Professional Publications: **Keith C. Clarke**

Clarke, K. C. and D. R. Deskins Jr. (1979) Urban population redistribution. in Gosling, L. A. P. and L. Y. C. Lim (eds.) *Population Redistribution: Patterns, Policies and Prospects*, Policy Development Studies Number 2, United Nations Fund for Population Activities, New York.

Clarke, K. C. (1979) Trend surface analysis and population density dynamics in Syracuse (New York) 1900 to 1970. *Proceedings, East Lakes Association of American Geographers*, Dept. of Geography, University of Akron, Akron, Ohio.

Clarke, K. C. (1982) Fourier synthesis of choropleth data. *The Michigan Academician*, vol. 14, no. 4, pp. 337-345.

Clarke, K. C. (1983) Polygon to raster conversion error: A comparative analysis of techniques. *Proceedings, 16th Int. Symposium on Remote Sensing of Environment*, Ann Arbor, MI.

Clarke, K. C. (1984) Two-dimensional Fourier interpolation for uniform area data. *Proceedings, ASP Technical Meetings*, Washington D.C., vol. 2, pp. 835-845.

Clarke, K. C. (1984) Shape-assisted land-use classification for remotely-sensed data. *Proceedings, Eighteenth International Symposium on Remote Sensing of Environment*, Paris, France, October 1-5.

Clarke, K. C. (1985) Strategies for spatial data compression. *Proceedings, AUTO CARTO 7, Digital Representations of Spatial Knowledge*, Washington D.C., pp. 97-107.

Clarke, K. C. (1985) Geographic information systems. *Bulletin, Special Libraries Association, Geography and Map Division*, vol. 142, Dec. 1985, 12-17.

Clarke, K. C. (1985) A comparative analysis of polygon to raster interpolation methods" *Photogrammetric Engineering and Remote Sensing*, 51, 5, 575-582.

Clarke, K. C. (1985) Spatial data compression for geoprocessing: An examination of some alternative approaches. *Proceedings, Center for Earth Resource Management Applications Conference, Integration of Remote Sensed Data in GIS for Processing of Global Res. Info.*, 6/1-11.

Brass, J. A. et al. (1985) Design and Application of Geographic Information Systems for Addressing Functional Requirements of the USDA Soil Conservation Service. Proceedings, IGARSS 85, Univ. of Mass., Amherst.

Thongs, D. J. and Clarke, K. C. (1985) Shape-based land cover classification by polygon skeletonization. *Proceedings, Middle States Division, Association of American Geographers*, Albany, NY.

Clarke, K. C. (1986) Advances in geographic information systems. *Computers, Environment and Urban Systems*, vol. 10, nos. 3/4, pp. 175-186.

Clarke, K. C. (1986) Recent trends in Geographic Information System research *GeoProcessing*, vol. 3, no. 1, pp. 1-16.

Clarke, K. C. (1986) Computation of the fractal dimension of topographic surfaces using the triangular prism surface area method. *Computers and Geosciences*, vol. 12, pp. 713-720.

Clarke, K. C. (1987) Scale-based simulation of terrain. *Proceedings, AUTOCARTO 8,* Eighth International Symposium on Computer-Assisted Cartography, Baltimore, MD, March 29 - April 3., pp. 680-688.

Clarke, K. C. (1987) Refining image segmentation by polygon skeletonization. *Technical Papers, ASPRS-ACSM Annual Convention*, March 29 - April 3, vol. 6, pp. 45-52.

Clarke, K. C. (1987) Analytical Cartography Revisited. *Proceedings, XIIth Annual Surveying Teachers Conference*, Surveying the Future, Madison, WI, July 5-10th, pp. 297- 302

Albers, B. J., Clarke, K. C., and Strahler, A. H. (1987) The use of multispectral satellite data in Cartography: Past, present and future. *Proceedings, Willi Nordberg Symposium*, Graz, Austria, September.

Clarke, K. C. (1988) Scale-based simulation of topographic relief. *The American Cartographer*, vol. 15, no. 2, pp. 173-181.

Low, R. M. and K. C. Clarke (1988) Quick-look gridding using quadtree-based interpolation. *Proceedings, ACSM/ ASPRS Fall Convention*, Virginia Beach, Va., September 11-16.

Clarke, K. C. (1988) Everest, a new perspective. *The Explorers Journal*, vol. 66, no. 4, December 88, p. 183.

Clarke, K. C. (1989) On teaching GIS. *Proceedings, Middle States Division*, AAG, Binghamton, NY.

Bokuniewicz, H., Goldsmith, V. and Clarke, K. C. (1989) I-Geo graphic Information System: Section 728-PL 99-662, *Monitoring and Modeling the New York Bight and II-GIS for Zone of Siting Feasibility in Support of a U.S. Army Corps of Engineers Dredged Material Disposal (Mud Dump Site) Replacement*   Final Report, U.S. Army Corps of Engineers NY District.

Bokuniewicz, H., Goldsmith, V. and Clarke, K. C. and Hansen, W. (1989) *New York Bight Geographic Information System, Development Results and Future Efforts,* Hunter College, RSSAL and SUNY-Stony Brook,   Final Report, U.S. Army Corps of Engineers NY District.

Clarke, K. C. (1990) *Analytical and Computer Cartography.* Prentice-Hall, Englewood Cliffs, NJ.

Albers, B. J., Strahler, A. H. Li, X. Liang, S, and Clarke, K. C. (1990) Radiometric Measurements of Gap Probability in Conifer Tree Canopies. *Remote Sensing of Environment*, vol. 34, pp. 179- 192.

Plews, R. W. and Clarke, K. C (1990) Problems in implementing the TIN data structure. *Technical Papers, ACSM-ASPRS Annual Convention*, Denver, CO, March 18-23rd., vol. 2, pp. 11-18.

Tsoar, H., Goldsmith, V., Shoenhaus, S. and Clarke, K. (1990) Reversed Desertification along the Sinai/Negev border revealed in satellite imagery. *Proceedings, French- Israeli Symposium on Remote Sensing*, Herzylia, Nov.

Clarke, K. C., Osleeb, J. P., Sherry, J. M., Meert, J. P., and Larsson, R. W. (1990) The use of remote sensing and geographic information systems in UNICEF's Dracunculiasis (Guinea Worm) Eradication Effort" *Proceedings, International Conference on Applications of Remote Sensing to Epidemiology and Parasitology*, Baton Rouge, June 6-7th.

Peterson, D. L. and Clarke, K. C. (1991) A Global Change Data Base Using Thematic Mapper Data: Scientific Rationale and Technical Considerations of the Landsat System. *Proceedings, 24th International Symposium on Remote Sensing of Environment*, Rio de Janeiro, Brazil, 27-31 May.

Zia, Z-G, Clarke, K. C. and Plews, R. W. (1991) The Uses and Limitations of Fractal Geometry in Terrain Modeling. *Technical Papers, ACSM- ASPRS Annual Convention*, vol. 2, Cartography and GIS/LIS, pp. 336-352.

Clarke, K. C. and Schweizer, D. M. (1991) Measuring the fractal dimension of natural surfaces using a robust fractal estimator. *Cartography and Geographic Information Systems*, vol. 18, no. 1, pp. 37-47.

Clarke, K. C., Osleeb, J. P., Sherry, J. M., Meert, J. P., and Larsson, R. W. (1991) The use of remote sensing and geo graphic information systems in UNICEF's Dracunculiasis (Guinea Worm) Eradication Effort. *Preventative Veterinary Medicine*, vol. 11, pp. 229-235.

Hansen, William; Goldsmith, Victor; Clarke, Keith; Bokuniewicz, Henry. (1991) Development of a hierarchical, variable scale marine Geographic Information System to monitor water quality in the New York Bight. *GIS/LIS '91*, Atlanta, GA, USA, 10/28-11/01/91; pp. 730-739.

Clarke, K. C. and Peterson, D. L. (1992) Can Landsat Meet the Data Needs for Global-Scale Earth System Science? *NASA Technical Memorandum, Ecosystem Science and Technology Branch,* NASA-Ames Research Center, Moffett Field, CA.

Clarke, K. C. (1992) Commentary, From Mapping for a Few to Mapping for All, *ACSM Bulletin*, no. 140, November/December.

D'Antoni, H., Peterson, D. and Clarke, K. (1992) "Cambio Global. I. Sistema Ecucativo Para Le Observacion de la Tierra. II. Base de Datos TM Para el Cambio Global." *Selper* (Chile).

Hansen, W. J., Goldsmith, V., Clarke, K. C. and Bokuniewicz, H. (1992) A Marine GIS Examines Dredging and Wetland Operations in the New York Bight. *GeoInfoSystems*, vol. 2, no. 4, pp. 52-56.

Klinkenberg, B. and Clarke, K. C. (1992) Exploring the fractal mountains" Chapter 10 in Palaz, I. and S. K. Sengupta (eds.) *Automated Pattern Analysis in Petroleum Exploration* . Springer-Verlag, New York.

Clarke, K. C. (1992) Maps and Mapping Technology of the Persian Gulf War. *Cartography and Geographic Information Systems*, vol. 19, no. 2, pp. 80-7.

Clarke, K. C., Greg Olsen, and James A. Brass (1993) Refining A Cellular Automaton Model of Wildfire Propagation and Extinction. *Proceedings, Second International Conference on the Integration of Geographic Information Systems and Environmental Modeling*, Breckenridge, CO, NCGIA.

Clarke, K. C., R. Cippoletti, and G. Olsen (1993) Empirical Comparison of Two Line Enhancement Methods. *Proceedings, AUTOCARTO 11*, Eleventh International Symposium on Computer-Assisted Cartography, Minneapolis, pp. 72-81.

Clarke, K. C. (1993) EXPLORHO: An Educational Game for the Exploration of Spatial Autocorrelation. *Simulation and Gaming*, vol. 24, no. 4, Dec. 1993, pp. 519-522.

Clarke, K. C. (1993) One thousand Mount Everests? in Lam, N. and DeCola, L. (Eds.) *Fractals In Geography*. Englewood Cliffs, NJ, Prentice Hall, Chapter 13, pp. 265-281

Mulcahy, K. A. and Clarke, K. C. (1994) Government digital cartographic data policy and environmental research needs. *Computers, Environment and Urban Systems*, vol. 18, no. 2, pp. 95-101.

Kirtland, D. Gaydos, L. Clarke, K. C., DeCola, L., Acevedo, W. and Bell, C. (1994) An analysis of human-induced land transformations in the San Francisco Bay/Sacramento area. *World Resources Review*, vol. 6, no. 2, pp. 206-217.

Clarke, K. C. (1994) Review of John Snyder's "*Flattening the earth.*" *Geographical Review.*

Lugo, J. A. and Clarke, K. C. (1995) Implementation of triangulated quadtree sequencing for a global relief data structure, *Proceedings, AUTO CARTO 12*, ACSM/ ASPRS Annual Convention and Exposition Technical Papers, vol. 4, pp. 147-156, Charlotte.

Clarke, K. C. (1995) Data Policy, Not Technology, is the Key to GIS's role. Invited Editorial, *GISMO Newsletter*, New York. vol. 4, no. 5.

Clarke, K. C. (1995) Unshared Data is Dead Data. Invited Editorial, *GISMO Newsletter,* New York. vol. 4, no. 7.

Clarke, K. C. and Mulcahy, K. A.   (1995) Distortion on the interrupted modified Collignon Projection" *Proceedings, GIS/LIS*, Nashville.

Mulcahy, K. A. and Clarke, K. C (1995) What Shape are we in? The Display of Map Projection Distortion for Global Change Research. *Proceedings, GIS/LIS*, Nashville.

Clarke, K. C. Riggan, P. and J. A. Brass (1995) A cellular automaton model of wildfire propagation and extinction. *Photogrammetric Engineering and Remote Sensing*, vol. 60, no. 11, pp. 1355-1367.

Clarke, K. C. (1995) *Analytical and Computer Cartography*, Second Edition,   Prentice-Hall, Englewood Cliffs, NJ.

Clarke, K. C. (1995) Editorial. *International Journal of Geographical Information Systems*, vol. 9, no. 4, p. 353.

Tsoar, H., Goldsmith, V. Schoenhaus, S., Clarke, K, and Karnieli, A. (1995) Reversed Desertification on Sand Dunes Along the Sinai/Negev Border", Chapter 12 in Tchakerian, V. P. (ed) *Desert Aeolian Processes* Chapman and Hall, London.

Henderson, D. B., Ferrill, D. A. and Clarke, K. C. (1996) Mapping geological faults using image processing techniques applied to hill-shaded digital elevation models. *Proceedings, IEEE South west Symposium on Image Analysis and Interpretation*, San Antonio, TX, April 8-9.

Clarke, K. C., Hoppen, S. and Gaydos, L. (1996) Methods and Techniques for Rigorous Calibration of a Cellular Automaton Model of Urban Growth. *Proceedings, Third International Conference/Workshop on Integrating Geographic Information Systems and Environmental Modeling*, January 21- 25th, Santa Fe, NM. Article

Clarke, K, C. (1996) Review of Waugh and Healey (Eds.) Advances in GIS Research *Cartography and Geographic Information Systems*, vol. 23, no. 2, pp. 100-101.

Clarke, K. C., Gaydos, L., Acevedo, W., and Hoppen, S. (1996) Communicating land cover model outputs to the General Public",   *Proceedings, Third International Conference/Workshop on Integrating GIS and Environmental Modeling*, Jan. 21-25th, Santa Fe, NM.

Clarke, K. C. and Olsen, G. (1996) Refining a Cellular Automaton Model of Wildfire Propagation and Extinction." in Goodchild, M. F., Steyaert, L. T. and Parks, B. O. *GIS and Environmental Modeling: Progress and Research Issues*. GIS World Books, Fort Collins, CO. Ch. 61, pp. 333-338.

Clarke, K. C., McLafferty, S. L. and Tempalski, B. J. (1996) On epidemiology and geographic information systems: A review and discussion of future directions, *Emerging Infectious Diseases*, vol. 2, no. 2, pp. 85- 92.

Xia, Zong-guo and Clarke, K. C. (1996) Approaches to Scaling of Spatial Data in the Geosciences, Chapter 3 in Quattrochi, D. A. and Goodchild, M. (eds.) *Scaling of Remote Sensing Data For GIS.* Taylor and Francis.

Clarke, Keith C. (1997) Land Use Modeling with Deltatrons, *The Land Use Modeling Conference*, Sioux Falls, SD. June 5-6th, 1997. http://www.ncgia.ucsb.edu/conf/landuse97/

Clarke, K. C. (1997) Truflite - 3D Terrain Visualization. *AAG Newsletter*, Vol. 32, no. 8 (Aug), pp. 15-25.

Messina, P. Stoffer, P. and Clarke, K. C. (1997) From the XY Files: Mapping Death Valley's Wandering Rocks. *GPS World*, April, vol. 8, no. 4, pp. 34-44.

Clarke, K. C. (1997) *Getting Started With Geographic Information Systems*, Prentice Hall, Upper Saddle River, NJ.

Clarke, K. C., Hoppen, S. and L. Gaydos (1997) A self-modifying cellular automaton model of historical urbanization in the San Francisco Bay area. *Environment and Planning B: Planning and Design*, vol. 24, pp. 247-261.

Clarke, Keith. C. (1997) "Topography, Geographical," *Encyclopedia of Applied Physics*, Vol. 21, Wiley- VCH Verlag.

Clarke, K. C., and L. Gaydos (1998) Loose Coupling A Cellular Automaton Model and GIS: Long-Term Growth Prediction for San Francisco and Washington/Baltimore. *International Journal of Geographical Information Science*, vol. 12, no. 7, pp. 699-714.

Clarke, Keith C. and Paul D. Teague (1998) Cartographic Symbolization of Uncertainty. *Proceedings, ACSM Annual Conference*, March 2-4, Baltimore, MD. (CD- ROM)

Cloud, J.G. and Clarke, K. (1998) Through a Shutter Darkly: the relationships between Civilian, Military, and Intelligence Remote Sensing and the processes of Knowledge Production in the Cold War. *Workshop on Secrecy and Knowledge Production*, Peace Studies Program, Cornell Univ. April 17-19.

Gaydos, L. and Clarke, K. (1998) Urban Planet: Measuring, Predicting, and Understanding the Impacts of Landscape Transformations Caused by Rapid Worldwide Urbanization", *GIS Planet CD-ROM Proceedings, GISPlanet98*, First International Conference and Exhibition on Geographic Information. Lisbon, Portugal, Sept 7-11.

Clarke, K. C. (1999) *Getting Started With Geographic Information Systems*, Second Edition, Prentice Hall, Upper Saddle River, NJ.

Clarke, K. C. (1999) AutoCAD Map 3.0 (Review) *GeoInfoSystems*, November 1998.

Clarke, K. C. (1999) Visual Reasoning: the Link Between User Interfaces and Map Visualization for Geographic Information Systems, Chapter 39 in Craglia, M. et al. *Geographic Information Research: Transatlantic Perspectives*, London: Taylor and Francis, pp. 535-548.

Clarke, K. C. (1999) Visualizing Different Geofutures. Chapter 7 in Longley, P. Brooks, S., Macmillan, B. and McDonnell, *Geocomputation: A Primer*,. London: J. Wiley pp. 119-137.

Shortridge, A. M. and Clarke, K. C. (1999) On some limitations of square raster cell structures for digital elevation modeling" Chapter 41 in Lowell, K. and Jaton, A., *Spatial Accuracy Assessment: Land Information Uncertainty in Natural Resources.* Ann Arbor: Sleeping Bear Press pp. 341-347.

Clarke, K., Paul D. Teague and H. Greg Smith (1999) Virtual Depth-based Representation of Cartographic Uncertainty, in W. Shi, M. Goodchild and P. Fisher (Eds.) *Proceedings of the International Symposium on Spatial Data Quality '99* , 18-20th July, Hong Kong, pp. 253-259.

Clarke, K. C. (1999) Geographic Information Systems. in *McGraw-Hill Yearbook of Science and Technology*. McGraw-Hill Yearbook of Science and Technology. New York: McGraw-Hill, pp. 189-191.

Clarke, K. C. (1999) Diez Hilos y Tres Suposiciones: Navegando por el Camino de la Ciencia de la Informa cion Geografica" (Ten Milestones and Three Guesses: Navigating the Path to Geographic Information Science), *GEOINFO 2000, Seminario de Sistemas de Informacion Geograficos,* Centro de Convenciones Edificio Diego Portales, 20-22 Octubre, 1999. Santiago Chile. Academia Politecnica Militar. CD-ROM. Santiago Chile. Academia Politecnica Militar. CD- ROM. (in Spanish)

Clarke, K. C. and J. G. Cloud (2000) On the origins of Analytical Cartography. *Cartography and Geographic Information Science*, vol. 27, no. 3, pp. 195-204.

Clarke, K. C., Parks, B. O. and Crane, M. P. (2000) Selected papers from the Fourth International Conference on Integrating GIS and Environmental Modeling (GIS/EM4). *Transactions in GIS*, vol. 4, no. 3, pp. 177- 180.

Clarke, K. C., Parks, B. O. and Crane, M. P. (2000) Integrating geographic information systems (GIS) and environmental models. Preface: A perspective on GIS- environmental model integration (GIS/EM). *Journal of Environmental Management*, vol. 59, pp. 229-233.

Jakomulska A., and Clarke K. C., (2000) Variogram derived measures of textural image classification", *Proceedings of the Third European Conference on Geostatistics for Environmental Applications, geoENV2000*, November 22-24. Avignon, France: Institut National de la Recherch Agronomique), Vol. 1, pp. 181-202.

Candau, J., Rasmussen, S. and Keith C. Clarke. (2000) A coupled cellular automaton model for land use/land cover dynamics. *4th International Conference on Integrating GIS and Environmental Modeling. (GIS/EM4): Problems, Prospects and Research Needs,* Banff, Alberta, Canada, September2 - 8, 2000.

Clarke, K. C. and Paul D. Teague (2000) Representation of Cartographic Uncertainty Using Virtual Environments, in Heuvelink, G. B. M. and Lemmens, M. J. P. M. (eds). *Proceedings, Accuracy 2000*, 4th International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences, Amsterdam, Netherlands, pp. 109-116.

Clarke, K.C. (2000) Review of "Spatial Models and GIS: New Potential and New Models" edited by A. Stewart Fortheringham and Michael Wegener. *Transactions in GIS*, vol 4, no. 3, pp. 287-289.

Clarke, K.C. (2000) Watch Out, Surveyors!: Autodesk's Land Development Hulk is Here, First Impressions. *Geo Info Systems*, March 2000, pp. 43-45.

Clarke, K. C. (2001) ArcPad 5.0.1 Goin' Mobile. *Geospatial Solutions*, January 2001, pp. 48-49.

Clarke, K. C. (2001) MAPublisher 4.0 Bridging the GIS/Art Gap. *Geospatial Solutions*, January, pp. 50-51.

Clarke, K. C. (2001) *Getting Started With Geographic Information Systems*, Third Edition. Prentice Hall, Upper Saddle River, NJ.

Clarke, K. C., Parks, B. O. and Crane, M. P. (2002) *Geographic Information Systems and Environmental Modeling*. Prentice Hall: Upper Saddle River, NJ.

Clarke, K. C. (2001) Cartography in a Mobile Internet Age. *Proceedings, The 20th International Cartographic Conference, ICC2001*, Beijing China, August 6-10th.

Cloud, John and Keith C. Clarke (2001) To Do The Other Things: CORONA and the Secret Cartography of the Cold War. *ACSM Bulletin*, May/June 2001, pp. 25-30.

Mulcahy, K. A. and Keith C. Clarke. (2001) Symbolization of Map Projection Distortion: A Review. *Cartography and Geographic Information Science*, vol 28, no. 3, pp. 167-181.

Jakomulska A., Clarke K. C. (2001) Variogram-derived measures of textural image classification: Application to large-scale vegetation mapping. In: P. Monestiez, D. Allard, R. Froidevaux, *geoENV III - Geostatistics for Environmental Applications*. Proceedings of the Third European Conference on Geostatistics for Environmental Applications held in Avignon, France, November 22-24, 2000.*Quantitative Geology and Geostatistics*, Vol. 11, Kluwer Academic Publishers, Dordrecht.

Clarke, Keith C. and Ryan Aubry (2001) Modeling Tools for Santa Barbara Smart Growth Planning Supported with GIS, http://www.esri.com/news/arcnews/fall01articles/modelingtools.html *ArcNews*, ESRI, Redlands CA.

Nusser, S., L. Miller, K. Clarke, M. Goodchild. (2001) Future views of field data collection in statistical surveys. http://www.isi.edu/dgrc/dgo2001/papers/session-3/nusser1.pdf. *Proceedings of dg.o 2001 National Conference on Digital Government Research*, Los Angeles, CA.

Herold, M., Menz, G. & Clarke K. C. (2001) Remote sensing and urban growth models - demands and perspectives. *Proceedings of the Symposium on Remote Sensing of Urban Areas*, June 2001, Regensburg, Germany, Regensburger Geographische Schriften 35 (on supplement CD Rom)

Clarke, K. C. and S.E. Battersby. (2001) The coordinate digit density function and map information content analysis. http://www.acsm.net/sessions.html. *Proceedings of the American Congress on Surveying and Mapping Annual Meeting*, Las Vegas, NV. March 19-21.

Cogan, C.B., F.W. Davis, and K.C. Clarke. (2001) *Application of urban growth models and wildlife habitat models to assess biodiversity losses*. University of California-Santa Barbara Institute for Computational Earth System Science. U.S. Department of the Interior, US Geological Survey, Biological Resources Division, Gap Analysis Program, Santa Barbara, CA.

Goodchild, M. F. and Clarke, K. C (2002) Data Quality in Massive Data Sets, Chapter 18 in J. Abello et al. (eds). *Handbook of Massive Data Sets*, Amsterdam, Kluwer Academic. pp. 643-659.

Clarke, K. C. (2002) Criteria and measures for the Comparison of Global Geocoding Systems, Goodchild, M. F. and A. J. Kimerling, Eds. http://www.ncgia.ucsb.edu/globalgrids-book/ *Discrete Global grids. A Web Book*.

Clarke, K. C., (2002) Review of *GIS Data Sources*, by Drew Decker. I*nternational Journal of Geographical Information Science*, vol 16, no. 4, pp. 403-405.

Herold, M, Scepan, J., and Clarke, K. C. (2002) The use of remote sensing and landscale metrics to describe structures and changes in urban land uses. *Environment and Planning A*, vol. 34, pp. 1443-1458.

Clarke, K. C. (2002) The Educational Double Whammy. *ACSM Bulletin*, May/June 2002, pp. 14-19.

Clarke K.C. and Jeffrey J. Hemphill, (2002) The Santa Barbara Oil Spill, A Retrospective. *Yearbook of the Association of Pacific Coast Geographers*. Editor Darrick Danta University of Hawai'i Press vol.64 pp.157-162.

Clarke, K. C., Dana, P. H. and Hastings, J. T. (2002) A new world geographic reference system. *Cartography and Geographic Information Science*, vol. 29, no. 4, pp. 355-362.

Silva, E. A. and K. C. Clarke (2002) Calibration of the SLEUTH urban growth model for Lisbon and Porto, Portugal. *Computers, Environment and Urban Systems*,Volume 26, Issue 6, pp. 525-552.

Clarke, K. C. (2002) *Modeling land use change. Learning from the Application of Land Use Change Models*. A Report on a Workshop Sponsored by the EPA, Ohio State and Michigan State University, May 9-10, 2002; Mohican State Park Resort and Conference Center, Perrysville OH. Racevskis, L. and Libby, L. W. (eds). EPA Report, pp. 7-9.

Ford, Anabel and Keith Clarke (2002) Out of the Past, in the Present, and for the Future of the Maya Forest. www.uwichill.edu.bb/bnccde/belize/conference/papers/ford.htm In *Beyond Walls: Multi-Disciplinary Perspectives*. University of the West Indies.

Clarke, Keith C. (2002) *Land Use Change Modeling Using SLEUTH. Workshop report* in Proceedings, Advanced Training Workshop on Land Use and Land Cover Change Study, December 9-20th, Taiwan, National Central University/National Taiwan University/ START, pp. 525-573.

Clarke, K. C. (2002) Raster-to-vector conversion gets smart with WiseImage. *Geospatial Solutions*, vol. 12, no. 9, pp.46-48.

Clarke, K.C., A. Nuernberger, T. Pingel and D. Qingyun. (2002) User Interface Design for a Wearable Field Computer. *Proceedings of dg.o 2002 National Conference on Digital Government Research*, Los Angeles, CA.

Liu, X. and Clarke, K. C. (2002) Estimation of residential population using high resolution satellite imagery. *Proceedings, Third International Symposium on Remote Sensing of Urban Areas*, June 2002, Istanbul, Turkey, pp. 153-160.

Herold, M., Goldstein, N., Menz, G. & Clarke, K. C. (2002) Remote Sensing based analysis of urban Dynamics in the Santa Barbara region using the SLEUTH urban growth model and spatial metrics. *Proceedings of the 3rd Symposium on Remote Sensing of Urban Areas*, June 2002, Istanbul, Turkey.

Xiang, W-N, and K. C. Clarke (2003) The use of scenarios in land use planning. *Environment and Planning B: Planning and Design*, vol. 30, pp. 885-909.

S. Nusser, L. Miller, K.C. Clarke, and M.F. Goodchild (2003) Geospatial IT for mobile field data collection. *Communications of the Association for Computing Machinery* 46(1): 63–64.

Goldstein, N. C, Candau, J. T. and K. C. Clarke (2003) Approaches to simulating the 'March of Bricks and Mortar'. *Computers, Environment and Urban Systems*, Vol. 28, no. 1-2, pp. 125-147.

Clarke, K. C. (2003) Geocomputation's future at the extremes: high performance computing and nanoclients. *Parallel Computing* , Volume 29, Issue 10 , pp. 1281-1295.

Aerts, J. C. J. H., Clarke, K. C. and Keuper, A. D. (2003) Testing popular visualization techniques for representing model uncertainty. *Cartography and Geographic Information Science*, Vol. 30, No. 3, pp. 249-261.

Herold, M, Liu, X. and Clarke, K. C. (2003) Spatial metrics and image texture for mapping urban land use. *Photogrammetric Engineering and Remote Sensing*, Vol. 69, no. 9, pp. 991-1001.

Artur-Hartranft, S. T., Carlson, T. N. and Clarke, K. C. (2003) Satellite and ground-based microclimate and hydrological analyses coupled with a regional urban growth model. *Remote Sensing of Environment*, Vol. 86, pp. 385-400.

Herold, M., Goldstein, N. and K.C. Clarke (2003) The spatio-temporal form of urban growth: measurement, analysis and modeling. *Remote Sensing of Environment*, Vol. 86, no. 3, pp. 286-302.

National Research Council (2003) Weaving a National Map. Review of the U.S. Geological Survey Concept of the National Map. National Academies Press, Washington, D.C. National Academies Press.

Herold, M., Guenther, S. and Clarke, K. (2003) Mapping urban areas in the Santa Barbara South Coast using Ikonos data and eCognition. *eCognition Application Note*. Vol 4./ No. 1, March.

Dietzel, C. and Clarke, K. C. (2003) Forecasting California's Farmland Loss Under Stable and Unstable Scenarios. *Transitions in Agriculture and Future Land Use Patterns Workshop. Workshop Proceedings*, December 1st - 3rd, 2003 Wageningen, The Netherlands.

Dietzel, C. and Clarke, K. C. (2003) Modeling urban land use dynamics in planning support systems. *Proceedings, 41st Annual URISA Conference*, October 11th-15th, Atlanta, GA.

Clarke, K. C. (2003) The Limits of Simplicity: Toward Geocomputational Honesty in Urban Modeling. *Proceedings (CD), 7th International Conference on GeoComputation* University of Southampton, Southampton, UK 8-10 September.

Clarke, K. C. (2003) *Getting Started with Geographic Information Systems*. Fourth Edition, Prentice Hall, Upper Saddle River, NJ.

Parks, B. O., Clarke, K. C. and Crane, M. P (eds.) (2003) *Proceedings of the 4th International Conference on Integrating Geographic Information Systems and Environmental Modeling: Problems, Prospects, and Needs for Research.* [CD-ROM, ISBN 0-9743307-0-1]. GIS/EM4 Conference; 2000 Sept 2-8; The Banff Centre, Banff (AB) CanadaCD-ROM.

Clarke, K. C., Du, Q. Nuernberger, A. and Pingel, T. (2003) A prototype cartographic user interface for wearable computing. *Proceeedings of the 21st International Cartographic Conference (ICC),* Durban, South Africa, 10-16 August. pp. 1430-1438.

Battersby, S. E. and Clarke, K. C. (2003) Quantifying information content in line generalization. *Proceedings of the 21st International Cartographic Conference (ICC)*, Durban, South Africa, 10-16 August. pp. 118-126.

Rice, Matthew T., Keith C. Clarke, and Sarah Battersby. (2003) Information Hiding Approaches for Self-describing Cartographic Data. *Proceedings, The 21st International Cartographic Conference, ICC2003*, Durban, South Africa, August 10-16th, 2003, pp. 1927-1935.

Dietzel, C.K., and K.C. Clarke. (2004) Spatial differences in multi-resolution urban automata modeling. *Transactions in GIS* vol. 8, pp. 479-492.

Dietzel C, Clarke K.C.(2004) Replication of spatio-temporal land use patterns at three levels of aggregation by an urban cellular automata. *Lecture Notes in Computer Science*. vol. 3305, pp. 523-532.

Clarke, K. C. and S. R. Baumgart (2004) The Department of Geography at the University of California, Santa Barbara: History, Curriculum, and Pedagogy. *Yearbook of the Association of Pacific Coast Geographers,* vol 66, pp. 95-113.

Buckley, A. R, Gahegan, M, and Keith C. Clarke (2004) Geographic visualization. Chapter 11 in McMaster, R. B. and Usery, E. L. *A Research Agenda for Geographic Information Science*. Boca Raton, FL: CRC Press.

Clarke, K. C. (2004) The Limits of Simplicity: Toward Geocomputational Honesty in Urban Modeling. In *GeoDynamics*, P. Atkinson, G. Foody, S. Darby, F. Wu (Eds.) Florida: CRC Press.

Clarke, K. C. (2004) Foreword. Special Issue on Mobile Mapping and Geographic Information Systems. *Cartography and Geographic Information Science*, vol. 31, no. 3, pp. 131-136.

Dietzel, C and Keith C. Clarke (2005) The Effects of Disaggregating Land Use Categories in Cellular Automata During Model Calibration and Forecasting. *Computers, Environment and Urban Systems*. Vol. 30, no. 1, pp. 78-101.

Sunhui Sim and Keith C. Clarke. (2005) Dasymetric Mapping With Object-oriented Classification and GIS. *Geoscience and Remote Sensing Symposium*, 2005 IEEE International.

Silva, E. A. and Clarke, K., (2005) Complexity, Emergence and Cellular Urban Models: Lessons Learned from Appling SLEUTH to two Portuguese Metropolitan Areas. *European Planning Studies*, vol. 13, no. 1, pp. 93-115.

Pingel, Thomas and Keith C. Clarke (2005) Assessing the Usability of a Wearable Computer for Outdoor Pedestrian Navigation. *Proceedings of AutoCarto 2005*. Las Vegas, NV.

Lee, S-J and Clarke, K. C. (2005) An Assessment of Differences in Algorithms for Computing Fundamental Topographic Parameters. *Proceedings, Autocarto 2005*. Las Vegas, NV.

M. Rice, M.F. Goodchild, and K.C. Clarke (2005) Cartographic data precision and information content. In *Proceedings of Auto-Carto 2005: A Research Symposium. Las Vegas, Nevada, March 18-23*.

Zhang, T., Clarke, K. C. and Guan, G. (2006) The GIS Web Portal: beyond Data Services. *Proceedings, Autocarto 2006*. June 26-28th, 2006 Vancouver, WA.

Guan, G. Zhang, T., and Clarke, K. C. (2006) Geocomputation in the Grid Computing Age. *Proceedings, Autocarto 2006*. June 26-28th, 2006 Vancouver, WA.

Clarke, K. C., Guan, G. and Zhang, T. (2006) The Anatomy and Physiology of the GeoGrid. *Proceedings, Autocarto 2006*. June 26-28th, 2006 Vancouver, WA.

Syphard, A. D., Clarke, K. C., Franklin, J. (2005) Using a cellular automaton model to forecast the effects of urban growth on habitat pattern in southern California. *Ecological Complexity*. vol. 2, no. 2, pp. 185-203.

Dietzel, C. Oguz, H., Hemphill, J. J, Clarke, K. C. and Gazulis, N. (2005) Diffusion and coalescence of the Houston Metropolitan Area: evidence supporting a new urban theory. *Environment and Planning B-Planning and Design*. vol 32, no. 2, pp. 231-246.

Dietzel, C., Herold, M., Hemphill, J. J., and Clarke, K. C. (2005) Spatio-temporal dynamics in California's central valley: Empirical links to urban theory. International Journal of Geographical Information Science. vol 19, no. 2. pp. 175-195.

Herold, M., Couclelis, H and Keith C. Clarke. (2005) The Role of Spatial Metrics in the Analysis and Modeling of Urban Land Use Change. *Computers, Environment and Urban Systems*, vol. 29, pp. 369-399.

Guan, Q. , L. Wang and K. C. Clarke. (2005) An Artificial-Neural-Network-based, Constrained CA Model for Simulating Urban Growth . *Cartography and Geographic Information Science*. vol. 32, no. 4, pp. 369-380.

Goldstein, N., Dietzel, C. and Clarke, K. (2005) Don't Stop 'Til You Get Enough - Sensitivity Testing Of Monte Carlo Iterations For Model Calibration. *Proceedings, 8th International Conference on GeoComputation.* In Yichun Xie and Daniel G. Brown. *GeoComputation* CD-ROM. http://www.geocomputation.org/2005/index.html

G. McMahon, S. Benjamin, K. Clarke, J. Findley, R. Fisher, W. Graf, L. Gundersen, J. Jones, T. Loveland, K. Roth, E. L. Usery and N. Wood. (2005) *Geography for a Changing World. A Science Strategy for the Geographical Research of the U. S. Geological Survey*, 2005-2015. United States Department of the Interior, USGS Circular 1281.

National Research Council. 2006. *Priorities for GEOINT Research at the National Geospatial-Intelligence Agency*, Committee on Basic and Applied Research Priorities in Geospatial Science for the National Geospatial-Intelligence Agency, Mapping Science Committee, National Research Council.

Ford, Anabel and Keith Clarke (2006) Predicting Late Classic Maya Settlement Patterns. in *Archaeological Investigations in the Eastern Maya Lowlands: Papers of the 2003 Belize Archaeology Symposium.* edited by J. Morris, S. Jones, J. Awe, and C. Helmke, pp 193-212. Institute of Archaeology Belmopan, Belize.

Dietzel, C., and Clarke, K. C. (2006) Decreasing computational time of urban cellular automata through model portability. *Geoinformatica*. vol. 10, no. 2. pp. 197-211.

Guan, Q., Zhang, T., and Clarke, K. C. (2006) GeoComputation in the Grid Computing Age, in J.D. Carswell and T. Tezuka (Eds.): W2GIS 2006, *Lecture Notes in Computer Science* vol. 4295, pp. 237 – 246. Springer-Verlag: Berlin, Heidelberg.

Clarke, K. C. (2006) Box 5.5 "Cellular Automata as a tool to incorporate positive spatial autocorrelation" in Chapter 5 "Modeling Land Use and Land Cover Change" by P. H. Verburg, K. Kok, R. Pontius and A. Veldkamp. In E. F. Lambin and H. J. Geist (Eds) *Land Use and Land-Cover Change*. Springer.

Gazulis, N and Clarke, K. C. (2006) Exploring the DNA of our regions: Classification of outputs from the SLEUTH model", in El Yacoubi, S., Chapard, B. and Bandini, S. (Eds.) Cellular Automata. *Lecture Notes in Computer Science*. No. 4173. Springer: New York.

Liu, X. H., Clarke, K., and Herold, M. (2006) Population density and image texture: A comparison study. Photogrammetric Engineering and Remote Sensing. vol. 72, no. 2, pp 187-196.

Guan, Q. , K. C. Clarke and T. Zhang. (2006) Calibrating a Parallel Geographic Cellular Automata Model. *Proceedings, AutoCarto 2006*. Jun., 2006. Vancouver , WA (CD-ROM).

Clarke, K. C, Gazulis, N, Dietzel, C. K. and Goldstein, N. C. (2007) A decade of SLEUTHing: Lessons learned from applications of a cellular automaton land use change model. Chapter 16 in Fisher, P. (ed) *Classics from IJGIS. Twenty Years of the International Journal of Geographical Information Systems and Science*. Taylor and Francis, CRC. Boca Raton, FL. pp. 413-425.

Dietzel, C. and Clarke, K. C. (2007) Toward Optimal Calibration of the SLEUTH Land Use Change Model. *Transactions in GIS*, vol. 11, no. 1, pp. 29-45.

Syphard, A. D., Clarke, K. C., and Franklin, J. (2007) Simulating fire frequency and urban growth in southern California coastal shrublands, USA . Landscape Ecology. Vol. 22, no. 3, pp. 431-445.

Dillemuth, J., Goldsberry, K. and Keith C. Clarke. (2007) Choosing the Scale and Extent of Maps for Navigation with Mobile Computing Systems. *Journal of Location Based Services*. vol 1., no. 1, pp. 46-61.

R G Pontius Jr, W Boersma, J-C Castella, K Clarke, T de Nijs, C Dietzel, D Zengqiang, E Fotsing, N Goldstein, K Kok, E Koomen, C D Lippitt, W McConnell, A M Sood, B Pijanowski, S Pithadia, S Sweeney, T N Trung, A T Veldkamp, and P H Verburg. (2007)

Comparing the input, output, and validation maps for several models of land change. *Annals of Regional Science*, vol. 42, no. 1 , pp. 11-37.

Clarke, K. C. and Su Jin Lee. (2007) Spatial Resolution and Algorithm Choice as Modifiers of Downslope Flow Computed from Digital Elevation Models. *Cartography and Geographic Information Science*, vol. 34, No. 3, pp. 215-230.

Slingsby, A., Dykes, J., Wood, J. and Clarke, K. C. (2007) Interactive Tag Maps and Tag Clouds for the Multiscale Exploration of Large Spatio-temporal Datasets *International Symposium on GeoVisualization and Information Visualization, gIV07* (IEEE), pp. 497-504.

Grossner, K. E. and Clarke, K. C. (2007) Is GoogleEarth, "Digital Earth"—Defining a Vision. Proceedings, *5th International Symposium on Digital Earth*, San Francisco, June 5-9.

Wood, J., Dykes, J., Slingsby, A. and Clarke, K. C. (2007) Interactive visual exploration of a large spatio-temporal data set: reflections on a geovisualization mashup. *IEEE Transactions on Visual Computing and Graphics,* vol. 13, no. 6, pp. 1176-83.

Tu, J., Xia, Z-G, Clarke, K. C. and Frei, A. (2007) Impact of Urban Sprawl on Water Quality in Eastern Massachusetts. *Journal of Environmental Management*. Vol. 40, pp. 183-200.

Midtbo, T., Clarke, K. C., and Fabrikant, S. I. (2007) Human interaction with animated maps: The portrayal of the passage of time. *Proceedings, 11th Scandinavian Research Conference on Geographical Information Science*. 5-7 September. Norway.

Onsted, J. and Clarke, K. C. (2007) The Impact of Policy on Land-Use and Land Cover Change. *Proceedings, Framing Land Use Dynamics II*. Utrecht, The Netherlands. April 18– 20.

Clarke, K.C. (2008) Mapping and Modelling Land Use Change: an Application of the SLEUTH Model, in *Landscape Analysis and Visualisation: Spatial Models for Natural Resource Management and Planning*, (Eds. Pettit, C., Cartwright, W., Bishop, I., Lowell, K., Pullar, D. and Duncan, D.), Springer, Berlin, pp 353-366.

Clarke, K.C. (2008) A Decade of Cellular Urban Modeling with SLEUTH: Unresolved Issues and Problems, Ch. 3 in *Planning Support Systems for Cities and Regions* (Ed. Brail, R. K., Lincoln Institute of Land Policy, Cambridge, MA, pp 47-60.

Grossner, K. E., Goodchild, M. F. and Clarke, K. C. (2008) Defining a digital earth system. *Transactions in GIS*. Vol.12, no.1, pp. 145-160.

Clarke, K. C. (2008) Cellular Automata. in Kemp, K. (2008) *Encyclopedia of Geographic Information Science*. Sage: Thousand Oaks, CA. p. 29-30.   Encyclopedia Entry

Clarke, K. C. (2008) Tissot's Indicatrix. in Kemp, K. (2008) *Encyclopedia of Geographic Information Science*. Sage: Thousand Oaks, CA.

Clarke K. C. (2009). Geospatial Intelligence. in Kitchin R, Thrift N (eds) *International Encyclopedia of Human Geography*, Vol. 4, pp. 466–467. Oxford: Elsevier.

Choi, Yosoon , Park, Hyeong-Dong , Sunwoo, Choon and Clarke, Keith C. (2009) Multi-criteria evaluation and least-cost path analysis for optimal haulage routing of dump trucks in large scale open-pit mines, *International Journal of Geographical Information Science*, vol. 23, no. 12, pp. 1541-1567.

Clarke, K. C. (2009) Foreword to the Special Issue. *Cartography and Geographic Information Science*, vol.36, no. 1, pp. 3-4.

Ford, A, Clarke, K. C. and Raines, G. (2009) Modeling Settlement Patterns of the Late Classic Maya Civilization with Bayesian Methods and Geographic Information Systems. *Annals of the Association of American Geographers*, vol. 99, no. 3, pp. 1–25.

Clarke, K. C. and Archer, R. (2009) Terrain feature Extraction from Variable Resolution Digital Elevation Models. *Proceedings, 24th International Cartographic Conference*. Santiago, Chile.

Mas, J.F., A. Pérez Vega & K. Clarke (2010) Assessing simulated land use/cover maps using similarity and fragmentation indices. *Proceedings, ASPRS Annual Conference,* April 26-30, San Diego, CA (CD).

Beekhuizen, J. and Clarke, K. C. (2010) Toward accountable land use mapping: Using geocomputation to improve classification accuracy and reveal uncertainty *International Journal of Applied Earth Observation and Geoinformation*, vol. 12, no. 3, pp. 127-137.

Guan, Qingfeng and Clarke, Keith C. (2010) A general-purpose parallel raster processing programming library test application using a geographic cellular automata model. *International Journal of Geographical Information Science*, vol. 24, no. 5, pp. 695-722.

Nie, Qinghua and Keith C. Clarke (2010) *Environmental Statistics with MATLAB* Beijing: Higher Education Press.

Clarke, K. C. (2011) *Getting Started with Geographic Information Systems.* 5th edition. Pearson-Prentice Hall. Prentice Hall Series in Geographic Information Science.

Clarke-Lauer, M. D., and Clarke, K. C. (2011). Evolving simulation modeling: Calibrating SLEUTH using a genetic algorithm. Proc., 11th Int. Conf. on Geo Computation, Univ. College London, London. Online at: www.geog.leeds.ac.uk/groups/geocomp/2011/papers/clarke-lauer.pdf

Ren, L., Clarke, K. C., Zhou, C., Ding, L. and Li, G. (2010) Geometric Rectification of Satellite Imagery with Minimal Ground Control Using Space Oblique Mercator Projection Theory. *Cartography and Geographic Information Science*. 37, 4, pp. 261-272.

Nie, Qinghua and Clarke, K. C. (2011) Desertification in China's Horqin area: a multi-temporal land use change analysis. *Journal of Land Use Science*, 6, 1, 53-73.

Ford, A., Clarke, K. C., and Morlet, S. (2011). Calculating Late Classic lowland Maya population for the Upper Belize River area. *Research Reports in Belizean Archaeology* 8: 75– 87.

Eliza S. Bradley and **Keith C. Clarke** (2011) Outdoor Webcams as Geospatial Sensor Networks: Challenges, Issues and Opportunities. *Cartography and Geographic Information Science,* 38, 1, 5-22.

Alexandra D. Syphard, Keith C. Clarke, Janet Franklin, Helen M. Regan, Mark Mcginnis (2011) Forecasts of habitat loss and fragmentation due to urban growth are sensitive to source of input data, *Journal of Environmental Management*, 92, 7, 1882-1893.

Clarke, K. C. (2011) Exploring the Past and Future of Our Planet: Not Bit-by-Bit but All at Once *The Professional Geographer*, 63, 3, 320 – 324.

Clarke, K. C. (2011) Maps and Mapping technologies of the Persian Gulf War. Reprinted in The *Map Reader: Theories of Map Practice and Cartographic Representation.* Dodge, M., Kitchin, R. and Perkins, C. New York: Wiley. pp. 134-136.

Martellozzo, F. and Clarke, K. C. (2011) Measuring urban sprawl, coalescence, and dispersal: a case study of Pordenone, Italy. *Environment and Planning B: Planning and Design* 38, 1085 – 1104.

Onsted, J. A. and Clarke, K. C. (2011) Forecasting enrollment in differential assessment programs using cellular automata. *Environment and Planning B: Planning and Design* 38, 829-849

Xi, F., He, H. S., Clarke, K. C., Hu, Y., Wu, X., Liu, M., Shi,T., Geng, Y., and Gao, C. (2012) The potential impacts of sprawl on farmland in Northeast China—Evaluating a new strategy for rural development, *Landscape and Urban Planning*, 104, 1, 34-46.

Mas, J-F; Perez-Vega, A; Clarke, K. C. (2012) Assessing simulated land use/cover maps using similarity and fragmentation indices *Ecological Complexity* 11, 38-45.

Ren, L. Clarke, K. C. and Zhou, C. (2012) The Space Oblique Conic Projection. *Proceedings - AutoCarto 2012* - Columbus, Ohio, USA - September 16-18, 2012.

Pingel, T. J. and Clarke, K. C. (2012) Automation and Visualization in Geographic Immersive Virtual Environments. *Proceedings - AutoCarto 2012* - Columbus, Ohio, USA - September 16-18, 2012.

Martellozzo, F. and Clarke, K. C. (2013) Urban Sprawl and the Quantification of Spatial Dispersion. Chapter 9, pp. 129-142 in Borruso, G, Bertazzon, S. Favretto, A., Murgante B. and Torre, C. M. *Geographic Information Analysis for Sustainable Development and Economic Planning*: New Technologies. IGI Global: Hershey, Pennsylvania.

Mahiny, A. S. and Clarke, K. C. (2012) Guiding SLEUTH land-use/land-cover change modeling using multicriteria evaluation: towards dynamic sustainable land-use planning. *Environment and Planning B: Planning and Design* 39, 925 – 944.

Li, L. and Clarke, K. C. (2012) Cartograms showing China's population and wealth distribution. *Journal of Maps*. 8, 3, 320-323.

Onsted, J. and K. Clarke. (2012) The inclusion of differentially assessed lands in urban growth model calibration: A comparison of two approaches using SLEUTH. *International Journal of GIS:* 26 (5): 1-18.

Pingel, T. J., Clarke K. C., & McBride, W. A. (2013). An Improved Simple Morphological Filter for the Terrain Classification of Airborne LIDAR Data. *ISPRS Journal of Photogrammetry and Remote Sensing*, 77, 31-30.

Chaudhuri, G. and Clarke, K. C. (2013) The SLEUTH Land Use Change Model: A Review. *International Journal of Environmental Resources Research*, 1, 1, 88-104.

Ren, L., Clarke, K.C. Zhou, C. et al. (2013) The space oblique conic projection. Cartography and Geographic Information Science. 40, 4, 282-288.

Clarke, K. C. (2013) Why simulate cities? *GeoJournal*. DOI 10.1007/s10708-013-9449-5

Alkimim, A., Clarke, K.C. and Oliveira, F. S. (2013) Fear, crime and space: The case of Vicosa, Brazil. *Applied Geography*, 42, 124-132.

Romero, B. E., & Clarke, K. C. (2013) The Impact of Algorithm, Relief, and Resolution on Drainage Network Extraction from Digital Terrain. *Proceedings of the Cartography and Geographic Information Society / American Society of Photogrammetry and Remote Sensing 2013 Specialty Meeting* (CaGIS/ASPRS 2013), San Antonio, TX, 10/30/13.

Li, Y. and Clarke, K. C. (2013) Image deblurring for satellite imagery using small-support-regularized deconvolution. *ISPRS Journal of Photogrammetry and Remote Sensing*. 85, 148–155 http://dx.doi.org/10.1016/j.isprsjprs.2013.08.002

Clarke, K. C (2013) What is the World's Oldest Map? *The Cartographic Journal*, 50, 2, 136-143.

Mahiny, A. S. and Clarke, K. C. (2013) Simulating Hydrologic Impacts of Urban Growth Using SLEUTH, Multi Criteria Evaluation and Runoff Modeling, *Journal of Environmental Informatics*. 22(1) 27-38 (2013)

Clarke, K. C. (2014) Cellular Automata and Agent-Based Models. Chapter 62 in Fischer, M. M. and Nijkamp, P. (eds) *Handbook of Regional Science*. Springer-Verlag, Berlin Heidelberg.

Clarke, K. C. (2014) GeoComputation in 2061, Robert J . Abrahart and Linda M . See (eds) GeoComputation, 2e, Chapter 19, CRC Press, 429-446. DOI: 10.1201/b17091-20

Peiman, R. and Clarke, K. C. (2014) The Impact of Data Time Span on Forecast Accuracy through Calibrating the SLEUTH Urban Growth Model *International Journal of Applied Geospatial Research*, 5(3), 21-35.

Clarke, K. C. (2014) Cartography. *Oxford Bibliographies*. Online and eBook at: http://www.oxfordbibliographies.com/view/document/obo-9780199874002/obo-9780199874002-0075.xml?rskey=iuj5jf&result=11&q=

Akin, A., Clarke, K, C., and Berberoglu, S. (2014) The impact of historical exclusion on the calibration of the SLEUTH urban growth model . *International Journal of Applied Earth Observation and Geoinformation.* 27, B, 156-168.

Chaudhuri, G. and Clarke, K. C. (2014) Temporal Accuracy in Urban Growth Forecasting: A Study Using the SLEUTH Model *Transactions in GIS*, 18, 2, 302-320.

Lippitt, C. D.; Stow, D. A. and Clarke, K. C. (2014) On the nature of models for time-sensitive remote sensing. *International Journal of Remote Sensing.* 35, 18, 6815-6841.

Wu, Hao; Ye, Lu-Ping; Shi, Wen-Zhong; et al. (2014) Assessing the effects of land use spatial structure on urban heat islands using HJ-1B remote sensing imagery in Wuhan, China. *International Journal of Applied Earth Observation and Geoinformation*. 32, 67-78.

Clarke, K. C. (2014) GeoComputation in 2061. Chapter 19 in Robert J . Abrahart and Linda M . See (eds) GeoComputation, 2e, CRC Press, 429–446. DOI: 10.1201/b17091-20

Han, S.Y., Tsou, M-H and Clarke K.C. (2015) Do Global Cities Enable Global Views? Using Twitter to Quantify the Level of Geographical Awareness of U. S. Cities. *PLoS ONE* 10(7): e0132464. doi:10.1371/journal.pone.0132464

Pingel, P. J., Clarke, K. & Ford, A. (2015) Bonemapping: a LiDAR processing and visualization technique in support of archaeology under the canopy, *Cartography and Geographic Information Science*, 42:sup1, 18-26, DOI: 10.1080/15230406.2015.1059171

Alkimim, A., Sparovek, G., Clarke, K. C. (2015) Converting Brazil's pastures to cropland: An alternative way to meet sugarcane demand and to spare forestlands. *Applied Geography*. 62, 75-84.

Chaudhuri, G. and Clarke, K. C. (2015) On the spatiotemporal dynamics of the coupling between land use and road networks: does political history matter? *Environment and Planning B— Planning and Design*. 42, 1, 133-156.

Wu, H., Li, K., Shi, W., Clarke, K. C., Zhang, J . and Li. H. (2015) A wavelet-based hybrid approach to remove the flicker noise and the white noise from GPS coordinate time series. *GPS Solutions* 19, 4, 511-523. http://dx.doi.org/10.1007/s10291-014-0412-6

Chen, Y-J, McFadden, J. P., Clarke, K. C. and Roberts, D. (2015) Measuring Spatio-temporal Trends in Residential Landscape Irrigation Extent and Rate in Los Angeles, California Using SPOT-5 Satellite Imagery. *Water Resources Management.* 29, 15, 5749-5763.

Wu, H., Dong, Y., Shi, W., Clarke, K. C., Miao, Z., Zhang, J. and Chen, X. (2015) An improved fractal prediction model for forecasting mine slope deformation using GM (1,1) Structural Health Monitoring. 14, 5, 502-512.

Hou, W., Yang, L., Deng, D., Ye, J. Clarke, K., Yang, Z., Zhuang, W., Liu, J. and Huang, J. (2015) Assessing quality of urban underground spaces by coupling 3D geological models: the case study of Foshan city, South China, *Computers and Geosciences*, http://dx.doi.org/10.1016/j.cageo.2015.07.016

Ford, A. and Clarke, K. C. (2015) Linking the Past and Present of the Ancient Maya: Lowland Land Use, Population Distribution, and Density in the Late Classic Period in Isendahl, C., and Stump, D. (eds) *The Oxford Handbook of Historical Ecology and Applied Archaeology* DOI: 10.1093/oxfordhb/9780199672691.013.33

Li, F., Liang, J., Clarke, K. C., Li, M., Liu, Y. and Huang, Q. (2015) Urban land growth in eastern China: a general analytical framework based on the role of urban micro-agents' adaptive behavior. *Regional Environmental Change*, 15, 4, 695-707.

Chen, Jorge, and Keith C. Clarke. (2016). Rapid 3D Modeling Using Photogrammetry Applied to Google Earth. In *Proceedings, Autocarto 2016. The 21st International Research Symposium on Computer-Based Cartography and GIScience*. Albuquerque, New Mexico.

Houet, T., Aguejdad, R., Doukari, O., Battaia G. and Clarke, K. (2016) "Description and validation of a 'non path-dependent' model for projecting contrasting urban growth futures", *Cybergeo : European Journal of Geography*, Systèmes, Modélisation, Géostatistiques, document 759 http://cybergeo.revues.org/27397 ; DOI : 10.4000/cybergeo.27397

Clarke, K. C. (2016) A multiscale masking method for point geographic data. *International Journal of Geographical Information Science*. 30, 3, 300-315. DOI:10.1080/13658816.2015.1085540

Berberoğlu, S, Akın, A. and Clarke, K. C. (2016) Cellular automata modeling approaches to forecast urban growth for Adana, Turkey: A comparative approach. *Landscape and Urban Planning*. 153, 11–27. doi:10.1016/j.landurbplan.2016.04.017

Benza, M., Weeks, J. R., Stow, D. A. López-Carr, D. and Clarke, K.C. (2016) A pattern-based definition of urban context using remote sensing and GIS, *Remote Sensing of Environment*, 183, 15, 250-264, dx.doi.org/10.1016/j.rse.2016.06.011.

Egenhofer, Clarke, Gao, Quesnot, Franklin, Yuan and Coleman (2016) CHAPTER 1: Contributions of GIScience over the Past Twenty Years. In Advancing Geographic Information Science: The Past and Next Twenty Years, Chapter: Emerging Technological Trends likely to Affect GIScience in the Next 20 Years, Editors: Harlan Onsrud, Werner Kuhn *Advancing Geographic Information Science: The Past and Next Twenty Years*. GSDI Association Press / Needham, MA. Available online at: https://spatial.umaine.edu/files/2016/02/AdvancingGIScience.pdf

Nittel, Bodum, Clarke, Gould, Raposo, Sharma and Vasardani (2016) CHAPTER 3: Emerging Technological Trends Likely to Affect GIScience in the Next Twenty Years. *In Advancing Geographic Information Science: The Past and Next Twenty Years*, Editors: Harlan Onsrud, Werner Kuhn. GSDI Association Press / Needham, MA. Available online at: https://spatial.umaine.edu/files/2016/02/AdvancingGIScience.pdf

Clarke, K. (2017) Improving SLEUTH Calibration with a Genetic Algorithm. In *Proceedings of the 3rd International Conference on Geographical Information Systems Theory, Applications and Management (GISTAM 2017)*, 319-326. ISBN: 978-989-758-252-3

Chen, J. and Clarke, K. (2017) Modeling Standards and File Formats for Indoor Mapping. In *Proceedings of the 3rd International Conference on Geographical Information Systems Theory, Applications and Management (GISTAM 2017),* pages 268-275. ISBN: 978-989-758-252-3

Clarke, K. C. (2017) Review of Mapping The Cold War: Cartography and the Framing of America's International Power. By Timothy Barney. *Geographical Review* 107, (2).

Nascimento, V. F., Yesiller, N. Clarke, K.C. Ometto, J. P. H. B., and Andrade, P. R. (2017)

Modeling the environmental susceptibility of landfill sites in California. *GIScience & Remote Sensing*, 1-21.

Clarke, K. C. and Irmischer, I. J. (2017) On Scale in Space, Time, and Space–Time. In: Dale A. Quattrochi, Elizabeth Wentz, Nina Siu-Ngan Lam, Charles W. Emerson (eds) *Integrating Scale in Remote Sensing and GIS*, CRC Press.

Kessler, F. C., Battersby, S. E., Finn, M. P. and Clarke, K. C. (2017) Map Projections and the Internet. In Miljenko Lapaine and E. Lynn Usery (eds) *Choosing a Map Projection, Lecture Notes in Geoinformation and Cartography*, 117-148.

Benza, M., Weeks, J. A. Stow, D. A. , López-Carr, D. and Clarke, K. C. (2017) Fertility and urban context: A case study from Ghana, West Africa, using remotely sensed imagery and GIS *Population, Space and Place*. 23, 8, 1-12.

Clarke, K. C. (2017) Geodesy. *International Encyclopedia of Geography: People, the Earth, Environment and Technology* Douglas Richardson (Editor-in-Chief), Noel Castree (Co-Editor), Michael F Goodchild (Co-Editor), Audrey Kobayashi (Co-Editor), Weidong Liu (Co-Editor), Richard A. Marston (Co-Editor). ISBN: 978-0-470-65963-2

Clarke, K. C. (2017) Map Projections and Coordinate Systems. *International Encyclopedia of Geography: People, the Earth, Environment and Technology* Douglas Richardson (Editor-in-Chief), Noel Castree (Co-Editor), Michael F. Goodchild (Co-Editor), Audrey Kobayashi (Co-Editor), Weidong Liu (Co-Editor), Richard A. Marston (Co-Editor). ISBN: 978-0-470-65963-2

Clarke, K. C. (2017) GIS for Geographic Decision Making. In Hess, D. McKnight's *Physical Geography: A Landscape Appreciation*. (12 ed). Pearson; Hoboken, NJ.

Su Yeon Han, Ming-Hsiang Tsou & Keith C. Clarke (2017): Revisiting the death of geography in the era of Big Data: the friction of distance in cyberspace and real space, *International Journal of Digital Earth*, DOI: 10.1080/17538947.2017.1330366.

Park, S., Clarke, K.C.. Choi, C. and Kim, J. (2017) Simulating Land Use Change in the Seoul Metropolitan Area after Greenbelt Elimination Using the SLEUTH Model, *Journal of Sensors*, vol. 2017, Article ID 4012929. doi:10.1155/2017/4012929

Wu, H., Yin, Y., Wang, S. , Shi, W., Clarke, K.C., and Miao, Z. (2017) Optimizing GPS-guidance transit route for cable crane collision avoidance using artificial immune algorithm. *GPS Solutions* 21, 2, 1, 823-834.

Clarke, K. (2017). Cellular Automata. *The Geographic Information Science & Technology Body of Knowledge* (3rd Quarter 2017 Edition), John P. Wilson (ed.). doi: 10.22224/gistbok/2017.3.9.

Romero, B. E. and Clarke, K. C. (2017) Exploring uncertainties in terrain feature extraction across multi-scale, multi-feature, and multi-method approaches for variable terrain. *Cartography and Geographic Information Science* · July 2017. DOI: 10.1080/15230406.2017.1335235

Han, S. Clarke, K. C. and Tsou, M-H (2017) Animated Flow Maps for Visualizing Human Movement: Two Demonstrations with Air Traffic and Twitter Data *Proceedings, 1st ACM SIGSPATIAL Workshop*. DOI: 10.1145/3148044.3148049

Jiangxia Ye, Mingshan Wu, Zhongjian Deng, Shengji Xu , Ruliang Zhou and Keith C. Clarke (2017) Modeling the spatial patterns of human wildfire ignition in Yunnan province, China. *Applied Geography*. 89, 150–162. https://doi.org/10.1016/j.apgeog.2017.09.012

Clarke, K. C. (2018) A Short Presentation of SLEUTH. in Olmedo, M.T.C., Paegelow, M., Mas, J-P, Escobar, F. (eds). *Geomatic Approaches for Modeling Land Change Scenarios.*

Lecture Notes in Geoinformation and Cartography. Springer, pp.521-525. DOI10.1007/978-3-319-60801-3_39

Seidl, Dara E., Jankowski, Piotr and Clarke, Keith C. (2018) Privacy and False Identification Risk in Geomasking Techniques. *Geographical Analysis*. 1538-4632, DOI 10.1111/gean.12144

Clarke, K. C. (2018) Land Use Change Modeling with SLEUTH: Improving Calibration with a Genetic Algorithm. Chapter 8 (pp. 139-162) in Olmedo, M.T.C., Paegelow, M., Mas, J-P, Escobar, F. (eds). *Geomatic Approaches for Modeling Land Change Scenarios. Lecture Notes in Geoinformation and Cartography*. Springer, pp.521-525. DOI10.1007/978-3-319-60801-3_39.

Irmischer, I. J and Clarke, K. C. (2018) Measuring and modeling the speed of human navigation. *Cartography and Geographic Information Science* 45 , 2, 177-186.

Seda Şalap-Ayça, Piotr Jankowski, Keith C Clarke, Phaedon C Kyriakidis & Atsushi Nara (2018) A meta-modeling approach for spatio-temporal uncertainty and sensitivity analysis: an application for a cellular automata-based Urban growth and land-use change model, *International Journal of Geographical Information Science*, 32:4, 637-662, DOI: 10.1080/13658816.2017.1406944

Martellozzo,F., Amato, F. Murgante, B. and Clarke, K. C. (2018) Modelling the impact of urban growth on agriculture and natural land in Italy to 2030. *Applied Geography*. 91, 156–16.

Aerts, J. C. J. H., Botzen, W. J., Clarke, K. C., Cutter, S. L., Hall, J.. W., Merz, B., Michel-Kerjan, E. Mysiak, J. , Surminski, S. and Kunreuther, H. (2018) Integrating human behaviour dynamics into flood disaster risk assessment. *Nature—Climate Change*, Perspective. doi.org/10.1038/s41558-018-0085-1.

Clarke, K. C. (2018) Waldo R. Tobler (1930-2018). *Cartography and Geographic Information Science*. doi.org/10.1080/15230406.2018.1447399

Alkimim, A. and Clarke, K. C. (2018) Land use change and the carbon debt for sugarcane ethanol production in Brazil. *Land Use Policy*. 72 65–73. doi.org/10.1016/j.landusepol.2017.12.039

Li, F., Wang, L., Chen, Z., Clarke, K.C., Li, M. and Jiang, P. (2018) Extending the SLEUTH model to integrate habitat quality into urban growth simulation*, Journal of Environmental Management*, 217, 486-498. doi.org/10.1016/j.jenvman.2018.03.109.

Miller, D.L., Roberts, D.A., Clarke, K.C. et al. (2018). Gross primary productivity of a large metropolitan region in midsummer using high spatial resolution satellite imagery. *Urban Ecosystems*. https://doi.org/10.1007/s11252-018-0769-3.

Hou, W., Cui, C., Yang, L., Yang Q. and Clarke, K. C. (2018) Entropy-Based Weighting in One-Dimensional Multiple Errors Analysis of Geological Contacts to Model Geological Structure. *Mathematical Geosciences*. https://doi.org/10.1007/s11004-018-9750-1

Shahtahmassebi, A. R. , Wu, C., Blackburn, Zheng, Q., Huang, L., Shortridge, A., Shahtahmassebi, G., Jiang, R., Hea, S., Wang, K. Lin, Y., Clarke, K. C. Su, Y., Lin,L., Wu, J., Zheng, Q., Xu, H., Xue, X., Deng, J., and , Shen, Z. (2018) How do modern transportation projects impact on development of impervious surfaces via new urban area and urban intensification? Evidence from Hangzhou Bay Bridge, China. *Land Use Policy*. 77, 479-497.

Li, Z., Zhang, X., Clarke, K.C., Liu, G., Zhu, R. (2018) An automatic variogram modeling method with high reliability fitness and estimates, *Computers and Geosciences*, doi:10.1016/j.cageo.2018.07.011.

Park, S. Lee, J. H, and Clarke, K. C. (2018) Capturing the heterogeneity of urban growth in South Korea using a latent class regression model. *Transactions in GIS*. 22,3, 189-805.

Sory I. Toure, Douglas A. Stow, Keith Clarke & John Weeks (2018): Patterns of land cover and land use change within the two major metropolitan areas of Ghana, *Geocarto International*, DOI: 10.1080/10106049.2018.1516244

Clarke, K. C. (2018) Cellular Automata and Agent Based Models. M. M. Fischer, P. Nijkamp (eds.), Handbook of Regional Science. 2ed. Springer-Verlag GmbH Germany, part of Springer Nature. doi.org/10.1007/978-3-642-36203-3_63-1

Keith C. Clarke, J. Michael Johnson & Tim Trainor (2019) Contemporary American cartographic research: a review and prospective, *Cartography and Geographic Information Science*, DOI: 10.1080/15230406.2019.1571441

Ford, A. and Clarke, K. C. (2019) Linking the Past and Present of the Ancient Maya: Lowland Land Use, Population Distribution, and Density on the late Classic Period. Chapter 9 in Idenhahl, C. and Stump, D. *The Oxford Handbook of Historical Ecology and Applied Archaeology*. Oxford University Press, Oxford. UK. 156-183.

Hao Wu, Zhen Li, Keith C. Clarke, Wenzhong Shi, Linchuan Fang, Anqi Lin & Jie Zhou (2019): Examining the sensitivity of spatial scale in cellular automata Markov chain simulation of land use change, *International Journal of Geographical Information Science,* DOI:10.1080/13658816.2019.

Keith C. Clarke, J. Michael Johnson & Tim Trainor (2019): Contemporary American cartographic research: a review and prospective, *Cartography and Geographic Information Science*, doi.org/10.1080/15230406.2019.1571441

Goto, E, Clarke, K. C. and Keller, E. (2018) A tool to compute the landslide degree of risk using R-Studio and R-Shiny (2018) *4th ACM SIGSPATIAL International Workshop*. DOI: 10.1145/3284103.3284122

Chen, J., Mora, O. E. and Clarke, K. C. (2018) Assessing the Accuracy and Precision of Imperfect Point Clouds for 3D Indoor Mapping and Modeling. *Annals of the ISPRS*, DOI:

Linares, S. y Clarke, K. (2018). Simulación del crecimiento urbano de la ciudad de Tandil (Argentina) aplicando el modelo SLEUTH. *V Jornadas Nacionales de Investigación y Docencia en Geografía Argentina y XI Jornadas de Investigación y Extensión del Centro de Investigaciones Geográficas.* Facultad de Ciencias Humanas - UNCPBA/CONICET. Tandil, Buenos Aires, Argentina. ISBN 978-950-658-466-5. Disponible en: https://www.researchgate.net/publication/329844578_Simulacion_del_crecimiento_urbano_de_la_ciudad_de_Tandil_Argentina_aplicando_el_modelo_SLEUTH10.5194/isprs-annals-IV-4-W6-3-2018

Clarke, K. C. (2019) Mathematical Foundations of Cellular Automaton Theory. In D'Acci, L. *The Mathematics of Urban Morphology. Modeling and Simulation in Science, Engineering and Technology*, Springer Nature, Switzerland AG. Doi:10.1007/978-3-030-12381-9_8

Xiong, Y., Zuo, R., Clarke, K.C. (2019) A fractal model of granitic intrusion and variability based on cellular automata, *Computers and Geosciences*, doi: https://doi.org/10.1016/j.cageo.2019.05.002.

Chaudhuri, G. and Clarke, K. C. (2019) Modeling an Indian megalopolis– A case study on adapting SLEUTH urban growth model, Computers, Environment and Urban Systems, 77,101358, doi.org/10.1016/j.compenvurbsys.2019.101358.

Dara E. Seidl, Piotr Jankowski, Keith C. Clarke & Atsushi Nara (2019): Please Enter Your Home Location: Geoprivacy Attitudes and Personal Location Masking Strategies of Internet Users, *Annals of the American Association of Geographers*, DOI: 10.1080/24694452.2019.1654843

Clarke, K. C. (2019) Mathematical Foundations of Cellular Automata and Complexity Theory. In D'Acci L (ed.) *The Mathematics of Urban Morphology*, Modeling and Simulation in Science, Engineering and Technology. Birkhauser, Springer Nature. 163-172.