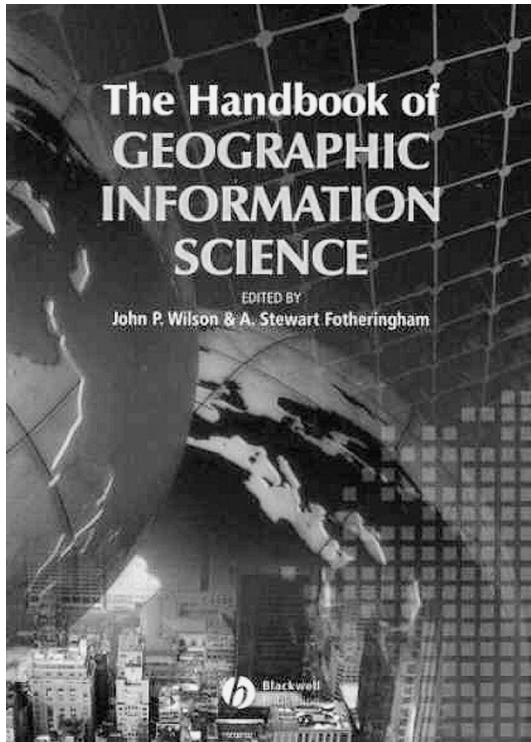


The handbook of geographic information science, edited by John P. Wilson & A. Stewart Fotheringham, 2008. Blackwell Companions to Geography, Volume 7. Blackwell Publishing Ltd, 9600 Garsington Street, Oxford, United Kingdom. Paperback, 634 pages, 169 figures. Price USD 99.95; GBP 60.00. ISBN 978-1-4051-0795-2 (printed), 978-0-4706-9081-9 (online).



This book deals, as the title indicates, with a rapidly expanding field of geography, viz. geographic information science (GIS). Forty-six recognized experts from Europe, North America and Australia contributed thirty-four chapters. Each chapter contains a valuable list of literature, and the book ends with an extensive, 15-page index. This makes this textbook a valuable and useful companion for students of geoinformation, geoinformatics, geocomputation, and geoprocessing (GIScience), as well as for experienced scientists and professionals applying GIS. Therefore this book should be present in all libraries.

The editors of the book define GIScience as a science comprising all aspects of the collection, storage, integration, management, retrieval, display, analysis, and modelling of spatial data. This definition is, however, outdated (see Zwoliński, 2009), and corresponds to the idea of GIS as used some decades ago, which

was already formulated in a much better form by Peter Burrough (1986). A more modern view on GIScience is presented by the editors of the present book in a schematic figure showing some elements that jointly build GIScience: collection and storage of spatial data, visualisation and analysis of these data, and areas of specific applications. On the basis of these different aspects of GIScience, the editors divided the book into seven parts.

The first part (Data issues), which comprises six chapters, indicates the recent trends and issues that deal with the acquisition and distribution of geographic data. The successive chapters discuss how the production and distribution of geodata has changed since the mid-seventies of the 20th century (Coven), and they describe the principal sources of social data (Martin), remote-sensing sources and data (Lees), data spatialisation (Skupin & Fabrikant). The last two chapters of this part cover a modern and important phenomenon in GIScience, viz. the uncertainty and the assessment of the quality of spatial data (Morris, and Brown & Heuvelink).

The next part (Database trends and challenges), with four chapters, explores some of the more significant database issues and trends. The first chapter describes the various types of databases in GIS from relational, to object-oriented, to object-relational database-management systems (Shekhar & Vatsavai). The next chapter discusses the generation of a regular grid by means of an example of a digital elevation model from a variety of data sources (Hutchinson). Chapter three approaches time in GIS in an interesting way as a fourth dimension (Yuan). Problems related to new opportunities for the extraction and integration of geospatial and related online data sources are described in the last chapter of this part (Knoblock & Shahabi).

The third part of the book (Visualisation) contains seven chapters on accomplishments

and challenges related to the visualisation of geodata. These chapters describe the role of cartography and the production of interactive multimedia maps (Cartwright), they tackle the problem of generalisation and scale in digital terms (Mackaness), they analyse and display geophenomena such as surfaces (Tate et al.), and they deal with fuzzy classification and mapping (Robinson), as well as with predictive rule-based mapping (Zhu). The last two chapters of this part treat multivariate visualisation (Gahegan), and some ways in which digital 2-D space can be enriched and augmented through interactivity with users in a 3-D environment and beyond (Batty).

Part 4 (Knowledge elicitation) consists of three chapters which explore the role of inference and the difficulties of applying knowledge elicitation to spatial processes, along with the process of the discovery of geographic knowledge (Brunsdon) and geographic data mining (Miller), and the prospects for building a geospatial semantic web (Fonseca).

The fifth group of four chapters (Spatial analysis) examines the links between quantitative analysis of GIS (Charlton), spatial-cluster analysis (Jacquez), terrain analysis (Deng et al.), and dynamic GIS modelling (Albrecht).

The next six chapters, forming the sixth part of the book (Geographic information systems and society), explore issues that influence the development, conduct, and impacts of geographic information technologies. They examine institutional GIS and GI partnering (Tulloch), public participation GIS (Weiner & Harris), GIS and participatory decision-making (Jankowski & Nyerges), the dynamic interplay between conceptions of people and place, and the methods used to survey them (Dana), the relationship between GIS, personal privacy, and a variety of jurisdictions (Cho), and the major developments and opportunities for educating oneself in GIS (Kerski).

The last part of the book (Future trends and challenges), with four chapters, describes the role of the world wide web in moving GIS out from their organisation-based and object-based roles to meet people's personal needs for geographic information (Jones & Purves), the emergence of location-based services (Brimicombe), and two opinions of the challenges (Goodchild) and issues (Reuter & Zipf) that are likely to guide GIScience research for the next decade. The last two chapters just mentioned are interesting from the point of view of the future of GIScience. Goodchild details the concept of Digital Earth launched by Al Gore in 1998. In the last chapter, entitled 'GIScience: what next?', Reuter & Zipf state that GIScience is not an isolated field but it is closely interacting with other fast-moving disciplines such as computer science. Therefore GIScience and its products are a common form of information technology like ubiquitous GI Services@. This approach to GIScience corresponds well with Polish trends: it implies the development of geoinformation as a separate scientific discipline, and the development of GIS education at each educational level, from primary school to university.

Reference

- Burrough, P., 1986. *Principles of geographic information systems for land resources assessment*. Monographs on Soil and Resources Survey, Volume 12. Clarendon Press, Oxford, 193 pp.
- Zwoliński, Z., 2009. *Rozwój myśli geoinformacyjnej* [Progress in geoinformation idea]. [In:] Zwoliński, Z. (Ed.), *GIS - platforma integracyjna geografii* [GIS - the integrating platform for geography]. *Bogucki Wydawnictwo Naukowe*, Poznań, pp. 9-21.

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