's (PA, WV, DC, MD, DE, NJ, and VA) railroad composition in 1946. Carpenter explains that his reasons for producing this atlas stem from three points. First, this atlas serves to graphically document "one of the most glorious episodes of our transportation history" (p. viii). Beginning in 1950, the 137 Class I operating railroads in the United States would, by 2001, merge into seven Class I railroads. Second, Carpenter notes that some of the oldest railroad lines in the United States originated in the Mid-Atlantic States region. Third, Carpenter, recalling fondly his own memories of railroading in 1946, seems nostalgic in his description of life and scenes along the railroad and paints an idyllic setting for the atlas' content. Unfortunately, Carpenter is not clear on who his intended audience is or where his atlas fits within the numerous railroading atlases that are in publication.

The second section of the atlas begins with an index map that aids in locating individual atlas maps. The index map is followed by an explanation of symbols, and then the 177 maps are presented. As indicated by Carpenter, the USGS 1:250,000 map series of this region was utilized to compile the atlas' base information. All atlas maps are produced in color, are entirely hand-drawn (including all text), and contain the same base information: shorelines, rivers (with flow direction indicated), canals, towns along rail lines, and boundaries (national, state/provincial, county, and city). The amount of base information included is pur-