



Technical Memorandum 40

## A selected GIS bibliography

C C Devonport

Supervising Scientist for  
the Alligator Rivers Region

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Supervising Scientist for the Alligator Rivers Region  
PO Box 387  
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This Technical Memorandum was prepared by Chris Devonport  
GIS Laboratory Northern Territory University

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# A SELECTED GIS BIBLIOGRAPHY

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Compiled by  
**C. DEVONPORT**  
GIS Laboratory, Northern Territory University  
PO Box 40146, Casuarina, NT 0811

## 1 INTRODUCTION

Geographic Information Systems (GIS) are used in many environmental spatial analysis and modelling situations. Technical and applications-oriented workers from many fields (e.g. geography, ecology, geology, hydrology, etc.) are interested in the use of GIS and as a result published material is spread across the literature of many disciplines. There is only one GIS-specific journal (*International Journal for Geographic Information Systems*) and many papers are in the form of conference proceedings. Consequently, it is often difficult to identify and locate bibliographic information on specific aspects of GIS.

This bibliography has been compiled as part of a collaborative research agreement between the Northern Territory University and the Supervising Scientist for the Alligator Rivers Region. It contains over 2,000 references to GIS literature which have been selected from books, journals and conference proceedings published from 1987 to the present. The selection is biased to environmental and resource management topics (cf. urban, sociological and facilities management) and specifically aims to provide a reference point for GIS literature related to environmental risk/hazard assessment associated with activities such as mining. References are in alphabetical order by author and the following sources account for the majority:

- International Journal of Geographic Information Systems
- Photogrammetric Engineering & Remote Sensing Journal
- GIS/LIS Conference Proceedings
- AURISA/URPIS Conference Proceedings
- EGIS Conference Proceedings
- URISA Conference Proceedings

AARNET users can access the bibliography in text format via anonymous ftp from darwin.ntu.edu.au. The data can be provided in other formats or alternative means on request (phone 089 466 711, fax 089 410 460 or email chris@ironwood.ntu.edu.au). While compiling this information other bibliographic efforts have been identified. Currently, the most significant of these is that of the National Centre for Geographical Information and Analysis (NCGIA) who have prepared a comprehensive bibliography for 1991 GIS publications and are presently compiling 1992 information.

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- Aangeenbrug R T** (1991) A critique of GIS. In: **Maguire D J, Goodchild M F, Rhind D W (eds)** *Geographical Information Systems: principles and applications*. Longman, New York, pp 101-107, Vol 1
- Aasgaard R** (1992) Real Time Cartographic Generalization, a Requirement for Efficient Presentation of Geographic Data. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 113-122
- Abel D J** (1989) A model for data set management in large spatial information systems. *International Journal of Geographical Information Systems* 3(4): 291-302
- Abel D J** (1989) SIRO-DBMS: a database tool-kit for geographical information systems. *International Journal of Geographical Information Systems* 3(2): 99-102
- Abel D J, Ackland R, Cameron M A, Smith D F, Walker G, Yap S K** (1991) EDSS: A Prototype for the Next Generation of Spatial Information Systems. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 66-77
- Abel D J, Mark D M** (1990) A comparative analysis of some two-dimensional orderings. *International Journal of Geographical Information Systems* 4(1)
- Abel D J, Steele B L** (1989) Is a Fully Relational Spatial Information System Viable? *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Abel D J, Yap S K, Walker G, Cameron M A, Ackland R G** (1992) Support in Spatial Information Systems for Unstructured Problem-Solving. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 434-443
- Abler R F** (1987) The National Science Foundation National Center for Geographic Information and Analysis. *International Journal of Geographical Information Systems* 1(4): 303-319
- Abts A, Verreecken H** (1991) The use of GIS and image processing combined with a mathematical model for estimating the regional ground water recharge. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 9-16
- Acevedo W** (1991) First Assessment of U.S. Geological Survey 30-Minute DEM's: A Great Improvement Over Existing 1-Degree Data. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 1-12
- Adlam K A M, Clayton A R, Kelk B** (1988) A 'demonstrator' for the National Geosciences Data Index. *International Journal of Geographical Information Systems* 2(2): 161-170
- Ady B, Currie A** (1989) Incorporating Interpretive Concepts from a Discipline in a GIS: A Geoscience Example. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 787-793
- Agee J K, Stitt S C F, Nyquist M, Root R** (1989) A Geographic Analysis of Historical Grizzly Bear Sightings in the North Cascades. *Photogrammetric Engineering and Remote Sensing* 55(11): 1637-1642
- Ahearn S C, Smith J L D, Wee C** (1990) Framework for a Geographically Referenced Conservation Database: Case Study Nepal. *Photogrammetric Engineering and Remote Sensing* 56(11): 1477-1481
- Ahmed W** (1989) An Information System Based on Remote Sensing and GIS Technologies for Land Use and Cover Planning in North Stradbroke Island. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Airheim C G, Griffith D A** (1991) A Model for Statistical Quality Control of Spatial Data in GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 91-103
- Akervall L, Degerstedt K, Rystedt B** (1991) Spatial metadata systems at the National Land Survey of Sweden. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 153-170
- Akimienkov N, Borisov V, Tikunov V** (1992) Geographical Information System for Radiological Monitoring of Natural Environment. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 666-671
- Al-Ankary K M** (1991) An incremental approach for establishing a geographical information system in a developing country: Saudi Arabia. *International Journal of Geographical Information Systems* 5(1): 85-98
- Al-Taha K K, Barrera R** (1990) Temporal Data and GIS: An Overview. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 244-254
- Alam M S, Sikder S** (1991) Application of Remote Sensing for Monitoring Shrimp Culture Development in a Coastal Mangrove Ecosystem in Bangladesh. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 109-120

- Albaredes G (1992) A New Approach: User Oriented GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 830-837
- Alberti M (1991) Suitability Analysis and Environmental Impact Modeling with Geographic Information Systems. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 110-123
- Alderman P X (1991) Automated Shaded Relief for Medium-Scale Aeronautical Charts. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 13-20
- Alexander D (1990) Monitoring Mapping and Analysis of Forest and Agricultural Resources in Victoria. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 854-857
- Alexander D P (1987) Using a Statewide Natural Resources GIS to Support Management. *URPIS 87*, The Australasian Urban and Regional Information Systems Association Inc
- Allam M M, Otoo E J, Chally C K (1990) Integrating Corporate Databases in a Heterogeneous GIS Environment. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 887-903
- Andersen H T (1991) The incentive for urban redevelopment a test made by parcelbased informations. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 17-26
- Anderson D R (1990) The application of geographical information systems in the spatial analysis of crime. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 143-152
- Anderson J, Child J (1987) Chloropleth Maps: Window Dressing or Workhorses? *GIS '87, San Francisco, California*. ASP&RS, pp 352-361
- Anderson U, Rystedt B (1988) Scandinavian Activities in the LIS/GIS Area. *Photogrammetric Engineering and Remote Sensing* 54(2): 201-204
- Andresson S (1987) The Swedish Land Data Bank. *International Journal of Geographical Information Systems* 1(3): 253-264
- Angeenbrug R T (1990) GIS: Hype and Reality. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Angus-Leppan P (1989) The Thailand Land Titling Project. First steps in a parcel-based LIS. *International Journal of Geographical Information Systems* 3(1): 5
- Angwin G T (1991) Quality Control of Digital Map Generation. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 715-723
- Anjomani A, Saberi A (1992) Large Scale Land Suitability Analysis Using GIS and Optimization Models as an Spatial Decision Support System: A Multijurisdiction/Multiregion Case. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 39-48
- Ansoult M M, Soille P J, Loodts J A (1990) Mathematical Morphology: A Tool for Automated GIS Data Acquisition from Scanned Thematic Maps. *Photogrammetric Engineering and Remote Sensing* 56(9): 1263-1271
- Antenucci J (1991) A Sketch of Legal Issues confronting government GIS. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 135-137
- Antenucci J (1992) Management Issues in Implementing and Utilizing GIS Technology. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 838-845
- Antenucci J (1992) Product Strategies: Creative: Tensions. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 827-829
- Appelman K, Zeeman M (1992) Landscape Ecology and GIS in Environmental Impact Assessment for Highways. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 398-407
- Arbeit D (1992) Information Systems Technology in Planning Education: A Retrospective of URISA's Role. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 177
- Arbia G (1991) GIS-based Sampling Design Procedures. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 27-35
- Archer H, Croswell P L (1989) Public Access to Geographic Information Systems: An Emerging Legal Issue. *Photogrammetric Engineering and Remote Sensing* 55(11): 1575-1581
- Aref W G, Samet H (1991) Extending a DBMS with Spatial Operations. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 299-318, Vol 525
- Aref W G, Samet H (1992) Uniquely Reporting

- Spatial Objects: Yet Another Operation for Comparing Spatial Data Structures. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 178-189
- Arentze T, Borgers A, Timmermans H (1992) Geographical Information Systems, Accessibility, and Multi-Purpose, Multi-Stop Travel: A New Measurement Approach. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 438-450
- Argialas D P, Harlow C A (1990) Computational Image Interpretation Models: An Overview and a Perspective. *Photogrammetric Engineering and Remote Sensing* 56(6): 871-886
- Armenakis C, Siekierska E M (1991) Issues on the Visualization of Time-Dependent Geographical Information. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 584-595
- Armour F J (1992) Utilizing Hypermedia in a MAU Model-Based Spatial Decision Support System (SDSS). *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 74-86
- Armstrong A (1991) Working Successfully With Consultants. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 537-546
- Armstrong M P (1988) Temporality in Spatial Databases. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 880-889
- Armstrong M P (1991) Knowledge classification and organization . In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 86-102
- Armstrong M P, Bennett D A (1990) A Knowledge Based Object-Oriented Approach to Cartographic Generalisation. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 48-57
- Armstrong M P, Densham P J (1990) Database organization strategies for spatial decision support systems. *International Journal of Geographical Information Systems* 4(1)
- Armstrong M P, Densham P J, Bennett D A (1989) Object Oriented Locational Analysis. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 717-726
- Armstrong M P, Densham P J, Lolonis P (1991) Cartographic Visualisation and User Interfaces in Spatial Decision Support Systems. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 321-330
- Arogyaswamy B J (1992) An Object-Oriented Model of Geographic Information Systems: Integrating Maps, Data and Models for Decision Support. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 87-109
- Aronoff S (1989) *Geographic Information Systems: A Management Perspective*. WDL Publications, Ottawa,
- Aronoff S, Mosher R, Maher R V (1987) Operational Data Integration: Image Processing to Interface Vector GIS and Remotely Sensed Data. *GIS '87, San Francisco, California*. ASP&RS, pp 216-225
- Asbury S (1991) Effective Cost Control in the Conversion Process. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 213-219
- Ashworth M (1988) Concurrent Display Process in a Spatial Analysis System. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 132-140
- Ashworth M (1990) Performing Speculative Analysis in the GIS Environment. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 588-597
- Aspinall R (1992) Spatial Analysis of Wildlife Distribution and Habitat in a GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 444-453
- Asproth V, Hakansson A (1992) Developing GEO Informatic Systems. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 145-152
- Astroth J H, Trujillo J, Johnson G E (1990) A Retrospective Analysis of GIS Performance: The Umatilla Basin Revisited. *Photogrammetric Engineering and Remote Sensing* 56(3): 359-363
- Atkinson S F (1988) Nonpoint Pollution Control Site Selection Planning. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 685-694
- Austin R F (1988) GIS/LIS in the Long Distance Telecommunications Industry. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 266-272
- Austin R F (1989) Data Bases as the Basis for Geographic Information Systems: A Perspective. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 123-133
- Aybet J (1991) Designing GIS system architectures. *Proceedings of EGIS '91, Brussels*. EGIS Foundation,

pp 36-47

Aybet J (1992) Object-Oriented GIS: What Does It Mean to GIS Users? *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1279-1287

Azar K T, Ferreira J Joseph (1991) Standardizing Transit Applications of GIS Technology: A Corridor Study Example. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 110-121

Azar K T, Vial E (1992) Combining GIS and a Population Forecast Model to Visualize Population Distribution. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 217-232

Baclawski C (1992) Developing/Utilizing A Small-Scale Database as an Initial GIS Database Development Effort. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 86-96

Bacon C J (1991) Organisation Modelling and Analysis for GIS Design in Local Authorities. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 98-105

Bacon C J (1992) The Organizational Placement of GIS in New Zealand Regional Councils. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 151-161

Badji M, Mallants D (1991) Integrating GIS and process Models: a new perspective for decision support systems (DSS) in irrigation water management. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 48-54

Baffes A, Nagel D, Boseman J, Ambrose J, Raboli C (1990) Reservoir Site Assessment Using Remotely Sensed Imagery and GIS: A Case Study of the West Georgia Regional Reservoir Project. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 762-765

Bagheri S, Dios R A (1990) Utilisation of Geographic Information System in Selection of Hazardous Waste Disposal Site in New Jersey Piedmont Province. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 299-306

Bailey R G (1988) Problems with Using Overlay Mapping for Planning and Their Implications for Geographic Information Systems. *Environmental Management* 12(1): 11-17

Bailey T (1992) Statistical Spatial Analysis & Geographical Information Systems: A Review of the

Potential & Progress in the State of the Art. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 186-203

Bailey T, Munford A G (1991) A Case study employing GIS & Spatial Interaction Models in Location Planning. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 55-65

Bak P R G, Mill A J B (1989) Three-dimensional representation in a Geoscientific Resource Management System for the minerals industry. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 155-182

Baker K (1991) Positional Accuracy Considerations for a Digital Cadastral Database. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 36-48

Baker T, Broadhead J (1992) Integrated Access to Land-Related Data from Heterogeneous Sources. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 110-121

Bakker M d (1991) GIS in higher education, an introduction to the discussion. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1348-1349

Bakker M d (1992) Necessities in GIS-Education for Students in Agricultural and Environmental Sciences. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 351-356

Baldwin D, Wheeler G L (1992) Developing a Third Generation Engineering Accurate GIS Using AUTOCAD and ARC/INFO. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 138-145

Ball J William E., Hutt M E. (1991) Determination of Three-dimensional Coordinates for Future Land Information Systems. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 1-10

Balser R, Fila K (1987) Planning for Terrain Resource Information Management (TRIM) in British Columbia. *GIS '87, San Francisco, California*. ASP&RS, pp 91-100

Baltsavias E, Stallmann D (1992) From Satellite Images to GIS with Digital Photogrammetry Using SPOT Data. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 945-946

Bannura R K (1991) A step beyond desktop mapping-an integration of personal computers into the corporate GIS environment. *Proceedings of EGIS '91, Brussels*.

- EGIS Foundation, pp 66-72
- Banting D (1988) Using GFIS for Teaching GIS Concepts. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 678-684
- Baranowski M (1991) Environmental Information System SINUS and its Applications. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 73-77
- Barber G G, Wake G W, Hutchinson R G (1989) GIS: The ALCOA Experience: A Summary of Justification Selection and Implementation Procedures Used by ALCOA of Australia Ltd. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Barker G R (1988) Remote Sensing: The Unheralded Component of Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 54(2): 195-199
- Barlaz E C, Gottsegan J (1992) Implementing Photographic Imaging Systems in Municipal Government. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 221-228
- Barnes G, Loo J C (1988) The Land Information Management (LIM) Curriculum at the Ohio State University. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 295-301
- Barrera R, Egenhofer M J, Frank A (1992) Robust Evaluation of Spatial Queries . *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 241-248
- Barrera T A, Waechter D, Jeffress G, Tunnell J W (1992) A Temporal Salt Marsh Vegetation Study: Implementation of a GIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 251-260
- Barrett H R, Nodvin S C (1991) The Use of GIS in Evaluating Impacts of Hardwood Forest by the Gypsy Moth (*Lymantria dispar*). *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 834
- Barrett W (1991) Building a Regional Transportation Model with GIS Software. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 80-88
- Barrino-Smith M C, Davidson S R (1991) The Role of Systems Integration in Addressing Local Government's Land Information Needs. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 1-13
- Bartier P, Keller C P (1991) Integrating bedrock geology with stream sediment geochemistry in a GIS: case study NTS 92H . *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 125-132
- Baser R (1991) IACG Data Communications and Networking Sub-Committee Activity Report. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 206-215
- Baskent E Z, Jordan G, Dick R (1992) Working Smarter with GIS in Forest Management. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 798-807
- Bates C A (1991) Milepoints: A GIS Index for Public Works and Public Safety Applications. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 167-175
- Batten L G (1989) National Capital Urban Planning Project: Development of a Three-Dimensional GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 781-786
- Batteram J J. P. (1991) CLOVIS: A concept and a tool for LIS and GIS-applications. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 78-84
- Beard K, Mackaness W (1991) Generalization Operations and Supporting Structures. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 29-45
- Beard M K (1991) Constraints on rule formation. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 121-135
- Beaumont J R (1991) GIS and market analysis. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 139-151, Vol 2
- Becek K, Trinder J C (1990) Implementation of Intelligence into GIS Software. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Beck J A (1989) A Geographic Information and Modelling System for the Management of Wildfire Incidents. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Beck J A (1990) The Development and Application of Generic Map Algebra and Modelling Tools. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc

- Beeston G R** (1989) The Impact of GIS on Farm and Catchment Planning and Management. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Begin D F** (1991) Utilisation des donnees satellitaires dans un environnement de production pour la base nationale de donnees topographiques. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 387-392
- Bell K, Carroll D** (1991) Operational Standards for Spatial Data Quality for the Australian Geographic Data Base. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 225-239
- Beller A** (1991) Spatial/Temporal Events in a GIS. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 766-775
- Beller A, Giblin T, Le K V, Litz S, Kittel T, Schimel D** (1991) A Temporal GIS Prototype for Global Change Research. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 752-765
- Belokon W, Davis P, Curtis P** (1987) Implementation and Ongoing Operation of the Mississippi Automated Resource Information System (MARIS). *GIS '87, San Francisco, California*. ASP&RS, pp 1-9
- Benedetti R, Palma D** (1991) On the modifiable areal unit problem: a Monte Carlo approach. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 85-94
- Benedetti R, Rossini P** (1992) An Agroclimatological Zonation Method from AVHRR-Data. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 672-680
- Bennett D A, Armstrong M P** (1989) An Inductive Bit-Mapped Classification Scheme for Terrain Feature Extraction. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 59-68
- Bennett P G L** (1991) Distributed Processing Pilot: Integrating Spatial and Textual Data Residing on Multiple Platforms. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 25-38
- Bennis K, David B, Morize-Quilio I, Thevenin J, Viemon Y** (1991) GeoGraph: A Topological Storage Model for Extensible GIS. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 349-367
- Bentley W G** (1990) Implementing Geographic Information Systems in the Small Municipality. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 167-173
- Bergsma E** (1986) Aspects of Mapping Units in the Rain Erosion Hazard Catchment Survey. In: Siderius W (ed) *Land Evaluation for Land-Use Planning and Conservation in Sloping Areas*. International institute for Land Reclamation and Improvement/Publication 40, Wageningen The Netherlands, pp 84-105
- Berlyant A** (1992) Geoinformatics: A Science, a Technology, a Subject. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1288-1293
- Beroggi G E G, Wallace W A** (1991) Real-Time Control of the Transportation of Hazardous Materials. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 238-249
- Berry J K** (1987) Computer-Assisted Map Analysis: Potential and Pitfalls. *Photogrammetric Engineering and Remote Sensing* 53(10): 1405-1410
- Berry J K** (1987) Fundamental operations in computer-assisted map analysis. *International Journal of Geographical Information Systems* 1(2): 119-136
- Berry J K** (1988) Maps as Data: Fundamental Considerations in Computer-Assisted Map Analysis. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 273-284
- Berry J K** (1988) Teaching Computer-Assisted Map Analysis: The MAP Experience. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 308-313
- Berry J K** (1991) GIS in island resource planning: a case study in map analysis. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 285-295, Vol 2
- Berry J K, Berry J K** (1988) Assessing Spatial Impacts of Land Use Plans. *Journal of Environmental Management* 27: 1-9
- Berry J K, Sailor J K** (1987) Profile: Use of a Geographic Information System for Storm Runoff Prediction from Small Urban Watersheds. *Environmental Management* 11(1): 21-27
- Besio M, Roccatagliata E** (1991) Object oriented GIS improving environmental compatibility in Italian rural landscape planning. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 95-105
- Bestul T** (1991) A General Technique for Creating SIMD Algorithms on Parallel Pointer-based Quadtrees. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 428-444

- Beurden A U C J v, Kusse B A M** (1991) GIS and a national view on environmental quality. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 106-114
- Beurden A v** (1992) Analytical Capabilities and Possibilities of GIS in Environmental Research. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1446-1456
- Bikle B W** (1992) Native Land to Army Base to National Park: Presidio, San Francisco. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 263-273
- Bill R** (1992) On the Situation of GIS-Education at German Universities. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 846-854
- Bilodeau J-M, Bedard Y, Lowell K** (1991) Etude sur les applications potentielles d'outils SIG dans la plantification d'échantillonage en foresterie. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 167-180
- Bilsland J** (1991) Some major legal issues affecting the Canadian GIS model and its participants. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 141-146
- Binfang W, Xia M A F** (1991) Flood damage evaluation system design for pilot area on Bangladesh floodplain using remote sensing and GIS. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 115-120
- Bird A C** (1991) The role of GIS in rural land use monitoring - current UK issues. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 121-127
- Bishop I, Shang H D** (1991) Visual Simulation of Environmental Change: Bringing GIS and Video-Imaging Together. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 225-236
- Bishop M P, Hines M A, Michelke R** (1989) Using pcARC/INFO to Develop an Automated System to meet the Conservation provisions of the 1985 Farm Bill. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 561-568
- Bistolas V, Tsakalidis A** (1992) The Contribution of Computational Geometry to GIS Applications. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 417-422
- Bitters B, Restrepo P J, Jourdan M R** (1991) Using GIS to predict effects of flooding on the Han River, South Korea. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*.
- ACSM-ASPRS, pp 11-20
- Bjorklund E M** (1991) Culture as Input and Output of the Cognitive-Linguistic Processes. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 66-70
- Black S H, Cowen D J** (1991) Information Infrastructure for Economic Development: A Unique State and University Partnership for GIS Implementation. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 144-155
- Black T** (1992) GIS in GB Local Authorities. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 384-391
- Blackburn J W, Phillips M** (1987) GIS in Focus: Issues and Experience of the Jervis Bay Pilot Project. *URPIS 87*. The Australasian Urban and Regional Information Systems Association Inc
- Blackmon C** (1990) Marketing Basics for GIS Management and Promotion. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Blades M** (1991) The Development of the Abilities Required to Understand Spatial Representations. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 81-116
- Blades M** (1991) Wayfinding Theory and Research: The Need for a New Approach. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 137-166
- Blais J A R, Lam W K** (1991) Digital Image Matching Strategies for Control Transfer and Other Mapping Applications. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 403-415
- Blakeman D A** (1987) Some Thoughts About GIS Data-Entry. *GIS '87, San Francisco, California*. ASP&RS, pp 226-233
- Blakemore M** (1991) Access and security issues in the provision of geographic information. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 55-68
- Blakemore M** (1991) Overview: Methodology. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 13-17, Vol 1

- Blakemore M J** (1991) Managing an operational GIS: the UK National On-Line Manpower Information System (NOMIS). In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 503-513, Vol 1
- Blatchford D R, Boucaut E R** (1989) The Application of a GIS to Transmission Line Corridor Selection Studies. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Blatchford D R, Boucaut E R P** (1990) The Integration of Remote Sensing and GIS Technology for Environmental Impact Assessment. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 574-577
- Bleeker M, Hutson J L, Waltman S W** (1990) Mapping Groundwater Contamination Potential Using Integrated Simulation Modeling and GIS. *Application of Geographic Information Systems Simulation Models and Knowledge-based Systems for Landuse Management, Blacksburg, Virginia*. Virginia Polytechnic Institute and State University, pp 319-328
- Bloemberg B, Doornbos G** (1992) Regional Health Profiles: A Description of Health Status in 64 Public Health Service Districts in the Netherlands. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1392-1397
- Blok F J, Tempel P** (1991) Software independent GIS concepts in higher education. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1350-1357
- Bobbe T J** (1987) An Application of a Geographic Information System to the Timber Sale Planning Process on the Tongass National Forest Ketchikan Area. *GIS '87, San Francisco, California*. ASP&RS, pp 554-562
- Bocco G, Palacio J, Valenzuela C R** (1990) Gully erosion modelling using GIS and geomorphologic knowledge. *ITC Journal 1990* 3: 253-261
- Boer A M d** (1991) Establishing a GIS in a motorway management department. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 128-133
- Bohard E** (1992) Determining Most Suitable Open Space Selection. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 222-228
- Bolstad P V** (1991) Positional Uncertainty in Natural Resource Spatial Data: The Contribution of Camera Tilt and Terrain Relief. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 874-881
- Bolstad P V, Gessler P, Lillesand T M** (1990) Positional uncertainty in manually digitized map data. *International Journal of Geographical Information Systems* 4(4): 399-412
- Bonham-Carter G F** (1990) The Role of GIS for Mineral Exploration. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 56-64
- Bonham-Carter G F** (1991) Integration of geoscientific data using GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 171-184, Vol 2
- Bonham-Carter G F, Agterberg F P, Wright D F** (1990) Integration of geological datasets for gold exploration in Nova Scotia. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 170-182
- Bonham-Carter G F, Agterberg F P, Wright D R** (1988) Integration of Geological Datasets for Gold Exploration in Nova Scotia. *Photogrammetric Engineering and Remote Sensing* 54(11): 1585-1592
- Boote S** (1991) Establishing a general GIS capability in the natural environment research council. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 134-140
- Borchert J R** (1990) GIS: Science Application Coherence. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 830-842
- Born J D, Hooser D D V** (1987) Intermountain Forest Survey, Remote Sensing and Geographic Information. *GIS '87, San Francisco, California*. ASP&RS, pp 416-422
- Bosque J, Chicharro E, Diaz A, Escobar F, Galve A** (1992) Constraints and Possibilities in Using GIS to the Analysis on Provision and Allocation of Social Services. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 998-1007
- Bossler J D** (1992) Sharing Data: Federal-State-Local - Perspectives From the Mapping Science Committee. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 145-150
- Boursier P, Mainguenaud M** (1992) Spatial Query Languages: Extended SQL vs. Visual Languages vs. Hypermaps. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 249-259

- Bowen P J, Pearce C J** (1989) The Use of GIS in Forest Resource Inventory. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Braam D, Holsmuller F** (1992) Outdoor Advertising and GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1207-1215
- Brabb E E** (1987) Analizing and Portraying Geologic and Cartographic Information for Land-use Planning, Emergency Response, and Decision making in San Mateo County California. *GIS '87, San Francisco, California*. ASP&RS, pp 362-374
- Bracken I, Webster C** (1989) Towards a typology of geographical information systems. *International Journal of Geographical Information Systems* 3(2): 137-152
- Bradford H R** (1988) Integration of GIS technology, field sampling and laboratory analyses for characterizing hazardous waste sites. *GIS: Integrating technology and geoscience applications, Denver, Colorado*. NAS, Washington, pp 138-139
- Bradshaw W G, Webster A L, McRae S D** (1987) GIS and Wildland Fire Prevention Planing: An On The Ground Test. *GIS '87, San Francisco, California*. ASP&RS, pp 563-568
- Brand M J D** (1991) NIGIS- the Geographical Information System for Northern Ireland. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 141-148
- Brandli M** (1992) A Triangulation-Based Method for Geomorphological Surface Interpolation from Contour Lines. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 691-700
- Brandtberg H, Rydfalk P-A** (1992) Objected-Oriented Design of a System for Submarine Bottom Topography. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1177-1186
- Brass A, Wadge G, Reading A** (1991) Designing a GIS for the prediction of landsliding potential in the West Indies. In: Cosgrove J, Jones M (eds) *Neotectonics and Resources*. Belhaven Press, London, pp 220-230
- Brassard D J** (1991) National Digital Topographic Data Base - The Canadian Approach. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 21-25
- Brassel K E, Weibel R** (1988) A review and conceptual framework of automated map generalization. *International Journal of Geographical Information Systems* 2(3): 22-23
- Bregt A K** (1991) Mapping uncertainty in spatial data. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 149-154
- Bregt A K, Denneboom J, Gesink H J, Randen Y V** (1991) Determination of rasterizing error: a case study with the soil map of The Netherlands. *International Journal of Geographical Information Systems* 5(3): 361-368
- Breininger D R, Provancha M J, Smith R B** (1991) Mapping Florida Scrub Jay Habitat for Purposes of Land-Use Management. *Photogrammetric Engineering and Remote Sensing* 57(11): 1467-1474
- Brentano J E** (1988) Intergraph to ARC/INFO Data Exchange: Problems Encountered Pitfalls to Avoid. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 810-813
- Breunig M, Perkhoff A** (1992) Data and System Integration for Geoscientific Data. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 272-281
- Brichford S L, Smolen M D, Danielson L E, Devine H A** (1990) Development of a Water Quality Database and Assessment Strategy for County-Level Environmental Management. *Application of Geographic Information systems Simulation Models and Knowledge-Based Systems for Landuse Management*, Virginia Polytechnic Institute and State University, pp 277-286
- Bright E M, Nasem P** (1991) The "ALLOT" Model: A PC Based Approach to Demand Distribution for Siting and Planning . *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 15-27
- Brimicombe A J** (1990) A Review of GIS/LIS Activities in Hong Kong. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 636-644
- Britton J** (1991) Technical GIS training in the 90's. A retrospective, introspective, and prospective view. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 353-359
- Brooke G, Kubik K** (1991) Computer Supported Map Generation: An Intelligent Interface? *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 237-246
- Broscoe D, Prashker S** (1991) The Incorporation of the Fractal Dimension in Cartographic Line Simplification Algorithms. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 26-35

- Brown D A, Gersmehl P J** (1987) Maintaining Relational Accuracy of Geocoded Data in Environmental Modelling. *GIS '87, San Francisco, California.* ASP&RS, pp 266-275
- Brown D G** (1991) Topoclimatic Models of an Alpine Environment Using Digital Elevation Models Within a GIS. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 835-844
- Brown K** (1991) Coordination on the Establishment of Standards for the Processing Analysis and Integration of Hydrographic and Bathymetric Data for the Department of Defense. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 572-578
- Brown N J, Norris D A** (1988) Early applications of geographical information systems at the Institute of Terrestrial Ecology. *International Journal of Geographical Information Systems* 2(2): 153-160
- Brown P J B** (1991) Exploring geodemographics. In: Masser I, Blakemore M (eds) *Handling Geographical Information.* Longman Scientific & Technical, Essex, pp 221-258, Vol 1
- Brown R, Mack J** (1989) From the Closed Shop to the Organizational Mainstream: Organizational Impacts of a Distributed GIS. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 152-160
- Brown R O** (1991) Photogrammetric GIS Technology: Feature Mapping on Digital Stereo Imagery. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 882-890
- Brownsword P E, Defoe R** (1991) The Meridian II Database and Software Toolkit for the Construction of Geographic Information Processing Systems. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 673-693
- Bruegger B, Muller J-C** (1992) Mechanisms of Geometric Abstraction. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 123-133
- Bruner B G, Wilkerson G W, Nye J C** (1990) Using Geographic Information System Technology to Assess Shallow Aquifer Vulnerability to Ground Water Contamination. *Application of Geographic Information systems Simulation Models and Knowledge-Based Systems for Landuse Management, Virginia Polytechnic Institute and State University,* pp 451-460
- Brunsdon C** (1991) Estimating probability surfaces in GIS: an adaptive technique. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 155-164
- Bryan N S** (1992) A Review of Pricing and Distribution Strategies: Local Government Case Studies. *URISA 1992 Annual Conference Proceedings, Washington, D.C.* Urban and Regional Information Systems Association, pp 13-25
- Bryan N S, Cooke D F, Guthrie J, Reed D A, Yan J Z** (1991) Taking Stock: The Applicability of Street Centerline Files to GIS in the 1990s. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 198-206
- Budd L F** (1987) Evolution of a GIS from Forestry to Urban Application. *GIS '87, San Francisco, California.* ASP&RS, pp 156
- Bulger D, Hunt H** (1991) The Plonski forest management decision support system project. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 101-109
- Bundock M, Raper J** (1992) Towards A Standard for Spatial Extensions for SQL. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 287-304
- Buren T S V** (1991) Rural Town Geographical Information Systems: Issues in Integration. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 136-151
- Burnhill P** (1991) Metadata and cataloguing standards: one eye on the spatial. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences.* Group D, Loughborough, pp 13-38
- Burns K L** (1988) Lithologic Topology and Structural Vector Fields applied to Subsurface Prediction in Geology. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 26-34
- Burrough P, Heuvelink G** (1992) The Sensitivity of Boolean and Continuous (Fuzzy) Logical Modelling to Uncertain Data. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1032-1041
- Burrough P A** (1986) *Principles of Geographical Information Systems for Land Resources Assessment.* Clarendon Press, Oxford,
- Burrough P A** (1991) The development of intelligent geographical information systems. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 165-174
- Burrough P A** (1991) Soil information systems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 153-169, Vol 2
- Burrough P A, Deursen W V, Heuvelink G** (1988)

- Linking Spatial Process Models and GIS: A Marriage of Convenience or a Blossoming Partnership? *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 598-607**
- Burtch R (1991) The Pilot Project: Getting the Bugs Out. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 36-42**
- Burton L L (1989) Analysis of the County level Land Information System in the State of Florida: User Trends and Perceived Accuracies Requirements. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 348-366**
- Burton L L, Taylor R L (1992) A Geographic Information System Foundation, Is It Necessary? *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 1-11**
- Bury A S (1989) Raster to Vector Conversion: A Methodology. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 9-11**
- Buttenfield B O, Weber C R, Leitner M, Phelan J J, Rasmussen D M, Wright G R (1991) How Does a Cartographic Object Behave? Computer Inventory of Topographic Maps. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 891-900**
- Buttenfield B P (1991) A rule for describing line feature geometry . In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation.* Longman Scientific & Technical, Essex, pp 150-171**
- Buttenfield B P, Beard M K (1991) Visualizing the Quality of Spatial Information. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 423-427**
- Buttenfield B P, Mackaness W A (1991) Visualization. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 427-443, Vol 1**
- Buttenfield B P, Mark D M (1991) Expert Systems in Cartographic Design. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography.* Pergamon Press, Oxford, pp 129-150**
- Cain J D (1991) GPS to control Counties and Municipalities. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 247-256**
- Calcinelli D, Mainguenaud M (1991) The Management of the Ambiguities in a Graphical Query Language for Geographical Information Systems. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases.* Springer-Verlag, Zurich, pp 99-118, Vol 525**
- Calder N (1991) GIS/LIS and the New Global Geography. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International**
- Calkins H W (1990) Creating large digital files from mapped data. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems.* Taylor and Francis, London, pp 209-214**
- Calkins H W (1991) GIS and public policy. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 233-245, Vol 2**
- Calkins H W, Obermeyer N J (1991) Taxonomy for surveying the use and value of geographical information. *International Journal of Geographical Information Systems* 5(3): 341-352**
- Camara A (1991) Hypersnige - A Navigation System for geographic information. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 175-179**
- Campari I (1991) Some Notes on Geographic Information Systems: The Relationship Between their Practical Application and their Theoretical Evolution. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 35-44**
- Campari I (1992) Human Impacts on Coastal Regions: An Integrated Conceptual Framework. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 791-797**
- Campbell H (1991) Organizational issues in managing geographic information. In: Masser I, Blakemore M (eds) *Handling Geographical Information.* Longman Scientific & Technical, Essex, pp 259-282, Vol 1**
- Campbell H, Masser I (1992) GIS in British Local Government: An Overview of Take-Up and Implementation. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 649-665**
- Campbell J, Steidler F (1992) The Strassle Approach to a Modem GIS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 564-573**
- Campbell W G (1987) The Environmental Protection Agency's Direct/Delayed Response Project: The Role of a Geographic Information System. *GIS '87, San Francisco, California.* ASP&RS, pp 456-467**
- Campbell W G, Church M R, Bishop G D, Mortenson**

- D C, Pierson S M** (1989) The role for a geographical information system in a large environmental project. *International Journal of Geographical Information Systems* 3(4): 349-362
- Campbell W G, Mortenson D C** (1989) Ensuring the Quality of Geographic Information System Data: A Practical Application of Quality Control. *Photogrammetric Engineering and Remote Sensing* 55(11): 1613-1618
- Campbell W J, Cromp R F** (1990) Evolution of an Intelligent Information Fusion System. *Photogrammetric Engineering and Remote Sensing* 56(6): 867-870
- Canters F** (1992) The Transformation of Positional Data for GIS Applications. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 732-741
- Cantrell C J, Bloesing D N, Burgess E H** (1992) Integration of a Water Distribution Management System with a Geographic Information System for Newport, Kentucky. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 109-119
- Capelleveen P A v, Heijden T G C v d, Leeters E E J M** (1991) Data processing for future rural development policy using a geographic Information System. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 180-186
- Capps P R, Meitzler W D, Millard W D** (1989) The Airland Battlefield Environment Integrated Software Environment. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 733-742
- Carbone G J, James L A, Holt P R** (1991) Application of GIS Technology to Climate Data in the Carolinas. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 683-693
- Caron L, Bherer L** (1991) Le SIURS de la Ville de Cap-Rouge. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 784-794
- Carreker S, Ransom G R** (1990) Funding-How to Get It-How to Use It. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 42-47
- Carrera A, Cardinali M, Detti R, Guzzetti F, Pasqui V, Reichenbach P** (1991) GIS Techniques and Statistical Models in Evaluating Landslide Hazard. *Earth Surface Processes and Landforms* 16: 427-445
- Carstensen L W, Campbell J B** (1991) Desktop Scanning for Cartographic Digitization and Spatial Analysis. *Photogrammetric Engineering and Remote Sensing* 57(11): 1437-1446
- Carver S** (1991) Adding error handling functionality to the GIS toolkit. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 187-196
- Carver S, Brunsdon C** (1992) Accuracy and Sampling Strategy in Second and Third GIS Databases: A Study by Simulation. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 244-253
- Carver S J** (1991) Integrating multi-criteria evaluation with geographical information systems. *International Journal of Geographical Information Systems* 5(3): 321-340
- Casey W** (1991) Upper Midwest Trade Center Patterns: 1960 and 1989. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 134-148
- Caspary W, Scheuring R** (1992) Error-Bands as A Measure of Geometrical Accuracy. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 226-233
- Cassel R A, Parker H D** (1989) Design and User Testing of a GIS User Interface. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 538-541
- Castle G** (1992) A Conceptual Framework for Setting Prices for Local Government Information-Related Products and Services. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 26-32
- Castle J R V** (1991) Remote Sensing and Modelling Activities for Long-Term Ecological Research. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 544-550
- Catalinotto B, Jansma G** (1991) The GIS Grid System as a Tool for Small Area Urban and Regional Analysis. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 230-241
- Catedra M** (1991) "Through the Door": A View of Space from an Anthropological Perspective. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 53-64
- Cavill M, Kirton P, Zwart P** (1989) networking GIS Users: The Impact of Broadband Networks. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Cavill M E, Greener S** (1988) Introducing Geographic Information systems Technology: Concepts Approval and Implementation. *URPIS 88, The Australasian Urban and Regional Information Systems Association Inc*

- Cavo V N, Saylor C H M** (1989) Newly Emerging Technologies and their Impact on AM/FM. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 794-803
- Census U B o t** (1990) Technical description of the DIME system. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems.* Taylor and Francis, London, pp 100-111
- Challender S R, Goreham D B, North R** (1991) Legislation for the Creation of a State Geographic Information Database in Utah. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 29-38
- Chambers D D** (1986) Development and Application of a Pilot Geographic Information system for the U.S Forest Service: Tongass National Forest. *Geographic Information Systems Workshop, Atlanta.* American Society for Photogrammetry and Remote Sensing, pp 162-171
- Champoux P, Maillette F, Bedard Y, Bherer L** (1991) Importance de definir une bonne structure de donnees lors l'implantation d'un SIRS. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 449-457
- Chan K K L, Tomlin C D** (1991) Map Algebra as a Spatial Language. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 351-360
- Chang K T** (1991) A Customized GIS for the Palouse Ranger District Clearwater National Forest. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 493-499
- Chang K T, Tsai B W** (1989) The Effect of DEM Resolution on Spatial Interpolation. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 40-49
- Chang K T, Tsai B W, Sun C H** (1988) Evaluation of a Geographic Information System for Slope Land Management. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 329-339
- Chao D K, Richardson R J H** (1991) Applications of a Geographic Information System at the Alberta Geological Survey: Past, Present and Future. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 602-606
- Chaparro E E, Stover J** (1992) Who Knows Where the Municipal Boundaries Really Are? Accurately Locating and Tracking Annexations in Orange County, Florida. *URISA 1992 Annual Conference Proceedings,* Washington, D. C. Urban and Regional Information Systems Association, pp 206-216
- Chappell S G, Haywood R M** (1991) The use of GIS as a Post Mission Analysis Tool in Submersible Autonomous Unmanned Vehicles. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 580-586
- Charlesworth P B** (1991) IACG - User Needs and Applications Sub-committee Activities Report. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 247-251
- Chavez P S, Sides S C, Anderson J A** (1991) Comparison of Three Different Methods to Merge Multiresolution and Multispectral Data: Landsat TM and SPOT Panchromatic. *Photogrammetric Engineering and Remote Sensing* 57(3): 295-303
- Cheiney J P, Touir A** (1991) FI-Quadtree: A New Data Structure for Content-Oriented Retrieval and Fuzzy Search. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases.* Springer-Verlag, Zurich, pp 23-34, Vol 525
- Chen J, Gong P, Newkirk R T, Davidson G** (1991) ZOMAP: a Knowledge-Based Geographical Information System for Zoning. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 150-157
- Chen Z T** (1987) Contour Generalization by a 3-Dimensional Spatial Low-Pass Filtering. *GIS '87, San Francisco, California.* ASP&RS, pp 375-386
- Chen Z T** (1988) Break Lines on Terrain Surface. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 781-790
- Chevallier J-J, Bedard Y** (1991) Echelles de mesure spatiale et processus de modelisation appliques aux SIRS. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 547-557
- Childers E L** (1992) Loudon County Soil Association Map: GIS Applications for Planners. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 261-263
- Chithambaram R, Barrera R, Beard K** (1991) Skeletonizing Polygons for Map Generalization. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 44-55
- Chock M** (1990) The Other Costs of Geographic Information Systems. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 526-531

- Chong D, Dudley G** (1988) Considerations in the Development of a GIS User Interface. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 665-672
- Chorley R, Buxton R** (1991) The government setting of GIS in the United Kingdom. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 67-79, Vol 1
- Chorowicz J, Breard J Y, Guillande R, Morasse C R, Prudon D, Rudant J P** (1991) Dip and Strike Measured Systematically on Digitized Three-Dimensional Geological Maps. *Photogrammetric Engineering and Remote Sensing* 57(4): 431-436
- Chorowicz J, Kim J, Manoussis S, Ruydant J P, Foin P, Veillet I** (1989) A New Technique for Recognition of Geological and Geomorphological patterns in Digital Terrain Models. *Remote Sensing and Environment* 29: 229-259
- Chou H, Ding Y** (1992) Methodology of Integrating Spatial Analysis/Modeling and GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 514-523
- Chou H-c** (1991) Design of a Language for Spatial Analysis. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 56-64
- Chou Y H** (1990) Modelling Fire Occurrence for Wildland Fire Management: A GIS Spatial Analysis for Fire Control and Prevention. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 440-449
- Chou Y H** (1991) A Network Analysis of Domestic Airline Transportation in the United States. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 518-527
- Chou Y H, Minnich R A, Salazar L A, Power J D, Dezzani R J** (1990) Spatial Autocorrelation of Wildfire Distribution in the Idyllwild Quadrangle San Jacinto Mountain California. *Photogrammetric Engineering and Remote Sensing* 56(11): 1507-1513
- Chrisman N, Dougenik J A, White D** (1992) Lessons for the Design of Polygon Overlay Processing from the ODYSSEY WHIRLPOOL Algorithm. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 401-410
- Chrisman N, Lester M** (1991) A Diagnostic Test for Error in Categorical Maps. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 330-348
- Chrisman N R** (1987) The Accuracy of Map Overlays: A Reassessment. *Landscape and Urban Planning* 14: 427-439
- Chrisman N R** (1987) Design of Geographic Information Systems Based on Social and Cultural Goals. *Photogrammetric Engineering and Remote Sensing* 53(10): 1367-1370
- Chrisman N R** (1987) Efficient digitizing through the combination of appropriate hardware and software for error detection and editing. *International Journal of Geographical Information Systems* 1(3): 265-278
- Chrisman N R** (1990) The accuracy of map overlays: a reassessment. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 308-320
- Chrisman N R** (1990) Deficiencies of sheets and tiles: building sheetless databases. *International Journal of Geographical Information Systems* 4(2): 15-16
- Chrisman N R** (1990) Efficient digitizing through the combination of appropriate hardware and software for error detection and editing. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 233-246
- Chrisman N R** (1991) The error component in spatial data. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 165-174, Vol 1
- Chrisman N R** (1991) Institutional and Societal Components of Cartographic Research. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 231-242
- Christel-Rose L M, Scarpace F L** (1991) Monitoring the Spatial Distribution of Aquatic Macrophytes: A Look at Plant Associations in Allequash Lake, WI. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 21-30
- Cialek C J, Chappell G B, Neff K C** (1991) Building a Feature-Based Digital Line Graph. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 65-72
- Cibula W G, Nyquist M O** (1987) Use of Topographic and Climatological Models in a Geographical Data Base to Improve Landsat MSS Classification for Olympic National Park. *Photogrammetric Engineering and Remote Sensing* 53(1): 67-75

- Cimon N, Coe P K, Quigley T M** (1990) Technical note: A regression technique for estimating the time required to digitize maps manually. *International Journal of Geographical Information Systems* 4(1)
- Cipolloni M J** (1992) Traffic Control Sign GIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 209-221
- Clapham S B, Beard K** (1991) The Development of an Initial Framework for the Visualization of Spatial Data Quality. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 73-82
- Clapp J L** (1990) GIS: Science Application Coherence: A Response. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 846-847
- Clapp J L, Moyer D D, Niemann B J** (1988) The Wisconsin Land Records Committee: Its Background Status Impact and Future. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA;
- Clark D M, Hastings D A, Kineman J J** (1991) Global databases and their implications for GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 217-231, Vol 2
- Clark D W** (1987) Cadastral Overlay: Ontological Accuracy. *GIS '87, San Francisco, California*. ASP&RS, pp 666-677
- Clark S R, MacGaffey N** (1988) Optical Disk Technology: Potential in Geographic Information Systems. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 541-549
- Clarke A** (1991) Data Quality Reporting in the Proposed Australian Spatial Data Transfer Standard. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 252-259
- Clarke A L** (1991) GIS Data Standards: Technical and Management Issues. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 444-455
- Clarke A L** (1991) GIS specification, evaluation and implementation. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 477-488, Vol 1
- Clarke M** (1990) Geographical information systems and model based analysis: towards effective decision support systems. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 165-176
- Clarsen H J, Blackburn J W** (1990) GIS in a World of Change (and Change in the World of GIS). *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Clatworthy B** (1991) Accuracy Improvement and Integration of Digitised/Analytical Spatial Database Information Systems. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 54-83
- Claussen H** (1991) Vehicle Navigation Systems. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography*. Pergamon Press, Oxford, pp 225-236
- Claussen H, Mark D M** (1991) Vehicle Navigation Systems. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 161-180
- Clercq F I** (1990) Information management within the planning process. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 59-68
- Cleynenbreugel J V, Fierens F, Suetens P, Oosterlinck A** (1990) Delineating Road Structures on Satellite Imagery by a GIS-Guided Technique. *Photogrammetric Engineering and Remote Sensing* 56(6): 893-898
- Cleynenbreugel J v, Fierens F, Suetens P, Oosterlinck A** (1991) A Strategy to incorporate GIS knowledge during Road Extraction from Satellite Imagery. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 197-206
- Clifford K R** (1991) Beyond the pain - A Realistic Review of GIS Implementation. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 918-940
- Close D L** (1989) GIS Databases for Environmental Studies and Resource Assessment. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Cobster P H, Gimblett H R, Kelley B B** (1987) Modelling Forest Recreation Policy Alternatives: A Geographic Information Systems Approach. *GIS '87, San Francisco, California*. ASP&RS, pp 577
- Cocks K D, Walker P A, Parvey C A** (1988) Evolution of a continental-scale geographical information system.

*International Journal of Geographical Information Systems* 2(3): 26-27

Coffelt T (1991) Ten Steps to a successful GIS. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 387-389

Cogels O (1992) Geomanagement: A Concept for Large Wide-Area Decentralized Management. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 864-872

Cola L D (1990) Global Vegetation Change in Complex Topography: A Colorado Prototype Study. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 772

Coleman D, Zwart P R (1992) Modelling Usage and Telecommunication Performance in Real-time Spatial Information Networks. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 144-153

Coleman T L (1991) Three-Dimensional Modeling of an Image-Based Geographical Information System for Land Use Planning. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 159-168

Coll D C (1991) Development in Equipment and Techniques: Microcomputer Graphics Environments. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography*. Pergamon Press, Oxford, pp 39-60

Collins B, Pitts J (1991) LIS Cadastral Data Capture: Accuracy Versus Cost. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 130-145

Colvin D A Jr., Gimblett H R (1991) A Methodology Incorporating GIS for Developing a Preservation Vegetation Management Strategy for Historic Landscapes: Dayton's Hill and Dalles Park. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 722-734

Compton B (1991) An Implementation of Raster-based Spatial Analysis as a Programming Language. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 207-215

Cone C, Bonner K (1991) Public/Private Partnership in Street Centerline GIS. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 137-143

Congalton R G (1990) Beware the Black Box. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 851-853

Connealy T (1992) A Complete and Innovative Raster

to Vector Conversion Algorithm. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1102-1110

Cooley R, Hobbs M (1992) An Application of AI to Computing Class Partition Values for Thematic Maps. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 371-380

Copas C, Medyckyj-Scott D (1991) Is there life after modelling? Putting the SUPPORT back into decision making with GIS. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 216-225

Coppock J T, Rhind D W (1991) The history of GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 21-43, Vol 1

Coppock T (1991) Retrospect and prospect: a personal view. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 285-304, Vol 1

Cornelius S (1991) Spatial data auditing. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 39-54

Corner R J (1990) Updating the Remnant Vegetation Theme of a GIS using classified Landsat Thematic Mapper Imagery. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 590-594

Corwin D L, Sorersen M, Rhoades J D (1991) Using a GIS to Locate Areas of Salinity Development on Irrigated Agricultural Soils. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 795-808

Cosentino B L, Saleh R A, Savory D J, Stewart J S, Wasserman R A (1991) GIS and Remote Sensing Techniques for Monitoring Wetland and Prairie Communities at the University of Wisconsin Arboretum. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 407

Costake N, Vasile C, Kovari D G (1991) The prospects and difficulties of building spatial indexed macro-socio-economic information systems in a changing economy. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 226-232

Coulson M R C (1991) Tactile-map output from geographical information systems: the challenge and its importance. *International Journal of Geographical Information Systems* 5(3): 353-360

Covington W W (1987) TEAMS: A Geographically

- Based Decision Support System for Multi-Resource Management. *GIS '87, San Francisco, California*. ASP&RS, pp 157-165
- Covington W W, Moore M M, Andarie S W** (1987) Changes in Forest Patterns and Multiresource Conditions in an Arizona Ponderosa Pine Forest Since European Settlement. *GIS '87, San Francisco, California*. ASP&RS, pp 701
- Coward P, Heywood I** (1991) Aspects of uncertainty in spatial decision making. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 233-242
- Cowden R W** (1988) A Professional Approach to Managing the Large Municipal Mapping Project. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 436-447
- Cowen D, Mitchell L, Meyer W** (1990) Industrial Modelling using a Geographic Information System: The First Step in Developing An Expert System for Industrial Site Selection. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 1-10
- Cowen D J** (1987) GIS vs CAD vs DBMS: What Are the Differences? *GIS '87, San Francisco, California*. ASP&RS, pp 46-56
- Cowen D J** (1988) GIS versus CAD versus DBMS: What are the differences? *Photogrammetric Engineering and Remote Sensing* 54(11): 1551-1555
- Cowen D J** (1990) GIS versus CAD versus DBMS: what are the differences? In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 52-62
- Cowen D J, Jensen J R, Halls J** (1991) Maintenance of TIGER files using remotely sensed data. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 31-40
- Cowen D J, Love S R** (1988) A Hypertext-Based Workstation for a Distributed GIS Network. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 285-294
- Cowen D J, Shirley W L** (1991) Integrated planning information systems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 297-310, Vol 2
- Craglia M** (1992) Jumping in at the Deep End: GIS in Italian Local Government. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 629-638
- Craig W, Tessar P, Khan N A** (1991) Sharing Graphic Data Files in an Open system Environment. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 170-179
- Craig W J** (1991) Empty Promises for Small Area Data: Monitoring Our Neighborhoods Using Operational Records. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 220-229
- Crain I K, Chapman M A** (1991) Representation of Spatial Objects in a Three-Dimensional GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 558-570
- Craven D** (1991) Urban growth detection in Kathmandu. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 41-50
- Cremers P, Stigglebout C** (1992) Geo-Information and the Spatial Information Manager. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 58-63
- Cress J J, Deister R R P** (1990) Development and Implementation of a Knowledge-Based GIS Geological Engineering Map Production System. *Photogrammetric Engineering and Remote Sensing* 56(11): 1529-1535
- Cromer D W** (1991) Usig GPS/GIS Technology for Highway Applications. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 901-902
- Crook C** (1991) Upgrading the Spatial Accuracy of the New Zealand Digital Cadastral Database. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 84-94
- Crossland M D** (1990) Hydrologic-A Prototype Geographic Information Expert System for Examining and Artificial Intelligence Application in a GIS Environment. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 225-233
- Croswell P L, Clark S R** (1988) Trends in Automated Mapping and Geographic Information System Hardware. *Photogrammetric Engineering and Remote Sensing* 54(11): 1571-1576
- Crowell M L** (1989) Application of a GIS to a Water Regulatory Permit Inventory. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 669-678
- Crowell M L** (1991) Management and Acquisition Considerations Affecting Selection of Properties for Natural Resource Protection. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 187-198

- Crump P S** (1990) Interdepartmental Analysis in a GIS While Maintaining Departmental Security. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 283-288
- Csalogovits I** (1992) RIM (Regional Integrated Monitoring) Project, a GIS Based Tool for the Intersectoral Integration of the Regional Policy. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 873-884
- Csillag F** (1991) Resolution Revisited. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 15-28
- Cully M** (1990) What We'd Do Over If We Had It To Do Over Again. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 182-190
- Cully M** (1991) Confessions of a GIS Project Manager. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 100-107
- Culp R J** (1991) Automated GIS Data Conversion. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 179-191
- Cuthbert A** (1991) GIS need structure, not topology. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 243-251
- Dale P E R, Ward D, Chandica A L** (1991) Image Subtraction of Digital Large Scale Colour Infrared Aerial Photographs to Monitor the Impacts of Habitat Modification on a Subtropical Coastal Wetland. In: *Singh R B (ed) Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 63-72
- Dale P F** (1991) Land information systems. In: *Maguire D J, Goodchild M F, Rhind D W (eds) Geographical Information Systems: principles and applications*. Longman, New York, pp 85-99, Vol 2
- Dale P F, McLaughlin J D** (1988) *Land Information Management*. Clarendon, Oxford.
- Dall J A** (1990) The Digital Orthophoto: The Cornerstone of GIS. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 314-316
- Dando L P** (1991) Open Records Law, GIS, and Copyright Protection; Life after Feist. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 1-17
- Dando L P** (1992) A Survey of State Open Records Laws in Relation to Recovery of Data Base Development Costs: An Ends in Search of a Means. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 85-110
- Dangermond J** (1988) A Technical Architecture for GIS. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 561-570
- Dangermond J** (1990) A classification of software components commonly used in geographic information systems. In: *Peuquet D J, Marble D F (eds) Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 30-51
- Dangermond J** (1990) How to cope with geographical information systems in your organisation. In: *Scholten H J, Stillwell J C H (eds) Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 203-214
- Dangermond J** (1990) A review of digital data commonly available and some of the practical problems of entering them into a GIS. In: *Peuquet D J, Marble D F (eds) Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 222-232
- Dangermond J** (1991) The commercial setting of GIS. In: *Maguire D J, Goodchild M F, Rhind D W (eds) Geographical Information Systems: principles and applications*. Longman, New York, pp 55-65, Vol 1
- Dangermond J** (1991) Where is the Technology Leading Us? . *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 1-5
- Dangermond J, Harrison J** (1987) Urban Geographic Information Systems: The San Diego Design Experience. *GIS '87, San Francisco, California*. ASP&RS, pp 387-395
- Dangermond J, Harnden E** (1991) Standardization of Thematic Cartographic Data. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 646-659
- Danko D M** (1990) The Digital Chart of the World Project. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 392-401
- Danko D M** (1991) The Digital Chart of the World Project. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 300-309
- Dansby H B** (1991) Informational Privacy and GIS. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 18-28
- Dansby H B** (1991) A Survey and Analysis of State

- GIS Legislation.** *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 441-450
- Davey C J** (1991) Other Costs and Limitations of Geographic Information Systems. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 834-845
- Davidson D, Selhan P, Watson A** (1992) The Evaluation of a GIS for Rural Environmental Planning. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 135-144
- Davies R E, Lein J K** (1991) Applying an Expert System Methodology for Solid Waste Landfill Site Selection. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 40-53
- Davis B E, Davis P E** (1988) Marine GIS: Concepts and Considerations. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 159-168
- Davis B E, Waring M R** (1987) Resource Management at Fort Benning: Design Considerations for Military Users. *GIS '87, San Francisco, California*. ASP&RS, pp 650-656
- Davis B E, Williams R** (1989) The Five Dimensions of GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 50-58
- Davis F W et al.** (1991) Environmental Analysis Using Integrated GIS and Remotely Sensed Data: Some Research Needs and Priorities. *Photogrammetric Engineering and Remote Sensing* 57(6): 689-697
- Davis F W, Simonett D S** (1991) GIS and remote sensing. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 191-213, Vol 1
- Davis F W, Stoms d M, Estes J E, Scepan J, Scott J M** (1990) An information systems approach to the preservation of biological diversity. *International Journal of Geographical Information Systems* 4(1)
- Davis J R, Whigham P, Grant I W** (1988) Representing and Applying Knowledge about Spatial Processes in Environmental Management. *AI Applications* (2): 17-25
- Davis J R, Whigham P, Grant I W** (1990) Representing and applying knowledge about spatial processes in environmental management. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 195-206
- Deakin R** (1992) GIS Customisation for Environmental Management Applications. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1066-1072
- Deck A C, Sur B** (1990) Generating a Continuous Mapbase from an Industry Standard RDBMS. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Dedischew J** (1992) Building and Running an Airport with AM/FM/GIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 146-159
- Deekshatulu B L, Hebbar J** (1991) Integration of Remote Sensing and Geographic Information System. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 15-38
- Deichmann U, Anselin L, Goodchild M** (1992) Estimation Issues in the Areal Interpolation of Socioeconomic Data. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 254-263
- Demark P V** (1992) Where Is Desktop GIS Headed? *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 54-61
- Densham P J** (1991) Spatial decision support systems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 403-412, Vol 1
- Densham P J, Goodchild M F** (1989) Spatial Decision Support Systems: A Research Agenda. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 707-716
- Depani R, Rousseau J** (1991) L'alliance stratégique dans la réalisation d'un projet SIRS. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 113-129
- Derenyi E, Pollock R** (1990) Extending a GIS to support Image-Based Map Revision. *Photogrammetric Engineering and Remote Sensing* 56(11): 1493-1496
- Despotakis V, Giaoutzi M, Nijkamp P** (1992) GIS as a DSS Tool for Sustainable Development Strategies on Greek Islands. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 173-185
- Deursen J W. P. A. van** (1991) Grids, a simple retrieval system for geographic information. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 252-257
- Devenish S P** (1991) GIS within the Local Government Planning Office. *Aurisa 91, Wellington New Zealand*.

- The Australasian Urban and Regional Information Systems Association, pp 537-545
- Devine H A, Rafkind C R, McManus J M (1991)** A new approach to GIS design and implementation: Colonial National Historic Park. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 51-60
- Devinsohn A (1987)** A Microcomputer Based GIS for Assessing Recreation Suitability. *GIS '87, San Francisco, California*. ASP&RS, pp 739-747
- Dewhurst W T (1989)** The Accurate and Rapid Transformation of Large Quantities of Positional Data from the North American Datum of 1927 to the North American Datum of 1983. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 69-81
- Dezzani R J, Chou Y H (1992)** A GIS Correspondence Analysis of Environmental Factors for Wildfire Management. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 167-179
- Dickinson H J (1989)** Techniques for Establishing the Value of Geographic Information and Geographic Information Systems. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 412-420
- Dickinson H J, Calkins H W (1988)** The economic evaluation of implementing a GIS. *International Journal of Geographical Information Systems* 2(4): 307-328
- Dickinson H J, Calkins H W (1990)** Comment on 'Concerning "The economic evaluation of implementing a GIS"'. *International Journal of Geographical Information Systems* 4(2): 21
- Dicks S, Christianson R (1991)** A GIS-Based Model for Identifying Lands for Acquisition for Water Resource Protection. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 219-229
- Dieber W (1992)** Misallocations in Past Population and Household Forecasts in Northeastern Illinois. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 162-171
- Dijk H v (1992)** Management Analysis North Sea (MANS): Planning at Sea. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 808-813
- Dijke J J V, Westen C J V (1990)** Rockfall hazard: a geomorphologic application of neighbourhood analysis with ILWIS. *ITC Journal* 1: 40-44
- Dikau R (1989)** The application of a digital relief model to landform analysis in geomorphology. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 51-78
- Ding Y, Densham P J, Armstrong M P (1992)** Parallel Processing for Network Analysis: Decomposing Shortest Path Algorithms for MIMD Computers. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 682-691
- DiPietro S M (1989)** User Interface of the Enhanced Production Capability, A Distributed Computing Environment for Geographic Database Production. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 646-655
- Dippon D, Cadwell C (1991)** Resource Management Planning - linking a land information system to a harvest scheduling model. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 157-166
- Dippon D R, Green P, Pearson D (1989)** Building the Western Oregon Digital Database for the 1990's Resource Management Planning Effort. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 276-285
- Dixon D, Keeler R, Mathieu B (1991)** The Generation of a Prototype USGS 1:24,000-Scale Topographic Map from Digital Line Graph Data. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 94-103
- Dlawa T (1987)** Accuracy of Digitizing: Overlooked Factor in GIS Operations. *GIS '87, San Francisco, California*. ASP&RS, pp 295-299
- Doahue J G (1989)** AM/FM - GIS/LIS in the 21st Century. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 520-527
- Dobbie D C, White R W (1991)** The Development and Future Directions for the Christchurch City Geographical Information System. *Aurisa 91, Wellington New Zealand*. The Australasian urban and Regional Information Systems Association, pp 546-557
- DoE (1987)** *Handling Geographic Information*. HMSO, London,
- Doel E v d (1992)** Evaluation of the Information on Geo-Databases in the Nexpri Informationbank. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 599-605

- Doganis T** (1991) GIS technology in application of new city plans. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 258-266
- Dolton L M, Difani C** (1992) Using GIS Technology for Damage Assessment. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 160-166
- Domsch R E** (1989) AM/FM/GIS - Corridor Models. The Automation of Cross-Country Facilities. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 181-186
- Donnay J-P, Roover B D** (1992) Benchmark Issues for the Evaluation of Hybrid GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 619-628
- Dorenbeck C, Egenhofer M J** (1991) Algebraic Optimization of Combined Overlay Operations. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 296-312
- Dosti P, Voigt A** (1992) 3-D Geographical and Spatial Information Systems based on Computer Aided City Development (CACD). *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 392-397
- Douglas B H** (1990) The Role of the Consultant in GIS/FM. *Aurisa 90*. The Australasian Urban and Regional Information Systems Association Inc
- Douglas D** (1990) It makes me so CROSS. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 303-307
- Dowers C, Gittings B M, Sloan T M, Waugh T C, Healy R G** (1990) Analysis of GIS Performance on Parallel Architectures and Workstation-Server Systems. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 555-561
- Dowie P J, Koval S J, Burnhill P M, Healey R G** (1991) GIS and community health care: a case study of geriatric service provision. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 267-276
- Driels J N V** (1989) Three dimensional display of geologic date. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 1-10
- Driessens R, Habraken F** (1991) Integration Issues Confronting Our Sunrise Industry. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 348-361
- Driessens R, Zwart P** (1989) A Model for Representing Cultural Parcels in a GIS. *URPI 89*, The Australasian Urban and Regional Information Systems Association Inc
- Droeser W J, Olsthoorn T N** (1991) Incorporating system knowledge in kriging of piezometric head. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 277-285
- Drummond J, Bosma M** (1989) A review of low-cost scanners. *International Journal of Geographical Information Systems* 3(1): 6-7
- Drummond J, Ramlal B** (1992) A Prototype Uncertainty Subsystem Implemented in ITC's ILWIS PC-Based GIS, and Tested in a Dutch Land Reallotment Project. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 234-243
- Dudgeon G S, Fry W B** (1990) Rangeland Vegetation Monitoring using NOAA AVHRR Data 3: An NDVI Based GIS for Pastoral Management. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 868-871
- Duecker G T, Platt J T** (1990) The Role of Automated Data Checks in the Quality Assurance of GIS Data Bases. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 264-271
- Dueker K** (1992) Role and Use of IS/GIS in Assessing Land Use/Transportation Plans. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 168-176
- Dueker K J** (1987) Multipurpose Land Information Systems: Technical, Economic and Institutional Issues. *Photogrammetric Engineering and Remote Sensing* 53(10): 1361-1365
- Dufourmont H, Gulinck H, Wouters P** (1991) Relief dependent landscape typology derived from spot data. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 286-293
- Dulancy R A** (1987) A Geographic Information System for Large Area Environmental Analysis. *GIS '87, San Francisco, California*. ASP&RS, pp 206-215
- Duncan B W, Painho M O, Davis F W** (1990) Utilising GIS Technology for Combining Regional Vegetation Maps. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 773-779
- Dunn R, Harrison A R, White J C** (1990) Positional accuracy and measurement error in digital databases of land use: an empirical study. *International Journal of Geographical Information Systems* 4(4): 385-398

- Durako K** (1990) Technical Start-Up Problems in GIS Project Management. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 798-802
- Durako K** (1991) Research and development activities at the Defense Mapping Agency's new Warrior Support Center. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 61-65
- Durgin P M** (1989) Database Guidelines: Are the Surveyors and Assessors on the Same Page? *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 342-347
- Dutta S** (1991) Topological Constraints: A Representational Framework for Approximative Spatial and Temporal Reasoning. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 161-182, Vol 525
- Dutton G** (1991) Zenithial Orthotriangular Projection. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 77-95
- Dutton G** (1991) Improving Spatial Analysis in GIS Environments. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 168-185
- Dutton G** (1991) What's the Big Deal about Global Hierarchical Tesselation? *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 418-422
- Dutton G** (1992) Handling Positional Uncertainty in Spatial Databases. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 460-469
- Dykstra J, Long O** (1988) The Integration of Image Processing and Topologically Structured GIS to Make Optimum Use of Remotely Sensed Data. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 417
- Easterfiels M, Newell R G, Theriault D** (1991) Modelling spatial and temporal information. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 294-304
- Eastman J R** (1987) Access to Technology: The Design of the IDRISI Research System. *GIS '87, San Francisco, California*. ASP&RS, pp 166-175
- Ebner H, Eder K** (1992) State-of-the-art in Digital Terrain Modelling. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 681-690
- Eckhardt D W, Verdin J P, Lyford G R** (1990) Automated Update of an Irrigated Lands GIS Using SPOT HRV Imagery. *Photogrammetric Engineering and Remote Sensing* 56(1): 1515-1522
- Edmonds A K** (1992) A Methodology for the Comparison and Specification of the Geographic Information System User Interface. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 82-90
- Edmondson P H** (1989) Transition from a Closed Shop GIS to a True Distributed GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 161-170
- Edmondson P H** (1991) Addressing Organizational Impacts Affected by the Transition from a Centralized GIS to a Distributed GIS. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 42-55
- Edrain J S** (1991) Conference Report. International Conference on Geographic Information Systems Applications for Urban and Regional Planning. *International Journal of Geographical Information Systems* 5(1): 147-154
- Edwards D R, Foresman T W** (1990) High Speed Digital Solutions for GIS Network Communications in Nevada. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 328-334
- Edwards G** (1991) Spatial Knowledge for Image Understanding. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 295-308
- Edwards G** (1992) Error Minimization in Integrated GIS/IAS System Design. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 20-29
- Edwards S L** (1991) Promoting a Mature Multi-Jurisdictional GIS. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 127-136
- Egenhofer M J** (1991) Deficiencies of SQL as a GIS Query Language. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 477-492
- Egenhofer M J** (1991) Reasoning About Binary Topological Relations. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 143-160, Vol 525
- Egenhofer M J, Frank A U** (1990) LOBSTER:

- Combining AI and Database Techniques for GIS.** *Photogrammetric Engineering and Remote Sensing* 56(6): 919-926
- Egenhofer M J, Herring J R** (1991) High-level spatial data structures for GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 227-237, Vol 1
- Egenhofer M J, Sharma J** (1992) Topological Consistency. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 335-343
- Egesborg P** (1991) A Database Approach to GIS Implementation. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 815-824
- Eginton D W** (1992) Achieving Consensus on GIS Map Accuracy. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 12-23
- Ehlers M, Amer S** (1991) Geoinformatics: an integrated approach for acquisition, processing and production of geodata. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 306-312
- Ehlers M, Edwards G, Bedard Y** (1989) Integration of Remote Sensing with Geographic Information Systems: A Necessary Evolution. *Photogrammetric Engineering and Remote Sensing* 55(11): 1619-1627
- Ehlers M, Greenlee D, Smith T, Star J L** (1991) Integration of Remote Sensing and GIS: Data and Data Access. *Photogrammetric Engineering and Remote Sensing* 57(6): 669-675
- Ehlers M, Jadkowski M A, Howard R R, Brostuen D E** (1990) Application of SPOT Data for Regional Growth Analysis and Local Planning. *Photogrammetric Engineering and Remote Sensing* 56(2): 175-180
- Eichelberger P** (1992) Building the IS/GIS Capability to Support Policies, Plans, and Programs: a Local Government Perspective. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 262-271
- Eidel T F** (1988) AHDS: Alaska Hydrography Digitizing System: An Overview of a Specific Use GIS. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 469-474
- Eidel T F, Crouch J L** (1988) The ARSUP Database and Its Access through the CMCIRS Catalog: Making Available to the Public Digital Maps from the ARSUP Process. *Photogrammetric Engineering and Remote Sensing* 54(3): 389-394
- Elliott W T** (1991) What Can Computer Integrated Manufacturing Tell Us About the Future of GIS? *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 903-911
- Elmes G A** (1991) Design and Implementation of a User Interface for Decision Support in Natural Resource Management. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 399-406
- Elmes G A** (1992) Data Quality Issues in User Interface Design for a Knowledge-Based Decision Support System. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 303-312
- Elroi D** (1988) GIS and Schematic Maps: A New Symbiotic Relationship. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 220-229
- Emery H A** (1990) Functional Requirements: What and How to Manage. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 516-525
- Emery H A** (1991) A Cookbook Approach to AM/FM/GIS Project Development. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 912-916
- Emery H A** (1992) Knowledge-Based Systems - The Next Generation. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 1-7
- Enache M** (1991) Maximizing the Value of Information in Urban Policy-Making. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 65-76
- Epstein E F** (1991) Legal aspects of GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 489-502, Vol 1
- Epstein E F, Roitman H** (1990) Liability for information. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 364
- Epstein M L** (1991) Developing the most successful GIS Cost-Benefit Analysis. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 485-500
- Ervin S M** (1992) A Methodology for Integrating Visualization, Geographic and Environmental Analysis in Site Planning and Design. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 277-290

- Estes J E, McGwire K C, Fletcher G A, Foresman T W** (1987) Coordinating hazardous waste management activities using geographical information systems. *International Journal of Geographical Information Systems* 1(4): 359-378
- Evangelatos T** (1991) IACG - Geomatic Standards in the Federal Government Subcommittee Activities Report. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 239-243
- Evangelatos T V** (1991) Digital Geographic Interchange Standards. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography*. Pergamon Press, Oxford, pp 151-166
- Evans B M** (1987) Assessing regional groundwater pollution potential with a geographic information system. *Third annual groundwater technology meeting, New York*, , pp 243-264
- Evans B M, Myers W L** (1990) A GIS-based approach to evaluating regional groundwater pollution with DRASTIC. *Soil and Water Conservation* : 242-245
- Evans J, Ferreira J, Thompson P** (1992) A Visual Interface to Heterogeneous Spatial Databases Based on Spatial Metadata. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston, IGU Commission of GIS*, pp 282-293
- Evers H W, Scholten H J** (1991) How to integrate raster and vector, formats and standards, hardware and people. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 313-322
- Eweg R** (1992) Exploring Possible Directions of Development in a Rural Area with GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 19-28
- Exler R D** (1987) Appropriate Uses of Topology in Geographic Information Management Systems. *GIS '87, San Francisco, California*. ASP&RS, pp 234-238
- Exler R D** (1988) Integrated Solutions for GIS/LIS Management. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 814-824
- Eyre L A** (1989) JAMGIS, the first Jamaican Government comprehensive multi-data geographical information system. Achievements and problems. *International Journal of Geographical Information Systems* 3(4): 363-372
- Fabbri A, Valenzeula C R, Kushigbor C** (1991) GIS Training and Research Methods for Resource Management in Developing Countries. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 1024-1035
- Fahsi A, Ulliman J J, Chang K T** (1990) The Effect of the Source and Spatial Resolution of Digital Elevation Models on Contour Map Accuracy. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIIS and AM/FM International, pp 335-342
- Fain M** (1991) Automated data conversion: technology and case studies. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 411-422
- Fain M A** (1991) Quality through Conversion Process Management. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIIS and AM/FM International, pp 137-141
- Fairbairn D J, Peedell S** (1991) Analytical GIS in Property Management and Development. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 104-110
- Fairhurst K, Vincent-Jones D** (1991) Forest landscape management opportunities using a 3-D image analysis system. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 289-291
- Falloux F, O'Brien C, Genderen J L v** (1991) Environmental Information Systems for renewable resource management in sub-Saharan Africa issues. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 323-332
- Fatale L A, Messmore J A** (1988) The Army's Evaluation of Tactical Terrain Data (TTD). *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 791-799
- Faucher C, Landreville M J G** (1991) Determining Physiographic Parameters for Hydrologic Modelling Using a Geographic Information System. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 333-344
- Faust N L** (1987) Automated Data Capture for Geographic Information Systems: A Commentary. *Photogrammetric Engineering and Remote Sensing* 53(10): 1389-1390
- Faust N L** (1991) Display Technologies for Remote Sensing / GIS. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 66-76
- Faust N L** (1991) How Atlanta and Georgia Tech Used GIS to Help Win the 1996 Summer Olympic Games. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIIS and AM/FM International, pp 917-921
- Faust N L, Anderson W H, Star J L** (1991) Improved Integration of Remote Sensing and Geographic Information systems: A Background to NCGIA Initiative 12.

- Fedra K, Reitsma R F** (1990) Decision support and geographical information systems. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 177-190
- Fels J E** (1990) Bivariant Color Mapping Techniques for Topographic Visualisation and the Applications in Site Appraisal. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 780-788
- Fels J E** (1992) Viewshed Simulation and Analysis: An Interactive Approach. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 264-276
- Fels J E, Devine H A** (1991) Interactive Viewshed Mapping Using Shaded Surface Displays: A Community Planning Application. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 111-121
- Fenn G, Weston K A** (1989) The Impact of GIS Technology on Forest Management and Forest managers: Five Years Experience. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Fenstermaker L K** (1991) A Proposed Approach for National to Global Scale Error Assessments. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 293-300
- Ferber D** (1991) Tracking Tiger: The Use, Verification and Updating of Tiger Data. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 230-239
- Fernandez C O** (1992) Modeling the Earth to Environmental Protection. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1483-1494
- Fernandez R N, Lozano-Garcia D F, Deeds G, Johannsen C J** (1991) Accuracy Assessment of Map Coordinate Retrieval. *Photogrammetric Engineering and Remote Sensing* 57(12): 1447-1452
- Ferrier S** (1990) Applying GIS to Environmental Survey Design, Analysis and Extrapolation. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Ferris J S, Congalton R G** (1989) Satellite and Geographic Information System Estimates of Colorado River Basin Snowpack. *Photogrammetric Engineering and Remote Sensing* 55(11): 1629-1635
- Fierens F, Cleynenbreugel J V, Suetens P, Oostertinck A** (1991) A Software tool for Symbolic Reasoning on Raster Based Image Data. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 333-341
- Filacek A, Hojdar J** (1992) Linear Model Approach to Behavior of Region (Town). *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 782-790
- Finey M A, Bain N R** (1989) Analyzing landslip hazards with GIS technology. *Public Works* 120: 59-60
- Finniear L J** (1991) Artificial Intelligence: Its Impact on the Future of Geographic Information systems. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 78-89
- Firns P, Benwell G** (1991) ER on the Side of Spatial Accuracy. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 192-202
- Firns P G** (1989) Modelling Locational and Descriptive Data for a Pipe Network Information system. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Firns P G** (1990) Entity Relationship Modelling in GIS Design: An Efficacious Approach or an Exercise in Futility. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Fischel D, Labovitz M L** (1987) Geocoded Imagery from Space: A New Source of Data for GIS's. *GIS '87, San Francisco, California*. ASP&RS, pp 239-246
- Fischer M, Traxler J, Staufer P, Daroczi Z, Magenschab G** (1992) Geographic Information System Development at the Vienna University of Economics and Business Administration. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1246-1255
- Fisher M J** (1992) Technology Trends for GIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 62-70
- Fisher P F** (1987) The Nature of Soil Data in GIS: Error or Uncertainty. *International Geographic Information Systems Symposium: The Research Agenda, Arlington Virginia*. National Aeronautics and Space Administration, pp 307-318
- Fisher P F** (1991) Simulation of the Uncertainty of a Viewshed. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 205-218

- Fisher P F** (1991) Spatial data sources and data problems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 175-189, Vol 1
- Fisher P F** (1992) Real-Time Randomization for the Visualization of Uncertain Spatial Information. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 491-494
- Fisher P F, Lindberg R E** (1989) On Distinctions among Cartography, Remote Sensing and Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 55(10): 1431-1434
- Fisher T A, Boudreau R** (1991) Data Management for Global Change. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 138-144
- Fitzgerald C** (1987) Justifying a GIS for a Local Planning Agency. *GIS '87, San Francisco, California*. ASP&RS, pp 10-18
- Flacke W, Auerswald K, Neufang L** (1990) Combining a Modified Universal Soil Loss Equation with a Digital Terrain Model for Computing High Resolution Maps of Soil Loss Resulting from Rain Wash. *Catena* 17: 383-397
- Fletcher G** (1988) A Local Government Approach to a Multipurpose GIS. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 81-90
- Fletcher G A** (1987) GIS Use for Hazardous Waste Site Characterization of NAEC Lakehurst New Jersey. *GIS '87, San Francisco, California*. ASP&RS, pp 176-186
- Flewelling D, Frank A U, Egenhofer M J** (1992) Constructing Geological Cross Sections with a Chronology of Geologic Events. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 544-553
- Floriani L D, Nagy G, Puppo E** (1992) Computing a Line-of-Sight Network on a Terrain Model. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 672-681
- Flowerdew R** (1991) Spatial data integration. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 375-387, Vol 1
- Flowerdew R, Green M** (1991) Data integration: statistical methods for transferring data between zonal systems. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 38-54, Vol 1
- Fogleman B** (1991) Assessing the effects of aircraft overflights: a spatial analysis approach based on a GIS. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 329-333
- Foley M E** (1988) Beyond the Bits, Bytes and Black Boxes: Institutional issues in Successful LIS/GIS Management. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 608-617
- Fonseca A, Camara C A, Ferreira F** (1992) Functions for a Multimedia GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1095-1101
- Fonseca A, Raper J** (1992) Assessing the Use of Multimedia Tools in the Development of GIS Educational Materials. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1238-1245
- Foresman T W** (1987) Present and Future Role of GIS Technology for Hazardous Waste Facility Management. *GIS '87, San Francisco, California*. ASP&RS, pp 468-475
- Foresman T W** (1991) Ensuring Long-Term Viability of a County-Wide GIS Network through Interlocal Agreements. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 21-26
- Forrester N W, Vanderwall K S** (1987) Implementation of a GIS on a National Forest: Operational Realities. *GIS '87, San Francisco, California*. ASP&RS, pp 187-195
- Fox J M** (1991) Spatial information for resource management in Asia: a review of institutional issues. *International Journal of Geographical Information Systems* 5(1): 59-72
- Franchek R J, Biggam P F** (1988) Introducing GIS Concepts Training within U.S. Department of Agriculture Soil Conservation Service. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 673-677
- Frank A** (1992) Spatial Reasoning - Theoretical Considerations and Practical Applications. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 310-319
- Frank A U** (1988) Requirements for a Database Management System for a GIS. *Photogrammetric Engineering and Remote Sensing* 54(11): 1557-1564
- Frank A U** (1991) Design of Cartographic Databases. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 15-44

- Frank A U** (1991) Properties of Geographic Data: Requirements for Spatial Access Methods. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 225-236, Vol 525
- Frank A U** (1991) Qualitative Spatial Reasoning about Cardinal Directions. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 148-167
- Frank A U, Egenhofer M J, Kuhn W** (1991) A Perspective on GIS Technology in the Nineties. *Photogrammetric Engineering and Remote Sensing* 57(11): 1431-1436
- Frank A U, Hudson D L** (1987) The Future GIS: An Expert System? *URPIS 87*, The Australasian Urban and Regional Information Systems Association Inc
- Frank A U, Mark D M** (1991) Language issues for GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 147-163, Vol 1
- Franklin W R** (1991) Computer systems and low-level data structures for GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 215-225, Vol 1
- Freda K, Reitsma R F** (1990) Decision support and geographical information systems. In: Scholten H J, Stillwell J C H (eds) *Geographical information systems for urban and regional planning*. Kluwer: GeoJournal Library, , pp 177-188
- Frederick D G** (1991) Coordination of Surveying Mapping and Related Spatial Data Activities. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 374-380
- Freeman H** (1991) Computer name placement. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 445-456, Vol 1
- Freeston M** (1992) The comparative performance of BANG Indexing for Spatial Objects. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 190-199
- Freksa C** (1991) Qualitative Spatial Reasoning. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 361-372
- French S P** (1991) A Knowledge-Based Approach to Using Existing Data for Seismic Risk Assessment. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 226-237
- French S P** (1992) Reconciling Census and Tax Assessor Mapping Systems. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 245-254
- French S P, Belknap R** (1991) Analyzing Rural Development Policies Using a Geographic Information System. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 1-14
- Freund J, Kube R, Rosenow G, Wilmerstadt B** (1992) The Application of Cadastral Maps as Spatial Reference for an Urban GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 742-750
- Freudschuh S M** (1991) The Effect of the Pattern of the Environment on Spatial Knowledge Acquisition. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 167-184
- Freudschuh S M, Gould M D** (1991) Empirical User Testing for Validation of GIS Design. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 922-931
- Frey P E** (1991) DMA Digital Product Specifications and Standards. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 142-149
- Friedley D, Colbert L** (1991) Reaching for Consensus in Public Information Access Policies. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 50-64
- Fritsch D, Pfannenstein A** (1992) Conceptual Models for Efficient DTM Integration into GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 701-710
- Frosh R** (1989) A Method of Accessing Large Spatial Databases. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 485-494
- Frysinger S P** (1992) Interactive GIS for Environmental Decision Support . *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 454-459
- Fullerton R O, Fallas J** (1991) Environmental Assessment: Palo Verde National Park Costa Rica. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 932-944
- Gahegan M N** (1989) An efficient use of quadtrees in a geographical information system. *International*

*Journal of Geographical Information Systems* 3(3): 201-214

**Gahegan M N, Roberts S A (1988)** An intelligent, object-orientated geographical information system. *International Journal of Geographical Information Systems* 2(2): 101-110

**Gandhi S (1991)** Public and Private Access to Geographic Information Systems: Economic and Legal Policy Implications. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 945-953

**Gannon J (1991)** Current and future GIS applications in the city of Halifax. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 425-427

**Ganter J H (1988)** Interactive Graphics: Linking the Human to the Model. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 230-239

**Gao J, Lo C P (1991)** GIS Modelling of the Influence of Topography and Morphology on Landslide Occurrence in Nelson County Virginia. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 954-963

**Garcia A B, Nicieza C G, Mere J B O, Diaz A M (1992)** A Contour Line Based Triangulating Algorithm. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 411-423

**Gardels K (1988)** GRASS in the X-Windows Environment Distributing GIS Data and Technology. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 751-758

**Gardels K (1992)** Sequoia 2000: New Geographic Information Management Technologies for Global Change Research. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 922-929

**Gardels K D, McCreary S T, Huse S (1990)** Land Use Policy Analysis with GIS: San Francisco Bay Estuary. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 191-199

**Gardner T W, Petersen G W (1988)** Spot Assisted Analysis and Modelling of Contaminant Discharge from Disturbed Lands. Environmental Resources Research Institute: The Pennsylvania State University.

**Garg P K, Harrison A R (1990)** The Use of GIS for Hydrologic and Erosion Modelling: A Case Study in South East Spain. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc

**Garner B J, Zhou Q (1991)** GIS Education and

Training: An Australian Perspective. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 388-398

**Garza R J, Foresman T W (1991)** Embedding Quality into County-Wide Data Conversion. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 130-136

**Gatrell A C (1989)** On the spatial representation and accuracy of address-based data in the United Kingdom. *International Journal of Geographical Information Systems* 3(4): 335-348

**Gatrell A C (1991)** Concepts of space and geographical date. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 119-134, Vol 1

**Gatrell A C, Vincent P (1991)** Managing natural and technological hazards. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 148-180, Vol 1

**Geertman S (1992)** The GIS-CAD Debate within a Physical Planning Context: The Desirability of Integration. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 492-501

**Geertman S C M, Toppen F J (1990)** Regional planning for new housing in Randstad Holland. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 95-106

**Gemmell F M, Kushigbor C, Goodenough D G, Meunier J F (1991)** A Systematic Approach to Data Integration for Resource Management and Data Base Analysis. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 495-506

**Genest P (1992)** Computerized Field Activities - Current Use and Future of Emerging Pen-Based Technology. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 200-209

**Gentry T A, Wakefield J James A. (1991)** Methods for Measuring Spatial Cognition. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 185-218

**George M (1991)** GIS and Information Technology in the Third World. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 106-109

**Giffin B, McKay L, Michell-Viret C, Gutherie J, Jacob R (1992)** Information Systems Inputs to

- Programs: Application of IS/GIS in Government.**  
*URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 206-239
- Gilliland M W, Baxter-Potter W (1987) A Geographic Information System to Predict Non-Point Source Pollution Potential.** *Water Resources Bulletin* 23(2): 281-291
- Gilruth P T, Hutchinson C F, Barry B (1990) Assessing Deforestation in the Guinea Highlands of West Africa Using Remote Sensing.** *Photogrammetric Engineering and Remote Sensing* 56(10): 1375-1382
- Gilson H L (1992) BLM's Geographic Coordinate Data Base - Is It a Step in the Right Direction?** *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 34-38
- Gimblett H R (1987) A Method for Assessing and Revitalizing Nonproductive or Under-Utilized Agricultural Land for Alternative Rural Development: A Case Study.** *GIS '87, San Francisco, California.* ASP&RS, pp 569-576
- Gimblett H R, Ball G L (1991) Adaptation in Natural Systems: An Intelligent Action Model Which Incorporates Artificial Intelligence (AI) Within a Spatial Dynamic Modeling Framework.** *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 996-1008
- Gimblett R H, Itami R M (1988) Linking GIS with Video Technology to Simulate Environmental Change.** *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 208-219
- Glemser M, Martin U, Bill R (1992) Development of a Facility Management System for Water Supply for Medium-Sized Municipalities.** *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1398-1407
- Gluck M (1991) Making Sense of Human Wayfinding: Review of Cognitive and Linguistic Knowledge for Personal Navigation with a New Research Direction.** In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 117-136
- Goad C C (1991) Positioning with the Global Positioning System Satellites.** *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 240-246
- Goh P-C (1989) A graphic query language for cartographic and land information systems.** *International Journal of Geographical Information Systems* 3(3): 245-256
- Gold C (1992) An Object-based Dynamic Spatial Model, and its Application in the Development of a User-Friendly Digitizing System.** *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 495-504
- Gold C, Cormack S (1987) Spatially ordered networks and topographic reconstructions.** *International Journal of Geographical Information Systems* 1(2): 137-148
- Gold C M (1988) PAN graphs. An aid to GIS analysis.** *International Journal of Geographical Information Systems* 2(1): 29-42
- Gold C M (1989) Surface interpolation, spatial adjacency and GIS.** In: Raper J (ed) *Three dimensional applications in Geographical Information Systems.* Taylor and Francis, London, pp 21-36
- Goldsmith R D (1988) Integrated System for Regional Analysis.** *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 169-173
- Goodchild M F (1987) A spatial analytical perspective on geographical information systems.** *International Journal of Geographical Information Systems* 1(4): 327-334
- Goodchild M F (1990) Modelling Error in Spatial Databases.** *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 154-162
- Goodchild M F (1991) Integrating GIS and Environmental Modelling at Global Scales.** *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 117-127
- Goodchild M F (1991) Issues of Quality and Uncertainty.** In: Muller J C (ed) *Advances in Cartography.* Elsevier Applied Science, London, pp 113-140
- Goodchild M F (1991) Keynote Address: Symposium on Spatial Database Accuracy.** *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne.* University of Melbourne, pp 1-16
- Goodchild M F (1991) Progress on the GIS research agenda.** *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 342-350
- Goodchild M F (1991) Spatial Analysis with GIS: Problems and Prospects.** *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 40-48
- Goodchild M F (1991) The technological setting of GIS.** In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles*

- and applications.* Longman, New York, pp 45-54, Vol 1
- Goodchild M F, Gopal S (1989) Accuracy of Spatial Databases.** Taylor and Francis, London,
- Goodchild M F, Rizzo B R (1987) Performance evaluation and work-load estimation for geographic information systems.** *International Journal of Geographical Information Systems* 1(1): 67-76
- Goodchild M F, Rizzo B R (1990) Performance evaluation and work-load estimation for geographic information systems.** In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems.* Taylor and Francis, London, pp 353-363
- Goodenough D G (1988) Thematic Mapper and SPOT Integration with a Geographic Information System.** *Photogrammetric Engineering and Remote Sensing* 54(2): 167-176
- Gooding R, Settle J (1992) Improved Extraction of Information from Satellite Imagery for Use in GIS.** *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1355-1364
- Goodwin C W (1987) The On-Line Atlas: A GIS for Flight Simulation.** *GIS '87, San Francisco, California.* ASP&RS, pp 678-684
- Gornitz V, Kanciruk P (1988) Development of a global coastal hazards data base.** *GIS: Integrating technology and geoscience applications, Denver, Colorado.* NAS, Washington, pp 111-112
- Gorte B (1991) Data integration in future version of 'ILWIS' software.** *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 351-358
- Gottsegen J (1990) Institutionalising Geographic Information System Implementations for Long Term System Support.** *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 904-909
- Gottsegen J, Radke J (1989) Interagency Cooperation in the Construction of a Land Information System (LIS) to Evaluate Transfer to Development Rights (TDR) Ordinances.** *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 204-210
- Gottsegen J, Radke J (1990) Geographic Analysis: The Untapped Potential of Automated Geographic Information Systems.** *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 910-918
- Gould M (1992) GIS Technology Transfer in Spain:** Collaboration between Industry and Academia. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 64-73
- Gould M D (1989) Human Factors Research and its Value to GIS User Interface Design.** *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 542-550
- Gould M D (1991) Elicitation of Spatial Language to Support Cross-Cultural Geographic Information Systems.** In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 435-448
- Gould M D, Tatham J A, Savitsky B (1988) Applying Spatial Search Techniques to Chemical Emergency Management.** *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 843-851
- Gouw P H A d (1990) Fixed asset management and geographical information systems in the Netherlands.** In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 69-76
- Grady R K (1988) Data Lineage in Land and Geographic Information Systems (GIS/LIS).** *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 722-730
- Granger K (1990) Is Defence Ready for GIS and are GIS Ready for Defence.** *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Gray M, Schultz F (1991) Creating a digital natural resource database.** *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 393-398
- Gray S L, Lowe J J, Power K (1991) The Canadian Forest Resource Data System: a GIS with a one to many relationship of polygons to records.** *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 191-201
- Grayson T H (1991) Expanding GIS Functionality Using DBMS Tools: A Network Analysis Prototype Based on SQL.** *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 145-155
- Green K, Congalton R G (1990) Mapping Potential Old Growth Forests and Other Resources on National Forest and Park Lands in Oregon and Washington.** *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 712-723
- Green N P A (1987) Teach yourself geographical information systems: The design, creation and use of demonstrators and tutors.** *International Journal of*

- Geographical Information Systems* 1(3): 279-290
- Greenlee D D** (1987) Raster and Vector Processing for Scanned Linework. *Photogrammetric Engineering and Remote Sensing* 53(10): 1383-1387
- Grelot J-P** (1991) Cartographers and Microcomputers. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography*. Pergamon Press, Oxford, pp 237-248
- Grenfell R I, Finegan A F** (1991) GIS Technology Transfer: Interaction between Academia and Industry. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 393-401
- Grenney W J, Marshall H N** (1991) Prototype Rule-Based Decision Support System Using Data from Remote Sensors. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 78-84
- Gribb W J** (1991) Integrating Visitor Surveys, Environmental Factors and GIS Into Recreation Planning: Site Development at Grayrocks Reservoir, Wyoming. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 177-186
- Gribb W J, Czerniak R J** (1988) Databases and Rural Addressing Geographic Information Systems. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 941-947
- Grice D B, Brass J A** (1991) Application of Remote Sensing Technology for Real Time Disaster Assessment. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 817-827
- Grid-UneP** (1991) An Analysis of Deforestation and Associated Environmental Hazards in Northern Thailand. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 137-150
- Grieco D** (1992) Integrated Solutions for the Evaluation and Clean-Up of Contaminated Land. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1059-1065
- Griffin J S, Metzger D R** (1991) Bathymetric Data Management at the National Geophysical Data Centre. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 659-667
- Grifin C, Herrington L P** (1991) Design of a testbed for GIS procedures. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 77-86
- Grimshaw D** (1992) The Use of Geographical Information Systems by Building Societies in the UK. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 988-997
- Grimshaw D J** (1988) The use of land and property information systems. *International Journal of Geographical Information Systems* 2(1): 57-66
- Grimshaw D J** (1989) GIS As Decision Support Systems. *URPI 89, The Australasian Urban and Regional Information Systems Association Inc*
- Grimshaw D J** (1991) A framework for considering GIS in the information management strategy. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 359-368
- Griner A J** (1989) The Automation of DRASTIC: A Regional Model for Mapping Susceptibility of Groundwater Contamination. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 679-684
- Groen J** (1988) A Strategy for Investing in Urban and Rural Development. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 314-321
- Grootenboer M M** (1991) Aeronautical data bases in airlines and aviation boards. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 369-377
- Grothe M, Heuvelmans E** (1991) A GIS-based DSS for facility location planning towards an application in the Dutch banking sector. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 378-386
- Grothe M, Scholten H** (1992) Modeling Catchment Areas Towards the Development of Spatial Decision Support Systems for Facility Location Problems. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 978-987
- Grunreich D, Powitz B, Schmidt C** (1992) Research and Development in Computer-Assisted Generalization of Topographic Information at the Institute of Cartography, Hanover University. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 532-541
- Grussefeldt J, Saurer H** (1991) Relief elements in models of heat stress on human beings. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 387-395
- Gugan D J** (1988) Satellite Imagery as an Integrated GIS Component. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 174-180
- Gugan D J, Hartnall T J** (1989) Applications of Digital Terrain Modelling Within a GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 771-780

- Gupta A, Weymouth T E, Jain R** (1991) An Extended Object-Oriented Data Model for Large Image Bases. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 45-62, Vol 525
- Guptill S, Morehouse S** (1991) Alternative Representations of Geographic Reality. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 416-417
- Guptill S C** (1988) A Process for Evaluating Geographic Information Systems. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 145-151
- Guptill S C** (1990) Geographical Information Science: The Search for an Organising Principle. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 843-845
- Guptill S C** (1991) Spatial data exchange and standardization. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 515-530, Vol 1
- Guptill S C, Stonebraker M** (1992) The Sequoia 2000 Approach to Managing Large Spatial Object Databases. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 642-651
- Guptill S G** (1991) Activities of the Federal Geographic Data Committee Standards Working Group. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 381-387
- Guptill S S** (1989) Evaluating Geographic Information Systems Technology. *Photogrammetric Engineering and Remote Sensing* 55(11):1583-1587
- Gurd F B** (1990) Define Your Organisation's Competitive Strategy: Decide Which Information To Share and How To Share It. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 766-771
- Gurd F B** (1990) Requirements of Geographic Information Systems Used for Supply/Demand Analysis of Real Estate Markets. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 21-25
- Gusein-Zade S M, Tikunov V S** (1992) New Methods of Compilation Anamorphoses and Their Using. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 51-62
- Guthrie J** (1991) Linking Disparate Data Sources in a Large Organization's GIS. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 39-51
- Guthrie J** (1992) What I Z (ZED) Is Not What You Z (Zee), or: Shared Data Depends on Shared Meaning. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 122-143
- Gyamfi-Aidoo J** (1987) Application of GIS to the Assessment of Land Degradation and Associated Hazards in the upper East Region of Ghana. *GIS '87, San Francisco, California*. ASP&RS, pp 487-498
- Haaren F v** (1992) The Organisational and Data-Management Aspects of Creating an Intelligent GIS-Configuration within a Planning Agency. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 639-648
- Haas L M** (1991) Exploiting Extensible DBMS in Integrated Geographic Information Systems. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 423-450, Vol 525
- Hadipriono F C, Lyon J G, Li T, Argialas W H & D P** (1990) The Development of a Knowledge-Based Expert System for Analysis of Drainage Patterns. *Photogrammetric Engineering and Remote Sensing* 56(6): 905-909
- Hadjirafitis A, Jones A** (1991) The Reconciliation of DCDB-Dependent Spatial Data sets with DCDB Upgrades. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 95-112
- Hadzilacos T, Dedousi I** (1992) Design of a Forest Fire Management System. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 751-761
- Hadzilacos T, Tryfona N** (1991) A conceptual scheme for geographic databases. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 396-405
- Haggenmuller F O, Lang L** (1992) The Production of Forestry Maps with a GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 960-967
- Hahm W** (1992) SAGE2: A Community Consensus Building System Integrating GIS and Expert System Technologies. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 8-14
- Hale A M, Anderson E** (1990) A Cooperative Approach to Natural Resource Planning and Building a Geographic Information System Data Base. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and

- AM/FM International, pp 620-625
- Hall G B, MacLennan M H** (1990) Video support in teaching about geographic information systems: a review of six videotapes. *International Journal of Geographical Information Systems* 4(1)
- Hall L B, Pucherelli M J** (1987) Wetland Identification and Classification for the Garrison Diversion Unit-North Dakota Using Remote Sensing and GIS Techniques. *GIS '87, San Francisco, California.* ASP&RS, pp 702
- Hall R J** (1987) Management of Georeferenced Spatial Information in a Production Environment. *GIS '87, San Francisco, California.* ASP&RS, pp 57-62
- Hamilton W L** (1989) Concurrent Development of Academic Geo-Computing Facilities and Curricula for Undergraduate Education: A Case Study. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 495-508
- Hamlett J M, Petersen G W, Baumer G M, Miller D A, Day R L** (1991) GIS-Based Watershed Rankings for Nonpoint Pollution in Pennsylvania. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 593-605
- Han S-Y** (1991) Integration of Programming Models and Expert Systems: An Application to Facility Management and Planning. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 152-168
- Handy J, O'Brien D** (1991) Recent Image Mapping Experiments in the Surveys, Mapping and Remote Sensing Sector. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 458-470
- Hansen A R, Larson M** (1991) Managing Shoreline Data at the Cataraqui Region Conservation Authority. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 359-371
- Hansen C A** (1991) Using Pen-Based Computers for Field GIS. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 964-972
- Hansen H** (1987) Justification for a Management Information System. *GIS '87, San Francisco, California.* ASP&RS, pp 19-28
- Hansen R J** (1988) Conversion of Municipality Records for a Geographic Information System: Considerations and Techniques. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 111-121
- Hansen W, Cheng Z, Goldsmith V, Clarke K, Bokuniewicz H** (1990) Implementation of a Marine GIS in the New York Bight for the Evaluation of Proposed Dredged Sediment Disposal Sites. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 820-829
- Hansen W, Goldsmith V, Clarke K, Bokuniewicz H** (1991) Development of a Hierarchical Variable Scale Marine Geographic Information System to Monitor Water Quality in the New York Bight. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 730-739
- Harbauer H** (1992) The Function of CAD in the Control of Waste Water Systems. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1073-1084
- Hardy E E** (1987) Data Preparation for a GIS in a Developing Country Situation. *GIS '87, San Francisco, California.* ASP&RS, pp 498-508
- Hargitai P** (1992) A National GIS Database as a Product. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 459-463
- Haroen T S, Lodwick G D, Cameron J** (1991) Cadastral Reform as a Basis for an LIS in Indonesia. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 992
- Harris M J** (1992) Spatial Decision Support System for a Potomac River Crossing of I-95 South of Washington, D.C. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 60-73
- Harris P M, Kim K H, Ventura S J, Thum P G, Prey J** (1991) Linking a GIS with an Urban Nonpoint Source Pollution Model. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 606-616
- Harrison V** (1992) Database Planning for Municipal GIS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 103-108
- Harrison V** (1992) The Logistics of Data Management. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 337-346
- Hartmann J L** (1991) Visualization techniques for GIS. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 406-412
- Harvey I F** (1991) The collection and provision of digital spatial data at the national level. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 413-421
- Haskins B R, Buchan L A, Thum P G, Ventura S J** (1991) Empowering Local Land Use Planning Officials Through Use of Land Information System Technology. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 79-89

- Haslett J, Wills G, Unwin A (1990)** SPIDER - an interactive statistical tool for the analysis of spatially distributed data. *International Journal of Geographical Information Systems* 4(3): 28-29
- Hassani M, Carlswell J (1992)** Transition to Digital Photogrammetry. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1121-1128
- Hastings D A, Clark D M (1991)** GIS in Africa: problems, challenges and opportunities for co-operation. *International Journal of Geographical Information Systems* 5(1): 29-40
- Hastings D A, Kineman J J, Clark D M (1991)** Development and application of global databases: considerable progress, but more collaboration needed. *International Journal of Geographical Information Systems* 5(1): 137-146
- Hawke D V (1991)** The Influence Of Data Complexity on GIS Performance. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 57-65
- Hawkes A G D (1992)** Multi-User, Multi-Vendor GIS Project Implementation. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 111-121
- Hawkes A G D (1992)** Total Quality Management of AM/FM/GIS Data Conversion. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 122-128
- Hayes D, Lee J E, Harrison P D (1990)** Creation of a County-Wide Continuous Parcel Map Database. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 609-613
- Haywood P (1991)** Cartographic Data Management. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 71-88
- Hazelhoff L, Gunnink J (1992)** Linking Tools for Exploratory Analysis of Spatial Data with GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 204-213
- Hazelton B W J, Leahy F J, Williamson I P (1990)** On the Design of Temporally Referenced 3-D Geographical Information systems: Development of Four dimensional GIS. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 357-372
- Hazelton N W J (1991)** Using GIS with Non-Point-Source and Distributed Models: The 'Why' and 'How' of an Information Opportunity. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 298-314
- Hazelton N W J, Leahy F J, Williamson I P (1990)** Incorporating Dynamic Modelling in GIS. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Head C G (1991)** Mapping as Language or Semiotic System: Review and Comment. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 237-262
- Healey R G (1991)** Database management systems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 251-267
- Healey R G, Dowers S, Gittings B M, Sloan T M, Waugh T C (1991)** Determination of computing resource requirements for GIS processing in a workstation-server environment. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 422-426
- Healy D J (1989)** Vermont's Geographic Information System: Development to Implementation. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 448-458
- Hearnshaw H M (1991)** What is the user's mental model of GIS? *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 427-436
- Hebert D, Miller M (1991)** Cartier: Logiciel de numerisation. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 521-527
- Hegarty D (1990)** GIS Techniques for Farm Planning: The Lockyer Catchment South East Queensland. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Hegyi F, Walker P (1991)** Multi-resource inventories with air and space-borne digital remote sensing. GIS and video imaging: tomorrow's vision, a reality today. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 297-299
- Heidemann M T (1991)** Automated Detection of Naming Errors in a Street Network Database. *GIS/LIS '91, 724-729*. ASP&RS, AAG, URPIS and AM/FM International
- Heinzel W M, Thum P G, Ventura S H, Niemann B J, Nowak P J, McCallister R B, Shelley K (1990)** Understanding Relationships Between Farm Management Practices and Groundwater Contamination using a Geographic Information System. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 919-927

- Helgeson R C** (1991) An Application of Expert Systems in Local Government Analysis of Applications for Construction Permits. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 68-77
- Helokunnas T** (1992) Object-Oriented Software Engineering Applied to GIS Development. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1158-1167
- Hendriks P H J, Reitsma R F** (1992) If a Picture Paints a Thousand Words... WODAN's Visual Approach to Spatial Aggregation and Area Selection. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 71-85
- Hennessey P** (1989) The Value of a Data Architecture Model for GIS. *URPI 89*, The Australasian Urban and Regional Information Systems Association Inc
- Henney D A** (1987) Air Force Geographic Information and Analysis System. *GIS '87, San Francisco, California*. ASP&RS, pp 81-90
- Hepner G F, Logan T L, Bryant N A** (1988) Spatial Query for Decision Support of Cross-Country Movement. *Photogrammetric Engineering and Remote Sensing* 54(11): 1617-1621
- Herbert G, Joao E, Rhind D** (1992) Use of an Artificial Intelligence Approach to Increase User Control of Automatic Line Generation. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 554-563
- Hernandez D** (1991) Relative Representation of Spatial Knowledge: The 2-D Case. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 373-386
- Herrewegen M v d, Mouton J P, Lambot P** (1991) European road data base from INS-data to the GDF-standard. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 437-448
- Herring J R** (1991) The Mathematical Modeling of Spatial and Non-Spatial Information in Geographic Information Systems. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 313-350
- Herring J R** (1991) Using Spline Functions to Represent Distributed Attributes. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 46-58
- Herring J R, Larsen R C, Shivakumar J** (1988) Extensions to the SQL Query Language to Support Spatial Analysis in a Topological Data Base. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 741-750
- Herrington L P** (1991) Algorithms and Procedures for Wildlife Habitat Analysis. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 500-506
- Herrington L P, Koten D E., Davis C, Chambers R** (1991) A Spatial DSS for Forest and Wildlife Management. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 87-92
- Herrington L P, Koten D E** (1988) A GIS Based Decision Support System for Forest Management. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 825-831
- Hershberger J, Snoeyink J** (1992) Speeding Up the Douglas-Peucker Line-Simplification Algorithm. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 134-143
- Hershey R R, Whitehead D C** (1991) The federated GIS - A Macintosh approach. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 449-458
- Hesse W, Williamson I** (1991) Optimising, Maintaining and Updating the Spatial Accuracy of Digital Cadastral Databases. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 113-129
- Hession P** (1991) Future Directions in Data Communications. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 892-917
- Hession W C** (1990) Geographic Information system Technology and Water Quality Modelling: An Interface. *Application of Geographic Information systems Simulation Models and Knowledge-Based Systems for Landuse Management*, Virginia Polytechnic Institute and State University, pp 339-349
- Hession W C, Shanholtz V O** (1988) A Geographic Information system for Targeting Nonpoint Source Agricultural Pollution. *Journal of Soil and Water Conservation* 43: 264-267
- Heubach G, Bill R** (1992) A Survey and Comparison of Different Geometric Generalization Approaches for Linear Objects. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 544-553
- Heuvelink G B M, Burrough P A, Stein A** (1989) Propagation of errors in spatial modelling with GIS. *International Journal of Geographical Information*

- Hewitt M J, Koglin E N** (1987) A Planning Strategy for Using GIS in the Assessment of Environmental Problems: A Customer's Guide. *GIS '87, San Francisco, California.* ASP&RS, pp 128-137
- Heywood I, Petch J** (1991) GIS professional development: educating the executive. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 459-468
- Higgelke P, Duinker P, Koppikar S** (1991) GIS-based simulation of moose habitat carrying capacity in northwestern Ontario. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 271-275
- Hiland M W, McBride R A, Davis D W, Braud D, Streiffer H R, Jones F W, Lewis A J, Williams S J** (1991) Louisiana Coastal GIS Network: Graphical user Interface for Access to Spatial Data. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 845-856
- Hill M J** (1990) Use of Climatic and Edaphic GIS Data to map potential Herbage Accumulation in improved pastures of the Hunter and New England Regions of New South Wales. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia.* Committee of the 5th Australasian Remote Sensing Conference Inc, pp 548-551
- Hill S, Bhidharides A** (1990) Integrating Remote Sensing and Geographic Information Systems to classify and map Groundwater Recharge areas in the Victorian Highlands. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia.* Committee of the 5th Australasian Remote Sensing Conference Inc, pp 876-879
- Hinckley T K** (1991) The Implications of Hal Shelton's Cartographic Techniques for Computer Mapping. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 124-129
- Hines J F** (1991) Cannons to the Left, Cannons to the Right: Pitfalls of a Multi-Participant GIS Implementation for a Local Government. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 31-39
- Hirose T, Manore M J, Heacock T** (1991) Contextual Analysis of Sea Ice Types from Remotely Sensed Imagery using a GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 1051-1056
- Hodgson M E, Jensen J R, Jr H E M, Coulter M C** (1988) Monitoring Wood Stork Foraging Habitat Using Remote Sensing and Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing 54(11): 1601-1607*
- Hoel E G, Samet H** (1991) Efficient Processing of Spatial Queries in Line Segment Databases. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases.* Springer-Verlag, Zurich, pp 237-256, Vol 525
- Hoellriegl H** (1992) Ways to a Spatial Data Dictionary in Austria: Ideas and Facts. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 574-581
- Hoey M, Whelan D, Folving S** (1991) A PC Based Geographical Information System that Integrates Image Data, Map Data and Attribute Data. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 469-476
- Hofmeyr H, Allen D, Kenk E** (1991) Setting the stage for data sharing in British Columbia. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 89-93
- Holbrook J, Rideout T, Healy R** (1992) GIS for Conservation Management: Scientific and Organisational Issues. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1111-1120
- Hollenbaugh R D** (1987) Site Selection Using Bechtel's Geographic Information System. *GIS '87, San Francisco, California.* ASP&RS, pp 601-610
- Hollingshead M A** (1992) So What, Who Cares About Topology? *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 1-12
- Holloway D P** (1988) Land Records Management in North Carolina: State Involvement in GIS Specifications. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 922-931
- Holmberg S** (1992) The Swedish Road Weather Systems An Assessment of a Distributed Monitoring GIS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1187-1196
- Holmberg S C** (1991) User Specifications for Geo Informatic Systems. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 477-485
- Honeycutt D M, Wojcik J** (1990) Development of a Population Density Surface for the Conterminous United States. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 484-496
- Hong C K** (1991) An Intelligent Geographic Information System IGIS-1. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 846-856
- Hongyan Z, Huiguo L** (1992) A Study on the Planning

- of Optimal Landuse Structure under the GIS: An Example of the Xianfeng Tree Farm. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 127-134
- Honig M (1992) Raster GIS Programming Approaches in GOAL/Overlay, a Case Study on Agricultural Suitability in Africa. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 451-458
- Hoogsteden C, Gordon D (1991) The National Surveying and Mapping Agency in a GIS World: A Normative Review of its Institutional Status. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 379-392
- Hooneyhan D W (1987) An Overview of Applications of Geographic Information Systems within the United Nations Environment Program. *GIS '87, San Francisco, California*. ASP&RS, pp 536-543
- Hoop S d, Oosterom P v (1992) Storage and Manipulation of Topology in Postgres. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1324-1336
- Hootsmans R M, DeJong W M, Wel F J M v d (1992) Knowledge-Supported Generation of Meta-Information on Handling Crisp and Fuzzy Datasets. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 470-479
- Hopkins S, Healey R G, Waugh T C (1992) Algorithm Scalability for Line Intersection Detection in Parallel Polygon Overlay. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 210-218
- Hornik S, Chalupa P, Koutkova K (1991) Geographic Information System for territorial differentiation. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 486-493
- Horwood E (1992) Perspectives on URISA's Origin and on the Emergence of a Theory of Urban and Regional Information Systems. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 15-33
- Houweling J (1991) MNR Model District GIS Project Benefits Measurement Plan. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 954-968
- Hovey S T, Morse B W (1989) Planning for System Improvements and Data Base Updates Within Land Information System Architectures. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 509-519
- Howard D, Barr C J (1991) Sampling the countryside of Great Britain - GIS for the detection and prediction of rural change. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 171-176
- Huang S, Taylor D R F, Siekierska E (1991) The Integration of Remote Sensing into the Electronic Atlas of Canada. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 416-429
- Hubert I, Tostanoski V (1990) Taming Tiger: The New York Experience. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 125-133
- Hudson D (1991) DYMSIM: A Model/Simulation Production Tool for Dynamic Spatial Phenomena. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 290-297
- Hudson W D, Krogulecki M J (1987) A Comparison of the Land Cover and Use Layer of Three Statewide Geographic Information Systems in Michigan. *GIS '87, San Francisco, California*. ASP&RS, pp 276-287
- Hultquist N B, Scripter S M W (1987) A New GIS-But What About "Lod" Data? *GIS '87, San Francisco, California*. ASP&RS, pp 257-265
- Hum J (1991) The Digital Chart of the World - A Canadian Perspective. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 326-332
- Hunt G (1991) Processing Error in Spatial Databases: The Unknown Quantity. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 203-214
- Hunter G J (1988) Non-current data and geographical information systems: A case for data retention. *International Journal of Geographical Information Systems* 2(3): 28
- Hunter G J (1991) Applying GIS to the Delivery of Public Safety Warnings. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 188-196
- Hunter G J (1992) Techniques for Assessing the Effect of Processing Errors in Spatial Databases. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 24-33
- Hunter G J, Williamson I P (1990) The development of a historical digital cadastral database. *International Journal of Geographical Information Systems* 4(2): 17-18
- Husband V (1991) Old Growth Forests: Can the Conflicts be Resolved? *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 7-9

- Hutacharoen M** (1987) Application of Geographic Information Systems Technology to the Analysis of Deforestation and Associated Environmental Hazards in Northern Thailand. *GIS '87, San Francisco, California.* ASP&RS, pp 506-518
- Hutchinson N** (1992) GIS Tools for a Solid Waste Generation Study: Support for AB939. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 255-262
- Huxhold W E** (1991) The GIS Profession. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 56-65
- Hyde R F** (1991) The feasibility of a land information system for Belize, Central America. *International Journal of Geographical Information Systems* 5(1): 99-110
- Ibbs T J, Stevens A** (1988) Quadtree storage of vector data. *International Journal of Geographical Information Systems* 2(1): 43-56
- Illert A** (1991) Automatic Digitization of Large Scale Maps. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 113-122
- Inagaki M, Nagura M, Yamakawa S** (1991) Map Recognition with Interactive Editing for GIS. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 276-285
- Ingles A, Wood M** (1987) The Use of an Automated Geographic Information System in Land Use Planning for Crown Forests. *URPIS 87, The Australasian Urban and Regional Information Systems Association Inc*
- Ingoldsby T R** (1991) Transparent Access to Geographically Related Data from Heterogeneous Networked Systems. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 14-24
- Insignares M, Terry D** (1991) Geographic Information Systems in Traffic Control. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 135-144
- Isaacs I** (1991) Video and direct digitizing of aerial photography for forest inventory. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 293-296
- Isaacs I K** (1987) Automating Geographic Digital Data Quality Assurance Procedures. *GIS '87, San Francisco, California.* ASP&RS, pp 288-294
- Itami R M** (1988) Cellular Automatons as a Framework for Dynamic Simulations in Geographic Information Systems. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 590-597
- Itami R M, Clark J D** (1992) Spatial Dynamic Simulations Using Discrete Time and Discrete Event Theory in Cell Based GIS Systems. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 702-712
- Jaakkola S** (1990) Managing Data for the Monitoring of Tropical Forest Cover: The Global Resource Information Database Approach. *Photogrammetric Engineering and Remote Sensing* 56(10): 1355-1365
- Jackson J** (1988) Implementing a Low Cost GIS for Transportation Planning. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 932-940
- Jackson M J, Woodsford P A** (1991) GIS data capture hardware and software. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 239-249, Vol 1
- Jacobson R** (1991) Virtual Worlds, Inside and Out. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 507-514
- Jacoby S K, Benwell G L** (1989) Digital Base Mapping to Support State GIS. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Jacquez F W** (1991) Integration of Spatial and Relational Information Residing on Multiple Platforms in a Distributed Environment. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 301-310
- Jacquez F** (1992) GIS Installation and Conversion at Lee County, Florida. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 79-91
- Jaggett J D** (1987) Masking with Historic Land Use Data to Improve Landsat Classification of Irrigated Lads in the San Joaquin Valley. *GIS '87, San Francisco, California.* ASP&RS, pp 323-332
- Jakob W** (1992) A Geo-Information System for the Albert-Schweitzer Hospital at Lambarene. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1373-1380
- Jakubauskas M E, Lulla K P, Mausel P W** (1990) Assessment of Vegetation Change in a Fire-Altered Landscape. *Photogrammetric Engineering and Remote Sensing* 56(3): 371-377
- Jampoler S M** (1990) The Integration of GIS into ongoing Map Production. *GIS/LIS '90, Anaheim*

- California.* ASP&RS, AAG, URPIS and AM/FM International, pp 450-458
- Janssen J G M, Baayen H K W, Vriend G V C (1991) GIS in an educational environment. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1358-1362
- Janssen L L F, Jaarsma M N, Linden E T M v d (1990) Integrating Topographic Data with Remote Sensing for Land-Cover Classification. *Photogrammetric Engineering and Remote Sensing* 56(11): 1503-1506
- Janssen R, Rietveld P (1990) Multicriteria analysis and geographical information systems: an application to agricultural land use in the Netherlands. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 129-142
- Janssens P (1991) Land related information systems for research and planning. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 494-502
- Jefferson W H, Michener W K, Karinshak D A, Anderson W, Porter D E (1991) Developing GIS Data Layers for Estuarine Resource Management. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 331-342
- Jeffress G (1992) Applications of IS/GIS: Science and Education. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 255-261
- Jeffress G A, Conway D C (1989) GIS Innovation Diffusion. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 430-437
- Jeffress G H (1991) An International Survey of Land Record Costs, Revenues, and Some Characteristics. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 90-101
- Jemma F, Pedone R, Burattini M, Greco A (1992) GIS and Remote Sensing in Environmental Planning of Typical Areas of Southern Italy: The Sarno Valley (Campania), A Case History. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 109-117
- Jensen J R, Ramsey E W, Holmes J M, Michel J E, Savitsky B, Davis B A (1990) Environmental sensitivity index (ESI) mapping for oil spills using remote sensing and geographic information system technology. *International Journal of Geographical Information Systems* 4(2): 19
- Jenson S K, Domingue J O (1988) Extracting Topographic Structure from Digital Elevation Data for Geographic Information System Analysis. *Photogrammetric Engineering and Remote Sensing* 54(1): 1593-1600
- Jessip M B (1991) Systematic Horizontal Adjustment of Positional Error in Digital Line Graphs. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 130-139
- Ji M (1990) Tiger/Line Files and Their Potential for GIS Application. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 117-124
- Joao E, Herbert G, Openshaw S, Rhind D (1992) Magnitude and Significance of Generalisation and its Effects. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 711-721
- Joao E M (1991) The Role of the User in Generalization within Geographic Information Systems. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 493-506
- Jodoin S J, McKellar D G (1991) Evaluation of Optical Disk Technologies for the Storage of Military Digital Geographic Information. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 694-704
- Joffe B A (1987) Evaluating and Selecting a GIS System. *GIS '87, San Francisco, California.* ASP&RS, pp 138-147
- Joffe B A, Wright W (1989) Simcity: Thematic Mapping + City Management Simulation = An Entertaining Interactive Gaming Tool. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 591-600
- John S, Lewis S (1992) Compiling a GIS Database Jigsaw: The Question of Data Quality. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 521-531
- Johnson D, Shelley P, Taylor M, Callahan S (1991) The FINDAR Directory System: a meta-model for metadata. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences.* Group D, Loughborough, pp 123-138
- Johnson G E, Achutuni V R, Orsini J B (1991) The Use of NOAA AVHRR Data as a Tool for Operational Agroclimatic Assessment in Asia. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing.* Geocarto International Centre, Hong Kong, pp 39-46
- Johnson L B, Host G E, Jordan J K, Rogers L L (1991) Use of GIS for Landscape Design in Natural Resource Management: Habitat Assessment and Management for the Female Black Bear. *GIS/LIS '91,*

- Atlanta, Georgia.** ASP&RS, AAG, URPIS and AM/FM International, pp 507-517
- Johnson L B, Johnston C A, Pastor J** (1988) Raster and Vector Data in Ecological Research Applications. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 386-394
- Johnson L E** (1989) MAPHYD-A Digital Map-Based Hydrologic Modelling System. *Photogrammetric Engineering and Remote Sensing* 55(6): 911-917
- Johnson S G** (1991) The Production of a Map of Proprietary Land Records in Bermuda: The Foundation of an Integrated Register of Title and Land Information System. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 857-864
- Johnston C, Detenbeck N E, Bonde J P, Niemi G J** (1988) Geographic Information Systems for Cumulative Impact Assessment. *Photogrammetric Engineering and Remote Sensing* 54(11): 1609-1615
- Johnston C A** (1989) Ecological Research Applications of Geographic Information Systems. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 569-577
- Johnston C A** (1992) GIS Technology in Ecological Research. In: (eds) *Encyclopedia of Earth System Science.* Academic Press Inc, Minnesota, pp 329-346, Vol 1
- Johnston C A, Bonde J** (1989) Quantitative Analysis of Ecotones Using a Geographic Information System. *Photogrammetric Engineering and Remote Sensing* 55(11): 1643-1647
- Johnston K M** (1987) Natural Resource Modelling in the Geographic Information System Environment. *Photogrammetric Engineering and Remote Sensing* 53(10): 1411-1415
- Johnston K M** (1990) Geoprocessing and geographic information system hardware and software: looking toward the 1990s. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 215-228
- Johnstone W, Hawkins B, Crooks L** (1991) Development of a GIS implementation plan for the Yukon Department of Renewable Resources. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 253-263
- Jonas D, Turton A** (1991) Accuracy of Photogrammetrically derived Spatial Databases. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne.* University of Melbourne, pp 23-35
- Jones C B** (1989) Data structures for three-dimensional spatial information systems in geology. *International Journal of Geographical Information Systems* 3(1): 1-2
- Jones C B** (1991) Database Architecture for Multi-scale GIS. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 1-14
- Jones C B, Ware J M, Bundy G L** (1992) Multiscale Spatial Modelling with Triangulated Surfaces. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 612-621
- Jones K B** (1990) The Environmental Monitoring and Assessment Program: An Ecological Monitoring Program for the 1990's and Beyond. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 669-681
- Jong S d, Riezebos H** (1992) Assessment of Erosion Risk Using Multitemporal Remote Sensing Data and an Empirical Erosion Model. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 893-900
- Jong S M d, Riezebos H T** (1991) Use of a GIS database as "a priori" knowledge in multispectral land cover classification. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 503-508
- Jong T d, Eck J R v, Toppen F** (1991) GIS as a tool for locating service centers. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 509-517
- Jong W d, Vrije A S, Scheuermann P** (1991) Encoding and Manipulating Pictorial Data with S+ Trees. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases.* Springer-Verlag, Zurich, pp 401-422, Vol 525
- Jong W M d** (1990) Geographical information systems database design: experiences of the Dutch National Physical Planning Agency. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 43-58
- Jongman R** (1992) European Data for a European Ecological Network. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 29-37
- Jordan G, Baskent E** (1991) GISFORMAN—A next generation wood supply model. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 149-156
- Jourdas C, Mainguenaud M** (1991) A Query Resolution Model to Manage Networks: Application to

- an Extended Relational DBMS. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 528-536
- Jozsef G, Tozsa I (1991) GIS application in Hungary. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 518-527
- Jungert E, Jonsson D (1992) A Homogenous and Sequential Vector Data Structure for Representation of Raster-Based Maps. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1314-1323
- Jupp D, McVicar T, Walker J, Dowling T (1990) Using a VHRR Data Image Processing and GIS Methods to Monitor the Spatial Changes in Land Degradation & Salinization in the Murray-Darling Basin of Australia. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Jupp D L B (1990) Monitoring Land Degradation and Salinization in the Murray-Darling Basin of Australia using Remote Sensing and Data Integration. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 848-853
- Jupp D L B, Walker J, Kalma J, Smith R (1990) Remote Sensing of Change in Components of the Regional Water Balance of the Murray-Darling Basin using Satellite Imaged and Spatially Registered Environmental Data. *Australian Journal of Soil Research* 28: 409-415
- Juracek K E (1988) A GIS Based Crop Specific Model for Physical Suitability Assessment. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 832-839
- Kaehler M R, Theissing U (1989) Cartographic Raster Archives: The First Step of an Hybrid Geographic Information System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 804-813
- Kairam R (1989) Software Design for Display and Analysis of Integrated Spatial and Non-Spatial Data. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 761-770
- Kalinski A A (1992) A GIS-Based Prototype for Retail Potential Surface Mapping and Analysis. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 15-23
- Kao T, Mount D M, Saalfeld a A (1991) Dynamic maintenance of Delaunay Triangulations. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 219-233
- Kapelsky J M, McGregor L, Nanne H (1987) A Geographical Information System to Assess Opportunities for Aquaculture Development: A FAO-UNEPIGRID Study in Costa Rica. *GIS '87, San Francisco, California*. ASP&RS, pp 519-535
- Karig G (1992) Network Information System for the Budapest Water Works. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 378-383
- Karjalainen P (1991) Inching Towards Object Orientation - Let Your Dictionaries Do the Driving. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 107-120
- Kas D A (1991) Dialogic and Argumentative Structures of Bumper Stickers. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 71-76
- Keating T, Phillips W, Ingram K (1987) An Integrated Topologic Database Design for Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 53(10): 1399-1402
- Keefer B J, Smith J L, Gregoire T G (1988) Simulating Manual Digitizing Error with Statistical Models. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 475-483
- Keefer B J, Smith J L, Gregoire T G (1991) Modelling and Evaluating the Effects of Stream Mode Digitizing Errors on Map Variables. *Photogrammetric Engineering and Remote Sensing* 57(7): 957-963
- Keene J (1991) GIS'ing about in Public: An Anatomy of a Public Disgrace. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 402-406
- Keim R B (1991) The Eye of the Storm: GIS and the Hurricane Business. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 176-187
- Keller C P, Gowan R F, Dolling A (1991) Marine Spatio-Temporal GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 345-358
- Keller C P, Waters N M (1991) Mapping Software for Microcomputers. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography*. Pergamon Press, Oxford, pp 97-128
- Kelmelis J A, Watts R D (1991) Terrestrial Process Modeling - A Challenge for Cartographers. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 141-149

- Kemp K K** (1992) Spatial Models for Environmental Modeling with GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 524-533
- Kemp Z, Oxborrow E** (1992) An Object Model for Distributed Multimedia Geographic Data. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1294-1303
- Kemp Z, Thearle R** (1992) Modelling Relationships in Spatial Databases. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 313-322
- Kennedy T M, Corning J F** (1991) Digital Indexing System for Storage and Retrieval of Geo-referenced Data. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 880-891
- Kertesz A, Markus B** (1992) Soil Erosion Assessment Using GIS Methods %P 885-892. *Proceedings of EGIS '92, Munich*. EGIS Foundation
- Kessell S** (1990) The Role of GIS in a University Environmental Studies Course. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Kessell S R** (1990) An Australian geographical information and modelling system for natural area management. *International Journal of Geographical Information Systems* 4(3): 33-35
- Kessell S R, Beck J A** (1991) Development and Implementation of Forest Fire Modelling and Decision Support Systems in Australia. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 805-816
- Kessell S R, Moore D** (1989) Meeting Diverse Needs in GIS Training and Education. *URPI 89, The Australasian Urban and Regional Information Systems Association Inc*
- Kidner D, Jones C** (1991) Implicit triangulations for large terrain databases. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 537-546
- Kieser R, Langford G** (1991) Application of spatial analysis to fisheries acoustics. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 335-339
- Kilborn R, Rifai H S, Bedient P B** (1991) The Integration of Ground Water Models with Geographic Information Systems (GIS). *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 150-159
- Kindleberger C, Topping K** (1992) Role and Use of IS/GIS in the Planning Process. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 146-167
- Kishor P, Niemann B J, Moyer D D, Venture S J, Martin R W, Thum P G** (1990) Evaluation GIS/LIS: Lessons from CONSOIL. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 701-711
- Kishor P, Ventura S J, Thum P G** (1991) Saving the Past for the Future: GIS in Archaeology. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 199-204
- Kiss P** (1992) An Overview of GIS Development in Hungary. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1266-1269
- Kjellson B** (1991) An Open and Computerized Land Register - A Reality Today with Possibilities for Tomorrow". *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 192-198
- Kjerne D, Ducker K J** (1988) Modelling Cadastral Spatial Relationships Using Smalltalk-80. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 373-385
- Klein D H** (1987) Combining Both GIS and CADD Capabilities in a Single PC Based Automated Mapping System for a Small Incorporated City. *GIS '87, San Francisco, California*. ASP&RS, pp 730-738
- Klein D H** (1988) User Expectations for Selecting a Microcomputer-Based Municipal Automated Mapping/Land Information System (AM/LIS). *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 550-560
- Klein D H** (1989) Automated Polygon Processing Utility for Use Within a Desktop CADD System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 82-89
- Klein D H** (1991) Geographic Information Systems - Evolutionizing the Comprehensive Planning Process. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 250-264
- Kluijtmans P, Collin C** (1991) 3D Computer Technology for Environmental Impact Studies. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 547-550
- Knapp L** (1991) Volumetric GIS: Generic or Domain Specific. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 776-785
- Knauss W** (1990) Hazard/damage assessment model for the Great Lakes. *Great Lakes coastal mapping*

- workshop, Woods Hole, MA, United States. , pp 23
- Kohn T P** (1992) Lake Study Utilizing Computer Technology in a Scientific Analysis of a Lake. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 229-240
- Konijn M** (1992) European Digital Road Map. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 329-336
- Konings P, Candt P D** (1991) Modelling of Antarctic glaciology using MAPCON and MAPGRAFIX. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 551-557
- Konty L, Gross G** (1991) Scanning for GIS Data Conversion: Perils, Pitfalls and Potentials. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 192-197
- Korpi-Hyovalti E** (1991) GIS in forestry taxation in Finland. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 47-49
- Koshkariov A V, Tikunov V S, Trofimov A M** (1989) The current state and the main trends in the development of geographical information systems. *International Journal of Geographical Information Systems* 3(3): 257-272
- Koussoulakou A** (1992) GIS Education in the Netherlands: Profile and Prospects. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 84-91
- Kowalewski S, Schmidt K** (1989) A Database Organization Structure for a Regional Natural Resources GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 656-668
- Koziel Z** (1991) Cartographic Analysis of density or rural settlements for the need of data basis concerning natural environment. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 558-563
- Kozub N** (1992) Communications and Marketing Government Data: The Good Corporate Citizen. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 111-120
- Kozub N E** (1991) An Exercise in Strategic Planning: Development of Data Policy for the Information Age. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 39-49
- Kraak M, Berhen F** (1992) The River-GIS Project: From Analog River Map to River Geo-Information System. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 153-162
- Kraak M-J, Verbree E** (1992) Tetrahedrons and Animated Maps in 2D and 3D Space. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 63-71
- Kraak M J** (1989) Computer-assisted cartographical 3D imaging techniques. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 99-114
- Kraak M J, Gazdzicki J** (1991) Triangulation based modelling of spatial objects in relation to the terrain surface. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 564-573
- Krakiwsky E J, Mueller I I** (1991) Toward World Surveying and Mapping Education: Report on the XIIIth North American surveying and Mapping Teachers Conference. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 160-169
- Kraman V L** (1987) Application Modelling Tools for Site Analysis. *GIS '87, San Francisco, California*. ASP&RS, pp 611-620
- Kramer M R, Lembo A J** (1989) A GIS Design Methodology for Evaluating Large-Scale Commercial Development. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 195-203
- Krasovskaja T M, Tikunov V S** (1991) Geographical Information System for environmental impact assessment. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 574-580
- Kreiton K J, Boyd J, Smith B E** (1991) An Algorithm for Symbol and Text Orientation to the Graticule. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 170-178
- Krejcarek R L** (1991) Keeping The (GIS) Project Alive. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 108-116
- Kriegel H-P, Brinkhoff T, Schneider R** (1991) The Combination of Spatial Access Methods and Computational Geometry in Geographic Database Systems. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 5-22, Vol 525
- Kriegel H-P, Horn H, Schiwietz M** (1991) The Performance of Object Decomposition Techniques for Spatial Query Processing. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 257-276, Vol 525

- Krogulecki M** (1990) A Prototype Decision Guide and Audit Log for Preparation of Spatial Databases. *Photogrammetric Engineering and Remote Sensing* 56(4): 505-509
- Krogulecki M, Parks B O** (1988) A Prototype Decision Guide and Audit Log for Preparation of Spatial Databases. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 711-721
- Kruse D** (1989) Regional Land Use Tracking in a Multi-Participant Venture. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 187-194
- Ksu P S, Beard K** (1990) Deriving Semantic Knowledge of Graphic Objects through Scale Measurement and Symbol Representation. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 789-797
- Kubo S** (1987) The development of geographical information systems in Japan. *International Journal of Geographical Information Systems* 1(3): 243-252
- Kubo S** (1991) The development of GIS in Japan. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 47-56, Vol 2
- Kuennenke B H** (1988) Experiments with Teaching a GIS Course within an Undergraduate Geography Curriculum. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 302-307
- Kuhn W** (1991) Are Displays Maps or Views? *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 261-274
- Kuhn W** (1992) Approaching GIS Needs in the New Democracies. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 464-473
- Kuhn W** (1992) Paradigms of GIS Use. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 90-103
- Kuhn W, Frank A U** (1991) A Formalization of Metaphors and Image-Schemas in User Interfaces. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 419-434
- Kulkarni R B, Reid F A** (1991) Replacement/Maintenance Priorities for Gas Distribution Systems. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 156-166
- Kumler M P** (1990) A Quantitative Comparison of Regular and Irregular Digital Terrain Models. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 255-263
- Kummert A, Csillag F, Kertesz M** (1992) Quality Descriptor in a Soil Database. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 722-731
- Kupiszewski M** (1991) The transfer of new technology: the development of Geographical Information Systems in Poland. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 581-590
- Kusse B, Wentzolt A** (1992) SENSE: An Active Approach to Environmental Decision Support. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1168-1176
- L'Eplattenier R, Bar H** (1992) Texture Mapping for 3-D Visualization of Map Images. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1224-1231
- Laan F v d** (1992) Agro-Ecological Modelling at a Continental Scale Using Vegetation Index Maps. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 901-912
- Laan F v d** (1992) Tools for Large Scale Operational Raster Processing . *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 947-953
- Laat A d** (1992) Establishing a Land Development Lifecycle Tracking System. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 58-66
- Ladha N, Robertson A G** (1988) Technology and the Power Line Planner: The Impact of the Computer on Environmental Impact Assessments for New Transmission Facilities. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 498-506
- Lafargue B** (1988) VIP: Visualizing in Perspective. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 100-110
- Lage K L, Carolan P T, Kenel P P** (1992) The Application of a GIS for Stormwater NPDES Programs. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 120-126
- Lai P** (1990) Feasibility of Geographic Information Systems Approach for Natural Resource Management. *Environmental Management* 14(1): 73-80
- Lai P-C** (1988) Resource use in manual digitization. A case study of the Patuxent basin geographical

- information system database. *International Journal of Geographical Information Systems* 2(4): 329-346
- Lakerveld M** (1992) Allocation Modeling at Municipal Level: Putting GIS into Practice. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 92-102
- Lakerveld M, Harts J, Ottens H F L** (1991) The use of GIS for a municipal Planning Information System: integration of administrative databases and CAD data in a GIS environment. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 591-600
- Lam A H S** (1992) Linking Economic Growth and Physical Development. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 233-244
- Lammeren R v** (1992) The Future of Rural Areas in the European Community: The Importance of GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 38-47
- Langeslag A W M, Scholten H J** (1991) Concern for public health and environment, a GIS-based approach. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 601-610
- Langford M, Maguire D J, Unwin D J** (1991) The area interpolation problem: estimating population using remote sensing in a GIS framework. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 55-77, Vol 1
- Langran G** (1988) Temporal GIS Design Tradeoffs. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 890-899
- Langran G** (1989) A review of temporal database research and its use in GIS applications. *International Journal of Geographical Information Systems* 3(3): 215-232
- Langran G** (1991) Generalization and parallel computation . In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 204-216
- Langran G** (1991) Producing Answers to Spatial Questions. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 133-147
- Lankford L, D'Ambrosio J** (1990) A Study in Creating a 1:24000 Scale GIS (In Metres) and 1:200 Utilities Distribution Data Base at 1:1200 Scale (In Feet) From a GIS 1:24000 Scale Source. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 614-619
- Lankhorst J R-K** (1992) Linking Landscape Ecological Knowledge with GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1467-1474
- Lanter D P, Veregin H** (1990) a Lineage Meta-Database Program for Propagating Error in Geographic Information Systems. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 144-154
- LaPotin P J, McKim H L** (1988) Quickdraw Data Structures for Image Processing. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 35-51
- Laskowski P** (1991) Minimum-Error Projection for Global Visualisation. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 166-169
- Laskowski P** (1991) On a Mixed Local-Global Error Measure for a Minimum Distortion Projection. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 181-186
- Latour S, Sondheim M** (1991) Requirements of a Canadian geomatics interchange standard. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 85-88
- Lauer B J** (1991) Mapping Information on CD-ROM. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 187-193
- Lauer D T, Estes J E, Jensen J R, Greenlee D D** (1991) Institutional Issues Affecting the Integration and Use of Remotely Sensed Data and Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 57(6): 647-654
- Laurini R, Raffort F M** (1991) Using Integrity Constraints for Checking Consistency of Spatial Databases. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 634-642
- Law M N, Saunders K E, Coleman D E, Fisher J D, Wyngaarden R v, Boyd G L, Stewart C J** (1991) Using GIS to Monitor and Predict Long-Term Great Lakes Shoreline Erosion. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 372-386
- Ledergerber T, Wahl S** (1991) Getting GIS going. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 611-620
- Lee D** (1989) Needs and Realistic Problems in GIS Development. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 611-619

- Lee J** (1989) A Drop Heuristic Conversion Method for Extracting Irregular Network for Digital Elevation Models. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 30-39
- Lee J** (1990) A Data Model for Dynamic Vehicle Routing with GIS. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 134-143
- Lee J** (1991) Assessing the Existing Methods for TIN Extraction. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 194-203
- Lee J** (1991) Comparison of existing methods for building triangular irregular network models of terrain from grid digital elevation models. *International Journal of Geographical Information Systems* 5(3): 267-286
- Lee J** (1992) Visibility Dominance and Topographic Features on Digital Elevation Models. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 622-631
- Lee J, Snyder P K** (1991) Modelling Spatial Patterns of Digital Elevation Errors for Drainage Network Analysis. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 71-79
- Lee J, Thill J C** (1991) Short-Listing Methods for Retail Site Selection with GIS. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 973-981
- Lee J B** (1991) A Step-by-Step Approach to Organizing and Executing a Benchmark in a Multi-Participant GIS: Gwinnett County's Experience. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 27-32
- Lee J K, Park R A, Mausel P W, Howe R C** (1991) GIS Related Modelling of Impacts of Sea Level Rise on Coastal Areas. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 356-367
- Lee T S, Russell J S** (1990) Potential Applications of Geographic Information Systems to the Construction Industry. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 11-20
- Lee Y C** (1991) Cartographic Data Capture and Storage. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography.* Pergamon Press, Oxford, pp 21-38
- Lee Y C, Chin F L** (1991) A Query language Based on a Spatially Intuitive Grammar. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 868-879
- Leenaers H, Burrough P A, Okx J P** (1989) Efficient mapping of heavy metal pollution on floodplains by co-kriging from elevation data. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems.* Taylor and Francis, London, pp 37-50
- Lees B G, Ritman K** (1990) Land Use Conflict Resolution Using GIS and Remote Sensing. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Legg C A** (1990) Applications of Remote Sensing to Environmental Aspects of Surface Mining Operations in the United Kingdom. *Remote Sensing: An Operational Technology for the Mining and Petroleum Industries, London.* The Institution of Mining and Metallurgy, pp 159-164
- Leggat K, Buckley D** (1991) Implementing GIS into Alberta's integrated resource planning program. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 245-251
- Leighton D H, Kutsal M D** (1989) Service Delivery in GIS & AM/FM Systems for the Nineties. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 374-380
- Leighton D H, Kutsal M D** (1991) GIS as an integration platform. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 621-625
- Lemmens M J P M** (1991) GIS: the data problem. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 626-636
- Lerner N B** (1992) Developing a Successful Information Access Policy. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 79-84
- Lesage C, Yeon C, Kena-Cohen S** (1991) Une analyse comparative des systèmes d'information à référence spatiale et de traitement d'images pour répondre aux besoins en information à référence spatiale d'Elections Canada. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 705-719
- Lesser T, Xiang W N, Furuseth O, McGee J, Lu J** (1991) Conflict Prevention in Land Use Planning Using a GIS-Based Support System. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 478-483
- Lester M, Chrisman N** (1991) Not All Slivers are Skinny: A Comparison of Two Methods for Detecting

- Positional Error in Categorical Maps.** *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 648-658
- Leung Y** (1990) The Development of an Integrated Knowledge-based LIS/GIS. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Leung Y, Goodchild M, Lin C** (1992) Visualization of Fuzzy Scenes and Probability Fields. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 480-490
- Levinsohn A, Brown S J** (1991) GIS and sustainable development in forest management. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 181-185
- Levy A** (1987) Implementing a Cost-Effective Regional/Local Geographic Information Network in South Florida. *GIS '87, San Francisco, California.* ASP&RS, pp 101-110
- Lewis S** (1991) Hypermedia Geographical Information Systems. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 637-645
- Leykauf J, Albrecht J** (1992) Geographical Information Systems and the Theory of Geographical Objects. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1270-1278
- Leykauf J, Villwock G** (1991) Urban-ecological GIS for the urban region of Halle (Eastern Germany). *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 646-652
- Leysen J, Liekens W, Bodt E D, Pastijn H** (1992) An Intelligent Simulation System for Urban Crisis Management. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1150-1157
- Leysen M M, Goossens R E** (1991) Forest map updating in a GIS using high spatial resolution satellite data. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 653-661
- Li K-J, Laurini R** (1991) The Spatial Locality and a Spatial Indexing Method by Dynamic Clustering in Hypermap Systems. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases.* Springer-Verlag, Zurich, pp 207-224, Vol 525
- Li L** (1987) GIS for the Tourism Professional. *GIS '87, San Francisco, California.* ASP&RS, pp 657-665
- Li L** (1990) Automated Micro-Level Geocoding for Canada: A Multivariate Approach. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 928-934
- Li L, Decker G, Glickman V** (1991) Towards an Integrated Geographic Database for Statistics Canada and its Users - a Report on Tools for Geocoding, Mapping, Interactive Data Base Queries and Data Extraction. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 764-771
- Liao T N, Chem H Y, Wu M L** (1989) Implementation of a Low Cost for GIS Mountainside Land Use Management. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Liao T n, Hsu T-C, Wu M-L** (1991) Optimal flight planning in Taiwan using a 3-D GIS. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 93-97
- Libshitz A B** (1989) Data Design: A Methodology for GIS Implementation. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 243-249
- Liley R W** (1987) Integration: The Big Payoff for Municipal Geobased Systems (And They Said It Couldn't Be Done). *GIS '87, San Francisco, California.* ASP&RS, pp 396-409
- Lillesand T M, Mackenzie M D, Castle J R V, Magnuson J J** (1989) Incorporating Remote Sensing and GIS Technology in Long-Term and Large-Scale Ecological Research. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 228-242
- Lillywhite J** (1991) Identifying available spatial metadata: the problem. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences.* Group D, Loughborough, pp 3-12
- Lima R J** (1991) Public Participation Models for 'Selling the Boss' on GIS. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 8-13
- Lin F-T** (1992) The Urban Visual Form Simulator. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 182-192
- Lin F T** (1991) The Structured Walk Method for Urban Land Use Pattern Analysis. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 484-492
- Lin H, Calkins H W** (1991) A Rationale for Spatiotemporal Intersection. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 204-213

- Lin H, Mark D M** (1991) Spatio-Temporal Intersection (STIN) and Volumetric Modelling. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 982-991
- Lin N H** (1989) Network Development of a Geographic Information System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 367-373
- Linden G** (1990) Education in geographical information systems. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 191-202
- Lindquist R C** (1987) Applying a Geographic Information System to the Site Selection of a Regional Landfill. *GIS '87, San Francisco, California*. ASP&RS, pp 621-627
- Lipschultz M S, Glaser D E** (1991) Using Property Parcel Data for Analysis of Impacts on Floodplains. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 312-320
- List G F** (1991) Siting Emergency Response Teams for Hazardous Materials Transportation Incidents: Exploring Multi-Objective Investment Strategies. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 262-273
- Liston R L, TeSelle G W** (1988) Implementing the GRASS GIS in the Soil Conservation Service. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 759-765
- Little A J** (1991) How to Found, Establish and Implement a Multi-Participant Public/Private User Group that Works. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 98-108
- Little S R, Turkington C** (1991) Fishing for Solutions: Regional and Local Government Entities Cooperate Toward Management/Development Solution. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 97-105
- Liu R, Craul P J** (1991) A GIS Based Soil Capability Classification for Agriculture in Yuisu County, China. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 98-106
- Lo C P, Shipman R L** (1990) A GIS Approach to Land-Use Change Dynamics Detection. *Photogrammetric Engineering and Remote Sensing* 56(11): 1483-1491
- Lo T H C, Crowell M L** (1991) Digital Seagrass Mapping of Tampa Bay Florida: Within the Context of a GIS Framework. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 865-873
- Lo T H C, Dicks S E, Christianson R** (1989) Targeting Natural Resource Lands for Acquisition Within the Context of a GIS Framework. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 685-698
- Lodwick W A, Monson W, Svoboda L** (1990) Attribute error and sensitivity analysis of map operations in geographical information systems: suitability analysis. *International Journal of Geographical Information Systems* 4(4): 413-428
- Logan T L** (1988) Realtime Georeferencing with Stereo Imagery: Rued Surface and Neural Network Approaches. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 122-131
- Logan T L, Bryant N A** (1987) Spatial Data Software Integration: Merging CAD/CAM/Mapping with GIS and Image Processing. *Photogrammetric Engineering and Remote Sensing* 53(10): 1391-1395
- Lolonis P, Armstrong M P** (1988) Design of an Expert System for Spatial Planning. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 800-809
- Lombard M** (1991) Benchmarks: The Management Perspective. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 33-41
- Lomet D B** (1991) Grow and Post Index Trees: Role, Techniques and Future Potential. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 183-206, Vol 525
- Lopez X** (1992) Street Network Files and their Applications to Local Government Planning and Management 268-277. *Proceedings of EGIS '92, Munich*. EGIS Foundation
- Lopez X R** (1991) The Maintenance of Street Network Files for Urban Planning and Management. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 122-134
- Lorie R A** (1991) The Use of a Complex Object Language in Geographic Data Management. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 319-338, Vol 525
- Love D J, Schultz K L, Wilson F K, Murty K S** (1991) Development of an Interdisciplinary Earth System Science Academic Curriculum and an Earth Observing System Research Project. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 685-698

- International, pp 451-458
- Love W R** (1991) GIS Design and Implementation: A Successful Methodology. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 474-484
- Loveland T R, Merchant J W, Ohlen D, Brown J F** (1991) Development of a Land-Cover Characteristics Database for the Conterminous U.S. *Photogrammetric Engineering and Remote Sensing* 57(11): 1453-1464
- Lowe G** (1991) GIS and OSI: application layer protocols. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 209-214
- Lowell K E** (1990) Difference between Ecological Land Type Maps Produced Using GIS or Manual Cartographic Method. *Photogrammetric Engineering and Remote Sensing* 56(2): 169-173
- Lowell K E, Jr J H A** (1989) Vegetative succession and controlled fire in a glades ecosystem: A geographical information system approach. *International Journal of Geographical Information Systems* 3(1): 5
- Lu H, Ooi B C, D'Souza A, Low C C** (1991) Storage Management in Geographic Information Systems. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 451-470, Vol 525
- Lu W, Han J** (1992) Deductive Spatial Query Optimization by Dynamic Connection Graph Transformation. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 323-334
- Lu J, Xiang W-N** (1992) A GIS-Based Expert System for Land Use Regulation Enforcement. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 30-38
- Lucas S, Rose R** (1991) The provision of general access to spatially integrated data. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 203-206
- Ludascher P** (1992) GIS Education with a Modular Software Concept. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 357-362
- Lundin B** (1991) Accuracy of Points, Lines, Polygons and Other Geographic Information . *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 104-115
- Lunetta R S, Congalton R G, Fenstermaker L K, Jensen J R, McGwire K C, Tinney L R** (1991) Remote Sensing and Geographic Information System Data Integration; Error Sources and Research Issues. *Photogrammetric Engineering and Remote Sensing* 57(6): 677-687
- Lupien A E, Moreland W H, Dangermond J** (1987) Network Analysis in Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 53(10): 1417-1421
- Lupien T, Hilbert J A, Paschak S H** (1992) User Interface Lifecycle of Industrial GIS Applications. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 30-39
- Lyons K, Sharma P** (1989) Experiences in Providing Education and Training in GIS. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Maas K J** (1991) Development of the Utah State Geographic Information Database. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 124-133
- MacDonald R, Goodbrand C, Johnstone W** (1991) Application of GIS to the planning and preliminary design of the Vancouver Island highway. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 303-318
- Mace T H** (1990) Multistage Remote Sensing for a National Environmental Monitoring Program Database. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 691-700
- MacGaffey N, Shalit H** (1988) Address Geocodes in GIS Development: Technical Considerations from a Case Study. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 190-197
- Mackaness W, Beard K** (1990) Development of an Interface for User Interaction in Rule Based Map Generalisation. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 107-116
- Mackaness W A** (1991) Integration and evaluation of map generalization. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 217-226
- Mackay D S, Band L E, Robinson V B** (1991) An Object-Oriented System for the Organisation and Representation of Terrain Knowledge for Forested Ecosystems. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 617-626
- Macri I, Macri L** (1992) A Non-Linear Optimisation

- Package for Forrester's Models. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1434-1437
- Madry S L H** (1989) Geographic Resources Analysis Support System (GRASS): An Integrated Public Domain GIS and Image Processing System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 743-750
- Maffini G** (1987) Raster versus Vector Data Encoding and Handling: A Commentary. *Photogrammetric Engineering and Remote Sensing* 53(10): 1397-1398
- Maggio R C** (1987) The Role of the Geographic Information System in the Expert System. *GIS '87, San Francisco, California*. ASP&RS, pp 685-692
- Maggio R C** (1990) Planning for a GIS Installation in a Local Government. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 413-420
- Maggio R C, Long D W** (1991) Developing Thematic Maps from Point Sampling Using Thiessen Polygon Analysis. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 1-10
- Maguire D, Stickler G, Browning G** (1992) Handling Complex Objects in Geo-Relational GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 652-661
- Maguire D J** (1989) *Computers in Geography*. Longman, London.
- Maguire D J** (1991) An overview and definition of GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 9-20, Vol 1
- Maguire D J, Dangermond J** (1991) The functionality of GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 319-335, Vol 1
- Maguire D J, Goodchild M F, Rhind D W** (eds) *Geographical Information Systems: principles and applications*. Longman, New York, 2 Volumes
- Maguire D J, Kimber B, Chick J** (1991) Integrated GIS: the importance of raster. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 107-116
- Mahoney R** (1992) The Organisational Impact of Central GIS Support Groups in a Decentralised IT Environment. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 582-591
- Mahoney R P** (1991) GIS and utilities. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 101-114, Vol 2
- Mahoney R P** (1991) Making senior management aware of GIS. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 662-670
- Mainguenaud M** (1992) What is Happening After the Definition of An End-User Query. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 278-286
- Makarovic B** (1984) Structures for Geo Information and their Application in Selective Sampling for Digital Terrain Models. *ITC Journal* 4: 285-295
- Makokis R, Buckley D** (1991) The role of GIS in integrated resource management for first nations initiatives in Alberta. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 265-270
- Maling D H** (1991) Coordinate systems and map projections for GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 135-146, Vol 1
- Mallants D, Badji M** (1991) Integration of GIS and deterministic hydrologic models: a powerful tool for environmental impact assessment. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 671-680
- Man E d** (1991) Establishing a Geographical Information System as a form of institution building; a quest for redundancy. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 681-690
- Man W H E d** (1988) Establishing a geographical information system in relation to its use: A process of strategic choices. *International Journal of Geographical Information Systems* 2(3): 24-25
- Man W H E D** (1990) Establishing a geographical information system in relation to its use: A process of strategic choices. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 324-340
- Mandl P** (1992) A Conceptual Framework for Coupling GIS and Computer-Models. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 431-437
- Marble D F** (1990) Geographic information systems: an overview. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 8-17
- Marble D F, Lauzon J P, McGranaghan M** (1990) Development of a conceptual model of the manual

- digitizing process. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 341-352
- Marceil J (1991) Scanning for GIS applications. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 215-218
- March G D (1987) One Step at a Time. *GIS '87, San Francisco, California*. ASP&RS, pp 703
- Marenco P, Roccatagliah E (1992) Planning and Strategic Choices for Requalification of Urban Areas. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 363-372
- Marini M (1989) Multilevel Approach to geographic Data Transfer. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 478-484
- Mark D M (1989) Cognitive Image-Schemata for Geographic Information: Relations to User Views and GIS Interfaces. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 551-560
- Mark D M (1990) Competition for Map Space as a Paradigm for Automated Map Design. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 97-106
- Mark D M (1991) Object modelling and phenomenon-based generalization . In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 103-118
- Mark D M (1992) Spatial Metaphors for Human-Computer Interaction. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 104-112
- Mark D M, Gould M D (1991) Interacting with Geographic Information: A Commentary. *Photogrammetric Engineering and Remote Sensing* 57(11): 1427-1430
- Mark D M, Lauzon J P, Cebrian J A (1989) A review if quadtree-based strategies for interfacing coverage data with digital elevation models in grid form. *International Journal of Geographical Information Systems* 3(1)
- Markham R U R, Rix D (1991) GIS in UK Local Government: a Management Challenge for the 1990's. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 941-952
- Marks A P (1991) Identifying Potential Sites for Development of Hospital Facilities Utilizing Geographic Information Systems Technology. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 89
- Marks B O, Simmons G A (1987) Managing Cartographic Modelling and Linneage Problems Using a Microcomputer. *GIS '87, San Francisco, California*. ASP&RS, pp 748
- Marozas B A, Zack J A (1987) Geographic Information Systems Applications to Archeological Site Location Studies. *GIS '87, San Francisco, California*. ASP&RS, pp 628-635
- Marr P, Schoolmaster F A (1988) An Application of GIS to Monitoring Site Changes in Gasoline Service Stations and Underground Storage Tank Locations. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 852-860
- Marsh S E, Walsh J L, Hutchinson C F (1990) Development of an Agricultural Land-Use GIS for Senegal Derived from Multispectral Video and Photographic Data. *Photogrammetric Engineering and Remote Sensing* 56(3): 359-363
- Marshall E J, Segerson J A, Siburg D R, Jones D M (1990) Inter-Agency Water Database Coordination Case Study: Kitsap County Public utility District's Data Management System. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 459-466
- Martin D (1991) Understanding socio-economic geography from the analysis of surface form. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 691-699
- Marx R W (1990) The TIGER system: automating the geographic structure of the United States Census. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 120-141
- Maryland S o (1990) MAGI: Maryland Automated Geographic Information System. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 65-89
- Mason D C, Corr D G, Cross A, Hogg D C, Lawrence D H, Petrou M, Taylor A M (1988) The use of digital map data in the segmentation and classification of remotely-sensed images. *International Journal of Geographical Information Systems* 2(3): 19-20
- Mason D C, Townshend J R G (1988) Research related to geographical information systems at the Natural Environment Research Council's Unit for Thematic Information Systems. *International Journal of Geographical Information Systems* 2(2): 121-142

- Masser I** (1988) The Regional Research Laboratory initiative: A progress report. *International Journal of Geographical Information Systems* 2(1): 11-22
- Masser I** (1990) GIS in Britain: The Regional Research Laboratory Initiative. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 6269-635
- Masser I** (1991) Overview: Potential Applications. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 117-121, Vol 1
- Masser I, Blakemore M** (1991) The Institutional Setting. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 3-10, Vol 1
- Masser I, Toppen F** (1992) A Proposal for a European GIS Education Special Interest Group (SIG). *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 855-863
- Masser I** (1991) Promoting GIS awareness: the European Dimension. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 700-706
- Massey J W** (1991) Digital Mapping Using the Integrated Digital Photogrammetric Facility. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 215-221
- Masters E** (1991) Defining Spatial Accuracy. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 215-224
- Mather P** (1992) The UK ESRC/NERC Joint Programme on Geographical Data Handling: Progress Report. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 474-482
- Mather P M** (1990) ESRC/NERC joint programme on geographical information handling: A progress report. *International Journal of Geographical Information Systems* 4(4): 477-480
- Mauser W** (1992) The Integration of Remote-Sensing Data in a GIS to Model Spatial Evapotranspiration and Soil-Moisture Distribution. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1140-1149
- McAbee I James** (1991) Spatial modelling and visualization: methodologies for integration pathways to understanding. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 707-716
- McAbee J** (1991) Integration of spatial analysis technologies for forestry applications . *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 67-73
- McAbee J L III** (1992) The Importance of "Openness" to Data for GIS Applications. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 163-172
- McAbee J L, Owen O K** (1990) A Methodology for the Integration of Spatial Analysis Technologies. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 598-608
- McCarthy J M, Covington W W, Young D L** (1987) Integration of a Spatial Model with Forest Simulation and Optimization Models. *GIS '87, San Francisco, California*. ASP&RS, pp 704
- McCartney J W, Thrall G I** (1991) Real Estate Acquisition Decisions with GIS: Ranking Property for Purchase with an Example from Florida's St Johns Water Management District. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 90-99
- McCrary S W, Benjamin C O, Schmidt P J, Kincaid J B** (1990) EXGIS-An Expert System for GIS Selection in Small Communities. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 562-572
- McCrary S W, Benjamin C O, Schmidt P J, Kincaid J B** (1990) A Survey of Local Government Application of GIS and AM/FM Systems. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 421-431
- McCusker D E** (1991) Evolution of large format raster scanning at Defense Mapping Agency. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 117-122
- McDermott M H** (1991) The Spatial Data Transfer Standard. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 222-230
- McDougall E B** (1991) Dynamic Statistical Visualisation of Geographic Information Systems. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 158-165
- McFarland R** (1990) GIS Implementation Strategies for the Small Municipal Environment. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 174-181
- McGranaghan M** (1989) Incorporating Bio-Localities in a GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 814-823

- McGranaghan M** (1991) Matching Representations of Geographic Locations. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 387-402
- McGranaghan M** (1991) Modeling Simultaneous Contrast on Choropleth Maps. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 231-240
- McGregor D** (1988) Geographic Information System Trends. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 915-921
- McGuffie B A, Johnson L F, Lang H R** (1988) An Interactive Geologic Interpretation System. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 181-189
- McKay L** (1992) The LRIS Network Gateway: A Unique Approach to Sharing Information. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 1-12
- McKellar D G** (1991) The Digital Geographic Information Working Group and International GIS Standard. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 755-762
- McKinsey D** (1988) Priority Ranking for Prescribed Burning in the Cuyamaca Rancho State Park using a Geographic Information System. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 961-970
- McLaren R A, Kennie T J M** (1989) Visualisation of digital terrain models: techniques and applications. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 79-98
- McLaughlin J** (1991) Towards a National Spatial Data Infrastructure. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 1-10
- McMaster R B** (1990) Modeling community vulnerability to hazardous materials using geographic information systems. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 183-194
- McMaster R B** (1991) Conceptual frameworks for geographical knowledge. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 21-39
- McMaster R B, Mark D M** (1991) The Design of a Graphical User Interface for Knowledge Acquisition in Cartographic Generalisation. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 311-320
- McMaster R B, Monmoier M** (1989) A Conceptual Framework for Quantitative and Qualitative Raster-Mode Generalization. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 390-403
- McMaster R B, Shea K S** (1988) Cartographic Generalization in a Digital Environment: A Framework for Implementation in a Geographic Information System. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 240-249
- McMillen B K** (1991) Implementation of Planning Data by Using the Geographic Information System (GIS) - Special Projects. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 242-249
- McMullan D** (1991) Old Growth Forests: Can the Conflicts be Resolved? *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 11-14
- McNerney M T** (1992) An Experiment to Collect GIS Location Data for Highway Segments on IH-80 Using Vehicle-Mounted GPS Receivers. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 200-208
- McNoldy C E** (1989) Why Local Jurisdictions Need a Parcel-Specific Geographic Information System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 250-259
- McRae S D** (1989) GIS Design and the Questions Users Should Be Asking. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 528-537
- Mead R A, Cockerham L S, Robinson C M** (1988) Mapping Gopher Tortoise Habitat on the Ocala National Forest Using a GIS. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 395-400
- Mead R A, Rowland E B** (1987) Selecting Sand Pine Stands for Harvest Using a GIS. *GIS '87, San Francisco, California*. ASP&RS, pp 705
- Meaille R, Wald L** (1990) A Geographical information system for some Mediterranean benthic communities. *International Journal of Geographical Information Systems* 4(1)
- Meaille R, Wald L** (1990) Using geographical information system and satellite imagery within a numerical simulation of regional urban growth. *International Journal of Geographical Information Systems* 4(4): 445-456

- Medyckyj-Scott D** (1991) User-oriented enquiry facilities. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 85-112
- Medyckyj-Scott D, Board C** (1991) Cognitive Cartography: A New Heart for a Lost Soul. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 201-230
- Meer A M v d** (1991) A profile of Geographical Information Handling in the Netherlands. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 717-727
- Mehldau G, Schowengerdt R A** (1990) A C-Extension for Rule-Based Image Classification Systems. *Photogrammetric Engineering and Remote Sensing* 56(6): 887-892
- Meijerink A M J** (1985) Geo Information systems for Land Use Zoning and Watershed Management. *ITC Journal* 4: 283-287
- Meijerink A M J, Sayago V M, Emaruchi B, Ziadi K** (1986) A Spatial Assemblage Model for the Estimation of Gross Erosion and Sediment Yield using Remote Sensing and Geo-Data-Base Operations. In: Siderius W (eds) *Land Evaluation for Land-Use Planning and Conservation in Sloping Areas*. International Institute for Land Reclamation and Improvement/Publication 40, Wageningen The Netherlands, pp 174-195
- Meirvenne M V, Hofman G** (1992) Combining GIS and Geostatistics for Quantitative Soil Texture Mapping. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1426-1433
- Meneti N, Azzali S** (1991) The Role of Remote Sensing GIS and Models in the Management of Large Irrigation. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 73-90
- Menke K** (1992) Computer-Supported Cartographic Generalization Using Phocus. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 542-543
- Menon S, Gao P, Zhan C** (1991) GRID: A Data Model and Functional Map Algebra for Raster Geo-Processing. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 551-561
- Menon S, Smith T R** (1989) A Declarative Spatial Query Processor for Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 55(11): 1593-1600
- Merchant J W** (1988) Foreword (to Special GIS issue). *Photogrammetric Engineering and Remote Sensing* 54(11): 1545
- Merchant J W** (1989) Foreword (to Special GIS Issue). *Photogrammetric Engineering and Remote Sensing* 55(11): 1573
- Merchant J W, Ripple W J** (1987) Foreword (to PE&RS Special GIS Issue). *Photogrammetric Engineering and Remote Sensing* 53(10): 1359
- Merchant J W, Whittemore D O, Whistler J L, McElwee C D, Woods J J** (1987) Groundwater pollution hazard assessment: a GIS approach. *International geographic information systems (IGIS) symposium, Arlington, VA, United States*. ASA, United States, pp 111.103-111.115
- Meyer N v, Fletcher D** (1992) Parcel Mapping Accuracy -- Some Wisconsin Experiences. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 39-45
- Meyers T F** (1991) Evaluating and Implementing Conversion Alternatives. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 169-178
- Mezosi G** (1991) The potential productivity of landscape types in Hungary. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 728-736
- Michelson A R, Woodcock C E, Yentsch C S** (1989) Modeling Tidal Mixing in the Boston Harbor Using a Raster-Based GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 108-115
- Michener W K, Blood E R, Gardner L R, Kjerfve B, Cablk M B, Coleman C H, Jefferson W H, Karunshak D A, Spoon F D** (1991) GIS Assessment of Large-Scale Ecological Disturbances (Hurricane Hugo 1989). *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 343-355
- Miller A H** (1988) A Professional organisation for State Level GIS Coordination: The Wisconsin Land Information Association. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 774-780
- Miller D** (1992) Analysis of Vegetation Succession within an Expert System. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 381-390
- Miller D, Morrice J** (1991) An Expert System and GIS Approach to Predicting Changes in the Upland Vegetation of Scotland. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp

- Miller H J** (1991) Modelling accessibility using space-time prism concepts within geographical information systems. *International Journal of Geographical Information Systems* 5(3): 287-302
- Miller S** (1991) Washington DNR's forest management tracking system: a design for the many-to-many relationship. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 97-100
- Millette T L** (1989) Implementation of a State-Wide GIS: Regional Planing Commissions as Platforms for Products and Services. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 438-447
- Millette T L, Edelstein E** (1991) Regional data layer development for the Vermont GIS from processing of SPOT Imagery. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 123-132
- Millsom R** (1991) Accuracy Moves from Maps to GIS - Has Anything Changed? *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 17-22
- Moellering H** (1991) Cartographic Database Exchange Standards. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 141-160
- Moffatt I** (1990) The Potentialities and Problems Associated with Applying Information Technology to Environmental Management. *Environmental Management* 30: 209-220
- Mogorovich P, Magnarapa C, Masserotti M, Mazzotta S** (1992) Merging GIS with Multimedia Technologies: The Case-Study of an Information System for Tourist Applications. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1085-1094
- Moll B W** (1989) Development of a Decentralized GIS to meet Water Resource Management Needs. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 100-107
- Moller-Jensen L** (1990) Knowledge-Based Classification of an Urban Area Using Texture and Context Information in Landsat-TM Imagery. *Photogrammetric Engineering and Remote Sensing* 56(6): 899-904
- Moller-Jensen L** (1992) A GIS-Data Advisory System. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 592-598
- Mollison T J, Trinder J C, Masters E G** (1989) Geographic Data Transfer. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Monmonier M** (1988) Interpolated Line Generalization: Overview, Examples and Preliminary Evaluation. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 256-265
- Monmonier M** (1989) Graphic Scripts for the Sequenced Visualization of Geographic Data. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 381-389
- Monmonier M** (1991) Role of interpolation in feature displacement. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 189-203
- Monmonier M** (1992) Time and Motion as Strategic Variables in the Analysis and Communication of Correlation. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 72-81
- Monneyhan D W** (1991) GRID and the Role of Developing Countries in the Climate and Global Change Programme. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 1-14
- Montgomery R J** (1992) Total Quality Management. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 70-78
- Moon G, Ashworth M, Carmody P** (1991) Maintaining Data Integrity in a GIS Environment. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 80-90
- Moore D M, Lees B G, Davey S M** (1991) A New Method for Predicting Vegetation Distributions using Decision Tree Analysis in a Geographic Information System. *Environmental Management* 15(1): 59-71
- Moore T J** (1991) Application of GIS Technology to Air Toxics Risk Assessment: Meeting the Demands of the California Air Toxics "Hot Spots" Act 1987. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 694-714
- Morain S A, Harrington M W** (1990) A GIS for Predicting Environmentally Induced Changes in the Flora of the Rocky Mountains. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 803-813
- Morehouse S** (1987) ARC/INFO: A Geo Processing Tool Box. *URPIS 87*, The Australasian Urban and

- Regional Information Systems Association Inc**
- Moreno D, Siegel M** (1988) A GIS Approach for Corridor Siting ad Environmental Impact Analysis. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 507-514
- Moreno D D, Heyerdahl L A** (1990) Advanced GIS Modelling Techniques in Environmental Impact Assessment. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 343-356
- Moreno D D, Heyerdahl L A** (1991) GIS Tools for Contaminated Site Remediation: The Bunker Hill Superfund Site. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 21-30
- Moreno-Jimenez A** (1992) Social-Spatial Impact Analysis and Site Selection for Controversial Public Facilities with GIS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 483-491
- Morgan J M** (1987) Academic Geographic Information Systems Education: A Commentary. *Photogrammetric Engineering and Remote Sensing* 53(10): 1443-1445
- Morgan M, Thorn M** (1991) Geographic Knowledge Structures for Harbor Management. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 97-106
- Morrison B, McDonald G** (1991) Integrating Raster and Vector Data for the Development of a Land Information system. *Aurisa 91, Wellington New Zealand.* The Australasian Urban and Regional Information Systems Association, pp 372-378
- Morrison C, Allam M** (1990) A Federal perspective of GIS Activities in Canada. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 935945
- Morrison J** (1992) Issues and Trends of Concern to the URISA Membership: A Thirty Year Survey of URISA's Literature. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association,* pp 42-58
- Morrison J L** (1991) The organizational home for GIS in the scientific professional community. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 91-100, Vol 1
- Morse A** (1987) A Hybrid Classifier for Spectral and GIS Data. *GIS '87, San Francisco, California.* ASP&RS, pp 706
- Morse A, Zarriello T J, Kramber W J** (1990) Using Remote Sensing and GIS Technology to Help Adjudicate Idaho Water Rights. *Photogrammetric Engineering and Remote Sensing* 56(3): 365-370
- Morse B W, Hovey S T** (1990) Data: The Foundation of a Land Information System. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 273-282
- Motherwell J A F, Marsh P** (1992) Rehabilitation Decision Support for Sewer Collection and Water Distribution Systems. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association,* pp 127-137
- Mounsey H** (1990) GIS: Appraising the Investment. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Mounsey H M** (1991) Multisource, multinational environmental GIS: lessons learnt from CORINE. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 185-200, Vol 2
- Moussa O M** (1991) Hydrological regression sediment-yield model for ungaged stations along the Blue Nile Coarse. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 133-140
- Moussa O M, Smith S E, Ward A D** (1990) GIS for Monitoring Sediment-Yield from Large Watershed. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 946-954
- Mower J E** (1988) A Neural Network Approach to Feature Recognition Along Cartographic Lines. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 250-255
- Mower J E** (1992) Building a GIS for Parallel Computing Environments. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 219-229
- Muchoney D M, Grossman D H, Solomon R** (1991) Rapid ecological assessment for conservation planning. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 141-145
- Mukherjee M, Nagy G** (1992) Collinearity Constraints on Spatial Subdivision Algorithms with Finite Precision Arithmetic. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 424-433
- Mulaku G C, Lodwick G D** (1987) Map Data Digitizing Editing and Automatic Hydrological Network

- Reconstruction. *International Geographic Information Systems Symposium: The Research Agenda, Arlington*. national Aeronautics and Space Administration, pp 149-161
- Mularz S C (1986) Remote Sensing Assessment of Environmental Impacts caused by Phosphate Industry Destructive Influence. *Symposium on Remote Sensing for Resources Development and environmental Management*, , pp 639-644
- Mullen M P (1991) A GIS Technology for Ground-Water Assessments. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 243-252
- Muller J C (1991) Generalization of spatial databases. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 457-475, Vol 1
- Muller J C, Mouwes P J (1990) Knowledge Acquisition and Representation for Rule Based Map Generalisation: An Example from The Netherlands. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 58-67
- Muller J-C (1992) Parallel Distributed Processing: an Application to Geographic Feature Selection. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 230-240
- Muller J C (1991) Prospects for and Impediments Against a New Cartography in the 1990s . In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp I-14
- Murakami E, Greenleaf K (1992) Multi-Agency TIGER File Updating. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 25-35
- Murnane B (1991) Delivering Accurate Systems. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 49-53
- Musselman C (1989) Managing Transition Within a GIS: The Prince William County Virginia Story. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 90-99
- Nag P (1987) A proposed base for a geographical information system for India. *International Journal of Geographical Information Systems* 1(2): 181-188
- Nanna S (1991) The use of multiplying effect of ancillary data in erosion severity classification: a method for improving data quality of multispectral classification. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1046-1057
- Nappi M F (1990) Growth of geographical information system applications in developing countries. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 23-32
- Naugle B I, Bomba P (1988) Incorporating Attribute Files (dBaseIII) in the ELAS GIS Package. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 900
- NCGIA (1989) The research plan of the National Center for Geographic Information and Analysis. *International Journal of Geographical Information Systems* 3(2): 103-136
- Nebert D D (1990) Design of a Distributed Spatial Data Library to Support Hydrologic Investigations in the US Geological Survey. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 272
- Nellis M D, Lulla K, Jensen J (1990) Interfacing Geographic Information Systems and Remote Sensing for Rural Land-Use Analysis. *Photogrammetric Engineering and Remote Sensing* 56(3): 329-331
- Newell R G, Easterfield M, Theriault D G (1991) Integration of Spatial Objects in a GIS. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 408-415
- Newell R G, Theriault D, Easterfield M, Dean C (1991) The Management of Multiple Users of Large Seamless Databases. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 786-794
- Newman I (1991) Data Dictionaries, Information resource Dictionary Systems and Metadatabases. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 69-84
- Newton P, Zwart P, Cavill M (1990) Towards Real Time Spatial Information Systems. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Nickerson B G (1991) Knowledge engineering for generalization . In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 40-56
- Niemann B (1990) USGS National Mapping Division: Preparing for the Twenty-First Century: Reflections

- Upon This Revolutionary Prospect. *GIS/LIS '90*, Anaheim California.** ASP&RS, AAG, URPIS and AM/FM International, pp 882-886
- Niemann B J** (1988) The Consoil Project: Conservation of Natural Resources through the Sharing of Information Layers. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 11-25
- Niemann B J, Sullivan J G, Ventura S J, Chrisman N R, Vonderohe A P, Fezera D F, Moyer D D** (1987) Results of the Dane County Land Records Project. *Photogrammetric Engineering and Remote Sensing* 53(10): 1371-1378
- Niemeyer D** (1991) Digital Chart of the World - Status of the Project. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 310-318
- Nijkamp P** (1990) Geographical information systems in perspective. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 241-252
- Nijkamp P, Fisher M** (1992) Geographic Information Systems and Spatial Modeling: Potentials and Bottlenecks. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 214-225
- Nijkamp P, Scholten H J** (1991) Information Systems: caveats in design and use. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 737-746
- Nijpels K, Laan F v d** (1991) The vectorization of topographical map: Accuracy and Efficiency. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 747-755
- Nkambwe M** (1991) Resource utilization and regional planning information systems (RURPIS) in Botswana. *International Journal of Geographical Information Systems* 5(1): 111-122
- Noguchi T, Sugiyama T, Setojima M, Mori M** (1991) Prediction of Disaster Occurrence Point on the Slope Land along the Railway Using Raster GIS. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 257-266
- Nonon T** (1991) The Application of Data Modelling to Spatial Information Systems. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 187-191
- Noonan P** (1992) Staged Land Base Precision Development Strategy. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 67-78
- Norejko R** (1992) Implementing a Computerized Public Inquiry System. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 121-126
- Norton D J, Slonecker E T** (1990) The Environmental Monitoring and Assessment Program's Landscape Characterisation Data Base: New Opportunities in Spatial Analysis. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 682-690
- Norwood b P** (1990) Strategies for Utilising Raster Processing in a Spatial Systems Environment. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 573-580
- Nossin J J** (1989) Aerospace survey of natural hazards: the new possibilities. *ITC Journal* 3: 183-188
- Nunes J** (1991) Geographic Space as a Set of Concrete Geographical Entities. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 9-34
- Nuutinen T** (1990) GIS in Harvesting Scheduling of private Forests in Finland. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 432-439
- Nyerges T L** (1989) Schema integration analysis for the development of GIS databases. *International Journal of Geographical Information Systems* 3(2): 153-184
- Nyerges T L** (1991) Representing geographical meaning . In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 59-85
- Nyerges T L** (1992) Coupling GIS and Spatial Analytic Models. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 534-543
- O'Brien A O, Ford J, Benwell G L** (1988) GIS/LIS for Road Management. *URPIS 88*. The Australasian Urban and Regional Information Systems Association Inc
- O'Brien C D, Hibbert P, Freeley J, McKellar D G** (1991) The DCW Project - Canadian R&D Contribution. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 319-325
- O'Brien D** (1991) Interactive Semi-Automatic Feature Extraction. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 1038-1050

- O'Callaghan J (1990) Trends in GIS: An Information Technology Perspective. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- O'Callaghan J F, Garner B J (1991) Land and Geographical Information Systems in Australia. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 57-70, Vol 2
- O'Connell M A, Bell S B M, Mason D, Young P A V (1991) Handling four-dimensional GEO-coded data. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 756-764
- O'Donnell J H (1991) Trends in GIS Data Acquisition. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 660-668
- O'Neill W A, Grenney W J (1991) Prototype Knowledge-Based Model for Matching Non-Graphic Road Inventory Files with Existing Digital Cartographic Databases. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 85-96
- Oaten G W, Shortis M R (1990) Geometric Elements or Thematic Features: The Quest for Basic Spatial Objects. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Oberg M, Lindel T, Saare L, Nisell J (1992) Extraction of Information from Satellite Imagery and GIS for Environmental Monitoring of the Mining Areas in Northeastern Estonia. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1365-1372
- Oberg R E (1988) The Visual Cartographic Enquiry System for Geodetic Control Data. *GIS/LIS '88, San Antonio, Texas*. ASPRS; AAG; URISA, pp 484-489
- Oberg R E (1989) The Development of the Visual Cartographic Enquiry System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 301-304
- Obermeyer N J (1989) A Systematic Approach to the Taxonomy of Geographic Information Use. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 421-429
- Obermeyer N J (1991) Certification in GIS: More Trouble Than It's Worth? *GIS/LIS '91, Atlanta, Georgia*. ASPRS, AAG, URPIS and AM/FM International, pp 459-466
- Obermeyer N J (1992) Certifying GIS Professionals: Challenges and Alternatives. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 176-187
- Ogilvie M (1991) The Standards Effort in New Brunswick. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 748-754
- Ohler T (1992) The Multi Class Grid File: An Access Structure for Multi Class Range Queries. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 260-271
- Olk J P (1991) 3-Dimensional probability mapping for soil remediation purposes. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 765-774
- Oliver J J, Greenwood P H, Cooper A K, McPherson D R, Engelbrecht R (1990) Selecting a GIS for a National Water Management Authority. *Photogrammetric Engineering and Remote Sensing* 56(11): 1471-1475
- Oliver M A, Webster R (1990) Kriging: a method of interpolation for geographical information systems. *International Journal of Geographical Information Systems* 4(3): 31-32
- Oliver S G (1988) A GIS Automation of County Tax Assessor Maps and Their Application for Siting the Superconducting Super Collider in Illinois. *GIS/LIS '88, San Antonio, Texas*. ASPRS; AAG; URISA, pp 448-458
- Oliver S G (1989) Illinois' Geographic Information System meets Dun and Bradstreet: Applying a Commercial Database to State Energy, Environmental and Regulatory Issues. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 336-341
- Olson R, Haney T (1991) Modeling Earthquake Casualties for Planning and Response Model Definition and User Output Requirements. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 211-219
- Olsson L (1989) Integrated Resource Monitoring by means of Remote Sensing, GIS and Spatial Modelling in Arid Environments. *Soil Use and Management* 5(1): 30-38
- Omojola A (1991) Landuse and Land Cover Dynamics in a Nigerian Semi-arid Environment: A Remote Sensing and GIS Assessment. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 735-747
- Onsrud H J (1989) Legal and Liability Issues in Publicly Accessible Land Information Systems. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 295-300

- Onsrud H J** (1989) Understanding the Uses and Assessing the Value of Geographic Information. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 404-411
- Oosterom P v** (1990) A modified binary space partitioning tree for geographic information systems. *International Journal of Geographical Information Systems* 4(2): 11-12
- Oosterom P v** (1991) The Reactive-tree: A Storage Structure for a Seamless, Scaleless Geographic Database. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 393-407
- Oosterom P v, Vlijtbrief T** (1991) Building a GIS on top of the open DBMS "Postgres". *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 775-787
- Openshaw S** (1990) Spatial analysis and geographical information systems: a review of progress and possibilities. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 153-164
- Openshaw S** (1991) Developing appropriate spatial analysis methods for GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 389-402, Vol 1
- Openshaw S** (1991) A spatial analysis research agenda. In: Masser I, Blakemore M (eds) *Handling Geographical Information.* Longman Scientific & Technical, Essex, pp 18-37, Vol 1
- Openshaw S, Brundson C, Charlton M** (1991) A spatial analysis toolkit for GIS. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 788-796
- Openshaw S, Charlton M, Carver S** (1991) Error propagation: a Monte Carlo simulation. In: Masser I, Blakemore M (eds) *Handling Geographical Information.* Longman Scientific & Technical, Essex, pp 78-101, Vol 1
- Openshaw S, Charlton M, Wymer C, Craft A** (1987) A Mark 1 Geographical Analysis Machine for the automated analysis of point data sets. *International Journal of Geographical Information Systems* 1(4): 335-358
- Openshaw S, Cross A, Charlton M** (1990) Building a prototype Geographical Correlates Exploration Machine. *International Journal of Geographical Information Systems* 4(3): 29-30
- Openshaw S, Mounsey J** (1987) Geographic information systems and the BBC's Domesday interactive videodisk. *International Journal of Geographical Information Systems* 1(2): 173-180
- Openshaw S, Wymer C, Cross A** (1991) Using neural nets to solve some hard analysis problems in GIS. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 797-807
- Orenstein J** (1991) An Algorithm for Computing the Overlay of k-Dimensional Spaces. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases.* Springer-Verlag, Zurich, pp 381-400, Vol 525
- Orr T M, Morgan G A** (1990) Tropical Vegetation Mapping for Military Decision Support. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia.* Committee of the 5th Australasian Remote Sensing Conference Inc, pp 606-608
- Orshoven J V, Deckers J A, Vandebroucke D** (1992) From High to Low Intensity Land Evaluation: The Need for a Powerful RDBMS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 408-416
- Osborne S, Stoogenke M** (1989) Integration of a Temporal Element into a Natural Resource Decision Support System. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 221-227
- Osborne S, Stoogenke M S** (1991) Improved Management and Analysis of Industrial Air ~ Emissions Using a Geographic Information System. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 54-65
- Oshima T, Yoshimura M, Okamoto M** (1991) Regional characteristics investigation by personal computer using Satellite, Social, and Geographical Information. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 146-155
- Oslin A J** (1988) GIS to Integrate Remote Sensing and CADD for Engineering and Environmental Studies. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 407-416
- Ostrowski J A, Wasson B D, Horler D N H** (1991) Personal Computer Based Digital Elevation Model Generation. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 393-402
- Ottens H** (1992) GIS in Action. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1-8
- Ottens H** (1992) GIS Meta-Information and Expertise. *Proceedings of EGIS '92, Munich.* EGIS Foundation,

pp 1495-1501

Ottens H F L (1990) The application of geographical information systems in urban and regional planning. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 15-22

Ottens H F L (1991) GIS in Europe. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1-8

Ottens H F L, Zandee R H (1991) The NexpRI Information Bank: a meta-information system on GIS activities in the Netherlands. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 139-151

Ottitsch A (1991) The application of a GIS for optimizing multiple land use. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 187-199

Ottmann T (1991) Geometric Algorithms and Their Complexity. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 3-4, Vol 525

Ottoson L, Rystedt B (1991) National GIS programmes in Sweden. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 39-46, Vol 2

Padding P (1991) A GIS infrastructure for the information production process. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 808-817

Padding P, Veldhuizen H P J v (1991) Pollution of groundwater catchment areas in the Netherlands; the use of GIS in practice. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 818-825

Padgett D A (1991) An Application of GIS in the Risk Assessment of Aquifer Contamination from Hazardous Materials Transporter Spills. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 250-261

Paelinckx D, Heyman H, Verheyen R, Kuijken E (1991) The GIS data base biological evaluation map for Flanders: construction and applications. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 826-832

Paepe R, Sanders J (1991) Recent developments in GIS in the Flemish region. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 833-840

Pageau J, Dude J, Bedard Y (1991) Un exemple de systeme d'information urbaine a reference spatiale a usages multiples: le proje EPSILOG. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 53-64

Painho M O, Duncan B W, Davis F W (1990) Utilising GIS Technology to Assess Boundary Consistency and Thematic Map Accuracy. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 68

Palatiello J M (1991) A Proposal for Improved Coordination of Federal GIS Activities. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 431-440

Pant D N, Singh M P (1991) A Geographical Study of Mussoorie for Environmental Change Detection. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 179-192

Papanikolaou K, Derenyi E E (1987) GIS in Support of Remote Sensing Technology: Present Applications, Future Possibilities. *GIS '87, San Francisco, California*. ASP&RS, pp 333-339

Parent C, Ouellette L (1991) Projet de recuperation et d'integration des donnees existantes (PRIDE). *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 432-446

Parent P, Church R (1987) Evolution of Geographic Information Systems as Decision Making Tools. *GIS '87, San Francisco, California*. ASP&RS, pp 63-71

Parent P, Joffe B, Finkle R (1989) Estimating the Costs of Building Your AM/GIS Database. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 143-151

Parker H D (1987) What Is a Geographic Information System? *GIS '87, San Francisco, California*. ASP&RS, pp 72-80

Parker H D (1988) A Comparison of Current GIS Software: The Results of a Survey. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 911-914

Parker H D (1988) The Unique Qualities of a Geographic Information System: A Commentary. *Photogrammetric Engineering and Remote Sensing* 54(11): 1547-1549

Parker H D (1989) GIS Software 1989: A Survey and Commentary. *Photogrammetric Engineering and Remote Sensing* 55(11): 1589-1591

Parker H D (1991) Commentary: The Role of the Private Sector in GIS. *Photogrammetric Engineering and Remote Sensing* 57(11): 1465-1466

Parks B O, Simmons G A, Gage S (1987) A Spatial Model and Geographic Information System for Statewide Assessment of Risks Due to Gypsy Moth

- Infestation in Michigan. GIS '87, San Francisco, California.** ASP&RS, pp 707
- Parr D M (1989) Land Use Data in the Local Government GIS. GIS/LIS '89, Orlando, Florida.** ASPRS, AAG, URPIS, AM/FM International, pp 260-269
- Parr D M (1992) IS/GIS, URISA, and the Private Sector. URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association,** pp 241-254
- Parrott R, Stutz F P (1991) Urban GIS applications.** In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 247-260, Vol 2
- Parvey C, Granger K (eds) A National Geographic Information System: An Achievable Objective.** Australasian Urban and Regional Information Systems Association Inc, Canberra, Volumes
- Parvey C A (1990) A National Scale GIS: The State of Play in Australia at the Beginning of the 1990s.** *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Parvey C A, Walker P A (1989) Using ARIS to Evaluate Environmental Impact Assessment of Defence Facilities.** *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Pascoe R T, Penny J P (1990) Construction of interfaces for the exchange of geographic data.** *International Journal of Geographical Information Systems* 4(2): 13-14
- Pataki F (1992) An Additional Concept in Developing a GIS Function Set.** *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 305-306
- Pattijn F, Canters F (1991) The geocoding of SPOT imagery in Raster-Based Geographical Systems.** *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 841-846
- Pazer M, Bona L D (1989) Map Processors.** *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 751-760
- Pearson E, Wadge G, Wislocki A P (1992) Approach to Modelling and Mapping Natural Hazards.** *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 762-771
- Pearson E J, Wadge G, Wislocki A P (1991) Mapping natural hazards with spatial modelling systems.** *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 847-855
- Pearson E J, Wadge G, Wislocki A P (1992) An Integrated Expert System/GIS Approach to Modelling and Mapping Natural Hazards.** *EGIS '92, Munich*.
- Pease C M (1989) A GIS Experience: Working with the Latest Technology.** *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Peccol E (1991) GIS in higher education in Italy.** *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1363-1371
- Peled A (1991) Automated Completion of Missing Data for (DLG) Digital Line Graphs.** *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 253-260
- Peled A, Hakkert A S, Affum J K (1991) A PC Oriented GIS Application for Road Safety Improvements.** *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 528-543
- Peralta E (1991) La Aplicacion del Sistema de Analise Geoambiental (SAGA) en la Determinacion de Riesgos de Deslizamientos: El Caso de Itacara, Brasil.** *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 274-288
- Peregrine P (1988) Geographic information Systems in Archaeological Research: Prospects and Problems.** *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 873-879
- Periera J M C, Itami R M (1991) GIS-Based Habitat Modeling Using Logistic Multiple Regression: A Study of the Mt. Graham Red Squirrel.** *Photogrammetric Engineering and Remote Sensing* 57(11): 1475-1486
- Perkins S (1990) Down with DejaVu: Making Change Stick in Your Organisation.** *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 749-761
- Persson J, Jungert E (1991) Generation of hierarchical multi-resolution maps represented in an non-hierarchical map data structure.** *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 866-874
- Petragatti G, Belussi A, Negri M, Rossi M, Sbatella L (1991) Design and implementation of a geographic information system: the case of regione Lombardia.** *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 856-865
- Peterman R (1991) GIS integration with business systems.** *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 433-436

- Petersen J K** (1989) An Updating Procedure for Digital Map Databases, to Overcome the Problem of Changing Coordinates of Geodetic Reference Points. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 134-142
- Petersen J K, Kuhn W** (1991) Defining GIS Data Structures by Sketching Examples. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 261-269
- Peterson K** (1990) Toward the Specification of a Spatial Decision Support System for Real Estate Investment Analysis. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 467-475
- Peuquet D J** (1990) A conceptual framework and comparison of spatial data models. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems.* Taylor and Francis, London, pp 250-285
- Peuquet D J** (1991) Methods for Structuring Digital Cartographic Data in a Personal Computer Environment. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography.* Pergamon Press, Oxford, pp 67-96
- Peuquet D J, Bacastow T** (1991) Organizational issues in the development of geographical information systems: a case study of U.S. Army topographic information automation. *International Journal of Geographical Information Systems* 5(3): 303-320
- Peuquet D J, Boyle A R** (1990) Interactions between the cartographic document and the digitizing process. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems.* Taylor and Francis, London, pp 215-221
- Peuquet D J, Marble D F** (eds) *Introductory readings in Geographic Information Systems.* Taylor and Francis, London, Volumes
- Peyke G** (1992) Integration of Workflow on Host Computer- and PC-GIS: The Example of Forestry Applications. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 954-959
- Philbrick A K** (1991) A Hand-In-Glove Paradigm for Geography. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction.* Kluwer Academic, Dordrecht, pp 45-50
- Pickup G, Chewings V H** (1990) Mapping and Forecasting Soil Erosion Patterns from Landsat on a Microcomputer-Based Image Processing Facility. *Australian Rangeland Journal* 8(1): 57-62
- Pierluigi C, Cryan S** (1991) The National Geological Database: in the beginning. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 875-883
- Pigot S** (1991) Topological Models for 3D Spatial Information Systems. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 368-392
- Pigot S** (1992) A Topological Model for a 3-D Spatial Information System. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 344-360
- Pigot S, Hazelton B** (1992) The Fundamentals of a Topological Model for A Four-Dimensional GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 580-591
- Pike R J, Thelin G P, Acevedo W** (1987) A Topographic Base for GIS from Automated TINs and Image-Processed DEMs. *GIS '87, San Francisco, California.* ASP&RS, pp 340-351
- Pilesjo P** (1991) Automated drainage basin detection and theoretical run-off estimation from a gridded digital elevation model. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 884-893
- Piscedda S, Giardina M** (1992) Proposal for a Curriculum on GIS in Italy: A Non-Academic and Post-University Curriculum. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 610-618
- Piwowar J M, LeDrew E F** (1990) Integrating Spatial Data: A User's Perspective. *Photogrammetric Engineering and Remote Sensing* 56(11): 1497-1502
- Piwowar J M, LeDrew E F, Dudycha D J** (1990) Integration of spatial data in vector and raster formats in a geographic information system environment. *International Journal of Geographical Information Systems* 4(4): 429-444
- Plumb G A** (1988) Displaying GIS Data Sets Using Cartographic Classification Techniques. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 340-349
- Plunkett G W** (1991) IACG - Data Dissemination and Government Data Bases - Subcommittee Summary Report on Activities. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 216-238
- Podger N E, Scarpace F L, Usery E L** (1991) Displaying Three Dimensional Data Using an Autostereoscopic Technique on Microcomputers. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 156-165

- Poissant D, Chevallier J-J** (1991) Les contraintes de l'organisation dans l'implantation d'un SIRS. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 825-831
- Pojar J** (1991) Old Growth Forests in British Columbia. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 15-21
- Polidori L, Chorowicz J, Guillande R** (1991) Description of Terrain as a Fractal Surface and Application to Digital Elevation Model Quality Assessment. *Photogrammetric Engineering and Remote Sensing* 57(10): 1329-1332
- Pollak S D** (1992) Methodology and Options for Establishing a Data Sales & Services Business. *URISA 1992 Annual Conference Proceedings, Washington, D.C.* Urban and Regional Information Systems Association, pp 57-69
- Polydorides N D** (1991) GIS (AND) Research: a planner's view. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 894-903
- Polzer P R, Hartzell B J, Wynne R H, Harris P M, Mackenzie M D** (1991) Linking GIS with Predictive Models: Case Study in a Southern Wisconsin Oak Forest. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 49-59
- Pomianowski W** (1992) AVL: An Object Oriented Programming Language for Menu-Driven GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 913-921
- Powers R M, Davis K S, Winkler C** (1990) Development and calibration of an integrated hydrologic model. *SME Annual Meeting, Salt Lake City, USA*. Soc. Mining Engineers of AIME, pp 139
- Prashker S** (1991) Demonstration of the Zapper Software: A Collection of Line Simplification and Smoothing Algorithms for Maps. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 270-278
- Prastacos P, Karjalainen P** (1990) Intelligent information systems for accessing planning databases: the San Francisco experience. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 33-42
- Prastacos P, Paraschis Y N** (1991) A GIS-based decision support system for transportation logistics. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 904-913
- Pratt I** (1991) Path Finding in Free Space Using Sinusoidal Transforms. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht
- Price A** (1991) Information System Quality Costs and Quality Implementation. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 501-505
- Price L C** (1991) Implementing GIS Technology to Manage the Nation's Agricultural Producer Records. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 408-417
- Price S** (1989) Modelling the temporal element in land information systems. *International Journal of Geographical Information Systems* 3(3): 233-244
- Pries R A, Sherer S D, Schowengerdt R A** (1988) Computer-Assisted GIS Data Entry at the Bonneville Power Administration. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 1-10
- Prior N** (1991) Interpreting the 'IS' in 'GIS'. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 60-67
- Prisley S, Smith J** (1991) The Effect of spatial data variability and decisions reached in a GIS environment. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 53-57
- Prisley S P, Gregoire T G, Smith J L** (1989) The Mean and Variance of Area Estimates Computed in an Arc-Node Geographic Information System. *Photogrammetric Engineering and Remote Sensing* 55(11): 1601-1612
- Prisley S P, Mead R A** (1987) Cost-Benefit Analysis for Geographic Information Systems. *GIS '87, San Francisco, California*. ASP&RS, pp 29-37
- Prisley S P, Scrivani J A, Smith J L** (1988) A Linear Programming Approach to Resolving Data Priority issues. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 427-435
- Prokop R** (1991) Creating a corporate graphic data base: a manager's perspective. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 383-386
- Prosser R, Aitken S C** (1990) Analysing Geographic Information Using Grid-Based Spatial Autocorrelation Statistics and Directional Autoregression Models. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 497-505
- Pullar D** (1991) Spatial Overlay with Inexact Numerical Data. *Auto-Carto 10: Technical Papers of the 1991*

- ACSM-ASPRS Annual Convention, Baltimore.**  
ACSM-ASPRS, pp 313-329
- Pullar D, Beard K (1990)** Specifying and Tracking Errors from map Overlay. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 79-87
- Puniard D (1988)** Some Defence Applications of GIS. *URPIS 88*, The Australasian Urban and Regional Information Systems Association Inc
- Puniard D, Horn J, Wise P (1990)** Geocoded Image Products for Integration into GIS. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Puppo E, Davis L, DeMenthon D, Teng Y A (1992)** Parallel Terrain Triangulation. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 632-641
- Putte R V D (1988)** Farming Systems and Land Use Modelling for Watershed Management. *ITC Journal* 1: 83-90
- Quentin M E, Cluis D (1991)** Un prototype de systeme d'information geographique adapte a la gestion des lisiers de porc. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 1009-1019
- Quinn B G (1991)** The Role of GIS in Organizational Goal Attainment. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 1-7
- Radermacher F J (1991)** The Importance of Metaknowledge for Environmental Information Systems. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 35-44, Vol 525
- Rado B Q, Bury A S., Smith C C. (1991)** Raster-vector integration: Real-World Solutions. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 166-172
- Rado B Q, Sperry S L, Smith C C (1991)** Raster-Vector integration: case study examples of urban, wetlands and regional studies. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 914-919
- Radwan M M, Suharto P (1984)** Integrated Digital Techniques for Development of a Geographic Information System in Indonesia. *ITC Journal* 3: 200-205
- Raggam J, Almer A (1991)** A multi-sensor stereo mapping experiment. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 173-182
- Raggam J, Strobl D, Almer A (1991)** High precision geocoding of remote sensing data of high relief terrain. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 183-192
- Rains M T (1987)** The Role of GIS in Spatial Resource Information Management: A Forest Service Perspective. *GIS '87, San Francisco, California*. ASP&RS, pp 111-121
- Ralston B A, Zhu Z (1991)** Interfacing Stand Alone Transport Analysis Software with GIS. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 209-218
- Ramirez J R (1991)** Understanding Universal Exchange Formats. *Photogrammetric Engineering and Remote Sensing* 57(1): 89-92
- Rao A P J D (1991)** Catchment Modelling of Surface Runoff and Soil Erosion Using GIS Technology. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 91-108
- Raper J (ed)** *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, Volumes
- Raper J F (1989)** The 3-dimensional geoscientific mapping and modelling system: a conceptual design. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 11-20
- Raper J (1991)** Spatial data exploration use in hypertext techniques. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 920-928
- Raper J, Connolly T, Livingstone D (1992)** Embedding Spatial Analysis in Multimedia Courseware. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1232-1237
- Raper J F (1991)** User interfaces. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 102-114, Vol 1
- Raper J F, Bundock M S (1991)** UGIX: A GIS Independent User Interface Environment. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 275-295
- Raper J F, Bundock M S (1991)** UGIX: A Layer Based Model For A GIS User Interface. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 449-476

- Raper J F, Green N P A** (1989) The Further Development of GIST: Creating an On-Line Helper for Spatial Data Processing. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 601-610
- Raper J F, Kelk B** (1991) Three-dimensional GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 299-317, Vol 1
- Rase W D** (1987) The evolution of a graduated symbol software package in a changing graphics environment. *International Journal of Geographical Information Systems* 1(1): 51-66
- Rase W D** (1991) Computer-Assisted Map Design. In: Muller J C (ed) *Advances in Cartography.* Elsevier Applied Science, London, pp 181-200
- Raveneau J-L, Miller M, Brousseau Y, Dufour C** (1991) Micro-Atlases and the Diffusion of Geographic Information: An Experiment with HyperCard. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography.* Pergamon Press, Oxford, pp 201-224
- Read J, Raber B R** (1989) Developing a Cost Effective Multi-Source Base Map for Forest Management Applications. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 211-220
- Real C R, Yoha R E** (1991) California's New Seismic Hazards Mapping Act: Implications for Technology and Policy. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 197-210
- Rector J M** (1990) An AM/FM Success Story: Southern Bell. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 541-546
- Reddingius N R, Finegold L S** (1990) Integrating GIS with Predictive Models. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 289-298
- Reddy R K T, Agterberg F P, Bonham-Carter G F** (1991) Application of GIS Based logistic Models to Base-Metal Potential Mapping in Snow Lake Area, Manitoba. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 607-619
- Reed C N** (1988) A Minimum Set of Criteria for Selecting a Turn-key Geographic Information System: An Update. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 867-872
- Reed M, French D, Feng S S, Knauss W** (1991) Three-Dimensional natural resource damage assessment and coupled geographical information system. *Proceedings of the 1991 National Conference on Hydraulic Engineering, Nashville.* ASCE New York, pp 631-637
- Reek T, Guttman N B** (1989) Climate Information Products Retrieval System. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 636-645
- Reid W B** (1991) The Realities of the Data Conversion Price Quote. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 368-373
- Reid W B** (1992) How to Select the Best Conversion Contractor for Your Project. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 129-138
- Reisinger T W, Kenney D B, Goode K B** (1990) A Spatial Decision Support System for Opportunity Area Analysis on the Jefferson National Forest. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 733-740
- Renez A** (1991) IACG - GIS Research and Education Subcommittees Report. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 244-246
- Reyes C, Negrete M E, Payne C** (1990) SIU: A Geo Topological Information System for the Study of the Urban Structure of Mexico City Metropolitan Area. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 200-208
- Rhind D** (1987) Recent developments in geographical information systems in the U.K. *International Journal of Geographical Information Systems* 1(3): 229-242
- Rhind D** (1988) A GIS research agenda. *International Journal of Geographical Information Systems* 2(1): 23-28
- Rhind D** (1991) Breakthroughs in GIS? A British Perspective. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 284-299
- Rhind D** (1991) Data access, charging and copyright and their implications for GIS. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 929-945
- Rhind D** (1991) Environmental monitoring and prediction . In: Masser I, Blakemore M (eds) *Handling Geographical Information.* Longman Scientific & Technical, Essex, pp 122-147, Vol 1
- Rhind D** (1992) The Information Infrastructure of GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 1-19

- Rhind D, Mounsey H (1990)** *Understanding Geographic Information Systems*. Taylor and Francis, London.
- Rhind D W (1991)** Counting the people: the role of GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 127-137, Vol 2
- Rhind D W, Green N P A (1988)** Design of a geographical information system for a heterogeneous scientific community. *International Journal of Geographical Information Systems* 2(2): 171-190
- Richardson D E, Muller J-C (1991)** Rule selection for small-scale map generalization. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 136-149
- Richason B F, Johnson J (1988)** GIS Application in the Landfill Siting Processing. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 695-703
- Richer O, Chevallier J-J, Belanger L (1991)** Utilisation d'un SIRS pour la planification des coupes forestières en fonction de la préservation de la qualité du paysage. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 181-190
- Riebau A R, Fox D G, Dietrich D L, Mussard D E, Marlatt W E (1986)** Regional Risk Identification Analysis Applicable to Resource Development of H2S-Contaminated Natural Gas Fields in Southwest Wyoming. *Geographic Information Systems Workshop, Atlanta*. American Society for Photogrammetry and Remote Sensing, pp 345-353
- Riekena J (1991)** The CAMAS project: building a computer-assisted management and analysis system for natural resource managers. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 31-35
- Ripple W J, Ulshofer V S (1987)** Expert Systems and Spatial Data Models for Efficient Geographic Data Handling. *Photogrammetric Engineering and Remote Sensing* 10(1431-1433)
- Ris F (1991)** Toward A "Scientific GIS". *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 740-751
- Risinger T W, Davis C J (1987)** Integrating Geographic Information and Decision Support Systems: A Forest Industry Application. *GIS '87, San Francisco, California*. ASP&RS, pp 578-854
- Ritchie J C, Engman E T (1986)** Remotely-Sensed Data for Natural Resource Models. *Environmental Conservation* 13(3): 203-210
- Ritter P (1987)** A Vector-Based Slope and Aspect Generation Algorithm. *Photogrammetric Engineering and Remote Sensing* 53(8): 1109-1111
- Rivamonte L (1992)** A Multimedia Primer for GIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 188-199
- Rivas B T (1991)** Municipal GIS Applications Utilizing Vector and Raster Software on Personal Computers. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 279-285
- Robbins B (1991)** A regional information centre - a "planning supermarket". *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 437-440
- Roberts N (1988)** Using GIS to Target the Market for Financial Institutions. *URPIS 88, The Australasian Urban and Regional Information Systems Association Inc*
- Robinette A (1991)** Land management applications of GIS in the state of Minnesota. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 275-283, Vol 2
- Robinson R, Nagel D (1990)** Land cover Classification of Remotely Sensed Imagery and Conversion to a Vector-Based GIS for the Suwannee River Water Management District. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 219-224
- Robinson V B (1991)** Spatial Query Languages. In: Muller J C (ed) *Advances in Cartography*. Elsevier Applied Science, London, pp 89-112
- Robinson V B, Frank A U (1987)** Expert Systems for Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 53(10): 1435-1441
- Robinson V B, Frank A U, Blaze M A (1986)** Expert Systems and Geographic Information systems: Review and Prospects. *Journal of Surveying Engineering* 112(2): 119-129
- Robinson V B, Frank A U, Karimi H A (1987)** Expert Systems for Geographic Information Systems in Resource Management. *Artificial Intelligence Applications in Natural Resource Management* 1(1): 47-57
- Robinson V B, Miller R, Klesh L (1987)** Technical Issues and the Research Agenda. *International Geographic Information Systems Symposium: The*

- Research Agenda, Arlington Virginia.* National Aeronautics and Space Administration, pp 89-99
- Robinson V B, Zhang G** (1988) Modelling Consistency Preserving Land Database Transactions in a Logic Programming Environment. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 971
- Robson P, Adlam K** (1991) A menu-aided retrieval system (MARS) for use with a relational database management system. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences.* Group D, Loughborough, pp 171-186
- Roessel J W v** (1987) Design of a spatial data structure using the relational normal forms. *International Journal of Geographical Information Systems* 1(1): 33-50
- Rogerson R** (1991) Curriculum materials for advancing the role of GIS in education. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 369-371
- Rogerson R J** (1991) Computer Aided Instruction and GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 254-265
- Rollings N** (1990) Integration of Remotely Sensed Data with Conventional Data Sets using Geographic Information Systems: A Simple Case Study in Mineral Exploration. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia.* Committee of the 5th Australasian Remote Sensing Conference Inc, pp 1176-1180
- Roose A** (1992) GIS Intermediation of Ecological and Economic Systems for Improving Environmental Policy Instruments. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1475-1482
- Roover B d, Watertinckx M** (1991) Spatial modelling and statistics in forest inventory and management: two case studies In GIS. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 946-954
- Ross M A, Schwartz M A, Tara P D** (1991) Groundwater modeling with GIS: An example. *Proceedings of the International Symposium on Ground Water in Practice, Nashville, USA.* ASCE, New York, pp 244-249
- Rossmeissl H J** (1989) The Spatial Data Transfer Standard: A Progress Report. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 699-706
- Roswell C A, Hacker G A** (1991) Status and Description of the Digital Geographic Information Exchange Standard (DIGEST). *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM Interna-
- tional, pp 427-430
- Roth K S** (1991) Practical Problems in Developing Rules for Automated Mapping. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 287-292
- Rowlingson B, Diggle P** (1992) Splancs: Spatial Point Pattern Analysis in S-Plus. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 713-722
- Rudas P** (1992) An Information System for the Subsidiary of the Budapest Electrical Company. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 373-377
- Ruggles C, Newman I** (1991) The MRRL's Meta-Information Retrieval and Access System. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences.* Group D, Loughborough, pp 187-210
- Ruiten A C T v, A H, Janssen J G M** (1991) GIS in forest management education. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1372-1376
- Rundquist D C, Rodekohr D A, Peters A J, Ehrman R L, Di L, Murray G** (1991) Statewide Groundwater-Vulnerability Assessment in Nebraska Using the DRASTIC/GIS Model. *Geocarto International* 2: 51-58
- Ryan T, Masters E** (1991) Spatial Accuracy as a Quality Indicator. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne.* University of Melbourne, pp 175-185
- Ryan T C** (1992) Spatial Decision Support Systems. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 49-59
- Rystedt B** (1991) The Cartographic Workstation. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography.* Pergamon Press, Oxford, pp 61-66
- Saalfeld A** (1987) Technical note: It doesn't make me nearly as CROSS. Some advantages of the point-vector representation of line segments in automated cartography. *International Journal of Geographical Information Systems* 1(4): 379-386
- Saalfeld A** (1988) Conflation: Automated map compilation. *International Journal of Geographical Information Systems* 2(3): 21-23
- Saalfeld A** (1991) New Proximity-preserving Orderings for Spatial Data. *Auto-Carto 10: Technical Papers of*

- the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 59-76
- Saare L, Veskimae O, Meiner A** (1992) Formation of National Environmental GIS in Estonia. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1256-1265
- Sadler G, Hamid A** (1992) Integrated Analytical Tools to Monitor the Urban Environment. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 772-781
- Sadler G J, Barnsley M J, Barr S L** (1991) Information extraction from remotely-sensed images for urban land analysis. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 955-964
- Sadowsky A J** (1991) Starting A GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 485-494
- Sakashita S, Tanaka Y** (1989) Computer-Aided Drawing Conversion (An Interactive Approach to Digitize Maps). *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 578-590
- Sakoda B, Hauk J G** (1991) Detecting Features in Low Resolution Aerial images of City Blocks. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 96-112
- Salazar L A, Estrada R M S, Rechel J L** (1990) Using GIS Technology to Define Wildfire Risk in Morelos Mexico. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 645-653
- Salazar L A, Palmer K E** (1987) Spatial Analysis of Fire Behaviour for Fuel Management Decisionmaking. *GIS '87, San Francisco, California.* ASP&RS, pp 708
- Salazar L A, Power J D** (1988) Three-Dimensional Representations for Fire management Planning: A Demonstration. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 948-960
- Salge F** (1991) Development of Cartographic Databases. In: Muller J C (ed) *Advances in Cartography.* Elsevier Applied Science, London, pp 45-70
- Salge F** (1992) A Geographical Data Interchange Environment for Europe. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1502-1511
- Salge F, Smith N, Ahonen P** (1992) Towards harmonized geographical data for Europe: MEGRIN and the needs for research. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 294-302
- Sambura A, Harris R** (1990) Spatial System Integration. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Samet H** (1990) *The Design and Analysis of Spatial Data Structures.* Addison-Wesley, Reading Massachusetts.
- Samsel T B, Colten C E** (1988) Surface Hydrology and the Accumulation of hazardous Materials on the American Bottoms 1890-1980. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 861-866
- Samulski J C** (1991) Developing a GIS-based storm water analysis model. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 965-974
- Sanders R L Jr.** (1991) Menu, Mouse or Touch? *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 90-97
- Sandquist J** (1990) Defining Target Groups for GIS Product Training. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 532-540
- Sani A P, Gracie G** (1991) Determination of the Optimum Spacing of Control Required for Municipal Mapping. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 26-40
- Sani A P, Robinson V B** (1991) A G-IRDS for Technical Data Management at Airports. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 145-166
- Sarasua W A, Drummond W J** (1991) Role of Geographic Information System Technology in Pavement Management at City and County Levels. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 289-302
- Scarlatos L, Pavlidis T** (1991) Adaptive Hierarchical Triangulation. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 234-246
- Scarpone F L, Lillesand T M, Weiler P R, Seidl L L, MacKenzie M D** (1991) Image processing/GIS instructional laboratory at the beginning of the 1990's. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 193-202
- Scarpone F L, Saleh R A, Kline V M, Armstrong G D** (1990) GIS and DBMS in Ecological Restoration and Management. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 307-313
- Scepan J, Davis F, Blum L L** (1987) A Geographic

- Information System for Managing California Condor Habitat. *GIS '87, San Francisco, California*. ASP&RS, pp 476-486
- Schaller J (1990) Geographical information system applications in environmental impact assessment. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 107-118
- Schaller J (1992) GIS Application for Urban Development and Regional Planning of the City Munich. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1512-1518
- Schans R v d (1990) The WDGM model: a formal systems view on GIS. *International Journal of Geographical Information Systems* 4(3): 20-21
- Schenk T, Ziberstein O (1990) Experiments with a Rule-Based System for Interpreting Linear Map Features. *Photogrammetric Engineering and Remote Sensing* 56(6): 911-917
- Schllichtmann H (1991) Plan Information and its Retrieval in Map Interpretation: The View from Semiotics. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 263-284
- Schmidt M, Schreier H (1991) Quantitative GIS analysis of the forest resources in a mountain watershed in Nepal. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 227-232
- Schneider R, Kriegel H P (1992) Indexing the Spatiotemporal Monitoring of a Polygonal Object. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 200-209
- Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, Volumes
- Scholten H J, Stillwell J C H (1990) Geographical information systems: the emerging requirements. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 3-14
- Schrader D (1991) Linking CAD to PC Databases: A Low Cost Approach to Implementing a Geographic Information System". *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 205-212
- Schreier H, Shah P B, Kennedy G, Brown S (1991) Nepal 2000, A GIS evaluation of the major land resources. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 221-225
- Schreuder P (1991) The role of the agency of the cadastre and the public registers within the framework of the land information policy in the Netherlands. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 975-984
- Schultink G (1987) The CRIES Geographic Information System: An Appropriate Technology Interface for Land Evaluation Land-use Planning and Resource Management. *GIS '87, San Francisco, California*. ASP&RS, pp 710-723
- Schultz K L, Waring M R, Davis B E (1988) Conflict Resolution for Natural Resource Planning and Management. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 639-648
- Schulz K-P, Herzer J, Kampke T, Lamberts J, Muller M, Sokol G (1992) Design and Evaluation of a Groundwater Monitoring Network Using a GIS-Based Model Database. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 814-826
- Schuur J, Erkel F v (1991) Planning planning! *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 985-994
- Schwarz B K (1989) Ambulance Dispatch: Topics Surrounding a Real-Time Application. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 824
- Schweinfurth G (1991) The regio-climate project (reklip) - tasks and organization of the central GEO-Informationsystem. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 995-1104
- Scjreer H, Shah P B, Kennedy G (1990) Evaluating Mountain Watersheds in Nepal Using Micro-GIS. *Mountain Research and Development* 10(2): 151-159
- Scrivens B (1992) The Strategic Alliance Challenge: Balancing Divergent Interests in a Multi-Participant Project. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 45-56
- Seaborn D W (1988) Distributed Processing and Distributed Databases in GIS: Separating Hype from Reality. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 141-144
- Secondini P, Durazzi A, Muzzarilli A, Tarozzi L, Dibona A (1992) The GIS of Garda Lake Community: A Case Study. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 193-205

- Sede M H d, Prelaz-Droux R, Claramunt C, Vidale L** (1992) Development of a Decision Support Tool for Environmental Management: the GERMINAL Project. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1457-1466
- Seeger B** (1991) Performance Comparison of Segment Access Methods Implemented on Top of the Buddy -Tree. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 277-298, Vol 525
- Sely M L, Chang K T** (1987) A Rationale for Considering the Geographic Information System Database an Asset. *GIS '87, San Francisco, California*. ASP&RS, pp 122-127
- Shaffer C, Ursekar M T** (1992) Large Scale Editing and Vector to Raster Conversion Via Quadtree Spatial Indexing. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 505-513
- Shaffer C A, Samet H, Nelson R C** (1990) QUILT: a geographic information system based on quadtrees. *International Journal of Geographical Information Systems* 4(2): 10-11
- Shalaby M T** (1991) GIS in behavioural analysis and activity systems. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1005-1014
- Shanks R, Wang S** (1991) Integrating Digital Orthophotography and GIS: A Software Based Approach to Vector/Raster Processing. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 674-682
- Sharif M, Makarovic B** (1989) Optimizing Progressive and Composite Sampling for DTMs. *ITC Journal* 2: 104-111
- Sharifi M A** (1992) Design of a Decision Support System for Land Use Planning. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 118-126
- Sharma P, Harrison S** (1991) Feasibility and Application of GIS Linked with Economic Models for Natural Resource Policy in Australia". *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 179-191
- Shasko M** (1991) Assessing large-scale slope stability and failure within a GIS. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 319-327
- Shaw D M, Atkinson S F** (1988) GIS Applications for Golden Cheeked Warbler Habitat Description. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 401-406
- Shaw S L** (1989) Design Considerations for a GIS-Based Transportation Network Analysis System. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 20-29
- Shaw S L** (1991) A GIS Approach for the Analysis of Hub and Spoke Structures of Airline Networks. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 199-208
- Shea K S** (1991) Design considerations for an artificially intelligent system. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 3-20
- Shek P** (1992) Making Connections: Enhancing the City of Calgary's Building Permit System. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 127-132
- Shekhar S, Yang T A** (1991) Motion in a Geographical Database System. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 339-360, Vol 525
- Shepherd I D H** (1991) Information integration and GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 337-360, Vol 1
- Shepherd J** (1991) Planning settlements and infrastructure. In: Masser I, Blakemore M (eds) *Handling Geographical Information*. Longman Scientific & Technical, Essex, pp 181-220, Vol 1
- Sherer S, Moulton R J, Pansky T E** (1987) The Pacific Northwest Rivers Study: Development of a Rivers Inventory and Analysis System. *GIS '87, San Francisco, California*. ASP&RS, pp 709
- Shiffer M J** (1991) A Hypermedia Implementation of a Collaborative Planning System. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 121-135
- Shih S F** (1989) Geographical Information system and GOES Image Enhancement in Rainfall Estimation. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 468-477
- Shupe S M, Akhavi M S** (1989) Integration of Remotely Sensed and GIS Data for Mineral Exploration: Halifax Pluton Area, Nova Scotia Canada. *Geocarto International* 3: 49-54
- Shupeng C** (1987) Geographical data handling and

- GIS in China.** *International Journal of Geographical Information Systems* 1(3): 219-228
- Siderelis K C** (1991) Land resource information systems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 261-273, Vol 2
- Siderelis K C, Tribble T N** (1988) Using a Geographic Information System to Prepare a Site Proposal for the Superconducting Super Collider: A Case Study in North Carolina. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 459-468
- Sieber R E** (1991) Assess Employee GIS Perceptions Early--A Simple, Radical, and Cheap Approach to Addressing Management Issues. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 66-77
- Sieg G E, McCollum M P** (1988) Integrating Geographic Information Systems and Decision Support Systems. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 901-910
- Sieg G E, Scrivani J A, Smith J L** (1987) Incorporating GIS Topographic Information in Forest Inventory Estimates. *GIS '87, San Francisco, California*. ASP&RS, pp 423-430
- Silfer A T** (1988) Generating GIS Coverages from Satellite Imagery. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 52-57
- Simmons M** (1990) using Images as a Data Source for a GIS: Two different approaches. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc. pp 885-888
- Simonett O, Turyatunga F, Witt R** (1987) Environmental Database Development for Assessment of Deforestation Soil Erosion Hazards and Crop Suitability: A Joint Uganda-UNEPIGEMSIGRID Case Study. *GIS '87, San Francisco, California*. ASP&RS, pp 544-553
- Simpson H C, Samulski J** (1991) The Use of Network Analysis for Simulating the Movement of Groundwater and Dissolved Organic contaminants. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 620-632
- Singh A** (1991) Mapping and Monitoring of Forest Vegetation Using Satellite Data: The Indian Experience. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 151-168
- Singh R B** (1991) Application of Digital Image Processing and GIS Technology for Land use Mapping and Monitoring Land Degradation hazards in U.P Himalaya. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing*. Geocarto International Centre, Hong Kong, pp 169-178
- Singh R B** (ed) *Environmental Monitoring: Application of Remote Sensing and GIS*. Geocarto International Centre, Hong Kong, Volumes
- Singletary L A, Henry M S, Brooks K R, London J B** (1991) Spatial Economic Impact Analysis of Highway Investment in South Carolina: A Quasi-Experimental Approach Utilizing a Geographic Information System (ARCINFO). *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 294-303
- Sinha A K, Waugh T C** (1988) Aspects of the implementation of the GEOVIEW design. *International Journal of Geographical Information Systems* 2(2): 91-100
- Sither M A** (1991) Spatial Data Transformation: Feature Attribute Conversion Issues and Practical Experience. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 304-312
- Sivan R, Samet H** (1992) Algorithms for Constructing Quadtree Surface Maps. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 361-370
- Sivertun A, Reinelt L E, Castensson R** (1988) A GIS method to aid in non-point source critical area analysis. *International Journal of Geographical Information Systems* 2(4): 365-378
- Skidmore A, Turner B** (1991) A Measure of Vector Map Accuracy. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne*. University of Melbourne, pp 161-174
- Skidmore A K** (1989) A comparison of techniques for calculating gradient and aspect from a gridded digital elevation model. *International Journal of Geographical Information Systems* 3(4): 323-334
- Skidmore A K** (1990) Integrating Remote Sensing and Geographical Information Systems using an Expert System. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc., pp 840-847
- Skidmore A K** (1990) Terrain position as mapped from a gridded digital elevation model. *International Journal of Geographical Information Systems* 4(1)

- Skiles J M** (1988) Tools ad Techniques Used in Scan Conversion of Geographic and Facilities Data. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 58-67
- Skiles J M** (1990) Using Scanning Automated Conversion and Raster Data to Speed GIS Implementation and Lower Cost. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 476-483
- Sklar F H** (1991) Developments in Regional Scale Simulation and Analysis: Case Studies from Coastal Wetland Ecosystems. In: *Singh R B (ed) Environmental Monitoring: Application of Remote Sensing.* Geocarto International Centre, Hong Kong, pp 47-62
- Sklar N L** (1992) Digital Orthoimagery - The Map of the Future. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association,* pp 45-53
- Shiuas R V, Vugt R V** (1988) The Application of Relatively Inexpensive GIS Techniques for Monitoring and Planning of Urban Development in Developing Countries. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 68-80
- Sloan P, Ogleby C L** (1988) A Pilot Geographic Information System for Planning. *URPIS 88, The Australasian Urban and Regional Information Systems Association Inc*
- Sloan T M, Dowers S, Gittings B M, Healey R G, Waugh T C** (1992) Exploring GIS Performance Issues. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 154-165
- Slocum T A, Egbert S L** (1991) Cartographic Data Display. In: *Taylor D R F (ed) Geographic Infomration Systems: The Microcomputer and Modern Cartography.* Pergamon Press, Oxford, pp 167-200
- Smet J d** (1991) Data bases at the National Geographic Institute of Belgium. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1015-1023
- Smith D M S, Foran B D** (1990) RangePack: the Philosophy Underlying the Development of a Microcomputer-Based Decision Support System for Pastoral Land Management. *Journal of Biogeography* (17): 541-546
- Smith D R, Paradis A R** (1989) Three-dimensional GIS for the earth sciences. In: *Raper J (ed) Three dimensional applications in Geographical Information Systems.* Taylor and Francis, London, pp 149-154
- Smith E H** (1991) Creating Digital Road Inventory Maps for the New Brunswick Department of Transportation. *The Canadian Conference on GIS '91 Proceedings, Ottawa,* pp 473-480
- Smith F, McLeod R** (1991) Verification of Estimates of Accuracy Within Existing Spatial Data Bases Using GPS. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne.* University of Melbourne, pp 146-160
- Smith F K** (1990) GIS and Marketing Research: Merging the Who with the Where. *Aurisa 90, The Australasian Urban and Regional Information Systems Association Inc*
- Smith G, Masters E** (1991) Geographic Information System Selection Issues for the Organisation. *Aurisa 91, Wellington New Zealand.* The Australasian Urban and Regional Information Systems Association, pp 106-117
- Smith G R, Honeycutt D M** (1987) Geographic Data Uncertainty, Decision Making and the Value of Information. *GIS '87, San Francisco, California.* ASP&RS, pp 300-312
- Smith J L, Prisley S P** (1987) Positioning GIS in the Management Hierarchy: The Forestry Experience. *GIS '87, San Francisco, California.* ASP&RS, pp 38-45
- Smith J L, Prisley S P, Weih R C** (1991) Considering the Effect of Spatial Data Variability on the Outcomes of Forest Management Decisions. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 286-292
- Smith L, Eden R** (1989) GIS and Natural Resource Management: The Murray-Darling Basin. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Smith R, Wellar B** (1992) A Progress Report on Public Policy Objectives Achieved Through IS/GIS/LIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association,* pp 117-144
- Smith S** (1991) Integrated national land resource coverage: New Zealand experiences W. McDonald. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 277-283
- Smith S M, Schreier H, Wiart R** (1987) Agricultural Field Management with Microcomputer-Based GIS and Image Analysis Systems. *GIS '87, San Francisco, California.* ASP&RS, pp 585-594
- Smith T** (1992) Towards a Logic-Based Language for Modeling and Database Support in Spatio-Temporal

- Domains.** *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 592-601
- Smith T, Peuquet D, Menon S, Agarwal P (1987)** KBGIS-11: A knowledge-based geographical information system. *International Journal of Geographical Information Systems* 1(2): 149-172
- Smith T R, Menon S, Star J L, Estes J E (1987)** Requirements and principles for the implementation and construction of large-scale geographic information systems. *International Journal of Geographical Information Systems* 1(1): 13-32
- Smith T R, Yang J (1991)** Knowledge-based approaches in GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 413-425, Vol 1
- Smyth C (1992)** Route Planning in Time and Space. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1197-1206
- Smyth S (1992)** A Representational Framework for Route Planning in Space and Time. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 692-701
- Sobel J (1990)** Principal components of the Census Bureau's TIGER File. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 112-119
- Somers R (1987)** Development of a Multipurpose Local Government GIS. *GIS '87, San Francisco, California.* ASP&RS, pp 410-415
- Somers R (1987)** Geographic Information Systems in Local Government: A Commentary. *Photogrammetric Engineering and Remote Sensing* 53(10): 1379-1382
- Sondheim M, Menes R (1991)** General framework for geomatics data exchange. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 77-82
- Sonne B (1992)** The Progress of GIS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 9-18
- Sonnenburg D (1988)** The Role of the Legal Land Parcel in Land Information Systems/Land Information Management. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 152-158
- Sousa E, Arseneau B (1992)** Digital Property Mapping in New Brunswick. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 92-99
- Sowton M (1991)** Development of GIS-related activities at the Ordnance Survey. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 23-38, Vol 2
- Speir L, Hawkins R B (1991)** Visualisation of the Quality of Digital Bathymetric Data to Expedite Data Integration. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 579
- Spencer D H (1991)** COGO and Control: Achieving Base Map Accuracy in the American West. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 102-109
- Spencer R, Menard R D (1989)** Integrating Raster/Vector Technology in a Geographic Information System. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 1-8
- Sperry S L, Novak K (1992)** Integrating Digital Photogrammetry and GIS. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 36-44
- Spollen J F, Naik S (1992)** Comparison of GIS Data Base Development on UNIX Workstation and PC-DOS Hardware Platforms. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 151-156
- Staff L E, Anderson K E (1991)** A USGS perspective on GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 11-22, Vol 2
- Stage D, Riney C (1991)** A Consensus Group Methodology. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 118-126
- Star J, Estes J E (1990)** *Geographic Information Systems: an introduction.* Prentice Hall, Englewood Cliffs New Jersey,
- Star J L (1987)** BROWSE Capability for Spatial Databases. *GIS '87, San Francisco, California.* ASP&RS, pp 196-205
- Star J L, Estes J E, Davis F (1991)** Geographic Information Systems and Remote Sensing Future Computing Environment. *Photogrammetric Engineering and Remote Sensing* 57(6): 655-668
- Stark A, Eder K (1992)** Photogrammetric Acquisition of Landscape Information for a Planning Information System for Land Consolidation. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 503-512

- Starr L E** (1990) USGS National Mapping Division: Preparing for the Twenty-First Century. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 872-881
- Steenberghen T** (1991) Automating data input for a surface hydraulics model using GIS. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1024-1028
- Steenberghen T** (1991) A postmining land use plan for the grimes county lignite mine, Texas. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1029-1037
- Steenberghen T, Desager L, Korsmit J, Albrechts L** (1992) An Information System for the Booster Programme Transportation and Mobility, Belgium. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 513-520
- Steffenson J R** (1987) Application of a Geographic Information System to Design a Vegetation Resource Inventory. *GIS '87, San Francisco, California.* ASP&RS, pp 431-439
- Steger W** (1992) Information Systems Inputs to Policies: 1977 Revisited. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 106-116
- Steger W A** (1991) Global Warming and Geographic Information: An Assessment. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 66-78
- Steinborn W, Pfeiffer B, Schlichter D** (1992) Aims of the International Space Year 1992 and Introduction into a Related World Conference in Munich. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1129-1130
- Stenback J M** (1987) Application of Remotely Sensed Digital Data and a GIS in Evaluating Deer Habitat Suitability on the Tehama Deer Winter Range. *GIS '87, San Francisco, California.* ASP&RS, pp 440-445
- Stephens V** (1987) Land Information Systems Status Report: Northern Territory. *URPIS 87,* The Australasian Urban and Regional Information Systems Association Inc
- Stephens V** (1988) Getting it Together: The Northern Territory Land Information System. *URPIS 88,* The Australasian Urban and Regional Information Systems Association Inc
- Steyaert L T** (1991) Global Change Opportunities for GIS. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 128-129
- Stobbs J, Fisher E M, Raver K P** (1990) Development of a Southern California Public/Private Sector GIS.
- GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 741-748
- Stokes M J** (1990) Some Operational Considerations when Selecting a GIS. *Aurisa 90,* The Australasian Urban and Regional Information Systems Association Inc
- Stoms D M** (1987) Reasoning with Uncertainty in Intelligent Geographic Information Systems. *GIS '87, San Francisco, California.* ASP&RS, pp 693-700
- Stoms D M, Davis F W, Cogan C B, Painho M O, Duncan B W, Scepan J** (1990) Sensitivity of Habitat Models to Uncertainties in GIS Data: A California Condor Case Study. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 69-78
- Stone H F, Boyle S L, Hewitt M J** (1990) Development of an EPA Quality Assurance Program for Geographic Information Systems and Spatial Analysis. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 814-819
- Stout L P, Avey C M** (1990) We Needed Maps: We Built a GIS. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 88-96
- Stover F L** (1990) GIS/LIS '90 Opening Session Comments. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 848-850
- Stow D, Westmoreland S, McKinsey D, Mertz F, Nathanson J, Sperry S, Nagel D** (1990) Efficient Creation Correction and updating of Vector-Coded GIS Coverage Using Remotely Sensed Data. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 209-218
- Straaten D v, Boeye D** (1991) Structure analysis of a marsh vegetation using GIS-database. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1038-1045
- Strobl J** (1992) Comprehensive GIS Support for Managing Forest Resources. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 968-977
- Strong W R, Holland P** (1989) The North Alabama Geographic Information System. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 323-328
- Strong W R, Lenz E D** (1988) The Shoals Industrial Development Information System. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 490-497
- Stuart A** (1992) The Local Government Connection in a 'Nodal Approach' to Land Information Administration:

- South Australia Revisited. URISA 1992 Annual Conference Proceedings, Washington, D. C.** Urban and Regional Information Systems Association, pp 100-108
- Stuart N** (1990) Quadtree GIS: Pragmatics for the Present Prospects for the Future. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 373-382
- Stuart N** (1992) Experiences from Redesigning an Established Course of GIS Education and Training. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 48-57
- Stumpf K** (1991) The integration of resource inventory field data and thematic spatial databases. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 59-65
- Su H, Kanemasu E T, Ransom M D, Yang S S** (1990) Separability of Soils in a Tallgrass Prairie Using SPOT and DEM Data. *Remote Sensing and Environment* 33: 157-163
- Sugarbaker L** (1991) A corporate perspective for treating data as an asset . *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 139-140
- Sui D Z** (1990) A Fuzzy Mathematical Modelling Technique and its Implementation in Geographic Information System: Toward a Fuzzy Cartographic Modelling Technique. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 234-243
- Sullivan J G** (1988) Survey of Computerized Land Information Systems: Teaching an Interdisciplinary Introduction. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 515-527
- Sullivan J G, Chow A L K** (1990) The Wisconsin Legislative Redistricting Project; Design Interface, Training and Policy Issues. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 26-41
- Sullivan S, Miller C** (1991) GIS training and education - the need for a new approach. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 361-367
- Sun C H** (1989) Development of the National Geographic Information System in Taiwan. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 270-275
- Suparman A** (1989) Data Structure for Fragmented Spatial Information. *URPI 89*, The Australasian Urban and Regional Information Systems Association Inc
- Suryana N** (1992) The Use of a Basic Mapping Unit and an Inductive Erosion Model (EIM) in Geographical Information Systems (GIS). *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1012-1021
- Sussman R, Bloom G** (1991) Municipal GIS: Comparing the Regional Municipality to the Local Municipality. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 65-77
- Svensson P, Zhexue H** (1991) Geo-SAL: A Query Language for Spatial Data Analysis. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 119-142, Vol 525
- Svetlichny A, Egorkin I, Shvebs G, Lisetsky E** (1992) Object-Oriented Approach in Designing Optimal Agrolandscape based upon GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 423-430
- Szymanski W J** (1991) Accomplishing an Uninterrupted Transition and Phase-in of a New GIS: Issues, Concerns and Strategy. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 52-59
- Szymanski W J** (1991) GIS Applications Software in an "Open Systems" Environment: How Standard Is It? *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 418-426
- Taib A K, Trinder J C** (1991) LIS/GIS Data Acquisition By Photogrammetry. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 362-371
- Tamim N** (1992) Upgrading Boundary Information Obtained from Digitized Tax Maps for the Purpose of Creating a Digital Cadastral Overlay. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 46-57
- Tamm-Daniels F L** (1991) The integration of real time sensors into an urban GIS. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 203-207
- Tang L** (1992) Automatic Extraction of Specific Geomorphological Elements from Contours. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 554-566
- Tappan G G, Moore D G, Knausenberger W I** (1991) Monitoring grasshopper and locust habitats in Sahelian Africa using GIS and remote sensing technology. *International Journal of Geographical Information Systems* 5(1): 123-136

- Tarr A C, Crane M P** (1988) Application of GIS technology to assessment of seismic hazards in the Pacific Northwest. *GIS: Integrating technology and geoscience applications, Denver, Colorado*. NAS, Washington, pp 128-129
- Taupier R, Terner M** (1991) MassGIS: A Case Study of the Massachusetts Environmental/Geographic Information System. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 87-96
- Taylor D R F** (1991) Geographic Information Systems: The Microcomputer and Modern Cartography. In: Taylor D R F (ed) *Geographic Information Systems: The Microcomputer and Modern Cartography*. Pergamon Press, Oxford, pp 1-20
- Taylor D R F** (1991) GIS and developing nations. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 71-84, Vol 2
- Taylor R W, McDonald D L** (1989) GIS Techniques Applied to Spatial Analysis of Crime in the City of Dallas, Texas: Preliminary Findings. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 171-180
- Tayman J** (1992) An Evaluation of Subcounty Population Forecasts. *URISA 1992 Annual Conference Proceedings, Washington*, D. C. Urban and Regional Information Systems Association, pp 172-181
- Teefelen P B M v** (1991) Analyzing interaction data with GIS techniques on developing countries: the use of "FlowMap" in Mali and Mexico. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1058-1066
- Tellhorn T, Nash T L** (1987) A Framework for the Classification of Structures: Preliminary Discussion. *GIS '87, San Francisco, California*. ASP&RS, pp 313-322
- Teng A T** (1991) Building geographic data bases with input from Federal digital data files. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 208-216
- Tenke T** (1992) The Planning of a Section of the Motorway Ring-Road around Budapest. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 346-350
- Terp J A** (1991) Public Awareness Forming a Consortium that Works. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 109-117
- Theobald D M, Goodchild M F** (1990) Artefacts of Tin-Based Surface Flow Modelling. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 955
- Theriault M** (1991) Lambert: Logiciel de projection cartographique . *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 509-520
- Theriault M, Hebert D, Miller M** (1991) La localisation des entreprises commerciales et des services sur le territoire. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 41-52
- Thibodeau P M** (1992) Applications for a Bathymetric Map of Lake Champlain. *URISA 1992 Annual Conference Proceedings, Washington*, D. C. Urban and Regional Information Systems Association, pp 241-250
- Thomas E J** (1992) Appraisal Data Linked to Digital Maps: Realizing Benefits For the Appraiser's Office and Beyond. *URISA 1992 Annual Conference Proceedings, Washington*, D. C. Urban and Regional Information Systems Association, pp 97-110
- Thompson P** (1991) A corporate GIS prototype. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 377-381
- Thompson R M** (1992) Security Policy, Requirements, and Verification. *URISA 1992 Annual Conference Proceedings, Washington*, D. C. Urban and Regional Information Systems Association, pp 157-165
- Thorpe J A, Gilbert D M** (1987) AM/FM Requirements of Geographic Information Systems: A Commentary. *Photogrammetric Engineering and Remote Sensing* 53(10): 1403-1404
- Thwaites P A, Benwell G L** (1989) The Changing Worlds of Geographic Information Systems. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Tianhe C, Jianbang H, Wei Z** (1991) Research on Loess Plateau Information System. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1067-1077
- Tiel R M E v, Schalkwijk J H, Henkes E J** (1991) BOBIS, all environmental decision support system. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1078-1084
- Tikunov V** (1992) Teaching of Geoinformatics in Moscow University. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 606-609
- Tobin R, Lomas R A** (1991) GIS for fire brigade management. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1085-1092
- Tobin R, Lomas R A** (1991) The Use of GIS in the Irish Computer-Aided Mobilization Project (CAMP) for the Fire Service. *Proceedings of EGIS '91, Brussels*.

- EGIS Foundation, pp 1093-1105
- Tobler W** (1990) GIS Transformations. *GIS/LIS '90, Anaheim California.* ASP&RS, AAG, URPIS and AM/FM International, pp 163-166
- Tolles I** (1992) Setting Prices - How the Private Sector Does It. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 33-44
- Tomlin C D** (1990) *Geographic Information Systems and Cartographic Modelling*. Prentice Hall, Englewood Cliffs New Jersey.
- Tomlin C D** (1991) Cartographic modelling. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 361-374, Vol 1
- Tomlin C D, Johnston K M** (1990) An experiment in land-use allocation with a geographic information system. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 159-169
- Tomlinson R F** (1987) Current and potential uses of geographical information systems: The North American experience. *International Journal of Geographical Information Systems* 1(3): 203-218
- Tomlinson R F** (1990) Current and potential uses of geographic information systems: the North American experience. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 142-158
- Tomlinson R F** (1990) Geographic Information Systems - a new frontier. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 18-29
- Toppen F** (1992) Teaching GIS in Human Geography: What Kind of Knowledge Do we Aim at? *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 74-83
- Toppen F J** (1991) GIS knowledge and skills: supply and demand in the Netherlands. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1106-1114
- Tosta N, Croswell P** (1992) The Effects of "Policies" on the Implementation and Use of Information Technology. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 272-289
- Tosta N, Green K** (1988) Analysis of Land Use Pressures Resulting from the Interaction of Spatial Factors in Rural California Counties. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 660-664
- Townshend J R G** (1991) Environmental databases and GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 201-216, Vol 2
- Tracey T** (1991) Oil and gas well drill site location analysis in the Targhee National Forest, Idaho, using a GIS. *GIS '91 Symposium Proceedings, Vancouver. Forestry Canada*, pp 177-180
- Trone D L** (1991) Integrating Flight and Photographic Data Into the GIS/Map Database. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 828-833
- Trotter C M** (1990) Geographical Information Systems and Image Data. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 75-87
- Tsai V J D, Vonderheide A P** (1991) A Generalised Algorithm for the Construction of Delaunay Triangulations in Euclidean n-Space. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 562-571
- Tschudi M K** (1988) A Technique for Viewing a Large Digital Map Background. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 91-99
- Tschudi M K** (1990) New Life for Map Videodiscs. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 547-554
- Tsui M, Forbes J K** (1992) Regulation Meltdown: A Decision Support Prototype in Planning Monterey County, California. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 24-29
- Tucker D F, Devine H A** (1988) GIS Education: Eclectic Integrated and Evolving. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 528-540
- Tucker D F, Devine H A** (1991) Integration of GIS in Natural Resource Education. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 314-323
- Tucker D F, Whitman R L, Devine H A** (1990) Spatial and Temporal Dimensions of Water Quality at Indiana Dunes National Lakeshore. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 654-662
- Tudhope R L** (1991) Ontario Hydro Pilot Project Using Airborne GPS and Lasers to Develop Ground Terrain. *The Canadian Conference on GIS '91 Proceed-*

- ings, Ottawa*, pp 1057-1068
- Tuladhar A M, Makarovic B** (1988) Upgrading DTMs from Contour Lines using photogrammetric Selective Sampling. *ITC Journal* 4: 339-344
- Tunstall B R** (1990) Construction of a Large Scale GIS in Catchment Modelling. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 889-892
- Turk A G, Williamson I P** (1987) Integrating Land and Geographic Information Systems in Victoria: The Challenges. *URPIS 87*, The Australasian Urban and Regional Information Systems Association Inc
- Turkstra J** (1991) An Application of GIS to townplanning. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1115-1125
- Turner A K** (1989) The role of three-dimensional geographic information systems in subsurface characterization for hydrogeological applications. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 115-128
- Turner A K, Kolm K E** (1991) Three-dimensional Geoscientific Information Systems for Ground-water Modeling. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 217-226
- Turner A K, Valenzuela C R, Meijerik A M J** (1988) The design and application of a PC-based GIS for integrated assessment of environmental hazards in developing countries. *GIS: Integrating technology and geoscience applications, Denver, Colorado*. NAS, Washington, pp 146-147
- Turner H** (1988) Real-time data collection quality assurance models in three-dimensional spatial information systems. *International Journal of Geographical Information Systems* 2(4): 295-306
- Turner J T** (1991) The answer to GIS data services in the raster/vector integration race. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1126-1135
- Turner M G** (1990) Landscape Changes in Nine Rural Countries in Georgia. *Photogrammetric Engineering and Remote Sensing* 56(3): 379-386
- UIterwijk U, Holsmuller F** (1991) GIS as an integrator. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1136-1145
- Unger J D, Liberty L M, Phillips J D, Wright B E** (1989) Creating a 3-dimensional transect of the earth's crust from craton to ocean basin across the N. Appalachian Orogen. In: Raper J (ed) *Three dimensional applications in Geographical Information Systems*. Taylor and Francis, London, pp 137-148
- Unwin D J** (1990) A syllabus for teaching geographical information systems. *International Journal of Geographical Information Systems* 4(4): 457-466
- Unwin D J** (1991) The academic setting of GIS. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 81-90, Vol 1
- Ursery E L, Altheide P, Deister R R P, Barr D J** (1988) Knowledge-Based GIS Techniques Applied to Geological Engineering. *Photogrammetric Engineering and Remote Sensing* 54(11): 1623-1628
- Usery E L** (1991) Stereo display techniques for GIS. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 227-236
- Usery E L, Norton J S** (1991) Large-Format Hardcopy Display of TM, DLG, and DEM Data in Three Dimension. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 170-176
- Uvyn G, Eynde P V** (1991) Implementing a total solution: basic large scale map, facilities management, GIS for municipalities. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1146-1155
- Vandenbroucke D, Orshoven J V** (1991) From soil map to land information system using GIS. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1156-1164
- Vandeneede J, Zhang D, Wambacq P, Oosterlinck A** (1991) A Classification Scheme Integrating Multispectral and Textural Measures. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1165-1168
- VanDerVlugt M** (1989) The Use of a GIS Based Decision Support System in Physical Planning. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 459-467
- Vanecek G, Ferrucci V** (1991) A Spatial Index for Convex Simplicial Complexes in d Dimensions. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 361-380, Vol 525
- Vanzella L, Cabay S** (1988) Hybrid Spatial Data Structures. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 360-372
- Varanka D** (1991) An Approach to Map/Text Interrelationships. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space*:

*An Introduction.* Kluwer Academic, Dordrecht, pp 285-294

**Vasile C, Cristescu D, Savulescu C (1989)** The development and state of the art of GIS in Romania. *International Journal of Geographical Information Systems* 3(2): 185-190

**Vasile C, Kovari D, Petrescu F, Costake N (1992)** GIS Our Approach to Urban Planning in Romania. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 264-267

**Vatasan R N (1990)** Environmental Monitoring with the help of low cost aerial photography in Papua New Guinea. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia.* Committee of the 5th Australasian Remote Sensing Conference Inc, pp 609-614

**Veen A A v d (1991)** A datamodel for environment and health. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1169-1178

**Veen A v d (1992)** GIS Awareness in Epidemiology and Environmental Health Studies. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1381-1391

**Veenendaal A (1990)** Sharing GIS Data in Networked Environment. *Aurisa 90,* The Australasian Urban and Regional Information Systems Association Inc

**Veer J v d, Slijkhuis J S A, Janssen J G M (1991)** Image processing and GIS at Larenstein. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1378-????

**Velden H E t, Kreuwel G (1990)** A geographical information system based decision support system for environmental zoning. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 119-128

**Velden H E t, Lingen M v (1990)** Geographical information systems and visualization. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning.* Kluwer Academic Publishers, Dordrecht, pp 229-240

**Ventura S J (1988)** Conversion of Automated Geographic Data to Decision Making Information. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 649-659

**Ventura S J (1989)** Framework for Evaluating GIS Implementation. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 825

**Ventura S J (1990)** Conversion of Automated Geographic Data to Decision-Making Information.

*Photogrammetric Engineering and Remote Sensing* 56(4): 511-516

**Ventura S J (1990)** Report: Federal Land and Geographic Information System Activities. *Photogrammetric Engineering and Remote Sensing* 56(5): 631-634

**Ventura S J, Sullivan J G (1992)** Comments on GIS Education and Training, with Notes on the University of Wisconsin-Madison. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 166-175

**Venugopal G, Dutt A K, Turcottee K M (1991)** The Effects of Rabi Crop and Other Vegetation Cover on NOAA AVHRR NDVI in the Middle Ganges Plains of India and its Adjacent Areas. In: Singh R B (ed) *Environmental Monitoring: Application of Remote Sensing.* Geocarto International Centre, Hong Kong, pp 121-136

**Verbakel A, Pedroli B, Broek M V D, Amstel A V (1984)** Modelling the Effects of Proposed Land Use Changes. *ITC Journal* 4: 269-284

**Verbyla D (1991)** Potential use of GISs in local climate warming forest research. *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 345-347

**Verkuijlen E, Uitzinger J (1992)** Design of a District Heating Network in Amsterdam-West. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1417-1425

**Verstappen H T (1987)** Remote Sensing Applications of the Earth's Surface: An Outlook into the Future. *Photogrammetria* 41: 59-71

**Vieux B E, Bralts V F, Kittleson K (1986)** Hydrologic Modelling Using Remote Sensing Geographic Information systems and The Finite Element Method. *Twentieth International Symposium on Remote Sensing of Environment, Nairobi.* , pp 731-742

**Vijlbrief T, Oosterom P v (1992)** The GEO++ System: an Extensive GIS. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston.* IGU Commission of GIS, pp 40-50

**Vincent P, Gatrell A (1991)** The spatial distribution of radon gas in Lancashire (UK) a kriging study. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1179-1186

**Visser J A. C. (1991)** Digitizing for the presentation of data in vector-form in a scanned map on the base of automatic vectorization and pixels. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1187-1198

**Voisard A (1991)** Towards a Toolbox for Geographic

- User Interfaces. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 75-98, Vol 525
- Vorobiev B, Kostrikov S** (1992) The Structural Approach to the Making Topographic GIS: Main Ideas and Realization. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1304-1313
- Vrana R** (1989) Historical data as an explicit component of land information systems. *International Journal of Geographical Information Systems* 3(1): 3-4
- Vrana R** (1990) Historical data as an explicit component of land information systems. In: Peuquet D J, Marble D F (eds) *Introductory readings in Geographic Information Systems*. Taylor and Francis, London, pp 286-302
- Vysoudil M** (1992) The Topoclimatic Map by Integrated Use of GIS Subsystems. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1008-1011
- Wachnian J S** (1992) An Emergency Services (E-911) Dispatching System with Integrated Mapping on a Low Cost PC/LAN Platform. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 188-199
- Wadge G** (1988) The potential of GIS modelling of gravity flows and slope instabilities. *International Journal of Geographical Information Systems* 2(2): 143-152
- Wadge G, Wislocki A P, Pearson E J** (1991) Spatial analysis in GIS for natural hazard assessment. *First International Conference/Workshop on Integrating Geographic Information Systems & Environmental Modelling, Boulder, Colorado*. , pp 14
- Wadlow R F** (1991) System Specifications and Planning for Spatial Information. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 90-97
- Wagner D F** (1992) Synthetic Test Design for Systematic Evaluation of Geographic Information Systems Performance. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 166-177
- Wakeley R R** (1987) GIS and Weyerhaeuser: 20 Years Experience. *GIS '87, San Francisco, California*. ASP&RS, pp 446-455
- Walker C A, Parvey P A** (1989) Integrating GIS Technologies and Data Systems. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Walker D, Newman I, Ruggles C, Medyckyj-Scott D** (1992) Tiling Over Space: A Formal Method for Identifying Spatial Constraints in Information Retrieval. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1614-1623
- Walker P A** (1991) Spatial Exploration Systems for Natural Resource/Environmental Problems. *Aurisa 91, Wellington New Zealand*. The Australasian Urban and Regional Information Systems Association, pp 153-169
- Walker P A, Moore D M** (1988) SIMPLE: An inductive modelling and mapping tool for spatially-oriented data. *International Journal of Geographical Information Systems* 2(4): 347-364
- Walker P A, Parvey C A** (1988) Its SIMPLE: Problem Solving using Inductive Learning and a GIS. *URPIS 88, The Australasian Urban and Regional Information Systems Association Inc*
- Walklet D C** (1991) The Economics of GIS: Understanding the Economic Motivation and Requirements which justify the use of GIS as a Practical Solution for Environmental and Resource Planners. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 643-647
- Wallace T, Clark S R** (1988) Raster and Vector Data Integration: Past Techniques Current Capabilities and Future Trends. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 418-426
- Wally M, Gong P, Howarth P J** (1991) Thematic Mapping from Imagery: An Aspect of Automated Map Generalization. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 123-1322
- Walsh S J** (1985) Geographic Information Systems for Natural Resource Management. *Journal of Soil and Water Conservation* : 202-205
- Walsh S J** (1988) On Error in GIS: Authors Reply. *Photogrammetric Engineering and Remote Sensing* 54(3): 343-344
- Walsh S J, Butler D R** (1989) Spatial Pattern of Snow Avalanche Path Location and Morphometry, Glacier National park Montana. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 286-294
- Walsh S J, Butler D R, Brown D G, Bian L** (1990) Cartographic Modelling of Snow Avalanche Path Location within Glacier National Park. *Photogrammetric Engineering and Remote Sensing* 56(5): 615-621
- Walsh S J, Cooper W, Essen I E V, Gallager K R**

- (1990) Image Enhancement of Landsat Thematic Mapper Data and GIS Data Integration for Evaluation of Resource Characteristics. *Photogrammetric Engineering and Remote Sensing* 56(8): 1135-1141
- Walsh S J, Lightfoot D R, Butler D R (1987) Recognition and Assessment of Error in Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 53(10): 1423-1430
- Wang F (1989) Integrating Expert Vision Systems and Spatial Databases by Unifying Knowledge Representation Schemes: Development in Remote Sensing Image Analysis Expert Systems and Geographical Information Systems. University of Waterloo.
- Wang F, Hall G B, Subaryono (1990) Fuzzy information representation and processing in conventional GIS software: database design and application. *International Journal of Geographical Information Systems* 4(3): 23-25
- Wang G X, Luk W-S (1991) Data management issues for GISs. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 115-121
- Wang J C C (1992) GIS Major Data Structures VS. Applications. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 13-24
- Wang Z-s (1992) An Intelligent Interface for Application of Graphic Elements. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 391-400
- Ward B E (1990) user Oriented Format for Topological Vector Data Bases. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 402-412
- Ward B E (1991) Concept of Operations for a Distributed Nautical Library. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 668-673
- Ware A, Kidner D (1991) Parallel implementation of the Delaunay triangulation within a transputer environment. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1199-1208
- Ware C C, Maggio R C (1990) Integration of GIS and Remote Sensing for Monitoring Forest Tree Diseases in Central Texas. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 724-732
- Warkov R J (1990) PC Mapping Technology and Its Impact upon the Non-Traditional GIS Market. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Warren L R (1991) Digital Production System. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 237-244
- Warren S D, Johnson M O, Goran W, Diersing V E (1990) An Automated Objective Procedure for Selecting Representative Field Sample Sites. *Photogrammetric Engineering and Remote Sensing* 56(3): 333-335
- Waters R (1992) Data Capture Planning and Implementation. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1052-1058
- Watson C C Jr. (1992) GIS and Hurricane Planning at the Town of Hilton Head Island, SC. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 180-187
- Watson C C Jr. (1992) A Practical Working Approach to Distributed Processing in Geographic Information Systems. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 144-150
- Waugh T C, Healey R G (1987) The GEOVIEW design: A relational data base approach to geographical data handling. *International Journal of Geographical Information Systems* 1(2): 101-118
- Webber C, Weiss J, Dawson W T (1991) Technological advancement in forest inventory. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 399-403
- Weber C, Esnault D, Hirsch J (1992) Remotely Sensed Indices for Urban Growth Using Low and High Resolution Sensors: Comparison in an Urban Growth Study with ARC/INFO. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 940-944
- Weber C R (1991) A Screen-Reflection Algorithm for Calculating Buffer Distances in Raster Images. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 325-332
- Weber S, Crichton W (1992) New CAD Programming Language Used to Provide Infinite Capacity to a GIS Graphic Information Management System. *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 210-220
- Webster C (1988) Disaggregated GIS architecture: Lessons from recent developments in multi-site database management systems. *International Journal of Geographical Information Systems* 2(1): 67-80
- Webster C (1990) Rule-based spatial search.

*International Journal of Geographical Information Systems* 4(3): 21-22

**Webster C** (1992) Pattern Recognition Techniques for Smart Urban GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 930-939

**Webster C J, Omare C N** (1991) A formal approach to object-oriented spatial database design. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1209-1218

**Webster T** (1991) GIS Capabilities for Geoscience Applications. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 633-645

**Weibel R** (1991) Amplified intelligence and rule-based systems. In: Buttenfield B P, McMaster R B (eds) *Map generalization: Making rules for knowledge representation*. Longman Scientific & Technical, Essex, pp 172-186

**Weibel R, Buttenfield B P** (1988) Map Design for Geographic Information Systems. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 350-359

**Weibel R, Delotto J S** (1988) Automated Terrain Classification for GIS Modelling. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 618-627

**Weibel R, Heller M** (1991) Digital terrain modelling. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications*. Longman, New York, pp 269-297, Vol 1

**Wel F J M v d** (1991) The integration of remote sensed data into a GIS: estimation of the accuracy. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1219-1227

**Welch D M** (1987) Mainframe to Micro: GIS Needs Analysis and Product Selection for End-Users in Canada's National Parks. *GIS '87, San Francisco, California*. ASP&RS, pp 148-155

**Welch R** (1988) Symposium of ISPRS Intercommission III/IV Working Group: Digital Technology for the Integration of Photogrammetric and Remote Sensing Data with LIS/GIS: A Foreword. *Photogrammetric Engineering and Remote Sensing* 54(2): 165

**Welch R, Ehlers M** (1988) LIS/GIS Products and Issues: A Manufacturers Forum. *Photogrammetric Engineering and Remote Sensing* 54(2): 207-210

**Welch R, Remillard M M, Slack R B** (1988) Remote Sensing and Geographic Information System techniques for Aquatic Resource Evaluation. *Photogrammetric Engineering and Remote Sensing* 54(2): 177-185

**Wellar B** (1990) Science Applications Coherence and

GIS: Seizing the Moment. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 854-871

**Wellar B** (1992) Evolution of Information Systems as Essential Infrastructure in Urban and Regional Governments. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 34-41

**Wellar B, Harris B** (1992) Information and Knowledge Bases for Decision-Making: A Progress Report. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 85-105

**Wellar B, Parr D** (1992) IS/GIS Progress in Perspective: The Rationale and Terms of Reference for a Major Bench-Marking. *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 1-14

**Wenderich H** (1992) Planning a Successful Multi-User GIS. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1042-1051

**Wentworth C M, Ellen S D, Mark R K** (1987) Improved Analysis of Regional Engineering Geology Using Geographic Information Systems. *GIS '87, San Francisco, California*. ASP&RS, pp 636-649

**Wesseling C G, Heuvelink G B M** (1991) Semi-automatic evaluation of error propagation. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1228-1237

**Westcott B** (1992) The Vermont Center for Geographic Information, Inc.: A Non-Profit to Support GIS Applications and Education Or a Wolf in Sheep's Clothing? *URISA 1992 Annual Conference Proceedings, Washington, D. C. Urban and Regional Information Systems Association*, pp 133-144

**Westervelt J, Shapiro M** (1990) Using GIS as a Programming Language. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 581-587

**Westmoreland S J, Stow D** (1990) Use of Satellite Imagery and Ancillary Data to Update a Vector Coded Geographic Information System. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 383-391

**Whalley D, Schoolmaster F A** (1989) A GIS Approach to Monitoring the Impacts of Large-Scale Public Developments: The Case of D/FW Airport. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 314-322

- Wheeler D J** (1988) A Look at Model Building with Geographic Information Systems. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 580-589
- Wheeler G L, Sipp E N, Christensen D** (1991) Integrating Microcomputer Based GIS with a Pavement Management System . *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 303-311
- Whwhitehead D C, Hershey R R** (1991) GIS in Social Services: Child Protection in the London Borough of Southwalk. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1238-1240
- White K L, Schornick L, Hoskins E** (1988) HAZMAP: A Computerized Storm Surge Model: a Galveston Bay Area Test. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 571-579
- White K L, Schornick L A** (1988) HAZMAP: A GIS based dynamic hazard predictive model. *GIS; Integrating technology and geoscience applications, Denver, Colorado.* NAS, Washington, pp 132-133
- White M** (1991) Car navigation systems. In: Maguire D J, Goodchild M F, Rhind D W (eds) *Geographical Information Systems: principles and applications.* Longman, New York, pp 115-125, Vol 2
- Wiggins J C, Hartley R P, Higgins M J, Whittaker R J** (1987) Computing aspects of a large geographic information system for the European Community. *International Journal of Geographical Information Systems* 1(1): 77-88
- Wiggins L, Craig W, Langendorf R** (1992) IS/GIS Hardware/Software/Data Features and Capabilities: What's Done, What's On, What's Next? *URISA 1992 Annual Conference Proceedings, Washington, D. C.* Urban and Regional Information Systems Association, pp 59-84
- Wilcox D L** (1990) Concerning 'The economic evaluation of implementing of a GIS'. *International Journal of Geographical Information Systems* 4(2): 20
- Wilkinson G, Folving S, Fullerton K, Megier J** (1992) A Feasibility Study on the Automatic Updating of the CORINE Land Cover Database Using Satellite Imagery in Portugal. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1345-1354
- Wilkinson G G, Burrill A** (1991) Integration of GIS-derived spatial data with satellite imagery for improved land cover mapping using an expert system. *Proceedings of EGIS '91, Brussels.* EGIS Foundation, pp 1241-1249
- Williams B** (1991) The Definition and Description of Data Quality Through Truth in Labeling. *Proceedings of the Symposium on Spatial Database Accuracy, Melbourne.* University of Melbourne, pp 240-251
- Williams C, Brunner W** (1988) Interactive Data Entry Controlled by a Data Model. *GIS/LIS '88, San Antonio, Texas.* ASP&RS; AAG; URISA, pp 731-740
- Williams L E, Shih S F** (1989) Landsat Data and GIS for Land Use Change Assessment in the Florida Everglades. *GIS/LIS '89, Orlando, Florida.* ASPRS, AAG, URPIS, AM/FM International, pp 305-313
- Williamson H D, Eldridge D J** (1990) Estimating Vegetation Cover for Soil Erosion Monitoring using Landsat MSS Data. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia.* Committee of the 5th Australasian Remote Sensing Conference Inc, pp 1146-1150
- Williamson S C, Lindauer I E** (1988) Assessing Rangeland Vegetation Mapping Alternatives for Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 54(5): 615-618
- Wilmersdorf E** (1992) The Implementation of A Multidisciplinary GIS-Network for An Urban Geocommunication System. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1408-1416
- Wilson P M** (1989) Application of a Regional GIS to Environmental Assessment. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Wilson P M** (1991) Taking It to the Streets: GIS on Handheld Computers. *GIS/LIS '91, Atlanta, Georgia.* ASP&RS, AAG, URPIS and AM/FM International, pp 587-592
- Wilson P M, Perkins J B** (1991) Evaluation of the Bay Area Spatial Information System (BASIS) Following the Loma Prieta Earthquake. *URISA Annual Conference Proceedings, San Francisco.* URISA, pp 220-225
- Wind J** (1992) Neighbour Operations in the Map Calculator of ILWIS. *Proceedings of EGIS '92, Munich.* EGIS Foundation, pp 1438-1445
- Winkle P** (1991) Digital forest management: Canfor's experience . *GIS '91 Symposium Proceedings, Vancouver.* Forestry Canada, pp 37-43
- Winslett C, Pearsall R J** (1991) GIS - The Visualization of Tomorrow. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore.* ACSM-ASPRS, pp 333-335
- Winstanley B** (1991) The approach of the ESRC Data Archive's BIROn system to the handling of spatial

- metadata. In: David Medyckyj-Scott I N Clive Ruggles and David Walker (eds) *Metadata in the Geosciences*. Group D, Loughborough, pp 115-122
- Wise S (1988) Using Contents Addressable Filestore for rapid access to a large cartographic data set. *International Journal of Geographical Information Systems* 2(2): 111-120
- Wislocki A, Bentley S P (1991) An Expert System For Landslide Hazard and Risk Assessment. *Computers and Structures* 40(1): 169-172
- Wislocki A P, Wadge G, Pearson E J, Whittow J (1992) Expert System/Geographic Information System Approaches to Planning in Areas of Instability. *The Institute of British Geographers Annual Conference, Swansea*.
- Wolf G W (1991) Characterization of Functions Representing Topographic Surfaces. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 186-204
- Wolf G W (1992) Hydrologic Applications of Weighted Surface Networks. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 567-579
- Wolfaardt P J (1987) Assessment of the Spatial Accuracy of Classified Multispectral Digital Data. *GIS '87, San Francisco, California*. ASP&RS, pp 247-256
- Wolfe M L, Whittaker A D (1990) Object-Oriented Simulation of Hydrologic Progresses. *Application of Geographic Information Systems Simulation Models and Knowledge-Based Systems for Landuse Management*, Virginia Polytechnic Institute and State University, pp 171-181
- Wood S J (1990) Geographic information system development in Tacoma. In: Scholten H J, Stillwell J C H (eds) *Geographical Information Systems for Urban and Regional Planning*. Kluwer Academic Publishers, Dordrecht, pp 77-94
- Woodfin T M, Dignum D (1991) A Pragmatic GIS Database Design to Facilitate Economic Development in Jefferson County, Texas. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 166-178
- Worboys M (1992) A Model for Spatio-Temporal Information. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 602-611
- Worboys M F (1991) The Role of Modal Logics in the Description of a Geographical Information System. In: Mark D M, Frank A U (eds) *Cognitive and Linguistic Aspects of Geographic Space: An Introduction*. Kluwer Academic, Dordrecht, pp 403-414
- Worboys M F, Hearnshaw H M, Maguire D J (1990) Object-oriented data modelling for spatial databases. *International Journal of Geographical Information Systems* 4(4): 369-384
- Wouters W (1992) Aeronautical Information Is Always Out of Date, Better Go by Train? *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1216-1223
- Wright R A, Adair K T, Koleszar F (1991) Economic Resource Information Center (ERIC): A 12-County Regional GIS. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 156-165
- Wright R A, Pearson D (1988) The WODDB Toolbox. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 840-842
- Wright R D (1991) Interfacing GIS Education with Grant and Contract Research. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 467-477
- Wu J-K, Chen T, Yang L (1989) QPF: A versatile query language for a knowledge-based geographical information system. *International Journal of Geographical Information Systems* 3(1): 5
- Wu M-L, Chen Y-P, Lin H-J (1991) Innundation management using a 3-D GIS. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 245-249
- Wu M-L, Yang H-S, Song D-R (1991) Solid modeling of headwater landslides for management of a watershed. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 250-256
- Wu M L, Lin P W, Yang J J (1989) A Three-Dimensional GIS for Management of Yangmingshan National Park. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 329-335
- Wu M L, Shiao J F, Chang L C (1990) Organisational Impacts of a Three-Dimensional Geographic Information System at Taiwan Water and Soil Conservation Bureau. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 663-668
- Wu M L, Yang L C, Chu M H (1989) A Geographic Information System which you can make. *URPIS 89*, The Australasian Urban and Regional Information Systems Association Inc
- Wu S T (1989) A Digital Video and Image Analysis System for GIS/LIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp

- Xia Z-G, Clarke K C, Plews R W** (1991) The Uses and Limitations of Fractal Geometry in Terrain Modeling. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 336-352
- Xiao Q, Raafat H, Gauthier D** (1989) A Temporal/Spatial Database Structure for Remotely Sensed Image Data Management Within GIS. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 116-122
- Xongchao Y** (1988) Water Erosion Risk Assessment and Mapping Based On The Arc/Info Geographic Information System. University of Regina.
- Yamashita M, Kuboki T** (1991) Object-Oriented GIS for Local Government. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 267-275
- Yan J, Lafrance B, Li L, Molnar R, Nadwodny R, Tallon P, Murray S** (1991) New GIS research, Applications and Products for the 1991 Census of Canada. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 772-781
- Yang C, Vidal A** (1990) Combination of Digital Elevation Models with SPOT-1 HRV Multispectral Imagery for Reflectance Factor Mapping. *Remote Sensing and Environment* 32: 35-45
- Yang H, Reinhardt W** (1992) Topological Data Structures for Processing Advanced Application Tasks Using SICAD. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1337-1344
- Yang L, Wu J K** (1989) KGIS: A Knowledge Based GIS. *URPIS 89, The Australasian Urban and Regional Information Systems Association Inc*
- Yang Z, Raafat H, Gauthier D** (1991) A Temporally Oriented Spatial Data Model for GIS. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 571-583
- Yang Z, Sharpe D M** (1991) Design of Buffer Zones for Conservation Areas and a Prototype Spatial Decision Support System (SDSS). *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 60-70
- Yapa L S** (1991) Is GIS appropriate technology? *International Journal of Geographical Information Systems* 5(1): 41-58
- Yazdani P, Friesen P** (1991) Digital information standards: a major step in developing a GIS. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 409-410
- Ye C, Feyen T, Lode H** (1992) Development of a Decision Support System for Irrigation Scheduling Management. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 1022-1031
- Yeh A G O** (1991) The development and applications of geographic information systems for urban and regional planning in the developing countries. *International Journal of Geographical Information Systems* 5(1): 5-28
- Yeli T** (1992) Temporal Aspects of Geographical Databases. *Proceedings of EGIS '92, Munich*. EGIS Foundation, pp 320-328
- Yeorgaroudakis Y** (1991) Visual representation of spatially referenced multimedia objects. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1250-1260
- Yonzon P, Jones R, Fox J** (1991) GIS for assessing habitat and estimating population of red pandas. Langtang National Park, Nepal. *GIS '91 Symposium Proceedings, Vancouver*. Forestry Canada, pp 233-241
- Yoos E R, Sellers J D** (1988) Municipal Recycling Program Design and Management: A Geographic Information System Can Help. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 198-207
- Yost M, Skelton B** (1990) Programming Language Technology for Raster GIS Modelling. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 317-327
- Young J** (1989) Preserving the Future: The National Archives Perspective. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 12-19
- Young O L** (1988) Enhancing Employee Productivity in Geographic Information System Data Entry. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 322-328
- Young O L** (1989) Planing for Quality Control and Managing for Quality Assurance. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 629-635
- Young T N** (1987) Wildlife Habitat Analysis Using Landsat and Radiotelemetry in a GIS with Application to Spotted Owl Preference for Old Growth. *GIS '87, San Francisco, California*. ASP&RS, pp 595-600
- Youngmann C** (1989) Spatial data structures for modelling subsurface features. In: Raper J (ed) *Three dimensional applications in Geographical Information*

- Systems*. Taylor and Francis, London, pp 129-136
- Yue L, Zhang L, Xiaogang C, Yingming Z (1991)** The establishment and application of the geographic mapping database by city/country unit in China. *International Journal of Geographical Information Systems* 5(1): 73-84
- Zeeuw K d, Middelaar H v (1991)** Integrated use of Remote Sensing and hydrological modelling to assist in the hydrological description of the province of Drenthe, the Netherlands. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1261-1270
- Zeiler M N (1988)** On the Selection of GIS Software for Electric Utilities. *GIS/LIS '88, San Antonio, Texas*. ASP&RS; AAG; URISA, pp 628-638
- Zetlan A J (1989)** The Methodology of Prototyping: Shortcut to Success. *GIS/LIS '89, Orlando, Florida*. ASPRS, AAG, URPIS, AM/FM International, pp 620-628
- Zevenbergen M A, Groen J (1991)** High-tech policy making: implementing. GIS in Dutch rural zoning. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1271-1280
- Zhan F (1991)** Structuring the Knowledge of Cartographic Symbolization-- An Object-oriented Approach. *Auto-Carto 10: Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 247-260
- Zhan F, Mark D (1992)** Object-Oriented Spatial Knowledge Representation and Processing: Formalization of Core Classes and Their Relationships. *Proceedings of the 5th International Symposium on Spatial Data Handling, Charleston*. IGU Commission of GIS, pp 662-671
- Zhang A, Siekierska E M, Taylor D R F (1991)** EASSA: An Expert Advisory System for Statistical Analysis for the Electronic Atlas of Canada. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 981-993
- Zhang B (1991)** Forum: Modelling and Evaluating the Effects of Stream Mode Digitizing Errors on Map Variables. *Photogrammetric Engineering and Remote Sensing* 57(12): 1612
- Zhang G (1991)** Estimating the accuracy of areas in simultaneous multilayer spatial overlay. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1281-1290
- Zhang G, Wilkinson S (1990)** Simultaneous Multi-Layer Spatial Overlay. *GIS/LIS '90, Anaheim California*. ASP&RS, AAG, URPIS and AM/FM International, pp 506-515
- Zhou Q (1989)** A Method for Integrating Remote Sensing and Geographic Information Systems. *Photogrammetric Engineering and Remote Sensing* 55(5(1)): 591-596
- Zhou Q, Garner B (1990)** GIS and Remote Sensing: Towards the Better Integration of Data for Land Resource Management. *Aurisa 90*, The Australasian Urban and Regional Information Systems Association Inc
- Zhou Q, Garner B J (1991)** On the Integration for GIS and Remotely Sensed Data: Towards an Integrated System to Handle the Large Volume of Spatial Data. In: Schek O G a H (ed) *2nd Symposium, SSD '91: Advances in Spatial Databases*. Springer-Verlag, Zurich, pp 63-74, Vol 525
- Zhou Q, Milne A K (1990)** Development of a Regional Image-Based Geographical Information System for Rangeland Management. *The Fifth Australasian Remote Sensing Conference, Perth Western Australia*. Committee of the 5th Australasian Remote Sensing Conference Inc, pp 541-547
- Zhou W, Blais J A R (1991)** Performance Analysis in Image Filtering. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 857-865
- Zhou W, Brunner W, Wilkinson S (1991)** Full Integration of Remote Sensing Functionalities Into a Vector Based GIS. *GIS/LIS '91, Atlanta, Georgia*. ASP&RS, AAG, URPIS and AM/FM International, pp 795-804
- Zhou X Y, Davis W A (1991)** A Cognitive Map Model for Geographic Information Systems. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 969-980
- Zhuang X, Engel B A, Baumgardner M F, Swain P H (1991)** Improving Classification of Crop Residues Using Digital Land Ownership Data and Landsat TM Imagery. *Photogrammetric Engineering and Remote Sensing* 57(11): 1487-1492
- Zillmer G (1991)** Implementing GIS Technology: A Management Perspective. *The Canadian Conference on GIS '91 Proceedings, Ottawa*, pp 271-283
- Zinck J A, Valenzuela C R (1991)** Soil geographic database: structure and application example. *Proceedings of EGIS '91, Brussels*. EGIS Foundation, pp 1291-1304
- Zipperer W C, Andersen C G (1991)** Assessment of residential development in a rural community. *Technical Papers of the 1991 ACSM-ASPRS Annual Convention, Baltimore*. ACSM-ASPRS, pp 257-263

**Zwart P (1991) Some Indicators to Measure the Impact of Land Information Systems in Decision Making. *URISA Annual Conference Proceedings, San Francisco*. URISA, pp 77-89**