Book Review

Practical GIS Analysis

By David Verbyla. Taylor & Francis, London, UK. 291 pages, 2002. ISBN 0-415-286609-3
Reviewed by Associate Professor Graciela Metternicht, Department of Spatial Sciences,
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David Verbyla, Associate Professor of GIS/Remote Sensing at the Department of Forest Sciences at the University of Alaska has written a book which, in his own words, allows students to learn important concepts away from your GIS, at [such places as] the laundromat, airport, on a bus, or sitting under a tree in a park. Given the wide range of topics covered, many of the chapters lack in-depth treatment of the subjects, and therefore the claim that 'if you want to learn how GIS works and what kinds of problems you can solve using it' you can do so from this book is, perhaps, a bit ambitious.

A word to characterise this book is simplicity. The fact that the book presents more than eighty GIS problems (and their solutions) is a definite plus for lecturers and self-learners. The book is organised into twelve chapters and one appendix which provides the solutions to the exercises presented throughout the chapters. The chapters contain a relatively small amount of text, with a predominance of graphics, including well-designed black and white flowcharts and tables.

Chapter one introduces the reader to GIS data models including point, line, network polygons, grid and image themes, concluding with a description of tools for managing GIS features and for building attribute tables.

The second chapter focuses on GIS tabular analysis covering such topics as the selection of table records, viewing, managing and merging tables and the indexing of attributes. The chapter finishes with a good set of exercises on tabular analysis. Tools for point analysis (e.g. area, distance and attribute) are dealt with in Chapter three, whereas Chapter four briefly covers the tools frequently used for basic line analysis (e.g. buffering, intersection, reselect).

Network analysis, including address geocoding, optimal routing, finding the closest facilities and resources allocation are presented along with good graphics and exercises in Chapter five. Likewise, Chapter six begins with a definition of dynamic segmentation, including such things as routes, section, event types and the way in which events can be created. This is all complemented by profuse use of graphics and tables. The chapter concludes with a set of ten exercises.

The brief introduction to Chapter seven, which deals with polygon analysis, includes the definition of a polygon in the GIS context, and a summary of GIS tools that can be used in polygon analysis. As with previous chapters, the ways in which these tools (e.g. dissolve, eliminate, clip, split, erase, etc) can be applied for polygon analysis are mostly discussed using graphics and tables. A summary discussion on spatial joints, and a set of exercises concludes the chapter.

Grid analysis, the advantages of grid over vector GIS data models, and basic arithmetic, topographic, path, grouping

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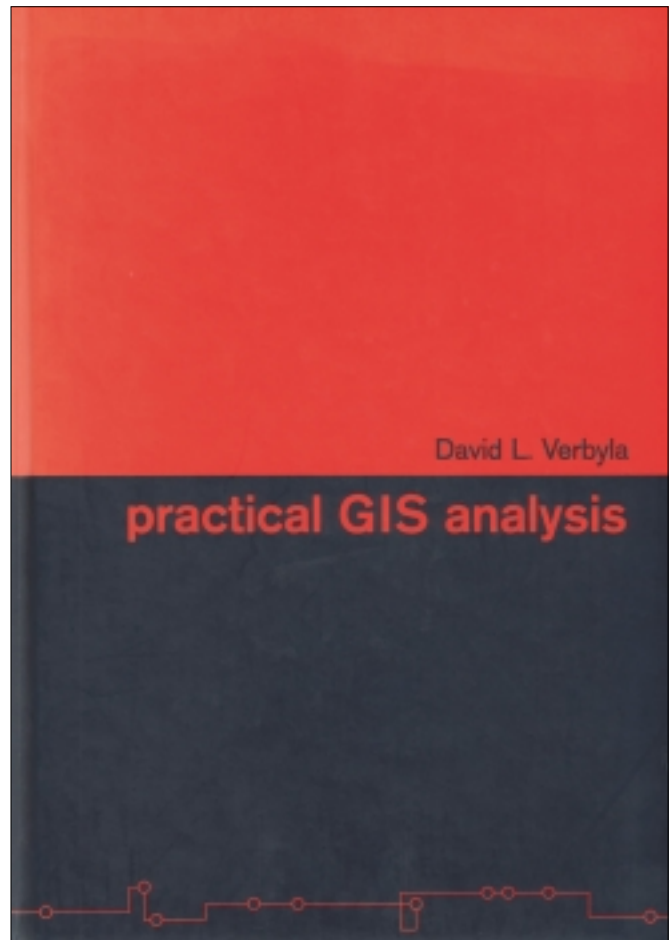
and selection operations are explained in Chapter eight. Given the already wide range of topics covered, I was a bit surprised to find a chapter devoted to digital image processing of remotely sensed data in a book about practical GIS. Unavoidably, the treatment of this subject in just 20 pages necessitates a superficial discussion of the topics involved. With many graphics and few words the author presents the concepts of image enhancement, rectification, classification and accuracy assessment.

Chapters 10 and 11 present vector and grid exercises in a variety of applications ranging from real state, groundwater, watershed to habitat analysis. The last chapter advises on how to save time in GIS analysis (eg. 'work while you play', 'less can be better', 'do not repeat yourself', etc).

Overall, this book is a good addition to the library of GIS beginners, lecturers at undergraduate level and professionals working in the natural sciences who are interested in learning very basic GIS tools for spatial analysis. It covers in a very simple way, with minimal text and profuse use of graphics and tables, the basic topics related to point, line, polygon and grid analysis (e.g. network analysis, topographic operators, dynamic segmentation, optimal path operators). Though the author claims this to be a 'practical guide for solving geo-spatial problems, which is independent of specific GIS software and hardware', many of the figures presented throughout the text are screen captures of ESRI's ARC/INFO and ArcView software. I would certainly not recommend this book to professionals interested in advanced GIS analysis, as it lacks in-depth treatment of the geo-spatial problems and how GIS tools can be applied for their solution.

Correction

On page 62 of the March issue of this magazine a wrong web page was given.

The correct web page for the book 'Advances in Spatial Analysis and Decision Making' is: balkema.ima.nl/scripts/cgiBalkema.exe/serie?SerNo=58.