



Beyond Mapping Compilation Series

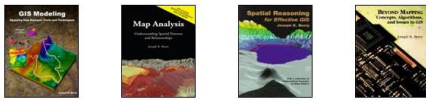
by Joseph K. Berry

...Beyond Mapping columns appearing in [GeoWorld](#) (formerly GIS World) magazine from **March 1989** through **December 2013**

Most GIS applications have focused on mapping and spatial data management for viewing and geo-query of mapped data. Map analysis and GIS modeling involve entirely new spatial reasoning concepts and procedures that are not reflected in our paper map legacy. The books in the Beyond Mapping Compilation Series are based on Joe Berry's popular "Beyond Mapping" columns in GIS World/GeoWorld magazine that discuss the new breed of map analysis tools, how they can be used to better characterize and communicate spatial relationships, be organized into effective GIS model solutions, and spark entirely new spatial paradigms. The topics covered in the series are written for novices, as well as GIS professionals, in a witty style that entertains as well as informs.

The real estate axiom of "location, location, location" has moved to the forefront of understanding and interacting with our world. Prior to the digital map, spatial information was constrained to the "precise placement of physical features" primarily for navigation, inventory and recordkeeping. Today, the historical objective of "Where is What" has been expanded to "Why, So What and What If" investigations of the spatial patterns and relationships driving our physical, ecological, economic, social and political systems. Geotechnology (RS, GIS, GPS) has ushered in an bold new era of mapped data visualization, interactive geo-query and quantitative analysis of mapped data supporting spatial communication, reasoning and dialog— "**thinking with maps.**"

The nearly 1000 pages and more than 750 figures in the Beyond Mapping Compilation Series provides a comprehensive and longitudinal perspective of the underlying concepts, considerations, issues and evolutionary development of modern geotechnology.



The Beyond Mapping Compilation Series is organized into

Four Online/Hardcopy Books

each containing an Introduction, Ten Topics, Epilog and Further Readings

... with links to online support materials including additional Online Readings, Color Graphics files, Instructor Materials and Software for "hands-on" exercises that are cross-referenced to the topics

Click for a detailed [Overview and Annotated T of C](#) covering all four books in the compilation Series



[Handout/Poster](#) describing Compilation Series

Book IV — [GIS Modeling: Applying Map Analysis Tools and Techniques](#) (columns from 2007 to 2013)

Book III — [Map Analysis: Understanding Spatial Patterns and Relationships](#) (columns from 1996 to 2007)

Book II — [Spatial Reasoning for Effective GIS](#) (columns from 1993 to 1996)

Book I — [Beyond Mapping: Concepts, Algorithms and Issues in GIS](#) (columns from 1989 to 1993)

(click on titles above for a short [description and access](#) to the online books)

Navigation within this tsunami of information is aided by five **Organizational Listings** of the individual Beyond Mapping columns—

[Chronological Listing](#) of the nearly 300 individual Beyond Mapping columns (.html and .pdf)

[Application Listing](#) that organizes the columns by application areas (.html and .pdf)

[Operations Listing](#) that organizes the columns by topic/theme discussed (.html and .pdf)

[Interactive Listing](#) that can be searched/sorted by any word or phrase, topic, theme and application area (Word .doc)

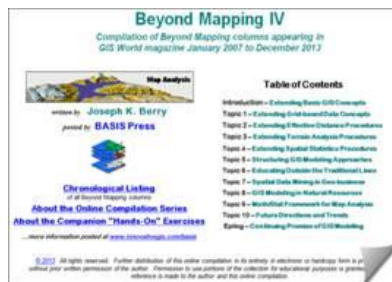
[Combined Index](#) of keywords and phrases covering all four books (.html...in progress; planned for Fall 2014)

Beyond Mapping Book IV — GIS Modeling: Applying Map Analysis Tools and Techniques is an online/electronic book organizing the columns from 2007 to 2014 into 10 Topics, Introduction, Epilog and online support material including Additional Readings, Color Graphics files, Instructor Materials and software for hands-on exercises cross-referenced to the topics.

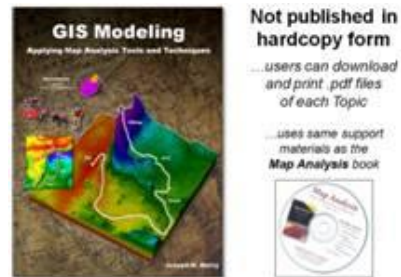
GIS Modeling: Applying Map Analysis Tools and Techniques

- | | |
|--|--|
| Introduction – Extending Basic GIS Concepts | Topic 6 – Educating Outside the Traditional Lines |
| Topic 1 – Extending Grid-based Data Concepts | Topic 7 – Spatial Data Mining in Geo-business |
| Topic 2 – Extending Effective Distance Procedures | Topic 8 – GIS Modeling in Natural Resources |
| Topic 3 – Extending Terrain Analysis Procedures | Topic 9 – Math/Stat Framework for Map Analysis |
| Topic 4 – Extending Spatial Statistics Procedures | Topic 10 – Future Directions and Trends |
| Topic 5 – Structuring GIS Modeling Approaches | Epilog – The Continuing Promise of GIS Modeling |

Online Book



Hardcopy Book/CD



Not published in hardcopy form

...users can download and print .pdf files of each Topic

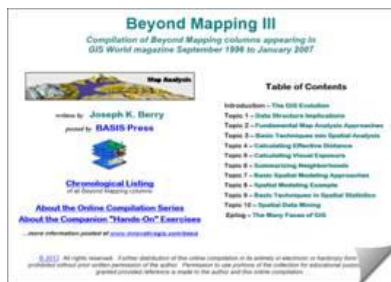
...uses same support materials as the Map Analysis book

Beyond Mapping Book III — Map Analysis: Understanding Spatial Patterns and Relationships is an online/hardcopy book organizing the columns from 1996 to 2007 into 10 Topics, Introduction, Epilog and CD-ROM containing Additional Readings, Color Graphics files, Instructor Materials and software for hands-on exercises cross-referenced to the topics.

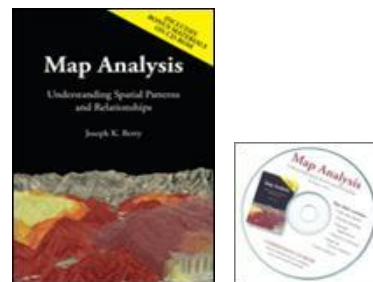
Map Analysis: Understanding Spatial Patterns and Relationships

- | | |
|---|---|
| Introduction – The GIS Evolution | Topic 6 – Summarizing Neighborhoods |
| Topic 1 – Data Structure Implications | Topic 7 – Basic Spatial Modeling Approaches |
| Topic 2 – Fundamental Map Analysis Approaches | Topic 8 – Spatial Modeling Example |
| Topic 3 – Basic Techniques in Spatial Analysis | Topic 9 – Basis Techniques in Spatial Statistics |
| Topic 4 – Calculating Effective Distance | Topic 10 – Spatial Data Mining |
| Topic 5 – Calculating Visual Exposure | Epilog – The Many Faces of GIS |

Online Book



Hardcopy Book/CD



Beyond Mapping Book II — Spatial Reasoning for Effective GIS is an online/hardcopy book organizing the columns from 1993 to 1996 into 10 Topics, Introduction and Epilog.

Spatial Reasoning for Effective GIS

Introduction – **Where is GIS?**

Topic 1 – **Understanding GIS**

Topic 2 – **From Field Samples to Mapped Data**

Topic 3 – **Implementing GIS**

Topic 4 – **Toward an Honest GIS**

Topic 5 – **A Framework for GIS Modeling**

Topic 6 – **Alternative Data Structures**

Topic 7 – **Organizing the Map Analysis Toolbox**

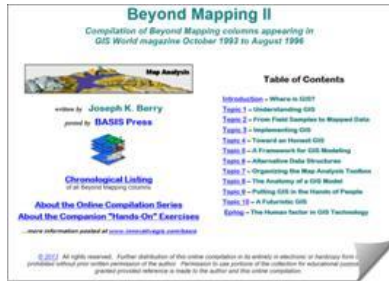
Topic 8 – **The Anatomy of a GIS Model**

Topic 9 – **Putting GIS in the Hands of People**

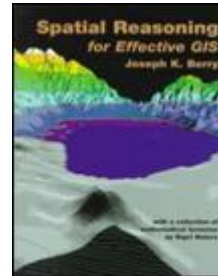
Topic 10 – **A Futuristic GIS**

Epilog – **The Human Factor in GIS Technology**

Online Book



Hardcopy Book



Beyond Mapping Book I — Beyond Mapping: Concepts, Algorithms and Issues in GIS is an online/hardcopy book organizing the columns from 1989 to 1993 into 10 Topics, Introduction and Epilog.

Beyond Mapping for Effective GIS

Introduction – **Overview of Basic Terminology**

Topic 1 – **Maps as Data and Data Structure Implications**

Topic 2 – **Measuring Effective Distance and Connectivity**

Topic 3 – **Assessment of Neighborhood Characteristics**

Topic 4 – **What GIS Is and Isn't**

Topic 5 – **Assessing Variability, Shape and Pattern**

Topic 6 – **Overlaying Maps and Error Propagation**

Topic 7 – **Overlaying Maps and Summarizing the Results**

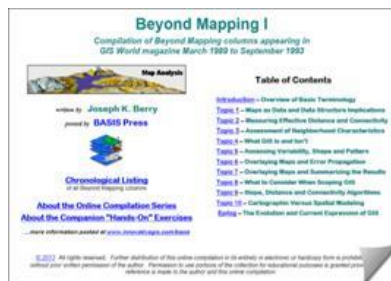
Topic 8 – **What to Consider When Scoping GIS**

Topic 9 – **Slope, Distance and Connectivity Algorithms**

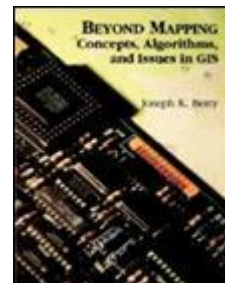
Topic 10 – **Cartographic Versus Spatial Modeling**

Epilog – **The Evolution and Current Expression of GIS**

Online Book



Hardcopy Book



Permission to use portions of the Beyond Mapping Compilation Series collection of columns for educational and non-commercial purposes is granted provided reference is made to the author and the URL of the Beyond Mapping Compilation Series Topic of the online book containing the materials—

For example... Figure is from Berry, Beyond Mapping Compilation Series, Book I, Topic 4 “What GIS Is and Isn’t” posted at: www.innovativegis.com/Basis/BeyondMappingSeries/