References



Aitchison, J. (1986) The Statistical Analysis of Compositional Data. London: Chapman and Hall.

Anselin, L. (1995) Local indicators of spatial association—LISA. *Geographical Analysis*, 27, 93–115.

Anselin, L. (1996) The Moran scatterplot as an ESDA tool to assess local instability in spatial association. In Fischer, M. M., Scholten, H., and Unwin, D. (eds), *Spatial Analytical Perspectives on GIS*. London: Taylor and Francis, pp. 111–125.

Anselin, L. (2005) Interactive techniques and exploratory data analysis. In Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (eds), *Geographical Information Systems: Principles, Techniques, Management and Applications*. 2nd edn, abridged. Hoboken, NJ: John Wiley & Sons Ltd, pp. 253–266.

Anselin, L., Syabri, I., and Kho, Y. (2006) GeoDa: An introduction to spatial data analysis. *Geographical Analysis*, 38, 5–22.

Armstrong, M. (1998) Basic Linear Geostatistics. Berlin: Springer-Verlag.

Atkinson, P. M. and Lloyd, C. D. (2009) Geostatistics and spatial interpolation. In Fotheringham, A. S. and Rogerson, P. A. (eds), *The SAGE Handbook of Spatial Analysis*. London: SAGE Publications, 159–181.

Atkinson, P. M. and Tate, N. J. (2001) Five key recommendations for GI Science. In Tate, N. J. and Atkinson, P. M. (eds), *Modelling Scale in Geographical Information Science*. Chichester: John Wiley & Sons Ltd, pp. 263–271.



Bailey, T. C. and Gatrell, A. C. (1995) *Interactive Spatial Data Analysis*. Harlow: Longman Scientific and Technical.

Bannister, A., Raymond, S., and Baker, R. (1998) *Surveying.* 7th edn. Harlow: Pearson Education.

Birkin, M., Clarke, G., Clarke, M., and Wilson, A. (1996) Intelligent GIS: Location Decisions and Strategic Planning. Cambridge: GeoInformation International.

Bivand, R. S., Pebesma, E. J., and Gómez-Rubio, V. (2008) Applied Spatial Data Analysis with R. New York: Springer. Bonham-Carter, G. F. (1994) Geographic Information Systems for Geoscientists. Kidlington: Pergamon.

Brown, J. D. and Heuvelink, G. B. M. (2008) On the identification of uncertainties in spatial data and their quantification with probability distribution functions. In Wilson, J. P. and Fotheringham, A. S. (eds), *The Handbook of Geographic Information Science*. Maldon, MA: Blackwell Publishing, pp. 94–107.

Brunsdon, C. (1995) Estimating probability surfaces for geographical point data: an adaptive algorithm. *Computers and Geosciences*, 21, 877–894.

Brunsdon, C. (2008) Inference and spatial data. In Wilson, J. P. and Fotheringham, A. S. (eds), *The Handbook of Geographic Information Science*. Maldon, MA: Blackwell Publishing, pp. 337–351.

Brunsdon, C., McClatchey, J., and Unwin, D. J. (2001) Spatial variations in the average rainfall-altitude relationship in Great Britain: an approach using geographically weighted regression. *International Journal of Climatology*, 21, 455–466.

Burrough, P. A. and McDonnell, R. A. (1998) Principles of Geographical Information Systems. Oxford: Oxford University Press.



Chang, K. (2008) Introduction to Geographic Information Systems, 4th edn. Boston: McGraw-Hill.

Charlton, M. E. (2008) Quantitative methods and geographic information systems. In Wilson, J. P. and Fotheringham, A. S. (eds), *The Handbook of Geographic Information Science*. Maldon, MA: Blackwell Publishing, pp. 379–394.

Chou, Y.-H. (1997) Exploring Spatial Analysis in Geographic Information Systems. Albany: OnWord Press.

Clarke, K. (1999) Getting Started with Geographic Information Systems. 2nd edn. Upper Saddle River, NJ: Prentice Hall.

Cliff, A. D. and Ord, J. K. (1973) Spatial Autocorrelation. London: Pion.

Codd, E. F. (1970) A relational model of data for large shared data banks. *Communications of the Association for Computing Machinery*, 13, 377–387.

176 REFERENCES

Conolly, J. and Lake, M. (2006) Geographical Information Systems for Archaeologists. Cambridge: Cambridge University Press.

Cowen, D. J., Jensen, J. R., Hendrix, C., Hodgson, M. E., and Schill, S. R. (2000) A GIS-assisted rail construction econometric model that incorporates LiDAR data. *Photogrammetric Engineering and Remote Sensing*, 66, 1323–1328.

Cressie, N. A. C. (1993) Statistics for Spatial Data. Revised edition. New York: John Wiley & Sons Ltd.



Delmelle, E. (2009) Spatial sampling. In Fotheringham, A. S. and Rogerson, P. A. (eds), *The SAGE Handbook of Spatial Analysis*. London: SAGE Publications, pp. 183–206.

De Smith, M. J., Goodchild, M., and Longley, P. A. (2007) Geospatial Analysis. A Comprehensive Guide to Principles, Techniques and Software Tools. 2nd edn. Leicester: Matador.

Diggle, P. J. (2003) Statistical Analysis of Spatial Point Patterns. 2nd edn. London: Arnold.

Dijkstra, E. W. (1959) A note on two problems in connexion with graphs. *Numerische Mathematik*, 1, 269–271.

Dubois, G. (2003) Spatial interpolation comparison 97. Introduction and description of the data set. In Dubois, G., Malczewski, J., and De Cort, M. (eds), *Mapping Radioactivity in the Environment. Spatial Interpolation Comparison* 97. Luxembourg: Office for Official Publications of the European Communities, pp. 39–44.



Ebdon, D. (1985) Statistics in Geography. 2nd edn. Oxford: Blackwell.



Fischer, M. M. (2005) Spatial analysis: retrospect and prospect. In Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (eds), *Geographical Information Systems: Principles, Techniques, Management and Applications.* 2nd edn, abridged. Hoboken, NJ: John Wiley & Sons Ltd, pp. 283–292.

Fisher, P. F. (1992) First experiments in viewshed uncertainty: simulating the fuzzy viewshed. *Photogrammetric Engineering and Remote Sensing*, 58, 345–352.

Fotheringham, A. S., Brunsdon, C., and Charlton, M. (2000) Quantitative Geography: Perspectives on Spatial Data Analysis. London: SAGE Publications.

Fotheringham, A. S., Brunsdon, C., and Charlton, M. (2002) Geographically Weighted Regression: The Analysis of Spatially Varying Relationships. Chichester: John Wiley & Sons Ltd.



Getis, A. (2005) Spatial statistics. In Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (eds), Geographical Information Systems: Principles, Techniques, Management and Applications. 2nd edn, abridged. Hoboken, NJ: John Wiley & Sons Ltd, pp. 239–251.

Getis, A. and Ord, J. K. (1996) Local spatial statistics: an overview. In Longley, P. and Batty, M. (eds), *Spatial Analysis: Modelling in a GIS Environment*. Cambridge: Geo-Information International, pp. 261–277.

Goovaerts, P. (1997) Geostatistics for Natural Resources Evaluation. New York: Oxford University Press.

Goovaerts, P. (2000) Geostatistical approaches for incorporating elevation into the spatial interpolation of rainfall. *Journal of Hydrology*, 228, 113–129.

Gregory, I. N. and Ell, P. S. (2007) Historical GIS: Technologies, Methodologies and Scholarship. Cambridge: Cambridge University Press.

Gregory, S. (1968) *Statistical Methods and the Geographer*. 2nd edn. London: Longman.

Griffith, D. A. (1988) Advanced Spatial Statistics: Special Topics in the Exploration of Quantitative Spatial Data Series. Dordrecht: Kluwer.



Haining, R. (2003) Spatial Data Analysis: Theory and Practice. Cambridge: Cambridge University Press.

Heywood, I., Cornelius, S., and Carver, S. (2006) An Introduction to Geographical Information Systems. 3rd edn. Harlow: Pearson Education.

Hill, E. G., Ding, L., and Waller, L. A. (2000) A comparison of three tests to detect general clustering of a rare disease in Santa Clara County, California. *Statistics in Medicine*, 19, 1363–1378.

Horn, B. K. P. (1981) Hill shading and the reflectance map. *Proceedings of the Institute of Electrical and Electronics Engineers*, 69, 14–47.

Hudson, G. and Wackernagel, H. (1994) Mapping temperature using kriging with external drift: theory and an

example from Scotland. *International Journal of Climatology*, 14, 77–91.

Hutchinson, M. F. (1989) A new procedure for gridding elevation and stream line data with automatic removal of spurious pits. *Journal of Hydrology*, 106, 211–232.



Isaaks, E. H. and Srivastava, R. M. (1989) An Introduction to Applied Geostatistics. New York: Oxford University Press.



Journel, A. G. and Huijbregts, C. J. (1978) Mining Geostatistics. London: Academic Press.



Kitchin, R. and Tate, N. (2000) Conducting Research into Human Geography: Theory, Methodology and Practice. Harlow: Prentice Hall.



Laurini, R. and Thompson, D. (1992) Fundamentals of Spatial Information Systems. APIC Series 37. London: Academic Press.

Lee, J. and Wong, D. (2000) Statistical Analysis with ArcView GIS. Hoboken, NJ: John Wiley & Sons Ltd.

Li, F. S. and Zhang, L. J. (2007) Comparison of point pattern analysis methods for classifying the spatial distributions of spruce-fir stands in the north-east USA. *Forestry*, 80, 337–349.

Li, Z., Zhu, Q., and Gold, C. (2004) Digital Terrain Modeling: Principles and Methodology. Boca Raton, FL: CRC Press.

Lillesand, T. M., Kiefer, R. W., and Chipman, J. W. (2007) Remote Sensing and Image Interpretation. 6th edn. Hoboken, NJ: John Wiley & Sons Ltd.

Lilley, K. D., Lloyd, C. D., and Trick, S. (2007) Designs and designers of medieval 'new towns' in Wales. *Antiquity*, 81, 279–293.

Lloyd, C. D. (2002) Increasing the accuracy of predictions of monthly precipitation in Great Britain using kriging with an external drift. In Foody, G. M. and Atkinson, P. M. (eds), *Uncertainty in Remote Sensing and GIS*. Chichester: John Wiley & Sons Ltd, pp. 243–267.

Lloyd, C. D. (2004) Landform and Earth surface. In Atkinson, P. M. (ed.), *Geoinformatics: Encyclopedia of Life Support Systems*. Developed under the auspices of the UNESCO. Oxford: EOLSS Publishers. http://www.eolss.net.

Lloyd, C. D. (2005) Assessing the effect of integrating elevation data into the estimation of monthly precipitation in Great Britain. *Journal of Hydrology*, 308, 128–150.

Lloyd, C. D. (2006) Local Models for Spatial Analysis. Boca Raton, FL: CRC Press.

Lloyd, C. D. (2009) Multivariate interpolation of monthly precipitation amount in the United Kingdom. In Atkinson, P. M. and Lloyd, C. D. (eds), Geostatistics for Environmental Applications: Proceedings of the Seventh European Conference on Geostatistics for Environmental Applications. Berlin: Springer, in press.

Lloyd, C. D. (2010) Nonstationary models for exploring and mapping monthly precipitation in the United Kingdom. *International Journal of Climatology*, in press.

Lloyd, C. D. and Atkinson, P. M. (2002) Deriving DSMs from LiDAR data with kriging. *International Journal of Remote Sensing*, 23, 2519–2524.

Lloyd, C. D. and Atkinson, P. M. (2004) Increased accuracy of geostatistical prediction of nitrogen dioxide in the United Kingdom with secondary data. *International Journal of Applied Earth Observation and Geoinformation*, 5, 293–305.

Lloyd, C. D. and Lilley, K. D. (2009) Cartographic veracity in medieval mapping: analyzing geographical variation in the Gough Map of Great Britain. *Annals of the Association of American Geographers*, 99, 27–48.

Lloyd, C. D. and Shuttleworth, I. G. (2005) Analysing commuting using local regression techniques: scale, sensitivity and geographical patterning. *Environment and Planning A*, 37, 81–103.

Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (2005a) *Geographic Information Systems and Science*. 2nd edn. Chichester: John Wiley & Sons Ltd.

Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (eds) (2005b) Geographical Information Systems: Principles, Techniques, Management and Applications. 2nd edn, abridged. Hoboken, NJ: John Wiley & Sons Ltd.



Malczewski, J. (1999) GIS and Multicriteria Decision Analysis. New York: John Wiley & Sons Ltd.

Malczewski, J. (2006) GIS-based multicriteria decision analysis: a survey of the literature. *International Journal of Geographical Information Science*, 20, 703–726.

Martin, D. (1989) Mapping population data from zone centroid locations. *Transactions of the Institute of British Geographers*, 14, 90–97.

Martin, D. (1996) Geographic Information Systems: Socioeconomic Applications. 2nd edn. London: Routledge.

Martin, D., Dorling, D. and Mitchell, R. (2002) Linking censuses through time: problems and solutions. *Area*, 34, 82–91.

Mather, P. M. (2004) Computer Processing of Remotely-Sensed Images: An Introduction. 3rd edn. Chichester: John Wiley & Sons Ltd.

Matheron, G. (1971) The Theory of Regionalised Variables and its Applications. Fontainebleau: Centre de Morphologie Mathématique de Fontainebleau.

McDonnell, R. and Kemp, K. (1995) International GIS Dictionary. Hoboken, NJ: John Wiley & Sons Ltd.

McGarigal, K. and Marks, B. J. (1995) FRAGSTATS: Spatial Pattern Analysis Program for Quantifying Landscape Structure. General Technical Report PNW-GTR-351. Portland, OR: US Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Miller, H. J. (2008) Geographic data mining and knowledge discovery. In Wilson, J. P. and Fotheringham, A. S. (eds), *The Handbook of Geographic Information Science*. Maldon, MA: Blackwell Publishing, pp. 352–366.

Mitás, L. and Mitásová, H. (1999) Spatial interpolation. In Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (eds), *Geographical Information Systems. Volume I: Principles and Technical Issues.* 2nd edn. New York: John Wiley & Sons Ltd, pp. 481–492.

Mitásová, H., Hofierka, J., Zlocha, M., and Iverson, L. R. (1996) Modelling topographic potential for erosion and deposition using GIS. *International Journal of Geographical Information Systems*, 10, 629–641.

Moran, P. A. P. (1950) Notes on continuous stochastic phenomena. *Biometrika*, 37, 17–23.

Mulla, D. J. (1988) Using geostatistics and spectral analysis to study spatial patterns in the topography of southeastern Washington state, U.S.A. *Earth Surface Processes and Landforms*, 13, 389–405.



Neteler, M. and Mitásová, H. (2007) Open Source GIS: A GRASS GIS Approach. 3rd edn. New York: Springer.



O'Brien, D. J., Kaneene, J. B., Getis, A., Lloyd, J. W., Swanson, G. M., and Leader, R. W. (2000) Spatial and temporal comparison of selected cancers in dogs and humans, Michigan, USA, 1964–1994. Preventive Veterinary Medicine, 47, 187–204.

Openshaw, S. (1984) *The Modifiable Areal Unit Problem*. Concepts and Techniques in Modern Geography 38. Norwich: GeoBooks.

Openshaw, S. and Taylor, P. J. (1979) A million or so correlation coefficients: three experiments on the modifiable areal unit problem. In Wrigley, N. (ed.), *Statistical Applications in the Spatial Sciences*. London: Pion, pp. 127–144.

Openshaw, S., Charlton, M. E., Wymer, C., and Craft, A. W. (1993) A mark I Geographical Analysis Machine for the automated analysis of point data sets. *International Journal of Geographical Information Systems*, 1, 359–377.

O'Sullivan, D. and Unwin, D. J. (2002) Geographic Information Analysis. Hoboken, NJ: John Wiley & Sons Ltd.



Pebesma E. J. (2004) Multivariable geostatistics in S: the Gstat package. *Computers and Geosciences*, 30, 683–691.

Pebesma E. J. and Wesseling, C. G. (1998) Gstat, a program for geostatistical modelling, prediction and simulation. *Computers and Geosciences*, 24, 17–31.

Peuker, T. K., Fowler, R. J., Little, J. J., and Mark. D. M. (1978) The triangulated irregular network. In American Society of Photogrammetry (ed.), *Proceedings of the Digital Terrain Models (DTM) Symposium. St. Louis, Missouri, May 9–11, 1978.* Falls Church, VA: American Society of Photogrammetry, pp. 516–540.

Pietro, L. S., O'Neal, M. A., and Puleo, J. A. (2008) Developing terrestrial-LiDAR-based digital elevation models for monitoring beach nourishment performance. *Journal of Coastal Research*, 24, 1555–1564.

Plane, D. A. and Rogerson, P. A. (1994) The Geographical Analysis of Population: With Applications to Business and Planning. Hoboken, NJ: John Wiley & Sons Ltd.



Rogerson, P. A. (2006) Statistical Methods for Geography. A Student's Guide. 2nd edn. London: SAGE Publications.

Rowntree, D. (2000) Statistics without Tears: An Introduction for Non-Mathematicians. London: Penguin.



Schabenberger, O. and Gotway, C. A. (2005) Statistical Methods for Spatial Data Analysis. Boca Raton, FL: Chapman and Hall/CRC Press.

Scott, D. M., Novak, D. C., Aultman-Hall, L., and Guo, F. (2006) Network Robustness Index: A new method for identifying critical links and evaluating the performance of transportation networks. *Journal of Transport Geography*, 14, 215–227.

Seeger, H. (2005) Spatial referencing and coordinate systems. In Longley, P. A., Goodchild, M. F., Maguire, D. J., and Rhind, D. W. (2005b) (eds), *Geographical Information Systems: Principles, Techniques, Management and Applications.* 2nd edn, abridged. Hoboken, NJ: John Wiley & Sons Ltd, pp. 427–436.

Shekhar, S., Zhang, P., Huang, Y., and Vatsavai, R. R. (2003) Trends in spatial data mining. In Kargupta, H., Joshi, A., Sivakumar, K., and Yesha, Y. (eds), *Data Mining: Next Generation Challenges and Future Directions.* Menlo Park, CA: AAAI/MIT Press, pp. 357–379.

Shennan, S. (1997) *Quantifying Archaeology*. 2nd edn. Edinburgh: Edinburgh University Press.

Silverman, B. W. (1986) Density Estimation for Statistics and Data Analysis. London: Chapman and Hall.

Sonka, M., Hlavac, V., and Boyle, R. (1999) *Image Processing, Analysis and Machine Vision*. 2nd edn. Pacific Grove, CA: PWS Publishing.

Sprague, D. S., Iwasaki, N., and Takahashi, S. (2007) Measuring rice paddy persistence spanning a century with Japan's oldest topographic maps: georeferencing the Rapid Survey Maps for GIS analysis. *International Journal of Geographical Information Science*, 21, 83–95

Steinberg, S. J. and Steinberg, S. L. (2006) GIS. Geographical Information Systems for the Social Sciences: Investigating Space and Place. Thousand Oaks, CA: Sage.



Taaffe, E. J., Gauthier, H. L., and O'Kelly, M. E. (1996) *Geography of Transportation*. 2nd edn. Englewood Cliffs, NJ: Prentice Hall.

Tate, N. J. and Atkinson, P. M. (eds) (2001) Modelling Scale in Geographical Information Science. Chichester: John Wiley & Sons Ltd.

Tate, N., Fisher, P. F., and Martin, D. J. (2008) Geographic information systems and surfaces. In Wilson, J. P. and Fotheringham, A. S. (eds), *The Handbook of Geographic Information Science*. Malden, MA: Blackwell, pp. 239–258.

Tobler, W. R. (1970) A computer movie simulating urban growth in the Detroit region. *Economic Geography*, 46, 234–240.

Tobler, W. R. (1979) Smooth pycnophylactic interpolation for geographical regions. *Journal of the American Statistical Association*, 74, 519–536.



Waller, L. A. and Gotway, C. A. (2004) Applied Spatial Statistics for Public Health Data. Hoboken, NJ: John Wiley & Sons Ltd

Ward, M. D. and Gleditsch, K. S. (2008) *Spatial Regression Models*. Quantitative Applications in the Social Sciences 155. Los Angeles: Sage.

Webster, R. and Oliver, M. A. (2007) Geostatistics for Environmental Scientists. 2nd edn. Chichester: John Wiley & Sons Ltd.

Weisstein, E. W. (2003) CRC Concise Encyclopedia of Mathematics. 2nd edn. Boca Raton, FL: CRC Press.

Wheatley, D. W. (1995) Cumulative viewshed analysis: a GIS-based method for investigating intervisibility, and its archaeological application. In Lock, G. and Stancic, Z. (eds), *Archaeology and Geographical Information Systems: a European Perspective*. London: Taylor and Francis, pp. 171–186.

Wheeler, D. (2007) Diagnostic tools and a remedial method for collinearity in geographically weighted regression. *Environment and Planning A*, 39, 2464–2481.

Wheeler, D. and Tiefelsdorf, M. (2005) Multicollinearity and correlation among local regression coefficients in geographically weighted regression. *Journal of Geographical Systems*, 7, 161–187.

Wilson, A. G. and Kirkby, M. J. (1980) Mathematics for Geographers and Planners. 2nd edn. Oxford: Clarendon Press.

Wilson, J. P and Fotheringham, A. S. (eds) (2008) *The Handbook of Geographic Information Science*. Maldon, MA: Blackwell Publishing.

Wise, S. (2002) GIS Basics. London: Taylor and Francis. Wong, D. W. S. (1997) Spatial dependency of segregation indices. *The Canadian Geographer*, 41, 128–136.

Worboys, M. and Duckman, M. (2004) GIS: A Computing Perspective. 2nd edn. Boca Raton, FL: CRC Press.